Development of a Strategic Plan for the improvement of road safety in Greece, 2011-2020

Final Report

Athens, June 2011
"DEVELOPMENT OF A STRATEGIC PLAN FOR THE IMPROVEMENT OF ROAD SAFETY IN GREECE 2011-2020"

Summary Table of Contents

1. Introduction .......................................................................................................................... 1
   1.1. Subject and targets of the project ................................................................. 1
   1.2. Method ....................................................................................................................... 2
   1.3. Contents of the Report ............................................................................................ 3
   1.4. Working Group ........................................................................................................ 5
   1.5. Acknowledgements ................................................................................................. 5

2. Assessment of the implementation of previous Road Safety Strategic Plans ..................... 6
   2.1. Previous Strategic Plans for the improvement of road safety in Greece ................ 6
   2.2. Road safety actions during the period 2001 - 2010 ................................................ 13
   2.3. Evolution of basic road safety figures in Greece ..................................................... 27
   2.4. Institutional and organisational framework for road safety in Greece .................... 31
   2.5. Assessment of the implementation of previous Strategic Plans ............................... 46

3. Recording, analysis and assessment of critical road safety factors in Greece ..................... 51
   3.1. Evaluation of the existing level of road safety ....................................................... 51
   3.2. Behaviour of drivers .............................................................................................. 66
   3.3. Synthesis ................................................................................................................ 74

4. Recording, analysis and assessment of European and international developments in road safety .............................................................................................................. 76
   4.1. Road safety worldwide ........................................................................................... 76
   4.2. Programmes and measures .................................................................................... 105
   4.3. Evaluation of the existing level of road safety in the European Union .................... 139
   4.4. Synthesis ................................................................................................................ 148
5. Target setting and determination of the structure of the Road Safety Strategic Plan, 2011-2020 ................................................................. 151
  5.1. Purpose and Targets of the Road Safety Strategic Plan, 2011-2020 ................................................................. 151
  5.2. Structure of the Road Safety Strategic Plan, 2011-2020 ................................................................. 154
  5.3. Inter-ministerial Committee on Road Safety ................................................................................................. 156
  5.4. Special Secretariat on Road Safety .................................................................................................................... 158
  5.5. Special Permanent Parliamentary Committee on Road Safety ................................................................. 159
  5.6. National Road Safety Council .................................................................................................................. 159
  5.7. Bodies for the implementation of the actions ................................................................................................. 159

6. Development of road safety programmes and actions ................................................................. 162
  6.1. Programme “Road Safety Education” ................................................................................................. 163
  6.2. Programme “Road Safety Enforcement” ............................................................................................. 169
  6.3. Programme “Safe Road Users” ............................................................................................................. 183
  6.4. Programme “Safe Road Infrastructure” .............................................................................................. 192
  6.5. Programme “Safe Vehicles” ................................................................................................................. 210
  6.6. Programme “Emergency Care to Victims” ......................................................................................... 216

7. Development of an implementation, monitoring and assessment plan........................................... 224
  7.1. Quantified monitoring and assessment programme ................................................................................. 224
  7.2. Inter-ministerial Committee responsibilities related to the development of road safety education ............................................................................. 228

References .............................................................................................................................................. 235
Detailed Table of Contents

1. Introduction ........................................................................................................................................... 1
   1.1. Subject and targets of the project ......................................................................................................... 1
   1.2. Method .................................................................................................................................................... 2
   1.3. Contents of the Report .......................................................................................................................... 3
   1.4. Working Group ...................................................................................................................................... 3
   1.5. Acknowledgements ............................................................................................................................... 5

2. Assessment of the implementation of previous Road Safety Strategic Plans ........................................... 6
   2.1. Previous Strategic Plans for the improvement of road safety in Greece .............................................. 6
       2.1.1.1 Strategic Plan for the improvement of road safety in Greece (2001 - 2005) .............................. 6
       2.1.2.2° Strategic Plan for the improvement of road safety in Greece (2006 - 2010) ......................... 8
   2.2. Road safety actions during the period 2001 - 2010 ............................................................................. 13
       2.2.1. Ministry of Infrastructure, Transport and Networks ................................................................. 13
           2.2.1.1. General Secretariat of Transport, Infrastructure and Networks ........................................ 13
           2.2.1.2. General Secretariat of Public Works .................................................................................... 18
           2.2.1.3. General Secretariat of Co-Funded Public Works ................................................................. 22
           2.2.1.4. New measures of the Ministry of Transport, Infrastructure and Networks ........................ 22
       2.2.2. Ministry of Citizen Protection ...................................................................................................... 23
       2.2.3. Ministry of Health and Social Solidarity ....................................................................................... 24
       2.2.4. Ministry of Education, Lifelong Learning and Religious Affairs ................................................. 25
       2.2.5. Ministry of Administrative Reform and Electronic Governance ............................................. 27
   2.3. Evolution of basic road safety figures in Greece ................................................................................. 27
   2.4. Institutional and organisational framework for road safety in Greece .............................................. 31
       2.4.1. Other responsible Ministries ......................................................................................................... 31
           2.4.1.1. Ministry of Infrastructure, Transport and Networks (Yp.YPO.ME.DI.) .............................. 31
           2.4.1.2. Ministry of Citizen Protection (Y.P.t.P) ............................................................................. 33
           2.4.1.3. Ministry of Health and Social Solidarity (Y.Y.K.A.) ............................................................ 34
           2.4.1.4. Ministry of Education, Lifelong Learning and Religious Affairs (Y.P.D.V.M.TH.) ............. 34
3. Recording, analysis and assessment of critical road safety factors in Greece

3.1. Evaluation of the existing level of road safety

3.1.1. General trends

3.1.2. Features of road accidents

3.1.3. Features of persons involved in road accidents

3.2. Behaviour of drivers
3.2.1. Driving under the influence of alcohol ................................................................. 66
3.2.2. Use of seat belt, helmet and mobile phone ...................................................... 66
3.2.3. The attitude of drivers towards road safety ..................................................... 70

3.3 Synthesis .................................................................................................................. 74

4. Recording, analysis and assessment of European and international developments in road safety ............................................................................................................... 76

4.1. Road safety worldwide ........................................................................................... 76
  4.1.1. International Trends ......................................................................................... 76
    4.1.1.1. The Safe System Approach ...................................................................... 77
    4.1.1.2. Strategic plans and goal setting .............................................................. 80
    4.1.1.3. Integrated Road Infrastructure Safety Management ................................ 81
  4.1.2. European road safety policy ............................................................................ 82
    4.1.2.1. The first steps ........................................................................................ 83
    4.1.2.2. First Road Safety Action Plan (1993-1996) ............................................ 84
    4.1.2.4. White Paper on European Transport Policy .......................................... 90
    4.1.2.5. Third Road Safety Action Plan (2003-2010) .......................................... 90
    4.1.2.7. International Transport Forum (ITF) ..................................................... 102
    4.1.2.8. Assessment of the European Road Safety Policy .................................. 104

4.2. Programmes and measures ................................................................................... 105
  4.2.1. Institutional and organisational framework of other countries ....................... 105
    4.2.1.1. Sweden ................................................................................................ 106
    4.2.1.2. Netherlands ......................................................................................... 106
    4.2.1.3. United Kingdom .................................................................................. 107
    4.2.1.4. Denmark ............................................................................................. 108
    4.2.1.5. Finland ................................................................................................. 108
    4.2.1.6. France ................................................................................................ 109
    4.2.1.7. Germany ............................................................................................. 110
    4.2.1.8. Spain .................................................................................................. 111
    4.2.1.9. Australia .............................................................................................. 112
  4.2.2. Road Safety Strategic Plans in selected countries ............................................. 112
    4.2.2.1. Sweden ............................................................................................... 115
    4.2.2.2. Netherlands ........................................................................................ 116
    4.2.2.3. United Kingdom ................................................................................. 116
    4.2.2.4. Denmark ............................................................................................. 117
    4.2.2.5. Finland ................................................................................................. 117
    4.2.2.6. France ................................................................................................ 118
    4.2.2.7. Germany ............................................................................................. 118
4.2.2.8. Spain ......................................................................................................................... 119
4.2.2.9. Australia ................................................................................................................... 119

4.2.3. Successful road safety measures based on cost-benefit ratios in other countries .................................................................................................................. 120
4.2.3.1. Measures for the improvement of the safety of road users and the care for the injured .............................................................................................................. 122
4.2.3.2. Measures for the improvement of the safety of vehicles ........................................... 131
4.2.3.3. Performance indicators for measures for the improvement of the safety of road infrastructure ......................................................................................................................... 135

4.3. Evaluation of the existing level of road safety in the European Union ....................... 139

4.4. Synthesis .............................................................................................................................. 148

5. Target setting and determination of the structure of the Road Safety Strategic Plan, 2011-2020 ................................................................................................................................. 151

5.1. Purpose and Targets of the Road Safety Strategic Plan, 2011-2020 ................................. 151
  5.1.1. Introduction ......................................................................................................................... 151
  5.1.2. Development of a “Road Safety Culture - our constant national effort” ........................................................................................................ 151
  5.1.3. Quantitative targets ............................................................................................................. 153

5.2. Structure of the Road Safety Strategic Plan, 2011-2020 ..................................................... 154

5.3. Inter-ministerial Committee on Road Safety ....................................................................... 156

5.4. Special Secretariat on Road Safety ....................................................................................... 158

5.5. Special Permanent Parliamentary Committee on Road Safety .......................................... 159

5.6. National Road Safety Council ............................................................................................ 159

5.7. Bodies for the implementation of the actions ..................................................................... 159

6. Development of road safety programmes and actions .......................................................... 162

6.1. Programme “Road Safety Education” .................................................................................. 163
  6.1.1. Content and Framework of the development of road safety education for children and young people up to 17 years ................................................................. 163
  6.1.1.1. Conditions for the success of road safety education ....................................................... 165
  6.1.1.2. Issues related to the practical training of children .......................................................... 166
  6.1.1.3. Training of teachers ....................................................................................................... 168
  6.1.2. Activities for road safety education in cooperation with other Ministries ................................................................. 168
6.1.2.1. Road safety education activities on issues related to people with disabilities.... 168
6.1.2.2. Educational activities on road safety in the Armed Forces............................ 168

6.2. Programme “Road Safety Enforcement”........................................................................ 169
6.2.1. Organisation of traffic surveillance for road safety ............................................. 170
   6.2.1.1. Integrated surveillance programme ................................................................... 170
   6.2.1.2. Proper staffing of the Road Traffic Police ....................................................... 171
   6.2.1.3. Upgrading of the Road Traffic Police equipment .......................................... 172
   6.2.1.4. Update - public awareness-raising on the surveillance actions for road safety .. 173
   6.2.1.5. Cross-border cooperation on road safety surveillance ...................................... 173
6.2.2. Surveillance of the compliance with traffic rules ..................................................... 174
   6.2.2.1. Compliance with speed limits ........................................................................... 174
   6.2.2.2. Driving without the influence of alcohol ........................................................... 176
   6.2.2.3. Use of seat belt, helmet and child restraint systems ........................................ 177
   6.2.2.4. No use of mobile phones while driving ............................................................ 179
6.2.3. Upgrading of the Fire Brigade ............................................................................. 179
6.2.4. Monitoring of delinquency and road accidents ....................................................... 180
   6.2.4.1. Systematic recording of delinquency ............................................................... 180
   6.2.4.2. Improvement of road accidents recording ....................................................... 180

6.3. Programme “Safe Road Users” .................................................................................... 183
6.3.1. Training and examining system for providing a licence to new-novice drivers ........ 183
6.3.2. Training of instructors ......................................................................................... 185
6.3.3. Measures for the improvement of the road safety of motorcyclists ...................... 186
6.3.4. Measures for the improvement of the road safety of bikers ................................ 187
6.3.5. Issues related to awareness-raising / education and the renewal of licences for elderly drivers ............................................................. 187
6.3.6. Enhancement of school transport safety .............................................................. 189
6.3.7. Investigation on the causes of accidents .............................................................. 190
6.3.8. Driving licence record ....................................................................................... 191

6.4. Programme “Safe Road Infrastructure” ..................................................................... 192
6.4.1. Implementation of an integrated programme for the management of road infrastructure safety.............................................................................................................. 193
   6.4.1.1. Road Safety Audit ......................................................................................... 194
   6.4.1.2. Identification of and intervention in hazardous locations .............................. 195
   6.4.1.3. Assessment of the effects on road safety ...................................................... 196
6.4.2. Speed Management System............................................................................... 197
6.4.3. Shaping of the road infrastructure, taking into account the needs of older road users ................................................................. 198

6.4.4. Programme for safe road infrastructure in urban areas ................................................................. 200

6.4.5. Programmes for the maintenance and improvement of the road network ........................................ 201
   6.4.5.1. Improvement of signage and security ................................................................. 202
   6.4.5.2. Improvement of road surfaces in terms of anti-slipping and smoothness ....................................... 203
   6.4.5.3. Improvement of lighting ...................................................................................... 204

6.4.6. Implementation of measures for the improvement of safety in hazardous locations .... 205
   6.4.6.1. Local improvements on the road and the road and traffic environment
            in hazardous locations ...................................................................................... 205
   6.4.6.2. Improvements on the traffic function of intersections in hazardous locations .... 207
   6.4.6.3. Local changes on the road and the road environment in order to change the
            behaviour of road users in hazardous locations .................................................. 207

6.4.7. Road Register .......................................................................................................................... 208

6.4.8. Development and modernisation of road design specifications and instructions .................. 208

6.5. Programme “Safe Vehicles” ....................................................................................................... 210
   6.5.1. Upgrading of the technical inspection of vehicles ....................................................................... 210
   6.5.2. Joint Control Teams .............................................................................................................. 211
   6.5.3. Incentives for safer vehicles ................................................................................................. 212
   6.5.4. Special regulations for heavy vehicles .................................................................................... 213
   6.5.5. Special regulations for school buses ........................................................................................ 214
   6.5.6. Intelligent systems for driver support .................................................................................... 214
   6.5.7. Distinct vehicles .................................................................................................................... 215
   6.5.8. Vehicles Register Reliability ................................................................................................. 215

6.6. Programme “Emergency Care to Victims” ................................................................................. 216
   6.6.1. EKAV (National Centre for Emergency Care) intervention units ........................................ 216
      6.6.1.1. Upgrading of equipment, staffing and organisation ...................................................... 216
      6.6.1.2. Use of mobile intensive care units .................................................................................. 217
      6.6.1.3. Improvement of the immediate hospital care of the injured ........................................ 217
   6.6.2. Special Injury Centre Units .................................................................................................. 217
   6.6.3. First aid training .................................................................................................................... 218
      6.6.3.1. First aid training of the intervention staff on the scene of the accident ............................ 218
      6.6.3.2. First aid courses in schools and during driving training .................................................. 218
   6.6.4. Effective emergency response ............................................................................................... 219
      6.6.4.1. Creation of a network for emergency calls ....................................................................... 219
      6.6.4.2. Unified Operations Center ............................................................................................. 220
6.6.4.3. Optimal spatial distribution of all units .......................................................... 220
6.6.4.4. Intervention plans ............................................................................................ 221
6.6.5. Psychological support for victims of road accidents ............................................. 221
6.6.6. Systematic recording of statistics ........................................................................ 222
  6.6.6.1. Monitoring of the degree of response of emergency services ...................... 222
  6.6.6.2. Monitoring of the number and severity of the injuries of victims ................. 222

7. Development of an implementation, monitoring and assessment plan .............. 224
    7.1. Quantified monitoring and assessment programme .......................................... 224
        7.1.1. Monitoring of the level of road safety ......................................................... 225
        7.1.2. Monitoring of the implementation of road safety actions .......................... 226
        7.1.3. Monitoring of the efficiency of road safety actions ..................................... 227
    7.2. Inter-ministerial Committee responsibilities related to the development of road safety education ................................................................. 228
        7.2.1. Actions to inform and raise awareness ....................................................... 228
        7.2.2. Information and awareness-raising campaigns in combination with
               surveillance actions ......................................................................................... 230
            7.2.2.1. Tackling the problem of distracted driving ............................................. 231
            7.2.2.2. Speed .................................................................................................... 232
            7.2.2.3. Driving under the influence of alcohol ................................................... 233
            7.2.2.4. Use of seat belt, helmet and child restraint systems .............................. 233
            7.2.2.5. Promotion of the Strategic Plan ............................................................... 234

References ....................................................................................................................... 235
List of Figures

Figure 1.1. Timetable for the expected and achieved progress of the project.................. 4
Figure 2.1. Structure of the 1st Road Safety Strategic Plan (2001 - 2005)......................... 7
Figure 2.2. Structure of the 2nd Road Safety Strategic Plan (2006 - 2010)....................... 10
Figure 2.3. Evolution of the number of road accidents, injuries and fatalities in Greece, 2000 - 2010 (Source: EL.STAT., ETSC Processing: D.T.P.E. / N.T.U.A.)................. 28
Figure 2.4. Evolution of road fatalities in Greece, 2000 - 2010 and target of the European Union and of the 2nd Strategic Plan (2006 - 2010) (Source: EL.STAT., ETSC Processing: D.T.P.E. / N.T.U.A.)........................................... 29
Figure 2.5. Number of road fatalities per million population in the European Union, 2000 (Source: CARE database)......................................................... 30
Figure 2.6. Number of road fatalities per million population in the European Union, 2005 (Source: CARE database)......................................................... 30
Figure 2.7. Number of road fatalities per million population in the European Union, 2010 (Source: ETSC, 2011)................................................................. 31
Figure 3.1. Number of road fatalities per million population in Greece and in the European Union 1991 - 2010 (Source: CARE, ETSC database, 2011).............. 52
Figure 3.2. Percentage of road accident fatalities in residential areas in the European Union in 2008 (Source: CARE database) .................................................. 53
Figure 3.3. Rates of passenger vehicles, buses, trucks and motorbikes to the total number of vehicles in 2009 (Source: EL.STAT.)............................................ 55
Figure 3.4. Distribution of passenger vehicles and motorbikes by age of vehicle (Source: Ministry of Infrastructure, Transport and Networks)............................... 55
Figure 4.1. Evolution of the number of road fatalities per million population, of the number of road accidents and injuries caused by them in the European Union, 1991 - 2010 (Source: CARE database) ............................................. 142
Figure 4.2. Evolution of the number of road fatalities in the European Union and target of the European Union (Source: CARE database)......................................... 142
Figure 4.3. Percentage of road accident fatalities in residential areas, non-residential areas and highways in EU countries (Source: CARE database) ..................143

Figure 4.4. Percentage of road accident fatalities by road user category in the European Union, 2009 (Source: CARE database) ........................................144

Figure 4.5. Evolution of the number of road fatalities with all vehicles and only with motorcycles in the European Union, 1991 - 2008 (Source: CARE database) ..................................................................................145

Figure 4.6. Change in the number of dead cyclists in the European Union, 2004 - 2009 (Source: ETSC) ..............................................................................................................146

Figure 4.7. Percentage of dead pedestrians in the European Union by age group, 2009 (Source: CARE database) ..........................................................................................147

Figure 4.8. Percentage of fatalities in road accidents by age group in the European Union, 2009 (Source: CARE database) .............................................................148

Figure 5.1. Structure of the Strategic Plan for the improvement of road safety in Greece, 2011-2020 ................................................................................................................155
## List of Tables

<table>
<thead>
<tr>
<th>Table</th>
<th>Title</th>
<th>Source</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Table 2.1</td>
<td>Priority axes of the 1st Strategic Plan for the improvement of road safety (2001 - 2005)</td>
<td></td>
<td>8</td>
</tr>
<tr>
<td>Table 2.2</td>
<td>Priority axes of the Strategic Plan for the improvement of road safety (2006 - 2010)</td>
<td></td>
<td>12</td>
</tr>
<tr>
<td>Table 2.3</td>
<td>Basic road safety indicators in Greece, 2000 - 2005 (Source: EL.STAT. Processing: D.T.P.E. / N.T.U.A.)</td>
<td></td>
<td>46</td>
</tr>
<tr>
<td>Table 2.4</td>
<td>Basic road safety indicators in Greece, 2005 - 2010 (Source: EL.STAT., ETSC Processing: D.T.P.E. / N.T.U.A.)</td>
<td></td>
<td>47</td>
</tr>
<tr>
<td>Table 3.1</td>
<td>Number of road fatalities and fatalities indicator per million of circulating vehicles and per million population in Greece, 1991 - 2009 (Source: EL.STAT. Processing: D.T.P.E. / N.T.U.A.)</td>
<td></td>
<td>54</td>
</tr>
<tr>
<td>Table 3.2</td>
<td>Number of road fatalities in Greece, 1991 - 2009 (Source: CARE database, Processing: D.T.P.E. / N.T.U.A.)</td>
<td></td>
<td>57</td>
</tr>
<tr>
<td>Table 3.3</td>
<td>Percentages of road fatalities in Greece, 1991 - 2009 (Source: CARE database, Processing: D.T.P.E. / N.T.U.A.)</td>
<td></td>
<td>58</td>
</tr>
<tr>
<td>Table 3.4</td>
<td>Number and percentage of road accidents and fatalities and severity indicator depending on the type of road and the area, 2009 (Source: EL.STAT. Processing: D.T.P.E. / N.T.U.A.)</td>
<td></td>
<td>59</td>
</tr>
<tr>
<td>Table 3.5</td>
<td>Number of road fatalities by type of accident, 2000 - 2009 (Source: EL.STAT. Processing: D.T.P.E. / N.T.U.A.)</td>
<td></td>
<td>60</td>
</tr>
<tr>
<td>Table 3.6</td>
<td>Percentage of road accidents, fatalities, heavy and slight injuries during the day, at dusk and at night, 2000 - 2009 (Source: EL.STAT. Processing: D.T.P.E. / N.T.U.A.)</td>
<td></td>
<td>61</td>
</tr>
<tr>
<td>Table 3.7</td>
<td>Number and percentage of road accidents and fatalities per area and vehicle type, 2009 (Source: EL.STAT. Processing: D.T.P.E. / N.T.U.A.)</td>
<td></td>
<td>61</td>
</tr>
<tr>
<td>Table 3.8</td>
<td>Mortality rate (number of fatalities per 100,000 circulating vehicles) depending on the vehicle type, 2008 (Source: EL.STAT. Processing: D.T.P.E. / N.T.U.A.)</td>
<td></td>
<td>62</td>
</tr>
<tr>
<td>Table 3.9</td>
<td>Number of drivers killed in road accidents by sex and age, 2000 - 2009 (Source: EL.STAT. Processing: D.T.P.E. / N.T.U.A.)</td>
<td></td>
<td>62</td>
</tr>
</tbody>
</table>
Table 3.10. Number of fatalities by age group, sex and road user category, 2009 (Source: EL.STAT. Processing: D.T.P.E. / N.T.U.A.) .................................................63

Table 3.11. Mortality rates (number of fatalities in road accidents per million population of corresponding age group), 2007 (Source: EL.STAT. Processing: D.T.P.E. / N.T.U.A.) ........................................................................................................63


Table 3.13. Number of dead drivers, mileage and hazard indicators by driver age and vehicle type, 2004 (Source: D.T.P.E. / N.T.U.A., 2005) ............................................................65


Table 3.15. Seat belt use by region and position in the vehicle in Greece, 2009 (Source: D.T.P.E. / N.T.U.A., 2009) .................................................................................................67


Table 3.17. Use of seat belt by the driver by sex and age in Greece, 2009 (Source: D.T.P.E. / N.T.U.A., 2009) .................................................................................................68

Table 3.18. Helmet use by the driver by sex and age in Greece, 2009 (Source: D.T.P.E. / N.T.U.A., 2009) .................................................................................................68

Table 3.19. Percentage of drivers wearing seat belts and were involved in road accidents by type of region, severity of the accident per year, 1998 - 2008 (Source: D.T.P.E. / N.T.U.A., 2009) ........................................69

Table 3.20. Mobile phone use without a special headset by car drivers by sex and age in Greece, 2009 (Source: D.T.P.E. / N.T.U.A., 2009) ........................................69

Table 3.21. Mobile phone use without a special headset by motorcyclists by sex and age in Greece, 2009 (Source: D.T.P.E. / N.T.U.A., 2009) ........................................70

Table 3.22. Declared behaviour of Greek drivers - driving and alcohol, 1998 and 2004 (Source: SARTRE 2 & 3) .......................................................................................71

Table 3.23. Stated behaviour of Greek drivers - aggressive driving, 1998 and 2004 (Source: SARTRE 2 & 3) .......................................................................................71

Table 3.24. Stated behaviour of Greek drivers - compliance with speed limits, 1998 and 2004 (Source: SARTRE 2 & 3) .......................................................................................72

Table 3.25. Stated behaviour of Greek drivers - dangerous driving, 1998 and 2004 (Source: SARTRE 2 & 3) .......................................................................................73

Table 3.26. Stated behaviour of Greek drivers - surveillance, 1998 and 2004 (Source: SARTRE 2 & 3) .......................................................................................73
Table 3.27. Traffic Police controls in Greece during the five-year period 1998 - 2002
Table 3.28. Stated behaviour of Greek drivers - seat belt
use, 1998 and 2004 (Source: SARTRE 2 & 3)........................................74
Table 4.1. Suggested safe speeds (SWOV, 2006)............................................79
Table 4.2. Principles for achieving Sustainable Road Safety (SWOV, 2006) ............80
Table 4.3. National Road Safety Strategy and Quantitative Targets in the EU-25,
Norway and Switzerland (COWI, 2010) ..................................................113
Table 4.4. Number of road fatalities in the European Union,
2001 - 2010 (Source: ETSC, 2011)..........................................................140
Table 4.5. Number of road fatalities per million population in the countries
of the European Union in 2001 and 2010 (Source: ETSC, 2011)...............141
# Index of symbols

<table>
<thead>
<tr>
<th>STATE</th>
<th>ABBREVIATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>AT</td>
</tr>
<tr>
<td>Belgium</td>
<td>BE</td>
</tr>
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<td>BG</td>
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<td>FR</td>
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<td>DE</td>
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<td>DK</td>
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<td>GR</td>
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<td>Estonia</td>
<td>EE</td>
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<td>IE</td>
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<td>Spain</td>
<td>ES</td>
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<td>CY</td>
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<td>Latvia</td>
<td>LV</td>
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<td>Sweden</td>
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<td>Czech Republic</td>
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<td>Finland</td>
<td>FI</td>
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</tbody>
</table>
1 Introduction

1.1 Subject and targets of the project
Road accidents are a major social issue worldwide. In order to address this problem, the integrated approach to road safety is now deemed necessary and in developed countries it is achieved through the development and implementation of Road Safety Strategic Plans. These Strategic Plans provide for the implementation of road safety actions with a specific duration and specific quantitative targets. The importance of the Strategic Planning lies in the fact that its successful elaboration and implementation ensures the commitment of the State to achieve the targets, the implementation of an integrated policy and the consensus of society. Furthermore, the effective coordination of all actions, the duration of efforts over time and the adequate funding, monitoring and evaluation of actions are achieved.

Greece, with almost 1,300 fatalities in road accidents per year, is one of the worst performing countries, as far as road safety is concerned, among the 27 members of the European Union. The low level of road safety in Greece is due to the fact that road accidents have never been addressed effectively. The responsible authorities (Ministries, Local Government), often lacking organisation and by implementing fragmentary road safety measures without coordination and continuity in time, are not able to achieve the desirable results, neither to inform and raise public awareness on the importance of road safety and the need for responsible driving behaviour.

The project titled “Development of a Strategic Plan for the improvement of road safety in Greece, 2011-2020” is carried out by the Department of Transportation Planning and Engineering (D.T.P.E.) of the School of Civil Engineering of the National Technical University of Athens (N.T.U.A.) on behalf of the Ministry of Infrastructure, Transport and Networks (Yp.YPO.ME.DI.). This project was assigned under decision No 1841/22.07.2010 of the General Secretary for Public Works of Yp.YPO.ME.DI.

The objective of this project is the development of the Strategic Plan for the improvement of road safety in Greece for the period 2011 - 2020 which will have specific quantitative targets and appropriate structure. This will result to the selection, application, monitoring and assessment of the necessary measures for the reduction of road accidents and corresponding deaths and injuries, as well as to the achievement in Greece too, of the European target according to which the number of deaths in road accidents in 2020 must be reduced by 50% comparing to 2010 (European Commission, 2010a).
1.2. Method

In order to determine the structure of the Strategic Plan for the improvement of road safety in Greece, 2011 - 2020, the relevant international experience was taken advantage of, with an emphasis on the Strategic Plans and road safety actions of developed states, in terms of road safety, as well as the latest developments concerning the scientific field of road safety worldwide. Data was obtained from international databases on accidents and road safety and strategic road safety plans of other countries and road safety measures implemented successfully worldwide were reviewed, as well as the related international bibliographic references. The relevant Greek experience was collected, recorded and made use of, with a review of the bibliographic references on road safety (presentations at conferences, relevant studies and surveys, etc.), as well as meetings with representatives of relevant Ministries and Agencies.

The activity of the Department of Transportation Planning and Engineering of the N.T.U.A. School of Civil Engineering in the last 25 years, in all the range of subjects related to road security and its access to both the Greek and the European database (EL.STAT. and CARE respectively) with analytical data on road accidents, are important factors for the successful shaping of the Strategic Road Safety Plan 2011-2020 in Greece.

The Department of Transportation Planning and Engineering of the N.T.U.A. School of Civil Engineering has carried out research, studies and numerous scientific analyses related to road safety in Greece and worldwide, it has developed the Strategic Road Safety Planning both in Greece (1st and 2nd Strategic Road Safety Plan) as well as in cooperation with international organisations (Organisation for Economic Co-operation and Development (OECD), Australian Road Research Board (ARRB), European Transport Safety Council (ETSC), etc.). Furthermore, it participates actively and contributes to the activities of international organisations - United Nations (UN), Organisation for Economic Co-operation and Development (OECD) / International Transport Forum (I.T.F.), World Health Organization (WHO) - and especially of the European Commission on road safety and participates in the research and study on subjects related to the Management of the Road Infrastructure Safety Management (hazardous locations, road safety audits, road safety inspections etc.). Special reference is made to its contribution to shaping the recent relevant European Directive 2008/96/EC, in collaboration with the European Commission.

The Report contains six work units, as provided for by the relevant 39-2010 contract. A general assessment of the implementation of the 1st and 2nd Strategic Road Safety Plan was carried out and also the current situation on road safety in Greece was recorded in detail and assessed. The relevant international evolutions (road safety level, measures, national policies, strategies and programmes) were also recorded, analysed and assessed. The purpose, the quantitative targets and the structure of the Strategic Road Safety Plan, 2011-2020 were defined. Six Road Safety Programmes and the corresponding actions were developed aiming at the improvement of road safety in Greece. Finally, a framework was developed for the implementation, monitoring and assessment of the Strategic Plan, and a framework for informing and raising citizens’ awareness on road safety actions.
1.3. Contents of the Report

As mentioned above, this Report includes, except for the Introduction, six work units, which are analysed below.

Chapter 2 presents the results of the assessment of road safety actions in Greece to date and analyses the causes for the poor performance of the country. The data resulting from the implementation of previous Strategic Road Safety Plans is recorded and assessed, problems encountered during their implementation are identified and their overall effectiveness in improving the level of road safety in our country is evaluated. Particular emphasis is given to the causes for the partial implementation of the 1st Strategic Road Safety Plan (2001-2005) and the unsatisfactory implementation of the 2nd Strategic Road Safety Plan (2006-2010) and ways to deal with these causes are identified.

Chapter 3 analyses and records the current situation in road safety in Greece. The features of road accidents in Greece are recorded and analysed in detail with an emphasis on vulnerable road users (motorcyclists, pedestrians, etc.), and the critical factors for road safety are identified. For this purpose, the database developed by the Department of Transportation Planning and Engineering of the N.T.U.A. School of Civil Engineering, containing the personalised data on road accidents, the research findings on road safety in Greece and the results of research projects of the D.T.P.E. were made use of. Particular emphasis is given on the review of the effects of road safety actions carried out.

Chapter 4 provides an overview of the international developments in the field of road safety through the use of international databases and relevant existing analyses. Recent developments in road safety, such as the Safe System Approach, Sustainable Safety and "Vision Zero", as well as initiatives of international organizations, such as the United Nations, the Global Partnership for Road Safety (GRSP), the World Health Organization (WHO - WHO Road Safety Program), the Organisation for Economic Cooperation and Development (OECD) and the International Transport Forum (ITF - ECMT) have been taken into account. Furthermore, the institutional, organisational and operational framework for implementing certain Strategic Plans for the improvement of road safety, with an emphasis on successful programmes and actions of states with high performance on road safety, has also been reviewed.

In Chapter 5, the basic targets and the structure of the new Strategic Road Safety Plan 2011 - 2020 were set based on the assessment of the implementation of the 1st and 2nd Strategic Road Safety Plan and the conclusions drawn from the recording, analysis and assessment of the international experience. The general and specific targets of the 4th Action Plan of the European Commission (2011 - 2020), as well as the proposed actions of the European Commission were particularly taken into account.

Chapter 6 suggests six Road Safety Programmes and the corresponding actions, aiming at the improvement of road safety in Greece. The problems concerning road safety in Greece, the measures already taken for the improvement of road safety and the measures for the improvement of road safety that have been successfully implemented worldwide were taken into account for the development of the six Road Safety Programmes.

Chapter 7 provides a description of the quantified monitoring and assessment programme of the results of the Programmes and actions carried out under the Strategic Plan for the improvement of road safety in Greece.
road safety. Furthermore, information and awareness-raising topics concerning road safety actions are developed, aiming at ensuring the active participation of citizens and their approval, which is a prerequisite for the success of the Strategic Plan.

Figure 1.1 illustrates the expected, according to the contract, and the achieved progress of the project works.

![Figure 1.1. Timetable for the expected and achieved progress of the project](image-url)
1.4. Working Group

The elaboration of this project and the drawing up of the present Report were undertaken by the team of the Department of Transportation Planning and Engineering (T.P.E.) of the School of Civil Engineering of the National Technical University, consisting of:

- George Kanellaidis, Professor (Scientific Responsible),
- George Yannis, Associate Professor,
- Sophia Vardaki, Ph.D., Researcher,
- Alexandra Laiou, Researcher,
- Chrisoula Voulgari, Researcher, and
- other researchers.

For the elaboration of the project, the team of the T.P.E. Department of the N.T.U.A. collaborated with Ms Magda Pitsiava-Latinopoulou, Professor of the Division of Transportation, Construction Management and Regional Planning of the School of Civil Engineering, Aristotle University of Thessaloniki.

1.5. Acknowledgements

Acknowledgement is expressed to the Agencies and the individuals who contributed with valuable data and information in Shaping the Report. Special reference is made to:

Ms. Eva Kasapi, Head of Section D.M.E.O (Directorate of Road Works Design/G.G.D.E (General Secretariat of Public Works) /Yp.YPO.ME.DI.

Mr. Nikiforos Tzatzakis Counsellor of the Ministry of Infrastructure, Transport and Networks

Mr. Andreas Kordolaimis Director of Traffic Police of Hellenic Police (EL.AS.) Headquarters

Mr. Ioannis Rotziokos EKAV President

Mr. Dimitrios Pyrros Director of the EKAV Nursing Services

Ms. Efstathia Fouseki Director of S.E.P.E.D. (Professional Orientation Counselling and Educational Activities)/Y.P.D.V.M.TH.
2

Assessment of the implementation of previous Road Safety Strategic Plans

This chapter presents certain key elements of the 1st and 2nd Strategic Plan for the improvement of road safety in Greece. The road safety actions of the relevant Bodies are also summarised. What is more, certain data is provided on the evolution of key figures on road safety in Greece in the last years and a comparison is made with the other Member States of the European Union. The institutional and organisational framework for road safety in Greece is also presented. Finally, the overall implementation of the 1st and 2nd Strategic Plan for the improvement of road safety in Greece is evaluated.

2.1. Previous Strategic Plans for the improvement of road safety in Greece

In sections 2.1.1. and 2.1.2. the two Strategic Plans for the improvement of road safety in Greece are outlined.

2.1.1. 1st Strategic Plan for the improvement of road safety in Greece (2001 - 2005)

The 1st Strategic Plan for the improvement of road safety in Greece (2001-2005) was carried out during the period 1999 - 2001 by the Department of Transportation Planning and Engineering of the National Technical University of Athens, in collaboration with the Australian Road Research Board (ARRB Transport Research), coordinated by Prof. G. Kanellaidis, on behalf of the Ministry of National Economy. The completion of the 1st five-year Strategic Road Safety Plan and its implementation were based on a broad consultation process involving representatives of the competent bodies. In June 2001, the Strategic Road Safety Plan was officially approved by the State and entered into force. Its implementation was undertaken by the Inter-ministerial Committee on Road Safety, chaired by the Minister for Public Order.
The target set by the 1st Strategic Plan was the reduction of the number of fatalities in road accidents in Greece, in relation to the death toll for 2000, by 20% by 2005 and 40% by 2015.

The structure of the 1st Strategic Plan consisted of four main directions corresponding to the four Ministries primarily responsible for road safety and, at the same time, to the four main axes of dealing with road accidents (Figure 2.1). The four main directions of the 1st Strategic Road Safety Plan corresponded to four Road Safety Programmes:

- The safe road environment (Ministry of the Environment, Physical Planning and Public Works),
- The safety of road users and safe vehicles (Ministry of Transport and Communications),
- The effective surveillance for road safety (Ministry of Public Order),
- The effective actions after the accident (Ministry of Health and Welfare).

According to the 1st Strategic Road Safety Plan, each directly related Ministry is responsible for development and implementation of a Programme and for drafting a report on whether the targets set were met or not, regardless of the progress of other Programmes. Each programme includes priority axes for the improvement of road safety which are presented in Table 2.1.

Figure 2.1. Structure of the 1st Strategic Road Safety Plan (2001 - 2005)
Table 2.1. Priority axes of the 1st Strategic Plan for the improvement of road safety (2001 - 2005)

<table>
<thead>
<tr>
<th>Priority Axis</th>
<th>Ministry</th>
<th>Activities</th>
</tr>
</thead>
<tbody>
<tr>
<td>Safe road environment</td>
<td>Ministry of the Environment, Physical Planning and Public Works</td>
<td>1. Organisation of the coordination and monitoring body. 2. Interventions in hazardous locations. 3. Improvement of signage and security. 4. Improvement of electric lighting. 5. Improvement of road surfaces in terms of anti-slip. 6. Road safety measures in urban areas. 7. Road Safety Audit. 8. Drafting of Regulations and Research.</td>
</tr>
<tr>
<td>Road users’ safety and safe vehicles</td>
<td>Ministry of Transport and Communications</td>
<td>1. Organisation of the coordination and monitoring body. 2. Upgrade of the training system and the driving tests for candidate drivers and trainers. 3. Traffic education programmes. 4. Upgrading of the technical inspection of vehicles. 5. Improvement and implementation of the institutional framework. 6. Incentives for the improvement of road safety. 7. Research on the causes of road accidents.</td>
</tr>
<tr>
<td>Effective surveillance for road safety</td>
<td>Ministry of Public Order</td>
<td>1. Organisation of a central body for coordination and monitoring. 2. Improvement of Road Traffic Police services. 3. Improvement of the system of road accidents recording. 4. Improvement of the system of dealing with road accidents. 5. Integrated monitoring programme. 6. Improvement of Fire Brigade services.</td>
</tr>
<tr>
<td>Effective action after the accident</td>
<td>Ministry of Health and Welfare</td>
<td>1. Organisation of the coordination and monitoring body. 2. Intervention units equipment. 3. Development of intervention plans and local coordination centres. 4. Improvement of the immediate hospital care of the injured. 5. Research on addressing the causes of road accidents.</td>
</tr>
</tbody>
</table>

Each priority axis includes specific road safety actions. For the implementation of the actions, a concrete proposal for the implementation of the Strategic Road Safety Plan was prepared, including a detailed implementation time frame, a promotion and information project and a quantified monitoring system.

2.1.2. 2nd Strategic Plan for the improvement of road safety in Greece (2006 - 2010)

The 2nd Strategic Plan for the improvement of road safety in Greece (2006 - 2010) was carried out by the Department of Transportation Planning and Engineering of the National Technical University of Athens and was completed in December 2005, coordinated by Prof. Kanellaidis on behalf of the Ministry of Transport and Communications.
The development of the 2nd Strategic Plan for the improvement of road safety in Greece, involved the definition and implementation of the necessary actions in order to achieve the European target in Greece as well. According to this target, the number of road fatalities in 2010 had to be reduced by 50% compared to 2000. Also, according to this target, the number of road fatalities in Greece had to be reduced from 2,037 in 2000 to 1,018 in 2010. Six main directions were set out for the improvement of road safety, corresponding to six action programmes, as shown in Figure 2.2. The development and implementation of each Programme was under the responsibility of a respective Ministry. More specifically, the six main directions of the Strategic Road Safety Plan for the period 2006 - 2010 were the following:

- Safety of road users and safe vehicles (Ministry of Transport and Communications)
- Monitoring for road safety (Ministry of Public Order)
- Safe road environment (Ministry of the Environment, Physical Planning and Public Works)
- Post-accident care (Ministry of Health and Social Solidarity)
- Traffic education - training on road safety (Ministry of National Education and Religious Affairs)
- Road safety actions and Local Government (Ministry of Interior, Public Administration and Decentralisation)

These six main directions corresponded to six Road Safety Programmes, each one being under the exclusive competence and responsibility of a respective Ministry. This means that each Ministry was responsible for the development and implementation of a Programme, which would be managed by drafting a report on the fulfilment or not of the set targets, regardless of the progress of other Programmes. For issues under the competence of various Ministries, it was necessary to achieve a proper coordination among relevant agencies and departments in order to optimise results. Also, the coordination of the Regional Agencies that would carry out the Programmes plays an important role.
The coordination of the implementation of the Strategic Plan was undertaken by the Inter-ministerial Committee on Road Safety, the suggested chairman of which is the Prime Minister (with the Minister for Transport and Communications as Deputy), and its members will be the Minister for Transport and Communications, the Minister for Public Order, the Minister for the Environment, Physical Planning and Public Works, the Minister for Health and Welfare, the Minister for National Education and Religious Affairs, the Minister for the Interior, Public Administration and Decentralisation, the Minister for Justice and the Minister for Economy and Finance.

The responsibilities of the Inter-Ministerial Committee included: the determination of general objectives for the improvement of road safety, ensuring and allocating the necessary funding to the competent bodies, the monitoring of the implementation of the Strategic Plan, the coordination of Road Safety Programmes, the submission of an annual report to the Special Parliamentary Committee and the implementation of the communication policy on road safety.

The importance and complexity of the work of the Inter-ministerial Committee accentuated the need to be supported by the relevant Secretariat. The Secretariat of Support had to be a special unit, which would be able to support all the functions of the Inter-ministerial Committee.

For the support of the work of the Inter-ministerial Committee, the creation and functioning of a Special Parliamentary Committee on Road Safety was proposed. This had to be a Permanent Committee, since road accidents are a problem that demands constant monitoring. The objective of the Committee would be to monitor and evaluate road safety conditions and to contribute with advice to the decision-making and the determination of the national road safety policy.
After a detailed review of the proposals by the competent bodies, the assessment of the effectiveness of the actions included in the respective Programmes of the 1st Strategic Plan, international experience and the findings of the research team of N.T.U.A., Road Safety Programmes, presented in Table 2.2., are proposed. The actions of these Programmes are clearly divided among different competent bodies (Ministries, etc.) and include short-term measures (direct implementation) and medium-term measures.

Finally, a framework was developed for the implementation of the Strategic Road Safety Plan, which included specific proposals for institutional issues and others related to communication, scheduling and monitoring of all Road Safety Programmes.
Table 2.2. Priority axes of the 2nd Strategic Plan for the improvement of road safety (2006 - 2010)

<table>
<thead>
<tr>
<th>1. Safety of road users and safe vehicles (Ministry of Transport and Communications)</th>
<th>Medium-term actions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short-term actions</td>
<td></td>
</tr>
<tr>
<td>1. Drivers' Behaviour Control System</td>
<td>8. Organisation of a coordination and monitoring department</td>
</tr>
<tr>
<td>2. Adoption of special measures for heavy vehicles</td>
<td>9. Upgrading of the technical inspection of vehicles</td>
</tr>
<tr>
<td>3. Adoption of special measures for school buses</td>
<td>10. Upgrading of the training system</td>
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<tr>
<td>4. Measures for the improvement of the road safety of new drivers</td>
<td>- exams of candidate drivers/trainers</td>
</tr>
<tr>
<td>5. Measures for the improvement of the road safety of cyclists</td>
<td>11. Improvement and review of the institutional framework for road safety</td>
</tr>
<tr>
<td>6. Measures for the improvement of the road safety of elderly drivers</td>
<td>12. Databases of vehicles and drivers</td>
</tr>
<tr>
<td>7. Incentives for the improvement of road safety</td>
<td>13. Development of a Register containing medical data of drivers</td>
</tr>
<tr>
<td>Short-term actions</td>
<td></td>
</tr>
<tr>
<td>1. Increase of the frequency of the audits</td>
<td>4. Organisation of a coordination and monitoring department</td>
</tr>
<tr>
<td>2. Integrated and comprehensive controls</td>
<td>5. Upgrading of the Road Traffic Police services and equipment</td>
</tr>
<tr>
<td>3. Systematic recording of audits and violations</td>
<td>6. Improvement of the system of road accidents recording</td>
</tr>
<tr>
<td>4. Measures for the improvement of the road safety of new drivers</td>
<td>7. Improvement of the system of dealing with road accidents</td>
</tr>
<tr>
<td>5. Measures for the improvement of the road safety of cyclists</td>
<td>8. Integrated traffic surveillance program</td>
</tr>
<tr>
<td>6. Measures for the improvement of the road safety of elderly drivers</td>
<td>9. Rehabilitation programmes for repeatedly offending drivers</td>
</tr>
<tr>
<td>7. Incentives for the improvement of road safety</td>
<td>10. Upgrading of the Fire Brigade</td>
</tr>
<tr>
<td>3. Safe road environment (Ministry of the Environment, Physical Planning and Public Works)</td>
<td></td>
</tr>
<tr>
<td>Short-term actions</td>
<td>Medium-term actions</td>
</tr>
<tr>
<td>1. Low-cost measures</td>
<td>3. Organisation of a coordination and monitoring department</td>
</tr>
<tr>
<td>2. Programmes for the maintenance and improvement of the road network</td>
<td>4. Intervention programme in hazardous locations</td>
</tr>
<tr>
<td>3. Systematic recording of audits and violations</td>
<td>5. Creation of a Register of Roads</td>
</tr>
<tr>
<td>5. Measures for the improvement of the road safety of cyclists</td>
<td>7. Road safety interventions in urban areas</td>
</tr>
<tr>
<td>6. Measures for the improvement of the road safety of elderly drivers</td>
<td>8. Road Safety Audit</td>
</tr>
<tr>
<td>7. Incentives for the improvement of road safety</td>
<td>9. Drafting of Regulations and Technical Specifications</td>
</tr>
<tr>
<td>4. Post-accident care (Ministry of Health and Social Solidarity)</td>
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<tr>
<td>Short-term actions</td>
<td>Medium-term actions</td>
</tr>
<tr>
<td>1. Creation of a network for emergency calls</td>
<td>3. Organisation of a coordination and monitoring department</td>
</tr>
<tr>
<td>2. Development of intervention plans and local coordination centres</td>
<td>4. Upgrading of the equipment of intervention units</td>
</tr>
<tr>
<td>5. Traffic education - training on road safety (Ministry of National Education and Religious Affairs)</td>
<td></td>
</tr>
<tr>
<td>Short-term actions</td>
<td>Medium-term actions</td>
</tr>
<tr>
<td>1. Traffic education teaching</td>
<td>4. Organisation of a coordination and monitoring department</td>
</tr>
<tr>
<td>2. Training of teachers and drafting</td>
<td>5. Educational activities on road safety in the Armed Forces</td>
</tr>
<tr>
<td>of educational material for traffic education</td>
<td>and the improvement of the road safety of students</td>
</tr>
<tr>
<td>3. Activities for the promotion of traffic education</td>
<td></td>
</tr>
<tr>
<td>and the improvement of the road safety of students</td>
<td></td>
</tr>
<tr>
<td>6. Road Safety Actions and Local Government (Ministry of Interior, Public Administration and Decentralisation)</td>
<td></td>
</tr>
<tr>
<td>Short-term actions</td>
<td>Medium-term actions</td>
</tr>
<tr>
<td>1. Upgrading of the operation of Joint Audit Teams</td>
<td>4. Organisation of a coordination and monitoring department</td>
</tr>
<tr>
<td>2. Enhancement of school transport safety</td>
<td>5. Development of road safety actions by the local government</td>
</tr>
<tr>
<td>3. Implementation of cost-effective measures</td>
<td></td>
</tr>
</tbody>
</table>
2.2. Road safety actions during the period 2001 - 2010

Section 2.2 outlines the main data from the implementation of the previous Strategic Plans for the improvement of road safety in Greece, and the actions of the competent Ministries. The actions outlined below result from data published by each Ministry and by the contacts of the members of the project team with representatives of the Ministries.

2.2.1. Ministry of Infrastructure, Transport and Networks

By Decision No 2876/7-10-2009 of the Prime Minister (Government Gazette, Series I, No 2234/7-10-2009), the Ministry of Transport and Communications (Y.M.E.) was renamed as Ministry of Infrastructure, Transport and Networks (Yp.YPO.ME.DI.). With PD 189 (Government Gazette, Series I, No 221/5-11-2009) the responsibilities of Ministries were identified and reallocated. Thus, the General Secretariat of Public Works (G.G.D.E.) and the General Secretariat for Co-Financed Public Works (G.G.S.D.E.) of the former Ministry of the Environment, as well as the supervision of legal persons and entities subject to these General Secretariats were transferred to Yp.YPO.ME.DI. Concerning road safety, the competent Yp.YPO.ME.DI. General Secretariats are: the General Secretariat of Infrastructure, Transport and Networks (G.G.YPO.ME.DI. - former General Secretariat of Transport, the G.G.D.E. and the G.G.S.D.E.

2.2.1.1. General Secretariat of Infrastructure, Transport and Networks

The Ministry of Transport and Communications (and Yp.YPO.ME.DI. after October 2009) promoted several actions for the improvement of road safety related mainly with the following topics:

- Road Traffic Code (K.O.K.)
- Activation of the Drivers’ Behaviour Control System (D.B.C.S.)
- Training and testing candidate drivers
- Improvement of the system of driving licences
- Initial and periodic training of professional drivers
- Traffic education
- Technical inspection of vehicles
- Communication policy

Specifically, the last modification of the Road Traffic Code was completed in 2007, with the provisions of Law 3542/2007 (Government Gazette, Series I, No 50) and it was necessary after eight years of implementation of the existing Code. It aimed at establishing a modern framework for tackling delinquency, which would have a preventive nature when dealing with infringements that endanger human life. The main axes of this framework are: the simplification of procedures, the modernisation of provisions and the rationalisation of fines. Administrative sanctions are imposed for some violations of the Road Traffic Code (K.O.K.) which are integrated in the D.B.C.S., considering that these infringements affect road safety to a large extent and are major causes of road accidents.
In September 2010, the Standing Committee on the Revision of the Road Traffic Code, the new members of which serve a two-year term starting from the publication of the relevant Ministerial Decision (Government Gazette, No 317/28-92010), was reorganised within the Ministry of Infrastructure, Transport and Networks. The committee shall perform the following tasks:

- Continuous study and analysis of the Road Traffic Code provisions and intervention in order to supplement and amend them.
- Collection, compilation and codification of acts (Presidential Decrees, Decisions) set out in enabling provisions of the Road Traffic Code.
- Official opinion on road traffic and safety issues after a question by the competent authorities.
- Processing, interpretation and opinion on the provisions of the Road Traffic Code, after questions by concerned parties.
- Collection, study and analysis of the provisions of the Road Traffic Code of EU countries and third countries.
- Creation of a library on road traffic and safety.

Also, in 2007 the reform of the Ministerial Decision "Car, motorbike and moped drivers’ Behaviour Control System" (Government Gazette, Series II, No 623/254-2007 was implemented. With this Decision, the recording of demerit points is automatised and it provides for increased demerit points for infringements that can lead to fatal accidents. Furthermore, it determines specific infringements which, if repeated within the same year, lead to driving disqualification and reissue of the licence after the relevant exam. From July 2007 to January 2009, 1,376 driving licences were withdrawn. In 85% of the cases, two hazardous infringements had been committed within one year.

What is more, in an effort to improve road safety, the training and examination system of candidate drivers was upgraded. Specifically, the following actions were carried out:

- Introduction of minimum compulsory training hours for candidate drivers. In order to obtain a category B licence, a 20-hour compulsory theoretical education and 20-hour practice sessions were introduced.
- Introduction of a 2-semester compulsory education for candidate trainers (through the Organisation for Vocational Education and Training - OEEK).
- Modernisation of the logistics training facilities both for candidate drivers and candidate trainers. Article 10 of Presidential Decree 208/02 (194A) introduced the mandatory equipping of Driving Schools with audiovisual teaching material and a computerised system for theory testing of candidate drivers.
- Training programmes for examiners of candidate drivers.
- Study on the construction of Training and Examination Centres for Candidate Drivers (K.E.E.Y.O.), which shall include a formal proposal for the architectural and functional design of the building infrastructure of the projects.
• Provisions for the development of the appropriate infrastructure for people with disabilities, as well as carrying out specific psychometric tests which will certify that the candidate driver does not suffer from a mental or physical illness. The Joint Ministerial Decisions 47919/5195/03 (Government Gazette, Series II, No 1205) of the Ministers for Economy and Finance and for Transport and Communications include the minimum conditions of physical and psycho-intellectual capacity that must be met in order for candidate drivers to participate in the examinations on driving theory and practice. The psychological and neurological examinations of candidate drivers are carried out by a Secondary Medical Committee (D.I.E.) which includes a neuropsychiatrist. According to the J.M.D., the D.I.E. examines:
  ○ Candidate drivers applying for a first driving licence and exceed 65 years of age.
  ○ Candidate drivers who have been deemed incapable of having a driving licence during the first medical examination, as long as they request a second one.
  ○ Deaf persons.
  ○ Drivers who have an obligation to renew their licence, if the initial examination was carried out by the D.I.E.
  ○ Candidate drivers or drivers who must undergo a medical examination or review following a request by the Agency, under the provisions of paragraph 8 of Article 13 of the Road Traffic Code or other provisions.
  ○ Candidate drivers or drivers in deferment on health grounds, deemed incapable of enlistment or whose army certificate is marked I2, I3, I4 or I5.
  ○ Candidate drivers or drivers with learning difficulties.
  ○ Candidate drivers or drivers with mobility problems, limb or mixed amputation.
Moreover, a new electronic examination system is now implemented. This system ensures a prompt, objective and easy driving testing of candidate drivers. Furthermore, it ensures complete transparency and, at the same time, procedures are simplified for Public Administration. In particular:
• The system is fully automated and it has been designed to be user-friendly and completely safe, so as to leave no room for any interventions.
• The questionnaires for each candidate are created with a random selection from the database at the beginning of the examination process.
• The order of the answers to each question is random each time, in order to prevent the memorisation of the answers.
• At the end of the exam, the system prints out the questions asked to each candidate, the answers given, their accuracy and the final result.
• The new system allows testing candidates in the four categories of driving licences: car, motorcycle, truck and bus driving licence.
Finally, new questionnaires were issued on the theoretical training and examination of special population groups (illiterate Roma people, functionally illiterate persons) with sound. The examination is performed through the Computer System for the Theoretical Examination of Candidate Drivers (M.S.TH.E.Y.O.) and only with the use of audiovisual material.

