World Bank

Review of Road Safety Management Capacity in Bulgaria

Final Report

February 2008
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<tr>
<td>8.1</td>
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<tr>
<td>8.2</td>
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- **Appendix A** People met
- **Appendix B** State-Public Consultative Commission (National Commission on Road Safety)
- **Appendix C** Draft Terms of Reference for implementation of the road safety Capacity strengthening projects in Bulgaria
- **Appendix D** National Action Plan - separate document
- **Appendix E** Terms of Reference for this study
Summary and conclusions

This summary presents the main results of the Technical Assistance on Review of Road Safety Management Capacity in Bulgaria awarded to COWI by the World Bank.

Introduction and background

Road safety is a serious and growing problem in Bulgaria. In view of this, the World Bank decided to carry out the prospective study "Review of Road Safety Management Capacity in Bulgaria". According to the TOR the study has the following objectives:

- Review safety management capacity in Bulgaria, in accordance with the operational guidelines set out in World Bank Transport Note TN-1, as revised; and

- Reach consensus with the government and senior officials on a multi-sectoral investment strategy to improve safety management capacity in Bulgaria for inclusion in a forthcoming investment project, and short-term measures to overcome revealed capacity weaknesses, in accordance with the World Bank guidelines.

The main activities of the study include:

- Desk studies: Review of existing relevant data, policy statements, previous road safety studies, laws and regulations and preparation of output
- Consultations: Meetings with government agencies and other relevant stakeholders involved in road safety
- Field visits on approx. 1000-1200 km different type of roads.

The consultant has cooperated with the Bulgarian Government authorities to ensure correlation with other road safety activities within Bulgaria.

Road safety risk

Road safety is now already a very serious problem in Bulgaria. In 2006, 1043 persons died and around 10,215 were injured in road accidents and some may be crippled or disabled for the rest of their lives. This is equivalent to almost 3 fatalities per day due to road traffic accidents or 5 plane crashes per year with medium sized passenger planes.
With close to 125 deaths per 1 million inhabitants, Bulgaria is approx. 2 to 2.5 times above the best performing EU Member States and 10 -12% above the EU average. Although, the Bulgaria fatality rate is lower than in some countries, the level has not decreased since 2000 as it has in the other countries.

Compared to other new member states countries such as Czech Republic and Poland the number of fatalities per 10,000 vehicles is similar, with approx. 3 in Bulgaria, 3.6 in Czech and 2.9 in Poland but compared to West European countries e.g. Denmark and France, it is approximately 2 times higher.

The approx. 5% annual increase in road casualties (fatalities and injuries) during the last 6 years (2001-2006) attests to a dramatic worsening of road safety in Bulgaria. From 2000 – 2005, the number of fatalities has increased by approx. 3% while in comparison it has decreased in all the member states of the European Union by more than 20%. The tendency is even more serious for the number of injuries, as these have increased by more than 27% from 2000 – 2005, and by 20% from 2003 – 2006 alone.

![Development in the number of fatalities and injuries in Bulgaria according to official statistics.](image)

The large amount of accidents and fatalities is also a burden for the health sector in Bulgaria as described in the alarming **World Report** on Road Traffic Injury Prevention\(^1\) which states that in many low-income and middle-income countries (such as Bulgaria), the burden of traffic-related injuries is such that they can represent between 30% and 86% of all trauma admissions.

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\(^1\) World Report on Road Traffic Injury Prevention, WHO and World Bank, 1994
Traffic accidents entail considerable economic losses, making this a development problem as well as a human tragedy. Apart from the human losses these accidents now result in losses to the economy of at least Euro 500 millions/year (based on 2005) and these losses could well be in excess of Euro 1000 millions per year. In just the 6 years period 2000-2005, there have been 5842 deaths and over 52,000 injuries in road accidents resulting in estimated economic losses to the Bulgarian economy of over Euro 2,000 millions. Unless urgent and effective action is taken to reduce the annual toll of deaths and injuries such human and economic losses will continue into the future.

No country however developed can afford to sustain such losses year after year so Bulgaria must address this growing problem by taking the necessary actions to improve road safety.

Capacity management assessment
There is a growing awareness in Bulgaria that road safety is a serious and increasing problem. However, the following main gaps to fulfil a targeted safety strategy in Bulgaria are identified as being:

- lack of a focus on results measurements
- interventions on safety standards and compliance are weak or non-existent
- implementation arrangements are fragmented and ill-coordinated.

<table>
<thead>
<tr>
<th>Element</th>
<th>Problem</th>
</tr>
</thead>
<tbody>
<tr>
<td>Focus on results</td>
<td>There are road safety targets at national level in an attempt to comply with EU casualty reduction targets for 2010 but little chance of achieving these on present trends. There is no disaggregation of targets by sector or intervention.</td>
</tr>
<tr>
<td>Road safety performance targets</td>
<td>There is no local research on accident costs and little awareness of the huge economic losses being sustained.</td>
</tr>
<tr>
<td>Road accident costs</td>
<td>The Roads Safety Commission is responsible for coordinating and managing road safety but has insufficient funds, staff or authority to do it effectively. As a consequence, implementation of its strategy by stakeholders is generally very poor and sporadic at best and there is little or no monitoring or performance measurement.</td>
</tr>
<tr>
<td>Responsibility and coordination of road safety performance</td>
<td>The basic data is reasonable and could permit monitoring of performance but analytical capability is very weak at present because the Police Data system software permits only administrative tables to be produced. Anything more requires laborious and time consuming manual analyses by spreadsheet.</td>
</tr>
<tr>
<td>Data and statistics</td>
<td>There is no safety audit system in place so accident prevention is weak at present. RIF receive lists of the worst 200-240 accident black-spots on RIF network each year but have not been making any improvements at them so many such sites continue to result in accidents and casualties year after year. Existing traffic engineering and safety standards need updating and improvement and local road engineers need to be introduced to low cost safety engineering techniques. The existing roads are neither self-explanatory nor forgiving.</td>
</tr>
<tr>
<td>Design, planning and operation of roads</td>
<td>Appropriate vehicle standards exist with a few minor exceptions. The vehicle standards require regular inspections but it appears to be possible to avoid inspections so a major number of vehicles, mainly vehicles in a poor technical condition, do not undergo inspection. The lack of a data system for calling in vehicles for technical tests as well as for calculating the percentage of vehicles approved at the first technical test. Subsequently, these data can be used in the strategic work of the Traffic Inspectors’ control of the inspection garages. The number of Traffic Inspectors is insufficient for controlling the inspection garages effectively.</td>
</tr>
<tr>
<td>Vehicle standards and rules</td>
<td>The actual behaviour of road users is bad and causes many serious accidents and risky situations. The traffic regulation should be reviewed for e.g. seatbelts and child restraint system, speed limits, young drivers and medicine and drugs.</td>
</tr>
<tr>
<td>Standards and rules for road users</td>
<td></td>
</tr>
</tbody>
</table>

Summary of capacity management assessment
<table>
<thead>
<tr>
<th>Element</th>
<th>Problem</th>
</tr>
</thead>
<tbody>
<tr>
<td>Police enforcement</td>
<td>It has been mentioned that it possible for a substantial number of unqualified students to obtain a driver license. There is a substantial waste of resources in connection with examiners for driving tests due to the inability to plan workload in advance because of the present arrangements permitting the possibility of passing the theory and driving test on the same day. There is a lack of confidence in the Traffic Police work due to alternative payment of fines and this presents a problem. A clearly written strategy for the Traffic Police work is lacking and there are no stipulated goals for the Traffic Police work. Ineffective use of nearly half of the working hours of the Traffic Police in connection with attendance and report making at small, insignificant traffic accidents. The rationing of petrol prevents effective police work and proactive efforts and affects the motivation of the police officers. There is a need for more and better police equipment in the form of modern and precise Alco meters, laser guns for measuring speed and proper roping off in connection with traffic accidents after dark and first aid kits in all patrol cars. The out of date analogue radio system has insufficient coverage and no possibility for data transmission. Improved education of the Traffic Police is needed so that expert help is only required at very serious traffic accidents, where the circumstances and the liabilities are complicated.</td>
</tr>
<tr>
<td>Other compliance interventions</td>
<td>Even though efforts are made in some parts of the country to teach children safe traffic conduct, and there is a national strategy there is no consistency or implementation as the national strategy does not include targets or dates for the traffic education of school children. The education should be adjusted pedagogically to the older pupils, who presently do not receive any traffic education, putting to use the special interests of this age group. School crossing patrols should be re-introduced gradually according to the models, which have worked successfully in other countries. In order to have success, the parents must support the initiative and the individual members of the crossing patrols should be awarded with a yearly excursion. The Traffic Police must back up the crossing patrols by regular work visits, getting out of the patrol cars and giving the impression that the pupils in question are doing a great job for the friends. The cooperation with the schools about the children’s’ safe traffic training and their relation to the Police in general is not yet in place. Several authorities and organizations work with information and campaign activities, but a superior responsible and coordinating authority is lacking, working out a national strategy setting targets for professional campaign activities. There is no coherence or coordination between the campaigns, the MoT or other actors, and a follow-up effort of the police has not been included in the plans. Before launching the campaigns, the ideas should be presented to focus groups in order to secure the full impact and the campaigns must always be accompanied by a strict police enforcement activity in order to maximise synergy.</td>
</tr>
<tr>
<td>Emergency Services</td>
<td>Some of the ambulances are old and have high mileages, which causes breakdowns and repairs, resulting in a reduction of the number of ambulances in operation. The response time, which under normal circumstances should not exceed 15-20 minutes, need to be reduced. A strategy of placing ambulances strategically where experiences prove, that serious rush hour accidents happen, could be a help. This strategy has proved successful for several years in Sofia. Also ambulance drivers should be trained to treat minor injuries according to the priority of the ambulance doctor, in case of more than two injured persons. Consideration should be given to introducing emergency ambulances staffed with paramedics.</td>
</tr>
<tr>
<td>Implementation arrangements</td>
<td>Responsibilities are generally well defined but NRSC needs more funds, staff and the authority to follow up as implementation arrangements are very weak. Roads authorities need to be given statutory obligation to improve road safety on their networks and to report annually on what they have done to reduce road accidents. Little or no road safety research being undertaken at present although there are 2 institutes who are capable of doing such research. Very little monitoring and evaluation being done in part because of insufficient permanent staff in NRSC Secretariat and partly because no research being undertaken. Few interventions are implemented and even those that are do not have casualty reduction performance targets so monitoring or evaluation of effects is difficult. Totally inadequate arrangements for funding safety activities means that very little of the national safety strategy is being implemented in practice. Significant improvement needed in funding arrangements and in recognition that expenditure on road safety is an investment and not a cost.</td>
</tr>
</tbody>
</table>

Summarising the problems according to the World Bank Country Capacity Checklist shows the following assessment:
<table>
<thead>
<tr>
<th>INSTITUTIONAL MANAGEMENT FUNCTIONS</th>
<th>Checklist</th>
<th>Yes</th>
<th>Partial/Pending</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Results focus</strong></td>
<td>Is there an official position on what is an acceptable and achievable level of safety for all road users?</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Are agency, community and business sector responsibilities and related interventions to help achieve this acceptable level of safety clearly defined?</td>
<td>X</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Has a lead agency been formally established to direct the national road safety effort? What form does this lead agency take?</td>
<td>X</td>
<td></td>
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<tr>
<td></td>
<td>Is the lead agency role defined in legislation and/or policy documents and annual performance agreements?</td>
<td>X</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Have national and regional targets been set for improved safety performance?</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Which agencies are responsible for achieving this level of safety and how are they held to account for the performance achieved?</td>
<td>National Road Safety Commission (not held to account)</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Has a vision for improved road safety performance in the longer-term been officially approved?</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Are regular performance reviews conducted to assess the potential for making short-term improvements to achieve safety targets and longer-term improvements to achieve the safety vision?</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Coordination</strong></td>
<td>Are interventions being coordinated horizontally across central agencies to help achieve the desired focus on results?</td>
<td>X</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Are interventions being coordinated vertically between central, regional and local agencies to help achieve the desired focus on results?</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Have robust delivery partnerships been established where appropriate between agencies, communities and the business sector to help achieve the desired focus on results?</td>
<td>X</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>Are Parliamentary committees and processes supporting the identified institutional management functions to help achieve the desired focus on results?</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Legislation</strong></td>
<td>Are legislative procedures and instruments supporting interventions and the identified management functions sufficient to help achieve the desired focus on results?</td>
<td>X</td>
<td></td>
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<tr>
<td></td>
<td>Are legislative procedures and instruments regularly reviewed and adjusted to help achieve the desired focus on results?</td>
<td>X</td>
<td></td>
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<tr>
<td><strong>Funding and Resource Allocation</strong></td>
<td>Are funding mechanisms and resource allocation procedures sufficient to help achieve the desired focus on results?</td>
<td>X</td>
<td></td>
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</tr>
<tr>
<td><strong>Promotion</strong></td>
<td>Are the government, community and business responsibilities to help achieve the desired focus on results being actively promoted?</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Monitoring and Evaluation</strong></td>
<td>Are 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 help achieve the desired focus on results?</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Are systems in place to collect and manage data on vehicle speeds, safety belt and helmet wearing rates, alcohol use in traffic and involvement in crashes, vehicle fleet safety standards and safety rating of road infrastructure, and emergency medical system response times to help achieve the desired focus on results?</td>
<td>X</td>
<td></td>
<td></td>
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</tbody>
</table>
### INSTITUTIONAL MANAGEMENT FUNCTIONS

<table>
<thead>
<tr>
<th>Checklist</th>
<th>Yes</th>
<th>Partial/Pending</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Are systems in place to collect and manage data on road network traffic to help achieve the desired focus on results?</td>
<td>X on ad hoc basis</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are systems in place to collect and manage data on quantities of safety interventions implemented (e.g. policing operations, promotional activities, systematic safety engineering treatments, etc) to help achieve the desired focus on results?</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are systems in place to regularly monitor and evaluate safety performance against targets to help achieve the desired focus on results?</td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Research and Development**

<table>
<thead>
<tr>
<th>Checklist</th>
<th>Yes</th>
<th>Partial/Pending</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Is a national road safety research and development program conducted to help achieve the desired focus on results?</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do independent research and professional organizations contribute to policy and program development to help achieve the desired focus on results?</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are independent research and professional organizations engaged in road safety knowledge transfer to help achieve the desired focus on results?</td>
<td>X</td>
<td></td>
<td></td>
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</table>

### INTERVENTIONS

<table>
<thead>
<tr>
<th>Checklist</th>
<th>Yes</th>
<th>Partial/Pending</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Have comprehensive safety standards and rules been set for roads, vehicles, road users and post-crash services to achieve the desired focus on results?</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are compliance regimes in place to ensure adherence to identified safety standards and rules for roads, vehicles, road users and post-crash services to achieve results?</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do the identified safety standards and rules and related compliance regimes for roads, vehicles, road users and post-crash services clearly address the safety priorities of high-risk road user groups to achieve results?</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>How favourably do identified standards and rules and related compliance regimes for roads, vehicles, road users and post-crash services compare with international good practice to achieve results?</td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### RESULTS

<table>
<thead>
<tr>
<th>Checklist</th>
<th>Yes</th>
<th>Partial/Pending</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Are estimates of the social costs of road crashes available?</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are data readily and regularly available to identify annual road deaths and injuries?</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are data readily and regularly available to identify which road users face the biggest risks of being killed and injured in the road transport system?</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are data readily and regularly available to identify which sections of the road network by road function have the highest concentrations of deaths and injuries?</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are data readily and regularly available to identify network vehicle speeds, seatbelt wearing rates, motor cycle helmet wearing rates, cycle helmet wearing rates, alcohol use in traffic and involvement in crashes, vehicle fleet safety standards, safety rating of road infrastructure and the recovery of road crash victims?</td>
<td>X</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Are data available to readily and regularly identify network traffic volumes?</td>
<td>X</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
RESULTS

<table>
<thead>
<tr>
<th>Checklist</th>
<th>Yes</th>
<th>Partial/Pending</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>Are data available to readily and regularly identify quantities of safety interventions implemented (e.g. policing operations, promotional activities, systematic safety engineering treatments, etc)?</td>
<td></td>
<td></td>
<td>X</td>
</tr>
</tbody>
</table>

**Qualitative Investment Strategy and short term action plan**

Based on the capacity management assessment on road safety, components are identified and an Action Plan for the short, medium and long term has been prepared. The identified short and medium term as well as long term priority activities are summarised in the table under the following targeted areas:

- Ensure proper institutional capacity across relevant sectors
- Sharpen the focus on results
- Target unsafe road behaviour
- Improve safety features in the road environment
- Improve safety standards and rules and the associated compliance regimes.

**Proposed activities for the Action Plan in the short, medium and long term**

<table>
<thead>
<tr>
<th>Proposed priority activities in the Action Plan</th>
<th>Proposed actions in</th>
<th>Long term (6 years -)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short term (1-2 years)</td>
<td>Medium term (3-5 years)</td>
<td></td>
</tr>
<tr>
<td>Ensure proper institutional capacity across relevant sectors</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Strengthening the role and capability of the National Road Safety Commission (NRSC)</td>
<td>Adviser to strengthen capability of NRSC (12mm) 4 Seconded specialists from stakeholders</td>
<td>NRSC actively pushing and monitoring road safety activity of Stakeholders 1 admin assistant and 4 technical specialists working at NRSC Secretariat under the present secretary</td>
</tr>
<tr>
<td>Clarifying the responsibilities and increasing the capabilities of the NRSC’s secretariat</td>
<td>Review NRSC legislation and modify for more effective working</td>
<td>NRSC given authority to manage and oversee implementation of national safety programme</td>
</tr>
<tr>
<td>Strengthening the accountability of all agencies involved in road safety</td>
<td>All safety interventions to have casualty reduction target specified</td>
<td>All interventions to be assessed for cost effectiveness before implementation and monitored during implementation</td>
</tr>
</tbody>
</table>

**Sharpen the focus on results**

- Improve the collection, availability and use of data in the road traffic accident data and analysis system
- Damage only accidents to be reported at police stations
- New modern accident data collection system
- All interventions designed to deliver casualty reductions in support of sector and national targets
- Data being used for road safety research programmes
### Proposed priority activities in the Action Plan

<table>
<thead>
<tr>
<th>Activity</th>
<th>Short term (1-2 years)</th>
<th>Medium term (3-5 years)</th>
<th>Long term (6 years -)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education storage and analyses system established</td>
<td>Data being used to assess effectiveness of interventions</td>
<td>All safety activities being designed with casualty reduction targets and monitoring mechanisms in place</td>
<td></td>
</tr>
<tr>
<td>Set up monitoring and evaluation system designed to inform all stakeholders of the progress and effectiveness of road safety measures</td>
<td>NRSC Secretariat monitoring implementation of initiatives in terms of casualty reduction and producing an annual progress report</td>
<td>NRSC Monitoring framework in place to monitor implementation of strategy and related delegated activities in all NRSC stakeholders</td>
<td>Annual reports by NRSC on progress towards national casualty reduction targets</td>
</tr>
</tbody>
</table>

#### Target unsafe road behaviour

<table>
<thead>
<tr>
<th>Activity</th>
<th>Short term (1-2 years)</th>
<th>Medium term (3-5 years)</th>
<th>Long term (6 years -)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intensified police enforcement</td>
<td>TA to help police in more effective enforcement tactics and strategies</td>
<td>Training programs to qualified police officers to finish the majority of the cases of traffic accidents</td>
<td>Analysing the police radio communication system in order to consider a new digital system with much larger capacity and possibility for data transmission</td>
</tr>
<tr>
<td>Allocate adequate rations of petrol to patrol cars</td>
<td>Disengage the police from reporting small damage only accidents</td>
<td>Work out plans for modern equipment and for exchange of the old</td>
<td></td>
</tr>
<tr>
<td>Awareness campaigns to support police enforcement</td>
<td>Organise structure and responsibility. Apply for membership of P.R.I Seek for International best practice</td>
<td>Develop a 3-5 year strategy for awareness campaigns.</td>
<td>Coordinated media campaigns and enforcement activity. Campaigns focused on based on high risk groups and dangerous behaviours being designed by professional media companies</td>
</tr>
<tr>
<td>Road safety education of children</td>
<td>Review present strategy, goals, materials and activities for traffic education of school children. Re-introducing school crossing patrols at schools with dangerous roads</td>
<td>Work out pedagogical methods to maintain the older pupils interest for traffic safety Nationwide traffic education reviewed and updated as needed</td>
<td>Effective nationwide traffic education system and activities in use in schools</td>
</tr>
</tbody>
</table>

#### Improve safety features in the road environment

<table>
<thead>
<tr>
<th>Activity</th>
<th>Short term (1-2 years)</th>
<th>Medium term (3-5 years)</th>
<th>Long term (6 years -)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safety engineering improvements</td>
<td>Safety black-spot identification and improvement (train the trainers) course (TA)</td>
<td>2 safety engineering courses per year (run by local staff)</td>
<td>Safety units working in every roads authority to improve black-spots, to oversee safety audits and to monitor traffic and safety problems on their networks</td>
</tr>
<tr>
<td>Review of traffic and safety standards for urban and rural roads (TA)</td>
<td>Road Safety Unit established at RIF to monitor traffic and safety issues on RIF network</td>
<td>Road Safety Units established within traffic units of main municipalities to monitor traffic and safety on municipal roads</td>
<td>Each roads authority producing an annual report on black-spots and improved safety on their road networks</td>
</tr>
<tr>
<td>Target selected high risk areas (black spot work)</td>
<td>24 accident black-spots analysed and improvement suggested for inclusion into RIF</td>
<td>50 black-spots per year identified analysed and improved annually on RIF network</td>
<td>Annual accident black-spot programme being undertaken by all roads authorities</td>
</tr>
</tbody>
</table>
### Proposed priority activities in the Action Plan

<table>
<thead>
<tr>
<th></th>
<th>Proposed actions in the Action Plan</th>
<th></th>
<th>Medium term (3-5 years)</th>
<th>Long term (6 years -)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short term (1-2 years)</td>
<td>works programme (first 2 or 3 undertaken as part of the train the trainer course)</td>
<td>Road safety line in RIF annual budget so that black-spot improvement programme can be devised to the budget available</td>
<td>At least 5 black-spots improved annually in each municipality</td>
<td>in Bulgaria as part of normal activities</td>
</tr>
<tr>
<td></td>
<td></td>
<td>All roads authorities have dedicated road safety units monitoring traffic and safety aspects of their road networks and producing annual reports on efforts to improve</td>
<td>Database of alternative safety engineering interventions and their effectiveness available to local engineers designing safety improvements</td>
<td></td>
</tr>
<tr>
<td>Road safety audits</td>
<td>Safety audit “Train the trainers” course to train a core group of academics, RIF staff, Ministry of Transport Staff, staff from Federation of Highway Engineers and local consultants (TA) Safety audit guidelines devised for Bulgaria and safety audit made mandatory for all road works</td>
<td>2 safety audit courses per year (local trainers) to increase number of safety auditors as a resource for roads authorities</td>
<td>Several consultants specialising in road safety engineering and safety audit work able to be an external resource for Bulgarian roads authorities</td>
<td></td>
</tr>
</tbody>
</table>

### Improve safety standards and rules and the associated compliance regimes

<table>
<thead>
<tr>
<th></th>
<th>Proposed actions in the Action Plan</th>
<th></th>
<th>Medium term (3-5 years)</th>
<th>Long term (6 years -)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Improve safety standards and rules and the associated compliance regimes</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vehicle inspection system</td>
<td>Implement an overall strategy, known to all employees in the organisation</td>
<td>Employ and train more inspectors for intensifying inspections in the inspections halls</td>
<td>Implement a qualified data system for both administration of calling in vehicle and for strategic statistical control of the inspection halls</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Implement a plan for intensifying unannounced inspections in the inspections halls</td>
<td>To control the quality of the work in the inspections halls, vehicles with build-in serious errors should be prioritised for inspection.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Implement in the traffic law, that it is mandatory to use seatbelts for passengers and child restraint for children</td>
<td>Review and keep safety legislation updated to EU legislation</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Legislation</td>
<td>Implement harder sanctions for new drivers</td>
<td>Review sanctions for driving under the influence of drugs and medicine</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Review general speed limits of 90 km/h and 130 km/h on rural roads and motorways, which in many cases seems too high compared to the layout</td>
<td>Review and keep safety legislation updated to EU legislation</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Proposed priority activities in the Action Plan

<table>
<thead>
<tr>
<th>Proposed actions in</th>
<th>Proposed actions in</th>
<th>Proposed actions in</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Short term (1-2 years)</td>
<td>Medium term (3-5 years)</td>
</tr>
</tbody>
</table>

**Driver training and testing**
- Implement control procedures in order to prevent informal payments
- Change the rules in order to use anonymous cars at the driving test
- Work demands and specifications for a new data system for booking of driving tests, both theory and driving, in order to perform rational and reliable tests.
- Keep system updated and in line with EU practices

**Emergency medical services**
- Training of the ambulance drivers enabling them to participate as a qualified part of the rescue team.
- Analyse the strategic deployment of the ambulances for reducing the response time to 15-20 minutes
- Consider paramedics for supplementary emergency ambulances
- Initiate exchange of old and worn-out ambulances and equip all ambulances with defibrillators
- Introduce pared cross paramedic emergency ambulances to increase coverage
- Effective response times of 15-20 min for most of the road network
- Keep system updated and in line with EU practices

**Suggestion for World Bank financed components**
The proposed priority actions to possible be funded by the World Bank safety component to improve road safety in Bulgaria is shown in the table and is based on the findings from the Capacity Management Assessment and the recommendations in the Action Plan.
### Possible distribution of safety component.

<table>
<thead>
<tr>
<th>Component</th>
<th>Euro thousands</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1 Coordination and Management</strong></td>
<td></td>
</tr>
<tr>
<td>TA Support (12 mm over 24 months)</td>
<td>216</td>
</tr>
<tr>
<td>Establish trophies for road safety “oscars” to be presented by MOT annually to municipalities and RIF Regions showing best safety activity</td>
<td></td>
</tr>
<tr>
<td>Development of MOT safety website and activities</td>
<td>22</td>
</tr>
<tr>
<td>Office set up /reference documents /safety memberships (pri etc)</td>
<td>29</td>
</tr>
<tr>
<td><strong>2 Road safety funding</strong></td>
<td></td>
</tr>
<tr>
<td>included in above TA</td>
<td>0</td>
</tr>
<tr>
<td><strong>3 Road accident data system</strong></td>
<td>144</td>
</tr>
<tr>
<td>System (incl. pilot testing form, software adaptation/translation into Bulgarian, training of accident units, local support etc.)</td>
<td></td>
</tr>
<tr>
<td><strong>4 Safer planning and design of roads</strong></td>
<td>22</td>
</tr>
<tr>
<td>Safety audit* train the trainer* course (50% contribution)</td>
<td></td>
</tr>
<tr>
<td>Development of local safety audit guidelines</td>
<td></td>
</tr>
<tr>
<td>Review of traffic and safety engineering standards and traffic signing/marking at road works (included in TA for item 5)</td>
<td>22</td>
</tr>
<tr>
<td>Part funding of first 2 local safety audit courses by local trainers (to be run under the Bulgarian Road Engineers Association (BFHE))</td>
<td>22</td>
</tr>
<tr>
<td><strong>5 Hazardous locations improvement programme</strong></td>
<td>360</td>
</tr>
<tr>
<td>Improve 25 “worst” black-spots as demos (50% contribution)</td>
<td></td>
</tr>
<tr>
<td>TA to develop road safety activity in RIF and municipalities and to train local * trainers* (RIF and municipal engineers) who can later run local courses under BREA (8 mm)</td>
<td>144</td>
</tr>
<tr>
<td>Part funding of first 2 local black-spot improvement courses (held at RIF regional training facilities under BREA)</td>
<td>14</td>
</tr>
<tr>
<td><strong>6 Police enforcement</strong></td>
<td>58</td>
</tr>
<tr>
<td>TA support to develop enforcement strategies and tactics (3mm)</td>
<td></td>
</tr>
<tr>
<td>Lasers, speed cameras, other equipment for demo projects /locations</td>
<td>173</td>
</tr>
<tr>
<td><strong>7 Vehicle inspections /testing</strong></td>
<td>0</td>
</tr>
<tr>
<td>nil</td>
<td></td>
</tr>
<tr>
<td><strong>8 Driver training and testing</strong></td>
<td>0</td>
</tr>
<tr>
<td>nil</td>
<td></td>
</tr>
<tr>
<td><strong>9 Traffic legislation</strong></td>
<td>0</td>
</tr>
<tr>
<td>Included in police TA</td>
<td></td>
</tr>
<tr>
<td><strong>10 Emergency medical and rescue services</strong></td>
<td>22</td>
</tr>
<tr>
<td>TA Support to review deployment tactics and operations (1 mm)</td>
<td></td>
</tr>
<tr>
<td><strong>11 Road safety research</strong></td>
<td>11</td>
</tr>
<tr>
<td>Local research into Accident costs by Economics University</td>
<td></td>
</tr>
<tr>
<td>RIF research institute, Technical library, subs to magazines etc.</td>
<td>18</td>
</tr>
<tr>
<td>Initiation of 2 small research projects to support NRSC needs</td>
<td>14</td>
</tr>
<tr>
<td>Creation of a local internet based road safety engineering database /dissemination website to share safety engineering info</td>
<td>22</td>
</tr>
<tr>
<td><strong>12 Road Safety Publicity campaigns</strong></td>
<td>72</td>
</tr>
<tr>
<td>Campaigns to support increased enforcement</td>
<td></td>
</tr>
<tr>
<td><strong>13 Road safety education of children</strong></td>
<td>22</td>
</tr>
<tr>
<td>TA support to critically review present activity and materials (1mm)</td>
<td></td>
</tr>
<tr>
<td><strong>14 Partnerships and collaboration</strong></td>
<td>0</td>
</tr>
<tr>
<td>TA support to improve coordination and effectiveness of NGOs and private sector partners (included in TA for item 1)</td>
<td>14</td>
</tr>
<tr>
<td>Funds for workshops and coordination mechanisms (e.g. help municipalities)</td>
<td></td>
</tr>
<tr>
<td><strong>Total proposed safety component</strong></td>
<td>1440</td>
</tr>
</tbody>
</table>
1 Introduction and background

This section presents the background, objectives, and methodology of the study and the structure of the final report.

