MOLDOVA

PROJECT TECHNICAL NOTES AND WORKING PAPERS FOR MOLDOVA

The European Union's TRACECA programme

for Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Tajikistan, Turkmenistan, Ukraine, Uzbekistan

EUROPEAID/133698/C/SER/MULTI

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Project Title:	**TRACECA – Road Safety II**
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Project Partner	**Contractor**
Name: Directorate-General for Development and Cooperation - EuropeAid European Commission	Consortium SAFEGE – IMC – Grant Thornton – Granturco, led by SAFEGE

Content this document:

1. All Project Technical Notes and Working papers
2. Reports of Specialists visits to Azerbaijan
3. DVD (on last page)
   - Electronic PDF-files of Project Technical Notes of Working Papers undertaken in Azerbaijan
   - Film of Study tour and Training in Serbia

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Note

The since these are internal working documents produced by different experts within the Project Team they have not been edited to a common format or formally proof read. They are working documents not final reports for external publication and provided here only for information for those who may be interested to get an overview of road safety in each sector in each country.

CONTENT OF WORKING DOCUMENTS REPORT
FOR MOLDOVA

This Report for MOLDOVA contains case study/overview of the Project and 22 individual sector reports prepared under the EU funded TRACECA Road Safety II Project. Each report is a freestanding report and can be extracted for standalone distribution and usage. The reports are preceded by an overview section to place the reports and contents in context.

Preface and overview of project

1. Benchmarking (reference to downloadable Regional Benchmarking Report)

2. Road Safety Management

- **2.1 Road Safety Management, Coordination and Funding** (Country Specific Report)
- **2.2 Action planning workshop** (Country specific report)
- **2.3 National Action Plan** (Country Specific Report)

3. Crash Data System

- **3.1 Analysis of Crash Data System** (Country Specific Report)
- **3.2 Crash Data Benchmarking** (Country Specific Report)
- **3.3 Comparison with CADAs EU protocol** (Country Specific Report)
- **3.4 Regional GIS Database outline of possible structure** (Regional Report)
  - 3.4.1 Crash Data System – User Manual for TRACECA Countries
  - 3.4.2 Crash Data System – User Manual for Stakeholers

4. Safety Engineering, Roads

- **4.1 RSA-BSM Mission Report** (Country Specific Report)
- **4.2 Safe Design Mission Report** (Country Specific Report)
- **4.3 Freight routes/Parking Mission Report** (Country Specific Report)
- **4.4 Regional Guidelines:**
  - **4.4.1 Regional Road Safety Audit Manual** (Regional Report)
  - **4.4.2 RSA Policy, Legislation changes and Training Curriculum** (Regional Report)
  - **4.4.3 Black Spot Management Guidelines** (Regional Report)
  - **4.4.4 Guidelines for routes for freight/through traffic to avoid residential areas** (Regional report)
- **4.5 Safety engineering workshops**
  - **4.5.1 RSA/BSM** (Regional report)
  - **4.5.2 Design** (Regional report)
  - **4.5.3 Tunnel Safety Workshop Reports** (Regional Report)

5. Safety Engineering, Vehicles:

- **5.1 Technical Inspection & Motor Vehicle Safety Regulations/Standards** (Country Specific Report)

6. UN Conventions and EU Agreements

- **6.1 UNECE Conventions** (Regional Workshop)
- **6.2 AETR Convention** (Country Specific Report)
- **6.3 UN 1958 Agreement** (Country Specific Report)
- **6.4 ADR Mission Report** (Country Specific Report) – no country report prepared for the country

7. Road Safety Implementation, Training and Research

- **7.1 Decision makers and academics** (Country Specific Report)
- **7.2 Academics** (Country Specific Report)

8. Study Tour and motivation (DVD)

9. DVD with all Reports and Study Tour

- **DVD with all working documents and Technical Notes**
- **Film of Study Tour**

Preface

The "TRACECA Road Safety II" project's main objective is the implementation of the TRACECA Regional Road Safety Action Plan, ensuring that the corridor transport system actively promotes the safety, security and protection of users, property, general public and the environment that might be involved in or affected by this system.

The project covers the following TRACECA countries[1]: Armenia, Azerbaijan, Georgia, Moldova, Kazakhstan, Kyrgyzstan, Tajikistan, Ukraine and Uzbekistan. The project is aimed at supporting all 9 countries in their efforts to improve capacity to implement improvements in 6 sectors of road safety:

1. Safe Management
2. Safer Roads
3. Safer Vehicles
4. Safer Road Users
5. Safer Emergency Services
6. Changing attitudes

Activities in the first 3 sectors are being implemented by a consortium led by Safege (and which has produced this country report) and focuses more on establishing the institutional structures, standards and capacity building to enable sustainable road safety activity. The last 3 sectors are being implemented by an international NGO Global Road Safety Partnership (GRSP) and focuses more on developing capacity at local level to design and implement interventions aimed at risk factors in those sectors. Because management of road safety requires a multidisciplinary approach across all sectors the Safege part of the project addressed safety management and coordination across all 6 sectors but dealt only with sectors 1-3 in terms of technical issues.

The first task of the project was to benchmark the current situation in each sector in each country to identify the strengths, weaknesses and needs of each country. The next phases were spent in undertaking 17 regional, sub regional and national workshops to introduce over 450 local experts from the key stakeholders in beneficiary countries to develop country specific road safety action plans and to train over 70 local experts in key aspects of safety engineering.

The last phase of the project was used to "institutionalise" road safety in each country according to its particular needs. This included advice on management, coordination and funding of road safety and encouraging establishment of local road safety audit (RSA) courses to be run annually by the RSA instructors trained by the project, introduction of safety engineering into final year of road engineering degree courses review and guidance on implementation of UNECE Conventions /EU Agreements related to road safety, review of vehicle safety and crash data systems, assistance in development of road safety research programmes in universities and research institutes, getting road safety aspects included into road design standards and approval processes and capacity building in key sectors of road safety. The project has been designed using the "safe systems" approach and is being implemented in accordance with best international practices.

[1] Turkmenistan was originally to be included but they did not participate in the project beneficiary countries. Aid with agreement/approval of EU was dropped from the schedule of project activities. They were however kept informed of events.