Under the European Agreement Concerning the International Carriage of Dangerous Goods by Road (ADR), the necessary regulations for the implementation of the set out measures were also adopted in Greece and concern the following domains:

- Approval of vehicle types for the carriage of dangerous goods.
- Special regular inspection of vehicles of this category.
- Certification of drivers of vehicles carrying dangerous goods.
- Certification of Security Advisers for the planned carriage of goods.
- Sample check of infringements during the carriage of dangerous goods
- Training and certification of ADR experts.
- Authorisation of auditing bodies for vehicles carrying dangerous goods.

In collaboration with the N.T.U.A. and the Eugenides Foundation, the writing of manuals for the initial training of professional drivers was completed. A Presidential Decree (Government Gazette, Series I, No 112/18-2008) was issued on the initial training of bus drivers and is implemented for new drivers from 10/9/2008. For periodic training, which will be implemented from 10/09/2013, a 35-hour attendance in appropriate schools is provided for.

From 19/01/2009, under Law 3534/2007 (Government Gazette, Series I, No 40) and Decisions Reg. No 18623/2372/11-8-2008 and 68831/9254/11-12-2008, the new driving licence is now in force. The issuing procedure is the same (issued by the Transport Agencies), but the printing is carried out by the Passport Directorate of the Hellenic Police Headquarters. The new driving licence has the form of a high security plastic card with a serial number and can be controlled in accordance with the Schengen Treaty for theft, forgery etc.

Regarding the Road Safety Parks, the construction of one hundred parks across the country has been completed. A seminar was held for one hundred young instructors, who were selected by the Municipalities and will be employed in the Road Safety Parks. In order to enhance the teaching in Road Safety Parks, the manual “Guide to Road Safety Education” was produced and distributed to trainers.

In order to inform citizens in time about the changes in legislation (K.O.K.), the Ministry has agreed with television stations on the allocation of free commercial time for broadcasting road safety messages in primetime hours. In addition to this agreement, leaflets were published and distributed in order to inform citizens and raise public awareness.
With the operation of Private Vehicle Technical Control Centres (P.V.T.C.C.), the control period for private use passenger vehicles and private use trucks of a gross weight of up to 3,500 kg, is 4 years for new vehicles and every 2 years for rechecking. An annual technical inspection is provided for heavy vehicles. At present, a technical inspection of vehicles is not compulsory for owners of two-wheel vehicles, mopeds and motorbikes.

Y.M.E. (now Yp.YPO.ME.DI.) implemented the “Integration of cycling in the city” programme, aiming at raising public awareness on the use of bicycles. This programme is part of the Y.M.E National Road Safety Programme. Within this programme, the following actions have been carried out:
- Publication of two books (co-financed by the Y.M.E., the Ministry of the Environment, Physical Planning and Public Works and the EU) on the Integration of Cycling in Greek Cities.
- Collection, recording and processing of relevant data and studies from 90 Municipalities of the country.
- Studies (by the A.U.TH.) for interventions in 17 cities.

Determination of procedures for the implementation of projects in some Municipalities of the country (N. Psychico, Messolonghi, Karditsa, Larisa) after meetings with mayors and planning of the implementation of a related pilot project in these Municipalities. The former Y.M.E. (now Yp.YPO.ME.DI.), apart from the two previous Strategic Plans for the improvement of road safety in Greece, has assigned studies and projects to Educational Institutions, aiming at the improvement of road safety. Some of these projects are:
- “Integration of cycling in Greek cities - Policy-making for motorcycles”. This project was aiming at broadening the possibilities of integrating cycling in Greek cities and creating a guide on cycling infrastructure design, 2001.
- “Integrated education system and auditing system on the ability of drivers with an emphasis on road safety issues”, 2002.
- “Actions to support programmes for the traffic education of school students”, 2005.
- “Planning and implementation of a programme of supporting actions for the evaluation and operation of Road Safety Parks”, 2007.
- “Bicycle Infrastructure Planning in Police Academy Parks (Katechaki Metro Station) and in Ilisia and their connection through the Metropolitan Park in Goudi and the two campuses”, 2008 - 2010.
- “Development of a manual on the safe driving of elderly drivers”, 2009. This manual includes recommendations on safe driving practices for elderly drivers and information on age-related changes to driving and awareness-raising on this topic.
- “Data collection on road safety in Greece”, 2009.
- “Operation support and maintenance of the software of the Computer System for the Theoretical Examination of Candidate Drivers (M.S.TH.E.Y.O.), creation of a new Road Traffic Code database and evaluation of the installed M.S.TH.E.Y.O. in Prefectures”, 2009.
- “Research on application methods for the promotion of conditions for sustainable mobility”, 2009. This project aims at making cycling an integral part of several areas in Greece.

2.2.1.2. General Secretariat of Public Works

The G.G.D.E. drafted and implemented a special, integrated programme of actions and interventions for the improvement of road safety in the country. The actions, with a total budget of over EUR 120 million, were primarily funded by the Operational Programmes “Road Axes, Ports and Urban Development” (OP - O.A.L.A.A.) and “Accessibility Enhancement” (E.P.-E.P.) and include:

1. The implementation of specific interventions with direct applicability and direct reciprocity (partial remodelling of junctions at grade, interventions to signage, guardrails, markings, signs, lighting, asphalt, traffic lights, improvement of visibility, etc.) in locations-sections of the National Road Network which were identified by relevant studies as low road safety locations. Budget of studies and projects: Approximately EUR 101 million. These interventions were implemented in two phases. In the first phase, interventions were implemented in 5 very dangerous Axes, including: Petalo Maliakou, Andirrio - Ioannina, Corinth - Patras - Pyrgos - Olympia etc. In the second phase, interventions were implemented in 19 Axes (some contract work completed in 2011).

2. The study on interventions, such as those mentioned above, on 9 Axes (Iraklio - Mires - Tibaki - Ag. Galini, Iraklio - Gouves - Chersonisos - Malia (Old National Road), Chania - Rethymno (Old National Road), Chalkida - Lepoura - Kymi, Chalkida - Edipsos, Farsala (Vamvakous Intersection) - Larisa, Karditsa - Trikala, Patras - Pyrgos - Olympia, Pyrgos - Kyparissia). The implementation of the relevant projects, with a budget around EUR 33 million is proposed in the NSRF.
3. The development of a System of Traffic Data Collection and Treatment.
4. The creation of two manuals (“Inspection of Bridges” and “Evaluation of Bridges”) in order to assist the agencies in planning, prioritising and implementing interventions on bridges for the improvement in the level of road safety.
5. The development of a Framework for the Configuration of a Gear System at the National Road Network (Technical Instructions) and, according to this, a study for the determination of reliable speed limits in the Axes of Andirrio - Ioannina, Patras - Pyrgos, Thessaloniki - Strymonas and Northern Arterial Road in Crete.
6. The monitoring of driving behaviour on the National Road Network, with the installation of electronic speed control devices (radar) in about 400 points (approx. EUR 13 million).
7. The creation of a better road environment.
   It includes actions such as: the implementation of a remote management and control system of the lighting network (approx. EUR 2 million), a study on the coding and implementation of a new kilometre marking in axes of the National Road Network, the creation of an electronic Road Register and an electronic Accidents Register.
8. The improvement of road safety in the cities.
   It includes the following actions: The studies for the improvement of road safety in dangerous locations in the Athens conurbation, in locations in Attica and in the Thessaloniki conurbation. The budget of the relevant projects is approximately EUR 8.5 million.

More specifically, concerning the 2005-2010 projects (contracts), the following are completed or to be completed:

- Implementation of short-term interventions (after the elaboration of relevant studies on identification and proposals) in sections and locations of reduced road safety in the following Axes:
  - Petalo Maliakou, Loggos-Raches section
  - Korinthos - Patras (P.A.TH.E. Road) - Pyrgos - Olympia
  - Thessaloniki - Strymonas
  - Antirrio - Ioannina
  - North Road Axis of Crete (B.O.A.K.)
  - Iraklio - Rethymno (Old National Road)
  - Chania - Airport
  - Rhodes - Lindos
  - Thessaloniki - Kilkis - Promachonas (Old National Road)
  - Thessaloniki - Polygyros
  - Thessaloniki - Edessa - Borders with Prefecture of Florina
  - Thiva - Livadia - Amfissa - Nafpaktos
  - Kerkira - Gyros Achilliou
  - Kerkira - Paleokastritsa
  - Preveza - Igoumenitsa
  - Trikala - Ioannina
- Tripoli - Megalopoli - Kalamata
- Kalo Nero - Kyparissia - Methoni
- Kalo Nero - Tsakona
- Tripoli - Sparti - Gytheio
- Road connecting the Larisa - Farsala National Road with the P.A.TH.E. Highway (via Vamvakou)
- Lamia - Domokos - Neo Monastiri - Farsala - Vamvakous Intersection.
- Short-term interventions (after carrying out a relevant study) in low road safety sections and locations to six (6) existing projects of B.O.A.K.
- Interventions (after the elaboration of a relevant study) to deal with hazardous intersections and pedestrian locations in the Antirrio - Ioannina Axis.
- Supply, installation and maintenance of electronic speed control mechanisms in dangerous locations of the National Road Network.
- Pilot implementation of remote management and control of lighting networks in sections of the National Road Network, from the toll of Afitnes to the estuary of Kifissos river.
- Modification of speed limits in the Corinth - Patras and Corinth - Tripoli Axes.

The following actions for road safety were also implemented:

- Maintenance, improvement, modification, extension and operation of signalling installations at intersections of the Attica Region.
- Maintenance, improvement and installation of islands of green on the following roads:
  - Varis - Koropiou and Lavriou Avenue
  - Vouliagmenis, Argiroupolioes, Alimou, Ilia iliou and other roads
  - G. Lampraki, P. Ralli, Chamosternas, Syggrou, Pireos and other roads
  - Athinon , Kifissou, Schistou - Scaramanga Avenues and other roads
  - Mesogeion, Kifissias, Kymis, Alimou - Katechaki and other roads
  - Poseidonos, Ethnarchou Makariou and other roads.
- Marking of the road network of Attica Region.
- General maintenance, supply and change of bulbs in light signalling installations.
- Completion of a second connection of Perama with Schistou Avenue in the section from Tinos street to the Ikoniou Avenue node.
- Junction at grade on the Peta - Kouvaras road on the Old National Road of Stavros - Lavrio.
- Enhancement, improvement and maintenance of road lighting installations in the regions of Attica.
- Pavement maintenance of Kifissos Avenue from Poseidonos Avenue to Treis Gefyres (Regoukou exit) and other locations on the road network.
- Maintenance of underground crossings for pedestrians and vehicles at roads of the Attica Region.
- Construction of lighting, light signalling nodes and remote management of lighting on the Aspropyrgos road, from K.P. 0+000 to K.P. 12+162.
- Maintenance - improvement of road pavement, horizontal and vertical signage and modification of the level of wells in Attica.
- Completion of the improvement - reconstruction and maintenance of an Elefsina - Thives Old National Road section.
- Improvement of the Ippiko Kentro Node - Kalyvia - Lagonisi - Anavysos road section.
- Repair, maintenance and replacement of damaged metal guardrails and placing new ones in the southern and eastern regions of Attica.
- Removal of illegal billboards on the road network.


With regard to the maintenance and operation of roads, Law 3481/2006 (Article 7) and Decision Δ17α/06/52/ΦΝ 443/20-3-2007 of the Minister for the Environment and Public Works, according to which the G.G.D.E. is mainly competent only for the Primary Urban Road Network (P.A.O.D.) of the former Attica Prefecture, are implemented. In general, the Regions and the Municipalities (as of 1-1-2011, under the “Kallikratis” plan, there are no more Prefectures) are responsible for the maintenance and operation of the road network (except for the highways and the ex Municipality of Attica).

The Road Register is implemented by the D.M.E.O. of Yp.YPO.ME.DI. with the following three projects:

- “Creation of a Road Network Database” for the primary, secondary, tertiary national and primary and secondary provincial road network
- “Road network registration”
- “Development of a GIS and development of National Road Register applications”.

The “Creation of a Road Network Database” project recorded road network length of 49,542 km. For the implementation of the “Road network registration” project, information was collected based on on-site registration of the trans-European road network sections with modern recording systems. Geometric elements were collected concerning the superstructure of a total length of about 900 km. The “Development of a GIS and development of National Road Register applications” project aims primarily in designing and developing applications in a geographical information systems environment for the integrated management of data and incidents on the road network.
2.2.1.3. General Secretariat of Co-Funded Public Works

Over the last decade, the former Ministry of the Environment, Physical Planning and Public Works, contributed to the improvement of road safety in Greece with large public works, which are still under construction or have been delivered. Specifically, in the period 2005 - 2010, the construction of roadwork of a total budget of around 10 billion began, the majority of which is related to the construction of modern highways by concession contracts, including Egnatia Odos (the Egnatia Motorway), the Ionian Road and the Corinth - Tripoli - Kalamata, Maliakos - Kleidi, Central Greece E65 and Elefsina - Corinth - Patras - Pyrgos - Tsakona highways.

2.2.1.4. New measures of the Ministry of Transport, Infrastructure and Networks

In December 2009, the Minister for Infrastructure, Transport and Networks announced the following measures to be taken on road safety by the Ministry of Infrastructure, Transport and Networks:

- Assessment of the impact on road safety during the initial designing stage before the approval and construction of the project.
- Road Safety inspections. Ranking and security management of the road network in operation (network reliability inspection, visibility conditions etc.).
- Study on all dangerous locations and creation of a phone line for any complaint regarding incomplete marking or other problems.
- Implementation of and adherence to the rules for the placement of billboards, simplification of the mechanism of removing illegal signs and determination of installation points in the major cities and the main road network, in cooperation with the Local Government.
- Gradual horizontal marking (STOP) with letters on the road at intersections.
- Adoption of measures that enhance the supply of modern road safety equipment, like helmets for motorcyclists and special seats for infants and young children.
- Implementation of a programme for safe stops/stations of public transport.
- Enhancement of technical surveillance methods (radars etc.) of driving behaviour.
- Reform of the examination system of candidate drivers.
- Obligatory use of seatbelts by all drivers.
- Cooperation with Municipalities for free sidewalks by removing all obstacles and signs. Pilot implementation in Municipalities.
- Change of town planning regulations for the minimum sidewalk width (from 2.10 to 3 metres).
- Complete prohibition of the use of a mobile phone in any way by professional bus drivers.
- Programme for safe access to schools, by ensuring the existence of pedestrian crossings over central streets (bridges, pedestrian roads, etc.).
- Study on a swifter access to hospitals.
- Connection of the bonus malus (affecting the premium level) with offences (point system) and not just with accidents.
- Stricter control of tachographs for trucks.
- Cleaning Traffic Signs Programme.
- Constant controls against aggressive and dangerous driving
- Specifications for installing public utility posts (in relation to visibility, occupation of space etc.).
- Development and maintenance of a database of road incidents, with data on the prevailing conditions related to road incidents, the management and restoration measures, their effectiveness and the impact on traffic.
- Obligation of the media to broadcast social messages about road safety.

2.2.2. Ministry of Citizen Protection

The target set by the Greek Police Headquarters was to reduce the number of fatalities in road accidents by 50% in 2010 compared to 2000, according to the 2nd Road Safety Strategic Plan (2006 - 2010). In order to achieve this goal, the frequency of inspections on driving under the influence of alcohol, speeding and the use of passive safety instruments (seat belt - helmet) was increased, awareness-raising campaigns for road users were implemented (Traffic Police reports, workshops, lectures in schools, to farmers, foreigners, etc.) and Road Safety Parks are opened.

The Directorate of the Traffic Police formed the Accident Prevention Audit Groups (O.E.P.T.A.). The groups carry out audits throughout the national and provincial road network and help to ensure that drivers comply with the traffic regulations and prevent violations that endanger human life.

Moreover, the Greek Police Headquarters set the target for a strict application of the new Road Traffic Code provisions (2007), in order to deal strictly with infringements such as speeding, driving under the influence of alcohol or other substances, not wearing a seat belt or a helmet, not giving way to other vehicles and traffic light violation. According to the Drivers' Behaviour Control System of the new Road Traffic Code, driving licences are withdrawn and drivers committing dangerous infringements are re-examined. The new provisions of the Road Traffic Code also aim at the improvement of the training system of drivers and the intensification of the technical inspections of vehicles.

The Road Traffic Police aims at increasing the electronic surveillance (using a photo RADAR), as well as the controls on driving under the influence of alcohol.
Furthermore, the Directorate of the Road Traffic Police participates in educational programmes for students in Traffic Education Parks and in primary and secondary education, in the subject of traffic education.

The Road Traffic Police, based on statistics, submits written proposals in order to shape laws and provisions aiming at the protection of all road users. It also issues leaflets in order to inform and raise awareness among road users, especially during periods of increased traffic (vacation periods, holidays).

The Road Traffic Police Services are recording the road locations where placing billboards should be banned and after the classification process all the data will be sent to the competent Directorates of the Ministry of the Interior, in order to examine the possibility of issuing a relevant Ministerial Decision.

2.2.3. Ministry of Health and Social Solidarity

The Ministry of Health and Social Solidarity (former Ministry of Health and Welfare) formed a committee on road safety, which created a programme of related actions. The programme was submitted to the Inter-Ministerial Committee on Road Safety, but it was not implemented because the required funds were not approved.

Within the National Centre for Emergency Care (EKAV) it was made possible to develop and provide services related to informing specifically about road safety issues, such as child seats, driving in tunnels, the particularities of elderly drivers, choosing a safe car, behaviour after the accident etc. Furthermore, within the framework of the EKAV Sector for the Prevention of Accidents, including inter alia a cooperation with professional bodies such as the Technical Chamber of Greece (TCG) for the publication of handbooks, the participation in conferences on road accidents etc., but also with the other emergency services (EL.AS. - Fire Brigade) for joint actions and training. The treatment of victims after road accidents also plays an important role. To 2006, 0.01 First Aid Stations and 1.93 staff members corresponded to 10,000 citizens. The number of patient beds per 10,000 citizens was 46.2 and the average response time of the ambulance services was 15 minutes.

In 2008, the Ministry of Health and Social Solidarity developed the National Action Plan for Accidents 2008 - 2012. The Action Plan for Accidents is included in the National Action Plan for Public Health and concerns inter alia road accidents and incidents in other means of transport. The National Action Plan aims at reducing substantially the morbidity and mortality rate due to unintentional injuries and at improving the pre-hospital and hospital care, by setting realistic goals and putting into use the good practices of other countries.
Specifically, with regard to road accidents, the National Action Plan aims at enhancing road safety by informing doctors, the public and the relevant committees about diseases and health conditions that affect driving in a negative way. The National Action Plan for Accidents 2008 - 2012 also aims at preventing any damage that may be caused by prolonged immobility. The National Action Plan for Accidents describes a series of actions in order to achieve these targets.

At the same time, the Ministry of Health and Social Solidarity also developed a National Action Plan for the Reduction of the harmful effects of alcohol on health (2008 - 2012). Alcohol in the body has diverse pharmacological and toxic effects and affects the function of many systems. The increase in road accidents is one of the effects depending on the density of alcohol in the blood.

The National Action Plan for the Reduction of the harmful effects of alcohol on health (2008 - 2012) aims at reducing, by 2012, the road accidents related to alcohol by 20%.

It is noted that during the drafting of the report it was not possible to collect data neither on the implementation process of the National Plan for Accidents 2008 - 2012 and the National Action Plan for the Reduction of the harmful effects of alcohol on health 2008 - 2012 nor their potential effect to date.

2.2.4. Ministry of Education, Lifelong Learning and Religious Affairs

Road Traffic Education is one of the primary targets of both primary and secondary education. To this end, actions related to Road Traffic Education are included in the individual subjects of the curriculum (Language, Environmental Studies, etc.) at all educational levels. Since September 2010, the reformed teaching schedule and curriculum of 800 all-day elementary schools, which will have a single revised curriculum, include one teaching hour in the third grade for activities relating to Road Traffic Education issues.

Apart from this, the Ministry of Education, Lifelong Learning and Religious Affairs gives specific emphasis to Traffic Education and implements Health Education programmes, 30% of which is related to the Road Traffic Education - Accidents, which is one of the main axes of Health Education. Within the Third Community Support Framework (3rd CSF), during the 2005 - 2006 school year, the following educational material was created on “Road Traffic Education - Accidents” and is now in elementary and secondary schools:

• Road Traffic Education - Accidents”, Centre for Research and Child Injury Prevention-Medical School, University of Athens, 20,000 manuals, 240 videotapes and 240 x 20 slides.

This educational material is used for the implementation of Traffic Education programmes in primary and secondary education schools. Moreover, during the school year 2005 - 2006, selected educational material on Road Traffic Education - Road Safety was sent to schools in former Prefectures of Attica, Thessaloniki, Achaia, Larisa and Iraklio and to the Health Education Officials of primary education of the other former Prefectures of the country. This material is mandatorily applicable to students of all primary schools.

In the context of experiential education, pupils put into practice the theoretical knowledge that they have acquired during the implementation of Health Education programmes in primary education, within Road Traffic Education, in the seventy operating Road Safety Parks. For the safety of primary education students, there are also “Volunteer School Traffic Wardens”.

In the educational field, both teachers and Officials for Health Education on Road Safety issues have been trained by the Aristotle University of Thessaloniki. Also, in June 2005, an eighty-hour training seminar was organised by the Ministry of Education, Lifelong Learning and Religious Affairs, in collaboration with the National Youth Foundation for the Officials for Health Education in Primary Education, concerning the development of skills in the Health Education field.

In the school year 2006 - 2007, there was a training for Officials for Health Education in Secondary Education with an eighty-hour seminar organised by the Accident Prevention Centre of the School of Medicine, University of Athens, and a training for Officials for Health Education in Primary and Secondary Education, with a one hundred and forty-hour seminar, partly on road traffic education.

As for the school year 2008 - 2009, Road Traffic Education programmes were implemented in primary and secondary schools of the previous Prefectures of Attica, Thessaloniki, Rethymno and Chalkidiki, supported by the relevant educational material “Moving in safety”, available in the competent Ministry agencies.

In the same school year, the Institute of Child Health organised, under the auspices of the Ministry, a three-day seminar on the “Development of a National Policy for a Health Promotion School”, at “Agia Sofia” Children's Hospital, for Officials for Health Education in elementary and secondary schools and Youth Consultants (S.S.N.). The biggest part of the seminar was dedicated to information on modern European Road Safety Programmes.
2.2.5. Ministry of Administrative Reform and Electronic Governance

Since 2007, volunteering “School Traffic Wardens” receive a monthly allowance to cover their travel costs. The allowance is paid by the school committees to the volunteering “School Traffic Wardens” who offer services to elementary schools, where necessary for the protection of pupils due to traffic conditions, and who are not part of the school staff or the respective Municipality.

Proposals were addressed to the Ministry of Administrative Reform and Electronic Governance for the modification of the speed limits of vehicles, the establishment of safer conditions in hazardous locations, the installation of separators, traffic lights and electronic speed recording systems, the construction of temporary parking areas in the new highways and the installation of signs on variable traffic flow near junctions of the centre of Athens. There is no available evidence as to the implementation of most of these proposals.

Regarding the issue of billboards, the Ministry of Administrative Reform and Electronic Governance has repeatedly pointed out with circular instructions to local government bodies that the problem of delinquency in this area is not only ineffectively dealt with, but it is constantly aggravated, contributing even more to the further degradation of the urban environment and road safety.

2.3. Evolution of basic road safety figures in Greece

As shown in Figure 2.3, from 2000 to 2004 the number of road accidents and related fatalities and injuries is decreasing. The number of fatalities in particular, was reduced by 20% between 2000-2002.
Note: The data for 2010 is provisional.

**Figure 2.3. Evolution of the number of road accidents, injuries and fatalities in Greece, 2000 - 2010 (Source: EL.STAT., ETSC Processing: D.T.P.E. / N.T.U.A.)**

Figure 2.4 shows the number of fatalities in road accidents in Greece for the period 2000 - 2010, in combination with the target set by the European Union and the 2nd Strategic Plan for the improvement of road safety in Greece from 2000 to 2010. The assessment of the implementation of the 1st and 2nd Strategic Plan and the overall assessment of road safety for the implementation period (2000 - 2010) are presented in section 2.5.
Figures 2.5, 2.6 and 2.7 show the number of fatalities in road accidents per million population in the European Union for the years 2000, 2005 and 2010 respectively. As shown in the graphs, Greece occupied the second worst place, after Latvia, in 2000, the third worst place in 2005, after Lithuania and Latvia, and the worst place in 2010, with 113 deaths per million population. The horizontal line represents the average for the European Union. **In 2010, the number of fatalities in road accidents per million population in Greece is almost twice the European average (62 deaths per million population).**
Figure 2.5. Number of road fatalities per million population in the European Union, 2000 (Source: CARE database)

Figure 2.6. Number of road fatalities per million population in the European Union, 2005 (Source: CARE database)
2.4. Institutional and organisational framework for road safety in Greece

2.4.1. Other responsible Ministries

The Ministries competent for road safety issues in Greece are:

2.4.1.1. Ministry of Infrastructure, Transport and Networks (Yp.YPO.ME.DI.)

At the Ministry of Infrastructure, Transport and Networks (Yp.YPO.ME.DI.) the following General Secretariats are competent for road safety issues: General Secretariat of Infrastructure, Transport and Networks (former General Secretariat of Transport), the General Secretariat of Public Works (G.G.D.E.) and the General Secretariat of Co-financed Public Works (G.G.S.D.E.).

➢ General Secretariat of Infrastructure, Transport and Networks (General Secretariat of Yp.YPO.ME.DI.)

The General Secretariat of Infrastructure, Transport and Networks (former General Secretariat of Transport)
Law 3897/2010 (Government Gazette, Series I, No 208/10.12.2010) established the Directorate General for Road Traffic Safety, within the General Secretariat for Infrastructure, Transport and Networks of Yp.YPO.ME.DI., which is composed of the following units:

- Directorate for Road Traffic
- Directorate for the Technical Inspection of Vehicles
- Directorate for Vehicle Technology

The Directorate General for Traffic Safety is an evolution of the existing Road Safety Directorate and its Departments and its responsibilities include:

- the coordination of the operation of its service units, the editing of the schedule of administrative activities and the evaluation of the quality of administrative results, in conjunction with the financial and organisational cost of related actions.
- the specialisation of governmental policy on road safety, within the hierarchy framework, and the elaboration of proposals for the selection and organisation of the administrative means necessary to this end.
- the communication and cooperation with bodies supervised by the Ministry, with the relevant agencies of other Ministries, and agencies of the public and private sector engaged in related policies, in order to promote actions for the improvement of the level of road safety in Greece.

The Road Traffic Directorate consists of the following Departments:

- a. Department for Road Safety and Coordination
- b. Department for Driving Licences and Road Traffic Rules
- c. Department for the Training of Drivers

The Directorate of Technical Inspection of Vehicles consists of the following departments:

- a. Department of Technical Inspection of Vehicles
- b. Department for the Development of Private Vehicle Technical Control Centres (P.V.T.C.C.)
- c. Department for Technical Support and Supervision of Vehicle Technical Control Centres (V.T.C.C.)
- d. Department of Special Audits

The Directorate for Vehicle Technology consists of the following Departments:

- a. Department for Vehicle Technology
- b. Department for Vehicle Type Approval
- c. Facilities Department

➢ **General Secretariat of Public Works (G.G.D.E.)**

The General Secretariat of Public Works of the Yp.YPO.ME.DI., the Directorate General of Transportation Projects deals with the planning, design and construction of road works on the main road network in Greece, as well as the main road network of Athens.
With regard to the maintenance and operation of roads, Law 3481/2006 (Article 7) and Decision Δ17α/06/52/ΦΝ 443/20-3-2007 of the Minister for the Environment and Public Works, according to which the G.G.D.E. is mainly competent only for the Primary Urban Road Network (P.A.O.D.) of the former Attica Prefecture, are implemented. In general, the Regions and the Municipalities (as of 1-1-2011, under the “Kallikratis” plan, there are no more Prefectures) are responsible for the maintenance and operation of the road network (except for the highways and the P.A.O.D. of the former Attica Prefecture).

Regarding road safety issues, the following services are mainly competent:

- Directorate of Road Works Maintenance (D3)
- Directorate of Road Works Design (D.M.E.O.).


- **General Secretariat of Co-Funded Public Works (G.G.S.D.E.)**

  The Directorate General for Transportation Works with Concession Contracts (General Secretariat for Co-funded Public Works of the Yp.YPO.ME.DI.) includes the individual Special Public Works Agencies (E.Y.D.E.) for each group of concession works dealing with planning, studies, construction, maintenance and operation of major road projects with concession contracts.

  The urgent need for a unified and coordinated approach to road safety issues by all of the above Yp.YPO.ME.DI. agencies is highlighted.

### 2.4.1.2. Ministry of Citizen Protection (Y.P.t.P)

The Road Traffic Police (Ministry of Citizen Protection) is responsible for road traffic, for the compliance with the Road Traffic Code and the necessary measures, both preventive and suppressive, for the safe circulation of all vehicles and pedestrians, in the entire road network.

Moreover, the Hellenic Coast Guard Headquarters were established and are responsible for the surveillance of ports. In this context, the staff of the Hellenic Coast Guard Headquarters is responsible for recording road accidents that occur in the port areas of the country, for complementing the corresponding Road Accidents Bulletins (D.O.T.A.) and their mission in the local Traffic Police agencies.
2.4.1.3. Ministry of Health and Social Solidarity (Y.Y.K.A.)

The Ministry of Health and Social Solidarity is responsible for the treatment and rehabilitation of the physical, mental and social well being of the person involved in a road accident. In addition, the responsibilities of the Ministry concerning road safety are related to the National Centre for Emergency Care (E.K.A.B.), the Centre for Research and the Prevention of Injuries of Children and Young People (K.E.P.P.A.), and the Forensic Medicine and Toxicology Institute.

2.4.1.4. Ministry of Education, Lifelong Learning and Religious Affairs (Y.P.D.V.M.TH.)

The role of the Ministry of Education, Lifelong Learning and Religious Affairs is related to teaching about road safety in schools and student visits to Road Safety Parks.

2.4.1.5. Ministry of Administrative Reform and Electronic Governance (Y.D.M.I.D.)

The Ministry of Administrative Reform and Electronic Governance is responsible for the surveillance of regional and local authorities on road safety issues at a local level. Regions and Municipalities are responsible for the design and construction of provincial and municipal roads and for issues related to vehicle licences and V.T.C.C. With regard to maintenance, Regions and Municipalities are responsible for the entire road network of the country, except for Concession Axes, the other highways and the P.A.O.D. of the former Attica Prefecture.

2.4.2. Institutions

2.4.2.1. Inter-ministerial Committee on Road Safety

The Inter-ministerial Committee on Road Safety (Government Gazette, Series I, No 63/27-01-2010) was established for the proper cooperation and coordination of the competent bodies and it involves the following persons:

The President:
- Minister for Infrastructure, Transport and Networks,

and the members:
- Minister for Citizen Protection,
- Minister for the Interior, Decentralisation and Electronic Governance,
- Minister for Health and Social Solidarity,
- Minister for Education, Lifelong Learning and Religious Affairs,
- Minister for the Economy, Competitiveness and Shipping.

The responsibilities of the Inter-ministerial Committee on Road Safety include:
• The elaboration of a national policy on road safety and the examination of issues relating to road safety in the country.
• The elaboration of short and long-term programmes and the monitoring of their implementation,
• The coordination of the competent agencies for the collection and processing of statistical and other information and taking measures in order to reduce road accidents and the consolidate road safety,
• The monitoring of the implementation of national policy on road safety, the supervision of actions and the evaluation of their results.

2.4.2.2. Secretariat of the Inter-ministerial Committee on Road Safety

Under the same decision (Government Gazette, Series II, No 63/27-01-2010) the Secretariat of the Inter-ministerial Committee on Road Safety is also established under the responsibility of the Minister for Infrastructure, Transport and Networks, in order to provide administrative assistance to the Inter-ministerial Committee. The Secretariat shall have the following duties:

• To assist the Inter-ministerial Committee in monitoring the implementation of the road safety policy defined by relevant decisions of the Inter-ministerial Committee,
• To recommend to the Inter-ministerial Committee to coordinate relevant research programmes implemented by the competent Ministries,
• To evaluate the results of these programmes,
• To coordinate the communication and joint actions between the competent Ministries, under the decisions of the Inter-ministerial Committee,
• To undertake any responsibility assigned to it by decision of the President of the Inter-ministerial Committee, who also regulates any other issue concerning that function.

The Secretariat is staffed with qualified personnel seconded from another competent Road Safety Ministry or any body of the broader public sector, by decision of the President of the Inter-ministerial Committee determining the exact number of the staff and the time of secondment, which may be extended, in a similar way (or by a new decision), if necessary.

2.4.2.3. Special Permanent Parliamentary Committee on Road Safety

The Special Standing Parliamentary Committee on Road Safety has been functioning since 1996. The interparty Committee is composed of 15 members and aims at investigating the causes of road accidents and submitting proposals to the Ministers competent for creating the conditions for a safer movement of persons and goods. Since its establishment, the Special Standing Parliamentary Committee on Road Safety shall meet at long intervals.
2.4.2.4. National Road Safety Council (N.R.S.C.)

In December 2010, a bill was adopted providing for the establishment of a “National Road Safety Council” in the Ministry of Infrastructure, Transport and Networks (Government Gazette, Series I, No 208/10-12-2010). The National Road Safety Council (N.R.S.C.) functions directly under the responsibility of the Minister for Infrastructure, Transport and Networks and has an advisory role. The N.R.S.C., within its advisory mission, shall:

a) assess the studies and the research that it deems useful for the promotion of knowledge on road safety,

b) carry out assessments on implemented actions,

c) be updated and evaluate the measures taken in the country and internationally and which are related to the improvement of road safety and make relevant suggestions and recommendations to the Inter-ministerial Committee on Road Safety,

d) cooperate with the authorities competent for road safety from other countries and international organisations, by exchanging information on the implementation of modern practices in accordance with the conditions of the country. It shall ensure the promotion of road safety issues by all appropriate means and

e) draft an annual report to the Inter-ministerial Committee on Road Safety.

The N.R.S.C. is composed of the Secretary General of the Ministry of Infrastructure, Transport and Networks (Chairman), representatives of bodies active in the field of road safety and two prestigious experts in this field (members). In order to facilitate its work, it requests information and data from the competent bodies and agencies which have to deliver it on time.

Until the submission of the present report, the N.R.S.C. has held six meetings. At the first N.R.S.C. meeting (April 2010), participants were informed about the institutional framework of its establishment and submitted a series of proposals for the organisation and planning of specific actions for the improvement of road safety.

At the second meeting (June 2010), the inclusion of road traffic education in the new curricula, from kindergarten to high school, was discussed and decided. At the same time, the cooperation between the Ministry of Infrastructure, Transport and Networks and the Ministry of Education, Lifelong Learning and Religious Affairs was decided, for the fully exploitation of the Traffic Education Parks across the country. The target is for students to acquire practical experience, except for the theoretical one, by practising safe road behaviour when visiting Traffic Education Parks.
Road safety in the urban fabric, was the topic of the third N.R.S.C. meeting (October 2010). Before the meeting, a representative of the Ministry of Education, Lifelong Learning and Religious Affairs provided information on the evolution of the actions related to the topic discussed at the second N.R.S.C. meeting, i.e. traffic education and its integration into the educational process.

The topic of the fourth N.R.S.C. meeting (December 2010) was the amendment - reform of the Road Traffic Code provisions.

The fifth N.R.S.C. meeting was held on 15 March 2011 and the topic was the presentation of the Strategic Plan under preparation for the improvement of road safety in Greece, 2011 - 2020.

At the sixth N.R.S.C. meeting (April 2011), the topic discussed was the reform of the institutional framework for the training - examination of candidate drivers and the operation of Driving Schools and Theoretical Education Centres for Candidate Drivers.

2.4.3. Local government

2.4.3.1. Regions

Pursuant to Law 3852/2010 (Government Gazette, Series I, No 87/07.06.2010) “New Architecture of Local Government and Decentralised Administration - Kallikratis Plan”, Article 186, the powers of Regions in section E.: “Transport - Communications” and regarding road safety include:

- Granting, reviewing and withdrawing driving licences for vehicles and the special licence for passenger vehicles of public use (V.P.U.).
- Withdrawing the circulation licence of the intercity bus for the same calendar year.
- Establishing the Disciplinary Board that imposes sanctions on public transportation bodies and bus owners.
- Organising the periodic technical control of motor vehicles of all kinds by the Public Vehicle Technical Control Centres (V.T.C.C.) of each Prefecture, in accordance with Article 18(3a) of Law 3446/2006 (Government Gazette, Series I, No 49).
- Determining the number of new passenger cars of public use, with or without a metre. This is necessary for addressing the transport needs of each Prefecture.
- Keeping a Register with the licences of cars of public use and their drivers.
- Planning and carrying out exams, forming selection committees and granting certificates of professional competence to the graduates of Schools for the Professional Training of Transport Operators for carrying passengers or goods.
- Authorising the establishment and operation of private V.T.C.C. and withdrawing, temporarily or permanently, their licence if the conditions under which it was granted are no longer satisfied.

The powers of the Regions’ bodies in section F.: Works - Physical Planning - Environment” include:
• Constructing, maintaining and renovating roads, the maintenance of which was the responsibility of the Region and the respective former Prefectures.
• Conducting studies on the maintenance and improvement works of the roads, the maintenance of which was the responsibility of the Region and the respective former Prefectures.
• Planning, designing, constructing and maintaining transport, anti-flood, building, electromechanical and marine works.
• Carrying out traffic studies and audits on these studies.
• Exercising powers relevant to road traffic issues, such as measuring, marking roads the maintenance of which was the responsibility of the Region and the respective former Prefectures, signalling and lighting.
• Implementing the studies, supplementing and adapting studies on transportation works, and conducting additional studies.
• Receiving and storing all kinds of supplies and sign maintenance materials and handling and storing signs.

2.4.3.2. Municipalities

Pursuant to article 94 of the above mentioned Law 3852/2010 (Government Gazette, Series I, No 87/7-6-2010) “New Architecture of Local Government and Decentralised Administration - Kallikratis Plan”, the road traffic related competences of the Municipalities include, under section “Quality of Life and Proper Functioning of Cities”, studies on works for the maintenance and improvement of the road network under the responsibility of the Municipality, carrying out traffic and signalling studies and carrying out and supervising signalling and lighting works on the road network of the Municipality. Also, section “Rural Development - Livestock - Fisheries” the responsibilities of the Ministry include conducting studies and carrying out technical infrastructure works of local significance, related to agriculture, livestock and fisheries, particularly those associated with rural roads.

2.4.4. Other Ministries

Apart from the bodies described above, other ministries and a number of other organisations and NGOs also participate in activities for the improvement of road safety in Greece.

2.4.4.1. Ministry of Finance

The Ministry of Finance deals indirectly with the issue of road safety as the Coordinating Ministry of the financial sector of the country. In particular, it manages public investments in regional policy and development, finances public works and addresses the socio-economic impact of road accidents.
2.4.4.2. Ministry of Justice

The competence of the Ministry of Justice on the issue of road safety is related to the civil liability to compensate the driver who is not responsible for the accident and the other victims and in dealing with the negligence of drivers of harmful vehicles and any criminal consequences.

2.4.4.3. Ministry of Defence

The Ministry of Defence is responsible for selecting drivers among conscripts, their training and granting them the necessary licence to drive military vehicles. The types of military vehicles vary and include: simple cars, four-wheel vehicles, buses, trucks, tracked vehicles, machinery for technical works and many other special vehicles and machinery (e.g. for the needs of the Air Force). The training centres for drivers and special operators have been gathered in a small number of units with training staff, teaching aids etc.

With regard to maintenance and technical controls of military vehicles, most autonomous units have circulation desk and a maintenance team composed of military and civilian personnel. For complex types of maintenance, the vehicles are sent to external private maintenance facilities.

The results of the actions of the Ministry of Defence, with respect to the training of drivers and special operators, can be improved in cooperation with the Ministry of Education, Lifelong Learning and Religious Affairs and the Ministry of Infrastructure, Transport and Networks. Cooperation with the Ministry of Infrastructure, Transport and Networks is also possible on issues related to the technical control of military vehicles.

2.4.4.4. Ministry of Rural Development and Food

According to Road Traffic Code, the Ministry of Rural Development and Food is responsible for the circulation of agricultural machinery. Each imported machine is expected to be tested by the Institute of Agricultural Engineering of Greece or another country. For these issues, it is suggested that the Ministry of Rural Development and Food should cooperate with the Ministry of Infrastructure, Transport and Networks. The training of farmers in agricultural machinery is carried out in Agricultural Training and Applications Centres across the country.
2.4.4.5. Ministry of Labour and Social Security

The Ministry of Labour and Social Security is not directly competent for road safety. However, its responsibilities are related to addressing the impact of road accidents, providing insurance protection through insurance companies, granting sickness benefits in kind and money and invalidity or survivor’s pensions to family members in case of a fatal accident.

2.4.4.6. Ministry of Development, Competitiveness and Shipping

The Ministry of Development, Competitiveness and Shipping, in particular the General Secretariat of Commerce, is in charge of supervising the private insurance institution and especially the control on insurance companies operating in Greece. Therefore, its competence on road safety would concern the economic and social consequences of road accidents and compensations for physical injuries and property damage.

2.4.5. Universities and Research Centres

The Universities of the country, in particular the National Technical University of Athens (with the following Departments: Transportation Planning and Engineering of the School of Civil Engineering and Rural Technology and Development of the School of Rural and Surveying Engineering) and the Aristotle University of Thessaloniki (with the following Departments: Transport, Infrastructure, Management and Regional Planning Engineering of the School of Civil Engineering and Transportation and Hydraulic Engineering of the School of Rural and Surveying Engineering), as well as the Universities of Thessaly, Patras and Thrace, have carried out significant work over the last twenty five years, on issues related to road safety, with particular emphasis on the analysis of the causes of road accidents, both at national and European level. With their strong participation in various international and national research projects, they have gained significant experience, which might prove helpful for the improvement of road safety in Greece.

The Centre for Research and the Prevention of Injuries of Children and Young People (K.E.P.P.A.) has been operating since 1991, under the scientific supervision of the Department of Hygiene and Epidemiology, University of Athens. The activities of the K.E.P.P.A. for the improvement of road safety in Greece include social awareness-raising on the number and impact of road accidents, participating in the development and prompting the implementation of the legislation on road safety issues, cooperating and coordinating actions with other agencies for preventing road accidents.
The **Hellenic Institute of Transport** (HIT) has been operating since 2000 as part of the National Centre for Research and Technological Development (E.KE.T.A.) which is a legal person governed by private law, supervised by the Ministry of Education, Lifelong Learning and Religious Affairs and located in Thessaloniki. The HIT mainly aims at conducting and supporting applied research in the transport sector in Greece and over the last years it has been involved in several research projects (mainly European) on road safety.

### 2.4.6. Non-governmental organisations

#### 2.4.6.1. Technical Chamber of Greece (T.C.G.)

The Technical Chamber of Greece (T.C.G.) was founded in 1923 and is a public law body with elected administration. According to the rules of the Greek State, as a public law entity, it is supervised by the former Ministry of the Environment, Physical Planning and Public Works. The T.C.G. aims at promoting science in the fields related to the specialisation of its members, techniques and technology in general, and their use for the economic, social and cultural development of the country within the principles of sustainability and environmental protection. In the context of its objective, the T.C.G. is the Technical Adviser of the Government.

Especially with regard to the improvement of road safety, the T.C.G. participates in organising related conferences and workshops and sends memos on road safety issues to the relevant ministries. As part of its efforts, on October 2004, it decided the establishment and operation of the Road Safety Observatory to help coordinate actions and interventions of scientific bodies and strengthen the efforts of the State and the Government to implement an integrated road safety plan and effectively address the complex technical, economic, social and administrative phenomenon of road accidents. The purpose of this Committee is to record systematically the status quo regarding road safety and to submit concrete proposals for solutions.

#### 2.4.6.2. Hellenic Institute of Transportation Engineers (H.I.T.E.)

The Hellenic Institute of Transportation Engineers (H.I.T.E.) was founded in 1976 and has currently several members, the vast majority of which are specialised Transportation Engineers (mainly graduates from University Departments of Civil and Surveying Engineering) of the private and the public sector and they are responsible for planning, designing, implementing, operating, maintaining and using transport systems.

During the course of its activities, the H.I.T.E. was the Adviser of Public Services and Agencies and is widely accepted as a valid interlocutor supporting decision making, due to its objectivity and scientific approach to problems in the transport sector.
The H.I.T.E. includes a Road Safety Committee and its activities for the improvement of road safety include conferences aiming exclusively at road safety, participation in relevant conferences and workshops and the processing and publication of proposals to the Ministries. The H.I.T.E. also participated in an Interparty Parliamentary Committee of the Hellenic Parliament which had been set up in order to study the problem of road accidents (1995).

2.4.6.3. Automobile and Touring Club of Greece (E.L.P.A.)

The Automobile and Touring Club of Greece (E.L.P.A.) is a charitable association designed to develop and strengthen automobilism and touring, following the patterns of similar organisations worldwide. The E.L.P.A. was founded in 1924. In 1927, its Thessaloniki branch was established, as well as the Standing Committee on Racing, and it joined relevant international federations. After 1955 it developed further its activities and in 1960 the Road Assistance division (O.V.E.L.P.A.) was founded, a novelty for Greece at the time.

The E.L.P.A. aims at developing, organising and strengthening transportation by car or motorcycle, as well as touring and tourism, and to promote, encourage and organise all forms of land motorsport in Greece. Also, services are provided to Greek and foreign motorists and motorcyclists and they are guided in order to move safely and to respect and protect the environment.

The E.L.P.A., especially with regard to road safety, also dealt with the signalling and mapping of the country’s road network. With its initiative, there were radio and television broadcasts on road safety, lectures were organised in schools, additional efforts were made in order to process data on road accidents and signs were installed in schools.

The E.L.P.A. participated in advisory committees on traffic and Road Traffic Codes in almost every committee of the Ministry of Infrastructure, Transport and Networks, the National Road Safety Committee and the National Road Safety Council (N.R.S.C.) of the Yp.YPO.ME.DI.

2.4.6.4. Hellenic Association of Insurance Companies (E.A.E.E.)

The Hellenic Association of Insurance Companies (E.A.E.E.) is the recognised trade association for all Insurance Businesses in Greece.

The history of the Association begins in 1907. Until 1987 there were three insurance associations which were merged into the E.A.E.E. in view of the developed interdependence of the international markets and financial services and of the course towards a single European insurance market. Today, the Hellenic Association of Insurance Companies has the form of a trade association based in Athens with approved statutes and as members insurance companies operating legally in Greece.
The Board shall create six Standing Committees in order to facilitate its work. The Committees shall elaborate, study and manage, under the approved programme and budget, any issue relating to their sector or field of expertise.

It should be noted that according to the results of the annual survey of the Hellenic Association of Insurance Companies, carried out among the companies - members, among the different kinds of insurance losses (according to insurance premia in 1998) “Land vehicles’ liability” occupies the first place with 56%, followed by “Fire and natural forces” with 15%.

Therefore, the reasons for the interest of the E.A.E.E. for the establishment of committees such as the Accidents Committee and the Committee of Research, Prevention and Control of Car Accidents are obvious.

The E.A.E.E., through the Committee of Research, Prevention and Control of Car Accidents, has carried out actions for many years, aiming at reducing road accidents in the country. The Union’s action includes proposals and pressure for drastic measures by the competent bodies of the State, informing citizens, especially children, on road safety issues and providing economic or logistical support (machinery, printed material, etc.) in order to enhance road safety in the country.

2.4.6.5. Hellenic Association for Road Traffic Victims Support (E.Y.THY.T.A.)

E.Y.THY.T.A is a non-profit, non-governmental organisation in the field of road safety. It was founded on January 9, 1997 by an initiative group (scientists from various fields, victims, victims’ relatives and simply interested persons). E.Y.THY.T.A. aims at supporting victims of road accidents with a team of consultants (lawyers, doctors, engineers, experts and psychologists), developing solidarity among the victims of road accidents, adopting a common effort to protect particularly vulnerable users (e.g. children and the elderly people), intervening in an organised way and putting social pressure on the institutions of the State for the improvement of road safety and the reduction of the victims of road accidents.

The activities of E.Y.THY.T.A. for the improvement of road safety include: publishing brochures, participating in conferences of other competent bodies in Greece and internationally for the information of citizens etc. E.Y.THY.T.A. resources derive from events, subscriptions and publications. The informative events are sponsored.

The association has branches in various cities of Greece. The Rhodes branch, operating since June 2004, is remarkably active and supported by scientists, relatives of victims of road accidents and people sensitive on road safety issues, and collaborates with agencies of the public and private sector and with European institutions and organisations.
2.4.6.6. **Road Safety Institute (R.S.I.) - Panos Mylonas**

The “Hellenic Research and Educational Institute “Panos Mylonas” for the Road Safety and the Prevention and Reduction of Traffic Accidents”, was founded in May 12th 2005 on the occasion of the death of student Panos Mylonas. It is a non-profit Organisation founded by University Institutions, business bodies, an auditing firm and individuals.

The Institute aims to support and promote actions that advance road safety and traffic education, as well as study, research, information and education sectors mainly aiming at the prevention and reduction of traffic accidents. The main objective of “Panos Mylonas” Institute is the awareness of citizens and authorities in the fields of information and protection on road safety and moreover, the additional strengthening and support of the Greek State in order to provide and enforce effective measures and policies that promote traffic education, road safety and the reduction of traffic accidents in Greece.

2.4.6.7. **Hellenic Motorcyclists Federation (MOT.O.E.)**

The MOT.O.E. is the only secondary organisation of motorcyclists in Greece. It brings together 75 associations (clubs) of motorcyclists across the country. In about twenty-five years of operation it has been active in intervening to defend and promote the rights of motorcyclists. It participates in the committees of the Ministry of Infrastructure, Transport and Networks on road safety, on processing traffic regulations, drafting and reforming the examination manuals for candidate drivers and general issues relating to the motorcycles. It also cooperates with the Ministry of Citizen Protection for the proper implementation of traffic regulations.

Since 1989 and for three years (in collaboration with the sub Ministry of Youth) training seminars for education observers were organised (with the participation of many clubs of MOT.O.E.). The collaboration with the “Royal Society for the Prevention of Accidents” (RoSPA), which continues until today, aims at training officers who will subsequently offer, as instructors, free educational programmes through MOT.O.E. clubs across Greece. The target is to train, not those who do not have a driver’s licence, but especially those who do and want to improve their skills.

2.4.6.8. **Bicycle Friends (Filoi tou Podilatou)**

The association “Filoi tou Podilatou” (“Bicycle Friends”) was founded in 1986 to promote the use of the bicycle as a means of everyday transport and recreation both in the city and outside it. The first meeting of the group took place on 17/12/1986 after the circulation of a poster - call to all cyclists in Athens. The group acquired the legal form of an association in 1989. The activities of the “Bicycle Friends” include collaborations and meetings with decision making bodies (competent ministries, Municipalities, development clubs, etc.) and social institutions such as the Therapy Centre for Dependent Individuals (KE.TH.E.A.).
"Bicycle Friends" issued the magazine "To Podilato" ("The Bike") in 1991. The association was a founding member of the "Alternative Ecologists" Federation. Since 1997, "Bicycle Friends" have been celebrating the "Car-Free Day" by organising events every September, long before it was established by the Greek State.

2.4.6.9. National Confederation of Disabled People (NCDP)

The National Confederation of Disabled People is the tertiary socio-trade body of the disability movement in the country. It was founded in 1989 by organisations of persons with disabilities and their families, in order to defend issues of common interest concerning all types of disabilities and provide an independent and powerful body representing people with disabilities and their families to the Greek State and society. Today, the National Confederation of Disabled Persons is officially a social partner for issues related directly or indirectly to people with disabilities and strives to promote policies conducive to a full participation in the social, economic, political and cultural life of the country.

At a national level, the Confederation fights to protect and defend human and social rights of people with disabilities, weaken social prejudices and discrimination. It tries to equalise opportunities for persons with disabilities in all aspects of life and ensure a decent standard of living and full integration into society. The Confederation, as the most representative organisation on disability, participates in decision-making and represents people with disabilities in their dialogue with the Greek State.

The Confederation, aiming to create a European policy framework for disability focused on equal opportunities and anti-discrimination and not to the belief that people with disabilities are passive recipients of care and charity, is in contact with a wide network including National Councils of People with Disabilities of other member states and acceding member states of the European Union.
2.5. Assessment of the implementation of the previous Strategic Plans for the improvement of road safety in Greece

2.5.1. 1st Strategic Plan (2001 - 2005)

For the improvement of road safety in Greece, the 1st Strategic Plan was aiming at the reduction of the number of fatalities in road accidents, in relation to the death toll for 2000, by 20% by 2005. The evolution of key road safety indicators in Greece from 2000 to 2005 is presented in Table 2.3. As shown in Table 2.3, the reduction of the number of fatalities in the period 2000 - 2005 was 18.6%, close to the target set. The reduction in the number of road accidents and injuries was 26.5% and 28.3% respectively.

The reduction in the number of accidents, deaths and injuries during the five year period 2001 - 2005 may be attributed mainly to the intensification of surveillance and other measures implemented during this period under the Strategic Plan. It should be noted that there was neither effective monitoring and evaluation of actions nor effective coordination after 2003. Also, the place of Greece related to the number of fatalities per million population did not improve compared to the other member states of the European Union (Figure 2.5, 2.6).

Table 2.3. Basic road safety indicators in Greece, 2000 - 2005

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<tbody>
<tr>
<td>Road accidents with injuries</td>
<td>23,001</td>
<td>19,671</td>
<td>16,809</td>
<td>15,751</td>
<td>15,509</td>
<td>16,914</td>
<td>-26.5%</td>
</tr>
<tr>
<td>Number of deaths</td>
<td>2,037</td>
<td>1,880</td>
<td>1,634</td>
<td>1,605</td>
<td>1,670</td>
<td>1,659</td>
<td>-18.6%</td>
</tr>
<tr>
<td>Number of injuries</td>
<td>30,763</td>
<td>26,336</td>
<td>22,459</td>
<td>20,737</td>
<td>20,179</td>
<td>22,048</td>
<td>-28.3%</td>
</tr>
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</table>

2.5.2. 2nd Strategic Plan (2006 - 2010)

The aim of the second Strategic Plan was the reduction of the number of road fatalities in 2010 by 50% compared to 2000. Table 2.4 shows the evolution of key road safety indicators in Greece for the period 2000 - 2010.