The present final report has been prepared by COWI in response to the Terms of Reference included to the contract 7144145. The project commenced on 17th. September 2007 and the final report was submitted in February 2008.

1.1 Background

Road safety is already a serious problem in Bulgaria and road safety performance is significantly lower than the EU average with a fatality rate measured as deaths per capita double that of EU average. Taking into account that car ownership in Bulgaria is lower than the European Union average (both EU15 and EU25); this further demonstrates that the road safety situation is very poor.

Traffic accidents entail considerable economic losses, making this a development problem as well as a human tragedy.

In Bulgaria - as well as in the other new EU member states - road safety is a growing concern, and the efforts made in recent years to address this problem have often been insufficient and inadequate.

1.2 Objectives

In view of this situation, the World Bank decided to carry out the prospective study "Review of Road Safety Management Capacity in Bulgaria". According to the TOR the study has the following objectives:

- Review safety management capacity in Bulgaria, in accordance with the operational guidelines set out in World Bank Transport Note TN-1, as revised; and

- Reach consensus with the government and senior officials on a multi-sectoral investment strategy to improve safety management capacity in Bulgaria for inclusion in a forthcoming investment project, and short-term measures to overcome revealed capacity weaknesses, in accordance with the World Bank guidelines.
The present final report was prepared by COWI A/S following field visits to Bulgaria, a road safety workshop in Sofia will all key agencies with road safety responsibilities and desk studies undertaken as part of a Consultant Assignment financed by the World Bank.

The list of people met is presented in Appendix A. Appendix E is the Terms of Reference for this assignment.

The conclusions and recommendations presented in the report are those of the consultant, and all analyses are solely the responsibility of the consultant. The conclusions and opinions presented do not necessarily coincide with those of the stakeholders, i.e. the Government of Bulgaria and the World Bank. However both have been given opportunities to review and comment upon the draft report and their comments have been incorporated in finalising this report.

1.3 Methodology

The project was carried out in the period from end of September 2007 to November 2007 in Bulgaria and from home office. The draft final report was submitted in November 2007 and the study is completed with this final report in February 2008. The report incorporates the findings from a road safety workshop/seminar in Sofia on 10 December, 2007.

The methodology used was in accordance with the TOR and as outlined in the submitted Technical Proposal. Thus the study was carried out utilising the following types of activities:

- **Desk studies**: Review of existing relevant data, policy statements, previous road safety studies, EU laws and regulations and preparation of output. This includes review of EU casualty reduction targets and assessment of Bulgarian likelihood of achieving them given recent trends

- **Consultations**: Meetings with government agencies and other relevant stakeholders in Bulgaria involved in road safety using the revised World Bank checklists supplemented by our own checklists based on our previous similar reviews of management capacity and safety projects

- **Field visits to Bulgarian stakeholders' premises** to observe current activities and practices and for discussions with operational staff in key agencies (e.g. driver testing, accident data storage / retrieval and analyses, traffic police enforcement).

- **Field trips along a representative sample (approx. 1000-1200 km) of urban and rural roads** to observe driver behaviour, policing activities and operational aspects of the road networks, hazardous locations etc. and for discussions with local police patrols.
• **Participation on a National road safety workshop/seminar** to discuss the proposed Action plan and to get feedback from the key agencies with road safety responsibilities

• Additionally the World Bank Guidelines have been assessed during the process and comments prepared.

The output of the project is:

• A capacity management assessment of the road safety situation in Bulgaria
• A draft National Road Safety Action Plan which was discussed and elaborated at the seminar and which will be finalised by the Bulgarian Government
• Dissemination of the results through this report and the workshop/seminar held on 10 December 2007.

### 1.4 Team

The project team consisted of three international experts:

• Jesper Mertner, COWI A/S, Project Manager and Road Safety Expert
• Alan Ross, COWI A/S, High Level Road Safety Adviser including Road Safety Strategy and Action Plans Specialist

Furthermore, professional and support staff from IBC (COWI subsidiary) in Bulgaria (Marta Katcheva), assisted with the arrangement of appointments and translation and other logistics, where necessary, as well as data collection. She has also followed up when the international team was outside Bulgaria.

The missions to Bulgaria were carried out by:

• Mr. Mertner during the period 23 September - 28 September 2007 and 31 October - 7 November (9-12 December seminar)
• Mr. Ross during the period 22 September to 29 September 2007 and 28 October - 7 November 2007 (9-12 December seminar)
• Mr. Wilbert during the period 28 October - 7 November 2007
• Mr. Mertner and Mr. Ross during the period 8-11 December 2008.

### 1.4.1 Co-operation

In the course of the study to date there have been three visits to Bulgaria, during which the consultant received good assistance and support from the resident World Bank Mission and from the key Bulgarian authorities.
The Ministry of Transport have kindly facilitated contacts in Bulgaria and arranged meetings with key stakeholders, including to the Ministry of the Interior (MoI), traffic police, the road safety commission and road infrastructure funds. They also made existing material and relevant reports available.

1.4.2 Exchange rates applied
All amounts in the report are quoted in Euro, September 2007 rate. The following exchange rates have been applied:

- 1 USD = 0.72 Euro
- 1 USD = 1.388 BGN Bulgaria Leva
- 1 BGN Bulgaria Leva = 0.7205 USD

1.5 Contents of report
This report is the final report summarising the consultant's findings on three visits to Sofia and a field trip over the road network in Bulgaria as well as findings from the Road Safety Seminar held in Sofia on 10 December 2007.

Chapter 2 presents the road safety risk in Bulgaria including comparison to other countries and the recent trends in fatalities and injuries.

This report is in principle structured in three main parts; the capacity management assessment on road safety Bulgaria, the strategy and action plan including components relevant for World Bank financing and finally comments and recommendation on the World Bank guidelines.

The first part which summarises the problems in the capacity management assessment on road safety is structured as follows:

- Chapter 3 presents Bulgaria's focus on results in road safety, including whether targets have been set for improved road safety and whether the agencies involved in road safety coordinate their activities and are held responsible for the performance achieved. It also presents the availability of consistent and correct data and it identifies which road users face the largest risk of being killed and injured and on which type of roads.
- In chapter 4 the road safety interventions in Bulgaria is presented. It presents whether comprehensive safety standards and rules exist for roads, vehicles and road users and whether there are compliance regimes in place to ensure the adherence to identified standards and rules.
- The road safety implementation arrangements in Bulgaria are presented in chapter 5. It presents whether interventions are coordinated to maximise efficiency and effectiveness and whether they are monitored, evaluated and adjusted accordingly. The funding mechanisms and whether they are sufficient and sustainable are presented as well.
- Chapter 6 summarises the result of the capacity management assessment.
The second part is the Qualitative Investment Strategy and Short-term Action Plan summarising the suggested activities to improve road safety in Bulgaria. It is structured as follows:

• In chapter 7.1 the Action Plan is summarised. This is presented in more detail in a stand-alone Appendix D.
• Chapter 7.2 presents an overview of the proposed priority actions to improve road safety in Bulgaria which could e.g. be based on funding for the World Bank project.
• Chapter 7.3 discusses the potential demonstration area which was agreed during the seminar on 10 December 2007.

The final part is the Comments and Recommendation on the Guidelines. It is structured as follows:

• Chapter 8.1 presents the comments on the guidelines and chapter 8.2 is Recommendation on the Guidelines.

The list of people met is presented in Appendix A and Appendix B describes the National Commissions on Road Safety. The suggested draft Terms of Reference for various small consultancy projects required within the proposed World Bank road safety component are presented in Appendix C and Appendix D is the suggested stand-alone National Action Plan for Road Safety. Appendix E is the Terms of Reference for this assignment.

The conclusions and recommendations presented in the report are those of the consultant, and all analyses are solely the responsibility of the consultant. The conclusions and opinions presented do not necessarily coincide with those of the stakeholders, i.e. the Government of Bulgaria and the World Bank.
2 Road safety risks in Bulgaria

Road safety is now already a very serious problem in Bulgaria. Each year nearly 1000 persons die and around 10,000 are injured in road accidents and some may be crippled or disabled for the rest of their lives. This is equivalent to almost 3 fatalities per day due to road traffic accidents or 5 plane crashes per year with medium sized passenger planes.

![Killed per million inhabitants](image)

**Figure 2-1 Fatalities per inhabitant in Bulgaria, compared to other countries**

With close to 125 deaths per 1 million inhabitants, Bulgaria is approximately two to two and a half times above the best performing EU Member States and 10 -12% above the EU average. Compared to the average of 11 new Member
States (apart from Romania) Bulgaria is lower, however the level has not decreased over time in Bulgaria as it has in the other countries.

![Graph showing fatalities per 10,000 vehicles in Bulgaria, compared to other countries](image)

**Figure 2-2  Fatalities per 10,000 vehicles in Bulgaria, compared to other countries**

Compared to other new member states countries such as Czech Republic and Poland the number of fatalities per 10,000 vehicles is similar, with approx. 3 in Bulgaria, 3.6 in Czech and 2.9 in Poland but compared to West European countries e.g. Denmark and France, it is approximately 2 times higher.

![Graph showing development in the number of fatalities and injuries in Bulgaria according to official statistics](image)

**Figure 2-3  Development in the number of fatalities and injuries in Bulgaria according to official statistics**

The approx. 5% annual increase in road casualties (fatalities and injuries) during the last 6 years (2001-2006) attests to a dramatic worsening of road safety in Bulgaria. From 2000 – 2005, the number of fatalities has increased by approx. 3% while in comparison it has decreased in all the member states of the European Union by more than 20%. The tendency is even more serious for the number of injuries, as these have increased by more than 27% from 2000 – 2005, and by 20% from 2003 – 2006 alone.
The large amount of accidents and fatalities is also a growing burden for the health sector in Bulgaria as described in the alarming World Report on Road Traffic Injury Prevention\(^2\) which states that in many low-income and middle-income countries (such as Bulgaria), the burden of traffic-related injuries is such that they represent between 30% and 86% of all trauma admissions.

Traffic accidents entail considerable economic losses, making this a development problem as well as a human tragedy. Apart from the human losses these accidents now result in losses to the economy of around US$ 533 millions /year (based on 2005). In just the 6 years period 2000-2005, there have been 5842 deaths and over 52,000 injuries in road accidents resulting in estimated economic losses to the Bulgarian economy of over US$2,000 millions. Unless urgent and effective action is taken to reduce the annual toll of deaths and injuries such human and economic losses will continue into the future.

No country however developed can afford to sustain such losses year after year so Bulgaria must address this growing problem by taking the necessary actions to improve road safety. Recurring and growing losses of this magnitude are undoubtedly inhibiting economic development and Government needs to recognise that failure to invest in road safety will result in such losses continuing year after year.

\(^2\) World Report on Road Traffic Injury Prevention, WHO and World Bank, 1994
3 Focus on results

This chapter reviews Bulgaria's focus on results. The review includes the following sections:

- road safety performance targets
- road accident costs
- responsibility and coordination of road safety performance
- data and statistics
- road traffic accident statistics on road safety performance.

The review considers whether targets have been set for improved safety performance at both national, provincial and city level, and whether the agencies involved in improving road safety coordinate their activities and are held responsible for the performance achieved. It is also includes review of whether consistent and correct data is readily available to identify road deaths and injuries and to identify which road users face the largest risk of being killed and injured in the road transport system, and on which type of roads.

3.1 Road safety performance targets

For a country to be able to have success in addressing its road safety problems there needs to be effective and coordinated activity in all key sectors affecting road safety and clearly defined performance targets that can be monitored to see if the desired improvements are occurring.

3.1.1 Existing situation

Road Safety Master Plans and Strategies

The State –Public Consultation Commission on the Problems of Road Safety (henceforth called the National Road Safety Commission (NRSC) for convenience) is responsible for coordinating and managing road safety activities in Bulgaria. In Dec 2005 it published a National strategy for the protection of children's life and health in Road traffic 2006 –2010. This aimed to reduce child victims of road accidents by 50% by 2010 compared to the average number of victims in 1990-2001 and itemised long list of actions and initiatives that could be implemented to improve child safety.
In Nov 2006 it published a “National Strategy on improving Road safety for the period 2007-2010”. This states that the purpose is to reduce accidents, deaths and injuries so that:

“By the end of 2010, to have the number of deaths reduced to 700 and the number of injuries reduced by 25% compared to the 2002-2005 average”. (This means that by end 2010 deaths should be reduced to 700 and injuries reduced to 6597).

The strategy also outlines a long list of possible improvements and interventions that would be desirable and could improve road safety. These encompass a wide range of initiatives aimed at improving safety of road users, vehicles and road infrastructure.

Most of these are perfectly reasonable and if implemented would no doubt help to improve road safety in Bulgaria. However at present these appear to be just a long “wish list” of desirable things to do in each sector. There are no target dates for implementation, no estimates of potential benefits in terms of reduced casualties resulting from interventions, no estimates of budgets needed to implement the suggested interventions and no prioritisation of measures based on effectiveness.

Although useful in giving a broad overview of the general areas for attention, the strategy provides little practical help to or pressure on those who need to implement the initiatives. It does however contain an annex giving a good analysis of the previous 5 years of accident data to provide a better understanding of the nature and characteristics of the problem in Bulgaria.

**Action Plans**

The Council of Ministers accepted the NRSC national strategy and asked each of the stakeholders on the NRSC to prepare an action plan. Unfortunately very few of the stakeholders appear to have actually complied and produced an Action Plan. The only plans identified by the project team after exhaustive inquiries were a Program for the period 2007-2010 prepared by Ministry of Transport for its internal activities and a joint initiative/Action Plan for 2007 between the Ministry of interior, Ministry of Transport and Ministry of Regional Development. This latter plan allocated responsibilities for different initiatives between these 3 agencies and had deadlines by when specified interventions were to be implemented. None of the other agencies appear to have made any effort to prepare action plans as requested by NRSC.

Clear targets and identification of necessary measures and provision of the needed resources are important to improve road safety. In countries with good road safety performance, such as Denmark and especially Sweden, rather ambitious targets have been set. In Denmark the number of killed and seriously injured was to be reduced by 40% in 2012 compared to 1998, i.e. a maximum of 300 killed and 2943 seriously injured. In 1997 Sweden adopted the zero-vision, thus “nobody should be killed or seriously injured in road transport”. Many EU countries unlike Bulgaria, are well on their way to achieving the agreed EU target of 50% reduction by end of 2010 but they in contrast to Bulgaria are doing so by implementing target driven action plans and interventions in all key sectors.
3.1.2 Issues/problems road safety performance targets

At present the only targets in existence appear to be the general EU Targets and Bulgaria is attempting to use them to direct its safety activities. In practice, with the exception of Ministry of Transport (and to some extent, Ministry of Interior and Ministry of Regional Development with whom MoT has a joint plan for 2007), none of the other NRSC stakeholders appears to have an action plan or even any targets for their road safety work.

The NRSC does not set sector specific or agency specific targets for casualty reduction and does not appear to follow up individual stakeholders to ensure they fulfil their commitments as agreed at NRSC. As a consequence there are effectively no safety performance targets in use in Bulgaria and little or no follow up to ensure that key agencies are performing and active in addressing road safety issues in their areas of responsibility. Implementation of the strategy is therefore not occurring.

3.1.3 Recommendations on improved road safety performance targets

**Short-term (1-2 years)**

Individual NRSC stakeholders should ALL be required to develop an action plan for their specific areas of responsibility and to estimate the casualty reduction effects of their intended interventions.

**Medium-term (3-5 years)**

Casualty reduction targets to be devised for each sector and each road safety initiative proposed so that cost benefit analyses can be undertaken.

**Long term (5-10 years)**

EU targets to be the basis for road safety activity disaggregated to individual sectors and agencies with road safety responsibilities.

3.2 Road accident costs

3.2.1 Existing situation

At present there is no independent valuation of the economic losses to Bulgarian economy from the occurrence of road accidents and as a consequence, expenditure on road safety measures is seen as a “cost” by those responsible for allocation of budgets.

Various generalised estimates have been made by Ministry of Transport and others based on the typical “2% of GDP” figure found in other EU countries but because these figures are not Bulgaria specific these are not readily accepted as being valid or realistic for use in Bulgaria.
3.2.2 Issues/problems road accident costs

The absence of an accurate Bulgaria specific valuation of annual losses to the economy inhibits effective resource allocation at national level and results in lack of awareness of the true losses to the economy and hence under-under-funding of road safety. Furthermore, absence of an accurate valuation for the cost of a single road accident death and injury or a damage only road accident means that the cost effectiveness of potential safety interventions cannot be properly assessed. This can lead to wastage of scarce resources.

Estimates of costs prepared by Ministry of Transport, road engineers or other seeking funds for safety interventions will always be viewed with suspicion by budget holders as they may be suspected of having vested interest in showing the economic losses to be high in order to secure more funds for remedial action.

It is therefore necessary to have completely independent valuation undertaken on Bulgarian data and conditions by a respected third party so that an agreed valuation can be derived that all in Bulgaria can accept as being accurate and realistic.

Preliminary estimates by the project team (based on partial costs) indicate that annual losses to Bulgarian economy are now at the very least Euro 500 millions per year and could well be as high as Euro 1000 millions or more per year. No country can afford to sustain losses of this magnitude year after year so it is essential to have some research undertaken to derive an accurate estimate of annual losses so that a suitable cost effective safety programme can be devised.

3.2.3 Recommendations on improved road accident costs

**Short-term (1-2 years)**

Provision should be made within the road safety component for independent economics research to be undertaken by the faculty members of University of Economics, Sofia. Guidance on standard calculation methodology used in similar transition economies and the form of reporting etc has been provided by the project team and results from the research can be available as a university publication within 3-4 months of project commencement.

The calculated figure (based on Gross output method of costing) can be updated every two years simply on consumer price index until the 3-yearly major re-calculation is undertaken.

**Medium-term (3-5 years)**

The cost valuation research should be repeated after 3 years to derive new values for a road accident death, injury and a damage only accident. That new figure can be updated every two years simply in line with consumer price index until the next major re-calculation. Consideration should be given to moving to the “willingness to pay” methodology for accident cost valuation.
Long term (5-10 years)
Willingness to pay methodology developed to be used in deriving the costs of road accident deaths, injury and damage only accidents.

3.3 Responsibility and coordination of road safety performance

Road safety improvement requires coordinated multi sector, multi agency activity if it is to be successful and this requires an effective coordination body with sufficient technical and financial resources to establish realistic safety performance targets and to ensure effective implementation in all sectors affecting road safety.

3.3.1 Existing situation

The existing National Road Safety Commission (NRSC) appears to have the right sort of structure and mix of government ministries, private sector and NGOs for effective work and a Secretary with a good background and knowledge of road safety activities. It is also already developing a regional structure and there are now similar regional road safety commissions in around 10 out of the 28 regions and in several of the 264 or so municipalities. At national level it can bring together ad hoc groups of technical specialists as needed to discuss specific initiatives. On first glance this would seem an ideal structure to enable effective work.

One of the main changes started by the Vision Zero in Sweden is a new way of dividing responsibilities for road safety. The Swedish National Road Administration sets the road safety targets and has been commissioned with the overall responsibility for road safety within the road transport system. To achieve the Swedish objectives, all stakeholders within the transport system cooperate closely on road safety work. The national government and the municipalities are responsible for the funding of the safety work, benefitting road users and road infrastructure. Other stakeholders given responsibility to improve road safety are road-users, road traffic system designers, voluntary organisations, etc.

In Denmark, the Road Safety Commission has set the national objectives on road safety which is to be achieved through combined efforts by the road authorities (Danish Road Directorate (national roads), municipalities), Danish Road Safety Council (campaigns), the police, the Danish Road Safety and Transport Agency (e.g. legislation) and the Danish Motor Vehicle Inspection Office (technical inspection). The Danish Road Directorate has an overall road sector role which includes the issuing of road standards and to supply the sector with newest findings to improve road safety.

However, the reality is unfortunately far from ideal. The commission has no independent funding and no permanent technical support (and few powers) to enable effective follow up on NRSC initiatives or decisions. It also has not set sector specific or intervention specific performance targets but just relies on general national aspiration to comply with EU targets for 2010.
As a consequence, despite best intentions and efforts, little effective work is able to be done in coordinating safety across stakeholders, ensuring implementation of agreed road safety interventions or in checking whether there is any progress towards the desired safety improvements.

3.3.2 Issues/problems on responsibility and coordination of road safety performance

The fundamental problems are that NRSC is only a consultative body with no powers to implement or to direct others to implement. It does not have its own budget to initiate cross sector activity or to implement safety initiatives. It also does not have sufficient permanent technical and administrative staff with specific powers and responsibility to follow up and ensure all stakeholders develop individual action plans to implement their parts of the national road safety strategy.

Without such powers, financial and technical resources the NRSC remains a “talking shop” only without any realistic ability to ensure effective implementation of national strategies in road safety or to monitor road safety performance of its stakeholders.

3.3.3 Recommendations on responsibility and coordination of road safety performance

Thus the role, responsibilities and resources of the National Road Safety Commission (NRSC) should be significantly strengthened and the responsibilities and capabilities of the NRSC’s secretariat increased. The accountability of all agencies involved in road safety should be strengthened.

Short-term (1-2 years)
The role and capability should be strengthened through TA.

The NRSC legislation should be reviewed and modified for more effective working. It should have the powers to oversee implementation of the National Strategy and Action Plan. It must have a strengthened Secretariat with adequate technical and financial resources to follow up and implement NRSC decisions.

To strengthen the accountability of all agencies involved in road safety, all safety interventions should have casualty reduction target specified and all NRSC members required to comply with NRSC strategy.

Medium-term (3-5 years)
Continued seconded assistance to work at NRSC Secretariat.

NRSC and its secretariat with full authority and resources to manage and oversee implementation of National Safety Programme and to oversee implementation of the Road Safety Action Plan.
A Road Safety Directorate should be established at MOT to eventually take over responsibility for overseeing implementation of the National Road Safety Strategy and Action Plan. The strengthened NRSC Secretariat can be absorbed into the Road Safety Directorate and continue to provide support to the NRSC from there. All interventions to be assessed for cost effectiveness before implementation and monitored during implementation.

**Long term (5-10 years)**

Establish a Road Safety Directorate within MOT or other key ministry with major road safety responsibilities which will then become the Lead Agency. This directorate should have its own funds and staff to coordinate and manage road safety activities nationally.

The Road Safety Secretariat should be absorbed into and become core members of the Road Safety Directorate.

All agencies should be implementing their part of the national road safety strategy and reporting annually to NRSC on their road safety activities.

### 3.4 Accident data and statistics

Comprehensive accident data is required for effective remedial work in road safety. At national level the overall trends, regional distribution of accidents and characteristics of the problem can be used to develop national level road safety publicity, changes in national safety legislation and safety interventions etc. At local level (i.e. regions or municipalities), accident data can be used to identify locations where clusters of road accidents occur so safety improvements can be implemented and local road safety publicity campaigns aimed at local safety problems.

#### 3.4.1 Existing situation

As in most other countries, Traffic Police attend road accidents and collect road accident data. However in Bulgaria, police collect data at both injury accidents (where persons are killed or injured) and also at damage only accidents (where no persons are injured).

Special forms are used for the injury accidents and these are completed on site by police and specialists collect forensic evidence at the site. The form plus site sketches etc. are put into an accident docket and logged in at the local police station. Copies of the data form are sent to the regional HQ where they are entered into a computerised accident database. That data is transferred electronically to Police HQ in Sofia for compilation into the national accident database.

In the case of damage only accidents a smaller standard form is used but most of the data collected is related to the damage to vehicles and property and details of the drivers involved and is collected primarily to meet the needs of the insurance industry (as current legislation requires police to provide a report of each accident which drivers can then pass on to their insurers).
3.4.2 Issues/problems on accident data and statistics

The present data system although able to permit the overall scale of the problem to be assessed in terms of numbers of deaths, injuries and accidents is completely inadequate to enable the underlying characteristics and nature of the problem to be properly investigated or analysed. The existing data system allows some preset standard, very basic, administrative tables to be produced but does not permit cross referencing of factors or in-depth analyses to be undertaken which would allow remedial measures to be devised. At Police HQ the inadequacy of the existing police data system is such that the data has to be further transposed into an Excel spreadsheet in an effort to try and do more useful analyses but at best this just provides another few basic tables and nowhere near the flexibility and analytical ability required to make most effective use of the data collected.

The requirement for police to collect data at damage only accidents places a totally unnecessary burden on the traffic police and they currently spend 60-80% of traffic police time dealing with minor damage only accidents. In addition because vehicles from accidents cannot be removed until the report is completed unnecessary congestion sometimes for an hour or more as each of these minor accidents are dealt with. This is a totally unnecessary wastage of police resources and diverts police resources from more important enforcement activities. Police reporting of these minor damage only accidents should either be stopped altogether or made much more streamlined to minimise police

In Denmark, the Road Sector Information System (VIS) is a nationwide road databank owned by the Road Directorate and the 14 Counties. The system contains regularly updated data for all national and regional roads, covering roads, bridges, pavements, traffic and accidents. The accident data also covers municipality roads. There is a long tradition for comprehensive and systematic recording of accidents in Denmark. The procedure has recently been revised, and from 2000 the police deliver an electronic report directly to Statistics Denmark (the national Danish bureau for statistics). Statistics Denmark records these preliminary reports into the national accident data bank and conducts quality control of the data. The users of the data, including the Road Directorate, Counties, the Danish Council for Road Safety Research and the municipalities, have direct access to the database.

The exact geographical location of the accident is crucial for the overall usefulness of accident data for analytical purposes such as black spot identification. The data (road characteristics, traffic and accidents) is linked through common identification. In Denmark, the road number and the distance from a starting point on the road is used as identification. The functioning of this database together with the registration of accidents is only possible because all main roads have road side poles for every 100 metres, giving the identification at the specific point. Therefore, the police are always a maximum of 50 metres away from an exact localisation and their report can point out the accident location with sufficient accuracy for identification of black spots.
time and congestion on the roads. The police with the help of the Police Research Institute do compile lists of the worst accident black-spots on the national road network and pass these over to the Road Infrastructure Fund (RIF) for action/improvement. It is understood that in each region and municipality, information on the most hazardous locations on bon RIF roads is also passed onto municipal road engineers.

3.4.3 Recommendations on accident data and statistics

To sharpen focus on results, the collection and use of data in the road accident database must be improved to permit the problems to be better understood and to allow for better monitoring and evaluation system to be set up.

- **Short-term (1-2 years)**
  - Review and totally overhaul the accident data system by introducing a new accident data form nationally and developing and installing a new national police accident data system with significantly enhanced analyses capability. This will enable more effective analyses of the underlying characteristics and nature of the problem, identification of high risk groups for attention etc. and will permit other stakeholders to get access to non confidential accident data in the database.
  - Eliminate or at least streamline the reporting of damage only accidents. For example, drivers could be required to report the accident at the nearest police station to get a simple very basic report (confirming that the accident has been reported) which they can take to the insurance company. The form should only contain basic details of the location, the participants and their brief statements of what happened. It should be up to the insurance company to collect whatever other information they may want from the drivers. A copy of the form could be kept at the police station and basic details of the location and serial number of accident could be stored on the new computerised accident database (so that later, if black-spot analyses is being done based on the injury accidents at a particular site, any damage only accidents that also happened at that site can be reviewed to see if they shed any additional light on the typical problems that may be occurring at that location.