A number of reports/guidelines and documentation have been produced on various aspects of road safety by the Project Team. Some are Regional and some are country specific. The series of reports and documents shown diagramically on each back page of this report and are as follows:

A. Contractually required deliverables
1. Inception report *(available on TRACECA website)*
2. Interim reports at 6 monthly intervals (4) *(available on TRACECA website)*
3. Final report *(available on TRACECA website)*

B. Additional deliverables
1. Benchmarking report(available on TRACECA website)
2. Country Specific Reports containing working papers, Technical Notes and country visit reports distributed directly to key stakeholder in each country.

For more details please visit TRACECA web site:
http://www.traceca-org.org/en/technical-assistance/traceca-road-safety-ii/

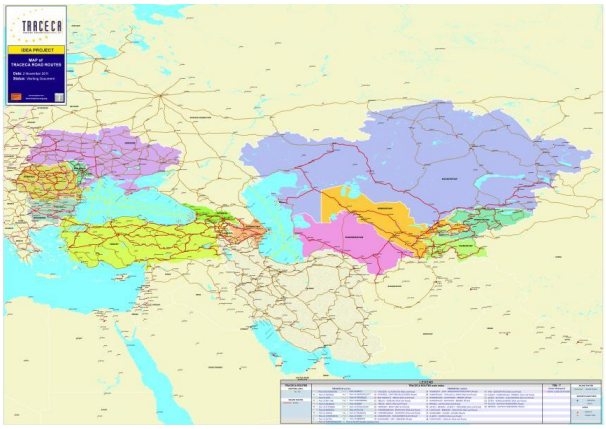
CASE STUDY

EU FUNDED REGIONAL APPROACH TO IMPROVING ROAD SAFETY VIA MULTI COUNTRY PROJECT [1]

Safege portion of *TRACECA* Regional road safety Project II
(Covering10 countries in Eastern Europe, Caucasus and Central Asia)

1 BACKGROUND

This 2-year project which commenced mid-January 2014 and which finishes mid-March 2016 is an EU funded regional road safety project covering 10 beneficiary countries in TRACECA region. This region covers the countries between China and Europe and includes Armenia, Azerbaijan, Georgia, Moldova, Kazakhstan, Kyrgyzstan, Tajikistan Turkmenistan[2], Ukraine and Uzbekistan.



Regional statistics
Road deaths: 19000/ years Road injuries: 200,000 / year
Annual losses: US$ 17 billion / year (Approx. 4 % of annual regional GDP)
Regional Ave Deaths / 100000 Population = 15.27
(EU Average = 6)

These countries over the next 30-50 years are likely to experience huge increases in traffic as a result of the expected increasing trade links between these 2 major economic powers. Even with the current relatively low traffic levels, there are around 19,000 road deaths and nearly 200,000 persons injured every year and this is now costing the region around US $17 billion annually (4% of the region's GDP) and risk of death in a road crash is about 2 to 3 times as high as the average of EU countries. The economic losses from road accidents are about 5 times as high as the total development aid provided to that region). With increasing traffic levels such human and economic losses are certain to increase in future years unless effective action is taken to prevent this.

The project is aimed at supporting the 10 countries in their efforts to enhance their capacity to implement improvements aligned to 6 sectors of road safety; 5 of which are same as the 5 pillars in the UN Decade of Action (safety management, safer roads, safer vehicles, safer road users and safer emergency services). In addition, the project also includes activities in a 6th sector "changing attitudes".

The activities in the first 3 sectors are being implemented by a consortium led by Safege[3] and focus more on establishing the institutional structures, standards and capacity building to enable sustainable road safety activity within individual countries and across the region.

The activities targeting he second three 3 sectors are being implemented by the Global Road Safety Partnership (GRSP)[4]. The objective of this part of the project is to help building the capacity of both government and civil society stakeholders to design and implement community-based risk factor interventions, to promote long-term and sustainable multi-sectorial partnership and knowledge sharing, and to increase collaboration and cooperation within Eastern Europe, Caucasus and Central Asia sub-regions. To achieve these objectives, the GRSP is implementing the project through the multi-pronged and multi-partnership approach. Their model of partnership involves the collaboration of twelve co-implementers (Red Cross and Red Crescent societies, civil society organizations) with different level of technical and organisational capacity and operations.

[1] The contents of this case study are the views of the author only and do not necessarily reflect the views of the EU or other parties involved.
[2] Although originally included as part of the regional project, Turkmenistan did not take up the invitations to participate in the various workshops and training opportunities.
[3] The consortium led by Safege includes IMC, Grant Thornton and Granturco.
[4] The non-profit Global Road Safety Partnership (GRSP) is hosted by the International Federation of Red Cross and Red Crescent Societies (IFRC) and is dedicated to the sustainable reduction of road-crash death and injury in low- and middle-income countries. http://www.grsproadsafety.org/

However, in order to ensure a holistic approach across all 6 sectors, the 2 consortia are coordinating their efforts and collaborating where feasible to maintain a consistent approach and to develop a single unified road safety action plan for each country. In addition, since the project led by GRSP focuses primarily on risk factors and community-based interventions and does not address the wider structural, organisational and coordination issues in its three sectors, the project led by Safege/IMC, because it has to address all sectors in considering management and coordination of road safety, will address management aspects of those sectors as part of its overall effort to improve management coordination and funding of road safety.

The following section describes how the Safege consortium project developed and then systematically implemented a strategy focussed on delivering agreed impacts that will increase the chances of sustainability. In developing and implementing the strategy the team drew upon the best practices and guidance available in various World Bank and other documents[5 6 7]. The strategy also took into account the fact that although a similar general approach can be used to provide consistency and comparability, the starting position and needs of each country are very different. To be sure that the required impact has occurred, these "starting positions" and needs had to be documented in some systematic way so that country specific solutions could be developed to meet the particular circumstances of each country. The EU task managers had also emphasised the need to deliver real impacts though the project and the consultants were asked to give particular attention to this aspect in their implementation strategy so that such impact could be demonstrated at project end.