As shown in Table 2.4, the reduction in the number of road fatalities during the period 2000 - 2010 is 37.1%. As shown in Table 2.4, the divergence from the target is bigger than the respective divergence of the 1st Strategic Plan and may be due to the fact that the target of the 2nd Strategic Plan was more ambitious and that the dynamics for the improvement of road safety achieved in the 1st Strategic Plan were not sufficiently used. The reduction in the number of road fatalities and injuries was 34.5% and 39.0% respectively. It should be noted that during the period 2002 - 2008 the number of fatalities is stabilised (Figure 2.4), whereas, after 2008 there is a reduction.
The stabilisation in the number of fatalities during the period 2004 - 2008 is linked to the exhaustion of the dynamics developed during the first period 2000 - 2002 and to the lack of effective monitoring and evaluation of actions. The improvement and implementation of the Road Traffic Code in June 2007 was a positive development for the reduction of accidents. The initiative of the President of the Hellenic Republic to be personally involved in the issue of road safety with his speech in the relevant NTUA “Road Safety” event on June 3, 2008 was of particular importance for the further reduction of accidents in the period 2009-2010, (http://www.ntua.gr/announcements/RoadSafety.pdf). However, it is noted that in 2010, as in 2005 (with the 1st Strategic Plan), there was no improvement in the place occupied by Greece, in relation to the other member states of the European Union, concerning the number of road fatalities (Figure 2.5, 2.6, 2.7).

**Table 2.4. Basic Road Safety Indicators in Greece, 2005 - 2010**
(Source: EL.STAT., ETSC Processing: D.T.P.E. / N.T.U.A.)

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</thead>
<tbody>
<tr>
<td>Road accidents with injuries</td>
<td>23,001</td>
<td>16,019</td>
<td>15,499</td>
<td>15,083</td>
<td>15,897</td>
<td>15,072</td>
<td>-34.5%</td>
</tr>
<tr>
<td>Number of deaths</td>
<td>2,037</td>
<td>1,657</td>
<td>1,612</td>
<td>1,553</td>
<td>1,456</td>
<td>1,281</td>
<td>-37.1%</td>
</tr>
<tr>
<td>Number of injuries</td>
<td>30,763</td>
<td>20,675</td>
<td>19,766</td>
<td>19,010</td>
<td>18,641</td>
<td>18,778</td>
<td>-39.0%</td>
</tr>
</tbody>
</table>

Note: The data for 2010 is provisional.

As mentioned, the reduction in the number of fatalities during the period 2000 - 2010 was 37.1%. Consequently, although there is a significant decrease in the number of fatalities, there is also a significant divergence from the target set both in Greece and in the European Union.

**2.5.3. Total assessment of the period 2001 - 2010**

The period 2001 - 2010 may be described as another, poorly used period for road safety in Greece, as the efforts of the State and the citizens could have been much more effective in order to achieve more targets. Key road safety indicators were reduced, but these improvements were among the least important in the European Union and Greece, during this decade, maintained one of the last places on road safety among the 27 Member States of the European Union.
The failure to achieve the target set at EU level to reduce road fatalities in Europe in 2010 by 50% compared to the number of fatalities in 2000 and the fact that this target was redefined (Section 4.1.2.8.), does not justify complacency.

The lack of systematic and quantitative monitoring of the actions and the results of the two Road Safety Strategic Plans (2001 - 2005 and 2006 - 2010), despite the detailed and systematic provisions in these plans, resulted in the absence of aggregated and reliable data on the evaluation of their success. General evaluation analyses based on available data lead to the following conclusions:

The General Secretariat of Public Works of the Ministry of the Environment, Physical Planning and Public Works (currently YPO.ME.DI) carried out specific actions for road safety. However, the necessary organisation and coordination and the possibility to satisfy all guidelines set in the Strategic Plan were not always achieved.

An intervention programme was developed for roads in low safety positions-sections and many short- and some medium-term interventions were implemented. However, it was not fully implemented because of the complete lack of resources and the delays in finalising the planning and starting the programme.

Furthermore, the fact that Regions are responsible for the maintenance and operation, and in many cases the construction or improvement of roads (excluding highways and the P.A.O.D. of the former Attica Prefecture), sometimes resulted in poor coordination and reduced support of actions related to road safety. Moreover, because of the limited financing of road maintenance and the considerable faults and deficiencies of the road network, part of the road safety actions that were carried out may be considered related to the regular maintenance of roads which, although positive for road safety, do not qualify as a special improvement measure.

Similarly, although the construction of new highways has contributed to the improvement of the general level of road safety in the country, it does not qualify as specific action.

Specifications for studies on road safety have been set but they were not of a general nature. Finally, the planning of actions for Road Safety Audit was delayed.

These shortcomings, partly due to the lack of a clearly defined organisational framework with sufficient funding and research, have hampered the anticipated benefits for road safety.

It should be noted that actions have been carried out for the improvement of road safety through interventions of the Technical Services of the former Prefectures and the Municipalities in hazardous locations. However, there is no systematic monitoring of these interventions, therefore it is not possible to evaluate neither the size of these programmes nor their influence on road safety.
The General Secretariat of the Ministry of Transport and Communications (current G.G.YPO.ME.DI.) has taken measures that may contribute to the reduction of the number of road accidents and victims. However, it is noted that they are mostly long-term measures which are not expected to have an immediate impact on road safety in Greece. The results of the implementation of the proposed measures are expected to be visible in a few years, provided that the implementation of the related actions is consistently pursued. In the case of the former Y.M.E., though, there is a shortfall in the research related to road accidents. The lack of resources and a well-defined organisational framework were the main reasons for the inadequate support of Regional Services (former Prefectures) to the implementation of effective actions for the improvement of the abilities of drivers (examinations) and the suitability testing of vehicles (V.T.C.C., controls on heavy vehicles, hazardous loads). Furthermore, significant improvements in the institutional framework did not have the expected results because they were not accompanied by a corresponding programme for a systematic monitoring of their implementation.

The actions of the Ministry of Public Order (current Ministry of Citizen Protection) mainly focused on the intensification of surveillance by increasing the number of audits. The number of audits on driving under the influence of alcohol, infringements on speed limits and non-use of seat belt, although increasing every year (except in 2004), is insufficient according to international standards and the reliability of the data needs to be confirmed in each case. Overall, the actions of the Ministry of Public Order are a worthwhile effort for the improvement of road safety, but further intensification, better methods and duration of surveillance actions, an improved recording system of road accidents and the development of actions to determine the existing delinquency, are required. The further staffing of the Road Traffic Police and the appropriate training of its staff are crucial for the effective continuation of the surveillance programme. Only a sufficient and adequately trained staff of Municipalities and Regions can contribute to the implementation of a surveillance programme with results similar to those in European states developed in the field of road safety.

Shortfalls are also identified in the implementation of the programme of the Ministry of Health and Welfare (current Ministry of Health and Social Solidarity), which is still under planning and preparation. Important efforts were made for the improvement of the equipment and organisation of the E.K.A.B. emergency care units at the scene of the accident. However, the lack of resources and effective actions have prevented until today the establishment of necessary injury centres in hospitals for the effective decrease of the impact of road accidents and the effective use of the crucial post-accident hour.

Regarding the role of the Ministry of Education, Lifelong Learning and Religious Affairs, the course “Road Traffic Education” was included in the reformed curriculum only in September 2010 and only in 800 elementary schools.

Weaknesses were also identified in the coordination of individual actions, the monitoring of their implementation and the ongoing assessments - valuations of the implementation of actions and their influence on road safety. Without systematic and quantitative monitoring of actions and results, it is impossible to redefine the measures in order to allow the optimal use of any available funding.
The overall evaluation of the implementation of the two five-year Strategic Plans makes it obvious that this is essentially the **first comprehensive attempt to address the problem** of road accidents in our country. It was a first step for the improvement of road safety and **laid the foundation for effectively addressing the problem**. However, there were serious deficiencies regarding the coordination and monitoring of the implementation of the Strategic Plans, as the support mechanism of the Inter-ministerial Committee did not function and the necessary resources for the funding of the actions were never granted. Consequently, the efforts of all relevant and competent bodies remained limited.

The Inter-ministerial Committee on Road Safety operated (without a support mechanism) during the period 2001 - 2003 and was re-established in January 2010. The mission of this Committee was to shape a national policy on road safety, elaborate short and long term programmes, coordinate the relevant Agencies and Bodies, collect statistics and take measures to reduce road accidents and monitor this policy. For the fulfilment of this mission, the Special Secretariat of the Inter-ministerial Committee needs to operate effectively.

For the substantial improvement of road safety in Greece, the issues that rose during the implementation of the two previous Strategic Plans should be addressed and systematic, lasting and coordinated efforts should be made, with the strong commitment and cooperation of all bodies of the State, in accordance with the provisions of the Strategic Plan, 2011 - 2020.
3

Recording, analysis and evaluation of the critical factors of road safety in Greece

3.1. Evaluation of the existing level of road safety

3.1.1. General trends

This section sets out the general trends in Greece related to road safety and the place occupied by the country among the other countries in the European Union.

Figure 3.1 shows the evolution of the number of road fatalities per million population in Greece, in relation to the corresponding average ratio in the European Union for the period 1991 - 2010. During this period, there was almost a continuous downward trend in the European Union, whereas for Greece the curve follows a less steady downward trend.

Also, while in 1991 the mortality rate in Greece was by 33% higher than the average rate of the European Union, in 2010 it was almost twice as high. This is mainly due to the fact that the level of road safety in other European countries improved more than it did in Greece during this period, as a result of more serious efforts by these countries to reduce road accidents and their impact. In Greece, after a period of a clear decrease in the number of road fatalities, there is a dangerous stabilisation of the number of fatalities for the period 2004 - 2008.
Figure 3.1. Number of road fatalities per million population in Greece and in the European Union 1991 - 2010
(Source: CARE, ETSC database, 2011)

As mentioned above (Section 2.3), Greece, despite the significant reduction in the number of deaths over the last decade, occupies the worst place concerning the issue of road safety in Europe, with the largest number of fatalities per million population, even compared to the new EU member states. Figure 3.2 shows the percentage of road fatalities in residential areas in the European Union in 2008. One of the highest percentages of road fatalities in residential areas is recorded in Greece. This may be explained by the increased circulation of motorcyclists and pedestrians due to the good weather conditions.
Table 3.1 shows the evolution of the number of fatalities and the fatality indicator per million of circulating vehicles and per million population, and the number of circulating vehicles for the period 1991 - 2009 in Greece. The trend was upward until 1998, except in 1997, whereas from 1998 to 2009 there is a reduction in figures, except for 2004.
Table 3.1. Number of road fatalities and fatalities indicator per million of circulating vehicles and per million population in Greece, 1991 - 2009 (Source: EL.STAT. Processing: D.T.P.E. / N.T.U.A.)

<table>
<thead>
<tr>
<th>Year</th>
<th>Fatalities</th>
<th>Circulating vehicles</th>
<th>Fatalities / Million of circulating vehicles</th>
<th>Fatalities / Million population</th>
</tr>
</thead>
<tbody>
<tr>
<td>1991</td>
<td>1,790</td>
<td>2,888,009</td>
<td>620</td>
<td>176</td>
</tr>
<tr>
<td>1992</td>
<td>1,829</td>
<td>2,989,336</td>
<td>612</td>
<td>177</td>
</tr>
<tr>
<td>1993</td>
<td>1,830</td>
<td>3,195,324</td>
<td>573</td>
<td>176</td>
</tr>
<tr>
<td>1994</td>
<td>1,909</td>
<td>3,375,607</td>
<td>566</td>
<td>182</td>
</tr>
<tr>
<td>1995</td>
<td>2,043</td>
<td>3,588,852</td>
<td>569</td>
<td>193</td>
</tr>
<tr>
<td>1996</td>
<td>2,157</td>
<td>3,797,234</td>
<td>568</td>
<td>202</td>
</tr>
<tr>
<td>1997</td>
<td>2,105</td>
<td>4,048,471</td>
<td>520</td>
<td>196</td>
</tr>
<tr>
<td>1998</td>
<td>2,182</td>
<td>4,323,118</td>
<td>505</td>
<td>202</td>
</tr>
<tr>
<td>1999</td>
<td>2,116</td>
<td>4,690,412</td>
<td>451</td>
<td>195</td>
</tr>
<tr>
<td>2000</td>
<td>2,037</td>
<td>5,060,885</td>
<td>402</td>
<td>187</td>
</tr>
<tr>
<td>2001</td>
<td>1,880</td>
<td>5,389,996</td>
<td>349</td>
<td>172</td>
</tr>
<tr>
<td>2002</td>
<td>1,634</td>
<td>5,693,008</td>
<td>287</td>
<td>149</td>
</tr>
<tr>
<td>2003</td>
<td>1,605</td>
<td>5,967,610</td>
<td>269</td>
<td>146</td>
</tr>
<tr>
<td>2004</td>
<td>1,670</td>
<td>6,302,033</td>
<td>265</td>
<td>151</td>
</tr>
<tr>
<td>2005</td>
<td>1,658</td>
<td>6,640,613</td>
<td>250</td>
<td>150</td>
</tr>
<tr>
<td>2006</td>
<td>1,657</td>
<td>6,995,659</td>
<td>237</td>
<td>149</td>
</tr>
<tr>
<td>2007</td>
<td>1,612</td>
<td>7,380,265</td>
<td>218</td>
<td>144</td>
</tr>
<tr>
<td>2008</td>
<td>1,553</td>
<td>7,729,262</td>
<td>201</td>
<td>138</td>
</tr>
<tr>
<td>2009</td>
<td>1,456</td>
<td>7,910,565</td>
<td>184</td>
<td>129</td>
</tr>
</tbody>
</table>

The data for the year 2009 shows that 64.9% of the total number of vehicles circulating in Greece (2009) corresponds to passenger cars, 18.3% to motorcycles, 16.5% to trucks and less than 1% to buses (Figure 3.3). The total number of circulating vehicles in Greece in 2009 is 7,910,565. This number may include a limited number of vehicles which have been withdrawn but not removed from the relevant records.
In addition, more than 1,000,000 mopeds (two-wheel vehicles with a <50 cc engine) have been recorded by the Ministry of Citizen Protection.

Figure 3.4. shows that almost 40% of passenger cars and motorcycles in Greece are over 10 years old.

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**Figure 3.3.** Rates of passenger vehicles, buses, trucks and motorbikes to the total number of vehicles in 2009 (Source: EL.STAT.)

**Figure 3.4.** Distribution of passenger vehicles and motorbikes by age of vehicle (Source: Ministry of Infrastructure, Transport and Networks)
3.1.2. Features of road accidents

The following paragraphs describe the special features of road accidents in Greece. Table 3.2 shows the evolution of the number of road fatalities in Greece for the period 1991 - 2009 by category (road user, age group, driver’s sex, area type, weather conditions, lighting conditions, place of accident). Table 3.3 shows the percentages and their modification during the same period. Tables 3.2 and 3.3 only show certain categories of road users and accidents, of particular interest either because of the increased percentage of fatalities or the significant modification during the period 1991 - 2009.

Table 3.3 shows a significant increase in the percentage of dead motorcyclists, elderly drivers, and drivers and cyclists of other nationalities. Specifically, the percentage of dead motorcyclists in road accidents during the period 1991 - 2009 increased by 28% and the corresponding percentage for older drivers increased by 68%. These percentages reveal the increased vulnerability of these two categories of road users in Greece. There was also a significant increase in the percentage of dead drivers and cyclists of other nationalities, which may be attributed to the growth of tourism and immigration in Greece during the last decade.

In 2009, 66% of the total number of road fatalities in the country were drivers of vehicles and approximately 14% were pedestrians. Interestingly, as shown in Table 3.3, young drivers (<24 years old) represent 12% of road fatalities mainly because of the insufficient experience of new drivers and their dangerous driving behaviour. Elderly drivers (> 65 years old), represent 9% of the total number of road fatalities. This is mainly due to the fact that older people need more time to react.
Table 3.2. Number of road fatalities in Greece, 1991 - 2009
Table 3.3. Percentages of road fatalities in Greece, 1991 - 2009

<table>
<thead>
<tr>
<th>Year</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>1991</td>
<td></td>
</tr>
<tr>
<td>1992</td>
<td></td>
</tr>
<tr>
<td>1993</td>
<td></td>
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<td>1994</td>
<td></td>
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<td>1995</td>
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<td>1999</td>
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<td>2001</td>
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<td>2002</td>
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<td>2003</td>
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<td>2004</td>
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<td>2005</td>
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<td>2006</td>
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<tr>
<td>2007</td>
<td></td>
</tr>
<tr>
<td>2008</td>
<td></td>
</tr>
<tr>
<td>2009</td>
<td></td>
</tr>
</tbody>
</table>
Table 3.4 shows the numbers and percentages of road accidents and related fatalities and the accident severity rate (deaths per 100 accidents), depending on the type of road and the area, in Greece for the year 2009. Approximately 50% of the fatalities occur in residential areas and the ratio of people killed per 100 accidents (severity) is 3-4 times higher on national and provincial roads in relation to municipal and community roads. This is mainly due to the fast speed on these roads and the poor design and maintenance of the roads.

**Table 3.4. Number and percentage of road accidents and fatalities and severity indicator depending on the type of road and the area, 2009 (Source: EL.STAT. Processing: D.T.P.E. / N.T.U.A.)**

<table>
<thead>
<tr>
<th>Road Type</th>
<th>Residential area</th>
<th>Non-residential area</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>National</td>
<td>673</td>
<td>1,971</td>
<td>2,644</td>
</tr>
<tr>
<td>Provincial</td>
<td>544</td>
<td>1,060</td>
<td>1,604</td>
</tr>
<tr>
<td>Municipal/Community</td>
<td>10,236</td>
<td>193</td>
<td>10,429</td>
</tr>
<tr>
<td>Other road</td>
<td>23</td>
<td>89</td>
<td>112</td>
</tr>
<tr>
<td>Total</td>
<td>11,476</td>
<td>3,313</td>
<td>14,789</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>%</th>
<th>Residential area</th>
<th>Non-residential area</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>78%</td>
<td>22%</td>
<td>100%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Road Type</th>
<th>Residential area</th>
<th>Non-residential area</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>National</td>
<td>113</td>
<td>475</td>
<td>588</td>
</tr>
<tr>
<td>Provincial</td>
<td>89</td>
<td>258</td>
<td>347</td>
</tr>
<tr>
<td>Municipal/Community</td>
<td>441</td>
<td>47</td>
<td>488</td>
</tr>
<tr>
<td>Other road</td>
<td>3</td>
<td>30</td>
<td>33</td>
</tr>
<tr>
<td>Total</td>
<td>646</td>
<td>810</td>
<td>1,423</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>%</th>
<th>Residential area</th>
<th>Non-residential area</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>48%</td>
<td>52%</td>
<td>100%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Road Type</th>
<th>Residential area</th>
<th>Non-residential area</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>National</td>
<td>17</td>
<td>24</td>
<td>22</td>
</tr>
<tr>
<td>Provincial</td>
<td>16</td>
<td>24</td>
<td>22</td>
</tr>
<tr>
<td>Municipal/Community</td>
<td>4</td>
<td>24</td>
<td>5</td>
</tr>
<tr>
<td>Other road</td>
<td>13</td>
<td>34</td>
<td>29</td>
</tr>
<tr>
<td>Total</td>
<td>6</td>
<td>24</td>
<td>10</td>
</tr>
</tbody>
</table>

Table 3.5 shows the number of fatalities in road accidents by accident type for the period 2000 - 2009. The table shows that the majority of deaths occur in offset frontal collisions. The percentage of fatalities in the cases of dragged pedestrians, frontal collisions and accidents where the vehicle drifts to the right, is also increased.
Table 3.5. Number of road fatalities by type of accident, 2000 - 2009  

<table>
<thead>
<tr>
<th>Type of accident</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>Modification percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Head-on collision</td>
<td>231</td>
<td>283</td>
<td>212</td>
<td>234</td>
<td>195</td>
<td>212</td>
<td>181</td>
<td>198</td>
<td>197</td>
<td>197</td>
<td>12.8%</td>
</tr>
<tr>
<td>Offset frontal collision</td>
<td>430</td>
<td>355</td>
<td>406</td>
<td>360</td>
<td>376</td>
<td>349</td>
<td>366</td>
<td>342</td>
<td>322</td>
<td>299</td>
<td>21.5%</td>
</tr>
<tr>
<td>Side collision</td>
<td>71</td>
<td>71</td>
<td>52</td>
<td>34</td>
<td>46</td>
<td>72</td>
<td>58</td>
<td>61</td>
<td>68</td>
<td>50</td>
<td>3.5%</td>
</tr>
<tr>
<td>Rear-end collision</td>
<td>112</td>
<td>115</td>
<td>96</td>
<td>92</td>
<td>117</td>
<td>104</td>
<td>86</td>
<td>82</td>
<td>99</td>
<td>104</td>
<td>6.0%</td>
</tr>
<tr>
<td>Collision with train</td>
<td>12</td>
<td>10</td>
<td>6</td>
<td>15</td>
<td>7</td>
<td>14</td>
<td>11</td>
<td>7</td>
<td>4</td>
<td>7</td>
<td>0.6%</td>
</tr>
<tr>
<td>Parked vehicle</td>
<td>35</td>
<td>30</td>
<td>33</td>
<td>35</td>
<td>26</td>
<td>23</td>
<td>24</td>
<td>23</td>
<td>24</td>
<td>24</td>
<td>1.7%</td>
</tr>
<tr>
<td>Stopped vehicle</td>
<td>10</td>
<td>9</td>
<td>4</td>
<td>1</td>
<td>1</td>
<td>6</td>
<td>7</td>
<td>11</td>
<td>6</td>
<td>7</td>
<td>0.4%</td>
</tr>
<tr>
<td>Vehicle that has interrupted its course</td>
<td>2</td>
<td>4</td>
<td>4</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>5</td>
<td>0.1%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Post or tree</td>
<td>130</td>
<td>141</td>
<td>98</td>
<td>137</td>
<td>134</td>
<td>123</td>
<td>142</td>
<td>120</td>
<td>124</td>
<td>108</td>
<td>7.5%</td>
</tr>
<tr>
<td>Building or other fixed object</td>
<td>105</td>
<td>106</td>
<td>134</td>
<td>127</td>
<td>156</td>
<td>120</td>
<td>119</td>
<td>120</td>
<td>100</td>
<td>116</td>
<td>7.2%</td>
</tr>
<tr>
<td>Dragged pedestrians</td>
<td>355</td>
<td>322</td>
<td>268</td>
<td>248</td>
<td>274</td>
<td>221</td>
<td>263</td>
<td>244</td>
<td>241</td>
<td>188</td>
<td>15.7%</td>
</tr>
<tr>
<td>Dragged animals</td>
<td>3</td>
<td>4</td>
<td>1</td>
<td>3</td>
<td>5</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>0.1%</td>
<td></td>
</tr>
<tr>
<td>Drifting in the opposite direction</td>
<td>46</td>
<td>28</td>
<td>18</td>
<td>14</td>
<td>12</td>
<td>30</td>
<td>24</td>
<td>29</td>
<td>17</td>
<td>19</td>
<td>1.4%</td>
</tr>
<tr>
<td>Drifting to the right</td>
<td>236</td>
<td>194</td>
<td>112</td>
<td>133</td>
<td>156</td>
<td>198</td>
<td>194</td>
<td>167</td>
<td>172</td>
<td>155</td>
<td>10.2%</td>
</tr>
<tr>
<td>Drifting to the left</td>
<td>147</td>
<td>95</td>
<td>89</td>
<td>73</td>
<td>72</td>
<td>109</td>
<td>101</td>
<td>102</td>
<td>89</td>
<td>89</td>
<td>5.8%</td>
</tr>
<tr>
<td>Capsizeing on the road</td>
<td>47</td>
<td>40</td>
<td>23</td>
<td>15</td>
<td>32</td>
<td>28</td>
<td>24</td>
<td>29</td>
<td>40</td>
<td>40</td>
<td>1.8%</td>
</tr>
<tr>
<td>Capsizeing off the road</td>
<td>46</td>
<td>61</td>
<td>54</td>
<td>70</td>
<td>44</td>
<td>29</td>
<td>28</td>
<td>51</td>
<td>40</td>
<td>39</td>
<td>2.7%</td>
</tr>
<tr>
<td>Fire</td>
<td>3</td>
<td>1</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>4</td>
<td>2</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>0.1%</td>
</tr>
<tr>
<td>Other</td>
<td>18</td>
<td>13</td>
<td>24</td>
<td>10</td>
<td>18</td>
<td>14</td>
<td>29</td>
<td>18</td>
<td>13</td>
<td>7</td>
<td>1.0%</td>
</tr>
</tbody>
</table>

Table 3.6 shows the percentages of road accidents, fatalities and heavy and slight injuries during the day, at dusk and during the night in Greece, for the period 2000 - 2009. As shown in the Table, the majority of accidents occur during the day. However, a very significant number of accidents occur during the night. Furthermore, despite the fact that the percentage of accidents has clearly increased during the day, the percentage of fatalities does not differ significantly between day and night. This reveals the greater severity of accidents that occur during the night, mainly due to increased speed, reduced visibility and driving under the influence of alcohol.
Table 3.6. Percentage of road accidents, fatalities, heavy and slight injuries during the day, at dusk and at night, 2000 - 2009 (Source: EL.STAT. Processing: D.T.P.E. / N.T.U.A.)

<table>
<thead>
<tr>
<th>Year</th>
<th>Day time</th>
<th>Dusk</th>
<th>Night time</th>
<th>Day time</th>
<th>Dusk</th>
<th>Night time</th>
<th>Day time</th>
<th>Dusk</th>
<th>Night time</th>
<th>Day time</th>
<th>Dusk</th>
<th>Night time</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>60.0</td>
<td>5.6</td>
<td>34.4</td>
<td>51.5</td>
<td>5.7</td>
<td>42.8</td>
<td>54.2</td>
<td>5.4</td>
<td>40.5</td>
<td>59.9</td>
<td>5.8</td>
<td>34.3</td>
</tr>
<tr>
<td>2001</td>
<td>61.8</td>
<td>5.2</td>
<td>33.2</td>
<td>52.3</td>
<td>5.5</td>
<td>42.2</td>
<td>54.9</td>
<td>4.8</td>
<td>41.3</td>
<td>61.2</td>
<td>5.3</td>
<td>33.5</td>
</tr>
<tr>
<td>2002</td>
<td>60.3</td>
<td>5.6</td>
<td>34.2</td>
<td>53.4</td>
<td>5.2</td>
<td>41.4</td>
<td>52.1</td>
<td>6.1</td>
<td>41.8</td>
<td>60.2</td>
<td>5.8</td>
<td>34.2</td>
</tr>
<tr>
<td>2003</td>
<td>59.0</td>
<td>5.4</td>
<td>35.6</td>
<td>48.7</td>
<td>6.8</td>
<td>44.5</td>
<td>51.4</td>
<td>5.8</td>
<td>42.8</td>
<td>58.7</td>
<td>5.5</td>
<td>35.7</td>
</tr>
<tr>
<td>2004</td>
<td>59.7</td>
<td>5.5</td>
<td>34.8</td>
<td>49.9</td>
<td>5.8</td>
<td>44.4</td>
<td>51.9</td>
<td>5.9</td>
<td>42.2</td>
<td>59.6</td>
<td>5.3</td>
<td>35.1</td>
</tr>
<tr>
<td>2005</td>
<td>60.5</td>
<td>5.1</td>
<td>34.4</td>
<td>52.6</td>
<td>4.9</td>
<td>42.3</td>
<td>52.2</td>
<td>5.4</td>
<td>42.4</td>
<td>60.2</td>
<td>5.1</td>
<td>34.7</td>
</tr>
<tr>
<td>2006</td>
<td>60.8</td>
<td>5.0</td>
<td>34.2</td>
<td>52.6</td>
<td>4.3</td>
<td>43.2</td>
<td>52.5</td>
<td>4.9</td>
<td>42.6</td>
<td>60.6</td>
<td>5.1</td>
<td>34.3</td>
</tr>
<tr>
<td>2007</td>
<td>61.7</td>
<td>5.3</td>
<td>33.0</td>
<td>54.7</td>
<td>5.0</td>
<td>40.3</td>
<td>52.9</td>
<td>5.1</td>
<td>42.4</td>
<td>61.8</td>
<td>5.4</td>
<td>33.3</td>
</tr>
<tr>
<td>2008</td>
<td>61.6</td>
<td>5.6</td>
<td>33.4</td>
<td>53.1</td>
<td>6.2</td>
<td>40.7</td>
<td>51.4</td>
<td>5.7</td>
<td>42.8</td>
<td>61.6</td>
<td>4.8</td>
<td>33.4</td>
</tr>
<tr>
<td>2009</td>
<td>62.0</td>
<td>5.4</td>
<td>32.7</td>
<td>54.2</td>
<td>4.1</td>
<td>41.8</td>
<td>53.6</td>
<td>4.8</td>
<td>42.2</td>
<td>62.2</td>
<td>5.6</td>
<td>32.2</td>
</tr>
</tbody>
</table>

Note: As “dusk” qualifies the one-hour period after sunrise and the one-hour period before sunset and until sunset.

Table 3.7 shows the number and the percentage of road accidents and fatalities by area and vehicle type in Greece in 2009. As shown in the Table, the largest percentage of fatalities is recorded in a non-residential area with a passenger car, while the majority of accidents occur in a residential area with a passenger car. The percentage of fatalities is also increased in a residential area in the case of two-wheel vehicles (almost double the percentage in a non-residential area).

Table 3.7. Number and percentage of road accidents and fatalities per area and vehicle type, 2009 (Source: EL.STAT. Processing: D.T.P.E. / N.T.U.A.)
Table 3.8 shows the mortality rate (number of fatalities per 100,000 circulating vehicles and depending on the vehicle type) in Greece, in 2008. It is worth noting that the mortality rate for two-wheel vehicles is more than twice the mortality rate for passenger cars, whereas trucks are related to a much lower rate.

Table 3.8. Mortality rate (number of fatalities per 100,000 circulating vehicles) depending on the vehicle type, 2008 (Source: EL.STAT. Processing: D.T.P.E. / N.T.U.A.)

<table>
<thead>
<tr>
<th>Vehicle Type</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>Total</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Passenger vehicles</td>
<td>170</td>
<td>92</td>
<td>311</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trucks</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1,703</td>
<td>16%</td>
</tr>
<tr>
<td>Motorcycles</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1,144</td>
<td>11%</td>
</tr>
</tbody>
</table>

3.1.3. Features of persons involved in road accidents

The evolution of the number of drivers killed in road accidents, by sex and age for the period 2000 - 2009 is shown in Table 3.9. The number of elderly (> 65 years) women drivers killed in road accidents (30) during the period 2000 - 2009 is much lower compared with the respective number of men (1,314), which represents 13% of the total number of deaths for the period from 2000 to 2009. The low number of dead elderly women drivers is also due to the fact that elderly women drive much less than elderly men.

Table 3.9. Number of drivers killed in road accidents by sex and age, 2000 - 2009 (Source: EL.STAT. Processing: D.T.P.E. / N.T.U.A.)

<table>
<thead>
<tr>
<th>Sex of the driver</th>
<th>Age of the driver</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
<th>2003</th>
<th>2004</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>Total</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Man</td>
<td>&lt;14</td>
<td>5</td>
<td>3</td>
<td>1</td>
<td>3</td>
<td>9</td>
<td>7</td>
<td>5</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>45</td>
<td>0%</td>
</tr>
<tr>
<td></td>
<td>15-24</td>
<td>257</td>
<td>274</td>
<td>197</td>
<td>223</td>
<td>214</td>
<td>232</td>
<td>233</td>
<td>199</td>
<td>199</td>
<td>186</td>
<td>2,214</td>
<td>21%</td>
</tr>
<tr>
<td></td>
<td>25-34</td>
<td>268</td>
<td>256</td>
<td>238</td>
<td>233</td>
<td>237</td>
<td>268</td>
<td>276</td>
<td>242</td>
<td>264</td>
<td>228</td>
<td>2,510</td>
<td>24%</td>
</tr>
<tr>
<td></td>
<td>35-44</td>
<td>192</td>
<td>159</td>
<td>160</td>
<td>173</td>
<td>179</td>
<td>167</td>
<td>185</td>
<td>168</td>
<td>152</td>
<td>168</td>
<td>1,703</td>
<td>16%</td>
</tr>
<tr>
<td></td>
<td>45-54</td>
<td>137</td>
<td>100</td>
<td>111</td>
<td>116</td>
<td>107</td>
<td>101</td>
<td>122</td>
<td>120</td>
<td>119</td>
<td>111</td>
<td>1,144</td>
<td>11%</td>
</tr>
<tr>
<td></td>
<td>55-64</td>
<td>105</td>
<td>110</td>
<td>86</td>
<td>80</td>
<td>76</td>
<td>83</td>
<td>66</td>
<td>74</td>
<td>81</td>
<td>92</td>
<td>855</td>
<td>8%</td>
</tr>
<tr>
<td></td>
<td>&gt;65</td>
<td>152</td>
<td>156</td>
<td>125</td>
<td>123</td>
<td>128</td>
<td>123</td>
<td>127</td>
<td>131</td>
<td>129</td>
<td>120</td>
<td>1,314</td>
<td>13%</td>
</tr>
<tr>
<td>Woman</td>
<td>&lt;14</td>
<td>1</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>0</td>
<td>0</td>
<td>8</td>
<td>9</td>
<td>21</td>
<td>0%</td>
</tr>
<tr>
<td></td>
<td>15-24</td>
<td>19</td>
<td>17</td>
<td>11</td>
<td>10</td>
<td>13</td>
<td>11</td>
<td>9</td>
<td>10</td>
<td>15</td>
<td>6</td>
<td>121</td>
<td>1%</td>
</tr>
<tr>
<td></td>
<td>25-34</td>
<td>18</td>
<td>19</td>
<td>13</td>
<td>11</td>
<td>21</td>
<td>24</td>
<td>19</td>
<td>19</td>
<td>20</td>
<td>13</td>
<td>177</td>
<td>2%</td>
</tr>
<tr>
<td></td>
<td>35-44</td>
<td>17</td>
<td>18</td>
<td>13</td>
<td>13</td>
<td>16</td>
<td>12</td>
<td>13</td>
<td>16</td>
<td>11</td>
<td>12</td>
<td>141</td>
<td>1%</td>
</tr>
<tr>
<td></td>
<td>45-54</td>
<td>11</td>
<td>6</td>
<td>11</td>
<td>8</td>
<td>9</td>
<td>6</td>
<td>6</td>
<td>8</td>
<td>11</td>
<td>7</td>
<td>83</td>
<td>1%</td>
</tr>
<tr>
<td></td>
<td>55-64</td>
<td>2</td>
<td>1</td>
<td>6</td>
<td>4</td>
<td>5</td>
<td>2</td>
<td>4</td>
<td>4</td>
<td>2</td>
<td>36</td>
<td>0%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>&gt;65</td>
<td>1</td>
<td>2</td>
<td>2</td>
<td>3</td>
<td>0</td>
<td>5</td>
<td>3</td>
<td>7</td>
<td>3</td>
<td>4</td>
<td>30</td>
<td>0%</td>
</tr>
<tr>
<td>Unknown</td>
<td></td>
<td>8</td>
<td>9</td>
<td>5</td>
<td>10</td>
<td>2</td>
<td>7</td>
<td>9</td>
<td>12</td>
<td>1</td>
<td>63</td>
<td>1%</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>1,193</td>
<td>1,131</td>
<td>979</td>
<td>1,010</td>
<td>1,017</td>
<td>1,053</td>
<td>1,077</td>
<td>1,013</td>
<td>1,020</td>
<td>964</td>
<td>10,457</td>
<td>100%</td>
</tr>
</tbody>
</table>
The number of fatalities in road accidents, by age group, sex and road user category in 2009 is shown in Table 3.10. As shown in the Table, the highest percentages of fatalities are recorded in the 15 - 34 age group and among elderly drivers. In particular, the percentage of dead men is significantly increased among young people, but it decreases with increasing age and increases again for drivers over 65. The percentages related to women follow a trend similar to the one related to men.

Male drivers represent an overwhelming percentage (95%) compared to women. This difference is also significant among road users in general. Specifically, the percentage of dead men in road accidents in 2009 was 83%.

Table 3.10. Number of fatalities by age group, sex and road user category, 2009

<table>
<thead>
<tr>
<th>Age of the Driver</th>
<th>Drivers</th>
<th>Passengers</th>
<th>Pedestrians</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-4 years</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1%</td>
</tr>
<tr>
<td>5-14 years</td>
<td>5</td>
<td>0</td>
<td>4</td>
<td>65%</td>
</tr>
<tr>
<td>15-24 years</td>
<td>186</td>
<td>6</td>
<td>27</td>
<td>17%</td>
</tr>
<tr>
<td>25-34 years</td>
<td>228</td>
<td>13</td>
<td>19</td>
<td>17%</td>
</tr>
<tr>
<td>35-44 years</td>
<td>168</td>
<td>12</td>
<td>13</td>
<td>12%</td>
</tr>
<tr>
<td>45-54 years</td>
<td>111</td>
<td>7</td>
<td>8</td>
<td>8%</td>
</tr>
<tr>
<td>55-64 years</td>
<td>92</td>
<td>2</td>
<td>7</td>
<td>7%</td>
</tr>
<tr>
<td>65+ years</td>
<td>120</td>
<td>4</td>
<td>30</td>
<td>19%</td>
</tr>
<tr>
<td>Unknown</td>
<td>9</td>
<td>0</td>
<td>2</td>
<td>2%</td>
</tr>
<tr>
<td>Total</td>
<td>919</td>
<td>44</td>
<td>153</td>
<td>100%</td>
</tr>
</tbody>
</table>

Table 3.11 shows the mortality rates in road accidents for three age groups (number of road fatalities per million population of the corresponding age group) in Greece, for the year 2007. The population of 2007 is estimated based on the 2001 census. It is observed that elderly drivers have the highest mortality rate compared with other age groups. The increased amount of deaths among elderly drivers may be linked to the aging of the population.

Table 3.11. Mortality rates (number of fatalities in road accidents per million population of corresponding age group), 2007

<table>
<thead>
<tr>
<th>Age</th>
<th>Population</th>
<th>Number of deaths</th>
<th>Mortality rate (deaths / 1,000,000 residents)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-24</td>
<td>3,296,806</td>
<td>365</td>
<td>110.71</td>
</tr>
<tr>
<td>25-64</td>
<td>6,026,278</td>
<td>892</td>
<td>148.02</td>
</tr>
<tr>
<td>&gt;65</td>
<td>1,869,766</td>
<td>330</td>
<td>176.49</td>
</tr>
<tr>
<td>Total</td>
<td>11,192,850</td>
<td>1,587</td>
<td>141.79</td>
</tr>
</tbody>
</table>
Table 3.12 shows the number of accidents, deaths, injuries and non-affected cyclists in Greece for the period 1996 - 2009. The number of fatalities, seriously and slightly injured persons in 2009 was 389, 631 and 5,906 respectively. The decrease in the number of dead bikers between 1996 and 2009, as shown in Table 3.12, is about 18%, while the reduction in the total number of persons killed in road accidents during the same period was bigger than 35%. From a comparison of rates, it is obvious that cyclists represent a vulnerable group of road users which demands greater attention.

### Table 3.12. Number of accidents, fatalities, injuries and non-affected cyclists in Greece, 1996 - 2009

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of accidents</th>
<th>Fatalities</th>
<th>Seriously injured</th>
<th>Slight injuries</th>
<th>Non-affected drivers</th>
</tr>
</thead>
<tbody>
<tr>
<td>1996</td>
<td>10,589</td>
<td>476</td>
<td>1,044</td>
<td>8,027</td>
<td>1,515</td>
</tr>
<tr>
<td>1997</td>
<td>10,963</td>
<td>439</td>
<td>1,434</td>
<td>8,094</td>
<td>1,491</td>
</tr>
<tr>
<td>1998</td>
<td>11,651</td>
<td>491</td>
<td>1,507</td>
<td>8,566</td>
<td>1,636</td>
</tr>
<tr>
<td>1999</td>
<td>11,803</td>
<td>491</td>
<td>1,534</td>
<td>8,709</td>
<td>1,626</td>
</tr>
<tr>
<td>2000</td>
<td>11,084</td>
<td>440</td>
<td>1,408</td>
<td>8,244</td>
<td>1,524</td>
</tr>
<tr>
<td>2001</td>
<td>9,690</td>
<td>426</td>
<td>1,168</td>
<td>7,362</td>
<td>1,254</td>
</tr>
<tr>
<td>2002</td>
<td>8,166</td>
<td>349</td>
<td>848</td>
<td>6,244</td>
<td>1,099</td>
</tr>
<tr>
<td>2003</td>
<td>7,571</td>
<td>331</td>
<td>722</td>
<td>5,919</td>
<td>983</td>
</tr>
<tr>
<td>2004</td>
<td>7,659</td>
<td>380</td>
<td>802</td>
<td>5,885</td>
<td>931</td>
</tr>
<tr>
<td>2005</td>
<td>8,310</td>
<td>421</td>
<td>772</td>
<td>6,526</td>
<td>991</td>
</tr>
<tr>
<td>2006</td>
<td>7,994</td>
<td>442</td>
<td>731</td>
<td>6,209</td>
<td>995</td>
</tr>
<tr>
<td>2007</td>
<td>7,843</td>
<td>414</td>
<td>643</td>
<td>6,147</td>
<td>1,007</td>
</tr>
<tr>
<td>2008</td>
<td>7,785</td>
<td>406</td>
<td>709</td>
<td>6,066</td>
<td>978</td>
</tr>
<tr>
<td>2009</td>
<td>7,475</td>
<td>389</td>
<td>631</td>
<td>5,906</td>
<td>905</td>
</tr>
</tbody>
</table>

Modification percentage 1996 - 2009 -29.41% -18.28% -39.56% -26.42% -40.26%

Subsequently, risk indicators are shown related to road accidents, based on the number of fatalities per million vehicle km. Specifically, risk indicators are presented (number of dead drivers per travelled vehicle kilometres) per vehicle type and driver age in Greece, for the year 2004. Specifically, motorcycles, especially those over 50 cc, are more at risk compared with passenger vehicles for all age groups. Meanwhile, young drivers are the age group with the highest risk indicator, followed by elderly drivers (> 65 years old). The category of motorcycles of over 50 cc, which displays the highest overall risk, is of special interest and presents an even higher risk for young and elderly (> 55 years old) drivers.
Table 3.13. Number of dead drivers, mileage and hazard indicators by driver age and vehicle type, 2004

<table>
<thead>
<tr>
<th>Type of vehicle</th>
<th>Age of driver</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>16-17</td>
<td>16-24</td>
</tr>
<tr>
<td>Two-wheel vehicle &lt;50 cc</td>
<td>4</td>
<td>9</td>
</tr>
<tr>
<td>Two-wheel vehicle &gt;50 cc</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>Passenger vehicle</td>
<td>102</td>
<td>129</td>
</tr>
<tr>
<td>Total</td>
<td>4</td>
<td>195</td>
</tr>
</tbody>
</table>

Vehicle mileage (10^3)

<table>
<thead>
<tr>
<th>Type of vehicle</th>
<th>Age of driver</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two-wheel vehicle &lt;30 cc</td>
<td>84</td>
<td>389</td>
</tr>
<tr>
<td>Two-wheel vehicle &gt;50 cc</td>
<td>480</td>
<td>1,555</td>
</tr>
<tr>
<td>Passenger vehicle</td>
<td>4,672</td>
<td>19,255</td>
</tr>
<tr>
<td>Total</td>
<td>94</td>
<td>5,540</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Type of vehicle</th>
<th>Age of driver</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Two-wheel vehicle &lt;30cc</td>
<td>47.4</td>
<td>23.1</td>
</tr>
<tr>
<td>Two-wheel vehicle &gt;50cc</td>
<td>175.1</td>
<td>54.0</td>
</tr>
<tr>
<td>Passenger vehicle</td>
<td>21.8</td>
<td>6.7</td>
</tr>
<tr>
<td>Average</td>
<td>47.4</td>
<td>35.2</td>
</tr>
</tbody>
</table>

Table 3.14 presents the risk indicators by driver age and area type. Young drivers are more at risk compared with the other driver groups, regardless of the area type. However, the age group 18-24 in non-residential areas is the one most at risk. The category of drivers at increased risk compared to other drivers are elderly drivers (> 65 years), especially in non-residential areas. Furthermore, Table 3.14 shows increased risk in non-residential areas by age group of the driver. This is an expected result, because of the higher speed in non-residential areas compared to residential ones. For young drivers, it should be noted that the differences between residential and non-residential areas are smaller, probably because of the smaller number of vehicle kilometres in non-residential areas.
3.2. Behaviour of drivers

3.2.1. Driving under the influence of alcohol

The intensification of the surveillance of road users in the last decade has contributed to the improvement of the level of road safety in the country. Based on data from the Traffic Police, the number of controls on driving under the influence of alcohol carried out in 2009 has increased by 350% compared to 2000, while the number of deaths in the same period decreased by 29%. It is necessary to note that the reliability of this data might be low because of the often incomplete and inaccurate recording of the controls which are carried out.

As shown by the data, from 2000 to 2004, the increase in the number of controls on driving under the influence of alcohol resulted in a large decrease in the number of road accidents. The number of controls continues to increase until 2009, but the number of road accidents and victims does not continue to decline after 2004, which may confirm the worries about the unreliability of controls and offenses recorded, especially in the second half of this decade.

3.2.2. Use of seat belt, helmet and mobile phone

In Greece the use of seat belts is compulsory for front seats since 1987 and for the rear seats since 2003. The tables below present results of a NTUA survey carried out in 2009 on the use of seat belts and helmets (NTUA, 2009). It should be noted that the recording of seat belt use was limited to drivers and passengers of private cars. Table 3.15 shows the percentages related to seat belt use by region and position in the vehicle (driver, front passenger, passengers), while Table 3.16 shows the corresponding figures for helmet use.

### Table 3.14. Indicators for drivers’ hazard by age and type of location, 2004

<table>
<thead>
<tr>
<th>Type of location</th>
<th>18-24</th>
<th>25-34</th>
<th>34-44</th>
<th>45-54</th>
<th>55-64</th>
<th>&gt;65</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential</td>
<td>40.0</td>
<td>11.9</td>
<td>7.8</td>
<td>4.4</td>
<td>6.0</td>
<td>12.0</td>
<td>10.9</td>
</tr>
<tr>
<td>Non-residential</td>
<td>41.4</td>
<td>12.0</td>
<td>10.6</td>
<td>8.0</td>
<td>9.3</td>
<td>22.8</td>
<td>12.6</td>
</tr>
<tr>
<td>Average</td>
<td>40.6</td>
<td>11.9</td>
<td>9.3</td>
<td>6.4</td>
<td>7.9</td>
<td>17.0</td>
<td>11.8</td>
</tr>
</tbody>
</table>

N.T.U.A. Department of Transportation Planning and Engineering - June 2011
The low percentages of seat belt use by passengers in the rear seats are of particular interest. On urban roads, 72% of the drivers and 68% of front passengers wear a seat belt, while the use by rear seat passengers is extremely limited (only 19%, i.e. about one in five rear seat passengers use seat belts). On inter-urban roads, a much larger percentage of drivers and front passengers wear seat belts (88% and 85% respectively), while the percentage of use by rear seat passengers, although considerably increased in comparison to the urban road network, remains disappointingly low (28%).

Table 3.15. Seat belt use by region and place in the vehicle in Greece, 2009

<table>
<thead>
<tr>
<th>Seat belt use</th>
<th>Urban Road Network</th>
<th>Inter-urban Road Network</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Driver (next to the driver)</td>
<td>Passenger (back seat)</td>
</tr>
<tr>
<td>YES</td>
<td>72%</td>
<td>68%</td>
</tr>
<tr>
<td>NO</td>
<td>28%</td>
<td>32%</td>
</tr>
</tbody>
</table>

In urban areas, less than half of motorcycle passengers use a helmet (41%), while the corresponding percentage increases significantly for the inter-urban road network both for drivers and passengers.

Table 3.16. Helmet use by region and place in the vehicle in Greece, 2009

<table>
<thead>
<tr>
<th>Helmet use</th>
<th>Urban Road Network</th>
<th>Inter-urban Road Network</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Driver</td>
<td>Passenger (back seat)</td>
</tr>
<tr>
<td>YES</td>
<td>73%</td>
<td>41%</td>
</tr>
<tr>
<td>NO</td>
<td>27%</td>
<td>59%</td>
</tr>
</tbody>
</table>

Note: The study was carried out in April

Tables 3.17 and 3.18 show the percentages of seat belt and helmet use by the driver, by sex and age in Greece, in 2009. As shown in Table 3.17, the percentage of seat belt use by private car drivers in the year 2009 amounts to 77%. As shown in Table 3.18, the respective percentage for helmet use by cyclists is 75%.

Female drivers of private cars use seat belts to a larger extent in comparison to male drivers, with differences ranging from 2% to 13% depending on the age. Specifically, elderly female drivers use seat belts more than elderly male drivers (84% and 71% respectively). Young and elderly male drivers represent the lowest percentages of seat belt use.
The lowest percentage of helmet use is observed among young women drivers (44%), with a significant difference from the other age groups, followed by young male drivers.

**Table 3.17. Seat belt use by region and place in the vehicle in Greece, 2009**  

<table>
<thead>
<tr>
<th>Sex and age</th>
<th>Men</th>
<th>Women</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Young</td>
<td>Middle-aged</td>
<td>Old</td>
</tr>
<tr>
<td>YES</td>
<td>71%</td>
<td>75%</td>
<td>71%</td>
</tr>
<tr>
<td>NO</td>
<td>29%</td>
<td>25%</td>
<td>29%</td>
</tr>
</tbody>
</table>

**Table 3.18. Helmet use by the driver by region and place in Greece, 2009**  

<table>
<thead>
<tr>
<th>Sex and age</th>
<th>Men</th>
<th>Women</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Young</td>
<td>Middle-aged</td>
<td>Old</td>
</tr>
<tr>
<td>YES</td>
<td>61%</td>
<td>79%</td>
<td>67%</td>
</tr>
<tr>
<td>NO</td>
<td>39%</td>
<td>21%</td>
<td>33%</td>
</tr>
</tbody>
</table>

Note: Young people between 16-24, middle-aged people between 25-54 and old people >55 years old.

Table 3.19 shows the percentage of drivers involved in accidents while wearing a seat belt, by accident severity and area type, for the decade 1998 - 2008. As shown in the Table, the rates in all categories have been greatly increasing in total. This proves that seat belt use in Greece has increased significantly during this decade. It is also observed that the rates of deaths and injuries are higher in non-residential areas. This observation is consistent with the view expressed in international literature, according to which the seat belt provides less protection when the speed is higher, thus in non-residential areas.

<table>
<thead>
<tr>
<th>Type of location</th>
<th>Unharmed drivers</th>
<th>Killed drivers</th>
<th>Seriously injured drivers</th>
<th>Slightly injured drivers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Residential area</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>22%</td>
<td>27%</td>
<td>26%</td>
<td>33%</td>
</tr>
<tr>
<td></td>
<td>3%</td>
<td>6%</td>
<td>8%</td>
<td>10%</td>
</tr>
<tr>
<td></td>
<td>8%</td>
<td>9%</td>
<td>9%</td>
<td>11%</td>
</tr>
<tr>
<td></td>
<td>12%</td>
<td>15%</td>
<td>14%</td>
<td>19%</td>
</tr>
<tr>
<td>Non-residential area</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>25%</td>
<td>29%</td>
<td>29%</td>
<td>33%</td>
</tr>
<tr>
<td></td>
<td>13%</td>
<td>16%</td>
<td>17%</td>
<td>15%</td>
</tr>
<tr>
<td></td>
<td>20%</td>
<td>25%</td>
<td>23%</td>
<td>26%</td>
</tr>
<tr>
<td></td>
<td>27%</td>
<td>30%</td>
<td>30%</td>
<td>35%</td>
</tr>
</tbody>
</table>

Tables 3.20 and 3.21 show the percentages concerning mobile phone use without a special headset by car drivers and motorcyclists respectively, by sex and age of the driver. As shown in the Tables, the rate of mobile phone use without a special headset while driving is remarkably high and amounts, for the total sample, to 8% for cars and 2% for two-wheel vehicles. Moreover, the rate of cell phone use while driving decreases with increasing age. This observation reflects the generally lower mobile phone use by older people. The category of drivers with the highest mobile phone use percentage is that of young female car drivers (12%), followed by middle-aged female car drivers (10%) and young male car drivers (9%).

Table 3.20. Mobile phone use without a special headset by car drivers by sex and age in Greece, 2009 (Source: D.T.P.E. /N.T.U.A., 2009)

| Mobile phone use | Sex and age | Men | | | Women | | | Total | | |
|------------------|-------------|-----| | | | | | | | | |
| | | | | | | | | | | | |
| YES | | | | | | | | | | | |
| | Young | Middle-aged | Old | | | | | | | | |
| | 9% | 7% | 5% | | | | | | | | |
| | | | | | | | | | | | |
| NO | | | | | | | | | | | |
| | 91% | 93% | 95% | | | | | | | | |
| | | | | | | | | | | | |
| Total | | | | | | | | | | | |
| | 100% | 100% | 100% | | | | | | | | |
Table 3.21 shows the percentages concerning mobile phone use without a special headset by motorcyclists, by sex and age.

<table>
<thead>
<tr>
<th>Mobile phone use</th>
<th>Men</th>
<th>Sex and age</th>
<th>Women</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>YES</td>
<td></td>
<td>Young</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>3%</td>
<td>3%</td>
<td>2%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2%</td>
<td>2%</td>
<td>2%</td>
</tr>
<tr>
<td>NO</td>
<td>97%</td>
<td>97%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td>98%</td>
<td>100%</td>
<td>100%</td>
<td>98%</td>
</tr>
<tr>
<td></td>
<td>98%</td>
<td>100%</td>
<td>100%</td>
<td></td>
</tr>
<tr>
<td></td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
</tbody>
</table>

3.2.3. The attitude of drivers towards road safety

The comparisons among the responses given by drivers during the SARTRE 2 and 3 research on key road safety issues are presented below. The percentages relevant to each question are shown and they correspond to the responses given by drivers.

SARTRE is the acronym of “Social Attitudes to Road Traffic Risk in Europe”. The SARTRE team (1992 - 1994) started dealing with safety issues on European roads in 1991 by conducting the same research on a sample of drivers in each country. The first SARTRE study was conducted in 15 countries and the second, SARTRE 2 (1996 - 1998), was extended to 19 countries. SARTRE 3 (2002 - 2004) was conducted in 23 countries. In each country, around 1,000 drivers were surveyed and the total number of surveyed drivers was approximately 24,000. The questionnaires provide information on the attitude of drivers, their behaviour and experiences, for instance surveillance actions, thus allowing the possibility to compare drivers in different countries and the identification of measures that could improve their behaviour and safety in each country and in Europe as a whole.

According to the results of SARTRE 2 & 3, most Greek drivers consider the risk of their involvement in a road accident as very small. This is mainly due to the fact that they overestimate their driving abilities and that they do not fully understand the possibility of their involvement in an accident. Nevertheless, it should be noted that Greek drivers are receptive to messages across the media and awareness-raising campaigns on road safety issues, although they believe that they do not concern them but other road users in general.

Although there is a noticeable increase in the percentage of drivers who adopt an aggressive driving behaviour, the percentage of drivers who exceed speed limits or drive under the influence of alcohol is significantly reduced.
Table 3.22 shows that alcohol consumption by Greek drivers before driving has decreased during the six years from 1996 to 2002 (declared behaviour). More and more drivers declare that they avoid drinking, even a little, before driving, while the percentage of drivers who declare that they tend to consume more than the permitted amount of alcohol before driving is now very small and amounts only to 1.6%. This trend may be attributed to the intensity of measures for the prevention of alcohol consumption by drivers. However, there has been an increase in the percentage of drivers who believe that the limit for alcohol consumption before driving should be raised.