The Convention of Road Traffic (Vienna, 1968) defines a road fatality as being when a person injured dies within 30 days of the crash (and as result of the crash). However, some countries do not use this definition but instead define fatalities "on the spot" (like in Bulgaria), within 24 hours, 3 days up to 365 days. By using other definitions such as "on the spot", underreporting will occur as described previously. Denmark uses the 30 day definition for fatalities. The police opens a police report in case of an accident which should be preliminary registered within one week. Before the police may close the police report finally (which should happen within 1.5 months) they are obliged to control and register whether anyone died from the accident.

Denmark uses the 30 day definition for fatalities. The police opens a police report in case of an accident which should be preliminary registered within one week. Before the police may close the police report finally (which should happen within 1.5 months) they are obliged to control and register whether anyone died from the accident.
Medium-term (3-5 years)
Non-confidential items in accident database to be online and available for downloading to pre-agreed stakeholders and/or researchers.

Police research institute to be doing in-depth analyses of accident data to fully understand the nature and characteristics of the problem in Bulgaria, the road users at risk and identifying and recommending interventions needed to improve road safety in Bulgaria.

Police research institute working closely with RIF road research institute and Ministry of Regional development to identify hazardous locations on the National, regional and municipal road networks, in implementing hazardous locations improvements programs and in monitoring their effectiveness.

Long term (5-10 years)
Accident data being used to derive appropriate casualty reduction targets for each road safety initiative proposed within the national road safety strategy and the sector specific road safety action plans and for monitoring their cost effectiveness after implementation.

3.5 Road traffic accident statistics on road safety performance
The information in this section is based on information provided on a CD from the statistics bureau with accident data from 2005 and 2006 collected by the traffic police. The following section illustrates:

• major findings concerning the actual road traffic safety performance useful for the identification of strategic priorities in the Qualitative Investment Strategy and Short-term Action Plan
• examples of the actual possibilities of creating statistics from the existing systems.

As described in the previous section, the police have an accident database which includes i) fatal, ii) injury (heavy and light) and iii) material damage only accidents. However, for fatal accidents the police only register those who are dead on location. (So the equivalent number of “30 day deaths” for international comparative purposes need to be 30% greater that those in police statistics).

From 2002 – 2006, the number of killed and injured has increased by almost 25%, as shown in Figure 3-1. Compared to the number of vehicles which grew by 24%, equivalent to 6% per year from 2002-2005, the number of casualties is thus growing faster than the number of vehicles.
Outside settlements

As shown in Table 3-1 with police data from 2006, most fatalities (64%) are registered on rural roads, while most accidents (approx 66%) are registered on roads inside settlements. This is most likely due to the higher speed on rural roads leading to more serious accidents, as shown in Table 3-1. The seriousness of the accidents is 1.66 casualties per accident in rural areas compared to 1.37 in urban areas, and 0.15 fatalities per accident in rural areas compared to 0.06 in urban areas.

Table 3-1  Distribution of accidents, fatalities and injuries on areas inside and outside settlements according to police data (2006)

<table>
<thead>
<tr>
<th></th>
<th>Total country</th>
<th>Inside settlement</th>
<th>Outside settlement</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Number</td>
<td>%</td>
<td>Number</td>
</tr>
<tr>
<td>Fatalities</td>
<td>1043</td>
<td>373</td>
<td>36%</td>
</tr>
<tr>
<td>Injuries</td>
<td>10215</td>
<td>6293</td>
<td>62%</td>
</tr>
<tr>
<td>Accidents</td>
<td>8222</td>
<td>5460</td>
<td>66%</td>
</tr>
<tr>
<td>Total casualties</td>
<td>11258</td>
<td>6666</td>
<td>59%</td>
</tr>
<tr>
<td>Seriousness</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fatal per casualty</td>
<td>0.09</td>
<td>0.06</td>
<td>0.15</td>
</tr>
<tr>
<td>Fatal per accident</td>
<td>0.13</td>
<td>0.07</td>
<td>0.24</td>
</tr>
<tr>
<td>Casualties per accident</td>
<td>1.37</td>
<td>1.22</td>
<td>1.66</td>
</tr>
</tbody>
</table>

Out of the 373 fatalities inside settlements 76% of the fatalities occur in cities and 24% in villages. For accidents and injuries more than 85% occur in cities and 15% in villages. The seriousness of accidents in villages is twice as high as in cities, which is most likely due to the higher speed in e.g. linear villages.
**Accident, fatalities and injuries by road class and road type**

More than 30% of accidents and injuries outside settlements occur on 1 class roads and almost 40% of fatalities. The density (accidents per km) of accidents is highest on motorways and 1 class roads. This is not surprising as these are also the roads with highest traffic flow. The density of fatalities is highest on class 1 roads which indicate that accidents are more serious on these roads.

**Table 3-2 Distribution of accidents, fatalities and injuries on outside settlements by road class according to police data (2006)**

<table>
<thead>
<tr>
<th>Road class</th>
<th>accidents</th>
<th>killed</th>
<th>injured</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>total</td>
<td>%</td>
<td>total</td>
</tr>
<tr>
<td>highways/motorways</td>
<td>116</td>
<td>4</td>
<td>23</td>
</tr>
<tr>
<td>I class</td>
<td>884</td>
<td>32</td>
<td>259</td>
</tr>
<tr>
<td>II class</td>
<td>729</td>
<td>26</td>
<td>166</td>
</tr>
<tr>
<td>III class</td>
<td>537</td>
<td>19</td>
<td>121</td>
</tr>
<tr>
<td>Rural</td>
<td>496</td>
<td>18</td>
<td>101</td>
</tr>
<tr>
<td><strong>total</strong></td>
<td>2762</td>
<td>100</td>
<td>670</td>
</tr>
</tbody>
</table>

The severity of accidents also supports this as the highest number of killed per accidents is on class 1 roads while the highest number of injuries per accidents occur on class 2 roads.

**Table 3-3 Distribution of accidents, fatalities and injuries on outside settlements by road class according to police data (2006)**

<table>
<thead>
<tr>
<th>road segment type</th>
<th>total accidents</th>
<th>killed</th>
<th>injured</th>
<th>inside settlements</th>
<th>total accidents</th>
<th>killed</th>
<th>injured</th>
<th>outside settlements</th>
<th>total accidents</th>
<th>killed</th>
<th>injured</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>number</td>
<td></td>
<td></td>
<td></td>
<td>number</td>
<td></td>
<td></td>
<td></td>
<td>number</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intersections</td>
<td>2309</td>
<td>133</td>
<td>2843</td>
<td></td>
<td>2016</td>
<td>36.9</td>
<td>82</td>
<td>2434</td>
<td>38.7</td>
<td>293</td>
<td>10.6</td>
</tr>
<tr>
<td>Road junction</td>
<td>117</td>
<td>13</td>
<td>163</td>
<td></td>
<td>56</td>
<td>1.0</td>
<td>4</td>
<td>62</td>
<td>1</td>
<td>61</td>
<td>2.2</td>
</tr>
<tr>
<td>Bridge</td>
<td>76</td>
<td>37</td>
<td>107</td>
<td></td>
<td>32</td>
<td>0.6</td>
<td>7</td>
<td>34</td>
<td>0.5</td>
<td>44</td>
<td>1.6</td>
</tr>
<tr>
<td>Tunnel</td>
<td>6</td>
<td>-</td>
<td>10</td>
<td></td>
<td>4</td>
<td>0.1</td>
<td>-</td>
<td>8</td>
<td>0.1</td>
<td>2</td>
<td>0.1</td>
</tr>
<tr>
<td>Road/ street section</td>
<td>5549</td>
<td>830</td>
<td>6895</td>
<td></td>
<td>3267</td>
<td>59.8</td>
<td>273</td>
<td>3663</td>
<td>58.2</td>
<td>2282</td>
<td>82.6</td>
</tr>
<tr>
<td>Guarded railway crossing</td>
<td>8</td>
<td>1</td>
<td>11</td>
<td></td>
<td>5</td>
<td>0.1</td>
<td>1</td>
<td>6</td>
<td>0.1</td>
<td>3</td>
<td>0.1</td>
</tr>
<tr>
<td>Unguarded railway crossing</td>
<td>3</td>
<td>2</td>
<td>2</td>
<td></td>
<td>1</td>
<td>0.0</td>
<td>-</td>
<td>-</td>
<td>1</td>
<td>0</td>
<td>0.1</td>
</tr>
<tr>
<td>Other place</td>
<td>154</td>
<td>27</td>
<td>184</td>
<td></td>
<td>79</td>
<td>1.5</td>
<td>6</td>
<td>85</td>
<td>1.4</td>
<td>75</td>
<td>2.7</td>
</tr>
<tr>
<td><strong>total</strong></td>
<td>8222</td>
<td>1043</td>
<td>10215</td>
<td>5460</td>
<td>100</td>
<td>373</td>
<td>100</td>
<td>6293</td>
<td>100</td>
<td>2762</td>
<td>100</td>
</tr>
</tbody>
</table>

The severity of accidents also supports this as the highest number of killed per accidents is on class 1 roads while the highest number of injuries per accidents occur on class 2 roads.
Most accidents, fatalities and injuries are registered by the police to occur on roads and streets sections (60-80%) and in junctions and intersections (20-40% in settlements and 9-12% outside settlements). Inside the settlements, accidents are generally more serious at junctions while outside settlements the most serious accidents occur on bridges and in junctions.

**Types of accidents**

The below figures present the types of accidents according to police data. As seen in Figure 3-2 most accidents are "running over a pedestrian", "collision with motor vehicles" and "rollover outside the road".

![Accident Type Chart](image.png)

**Figure 3-2  Number of accidents by type**

The accident type leading to most fatalities are as seen in Figure 3-3 "collision with motor vehicles", "running over a pedestrian", "collision with a tree" and "rollover outside the road".
**Figure 3-3  Number of fatalities by type**

The accident type leading to most injuries are as seen in Figure 3-4 "collision with motor vehicles", "running over a pedestrian", "collision with a tree" and "rollover outside the road".

**Figure 3-4  Number of injuries by type of accident**

The seriousness of accidents - killed per accident - are highest for "collisions with trains" (but these are only few in total), "collision with a tree", "collision with vehicles in front" and "rollover outside the road". The accidents with most injuries per accident are "collision of motor vehicles", "collision with a post", "rollover outside the road" and "collision with a cart".
Approximately 95% of the accidents are reported by police to be due to the fault of the driver while the road or the vehicle only are registered as the reason for the accident in less than 1% of the total accidents.

**Accidents by violation type**

More than 30% of the accidents were registered to be caused by speeding and 7-18% is due to overtaking and change of lanes. Surprisingly less than 5% are registered to involve alcohol which is even more surprising as the Consultant was told that tests are made at all accidents. (This statistic seems highly unlikely and is either due to miscoding in data entry or suggests that the data recorded on this issue is not accurate).

![Accidents by violation type](image)

Figure 3-5  Number of accidents by violation type

Head on collisions due to e.g. incorrect overtaking are the most serious types of accidents together with speeding accidents.
Fatalities and injuries by affected groups and age
According to the police data approximately 40% of fatalities and injuries are drivers and approximately 25% are pedestrians as seen in table 3-3. Compared to the old EU countries pedestrians are significantly over represented as in the EU15 average the pedestrians account for 14%.

Table 3-4 Distribution of fatalities and injuries by affected groups according to police data (2006)

<table>
<thead>
<tr>
<th></th>
<th>killed</th>
<th>injured</th>
</tr>
</thead>
<tbody>
<tr>
<td>drivers</td>
<td>454</td>
<td>3943</td>
</tr>
<tr>
<td>passengers</td>
<td>316</td>
<td>3860</td>
</tr>
<tr>
<td>pedestrians</td>
<td>273</td>
<td>2409</td>
</tr>
<tr>
<td>other</td>
<td>0</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>1043</td>
<td>10215</td>
</tr>
</tbody>
</table>

Generally the largest group killed in road accidents are between 25 and 64, but among pedestrians the age group over 65 is over represented as this age group account for 45% of the killed pedestrians while the average for this age group is 18% as illustrated in Figure 3-6.

![Killed by age](image)

Figure 3-6 Number of fatalities by age and type
Generally the largest group injured in road accidents are also between 25 and 64. For injuries the pedestrians in the age group over 65 are overrepresented as this age group account for 25% of the killed pedestrians while the average for this age group is 11% as illustrated in Figure 3-7. For injured pedestrians the children below 14 are also overrepresented accounting for 18% compared to the average 9%.
Young drivers (18 to 24 years) are a little overrepresented in the statistics accounting for a few % more than the average. This is not as significant as in the EU15 countries.

Vehicle type
Cars are involved in more than 70% of the killed drivers which is a significantly higher proportion than in EU15 where cars account for 57%. Trucks are a little over represented compared to the EU15.

Accidents by time and day
According to the accident data from the police most fatalities occurs on Saturdays and most accidents and injuries on Fridays. The seriousness of the accidents are highest during Saturdays and Sundays.
The time of the day when most accidents, fatalities and injuries occur is between 17.00 and 20.00. The seriousness of the accidents is highest between 23.00 and 04.00 which is most likely due to higher speed when there is no traffic.

This is also confirmed by statistics on accidents by road lighting. Most accidents occur at daylight, but 28% of the killed are registered in darkness compared to 17% of injured and accidents. The seriousness of accidents is higher in darkness and dusk.

Figure 3-9 Distribution of fatalities, injured and accident by days
Most accidents (30%) occur during the summer time in July, August and September as illustrated for fatalities in Figure 3-11.
Accidents by sex
More than 70% of the killed and 60% of the injuries are male, and especially among drivers, the majority are men (approx. 90%).

Among the pedestrian accidents male account for a little over 60% of the killed and females account for more than 50% of the injured pedestrians.

Seatbelt and helmet use
There are no statistics given on seatbelt and helmet use in accidents but as observations show seatbelt wearing is low, it must be assumed that are large part of those killed and injured were not wearing seatbelts.

3.6 Summary on focus on results
The main findings on result focus are:

• National targets are stated in the national strategy (and are broadly based on seeking compliance with the EU targets of 50% reduction deaths by 2010). The targets stated in the National strategy are to have deaths reduced to 700 and injuries reduced to 6597 by 2010. (In 2006 deaths were 1043 and injuries were 10215 so reductions of 33% and 35% respectively are required by 2010).

Unfortunately these targets are just stated as aspirations and no efforts appear to have been made to try to indicate how these will actually be achieved. The various initiatives proposed in the national strategy and in the very few ministerial action plans that have been prepared have no casualty reduction targets and consist largely of long lists of useful safety interventions that it would be good to do. There are no target dates for completion, no budget estimates for their implementation and no estimates of their expected results in terms of casualty reductions.

• The basic strategy and intent is fine but there is significant lack of implementation or the means to monitor progress towards stated casualty reduction targets. However, credit has to be given to the fact that a National coordination structure does exist and is being extended to regional and municipal level. If this can be made more effective it will be able to make a marked improvement in road safety nationally.

• The police produce lists of the “worst “ black-spots each year on the RIF national road network in accordance with criteria and a methodology agreed with RIF. However the RIF in recent years have generally made no efforts to improve such locations and at best have placed “accident black-spot” signs at a few of such locations. As a result the same black-spots keep appearing year after year (for example 65 black-spot sites appear on the black-spot list for 2004 and appear again in 2005 and 2006) indicating that no improvement has been made by RIF and such sites continue to contribute deaths and injuries year after year).
• The quantification of economic costs of road accidents is not used by the government in Bulgaria. Total annual accidents costs in Bulgaria are estimated to be at the very least Euro 500 millions and could well be in excess to Euro 1000 millions per year.

• The accident data system needs significant streamlining and improvement to release police manpower for the important tasks of enforcement and to permit more effective storage, analyses and dissemination of data. So far, information in the database has not been used to focus on results or as an analytic tool for in depth accident analysis or research. Another major deficiency is the lack of dissemination of data to the road administrations and coordination with the health authorities on definition and registration of fatalities.

• According to the data received during the study a first assessment of the road safety risks show that:
  - the number of killed and injured is growing
  - most fatalities occur in rural areas
  - most accidents and injuries occur in urban areas
  - the seriousness of accidents is higher on rural roads than on urban roads
  - the concentration of accidents on motorways and class 1 roads are higher than on other roads but accidents are most serious on class 1 roads
  - pedestrians account for a large proportion of the killed and injured in Bulgaria compared to EU15
  - most accidents, killed and injured occur on road sections and junctions
  - according to the accident data the main reasons for accidents on rural roads are:
    - speeding
    - overtaking and change of lanes.
  - the main road accidents leading to fatalities are:
    - collision with motor vehicles,
    - running over a pedestrian,
    - collision with a tree
    - rollover outside the road
  - in Bulgaria, like in many other countries, young drivers are involved in many accidents.
4 Safety interventions

This section reviews road safety interventions in Bulgaria. The review includes the following sections:

- Design, planning and operation of roads
- Vehicle standards and rules
- Standards and rules for road users
- Police enforcement
- Other compliance interventions
- Emergency services

The review considers whether comprehensive safety standards and rules have been set for roads, vehicles and road users according to the safety tasks, and whether there are compliance regimes in place to ensure adherence to the identified standards and rules. It is reviewed how favourably the identified standards and rules and related compliance regimes compare with international best practice, and whether the identified standards and rules and related compliance regimes clearly address the safety priorities of high-risk road user groups.

4.1 Design, planning and operation of roads

This section reviews the planning and design of safe roads, including possible existing arrangements for road safety audits, design and implementation of low-cost engineering and traffic calming measures.

4.1.1 Existing situation

This section covers:

- Design standards
- Road safety auditing
- Black spot identification
- Traffic and safety engineering measures used
- Other safety engineering work and existing roads.

Design standards

The design standards used by RIF are generally following German standards. However, these standards are as all standards - minimum criteria and often a
compromise between traffic flow, economy, road safety and environment. This
means that they do not always necessarily provide the safest solutions. The
standards are a good starting point but in each road project, it should be as-
essed if further measures regarding road safety should be taken.

A brief review of the Bulgarian road standards (geometrical design) has indi-
cated a number of different problems on the standards. A more detailed review
through all the standards is likely to identify additional issues for attention.
Some of the issues found, are discussed below.

The distance from the edge of the road to fixed objects along the road is gener-
ally too short. Moreover the slopes seem to be too steep. A longer distance to
fixed objects along the road and flatter slopes will not prevent most accidents
but it will probably make the consequences less severe. There do not appear to
be adequate standards indicating sufficient safety zone.

The standards for curves seem to allow for rather sharp curves at speed limits.
At e.g. 80 km/h the standards allow curve radii down to 250 m. Experience
elsewhere has shown that curves with radii under 400 m are generally known to
be accident prone and should preferable not be under 1000 m.

No standards have been seen for pedestrian crossings but they are used along
the roads. Also there seems to be no standards for use of speed reducing meas-
ures near crossings. This means that drivers rarely stop for pedestrians crossing
and this makes it very unsafe to cross the road.

The standards for junctions allows for very dynamic and big junctions - includ-
ing very large 4-leg junctions.

There seem to be no standards on measures to e.g. reduce speed in linear vil-
lages.

**Road safety auditing**

No formal safety audits are conducted to ensure compliance with the latest road
safety knowledge during planning, feasibility, outline and detailed design, nor
during maintenance and improvement of roads. As a consequence, there is a
significant risk that unsafe situations will be created on as roads are rehabili-
tated and constructed in Bulgaria. Also road safety inspection of existing roads
is rarely undertaken.

**Black spot identification**

The Road infrastructure Fund (RIF) and The Ministry of Interior have signed a
protocol that the traffic police will identify and compile a list of the worst acci-
dent black-spots on national roads in accordance with agreed criteria and meth-
odology agreed between them. The Traffic police appear to have been doing
their part and have been providing annual lists of the “worst” 200 -240 accident
black-spot sites on national roads each year. Unfortunately the RIF have rarely
made any improvements at such sites and on the very few occasions anything
was done it has usually been limited to just the erection of “accident black-
spot” warning signs at the site. As a result many sites continue to appear year
after year in the annual black-spots and continue to be locations of deaths and injuries for road users. For example between 2004-2006, the same 65 sites have been appearing on the black-spot list year after year and between them have so far contributed to 2095 accidents, 55 deaths and 280 injuries - many of which could have been avoided if RIF had taken appropriate action to improve such locations.

**Traffic and safety engineering measures used**

There are no specific traffic engineering or other measures currently being used on RIF roads to improve safety at known black-spots because funding has not been made available in the past for improvements. Knowledge of potential safety measures is available within RIF amongst those involved on the "Partners for Safety" program. (A collaborative program with Netherlands through which several persons in RIF are being intermittently trained in road safety issues) but there has been little opportunity for such persons to apply the knowledge imparted to them.

**Other safety engineering work**

There appears to be very little if any other safety engineering work undertaken and travel along a representative selection the network of National and municipal roads as part of the field trip to visit known accident black-spots, revealed significant scope for improvement via low cost safety engineering measures. Many locations could be made safer through better use of channelisation, better access control and control of intrusive and distracting advertising signs along the roads. The safety and operational aspects of the roads are not currently being given adequate attention and unless there is a radical change in approach and increased recognition and priority for road safety issues within RIF the road safety situation will continue to deteriorate as it has been doing steadily in recent years.

**Existing roads**

A field trip was carried studying different types of roads, junctions and assessing different types of black-spots.

On the roads visited on the field trip it was observed that junctions are generally designed very dynamic using excessive large areas. The right turns especially are allowing cars to move too fast. The deceleration and acceleration lanes generally seem too short compared to the prevailing speeds on the motorways.

Vertical and horizontal curves seem to be rather sharp. This means that the sight distance area is often too short. Background marking of curves, road markings and road signs are often missing. (For example, there are rarely local speed limits). Moreover, there are not many physical measures e.g. narrowed lanes or speed bumps to motivate or force drivers to respect speed limits in build-up areas and towns.
In the safety zone (7 m at 90 km/h speed limit) there are fixed objects (trees, poles, billboards), concrete walls and steep slopes. In some stretches guardrails are missing and in other places they are in poor condition or pushed apart by vehicles. The endings of the guard rails could be improved so that a vehicle cannot hit it directly head-on.
Dangerous junction with unclear priority and possibility for high speed

The sidewalks - if any - are very narrow. In general, there are few facilities for pedestrians, which mean that they are instead often walking on the road.

No measures to reduce speed in buildup areas and pedestrian crossing not very clearly
marked, cars are parking on sidewalks in many cases so pedestrians need to use the road

On motorways where there are local speed limits the distances between the different speed limit signs requiring phased reduction of speed are extremely short. On motorways with speed limits at 130 km/h the distance between a 90 km/h and 70 km/h sign is maybe 25-50 m, which would mean dangerous braking if people were to obey the signs.

4.1.2 Issues/problems on design, planning and operation of roads

Although the objectives of the RIF include the provision of safe roads, they in the past, appear to have given very low priority or funding to road safety and have been primarily focussed on rehabilitation and construction of the road network.

The way the roads have been implemented makes them in many cases very dangerous and not at all forgiving. This include the lack of safety zone, which is also confirmed by the many fatalities due to hitting trees, poles turnovers off the road, etc. Other problems are layout of junctions and lack of speed reducing measures in linear villages.

Road safety audit is not used and even on new design projects financed by e.g. international funds there appear to be no clauses requiring on road safety audits'.
Black-spot identification is systematically carried out by the police but generally they are only identified and no attempts are made by RIF to improve them - only signs marking the black spots are generally used.

4.1.3 Recommendations on design, planning and operation of roads

Safety engineering improvements
The main problem is not so much the road construction design standards although improvements would be welcomed on e.g. curves, junctions, safety zone, but the traffic engineering and changes made during operation and maintenance of the roads. Additionally, the function of a road may have changed since its design, including large increases in the amount of traffic, changed distribution of traffic, e.g. more heavy trucks and speed. Also expertise in safe road design undergoes constant development and even recently constructed roads may not attain the desired road safety standard now being recommended for new roads. Therefore possibilities for safety improvements should be identified and implemented.

The identification of potential problematic locations should be identified through systematic use of road safety inspections.

It is necessary to do both accident reduction (identification and improvement of dangerous locations) and accident prevention (identification via safety audit of potential unsafe situations so that potential hazards can be avoided)

Road safety measures
There is an urgent need to improve the size of advance warning signs such as chevrons and to ensure their placement is high enough to break the sightline of approaching drivers in sufficient time for them to slow down before they reach the hazard. There is also considerable scope to use speed reducing measures such as traffic calming at locations where speeds are unacceptably high and to apply mass action plans (e.g. skid resistance improvements) where similar problems are found repeatedly on the road network. The problem in Bulgaria is not knowledge of suitable measures or even access to information but the previous unwillingness of RIF to invest in accident reduction at existing dangerous locations or in accident prevention by introducing safety audits of proposed rehabilitation and new construction projects target selected high risk areas (black spot work).

- While the road safety audits described in the next section are systematic accident prevention, removal of hazardous sections (black spots) is a way to target locations where clusters of accidents occur. The idea behind identifying and targeting black spots is that the benefits of treatment are expected to be largest where most accidents occur.

- In principle, there are 7 stages in traditional black spot work which are often carried out annually:
• identifying black spots
• analysing black spots
• suggesting appropriate measures
• calculating cost-benefit ratio (e.g. first year for return or cost-effectiveness)
• prioritising black spots for improvement
• improving black spots
• evaluating effects.

• In the selected high-risk areas (inter-city corridors and city areas or provinces), it is suggested to remove hazardous locations by introducing systematic black spot work.

Road safety audits
Road safety audits are an important way to ensure that unsafe situations do not get introduced into the network which later become road safety problems

Short-term (1-2 years)

Accident prevention
Until a formal safety audit system is introduced and local safety auditors trained in Bulgaria, all design consultants appointed by RIF can be asked to include independent safety audits of their road designs (at feasibility, outline design, design and post construction/pre opening stages) undertaken by an experienced safety auditor. They can have this done by in house safety auditors from their own firm or can hire in a short term safety auditor to carry out the safety audits. RIF should organise through the part subsidised Partners for Safety program, a safety audit “Train the Trainers” course to be implemented in Bulgaria to develop a core team of safety audit trainers who can then carry out safety audits for RIF and train others in such work. This could include development of safety audit guidelines and checklists suitable for the traffic and road conditions in Bulgaria.

Accident reduction
The RIF should identify the 24 of the worst accident black-spots on RIF road network and get the RIF research institute to analyse them to develop suitable safety engineering remedial measures to improve road safety at such locations. These improvements should be absorbed into the RIF maintenance and construction program for highest priority attention.

Medium-term (3-5 years)

Accident Prevention
• Annual safety audit training course (1 week) being run by qualified local safety audit trainers on behalf of Bulgaria Federation of Highway Engineers (BFHE)

• Safety audit a mandatory requirement for all road work in Bulgaria

• Traffic engineering and safety standards reviewed and updated.
Accident reduction

- Accident black-spot improvement course (2 week) being run twice a year for RIF and Municipal road engineers on behalf of Bulgaria Federation of Highway Engineers (BFHE)

- Each road authority required to improve road safety on their road network by identifying and improving accident black-spots and to report annually on work undertaken and effectiveness of their road safety activities

- Accident black-spot improvement programmes being implemented in each roads authority at National and local level.

Long term (5-10 years)

Accident prevention

- Safety audit system in place and guidelines being updated regularly

- Safety audit being undertaken systematically of existing roads to bring up to acceptable safety standards

- Improved road standards to take safety more into account.

Accident reduction

- Accident black-spot programs being implemented in all roads authorities

- Annual conferences of safety engineers to discuss new techniques and to discuss effectiveness of alternative remedial countermeasures

- Systematically perform road safety inspection of existing roads to identify need for improvements

- Incentives (additional funds for black-spot programs, awards for most successful or innovative safety schemes, etc) from central government to encourage innovation and competition amongst safety practitioners.

4.2 Vehicle standards and rules


The following section reviews the safety standards and existing legislation for vehicles in Bulgaria, including existing arrangements for new vehicles and facilities for vehicle control. The review is based on interviews and visits to an existing inspection centre.

4.2.1 Existing situation

Technical vehicle testing in Bulgaria is privatised. Approx. 650 private garages/workshops undertake vehicle testing, many of which are very small local
firms, whereas others have several inspection places. As in other countries some testing halls only work with vehicles of a total weight below 3,500 kg, and others also test vehicles with at total weight above 3,500 kg. There is a prescribed procedure with specified minutes to be spent doing specified checks and whole inspections should take 25 – 30 minutes to do correctly.