In order to place high emphasis and focus on delivering the impacts that will lead to sustainability, the project team developed a 4-phase strategy for implementation:

Phase 1: Understanding problems, needs and constraints in each country
Phase 2: Developing capacity amongst key specialists to be able to apply safe systems approaches
Phase 3: Developing motivation and aspirations of key decision makers in these countries
Phase 4: Institutionalising road safety activities to increase likelihood of sustainability

2 PHASES 1 AND 2: UNDERSTANDING THE PROBLEMS, NEEDS AND CONSTRAINTS IN EACH COUNTRY AND DEVELOPING CAPACITY

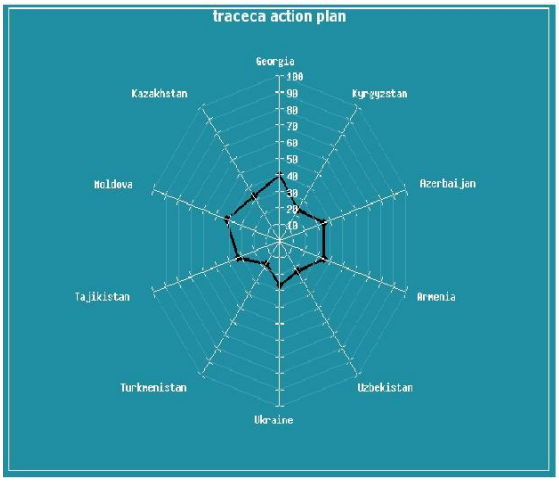
The Safege led consortium project focused in its first 2 phases on understanding the general problems across the region, identifying the particular problems inhibiting development of road safety within key sectors in each of the 10 individual countries and in training of safety engineering and other professionals in key sectors from each country. This was done through a number of activities including:

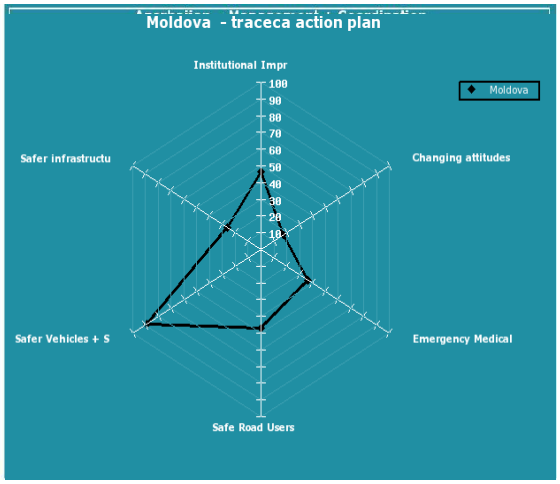
- **Visits to every one of the 10 beneficiary countries during inception period** for discussions with experts in each country so that current status of safety activities and institutional capacity regarding road safety could be "benchmarked" at project commencement against impact indicators related to institutional development. For example to assess if there is effective capacity to manage and coordinate road safety activity, we can check to what extent (0% to 100%) that elements and functions such as the following exist in a country:
  - Legislation exists designating responsibilities for road safety
  - A coordination body has been established
  - There is a fully staffed and funded Secretariat to follow up coordination body decisions
  - Reliable sustainable funding is available for safety activities and interventions.

Depending on the extent to which that these and similar "institutional development indicators" exist and are fulfilling their function, one can make a rough assessment of the likelihood of there being effective institutional capacity to manage and coordinate road safety in that country. The data can be presented in DEE benchmarking spider charts.

[5] World report on Injury prevention, WHO/ World Bank, Geneva, 2004
[6] World Bank Road Safety Management Project Guide
[7] Road safety management capacity review and safe systems projects - Guidelines, GRSF, World Bank, May 2013

These can show the strengths and weaknesses of each country and within each individual sector (examples below show percentage progress in all countries on implementing action plans and an example spider chart from Azerbaijan shows how it compares on key aspects of "management and coordination" against the average (in white) of all TRACECA countries. Similar DEE[8] benchmarking spider charts were prepared for each country and for each sector and subsector within each country to provide a definitive overview and record of the position at the project start point.





These aspects benchmarked at commencement can be used during the project to keep everyone focused on what has to be delivered by project end and if repeated at project end, provide a very convenient and unambiguous way to demonstrate the specific changes and impacts achieved by the project

- **7 Regional and sub regional workshops and training courses** ranging from 2 days to 5 days to do capacity building of key experts and potential future trainers from each country and to agree sector specific needs in key sectors in each country. This resulted in over 70 persons being trained in safety engineering issues such as, tunnel safety, road safety audit and Blackspot management programmes. Over 20 were given an additional 1-week intensive course on safety auditing. After further training in following months and submission and marking of their practical projects/ assignments, around 15 were certified as Road Safety Audit (RSA) Instructors able to train others in their respective countries and the remaining 5 being certified as only as Road Safety Auditors The now constitutes a pool of 20 Road safety auditors all trained to a consistent level and able to provide safety auditing services at local prices in each country plus a capacity to develop future safety auditors to create a larger pool of road safety auditors to meet the growing needs for such services. Draft regional guidelines have been prepared on road safety Audits and Blackspot programmes and guidance provided on alternative ways in which mandatory road safety audits can be included into legislation.
- **9x Four day National Action planning workshops** for 40 -50 representatives from the key stakeholder agencies in each country to develop priority action plans aimed only at removing obstacles and impediments preventing effective road safety activity in each sector and to define priorities for action. Over 450 senior persons from key government, private sector and NGO stakeholders introduced to international best practices in road safety in key sectors and successful road safety programmes in the region and from around the world. Safety experts from each country participated via sector specific breakout groups within each workshop to develop the action plans for each sector that were then amalgamated into 3 year priority action plans for each country. Where necessary or feasible an interim multisector working group was established in each country to liaise with the project team and to provide coordination until appropriate more formal coordination mechanisms could be established by government.