Table 3.22. Declared behaviour of Greek drivers - driving and alcohol, 1998 and 2004
(Source: SARTRE 2 & 3)

<table>
<thead>
<tr>
<th>Behaviour during driving (as stated by drivers)</th>
<th>Percentage</th>
<th>Modification percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1998</td>
<td>2004</td>
</tr>
<tr>
<td>Alcohol consumption within the week (often, very often)</td>
<td>21.9%</td>
<td>17.8%</td>
</tr>
<tr>
<td>Alcohol consumption before driving (often, very often)</td>
<td>12.6%</td>
<td>6.2%</td>
</tr>
<tr>
<td>Alcohol consumption before driving in quantity larger than the permitted one (often, very often)</td>
<td>5.8%</td>
<td>1.6%</td>
</tr>
<tr>
<td>In favour of raising the limit of alcohol consumption - unlimited alcohol consumption</td>
<td>2.3%</td>
<td>12.5%</td>
</tr>
</tbody>
</table>

As shown in Table 3.23, there is a decrease in the percentages of drivers who believe that they drive fast, dangerously and aggressively. The drivers who took part in the 2002 survey, tend to associate themselves with a more correct and socially acceptable driving behaviour.

Table 3.23. Declared behaviour of Greek drivers - aggressive driving, 1998 and 2004
(Source: SARTRE 2 & 3)

<table>
<thead>
<tr>
<th>Behaviour during driving (as stated by drivers)</th>
<th>Percentage</th>
<th>Modification percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1998</td>
<td>2004</td>
</tr>
<tr>
<td>Believe that they drive more dangerously compared to the other drivers (a lot, a little)</td>
<td>7%</td>
<td>3.4%</td>
</tr>
<tr>
<td>Believe that they drive faster compared to the other drivers (a lot, a little)</td>
<td>22%</td>
<td>17%</td>
</tr>
</tbody>
</table>

As shown in Table 3.24, there is a downward trend in the number of drivers who declare that they often violate the speed limits in intercity and urban roads. This trend is more visible in the case of intercity roads and less significant in the case of urban roads. On the contrary, the violations of speed limits have increased on highways and provincial roads.
Table 3.24. Declared behaviour of Greek drivers - compliance with speed limits, 1998 and 2004
(Source: SARTRE 2 & 3)

<table>
<thead>
<tr>
<th>Behaviour during driving</th>
<th>Percentage</th>
<th>Modification percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>(as stated by drivers)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Violation of speed limits on highways (often, very often, always)</td>
<td>38.1%</td>
<td>40.3%</td>
</tr>
<tr>
<td>Violation of speed limits on intercity roads (often, very often, always)</td>
<td>28.1%</td>
<td>23.4%</td>
</tr>
<tr>
<td>Violation of speed limits on provincial highways (often, very often, always)</td>
<td>18.8%</td>
<td>19.1%</td>
</tr>
<tr>
<td>Violation of speed limits in urban areas (often, very often, always)</td>
<td>6.9%</td>
<td>6.3%</td>
</tr>
</tbody>
</table>

Table 3.25 shows the changes between the two surveys concerning behaviours considered dangerous and which have been declared by drivers. As shown in the Table, there has been a large increase in the percentage of drivers who state that they tend to keep a small distance from the vehicles ahead. Moreover, there has been an important increase in the percentage of drivers who overtake other vehicles at a high frequency (when they think there is just enough time to do so). On the contrary, there has been an increase in the percentage of crossing when the traffic light is orange. The adoption of more dangerous driving behaviours by drivers can be attributed to the growing number of new cars which started circulating in 1996 and to the consequent increase in the number of young drivers. The use of cars of new technology makes drivers more confident and, as a result, they drive less carefully.
Table 3.25. Declared behaviour of Greek drivers - dangerous driving, 1998 and 2004
(Source: SARTRE 2 & 3)

<table>
<thead>
<tr>
<th>Behaviour during driving</th>
<th>Percentage</th>
<th>Modification percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Keeping a short distance from vehicles ahead (often, very often, always)</td>
<td>21.6%</td>
<td>35.4%</td>
</tr>
<tr>
<td></td>
<td>+ 63.9%</td>
<td>+ 13.8%</td>
</tr>
<tr>
<td>Crossing when the traffic light is orange (often, very often, always)</td>
<td>33.4%</td>
<td>29.7%</td>
</tr>
<tr>
<td></td>
<td>- 11.1%</td>
<td>- 3.7%</td>
</tr>
<tr>
<td>Last moment overtaking (often, very often, always)</td>
<td>9.4%</td>
<td>14.9%</td>
</tr>
<tr>
<td></td>
<td>+ 58.5%</td>
<td>+ 5.5%</td>
</tr>
</tbody>
</table>

As shown in Table 3.26, the drivers understood the intensification of surveillance measures on issues related to road safety during the six years from 1996 to 2002. The percentage of drivers who state that they have often undergone speed controls has increased significantly. An even greater increase is observed in alcohol consumption controls (breathalysers) that drivers have undergone, according to what they stated in the survey.

Table 3.26. Declared behaviour of Greek drivers - surveillance, 1998 and 2004
(Source: SARTRE 2 & 3)

<table>
<thead>
<tr>
<th>Behaviour during driving (as stated by drivers)</th>
<th>Percentage</th>
<th>Modification percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Speed control frequency (often, very often, always)</td>
<td>12.6%</td>
<td>19.6%</td>
</tr>
<tr>
<td></td>
<td>+ 55.6%</td>
<td>+ 7.0%</td>
</tr>
<tr>
<td>Breathalyser frequency (often, very often, always)</td>
<td>5.3%</td>
<td>15.2%</td>
</tr>
<tr>
<td></td>
<td>+ 186.8%</td>
<td>+ 9.9%</td>
</tr>
</tbody>
</table>

These figures, which reflect how drivers perceive controls carried out by the Traffic Police, agree with the official figures of the Traffic Police concerning traffic controls, as shown in Table 3.27.


<table>
<thead>
<tr>
<th></th>
<th>1998</th>
<th>1999</th>
<th>2000</th>
<th>2001</th>
<th>2002</th>
<th>Modification percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recorded speed violations</td>
<td>92,122</td>
<td>97,947</td>
<td>175,075</td>
<td>316,451</td>
<td>418,421</td>
<td>354%</td>
</tr>
<tr>
<td>Alcohol controls (Breathalysers)</td>
<td>202,161</td>
<td>246,611</td>
<td>365,388</td>
<td>710,998</td>
<td>1,034,502</td>
<td>412%</td>
</tr>
</tbody>
</table>
According to the figures in Table 3.27, there has been an increase in the number of controls of speeding-related offenses by 354%, while the increase in breathalysers has been around 412%.

Table 3.28 shows the changes between the two surveys concerning behaviours and attitudes declared by drivers and which are related to the use of seat belts. As shown in the Table, there has been a large increase in the percentage of drivers who state that they always use the seat belt in the city. The relevant percentage corresponding to driving on the highway has also increased. There has been a reduction in the perception that the seat belt is not necessary when driving carefully and that there is an entrapment risk.

### Table 3.28. Declared behaviour of Greek drivers - seat belt use, 1998 and 2004
(Source: SARTRE 2 & 3)

<table>
<thead>
<tr>
<th>Behaviour during driving</th>
<th>Percentage</th>
<th>Modification percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>(as stated by drivers)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Frequency of seat belt use inside the city (always)</td>
<td>15%</td>
<td>36%</td>
</tr>
<tr>
<td>Frequency of seat belt use on a highway (always)</td>
<td>58%</td>
<td>71%</td>
</tr>
<tr>
<td>Belief that the seat belt is not necessary when driving carefully</td>
<td>58%</td>
<td>32%</td>
</tr>
<tr>
<td>Belief that, in case of an accident, there is a danger of entrapment because of the seat belt</td>
<td>38%</td>
<td>32%</td>
</tr>
</tbody>
</table>

### 3.3 Synthesis

It is obvious from the above analysis that the level of road safety in Greece is low, since it occupies, in 2010, the worst place in the number of fatalities in road accidents per million population, among the EU countries (Figure 2.7, Section 2.3). The analysis of the key features of road accidents and driver behaviour in Greece results in the following key points regarding the main features of road accidents related to the low level of road safety in Greece:

- One of the highest percentages of fatalities in road accidents in residential areas is observed in Greece (48%) among the member states of the European Union (38%).
- The severity of the accidents on inter-urban roads is 4 times higher than the severity of the accidents on urban roads.
- The accidents occurring during the night are the most severe ones.
- Young drivers are more at risk compared with the other categories of drivers, regardless of the area type.

- Elderly drivers (> 65 years old) are the age group which is more at risk after young drivers.

- The last 20 years, there has been a significant increase in the percentage of killed motorcyclists and elderly drivers.

- The risk indicators for male drivers are significantly higher than those for women, regardless of their age.

- Two-wheel vehicles, especially motorcycles, represent a considerably higher risk than passenger vehicles for all age groups.

- The overall percentage of seat belt use by drivers in 2009 was 77%.

- The percentage of helmet use by motorcyclists in 2009 was 75%.

From the analysis of the data on road accidents in Greece and all related road safety indicators (accident indicators, behaviour of drivers etc.) in Chapters 2 and 3, it is obvious that the **major key factors related to road accidents in Greece are:**

- inappropriate speed
- high circulation of motorcycles and mopeds
- low level of seat belt and helmet
- unsafe pedestrian circulation
- driving under the influence of alcohol or using a mobile phone
4

Recording, analysis and assessment of European and international developments in road safety

4.1. Road Safety Worldwide

4.1.1. International Trends

Road accidents are a major global social problem, which the General Assembly of the United Nations described as a “Global Road Safety Crisis” (United Nations, 2008). Both the World Health Organisation and the Organization for Economic Cooperation and Development consider strong political will at the highest level for the mobilisation of the forces of the State and the citizens, as the key condition for tackling the global road safety crisis (WHO, 2004), (OECD, 2008).

In 2004, the World Health Organisation published, in collaboration with the World Bank, the World Report on Road Traffic Injury Prevention. This report reflects the growing interest worldwide on the magnitude of the problem of road accidents and acknowledges that reducing the economic and social impact of road accidents requires urgent action. The report makes six key recommendations that define the strategic initiatives that can lead to improved road safety at national level. These recommendations are (WHO, 2004), (Bliss& Breen, 2009):

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

These recommendations define the order of actions required for the effective management of road safety at national level. The effective implementation requires the overall implementation of all the recommendations. However, the limited investment in road safety since the publication of this World Report proves that some countries lack the necessary political will and capacity at national level for the implementation of these recommendations (Bliss & Breen, 2009).

Many developed countries have been implementing comprehensive policies for the reduction of road accidents for decades and have achieved both the mobilisation of mechanisms of the State and citizens. These countries, with a systematic effort and over time (10 - 15 years), managed to reduce road accidents and fatalities by up to 50%. A key feature of the successful efforts in North-Western European countries and in Australia was the consistent commitment of the State with significant funding and effective administrative structures. The systematic monitoring of drivers’ behaviour and the improvement of road infrastructure were in all cases of paramount importance for the reduction of accidents (Kanellaidis, 2009).

Greece is not among the countries with a proportionately reduced number of victims in road accidents. It occupies one of the last places in the EU27, well behind the other 14 older member states, but also most new member states. The poor performance of Greece in road safety, with about 1,500 fatalities and 2,500 seriously injured annually, is due to the fact that in Greece road accidents were never addressed with a seriousness corresponding to the severity of the losses. State bodies, without proper organisation, with few interventions and no coordination, are unable to produce results and convince citizens of the severity of the problem, setting a negative example for drivers who continue adopting an irresponsible driving behaviour (Kanellaidis, 2009).

Current developments in international road safety policy are presented below through an analysis of the concepts of the safe system, the strategic plans, the setting of quantitative targets and the integrated management of the safety of road infrastructure.

4.1.1.1. The Safe System Approach

Over the last decade, in countries advanced in road safety, such as Sweden and the Netherlands, the way of dealing with the problem of road accidents has changed significantly and a safe system approach has been adopted. Their current targets are zero deaths and serious injuries in road accidents (Vision Zero - Sweden) (SNRA, 2006) or to address each factor that could lead to a road accident (Sustainable Safety - the Netherlands) (SWOV, 2006). Such ambitious targets are generally consistent with safety expectations in other modes of transport (air, rail, maritime) and are increasingly accepted internationally (OECD/ITF, 2008), (Kanellaidis, 2009).
For a fuller picture of the purpose and targets of the Strategic Plan, the basic principles of the “safe system” are summarised below (OECD/ITF, 2008):

**It is unacceptable that any human being should die or be seriously injured on the roads.**
The physical vulnerability of the human body to external forces, the limitations and capabilities of users and the fact that they make mistakes are acknowledged, but they should not be "punishable" by death or disability.

Road safety is the duty and responsibility of everyone. The main responsibility for Road Safety belongs to those competent for the planning and operation of the Road Traffic System. The engineers responsible for the design and operation of roads, motor industry, the Traffic Police and politicians are responsible for the security of the system. Users are responsible for compliance with the traffic rules.

Road safety issues are addressed with a systemic approach (rather than a fragmentary approach of individual subjects), taking into account that the aspects of the traffic system are interrelated and interdependent

It is necessary to adapt the system planning to the needs and constraints of users (and not vice versa) and to establish a forgiving road environment and traffic behaviour.

The substantial change in the new approach is that the main responsibility for road safety now belongs to those responsible for the planning, design and operation of the road traffic system and not to users, as it was until today. Users are responsible for compliance with the traffic rules. Specifically, Engineers and State bodies responsible for the design, construction, operation, maintenance and monitoring of the operation of road infrastructure, should seek to create a forgiving road environment that will not only guide users, but also forgive their mistakes by reducing the kinetic energy created in potential crashes (Kanellaidis, 2008).

This is achieved by managing the interaction of all the elements of the system, especially through the improved management of road infrastructure, speed and vehicles.
A better coordination of all the parties involved in determining the safe operation of the road traffic system is also sought through the establishment of administrative structures that incorporate key government Agencies and other Organisations. Finally, decisions on road safety shall be aligned with the broader decisions on transport, public health and the environment (SNRA, 2006).

In the framework of the safe system approach, safe speeds are set, based on the resilience of the human body. Specifically, on the possibility of survival for a pedestrian in the event of a collision with a moving vehicle and for drivers or passengers in the event of a frontal and side collision of vehicles, the suggested speeds are shown in Table 4.1.

<table>
<thead>
<tr>
<th>Road types in combination with road users</th>
<th>Safe speed (km/h)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Roads with possible involvement between vehicle and unprotected road users</td>
<td>30</td>
</tr>
<tr>
<td>Junctions at grade with a possible lateral involvement between vehicles</td>
<td>50</td>
</tr>
<tr>
<td>Roads with possible frontal involvement between vehicles</td>
<td>70</td>
</tr>
<tr>
<td>Roads with no possible frontal or lateral involvement between vehicles</td>
<td>&gt;100</td>
</tr>
</tbody>
</table>

According to the principles of Sustainable Road Safety in the Netherlands, the road environment and driver requirements imposed by it must be adapted to the level that the majority of road users can cope with, thus preventing serious unintentional errors.

Road users should be well informed and experienced to participate safely in traffic. It is essential for users to be aware of their situation and take the right decisions to avoid a possible collision. In traffic, which is in fact a social system, a forgiving driving style can absorb collisions that the behaviour of other road users could have caused.

In traffic, the human body needs to be protected because of its vulnerability, by various means in order to absorb the kinetic energy released in a collision. For this purpose, the mass, speed and direction of vehicles moving in the same space must be compatible. If this is not possible speed must be reduced. Table 4.2 presents the principles for achieving sustainable road safety.
**Table 4.2. Principles for achieving Sustainable Road Safety (SWOV, 2006)**

<table>
<thead>
<tr>
<th>Road Safety Authority</th>
<th>Short description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Functionality of roads.</td>
<td>A single key function of roads: unobstructed flow of traffic or collection/distribution of traffic or access to a hierarchically structured network.</td>
</tr>
<tr>
<td>Uniformity in mass, speed and direction.</td>
<td>Harmonisation of the mass, speed and direction of vehicles driving on the road at moderate or high speed.</td>
</tr>
<tr>
<td>Predictability of the course of the road and user behaviour through a recognisable road planning.</td>
<td>Uniformity in road planning, so that the road environment and the behaviour of road users are understandable and consistent with the expectations of the user.</td>
</tr>
<tr>
<td>&quot;Forgiving&quot; road environment and road users.</td>
<td>Reduction of the impact of collisions through the development of a &quot;forgiving&quot; road environment and society.</td>
</tr>
<tr>
<td>Awareness by road users of their situation.</td>
<td>User's ability for abilities self-evaluation at all times.</td>
</tr>
</tbody>
</table>

### 4.1.1.2. Strategic plans and goal setting

Internationally, it is now deemed necessary to adopt an integrated approach to road safety through the development and implementation of Strategic Road Safety Plans. The Strategic Plans provide for the implementation of road safety actions of a specific duration and with specific quantitative targets. The importance of strategic planning is linked to the fact that its successful elaboration and implementation guarantees the commitment of the State to achieve the targets, the implementation of a comprehensive policy and the consensus of society. The effective coordination of all actions, the duration of efforts in time, the adequate funding and monitoring and the evaluation of actions are also achieved (Kanellaidis, 2009).

The various targets on road safety in European countries represent the different levels of ambition, with the Vision Zero initiative (where no death or serious injury in road accidents is acceptable) representing undoubtedly the highest level of ambition. Results of surveys indicate that quantitative targets are powerful incentives for the improvement of road safety. Many European countries had pursued the target of the European Union for a reduction in road fatalities by 50% by 2010 in comparison to the number of fatalities in 2000 (European Commission, 2001). In some cases, the targets are extended to the reduction of injuries, while some countries also set individual targets for major road safety issues in order for interventions to focus on specific issues, such as seat belt use, speed, etc. (OECD/ITF, 2008), (Yannis et al, 2008).
Ambitious quantified road safety targets promote the commitment and responsibility of various stakeholders in the effort to improve road safety. However, in order to identify areas of high risk in any road system, it is necessary to fully understand the situation of road safety in each country, using data on accidents, risk exposure and other information. Furthermore, effective measures must be identified in order to address the issues of high risk and anticipate potential reductions of losses in road accidents. The overall national target must be based on the estimated improvements of the measures that will be implemented in total (OECD/ITF, 2008), (Yannis et al, 2008).

4.1.1.3. Integrated management of the safety of road infrastructures

Under the safe system approach, in recent years, special emphasis is given to the integrated management of the safety of road infrastructures. The European Union (European Commission, 2008) drafted a special Directive on road infrastructure safety management (DIR 2008/96/EC), concerning the trans-European road network and which had to be transposed into national law of Greece until the end of 2010. The integrated road infrastructure safety management includes the obligations of those responsible for road infrastructure and traffic on road safety audits (in the planning phase), road safety inspections (during the operation phase), management of dangerous positions and impact assessments on road safety. These are the four basic methods for the identification of road safety problems and the measures, both preventive and corrective, in order to deal with them in all phases of planning, construction and operation of the infrastructure (Kanellaidis, 2009).

The new integrated management approach is essential for the improvement of road infrastructure safety, not only because it holds those in charge of road infrastructure accountable for their responsibilities, but also because it includes audits at all stages of the project. For the implementation of the integrated road safety infrastructure management, special procedures are adopted relating to the education and responsibilities of auditors, to the data collected and effectively used and to the relevant good practices that should be used in order to deal with any identified road safety problems. Specifically (NTUA, 2008), (European Commission, 2008):

- **The Road Safety Audit (RSA)** includes a systematic and independent review and evaluation of the road safety level of a project constructed or under study, including improvement works to existing roads, for the early identification of the potential causes of accidents and their elimination, so that the road provides the highest possible safety to users.

- **The Road Safety Inspection/Review (RSI)** is implemented to the existing road network and consists of a systematic and independent assessment and evaluation of the road safety level of an existing road project, for the early identification of the potential causes of accidents and their elimination, so that the road provides the highest possible safety to users.
• **The Identification of Hazardous Locations/High Risk sites and corresponding causes (IRS)** is one of the most widespread and highly effective ways for the improvement of road safety worldwide. The basic methods used for the identification of hazardous locations are numerical and statistical. Numerical are the methods which involve numbers either from observations on road accidents or simple actions that provide the average of the observations or even some indicators. Statistical are the methods using statistical distributions to describe the risk of a location or, otherwise, the possibility of an accident in this location.

• **Road Safety Impact Assessments (RSIA)** show the strategic impact of different planning alternatives of a project on road safety, whether it is a new project or the restoration of an existing one. The Road Safety Impact Assessments must be completed at an early planning phase, so that their results can be taken into account later in the planning process, but also in all interventions to road traffic systems which might have an impact on road safety.

The first three methods initially identify the locations and the factors that increase the risk of accidents, either immediately (RSA, RSI) or in the long run, with a review following the statistical identification (IRS). Later, the necessary improvement interventions are selected, priorities are set and the most efficient ones are implemented. It is noted that in modern textbooks on Road Safety Audits, Road Safety Inspections are included in them (Austroads, 2009).

Today, it is internationally acknowledged that a comprehensive road safety policy should include the development and implementation both of corrective methods for the reduction of accidents and preventive measures.

4.1.2. European road safety policy

The European policy on road safety includes the following stages:

• Initial stage which laid the foundations of the road safety policy of the European Union (1986 -1993).
• Third Road Safety Action Plan (2003-2010).
The following sections present the European Action Plans for the improvement of the level of road safety and the fundamental decisions on the European policy on road safety, such as validation of the White Paper on Transport in 2001. Regarding the Road Safety Action Plans and given that the actions of all previous phases have been evaluated and incorporated in the next ones, an analytical and detailed presentation is carried out only for the 2011-2020 Action Plan, which is currently in progress. The previous programmes are presented in summary.

It should be noted that the Strategic Plan for the improvement of road safety in Greece must be consistent with the European road safety policy and use effectively the accumulated experience from road safety actions at a European and international level.

4.1.2.1. The first steps

The first initiatives to jointly tackle road safety problems at European level began in 1986 (European Road Safety Year).

The Gerondeau report drafted in 1991 by a group of experts led by Christian Gerondeau, included a detailed summary of the current situation and proposed about 130 specific actions to tackle road accidents at European level and laid the basis for the elaboration of the first Road Safety Action Plan (1993).

With this occasion, a High Level Expert Group on Road Safety was created (1991). The mission of this expert group was to meet regularly (about twice a year) and to define common objectives within the road safety policy, set priority criteria and determine the allocation of means for the development of the road safety programme (NTUA, 2001).

In 1992 the White Paper on the development of the common transport policy in the European Union was published, including a special chapter on specific actions for the promotion of road safety in the European Union. Furthermore, the Maastricht Treaty (1992) explicitly established for the first time that the common transport policy should include actions for the improvement of road safety.

By decision of the Governments of the 15 Member States of the European Union, the European road safety policy is constrained by the “principle of subsidiarity” according to which action is taken at European level only for road safety problems that cannot be tackled at local or national level. For example, the necessary actions for the improvement of the road safety of a city is a purely local matter, outside the competence of the European Union. On the contrary, the European road safety policy focuses on the technical standards for vehicle safety, the international carriage of dangerous goods and the maximum permissible blood alcohol concentration level for drivers, since it is more effective to deal with them at a European level.
It should be noted that, from the early ’70s until the elaboration of the first Road Safety Action Programme, more than a hundred directives were adopted on road safety, but mainly on the harmonisation of rules for the construction of vehicles (NTUA, 2001).

4.1.2.2. First Road Safety Action Plan (1993-1996)

The First Road Safety Action Plan was announced by the European Commission in June 1993. This Plan proposes an integrated approach to road safety based on quality goals and defining concrete priorities. The harmonisation process by legal means and the development and implementation of joint research programmes remain the main types of action covering the three key causes for road accidents, i.e. driving behaviour, road infrastructure and vehicles. Particular emphasis is placed on the active and passive safety of vehicles, education of road users, actions on road behaviour (reduction of speed, driving under the influence of alcohol, etc.) and the improvement of the safety of the carriage of dangerous goods (Commission of the European Communities, 1993a).

A relevant Communication by the European Commission in 1997, after the implementation of the first Road Safety Action Plan (1993-1996), mentions the following account of actions (Commission of the European Communities, 1997):

- Almost all the legislative actions announced in the 1993 Action Plan were carried out.
- All planned studies mainly focusing on vehicles (passive safety), telematics applications and the analysis of the behaviour of road users were carried out.
- Several non-legislative actions, including the New Drivers Year (1995) and campaigns on the proper behaviour of drivers (YES campaigns), were carried out.
- A database with individualised data on road accidents (CARE) began to operate. It is a very useful tool in order to support actions for the improvement of road safety at local, national and European level.
- Despite the fact that the Action Plan has contributed significantly to the reduction of the number of victims of road accidents, the social cost is still unbearable and amounts to 145 billion ECU per year (1993 estimates).
After the implementation of the first Road Safety Action Plan, the main trends and features of road safety in the European Union are summarised as follows (Commission of the European Communities, 1997):

- The numbers of accidents and victims vary considerably from one state to the other.
- The large increase in the vehicles property index in some states leads initially to a deterioration of the situation of road safety but is subsequently (Yannis et.al.) improved.
- The risk of injury or death in a road accident is higher for pedestrians, young people, elderly people and riders of bikes, mopeds and motorcycles.
- Driving under the influence of alcohol remains a serious cause of accidents, despite the unquestionable success of the relevant surveillance and public awareness-raising programmes in some countries.


In the Second Action Plan (1997-2001) for the promotion of road safety in Europe, the long-term quantitative target is the progressive reduction of the number of fatalities at least by 18,000 by 2010. This plan was recommended for implementation across the EU and consists of the following three axes of targets (Commission of the European Communities, 1997):

1. Collection and dissemination of information and good practices.
2. Effective implementation of measures to avoid accidents.
3. Enhancement of measures for the reduction of the impact of accidents.

The actions of the Second Road Safety Action Plan are summarised as follows (Commission of the European Communities, 1997):

1. Collection and dissemination of information and good practices.
   - **CARE database**: European Database with personalised data on road accidents.
   - **Risk exposure data**: Identification of the traffic data that needs to be combined with the data on road accidents, for a better analysis of road safety issues.
   - **On-site inspections**: Inspections for a better quantitative and qualitative assessment of the special measures.
   - **Road safety eurobarometer**: showing the latest trends on the basis of provisional data on accidents involving fatalities.
   - **Creation of a documentation record** with the measures taken by individual European states.
   - **Information System for the international road safety research**: Creation of a record containing the results of the research in the field of road safety.
- **Development of communication strategies** for the most efficient promotion of road safety measures.
- **Road safety indicators on a European scale**, for the assessment of the effectiveness of the implemented actions.
- **Creation of a documentation record on good practices in road infrastructure planning**.
- **Integrated information system that exploits the data of CARE database**, providing access to information at all levels.
- **SARTRE 2 Research**: Wide field research for the recording and analysis of the features and opinions of car drivers in 13 countries of the European Union (except for Denmark and Luxembourg).
- **International police cooperation**: Establishment of a network of police services and competent authorities, for example, focusing on driving licences and tachographs.
- Investigation of the potential intention to establish independent bodies investigating road traffic accidents (similar to those for air traffic accidents).
- Systematic prevision and review of the costs and benefits of the various measures for road traffic safety.

2. **Effective implementation of measures to avoid accidents.**

- **Driving licence**:
  - Considering the possibility of revising the licensing system.
  - Assessment of the existing disputes arising from the study of statistics related to road accidents, in relation to driving examinations.
  - Improvement of methods - policy for the safety of new drivers.
  - Mutual recognition of the arrangements concerning the withdrawal of the licence of a driver by a Member State different from the Member State where the driver normally resides.
  - Harmonisation of the frequency of medical checks on professionals and elderly drivers, based on mutual trust and road safety grounds.

- **Physical state**:
  - Maximum permissible blood alcohol content at 0.5 mg/ml for drivers. Promotion of the exhaled air analysis as a means of measuring the content of alcohol in the blood. Reintegration of drivers whose licence has been suspended because of alcohol use.
  - Development of a methodology for monitoring driving under the influence of drugs or medicines, on the road, by the police. Suitable warning signs in pharmacies.
  - Audits on the actual working hours of professional drivers.
Automatic systems (embedded in cars) for the assessment of the physical condition of drivers (fatigue, alcohol or drugs) and their compliance with traffic rules, which may activate warning systems or devices that prevent the vehicle from starting.

- **Information:**
  - Wide informative campaigns across Europe for the information of the public on possible risks, focusing at high-risk groups.
  - Promotion of change from driving a private car to using public transport, with significant benefits for road safety.
  - Adoption of a code of conduct in advertising while enhancing messages that promote road safety.
  - Development of training systems for drivers: Novice drivers (e.g. right after the examination) still need help in several critical situations in traffic. The education system should identify these situations and give advice in real time and/or after transportation.
  - Accident recorders: The accident recorders record substantial data related to collisions and facilitate to a great extent the analysis of the accident (more difficult with ABS systems which do not leave a braking trace). The existence of recorders can lead to a significant reduction of accidents because drivers are more careful.
  - Relation between actual insurance cost and risk: The Green Paper on fair and efficient pricing recognises that the premium does not cover the entire cost of the accident and its consequences and individual premia are disproportionate to the risk undertaken by road users.
  - Vehicle insurance: Elaboration of a vehicle insurance declaration model containing information on car insurance.

- **Speed limiters for heavy vehicles:** Mandatory installation and use of speed limitation devices.
- **Speed limiters for other vehicle types:** Extension to all vehicles over 3.5 tonnes. Variable speed limiters for all vehicles.
- **Information during movement:** Installation of information systems across the EU.
- **Traffic management depending on the weather conditions:** Installation of local systems for the monitoring and information of drivers.
- Variable speed limits posts on highways.
- Improvement of visibility by providing vehicles with UV lamps, infra-red detectors or radars.
- Driver assistance systems that warn the driver of obstacles (e.g. vulnerable users).
- Improved visibility for vulnerable road users: Implementation of a practical code for use of light reflective materials in traffic.
- Use of driving lights during the day to make mopeds and other vehicles more visible.
- Technical Inspections on Motor Vehicles: Regular inspection of motor vehicles with regard to safety devices such as brakes, tyres and lights.
- Safety advisers for the carriage of dangerous cargoes: Assignment of people in companies for the supervision of all activities related to transport of dangerous cargoes.
- Traffic management: Prioritising on the road network, separation of vulnerable road users where necessary.
- Improvement of infrastructure through telematics: The geometric planning standards could be upgraded for the sake of safety by integrating existing instruments of telematics to help drivers.
- The impact on road safety should be assessed systematically before any decision related to infrastructure.
- Safety evaluation of the system: Before implementing any new provisions or systems the safety of the system must be assessed (reliability, gravity of the offence etc.).
- DUMAS Programme: Development and assessment of road safety management strategies in urban areas and optimisation of studies across the EU.

3. Enhancement of measures for the reduction of the impact of accidents.
- Use of safety belts and child restraint systems.
- Helmet use by drivers of motorbikes and mopeds.
- ADRIA Programme: Designing an advanced anthropomorphic dummy in order to assess injuries in frontal crash tests.
- Research projects aiming at elaborating recommendations for the improvement of the compatibility of passenger cars in collisions.
- "Friendly" design of motor vehicles: Cars and heavy vehicles should be designed in such a way that in case of an accident the impact on the other vehicle or the pedestrian is minimised.
- **Road infrastructure design leaves room for error:** Fixed objects in the space on the sides of the road are extremely dangerous for motorcycles in case of drifting. The relevant hazardous locations must be identified and corrected.

- **Automatic incident detection and management of special events:** Global satellite positioning systems (GPS) in conjunction with the global system for mobile communications (GSM).

- **Coordination and support of systems rating car safety,** in order to provide scientifically sound information to the consumer on the safety of their vehicles.

It is also noted that, during the previous actions, research was carried out on the causes of road accidents and the ways to deal with them, especially within the 4th and 5th framework programme for research and technological development in the European Union. These research projects (SAFESTAR, ARROWS, MASTER, PROMISING, DUMAS, etc.) are of particular interest, they involve the NTUA, AUTH and other bodies in Greece and concern several aspects of the problem of road safety in Europe and often propose innovative solutions. However, they are not integrated in a wider road safety policy, they were not expanded widely in the member states of the European Union and their results are being optimised very slowly.

**Assessment of the Second Action Plan (1997-2001)**

According to a Communication by the European Commission (EC COM 125, March 2000) regarding the progress of the five-year Action Plan 1997-2001, a big part of the anticipated work has been completed. Many actions have been completed successfully and progress has also been made in strategic areas, such as the better enforcement of rules and regulations in traffic, further informing the public on road safety issues and the collection and dissemination of relevant information (Commission of the European Communities, 2000).

The Communication noted that the following measures are highly effective and recommended as high priority measures for road safety in the European Union (Commission of the European Communities, 2000):

- Continuation of the implementation and development of the European New Car Assessment Programme (EuroNCAP).
- Campaigns and legislation on seat belts and child restraint systems.
- Recommendation to member states on maximum blood alcohol levels while driving.
- Legislation on speed limiters for light commercial vehicles.
- Development of guidelines for the management of hazardous locations and the planning of "forgiving" road infrastructure (i.e. less likely to cause death or serious injury in case of an accident).
- Legislation for safer car fronts for the protection of pedestrians and motorcyclists.
- Expansion and enhancement of the CARE statistical database on road accidents and creation of an integrated information management system.
- Research on vehicle standards and telematics.

4.1.2.4. White Paper on European Transport Policy

The White Paper on European Transport Policy was approved by the European Commission on 12 September 2001. This text proposed for the first time the target of reducing the number of road fatalities in Europe in 2010 by 50% compared to the number of fatalities in 2000 as a quantitative target of the European efforts for the improvement of road safety (European Commission, 2001).

The White Paper presents an assessment of the situation of the road traffic system in the European Union and proposes measures for its improvement in order to strike a balance between the ways of transportation (road, air, rail transport, etc.), to combat congestion and improve the safety and quality of the services provided, without limiting the potential for the carriage of citizens and goods. The proposed measures also promote the use of environmentally friendly technologies and provide a basis for new ways of financing transport infrastructure. However, it is noted that the White Paper is only the first step and individual action curricula should be implemented (European Commission, 2001).

4.1.2.5. Third Road Safety Action Plan (2003-2010)

By optimising the experience, recommendations and conclusions of the White Paper in 2003, the European Commission presented the Third Road Safety Action Plan (European Commission, 2003). The Action Plan was aiming at the reduction of the number of road fatalities in Europe in 2010 by 50% compared to the number of fatalities in 2000.

According to the Action Plan, in order to achieve the target, it is necessary to monitor effectively its development by establishing performance indicators and a mid-term review. With the use of performance indicators it is possible to systematically target actions in key areas and to monitor their implementation. These indicators may relate to particular groups of road users, such as children, new drivers or professional drivers, may extend to compliance with important safety rules, such as wearing a seat belt, or may relate to individual areas, such as the urban network, intercity roads or the trans-European road network. Based on statistics and performance indicators, a report should be elaborated on a regular basis and notified to the European institutions and the public. The
European Commission will prepare a **progress review** in 2005, based on the findings of the team responsible for the quantitative monitoring of the Action Plan. The Commission has announced that it will evaluate the consequences of the EU enlargement on road safety, as the situation on road safety in accession countries is generally worse than the situation in EU 15. In proportion to the population, the number of fatalities and injuries is not higher, however, these indicators are misleading because they take into account neither the very low rate of motorisation nor the volume of traffic (European Commission, 2003).

The measures on road safety proposed in the Third Action Plan are included in the following **axes of action** (European Commission 2003):

1. Encouragement of road users to improve their behaviour.
2. Use of technical progress to improve vehicle safety.
3. Encouragement of the improvement of road infrastructure.
4. Safety of commercial goods and passengers transport.
5. Rescue and treatment of injured persons in road accidents.
6. Collection, analysis and dissemination of data on accidents.

The individual actions of the Third Road Safety Action Plan are presented below:

### 1. Encouragement of road users to improve their behaviour

**a. Compliance with basic road safety rules**

- Proposing specific measures that will lead to strengthening controls and to the proper implementation of important safety rules.
- Elaboration of instructions on good practices about conducting traffic controls: collecting, comparing and publishing data on national road traffic codes and on verified infringements and penalties imposed on various countries.
- Participation in informative campaigns on driving under the influence of alcohol, the use of seat belts, speed and fatigue, combined with the actions undertaken by the Traffic Police at national level.
- Encouragement of the implementation of recommendations for the maximum blood alcohol limit, continuation of research on the effects of drugs and medicines on driving ability.
- Establishment of the appropriate classification and labelling of medicines which affect driving ability.
• Harmonisation of sanctions imposed for road traffic infringements in order to address the main infringements in international freight transport.

b. Driver licence and training

• Amendment of Directive 91/439/EEC on driving licences, mainly aiming at the establishment of minimum qualifications for examiners of candidate drivers and the progressive access to vehicles in order to reduce the risk of accidents for drivers without any experience.
• Continuation of the effort to review the minimum standards for physical and mental driving abilities and research on the influence of medical examinations on road safety in the light of scientific progress.
• Scientific approach to driving lessons and training on road safety from school age.
• Special treatment of young drivers and implementation of methods in order to reduce the recurrence rate in cases of non-compliance with traffic rules.

c. Helmet use

• Encouragement of the general use of protective helmets by drivers of all two-wheel motor vehicles.
• Study on the effectiveness of helmet use by cyclists of different ages, the impact on public opinion of helmet use when riding a bicycle and the measures that might have to be taken at EU level.

2. Use of technical progress to improve vehicle safety

a. Informing consumers: the European New Car Assessment Programme (EuroNCAP).

• Support to the EuroNCAP should continue, in order to encourage the progress of the programme, to raise awareness and inform consumers and to strengthen the representation of the member states.

b. Protection in case of an accident (passive safety).

• Processing the harmonised standards, with the installation of audio or visual devices which remind seat belt use and promote their widespread use through agreements with industry.
• Harmonisation of fastening systems for child restraint devices.
• Improvement of vehicles in order to limit the consequences of accidents for pedestrians and cyclists.
• Support of the development of smart restraint devices.
• Adaptation of instructions on front, side and rear collision of heavy goods vehicles, based on modern technology, aiming at reducing vehicle underrun and introducing energy absorption criteria.
• Examining of the impact on road safety of the proliferation of “4x4” vehicles, Sports Utility Vehicles (SUV) and Multipurpose Vehicles (MPV).

c. Prevention of accidents (active safety)

• Research on the impact of the widespread use of running lights during the day in all vehicles.
• Improvement of the visibility of heavy goods vehicles, elimination of blind spots when reversing.
• Evaluation of measures that will allow the optimisation of technological progress in tyres.
• Investigation of systems detecting reduced reflexes of the driver, such as systems for banning driving in case of alcohol consumption, and fatigue detection systems, embedded in vehicles.
• Evaluation of the testing of intelligent speed adaptation systems and assessment of their acceptability by the public.
• Improving safety for motorcyclists through legislation or through appropriate agreements with the industry.
• Investigation of the possibility of harmonising the approval of modifications to vehicles intended for people with reduced mobility.
• Adoption of a long-term programme of information and communication systems in the field of road safety and establishment of the necessary regulatory framework for their implementation, in particular regarding authorisation procedures, the required features and adequate radio frequencies.
• Determination of priorities for processing and developing quality standards to optimise man-machine communication and the use of telematics applications for improving road safety.

d. Periodic technical audit

• Exploring, together with member states, the need to include in ongoing audits the new electronic systems which are embedded in vehicles.
• Identification and promotion of best practices for the improvement of the efficiency of periodic compulsory inspections at the lowest possible cost.
3. Encouragement of the improvement of road infrastructure.

- Submission of a proposal for a Directive on the safety of road infrastructure, in order to establish a harmonised system for tracking and responding to hazards and Road Safety Audits for roads on the trans-European transport network.
- Elaboration of technical specifications for the road infrastructure, particularly for the low-cost measures, the methods of conducting Road Safety Audits, safety management in urban areas, speed limiting techniques and the “forgiving” road environment.
- Elaboration of good practice instructions for the safety of level crossings (rail and for pedestrians).
- Impact assessment on road safety of community funded projects that affect an entire area.
- Adaptation to modern technological advances of Community standards applicable to road equipment and ensuring a high level of protection, in particular with concrete measures, to reduce the risk of zones on the side of the road in case of accidents.
- Implementation of research projects on “intelligent roads”. The coming into operation of the European satellite positioning system ("GALILEO") will play an important role after 2008, when it will start operating.
- Improvement of the level of road safety in tunnels, particularly by adopting relevant specifications and informing users.

4. Safety of commercial goods and passengers transport.

- Adoption and transposition of the Directive of the European Parliament and of the Council on the training of professional drivers, which provides, inter alia, for the compulsory fitting of speed-limiting systems and the mandatory seat belt use by the driver and the passengers (in seats equipped with seat belts) etc.
- Tighter legislation (and enforcement thereof) regarding the time of rest and driving in road transport.
- Installation of digital tachographs in commercial vehicles transporting goods and passengers.
- Good practice instructions on enterprise policy, aiming at reducing the risk of accidents and injuries and encouraging the integration of safety in contracts for road transport.
- Good practice instructions on securing cargoes and transporting dangerous cargoes.
- Adaptation of Community legislation to technical progress for the transport of dangerous goods.
• Mandatory use of seat belts in coaches and heavy goods vehicles.
• Adoption of protection rules for vehicles used for the regular carriage of children.
• Study on the effects on road safety of the increasing use of small public utility vehicles and vehicles belonging to companies.

5. Rescue and post-accident care for persons injured in road accidents.
   • Study of good practices in the field of post-accident medical care.
   • Elaboration of requirements for alarm activation devices in case of an accident, combined with global satellite positioning systems (GPS).

6. Collection, analysis and dissemination of data on accidents.
   • Further development of the CARE database and wider access to it, in order to achieve greater transparency and increase its use.
   • Extending the CARE database so that it includes variables on risk exposure and the causes of accidents.
   • Assessment and improvement of systems that link hospital data with national statistics on road accidents.
   • Elaboration of requirements for accident recording devices embedded in vehicles and studies on the impact of various alternatives on different vehicle categories.
   • Defining a European methodology for independent studies on traffic accidents and creation of a team of independent experts meeting within the Commission.
   • Establishment of a European Road Safety Observatory within the Commission, which will address the need for organisation and coordination of information on accidents, fatalities and injuries, in order to support the decision making process, both at European and national level.

Assessment of the Third Action Plan (2003-2010)

According to a Communication by the European Commission (EC COM 2010, July 2010), although the target set, i.e. a reduced number of road fatalities in Europe in 2010 by 50% compared to the number of fatalities in 2000, was not achieved, the Third Action Plan played a significant role in accelerating the efforts of member states for the improvement of road safety (European Commission, 2010).
Relevant research (Bosetti et al, 2009) was carried out within the process of assessing the influence, the degree of implementation and effectiveness of the Third Action Plan. According to this research, seventeen out of the sixty-two measures foreseen in the project (approximately 27%) had been implemented. The research also showed that less than 30% of the actions were considered completed. Nevertheless, the Third Action Plan had a positive influence in the improvement of road safety.

The adoption of the following significant legislation by the European Union also had a positive influence (ETSC, 2010):

- Regulation (EC) No 78/2009 with regard to the protection of pedestrians and the reduction of the severity of accidents involving pedestrians and motorcyclists.
- Directive 2007/38/EC on the retrofitting of mirrors to heavy goods vehicles registered in the Community.
- Regulation (EC) No 561/2006 for the adoption of stricter legislation on traffic surveillance and rest periods for drivers who carry goods.
- Directive 2004/54/EC on minimum safety requirements for tunnels in the Trans-European Road Network.
- Directive 2003/59/EC on the training of professional drivers.
- Preexisting Regulation No 16 of the United Nations (UNECE) for the fitting of a mechanism reminding the driver to use a seat belt.

Regarding the specific areas of action included in the Action Third Plan, the assessment report mentions the following (Bosetti et al, 2009):

With regard to the monitoring of road safety, it was noted that it remains a major factor for the reduction of the number of road accidents and their victims, especially when intensive and known to the public. The informative campaigns were deemed effective for the promotion of road safety, especially when organised on a large scale and combined with surveillance actions. Continuous and repeated advertising and communication for road safety has been implemented in several member states, aiming at altering the behaviour of specific target groups.

The measures for training and licensing drivers were implemented to a satisfactory extent but it is difficult to assess their influence, as most of them are expected to be long-term. However, there have been actions for the improvement of the training of drivers both in research and legislation.
Regarding driving under the influence of alcohol or drugs or when tired, many initiatives have been taken for informing the public, training and surveillance, but more actions are needed. In addition, more research is required concerning the influence of substances on driving, in order to finalise their prohibition while driving.

Limited progress was recorded for the actions for the improvement of the passive safety of vehicles, since they depend on the rate of vehicle renewal (renewing the entire fleet is expected to be completed in about fourteen years). From 2001 to 2007 there was a significant improvement in the safety of users.

Significant progress has been made in measures relating to the active safety of vehicles, but their impact is medium or long-term. Overall, it is estimated that such actions have positive results because they offer assistance to the driver and provide ways of correcting human errors.

Regarding the improvement of road infrastructure, all actions have made little or moderate progress, except for those relating to safety on the trans-European road network and in tunnels. However, the actions aiming at the improvement of road infrastructure are expected to contribute significantly to road safety in the medium or in the long term and be long lasting.

Regarding professional drivers, in recent years there has been a significant reduction in the number of fatalities in accidents involving commercial vehicles. The relevant actions carried out under the Third Action Plan concern legislation on some major issues with indirect positive influence on road safety, such as working hours and rest periods. Particular attention was paid to the carriage of dangerous goods. The overall assessment of the results is modest, except for the measures relating to the use of a digital tachograph and the implementation of legislation on working hours, which were considered successful.

Despite the implementation of the e-Call system which gives the possibility of sending an automatic message to emergency services in case of a road accident, the sharing of knowledge on good practices had a major impact on post-accident medical care has not yet been completed.

Regarding the collection of statistical data and their monitoring, substantial progress has been made. Many new indicators and measured variables are available for research, monitoring and assessing road safety. However, more effort is required in order to gather all the data from all member states and to implement the results of various ongoing surveys.
The actions implemented for the development of a strong commitment by all relevant actors in the field of road safety, contributed to the adoption of shared responsibility, supporting indirectly the improvement of road safety and the reduction of fatalities in road accidents.


In July 2010, the European Commission adopted the new Road Safety Plan for 2011-2020, taking into account the results of the Third Action Plan (2001-2010) and noting that, despite the progress made, it is essential that efforts are continuous and intensified. The target set by the European Commission is to reduce the number of fatalities in road accidents by 50% from 2010 to 2020.

According to European Commission Communication COM389 (2010), road safety will play an important role in the next White Paper on the future common European transport policy from 2010 to 2020, since the reduction in the number of victims of road accidents is the key to improving the overall performance of the transport system and to meeting the needs and expectations of both citizens and enterprises. Therefore, a holistic and integrated approach taking into account the synergies with other policy targets is required. Road safety policies at local, national, European or international level should incorporate relevant objectives of other public policies and vice versa.

European policy guidelines on road safety by 2020 aim at creating a general management framework and setting goals that could guide national or local strategies. According to the principle of subsidiarity, the described actions should be carried out at the most appropriate level and having selected the most appropriate means of action.

Under these policy guidelines, the European Commission considers that the following three actions should be undertaken as a priority:

- establishment of a structured and coherent cooperation framework based on good practices in member states, as a necessary condition for the effective implementation of policy guidelines on road safety 2011-2020,
- development of a strategy for injuries and provision of first aid in order to address the urgent and growing need to reduce the number of injuries in road accidents,
- improvement of the safety of vulnerable road users, particularly motorcyclists for whom statistics on accidents are alarming.

The European Road Safety Action Plan 2011-2020 sets seven strategic objectives (European Commission, 2010a):
1. Improve education and training of road users
2. Increase enforcement of road rules
3. Safer road infrastructure
4. Safer vehicles
5. Boost smart technology for the improvement of road safety.
6. Improve emergency and post-injuries services
7. Protect vulnerable road users.

The measures relating to each of the strategic objectives are presented in detail below (European Commission, 2010c).

The individual Actions of the European Action Plan 2011-2020 are summarised below:

1. Improve education and training of road users

The Commission will work with Member States to develop a common education and training road safety strategy. At EU level this will include, as a priority, strengthening the quality of the licensing and training system, notably by widening the EU Driving License Directive (91/439/EEC), to establish:

- Minimum criteria for driving instructors.
- The integration of accompanied driving/apprenticeship in the pre-licensing period (i.e. establishing with minimum age, experience and conditions for countries which chose to use this system).
- Examining the possibility to introduce probation periods after the driving test (where tighter controls apply for newly licensed drivers).
- Examine the possibility of introducing eco-driving into theoretical and practical tests for safer, clean driving.

2. Increase enforcement of road rules

Measures to strengthen EU wide and national enforcement controls will include:

- The development by Member States of national implementation plans (e.g. targets as regards priority issues and the intensity of controls at national level).
- EU wide awareness campaigns.
• For drink driving, penalties should be accompanied by preventive measures. For example, the Commission will consider legislative measures to require mandatory use of alcologs for specific professional cases, such as school buses, or in the context of rehabilitation programmes (for professional and non-professional drivers) after drink driving offences.
• The Commission will prioritise the adoption of legally binding measures on the cross border exchange of information in the field of road safety (2008 proposed Directive) to allow for the identification and sanctioning of foreign offenders for seatbelts, speed, alcohol and traffic light offences.

3. Safer road infrastructure
• European funds will only be granted to infrastructure compliant with road safety and tunnel safety Directives. This is already the case for TEN-T funding, the Commission wants to extend it as a general principle for any EU funding, for example cohesion funding.
• Examine extending the principles of existing EU legislation on infrastructure safety management to rural roads of Member States. This legislation requires that safety requirements be taken into account in the planning process, pre-design and design stage when infrastructure is being developed. It also requires safety audits for infrastructure, identification of black spots and inspections. Extending these principles to rural roads could be done on the basis of exchange of best practice by Member States.

4. Safer vehicles
a. Active safety
• Mandatory electronic stability control (for cars, buses and trucks to reduce the risk of destabilising or rolling).
• Mandatory lane departure warning systems (for trucks and buses).
• Mandatory automatic emergency braking systems (for trucks and buses).
• Mandatory seat belt reminders (trucks and buses).
• Mandatory speed limiters for light commercial vehicles/vans (already in place for trucks).
• For electric vehicles, the Commission will bring forward a package of concrete measures setting technical standards for safety.
• The Commission will examine the possibility of extending the implementation of advanced Driver Assistance Systems, such as anti-collision warnings by retrofitting them to commercial and or private vehicles.
• Since 2003, EU legislation has been strengthened to reduce injury risk for vulnerable groups such as pedestrians, cyclists e.g. through mandating energy absorbing car fronts and, blind spot mirrors. Further technical actions in this area will need to be examined.

b. Safety of vehicles on the road – roadworthiness tests

• The Commission will strengthen EU legislation on roadworthiness tests with a view to establishing mutual recognition of roadworthiness inspections, so checks in one Member State will be recognised in another.

5. Promote the use of modern technology to increase road safety

• The Commission will propose new technical specifications, under the ITS Directive (Intelligent Transport Systems Directive) so that data and information can be easily exchanged between vehicles and between vehicles and infrastructure (for example to enable real time information on speed limits, on traffic flows, congestion, pedestrian recognition.)
• The European Commission will accelerate the deployment of e-call (automatic alarm system in case of emergency) and will examine its extension to motorcyclists, heavy duty trucks and buses.

6. Improve emergency and post-injuries services

• Establishing common definitions of serious and minor injuries to define targets with a view to then establishing common EU wide injuries target to integrate into 2011-2020 Road Safety Guidelines.
• Promote exchange of best practices between Member States on emergency service response to accidents, as well as establishing EU wide data collection and analysis on injuries.

• Examine the added value of developing and installing event data recorders (“black boxes”), in particular on professional vehicles, to improve technical investigations and analysis of accidents.

7. Protect vulnerable road users.

Introduce a number of functional vehicle safety measures like e.g. mandatory fitting of Advanced Brake Systems, Automatic Headlamp On and updated anti-tampering measures for certain categories of PTWs.

• Develop technical standards on protective equipment such as clothing, and study the feasibility of equipping motorcycles with an airbag and/or including the airbag in the protective clothing.

• Extend testing/inspections to motorbikes and other powered two wheelers (which does not exist at the moment).

4.1.2.7. International Transport Forum (ITF)

Ministers for Transport from fifty countries participate in the International Transport Forum. The Forum operates under the Organisation for Economic Cooperation and Development (OECD) and its objectives include the development of transport policy and its contribution to economic growth, environmental protection, social welfare and prosperity.

The report “Ambitious Road Safety Targets” (OECD/ITF, 2008), which involved the D.T.P.E. of the NTUA, was carried out by the International Transport Forum to identify changes in the structure and organisation required in many countries for the successful implementation of the necessary interventions focusing on results, and the examination, from an economic point of view, of investments on road safety. According to the project, ambitious targets are a strong incentive for the development of new approaches to reduce the number of fatalities and injuries in road accidents, especially when they are set in strategic plans and have been highly effective in improving road safety. Furthermore, it was concluded that the level of road safety can be improved with the implementation of certain measures of proven efficacy. These measures are related to the following issues:

- Speed management
- Driving under the influence of alcohol
- Seat belt use
- Safer road infrastructure
- Enhancing vehicle safety
- Reducing young driver risks

However, some measures generally considered effective can lead to significant improvement in the level of road safety when implemented to countries already developed in this area. Further development requires the introduction of innovative strategies and targets. As stated in the report “Ambitious Road Safety Targets”, the measures that could lead to a significant improvement of road safety, regardless of its current level in a country are (OECD/ITF, 2008):

- Improved data collection and analysis to support longer term targets and interventions.
- Setting robust interim targets, based on an agreed strategy.
- Ambitious long term vision, building on the agreed strategy with innovation.
- Adopting a Safe System approach.
- Improving key institutional management functions.
- Supporting research and development through knowledge transfer.
- Establishing adequate funding for effective safety programmes.
- Meeting management challenges, especially building political support.

Based on the above, the report “Ambitious Road Safety Targets” makes nine recommendations for the improvement of road safety (OECD/ITF, 2008):

- Adopt a highly ambitious vision for road safety.
- Set interim targets to move systematically towards the vision.
- Develop a Safe System approach, essential for achieving ambitious targets.
- Exploit proven interventions for early gains.
- Conduct sufficient data collection and analysis to understand crash risks and current performance.
- Strengthen the road safety management system.
- Accelerate knowledge transfer.
- Invest in road safety.
- Foster commitment at the highest levels of government.
4.1.2.8. Assessment of the European Road Safety Policy

The European Road Safety Policy was assessed based on the evidence presented in the previous paragraphs.

In the period from 1986 to 1997, the level of road safety in Europe improved significantly. However, it did not reach the desired levels. The delay was mainly due to the regional and local authorities of the Member States, which had to play the main role in the promotion of road safety and in the limited emphasis (at collective level) in implementing the European policy on road safety.

The elaboration and implementation of a large part of the Second Road Safety Action Plan (1997-2001), according to a Communication of the European Commission (EC COM 125, March 2000), led to further improvement of the level of road safety in Europe. Many actions were successfully completed and progress was made in strategic areas, such as better enforcement of rules and regulations in traffic, further information of the public on road safety issues and collection and dissemination of relevant information.