MoT has the overall responsibility for vehicle testing. When a testing organisation applies for authorisation to undertake vehicle testing, the Traffic Inspectors from MoT carries out an inspection of the facilities. In applying to become authorised garages have to give agree times and procedure to be compliant and they can lose authorisation if they infringe the requirements. The purpose of this inspection is to ensure that the applying premises have been equipped with sufficient facilities, such as lifts, brake measure equipment, electronic measuring equipment as well as tools.

MoT has HQ plus 27 regional offices and 250 inspectors and 200 experts and 19 mobile inspection teams to cover the whole country doing inspections of companies, on road inspections, periodic vehicle inspections of commercial vehicles and taxis. This workload is high and in Sofia for example there are 6000 taxis and only 27 inspectors controlling them. There are 2500 truck companies and around 20,000 HGV for international routes. In Sofia, 5 inspectors are supervising 140 garages that do the periodic vehicle inspections.

If the physical conditions comply with the requirements, the testing organisation must then document that the employees carrying out the testing of the vehicles have been trained and qualified for the job. Authorisation for inspection of bigger and heavier vehicles requires a supplementary qualification.

The technical qualification is only offered at one of Bulgaria’s 3 technical universities, where the candidates have to pass an examination in order to receive a diploma. Only employees with a diploma are allowed to undertake vehicle testing.

Traffic Inspectors from MoT inspects the testing organisation premises as well as the diplomas of the employees and issues an authorisation if all requirements are met. Every authorised testing premises must display the authorisation in a visible place.

Every year Bulgaria undertakes 2.5 million technical vehicle inspections. At present there is no link between the police database vehicle registry and the MOT vehicle inspection database. The vehicle inspectors are also not necessarily car mechanics and only 40% out of the 250 have a technical background.

Bulgaria has, in relation to Council Directive 96/96, intensified the national requirements for technical vehicle inspection.

- New vehicles
  - New vehicles below 3,500 kg, first test after 3 years
  - Other vehicles – trucks, busses and taxies, first test after 6 months
• Regular inspection

- Vehicles below 3.500 kg. must be tested every year.
- Vehicles above 3.500 kg., taxis and minibus must be tested every year.

At present MOT can only check roadworthiness of commercial vehicles by themselves, as police are needed to halt private motorists.

When the vehicle has been approved, a sticker is issued showing the date of the testing. This sticker must be placed inside the windscreen in order for the police to check that vehicle has been inspected within a year. It is only issued after driver shows his insurance and that all his taxes have been paid.

![Figure 4-1 Stickers on windscreen](image)

4.2.2 Issues/problems on vehicle standards and rules

It can be concluded that there is some room for improvement on technical vehicle inspection in Bulgaria.

Some development of facilities is necessary. There is a need for a data system, which can ensure that all vehicles are called in for inspection in accordance with the legislation, and that the available data can form a strategically tool for the inspection and control of the testing garages. Informal payments are an issue, and it is publicly known that certain testing garages provide stickers that can be “bought” without presenting the car. This procedure is, naturally, very attractive to owners of old vehicles, which will otherwise not meet the normal requirements for vehicle safety.

The organisational structure of Technical Vehicle Inspection needs to be strengthened by an overall strategy for the organization and for the Traffic Inspectors’ work, both with regard to inspection of the testing garages and with regard to control of commercial vehicles.

• Informal payments entails that a major number of vehicles, mainly vehicles in a poor technical condition, do not undergo inspection.
• No link up between the MOT vehicle inspections database and the police vehicle database. The lack of a data system for calling in vehicles for technical tests as well as for calculating the percentage of vehicles approved at the first technical test. Subsequently, these data can be used in the strategically work of the Traffic Inspectors’ control of the inspection garages.

• The number of Traffic Inspectors is insufficient for controlling the inspection garages effectively.

• The majority of Vehicle inspectors supervising inspections may not have vehicle mechanic experience or even any technical background. Ideally vehicle inspectors overseeing vehicle inspections should themselves be vehicle inspectors.

• A written overall strategy is needed for the work of the organisation, for the Traffic Inspectors' control of the inspection garages, and for the control of the commercial traffic.

4.2.3 Recommendations on vehicle standards and rules

The number of Traffic Inspectors needs to be increased, which will both intensify the number of unannounced inspections to the inspection garages and adapt the organization to future requirements of intensified control of the commercial traffic.

An overall strategy should be worked out for the organization as well as for the work of the Traffic Inspectors with regard to control of inspection garages as well as for the road side control of commercial vehicles.

A data system should be set up, registering all data in connection with vehicles called in for inspection, the results, the errors found and possible recalls of the vehicle for control inspection. Based on this information, national calculations can be worked out for vehicles not passing the inspection, the reasons, and for comparing the authorisation rate of the individual inspection halls, above or below the national average rate.

Short-term (1-2 years)
• Implement an overall strategy, known to all employees in the organisation.

• Implement a plan for intensifying unannounced inspections to the inspection garages.

• As a part of the control inspections, consideration should be given to producing vehicles with built-in errors of a serious nature.

Medium-term (3-5 years)
• Employ and train more Traffic Inspectors for the purpose of intensifying the announced inspections of the inspection halls.
**Long term (5-10 years)**

- Implement a qualified data system for both administration of calling in vehicles and for strategic statistical control of the inspection garages.

### 4.3 Standards and rules for road users

This section reviews the existing traffic legislation and regulations for driver training and testing.

#### 4.3.1 Existing situation

**Traffic legislation**

Traffic legislation in Bulgaria is based on The Vienna Convention which does not, however, define exact traffic legislative details appertaining to the individual countries. The Traffic Legislation are to a large extent according to international legislation including both the Geneva Convention and on best practices in Europe. However, there are some differences on traffic rules on for example:

- seatbelts (passengers), child restraint for children
- new drivers (harder sanctions)
- drugs and medicine
- general speed limits of 90 km/h and 130 km/h on rural roads and motorways are in many cases too high compared to the layout.

In most EU countries seatbelts are also required by passengers, but this is not the case in Bulgaria. There appears also to be no legislation on child restraint systems on backseats for children in Bulgaria.

Bulgaria has no legislation providing harder sanctions of new drivers like in many EU countries.

**Commercial Transport**

MoT is the superior authority and, therefore, responsible for both regulation and enforcement for commercial vehicles driving in Bulgaria. The legislation for commercial transport is according to the EU-acquis on transport.

The Traffic Police in Bulgaria has no authority to control the commercial freight and passenger transport.

The control is carried out by Traffic Inspectors, the very same Traffic Inspectors responsible for authorisation and inspection of the 650 Inspection garages carrying out MoT tests of registered vehicles.

The review of control of commercial vehicles is based on interviews with Traffic Inspectors on a control site, where commercial vehicles, both Bulgarian and international, were controlled.
The control was carried out from a specially equipped van, where all necessary equipment such as computer, scanner, printer, weights and all necessary technical measuring equipment was available for the inspectors.

The control was professional and in line with international standards and EU best practices and EU-acquis and police reports were made out for the found offences.

Figure 4-2  Specially equipped van for control of commercial transport

Driver training and testing

The review of driver training and testing in Bulgaria is based on interviews with leaders and examiners, visits to existing testing centres, where both theory and practice sessions in connection with passing a driving test for private cars were attended.

MoT is the superior authority and, therefore, responsible for both driving training and driving tests in Bulgaria.

Bulgaria has adopted and implemented EU-acquis by Council directive 91/439 and the driving training works accordingly.

Bulgaria has approx. 260,000 driving tests yearly, 44,000 of which take place in Sofia. The rest of the tests take place at a number of test centres spread geographically appropriately over the whole of Bulgaria.

A qualified driving instructor must teach all learners and they spend about 36 hours on theory and minimum 24 hours practical training. Driving schools are regulated by MOT and have to have qualified instructors, adequate facilities for teaching theory and road worthy vehicles. From 2008 instructors will be separately registered. Books on driving / Highway Code and theory practice test papers readily available to learners. On passing the test, the new driver goes to the police to get his license, as the police are responsible for the driver and vehicle registry.

Learners must be minimum 18 years old (car) or 21 (commercial vehicle) and are required to undergo the minimum requirements and do practical training on real roads in real traffic and learner first takes the theory test of 60 questions with multiple choice and learner can only get 4 or 5 wrong. If test theory failed it must be retaken before practical test can be taken. If the practical test is
failed, the learner must go back and take at least 4 hours more tuition from driving instructor.

It is reported that in connection with passing a driving test, informal payments are an issue, as many students are said to pay the examiner, in order to let them pass the test. Special control arrangements have, therefore, been introduced at the tests in order to try and prevent such activity.

In advance of the theory test, the examiners are introduced to a system of drawing lots of sealed envelopes containing the name of the student they are going to monitor for the driving test, provided of course, that they pass the theory test. The whole procedure of pre-packed envelopes, drawing lots in the presence of both the driving instructors and the examiners and finally the allocation of students, is a long, ineffective and time consuming process.

The theory test takes place at a local test centre, with 2 examiners controlling the test. After checking the identity of the students, they are thoroughly instructed in how the test works and how to answer the questionnaire. Normally, 10 students get a questionnaire with 60 questions, which according to the multiple choice method must be ticked off within a time frame of 40 minutes. In order to pass the test, 55 of the questions must be answered correctly.

After the test, the examiners manually check the questionnaires and calculate the percentage of error, the result of which is then presented to the student. Should the student pass the theory test, the practical test will be available later the same day.

Before the driving test the students receive information and a telephone number for a "Hot Line", in case an offer is made to pass the test by bribery, or at other complaints during the course of the test.

At the driving test the student goes through the technical standard of the car before driving out. The driving lasts approx. 25 minutes, and here the student must prove that he can administer common traffic situations on normal roads.

**Education of the driving instructors**

All driving instruction in Bulgaria is carried out by private driving instructors, educated at two special colleges in Bulgaria. The 2 year long education, including both theoretical as well as practical training, is terminated with an exam, and if passed, the instructor is authorized and receives a diploma as “Instructor of Drivers”.

In order to receive an authorisation to educate students, the instructor must be 23 years of age with no criminal record of serious crimes i.e. violence, rape or certain economic crimes etc.

Should the driving instructor wish to be an independent instructor, he must be the owner of a registered company, have access to a classroom which can be approved for teaching theory and also have a car, prepared and authorized as a learner car.
It is an official requirement that the driving instructor every 4th year participates in a refresher-course at one of the two mentioned colleges.

Few information driver education campaigns are conducted by MOT but some other agencies sometimes do campaigns.

**Examiners**
MoT do not educate the examiners, but enlist them from the group of driving instructors with a seniority of 5 years, providing, of course, that he gives up his private business. At present there are no special courses for driving examiners and they just have to have been at least 5 years as a driving instructor plus have a clean license. In new legislation there will be a requirement for examiners to pass an examiners course and to take a refresher /update course every 4 years. The technical university will probably implement these courses.

4.3.2 Issues/problems on standards and rules for road users
Legislative requirements for obtaining a driver licence, a commercial driver licence or a motorcycle licence, comply, in general, the requirements of other countries in the EU.

With regard to the procedure of assigning examiners to the individual students, a substantial waste of resources takes place, as approx. 15 persons are present for the 40 minutes the test lasts.

The informal payments - especially at the driving tests - are publicly known, and with certain driving instructors it is still possible to buy the test.

The fact, that the student can pass both the theory test and the driving test on the same day, makes it impossible to effectively plan the employee resources, as no one knows the number of students passing the theory test. This means that a maximum number of examiners must be present in case more than the average number of students passes the test.

All learning cars are equipped with a big sign on the roof, showing that his is a learner car. At the driving test the signs are not removed, which means that other road users may show consideration to the learner car, and thus, the test may not progress realistically.

• The traffic regulation should be reviewed for e.g. seatbelts and child restraint system, speed limits, young drivers and medicine and drugs

• Informal payments provide a substantial number of unqualified students with a driver license.

• There is a substantial waste of resources in connection with examiners for driving tests.
• There is a substantial waste of resources due to the possibility of passing the theory and driving test on the same day.

• The learner car is equipped with a big sign on the roof during the driving test, which may bring about consideration from other road users, and thus disturbs a realistic test in traffic.

• There are no obvious problems in connection with control of the commercial freight and passenger transportation in Bulgaria.

• Quality control mechanisms needed of driver examinations, driving schools submitting candidates and vehicle inspection garages by comparing each record with expected norms based on averages to identify potential corruption or other problems (e.g. if one particular examiner always seems to pass a higher proportion of candidates from a particular driving school than other examiners, this might raise questions.)

4.3.3 Recommendations on standards and rules for road users

Control systems should be implemented to prevent unqualified students from receiving a driver licence.

The cars used for driving tests should not be equipped with any form of identification or advertising that this is a learner car.

An up-to-date and resource-saving booking system should be implemented in order to identify the number of students enlisted for the theory test as well as the driving test. Thus, the students register for the theory test on a certain day, and if they pass it, they then register for the driving test at a later date. This enables the authorities to plan the number of examiners, as the number of students enlisted for the theory and the driving tests is known.

Also resources could be saved, if the students at the driving test drew lots regarding the examiners, in this way no one knew who the examiner would be. This procedure would only take a few minutes and the test could start.

Computer-based theory tests should be introduced, which would increase security, as the result of the test could not be tampered with and the system could continuously be updated with new questions. In this way no one would know which questions the system would choose. Furthermore, the test could be done at a much faster pace, as the system itself would inform of the test result. The computer system should be linked to the booking system so that all necessary information about the individual student is present in the system from the time the student registers for the driving test.

Short-term (1-2 years)
• Implement further control procedures in order to prevent informal payments.
• Change the rules, in order to use anonymous cars at the driving test.

Medium-term (3-5 years)
• Work out demands and specifications for a new data system for the booking of driving tests, both theory and driving, in order to perform rational and reliable tests.

4.4 Police enforcement
The review of the Traffic Police and law enforcement, existing practices and adequacy of existing manpower and equipment are based on interviews with the Traffic Police at national, provincial and city level. Meetings have been held with the National Chief of the Traffic Police, officers at various levels and other members of police staff.

4.4.1 Existing situation
The Traffic Police in Bulgaria is a part of the National Bulgarian Police Force, and is financed by the Bulgarian State. The headquarters of the Traffic Police are situated in Sofia, and from here the traffic safety work is organized for the whole country.

The Traffic Police officers do a 6-month course then attend special courses on different topics. They also have regular update course each year to bring traffic police up to date on any legislative or other changes affecting them. All traffic policemen are trained to category c (professional level) drivers. Nationally they have around 1800 vehicles of which 60% are 2-3 years old and in reasonable condition and 40% are very old with some not usable at all.

The Traffic Police have 462 portable radars (with magnetic base so they can be placed on top of stationary vehicle or a stand). Of these 32 have videos. These radars are Bulgarian made in the 1980s and now very old and error prone, and they can only operate over short distances and have too wide a beam so they cannot always single out the offending vehicle. They are certified for use and they are prosecuting with them but need something more modern to do the job properly.

The Traffic Police have 736 Draegar Alco testers of which 650 are roadside screening devices and 70 are evidential devices. All are working ok and operational.
Figure 4.3  Portable radars and old police car.

The Traffic Police do random testing and say that their traffic police patrols and activity is data led based on accident occurrence so they do target the times and locations that particular types of accidents occur (i.e. they do speed enforcement at times and locations where speeding accidents).

The senior management of the Traffic Police holds a central function in the overall traffic safety work in Bulgaria, and is also responsible for the Traffic Police enforcement.

It has not been possible to receive information about the exact number of trained police officers, but unofficially the Traffic Police totals 6000 policemen. In principle they all have the same education and, therefore, everyone can make reports and practise police enforcement.

To cover nationwide traffic policing, subdivisions have been established in all 28 regions in Bulgaria, and from here the decentralized police work takes place. Additionally there are 280 districts stations each of which has between 1-6 traffic police attached. Since patrols normally are 2 persons to a car there is between 1 – 3 cars located at each regional station. It is from these regional stations that the traffic police would visit accident scenes and do any investigation and then send data by computer to the national HQ. The individual accident dockets/files would be held at the regional station nearest to the location of the accident.

As part of the Ministry of Interior the Traffic Police is responsibility for operating the Accident Database.

The primary tasks of the Traffic Police:

- Making police reports in connection with traffic accidents.
- Patrolling and supervision
- Making police reports in connection with violation of traffic rules and regulations.

The senior management has not formed a clear and written strategy for traffic police work, and there are no clear and written goals for the individual policeman or for the individual districts of the country. However, the senior manage-
ment, occasionally, initiates activities such as special efforts directed at speed violation, drunk driving, use of safety belts etc.

In connection with reporting at traffic accidents, selected information about the accident will be stored in the accident database of the police, not only in order to be used in the accident statistics, but also to serve as a tool to reveal black spots. This has in the recent years contributed to identify approx. 200-240 black spots yearly.

The Bulgarian law clearly states that all road accidents even with minor damages and caused only by small violation of the traffic regulations, must be police reported. It is the duty of the parties involved to call the Traffic Police in order to have a police report made out.

This means that vehicles, even at minor accidents and with very little damage, will remain at the scene of accident until the Traffic Police arrives, which at rush hours, where many accidents occur, can last more than 1 hour inclusive driving time. When the police arrive, they make a survey of the scene of the accident; they question the parties involved and the witnesses before the actual clearing up of the accident scene is carried out.

This procedure is characteristic for Bulgaria, it demands considerable resources and occupies half of the total working hours of the Traffic Police, the cars, petrol and material and is only carried out because the insurance companies demand that all – even minor – traffic accidents must be reported by the police.

Furthermore, this procedure causes even big boulevards in Sofia to be partly closed for traffic for several hours. These minor and insignificant car damages cause great inconvenience for thousands of people, with economic losses for both the individual and the society as a consequence. These costs exceed by far the cost of repairing a few dents in cars, which are already fully insured.

At larger traffic accidents with personal injury the Traffic Police is not allowed to close the case themselves, but must call for further assistance from special trained investigators.

The patrol cars are rationed to only 50 litres of petrol per month, which equals 500 km per patrol car per month. Considering that a significant part of these 500 km are used for driving around to obtain police reports at small and insignificant traffic accidents, it is obvious that normal preventive patrolling and proactive traffic police work is impossible.

It is a known fact that the Traffic Police outside of Sofia very often is used for normal police work, and this entails that no traffic police work is carried out in this period of time.

The Traffic Police in Bulgaria is to a certain extent equipped with modern police equipment, such as hand held radar pistols for measuring speed and draegan Alco metres, stop signs, microphone/tannoy and radio equipment. Furthermore, a minor number of radar equipment with interface to video equip-
ment is available. All radar equipment and a part of the Alco metres, are produced in Bulgaria.

The radio equipment, however, is out of date and has limited reach. The communication often depends on the policemen using their own mobile phones.

The patrol cars used in connection with traffic accidents are poorly equipped, as flashlight and special marking lanterns for marking of the accident scene after dark are not included in the equipment.

The same goes for first aid kits even though the police very often arrive first at the scene.

Informal payments are known to exist in Bulgaria also within the Traffic Police. It is widely held, that a road user violating the traffic rules, in certain cases, can pay their way out by paying the policeman informally.

The Traffic Police in Bulgaria has no actual cooperation with Traffic Police organizations in other countries.

The Traffic Police has, at a modest level, worked with a few schools, either by themselves or with the local police. The police will visit the schools and teach the children about safe conduct in the traffic.

### 4.4.2 Issues/problems on police enforcement

- The ongoing informal payments has inflicted a lack of confidence in the Traffic Police work and this presents a major problem.

- A clearly written strategy for the Traffic Police work is lacking. Enforcement tactics and deployment to maximise effectiveness of existing resources. There are no stipulated goals for the Traffic Police work.

- Ineffective use of nearly half of the working hours of the Traffic Police in connection with turn outs and report making at small, insignificant traffic accidents. The rationing of petrol prevents effective police work and proactive efforts and affects the motivation of the police officers, thus Police need to spend more time on enforcement activity.

- The cooperation with the schools about the children’s’ safe traffic training and their relation to the Police in general is not yet in place.

- More and better police equipment in the form of modern and precise Alco meters, laser guns for measuring speed and proper roping off in connection with traffic accidents after dark and first aid kits in all patrol cars. Police need more modern vehicles.

- Many local drivers now have radar detectors to avoid enforcement.
- Apparently out of date analogue radio system with insufficient coverage and no possibility for data transmission.

- Improved education of the Traffic Police so that expert help is only required at very serious traffic accidents, where the circumstances and the liabilities are complicated.

- Need more effective investigation of black-spot in combination with engineers to derive solutions at worst black-spots

- Lack of cooperation with Traffic Police organisations in other countries in order to gain experience and exchange best practice.

4.4.3 Recommendations on police enforcement

1. Analyse reasons for and effects of informal payments in order to initiate steps to solve the problem.

2. Increase the petrol rations to the police cars for proper traffic policing.

3. Work out a written strategy including goal setting for the Traffic Police.

4. Work out operational plans and goals for the work of the national police.

5. Change the working rules and regulations for the police, in order to avoid the heavy strain on the police and other traffic of small and insignificant traffic accidents, and thus enabling the police to undertake preventive and proactive police work.

6. Initiating education and training enabling the average Traffic Police officer to undertake as many tasks as possible, including working most of the traffic cases without calling for specialists.

7. The senior management of the Traffic Police work out plans for procuring/exchanging the necessary police equipment including laser guns and modern roping off material and lights.

8. Analyse the existing radio communication system in order to extend the network of basis stations, or work out plans – in cooperation with other authorities – for exchanging the system to a modern digital system with much bigger capacity.

Short-term (1-2 years)

- Implement activities to prevent informal payments.

- Allot adequate rations of petrol to patrol cars.

- Work out a written superior strategy and goal setting for traffic policing in Bulgaria.
• Work out operational plans for traffic policing in Bulgaria.

**Medium-term (3-5 years)**

• Work out and carry into effect education programmes in order to upgrade the professional skills of the police officers, enabling those who arrive at an accident scene to finish the majority of the cases including personal injuries.

• Disengage the police from the work with small and insignificant material traffic accidents.

• Work out plans for procuring new and modern equipment and for exchange of the old.

**Long term (5-10 years)**

• Analysing the present police radio communication system in order to consider - preferably with other authorities – to exchange the system to a digital system with a much larger capacity and possibility for data transmission.

### 4.5 Other compliance interventions

This section describes other compliance interventions such as road safety education of school children and road safety publicity and campaigns.

#### 4.5.1 Road safety education

**Existing situation**

The Bulgarian Road Traffic Act requires that schools teach the children about safe conduct in the traffic. All schools have a commission consisting of the headmaster of the school, parent representatives and teachers. This commission ensures that the pupils are taught safe traffic conduct.

The daily teaching starts in kindergarten and is undertaken by the kindergarten educator and the teacher. Teaching the children safe conduct in traffic is included in the teacher’s job specification and a workbook “Guide-book” and other material has been implemented for the teacher to use. The “Guide-book” has been worked out by the Ministry and has been endorsed by the University.

Certain schools cooperate with the Traffic Police, which means that the police now and then visit the school and educate the children, or they are requested to participate in parent-teacher meetings at the school. The police are not members of the commission.

Various NGOs are involved in activities related to the traffic education of children but there is little coordination or cooperation amongst them and they all appear to compete for resources with each doing their own activities.
For the youngest classes the traffic education includes that the teacher takes the children and walk out to the streets and demonstrate the different traffic situations, which may be dangerous to children. Also they walk all the different school roads, ensuring that each pupil discovers the dangerous spots.

When the pupils reach the age of 14, the traffic education ends, as experience shows that it is hard to hold the pupils’ concentration, as especially boys, at this time of their life, shares a common interest in fast cars and motor bikes.

However, some national campaigns are made in connection with the start of school term after the summer vacation.

Attempts to establish school crossing patrols have been made, but were given up, as the children were reluctant to “wear a uniform”.

**Issues/problems on road safety education**

Even though efforts are made in some parts of the country to teach children safe traffic conduct, there appears to be no implementation of the national strategy. The NRSC, in December 2005, issued a National strategy for the protection of Children's life and health in Road Traffic 2006-2010 which sets out various activities to improve safety for children. However, there are no quantitative targets or any timetable for implementation, so no way of monitoring or evaluating progress.

The education should be adjusted pedagogically to the older pupils, who presently do not receive any traffic education, putting to use the special interests of this age group.

School crossing patrols should be re-introduced according to the models, which have worked successfully in other countries. To be successful parents must support the initiative and the individual members of the crossing patrols should be awarded with a yearly excursion. The Traffic Police must back up the crossing patrols by regular work visits, getting out of the patrol cars and giving the impression that the pupils in question are doing a great job for their friends.

**Recommendations on road safety education**

- A long termed national strategy and goal setting should be drawn up for the traffic education of children and young persons.

- Education programs adapted to the older pupils should be worked out and implemented.

- Tentatively school crossing patrols should be re-introduced, especially at schools with dangerous school roads.

**Short-term (1-2 years)**

- Initiate the work of drawing up a national strategy and goal setting for traffic education of school children.
• Re-introducing school-crossing patrols at schools with dangerous school roads.

Medium-term (3-5 years)
• Work out pedagogical methods and materials in order to maintain the older pupils’ interest for traffic education.

4.5.2 Road safety publicity and campaigns
Qualified and targeted campaigns for increased traffic awareness have over many years played a major and very effective part of the road safety work. Especially, when they have been combined with a police follow-up, the campaigns have helped motivate the citizens to observe correct road safety behaviour.

Existing situation
Despite the above, there is no systematic or long lasting tradition for working with road safety campaigns in Bulgaria, and no superior authority or organization has claimed responsibility for initiating professional, targeted and systematic campaign activities towards the most dangerous traffic situations.

Presently no authority or organisation has planned road safety campaigns and no funds have been granted to nationwide or local road security campaigns. No plans are available for any.

MoT has initiated a few nationwide campaigns about use of safety belts in connection with the school start after vacation, but it has, however, been isolated campaigns without use of focus groups and without police follow-up. The campaigns have not been evaluated and, therefore, no systematic knowledge about how the road users have experienced the campaigns is available, there is no knowledge of who and how many have noticed the campaigns or to what extent the campaigns have had the desired effect.

Cooperation with other European countries with exchange of ideas and inspiration is lacking.

We have been informed that NRSC is at present trying to set up a fund providing means for road safety campaigns.

Issues/problems on road safety education
Several authorities and organizations work with information and campaign activities, but a superior responsible and coordinating authority is lacking, working out a national strategy setting targets for professional campaign activities.

There is no coherence or coordination between the campaigns, the MoT or other actors, and a follow-up effort of the police has not been included in the plans. Before launching the campaigns, the ideas should be presented to focus groups in order to secure the full impact and the campaigns must always be fol-
owed by a strict police effort with a narrow tolerance margin, in order to obtain the effective synergic effect.

Knowledge of best practices in Europe is lacking.

**Recommendations on road safety education**

Decisions should be made about where to place the overall responsibility, authority or organization wise, for financing, for developing ideas, for testing for focus groups, for carrying out of the projects, for the cooperation with relevant authorities – especially the Traffic Police – and for evaluating the traffic campaigns.

A cooperative body between the authorities MoE, MoT, MoH and the Traffic Police coordinating the campaigns should be established.

Means to finance campaigns and information must be established.

**Short-term (1-2 years)**

Organise structure and responsibility grouping regarding road safety campaigns.

Educate campaign personnel in the use of modern communication methods including evaluation methods.

Apply for membership and get inspiration from the organisation “La prevention Routiére International” (P.R.I.), which is the international organisation for road safety publicity/education organisation.

Buy or adapt free of charge suitable campaigns, which have been successfully used in other European countries.

**Medium-term (3-5 years)**

Work out a 3-5 year strategy for national road safety campaigns.

### 4.6 Emergency assistance

This evaluation is based on visits to main rescue centre in Sofia and the Emergency Division of Ministry of Health. During these visits, the rescue centres, their equipment and vehicles including ambulances were inspected, and discussions held with staff members and leading officials.

#### 4.6.1 Existing situation

The emergency assistance to road accident victims in Bulgaria is a national state affair, with the Ministry of Health as supreme authority.

The Ministry of Health issues the rules for the emergency assistance, how the ambulance service works, how the vehicles are organized and equipped as well as the education of the emergency personnel.
Throughout Bulgaria there are 28 established big regional rescue centres and 191 smaller emergency stations. These centres service the entire Bulgarian population of approx. 7,760,000 individuals with 450 ambulances, which provide one rescue centre or emergency station for every 35,500 persons and one ambulance for every 17,200.

Of all ambulances approx. 30% are fully equipped with relevant medical, technical equipment. The remaining 70% have oxygen equipment and medical equipment at a lesser scale.

![Ambulance at work](image)

**Figure 4-4** Ambulance at work and fully equipped with relevant medical, technical equipment.

At emergency calls every ambulance has a driver, a doctor and a nurse. The driver is not included in the rescue team, as his only task is to drive the ambulance.