[8] DEE technique - impacts and outcomes delivery system - see www.deetechnique .com

3 PHASE 3 DEVELOPING MOTIVATION AND ASPIRATIONS OF KEY DECISION MAKERS IN THESE COUNTRIES

A **Study tour was organised for 24 deputy directors / 2nd highest officials from the 3 most important organisations** responsible for road safety in each country (traffic police, Ministry of transport and roads administration) to show them how other similar countries have improved road safety. Normally such study tours are organised to take senior officials to the countries with the best road safety (e.g. Sweden, UK, Netherlands etc.). Although this can be very useful in giving participants an overview of what can be achieved in a country, this can sometimes also be counterproductive and intimidating as study tour participants can sometimes go away disheartened at the huge gap between their own country and the study tour country in terms of road safety, systems and funding. They often return to their own countries depressed and disheartened feeling that it would be impossible to reach such high levels of safety in their own countries. It was therefore necessary for motivation and aspirational purposes, to identify a role model country which was similar to them but which had been very successful in road safety and to which they could relate to better and see as a possible aspirational role model.

The ex-Soviet countries that are now in EU all had very similar ex-Soviet systems, standards and constraints that currently exist in TRACECA region but overcame them and like other EU countries managed to make dramatic reductions of 40-60% in road deaths in the last decade by adopting the safe systems approaches being applied in other EU countries. Although they achieved significant reductions and are potential role models for the ex-Soviet TRACECA countries, they are, in fact, not the best examples since, as a consequence of being EU members, they had additional pressures on them, to comply with EU directives, agreements and legislation affecting road safety and which pushed their governments to comply with EU best practices. However, another nearby country, Serbia is NOT an EU member so did not have such pressures but also had similar ex-Soviet systems, practices and constraints to those in TRACECA countries. Despite this, they also achieved equally impressive reductions in road deaths over the last 10 years as were achieved in EU countries. They did this by **voluntarily** adopting and where appropriate adapting best practices from Europe and applying them in their country.

Table 1: Success in ex-Soviet countries implementing EU approaches to road safety.

	Road deaths		%Change	Deaths /100.000 population	
	2001	2011	2001-2011	2001	2011
Bulgaria	1011	755	-34.9	12.4	8.9
Czech Republic	1334	802	-47.0	13.0	6.7
Estonia	199	101	-49.2	14.6	7.5
Hungary	1239	638	-48.5	12.1	6.4
Latvia	558	179	-67.9	23.6	8.0
Lithuania	706	297	-57.9	20.2	9.2
Poland	5534	4189	-24.3	14.5	11.0
Romania	2461	2018	-18.0	10.9	9.4
Slovakia	814	324	-47.2	11.6	6.0
Slovenia	278	141	-49.2	14.0	6.9
Serbia	1275	728	-42.9%	16.99	10.06
European Union ((EU)	54302	30108	-44.6	11.3	6.0

Consequently Serbia was potentially a much more “replicable ” role model and all participants, although initially very dubious about the merits of going to Serbia for a study tour, went away astonished that a country like them and despite its similar ex-Soviet constraints was still able to address its road safety problems effectively and achieve huge reductions in road deaths. The study tour participants were given some joint and some sector specific training each morning and then taken on site visits each afternoon so they could talk directly to and to question/ interrogate counterpart officials in Serbian government organizations who were directly involved in implementing the major reforms in how road safety is addressed in Serbia. The participants from TRACECA countries went away highly motivated and enthused feeling that

if a country like them which is not in EU or wealthier or smarter or with better educated officials can do this, then there is absolutely no reason why their own countries could not also do this. This to them was not only an achievable goal but for the richer or larger countries, a little bit shaming that a small, much poorer country had been able to do so much more in road safety while they despite their size and wealth had been able to do so little in their own countries. All study tour participants went away highly motivated and determined to do something to move road safety forward in their own countries. Follow up visits taken to date (e.g. Moldova, Georgia and Kazakhstan) have confirmed that this much more motivated and more proactive approach is now evident amongst these "leaders of road safety" who returned enthused from the study tour and there is some evidence that they are pushing harder for action to be taken to improve road safety.

In order to encourage regional cooperation, sharing of expertise and exchange of information across the region, the opportunity was to create 3 informal regional sector specific working groups (in traffic police, in ministries of Transport and in roads agencies) with relevant representatives from each country. These sector-working groups will be encouraged to share information, guidelines and to harmonize activities (e.g. police fines and penalties) to develop a more consistency in dealing with road safety issues across the region. In addition, the one week of close proximity by the 3 key persons from each country (some of whom did not know each other well before the study tour) also enabled "bonding" and growth of friendships amongst these 3 key officials to create a core team of key senior officials in each country with a common vision on how road safety can be improved in their country.

4 PHASE 4 INSTITUTIONALIZING ROAD SAFETY TO INCREASE LIKELIHOOD OF SUSTAINABLE ACTIVITY

Most of the TRACECA project beneficiary countries are still at an early stage of road safety development and need practical assistance /guidance to develop their road safety activities – especially in management coordination and funding of road safety. For road safety to germinate, prosper and grow we need to systematically build road safety into the normal activities and practices in selected organizations that can influence road safety in a country and to develop, train and motivate key individuals who can then go on to train and motivate other professionals beyond the project period.

We need to provide guidance on safety legislation, international conventions and organisational structures and mechanisms to manage and stimulate road safety activities. We also need to enable the road safety audit instructors developed earlier within the project to train other local safety auditors each year as needed. These 'institutionalizing' activities are being implemented by deploying a number of teams (each typically with 1-3 experts from the project) to make 2-day visits to each country with each team focussing on their particular specialist topics or aspects. They will work with small groups of 12-15 relevant local experts from that country in round table discussions, site visits and practical training sessions. Sometimes two or more teams will be in the same country on the same days because of need to have joint sessions, but most of the time each team and members within each team will have their own distinct programme of tasks and team specific schedule of visits. Team members will be drawn from our pool of international of experts who are all practitioners with extensive practical implementation experience in their areas of expertise. Our pool includes many of the same individuals who were the architects and implementers of the major reforms that were done in Serbia to convert a country with typical ex-Soviet systems, corruption and constraints, etc. into one with a modern EU safe systems approach to road safety. They can share their practical experience with the TRACECA countries. Once the initial round of visits to initiate activities have been completed, the core group of experts will be redeployed/reconfigured into different "teams" with different tasks so that they can do follow up activities initiated earlier and provide mentoring / support until local experts are confident and able to do the key activities that we are trying to institutionalize in each country.