A crucial step for the improvement of the level of road safety in Europe was the quantitative target for the reduction of the number of fatalities in Europe in 2010 by 50% compared with the number of fatalities in 2000, initially set in the White Paper (2001) and later in the Third Action Plan (2003-2010). The European Parliament and the European Commission approved this target and all European countries commit themselves to achieving it. When this failed, the target was redefined, aiming at a reduction in the number of road fatalities in Europe in 2020 by 50% compared with the number of fatalities in 2010. All European countries are now committed to this new target.

The European Road Safety Action Plan 2011-2020 includes the basic guidelines and identifies the necessary measures for road safety. However, the experience acquired from the implementation of the previous Plans should lead to a better awareness of the benefits of individual measures compared with the cost of their implementation. Only then will the actions implemented by Member States and regional authorities, based on the cost-benefit approach and those proposed at Community level, lead to a significant reduction of road accidents. Furthermore, the consequently reduced cost of the accidents will result in high social benefits, improve the sustainability of the transport system and strengthen European competitiveness.

It should be noted that the Member States of the European Union and their societies differ substantially, both in terms of structure and culture, thus road safety actions which have proved to be efficient worldwide cannot be adopted inconsiderately. On the contrary, they must be processed in an appropriate way and adapted to local conditions (Wegman, 2000).
Towards this end, the European Union must mobilise all existing instruments related to legislating, information exchange, financial support and research, in order to implement the most effective policy for road safety. This presupposes the existence of political will, which is necessary in order to prioritise the issue in the decision making process. With regard to gathering and sharing information and knowledge, the targets can be achieved only through the systematic assessment of the effectiveness of road safety actions and the further development of international cooperation.

It should be specified that the above mentioned actions for the improvement of road safety, included in the White Paper on Transport (2001), the Third Road Safety Plan (2003) and the European Road Safety Action Plan 2011-2020 (2010), are general principles and guidelines for the policy to be implemented in our country on road safety and they collect and optimise the experience of countries which have already implemented successful Strategic Plans. They also represent the commitment of the Greek State to the European Union. Therefore, the development of the Strategic Road Safety Plan in Greece, 2011-2020 should build on the accumulated experience from road safety actions at European level and, at the same time, ensure compatibility with the European road safety policy.

4.2. Programmes and measures

4.2.1. Institutional and organisational framework of other countries

The national strategy and the setting of quantitative targets for the reduction of road accidents and their victims, reflect the prioritising of road safety and the political will manifested for its improvement in each state. However, the effective implementation of the national strategy requires an appropriate institutional and organisational framework. Experience demonstrates that the lack of appropriate structures leads to non-implementation of the developed Strategic Plans (COWI, 2010).

Research on the institutional and organisational framework in European countries indicates that the body coordinating the implementation of the national road safety strategy can be an independent authority, the Directorate of a Ministry or a unit under the competent Minister. The responsibilities and resources of the coordinating body may also vary significantly. In most Member States, road safety is the responsibility of the Ministry of Transport or the Ministry of the Interior and the coordinating body is the Road Safety Council. According to good practice, a government body responsible for the development of the road safety strategy has a coordinating role and attention is focused on results. Usually, this body is responsible for the coordination of all intra-governmental competent agencies, actions implemented in various government levels (national, regional, local).
and cooperation among government, professional, non-governmental and business entities. It is also responsible for the development of the necessary legislative framework, ensuring the required resources and establishing the framework for their rational allocation, the promotion of the road safety strategy within the government and in society, the periodic monitoring and assessment of the level of road safety, the direction of scientific research and the transfer of the acquired knowledge (COWI, 2010).

Experience shows that when an Inter-ministerial Committee assumes this role without a properly staffed and funded support unit the result is mostly discussion at senior staff level instead of effective decision-making at government level with positive results (COWI, 2010).

The key elements of the organisational and institutional framework for road safety in some well-performing Member States of the European Union and in Australia are presented below.

4.2.1.1. Sweden

Road safety is a responsibility of the Ministry of Industry, Employment and Communication. The Swedish Road Administration is the leading authority. It is the national authority bearing the overall responsibility for the entire road traffic system. It issues the relevant Regulations and facilitates work in road transport by providing information on recent developments and policies on road safety issues. Other ministries and supervised bodies also issue instructions on road safety.

The Police and local authorities are also active in the field of road safety. The National Society for Road Safety plays an important role as well. The Group for National Road Safety Co-operation is a central body coordinating the cooperation among the Road Administration, local authorities and the Police. It also participates in the National Society for Road Safety (COWI, 2010).

4.2.1.2. Netherlands

The Ministry of Transport, Public Works and Water Management is responsible for road safety in the Netherlands. The Road Safety Division of the Directorate-General of Passenger Transport is the leading authority.
The Ministry of Transport is responsible for road safety policy and the relevant legislation, but the implementation of legislation and decisions on relevant policies are decentralised. Regions prepare local Plans aiming at supporting the achievement of national targets. The Ministry of Transport is generally responsible for legislation on road safety, the construction, operation and maintenance of the road network and elaborates the National Traffic and Transport Plan which determines the targets for road safety.

Regions and Municipalities adopt local guidelines and national targets in Regional Traffic and Transport Plans. Local bodies are responsible for road safety. Regional Road Safety Agencies, established in 1994 under the Decentralisation Treaty, aim at establishing a systematic road safety approach. This approach is based on the mutual cooperation with institutions and organisations in each region. Road safety measures are designed and implemented by Municipalities and Water Control Authorities (COWI, 2010).

4.2.1.3. United Kingdom

The Department for Transport is the mainly competent body for road safety and the national road safety policy. The Road Safety Plan, which entered into force in 2000, sets out the national policy framework until 2010. According to the Law, local authorities have to guarantee safety on roads under their jurisdiction. Targets have been set at national level and local authorities set targets in the Local Transport Plans in line with national targets. Road Safety Programmes are financed by national and local taxes. The Department for Transport is also responsible for the assessment of the Road Safety Programme.

Local authorities are responsible for local action plans and the training on road safety in accordance with national regulations and guidelines on good practice.

A Road Safety Advisory Panel was established in 2000 to support the government in promoting the Road Safety Strategy and in monitoring its progress. The group was chaired by the Road Safety Minister and representatives from key competent bodies also participated in it.

The Traffic Police is responsible for surveillance. In Northern Ireland, the Department of the Environment is competent for the overall implementation of the road safety policy (COWI, 2010).
4.2.1.4. Denmark

Road safety is the responsibility of the Ministry of Transport and the Ministry of Justice and the leading body is the Danish Road Safety Commission. The Commission provides tips on road safety issues to the Ministers for Transport and Justice. Members of the Parliament, of the local government, representatives from organisations and specialised scientists participate in the Commission. This Commission has prepared the National Road Safety Action Plan.

The Minister of Justice mainly focuses on the Road Traffic Act which applies to transport on public roads, while the Minister of Transport focuses on the Public Road Act relating to road management at national and local level. Furthermore, other ministries and supervised bodies also issue guidelines on road safety.

The Danish Road Safety Council includes forty-two administrative bodies and international organisations. It was founded in 1935 and aims at the improvement of road safety through information and traffic education. It aims at informing the public and raising public awareness about road safety. For this purpose, it organises informative campaigns, offers advice and produces educational material.

The Traffic Police is mainly responsible for the surveillance of the compliance with traffic rules. It also participates in campaigns for road safety at national and local level, local councils about traffic issues and programmes on road traffic education in elementary schools. All actions on traffic management are first approved by the local Police Department.

The Danish Road Directorate, the National Road Administration and the Municipalities are responsible for the improvement of road safety on provincial and municipal roads. Such actions include analysis, design and implementation of improvements on road infrastructure. The National Road Administration also prepares national and local campaigns, in cooperation with the Danish Safety Council and the Traffic Police (COWI, 2010).

4.2.1.5. Finland

The Ministry of Transport and Communication is responsible for road safety in Finland. Actions for the improvement of road safety are carried out at national, provincial and local level. The Consultive Committee on Road Safety operates as an adviser to the Ministry of Transport and is responsible for the elaboration of the national strategy. The Committee is chaired by the Minister of Transport and includes representatives from all governmental bodies responsible for road safety, i.e. the Ministry of Justice, the Ministry of the Interior, the Ministry of Education, the Ministry of Social Affairs and Health and the Ministry of the Environment. Among the participants, there are also representatives of the
Finnish National Road Administration, representatives of the research community in the field of road safety (universities, research centres), main associations of road users (e.g. bodies of professional carriers, etc.) and other bodies (e.g. federation of local and provincial bodies, road safety organisations, insurance organisations etc.).

The State Provincial Offices coordinate the road safety actions of Municipalities which require the collaboration of many partners, through the Provincial Traffic Safety Committees, where representatives of major road safety stakeholders participate. The transport planning departments set the road safety targets for each region. In addition, they undertake the necessary design to support and implement actions and report to the Ministry of Transport about their actions in each region.

At local level, road safety actions are carried out by Municipalities. Depending on the size and conditions in each Municipality, the actions are carried out by the Municipality alone or in collaboration with others. The road safety services of the Municipality undertake the organisation, support and supervision of the actions and ensure continuous activity in the field of road safety.

The Finnish Road Administration is responsible for road maintenance and road safety. The Administration promotes road safety by designing a road traffic system in cooperation with other relevant stakeholders (COWI, 2010).

4.2.1.6. France

The main entity for road safety in France is the Inter-ministerial Road Safety Task Force. The Inter-ministerial Committee for Road Safety is the entity that takes the overall decisions on road safety issues. The Prime Minister is the chairman of the Committee, which aims at defining and implementing the governmental road safety policy. The Committee meets approximately twice per year in order to ensure continuous progress. The Head of the Directorate for Road Safety and the Traffic Department of the Ministry of Transport is the spokesman for road safety issues who has been authorised by all competent Ministries, and appointed secretary of the Inter-ministerial Committee and coordinator of the actions of the competent Ministries.

The National Inter-ministerial Road Safety Observatory is responsible for collecting, analysing and disseminating the data on road accidents and reports directly to the authorised spokesperson of all the Ministries. The reports include the assessment and continuous monitoring of problems and achievements in the field of road safety at national level. The Observatory also runs the Secretariat of the National Road Safety Council, which is responsible for conducting research and submitting proposals to the Government on road safety issues. All stakeholders responsible for road safety participate in the National Road Safety Council.
The Gendarmes, under the Ministry of Defence, are actively involved in the surveillance of road safety, as they undertake the role of the Traffic Police on inter-urban roads. The National Police Force, under the Ministry of Interior, undertakes the monitoring of the implementation of the road safety policy at local level (COWI, 2010).

4.2.1.7. Germany

The Federal Ministry for Transport, Building and Housing is responsible for road safety and the main competent body is the German Road Safety Council. The Ministry for Transport is responsible for the implementation and assessment of the road safety programme. The Federal Transport Infrastructure Plan is an investment programme framework and, therefore, does not include decisions on the financing and the time of completion of the relevant programmes. Such decisions are taken for multi-annual programmes.

The Ministry for Transport deals with some of the main causes of accidents, such as speeding, failure to keep a safe distance and driving under the influence of alcohol and substances, by systematically implementing road safety actions and imposing large fines. The Ministry aims at continuing the efforts for the reduction of casualties in road accidents and the adoption of realistic goals.

The Road Safety Council was established in 1969 as a non-profit organisation and has a different role. Its target is to support actions for the improvement of the safety of all road users. Particular emphasis is placed on construction, education, legislation and supervision issues. The Council coordinates the actions undertaken by its members, develops programmes and adapts them to new requirements and new research findings. The work of the Council focuses on users, their training and information.
The Federal Highway Research Institute (BASt) is a technical and scientific centre supervised by the Ministry for Transport. Its work includes many activities, from directly addressing issues to coordinating and carrying out research projects over a number of years. The elaboration of specifications and standards for issues related to highways is an essential duty of the BAS. The BASt works closely with other bodies such as the Road and Transportation Research Association, the German Institute for Standardisation, the German Institute for Construction Technology, the Road Safety Council, the competent state highway agencies, universities and representatives of the highways industry.

The Traffic Police is responsible for traffic surveillance and operational campaigns, and for the collection and preliminary analysis of data on road accidents (COWI, 2010).

4.2.1.8. Spain

The General Directorate of Traffic of the Ministry of the Interior is responsible for road safety. The main body responsible for road safety is the Inter-ministerial Commission for Road Safety. It was established in 1977 and has the power to take decisions on road safety with two objectives: a) to determine the national road safety policy in collaboration with all competent Ministries and b) to ensure the implementation of the national road safety policy with the cooperation of all competent bodies.

The Commission is chaired by the Minister of the Presidency of the Government and its members are the Ministers for Internal Affairs, Public Affairs, Justice, Education, Industry, Social Affairs, Tourism and Commerce, Agriculture and Fisheries and Public Health, and the twelve General Directors of more directly competent Departments of the aforementioned Ministries. The Inter-Ministerial Commission is a decision-making body (mainly for political decisions) that can determine the budgets of the relevant Ministries for road safety issues.

The Inter-Ministerial Commission is supported by an advisory group, the Superior Council for Traffic and Road Safety. The composition of the Council is very similar to that of the Inter-Ministerial Commission, but its members have a better technical training, as the Council is technically responsible for the determination of the road safety policy.

Ministries with the most important responsibilities for the improvement of road safety are the Ministry of the Interior, with the General Directorate of Road Traffic and the Ministry of Transport and Public Works, with the General Directorate of Roads. These two Ministries are responsible for compliance with traffic rules and for safety on the national road network (COWI, 2010).
4.2.1.9. Australia

The Australian Transport Council, consisting of the Ministers for Transport of the six States of the country, founded the National Road Safety Strategy Panel, as a facilitator for the implementation of the national road safety strategy and a body responsible for the exchange of knowledge on road safety initiatives. The Panel consists of representatives of state transport services, the Traffic Police, the medical care services, local bodies and groups of road users and professionals. All stakeholders of the Panel are responsible for the implementation of the National Road Safety Strategy (Australian Transport Council, 2008).

The responsibilities of the Panel include (Australian Transport Council, 2000):

- monitoring the implementation of the National Road Safety Strategy and the respective Action Plans,
- implementing projects for the improvement of road safety and the dissemination of good practices within the Austroads Road Safety Programme,
- research aimed at reducing the impact of road accidents,
- knowledge sharing between the bodies responsible for road safety,
- ensuring an effective system, so that policies and road safety action plans are in accordance with overall national targets at responsibility level,
- contributing to the harmonisation of policies and road safety practices of various actors,
- promoting the development and implementation of road safety measures based on relevant research and good practice,
- contributing to the prioritisation of road safety at national level.

4.2.2. Road Safety Strategic Plans in selected countries

All Member States of the European Union, and also Switzerland and Norway, have determined a National Road Safety Strategy, either exclusively or included in an overall strategy for transport or roads (COWI, 2010).

Table 4.1 presents data on the existence or elaboration of a National Road Safety Strategy and the existence of quantitative targets and progress in countries of the European Union, Switzerland and Norway (COWI, 2010).

The majority of countries has a National Road Safety Plan, with the exception of Luxembourg. Also, all countries have set quantitative targets, except for Luxembourg and Germany. In some countries, such as Sweden, Slovenia, Finland and Norway, long-term plans have been established. "Vision
Zero" in Sweden aims at the long-term elimination of deaths and injuries in road accidents. However, like in other countries, medium-term quantitative targets have been set for the improvement of road safety over 7-10 years. Generally, new Member States have adopted the target of the European Union for the reduction of fatalities by 50%, while the older ones have maintained their national targets. However, it is acknowledged that a common European target is important in setting new ones and in active participation for the improvement of road safety at national level.

Table 4.3. National Road Safety Strategy and Quantitative Targets in the EU-25, Norway and Switzerland (COWI, 2010)

<table>
<thead>
<tr>
<th>Country</th>
<th>National Road Safety Strategy in force (year of elaboration)</th>
<th>National Road Safety Strategy in preparation (year of entry into force)</th>
<th>Main quantitative targets</th>
<th>Progress for achieving the target related to fatalities (year of reference)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>Yes (2009)</td>
<td>Yes (2010)</td>
<td>Reduction of fatalities by 50% and reduction of accidents resulting in injuries by 20% by 2010 compared with the average of the 1999-2000 period.</td>
<td>Consistent with the target (2008)</td>
</tr>
<tr>
<td>Bulgaria</td>
<td>Yes (2007)</td>
<td>-</td>
<td>Reduction of fatalities and injuries by 25% by 2010 compared to the average of the period 2002-2005.</td>
<td>No related data available</td>
</tr>
<tr>
<td>Denmark</td>
<td>Yes (2007)</td>
<td>-</td>
<td>Reduction of fatalities and injuries by 40% by 2012 compared with 2005.</td>
<td>Consistent with the target (2009)</td>
</tr>
<tr>
<td>Estonia</td>
<td>Yes (2003)</td>
<td>-</td>
<td>The number of fatalities in 2015 does not exceed 100 or it is reduced by 50% compared with 2001.</td>
<td>Falls short of the target</td>
</tr>
<tr>
<td>Finland</td>
<td>Yes (2006)</td>
<td>-</td>
<td>The number of fatalities in 2010 does not exceed 250 or it is reduced by 42% compared with 2000. The ultimate target is zero fatalities.</td>
<td>Consistent with the target (2008)</td>
</tr>
<tr>
<td>France</td>
<td>Yes (every year)</td>
<td>-</td>
<td>Reduction of fatalities by 35% by 2012 compared to 2007, i.e. less than 3,000 deaths.</td>
<td>Consistent with the target (2008)</td>
</tr>
<tr>
<td>Germany</td>
<td>Yes (2001)</td>
<td>-</td>
<td></td>
<td>Consistent with the European target (2008)</td>
</tr>
<tr>
<td>Country</td>
<td>Year (start)</td>
<td>Year (end)</td>
<td>Objective Description</td>
<td>Status</td>
</tr>
<tr>
<td>--------------</td>
<td>--------------</td>
<td>-----------</td>
<td>---------------------------------------------------------------------------------------</td>
<td>------------------------------------------------------------------------</td>
</tr>
<tr>
<td>Ireland</td>
<td>Yes (2007)</td>
<td>-</td>
<td>Evidence proving that the number of fatalities/million population in 2012 does not exceed 60 and, in the following years, 50 or less.</td>
<td>Ahead of the target (2008)</td>
</tr>
<tr>
<td>Luxembourg</td>
<td>No</td>
<td>-</td>
<td>-</td>
<td>European target achieved (2008)</td>
</tr>
<tr>
<td>Malta</td>
<td>Yes (2007)</td>
<td>-</td>
<td>Reduction of road accidents causing injuries by 50% by 2014.</td>
<td>No related data available</td>
</tr>
<tr>
<td>Netherlands</td>
<td>Yes (2008)</td>
<td>-</td>
<td>The number of fatalities and injured individuals in 2010 does not exceed 750 and 17,000 respectively. The number of fatalities in 2020 does not exceed 580.</td>
<td>Target achieved (2008)</td>
</tr>
<tr>
<td>Norway</td>
<td>Yes (2008)</td>
<td>-</td>
<td>Reduction of fatalities and heavy injuries by 33% by 2020 compared with 2009.</td>
<td>New target - No relevant data available</td>
</tr>
<tr>
<td>Romania</td>
<td>Yes (2002)</td>
<td>-</td>
<td>Reduction of road accidents by 50% by 2010 compared with 2002.</td>
<td>Falls short of the target</td>
</tr>
<tr>
<td>Slovakia</td>
<td>Yes (2005)</td>
<td>-</td>
<td>Reduction of fatalities by 50% by 2010.</td>
<td>Falls short of the target</td>
</tr>
<tr>
<td>Slovenia</td>
<td>Yes (2006)</td>
<td>-</td>
<td>The number of fatalities in 2011 does not exceed 124 or is reduced by 50% compared with 2005.</td>
<td>Almost consistent with the target (2008)</td>
</tr>
<tr>
<td>Spain</td>
<td>Yes (2010)</td>
<td>-</td>
<td>The number of fatalities/million population in 2020 does not exceed 37.</td>
<td>New target - No available relevant data yet</td>
</tr>
<tr>
<td>Switzerland</td>
<td>Yes (2005)</td>
<td>-</td>
<td>The number of fatalities and heavy injuries in 2010 does not exceed 300 and 3,000 respectively.</td>
<td>Consistent with the target (2008)</td>
</tr>
</tbody>
</table>
The following paragraphs summarise the key elements for the implementation of the Strategic Plans in selected states with a high performance in road safety.

4.2.2.1. Sweden

Road safety actions in Sweden are based on the “Vision Zero” approach for a safe road traffic system, where there are zero fatalities or heavy injuries. Although a specific Strategic Plan is not yet implemented, the bodies responsible for road safety (municipal authorities, Traffic Police, insurance companies, the car industry, the Swedish Road Administration, etc.) have adopted an approach to road safety management based on the targets set. Specific targets related to various performance indicators, such as compliance with speed limits and seat belt use, have been set and are acknowledged by all relevant road safety bodies. These specific targets are expected to facilitate the achievement of the intermediate target set for 2020 and, in the long run, the target for zero fatalities in road accidents.

The previous Strategic Road Safety Plan had set a target for 270 deaths in road accidents in 2007, but it was not achieved. The assessment of the failed effort proved that the target was not acknowledged by all the main bodies on road safety, only by the Swedish Road Administration. It also showed that the target did not offer an incentive for the mobilisation of various bodies and that the necessary monitoring was not carried out.

Therefore, the current target was set after the cooperation among competent bodies. Representatives of various bodies cooperated in order to determine the future road safety actions, to establish a systematic monitoring of performance indicators and to adopt a management approach based on the targets set.

In May 2009, the Swedish Parliament adopted a new target for road safety, according to which the number of fatalities in 2020 would be reduced by 50% compared to 2007. Furthermore, a target was set for the reduction by 25% of the number of heavy injuries, as defined by the functional abilities of injured individuals and not according to the reports of the Traffic Police. Finally, an approach for the management of road safety was officially adopted based on the targets set and presupposes the collaboration among all bodies competent for road safety (OECD/ITF, 2009).
4.2.2.2. Netherlands

The Road Safety Strategy in the Netherlands follows the sustainable safety approach. According to the basic principles of this approach, the user is the reference point and prevention is the preferred method for dealing with road accidents. The five safety principles include: functionality of the road, uniformity in mass, speed and direction, forgiving environment, recognisable and predictable roads and behaviour and user awareness of the current conditions.

The Mobility Strategy 2005 set ambitious targets for road safety, which included a reduction by 2020 of the number of road fatalities to less than 500 and a reduction of injured persons who need hospitalisation to less than 12,250. In order to achieve these objectives, it was required to adopt an ambitious policy that led to the elaboration of the Road Safety Strategic Plan 2008-2020. The Plan is based on the three successful principles of the last years: collaboration of various bodies, integrated approach and sustainable safety. The policy for the period 2008-2020 is based on two approaches:

- implementation of traditional road safety measures for continuous improvement during the last years,
- focus on specific issues that require special attention, including vulnerable users and users who create unsafe traffic conditions.

The identification of innovative solutions is an integral part of the implementation of the measures. In 2008, with positive results already achieved, new targets were set, aiming at the reduction of the number of road fatalities to less than 750 by 2010 and the reduction of the number of injuries who need hospitalisation to less than 17,000.

According to available data and provided that the efforts and the positive results continue, the target set for 2020 in relation to the number of fatalities is feasible. This is not true, though, for the target related to the number of injured persons who need hospitalisation, which seems to be more difficult to achieve (OECD/ITF, 2009).

4.2.2.3. United Kingdom

The Strategic Road Safety Plan “Tomorrow’s roads - safer for everyone” was published by the Government in 2000 for the period until 2010. This Plan sets the following ambitious targets:

- A 40% reduction in the number of people killed or seriously injured in road accidents by 2010 compared with the average for 1994-1998.
• A 50% reduction in the number of children killed or seriously injured by 2010 compared with the average for 1994-1998.
• A 10% reduction in the slight casualty rate, expressed as the number of people slightly injured per 100 million vehicle kilometres by 2010 compared with the average for 1994-1998.
• The reduction in the number of injuries in 88 run-down areas, where welfare programmes are being implemented (Neighbourhood Renewal areas), should be more significant than the corresponding reduction across the country by 2010 compared with the average for 1999-2001.

At present, the new Strategic Plan beginning in 2010 is elaborated by the Department for Transport, in cooperation with the authorities of Scotland and Wales. This Plan will define the road safety approach to be followed, set new targets and determine the measures to be implemented in the next decade (OECD/ITF, 2009).

4.2.2.4. Denmark

The Road Safety Action Plan, published in 2000, set a target for the reduction of the number of fatalities and serious injuries by 40% by 2012. The measures envisaged for the achievement of this target mainly focused on speeding, the safety of cyclists, new drivers and drink driving.

The Plan includes one hundred specific actions and makes a clear allocation of the responsibilities related to each one of them. The implementation of all the actions is expected to guarantee the success of the target. Some examples of actions are: the installation of fixed cameras for the surveillance of speed limits (at six points in pilot stage), improvements in the training of drivers and helmet use by cyclists. Since the 2006 figures on the number of fatalities were close to the target set for 2012 (300 deaths), in 2007 the Traffic Safety Committee revised its target and set the limit at 200 deaths for 2012 (OECD/ITF, 2009).

4.2.2.5. Finland

The Finnish Government has been working systematically on road safety and focuses on the targets set with decisions taken in 1993, 1997, 2001 and 2006.

Under the 2001 decision, a long-term vision for road safety was adopted, aiming at the creation of a road traffic system designed for zero fatalities or serious injuries. The Road Safety Plan, which established the basis for this decision, aimed at creating opportunities for the continuous improvement of the road traffic system, so that the annual number of fatalities by 2025 would be smaller than 100. At the same time, the government revised the target set in 1997, laying down as a condition that by 2010 the annual number of fatalities should be less than 250.
With its decision of 9th March 2006, the government ratified the targets that it had already set. Current trends, combined with the actions already planned, suggest that the target set for 2010 is difficult to achieve, as it requires a reduction in the number of fatalities by 100 compared with the number recorded in 2008 (OECD/ITF, 2009).

4.2.2.6. France

In France there is no long-term Strategic Road Safety Plan. On the contrary, the National Road Safety Strategy is determined anew every year. In 2007, the President of France set a national target for the reduction of road fatalities to 3,000 by 2012. This number corresponds to a reduction by 35% of the corresponding number of 2007 and to an average annual reduction by 8.3%. Other quantitative targets have not been set. In 2008, the reduction of the number of fatalities was 7.1%, i.e. a little less than it was required for the achievement of the target (OECD/ITF, 2009).

4.2.2.7. Germany

The current Road Safety Action Plan of Germany “Programme for more safety in road transport” came into force in 2001. This Plan does not include specific quantitative targets. However, a general target is set for the greatest possible reduction in the number of road fatalities and injuries. According to this Plan, mobility is an expression of freedom and quality of life and a necessary condition for economic progress and development. Human and social behaviour are important elements of road safety culture education and the behaviour of road users should be characterised by increased accountability, reduced aggressiveness and increased respect for vulnerable users. The priorities set by the Ministry for Transport, Building and Housing are (OECD/ITF, 2009):

- improvement of the current climate in the country’s road traffic system (e.g. reduction of the aggressiveness of drivers)
- protection of vulnerable road users (children, elderly people, pedestrians, motorcyclists and cyclists)
- reduction of the risk for new drivers
- reduction of the potential risks for heavy vehicles
- improvement of road safety on the main roads of the inter-urban road network
4.2.2.8. Spain

In 2003, the Road Safety Strategic Plan for 2004-2008 was adopted. The Plan is based on three main axes:

- A number of specific road safety measures for 2004-2005, designed to achieve immediate results and presented by the General Directorate of traffic in 2004. These measures include the implementation of the Drivers' Behaviour Control System (D.B.C.S.), the creation of a National Road Safety Observatory, the enhancement of the Road Safety Council, increasing the staff of the Traffic Police and installing cameras for the surveillance of speed on highways.
- The development of the Strategic Action Plan for 2005-2008, with the active participation of all relevant stakeholders.
- The development of the Urban Road Safety Plan, aiming at determining a methodology for the implementation of the appropriate interventions.

The Strategic Plan for Infrastructures and Transport was adopted in 2004.

The target set for 2008 was the reduction of the number of road fatalities by 40% compared to 2003. This target was achieved, as the number of fatalities decreased by 43%. With regard to the European target of reducing the number of fatalities by 50% by 2010 compared with 2000, Spain has achieved a 44% reduction by 2009 and the current trend indicates that it is possible to achieve the target.

The Strategic Plan also set more specific targets about fatalities related to vulnerable categories of users and about serious injuries. Today, a new Strategic Plan, with new targets, is being developed (OECD/ITF, 2009).

4.2.2.9. Australia

In November 2008, the Transport Council of Australia presented the National Road Safety Action Plan for 2009-2010. The Plan includes an extensive list of measures and supporting actions for implementation in priority. Some of the main actions included in the Plan are:

- develop a national speed management policy,
- establish a model for the evaluation of systematic risks on the main sections of the road network,
- focus on the implementation of the safe system approach for road planning, construction and maintenance,
- carry out actions to improve the awareness of road users and their understanding of the safety features of vehicles, including systems for monitoring stability, protecting the head in case of a lateral collision and reminders of seat belt use and speed adjustment,
• focus again on the effective surveillance of rules for driving under the influence of alcohol or drugs, in conjunction with informing the public.

Since the existing Strategic Road Safety Plan is to be implemented until the end of 2010, the preparation of the new ten-year Strategic Plan for 2011-2020 has already begun. The results of an ongoing project concerning the standardisation of the data on accidents will provide the quantitative basis for defining the actions and objectives of the new Strategic Plan.

The target set in the current Strategic Road Safety Plan of Australia is the reduction of the annual rate of fatalities in road accidents to 5.6 deaths per 100,000 population by the end of 2010. This corresponds to a 40% reduction compared with 1999, when the relevant rate was 9.3 deaths per 100,000 population. By the end of 2004, the trend showed that the 2010 target can be achieved. However, the actual rate falls significantly short of the desired target and the possibility of achieving it is very low. In July 2009, the rate was 7.2 deaths per 100,000 population.

Although the exact reasons are not entirely clear, it appears that the strong economical state of Australia during the last decade, to some extent reflected in traffic-related figures, affected the progress rate which was slower than expected (OECD / ITF, 2009).

4.2.3. Successful road safety measures based on cost-benefit ratios in other countries

Road safety measures implemented worldwide have been recorded, analysed and assessed through various research projects, many of which have been funded by the European Commission. Two of these projects are: “ROSEBUD - Road Safety and Environmental Benefit - Cost and Cost - Effectiveness Analysis for Use in Decision - Making”, carried out during the 2002-2005 period and research project “SUPREME - Summary and Publication of Best Practices in Road Safety in the Member States”, carried out during the 2005-2007 period.

These measures may be taken into account during the specialised implementation of the actions of the Strategic Plan. It should be noted that the economic assessment of road accidents and mitigation measures should always be interpreted with great caution, because of the great difficulty to evaluate the pain, grief and suffering caused by deaths and injuries in road accidents. According to the safe system approach, human life cannot be valued in financial terms. The relevant cost-benefit evaluation methodologies are internationally under review.
The ROSEBUD research project carries out an analysis and assessment of road safety and environmental protection measures in different countries, aiming at the improvement of the level of road safety. Specifically, the project includes an analysis of the existing methodologies for the evaluation of road safety measures and the identification of the main problems and factors that impede the use of effective assessment methodologies. It also suggests ways to address weaknesses and difficulties, in order to develop and improve the techniques for the evaluation of road safety measures. Audits are conducted on the implementation of the proposed methodologies in “real” conditions and a plan is being developed for the implementation of the results.

A handbook was written in the context of the project, including road safety measures evaluated according to their efficiency. This handbook includes a brief description of each measure, examples of its implementation and the results of the evaluation. Most of the measures have been implemented or planned to be implemented in at least some European countries. It is evident that the efficiency of each measure depends largely on the mode of its implementation. Consequently, the effectiveness of the measures mentioned in the handbook as successful examples is not necessarily guaranteed in every case.

The measures are evaluated based on the results of the cost/benefit or cost/effectiveness analysis of the implementation of the measure. A road safety measure is ranked as “poor”, “acceptable” or “excellent”, if the benefit/cost ratio is less than one, 1-3 and more than 3 respectively (ROSEBUD, 2006).

In the context of the SUPREME project, good road safety practices in the Member States of the European Union, in Switzerland and Norway were collected, analysed, summarised and published. The project resulted, among other things, in a handbook of measures at country-level, which is a collection of good practices on a national scale.

For this purpose, an extensive procedure was followed, in order to determine whether a measure may be regarded as an optimal, good or promising practice. Originally, the best practice criteria were set, including scientifically documented results in regard to road safety, a positive cost/benefit ratio, expected sustainability of results, public acceptance of a measure and the possibility to implement it in other countries. For each of these areas of interest, experts from 27 different European countries proposed national measures of best practice via a questionnaire on the Internet, thus providing evidence that these measures satisfied more criteria, if not all. With this process 250 best practice measures were recorded. Then, the experts examined the information provided by the national
experts, sometimes asking for additional information whenever they thought it was necessary and evaluated the various criteria. Furthermore, they were based on existing knowledge from bibliographic sources or other projects of the European Union. This process resulted in a final list of examples.

Some of the measures described in the handbooks of both projects and relate to the improvement of the safety of users, vehicles and road infrastructure are outlined below.

4.2.3.1. Measures for the improvement of the safety of road users and the care for the injured

- **Surveillance of speed limits**

Various methods of implementing measures for compliance with the set speed limits are recorded internationally. The automated surveillance systems are considered the most effective ones, due to the fact that they are very frequently used and, consequently, objectively more able to detect offenders. The automated systems are more efficient when vehicle owners are held responsible instead of drivers, because it is easier to find them. Their efficiency increases even more when fines for recorded violations are automatically imposed. Fixed and mobile cameras are a well-known method for the automated surveillance of speed limits which is implemented in many countries in Europe and worldwide.

In the UK, local organisations are responsible for managing the installation of security cameras. The installation locations are determined by strict guidelines, depending on the number of accidents and the locations with recorded increased violations of the speed limits. The cameras are marked very visibly so that road users can locate them quickly and easily. The revenue from fines is used for investing in cameras and other road safety measures. In 2000 a pilot programme started with eight organisations. Subsequently, it was implemented at national level. By the end of 2004, 38 organisations participated in the programme and managed over 4,000 locations with cameras. Since then, it is increasingly implemented. In the United Kingdom, the driver is held responsible and charged for any violations of the speed limit, but the vehicle owner also has to recognise the driver. Evaluation studies showed a 70% reduction in violations of speed limits in locations where cameras have been installed. The average decrease of speed was 6% and of the number of road accidents near these locations from 10% to 40%. The estimated cost of surveillance, including the relevant training and information, amounts to about £96 million (approx. EUR 140 million). The estimated savings from the reduction of collisions are approximately £258 million (i.e. approx. EUR 380 million). Therefore, the estimated benefit/cost ratio is around 2.7.
In **France** a programme for the automatic enforcement of speed limits began in 2003. Since then, 1,000 fixed and 500 mobile cameras for the recording of speed started operating at national level. The cameras are directly connected to a central processing data office where pictures of license plates are used to identify the vehicle owner responsible for the infringement. Legislation has been adjusted so as to allow this type of automated identification of offenders. The fine is automatically sent to the vehicle owner, who must pay it within 45 days. Only after the fine has been paid can another driver be identified as the offender. This new policy has reduced the rate of appeals on relevant decisions to less than 1%. The location of fixed and mobile cameras is decided by the Traffic Police based on the data on traffic and accidents. While implementing the measure, extensive campaigns were carried out on the installation of cameras and the improvement of safety by reducing speed. The positions of fixed speed cameras are shown on the Internet.

From 2002 to 2005, the average speed on the roads of France was reduced by 5 km/h. During the same period, the number of fatal accidents decreased by over 30%. Approximately 75% of this reduction is attributed to the new system of cameras for the monitoring of speed. The annual cost of managing the 1,500 cameras is approximately EUR 100 million. The annual revenue from fines for excessive speeding amounts to EUR 375 million. This revenue is used to finance and maintain the system. The rest of the revenue funds other road safety activities. The benefit from the savings due to the reduction of accidents has not been evaluated.

**Surveillance of drink driving**

Drink driving is another major road safety problem in many countries. The legal limit differs between countries. The majority of European countries have set the blood alcohol limit to 50 ml (about 0.5 in the blood) or less. This is the limit recommended by the European Commission. Although infringements under the influence of alcohol are less common than those related to excessive speeding, the impact on road safety is important. It is estimated that 20-25% of victims of road accidents are linked to excessive alcohol consumption. Random blood alcohol content controls for drivers are the most common method of enforcing the measure.

The **Swedish** legislation allows the Traffic Police to conduct breath tests on drivers involved in accidents, those who have been arrested for a traffic violation or a random violation during scheduled controls. The percentage of accidents, in which drivers under the influence of alcohol exceeding the permitted limit were involved, was reduced from 14% to 9% after the introduction of these controls in the 1970s.
In Finland, from the late 1970s, when this measure was introduced, and in the following years, the consumption of alcohol and the vehicle-kilometres travelled were doubled. Nevertheless, during the same period, the percentage of drivers under the influence of alcohol above the permitted limit initially dropped by half and remained close to 0.2% from early 1980 onwards. The number of fatal accidents involving drivers under the influence of alcohol above the permitted limit remained close to 80 during the last ten years, a figure similar to that of the 1970s.

In the Netherlands, the doubling of the number of breath tests since 1986 was accompanied by a reduction of offenders driving under the influence of alcohol, by 25% by 2005, while between 1985 and 2005 the percentage of offenders was reduced by two thirds.

Since 2003, it is mandatory for all drivers in Denmark subjected to the regular traffic controls (e.g. control for non-compliance with speed limits or control for the use of seat belts) to be subjected to breath tests. The number of accidents associated with alcohol consumption dropped by more than a quarter in two years from the implementation of this measure.

Estonia started implementing this measure in 2005. During 2005, 180,000 drivers were subjected to a related control. The percentage of drivers under the influence of alcohol above the permitted limit was reduced from 1.86% to 1.19% between 2004 and 2005.

The cost of this measure includes the cost of monitoring and management. The benefits arise from the reduction of the cost of accidents. According to an estimate in Norway, the tripling of the number of breath tests would reduce fatalities by 3%, while the benefits would exceed the costs by a 1.2 indicator.

- **Monitoring of the use of seat belts and child restraint systems**

The use of seat belts greatly reduces significantly the possibility of serious injuries and fatalities. Specifically, seat belts are more efficient for avoiding fatal injuries than serious ones. This is due to the fact that fatal accidents are closely linked to cranial injuries or serious skeletal injuries, i.e. injuries that can be avoided mainly with the use of seat belts. The efficiency of safety belts is basically associated with impact speed and increases at lower speed. That is why it is important to use seat belts on urban roads. The efficiency of child restraint systems (special seats) is even more important than the efficiency of seat belts.

In Denmark, traffic controls target specifically drivers who do not wear seat belts. Scheduled controls increase the likelihood of finding drivers who do not use seat belts. During these controls, all passengers are controlled and the Traffic Police ensures that child restraint systems are used correctly and in accordance with the new regulations of the Road Traffic Code of Denmark. Monitoring actions are accompanied by information campaigns. Although approximately 87% (2005) of drivers in Denmark use seat belts, for certain groups of road users this percentage remains low. Specifically, 30% of drivers of small trucks and 35% of rear seat passengers do not use seat belts.
From 2000 to 2005, the compliance rate for seat belts increased from 80.1% for drivers of passenger vehicles to 87%. This is probably due to traffic controls combined with information campaigns. It may also be due to the fact that in September 2000 fines were significantly increased from 200 DKK to 500 DKK (i.e. approximately from EUR 27 to 67).

**Drivers’ Behaviour Control System (D.B.C. S.)**

The D.B.C.Ss, also known as “point systems”, aim at prosecuting drivers who violate the law repeatedly. In case of a traffic violation, the offender receives one or more penalty points (or one or more bonus points - bonus are removed). When penalty points exceed a certain limit, the driving licence is temporarily suspended. However, there is a possibility to participate in rehabilitation programmes in order to cancel some of the penalty points. Many European countries have already adopted this system. It is particularly popular with the general public, mainly because this measure is perceived as a fair and strict way to penalise repeat offenders. It is quite complex to estimate the D.B.C.S. results but, in general, they are considered effective. Current indications suggest that the contribution of these systems is small and limited mainly to the first months after the introduction of the measure. This is due to the fact that drivers consider relatively small the probability of a violation being detected. In order to increase efficiency, the system must be particularly strict and there should be a large probability of detecting infringements.

**Latvia** has implemented this control system on 1 July 2004. This system aims at distinguishing repeat offenders from those who generally comply with the rules. Depending on the severity of the offence, one to eight penalty points are imposed. The points are valid for two years, with the exception of violations related to excessive alcohol consumption, which are in force for five years. The driving licence is removed when the driver has collected sixteen points or ten points in case of new drivers (i.e. within two years after acquiring the licence). The driver has the right to retake the driving test one year after the withdrawal of the first licence. With regard to drivers who exceed the sixteen point limit twice in ten years, their driving licence is withdrawn for five years. Drivers who exceed eight points must attend a programme for the improvement of their driving behaviour. This penalty point system covers all offences which may cause an accident. The measure is implemented to all vehicles except for motorcycles and bicycles.
The comparison of data before and after the implementation of this system showed that the number of offences by drivers was reduced by about 20%. This may be due to the improvement of road safety in Latvia. During the year that followed the implementation of this system, the number of accidents resulting in property damage and injuries decreased by 7.2%, the number of fatal accidents decreased by 11.4% and the number of injuries decreased by 4.3%. The cost of the implementation and maintenance of these systems is approximately EUR 0.43 million per year. The simultaneous implementation of other measures during this period may have contributed to the reduction of accidents. According to research, the implementation of this system in all types of accidents leads to a reduction of accidents of about 5%.

- **Training of drivers**

Considerable differences between national laws and regulations on the training of drivers are recorded internationally. The most common approach is training by certified instructors, followed by (practical and theoretical) tests. Then, if the results are successful, the driving licence is awarded. In many countries, vocational training is supplemented with practical training with a parent present or another adult who already has a driving licence. Some other countries implement a multi-phase approach, which includes mandatory training before and after the driving test.

In **Denmark**, the training of drivers changed radically in 1986. The new system provides a well-structured sequence of steps which must be followed by the instructor during the training process. The training is structured in such a way that the trainee is guided from the easiest to the most difficult actions through frequent transition between theory and practice. The training is based on a detailed programme that includes all theoretical and practical requirements for driving and which must be strictly followed by instructors. Defensive driving and risk perception are two issues of particular importance during the initial training. The student must attend at least 26 theoretical classes and 20 practical ones. Practical learning starts in a specially designed area, away from traffic, and progressively moves to public roads. The training also includes risk awareness exercises in specially designed training areas. After the implementation of the new training programme, during the first year of driving the recorded reduction of the risk of road accidents amounted to 7%. This risk appears to be completely eliminated after the first year of driving. However, it seems that the effects during the first year of driving are the same in each subsequent generation of young drivers.
Accompanied driving is implemented in an increasing number of European countries (17 countries in late 2006, including Austria, Belgium, France and Sweden), although the legal and organisational details may vary. Accompanied driving aims at offering young and novice drivers as much experience as possible before they obtain the licence, as compared to the ordinary technical training offered by official driving school instructors. Although accompanied driving increases the exposure of young drivers to risk, experience so far indicates that the number of accidents reduces during the accompanied driving phase and the result is positive since the risk of accidents after obtaining the driving licence decreases.

In Sweden, through a reform implemented in September 1993, the age limit for learning to drive has dropped from 17 to 16 years, while 18 remained the legal age for obtaining a licence. Lowering the age limit for training aimed at allowing students to gain more experience through accompanied practical training before their final driving test. Beginning driving training at 16 is voluntary, but a large number of candidate drivers make use of this possibility.

During the first year after obtaining the licence, the risk of road accidents/million kilometres for novice drivers was 0.975 with the old system and 0.527 for drivers who follow the new system. This indicates a risk reduction of about 46%. One issue that raised concerns was that the accident rate could have increased during practical training, thus eliminating the beneficial effects after licensing the driver. However, comparing the cost of the measure based on the number of accidents occurring during practical driving training, the benefits arising from the reduction after obtaining the licence seem to outweigh the cost by an indicator of 30. The small risk of accidents during accompanied driving has also been confirmed in Great Britain. The effectiveness of the Swedish accompanied driving system seems to have decreased in recent years. Trainee drivers have fewer hours of practical accompanied training.

Road safety education usually takes place in schools and focuses on various means of transport and the active or passive roles that students of various ages may assume. Although many countries support the so-called lifelong learning, in practice the majority of traffic education programmes focuses on elementary school students. Secondary school students and older ages participate less often in road safety education programmes. Admittedly, educational measures that combine knowledge, skills and behaviours are considered better than measures that focus solely on one of these components. The relative importance of the three components should be adjusted to the objective of the measure. Furthermore, it is important that road safety education be incorporated in other road safety measures, such as the surveillance, and the broader context of school education (if it is related to actions within the school system).
France applies a “training cycle”, which starts from kindergarten and extends to the period following the acquisition of a driving licence. This aims at the progressive acquisition of skills through successive programmes adapted to the age of the “student”. It also aims at the development of skills in various modes of transport (walking, cycling, riding motorcycles, driving a car) and the development of a positive behaviour and attitude towards road safety for all road users. Further stages are examined, including continuous education for all drivers, specific training of elderly users so that they maintain the ability to drive as long as possible, as well as psychological support for victims of road accidents.

Belgium implements the “Flash!” road safety training programme, i.e. a theatrical monologue for multimedia, with live entertainment, for young people and adults (16+). “Flash!” focuses on accidents involving young people and those that take place during the night and especially on weekends. A professional actor narrates the story of a group of friends who go out on a Saturday. Although the story is very pleasant in the beginning, it ends in tragedy. An animation film, video games and music transform the monologue into a modern video clip. “Flash!” raises awareness among young people through images and using their language. The objective is to entertain and not moralising in any way. After watching the video, during the debates, one can share their personal experiences and feelings, which contribute to making the topic more realistic. As a result, “Flash!” has a great impact in schools. The monologue is also available on DVD.

Road Safety Campaigns

Road safety campaigns, as an independent measure, generally have little influence on road safety. However, they are of critical importance when it comes to supporting other measures, such as legislative ones, and enhancing the acceptance of measures. In general, campaigns aim at clarifying new regulations, informing on specific road safety problems and explaining the reasons why some specific measures are required. Some measures aim directly at altering driving behaviour (e.g. reducing speeding, promoting the use of seat belts, lights and reflectors on bicycles, etc.). It is important that the message is short, clear and unambiguous. It is also important that a campaign uses various instruments of promotion, such as panels for posting messages, radio and television, brochures, etc. and that the messages are repeated several times.
Norway is carrying out the “Speak out!” campaign for young passengers. It targets young people between 16-19 who travel as passengers at night or during the weekend. This campaign encourages young people to speak out if the driver does not drive safely, for example when the driver drives too fast or under the influence of alcohol or drugs. Young people are often afraid to take action because they are younger and, more importantly, out of respect for older people. The relevant communication and messages spread through visits in schools, information offices in control stations, videos and promotional shirts. The communication activities are supplemented by monitoring. The aim is to support young people to express themselves through positive behaviour and, at the same time, to carry out controls and penalise those indifferent to the messages of the campaigns. The controls are carried out in visible locations, by uniformed police officers.

According to the evaluation of the first three years of the campaign, the number of fatal or serious accidents with passengers aged 16-19 decreased by 27% in the first year, 31% in the second year and 36% in the third year. No change was observed in the number of fatalities and injuries of young drivers. The benefit/cost ratio ranged from 1.9 (based on the development costs and the lower confidence limit in terms of the impact on safety) to 16.8 (not counting the cost of development, but taking into consideration the best estimate of the impact).

First Aid Courses

In some European countries (Austria, Bosnia and Herzegovina, Estonia, Germany, Hungary, Latvia, Lithuania, Slovakia and Switzerland) the first aid courses are a mandatory part of the training of drivers. This measure is particularly important for rural areas, where emergency medical care services often have difficulty reaching the scene of the accident within 5-15 minutes. The courses are often organised by organisations such as the Red Cross.

A common way to assess the effectiveness of the measures in the field of public health is to evaluate the “Quality Adjusted Life Years” (QALY) element. The so-called “QALY” represents a year of life in optimal health. When a road accident causes physical and psychological disorder, the number of Quality Adjusted Life Years decreases. The impact on “QALY” can be important because emergency aid can save lives and prevent damage to the nervous system. The cost of first aid courses is paid by drivers and there is no expected additional cost for governments.
Effective emergency response

The response to emergency calls must be efficient, ensuring prompt arrival of the emergency services at the scene of an accident. The interval between the accident and the arrival of rescue services (response time) can be reduced through technical measures, measures related to infrastructure, clear instructions to road users about the actions needed to facilitate conditions for emergency vehicles and good organisation and coordination at the scene of the accident.

The key element of the measure for effective emergency response, as implemented in the Netherlands, is the agreement between insurance companies and the Ministry of Transport to send a trailer truck to the scene of the incident immediately after it is reported. In case of false alarms, the cost is borne by the Ministry of Transport and by the insurance company in all the other cases. Due to the implementation of this measure, the response time was reduced by about 15 minutes on average. The measure was fully implemented in the highway network of the Netherlands and partially in the regional road network. The benefits include faster assistance to victims, prevention of secondary collisions and avoiding traffic congestion. Regarding the national road network in the Netherlands, the reduction of the wasted time in case of a traffic congestion because of an accident was estimated at 5 to 15 minutes per incident and vehicle. In total, this amount of time corresponds to 2 to 4 million hours per year. The annual cost of this measure for the country is estimated at EUR 650,000 (equivalent to 6,500 false alarms). The benefit/cost ratio ranges from 27.8 (based on the reduction of vehicle delay by 5 minutes) to 76.3 (reduction of vehicle delay by 15 minutes).

First aid and transportation of victims

The professional care of injuries during the crucial post-accident hour (the so-called Golden Hour) is of the utmost importance. If a seriously injured victim does not receive proper care in the first 60 minutes, the chances for recovery are reduced dramatically. Professional care on the scene of the accident, the preparation of victims to be moved and faster and safe transportation to a hospital increases the chances of survival and reduces the possibility of permanent damage.

In the Copenhagen area, Denmark, a Mobile Intensive Care Unit (MICU) provides medical assistance to victims of road accidents before their admission to a hospital. The MICU provides care and stabilises the condition of victims at the scene of the accident, thus increasing their chances of
survival during transport to a hospital. The MICU ambulances are staffed with an experienced anesthesiologist and a trained firefighter and dispose of the required medical equipment. The MICU are available around the clock and operate within a system also involving ordinary ambulances. The central emergency telephone service decides whether a MICU or an ordinary ambulance will be sent to the scene of the accident. An ordinary ambulance can call a MICU at any time. In other countries, such as Austria, Sweden and Switzerland, similar combination systems have been implemented for addressing emergency issues.

The staff providing medical help before the victim’s admission to the hospital can vary depending on the country. In Switzerland, physician assistants are used for less serious cases and doctors intervene in severe cases. In Sweden, the MICU teams include highly qualified nurses. Austria uses emergency physicians together with specially trained physician assistants. In a sparsely populated country with an expanded network, it might be necessary to use MICU ambulances in combination with helicopters. The additional staff cost relating to physicians is counterbalanced by the reduced hospital cost.

4.2.3.2. Measures for the improvement of the safety of vehicles

- Safety audits on heavy vehicles

Safety audits on heavy vehicles are carried out in order to reduce road accidents involving heavy vehicles due to the driver’s fatigue, mechanical damage or use of unsafe equipment. These vehicles should be technically inspected at a specific time after the registration of the vehicle and should be repeated regularly. These audits must be carried out by authorised technical inspectors who are experts on such technical inspections. During these audits, the equipment of the vehicle is also inspected, so as to ensure that all safety standards are satisfied. Audits carried out on the side of the road should include an inspection of the requirements related to the driver (e.g. working schedule, driving licence, etc.) and inspect the existence of hazardous materials, all the parts of the vehicle and the trailer, the brakes, the wheels etc. The audits may be carried out by the Traffic Police or authorised personnel.

The audits carried out on the side of the road in Sweden and Norway were evaluated according to a 1.24 to 10.13 benefit/cost ratio (B/C) and the measure was classified as “excellent”, while periodic audits on heavy vehicles in Norway were evaluated according to a 2.6 B/C, so the measure was classified as “acceptable”.
➢ **Seat belt reminder system**

In order to increase seat belt use by the driver and the passengers, the new manufactured vehicles should be equipped with a system that does not allow the engine to start if one of them is not wearing a seat belt. Alternatively, there are several seat belt reminder systems. These systems use either a visual signal (bright symbol or flashing light) or an audible signal of specific volume, whenever a seat in the vehicle is occupied but the corresponding seat belt is not being used. It has been estimated that an audible seat belt reminder for the driver and the front passenger could increase the percentage of seat belt use to 97%.

The implementation of the reminder system in passenger vehicles in **Sweden** resulted in a 11.34 to 11.85 B/C ratio and the measure was classified as “excellent”. Moreover, concerning the use of an automated system that does not allow the engine to start, according to research in **Sweden** and **Norway**, the B/C ratio ranges from 4.40 to 28.36 and the measure was also classified as “excellent”.

➢ **Prevention of dangerous traffic behaviour**

The immobilisation system because of alcohol consumption (Alcolock Ignition Interlock) is an electronic device that does not allow drivers to start the vehicle if they have consumed large amounts of alcohol. For the activation of this system, the driver must blow into a device before starting the engine and, subsequently, at random intervals during driving. In general, the device is used to prevent drivers convicted of excessive alcohol consumption from committing a similar offence. In these cases, the “alcolock” system is often part of a wider prevention programme, including medical and psychological support. The “alcolock” systems are also used in commercial transport.

These systems came from the **U.S.**, **Australia** and **Canada**. In Europe, **Sweden** used these systems for the first time about fifteen years ago. Pilot programmes were recently implemented for the first time in **Belgium**, **Norway** and **Spain**. Other countries, such as Great Britain, are planning to implement similar pilot programmes.

For the implementation of “alcolock” programmes, necessary regulations are required, as well as an operator that will install the proper equipment and record the relevant data and another operator that will evaluate the results and monitor the drivers, providing medical and psychological support.

The risk of injury in an accident with a vehicle equipped with an “alcolock” system is reduced by about 50%. It is also estimated that the “alcolock” systems lead to a 40-95% reduction of infringements by repeated offenders who have been convicted for drink driving. The cost of the “alcolock” programme for these offenders includes the following: the initial investment cost, i.e. administrative cost, cost of medical examinations and cost for the installation of the equipment,
approximately EUR 400, plus the annual operating cost of the system, i.e. the leasing of the necessary equipment and four medical examinations, approximately EUR 2 000, plus the cost of the uninstallation (about EUR 100).