The only task of the Rescue Centres is, normally, to administer the ambulance service. Therefore, no adequate equipment is available for cutting injured free from car or lorry wreckages. In these cases, or in case of fires, rescue help is required from the Fire Brigade, with vehicles specially equipped with “Jaws of Life” for these purposes all firemen have received advanced training in first aid.

**Emergency service in Sofia**

Sofia has only one Rescue Centre for the interior part of the city and another Rescue Centre servicing the surroundings. 36 ambulances each with a rescue team service the interior of Sofia.

However, some of the ambulances are clearly old models with a lot of mileage, which gives the disadvantage that the ambulances often are at a stand still because of repair.

The Sofia Rescue Centre has a staff of approx. 190 persons, doctors, nurses, drivers and technical and administrative personnel.

The Rescue Centre has approx. 10 daily emergency calls solely related to traffic accidents with personal injury.

We were informed that the response time from Sofia Rescue Center to the scene of accident normally takes 5-10 minutes. However, lack of ambulances,
driving in dense traffic, especially during rush hours, will prolong the response time. On top of that, the conditions in the mountain areas, especially in winter with periods of snow and ice, will prolong the response time considerably. (Statements from other organisations involved in road safety indicate that normal response times to accident scenes are typically around 30 minutes and can be longer because the emergency ambulances in each region are normally sent from a single location instead of being dispersed over the area to be covered) After treatment at the scene of the accident, the patient is stabilised and then brought to one of two hospitals for further treatment.

In very serious cases, helicopter assistance can be required via the ambulance radio. A helicopter with night vision equipment transports the injured from the scene of the accident to the hospital or assistance from the helicopter is required when the traffic is so tense that the ambulance is unable to drive away from the scene of the accident.

Because of the limited number of ambulances, and in many cases the very long response time, the population has developed a tradition of trying to rescue the injured themselves, transporting the injured to the nearest hospital in their own private cars.

Uneducated and untrained people, acting as rescuers, may easily cause more damage, i.e. risk of people bleeding to death or the risk of wrong treatment of injuries to the back of the neck or spine, which may be fatal or cause lifelong paralysis.

Authorities involved in traffic safety agree that the emergency service do not meet the immediate needs of injured from traffic accidents or of other accidents. The long response time results in high death rates or serious complications of the injuries, which could have been avoided.

The leadership and personnel of the Emergency Centres are all highly motivated, and do their very utmost, considering the limited resources they have at their disposal.

The staff at the centres we visited all indicated that the road users lack of respect for the emergency signals of the ambulances, together with the lack of will to let the ambulances through, presents a vast problem in connection with prolonging the response time.

**Implementation of one emergency number 112**

Bulgaria has, as the rest of the EU-member states, decided to implement the telephone number 112 as a future national emergency number. At the Sofia Rescue Centre telephone and computer systems are presently being installed for handling the emergency call-service and distribution of the emergency-care system. Training of the personnel has been initiated in order for the new emergency number to be in operation from January 2008 for Sofia, and subsequently for the rest of Bulgaria.
4.6.2 Issues/problems on emergency assistance

As many of the ambulances are old and have high mileages, this causes break-
downs and the need for repairs, resulting in a reduction of the number of ambu-
lances in operation.

The current response times are excessive, and need to be reduced so that under
normal circumstances they do not exceed 15-20 minutes. A policy of deploying
ambulances strategically in places, where experience proves, that serious rush
hour accidents happen, could be a big help. This strategy has proved successful
for several years in Sofia.

Ambulance drivers should be trained to treat minor injuries according to the
priority of the ambulance doctor, in case of more than two injured persons need
to be treated.

Some consideration should also be given to examining the feasibility and bene-
fits of permitting Bulgarian Red cross to operate supplementary ambulance us-
ning paramedics instead of doctors. Such paramedics are commonly used in
many European countries with great success so there is no reason that they
could not be as successful in Bulgaria as elsewhere in Europe.

4.6.3 Recommendations on emergency assistance

Short-term (1-2 years)
- Training of the ambulance drivers enabling them to participate as a quali-
fied part of the rescue team.
- Analyse the strategically use of the ambulances for reducing the response
time to 15-20 minutes.
- Give serious consideration to permitting Bulgarian Red Cross Red to oper-
ate supplementary emergency ambulances staffed with paramedics to im-
prove emergency ambulance coverage across the country.

Medium-term (3-5 years)
- Initiate exchange of old and worn-out ambulances and equip all ambu-
lances with defibrillators.

4.7 Summary on safety interventions

The main findings on safety interventions are:
- Traffic engineering standards need to be reviewed and there is a need for
  safety audit to be introduced. No systematic process for safety audit exists
  at present. There is inadequate priority and funding for accident black-spot
  improvement programs and although the worst locations are being system-
  atically identified by the police, very few if any are being improved by the
  roads authorities. Very significant improvements are needed in developing
  the capacity to do safety audits and accident black-spot programs and in
implementing a safety audit system and accident black-spot programs in all roads authorities throughout Bulgaria.

- Appropriate vehicle standards exist with a few minor exceptions. The vehicle standards require regular inspections but it has been mentioned that it is possible to avoid inspections so a major number of vehicles, mainly vehicles in a poor technical condition, do not undergo inspection. The lack of a data system for calling in vehicles for technical tests as well as for calculating the percentage of vehicles approved at the first technical test. Subsequently, these data can be used in the strategically work of the Traffic Inspectors’ control of the inspection halls. The number of Traffic Inspectors is insufficient for controlling the inspection halls effectively.

- It is possible for a substantial number of unqualified students to obtain a driver license. There is a substantial waste of resources in connection with examiners for driving tests due to the possibility of passing the theory and driving test on the same day.

- The traffic regulation should be reviewed for e.g. seatbelts and child restraint system, speed limits, young drivers and medicine and drugs.

- The actual behaviour of road users is bad and causes many serious accidents and risky situations.

![Figure 4-5 Poor road user behaviour.](image)

- There is a lack of confidence in the Traffic Police work due to possibility of alternative payments and this presents a problem. A clearly written strategy for the Traffic Police work is lacking and there are no stipulated goals for the Traffic Police work. There is ineffective use of nearly half of the working hours of the Traffic Police as it is used up in connection with reporting small, insignificant damage only traffic accidents. The rationing of petrol prevents effective police work and proactive efforts and affects the motivation of the police officers. More and better police equipment is needed in the form of modern and precise Alco meters, laser guns for measuring speed and proper roping off in connection with traffic accidents after dark and first aid kits in all patrol cars. The out of date analogue radio system has insufficient coverage and no possibility for data transmission and needs to be replaced. Improved education and training of the Traffic Police is needed so that expert help is only required at very serious traffic accidents, where the circumstances and the liabilities are complicated.
• Even though efforts are made in some parts of the country to teach children safe traffic conduct, a more effective national strategy with clear targets and deadlines should be drawn up for the traffic education of school children. The education should be adjusted pedagogically to the older pupils (who presently do not receive any traffic education), putting to use the special interests of this age group. School crossing patrols should be re-introduced according to the models, which have worked successfully in other countries. The parents must support the initiative and the individual members of the crossing patrols should be awarded with a yearly excursion. The Traffic Police must back up the crossing patrols by regular work visits, getting out of the patrol cars and giving the impression that the pupils in question are doing a great job for their friends.

• Several authorities and organizations work with information and campaign activities, but there is no single responsible and coordinating authority working out a national strategy or setting targets for professional campaign activities. There is no coherence or coordination between the campaigns, the MoT or other actors, and follow-up effort of the police is often not included in the plans. Before launching the campaigns, the ideas should be presented to focus groups in order to secure the full impact and the campaigns must always be accompanied by or followed by a strict police effort in support of the campaign in order to maximise the synergic effects.

• Some of the ambulances are old and have high mileages, which causes breakdowns and need for repairs, resulting in a reduction of the number of ambulances in operation. The response time, which under normal circumstances should not exceed 15-20 minutes, need to be reduced. A strategy of placing ambulances strategically where experiences prove, that serious rush hour accidents happen, could be a help. This strategy has proved successful for several years in Sofia. Also ambulance drivers should be trained to treat minor injuries according to the priority of the ambulance doctor, in case of more than to injured persons. The cooperation with the schools about the children’s’ safe traffic training and their relation to the Police in general is not yet in place.

• The cooperation with the schools about the children’s’ safe traffic training and their relation to the Police in general is not yet in place.
5 Implementation arrangements

This chapter reviews the road safety implementation arrangements in Bulgaria. The review includes the following sections:

- Agencies and stakeholders' responsibilities
- Road safety research
- Monitoring and evaluation
- Funding of road safety programmes

The review considers whether interventions are coordinated to maximise efficiency and effectiveness and whether they are monitored, evaluated and adjusted accordingly. Furthermore, it is reviewed whether it is the shared responsibility of the government, business and community to ensure a safe road system being actively promoted. Finally, the funding mechanisms and whether they are sufficient and sustainable are reviewed.

5.1 Agencies and stakeholders' responsibilities

This section reviews the agencies and stakeholders involved in implementation of road safety activities and programmes at national and local levels, including formulation, co-ordination, administration, and monitoring. It also analyses the adequacy of the existing institutional arrangements and the work of the present State- Public consultative Commission on the problems of Road Safety (henceforth called the Road Safety Commission (NRSC)).

5.1.1 Existing situation

This chapter describes the main stakeholders in road safety, and assessment of the functions related to road safety issues for some of the main stakeholders.

There are many stakeholder involved in road safety in Bulgaria. The main interlocutors within road safety are from the National Road Safety Commission (NRSC), Ministry of Transportation (MoT), the National Road Infrastructure Fund (RIF), RIF research institute, and Ministry of Interior (Moi / Traffic Police) and its research institute. Others include Ministry of Health and Treatment and Rescue and Relief, Ministry of Regional Development (MRD), Ministry of Education as well as Insurance companies, Municipalities, Consulting engineers and construction companies.
National Road Safety Commission (NRSC)

National coordination of road safety is undertaken by the NRSC which has government ministries, private sector and NGO members. It is chaired by the Minister of Interior and has 3 deputy Ministers (From Interior, Transport and Regional Development) as deputy chairpersons. It has all the most important stakeholders represented on it. (See appendix B for list of members). It is in the process of establishing a regional structure and already has regional commissions operating in 10 out of the 28 regions and in several of the larger municipalities. By June 08 it expected that there will be Regional Commissions operating in each of the regions and by the end of 2008 in most of the major municipalities. This is a consultative commission with no powers of its own and meets 4-6 times a year and makes recommendations to the Council of Ministers. If the recommendations are approved the decisions of the Council of Ministers are supposed to be implemented by the relevant ministries affected but NRSC and its secretary have no powers to ensure that individual ministries actually implement. Most of the key organisations appear to be represented and the Commission has private sector as well as NGO representation in addition to the key government agencies.

The Road Safety Commission in Denmark was established by the Ministry of Transport and is composed of Parliament, representatives from ministries, counties, local authorities, and institutions with interests in road safety.

The Road Safety Commission must:

- Set the overall central goals for road safety initiatives that can act as signposts for efforts from other parties
- Inspire interested parties to enhance their efforts, and new players to implement initiatives to promote road safety
- Monitor closely nationwide developments in accidents and carry out regular assessments of road safety with a view to identifying where there are needs for stronger initiatives
- Identify new areas requiring initiatives

Source: Every accident is one too many - road safety starts with you, towards new objectives 2001-2012, the Danish Road Safety Commission

Each NRSC member provides safety experts as needed to provide inputs on specific topics where they have expertise but these are just temporary arrangements as there is no permanent technical secretariat. The secretariat/admin function to the NRSC is provided by the Ministry of Interior. There is only 1 permanent member of staff at the Secretariat. He is a well qualified ex chief of police and ex senior civil servant who acts as the Secretary to the Commission but he has no support staff to assist him and little or no funds to follow up issues.

A road safety strategy was prepared (National Strategy to improve road safety in Bulgaria for the period 2007 –2010 “) by the Commission. This includes a good analysis of accident data as an annex and includes long list of possible improvements in each sector. Unfortunately there is no prioritisation of actions and it is just a long "wish list" of what the different government agencies might like to do. This strategy was approved by the Commission and passed onto
Council of Ministers for approval. The Council of Ministers accepted it and has asked each concerned ministry or agency to prepare an action plan for their bit of the strategy (in practice only the MoT have done so the strategy remains generally unimplemented).

The World Bank generally recommends the following permanent sub-committees

Executive Sub-Committee
This sub-committee should provide direction and policy guidance to the Council on all matters that are referred to it from time to time and carry out such other functions as the Council may direct. It will supervise the activities of the NRSC Secretariat.

Information and Education Sub-Committee
This sub-committee would be responsible for recommending how road safety consciousness can best be instilled into the public through dissemination of traffic information, education, publicity and propaganda.

Finance and Fund Raising Sub-Committee
This sub-committee should be responsible for supervising expenditure of NRSC funds and for raising funds for road safety activities from Government and, especially, non government sources.

Road Safety Research and Legislation Sub-Committee
This sub-committee would be responsible for overseeing road safety research for examination and monitoring existing traffic legislation to recommend improvements and developing new road safety related legislation appropriate for introduction in the country.

Infrastructure Safety Sub-Committee
This sub-committee would be responsible for promoting the safer design and planning of future road, overseeing the development of programmes and strategies of responsible agencies and monitoring and reporting on the effectiveness of those programmes. The subcommittee would also encourage the identification of hazardous locations and other safety issues for incorporation in the programmes.

In addition there has been a specific initiative by the commission on child safety called National Strategy for Protection of Children's Life and Health in the Road Traffic 2006-2010. This tries to focus activity and attention on the need to reduce child accidents as road accidents are now the 3rd most important cause of death in Bulgaria for children aged 1-14 years old. However as with the overall strategy this just consists of a list of desirable activities under a number of categories but with no targets or dates for implementation and no budgets. Consequently this too is incapable of being properly monitored and of having its impact assessed.

Main problems to be addressed:

1 Despite the apparently reasonably representative /consultative structure of the Commission, and good ideas being generated very little gets done in practice as it has no executive powers to supervise or even follow up safety activity in ministries. The fact there are no separate funds for implementation of any actions means funds have to be found within the normal budg-
ets of individual ministries and there are rarely any funds available for implementing Commission initiatives or any cross ministerial initiatives

2 Funding of safety initiatives is a very serious problem and attempts have been made to try to establish a separate stand alone safety fund but without any success. In part this is because the true losses to the economy have not been well enough presented to decision makers responsible for budget allocations.

3 The Secretariat too needs to be expanded so that there is a small permanent multi disciplinary team (if necessary individuals seconded for 2 years at a time from their respective ministries to work under the present NRSC Secretary).

**Ministry of Transport (MoT)**

Ministry of Transport is responsible for many important areas of road safety and controls driver training and testing, vehicle standards and inspections and transport operators. MOT activity in each of these areas is described in more detail in section 4.2 and 4.3. It also has a very important and central role to play in overseeing implementation of the World Bank road safety component and as one of the key stakeholders in NRSC finalising and overseeing implementation of the national road safety action plan.

**National Road Infrastructure Fund**

The road infrastructure fund is responsible for maintaining and developing the national road network. It operates under a Board consisting of the Ministries of Finance, Transport and Regional Development and has an annual budget of around 400 million Leva from Government plus other funds through EU and the World Bank.

At present it claims to spend around 18 million Leva on “safety “ items but these are just normal road infrastructure related items such as road signs, guard rails, road markings etc. under its maintenance programme but nothing is spent or allocated for accident reduction or accident prevention.

There appears to be no road safety or even traffic unit monitoring operational aspects of the road network. When needed, traffic surveys are undertaken by the RIF Road Research Institute.

The RIF road research Institute appears to have some staff with experience in accident black-spot investigation and safety engineering from safety work that used to be done many years earlier before establishment of the RIF but who have been sidelined and under-funded in recent years.

**Main problems to be addressed**

1 An annual accident black-spot programme needs to be initiated with the analysis work being delegated to the experts in the RIF road research institute. In year 1, 24 of the worst accident black-spot should be improved and in following years this should gradually build up to around 50 black-spots.
per year being analysed and entered into the RIF road maintenance and
works programme.

2 Specific funds need to be allocated and available annually for the accident
black-spot programme and the amount available made known to those pre-
paring each year's accident black-spot programme so that the most cost ef-
fective programme can be devised for the funds available.

3 There is a need to train local RIF staff, local consultants and academics in
accident prevention (via safety audit courses) and accident reduction (via
accident black-spot investigation courses).

4 In the longer term there needs to be a traffic and road safety unit within the
planning section of the RIF to monitor operational aspects of the road net-
work to ensure safe and efficient operation of the network.

Ministry of Health and Treatment and Rescue and Relief

Ministry of Health is involved in road safety in Bulgaria through its member-
ship in NRSC and as national authority for emergency assistance to road acci-
dent victims in Bulgaria.

The Ministry of Health issues the rules for the emergency assistance, how the
ambulance service works, how the vehicles are organized and equipped as well
as the education of the emergency personnel. The problems related to emer-
gence services are described in section 4.6.2.

Ministry of Interior

Ministry of Interior is involved in road safety through the NRSC - described
above - and the traffic police including the traffic police research institute de-
scribed in section 4.4. The problems it faces are described under that section.

Insurance companies

Despite repeated attempts it was not possible to meet with representatives of
the insurance industry. At present the insurance industry appears to do well out
of the system but are not contributing in the way that insurance industry does in
many other countries. The police spend 60-80 % of their time in recording de-
tails of the 80,000 or so damage only accidents for the insurance industry and
legislation is now being developed to make third party motor insurance com-
pulsory. A central fund will be established by the insurance companies to pay
for any victims of uninsured drivers and it is expected that a small portion of
that will be made available to the NRSC to help finance some NRSC activities.
While this is laudable, it is not enough and the insurance industry in Bulgaria
needs to do much more than it is doing now to help improve road safety.

In other countries the insurance industry is often one of the strongest supporters
of road safety as they make significant profits from the transport sector and
such profits increase substantially if the numbers of accidents and injuries can
be reduced.

Main problems to be addressed
Review of Road Safety Management Capacity in Bulgaria
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1. Insurance should be required to deal with damage only accidents themselves without requiring the police to attend the accident site to fill in a special accident data form. If an official police record of the accident is required, drivers should be required to visit a police station to provide basic details of the accident and parties/vehicles involved. The motorists or the insurance companies should be required to pay 5-10 Leva for a copy of the form with the funds to be paid into NRSC for use on road safety activities and for traffic police enforcement equipment.

The insurance industry could be required to pay a small amount (say 5-10 Leva) from each policy issued (to be paid quarterly by each insurance company) to NRSC. This could be partially recovered by adding a few Leva to each premium so that the public contribute part and the insurance companies contribute a part of the levy for each policy issued.

Ministry of Regional Development (MRD) and Municipalities

Ministry of Regional Government has responsibility for the 280 or so municipalities and provides guidance and advice as needed. In terms of Road engineering, MRD provides advice to municipal roads departments but has no power over them. Municipal roads department are responsible for their own networks in the same way that RIF is responsible for national roads. Where national roads pass through municipalities there is some cost sharing with RIF usually delegating the municipality to manage the maintenance etc within the town.

Black-spots on municipal roads are apparently identified by police and passed on to each Municipality for improvement.

Municipalities get a total of 35 million Leva directly from central government for all activities on roads and of this around 1 million Leva is for accident black-spot improvements. Each mayor establishes a small team to look into black-spots and to make recommendations. Funds are then requested by the Municipality but since there is only 1 million Leva and it is spread between 280 municipalities, very few get approved. At best around 50-80 black-spots in total get improved each year and this is usually simple low cost items like installation of new signs, markings etc. No evaluations are done of effectiveness.

Municipalities currently use guidance issued by MRD in 1989 with regulations and sketches on speed humps, speed reduction /traffic calming around schools etc. but new more comprehensive guidelines are currently being prepared by an Inter ministerial committee (including RIF Specialists) and this will be distributed to municipal engineers around Jan 2008.

Despite repeated attempts it was not possible to meet with representatives from municipalities due to elections. However Sofia and Stara Zagora have both signed the European Road Safety Charter and have committed to try to improve safety as follows. Apart from road safety education of children many activities seem more to be focused on general traffic problems more than road safety.
Sofia Municipality

Sofia is the capital city of Bulgaria and the centre of the country’s political, economic and cultural life. Approximately two million Bulgarians live and work in the city. The territory covers an area of 1,310 km². Sofia Municipality has signed European Road Safety Charter.

Sofia City Council has planned several initiatives to be implemented in the period up to 2013. The total number of road accidents involving children or under-18s throughout the region over the past two years came to 1,243. There was a decrease in the total number of accidents in 2006 compared to 2005. Compared to the total number of road accidents, those involving children represent 1.61%, 5.08% of fatalities and 13.08% of total injuries. In order to prevent road accidents involving children, they are committed to the European Road Safety Charter [ERSC] through the following actions:

- Creation of specialised road safety classrooms (Sofia City Council has already opened 10 such rooms);
- Construction of two interactive playgrounds for road safety education;
- Training of 260 nursery and primary schoolteachers to provide assistance in the event of road accidents (certified by the Bulgarian Red Cross);
- Creation of necessary conditions to secure the areas around schools and nursery schools (joint initiative with automobile importers for the first day back at school in 2007, which includes installation of road and mobile signs and electric lighting in all school areas);
- Information campaigns: preparation of two educational and information videos, which will be broadcast by all national radio and TV networks. Other monthly campaigns will also be prepared;
- The scope of the actions to be taken covers the rehabilitation of the road surface, road marking, recovery of missing road signs, substitution of old traffic lights, installation of video surveillance systems and improvement of the road sign visibility.

Improvement and planning of city transport infrastructure:

- Construction of new streets and boulevards in order to improve traffic capacity and complete the road network: Sofia City Council plans to build two new boulevards (Danali Nikolaev Blvd. and Pencho Slaveikov Blvd.), which will complete the second ring road in Sofia and ease the traffic in the city centre. It also plans to construct an entirely new two-level road junction at Stochna Gara;
- Rehabilitation and reconstruction of streets and boulevards: 230 streets will be reconstructed and some of the busiest boulevards in Sofia have already been rehabilitated (including Tzarigradsko Schausse Blvd., P. Yavorov Blvd., Shipchenski progod Blvd., Maria Louisa Blvd.); and the planned re-
habilitation of Sofia’s ring road, Al. Malinov Blvd., Tsar Boris III Blvd. etc.

- Installation of a traffic control automatic management system.

Public transport enhancement in order to reduce traffic and accident rates and improve road safety in general, the following improvements will made:

- Extension of Sofia’s underground network: by 2011, Sofia city council plans to have constructed 14 km of new underground rail track (8 km by 2009, with six underground stations, and 6.5 km by 2011, with seven stations);

- Special separate bus lanes;

- Promotion of the public transport system.

**Municipality of Stara Zagora**

The municipality of Stara Zagora (Central Bulgaria) includes the city itself and 50 villages. The total population is approximately 190,000. The total number of private cars and company vehicles is about 45,000. The length of the road network within the city boundaries is 212 km.

For the next three years, they are committed to the following actions:

- For the 25 nursery and 45 schools in the municipality:
  - Educational programme for primary schools aimed at increasing child safety on the street. Children’s attention will be drawn to traffic dangers and avoiding road accidents. A joint children’s awareness campaign involving the Municipality of Stara Zagora and the police department will emphasise prevention measures.

- For children and youth, the programme includes:
  - Creation of a road safety database.
  - Annual road safety contest.
  - Specific road safety and cycling classes.
  - Drawing contest in collaboration with NGOs from abroad.

- To improve road safety:
  - Improvement of the city road system together with optimisation of the transport system and expansion of the trolleybus transport system. Involvement of new residential neighbourhoods and industrial zone expansion. Expansion of the trolleybus electric network to new city districts and measures for the improvement of the trolleybus urban transport system.
  - Introduction of a satellite surveillance system for dangerous crossings and gradual introduction of a traffic management system.
Consulting engineers and construction companies
There are a number of consulting engineers and construction companies in Bulgaria but very few seem to have much knowledge or experience of traffic engineering or road safety issues as there has not been any work for them in these areas in the past. Around 10 of the main consulting companies are corporate members of the Bulgarian Federation of Highway Engineers. This engineering Institute also has individual members and there are around 100 corporate and individual members in total. Consulting companies at present play no part in improving road safety but could be mobilised through training of some of their staff to become safety auditors and accident black-spot improvement specialists as such work expands in Bulgaria.

Other with road safety interest
The following organisations in Bulgaria have signed the European Road Safety Charter:

- Psychological Centre for Research
- Sliven Regional Authority
- Bulgarian Federation of Taxi Drivers
- Bulgaria Vita Association
- Municipality of Stara Zagora
- Orgachim JSC
- Planet – Children’s Parliament association
- BELLA BULGARIA SA
- EUROPE.BG
- Bulgarian Red Cross
- Multipack - PCHPK EOOD
- Association of Automobile Importers - AAI
- National BI-BIT Street Safety Club
- Railway Transport Friends Association
- Union of Bulgarian Importers of Automobiles
- Overgas Inc. AD
- Union of Bulgarian Motorists
- K-I INVEST HOLDING LTD.
- Bulgarian Chamber Of Commerce And Industry
- Petrol AD
- Sofia Municipality
- Shell Bulgaria EAD
- Open Youth
- Sofia Auto JSC
- Bulgarian Association of Victims of Road Accidents.

5.1.2 Issues/problems on agencies and stakeholders’ responsibilities
Road safety responsibilities seem to be reasonably well defined in most of the key NRSC stakeholders but there a few glaring and important omissions and problems at present which needs urgent rectification.
1 The NRSC is a consultative body only but has no delegated powers, staff or funding to coordinate or manage the national road safety strategy and even more importantly to oversee and manage its effective implementation by relevant stakeholders.

2 At present, the different roads authorities (RIF for national roads and individual municipalities for their municipal roads) have no statutory obligation to report on or to improve road safety on their road networks and as a result they give little or no priority to improving road safety on their roads.

3 The police spend most of their time filling in minor damage reports for the insurance industry and are under equipped/under resourced for the job they are required to do so are unable to provide the level and depth of effective enforcement which should be their primary responsibility.

4 The private sector members of the NRSC, especially the insurance industry are not doing enough to help finance road safety activity in Bulgaria.

5.1.3 Recommendations on agencies and stakeholders' responsibilities

The role, powers, staffing and funding of NRSC should be critically reviewed and reorganised to increase its effectiveness to manage road safety activity in Bulgaria by:

- Establish a Safety fund for NRSC activities by means such as
  - 5 Leva fees from damage only accident forms 160,000 x 5 = 800,000 Leva
  - 3 Leva levy on each motor insurance policy 3.19 million x 3 = 9.57 million Leva.

- Delegation of powers to NRSC to follow up and monitor implementation of road safety action plans and initiatives in individual government ministries and key NRSC stakeholders.

- Increase the NRSC Secretariat to 6 persons (Present Secretary plus 1 admin person plus 4 technical persons (possibly seconded for 2 years at a time from NRSC stakeholders).

- In the interim establish a small executive group from within NRSC stakeholders to finalise the National Road Safety Action plan and to oversee its implementation.

- In the medium term designate MoT as the lead agency for road safety and develop within it a road safety directorate to be responsible ensuring implementation of the national road safety action plan. The strengthened NRSC Secretariat can eventually be absorbed into the new Directorate and can continue to provide secretariat services from the Directorate to the NRSC or other coordinating body which may then exist.
All roads authorities to be given a statuary obligation to improve road safety on their networks and to report annually on activities undertaken. This will include:

- Submission of a report at the end of each year to NRSC indicating the numbers of road accidents, deaths and injuries on their road network in previous year, black-spots improved, safety audits conducted, what other actions they have been taken to try to improve safety on their network during this year and their intended road safety plan for the coming year

- Roads authorities to establish line item in their road budgets for road safety to cover accident prevention (e.g. safety audits) and accident reduction (identification and elimination of road accident black-spots) on their networks.

Requirement for police to complete accident forms for damage only accidents to be discontinued and drivers required to simply visit local police station to report basic details of location, parties involved and to provide short statement from each party involved. If insurance company or drivers want a copy, one can be provided at a charge of 5 Leva per copy – with the funds being paid into NRSC Safety fund (from where some of the funds can be used to buy enforcement equipment for police etc).

Private sector stakeholders within NRSC to be mobilised to establish secure funding for NRSC this could be done by

- Establishing a 5 Leva safety levy on each motor insurance policy sold with funds being payable to NRSC quarterly based on policies issued by each insurance company in previous quarter.

- Vehicle inspection companies could be asked to pay 5 leva for vehicles inspected with the funds being transferred each quarter to NRSC safety fund.