All of the activities are defined in the original work programme in the project inception report but have now been developed in more depth so that impacts and sustainable activity can be delivered in each country. The activities are designed to initiate, develop or expand safety activity in key institutions or organisations and to create a supportive and conducive environment for road safety to take root so that it can grow and prosper. Trying to create win – win solutions and activities that will institutionalise road safety activity so that it will continue and expand because of local interests

beyond the project end, will do this.

The teams that are being deployed during the institutionalising phase are as follows:

1 Road safety Audit (RSA) and Blackspot management (BSM) team will make follow up visit to every country to help them develop BSM activity and do further training / evaluation of the BSM engineers and the road safety audit (RSA) instructors that we trained during phase 1 – the best of whom we certified as "project approved" Safety Auditor Instructors. We have provided guidance on alternative ways to draft legislation for mandatory safety audits, have developed regional guidelines on safety audit and separate regional guidelines on Blackspot management programmes. We will help to establish an annual road safety audit course at a university or under a 'society of engineers' or similar in each country to develop a regular local safety audit course to develop local safety auditors. The team will make a second visit later to check on developments and progress with implementation.

2 Action plan implementation and safety training team will make a visit to every country to implement a 1 day workshop / round table discussion with the 12-15 member interim working groups (established from key agencies after each action planning workshop and who are developing / finalising the immediate road safety action plans). This team will cover action plan implementation and provide practical examples of how to implement safety in each sector in a country. On the 2nd day, they will hold a ½-day round table discussion with university professors and assist them to introduce modules of road safety lectures into relevant university courses. They will also implement a ½-day round table discussion for university professors and local research institutes on road safety research (including crash costing) and provide assistance / support and mentoring plus links to overseas university researchers to start implementing and encouraging development of road safety research programmes in each country.

After the first round of visits, the team will make further follow up visits to monitor and oversee development / integration of safety modules provided for inclusion into local university courses and to provide mentoring for those doing safety research (including crash-costing research). They will also establish links with overseas researchers for joint research projects and publishing of research papers on road safety issues.

3 UNECE conventions Team. Individual experts on EU Agreements and UNECE Conventions will be deployed to make 2-day visits to different groups of countries in accordance with the needs identified and specific assistance requested by individual countries at the regional UNECE conventions workshop. For example, ADR (dangerous goods) expert will visit 6 countries, and the AETR (working hours) expert will visit 6 countries and the Vehicle regulations expert will visit 5 countries. Each expert will have his own programme and schedule of visits but they will occasionally be together for joint activity. Each expert will provide advice/practical training as required in their specialist areas.

4 Vehicle Periodic Technical Inspection team will make a 2 day visit to each of the 9 countries to assess the effectiveness of current practices in periodic technical inspection of private vehicles, to provide training where needed and advice /guidance on how things could be improved. A second follow up visit will be done a couple of months later to review progress and to develop road maps for improvement (where a system already exists) or for introducing a periodic technical inspection system (where a periodic technical inspection system for private vehicles has been discontinued /suspended e.g. Kyrgyzstan, Ukraine and Georgia). Additional visits will be made to assist them to re-establish periodic technical inspection of light vehicles.

5 Crash data systems Team will visit police in every country to review existing systems and practices in crash data collection, storage, retrieval, analyses and dissemination in relation to best international practices before recommending country specific improvements to the crash data system, data analyses and accessibility to data by stakeholders in a country. If possible and police agree, we will identify core non-confidential items that could be placed on a regional crash database where data could be accessible to all countries for inter-regional comparisons etc.

6 freight traffic routes and commercial parking team The expert has already visited several countries in the region while providing inputs to the safety engineering work in phase 1 so will make a few more visits before preparing the draft guidelines and recommendations. These will then be discussed further with roads administrations in each country by the RSA and BSM team and later the Design Standards team.

7 Safety Design Standards team This team will do a "gap analyses" of existing (ex-Soviet style) road design standards and practices of scheme approvals/ checking in each country to identify the impediments, which are preventing application of modern techniques of safety conscious planning and design. They will then develop recommendations on how road design standards need to be improved/updated to incorporate safety engineering and to permit modern speed reduction interventions such a traffic calming on major roads where they pass through small communities. They will also suggest how the road design approval process can be improved to remove the current (ex-Soviet style) focus on simplistic ''compliance with standards" to one where the proposed road scheme is reviewed from a wider safety and operational perspective instead of just compliance with (often out-dated or inadequate) design standards.

8 Management, Coordination, Funding and Cost estimation team (variable numbers - drawn from our core team and our pool of experts as necessary). This team will provide inputs to the work of other teams as well as providing advice/ guidance to beneficiary stakeholder organisations on the 4 key aspects of management, coordination, Funding and crash cost estimation plus related issues such as legislation, crash data system etc. Different experts will participate in this team as and when needed and each team member will follow up his/her specialist areas of activity in that country when the team visit a country.

All of the above teams will be working on a number of integrated tasks where the aggregated activities of all teams will influence and affect the final outcomes in a particular sector in a particular country. We expect to achieve significantly increased institutional capacity of the beneficiary countries to address road safety issues. We will also have developed and motivated a corps of local experts in key sectors who can continue improving safety in each country. We will also have initiated key activities such improved crash data analyses and accessibility, regular road safety audit courses, road safety research and inclusion of road safety training into the curricula of universities producing future road engineers and other key professionals. All of these activities will initiate the development of a more conducive environment for road safety to develop and grow in each country.

The 3-year priority plans have been finalised for each of the 9 countries and each country has been assisted during the first year to remove the most urgent obstacles and impediments inhibiting the development of effective road safety activities. The institutionalisation of some safety activities will sow the seeds for more effective activity if they can be nurtured and supported, but much will depend on the willingness of countries to take road safety more seriously and to see road safety as an investment and not as a cost. Ideally, the countries should be assisted to implement the whole of the 3-year priority action plans that would embed road safety into all key sectors and make it highly likely that sustainability could be achieved.