Visible vehicles

The timely detection of the presence of other road users is important for road safety. An improved and timely detection of vehicles and road uses could lead to timely action to avoid potential collisions or to reduce the severity of an accident due to a lower impact speed. The use of driving lights is a way to make motor vehicles more visible even during the day. It is also very important for bicycles to be visible, particularly at nighttime. Bicycle lights are less strong than car lights and only visible in the front and the rear. Side reflectors make bikes more easily visible. All unprotected road users (pedestrians, motorcyclists of smaller or bigger two-wheel vehicles), are more visible when they wear reflective clothes.

The term “Daytime Running Lights” (DRL) is related to the legal obligation of all motor vehicles to use running lights during the day. Vehicles must use low running lights or special lamps, regardless of the time of day or lighting conditions. The use of running lights during the day aims at the reduction of accidents involving more than one users and at least one motor vehicle. The use of running lights during the day increases visibility and improves perception as to the distance and speed of the motor vehicle. Moreover, it improves the ability of road users to detect other motor vehicles at the right time in order to adapt their behaviour accordingly. To date, 14 Member States with different requirements have approved binding rules on the use of running lights during the day, while other Member States recommend their use.

The use of running lights during the day can be applied at national or European level. In order to make their use compulsory, changes in legislation are required and should be supported by advertising campaigns. For the voluntary use of running lights during the day, intensive information campaigns are required in order to persuade drivers of the benefits of this measure for safety.
Research shows that the mandatory use of running lights during the day can lead to a reduction in the number of collisions during the day by 5-15%. The results are even more positive with regard to fatal accidents than accidents with injuries. Similarly, the results are even more positive with regard to accidents with injuries than accidents only resulting in property damage. There have been certain objections on the use of daytime running lights, because of the possible negative impact on specific types of accidents (pedestrians, cyclists, motorcyclists and rear collisions), but there is no scientific evidence to prove a negative impact. The cost associated with the use of running lights during the day is mainly related to fuel use and the ecological cost involved. According to research, for small vehicles, fuel use would increase by 1.6% and by 0.7% for heavy vehicles. The estimate on the benefit/cost ratio ranges between 1.2 and 7.7.

- **Driver support systems**

Driver support systems help users drive their vehicles safely, for example by warning or intervening when drivers depart from their lane (Lane Departure Warning System), when they approach too much to the front vehicle (Adaptive Cruise Control or Collision Avoidance Systems), when they exceed the set speed limits (Intelligent Speed Assistance), when the driver or the passengers forget to use the seat belt (Seatbelt Reminders) or when the driver risks losing control of the car (Electronic Stability Control). Most of these systems are available in new technology cars or available as after market products.

The Intelligent Speed Assistance (ISA) system is the generic term for a system that aims to the highest possible degree of compliance with speed limits. In general, ISA systems identify the location of a vehicle and compare its speed with the speed limit or the suggested speed for that location. In case of over speeding, the system informs the driver about the current limit or reduces the speed of the vehicle to the permitted limits. There is a wide range of ISA systems which differ in the level of support and the kind of feedback that they offer to the driver.

The mandatory implementation of the systems requires legal regulations at European or national level. The voluntary use of speed warning systems, for example an alarm system for over speeding, can be encouraged through advertising campaigns and/or economic incentives, such as premium cuts or tax reliefs.
Based on the demand of ISA systems, it has been estimated that their use may lead to a reduction of fatal accidents by 19.5 to 28.4% and if they are imposed by competent authorities by 26.3 to 50.2%. The benefits are even more significant for urban roads and depend on the type of the ISA systems. These systems can also reduce fuel consumption and noise and improve air quality. The cost includes the ISA equipment and the creation, updating and dissemination of digital maps and databases of speed limits. The benefit/cost ratio ranges from 2.0 to 3.5 (when the systems are installed voluntarily) and from 3.5 to 4.8 (when imposed by the competent authorities). The cost was calculated on the basis of the assumption that by 2010 all new cars will have a satellite navigation system.

4.2.3.3. Performance indicators for measures for the improvement of the safety of road infrastructure

- **Guardrails**

  Guardrails are one of the vehicle interception systems laid down in European Standard EN1317 and their use is intended to protect vehicle drivers and passengers from the consequences in the case of road drifting, for example if they fall or crash into an obstacle on the side of the road, and to protect others.

  In Southwest France, on a road 64.5 km long with trees along it, 38.5% of the accidents involved collisions with trees. In order to reduce the number of accidents and their severity on the most dangerous section of the road (26.5 km long), 7,800m of guardrails were placed. According to the evaluation of the measure, the benefit/cost (B/C) ratio was 8.69 and the measure was classified as “excellent”. The classification was the same in Switzerland with a B/C ratio = 32, where the measure was implemented on inter-urban roads. The results were less positive when the measure was implemented in Norway and Sweden, where the B/C ratio was calculated between 0.69 and 1.18 and it was classified as “poor-acceptable”.

- **Separators between traffic streams**

  Placing separators between traffic streams aims at separating opposite traffic streams, especially when a vehicle crosses the separating island. Especially on inter-urban roads, where the speeds are higher, it is necessary to place separators between traffic streams at times of heavy traffic, if the width of the road allows it.

  In Hungary, two sections of the ring road of Budapest operate as two-lane highways in each direction. Each lane is 3.50 m wide and there is no emergency lane. In order to improve the separation of traffic streams, it was decided to place New Jersey-type concrete separators. It was
estimated that the cost of the measure is counterbalanced by the benefit due to the reduction of accidents over seven years. Over a ten-year implementation of the project, the B/C ratio is equal to 1.35 and suggests high financial return.

In New Zealand, a mobile guardrail was placed on a highway bridge and, according to the relevant evaluation, the B/C ratio is equal to 6.80, thus the measure was classified as "excellent". The installation of plastic marker posts at highway exits in Israel was equally satisfactory, the relevant B/C ratio was calculated between 1.84 and 2.65 and the measure was classified as “acceptable”.

➢  **Installation - improvement of road lighting network**

During nighttime visibility is significantly reduced. In order to drive safely at night, drivers should be well aware of the conditions in the region and be able to distinguish other road users at a sufficient distance from them. The improvement of the lighting of the roads contributes in the reduction of accidents in areas with inadequate lighting. Especially, it is necessary to redesign the lighting of intersections, junctions at grade, nodes or tunnels with inadequate lighting. Several studies have indicated that the proper lighting of a road leads to the reduction of fatal accidents during the night by about 65%, accidents with injuries by about 30% and accidents resulting in property damage by about 15%.

In Norway, the installation of a road lighting network was described as an excellent measure, as the B/C ratio was calculated between 7.23 and 9.25. Norway also improved the existing lighting network on certain roads, with a B/C ratio from 2.62 to 4.32, so the measure was classified as “acceptable - excellent”.

➢  **Placing - improving warning signs**

The warning signs ensure that road users are adequately and timely informed about the possible risks on this part of the road. Traffic signing should be continuous. A warning sign should indicate the potential risk which, if not avoided, could lead to death or serious injury, and should be placed roadside. Warning signs are divided into two categories: those that warn of a permanent danger and those that warn of a temporary danger. In order to avoid the confusion of drivers, specific designs, expressions, colours, shapes and display modes should be used. Furthermore, the installation of warning lamps seems to increase the attention of drivers in dangerous road sections. In Switzerland, flashing lights were placed, the B/C ratio was estimated at 2.7 and the measure was deemed “acceptable”.
Signing on inter-urban nodes

The risk of accidents between the traffic streams of a node is particularly increased. The possibility of an increase in accidents and the increase in delays are linked to the increase of the traffic volume. By installing light signalling, traffic streams are separated the safety and flow of vehicles is improved. The function of the light signalling can be determined either based on time, with predetermined altering phases regardless of the traffic load, or based on the traffic load, i.e. the duration of the phases will vary depending on the number of vehicles within a predetermined time limit.

In Israel, about 10% of all the accidents with fatalities or injuries occur at intersections of inter-urban roads. The majority of accidents at unsignalised junctions involves right angle accidents, rear-end collisions or pedestrians. The installation of light signalling is often proposed as an improvement intervention that can contribute to the reduction of the total number of accidents, as the B/C ratio is equal to 1.25 and the measure is deemed “acceptable”.

Anti-slippering measures for road surfaces

The features of the road surface affect the frequency and severity of accidents. All roads are subject to the normal wear of the road surface, which is visible through different forms of fatigue/failure because of the environmental conditions and the use of the road. If the wear of the road surface is not restored in time, the level of safety on the road might be affected. The road surface must be adequately anti-slippery to ensure the possibility of safe manoeuvres and vehicle immobilisation. The proper maintenance of road surfaces contributes significantly to avoiding accidents, especially in bad weather conditions, as the combination of wet and slippery road surfaces leads to an increase in accidents. Therefore, it is necessary to keep a road maintenance schedule, especially for roads with an increased risk. When maintenance is not sufficient for the improvement of the road surface, the road surface should be reconstructed. Australia implemented a programme for the management of anti-slippery road surfaces, with an estimated B/C ratio between 3.7 and 12.6 and classified as “excellent”.

Variable Message Signs

Variable message signs (VMS) provide road users with information on traffic and/or safety. The importance of these messages on road safety depends on their content. Generally, it is considered that they can have at least a short-term effect on the behaviour of drivers, provided that they do not contain too much information.
In Finland, two zones were created with variable message signs showing the permitted speed limit depending on weather conditions. Their operation was ensured with a system transmitting data on weather conditions to a central computer which determined the permitted speed limit in each case. The measure was implemented despite the initial doubts about its economic efficiency. It seems that such measures have advantages which are neither immediately perceptible nor directly measurable, such as the acquisition of knowledge and experience from the competent authorities for tackling similar situations. The B/C ratio was estimated at less than 1 and the measure was deemed poor. However, when this measure was evaluated in Sweden and Norway, the B/C ratio was calculated between 1.13 and 1.45 and the measure was deemed acceptable.

➤ Improvement of level railway crossings

The number of accidents at road intersections with railway lines is quite increased. Moreover, most of these accidents have victims. Many drivers believe that there is enough time to cross a railway crossing, even when the traffic light is red (in guarded crossings) and underestimate the distance needed for the immobilisation of the train. Some of these accidents could be avoided by a better planning at crossings. Appropriate signs, signalling and safety bars seem to contribute significantly to the improvement of safety. Guarded crossings are considered much safer than non-guarded ones. The construction of grade separated crossings, through bridges or tunnels, reduces the number of conflict points between vehicles and trains, thus improving safety and reducing the delays of vehicles, because there is no need for them to stop at a crossing.

In Finland, the majority of rail crossings are level crossings. This choice was made due to the low traffic volumes at intersections. However, the serious accidents at level crossings in the late 90s indicated that there was a need for the improvement of safety, either with the implementation of additional measures for the improvement of road safety or with the construction of grade separated crossings. The B/C ratio of the construction of grade separated crossings was estimated between 0.25 and 0.65 and the measure was rated poor. The B/C ratio for the same measure in Israel was estimated between 1.0 and 2.8 and the measure was rated acceptable.
4.3. Evaluation of the existing level of road safety in the European Union

In 2001, the European Commission set a target for the reduction of the number of road fatalities in 2010 by 50% compared with 2000. This target was set by the 2\textsuperscript{nd} Strategic Plan for the Improvement of Road Safety in Greece 2006 - 2010. Moreover, the new target set by the European Union is the reduction of road fatalities by 50% by 2020 compared with 2010. In order to achieve this goal, it is necessary that all stakeholders on road safety issues contribute to the effort in all Member States of the European Union.

Although the ambitious target set in 2001 has not been fully achieved, quite significant progress has been made (Table 4.4). Specifically, some countries (France, Estonia, Spain, Latvia, Lithuania, Luxembourg, Slovenia, Sweden) have already achieved the objective for a 50% decrease in the number of fatalities since 2001. Overall in 2010, approximately 31,000 people died on the roads of the European Union, a number equivalent to the population of a medium sized town, and at least 1,500,000 people were injured.

Setting a quantified target has proved to be a powerful catalyst for the reduction of fatalities in road accidents. Table 4.4 shows in detail the evolution of the number of fatalities in the 27 countries of the European Union from 2001 to 2010. The number of road fatalities in the European Union from 2001 to 2010 has decreased by 43% compared to 2001 (25% during the previous decade). Specifically, the total number of road fatalities fell from 54,355 in 2001 to 31,019 in 2010, in all 27 Member States of the European Union.
The numbers of road fatalities per million population in the countries of the European Union in 2001 and 2010 are shown in Table 4.5. As shown in Table 4.5, the number of road fatalities has decreased in all EU countries, except for Romania.

Table 4.4 shows that the number of road fatalities per million population in the European Union from 2001 to 2010 fell by 45% compared with the number of fatalities per million population in 2001. The number of fatalities per million population in the European Union, has decreased from 112 in 2001 to 62 in 2010, i.e. the level of the best performing Member States in 2001 (United Kingdom, Sweden and the Netherlands, with 61, 62 and 68 deaths per million population respectively).
### Table 4.5. Number of road fatalities per million population in the countries of the European Union in 2001 and 2010 (Source: ETSC, 2011)

<table>
<thead>
<tr>
<th>Country</th>
<th>Fatalities</th>
<th>Modification 2001-2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spain</td>
<td>136</td>
<td>53*</td>
</tr>
<tr>
<td>Luxembourg</td>
<td>159</td>
<td>64</td>
</tr>
<tr>
<td>Estonia</td>
<td>146</td>
<td>58</td>
</tr>
<tr>
<td>Latvia</td>
<td>236</td>
<td>97</td>
</tr>
<tr>
<td>Ireland</td>
<td>107</td>
<td>46*</td>
</tr>
<tr>
<td>Lithuania</td>
<td>202</td>
<td>90</td>
</tr>
<tr>
<td>Sweden</td>
<td>62</td>
<td>28</td>
</tr>
<tr>
<td>France</td>
<td>134</td>
<td>62*</td>
</tr>
<tr>
<td>Slovenia</td>
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<tr>
<td>Portugal</td>
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<td>79*</td>
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<td>United Kingdom</td>
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<td>31*</td>
</tr>
<tr>
<td>Italy</td>
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<td>Romania</td>
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Note: (*) Estimates
As shown in Figure 4.1, although the number of fatalities per million population in the European Union was reduced from 2001 to 2010 by 45%, **the number of injured persons is still very high.** In general, since 1991, the number of road fatalities per million population follows a downward trend, whereas the number of road accidents and injuries increased until 1999 and then decreased.

![Figure 4.1](image-url)

**Figure 4.1.** Evolution of the number of road fatalities per million population, of the number of road accidents and injuries caused by them in the European Union, 1991 – 2010 (Source: CARE database)

The diagramme in Figure 4.2 shows the modification of the number of road fatalities in the European Union for the period 1990-2010 and the target set in 2001 to reduce the number of fatalities by 50% by 2010.

![Figure 4.2](image-url)

**Figure 4.2.** Evolution of the number of road fatalities in the European Union and target of the European Union (Source: CARE database)
Generally, most road accidents occur in residential areas, while the most severe injuries and fatalities in road accidents occur in non-residential areas. Figure 4.3 shows the percentage of road fatalities in residential areas, non-residential areas and highways in European Union countries (2007 - 2009 average). Greece has the highest death toll in residential areas. The corresponding percentage across the EU is about 38%.

The number of people killed or seriously injured among vulnerable road users, such as motorcyclists, cyclists and pedestrians, is quite large and constantly increasing in some European countries. Figure 4.4 shows the percentage of road accident fatalities by road user category in the European Union for 2009. According to Figure 4.4, in 2009, approximately 20% of the total number of fatalities in road accidents in the European Union were pedestrians. Two-wheel vehicle drivers represent approximately the same percentage. According to statistics, these groups have not received sufficient attention so far.
Motorcyclists are an increasingly growing group, presenting the greatest difficulty in reducing the number of related road accidents and fatalities. As shown in Figure 4.5, the percentage of the reduction of fatal road accidents involving motorcycles in the European Union during the period 1991 - 2008 is lower compared to the corresponding percentage for all vehicles.
As shown in Figure 4.6, the number of dead motorcyclists in the European Union has decreased. Specifically, there is approximately a 40% reduction in the number of dead cyclists in the European Union between 2004 and 2009. However, this trend is not observed in all countries. On the contrary, in some countries there is an increase in the percentage of dead cyclists. It is noted that in some countries safe conclusions cannot be drawn based on the small number of dead cyclists.
More than 20% of the total road fatalities in the European Union in 2009 were pedestrians. Compared with 2001, in 2009 there was a decrease in the number of dead pedestrians by approximately 34%. However, their number in 2009 exceeded 6,900 (Source: ETSC, 2011). As shown in Figure 4.7, in 2009, the majority of dead pedestrians were over the age of 50. This may be due to the increased vulnerability of specific groups of road users, but also to the specific features of their behaviour (reduced attention, decreased reflexes, limited hearing and vision, etc.).
Also, certain groups of road users have an inherent “vulnerability” (such as the elderly, young children, people with disabilities), regardless of their role in traffic (pedestrians, drivers, passengers). These users are particularly vulnerable in urban areas.

Figure 4.8 shows the percentage of road accident fatalities by age group in the European Union in 2009. Approximately 6% of fatalities in road accidents are young people under 18 and approximately 17% are between 18 and 24. **Most of the road fatalities, i.e. nearly 39%, involve the 25-49 age group and approximately 21% of road fatalities in 2009 involve elderly people (>65 years old).** The aging population requires an emphasis on the assessment of the needs of this vulnerable category of road users. Furthermore, people with disabilities constitute a category of vulnerable road users, for which few data is available. Therefore, further research is required, focusing on this group of users and covering, inter alia, the medical criteria based on which their physical ability to drive is evaluated.
4.4. Synthesis

The following key points are made based on this Chapter’s data analysis on road accidents in Europe and the related road safety indicators:

- The Member States of the European Union with a high performance in road safety are Sweden, the Netherlands, the United Kingdom, Denmark, Finland, France, Germany and Spain. Unfortunately, regarding the number of deaths per million population, Greece holds the last place in the EU-27.
- Over the last decade (2001 - 2010), the number of fatalities in road accidents decreased in all countries of the European Union, approximately by an average of 43%.
- In 2010, about 31,000 people died in road accidents in the European Union.
- The number of people killed or seriously injured among vulnerable road users, such as motorcyclists, cyclists and pedestrians, is large.
- The change in the percentage of fatal accidents with motorcycles in the European Union during the period 2001 - 2008 did not exceed 5%.
- More than 20% of the total road fatalities in the European Union in 2009 were pedestrians. Compared with 2001, there is a reduction in the number of dead pedestrians by approximately 34%.
Over the last decades, comprehensive policies are implemented in several developed countries, in order to reduce road accidents. In several cases, the results are impressive. All Member States of the European Union, as well as Switzerland and Norway, follow a National Road Safety Strategy, either exclusively or integrated in an overall strategy for transport or roads. Most states have set quantitative targets very close to the EU target for a reduction of the number of fatalities in the period 2001-2010 by 50%. Quantitative targets are strong incentives for the improvement of road safety, as they strengthen the commitment and accountability of all actors.

The basic conditions for the success of the road safety targets are: strong political will, a stable management framework, coordination of all actors, participation of citizens, systematic monitoring and evaluation of measures and adequate funding. The body that coordinates the implementation of the national road safety strategy in the examples of good practice is a government body responsible for the development of the road safety strategy and focuses on results.

Over the last decade, the approach to road safety in various developed countries has changed radically. Several among the best performing countries in road safety have adopted the Safe System approach. Sweden has introduced the “Vision Zero” concept, aiming at zero deaths and serious injuries in road accidents and the Netherlands have introduced the “Sustainable Safety” concept.

The Safe System approach aims at creating a road traffic system with zero fatalities or serious injuries. The different parameter in this new approach is that those responsible for the planning, design and operation of the road traffic system are now mainly responsible for road safety instead of users. Road users have to comply with traffic rules. Efforts are made to develop a road traffic system within a forgiving road environment. Under the safe system approach, in recent years, special emphasis is given to the integrated management of the safety of road infrastructure. According to the provisional figures for 2010 (ETSC, 2011), between 2001 and 2010 the number of people killed in road accidents in the European Union was modified by -43%, not far from the target set in 2001 for a decrease by 50%. In Greece, there was a -32% change and a 37.1% reduction compared with 2000.

Several European countries have been developing new strategic plans for the period 2011 - 2020. Several states are considering the adoption of the new European target (European Commission, 2010) for the reduction of the number of road fatalities by 50% by 2020 compared to 2010.
Over the last decades, many road safety measures have been implemented internationally and the effectiveness for several of them has been evaluated. These are measures for the improvement of the safety of road users, road infrastructure and vehicles and the improvement of the emergency care provided to victims. The most effective measures among the ones mentioned in this Chapter and those with the greatest potential for Greece can be summarised as follows:

- Road safety training and awareness-raising campaigns on road safety
- Speed monitoring
- Surveillance of drink driving, seat belt and helmet use
- Road safety controls and inspections
- Speed management systems on urban and inter-urban road networks
- Marking dangerous locations and implementation of corrective measures
- Improvement of the emergency care provided to victims
- Driver assistance systems (seat belt reminders, Alcolock, ESP)

The analysis and presentation of international experience for the improvement of road safety both at strategic and organisational level and at the level of measures are a useful basis for the elaboration of relevant proposals under this Strategic Plan for the improvement of road safety in Greece, 2011 - 2020.
5

Target setting and determination of the structure of the Road Safety Strategic Plan, 2011-2020

5.1. Purpose and Targets of the Road Safety Strategic Plan, 2011-2020

5.1.1. Introduction

The ultimate target of the Road Safety Strategy in Greece is to achieve a safe road traffic system with zero road fatalities or serious injuries. The “Safe System” approach (Section 4.1.1.1.) points out the need for a systemic and comprehensive approach, taking into account that the components of the traffic system are interrelated and influence each other. This approach reflects international contemporary views and it is a humane and humanistic way of dealing with road safety issues recognising human life as the supreme value. The design of the traffic system adapts to the needs and constraints of road users, creates a forgiving road environment for their mistakes and develops a forgiving behaviour in traffic. The elimination of fatalities and disabilities due to road accidents will probably not be achieved within the duration of this Strategic Plan. However, it is believed that the implementation of the proposed actions for the improvement of road safety in Greece will ensure safer roads, safer speeds, safer vehicles and safer road users.

5.1.2. Development of a “Road Safety Culture” - our constant national effort

The development of a “Road Safety Culture” is a fundamental target of the Strategic Plan. In order to achieve this target, a continuous and systematic collective effort and far-reaching planning are required.
Nowadays, it is internationally acknowledged that a “Road Safety Culture” is the solid basis for the achievement of specific goals for the improvement of road safety (Ward et al, 2010).

Road Safety Culture is related to a positive attitude to road safety and a rejection of hazardous driving behaviour. It is also linked to the implementation of an effective system of road safety measures and their acceptance by society. Road Safety Culture is associated with the effective cultivation of one's personality, way of thinking and behaviour, their interests, assessments, aspirations, sense of limits and desires. In this context, road safety must be considered a value, i.e. acknowledged by a number of people as important for themselves and constitute a measure for the evaluation of people and behaviours. The concept of “Road Safety Culture” is relevant to the values, attitudes and behaviours both of individuals and families, the community, the heads of mobilised organisations and institutions, decision-making bodies, Members of the Parliament and the Government (Ward et al, 2010).

The continuous improvement of road safety requires the cooperation of the state, competent bodies and society. Changes must be made to the way of dealing with road safety issues at all levels through public dialogue, with a self-critical account mainly of actions that have not been carried out. Proper road safety education in schools, as a key element of lifelong learning, contributes substantially to the development of a road safety culture which is associated with positive changes to road safety related to attitudes and behaviour at all levels (individual, family, organisations and bodies, community and society).

Road safety is a social issue that affects directly the health and well-being of citizens and the actions for the improvement of road safety should be supported by society. For the development of social support to the actions of the Strategic Plan, measures are required to enhance the participation of society and broaden the understanding of the usefulness of these actions. Social groups with substantial influence should be involved in helping to raise awareness among citizens (e.g. artists, writers, athletes, social networks, etc.)

Establishing the belief in Greek society that only through the joint effort of the state and society and responsible road behaviour can road safety be improved. The support to the principles and actions of the Strategic Plan by political actors, with interparty consensus at national, regional and local level, is essential for the mobilisation of citizens. The “Safe System” principles, the possibility for a reduction of road accidents and the benefits of the Strategic Plan for road safety should be supported and promoted.

It is noted that the development of a Road Safety Culture should be considered as part of the effort for the improvement of our National Education which is linked to the establishment of a more consensual and creative form of public dialogue, co-decision and national mobilisation for the general interest, in an environmental of justice and freedom.
5.1.3. Quantitative targets

The general European Road Safety Action Plan recently announced by the European Union for the period 2011 - 2020, summarises the quantitative targets as the reduction of road fatalities by 50% by 2020 compared with 2010 (European Commission, 2010a).

According to the provisional figures, the number of fatalities in road accidents in 2010 was 1 281. In line with the European target, the quantitative target of the Strategic Plan for the improvement of road safety in Greece for the period 2011 - 2020 is:

- **Less than 640 road fatalities in 2020.**

In addition, an intermediate target is set for the first five years: less than 880 road fatalities in 2015.

Based on the analysis of the current situation in Greece and the relevant analysis of the level of road safety in other European countries, it is estimated that within the next decade significant improvement can be achieved regarding road safety in Greece, through the systematic implementation, monitoring and evaluation of the Strategic Plan.

The setting of quantitative targets for the improvement of road safety plays a key role for the adoption and implementation of more effective programmes, the better use of available resources and, also, the mobilisation and enhancement of the participation and the role of relevant bodies and of citizens. International experience shows that setting quantitative targets in Strategic Road Safety Plans contributes to sustaining the interest and enhancing the efforts for the improvement of road safety.

International experience proves that in some cases the target set in the Strategic Plan was attainable, it was achieved sooner than expected and subsequently more ambitious targets were set (e.g. Sweden). In other countries, where the target was difficult to achieve, it was revised and a new, less ambitious target was set (e.g. Denmark). In order to monitor the level of road safety, it is necessary to have reliable statistics on accidents, congestion, delinquency and driving behaviour (e.g. driving at inappropriate speeds or under the influence of alcohol, non-use of seat belts and helmets) and data on the extent and manner of implementing the planned actions. The systematic and combined analysis of this data, under a system which monitors and evaluates the Strategic Plan, permits the evaluation of the actions taken for the improvement of road safety and their revision, when deemed necessary.
Expressing a strong political will at the highest state and political level, developing a sense of urgency, the coordinated implementation of the Strategic Plan over time, continuous evaluation through the quantified monitoring of the performance of all programmes and road safety actions, the commitment and active participation of all relevant stakeholders, the awareness and consensus of the citizens and the relevant adequate funding are necessary conditions for the improvement of road safety in Greece.

5.2. Structure of the Road Safety Strategic Plan, 2011-2020

For the success of the Strategic Plan and the achievement of its targets, it is necessary to implement a road safety system in Greece, in which the responsibilities and the role of each implementing body would be clearly specified and all aspects of the coordination, monitoring and evaluation of the implementation of all programmes and actions would be regulated effectively.

The structure of the Strategic Road Safety Plan for 2011-2020 is a result of the experience drawn from the implementation of the previous Strategic Plans in Greece, the special characteristics of the State Services involved in road safety in Greece, and the successful practices in countries with a high performance in road safety, as presented in the previous chapters.

For the effective implementation of the individual actions, six specialised programmes were developed by four Ministries (Ministry of Education, Yp.YPO.ME.DI., Ministry of Citizen Protection, Ministry of Health) and implemented at national, regional and local level by the Ministries, Regions and Municipalities. The implementation, monitoring and evaluation of the programmes and actions of the Strategic Plan will lead to a road traffic system with safer speeds and roads, safer vehicles and safer users.

The Inter-Ministerial Committee on Road Safety is responsible for determining the national road safety strategy, setting and monitoring the general and intermediate targets, ensuring and allocating the necessary funds for the implementation of the Programmes and supporting, coordinating and constantly controlling all the central and regional bodies implementing the Programmes and actions.

Figure 5.1 shows the structure of the Strategic Plan for the improvement of road safety in Greece.
Figure 5.1. Structure of the Strategic Plan for the improvement of Road Safety in Greece, 2011-2020

**Six Programmes** are being developed for the improvement of road safety and the role of each body competent for the implementation of the programmes is being determined.

1. **Training on Road Safety**
   Ministry of Education, Lifelong Learning and Religious Affairs, Research Centres, Non-Governmental Organisations

2. **Traffic Surveillance for Road Safety**
   Ministry of Citizen Protection, Research Centres, Non-Governmental Organisations

3. **Safe Road Users**
   Ministry of Infrastructure, Transport and Networks, Regions, Municipalities, Research Centres, Non-Governmental Organisations
4. Safe Road Infrastructure
Ministry of Infrastructure, Transport and Networks, Regions, Municipalities, Research Centres, Non-Governmental Organisations

5. Safe Vehicles
Ministry of Infrastructure, Transport and Networks, Regions, Municipalities, Research Centres, Non-Governmental Organisations

6. Emergency Care to Victims
Ministry of Health and Social Solidarity, Research Centres, Non-Governmental Organisations

5.3. Inter-ministerial Committee on Road Safety
The role of the Inter-Ministerial Committee on Road Safety is determined by the Decision of the Prime Minister of 25/1/2010 (Government Gazette, Series II, No 63/27-1-2010). According to the Decision, the Inter-Ministerial Committee is chaired by the Minister for Infrastructure, Transport and Networks and its members are:

- the Minister for Citizen Protection,
- the Minister for the Interior, Decentralisation and Electronic Governance,
- the Minister for Health and Social Solidarity,
- the Minister for Education, Lifelong Learning and Religious Affairs,
- the Minister for Finance.

During the meeting, the Committee is chaired by the Minister for Citizen Protection and, in his absence, by another present Minister in the above order, while the Ministers-members of the Committee are substituted, in case of absence or impediment, by the Deputy Minister that they have designated or the General Secretary of the respective Ministry. During Committee meetings, other Ministers, Deputy Ministers, Advisers to the Prime Minister and officials may be invited, if issues within their competence are being discussed, or other experts on topics of their expertise.

The responsibilities of the Inter-Ministerial Committee on Road Safety (Government Gazette, Series II, No 63/27-1-2010) include:

- the elaboration of a national policy on road safety and the examination of issues relating to road safety,
- the elaboration of short and long-term programmes and the monitoring of their implementation,
- the coordination of all departments competent for the proper implementation of the programmes and measures, especially those involving more than one services,
- the coordination of all departments competent for the collection and processing of statistical and other information, in order to support decisions on the necessary road safety measures,
- the monitoring of the implementation of national policy on road safety, the supervision of individual actions and the evaluation of their results.
In the framework of national policy-making on road safety, the Inter-Ministerial Committee sets the general objectives for the improvement of road safety. The individual actions and the necessary measures for the achievement of the targets set in the Strategic Road Safety Plan are defined and implemented depending on these targets.

The Inter-Ministerial Committee is responsible for ensuring the necessary resources for the implementation of Road Safety Programmes. The funding of road safety actions should be, in principle, proportionate to the actions and, also, guaranteed and continuous, so that the scheduled action programmes are completed. Fragmentary or incomplete actions do not improve the level of road safety. On the contrary, they create a sense of disbelief to the public in relation to the intentions of the state.

When monitoring the implementation of the national policy on road safety, the Inter-Ministerial Committee shall take into consideration the detailed annual report elaborated by the Special Secretariat on Road Safety (Section 5.4), which will describe the actions carried out during the previous year under the relevant Road Safety Programme, the results, the corresponding costs and the estimated benefits for road safety. These reports are a key element for evaluating the implementation of each individual programme and proposing corrective actions, where necessary.

The development and operation of the quantified monitoring and evaluation system is necessary for the overall monitoring of the implementation of the Strategic Road Safety Plan. The development of this system is necessary in order to ensure that the required data is collected and the appropriate adjustment of the objectives and of the specific programmes and actions is documented immediately.

The Inter-Ministerial Committee on Road Safety will submit an annual report to the Special Parliamentary Committee on Road Safety, thus allowing this Parliamentary body to make suggestions on the redefinition of the directions and priorities for the improvement of road safety in the context of the Strategic Plan. The annual report will be elaborated by the Special Secretariat on Road Safety and will be a synthesis of the relevant reports of bodies implementing the programmes of the Strategic Plan, combined with the results of the quantified monitoring system.

**Because of the need to express a strong political will at the highest state and political level and to develop a sense of urgency, it is proposed that the Inter-Ministerial Committee is chaired by the Prime Minister, who will be substituted by the Minister for Infrastructure, Transport and Networks.**

The development of a Road Safety Culture, also through informing citizens and raising their awareness on road safety is the primary responsibility of the Inter-Ministerial Committee. The responsibilities of the Inter-Ministerial Committee also include ensuring cooperation among different implementing bodies in case there is need for a joint and coordinated implementation of the various activities (e.g. information and awareness-raising campaigns in conjunction with surveillance actions).
5.4. Special Secretariat on Road Safety

The Secretariat of the Inter-Ministerial Committee on Road Safety reports directly to the Chairman thereof - Minister for Infrastructure, Transport and Networks, and has the following responsibilities (Government Gazette, Series II, No 845/16-05-2011):

a) to assist the Inter-Ministry Committee in monitoring the implementation of the road safety policy defined by relevant decisions of the Inter-Ministry Committee,
b) to recommend to the Inter-Ministry Committee to coordinate relevant research programmes implemented by the competent Ministries,
c) to evaluate the results of these programmes,
d) to coordinate the communication and joint actions between the competent Ministries, under the decisions of the Inter-Ministry Committee,
e) to cooperate with all the services of central and regional bodies, especially with the departments planning, coordinating and monitoring the programmes for the systematic support and monitoring of their work,
f) to keep statistics on road accidents in the country in collaboration with the relevant agencies of the Ministry of Citizen Protection, analyse and evaluate them and analyse the causes of the accidents,
g) to undertake the evaluation of the Strategic Plan, its programmes and actions and communicate the findings to all competent agencies and bodies,
h) to collaborate scientifically with the National Road Safety Council, which was set up by Law 3897/2010 (Government Gazette, Series I, No 208), on the topics determined by the Chairman of the Committee,
i) to undertake any other duty assigned to it by decision of the Chairman of the Inter-Ministerial Committee.

Given the importance and complexity of the work of the Inter-Ministerial Committee on Road Safety, support from the relevant Secretariat is considered essential. It is suggested that a special unit is created within the Special Secretariat on Road Safety in order to support all the functions of the Inter-Ministerial Committee.

When analysing the statistics of road accidents, the Special Secretariat will collaborate with the Hellenic Statistical Authority, except for the agencies of the Ministry of Citizen Protection. At the same time, via an integrated quantified monitoring system, it will be able to collect information in due time on the successful actions which should continue and on the failed actions which should be redefined.
The allocation of resources is closely linked to the progress of implementing the actions of each entity and to the results of those actions. Each implementing body will submit to the Special Secretariat an Annual Progress Report regarding the implementation of the actions within its competence. Based on accident statistics, the Special Secretariat will elaborate an Annual Progress Report which will include both the progress of the implementation of actions and the results of these actions per implementing body.

A prerequisite for the effective functioning of the Secretariat is an adequate number of staff that will manage the support of the implementation and monitoring of the actions and experts in the field of road safety and of the analysis and evaluation of data (transportation engineers, statistical analysts, psychologists, computer scientists, etc.). These members of the staff will be in constant communication with the agencies of the competent Ministries and bodies in order to support the implementation of the actions they have undertaken.

The Special Secretariat on Road Safety will assist the Inter-Ministerial Committee for the development of Road Safety Education and the preparation and coordination of public information and awareness-raising campaigns on road safety issues.

5.5. Special Permanent Parliamentary Committee on Road Safety

The work of the Inter-Ministerial Committee is assisted by the Special Standing Parliamentary Committee on Road Safety. The objective of the Committee is to monitor and evaluate road safety conditions and to contribute with advice to the decision-making and the determination of the national road safety policy.

5.6. National Road Safety Council

The National Road Safety Council (N.R.S.C.), established by Law 3897/2010 (Government Gazette, Series I, No 208/10-12-2010), functions directly under the responsibility of the Minister for Infrastructure, Transport and Networks and has an advisory role. It meets periodically and makes recommendations on all matters within the competence of the Inter-Ministerial Committee. More data on the N.R.S.C. is described in detail in section 2.4.2.4. of this Report.

5.7. Bodies for the implementation of the actions

Each body implementing a Road Safety Programme (Ministry, Region, Municipality) is exclusively responsible for specifying and implementing the actions within their competence which are included in the relevant Programme, based on the budget allocated to them, regardless of the progress of the other Programmes. The implementation and effectiveness of the actions of each Programme, as indicated in predefined procedures for annual evaluation, will determine the continuation and the amount of funding. Obviously, when the results are expected in the long term, the relevant procedures will be adjusted.
For the success of the Programmes, it is necessary to create and operate within each body a specialised coordination and monitoring department, responsible for the coordination of the actions and the monitoring and evaluation of their effectiveness. This is a role that can be assigned to the existing or new units for Road Safety or for the monitoring of related actions. These units are properly staffed and responsible, inter alia, for regularly reporting the progress of road safety actions under the responsibility of each institution and submitting their reports to the Special Secretariat on Road Safety.

The six Programmes of the Strategic Road Safety Plan, 2011-2020, will be mainly implemented by the four competent Ministries, Regions and Municipalities. The agencies of other Ministries, i.e. the Ministry of Finance, Ministry of Defence, etc., will undertake the implementation of actions within their competence, in collaboration with the bodies that will implement the six Programmes. The mode of cooperation will be jointly established, depending on the nature of the action.

In addition, Universities, research institutes and Non-Governmental Organisations are asked to play a key role in the various road safety sectors within their activity and to contribute significantly with their experience to the success of the Strategic Plan. Similarly, the new bodies which might be created, may also contribute to the improvement of road safety in Greece and help to spread the effort more widely.

The Universities of the country and the Research Institutes can contribute to the analysis of the accidents and the relevant mitigation measures, to the support of various actions for the mitigation of road accidents and, generally, to a number of specialised research topics on all the aspects of the road safety science. Universities and research centres can play a special role in the necessary research for the adaptation of the international regulations and practices to the Greek reality.

Non-Governmental Organisations active in the prevention and treatment of road accidents in Greece, such as the Technical Chamber of Greece (T.C.G.), the Hellenic Institute of Transportation Engineers (H.I.T.E.), the Automobile and Touring Club of Greece (E.L.P.A.), the Hellenic Association of Insurance Companies (H.A.I.C.), Attiki Odos and highway concession companies, the Hellenic Association for Road Traffic Victims Support (E.Y.T.H.Y.T.A.), the Road Safety Institute (R.S.I.) - Panos Mylonas, the Greek Motorcycling Federation (MOT.O.E.), the “Bicycle Friends”, the National Confederation of Disabled People (N.C.D.P.) etc. can undertake the implementation of individual actions, the overall effect of which can guarantee a better level of road safety in the country. It should be noted that certain initiatives are already underway by Non-Governmental
Organisations (such as the operation of working groups on road safety by the T.C.G. and the H.I.T.E. and road safety communication campaigns by Attiki Odos, the E.Y. THY. T.A., the R.S.I. and others), but they will not have the results that these organisations expect, if they are not developed under the Strategic Plan and integrated in the general information and awareness-raising planning for the improvement of road safety in Greece, coordinated by the Inter-Ministerial Committee.

In the context of the Programmes of the Strategic Road Safety Plan, these bodies should take action within their competence in cooperation with the competent central or regional agencies. The competent bodies will participate through institutional procedures in the planning and elaboration of the Programmes and in the relevant process of feedback and redefinition of these Programmes.
Development of Road Safety Programmes and actions

Six Road Safety Programmes and the corresponding actions are suggested in the context of the Strategic Plan for the improvement of road safety in Greece, 2011-2020. The definition of the Programmes and the actions is a responsibility of the Inter-Ministerial Committee on Road Safety and the specialisation of the actions is a responsibility of the promoting bodies, based on the resources available and in collaboration with the Inter-Ministerial Committee and the Special Secretariat that supports it. It is also noted that the content of the Programmes and the actions are redefined every year, based on new evidence, the results from the implementation of the actions and the funding available.

The problems concerning road safety in Greece, the measures already taken for the improvement of road safety and the measures for the improvement of road safety that have been successfully implemented worldwide were taken into account for the development of the six Road Safety Programmes. Emphasis was given to road safety actions implemented successfully in countries developed in road safety, such as the Netherlands, the United Kingdom and Australia.

It is noted that for the actions of a programme that require the collaboration of agencies from two or more Ministries, a good and effective cooperation will be provided for, within a framework of clearly defined roles and responsibilities coordinated by the Inter-Ministerial Committee on Road Safety.
6.1. Programme “Road Safety Education”

Road safety education is one of the main axes of the effort for the improvement of road safety. It includes all the measures that aim at a positive influence on driving behaviour. It aims at the safe participation to traffic, the consolidation of safe techniques in the short term and a safe and responsible behaviour in the long term.

Road safety education should be integrated in a lifelong learning process. This “Road Safety Education” Programme is related to road safety education at school and through extracurricular activities for children and teenagers of up to 17 years of age. Road safety education continues with the training of candidate drivers, in order for them to obtain a driving licence (“Safe road users” Programme), with information and awareness-raising programmes on safe driving and concluded with awareness-raising and educational programmes through handbooks on safe driving and relevant campaigns for the information of elderly drivers.

For the effective implementation of the “Road Safety Education” programme, it is necessary to organise a department within the Ministry of Education, Lifelong Learning and Religious Affairs that will undertake the design, specialisation and evaluation of the proposed framework for the development of road safety education for children and teenagers of up to 17 years of age.

This properly staffed coordinating and monitoring department of the Ministry will also undertake:

• Cooperation with the Inter-Ministerial Committee and the Special Secretariat on Road Safety.
• The cooperation with the other Ministries competent on road safety, agencies and bodies, as a number of actions of the Ministry require the combined effort with other bodies for the coordination of the Inter-Ministerial Committee.
• The cooperation with the respective Ministries of other European countries for the optimal use of the existing relevant experience.

6.1.1. Content and Framework of the development of road safety education for children and young people up to 17 years

Road safety education focuses on:

• **Increasing knowledge and understanding of traffic rules.** The training includes mainly traffic regulations, risks to life and health and the impact of risky behaviour.
• **Improving skills through practice and experience.** The training includes motor skills, transformation of knowledge and motor skills to safe participation in traffic, concentration, estimation of distances and speeds, ability for self-evaluation.
• **Promoting and/or changing attitudes towards road safety**, raising risk awareness and safety awareness at personal and collective level (about the other road users). Emphasis is also placed on the development of incentives to comply with traffic safety rules, avoid hazards, adopt a safe and socially responsible behaviour and commit to sustainable modes of transport and environmentally friendly modes of mobility.

Giving **priority to the target** of road safety education requires a national effort for the development of specific programmes and planned actions, following a broad awareness-raising and public dialogue process which will be supported by awareness-raising campaigns involving experts and working groups of other relative sectors (i.e. public health). Road safety education is part of the national strategic planning.

The training combines lessons inside the classroom and practice in protected areas, in a real traffic environment, and exploits the educational potential of discussions, teamwork, research, public presentations and creative pursuits, such as theatre in education. It is an important success factor that children practise their skills in a realistic environment. Parents should be actively involved in road safety education at school.

It is necessary to standardise road safety education by adopting long-term strategies and short-term improvements. **Road safety education should be integrated in the school curriculum, at least for twenty hours per year, in kindergarten, elementary and secondary schools and aim at developing the skills of pedestrians, cyclists, motorcyclists, future drivers and passengers.**

In high schools, due to the length of the curriculum and time constraints, it is suggested that the topics of road safety education should be properly integrated and linked to relevant topics of other courses and that teachers should coordinate their efforts and collaborate. Lasting results can only be achieved by repetition of the various topics, as in every discipline. Road safety education requires adequate time. The actions of road safety education should have the features of programmes, rather than individual interventions.

An important element for an effective road safety education is the voluntary participation of teachers, so as to ensure their substantial interest in this effort.

Teenagers in the pre-driving stage must constitute a target group and be approached with the appropriate language. The term “road safety education” is more suitable and attractive than “traffic education”, especially for this group.

It is also necessary to establish and implement special extracurricular education programmes on safe traffic behaviour, to participate in the planning of road safety education programmes by specialists and psychologists and to evaluate regularly the quality of road safety education programmes.
Effective road safety education requires the development of actions and initiatives at national, regional and local level and a role for private bodies, highway concessionaires, voluntary associations, motor clubs, insurance companies, etc..

6.1.1.1. Conditions for the success of road safety education

It has been widely acknowledged that effective road safety education creates a positive attitudes towards a safe and socially responsible behaviour. Modern road safety education should be seen as a measure of self-protection for children, teenagers and all road users. Effective road safety education requires awareness-raising in society regarding its role and function. It is suggested that partnerships should be established between public and private bodies, e.g. agencies/health services, sports federations, youth centres, and that activities should be developed, through which these partnerships will be promoted. A clear role and a programme is necessary for all cooperating bodies which must also be effectively coordinated under the responsibility of the school. The determination of the extent, the content, and the general framework of the curriculum is a prerequisite for ensuring a high level of education. Its elaboration is related to the strategic discussion where potential stakeholders will have to participate. Teachers and the staff of the Road Traffic Police play a key role. Road safety education should be included in the school curriculum as a compulsory course and additional practical training should be offered at regular intervals.

In secondary education, road safety education is hampered by other priorities in the curriculum. Furthermore, it is noted that road safety education, as shown by the previous experience on traffic education, was not that attractive and, to a certain extent, was identified with an outdated method focusing on younger children. Teenagers are highly involved in accidents and should be one of the main target groups of road safety education. In order to be attractive to teenagers, the content, method and means of communication (face to face contact is undoubtedly a crucial aspect of road safety education) must be properly designed and based on types of interaction attractive to these ages. At certain ages, peers act as role models and the influence of adults is limited quickly and significantly. Passive teaching by an adult can be counterproductive. Outside the school, youth centres and sports clubs can become communication channels. Interventions which represent examples of good practice, include the use of multimedia in order to send messages on road safety, enhance social awareness and the responsibility of older teenagers and carry out discussions with people who were involved in road accidents.
Teenagers are strongly influenced by their emotions and pressure from peers influences their behaviour and attitude. Education should aim to the transition from risk control to risk avoidance. Self-evaluation and the appropriate identification (expression) of personal and technical limits are critical aspects of the education.

Parents play a crucial role in the road safety education of children up to the age of 12. They are the first people to educate them on road safety. Parents act as role models for their children and also make decisions about their safety in traffic and about the way they move around, concerning the degree of their children’s exposure to traffic, how often they are accompanied or not and the use of safety equipment. For a more effective road safety education, information should be exchanged between parents and teachers in order to raise awareness on related strategies. Awareness should be raised among parents about their role and they should be motivated to act. Their potential and contribution should be enhanced.

Public transport is relatively safe and it is essential to promote its use in the context of raising awareness on safety and on the environment. The involvement of parents towards this direction is important, as they act as role models who define the options/modes of transport for children. The use of public transport should set an example for learning socially responsible behaviour.

The combination of education with the supervision of traffic rules and the implementation of interventions for the improvement of infrastructure contributes to the wider acceptance of road safety education by society. Combined actions will result in increased awareness. Encouraging stakeholders at municipal level to participate in these efforts is a key point.

6.1.1.2. Issues related to the practical training of children

The practical training of children so as to be safe pedestrians involves practicing on the edge of the road, under supervision. It should focus on children, exploring and developing their knowledge and understanding, and not be based on assumptions on what is already known. Simply telling children what they should and should not do is not a correct training method. The training should aim at developing skills and strategies through discussion and practical learning including experience. This training should be developed and reinforced in school or at home using interactive media, such as simulation, computers, photographic and optical media. The approach should differ for different ages.
Self-image is of fundamental importance for the development of safety skills. Children who do not appreciate themselves are not likely to value their safety or the safety of others. It is extremely important to cultivate an environment at home or at school which encourages a positive self-image. Parents should be informed adequately and receive practical guidance on how to teach their children to be safe pedestrians from a very early stage, i.e. since the child begins to be exposed to traffic.

**Parents are the first educators.** Therefore, they must learn that it is much easier to teach their children how to behave properly in traffic from a very young age, than to alter their dangerous behaviour or opinions at an older age. **Starting to learn the correct traffic behaviour in kindergarten or in elementary school is belated and ineffective.**

It is necessary that schools initiate the approach to parents and that other appropriate ways (e.g. online communication, events, etc.) are also used except for meetings at school.

Knowledge and the ability to use the restraint equipment (seat belts and seats for young children) are crucial factors for the safety of passengers in the car but do not guarantee its use. Road safety education should focus on all three aspects of the issue: development of knowledge, skills and positive attitudes towards the use of the equipment, so that it is integrated in routine behaviour. As mentioned above, it is also noted that parents act as role models for their children up to the age of 12 and, through their actions, they can shape and develop the safe behaviour of their children.

The efforts to increase the use of seat belts and other means of restraint should aim both at parents and adult passengers, as well as children. Appropriate interventions must be made so as to increase children's compliance with the use of seat belts and the other means of restraint. **Based on international experience, if children are convinced of the protection offered by seat belts, they will encourage their family members to adopt safe behaviours.**

In most countries of the European Union, children are taught how to ride a bike between 8 and 12 years of age. The process must be progressive and of a long duration. At first, learning should be focused on the improvement of skills related to the use of the bicycle and then on behaviour in traffic in protected areas. Only after sufficient time of learning should the child ride the bicycle in real traffic and only accompanied by an adult.
6.1.1.3. Training of teachers

Proper road safety education requires the training of teachers and educational material in order to facilitate their work and assist students in understanding the topics developed. This action would include the following measures:

- Introduction of a course on road safety education as a compulsory elective course in the curriculum of Pedagogical Universities.
- Regular refresher courses and theoretical and practical training of teachers in road safety education.
- Elaboration of appropriate learning material for teachers.
- Development and promotion of educational printed and electronic material in schools.

6.1.2. Road safety education activities in collaboration with other Ministries.

6.1.2.1. Road safety education activities on issues related to people with disabilities.

People with disabilities, either as pedestrians or drivers, are part of our society and entitled to enjoy the same rights as the other citizens. In this context, this action aims at training people without any disabilities to deal with people with disabilities and at training people with disabilities in road safety issues. This action will be implemented in collaboration with the Ministry of Infrastructure, Transport and Networks and coordinated by the Inter-Ministerial Committee on Road Safety.

6.1.2.2. Educational activities on road safety in the Armed Forces

It is suggested that programmes are systematically organised for the training of conscripts in road safety issues. It is proposed that all conscripts participate in the programme, especially those selected as drivers and special operators of military vehicles. For the implementation of the programmes, it is possible to use principally the existing learning material and instructors. This action will be implemented in collaboration with the Ministry of Defence and coordinated by the Inter-Ministerial Committee.

The enhancement of the surveillance of traffic rules, especially in the cases of dangerous violations, such as the development of inappropriate speed, driving under the influence of alcohol, non-use of a seat belt and a helmet, use of a mobile phone while driving, dangerous and abnormal driving (e.g. driving in the emergency lane), is an effective intervention in order to substantially improve road safety in a relatively short time.

The main objective of the surveillance programmes - road traffic control programmes is to reduce the number and severity of road accidents and to alter the driving behaviour of users by changing their attitude towards dangerous driving behaviour. Thus, the purpose of the Strategic Plan is achieved, i.e. the development of a road safety culture. Systematic controls in properly selected road locations and time periods guarantee surveillance that drivers can perceive more easily, thus altering their behaviour and reducing delinquency, which, in turn, leads to a reduction in the number and severity of accidents.

It has been proven that the increase of the objective and the perceived probability of identifying offenders has led to a considerable reduction of road accidents due to delinquency. The assessment of the implementation of the previous Strategic Road Safety Plans has showed that the reduction of the number of accidents, fatalities and injuries, especially in the period 2001-2003, can be attributed mainly to the intensification of surveillance and secondarily to other factors. It has also been proven at international level that the elaboration and implementation of an integrated surveillance programme in conjunction with information and awareness-raising campaigns can lead to a considerable reduction of road accidents and fatalities.

The “Traffic Surveillance for Road Safety” programme mainly includes actions for the surveillance of the compliance with traffic rules. These actions are carried out throughout the country and, consequently, their implementation concerns all levels of responsibility of the Ministry of Finance.

The coordination and surveillance department within the Road Traffic Police of the Ministry of Citizen Protection is crucial for the successful implementation of the “Traffic Surveillance for Road Safety” Programme. This department has to deal with a number of key issues related to all the proposed actions for the improvement of road safety; primarily, with the coordination of the central, regional and local services of the Traffic Police which are responsible for the implementation of the actions and with the support of the surveillance and evaluation of the actions by collecting and processing the necessary data. Particular emphasis should be given to the continuous and immediate information and data exchange among the competent hierarchy levels.
More specifically, it is suggested that the properly staffed department of coordination and surveillance of the Ministry of Citizen Protection should take the following key actions:

- Specialisation of road safety actions which will be included in the Programme of the Ministry.
- Cooperation with the Inter-Ministerial Committee and the Special Secretariat on Road Safety.
- Cooperation with the other Ministries competent on road safety, agencies and bodies, as a number of actions of the Ministry require a combined effort together with the coordination of the Inter-Ministerial Committee.
- Cooperation with the respective Ministries of other European countries for the optimal use of the existing relevant experience.

6.2.1. Organisation of traffic surveillance for road safety

6.2.1.1. Integrated surveillance programme

The elaboration and implementation of an integrated monitoring programme of traffic on road safety, focusing on the most dangerous factors causing and severity of accidents is fundamental to improving road safety. The main elements of such a programme are:

- Intensification of surveillance and the presence of the Traffic Police on the roads.
- Proper selection of control points.
- Proper selection and, if possible, increase of control hours.
- Intensification of the surveillance of specific categories of road users (young-inexperienced drivers, motorcyclists, truck drivers).
- Upgrading of the Road Traffic Police services and equipment.
- Staffing competent agencies with the necessary personnel.
- Technical and communication training of the staff of the Traffic Police.
- Systematic surveillance and publication of the number of controls and of the recorded and existing delinquency.
- Imposition of reasonable fines, increasing depending on the degree of risk of the infringements in cases of relapse.
- Effective collection of fines through the simplification of recovery procedures, especially when recorded electronically.

The intensification of surveillance, the presence of the Traffic Police on the roads and the increased frequency of controls are high-priority and directly applicable measures. Regarding the intensity and duration of each surveillance programme, the controls should be carried out in appropriately selected road locations and at appropriate times, and always depend on the type of the infringement on which the surveillance action focuses. It is equally important that vehicles of the Traffic Police
also circulate during hours different from those of the scheduled controls, especially during days and hours of high traffic volume (e.g. leaving and returning from holidays and public holidays). The continuous circulation of the vehicles of the Traffic Police can prevent violations and ensure quick intervention in case of an accident.

In order to increase the subjective probability of detecting infringements and, therefore, the effectiveness of surveillance, it is important that traffic controls:

- be accompanied by adequate publicity,
- take place at regular intervals over a long period of time,
- be unpredictable (in terms of time and location),
- be visible,
- be difficult for road users to avoid.

Surveillance should focus on traffic violations which are directly and demonstrably related to road safety and are internationally considered as violations with the greatest impact on road safety. Particular emphasis should be given to the completeness of controls, so that infringements which are not the main objective of a surveillance programme during a given period are not ignored. Drivers and vehicles should also be checked for other potential violations (e.g. non-use of a seat belt or helmet, mobile phone use while driving, etc.) so that it becomes clear to drivers that they might be controlled at any time for any violation of the Road Traffic Code.