The proposed priority activities include Technical assistance support to the National Road Safety Commission to help restructure its role and responsibilities, to train its Secretariat and to organise and implement basic road safety tasks in Bulgaria. Support should be given to the main Bulgarian agencies involved in road safety, to prepare guidelines and methods as well as support to physical and human resources to:

- Strengthen the roles of responsibility and coordination
- Strengthen the technical competence of relevant agencies
- Comprehensive safety training programme.

**Short-term (1-2 years)**

The safety component will include Technical Assistance to help strengthen the role and powers of NRSC, to establish secure funding for NRSC, to help develop a national road safety action plan and to train NRSC secretariat to follow up and mange implementation of the action plan.
A small executive group of NRSC stakeholders finalise the action plan and ensuring that individual stakeholder's members of NRSC are all implementing their parts of the national road safety action plan.

Statutory responsibility given to roads authorities to improve road safety on their networks so that they are required to address road safety on their networks and to report back annually on what they have done.

**Medium-term (3-5 years)**

A national level structure established for NRSC and National, regional and municipal casualty reduction targets agreed and being monitored. All roads authorities develop action plans for casualty reduction on their networks.

Casualty reduction initiatives being submitted to and funded by NRSC and implementation being closely monitored to ensure effectiveness.

A road safety directorate established at MOT to oversee implementation of the national road safety strategy and action plan. The NRSC secretariat can eventually be absorbed into the directorate and can continue to provide support to the NRSC or other coordinating body from there.

### 5.2 Road safety research

Road safety research should provide the framework against which safety policy decisions should be made so that a systematic scientific approach is applied to the problem. The countries with the best road safety records internationally are also the ones who have traditionally had the best and most active road safety research institutes and road safety research programmes. It is important that Bulgaria learns from other EU countries and utilises the research experience and capability that does exist in the country so that more effective safety interventions can be implemented and monitored in future.

#### 5.2.1 Existing situation

The two key research institutes undertaking road safety related research are the Police Research Institute (under Ministry of Interior) and the Road Research Institute (now under the Road Infrastructure Fund). Both used to do road safety research and also collaborated in identifying and analysing accident black-spots on the road network but in recent years funding for such work has disappeared so staff especially in the Road Research Institute have been diverted to other tasks unrelated to road safety.

In Sweden, the Vision Zero is supported by road safety research provided by the Swedish National Road and Transport Institute (VTI), and by various universities, covering areas such as mobility and safety, road design safety standards, vehicle crashworthiness, telematics and traffic analysis. In the other countries which have a particularly good safety record (UK, Netherlands) road safety research has been an important factor in driving the improvement of road safety and both these countries have excellent programmes of road safety research.
No road safety research seems to be undertaken in the universities either even though there is the potential capability to do such work at the Economic University (where future economists are trained) and the State Technical University (where future road engineers are trained).

A consequence of the very low priority and total absence of funding little or no road safety research or monitoring is done at present in Bulgaria. There are no local estimates of accident costs, no information on the effectiveness of alternative safety interventions and there appears to be no monitoring of the cost effectiveness of interventions that are being implemented or being planned. Government ministries and the NRSC therefore have no objective way to assess the effectiveness of their activities or expenditure in road safety and no framework of knowledge to help them make better policy decisions.

5.2.2 Issues/problems on road safety research

There is a need to develop and initiate a comprehensive programme of road safety research as part of the national road safety strategy to enable better understanding of the nature and characteristics of the problem and the efficiency and separately, the cost effectiveness, of different interventions in improving road safety to ensure effective expenditure of the scarce resources available.

The main problem in recent years has been the lack of recognition of the importance and benefits of road safety research and failure to allocate sufficient funds for such research to be undertaken. Although research is needed in many aspects of road safety, the initial focus needs to be on areas that can assist NRSC to implement more effective road safety programs. Although the police and road research institutes have some past history of undertaking such research and there are still some individuals around who have such experience, there seems to be no such past history at the Universities and such skills will need to be developed and nurtured to instil such activity at relevant universities.

5.2.3 Recommendations on road safety research

Short-term (1-2 years)

- Economics university to undertake research in valuation of road accidents to produce an estimate of national losses and a valuation for an individual death, injury and a damage only accident (research to be funded under the World Bank road safety component)

- NRSC to establish a road safety research and monitoring technical working group to monitor and evaluate all Road safety interventions

- RIF to delegate and make necessary funds available for Road Research Institute work with Police Research Institute in analysing and improving the 24 worst accident black-spots on Bulgarian roads.
Medium-term (3-5 years)
• NRSC monitoring and evaluation group (through Road Research Institute (RRI) and Police Research Institute (PRI)) monitoring and evaluating all safety interventions undertaken within the national road safety strategy and reporting annually to NRSC on effectiveness of implementation and in casualty reduction.
• All safety interventions being monitored and evaluated to provide a data bank for design of future interventions
• Road Research Institute, Police Research Institute and at least 2 universities undertaking road safety research

Long term (5-10 years)
• A comprehensive road safety programme devised and funds allocated for safety research on areas to meet NRSC or National needs
• Institutes and universities bidding for road safety research contracts on pre-specified topics or proposing new topics for potential useful research.

5.3 Monitoring and evaluation
There appear to be no formal existing monitoring and evaluation systems for road safety in Bulgaria and as a consequence there is no information available on the effectiveness of the interventions that have been implemented or are being planned. For effective use of the limited funds available for road safety, there needs to be an effective assessment system in place that enables proposed schemes to be assessed and monitored as they are implemented.

5.3.1 Existing situation
At present, NRSC develops a general road safety strategy with global aspiration casualty reduction targets but actual implementation is supposed to be undertaken by individual stakeholders who are supposed to develop their individual action plans. In practice few do so. The NRSC Secretary appears to have no authority or powers to follow up on NRSC or Council of Ministers decisions on road safety and as a result there is little or no monitoring of even whether the agreed initiatives have been implemented far less whether they have been effective in their objectives.

None of the initiatives appear to have casualty reduction targets or even target dates for implementation so monitoring and evaluation is non existent in terms of NRSC activity.

5.3.2 Issues/problems on monitoring and evaluation
The lack of follow up in monitoring and evaluation can perhaps be best illustrated by the accident black-spot programme on RIF roads. The police, in line with their agreement with RIF, provide an annual list of the worst 200-240 ac-
cident black-spots on RIF network in that year but RIF then appear to do very little to improve such locations and at best will erect a “black-spot” sign at the locations. Comparison of the black-spot lists for 2004, 2005 and 2006 show 65 accident black-spots appearing year after year and continuing to add to the national toll of deaths injuries and accidents because no monitoring is done to see if the action taken has had any effect.

In Sweden, the Swedish National Road Administration (SNRA) and the Swedish National Road and Transport Research Institute are the agencies responsible for evaluation. Annual evaluations are carried out, based on a detailed programme with many sub-areas, each with specific targets. The main aim is to extract crash, casualty and fatality prediction curves.

Road user behaviour that is monitored includes: drunk-driving, excess speed, other violations, use of safety equipment in cars (e.g. seatbelts and child restraint systems), visibility of pedestrians and cyclists, and the use of helmets.

Other items that are monitored cover: vehicle crashworthiness, emergency services rescue times, safety opinions of the general public, and surveys to evaluate whether roads are built to safe standards.

Similarly interventions implemented in other ministries do not appear to be monitored so no information is available on effectiveness or even if any action has been taken.

The NRSC national road safety strategy has an overall (rather ambitious given recent trends) casualty reduction target aimed at compliance with EU targets for 2010. Unfortunately these casualty reduction targets are not then disaggregated to show where the proposed reductions will be achieved so it becomes impossible to monitor which bits of the strategy have worked and which have not.

Individual ministries implementing interventions also seem to have no casualty reduction target in mind so they are unable to assess whether the interventions have been successful.

Overall there is lack of focus on monitoring and evaluation and this need to be significantly improved if Bulgaria is to have any chance of meeting its EU obligations in terms of casualty reduction. There is a need to introduce more scientific, systematic methods in this area similar to those used in other EU countries.

### 5.3.3 Recommendations on monitoring and evaluation

For improvement of long term safety in Bulgaria it will be necessary to establish much better monitoring and evaluation activities than done at present so a body of knowledge is built up on what activities are successful and which are not to assist in design of future interventions.

**Short-term (1-2 years)**
- The proposed NRSC road safety research and monitoring working group to be responsible for developing the monitoring system and to disaggregate national targets to sector specific targets.
• Each stakeholders action plan to be examined and casualty reduction targets estimated for each major intervention proposed

• Implementation progress of individual stakeholder action plans monitored monthly by the newly expanded NRSC secretariat and reported quarterly to NRSC

• Accident costs known and used in assessing cost effectiveness of proposed safety interventions.

**Medium-term (3-5 years)**

• Cost benefit being used to assess all proposed safety interventions

• NRSC Secretariat producing a quarterly report on implementation progress of the national strategy and stakeholder action plans. Report to be publicly available and ideally downloadable from an NRSC website.

• A database of interventions and their effectiveness available in NRSC Secretariat to guide design of future interventions.

**Long term (5-10 years)**

• All proposed interventions in National strategy and safety programme assessed on potential for casualty reduction and cost effectiveness before inclusion

• NRSC Secretariat closely monitoring implementation of national strategy and individual safety action plans and programmes

• Annual monitoring report on safety programme commissioned from independent researchers (e.g. university or research institute) and published.

### 5.4 Funding of road safety programmes

#### 5.4.1 Existing situation

One of the biggest problems inhibiting effectiveness of NRSC and preventing improvement of road safety in Bulgaria is that lack of designated funding for road safety activities. NRSC has no funds of its own and currently relies upon individual stakeholders and government ministries to finance any initiatives in the national road strategy. It does get some sponsorship from the private sector (e.g. Global mobile phones, Bulgarian Union of motorists and Volvo) for regular campaigns such as the annual “winter preparedness” campaigns for motorists. Individual ministries are supposed to finance initiatives in their action plans from within their own budgets but such funds are often not available.

#### 5.4.2 Issues/problems on funding of road safety programmes

Attempts have been made in recent years to try to establish a more secure funding mechanism that would take a small levy from different sources to provide a
pool of funds that can be used for NRSC activities. Such efforts have not been successful and the ministry of finance budget office takes the view that individual ministries need to put their request for funds for safety initiatives into their normal budget submissions and if they are justifiable, then funds will be forthcoming.

The problem is that 2 types of funding are required:

1. Firstly relevant ministries with road safety responsibilities should have budgets for the extending and improving the basic functions and activities they do (e.g. supervision of driver testing and vehicle inspections within MOT, Traffic Policing in MoI, safety auditing and accident black-spot improvement programmes in RIF) as these should be part of their normal responsibilities and tasks (Unfortunately even this is not being done in some organisations (e.g. RIF do not do safety auditing or accident black-spot improvement at present).

2. Secondly there is a need for NRSC funds that can be used to finance cross sector or cross stakeholder initiatives that cannot be financed from one stakeholder and there is a need for more flexible funds that can be used to initiate useful interventions or developments that will benefit safety. Such funds can also be used for stakeholders to apply for on a competitive basis if they have special projects or initiatives they cannot finance from within their own budgets. They can also be used by NRSC to implement pilot or demonstration projects to encourage particular activities that might be beneficial to road safety.

3. Government at present sees road safety as “cost“ but does not realise that the national economy may be losing Euro 1000 millions or more per year through failure to address the problem effectively. It needs to be made aware of the real losses to the economy and that expenditure on road safety is an “investment” and not a cost. (This should change after the Economics University completes and publishes its World Bank safety component funded research on this in spring 2008).

5.4.3 Recommendations on funding of road safety programmes

Short-term (1-2 years)

- The NRSC strategy and casualty reduction targets should be disaggregated into targeted and costed action plans for each stakeholder so that the total funding requirement year by year to implement the strategy is known and understood by all. Each ministry should be asked to request adequate funds for implementation of their safety action plan as part of its contribution to the national safety strategy. (An NRSC Supporting document should be sent to Ministry of Finance Budget department emphasising the annual losses occurring and the potential benefits expected from the safety action plan activities being proposed).
• A separate safety fund need to be established into which funds from various sources can be channelled (for convenience it could be held alongside and managed administratively by the same persons managing the road infrastructure fund). This could have small slices of income from various sources such as:

- 5 Leva fees from damage only accident forms 160,000 x 5 = 800,000 Leva per year
- 3 Leva levy on each motor insurance 3.19million x 3 = 9.57 million Leva per year
- Sponsorship from private sector say 500,000 leva /year.
- A small (say 3 leva) levy on every vehicle inspection undertaken say 3.19million x 3 = 9.57 million leva per year
- A 3 leva levy on every driving test given 260,000 x 3 leva = 780,000 leva per year

Combining very small levies on 5 or 6 income generating sources could provide a very secure and growing source of guaranteed funds to cover the operating costs of the NRSC. This would provide the additional funds for NRSC activities, cross agency initiatives and pilot/demonstration projects.

Medium-term (3-5 years)
• NRSC getting approval of its annual costed road safety action plan by Council of Ministers. Since the national plan is the accumulated interventions and safety plans of NRSC stakeholders, the road safety component in each ministry budget should be protected/ringfenced intact at budget review by Ministry of Finance because investment of those funds should be shown to be resulting in a “saving” to the country in terms of losses avoided to the economy.

• A National Road Safety Fund established such that its funds grow in line with increasing numbers of vehicles and drivers and being used for NRSC Secretariat activities and to initiate cross sector cross agency activities and initiatives.

Long term (5-10 years)
A Road Safety Directorate established in Ministry of Transport with its own staffing and budgets from central government to promote road safety and to manage implementation of the national rod safety strategy and action plan but with access to the Road Safety Fund (with funding from various streams) for special initiatives and interventions.

5.5 Summary of implementation arrangements
The main findings on safety implementation programmes are:

• Responsibilities are generally well defined but NRSC needs more funds, staff and the authority to follow up as implementation arrangements are very weak. Roads authorities need to be given statutory obligation to im-
• Little or no road safety research being undertaken at present although there are 2 institutes who are capable of doing such research.

• Very little monitoring and evaluation being done in part because of insufficient permanent staff in NRSC Secretariat and partly because no research being undertaken. Few interventions are implemented and even those that do not have casualty reduction performance targets so evaluation of effects is difficult

• Totally inadequate arrangements for funding safety activities means that very little of the National Road Safety Strategy is being implemented in practice. Significant improvement needed in funding arrangements and in recognition that expenditure on road safety is an investment and not a cost.
6 Summary of Capacity Management Assessment

This section summarises the main causes of the dismal road safety situation described in chapter 2. The review follows the principles as described in Road Note No. TN-1 across three dimensions:

- focus on results
- safety interventions
- implementation arrangements.

The findings are derived from the consultants experience and they are based on interviews with relevant stakeholders during the consultant’s visits to Bulgaria, on the field trips within Bulgaria and on information supplied to the consultant.

There is a growing awareness in Bulgaria that road safety is a serious and increasing problem. However, the main gaps to fulfil a targeted safety strategy in Bulgaria are as follows:

- lack of a focus on results measurement
- interventions on safety standards and compliance are weak or non-existent
- implementation arrangements are fragmented and ill-coordinated.

Table 6-1 Summary of capacity management assessment

<table>
<thead>
<tr>
<th>Element</th>
<th>Problem</th>
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</thead>
<tbody>
<tr>
<td>Focus on results</td>
<td></td>
</tr>
<tr>
<td>Road safety performance targets</td>
<td>There are road safety targets at national level in an attempt to comply with EU casualty reduction targets for 2010 but little chance of achieving these on present trends. There is no disaggregation of targets by sector or intervention.</td>
</tr>
<tr>
<td>Road accident costs</td>
<td>There is no local research on accident costs and little awareness of the huge economic losses being sustained.</td>
</tr>
<tr>
<td>Responsibility and coordination of road safety performance</td>
<td>The Roads Safety Commission is responsible for coordinating and managing road safety but has insufficient funds, staff or authority to do it effectively. As a consequence, implementation of its strategy by stakeholders is generally very poor and sporadic at best and there is little or no monitoring or performance measurement.</td>
</tr>
<tr>
<td>Data and statistics</td>
<td>The basic data is reasonable and could permit monitoring of performance but analytical capability is very weak at present because the Police Data system software permits only administrative tables to be produced. Anything more requires laborious and time consuming manual analyses by spreadsheet.</td>
</tr>
<tr>
<td>Safety standards and interventions</td>
<td></td>
</tr>
<tr>
<td>Design, planning and operation of</td>
<td>There is no safety audit system in place so accident prevention is weak at present. RIF receive lists of the worst 200-240 accident black-spots on RIF network each year but have not been making any improvements at them so many...</td>
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<table>
<thead>
<tr>
<th>Element</th>
<th>Problem</th>
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<tr>
<td>roads</td>
<td>such sites continue to result in accidents and casualties year after year. Existing traffic engineering and safety standards need updating and improvement and local road engineers need to be introduced to low cost safety engineering techniques. The existing roads are neither self-explanatory nor forgiving.</td>
</tr>
<tr>
<td>Vehicle standards and rules</td>
<td>Appropriate vehicle standards exist with a few minor exceptions. The vehicle standards require regular inspections but it appears to be possible to avoid inspections so a major number of vehicles, mainly vehicles in a poor technical condition, do not undergo inspection. The lack of a data system for calling in vehicles for technical tests as well as for calculating the percentage of vehicles approved at the first technical test. Subsequently, these data can be used in the strategic work of the Traffic Inspectors' control of the inspection garages. The number of Traffic Inspectors is insufficient for controlling the inspection garages effectively.</td>
</tr>
<tr>
<td>Standards and rules for road users</td>
<td>The actual behaviour of road users is bad and causes many serious accidents and risky situations. The traffic regulation should be reviewed for e.g. seatbelts and child restraint system, speed limits, young drivers and medicine and drugs.</td>
</tr>
<tr>
<td>Police enforcement</td>
<td>There is a lack of confidence in the Traffic Police work due to alternative payment of fines and this presents a problem. A clearly written strategy for the Traffic Police work is lacking and there are no stipulated goals for the Traffic Police work. Ineffective use of nearly half of the working hours of the Traffic Police in connection with attendance and report making at small, insignificant traffic accidents. The rationing of petrol prevents effective police work and proactive efforts and affects the motivation of the police officers. There is a need for more and better police equipment in the form of modern and precise Alco meters, laser guns for measuring speed and proper roping off in connection with traffic accidents after dark and first aid kits in all patrol cars. The out of date analogue radio system has insufficient coverage and no possibility for data transmission. Improved education of the Traffic Police is needed so that expert help is only required at very serious traffic accidents, where the circumstances and the liabilities are complicated.</td>
</tr>
<tr>
<td>Other compliance interventions</td>
<td>Even though efforts are made in some parts of the country to teach children safe traffic conduct, and there is a national strategy there is no consistency or implementation as the national strategy does not include targets or dates for the traffic education of school children. The education should be adjusted pedagogically to the older pupils, who presently do not receive any traffic education, putting to use the special interests of this age group. School crossing patrols should be re-introduced gradually according to the models, which have worked successfully in other countries. In order to have success, the parents must support the initiative and the individual members of the crossing patrols should be awarded with a yearly excursion. The Traffic Police must back up the crossing patrols by regular work visits, getting out of the patrol cars and giving the impression that the pupils in question are doing a great job for the friends. The cooperation with the schools about the children’s safe traffic training and their relation to the Police in general is not yet in place.</td>
</tr>
<tr>
<td>Emergency Services</td>
<td>Some of the ambulances are old and have high mileages, which causes breakdowns and repairs, resulting in a reduction of the number of ambulances in operation. The response time, which under normal circumstances should not exceed 15-20 minutes, need to be reduced. A strategy of placing ambulances strategically where experiences prove, that serious rush hour accidents happen, could be a help. This strategy has proved successful for several years in Sofia. Also ambulance drivers should be trained to treat minor injuries according to the priority of the ambulance doctor, in case of more than two injured persons. Consideration should be given to introducing emergency ambulances staffed with paramedics.</td>
</tr>
</tbody>
</table>

Implementation arrangements

<p>| Agencies and stakeholder responsibilities    | Responsibilities are generally well defined but NRSC needs more funds, staff and the authority to follow up as implementation arrangements are very weak. Roads authorities need to be given statutory obligation to improve road safety on their networks and to report annually on what they have done to reduce road accidents. |
| Road safety re-                               | Little or no road safety research being undertaken at present although there are 2 institutes who are capable of doing |</p>
<table>
<thead>
<tr>
<th>Element</th>
<th>Problem</th>
</tr>
</thead>
<tbody>
<tr>
<td>search</td>
<td>such research.</td>
</tr>
<tr>
<td>Monitoring and evaluation</td>
<td>Very little monitoring and evaluation being done in part because of insufficient permanent staff in NRSC Secretariat and partly because no research being undertaken. Few interventions are implemented and even those that are do not have casualty reduction performance targets so monitoring or evaluation of effects is difficult.</td>
</tr>
<tr>
<td>Funding of road safety programmes</td>
<td>Totally inadequate arrangements for funding safety activities means that very little of the national safety strategy is being implemented in practice. Significant improvement needed in funding arrangements and in recognition that expenditure on road safety is an investment and not a cost.</td>
</tr>
</tbody>
</table>
7 Qualitative Investment Strategy and Short-term Action Plan

This part presents a proposal for qualitative investment strategy and short term action plan Bulgaria as agreed with government and senior officials. This includes a proposal for multi-sectoral strategies for improving road safety management capacity in Bulgaria. The objective is to suggest short-term measures to overcome revealed weaknesses in accordance with World Bank Guidelines.

This section includes a draft immediate action plan that can be partially funded by the World Bank road safety component.

7.1 Summary of Action Plan

Based on the capacity management assessment on road safety, components are identified and an Action Plan for the short and medium term prepared. The identified short and medium term as well as long term priority activities are summarised in the table under the following headings:

- Ensure proper institutional capacity across relevant sectors
- Sharpen the focus on results
- Target unsafe road behaviour
- Improve safety features in the road environment
- Improve safety standards and rules and the associated compliance regimes.

<table>
<thead>
<tr>
<th>Proposed priority activities in the Action Plan</th>
<th>Proposed actions in Medium term (3-5 years)</th>
<th>Long term (6 years -)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ensure proper institutional capacity across relevant sectors</td>
<td>NRSC actively pushing and monitoring road safety activity of Stakeholders 1 admin assistant and 4 technical specialists working at NRSC Secretariat under the present secretary</td>
<td>Establish a Road Safety Directorate NRSC coordinating activities with implementation support of road safety directorate</td>
</tr>
<tr>
<td>Strengthening the role and capability of the National Road Safety Commission (NRSC) 4 Seconded specialists from stakeholders</td>
<td>Adviser to strengthen capability of NRSC (12mm)</td>
<td></td>
</tr>
<tr>
<td>Proposed priority activities in the Action Plan</td>
<td>Proposed actions in</td>
<td>Long term (6 years -)</td>
</tr>
<tr>
<td>-----------------------------------------------</td>
<td>---------------------</td>
<td>-----------------------</td>
</tr>
<tr>
<td>Clarifying the responsibilities and increasing the capabilities of the NRSC’s secretariat</td>
<td>Review NRSC legislation and modify for more effective working</td>
<td>Road Safety Secretariat absorbed into a Road Safety Directorate established with its own funds and staff to manage road safety activity nationally</td>
</tr>
<tr>
<td>Strengthening the accountability of all agencies involved in road safety</td>
<td>All safety interventions to have casualty reduction target specified</td>
<td>All agencies implementing their part of the national road safety strategy and action plan and reporting annually to NRSC on their road safety activities</td>
</tr>
<tr>
<td>Sharpen the focus on results</td>
<td>Damage only accidents to be reported at police stations</td>
<td>Data being used for road safety research programmes</td>
</tr>
<tr>
<td>Improve the collection, availability and use of data in the road traffic accident data and analysis system</td>
<td>New modern accident data collection storage and analyses system established</td>
<td></td>
</tr>
<tr>
<td>Set up monitoring and evaluation system designed to inform all stakeholders of the progress and effectiveness of road safety measures</td>
<td>NRSC Secretariat monitoring implementation of initiatives in terms of casualty reduction and producing an annual progress report</td>
<td>All safety activities being designed with casualty reduction targets and monitoring mechanisms in place</td>
</tr>
<tr>
<td></td>
<td>NRSC Monitoring framework in place to monitor implementation of strategy and related delegated activities in all NRSC stakeholders</td>
<td>Annual reports by NRSC on progress towards national casualty reduction targets</td>
</tr>
<tr>
<td>Target unsafe road behaviour</td>
<td>TA to help police in more effective enforcement tactics and strategies</td>
<td>Analysing the police radio communication system in order to consider a new digital system with much larger capacity and possibility for data transmission</td>
</tr>
<tr>
<td>Intensified police enforcement</td>
<td>Allocate adequate rations of petrol to patrol cars</td>
<td></td>
</tr>
<tr>
<td>Awareness campaigns to support police enforcement</td>
<td>Organise structure and responsibility.</td>
<td>Coordinated media campaigns and enforcement activity.</td>
</tr>
<tr>
<td></td>
<td>Apply for membership of P.R.I</td>
<td>Campaigns focused on based on high risk groups and dangerous behaviours being designed by professional media companies</td>
</tr>
<tr>
<td></td>
<td>Seek for International best practice</td>
<td></td>
</tr>
<tr>
<td>Road safety education of children</td>
<td>Review present strategy, goals, materials and activities for traffic education of school children.</td>
<td>Effective nationwide traffic education system and activities in use in schools</td>
</tr>
<tr>
<td></td>
<td>Work out pedagogical methods to maintain the older pupils interest for traffic safety</td>
<td></td>
</tr>
</tbody>
</table>

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<table>
<thead>
<tr>
<th>Proposed priority activities in the Action Plan</th>
<th>Proposed actions in</th>
<th>Proposed actions in</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Short term (1-2 years)</td>
<td>Medium term (3-5 years)</td>
</tr>
<tr>
<td>Re-introducing school crossing patrols at schools with dangerous roads</td>
<td>Nationwide traffic education reviewed and updated as needed</td>
<td>Safety units working in every roads authority to improve black-spots, to oversee safety audits and to monitor traffic and safety problems on their networks</td>
</tr>
<tr>
<td>Improve safety features in the road environment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Safety engineering improvements</td>
<td>Safety black-spot identification and improvement (train the trainers) course (TA)</td>
<td>2 safety engineering courses per year (run by local staff)</td>
</tr>
<tr>
<td></td>
<td>Review of traffic and safety standards for urban and rural roads (TA)</td>
<td>Road Safety Unit established at RIF to monitor traffic and safety issues on RIF network</td>
</tr>
<tr>
<td></td>
<td>2 safety audit courses per year (run by local staff)</td>
<td>Road Safety Units established within traffic units of main municipalities to monitor traffic and safety on municipal roads</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Safety units working in every roads authority to improve black-spots, to oversee safety audits and to monitor traffic and safety problems on their networks</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Each roads authority producing an annual report on black-spots and improved safety on their road networks</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Target selected high risk areas (black spot work)</td>
<td>24 accident black-spots analysed and improvement suggested for inclusion into RIF works programme (first 2 or 3 undertaken as part of the train the trainer course)</td>
<td>50 black-spots per year identified analysed and improved annually on RIF network</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Road safety line in RIF annual budget so that black-spot improvement programme can be devised to the budget available</td>
</tr>
<tr>
<td></td>
<td></td>
<td>At least 5 black-spots improved annually in each municipality</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Road safety audits</td>
<td>Safety audit “Train the trainers” course to train a core group of academics, RIF staff, Ministry of Transport Staff, staff from Federation of Highway Engineers and local consultants (TA)</td>
<td>2 safety audit courses per year (local trainers) to increase number of safety auditors as a resource for roads authorities</td>
</tr>
<tr>
<td></td>
<td>Safety audit guidelines devised for Bulgaria and safety audit made mandatory for all road works</td>
<td>All road schemes being subjected to safety audit</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Improve safety standards and rules and the associated compliance regimes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vehicle inspection system</td>
<td>Implement an overall strategy, known to all employees in the organisation</td>
<td>Employ and train more inspectors for intensifying inspections in the inspections halls</td>
</tr>
<tr>
<td></td>
<td>Implement a plan for intensifying unannounced inspections in the inspections halls</td>
<td></td>
</tr>
<tr>
<td></td>
<td>To control the quality of the work</td>
<td></td>
</tr>
</tbody>
</table>
### Proposed priority activities in the Action Plan

#### Short term (1-2 years)
- in the inspections halls, vehicles with build-in serious errors should be prioritised for inspection.