5 COMPLIANCE WITH BEST INTERNATIONAL PRACTICE IN DESIGNING / IMPLEMENTING ROAD SAFETY PROJECTS IN LOW AND MIDDLE INCOME COUNTRIES

The project has been designed using the "safe systems" approach and is being implemented in accordance with best international practice as outlined below:

1 Lead agency empowerment

Most of the 10 countries are at an early stage of road safety development and do not yet have effective road safety coordination, management and funding of their road safety activities. Relevant technical assistance is being provided as needed to each country to strengthen these activities. Country specific priority action plans have been finalised to identify and remove obstacles and impediments to improvement of road safety. Interim multi-sector working groups are being established in each country to do coordination until more formal structures can be established and a lead agency designated. Assistance /guidance is being provided on safety legislation and in some countries (e.g. Ukraine) assistance/ support has been being provided to establish and support a Parliamentary road safety subcommittee to raise awareness and to promote road safety amongst highest level decision makers.

2 Health Sector Collaboration and Partnership
The health sector is included in the working groups being established and health sector along with other key stakeholders from government private sector and NGOs are being encouraged to work in partnership to support and promote the multisector approach advocated via the project. Health sector data will be used along with Police crash data and data on insurance compensation claims to estimate the true value of each severity of casualty and crash type in each country. This will enable annual losses to the economy to be estimated and will permit cost benefit analyses of potential interventions to enable more effective use of the limited funds available.

3 Sequencing of World Bank report recommendations
The project fully endorses the systematic multi sector approach where interventions have to be undertaken in key sectors to try to prevent unsafe vehicles, unsafe roads and unsafe road users from using public roads and recognises that these should be done in a integrated manner and under an overall action plan being implemented and managed by a multi sector coordinating Group with adequate human and financial resources to coordinate and manage such activity. The project has been designed and implemented using exactly this approach.

4 Strengthening Monitoring and evaluation
At commencement of the project road safety activities in each sector were benchmarked against the "desired" situation (i.e. if everything was being done perfectly) to see what percentage of progress had been made towards the desired situation in each country. It was also used to compare each country against the average of the other countries in the region so that strengths and weakness of each individual country could be assessed. This exercise will be repeated at the end of the project to assess what developmental "impact" the project has had in moving road safety forward. In addition, efforts are being made to encourage traffic police to make non -confidential items within the crash database available to all stakeholders so that sector specific interventions can be devised and monitored more easily by stakeholders in each country to ensure effectiveness of safety investments. Efforts are also being made to establish a regional crash database so that countries can make comparisons against other countries in the region. Countries are being introduced to and encouraged to use intermediate performance indicators (e.g. %age of vehicle occupants wearing seat belts) and institutional development indicators (as used in the benchmarking) to monitor development of institutional road safety capacity and to monitor the effects of interventions.

5 Integrating Project management arrangements
The country specific action plans all include actions to establish improved management coordination and funding of road safety activity and all plans advocate the designation of a lead agency to coordinate and promote road safety activity. Where there is no effective management such as where there is a road safety commission but no permanent technical staff to act as a secretariat (e.g. Azerbaijan), establishment of a Secretariat is included in the action plan. Where no coordinating mechanism exists, an interim multi sector-working group has been established to coordinate matters until government can establish suitable structures and mechanisms to do such activity.

6 Targeting road policing and communications support
The importance of ensuring effective enforcement supported by relevant road user awareness /publicity campaigns is recognised and the parallel GRSP part of the project will do that as it supports the individual interventions in each country. As part of the Safege project, a regional traffic police - working group is being established to enable traffic police across the region to share experience and to harmonise legislation, penalties and processes. This will facilitate consistency of traffic policing enforcement across the region and contribute to better management of road safety in TRACECA countries. In addition, the project has had discussions with development banks active in each country to encourage them to include safety components (including awareness raising campaigns in communities affected by infrastructure projects) into their lending programmes.

7 Engaging all tiers of government, NGOs and the private sector
The 4 day Action planning workshops in each of the 9 countries have involved around 40 - 50 participants drawn from the key government, NGO and private sector stakeholders with responsibilities in or the ability to influence road safety (i.e. over 450 persons in total across the region). Sector experts from these different organisations worked in sector breakout groups to discuss and develop the specific actions and interventions for each sector in the Action plan. The project team just acing as a facilitator / catalyst to enable such multi sector meetings to take place and the plans to be devised. All tiers of government, NGOs and Private sector have collaborated to develop the action plans and are represented on the interim working groups that are refining the action plan until government establishes appropriate structures to manage, coordinate and finance road safety.

8 Ensuring access to performance data

Police crash data is still considered confidential in many TRACECA countries and police normally only supply data tables to other stakeholders if a specific written request is made. The police crash databases are generally not available for further direct analyses by stakeholders. The project is reviewing current police crash data systems and making recommendations on improvement of content and analyses procedures and will look at ways to enable better access to crash data for other stakeholders. An effort will also be made to establish a regional crash database from the non-confidential items of data collected in each country so that inter country comparisons can be made. Such improved access to crash data will permit improved performance monitoring of interventions.

9 Partnering with Global and Regional service networks

The 9 countries have been introduced to the willingness of development banks to support road safety, to the UN Decade of safety and WHO/UNRSC publications / guidelines on safety issues as well as to the most important 7 EU Agreements and UN conventions that are related to road safety. (The countries are being assisted to implement such conventions in an effort to encourage consistency and harmonisation of international legislation across the region.) They have also been informed about the wide range of safety management structures and funding mechanisms that have been used at various times in various countries and the particular circumstances where they have been most successful. Examples of successful safety programmes in the most safety conscious countries Sweden, UK, Netherlands, Australia and Japan have been used to illustrate how other countries have successfully improved their road safety and the organisational structures and funding mechanisms they have used to do this. Of particular relevance has been the experience of the EU, which consistently, over several decades, has continued improving road safety by 40-50% each decade showing that even when all the easy, initial improvements have been done it is still possible to achieve further reductions in road deaths.