**6.2.1.2. Proper staffing of the Road Traffic Police**

Staffing the Traffic Police with the appropriate personnel which will focus exclusively on issues concerning surveillance for road safety, and ensuring the complete and continuous training of this personnel with the establishment and operation of special schools for retraining and specialising on road safety, thus enabling the staff to meet the high requirements of the Programme, are also critical for the effective implementation of the surveillance actions. It is also suggested that incentives are provided for serving in the Traffic Police and it is emphasised that, although laborious, it is a substantial social contribution and should be taken seriously for the professional advancement of the staff.

It is deemed necessary to restructure Traffic Police services for the intensification of controls on the behaviour of drivers throughout Greece, and to establish, to this end, Traffic Police Offices in all District Police Stations. Finally, it is required that the departments of the Highway Traffic Police increase in number and be gradually upgraded to Highway Administration Centres, in cooperation with the concession companies. Apart from Traffic Police services, the Centres will also house EKAV substations, road assistance vehicles and fire brigade forces.
6.2.1.3. Upgrading of the Road Traffic Police equipment

In order to upgrade Traffic Police services, it is necessary to equip its units with all the necessary technical means. In particular, it is necessary to gradually reinforce the services with additional patrol cars, motorcycles, investigative and conventional vehicles and other special vehicles, such as vehicles for mass controls on driving under the influence of alcohol (highly visible Booze-buses), adequately equipped with the necessary communication systems (portable radios, vehicle radios, base stations, wireless communication repeaters etc).

It is equally necessary to supply an adequate number of automatic and semi-automatic devices and systems for measuring speed and automatically identifying offenders (radars, digital cameras, etc.), measuring the driver’s blood alcohol content (contemporary breathalysers), etc. It would also be helpful to supply devices that record and display to drivers the speed limit and the speed of their vehicle and to place them in selected locations of the national and regional road network (e.g. roads within residential areas).

It would also be helpful to supply the Traffic Police with electronic devices that record data related to each road accident and included in the Road Accidents Bulletin (D.O.T.A.), under the Directive of the European Parliament and of the Council on road infrastructure safety management (2008/96/EC). The devices should be equipped with software that does not allow the validation of data if all the fields in the relevant form are not completed, so as to ensure a complete recording of the data related to the accident. Furthermore, the device must also be equipped with a global positioning system (GPS) in order to record accurately the location of the accident.

Some of the priorities of the competent services in case of a road accident, are the fastest possible removal of vehicles involved in the accident from that location, cleaning the road surface of vehicle materials and parts and restoring traffic in the area. For the faster removal of vehicles, trailers should be available in various locations, covering the entire road network of the country, called immediately and facilitating circulation. The trailer can be called whenever a vehicle is immobilised on the road, in order to remove it and reduce the risk of accidents. This measure can be implemented through the cooperation between the competent Ministry and Local Authorities with insurance companies that will send the trailer to the scene of the accident immediately after it has been called.
6.2.1.4. **Update - public awareness-raising on the surveillance actions for road safety**

It is important to enhance the knowledge and perception of users of the serious impact of risky behaviours to their safety and of the contribution of surveillance actions to the protection of their life.

With effective deterrents and adequate publicity, such as the combination of surveillance and information/awareness-raising campaigns, road users may be encouraged to alter their behaviour within a short time. This approach depends on the views of road users who are worried about being discovered and having to bear the consequences.

**Many drivers believe that there are minimal chances of themselves being involved in an accident. Therefore, the fear of a fine for the violation of traffic rules is more powerful than the fear of being involved in an accident.**

Consequently, citizens must be informed on the surveillance actions with appropriate campaigns. It should also be emphasised that developing a common perception of the imposition and guaranteed collection of fines is a prerequisite for the acceptance and support of the surveillance programme. It is necessary that the sums from the imposed fines be used for investments in actions related to road safety and that the relevant publicity be given to their allocation. It is noted that informing and raising public awareness of road safety issues through appropriate information campaigns is a responsibility of the Inter-Ministerial Committee. The Inter-Ministerial Committee will be informed in time on the need to organise campaigns, by initiative of the Ministry.

Before the automatic surveillance systems start functioning, and in order to function successfully, road users should be informed and prepared. The preparation of the public should be ensured by organised campaigns in the media that will focus on specific groups and use of specific jargon, aiming at the acceptance of the proposed surveillance system by the public. Important considerations related to the design of the surveillance system should be discussed at national level. These considerations shall include issues such as: the expected reduction of accidents, the amount of the fines, the allocation of the sums collected from fines, the penalty points for each violation, etc.

6.2.1.5. **Cross-border cooperation on road safety surveillance**

Moreover, the efforts for the promotion of cross-border cooperation in surveillance for road safety should be intensified. There is a strong need to finalise the adoption of legislation for the harmonisation of surveillance among Member States (harmonised uniform fines for violations and convergence of control mechanisms through the harmonisation of surveillance systems). In addition, cooperation with other countries of the European Union and the exchange of expertise and necessary information in the field of road safety (proposed Directive 2008/0062) will enable the imposition of sanctions to foreign violators drivers.
6.2.2. Surveillance of the compliance with traffic rules

6.2.2.1. Compliance with speed limits

Compliance with speed limits has a direct impact on the level of safety, because driving at a speed higher than suitable for the traffic and road conditions causes a large number of road accidents. Drivers rarely have experience on the consequences of high speeds. After an accident, attention is focused on the identification of the mistake that caused it and it is often overlooked that the correction of the mistake or the reduction of its impact depends on the speed of the vehicles involved in the accident. In order to address this phenomenon, the public must be systematically informed through campaigns that focus on the impact that driving at too high speed might have on road safety. Drivers need to be informed on the negative impact of speed on their ability to receive and process information from the traffic and road environment and to react in time and efficiently.

To this end, drivers should be aware of the fact that the possibility of serious injury increases in proportion with speed, both in the urban and inter-urban environment. It should also be attempted to convince drivers that developing speed inappropriate for given road and traffic conditions constitutes dangerous and antisocial behaviour.

Various methods are implemented worldwide in order to impose measures for the compliance with the specified speed limits. The use of automated surveillance systems for compliance with speed limits is considered one of the most effective methods, due to their continuous operation and, therefore, the very high objective probability of identifying offenders. The effectiveness of automated systems is greater when the vehicle owner, and not the driver, is liable for the offence, because the owner can be identified more easily and faster than the driver.

Specifically, in relation to the control of compliance with speed limits, it is suggested to acquire equipment which, depending on its technology, influences the planning of the surveillance. The required equipment includes modern patrol cars, radars for speed control and fixed and mobile digital cameras. Fixed and mobile cameras are a well known method of automated surveillance of the compliance with speed limits, implemented in many countries in Europe and worldwide. Thanks to their digital form, they have the advantage of processing the recorded data faster and more efficiently.
Only automated systems with digital cameras should be used for the surveillance of the compliance with speed limits across the national highway network, directly implemented especially in tunnels because of their high risk. An important element for the comprehensive treatment of speeding violations is the establishment of the necessary procedures for the management of all the offences recorded by the automated monitoring systems and the imposition of fines on offenders.

The process of imposing fines should be automated when surveillance is carried out by cameras and radars. The automated imposition of administrative measures and fines is objective and guaranteed. The successful structuring of the programmes for the surveillance of speed limits is based on two approaches: a) the continuation of general measures implemented in previous years and proved effective and b) the proposal of new special measures focusing on specific areas and groups of users. Moreover, for the success of the speed surveillance programmes, it is suggested that the above general and special measures are integrated into three lines of action:

- **The systematic recording of controls and violations** which must be supported by the suitable equipment. During controls, not only the violation should be recorded, but also, at least, the number and type of the vehicle that passed by a control location. Using fixed or mobile cameras permits the recording of the total number and the type of vehicles that passed by the control intersection during the control and facilitates the automated process of identifying offenders and imposing fines, since it allows the recognition of the vehicle identification (registration number).
  
  Furthermore, apart from the automated recording of controls and violations, the physical presence of the Traffic Police should also be visible to road users, in order to increase perceived surveillance. Finally, it is worth exploring the possibility of implementing a more efficient Drivers' Behaviour Control System (D.B.C.S.), also known as point system, and the imposition of higher fines to violators drivers, in combination with the compulsory attendance of training programmes on road safety. It is of particular importance that surveillance programmes be combined with information campaigns under the coordination of the Inter-Ministerial Committee.

- **Selection of control points and the duration of the surveillance programme.**
  
  It should be taken into account that the effectiveness of the surveillance increases significantly in proportion to the number of control points and to the number of surveillance hours. Considering that the speed surveillance programmes aim at reducing the average speed in traffic, control points should cover wider areas and not individual sections of the road network (wide area system application). It is also important to have a sufficient number of control points on urban roads (residential areas) where small reductions of speed have a major impact on the reduction of the severity of accidents, particularly for vulnerable road users (pedestrians, motorcyclists). Furthermore, control points should not be fixed over time, so that drivers who pass by them regularly cannot avoid the controls by reducing their speed or use signals to alert other drivers, thus reducing the reliability of the work of the Traffic Police. Controls should be
more frequent at locations where a large number of accidents have occurred because of speeding. In this way, even if they expect a control in this location, these controls may lead to a reduction of accidents because of speeding in this location.

The proposed target for speed control is to check one out of four drivers annually. Regarding the duration of the speed surveillance programme, it should be mentioned for illustrative purposes that, according to a relevant survey, the results of a 6-week 9-hour daily surveillance were visible for up to 8 weeks after the surveillance was concluded (ETSC, 1999).

- Disclosure of the number of controls and violations. It should become known that the reduction of the number of accidents and victims is due to the large number of speed controls across the country, both on urban and inter-urban roads.

It should be emphasised that the rational determination of reliable and realistic speed limits is a prerequisite for the proper implementation of programmes surveilling driving at speed inappropriate for the existing traffic conditions and infrastructure and for the acceptance of the programmes by the public. The more commonly accepted a surveillance system, the greater its effectiveness. The actions for the rational determination of speed limits on the road network of the country are included in the relevant Programme for a safer road infrastructure (Section 6.4).

### 6.2.2.2. Driving without the influence of alcohol

Driving under the influence of alcohol is another major road safety problem in many countries, as it is scientifically proven that alcohol consumption before driving reduces the driving ability and may cause road accidents. The legal limit for blood alcohol content varies among countries. The majority of European countries have set the blood alcohol limit at 0.50 grams per litre of blood (0.50 g/l), i.e. the limit recommended by the European Commission, or lower. Although infringements related to driving under the influence of alcohol are less common than those related to driving at inappropriate speed, the impact on road safety is important. It is estimated that 20-25% of road fatalities is associated with driving under the influence of alcohol.

For the implementation of surveillance programmes on driving without the influence of alcohol, it is suggested to record comprehensively and systematically the data of the controlled drivers, the date and time of the controls and the location on the road network where the control was carried out. This method of monitoring the behaviour of drivers helps to address the problem in a comprehensive way and surveillance can lead to better results by category of drivers.

Regarding the number and reliability of controls and the way they are carried out, the equipment available should be sufficient in order to perform the required number of controls, determined each time in the context of the organised surveillance strategy on this issue. The controls should be performed randomly, on various days and at different times of the day, especially at times and
locations where there is an increased probability of driving under the influence of alcohol (evenings, close to nightclubs etc.). The surveillance actions should be carried out systematically and for an adequate time, so as to increase the perceived likelihood of identifying offenders. Additionally, it is proposed that mass controls be conducted on drivers with the use of highly visible Booze buses. These deliberately create an artificial and highly charged atmosphere, in order to give the desired impressions to drivers and shape their notion of surveillance. Legislation clearly establishes how these controls should be performed and must be consistently adhered to. Regarding drink driving, the proposed target is to check one out of four drivers annually.

The disclosure of controls and their results is also proposed for surveillance programmes for driving without the influence of alcohol.

6.2.2.3. Use of seat belt, helmet and child restraint systems

Studies have shown at international level that the proper use of seat belts, helmets and children restraint systems can be particularly effective in reducing or eliminating the effects of road accidents. Specifically, the use of the so-called passive safety means has resulted in a significant reduction of the energy at which the human body is exposed during the accident. Thereby, severe traumatic brain injuries and internal injuries, which often lead to death, are avoided. The effectiveness of seat belts, helmets and children restraint systems is directly related and inversely proportional to speed.

For a surveillance programme on the use of passive safety means to be considered successful, road users should acknowledge it as part of the process for the protection of their life and not as imposed control. In order to achieve this objective, the programme must be combined with information campaigns, properly designed and aiming at raising awareness among users about the usefulness of passive safety means. These campaigns may present simple examples about the protection offered by passive safety means and the risks of their non-use and instructions for their proper use, as it has been observed that the improper use of seat belts, helmets and children restraint systems is a cause of serious injuries.
For the implementation of the surveillance programmes of the use of passive safety means, it is proposed to **systematically record the behaviour of drivers** and passengers and check them regardless of whether they are offenders or not. For statistical purposes, it is also useful to record the personal data of controlled drivers and passengers (gender, age, occupation, etc.), the type of the vehicle and their position in it. It would also be useful to record the date and time of the control and the location on the road network. This allows a more effective surveillance and redesigning of measures, in order to increase the use of passive safety means.

Moreover, with regard to the duration and intensity of the programmes, international experience has shown that intense and short-term surveillance actions lead to a significant increase of seat belt use, which stops, though, once the actions are no longer in force. These actions can have long lasting results only if repeated continuously at irregular but frequent intervals, so as to increase the perceived likelihood of identifying offenders. Alternatively, the controls can be carried out less intensely but continuously. According to a Commission Recommendation (2004/345/EC), intensive surveillance actions concerning the use of seat belts with a duration of at least two weeks take place at least three times a year, in places where non-use occurs regularly and where there is an increased risk of accidents. Furthermore, it should be ensured that sanctions are imposed in every individual case where non-use is observed and the car is being stopped.

Regarding the selection of vehicles to be controlled, it should be random, on different days and times of the day, and intensified in areas with an increased number of serious accidents. Although controls about seat belt use are more difficult during the night, it is indispensable that they be performed at locations with adequate artificial lighting. Particularly with regard to controls for seat belt use in the rear seats, the same logic should be implemented as for controls for seat belt use in the front seats. It is observed at international level that the use of seat belts and helmets by drivers and passengers are interdependent. The ultimate goal for the end of 2020 is to **achieve the maximum (100%) use of seat belts and helmets by drivers and passengers**. Regarding seat belt and helmet use, it is considered feasible that at the end of the first five years of the implementation of the Strategic Plan, the use of seat belts by drivers and passengers in the front seats will exceed 90% (currently 77%) and will be 76% (currently 23%) for passengers in the rear seats. **Regarding helmet use, if it exceeds 90% for drivers and passengers (currently 75% for drivers and 45% for passengers) at the end of the first four years of the implementation of the Strategic Plan, it is considered satisfactory.** These percentages were calculated based on the corresponding averages of seat belt and helmet use in countries with the best performance in road safety.
Finally, the **systematic disclosure of controls and their results** in combination with the disclosure of the modification of the level of road safety (link between the number and severity of accidents and the number of controls) is deemed necessary in order to demonstrate the usefulness of these controls.

### 6.2.2.4. No use of mobile phones while driving

The increasing use of mobile phones while driving and the accident risk associated with their use makes it necessary to **intensify surveillance for the non-use of mobile phones while driving**. During the implementation of the relevant surveillance programmes, it is suggested to record comprehensively and systematically the data of the controlled drivers, the date and time of the controls and the location on the road network where the control was carried out, so that surveillance yields better results by road user category. The controls should be performed on different days and times of the day, and may be intensified in areas where an increased number of serious accidents has occurred because of mobile phone use while driving.

### 6.2.3. Upgrading of the Fire Brigade

For a **more efficient intervention** of the Fire Services at the scene of an accident, it is necessary to intensify the relevant training of their staff, to improve the relevant equipment and better organise the mode of their intervention, in coordination with the necessary Unified Operations Centre.

Particular attention should be given to the **complete and continuous training** of the staff of the Fire Brigade (with schools, continuing education courses and continuous practical training in local units), in order to maximise the effectiveness of the intervention of the Fire Brigade at the scene of an accident.

Moreover, it is necessary to **equip Fire Brigade units** with the required number of special vehicles (rescue vehicles, cranes) and the related rescue equipment, in order to support actions that aim at rescuing trapped individuals after an accident, putting out accident-related fires, removing vehicles involved in an accident to a safe location, etc.

If possible (e.g. on highways), the emergency services of the Fire Brigade must be located **in the same premises** with the other response services (EKAV, Traffic Police) and cooperate with the concession companies.
6.2.4. Monitoring of delinquency and road accidents

In order to estimate the effectiveness of the surveillance, it is necessary to collect data about delinquency and road accidents, carry out special analyses and determine highly efficient practices, in order to repeat them and, practices with a low efficiency, in order to avoid them. It should be noted that the correct analysis of the causes of accidents and the appropriate mitigation measures require a collection and analysis of data from different sources and results useful for all the Programmes of the Strategic Plan. Therefore, the coordination of the collection and analysis of data is under the responsibility of the Inter-Ministerial Committee.

6.2.4.1. Systematic recording of delinquency

The reduction of delinquency leads to a reduction of the number and the severity of road accidents, hence it is necessary to systematically record delinquency. Monitoring delinquency is related to recording both the current delinquency and the proven delinquency, i.e. the number of violations recorded during traffic controls.

The following are proposed as immediate implementation actions regarding the systematic recording of delinquency with an emphasis on the most dangerous offences (driving at a speed faster than appropriate, driving under the influence of alcohol, mobile phone use and non-use of seat belt and helmet):

- Regular surveys to determine current delinquency.
- Continuous recording of proven delinquency.
- Systematic recording of controls.
- Monitoring and analysis of the effectiveness of surveillance.

The regular disclosure of the programme’s elements (locations with cameras, controlled infringements etc.) and of the results of controls and violations (results of the control, incidents per region etc.) is necessary in order to raise public awareness about offences that may cause road accidents and the promotion of the efficiency and the positive results of surveillance actions, as part of the overall strategy for the improvement of road safety in the country.

6.2.4.2. Improvement of road accidents recording

The current system for recording road accidents in Greece is a good groundwork and should be further improved in order to support properly the necessary analyses and decisions on the most appropriate road safety measures. In order to draw the necessary conclusions which will contribute to the improvement of road safety, particularly regarding road accidents and fatalities, it is necessary to focus on each fatal road accident, collect all the related data with the help of modern technology (coordinates, pictures of the road environment etc.), prepare in situ a D.O.T.A. with the use of a computer after the necessary post-accident action and establish, under the Traffic Police of the

Ministry of Citizen Protection, a group of experts, to elaborate a formal annual report containing all the information related to fatal road accidents and submit it to the Inter-Ministerial Committee and the Permanent Special Parliamentary Committee. Specifically, the following are required:

- The services of the Traffic Police must improve the reliability of the information recorded in the Road Accidents Bulletins (D.O.T.A.), focusing on the accuracy of the accident’s location and the features of those involved in the accident. For a more correct completion of the D.O.T.A., it is necessary that most of the relevant data is recorded in situ and shortly after the accident, when more information is directly available. For a more correct completion of the D.O.T.A., the staff of the Traffic Police should receive relevant training at regular intervals, with the participation of personnel from the Hellenic Statistical Authority (EL.STAT.), responsible for encoding and publishing data.

- The Road Accidents Bulletin (D.O.T.A.), must be improved, so as to include all the data provided for in the European Directive 2008/96/EC, i.e. add information on signs, speed limits, obstacles at the roadside and the time of arrival of the intervention units and pictures from the scene of the accident.

- For the national highway network, it is suggested that, together with the operating companies, a single emergency number be designate, as well as a unified method of recording accidents with the use of global positioning systems (G.P.S.) and the data related to accidents under European Directive 2008/96/EC. The valuable experience drawn will help expand the implementation along the country’s road network.

- For the improvement of the reliability of the data collected on road accidents, it is also helpful to use electronic recorders of the D.O.T.A. data, so as to automatise their introduction to the final database. These devices must also be equipped with a global positioning system (G.P.S.), in order to record accurately the location of the accident.

- The data on road accidents and road fatalities collected by the Traffic Police, should be supplemented with the corresponding data collected by other bodies (concession companies, operators), so that there is a single, unified and reliable picture on the accident data and fatalities on the roads of Greece, starting immediately with the highway network.
Furthermore, the data of the victims of road accidents, collected by the Traffic Police and encoded in the database of the Hellenic Statistical Authority (EL.STAT.), should be finalised after the corresponding hospital data has been received, so that the total number of victims is calculated and the severity of the injuries is accurately defined, as explained in section 6.6.
6.3. Programme “Safe Road Users”

The Safe Drivers Programme contains a number of relevant actions that cover all the contemporary issues for the improvement of the safety of drivers. Specifically, it includes measures relating to the training and examining driving system for licensing new-novice drivers, the training of instructors, the improvement of road safety for motorcyclists, the improvement of road safety for cyclists, issues related to awareness-raising/training and licence renewal for elderly drivers, the enhancement of the safety of school transport, research on the causes of accidents and the driver licence registry.

For the effective implementation of the “Safe Road Users” programme, it is necessary to organise a department within each competent body (Yp.YPO.ME.DI., Regions, Municipalities), which will undertake the coordination and monitoring of the actions proposed under the Programme.

The actions that this properly staffed coordinating and monitoring department is asked to undertake are:

- Specialisation of road safety actions which will be included in the Programme of the Ministry.
- Cooperation with the Inter-Ministerial Committee and the Special Secretariat on Road Safety.
- The cooperation with the other Ministries competent on road safety, agencies and bodies, as a number of actions of the Ministry require the combined effort with other bodies for the coordination of the Inter-Ministerial Committee.
- Cooperation with the respective Ministries of other European countries for the optimal use of the existing relevant experience.

6.3.1. Training and examining system for providing a licence to new-novice drivers

The first objective, out of the seven objectives set on road safety policy in the Communication from the European Commission (July 2010) “Towards a European road safety area: policy orientations on road safety 2011-2020”, is the improvement of education and training for more competent and well-performing road users.

Among the actions proposed by the European Commission during pre-test learning for obtaining a driving licence, is the introduction of accompanied driving. The system proposed under the Strategic Plan is consistent with the guidelines of the European road safety policy for 2011-2020. During its elaboration, the social and institutional environment of the traffic system, as well as the conditions of the control system in Greece, were taken into account.
The system lays down the following:

Systematic training by a professional driving instructor is proposed during the initial period, i.e. over 17 years of age. After the systematic training and post-testing, candidates obtain a licence for accompanied driving. Upon the receipt of the licence follows a period of accompanied driving, during which the new-candidate driver will be able to drive, accompanied by an adult-experienced driver. It is proposed that this period lasts at least nine months and that the confirmed hours of accompanied driving are at least 80, some of which mandatorily at night. It is emphasised that, in terms of road safety, the period of accompanied driving should exceed six months and be combined with a confirmed minimum number of hours of accompanied driving. Subsequently, the driver will be allowed to be examined so as to obtain the independent driving licence. The lowest age limit for independent driving should be more than 18 years of age and not less.

It is necessary to provide for a time period of one to two years, after obtaining the independent driving licence, during which stricter road traffic regulations will be implemented for dangerous behaviours of new-novice drivers and make them extremely vulnerable because of their lack of driving experience. It is suggested that particular attention should be given to driving under the influence of alcohol, the violation of speed limits, the non-use of seat belts, the use of mobile phones while driving, red light offences and dangerous manoeuvres. The stricter rules should also be in force during the period of accompanied driving.

An important factor for the success of the accompanied driving measure is the participation of adults-experienced drivers with a safe driving behaviour, who will accompany the candidate driver and will be required to confirm the practical training of candidate drivers. The experience drawn from the implementation of accompanied driving internationally shows that an adult-experienced driver must supervise, advise and not guide. It is essential to train and raise awareness among escorts about the mode of surveillance and the value of their contribution to the learning process of the candidate guide. Educational programmes should also be organised and attendance, as well as the elaboration of information-educational material, will be compulsory.

The mandatory driving training established by the institutional framework must remain the initial stage of the accompanied driving training, as it can help candidate drivers to develop a cognitive background and skills, so as to avoid the development of bad driving habits which, once consolidated, are very difficult to change.
During practical training, clear feedback should be provided on traffic situations and potential risks. Self-assessment tools (questionnaires) and group discussions on driving experiences and evaluations by driving instructors are suitable methods for exploring attitudes and helping to shape realistic perceptions of the potential risks and individual abilities.

6.3.2. Training of instructors

The improvement of the training for instructors of candidate drivers is included in the actions proposed by the European Commission regarding the training of candidate drivers. The training of driving instructors (of all types of vehicles) should be based on the content that will contribute to the development of a cognitive background and skills, with an emphasis on the principles of safe driving and the corresponding teaching methods. In particular, it is suggested that emphasis should be given to the following topics:

- Safe driving components, particularly defensive driving, risk perception, safe driving attitudes and motives, ability for self-evaluation of driving skills.
- Implementation of modern standards of driving behaviour in training (GADGET Matrix) and development of training protocols according to the principles of safe driving.
- Development of methods for teaching driving which will take into account the behavioural features, abilities and needs of candidate drivers, focusing on differences associated with age (intake of information, degree of assimilation, functional abilities, key factors related to the involvement of the group in accidents).
- Development of the corresponding appropriate training protocol for theoretical and practical training.
- Designing of techniques, i.e. group discussions, questionnaires, which will accompany the practical training for the development of positive/safe attitudes and realistic self-evaluation of the trainee.

It is proposed to enhance the existing mandatory training for the acquisition of basic driving skills and necessary knowledge. It is proposed to elaborate a training protocol and adapt it to the special features of users, taking into account the inherent weaknesses and the potential of every age group. The training of drivers should focus on the ability to perceive risks, self-evaluation and awareness of one’s abilities, positive attitudes and motivation for safe driving behaviour at all levels of the driving process.

In particular, the training of candidate drivers should focus on:

- the perception and anticipation of risks in the road environment and traffic and the avoidance of hazardous behaviours,
- avoiding extreme confidence and developing safe attitudes and a realistic evaluation of one’s abilities (self-awareness).

Risk perception is a complex cognitive driving ability and involves searching for risks, identifying and assessing them and choosing and taking the appropriate actions. It is suggested that suitable methods of interactive teaching are adopted during practical training. The instructor should indicate risks and also encourage candidate drivers to recognise and identify them themselves. It is
important to raise awareness among instructors and ensure their contribution with regard to the establishment of suitable training content and a teaching method which will be implemented so that the theoretical and practical training both focus on the recognition of obvious and not obvious dangers of the road and traffic environment, on stressing the limited abilities of novice drivers and avoiding risky situations.

In order to develop safe attitudes (i.e. related to safe behaviour), theoretical training should serve as a cognitive background and a basis for the development of incentives:

- for example, to avoid risky situations, information on the impact and consequences of distracted driving
- for the development of a forgiving road behaviour and knowledge, especially with regard to vulnerable users (pedestrians, children, elderly drivers, motorcyclists).

The training-practice in manoeuvres, along with practice in risk perception and safe strategies of avoiding risks, should be integrated in the training process which also includes the development of positive attitudes and motivation for self-evaluation.

- Use of new technologies (driving simulators) focusing on their severe limitations regarding the training of new- inexperienced drivers (need for training mainly to avoid risks).
- Regular training of instructors of candidate drivers in the new technologies of modern cars, modern methods for training vulnerable groups (e.g. paraplegic, deaf-mute), etc.
- Ensuring that professional driving instructors have the necessary knowledge and pedagogical skills to guide and assist the candidate to drive more safely. This means that driving instructors must be able to prepare, not only instruct.

6.3.3. Measures for the improvement of the road safety of motorcyclists

Based on international experience and taking into account the particularities of the Greek reality, the following measures are proposed for the improvement of the road safety of motorcyclists:

- Motorcyclists have the greatest responsibility and need for self-protection in relation to other drivers and their vehicles do not provide protection in case of an accident. Apart from the essential motorcycle driving skills, the training of motorcyclists should focus on defensive driving, manoeuvring that will prepare them to deal with potentially dangerous situations, and behaviours that contribute to making their presence perceivable and their behaviour predictable. Awareness should be raised among motorcyclists about the consequences of distracted attention to their safety, especially because of mobile phone use and drink driving.
- Training and raising awareness about the use of safety equipment and the avoidance of risky behaviours, possibly associated with the false sense of safety due to the use of personal protective equipment, is of great importance.
- Updated practical and theoretical training at regular intervals is beneficial for motorcyclists, particularly those who still have their licence and start driving a motorcycle again after years of non-use.
- Graded driving licensing system, providing for a provisional driving licence, of annual duration, after an exam on low-capacity vehicles (e.g. up to 250cc), a re-examination of drivers after one year and licence removal in case of an accident or serious infringement.
- Establishment of a technical control of two-wheel vehicles, prioritising those of up to 250cc.
- Information and awareness-raising campaigns about the road safety of motorcyclists.
- Measures for the improvement of the conspicuity of motorcyclists (Section 6.5.7).

6.3.4. Measures for the improvement of the road safety of bikers

A few strategies that potentially contribute to the reduction of accidents fatal for cyclists are:

- Drivers should be aware of the presence of cyclists on the road, pay attention to them, especially when they leave or enter a side road and near junctions at grade, when they turn right and when they open the doors of the vehicle. The identified road safety problems are also related to conditions of limited visibility, the difficulty to perceive cyclists and to the freedom of their movements in traffic which are not always safe. Specific topics on safe driving behaviour with regard to cyclists should be introduced to the training of candidate drivers, who should be tested in these in order to obtain a driving licence.
- Basic skills for controlling a bike and braking. Following the flow of vehicles, rules on priority when they enter circulation, correct position in the lane in various traffic situations, avoidance of the situation of open doors of vehicles. Knowledge about cycling in complex junctions at grade and turning left on roads with two or more lanes in each direction. It is also necessary to educate cyclists on the use of the appropriate equipment and the maintenance of the bike (use of appropriate tyres, steering wheel, brakes, appropriate lights, reflectors and mirror, vest and helmet).

6.3.5. Issues related to awareness-raising / education and the renewal of licences for elderly drivers

In Greece, people over 65 years of age are expected to represent, by 2050, approximately 33% of the population. Apart from growing in number, these people drive more than in previous years. This combination has an impact on road safety, especially considering the degree of their vulnerability. According to relevant international research, the risk of road accidents is not related to age itself, diagnosed diseases or medication, but to the operational status of a person.
International research has highlighted the decline of certain functions associated with the risk of accidents caused by elderly drivers, i.e. vision, perceptual-cognitive functions and physical state. This decline is expected with age. However, it is specified that the degree varies among individuals. The main element that should be emphasised is that the malfunctions associated with driving might be further exacerbated by diseases, which are more common in older age, and the medication taken for their treatment.

The existing legal framework requires a medical examination at the age of 65 for the renewal of driving licences. The renewal is repeated every three years, provided that during this time there are no serious malfunctions. It is proposed that the conditions for the renewal of the licences of elderly drivers are enhanced and that the performance of controls is ensured.

It is also proposed that a flexible process be established, which, apart from the medical diagnoses of diseases and malfunctions in general, will also provide for the evaluation of an individual's potential to drive safely, based on their actual skills, and compensate for any functional problems.

It is necessary to raise awareness among drivers regardless of their age, so that during their visit to the doctor they inform him/her that they drive and give an account of any difficulties that they may encounter while driving. They should also ask their doctors for advice on being able to recognise some of their problems on their own and at the earliest possible stage and information on the effects of the medication they take. Help from the people around them might be important. It is suggested that awareness should be raised among their family environment and the professionals of the health sector who are in contact with elderly people.

It is also necessary to raise awareness among elderly drivers on safe driving and safe mobility with material and information that will help them to enhance their awareness about their abilities and difficulties in driving, impairment in critical driving functions because of growing age, the impact of the habits of elderly people on driving, and the effect of their medication. Drivers will need to enhance their knowledge on selecting the conditions in which they can drive more easily (i.e. engaging a lower cognitive load) and more safely, and on issues related to safe driving techniques, thus being able to optimise the use of their vast driving experience and their maturity of judgment. It is emphasised that a handbook on safe driving for elderly drivers has been elaborated with funding from the Yp.YPO.ME.DI. and the European Union.

The need to facilitate a progressive reduction of driving and make a transition into other ways of safe mobility is a critical issue for drivers and is related to the real possibilities of the system of mass transportation and to the safety of the urban space. In each case, drivers must be informed in time about the availability of safe alternatives for their transportation, as they will consider them in the critical, and mainly personal, decision about how and until when they will be driving.
Turnout points of elderly people can be used as locations where supporting material/information is provided about all the above issues in print or in electronic form.

Drivers must be aware of and prepared in time for upcoming changes before they reach an older age. The European Directive to be implemented in Greece (and providing for a renewal of driving licences every ten years, regardless of age, until 65), provides an opportunity for information and awareness-raising among drivers on driving safety, evaluation and self-evaluation, as well as safe transportation in general, due to their turnout in special centres.

Many elderly drivers have gained experience in a road and traffic environment different from the current one. To maintain their mobility as drivers (if they are able to drive safely), they should be able to improve their driving skills, in particular by practising specific skills which are essential for driving and time-dependent. Driving Schools and the Hellenic Association of Insurance Companies can play a powerful and positive role in this effort.

Finally, it is emphasised that the road infrastructure is developed in such a way that drivers are led not only to avoid errors but also reduce the impact of errors in driving (unforgiving road environment). This action will be implemented in combination with actions for the improvement of road infrastructure (Section 6.4.3, coordinated by the Inter-Ministerial Committee).

6.3.6. Enhancement of school transport safety

In an effort to improve the safety of school buses, the local Departments of Secondary Education, in collaboration with local services of the Traffic Police and the Joint Control Teams, will be responsible for the implementation of the following measures:

- Check if there is a valid Technical Control Report for buses used in school transportation. Additionally, the selection of the company that will organise the transportation will be assessed and it is desirable that there be a recent Report of a Regular Voluntary Technical Control, at least on the safety systems of the vehicle (steering, braking, suspension, wheels, etc.), by a V.T.C.C. or a car repair garage. The scheduling of this voluntary control by a V.T.C.C will be an absolute priority.

- Selection of the companies that will undertake student trips, under the main criterion of safety, regarding the available means of transport and the personnel. The buses will be technologically advanced and equipped with anti-lock braking systems (ABS). The drivers will be experienced and without an accidents history record. Retired persons will not be considered.

- Communicating the approved schedule of the trip to the appropriate service of the Traffic Police and to the “Joint Control Teams” of the Regions. The aforementioned bodies will carry out at least one mandatory control out of schedule at each trip. The conclusions of the controls will be used for the elaboration of the Registry of Travel Agencies and Guides.
• Control on the driver’s working hours during the trip and the days previous to it. For multi-day trips and depending on the schedule of the trip, the need to use and second driver will be assessed.

• Compulsory transfer to the school after the end of the trip and submission of the evidence of payment and certified photocopies of used tachograph sheets, signed prior to use by the responsible accompanying teacher.

• Elaboration of “Trip Rules” containing the duties, responsibilities and obligations of everyone involved in the process of the trip: Tourist agencies, drivers, accompanying-teachers and students.

• Monitoring and evaluation of the implementation of the measures for school transport by a special committee which will prepare and submit a relevant annual report.

• Assessment of the “School Traffic Warden” institution Schools and parents’ associations should benefit from the positive aspects of the experience so far and address the negative aspects.

6.3.7. Investigation on the causes of accidents

Road safety is a scientific notion that may be described as rich in data but poorly understood. Uncertainty in research related to road safety is mainly associated with the interpretation of the results. Road safety is a complex scientific field, consequently the systematic research and analysis on the causes of road accidents is important in determining the actions required for the improvement of the level of road safety in the country. To this end, it is necessary to develop supporting research projects and studies, make the best use of and promote their conclusions and continuously process improvement interventions and measures in order to address the causes of road accidents.

The research must be supported by the relevant information system that will provide both accident statistics, collected by the Traffic Police (D.O.T.A.) and included in the database of the Hellenic Statistical Authority (EL.STAT.), and additional data for traffic, driver behaviour, features of the road and vehicles, etc. Given that the correct analysis of the causes of accidents and the appropriate mitigation measures require a collection and analysis of data from different sources, yielding useful results for all the Programmes of the Strategic Plan, the coordination of the collection and analysis of data should be carried out by the Inter-Ministerial Committee through the Special Secretariat on Road Safety.
6.3.8. Driving licence record

The number of the new driving licences granted is recorded in the Yp.YPO.ME.DI. databases, without deleting any data whatsoever. Furthermore, data related to mopeds is not included, as the service competent for the respective licences is the Traffic Police Division of the place of residence of the person concerned. Finally, today, there is no information on the number of non-active drivers, i.e. drivers who do not drive for some reason, despite having a driving licence. Such data could be collected by field research on an appropriately selected and representative sample of drivers. Measurements resulting from such fieldwork should be tested for statistical reliability, so as to ensure the validity of the results.

It is necessary to update the relevant databases and supplement them with the actual data related to driving licences, so that this data is used in the context of road accident analysis, to determine risk indicators and other data on road safety, so as to ensure proper documentation of decisions on road safety.
6.4. Programme “Safe Road Infrastructure”

The road system should be designed acknowledging that users make mistakes and that road accidents cannot be completely avoided. According to the Safe System approach (Section 4.1.1.1.), road accidents are tolerable, provided that they do not result in disability or death. When designing a safe road system, it is of the utmost importance to examine the restrictions for users and the vulnerability of people. Based on this approach, speed limits have been set. Most pedestrians survive if they are hit by a car moving at 30 km/h, a safe car protects the driver and the passengers in the case of a side collision for a speed up to 50 km/h and in a frontal collision up to 70 km/h.

In order to achieve a safe road infrastructure, the following principles should be implemented: sustainable safety, i.e. functionality, related to the existence of a single main function of roads in a hierarchical road network, homogeneity, related to the harmonisation of speeds, directions and masses of vehicles moving on the road, predictability, related to the support of the expectations and the understanding of users through homogeneity and continuity in road design and forgiveness, associated with the development of a forgiving road environment and social forgiveness.

Roundabouts, roads with “2 +1” lanes, traffic calming in residential areas, speed limits that reflect the level of road safety and a forgiving road environment (flexible side guardrails, posts with a sliding base, etc..) are some of the successful road safety measures in accordance with the Safe System approach.

In order to achieve sustainable safety, it is also necessary to design a user-centred road infrastructure, i.e. infrastructure that satisfies the needs of users for information from the road and traffic environment and takes into account their constraints and skills. As mentioned above, this can be achieved with a road design that is easily understood by users and meets their expectations.

When designing roads and planning corrective actions for the improvement of road safety, one of the most important tasks of engineers responsible for road design worldwide is the identification and mitigation of the issue of potentially conflicting, ambiguous or missing information.

The Programme for Safe Road Infrastructure contains a number of relevant actions covering contemporary issues for the improvement of safety in road infrastructure. In particular, the actions are related to the implementation of an integrated programme for the management of road safety infrastructure, the speed management system, the creation of a road infrastructure taking into account the needs of elderly drivers, the programme for safe road infrastructure in urban areas, the programmes for the maintenance and improvement of the road network, the implementation of low-cost measures for the improvement of safety in hazardous locations on the road network, the road register and the development and modernisation of the specifications and guidelines for road design.
The implementation of this programme is also related to the Regions and Municipalities which currently have relevant responsibilities in large parts of the urban and inter-urban road network.

For the effective implementation of the “Safe Road Infrastructure” programme, it is necessary to organise departments within the Yp.YPO.ME.DI., Regions and Municipalities, which will undertake the coordination and monitoring of the actions proposed under the Programme.

The actions that this properly staffed coordinating and monitoring department is asked to undertake are:

- Finalisation of road safety actions which will be included in the Programme of the Ministry, the Regions and the Municipalities.
- Cooperation with the Inter-Ministerial Committee and the Special Secretariat on Road Safety.
- The cooperation with the other Ministries competent on road safety, agencies and bodies, as a number of actions of the Ministry require the combined effort with other bodies for the coordination of the Inter-Ministerial Committee.
- Cooperation with the respective Ministries of other European countries for the optimal use of the existing relevant experience.

6.4.1. Implementation of an integrated programme for the management of road infrastructure safety

To substantially upgrade the safety of road infrastructure it is necessary to implement a comprehensive programme of road safety audit, as applied in several developed countries in terms of road safety and has been established at European level by Directive 2008/96/EC and its implementation is recommended in the trans-European network. In particular, a number of procedures is required, so as to ensure the safety of road infrastructure in all the phases of planning, research, construction, operation and maintenance. These procedures are related to the control and inspection of road safety, the identification and intervention in hazardous locations and the assessment of the impact of each new project and intervention on road safety. It is necessary to immediately adapt Greek legislation to Directive 2008/96/EC.
6.4.1.1. Road Safety Audit

The Road Safety Audit (RSA) consists of a systematic and independent examination and evaluation of the level of road safety of planned road works or those under construction, including those for the improvement and maintenance of the existing roads. The audit aims at the early identification of the possible causes of accidents and their elimination, so that the road is as safe as possible for users. It is emphasised that the Road Safety Audit is not related to checking the completeness of the study so that it is approved and does not aim at indicating detailed solutions for redesigning the road. In accordance with the European Directive, the Road Safety Audit (RSA) is carried out on planned road works or those under construction, whereas the Road Safety Inspection (RSI) is carried out on the existing road network. It is emphasised that, in accordance with contemporary handbooks, the term "Road Safety Audit" worldwide also includes the Road Safety Inspection. In the Strategic Plan, the term “Road Safety Audit” also covers the Road Safety Inspection.

The Road Safety Audit is mainly related to the safety of all road users, especially vulnerable and elderly ones, providing a safer road environment. Safe speed is a key element for a safe road system. The implementation of the Road Safety Audit process in the early stages of road planning is an opportunity to support safe user behaviour through the planning. It is essential that engineers responsible for the designing of roads see the road through the eyes of ordinary drivers and understand why, where and when road users make mistakes. The Road Safety Audit ensures the designing of a safer road environment without any surprises for users, providing information in a controlled manner, repeating information (especially for the identification of risks) and “forgiving” the mistakes of road users.

The Road Safety Audit can be a catalyst for the improvement of road planning, so that the experience in safe planning from a road study contributes to the improvement of future studies. Thus is developed the road safety culture among road researchers. The opportunities for feedback from the knowledge and experience acquired in road safety audits include:

- Transmission of knowledge. The reports of Road Safety Audits and corrective actions must be available and discussed by researchers and competent engineers in the road planning services.
- The services and scientific committees responsible for the handbooks and standards of studies on roadworks should be informed about all the cases of roads for which the audit revealed a low safety level and the need for changes, although they had been designed according to the current standards, in order to make the necessary adjustments and revisions in the relevant standards.
Recently, Road Safety Audits have been carried out unofficially in Greece, mainly on planned or operational highways. To date, the conclusions of these audits and inspections have showed that, in order to benefit from them, apart from political will, a study and adaptation of the existing legal framework is also required, in a manner that regulated the legal impact for competent authorities and auditors associated with the Road Safety Audit.

The actions proposed within the implementation of Road Safety Audit are:

- Modernisation of existing guidelines, elaboration of a relevant **handbook** and development of relevant legislation.
- Development of **training material** and training of engineers in topics related to Road Safety Audit.
- Conducting RSAs on roads of the trans-European network and extending them to other major inter-urban and urban roads.
- **Implementation of improvement interventions** in positions identified by the Audits and the Road Safety Inspections.
- Creation of an **IT system for monitoring** and evaluating the results of the audits and the improvement interventions.

### 6.4.1.2. Identification of and intervention in hazardous locations

Internationally, the **identification of hazardous locations/high risk sites** on the existing road network in each country and the planning and implementation of the necessary interventions are vital factors of a comprehensive plan for the management of the safety of road infrastructure. The interventions which are selected and implemented should be evaluated systematically with the use of “before and after” methods and by conducting additional analyses of the causes of accidents. Moreover, it is necessary that they be supported by a relevant information system of monitoring and evaluation and that the results of the evaluation be a key criterion for the allocation of funding for the implementation of road safety measures.

If this action is implemented systematically and in the way set out above, it is estimated that **maximum efficiency** will be ensured through the optimisation of the allocation of the funding for road safety, and, according to international experience, a significant reduction both in the number and severity of accidents will be achieved.

In particular, the following measures are included in the action:

- Improvement of existing **standards of studies** for the identification of hazardous locations both on the urban and inter-urban road network.
- Elaboration of **studies for the identification** of hazardous locations and the determination of interventions.

- Elaboration of a handbook of **intervention standards** in hazardous locations, both on the urban and inter-urban road network. **Implementation of interventions in hazardous locations.**

- Creation and operation of an IT system for **monitoring** the results of the audits and **the interventions.**

- **Evaluation** of the effectiveness of interventions.

It is emphasised that it is necessary to have a special system for the identification and definition of interventions in high-risk locations for motorcyclists.

**6.4.1.3. Assessment of the effects on road safety**

The Road Safety Impact Assessment - RSIA is related to the **initial designing stage** (feasibility study) of each new project and intervention, before the finalisation of the basic options and the approval for the construction of the new project.

The evaluation of the impact of infrastructure projects on road safety is related to the **comparative analysis of the impact** of a new road infrastructure project or a substantial modification on the road safety level of the existing network. The results of the assessment of the impact on road safety are useful both for the identification of the most appropriate alternative in terms of road safety and the identification of the appropriate interventions for the improvement of the road safety of the new project in the final phase of the study.

The impact assessment on road safety of the new projects and of the interventions in infrastructure highlights the impact on road safety of the **various planning alternatives** of a project or intervention before choosing the best solution. Consequently, the impact assessment on road safety infrastructure must take place at an early design stage, so that the results of this assessment can be taken into account later in the design process, as is the case in the environmental impact assessment. Moreover, it should be carried out for all the interventions on road traffic systems that may have an impact on road safety.

For the proper implementation of the impact assessment of road safety, it is necessary that the **appropriate data** be available, so as to carry out the relevant research and studies on the link between accidents and the features of the road environment (road geometry, traffic, etc.). Moreover, it is required to properly train the competent engineers and set appropriate standards which will guide the bodies involved in the RSIA during the elaboration and the audit of the relevant studies.
6.4.2. Speed Management System

One of the key issues regarding road safety worldwide is speed, which is associated with the features of the road environment and the drivers. Speed affects road safety in two ways: the first one is related to the impact of speed on the frequency of accidents (probability of an accident) and the second one to the impact of speed on the severity of accidents (probability and degree of injury). Speed management systems are considered as the most appropriate method for the improvement of road safety regarding speed control. The probability that a passenger be fatally injured in a collision at 80Km/h is 20 times higher than at 30Km/h. Moreover, it is acknowledged in general that speed increase leads to an increase in the frequency of accidents. However, the link between speed and accident frequency is much more complex than the one between speed and the severity of accidents and extensive research is required for its investigation.

The effective implementation of the proposed action requires an update/improvement of the existing management system and, subsequently, of the planning of the necessary actions. Towards this direction, three basic principles need to be taken into account and ensured during speed management: i) functionality, i.e. speed limits compatible with the function of the road ii) uniformity, namely uniformity in the type and speed of vehicles using a road element, otherwise they must be appropriately separated, and iii) predictability, i.e. road planning should guide drivers to choose the correct speed limits. Also, the speed limits set by Law 3542/02.03.2007/Government Gazette, No 50 for the various categories of roads and vehicles should be taken into account and it should be attempted to redefine the speed limits on individual roads by implementing the following methodology:

- **Recording and evaluation of speeds developed** throughout the urban road network, following the selection of the appropriate measurement and recording methodology. During the selection, the available technological support should be taken into account and it should be emphasised that it is possible to record at the same time the design speed, the geometric features and the anti-skid features of the relevant road sections.

- **Exploring the views of Greek drivers** on speed. It is a prerequisite for the success of a speed management system to be accepted by the majority of road users. The system must be regarded as fair and reasonable by most users. For instance, the speed limits should be considered realistic and be generally accepted. For this reason, the views of drivers should be taken into account when planning a speed management system and be constantly monitored.
• Setting new speed limits on urban roads by implementing integrated road safety schemes in urban areas. The steps towards this direction are: i) the functional hierarchy of roads (taking into account the Road Design Guidelines Manual/O.M.O.E.-Functional Categories of Roads/LKOD), ii) the recording of roadside land uses and the identification of strong/sensitive uses, iii) the setting of speed limits that meet the above two criteria (functional hierarchy and land use), iv) the definition of zones with speed limits of 40 km/h or 30 km/h depending on the case, and v) the implementation of the appropriate relevant measures for traffic calming, so as to achieve these speeds.

• Based on the above, creation of digital maps and databases of speed limits for all areas (at urban and inter-urban level), so as to ensure the potential for their future use in intelligent speed management systems.

Installing electronic signs indicating the speed of vehicles, in combination with signs indicating the speed limits in the region is a policy that can contribute to the reduction of speed in specific locations of the road network. These signs inform drivers that their speed is monitored and remind them that they are exceeding the permitted limits, so that they comply with them.

It is also essential that appropriate distinct signs be placed on highways, indicating the maximum and minimum speed limits in each traffic lane and that the compliance with these limits be monitored.

Arteries crossing suburban areas usually allow the development of high speeds which are incompatible with the features of the environment (roadside land uses, frequent uncontrolled access, no shoulders). In this case, it is necessary to adjust the speeds to the environment, by implementing properly selected speed management measures. A measure towards this direction is the creation (by properly placing signs giving the visual impression of entry/portal) of transition zones between inter-urban and urban parts of the road, so that drivers adjust their speed and be alert to deal with the new traffic conditions.

6.4.3. Configuration of road infrastructure by taking into account the needs of elderly users

The aging of the population and, at the same time, the increase of mobility are a challenge for designing a safe road environment for elderly users with increased mobility needs. By acknowledging the weaknesses of elderly drivers, as well as their advantages (e.g. driving experience and safety-oriented behaviour), road planning should meet their expectations and needs for more time and information and should also offer the possibility for a sequential execution of driving actions.
Compared to younger drivers, elderly people, particularly those over 75 years of age, are often involved in road accidents when they turn left at junctions at grade. Moreover, the elderly often have problems when entering and exiting roads the main function of which is connective, and mostly highways and high-speed roads. The number of road accidents that involve elderly people more often can be reduced by designing specific measures focused especially on these types of road accidents. This will also reduce the number of elderly people killed or injured in road accidents, since they are usually more seriously injured because of the greater physical vulnerability.

Road accidents at junctions with traffic lights, usually because of mistakes related to priority, can be avoided with signalling regulations which will prevent jams, as they would not allow simultaneous green lights for road users for whom there is a possibility of collision. Thus, they will not have to decide whether it is safe to turn left or not. Regarding junctions without traffic lights, they should be designed in such a way that road users have unobstructed visibility of the traffic stream where they need to turn. This means, *inter alia*, that it is desirable that the two roads intersect vertically, that various plants and structures must not block visibility, and also that even the vehicles of road users should not block the visibility of other users (e.g. vehicles in the left turn lane waiting to turn limit the visibility of drivers in other lanes). The latter can be avoided by properly designing lanes for a left turn.

The above measures are, of course, in the interest of all road users. However, they are especially helpful for the elderly, as they provide timely information on the state of the approximating traffic, because, in general, it takes them longer to perceive moving vehicles and react accordingly.

Round junctions are also a good solution, because left turns are not necessary, single-direction traffic requires less divided attention and decision-making and lower speed gives the driver more time to respond and also increases the chances of survival in case of an accident. However, elderly road users find this relatively new form of junction difficult, as well as the related traffic conditions, especially if it is a very large roundabout with more than one lane. The uniform appearance and timely information about the structure and the directions of the lanes create the required experience and can make driving on roundabouts easier.
Elderly users also indicate that certain elements of road design have become more demanding with growing age. Such elements are: road marking, lighting conditions at junctions and lane width. Measures that can help them are illuminated junctions and a well-maintained level of contrast between the colours of road signs and the road, thus ensuring better visibility, larger letters in signs and a greater contrast between the colour of the letters and the background, so that signs are easier to read from a greater distance. Timely information on the use of lanes (e.g. markings with directional arrows on the different lanes at junctions) enables road users to make decisions and to react as they have more time available (e.g. to select the right lane).

The safety of elderly pedestrians can be improved by:

- reducing the crossing distance with the construction of a pedestrian island or extensions on the sidewalk
- placing traffic lights at more crossing locations
- adjusting traffic lighting to the slow walking pace of elderly pedestrians
- reducing the traffic speed of vehicles or entirely excluding vehicles from areas with many pedestrians.

6.4.4. Programme for safe road infrastructure in urban areas

Heterogeneity in speed, the large number of intersections, parking and the variety of categories of users, especially pedestrians, are some of the particularities of the urban road environment for which it is recommended to tackle the problems of road safety at district level in their entirety and not focus on road safety problems at specific locations. To this end, it is necessary that Municipalities elaborate and immediately implement programmes for the organisation of urban mobility in Greek cities, focusing on the safe and convenient mobility of pedestrians, people with disabilities, cyclists, motorcyclists and passengers of the means of public transport.

The programme for safe road infrastructure in urban areas includes:

- Construction of continuous sidewalks and widening of existing ones where possible, setting a minimum sidewalk width at 1.50 m in the town planning regulations, removal of any obstacles and creation of safe walking routes.
- Establishment of traffic calming zones and implementation of appropriate measures to achieve a 30km/h speed.
- Designing and implementation of a “forgiving” urban road environment focusing on the appropriate information of users (e.g. with the use of telematics) and the proper structures for channelling traffic at nodes of the road network which are critical in terms of road safety.
- Creation of appropriately structured nodes. Only there will be allowed left turns and reversals.
- Creation (with appropriate signs giving a visual impression of an entry/portal) of transition zones between inter-urban and urban parts of the road.
- Creation of cycling networks focusing on regulations at intersections.
- Development of an integrated parking management system.
- Cleaning Traffic Signs Programme.
- Implementation and adherence to the provisions for placing billboards, continuation and simplification of the operation of the mechanism for the removal of illegal billboards.
- Creation of pedestrian crossings, protective installations and a network of sidewalks.
- Construction of overground and underground pedestrian crossings.
- Construction of suitable ramps on all sidewalks and installation of transmitters of sound signals at all traffic lights, in order to assist people with disabilities.
- Arrangements for the safe mobility of pedestrians near stops of the means of public transport.
- Special arrangements for road infrastructure for the safe mobility of students in school areas.
- Providing for and ensuring safe crossings and safe routes to and from schools.
- Priority arrangements in means of public transport.
- Special arrangements for quicker access to hospitals.
- Elaboration of handbooks and instructions, at central level, for the implementation of these measures, which will be distributed to the technical services of the Regions and Municipalities in the country and facilitate the work of these services.

At local level, in order to identify road safety issues, it is particularly useful that Municipalities cooperate with residents, as they are most familiar with the road environment where they circulate.

6.4.5. Programmes for the maintenance and improvement of the road network

The regular maintenance of the urban and inter-urban road network ensures a quick and effective response and the avoidance of problems that may cause road accidents.

Maintenance responsibilities should be clearly allocated between the Yp.YPO.ME.Di., Regions and Municipalities by determining each road section, the body responsible and accountable for its maintenance and the corresponding funding.