#### Medium term (3-5 years)
- Review and keep safety legislation updated to EU legislation

#### Long term (6 years -)
- Review and keep safety legislation updated to EU legislation

### Legislation
- Implement in the traffic law, that it is mandatory to use seatbelts for passengers and child restraint for children
- Implement harder sanctions for new drivers
- Review sanctions for driving under the influence of drugs and medicine
- Review general speed limits of 90 km/h and 130 km/h on rural roads and motorways, which in many cases seems too high compared to the layout
- Review and keep safety legislation updated to EU legislation

### Driver training and testing
- Implement control procedures in order to prevent informal payments
- Change the rules in order to use anonymous cars at the driving test
- Keep system updated and in line with EU practices

### Emergency medical services
- Training of the ambulance drivers enabling them to participate as a qualified part of the rescue team.
- Analyse the strategic deployment of the ambulances for reducing the response time to 15-20 minutes
- Consider paramedics for supplementary emergency ambulances
- Effective response times of 15-20 min for most of the road network
- Keep system updated and in line with EU practices

<table>
<thead>
<tr>
<th>Proposed priority activities in the Action Plan</th>
<th>Proposed actions in</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Short term (1-2 years)</td>
<td>Medium term (3-5 years)</td>
<td>Long term (6 years -)</td>
</tr>
<tr>
<td>in the inspections halls, vehicles with build-in serious errors should be prioritised for inspection.</td>
<td>Review and keep safety legislation updated to EU legislation</td>
<td>Review and keep safety legislation updated to EU legislation</td>
</tr>
<tr>
<td>Legislation</td>
<td>Implement in the traffic law, that it is mandatory to use seatbelts for passengers and child restraint for children</td>
<td>Implement harder sanctions for new drivers</td>
</tr>
<tr>
<td></td>
<td>Review sanctions for driving under the influence of drugs and medicine</td>
<td>Review general speed limits of 90 km/h and 130 km/h on rural roads and motorways, which in many cases seems too high compared to the layout</td>
</tr>
<tr>
<td>Driver training and testing</td>
<td>Implement control procedures in order to prevent informal payments</td>
<td>Work demands and specifications for a new data system for booking of driving tests, both theory and driving, in order to perform rational and reliable tests.</td>
</tr>
<tr>
<td></td>
<td>Change the rules in order to use anonymous cars at the driving test</td>
<td>Keep system updated and in line with EU practices</td>
</tr>
<tr>
<td>Emergency medical services</td>
<td>Training of the ambulance drivers enabling them to participate as a qualified part of the rescue team.</td>
<td>Initiate exchange of old and worn-out ambulances and equip all ambulances with defibrillators</td>
</tr>
<tr>
<td></td>
<td>Analyse the strategic deployment of the ambulances for reducing the response time to 15-20 minutes</td>
<td>Introduce pared cross paramedic emergency ambulances to increase coverage</td>
</tr>
<tr>
<td></td>
<td>Consider paramedics for supplementary emergency ambulances</td>
<td>Effective response times of 15-20 min for most of the road network</td>
</tr>
</tbody>
</table>

#### 7.2 Proposed priority actions - possible distribution of safety component

The proposed priority actions for possible funding by the World Bank safety component to improve road safety in Bulgaria are shown in Table 7-2. This is based on the findings from the Capacity Management Assessment, the recommendations in the Action Plan and discussion of most urgent needs with key organisation in Bulgaria.

Technical support for the road safety commission is suggested to help develop its own role and powers, develop its secretariat, its funding and to finalise and start following up and monitoring the National Safety Action Plan which has been drafted during this project. Some funds have also been allocated to develop road safety research activities.
### Table 7.2  Possible distribution of safety component.

<table>
<thead>
<tr>
<th>Component</th>
<th>Euro thousands</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1 Coordination and Management</strong></td>
<td></td>
</tr>
<tr>
<td>TA Support (12 mm over 24 months)</td>
<td>216</td>
</tr>
<tr>
<td>Establish trophies for road safety &quot;oscars&quot; to be presented by MOT annually to municipalities and RIF Regions showing best safety activity</td>
<td></td>
</tr>
<tr>
<td>Development of MOT safety website and activities</td>
<td>22</td>
</tr>
<tr>
<td>Office set up /reference documents /safety memberships (pri etc)</td>
<td>29</td>
</tr>
<tr>
<td><strong>2 Road safety funding</strong></td>
<td></td>
</tr>
<tr>
<td>included in above TA</td>
<td></td>
</tr>
<tr>
<td><strong>3 Road accident data system</strong></td>
<td>0</td>
</tr>
<tr>
<td>System (incl. pilot testing form, software adaptation/translation into Bulgarian, training of accident units, local support etc.)</td>
<td>144</td>
</tr>
<tr>
<td><strong>4 Safer planning and design of roads</strong></td>
<td></td>
</tr>
<tr>
<td>Safety audit* train the trainer* course (50% contribution)</td>
<td>22</td>
</tr>
<tr>
<td>Development of local safety audit guidelines</td>
<td>22</td>
</tr>
<tr>
<td>Review of traffic and safety engineering standards and traffic signing/marking at road works (included in TA for item 5)</td>
<td>22</td>
</tr>
<tr>
<td>Part funding of first 2 local safety audit courses by local trainers (to be run under the Bulgarian Road Engineers Association (BFHE))</td>
<td>22</td>
</tr>
<tr>
<td><strong>5 Hazardous locations improvement programme</strong></td>
<td></td>
</tr>
<tr>
<td>Improve 25 &quot;worst&quot; black-spots as demos (50% contribution)</td>
<td>360</td>
</tr>
<tr>
<td>TA to develop road safety activity in RIF and municipalities and to train local &quot;trainers&quot; (RIF and municipal engineers) who can later run local courses under BREA (8 mm)</td>
<td>144</td>
</tr>
<tr>
<td>Part funding of first 2 local black-spot improvement courses (held at RIF regional training facilities under BREA)</td>
<td>14</td>
</tr>
<tr>
<td><strong>6 Police enforcement</strong></td>
<td></td>
</tr>
<tr>
<td>TA support to develop enforcement strategies and tactics (3mm)</td>
<td>58</td>
</tr>
<tr>
<td>Lasers, speed cameras, other equipment for demo projects /locations</td>
<td>173</td>
</tr>
<tr>
<td><strong>7 Vehicle inspections /testing</strong></td>
<td>0</td>
</tr>
<tr>
<td>nil</td>
<td></td>
</tr>
<tr>
<td><strong>8 Driver training and testing</strong></td>
<td></td>
</tr>
<tr>
<td>nil</td>
<td>0</td>
</tr>
<tr>
<td><strong>9 Traffic legislation</strong></td>
<td></td>
</tr>
<tr>
<td>Included in police TA</td>
<td>0</td>
</tr>
<tr>
<td><strong>10 Emergency medical and rescue services</strong></td>
<td></td>
</tr>
<tr>
<td>TA Support to review deployment tactics and operations (1 mm)</td>
<td>22</td>
</tr>
<tr>
<td><strong>11 Road safety research</strong></td>
<td></td>
</tr>
<tr>
<td>Local research into Accident costs by Economics University</td>
<td>11</td>
</tr>
<tr>
<td>RIF research institute, Technical library, subs to magazines etc.</td>
<td>18</td>
</tr>
<tr>
<td>Initiation of 2 small research projects to support NRSC needs</td>
<td>14</td>
</tr>
<tr>
<td>Creation of a local internet based road safety engineering database /dissemination website to share safety engineering info</td>
<td>22</td>
</tr>
<tr>
<td><strong>12 Road Safety Publicity campaigns</strong></td>
<td></td>
</tr>
<tr>
<td>Campaigns to support increased enforcement</td>
<td>72</td>
</tr>
<tr>
<td><strong>13 Road safety education of children</strong></td>
<td></td>
</tr>
<tr>
<td>TA support to critically review present activity and materials (1mm)</td>
<td>22</td>
</tr>
<tr>
<td><strong>14 Partnerships and collaboration</strong></td>
<td></td>
</tr>
<tr>
<td>TA support to improve coordination and effectiveness of NGOs and private sector partners (included in TA for item 1)</td>
<td>0</td>
</tr>
<tr>
<td>Funds for workshops and coordination mechanisms (e.g. help municipalities)</td>
<td>14</td>
</tr>
<tr>
<td><strong>Total proposed safety component</strong></td>
<td>1440</td>
</tr>
</tbody>
</table>
Some of the expert time of the TA support to NRSC could be done from MOT if the expert was to be shared between MOT and MoI. The expert could help MOT to get their activities going and a safety website fully operational and running, and provide general advice on development of safety activity within MOT. The total budget for developing the website is around Euro 22,000.

The accident data system should be developed urgently and could e.g. be the TRL MAAP system which have been implemented in many countries to include design and pilot testing of form, adaptation of software for Bulgarian data and displays in local language, training of regional data entry staff and HQ statistics section staff to use the software and to do analyses. It would include involvement of local IT consultant to provide on going support to police if needed beyond project. It would with direct appointment of TRL cost approximately a total Euro 144,000.

Bulgaria could ask the Netherland Partners for safety consultants to run Train the trainer courses in safety auditing and to develop safety audit guidelines for Bulgaria (only part funding required from safety component since 50% subsidy from Netherlands). Direct appointment of DHV/Netherlands at discounted costs Euro 22,000.

The contribution towards the black-spot improvement programme takes up a big part of the funds and in addition allows for some TA to assist RIF and municipalities road engineers develop their safety engineering capabilities and to review traffic engineering standards and signing at roadworks guidelines.

Regular local courses under the Bulgarian Federation of Highway Engineers association (BFHE) should be established to provide sustainability and expansion of safety capability in Bulgaria. These may be held in the RIF regional training facilities and best done under the umbrella of the road engineers association (BFHE) so that private consultants and municipal engineers can be involved as well as RIF and MoT. A small amount of funds have also been allocated for dissemination of safety engineering knowledge to roads engineers in Bulgaria.

A total of Euro 231,000 have been allocated for policing (3 mm input plus Euro 173,000 for police equipment). The TA is suggested to look at:

- Work out a written strategy including goals for the traffic police
- Work with operational plans and goals for traffic policing in Bulgaria
- Initiating training for operation of automatic speed control (speed cameras)
- Establishment of contact to TISPOL to prepare Bulgaria to become member of their organisation
- Establish contact to Bulgarian Radio with the purpose to cooperate on a "traffic radio" where a police man is in the studio giving advice.

With regard to equipment the Euro 173,000 could be used for:

- 10 fixed boxes for automatic cameras with 5 cameras to be circulated - to be installed at accident prone locations - 105,000 Euro
10 laser guns - 50,000 Euro
20 alcometre - 18,000 Euro
Total 173,000 Euro

The publicity campaigns to support police enforcement activities can be nomi-
nally placed under the responsibility of MOT since they do other safety cam-
paings etc. The actual content and timing etc will be done in collaboration be-
tween NRSC, MOT and Police. With regard to the campaigns to support police
enforcement (72,000 Euro) focus should be on speed, seatbelt, alcohol, and ve-
cicle technical condition and it should be coordinated with the operational plan
of the police.

The traffic education and emergency services is suggested to be reviewed and
no urgently actions seem needed in some areas such as e.g. driver testing, vehi-
cle inspections, etc.

Apart from the TA’s mentioned above a company should be appointed to field a
multi-disciplinary road safety team as follows:

1. Team leader/road safety specialist to provide intermittent advice to
NRSC in developing its role/powers, funding, its secretariat and its moni-
toring activities, to develop partnerships and research (12 mm)

2. Road safety engineer with extensive experience of accident black-spot
improvement and in training counterpart engineers on such matters. Also
to review traffic/safety engineering standards and guidelines for signing at
road works and to initiate the black-spot engineering training courses (8
mm)

3. Traffic police specialist to advise police on tactics, strategies and man-
agement of enforcement activities and to train police in use of modern traf-
cic enforcement equipment via demonstration projects (3mm)

4. Emergency medical and rescue services specialist to review current
practices, equipment and deployment strategies and to suggest improve-
ments to increase effectiveness (1 mm)

5. Children's traffic education specialist to review present practices, mate-
rails and activities of public sector, NGOs and private sector and to suggest
areas for improvement (1mm).

Total of 25 mm inputs to be contracted after international competitive tender
(Euro 468,000).

7.3 Choice of demonstration areas

It is suggested demonstration areas selected to be location or municipalities
with high concentration of accidents. At such locations there would be the op-
portunity to enhance the policing, improve ambulance deployment, train mu-
nicipal engineers, do more with NGOs etc. in the defined administrative areas to see the effect compared to the rest of the country.

Relevant pilot municipalities could be near the Black Sea and central area etc. where there is high concentration of e.g. black-spots. The selection of the precise areas will be done in consultation with government and will be selected to include the cluster of 24 worst black-spots. The areas should include more type of roads, e.g. motorways, 2 lane roads (more important) both sections and junctions, and linear villages/build up areas (very important).
8 Comments on the World Bank Guidelines

8.1 Effectiveness of guidelines

The primary focus of this review is on assessing country capacity to manage road safety and the TRN-1 guidance advocates a systematic review of National capacity preparedness. The TN-1 guidance proposes 3 “dimensions” (i.e. results focus, interventions and implementation arrangements) to assess road safety capacity and provides some guidance on the kinds of questions that need to be asked to get a reasonable assessment of present practices in terms of each Dimension.

Method of assessing needs and ensuring consistency of assessments

It is clearly important to know whether and to what extent there is a Results Focus driving safety activity and also whether the right types and range of interventions are being implemented but these will rarely happen to any extent unless the key agencies with safety responsibilities are themselves performing effectively. They can only perform effectively and move forward if they, themselves, have the right structures, practices and activities in place. It is highly likely that in most developing or transition economies such as Bulgaria, there will be considerable need for institutional strengthening before there can be adequate results focus or many of the desirable interventions that one could expect to see in the most developed countries.

Although the questions suggested in TRN-1 and the supplementary checklist provided subsequently were very helpful in providing a general structure and approach for the assessment of each dimension and were used in our making assessment, we feel this does not always provide sufficient detail and consistency as different sectors are assessed – especially if these are done by different team members. With the present system there is inadequate transparency as to how the judgements have been arrived at and hence no easy way or possibility to “standardise” marking across different individuals to ensure different specialists assessing the same sector would end up with the same assessment.

We feel the TRN-1 approach could be significantly enhanced by using supplementary more detailed frameworks to review each of the individual key sectors of road safety in finer detail before consolidating and summarising the results into the 3 dimensions as advocated in TRN-1. This would permit a more systematic sector by sector assessment, provide a better inventory of current practices and activities and be totally transparent as to what has been assessed/
checked/reviewed in each sector. As a consequence such assessments would be more easily replicable by others to ensure consistency across a team (and, if one were doing several countries) across different teams and countries.

We used additional checklists to assess each of the individual sectors of road safety to see whether key structures and mechanisms were in place and to make an inventory of what activities are being undertaken currently. This required systematic thinking about what are the “desired minimum” activities, structures and practices that need to be in place for each sector to be contributing adequately towards the improvement of road safety in Bulgaria.

The key sectors we assessed using these more detailed frameworks are listed below:

1. Co-ordination & Management of Road Safety
2. Road Safety Funding
3. Road Accident Data Systems
4. Safe Planning and Design of Roads
5. Improvement of Hazardous Locations
6. Traffic Police Enforcement
7. Vehicle Safety Standards
8. Driver Training And Testing
9. Traffic Legislation
10. Emergency Medical and Rescue Services
11. Road Safety Research
12. Road Safety Publicity Campaigns
13. Road Safety Education of Children
14. Partnerships and Collaboration

This was done by developing suitable assessment frameworks defining the sorts of minimum structures, activities and practices that need to be happening in each sector for it to be contributing fully to the national capacity to manage road safety effectively in Bulgaria. These more detailed sector-by-sector analyses will also enable strengths and weaknesses to be more easily identified so that a suitable detailed remedial Action Plans and a Strategy can be devised. Our methodology will result in an in-depth, systematic and replicable assessment of each sector which is totally consistent with requirements of the TOR and the recommendations of TRN-1.

**Timescale for recommended strategy**

The TN-1 guidance suggests that recommendations be made for 0-5 years, 5-10 years and 10-15 years and we would suggest that more flexibility be permitted on this. In transition countries that, like Bulgaria are in the process of synchronising their activities with EU a 15 year horizon seems too long since much of their activity, targets etc will be driven by need to comply with EU requirements in future years.

In addition there will be some countries where technical assistance is available almost immediately which could assist to develop their longer term safety activities. In such cases we propose that the recommendations be made for...
8.2 Recommendations for improvements

We suggest that more detailed sector by sector frameworks be devised focused on what desired activities and structures should be in place in each key sector for effective work to be done in that sector. These can be used to provide a systematic inventory or “snapshot” of present situation and areas of strength and weakness. These are not a replacement for the TN1 Lists but can be used to supplement them and provide a written inventory of what exists at the time of assessment. The information can then be presented in the way required under TN1.

We suggest that more flexibility be allowed in timescales suggested for strategy as it is unrealistic to try to specify what should be happening in that country in 15 years time. It would be better to focus on:

- Immediate action 1-2 years
- Short term 3-5 years
- Medium term 5-10 years

This will be sufficient to get key activities and interventions initiated and the key stakeholders to a position where they can devise their own longer term strategies.
Appendix A People met

Ministry of Interior and Road safety Commission:

- Aleksi Kisiakov, General Secretary, State-republic Consultative Commission on the Problems of Road Safety
- Emil Tsvetkov, Road Safety Activities, Science Criminology Institute to Ministry of Interior
- Maria Angelova, Road Safety Activities, Science Criminology Institute to Ministry of Interior

Ministry of Transport (MoT):

- Krasimira Martinova, Deputy Minister on EU integration & Road Safety, Ministry of Transport
- Nikolay Kostov, Minister’s advisor, Ministry of Transport
- Lubomir Hristov, Deputy Executive Director, Executive Agency Road Transport Administration
- Peter Neychev, Deputy Minister on Automobile Transportation, Ministry of Transport
- Konastantin Vardev, PR Specialist, Ministry of Transport
- Eng. Valentin Pantchev, State Expert on Road Safety, Ministry of Transport, Directorate” Safety, technical inspection, healthy & safe work conditions”
- Eng. Todor Kraychev, Ministry of Transport, Directorate” Safety, technical inspection, healthy & safe work conditions”
- Yassen Ishev, State Expert, Ministry of Transport, Planning & Control of Road Infrastructure Directorate
- Hristo Slavchev, Head of Department, Ministry of Transport, Planning & Control of Road Infrastructure – II, III class & local roads
- Evgeniy Minchev, Road Safety Director, Ministry of Transport
- Desislava Stancheva, Planning & Control of Road Infrastructure, Ministry of Transport
• Ivan Ivanov, Head of Department, Planning & control of road Infrastructure-motorways, I class, Trans European corridors & cross-border connections, Ministry of Transport

National Road Infrastructure Fund

• Mr. Georgiev, Executive Director, National Road Infrastructure Fund
• Eng. Jivko Nedev, Deputy Managing Director, National Road Infrastructure Fund
• Alexander Vezennkov, State Expert (road safety), Chief of department “Management of Road Infrastructure”, National Road Infrastructure Fund (RIF)
• Research associate Eng. Todor Anastasov, Head of Department, Department “Surface road qualities & road safety”, Central Lab for Bridges & Roads, National Road Infrastructure Fund
• Boryana Dolapchieva, Director of Credit & Budget Investment Directorate, National Road Infrastructure Fund

Traffic Police - National:

• Valeri Mitkov, State Expert, Technical inspections, Traffic Police
• Andon Andonov, State Expert, Technical inspections, Traffic Police
• Maria Hubeva, Expert, Science Institute on Bridges and Roads, Traffic Police
• Comissar Alexi Stratiev, Chief of Traffic Police Department, Ministry of Interior, National Police Directorate
• Vanio Stoevski, Deputy Chief of Traffic Police, Ministry of Interior, National Police Directorate

Ministry of Regional Development & Public Works:

• Eng. Nina Stoyanova, Head of department of Road Infrastructure & Social Project, Ministry of Regional Development & Public Works

Ministry of Education & Science:

• Mukkades Nalbant, Vice Minister, Ministry of Education & Science
• Ivan Semov, State Expert in vocation education & training, Ministry of Education & Science

Ministry of Health
• Yunakov, MD, Director, Medical Emergency Directorate, Ministry of Health

• Doc. Hari Griva, MD, Director, National Centre for Health Information, Ministry of Health

• Masha Gavrailova, MD, Head of Department, Protection of Public Health, Ministry of Health

• Irina Kovacheva, MD, Senior Expert, Public Health Directorate, Ministry of Health

• Georgi Gelev, MD, Director Center for Medical Emergency - Sofia

Ministry of Finance:

• Nadejda Genova, Head of Department, State Expenditures Directorate, Ministry of Finance

• Vladimir Petrov, Director, State Expenditures Directorate, Ministry of Finance

Universities:

• Civil eng. Msc. Todor Todorov Mott MacDonald Bulgaria, /Member to Federation of Highway Engineers/, Professor at University of Architecture, Engineering & Geodesy

• Prof. Peter Stefanov, University of Architecture & Engineering

• Prof. Dimiter Nenkov, Financial Department, University of National & World Economy

Other met in Bulgaria, e.g. NGO, consultants etc.:

• Nadezhda Todorovska, MD, Head of Social Welfare & Health Policy Division, Deputy Director General, Bulgarian Red Cross

• Nadia Vassileva, Senior Expert, State Agency for Child Protection, Council of Ministries

• Simeon Simov, Secretary, Sofia City Hall, Council for the Traffic Safety of Children

• George Yanakiev, President, Union of Bulgarian Motorists

• Stoyan Sentov, Vice president, Union Of Bulgarian Motorists

• Simeon Darvingov, Analytics
• Dipl. Eng. Magdalina Dermendjieva, President, National club “Bi Bit” for safety behavior on the road, development & protection of children & young people

• Civil eng. Msc Nikolay Sotirov, Deputy Director, Mott MacDonald Bulgaria

World Bank met in Bulgaria:

• Orlin Dikov, Operations Officer, Infrastructure projects, World Bank Office, Sofia, Bulgaria

• Henry Kerali, Programme Team leader – Transport, Sustainable Development Department, Europe & Central Asia Region

• Mohammed Dalil Essakali, Infrastructure economist, Sustainable Development Department, Europe & Central Asia Region

• Antti Talvitie, Road safety specialist, The World Bank
Appendix B State-Public Consultative Commission (National Commission on Road Safety)

The National Commission on Road Safety called the State-Public Consultative Commission on the problems of Road Safety is chaired by the Minister of Interior (See link http://dokkpbdp.mvr.bg/En/default.htm)

Members
Chairman
Roumen Petkov - Minister of Interior

Deputy-chairpersons
Kamen Penkov - Deputy Minister of Interior
Georgi Petarneychev - Deputy Minister of Transport and Communications
Dimcho Mihalevski - Deputy Minister of Regional Development and Public Works

Members
Dr. Atanas Dodov - Deputy Minister of Health
Ivan Ivanov - Deputy Minister of Defence
Nahit Ziya - Deputy Minister of Finance
Moukaddes Nalbant - Deputy Minister of Education and Science
Voislav Boubev - National Association of Bulgarian Municipalities
Nadya Vassileva - State Agency for Children Protection
Colonel Alexi Stratiev - Traffic Police, National Police Service
Georgi Yanakiev - Director of the Union of the Bulgarian Motorists
Daniela Konova - Chairman of the Bulgarian Insurance Companies Association
Georgi Petrov - Chairman of the Association of the Bulgarian Enterprises for Road Transport and the Roads
Hristo Grigorov - Chairman of the Bulgarian Red Cross
Stefan Hadjinikolov - Chairman of the Union of Car Importers in Bulgaria
Vassil Atanassov - Scientific-Technical Union for Transport

Secretary
Alexi Kesyakov
Appendix C Draft Terms of Reference for implementation of the road safety Capacity strengthening projects in Bulgaria

This appendix presents the several outline terms of reference for implementation of the suggested priority actions to strengthen road safety management capacity in Bulgaria.

The following draft TORs are included in this appendix:

1. **BGA-TOR1**: Terms of reference for establishment of an improved police accident data system and training of key personnel in data collection, data storage, data retrieval and data analyses (suggest a negotiated direct appointments with TRL, UK to install their MAAP accident data system)

2. **BGA-TOR 2**: Terms of reference for local academics to carry out research into the valuation of road accidents in Bulgaria (suggest a local direct fixed price appointment of professors from the Economics university in Sofia)

3. **BGA-TOR3**: Terms of reference on development of a safety audit system and training of safety auditor trainers (Suggest a negotiated direct appointment of Netherlands consultants under the part subsidised Dutch/World Bank Partners for safety program)

4. **BGA-TOR4**: Terms of reference to strengthen management of road safety and to introduce improvements in key organisations with responsibilities in road safety (Suggest international competitive bidding).
BGA-TOR 1:

Terms of reference for establishment of an improved police accident data system and training of key personnel

Background

There are around 1000 deaths and 10,000 injuries in road accidents each year in Bulgaria. The existing police accident data system is inadequate and does not allow the sorts of in depth analyses required to fully understand the problem and to derive remedial measures.

Even the most minor road accidents currently have to be attended by the traffic police to complete an accident report before the vehicles can be moved, so traffic police spend over 60% of their time filling in damage only accident reports leaving them little time to do traffic law enforcement. In addition unnecessary delay and congestion is caused on the roads until police can attend and the vehicles are removed.

The standard accident data form needs minor amendment and updating but the present software used for storage, retrieval and analyses of data is very out dated and needs to be replaced with specialist accident data software capable of permitting better data storage, data retrieval and data analyses.

New accident data forms need to be introduced nationwide right from the start and the accident data entered into the computer initially for one region and then gradually extended to other regions later once the data entry persons have been fully trained. Data from the pre training period can be entered later by each region as they come online so that full data is available on computer by the end of the year. The old data system can run in parallel if necessary until the new system is introduced and fully operational countrywide.

A World Bank funded review has been undertaken of capacity to manage and co-ordinate road safety activity in Bulgaria and that has identified a number of areas for urgent improvement. One of these is the need to improve the accident data system and these Terms of Reference outline the work required to achieve that.

Objective

An adequate, country-wide system of accident data collection, storage, retrieval and analysis, which permits the road safety situation to be comprehensively analysed and disseminated and appropriate remedial measures to be devised.

Scope of services

The consultant is required to adapt an existing well proven Police accident data system that has been successfully implemented in other countries to provide a

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nationwide system for Bulgaria. This include design and pilot testing of a new accident data collection form, training of field personnel in and police trainers in correct completion of the form at accident scenes, Training of regional office in coding the data and entry into the computer and training of the Accident unit at HQ in all aspects of data checking, data storage, data analyses and data dissemination. To ensure sustainability the foreign consultants shall involve a local Sofia based IT consultant as counterparts to provide on going support and training to the Police after the project end.

Consultancy inputs

It is anticipated that a consultancy organisation with extensive experience of such projects will be approached directly to provide the required services. The consultants are expected to work alongside a local IT consultant in providing the services to the Police to provide continuity of local support and sustainability beyond the project. The consultants are free to organise their inputs as they wish to carry out the work but it is expected that the following specialist skills will be required.

Accident Data System Specialist

His main activities will be develop a suitable accident form and to adapt and install a microcomputer-based accident analysis system at Police HQ and to train counterpart staff on how to operate all aspects of it. Once the system is operating correctly at Police HQ he will install copies of the software at other agreed locations and train relevant staff in its use. He must be an accident systems specialist with a university degree or appropriate qualification and must be familiar with micro-based accident analysis packages and the techniques and processes necessary to adapt them to a country's specific needs. He should have experience of having carried out similar assignments before.

The activities (all to be done with support/involvement from a local IT consultant) likely to be needed include:

- Design and pilot testing of a new police accident data collection form
- Training of police trainers in completion of the form so that they can go out to regional HQs to train police personnel in use of the form to enable nationwide introduction
- Development of coding manual and training of data entry staff at regional HQs and at Central HQ
- Adaptation and modification of software to meet Bulgarian needs and conditions and full checking of its functionality
- Training of accident unit at Police HQ in all aspects of operating the accident data system and assistance in producing the first Accident statistics report
- Installation of the data analyses system at several other locations (e.g. MOT, NRSC Secretariat, RIF Research institute etc.) and training of rele-
vant staff to retrieve and analyse the data (data to be provided and updated periodically by the police)

**Timing**
The technical assistance study is expected to be undertaken over a 12-18 month period.

**Reporting**
Inception Report (5 copies) at the end of the first visit outlining the work plan, local consultants and timetable for the listed outputs at the end of the study.

Short reports after each visit to keep Police, MOT and the World Bank informed of progress and any problems affecting the Consultancy input to the implementation program.

Accident system Guidelines/working manual. This will give a full description of the system and its operation and will be produced for use by the HQ Police Accident unit, the regional HQ police accident units.

A final report will be prepared at the conclusion of the study, summarizing the work undertaken by the consultants, and the degree of achievement with respect to the development objectives of the project.