10 Stimulating South - South dialogue and Action

A number of ex-Soviet countries who are now EU members also managed to reduce their road deaths by 40-60 % during the last decade but because they were inside the EU, they had been subject to a number of additional pressures, legislation and directives as EU members, which pushed and encouraged their governments to take action on road safety. However. Serbia, another country with similar ex-Soviet structures, systems and practices **but NOT an EU member** also managed to make a 50% reduction in road deaths over the same Decade. They did this by adapting and **voluntarily implementing EU practices.** Serbia therefore offered a more suitable role model for TRACECA countries to emulate rather than one of the EU countries. Twenty-Four very senior officials (deputy directors) from senior police, roads authority and Ministries of Transport from the 9 countries were taken to Serbia on a 1 week Study tour so they could meet with counterparts and see and discuss with implementers how the reforms had been achieved. Later the same Serbian experts and who designed and oversaw implementation of the reforms in each sector in Serbia were taken to each country so that additional senior officials and decision makers could be made aware of the Serbian experience / success as motivation to them to also to implement such reforms. Thus, in this case the experience of one developing country was directly used in motivating and encouraging the 9 TRACECA countries to do more.

11 Accelerating project implementation

This project covers 9 countries and has been designed on the basis of delivering outcomes and developmental impacts that were defined and used in the benchmarking report at project commencement. The first phases of the project focussed on understanding both the general deficiencies across the region (which could be dealt with via regional initiatives) and country specific needs (that required country specific assistance). The first phases also developed technical capacity of key officials who need to be the key providers of the safer systems that have to be developed in each country. To motivate senior officials it was necessary to demonstrate to them that improvement was possible and that smaller, poorer countries with ex-Soviet systems and constraints the same as theirs had nevertheless achieved major improvements. The study tour to Serbia provided that spur and encouraged the officials to realise that they too could make similar improvements in their own countries by adopting and implementing the EU safe systems approach to road safety as being advocated and being implemented by the project team. This helped to accelerated the willingness and ambition of the key influential officials in each country to take action. To further accelerate and strengthen the development of road safety, the final phase of the project was focused on “institutionalising” road safety to try to set in motion the key activities and to create the right conditions and environment where road safety could grow and develop. This was done in part by using the same experts who made the major reforms in Serbia to provide advice and short cuts to the TRACECA countries seeking to implement similar reforms as were done in Serbia. The project is on target for delivery of agreed outcomes by project end.

12 Adapting to Unique Country Circumstances

The recommendations of the world report on traffic injury were the basis of the approach adopted in the TRACECA regional project. The need for effective management and coordination of road safety, the need for sustainable funding, the need for good crash data etc. are all fundamentals of any serious effort to improve road safety. The was a clear need in every country to improve the management coordination and funding of road safety but how this was to be done, of course, depended on the particular circumstances, existing structures and legislative framework in each country. The first 2 phases of the project focused on raising general awareness of the scale and urgency of the road safety problem, capacity building in some key sectors such a safety engineering and in understanding the sector specific needs in each country. The subsequent phases focussed on motivating key officials to action and providing country specific follow up.
"Institutionalising "activities most appropriate to the needs of each country for sustainability.

6 CONCLUDING REMARKS

Implementing successful road safety projects in low and middle income countries (LMICs) is difficult because so many aspects of the safe systems approach are missing, there can be rivalries and territorial disputes between key agencies (e.g. police and engineers) which can inhibit effective collaboration and there is often a lack of political will to address the problem as forcefully as needs to be done. Further more there is often insufficient understanding about the underlying problems, inadequate numbers of local experts knowledgeable about road safety issues and a sense of helplessness in the face of the multitude of aspects needing to be addressed with the limited funds available. The implementation strategy adopted for this project does appear to have had some success in overcoming such problems and constraints.

The efficacy of this approach was verified by an independent external evaluation undertaken by EU that looked at around 30 projects funded by EU in the last 10 years. This EU funded TRACECA project was seen as one of the most successful in the region in terms of delivering impacts and effectiveness. That study will be published soon but in the meantime, perhaps the best independent vindication of the approach adopted is to see what knowledgeable persons who are familiar with the project say about it.

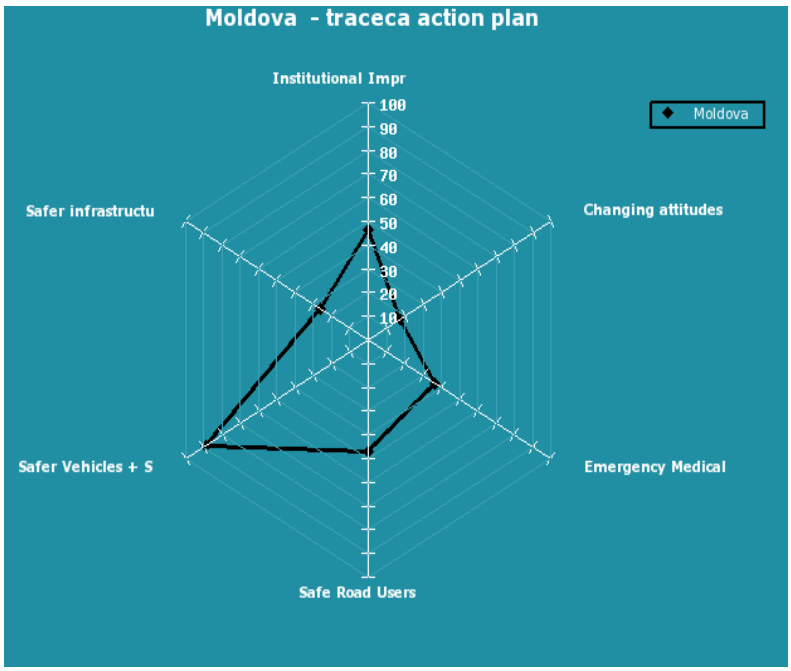
".....I am currently writing the national road safety strategy for Tajikistan as part of an ADB-funded project. In February 2015, I attended a four-day workshop organised by the TRACECA Road Safety II project in Dushanbe. I was highly impressed at the quality of the discussion developed by the workshop – 40 plus senior officials concerned with road safety in Tajikistan spent four days fully engaged in debating and working out the details of what needs to be done to improve road safety in Tajikistan.....".'

Anthony Pearce, former Director General of International Road Federation (IRF) and member of EU evaluation team reviewing EU projects undertaken in TRACECA region in the last 10 years.