The action for the maintenance of the road network includes measures for the improvement of lighting, signage and security and the improvement of road surfaces in terms of anti-slipping. The following sections describe in detail the measures proposed for each of these issues.
6.4.5.1. Improvement of signage and security

International bibliography highlights the great importance of the anticipation of signage by drivers, especially by vulnerable groups (elderly, not familiar with it, etc.). Especially in complex and difficult areas of the road network (nodes, construction sites, hazardous locations, etc.) the timely and proper guidance of drivers can improve road safety significantly. The appropriate signage of roads, horizontal and vertical, combined with adequate security, are key requirements for an adequate level of road safety.

In Greece, both the reliability of the signage and the adequacy of security can be significantly improved. For illustrative purposes, in the context of developing a speed management system with modern methods, it is emphasised that there is a need to improve the signage related to speed limits and speed controls and a need for the immediate improvement of the marking of borderlines on roads, so that they are easy to distinguish, regardless of the lighting and weather conditions, and perceivable with vibration and sound (tactile edge lining).

It is deemed necessary to implement the following measures:

• Definition of specific standards both for ordinary and vulnerable road users (elderly drivers, those unfamiliar with the route, etc.), determining the required signage, therefore the necessary additional signage and/or the elimination of existing signs. It is emphasised that the use of modern materials is necessary.

• Development of standards and guidelines for the implementation of intercept systems on roads by adopting the European Standard EN 1317 and the related implementation guidelines.

• Elaboration of a specific annual interventions programme, which will be related both to the urban and inter-urban network. The elaboration of the programme should be based on an initial assessment of the level of road safety and the condition both of the signalling (horizontal and vertical) and the security of extended road sections.

• Designing and implementation of a signalling programme and security at construction sites on the road. It is necessary that the programme be related both to the improvement of the existing relevant standards and to the ensuring of their implementation with a special audit on road safety.

• Systematic evaluation of interventions to signage and security, focusing on the completeness of the standards and the observed impact of the various types of interventions. This process will periodically redefine the objectives and the means of achieving them.
6.4.5.2. Improvement of road surfaces in terms of anti-slipping and smoothness

Road safety requires, inter alia, to ensure an adequately anti-slippery road surface, with particular attention to areas where this is increasingly necessary, such as curved road sections, entrances and exits in areas with nodes, adjustment sections, etc. Ensuring an adequate anti-slippery road surface is an increasingly acute problem in the country, because of the use of limestone for the production of the aggregates of asphalt layers.

In order to deal with this situation, it is necessary to implement measures related to the use anti-slippery coatings. More specifically:

- Direct recording and evaluation of the anti-slippery features of the existing road surfaces with conventional and anti-slippery coatings.
- Setting intervention criteria, so as to ensure an acceptable level of anti-skid features of the existing road surfaces, and intervention priorities according to the significance, the condition of the various road sections and the accidents that occur.
- Improvement of the relevant standards for anti-slippery coatings, by making use of the existing experience and relevant findings of various committees that have occasionally been established, and selection of technologies of anti-skid coatings, suitable for Greek roads/highways. Implementation in pilot sections.
- Making use of the growth potential of sources of hard aggregates.
- Construction of anti-slippery coatings.
- Assessment both of the evolution of anti-skid features in time and the improvement of road safety. Making use of modern methods of forecasting the evolution of anti-skid features.
- Adoption of a system of control and quality assurance in the implementation of technologies that will be selected.

Besides the anti-skid features of road surfaces, it seems that their smoothness is also related to the frequency of accidents. The smoothness of road surfaces, now determined in an easier and less expensive way through modern methods and equipment, deteriorates over time and various forms of decay become obvious, caused by a combination of environmental conditions and the use of the road. A rough road surface, besides the impact that it has on road safety, immediately causes water accumulation which, under certain conditions, may result in a loss of the control of the vehicle because of aquaplaning.
Restoring the smoothness of roads, if decay or roughness is detected, is a high priority for the improvement of road safety in the entire road network. For this reason, a regular review of the condition of the road network is necessary.

6.4.5.3. Improvement of lighting

The adequate lighting of roads during the night contributes to the improvement of road safety by enabling drivers to distinguish the road, the road environment and the other vehicles in the dark. The main urban road network is generally equipped with lighting systems to a large extent, but very few sections of the inter-urban network are illuminated with electricity. Regarding the inter-urban road network, priority should be given to the lighting of nodes, roads near residential areas and roads with high traffic volumes or high operating speeds.

During the night, visibility is reduced significantly, thus, it is harder to drive and the rate of fatal accidents is higher. Numerous analyses at international level have shown that road safety when driving at night can be significantly improved with adequate artificial lighting.

Artificial lighting is more beneficial to certain vulnerable categories of users, such as elderly drivers, pedestrians, etc. Studies conducted both in Europe and in Greece have shown that driving at night is one of the main problems-obstacles for elderly drivers, because of the reduced visibility. Moreover, the improvement of artificial lighting at pedestrian crossings can lead to a reduction of accidents.

Therefore, the measures related to improvement of the electric lighting of urban road networks and highway nodes are deemed to be of major importance. More specifically, the following are proposed:

- Elaboration of detailed installation and operation specifications of the lighting network in urban roads and at junctions of highways.
- Elaboration of studies to evaluate the completeness of the existing lighting network (identification of insufficient lighting locations) and of the functioning level (lamp type, light intensity, functioning time).
- Elaboration of studies for the identification of “problematic” locations that require a better lighting network.
- Interventions in “problematic” locations in terms of electric lighting.
• Creation of an IT system for monitoring the impact of interventions. This system is necessary for the assessment of the effectiveness of the measures and their further upgrading.

6.4.6. Implementation of measures for the improvement of safety in hazardous locations

Low-cost measures (LCM) are technical measures implemented in order to deal with specific traffic safety problems in high-risk locations, they have a low cost and are effective in the short term. LCM have been successfully implemented widely by most western countries for the improvement of the level of road safety in high-risk locations, both in urban and inter-urban roads.

Examples of common low-cost technical measures are presented below. It is emphasised that an analysis of the characteristics of the accidents should precede the selection of the appropriate measures for each case, so that they are properly selected. This analysis should be carried out after an inspection and the selection and designing of the appropriate measures by a well-trained technical and scientific personnel.

6.4.6.1. Local improvements on the road and the road and traffic environment in hazardous locations

• Placing separators of traffic lanes on roads with high speeds and increased traffic volumes.
• Installation of guardrails with reflectors all along the roads, at high-risk locations. Providing for the installation of metal guardrails with a second, flat, protective blade in the lower part of the guardrail, in areas with a large recorded number of accidents involving motorcycles.
• Providing for continuous lateral shoulders at high-risk locations.
• Anti-skid asphalt paving, so as to increase the coefficient of friction at high-risk locations.
• Local interventions for the improvement of vertical and horizontal signage. In particular:
  - removal any old misleading signs
  - installation of appropriate regulatory signs or danger signs at dangerous curves
  - proper placement of informatory signs (indicating directions, numbers, kilometres, place names, facilities, etc.)
  - placement of signs corresponding to the category of the road and the design speed in terms of their size and reflectivity
  - maintenance and restoration of horizontal signage
  - use of high reflectivity materials of horizontal and vertical signage,
  - placement of reflectors of the traffic-surface (“cat’s eye”) or sound warning bands, especially in areas where visual guidance is of particular importance, for instance at nodes and horizontal small-radius curves
- yellow marking of the road and the borderlines of the road in high-risk sections etc.
- use tactile markings near the shoulders etc.
- ensuring uniformity in the horizontal and vertical signage

• Providing for additional lanes for left turns and deceleration lanes for right turns in areas with junctions at grade.

• Interventions in the elevation configuration of the nodes with amendments to the longitudinal sections and cants in the immediate area of the node and to its accesses, for the proper fitting of cants and the effective drainage of rainwater.

• Removal of roadside elements that constitute a hazard to traffic and placement of lateral guardrails at locations with signs and signage bridges, where it is necessary that they be placed near the road surface. At this point, it is emphasised that there is a need for a complete removal of billboards, which has already begun.

• Control of visibility conditions at road entries and at junctions at grade and reduction of frequent entries by integrating them appropriately. The sufficiency of the available visibility distance must be controlled macroscopically or with relevant field studies, regarding the requirements about the operating speed of the road and the traffic. Emphasis should be placed on the sufficiency of the visibility distance for stopping before a every fixed obstacle on the road.

• Improvement of lighting, especially at junctions and service areas for road users (service stations for motorists, refuelling etc.).

• Placement of special anti-dazzle screens on single carriageway roads or parts of “spaghetti” junctions, where there are opposite-moving traffic streams (e.g. parallel or converging roads) and where lighting from other sources (direct or reflected) may dazzle drivers.

• Planting roadside vegetation, after relevant planning, in order to stabilise steep slopes, protect the soil from erosion and slips, water retention and discharge and protect vehicles from side thrust in case of strong winds. In addition, it is required that the existing roadside vegetation be maintained regularly, so that it does not have a negative impact on road safety by reducing visibility or impeding the circulation of vehicles and pedestrians, especially the vegetation in the middle separating islands with New Jersey-type guardrails on the left turns.
• **Ensuring the use of and access to specific planned operational routes** of rapid intervention is necessary in case of a road accident. Wherever possible, high-speed roads should be equipped with a lane similar to an emergence lane, as applicable on highways, or a lateral passage integrated in the route, if the relevant standards allow it. It is emphasised that the emergency lane is exclusively intended for emergency vehicles and maintenance vehicles of the relevant government departments or companies, which, after concession from the State, operate, maintain and exploit the highway or expressway, in order to deal with emergencies, incidents or other needs, even for temporarily parking vehicles which have been immobilised because of a breakdown.

6.4.6.2. **Improvements on the traffic function of intersections in hazardous locations**

• **Improvement of the conditions of priority and access** to junctions at grade by placing the necessary regulatory signs and constructing islands, “drops” and passenger crossings for the clear guidance of all road users.

• **Construction of roundabouts** at locations of junctions at grade with four or many parts, so as to reduce the speed of vehicles.

• **Installation or improvement of traffic lighting regulation.** Considering the installation of adaptive signalling which may be operated only when there is increased traffic (summer, holidays), depending on the type of accidents and the traffic volume. Adjustment of traffic lighting in areas with an increased circulation of pedestrians, in order to permit a slower walking pace for pedestrians who need it (elderly, children, people with disabilities).

6.4.6.3. **Local changes in the road and the road environment aiming at altering the behaviour of users at hazardous locations**

• **Construction of continuous sidewalks** in high-risk locations. Ensuring a continuous circulation of pedestrians with the construction of sidewalks that meet the minimum standards in terms of dimensions, in order to facilitate their mobility.

• **Creation of appropriately configured junctions.** Left turns and reversals will only be allowed on these junctions.

• **Construction of traffic calming features** that intervene and change the geometry of the road in order to reduce the speed of vehicles (such as local superelevation on the road surface or rubber speed bumps, narrowing the road, sidewalk extensions and interruptions of the straight marking of the road).

• **Transfer of parking spaces and forbidding of parking on the road.** Creation of appropriate spaces for parking at the roadside.
6.4.7. Road Register

It is necessary that the three projects already assigned in the context of the Register of Roads for the trans-European, national and provincial road network in the country (Section 2.2.1.2.) be completed, so as to enable the integrated management of the road network, prioritising data relating to accidents, marking and the structural and functional state of the road surface. It is noted that it is necessary to create a special uniform data network for highways, in cooperation with concession companies.

The road network of the country should also be functionally classified in priority, with modern methods implemented internationally and a clear allocation of responsibilities between the Yp.YPO.ME.DI., Regions and Municipalities, so that there is a single competent and accountable authority for each road section of the country.

6.4.8. Development and modernisation of road design specifications and instructions

The relevant standards are important for the improvement of road safety. They are related to the geometric design of roads, signage-security works, signage at construction sites on the road, the selection and implementation of cost-effective measures in hazardous locations, conducting Road Safety Audits etc. The elaboration and revision of the relevant standards/handbooks is an important priority of the measures for the improvement of road safety worldwide.

In Greece, there are no modern Greek standards-guidelines for road planning. For the completion of the roadworks, either the corresponding standards-instructions of other countries (mainly Germany and the USA) are used, but they are based on assumptions that are usually not satisfied in our country, or the relevant Greek instructions (O.M.O.E., O.S.M.E.O., K.M.E. provisions, etc.) which, however, deal with the same design elements in a different way.

For this reason, it is suggested that the Yp.YPO.ME.DI. should immediately create a Permanent Scientific Committee for the elaboration, updating, modernisation and reform of road construction standards (O.M.O.E.), in line with the Standing Scientific Committees for the Antiseismic Regulation and the Concrete Regulation. The modernisation of the O.M.O.E.-D, especially the configuration of the cross-section of two-lane double-track roads according to the recent modern configurations implemented worldwide, as well as the review of Circular 41/2005, are urgent issues for consideration by the Standing Scientific Committee on road construction standards. The Committee must also deal primarily with the homogenisation of the design and operation standards of highways, especially the standards about signage in tunnels and electronic signage for emergencies.
It is emphasised that researchers on road works, who are mainly responsible for the safe planning, in particular in accordance with the Safe System approach, need to understand the issues related to safety and the human factor. Unfortunately, this kind of knowledge is limited to researchers, because of the lack of proper training in issues related to safety planning and the human factor, the absence of adequate information on safety planning in the existing road planning standards and deficiencies in these aspects in the curricula of Polytechnic Schools worldwide.

Moreover, it is worth mentioning that roadwork researchers with a background as civil and surveying engineers are trained to handle issues related to inanimate objects. When designing a construction, they know that the external load is independent from the resilience and the form of the construction thereof. However, there is a fundamental difference in the geometric design of roads. Unlike constructions, road user behaviour is affected by the road environment. For this reason, there is an urgent need to guide engineers involved in road planning, so that they become familiar with the recent developments in road safety and the human factor. An appropriate way to achieve this objective is to integrate effectively the relevant information from the Safe System approach, the road design with an emphasis on the user and the road safety audit, to the standards for the geometric designing of roads.

The selection of information should be in accordance with the specific conditions in the country's road network, in collaboration with groups of experts in road design and the human factor. The selected information should be incorporated in a clear and concise manner in the respective chapters of the standards of road design and not in annexes or separate volumes. It would also be useful that researchers and road safety auditors participate in the integration processes and that their views on the relevant issues be considered. It is noted that further research in specific areas is required, which could facilitate the selection process of the safety information that will be integrated in the standards for road design.
6.5. Programme “Safe Vehicles”

The condition and safety equipment of the vehicle are key factors that determine both the probability of involvement in an accident and the severity of the accident. In recent decades, there has been great progress in active and passive vehicle safety technology, now available in many new vehicles, thus a significant number of accidents is prevented and many serious and minor injuries are avoided in case of an accident.

Given that there is no vehicle industry in Greece, the emphasis for safer vehicles should be placed on ensuring the good condition of the vehicle and on equipping it appropriately with all the active and passive safety systems. Particular emphasis should be placed on heavy vehicles (trucks, buses), equipment for the protection of vulnerable road users, as well as the relevant intelligent driver assistance systems.

For the effective implementation of the “Safe Vehicles” programme, it is necessary to organise a department within each competent body (Yp.YPO.ME.DI., Regions, Municipalities), which will undertake the coordination and monitoring of the actions proposed under the Programme.

The actions that this properly staffed coordinating and monitoring department is asked to undertake are:

- Finalisation of the road safety actions which will be included in the Programme of the Ministry.
- Cooperation with the Inter-Ministerial Committee and the Special Secretariat on Road Safety.
- The cooperation with the other Ministries competent on road safety, agencies and bodies, as a number of actions of the Ministry require the combined effort with other bodies for the coordination of the Inter-Ministerial Committee.
- Cooperation with the respective Ministries of other European countries for the optimal use of the existing relevant experience.

6.5.1. Upgrading of the technical inspection of vehicles.

The periodic technical control of vehicles involves a number of technical procedures, in order to determine whether a vehicle meets the standards and technical requirements necessary for its safe circulation. These procedures are carried out on all road vehicles (passenger cars, taxis, vans, trucks and buses), with the exception of two-wheel vehicles, in suitable Technical Control Centres (V.T.C.C.).

The action for upgrading the technical control of vehicles includes the following measures related to the improvement of the logistic infrastructure and the structure of their operation.
• Establishment of a technical control of **two-wheel vehicles**, prioritising those of up to 250cc.

• Development of an appropriate **IT system** which will permit a continuous electronic (on-line) connection of all the V.T.C.C. in the country, aiming at assisting the recording, correlation and processing of the technical data of all the controlled vehicles and the results of the audits.

• Starting an effort for the full **automation** of the pattern of technical controls, in order to enhance the credibility of the institution.

• **Certification obligation** for V.T.C.C. (Public and Private) and **systematic evaluation** of their operation and use of the existing infrastructure, so as to ensure their efficient operation.

• Implementation of an additional special technical control of **vehicles for the carriage of dangerous cargoes** (liquid fuel and gas tanks, etc.) with the involvement of a qualified and well-trained staff.

• **Sample retesting** of vehicles when leaving the V.T.C.C. (Public or Private) by an upgraded Inspectors Unit, staffed by experienced mechanical engineers and using mobile V.T.C.C.

• **Systematic technical sample testing** of vehicles on the road network of the country by mobile V.T.C.C.

• Providing appropriate spaces all along the road network for the creation of **Vehicle Control Stations**.

### 6.5.2. Joint Control Teams

The role of the Joint Control Teams (JCT) under the supervision of the Regional Government, is crucial to **ensure the good condition of vehicles** on the roads of Greece. For the improvement of the operation of the Joint Control Teams (JCT) the following measures are laid down:

• Upgrading of the JCTs by extending their operation also during **non-working days and hours and during night hours**. An increased compensation should be provided for regarding the participation in the teams during evening hours, Sundays and holidays. This will be established in legislation.

• Intensification of JCT controls and extension of controls to issues related to overweight loads, the violation of working hours, the suitability of tyres, speed limiters ("cutters") and the legality of drivers and vehicles. In cases of serious infringements, such as overweight loads, irregular loading, problematic tyres (worn-out, older, unsuitable) and unsatisfactory operation of the other systems directly related to the safe circulation of the vehicle, **it should be established that the vehicle be immobilised.**
• Supplying Joint Control Teams with the **necessary equipment**. The needs in portable scales for weighing vehicles should be covered in priority.

• Regular **training** of police officers and members of the JCTs, so that they have the knowledge and the skills to carry out controls on the legality of the vehicle (e.g. overweight load) and of the systems of the vehicle associated with safe circulation (e.g. tachograph, tyres etc.).

• Special training of JCT members, especially of the technical staff of the JCT, for controlling **vehicles carrying dangerous cargoes** and sample testing on business cars on the road, implementing EU Directives.

• Establishing a **coordination centre** that will operate 24 hours a day, have the identification data of all circulating heavy vehicles and drivers and support the operation of the JCT.

• Equipping the JCT with a PC able to **connect in real time** to the database of the Ministry of Transport and Communications and obtain the necessary data in order to check the legality of cars.

### 6.5.3. Incentives for safer vehicles

In order to carry out this action, it is suggested that incentives be provided, especially financial-fiscal ones, for matters such as:

• The enhancement of passive safety of the new vehicles with financial-fiscal incentives for the purchase of the appropriate **safety equipment** (airbags, child seats, etc.).

• The examination of the possibility of a VAT reduction for the purchase of **protective helmets** by motorcyclists and cyclists.

• The **replacement** of old technology vehicles.

• The assistance to companies and bodies with **business vehicles**, so that they also contribute with their policy to the improvement of road safety. Specifically, it is suggested that measures be taken aiming at safe and permitted speeds when driving, the use of seat belts and other protective means which must be of the best quality, the correct maintenance of vehicles designed under the highest safety standards, the safe transport of persons and goods (overloading risks, safe carriage of cargo, use of protective means by passengers, etc.) and the prevention of driving under the influence of alcohol, drugs or fatigue. Based on the above, the road safety policy of companies and organisations should include requirements and/or provide incentives to employees/members/collaborators thereof.
Also, financial incentives for the improvement of road safety can be provided through insurance companies. More specifically:

- Encourage insurance companies to reward safe driving (e.g. connection of the amount of insurance premia with the number of penalty points in the Drivers' Behaviour Control System-D.B.C.S.).
- Establish incentives for the voluntary retraining of drivers (e.g. in public or private safe driving schools), such as the reduction of insurance premia.
- Establish tax reliefs for the equipment of vehicles with an system.

6.5.4. Special regulations for heavy vehicles

Operating heavy vehicles requires special knowledge and skills and maintenance needs are also increased. In order to avoid extremely serious road accidents involving heavy vehicles, appropriate measures should be taken for ensuring the proper operation of these vehicles, the optimisation of the skills of their drivers and the control of their working hours.

Necessary measures in order to achieve the above:

- Stricter control of the tachographs of trucks.
- Special training of the drivers of heavy vehicles.
- Volunteer training and repeat examinations for professional drivers.
- Redefinition of the permitted age limits for driving heavy vehicles. Specifically, in order to increase the minimum permitted age for obtaining a licence to drive heavy vehicles and forbid retired persons and people over 65 years of age to drive commercial vehicles, also providing for those who have not retired.
- Creation of a register for drivers of heavy vehicles.
- Establishment of a mandatory maintenance book for heavy vehicles, with a signed record of controls and interventions and an itinerary book for controlling the working times of drivers.
- Elaboration of Loading Rules in collaboration with the Hellenic Organisation for Standardisation (ELOT).
- Upgrading and controlling the implementation of the measures provided for in the European Agreement Concerning the International Carriage of Dangerous Goods by Road (ADR) and are related to the special approval and periodic inspection of vehicles carrying dangerous goods, the certification of drivers of vehicles of this category and of relevant security advisers, the sample testing of offences during the carriage of dangerous goods, the training and certification of ADR experts and the authorisation of control bodies of vehicles carrying dangerous goods.
• Stricter restrictions on the circulation of heavy vehicles during the days and hours of increased traffic (e.g. every Friday, Sunday and public holiday) on the national road network, following a detailed study which will also determine alternative routes in sections, where feasible.

• Mandatory use of seat belts by all passengers of tourist buses and KTEL buses.

• Complete prohibition of the use of a mobile phone in any way by professional bus drivers. For any talk for service purposes, the bus should be immobilised at a stop.

• Obligatory placement of protective equipment on the bumpers of trucks, in order to reduce the severity of accidents involving pedestrians.

6.5.5. Special regulations for school buses

For school buses, specific measures are proposed, such as:

• Determination of the maximum allowable age of buses for the transportation of students to and from school and for school trips (e.g. 15 years).

• Special licence for drivers of school buses, after their training and medical examination (psychosomatic).

6.5.6. Intelligent systems for driver support

Unsafe traffic behaviour is often due to unintentional and intentional human errors while driving. Intelligent systems for driver support aim at the avoidance of such behaviours by helping users to drive their vehicles safely, e.g. by warning or intervening when drivers deviate from the line of the lane in which they are moving, when they approach too close to the front vehicle, when they exceed the preset speed limits, when the driver or the passenger of a vehicle are not using safety belts or when the driver is in danger of losing control of the car. In addition, there are systems aiming at the maximum possible compliance with speed limits. Certain vehicle equipment systems are presented below. Their use can contribute to the improvement of road safety, thus it is recommended for all new vehicles:

- System for vehicle immobilisation because of alcohol consumption by the driver
- Seat belt reminder system in all positions
- Incident recorders
- Speed control, Adaptive Cruise Control and Lateral Support (warning for departure from the lane and assistance for lane-change) systems
- **Speed limiters** in all heavy vehicles
- High visibility **mirrors** on all heavy vehicles
- Sound alert in all heavy vehicles when driving in **reverse gear**
- Anti-lock braking systems for **motorcycles**.
- Improvement of the form and material of **bumpers**.

### 6.5.7. Distinct vehicles

The accurate and timely perception of traffic allows the execution of the necessary actions by the driver, so that collisions are avoided or their severity reduced. In order for vehicles to be distinct, it is suggested that:

- Motorcyclists use **running lights** during the day.
- **Brake lights** are used in prominent positions of the vehicles.
- **Side reflectors** are used mandatorily on all bikes.
- Cyclists, motorcyclists, etc. use **reflective clothing**.

### 6.5.8. Vehicles Register Reliability

For the proper documentation of decisions on road safety, it is required that **reliable data is available about circulating vehicles**. This data needs to be used in an appropriate way in the context of analyses on road accidents, for the identification of risk and severity indicators and other research on road safety issues.

However, the possibilities for a reliable analysis of road accidents and a full exploitation of the data on circulating vehicles in their current form, are limited for several reasons. Specifically, it has been observed that vehicle withdrawals are underreported in the register of vehicles. The record is updated on the number of withdrawals of vehicles in the last years, whereas in previous years only new information was imported in the database. Furthermore, there is no information on the number of vehicles which have not been formally withdrawn, but for some reason no longer circulate, such as abandoned vehicles. Therefore, it is necessary to **suitably upgrade the reliability of the vehicle register**.
6.6. Programme “Emergency Care to Victims”

Immediate post-accident assistance includes timely first aid, the effective operation of the emergency call network, the effective response of the emergency systems, the implementation of measures for safety and protection in the area of the accident, the transportation and medical care for victims, further care in medical centres, psychological support of victims and their relatives etc.

According to international and Greek experience, the first post-accident hour is the most crucial one (golden hour) for the life of injured individuals, as 57% of the victims of road accidents die in the first few minutes after the collision and before the arrival of the emergency care units. Consequently, immediate intervention and proper transportation and care can save several lives and reduce permanent damage to injured individuals.

For the effective implementation of the programme of “Emergency Care to Victims”, it is necessary to organise a department within the Ministry to undertake the coordination and monitoring of the actions proposed under the Programme.

More specifically, it is suggested that the properly staffed department of coordination and surveillance of the Ministry of Health and Social Solidarity should take the following key actions:

- Finalisation of the road safety actions which will be included in the Programme of the Ministry.
- Cooperation with the Inter-Ministerial Committee and the Special Secretariat on Road Safety.
- Cooperation and coordination with emergency aid services across the country and with other bodies, as a number of actions of the Ministry require the combined effort with other bodies for the coordination of the Inter-Ministerial Committee.
- Cooperation with the respective Ministries of other European countries for the optimal use of the existing relevant experience.

6.6.1. EKAV intervention units

6.6.1.1. Upgrading of equipment, staffing and organisation

Upgrading the equipment of all intervention units, staffing them with highly trained personnel and improving their organisation, are necessary actions for effective first aid at the scene of the accident. Specifically, the necessary number of hospital vehicles and of their relevant equipment should be provided, so that they can intervene effectively at the scene of the accident. Moreover, in order to provide effective and immediate emergency care to people injured in road accidents, in accordance with international standards, the presence of a doctor is required in the ambulances.
6.6.1.2. Use of mobile intensive care units

Mobile Intensive Care Units (MICU) can also contribute to the stabilisation of the medical condition of victims of road accidents before their admission to a hospital. Thus, the chances of survival are significantly increased.

The personnel that will staff the MICU ambulances must be properly experienced and can include an anaesthesiologist, a trainee doctor or specialised nurses who will be called to the scene of the accident according to the severity of the accident reported to the central emergency telephone service. In addition, MICU ambulances must be equipped with all the machinery required for the on-site intensive care of the wounded.

The MICU should be available 24 hours a day at selected locations of the road network and operate in conjunction with ordinary ambulances. The central emergency telephone service will decide whether a MICU or an ordinary ambulance will be sent to the scene of the accident and if it is noted that an ordinary ambulance is insufficient, it should be possible to call a MICU at any time.

6.6.1.3. Improvement of the immediate hospital care of the injured.

Emergency care, after the transfer to a hospital, is equally important to first aid for the health of people injured in road accidents. The effective coordination of the emergency intervention and the emergency care systems contributes to minimising the critical time lost during the transfer from the accident scene to the hospital. Specifically, the coordination of the systems should permit that injured individuals receive care within the so-called “first golden hour” after the accident. The improvement of the emergency care system for the injured in hospitals should cover the entire country adequately.

6.6.2. Special Injury Centre Units

Very often, people injured in road accidents have multiple injuries and require immediate and specialised care that cannot be provided to them in regional hospitals, local health centres or even in private clinics. On the contrary, multi-injured people need to be hospitalised in Special Injury Centre Units. Today, in many European countries and the U.S.A, there are organised Injury Centres where the medical and paramedical staff specialises in treating a multi-injured person.

The Special Injury Centre Units are usually large, mainly university hospitals, which include all medical specialties, are on call 24 hours a day and able to deal with any medical problem.
Furthermore, if necessary, they have the possibility to transport multi-injured persons or other emergency cases by air from the scene of the accident to the hospital in no time.

As a first step for creating Special Injury Centre Units, all specialty departments in **large provincial university hospitals and the other hospitals** (Larisa, Alexandroupoli, Crete, Patras) should operate fully and modern emergency departments (Emergency Rooms) should be developed, covering all the specialities daily and permanently, thus forming the initial core of the Injury Centres.

### 6.6.3. First aid training

#### 6.6.3.1. First aid training of the intervention staff on the scene of the accident

The vehicles of the Traffic Police and the Fire Brigade often arrive at the scene of the accident before the arrival of the EKAV ambulance. For this reason, it is useful that the staff of these Services acquire **basic knowledge on first aid** with regular training in first aid, so that there is a possibility for emergency care of slightly injured persons and even the preparation and stabilisation of more severe injury cases until the ambulance arrives. The first aid courses should be integrated in the **curricula of the Police and Fire Academy**. This action, regarding the staff of the Traffic Police and the Fire Brigade, will be implemented in collaboration with the Ministry of Citizen Protection and coordinated by the Inter-Ministerial Committee on Road Safety.

Basic first aid knowledge is also necessary for the staff of highway operating companies which often arrives first at the scene of the accident. For this reason, it is necessary that the companies operating highways regularly organise relevant seminars and that their staff attends them.

#### 6.6.3.2. First aid courses in schools and during driving training

The introduction of first aid courses in schools and in the training of candidate drivers is important for dealing with simple road injuries and until the arrival of the emergency services. It is important that road users have a basic knowledge of first aid, especially for the cases of accidents that occur in remote areas, where emergency medical services are often difficult to reach the scene of the accident site within 5-15 minutes.
In school, first aid courses should be taught in high school (junior and senior) as part of Health Education and should be compulsory in the official training of drivers, as is the case in several European countries. This action will be implemented in collaboration with the Ministry of Education, Lifelong Learning and Religious Affairs and coordinated by the Inter-Ministerial Committee on Road Safety.

6.6.4. Effective emergency response

In case of an accident, it is required that the relevant services called for aid are always properly organised and coordinated, so as to intervene immediately and cooperate in the best way. The role of the Traffic Police is crucial for the proper management of the incident and the traffic and for avoiding new accidents, the rapid intervention of the Fire Brigade is essential for rescuing and/or evacuating victims and the EKAV is responsible for direct access to the scene of the accident, first aid and rapid transport of injured persons.

The response to emergency calls must be efficient, ensuring prompt arrival of the competent emergency services at the scene of an accident. The interval between the moment that the accident occurs and the arrival of rescue services (response time) can be reduced through technical measures, measures related to infrastructure, clear instructions that must be taken when emergency vehicles have to move on the road and good organisation and coordination at the scene of the accident.

It is emphasised that it is necessary to make good use of the successful examples of the organisation of emergency services in other states, for a high performance regarding immediate response to road accidents (set a maximum acceptable access time to any location of the road network of an area), after adjusting the institutional and organisational framework of the Greek reality. The successful intervention systems to the scene of the accident which are already implemented in Attiki Odos, can also be exploited. However, it is emphasised that it is necessary to establish a single emergency telephone number across the national road network, prioritising the highway network.

The measures presented in the following sections are taken in order to reduce the average intervention time of the units on the scene and to meet the ever increasing needs of the growing traffic volume.

6.6.4.1. Creation of a network for emergency calls

Fast and reliable information about the location of a road accident, its type, the number of victims and the type of injury, helps the emergency services to deal with the accident in the best way. The creation of an effective network of emergency calls is a prerequisite for dealing directly with the
consequences of road accidents. The network of emergency calls must allow direct communication with all intervention services (EKAV, Traffic Police, Fire Brigade, etc.). Close collaboration between the EKAV and the services of the Ministry of Citizen Protection (Traffic Police, Fire Brigade) is of particular importance for the effective coordination of the actions. Furthermore, it should be provided for that mobile telephone companies provide services for the evacuation of road victims with the necessary information for the identification of the location from where the call for aid was made.

It is important to make good use of the operation of 112, the emergency number across Europe, however, this action should be reinforced by being spread through the information of the public about how the number is used and the possibilities that it offers.

6.6.4.2. Unified Operations Center

The rapid and efficient management of road accidents requires a good organisation and cooperation of several services (EKAV, Traffic Police, Fire Brigade, insurance companies), so as to provide immediate assistance to victims, protect the other users of the road network and smooth traffic in the area of the accident. The various services called to the scene of the accident have distinct roles but their effectiveness is intertwined. For this reason, it is advisable that a single, for all the above services, Operation Centre be established, competent for the coordinated operational response to accidents on the road network of the country.

The pan-European emergency number 112 and all the existing emergency numbers (100, 166, 199) must be connected to the common operation centre, through which the effective intervention to the scene of the accident will be coordinated.

6.6.4.3. Optimal spatial distribution of all units

The response time of the competent services to emergency calls depends largely on their distance from the scene of the accident. In order to reduce the response time, it is necessary to optimise the spatial distribution of all the competent special units. This requires the elaboration of a special study that will determine the locations of emergency units across the country, taking into account the demographic and traffic data, as well as data on road accidents. For this purpose, the successful intervention systems to the scene of the accident which are already implemented in Attiki Odos, can also be exploited.
6.6.4. Intervention plans

The minimisation of the required intervention time and optimisation of the provided services can be achieved with the implementation of intervention plans which must be elaborated for emergency situations (e.g. large-scale and very severe road accidents, accidents involving vehicles carrying dangerous goods etc.). Designing these actions in emergency situations allows for a better coordination of the relevant agencies and maximises their effectiveness. Part of the development of intervention plans will also be the creation of an efficient network for emergency calls, the analysis of previous emergencies with special intervention requirements, the elaboration of emergency scenarios and corresponding intervention methods and first aid training of Traffic Police and Fire Brigade officers.

If necessary, the implementation of the planned actions in the intervention plan will be coordinated by the competent local coordination centre. The local coordination centres should be across the entire country and coordinate the actions of all the competent services of the state mechanism (Traffic Police, Fire Brigade, EKAV) and private operators which may be able to contribute. The area of the jurisdiction of each centre will be clearly defined, but there will be a possibility for collaboration and joint action with nearby centres in cases of increased needs.

6.6.5. Psychological support for victims of road accidents

The psychological and social impact of road accidents can be serious and long-lasting and affect, apart from those involved in the accident, people from their family and social environment.

For this reason, the psychological support of victims should start together with the provision of medical care, even at the scene of the accident and during their transportation to a hospital. Consequently, the personnel of all the services called to the scene of the accident comes in contact with the people involved in it and should be basically trained in order to support them psychologically.

In some cases, long-lasting support may be required either by professionals or volunteers. For this purpose, in the context of the services provided by the National Health System, relevant programmes can be organised for the psychosocial support of the victims of road accidents and their families by a qualified personnel.
6.6.6. Systematic recording of statistics

The recording of statistics by the EKAV services and hospitals involves both the monitoring of the degree of response of the emergency services and the monitoring of the total number of victims in road accidents, including those not recorded by the Traffic Police and the severity of their injuries.

It should be noted that the correct analysis of the causes of accidents and the appropriate mitigation measures require a collection and analysis of data from different sources and results useful for all the Programmes of the Strategic Plan. The Inter-Ministerial Committee should be in charge of the coordination of the collection and analysis of data.

6.6.6.1. Monitoring of the degree of response of emergency services

Both the EKAV services and all the Emergency Services must keep electronic statistical records of the number of interventions at the scene of the accident and their response time (between their notification and their arrival at the scene of the accident). This data will allow the identification of any potential for further improving the system of direct intervention at the scene.

6.6.6.2. Monitoring of the number and severity of the injuries of victims

Hospitals must keep electronic statistical records of the number of victims in road accidents that were transported to hospital and hospitalised. This data should include all the information about how the injury occurred and its severity, based on the international classification of injuries (MAIS). The condition of the hospitalised victims upon discharge from the hospital and those who died within 30 days after the accident (international definition of road fatalities) must also be recorded.

These electronic hospital records should be linked to the data collected by the Traffic Police and included in the database of the Hellenic Statistical Authority (EL.STAT.), so that it is possible to determine the total number of victims in road accidents, including those not recorded by the Traffic Police. Thus, the degree of the underreporting of victims in road accidents will be determined and there will be a clearer picture of the actual level of injury, which can only be determined by doctors in hospitals.
Reliable and detailed data allows the evaluation of the actual level of road safety in the country and the comparison to other states and is also a useful tool for investigating the causes of road accidents and injuries and determining the best ways of dealing with them.

Finally, in addition to recording the number of fatalities and injured persons in road accidents, it is also important to record any medical problems that patients who drive may have and which may affect their ability to drive. This data should be sent to the services competent for the management of Driving Licences (Regions) for further action.
This chapter presents the basic elements of the monitoring and assessment programme of the Strategic Plan for the improvement of road safety in Greece, 2011-2020. The proposed quantified monitoring and assessment programme takes into account the relevant international developments and the conditions for road safety in Greece, as well as the objectives and corresponding road safety actions that constitute the Strategic Plan. Furthermore, information and awareness-raising topics concerning road safety actions are developed, aiming at ensuring the active participation of citizens and their approval, which is a prerequisite for the success of the Strategic Plan.

7.1. Quantified monitoring and assessment programme

For the successful implementation of the Strategic Road Safety Plan, it is required to carry out a systematic and quantitative monitoring of the level of road safety, the implementation progress and the effectiveness of actions at national, regional and local level, using suitable information systems for the collection, processing and publication of reliable data. This ensures:

- the monitoring of the level of road safety over time,
- the recording of the progress of the actions of the Strategic Plan and the identification of sectors where there is a delay, therefore appropriate interventions are required,
- the reviewing and updating of the proposed actions, programmes and targets,
- the identification of actions and initiatives that did not have remarkable results for the improvement of road safety, so that the available funds be redistributed to high-efficiency actions,
- confidence building for further actions and initiatives with a proven positive impact on road safety.
Generally, a quantitative monitoring programme includes three sectors, the simultaneous operation of which yields the above desired results:

- Monitoring of the level of road safety.
- Monitoring of the implementation of road safety actions.
- Monitoring of the efficiency of road safety actions.

7.1.1. Monitoring of the level of road safety

The monitoring system of the level of road safety is related to the systematic recording and analysis of data and the duration of the implementation of the actions, which reflect either directly or indirectly the level of road safety across the country and by type of network, vehicle and road user. For the monitoring of the level of road safety, it is required to use specially selected quantitative indicators that will characterise the level of road safety at national, regional and local level over time. It is necessary that these indicators link the number of road accidents and victims to the corresponding traffic. The main indicators that can be used for the monitoring of the level of road safety are presented below for illustrative purposes:

**Indicators associated directly with the level of road safety, such as:**

- number of accidents with victims or only property damage (per type of road, vehicle and road user),
- number of fatalities, heavy and slight injuries (drivers, passengers, pedestrians, etc.),
- risk indicators (number of accidents/victims per vehicle-kilometres or passenger-kilometres, number of fatalities per million population, etc.),
- severity rate (number of fatalities per 100 accidents, etc.),

**Indicators associated indirectly with the level of road safety, such as:**

- number and length of road sections where road safety audits were carried out,
- number and length of work zones on the road where signage standards were implemented properly,
- rate of seat belt and helmet use per type of road network,
- rates of drivers under the influence of alcohol or other substances,
- rates of drivers who drive faster than appropriate for the infrastructure and traffic conditions or number of infringements related to non-compliance with the speed limit,
- number of offences related to the use of seat belts and helmets, as estimated according to relevant studies per type of road network,
- number of offences related to driving under the influence of alcohol or other substances, as estimated according to relevant studies per type of road network,
- number of offences related to the use of mobile phones.
It is evident that the modification of the level of road safety in an area is determined by the modification of the above quantitative indicators in time. Moreover, in order to record the evolution of the level of road safety in an area or the entire country over time, it is desirable to carry out an analysis of the above indicators in a manner as detailed as possible.

7.1.2. Monitoring of the implementation of road safety actions

In order to monitor the implementation of road safety actions, it is required that specific quantitative indicators be used for determining the degree of the implementation of the Strategic Plan and the implementation of road safety actions at national, regional and local level. Progress indicators are related to the determination of the actions carried out and their comparison with the planned ones. Some of the indicators that can be used for monitoring the progress of the implementation of road safety actions are presented below for illustrative purposes:

- number of identified hazardous locations,
- number of interventions in hazardous locations,
- length of road sections where improved signage and insurance
- length of road sections where anti-skid surfaces where constructed,
- areas (junctions, pedestrian crossings, etc.) where the level of electric lighting has been improved,
- number of Road Safety Audits (R.S.A.) carried out,
- number of Road Safety Audits (R.S.A.) carried out in work zones on the road,
- number of interventions for addressing the problems identified during the R.S.A.,
- surveys conducted on the causes of road accidents,
- number of Traffic Police officers who carried out audits, per day and region,
- Traffic Police audits (speed, alcohol, seat belt, helmet, etc.)
- violations (speed, alcohol, seat belt, helmet, etc.) recorded by the Traffic Police (proven delinquency),
- violations (speed, alcohol, belt, helmet, etc.) that resulted from surveys (existing delinquency),
- new equipment of the EKAV services,
- new equipment of the Traffic Police and the Fire Brigade,
- improvement of the staffing of the EKAV services,

The indicators regarding the progress of the implementation of road safety actions, like the indicators regarding the modification of the level of road safety, require the best possible analysis of the above indicators (budget, duration, area, etc.). It is noted that, as it is not possible to express all the actions and initiatives in a quantifiable manner, in some cases, qualitative indicators can be used, for example, if and in which points the relevant institutional framework has been improved, if incentives were provided for the improvement of road safety, etc.
7.1.3. Monitoring of the efficiency of road safety actions

In order to determine the effectiveness of road safety actions, high-level research and studies need to be elaborated, based on internationally accepted methodologies and statistical tools, the implementation of which will allow to determine the impact of a measure or group of measures on the improvement of the road safety of a single road or a region. It is internationally acknowledged that it is extremely difficult to isolate the impact of each single measure for the improvement of road safety and that only the use of appropriate scientific methods can lead to reliable conclusions.

The indicators of the effectiveness of actions are, as previously mentioned, an integral part of the overall process for the quantitative monitoring of the implementation of road safety actions. A prerequisite for the development of these indicators is the availability of suitable data, in order to determine both the indicators for the modification of the level of road safety and the indicators for the progress of the implementation of road safety actions. These figures are related both to the data on road accidents, the corresponding traffic and other factors with an impact on road safety, and to the analytical data on the implementation of the actions.

The quantified monitoring and evaluation programme of the Strategic Plan should be coordinated by the Inter-Ministerial Committee on Road Safety and the Special Secretariat for its Support, so as to achieve both economies of scale and homogeneity among the indicators relating to the various priority actions.

A prerequisite for the successful implementation of the quantitative monitoring programme is to determine operational procedures for its management. This means that the procedures for recording, coding and processing data and exporting and publishing conclusions have to be determined with precision, in order to optimise the significant effort required for the proper operation of the monitoring system. Very well-designed monitoring systems have failed because they had not predicted correctly the effort required for importing data in databases or the reliability problems of particular categories of data.

It is noted that the existence of reliable data about road accidents and the traffic flow on the road network is a prerequisite for the use of the indicators mentioned in the previous paragraphs. Currently, analytical data is available about the characteristics of the accidents recorded by the Road Accidents
Bulletin (D.O.T.A.). Most of this data is reliable and can be used in several analyses. Of course, it is necessary that the various currently operating systems for recording and coding data on accidents (Traffic Police, Hellenic Statistical Authority, etc.) be integrated and that the entire recording process be improved, in accordance with the provisions of the European Directive on road infrastructure safety management (2008/96/EC), processed and published.

As mentioned above, the analysis of the causes of road accidents and the effectiveness of the relevant measures requires that the accident data be combined with data on traffic volumes. Currently, the data about the characteristics of the traffic flow on the road network is actually not being collected, thus limiting the possibilities of obtaining reliable results about road safety conditions on the road network of the country. Therefore, it is of the utmost importance that the systems determining traffic volumes, speeds, etc. operate on the inter-urban (highways, national, provincial) road network of Greece and that periodic research is conducted, so as to estimate the traffic volumes and speeds on the urban road network.

It is also emphasised that the publication of the conclusions from the implementation of the quantitative monitoring programme is extremely significant. It is important to raise awareness among citizens and those employed in the implementation of actions for the improvement of road safety measures, so that they know that their efforts have yielded results.

7.2. Inter-Ministry Committee responsibilities related to the development of road safety education

7.2.1. Actions to inform and raise awareness

Informing and raising public awareness on road safety is achieved with appropriate campaigns, which should focus on specific behaviours and enhance other road safety measures, such as monitoring actions made public, new legislative regulations and training programmes. The aim of these campaigns should be, firstly, that people adopt road safety as a personal objective and, also, that they understand the reasons for establishing traffic rules and the need for monitoring their implementation.
It is necessary that risky behaviour is not considered socially acceptable and, therefore, specialised methods should be implemented in order to modify social tolerance towards risky behaviour. Intensified information campaigns for the modification of perceptions on the commonly acceptable behaviour and the development of a road safety culture within the target group (with the use of interpersonal communication channels and mass media) aim at increasing awareness on the value of safe behaviour, on the expectations of significant individuals in the social and family environment on the individual behaviour of group members and also aim at changing attitudes and misperceptions on the extent of this behaviour (for instance, that this risky behaviour is normal). Individual behaviour is influenced by subjective perceptions on the usual behaviour of the group. Therefore, for the proper planning of the campaigns, it is necessary that relevant research is conducted first. Based on its results, suitable messages should be elaborated, aiming at changing misconceptions.

When designing these specialised campaigns, the particularities of the target group should be taken into account, so that the transmitted messages be assimilated to the fullest.

Campaigns are effective when:

- the target group and the ultimate goal are defined
- the messages and the way of transmitting them are appropriate and effective both for the target group and the public
- included in a wider programme of actions aiming at limiting this specific behaviour.
- they provide new-unknown information, and have a duration and
- are sufficiently funded for research, planning and pilot implementation.

It is also important that not only drivers focus on the information and awareness-raising effort, but other persons as well who may have an impact on the driver (family, especially children, employers or healthcare staff).

Awareness-raising among drivers on dangerous driving behaviours can be achieved by producing relevant educational material and including it in the educational handbooks of candidate drivers. Moreover, initiatives can be developed for information and awareness-raising campaigns and the production of relevant material by insurance companies or associations of motorists, companies operating highways, health bodies and bodies active in the field of road safety.

The information and awareness-raising campaigns should be coordinated by the Inter-Ministerial Committee, supplement other road safety actions and be combined with efforts for the evaluation of their results. In this way, a better use of the (limited) resources will be achieved and it will be possible to design more effective campaigns.
Road safety should become a high State priority and politicians, concerned bodies and mass media should become active towards this direction.

**It is necessary that the mass media, especially electronic ones, be legally bound, by a specific provision in the authorisation granted for their operation, to broadcast, free of charge, television and radio messages on road safety, during hours with larger audiences and high ratings.**

### 7.2.2. Information and awareness-raising campaigns in combination with surveillance actions

Information - awareness-raising campaigns should focus on specific target groups, such as new and elderly drivers, motorcyclists, children, elderly pedestrians, etc. When designing these specialised campaigns, the particularities of the target groups should be taken into account, so that the transmitted messages be assimilated to the fullest.

In principle, road users underestimate significantly the possibility of being involved in a road accident. The relevant information and awareness-raising campaigns should emphasise that road safety is a serious social issue related to Public Health, as road accidents are the leading cause of death for people under 40 years of age, so that road users understand the real level of risk when using the road traffic system and adopt road safety as their personal objective.

Information campaigns which are not accompanied by other measures aiming at safer behaviours (such as monitoring) are not effective. Awareness-raising campaigns should aim at the main *causes of road accidents*. Reference is made below to information and awareness-raising campaigns about driving behaviours that result in fatal accidents, driving at a speed higher than appropriate, non-use of a seat belt and driving under the influence of alcohol, with particular emphasis on the problem of distracted attention on which the current research focuses. In the last years, distracted driving has become a road safety problem because of the increasing use of mobile phones and other modern technologies with which vehicles are equipped.

Therefore, information and awareness-raising campaigns should be organised, aiming at:

- Preventing aggressive driving and dangerous driving behaviour and encouraging care for vulnerable road users (pedestrians, the elderly, motorcyclists).
- Preventing driving at a speed higher than suitable for the conditions of the road infrastructure and the traffic.
- Preventing driving under the influence of alcohol, medicines and drugs.
- Preventing driving under the influence of fatigue.
- Preventing the use of mobile phones while driving.
- Encouraging the use of seat belts and helmets.
7.2.2.1. Tackling the problem of distracted driving

The strategies for reducing accidents because of distracted driving include:

- the prevention or limiting of distracted driving through legislation, education and raising awareness, and the improvement of the design of devices which are potentially distracting during driving,
- the detection of incidents of distracted attention with the use of technologies recognising attention distraction,
- the mitigation of the impact of distracted attention with smart systems in the vehicle (warning and vehicle control) and road infrastructure measures (unobstructed zones, guardrails, suitable lateral configurations on the road).

For the reduction of accidents associated with distracted attention, it is proposed to take actions in the following directions:

- Traffic rules for distraction
- Effective monitoring of traffic rules for distraction
- Changing the attitude of drivers towards multitasking
- Support to the development of properly designed equipment for safe use while driving
- New-novice drivers should constitute a target group
- Development and implementation of criteria for the safe design and use of electronic signage, especially advertising.

Awareness-raising among drivers on the risks of distracted driving can be achieved by producing relevant educational material and including it in handbooks for drivers and the educational handbooks of candidate drivers. Moreover, initiatives can be developed for information and awareness-raising campaigns and the production of relevant material by insurance companies or associations of motorists, highway companies, health bodies and bodies active in the field of road safety. International experience in other road safety problems has shown benefits from combining monitoring actions which are made publicly available, make an impression and attract the attention of drivers, with information campaigns and training programmes.

New-novice drivers use technology often, they are characterised by multitasking, overestimate their abilities, have not developed skills of vehicle control and decision-making and are still shaping their driving habits which may affect the way they drive and the risk for accidents in the next years.
Apart from raising awareness, during the training of drivers, emphasis should be given to the development of strategies for dealing with distracted attention, such as functions for the prior programming of devices, for example in navigation systems and mobile phones, and dealing with passengers who distract them.

Training on the risks associated with distracted driving can be helpful but usually educational information/awareness-raising campaigns do not yield lasting results. Drivers, either because they think that they have increased driving skills or because they do not acknowledge a degree of risk, often engage in other actions which distract their attention while driving.

It has been emphasised that changes are required in issues related to commonly accepted behaviour, so that risky behaviours are not considered socially acceptable. These changes cannot only be achieved with training/enhancing the knowledge of society about the risks. In order to change the perceptions on commonly accepted behaviour in relation to risk behaviours, specialised strategies should be implemented aiming at altering social tolerance towards risky behaviours. The efforts to change the perception of the commonly accepted framework of distracted driving behaviour need to be accompanied by enhanced surveillance measures. Only observing the frequency of distracted driving, without the relevant experience of obvious surveillance, has a negative impact on social tolerance.

People in the environment of victims in road accidents where distracted attention was a contributing factor, and the mass media, can contribute by divulging fatal accidents that occurred because of distracted driving, in order to alter the social acceptability of risky behaviours.

7.2.2.2. Speed

The actions aiming at limiting driving at excessive speed include informing and training on the risks of developing high speed. Information and awareness-raising campaigns contribute to the efficiency of automated surveillance programmes and should also provide relevant information and accompany surveillance with conventional methods.

The relevant information and awareness-raising campaigns aim at persuading drivers on the impact that driving at a speed higher than appropriate might have in increasing the likelihood of accidents and their severity, and persuading them on the need to change their attitude towards driving at inappropriate speed. When designing information and awareness-raising campaigns, it is necessary to:
Development of the Road Safety Strategic Plan, 2011-2020
Framework for the implementation

N.T.U.A. Department of Transportation Planning and Engineering - June 2011

233

- take into account the fact that non-compliance with speed limits is not regarded as a serious offence by the public,
- understand the risks of speed and the reasons for setting speed limits,
- convince drivers that must behave responsibly at all times, not only when they think they might be controlled,
- make drivers understand that even if speed is within the permitted limits, it may not be appropriate in adverse road conditions, and
- address the false current impressions that driving experience, the use of wheel lock systems during braking or low traffic during the night ensure that driving at a speed exceeding the permitted limits is safe.

Finally, it is important to discourage car and motorcycle commercials which promote excessive speeding and encourage those that promote a safe and responsible driving behaviour.

7.2.2.3. Driving under the influence of alcohol

According to international experience, awareness-raising campaigns use the media to reduce driving under the influence of alcohol and, thus, inform about the impact of this behaviour and how to limit it and/or disclose relevant actions, such as relevant rules or the implementation of surveillance programmes (for instance, a highly prominent intensive surveillance programme).

7.2.2.4. Use of seat belt, helmet and child restraint systems

Highly promoted intensified surveillance programmes of short duration, combined with information and public awareness-raising campaigns, have been implemented internationally and have proven effective in promoting seat belt use, informing about the dangers of non-use and the relevant rules in force and in shaping the notion that there is an increased possibility of being detected.

The relevant information and awareness-raising campaigns aim at persuading road users about the necessity of the use of seat belts, helmets and children restraint systems. Car drivers and passengers should realise that the use of seat belts and child restraint systems is necessary both for short and long-distance transport, inside and outside urban areas. Motorcyclists must be convinced of the beneficial effects of the use of helmets, as motorcyclists who do not wear a helmet are much more likely to suffer severe traumatic brain injuries compared to those who wear a helmet, if involved in the same type of accident.
7.2.3. Promotion of the Strategic Plan

The actions for the promotion of the Strategic Plan are related to organising and implementing appropriate campaigns, aiming both at systematically informing citizens about the Strategic Plan and raising public awareness, in order to ensure the acceptance and support of the implementation of the Plan. It is suggested that the information should focus on the following topics:

- Purpose, targets and necessity of the Road Safety Strategic Plan.
- Road safety measures to be implemented.
- Successful Strategic Plans, road safety programmes and particularly successful specific measures implemented in other countries.
- Individual commitments and obligations of competent bodies of the State or not.
- Actions in which citizens can participate and contribute individually and collectively.
- Progress of the Strategic Plan, focusing on quantified results regarding both the extent of the implementation of actions and their effectiveness in the improvement of the level of road safety in Greece.

For the successful implementation of the Strategic Plan, it is essential to engage citizens and competent bodies in it. More specifically, we must ensure participation:

- in the planning and specification of road safety actions,
- in the monitoring of the implementation and evaluation of the actions,
- in redefining the goals and the implemented actions,
- in rewarding successful actions.

When Regions and Municipalities carry out road safety actions, it is necessary to provide for the appropriate flexibility so as to optimise the participation of citizens. It is also required to institutionalise the necessary consultative procedures.
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