**Development objectives and required outputs**
Development Objective: The establishment of microcomputer-based accident data collection, storage and analysis system which permit the road safety situation to be thoroughly analyzed so that remedial measures can be devised.

**Outputs**
- New police accident data form and data collection procedures
- Accident locations system capable of covering whole country and a comprehensive data coding system.
- Accident data software adapted and modified for Bulgarian needs and conditions
- Microcomputers, accessories and software installed at Police HQ and other agreed locations
- Accident storage and analysis systems established and fully operational
- Accident dissemination system established and annual reports produced.
- Accident unit personnel trained and able to operate and maintain all aspects of the system to meet their needs.
• Police IT personnel and local Sofia based IT consultant capable of providing technical support to Police HQ accident unit Police to ensure sustainability beyond the project.

Data, Services and Facilities to be provided by the Client
The Client will provide:

• Fully equipped Office space (i.e. desk, chair, telephone and filing cabinet) at the police HQ accident data unit

• Full access to and details of the existing software and stored accident data

• Liaison with regional police HQs and other relevant agencies;

• Professional counterpart staff at Police HQ from Police IT section and from Accident unit

• The government will provide information on equipment (e.g. for police), funds (for accident black-spot improvement and training courses) and other studies (e.g. accident valuation) being carried out under the World Bank road safety component4.

4 included in Review of Road Safety Management Capacity in Bulgaria – COWI, Feb 2008
BGA-TOR 2

Terms of reference for local academics to carry out research into the valuation of road accidents in Bulgaria

Background

There are around 1000 deaths and around 10,000 injuries each year in road accidents in Bulgaria and, based on experience elsewhere, these are estimated to cost the country well in excess of Euro 500 millions per year. There has been no local research into valuation of road accidents in Bulgaria.

Without knowledge of the true costs of accidents and casualties in terms of medical costs lost productivity, administration costs, material damage etc. it is not possible to make informed decisions about resource allocation or to do cost benefit analyses to rank potential remedial measures to reduce accidents. It is therefore necessary to carry out a small research exercise to try to calculate the true costs of different severities of accidents and to estimate the losses to the Bulgarian economy.

There are well established methodologies for calculating the value of road accidents and a small research project needs to be done by Bulgarian academics using such methodologies to derive values for Bulgaria. This project arises from a World Bank funded review\(^5\) of capacity to manage road safety.

Objective

Estimation of the costs of different severities of road accidents and casualties and the annual losses to the Bulgarian economy and development of local research capability to update such valuations periodically.

Scope of services

The appointed researchers are required to estimate the costs of accidents and casualties of different severities of road accident by estimating the average costs of component parts using the methodology and sample documents that will be provided. The work will include:

- Establishing a team of researchers (faculty and students) at the economic university to carry out different aspects of the work.
- Establishing a steering committee of experts from key agencies and interested parties (NRSC, MOT, RIF research institute) to oversee the research
- Acquiring data from police, Ministry of Health, Insurance industry and others to calculate the component costs
- Estimation of under reporting / under recording of road accidents and inclusion of correction factors to derive true costs of road accidents in Bulgaria

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\(^5\) Review of Road Safety Management Capacity in Bulgaria – COWI, Feb 2008
• Calculating the costs of different severities of road accidents and casualties and the losses to the national economy

• Publication of the research findings and valuations as a university research report.

Timing
The work will be carried out within 4 months of commencement.

Reporting
1 Inception report (5 copies) This report to be produce within 2 weeks of commencement outlining proposed research team and methodology

2 Monthly progress reports These brief (3-4 page) electronic progress reports to summarise progress in previous month and proposed work for next month

3 Final report on costs of road accidents in Bulgaria (to the format of the sample report supplied).

Development objectives and required outputs
Development Objective: The valuation of different severities of road accidents and casualties in Bulgaria and estimation of annual losses to the national economy and establishment of local capability to carry out and update such research.

Specific outputs required from this work include:

• Estimates per casualty for different severity of injury of average costs for medical cost, lost productivity, allowance for pain grief and suffering

• Estimates per accident for different severities of accident for property damage, costs of administration

• Estimates of average cumulative cost for each type of accident (damage only, slight injury, serious injury and Fatal)

• Estimates of average cumulative cost for each type of casualty (slight injury, serious injury, death)

• Estimates of cumulative losses to the economy based on the numbers and severities of accidents occurring each year expressed in Euros and as a percentage of national GDP.

Data, Services and Facilities to be provided by the Client
The Client will provide:

• Assistance as needed to try to get release of data from Police, Ministry of Transport, other government departments and from Insurance industry and others as needed for the research.
BGA-TOR3

Terms of reference on development of a safety audit system and training of safety auditor trainers

Background
Road safety is now a serious problem in Bulgaria. In 2006, 1043 persons died and around 10,215 were injured in road accidents and some may be crippled or disabled for the rest of their lives. Road accidents now cost Bulgaria at least Euro 500 millions per year and losses could be as high as Euro 1000 million per year. With close to 125 deaths per 1 million inhabitants, Bulgaria is approx. 2 to 2.5 times above the best performing EU Member States and 10 - 12% above the EU average compared to the average of 11 new Member States (apart from Romania).

The approx. 5% annual increase in road casualties (fatalities and injuries) during the last 6 years (2001-2006) attests to a continued worsening of road safety in Bulgaria. From 2000 – 2005, the number of fatalities has increased by approx. 3% while in comparison it has decreased in all the member states of the European Union by more than 20%. The tendency is even more serious for the number of injuries, as these have increased by more than 27% from 2000 – 2005, and by 20% from 2003 – 2006 alone.

Recognising the problem the Government of Bulgaria requested World Bank assistance to review institutional capacity to manage road safety and to identify the most urgent areas for action to strengthen the key organisations with road safety responsibilities. The review was completed in Feb 2008 and these Terms of Reference address some of the recommendations of that review6.

One of the most serious failings identified was the absence of systematic checking of road safety as roads are built or rehabilitated. Significant investment in infrastructure is underway at present and failure to do such checking means there is serious risk that many such roads may add to road safety problems in future.

There is a need to establish a road safety audit system appropriate for the needs of Bulgaria and to train local safety audit trainers and safety auditors in key in government and private sector. Under the World Bank funded “Partners for road safety program”, Consultants from Netherlands are already providing periodic training services to selected staff of Bulgarian roads agencies and Netherlands are able to provide additional heavily subsidised (50%) services on safety audit. These terms of reference outline the work to be done.

Objective
Establishment of a road safety audit system complete with procedures and guidelines, development of a safety audit training course and training of safety audit trainers and safety auditors.

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Scope of services
The scope of services range from development of a suitable safety audit system and manual for Bulgaria based on best practices in other European countries to training local safety audit trainers and assisting them to develop and establish a local safety audit course.

The specific activities required are:

- Develop a safety audit system and manual for Bulgaria based on adaptation/modification of best practices and similar safety audit guidelines from other European countries
- Develop via practical safety audit “train the trainer” courses a core team of safety auditors and potential safety audit trainers
- Carry out demonstration Safety Audits on selected RIF roads to improve safety of the audited roads, to create examples of safety audits reports and to identify best safety auditors as potential safety audit trainers
- Assist local safety Auditors to develop and implement the first of the annual Bulgarian Federation of Engineers local safety audit courses.

Timing
The work will be carried out within 12 months of commencement.

Reporting
1 Inception report (5 copies) This report to be produce within 1 month of commencement outlining proposed work program and expected staffing inputs
2 Monthly progress reports These brief (3-4 page) electronic progress reports to summarise progress in previous month and proposed work for next month
3 Final report on implementation of the project, safety audits completed, safety audit trainers trained and safety auditor trained.

Development objectives and required outputs

Development Objective:
Development and implementation of a safety audit system for Bulgaria based on best European practises, training of safety auditors and establishment of a local safety audit training courses.

Specific outputs required from this work include:
• Safety Audit system including safety audit guidelines and safety audit procedures introduced for all roads in Bulgaria

• Safety audits undertaken on a selection of roads as demonstration projects and to provide example safety audit reports

• At least 15 safety auditors trained from which at least 6 safety audit trainers selected for further intensive training

• A local safety audit course developed complete with training materials and case studies for use by local safety audit trainers.

• Assistance by consultants to ensure at least one local safety audit course successfully completed by local safety audit trainers.

Data, Services and Facilities to be provided by the Client
The Client will provide:

• Fully equipped Office space (i.e. desk, chair, telephone and filing cabinet) at RIF research Institute where they will be based

• All relevant data and reports on road safety and accidents;

• Liaison with other relevant agencies;

• Professional counterpart staff.
BGA-TOR 4

Terms of reference for strengthening capacity of key organisations to manage road safety in Bulgaria

Background
Road safety is now a serious problem in Bulgaria. In 2006, 1043 persons died and around 10,215 were injured in road accidents and some may be crippled or disabled for the rest of their lives. Road accidents now cost Bulgaria at least Euro 500 millions per year and losses could be as high as Euro 1000 million per year. With close to 125 deaths per 1 million inhabitants, Bulgaria is approx. 2 to 2.5 times above the best performing EU Member States and 10 -12% above the EU average compared to the average of 11 new Member States (apart from Romania). Although the Bulgaria fatality rate is lower than in some countries, the level has not decreased since 2000 as it has in the other EU countries.

Compared to other new member states countries such as Czech Republic and Poland the number of fatalities per 10,000 vehicles is similar, with approx. 3 in Bulgaria, 3.6 in Czech Republic and 2.9 in Poland but compared to West European countries e.g. Denmark and France, it is approximately 2 times higher.

The approx. 5% annual increase in road casualties (fatalities and injuries) during the last 6 years (2001-2006) attests to a continued worsening of road safety in Bulgaria. From 2000 – 2005, the number of fatalities has increased by approx. 3% while in comparison it has decreased in all the member states of the European Union by more than 20%. The tendency is even more serious for the number of injuries, as these have increased by more than 27% from 2000 – 2005, and by 20% from 2003 – 2006 alone.

Recognising the problem the Government of Bulgaria requested World Bank assistance to review institutional capacity to manage road safety and to identify the most urgent areas for action to strengthen the key organisations with road safety responsibilities. The review was completed in Feb 2008 and these Terms of reference address some of the recommendations of that review7.

Objectives
The development objectives of the consultancy services are to assist the Bulgarian government to establish effective coordination and management of road safety, to implement a National Road Safety Strategy and Action Plan and to strengthen key organisations and activities related to road safety.

The immediate objectives are to:

- Assist Government to establish a more effective National body to coordinate and manage road safety with adequate sustainable funding and a fully qualified technical secretariat capable of overseeing development and implementation of a national road safety strategy and action plan

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• To explore and advise on how over time the NRSC secretariat could be absorbed into a lead agency who would become responsible for coordinating and managing road safety in Bulgaria

• Provide advice to the Ministry of transport, Traffic police, Road Infrastructure Fund (RIF) and other key organisations with road safety responsibilities to introduce modern techniques and practices to improve road safety.

**Scope of Consultancy Services**
To ensure that the appropriate modern procedures and techniques are introduced in the agencies dealing with traffic safety issues, the project shall be carried out in close liaison with the agencies responsible for road safety. Traffic police personnel will be trained in improved traffic enforcement techniques and tactics, Emergency ambulances deployment strategies will be reviewed and Bulgarian engineers will be trained, in identification of accident black spots and in preparation of remedial measures to improve road safety. The traffic education of children also will be reviewed. The project will cover road safety nationwide.

The Consultants will carry out a road safety project, which includes the following activities:

• Assistance to National Road Safety Commission (NRSC) and its secretariat to become more effective
  - Review NRSC structure, scope and responsibilities and advise on necessary changes to improve NRSC effectiveness and ability to coordinate and manage road safety
  - Assist in establishing sustainable funding streams to cover NRSC’s own operations and to finance activities in the national safety action plan
  - Establish and train NRSC secretariat to manage and coordinate road safety activities nationwide
  - Assist NRSC to finalise and implement the National Road Safety Strategy and the draft road safety action plan and to establish effective monitoring and evaluation procedures
  - Advise on how in longer term, NRSC secretariat could be absorbed into a Lead agency responsible for road safety

• Assist Traffic Police to introduce modern traffic police enforcement methods, equipment and strategies:
  - Critically review existing deployment strategies and enforcement tactics to improve effectiveness
  - Introduce modern enforcement equipment and enforcement activities
  - Train police trainers and personnel in use of modern enforcement equipment and tactics.

• Assist Road Infrastructure Fund (RIF) to introduce modern techniques of accident black-spot identification, analyses and improvement:
- Assist RIF staff to identify analyse and improve around 25 of the worst accident black-spots along national roads as a demonstration projects to train local trainers and engineers
- Develop guidelines and a training course on accident black-spot improvement and train local engineers as trainers in presenting the course
- Review and update the RIF traffic engineering standards and standards road marking and signing at road works.

- Assist emergency medical rescue services on effective deployment of resources:
  - Review and suggest improvements to present deployment of ambulances to ensure quicker response times to accident sites
  - Review and advise on feasibility of letting International red cross offer additional emergency ambulance services using paramedics instead of doctors in ambulances to increase coverage of the network.

- Review existing traffic education of school children:
  - Review existing traffic education in schools
  - Review activities /materials of NGOs active in traffic education of children
  - Make recommendations on improvements needed

- Liaise with and provide advice to consultants implementing other safety projects
  - the installation of a new police accident data system
  - the introduction of safety audit, training of safety auditors and trainers and establishment of a safety audit training course
  - The university research project to estimate the value road accidents by severity in Bulgaria.

Consultancy Inputs
The Consultant is free to organize his resources as he wishes. It is estimated that approximately 24 man-months of expatriate resources will be required. Some indication is given below of the minimum qualifications and experience, which are likely to be required by the Consultant's professional expatriate staff.

1 Team leader /Road safety Adviser (12mm over a 24 month period) in addition to defining and supervising the activities of other members of the Consultancy team, is expected to provide advice as needed to NRSC, Ministry of Transport (MOT) and other organisations with road safety responsibilities. In addition to holding a suitable post-graduate university degree, the team leader should be a very experienced road safety expert with at least 15 years experience of advising on road safety management and coordination issues, establishing coordinating bodies and managing expert teams on similar national road safety projects.
2 The Road Safety Engineering Specialist (8 months input over 24 months) is expected to concentrate on training RIF, police researchers and municipal road engineers in accident black-spot analysis and improvement techniques via a practical demonstration focused on 25 of the worst accident black-spots on the national road network. He will also during his assignment help to organise and participate as a lecturer in the initial in-service training course of about 15 people on low cost road safety improvements. He will develop an accident black-spot manual and will review and update the traffic engineering standards. He should be an experienced traffic engineer with a university degree or equivalent professional qualification and should have a minimum of 10 years experience of working on similar traffic or road safety improvement assignments.

3 The Police Enforcement Specialist (3 months input over 24 months) will review present traffic police enforcement structure, deployment, practices and activities to permit more effective enforcement of dangerous driving behaviours. He will introduce modern equipment and train police in use of modern tactics, methods and techniques suitable for use in Bulgaria. He should be a Senior Traffic Police Officer with a minimum of 15 years experience in traffic enforcement and should have previous experience of having carried out similar assignments in developing or transition economies.

4 The emergency medical rescue services specialist (1 month input) will review existing deployment strategies used by the emergency ambulance services and advise on modification needed to reduce ambulance response times to road accident sites. He will also advise on merits of allowing International Red cross to start providing supplementary emergency medical services using paramedics. He should have at least 10 years experience of emergency ambulance services and deployment of resources.

5 The traffic education specialist (1 month input) will review existing traffic education materials and activities in use in Bulgarian schools, activities and materials of the main NGOs actively involved in traffic education of children. He will then make recommendations on how traffic education of children can be improved.

Timing
The study is expected to be undertaken over a 24-month period.

Reporting
Inception Report (5 copies) at the end of the first month outlining the work plan, strategy, methodology, and timetable for the listed outputs at the end of the study.

Monthly executive briefing reports (2-3 pages electronic) will be produced to notify MOT and The World Bank of any delays/problems affecting the Consultancy input to the implementation program. These will report on progress towards attainment of development objectives in each sector.
Guidelines/working manuals will be produced wherever possible by each expert and these will include but not necessarily be limited to:

- Working Manual for NRSC Secretariat
- Guidelines on accident black-spots improvement for RIF and Municipal engineers
- Updated traffic engineering standards for RIF
- Updated manual for signing and marking at road works

Quarterly progress reports. These will be provided at 3 monthly intervals and will review activities and progress in the previous 3 months and outline the activity expected in each area in the next 3 months.

A final report will be prepared at the conclusion of the study, summarizing the work undertaken by the consultants and the degree of achievement with respect to the development objectives of the project.

Development Objectives and Required Outputs

1. Strengthening capacity to manage and coordinate road safety:

Development objectives: The establishment of an effective coordinating body with adequate technical and financial resources to manage and oversee development and implementation of a National road safety strategy and Action plan.

Outputs:
- Recommendations an a revised structure, composition, funding, role and responsibilities of the NRSC to provide nationwide leadership and coordination on road safety issues.
- An adequately funded and staffed NRSC secretariat fully trained and technically capable of implementing NRSC policies and decisions.
- An operating manual.

2. Strengthening Safety Activities in the Road engineering Agencies:

Development Objectives: The establishment of improved institutional and technical capability within RIF road engineers and others to tackle road safety problems more effectively on their respective road networks so that existing hazardous locations can be systematically identified, analysed and improved.

Outputs:
- Improvement of around 25 dangerous black-spots on Bulgarian roads as a demonstration project to introduce low-cost road safety improvements and to encourage such work across the whole network.
Review of Road Safety Management Capacity in Bulgaria
Final Report

- Practical training of RIF and Police staff on black-spot improvement techniques and as trainers for future annual black-spot courses
- Establishment of systematic procedures/techniques for effective black-spot improvement and their documentation in a Manual on accident black-spot analyses and improvement
- Assistance to develop and implement initial annual accident black-spot improvement course and to develop training materials and case studies for the course
- Updated traffic engineering standards
- Updated manual on signs and markings for roadworks.

3 Traffic Law Enforcement and Pilot Highway Patrols:

**Development Objectives:** The enhancement of traffic police enforcement capability through introduction new deployment strategies, new enforcement tactics, new equipment and training in modern traffic policing techniques.

**Outputs:**
- Miscellaneous modern enforcement equipment (to be purchased under World Bank safety component) introduced and in effective use by traffic police patrols
- Police trainers trained in enforcement tactics and strategies.
- Highway patrol personnel trained in use and maintenance of modern enforcement equipment and enforcement tactics.
- Highway patrol officers trained in resource deployment and enforcement strategies
- Training courses fully documented with course notes and instructions for trainers.
- Summary procedure established for reporting minor road accidents so police do not need to attend site.

4 Advice on Emergency medical rescue services:

**Development objectives.** Faster response times for medical assistance to reach accident victims through better deployment of existing emergency ambulances and introduction of paramedic ambulance services.

**Outputs**
- Review of existing deployment strategies and recommendations on better deployment of resources to minimise response times
• Review of scope, feasibility and benefits of permitting international red cross to introduce emergency ambulances staffed by paramedics

5 Review of traffic education of children:

**Development objectives.** Critical assessment of activities and materials used in Bulgarian schools for traffic education of children and recommendations on how those could be made more effective

**Outputs**

• Review of existing activities and materials used within Ministry of Education for traffic education in schools

• Review of materials and activities of NGOs active in traffic education of children

• Recommendations on how to have more effective traffic education in Bulgarian schools.

**Data, Services and Facilities to be provided by the Client**

The Client will provide:

• Fully equipped Office space (i.e. desk, chair, telephone and filing cabinet) for each of the specialists in the organisations where they will be based

• All available data and reports on road safety and accidents;

• Liaison with other relevant agencies;

• Professional counterpart staff

• The government will provide information on equipment (e.g. for police), funds (for accident black-spot improvement and training courses) and other studies (e.g. accident valuation) being carried out under the World Bank road safety component.

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8 included in Review of Road Safety Management Capacity in Bulgaria – COWI Feb 2008
Appendix D National Action Plan - separate document
Appendix E Terms of Reference for this study

Terms of Reference

Review of Road Safety Management Capacity in Bulgaria

Background to study

1. The *World Report on Road Traffic Injury Prevention*—jointly issued by the World Health Organization and the World Bank in 2004—found that road deaths and injuries are a growing public health, social and economic development problem in low and middle income countries. Between 2000 and 2020, road traffic fatalities in low and middle-income countries are expected to increase by more than 80%. By 2020, road injuries and fatalities are projected to be the third highest contributor to global disease and injury.

2. In contrast, road traffic deaths and fatalities in high-income countries are expected to decrease 28% by 2020. The experience of high income countries, where fatality rates have decreased despite growing traffic, demonstrates that road deaths and injuries can be reduced through proper measures. Solving the problem is complex, however, because road safety responsibility is spread among many government agencies, and is shared by businesses and individuals. Reducing road deaths and injuries requires a systematic response that includes a strong focus on results, and interventions that address safety standards and rules for roads, vehicles and users, and compliance with them. It also requires robust implementation arrangements that include effective leadership, coordination, funding, legislation, promotion and monitoring and evaluation.

3. Operational guidance for implementing the findings of the World Report on Road Traffic Injury Prevention is contained in the World Bank Transport Note No. TN-1. This recommends that before preparing a safety strategy and/or investment plan, a systematic review of national safety management capacity should be prepared using the capacity checklist provided. “A country capacity review is a mandatory first step in setting out an integrated multisectoral framework for dialogue between Bank staff and their country counterparts on potential road safety investments.” The guidelines acknowledge the complexity of safety management systems but conclude that country capacity can be readily reviewed across three best practice dimensions – focus on results, safety interventions and implementation arrangements – and the country capacity checklist sets out key the questions to guide such a review.

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11 Ibid.
4. The proposed study will undertake safety management capacity reviews in Bulgaria. The consultant will analyze safety management capacity, in accordance with the revised guidelines and the checklist. The consultant will develop a consensus with the government on the need for safety improvements and appropriate implementation steps, and prepare a long-term plan for achieving this in the form of a qualitative safety investment strategy.

5. The consultant is also expected to comment on the effectiveness of the revised guidelines and checklist as the basis of the strategic and operational dialog on safety between the Bank and its client countries.

Country and Sector Background

6. Bulgaria’s road network extends over 19,000 kilometers of national (Republican) roads managed by the National Road Infrastructure Fund (NRIF), in addition to 18,000 kilometers of local roads managed by local jurisdictions. More than 98 percent of the national road network is paved. There are also around 3,310 bridges that span 5 meters or more, and about 31 major tunnels with an average length of about 340 meters. International traffic is carried primarily by motorways and Class I roads. There are eight Class I roads in Bulgaria, all of which begin or end at an international border crossing. Class II roads connect major population centers, and are often used by international traffic as they provide good level of service and direct travel.

7. With the growth in motorization, road crashes have become an increasing issue in Bulgaria. Since 1970, in the Western Europe, there has been a substantial reduction in traffic crashes, but not so in Bulgaria or in the Eastern Europe. A risk measure for traffic fatalities, persons killed in traffic per 100,000 inhabitants shows that Bulgaria, with a figure of 12.1, is below the average in Eastern Europe but twice higher than the EU average. Studies show that excessive speed has been the leading cause in 40 percent of fatal traffic crashes in Bulgaria, and that 28 percent of those killed were pedestrians; the third highest figure in Europe, after Poland and Lithuania. Fatal traffic crashes, about 1,000 annually, occur equally likely in rural and urban areas, whereas in good road traffic safety countries, a higher percentage of fatal crashes occur in rural areas. There are about 7,000 road traffic injuries in Bulgaria annually, making the likelihood of a traffic crash being fatal two to three times higher than in countries with good road traffic safety. Only a small fraction of the fatal crashes occur on the motorways. Black spots, traffic conflicts and weaknesses in traffic management and enforcement, together with human factors, are contributors to traffic crashes. Road safety is high on the Government’s agenda, and the Government has prepared

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12 In Bulgaria the national (republican) roads are divided into four classes: motorways (328 km), Class I roads (2,961 km), Class II roads (4,012 km), and Class III roads (11,694 km). In addition there are 18,000 km Class IV roads owned and managed by the local governments.
pared and adopted in 2006 the “National Strategy to Improve Road Safety in Bulgaria for the Period 2007-2010”.

Study objectives

(i) Review safety management capacity in Bulgaria in accordance with the operational guidelines set out in World Bank Transport Note TN-1; and

(ii) Reach consensus with the government and senior officials on a multi-sectoral investment strategy for improving road safety management capacity in Bulgaria for inclusion in a forthcoming investment project, and short-term measures to overcome revealed capacity weaknesses, in accordance with the World Bank guidelines.

Scope of Services

8. The study will include the following tasks:

a) The consultant will define a detailed work plan for the study, in an Inception Report, to meet all the study objectives and set out all review steps, and discuss it with the World Bank (by video conference).

b) The consultant will conduct safety management capacity reviews in Bulgaria, as specified in the (revised) World Bank Transport Note No. TN-1. These will involve a combination of desk research to ascertain relevant road safety studies pertaining to Bulgaria, together with field visits and detailed interviews. It is expected that road safety practitioners, researchers, industry representatives, community leaders, high-level officials and ministers, together with other relevant stakeholders, will be consulted. The focus of the reviews will be multisectoral and the level of investigation strategic.

c) The consultant will prepare, in consultation with the Government, a qualitative investment strategy and short-term action plan to improve safety management capacity in Bulgaria. This could include a combination of institutional and physical measures to address identified capacity weaknesses. The results of this work, together with the earlier work will be presented in a Draft Final Report, which will be reviewed by experts provided by the World Bank. This review will recommend any improvements and investigations to be undertaken to finalize them.

d) The consultant will conduct a seminar with appropriate Government officials and Ministers to present the findings of the Draft Report and seek feedback on the conclusion.

e) Wherever appropriate, the consultant will identify and recommend improvements to the country capacity checklist and the operational guidelines set out in World Bank Transport Note No. TN-1. This assessment should include, but not be restricted to, the effectiveness of
the safety management capacity reviews in generating country ‘ownership’ of revealed capacity weaknesses, the identification of measures to overcome them, and their value in identifying/generating investment projects.

**Study deliverables**

9. The study deliverables will include:

   a) **Inception Report** – containing the detailed work plan, within 2 weeks of contract signing;

   b) **Draft Final Report – for World Bank comment.** This report would be expected to include the following components:

      • A review of safety management capacity in Bulgaria, in accordance with the operational guidelines set out in the World Bank Transport Note TN-1, as revised.

      • Multi-sectoral strategies for improving road safety management capacity in Bulgaria, short-term measures to overcome revealed capacity weaknesses, in accordance with the World Bank guidelines.

      • A qualitative investment strategy and short-term action plan as agreed with government and senior officials.

      • Any comments that the consultant may have on the general effectiveness of the World Bank guidelines and recommended improvements.

   c) **Final Report – taking account of all comments received.** The Final Report will include draft Terms of Reference for the technical assistance recommended under the short term action plan.

**Timing of study**

The study will be undertaken in accordance with the following timetable:

<table>
<thead>
<tr>
<th>Activities</th>
<th>Date</th>
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<tbody>
<tr>
<td>Inception Report</td>
<td>Contract signing + 2 weeks</td>
</tr>
<tr>
<td>Initiating video conference</td>
<td>Contract signing + 2 weeks</td>
</tr>
<tr>
<td>First field visit completed</td>
<td>Contract signing + 5 weeks</td>
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<tr>
<td>Draft Final Report</td>
<td>Contract signing + 6 weeks</td>
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<tr>
<td>Expert review of Draft Report</td>
<td>Contract signing + 7 weeks</td>
</tr>
<tr>
<td>Second field visit including in-country Seminar</td>
<td>Contract signing + 7 weeks</td>
</tr>
<tr>
<td>Final Report</td>
<td>Contract signing + 8 weeks</td>
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</tbody>
</table>
Required study resources

10. A team of at least two road safety management experts with high-level experience in road safety management and excellent communications skills will be required to undertake the study. Experience with the design, implementation and management of national road safety strategies, at senior agency and ministerial levels, is required.

11. Local consultants may be hired as required to provide specific inputs to be defined by the senior consultant(s).

12. It is foreseen that the country assessment will involve two trips to Bulgaria.

Study Implementation

13. The study is executed by the World Bank, and it will be undertaken in close cooperation with World Bank transport staff both in Bulgaria and at Bank Headquarters. The World Bank Sofia office will provide appropriate support to facilitate meetings with high-level officials and ministers. The Ministry of Transport will be the Government agency that will work with the consultants and participate in stakeholder consultations.

14. The study will be managed by Henry G. Kerali, Lead Transport Specialist, Sustainable Development Department, Europe and Central Asia Region, Washington DC (1-202-473-5401) (hkerali@worldbank.org).