«… I have no doubts that the steps undertaken by the team of your Project will help our member states to achieve a principally new level of awareness of the priority of Road Safety components. Training provided by the Project experts aroused real interest among specialists of the relevant institutions, and they are willingly and enthusiastically participating practically in all Project activities. I would like to hope that the Project staff will continue activity next year in similar positive mood, taking into consideration positive responses and absolute benefit of your efforts …".

Mircea Ciopraga, Secretary General of TRACECA Permanent Inter Government Commission Secretariat

1. BENCHMARKING



Benchmarking was undertaken of current status of road safety at project commencement for all Beneficiary countries and again at the end of the project to assess and demonstrate project impact.

The results for the region and for Moldova are given in the Benchmarking report which can be downloaded from:
http://www.traceca-org.org/fileadmin/fm-dam/TAREP/70ta/TRACECA_Documents/Benchmarking_Report_English.pdf

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2. ROAD SAFETY MANAGEMENT, COORDINATION AND FUNDING

All countries of the region have deficiencies in how road safety management, coordination and funding is organized by government. This report outlines present practices in Moldova and what needs to be done in this area.

No country report prepared on this topic

2.2

TRACECA Regional Road Safety Project

Action Planning Workshop

MOLDOVA

«NATIONAL ACTION PLANNING WORKSHOP»

2-W004

Chisinau,
4-7 November 2014

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1.1. Brief Introduction
1.2. Action Planning Workshop: Objectives and Expected Outcomes
1.3. Action Planning Workshop Implementation

* * *

1.1. Introduction/Overview

In accordance with the Project Terms of Reference and Inception Report it was agreed that the EU funded TRACECA regional road safety project II should implement ten National Action Planning (NAP) Workshops in order to assist the ten beneficiary countries to develop country specific action plans to implement the previously agreed Regional Road Safety Action Plan.

The NAP workshops are undertaken with 40-50 representatives of key stakeholders government, private sector and NGO stakeholders in each country with responsibilities in or the ability to influence road safety in that country. The 4-day workshops in each country result in a draft country specific action plan based on and compatible with the earlier EU funded regional road safety action plan. They cover the 6 sectors as follows:

1 Institutional Issues.
2 Safer Roads
3 Safer vehicles
4 Safer road user behavior
5 Emergency medical services
6 Changing attitudes

The first 5 of these sectors are the same as the 5 pillars of the UN Decade of Safety and the 6th sector has been included in recognition of the very early stage of road safety development in some TRACECA countries and thus the need to change attitudes to road safety both of the general public but also of government officials and responsible organisations.

The main target groups are representatives of the key government ministries and organizations with road safety responsibilities (e.g. Ministries of Transport, Interior, Health, Education, Finance, Traffic Police, Roads Authority etc.), Private sector organizations already active in or who should be active in road safety (e.g. oil companies, freight transport operator associations, bus or taxi operator associations, insurance associations, large fleet owners) and NGOS (Red Cross/ Red crescent, road safety NGOs, pedestrian or cyclist associations) and International Organizations able to influence government (international development banks, EU Delegation, WHO etc.). Representatives, between them cover all the functions related to the six sectors to be addressed in the draft action plan.

3 Content of National action planning workshop workshops.

The main action-planning workshops are held over 3 days. After the opening Ministerial and EU Ambassador (visibility) speeches, the first day provides an overview of the safety situation in that country with 4 of the key government agencies, an academic, private sector firm and NGOs each giving a 10 minute over view of the main problems and issues to be addressed as they see them. There will then be an overview of international experience showing how other countries around the world and especially in EU, the Central and East European region have improved their road safety. Particular attention is given to identifying successes in TRACECA countries that might be worth sharing across the region.

The next two days spent working in breakout groups focussing on different sectors , followed each time by plenary sessions to agree the actions needed to implement fully the required improvements in each of the 6 sectors (Wherever feasible, we will liaise with GRSP part of the TRACECA project to have their input so that we can include their proposed initiatives in each country so we can prepare holistic action plans covering all 6 sectors) The resulting action plan will be based on delivery of improvements that can be monitored via the impact indicators that have been devised for each item. By the end of the 3rd day, a rough draft of possible activities will have been devised and agreed for all sectors by all participants.

On the 4th day work will continue with a smaller more senior group to refine /fine tune the actions and proposed activities in close consultation with around 20 senior persons representing the key stakeholders. A multi-sector working group will be selected from amongst the representatives on the 4th day, who can, in consultation with the project team, continue drafting the National road safety action plan over the following couple of months.

1.2. Action Planning Workshop: Objectives and Expected Outcomes

The agreed objective is to produce (via national action planning workshops), the first drafts of country specific road safety immediate action plans for each country that are compatible with the previously agreed regional road safety action plan. The most important outcome is an agreed set of activities in each country that are necessary for the implementation of the Regional road safety action plan.

The first drafts of such Immediate Action Plans will be prepared by the Project team from the activities identified by the Stakeholders. This draft will be sent to the working group in each country to review/refine and to make any further changes/modifications/additions etc. The project Team will then assist the Working Group by assisting in a second round of editing of the Action Plan. Thereafter it will be left to the country to make any further changes/improvements/modifications that may be required. The Project team will however provide advice on monitoring.

It is important to note that the draft Action plans being prepared are not intended to replace or amend any existing society strategies or Action Plans that may already exist. They focus instead on the identifying and removing the obstacles and impediments that are preventing effective action on road safety by the key stakeholders. They are immediate Action Plans to be implemented over a 3-year period and focus on the issues/constraints identified by stakeholders which, of removed, would facilitate ore effective safety activity.

1.3. Action Planning Workshop: Implementation

Visits were made to all countries during the inception period and discussions held with representatives of the key stakeholders in order to benchmark each country in relation to its progress with implementation of the recommendations of the original regional road safety action plan. This provided a framework for discussion/review by participants at the workshops

This benchmarking of progress provided a starting point for discussion / review by the sector specific experts participating in each workshop and enabled them to verify the progress in each aspect of road safety in each sector. They were then able to develop specific actions necessary to make progress in each aspect of safety in their sector of activity. The cumulative actions proposed across the six sectors constitute the embryonic first draft of a possible action plan for that country.

The typical programme and content of the Workshop is presented below

ACTION PLANNING WORKSHOP

"National Action Planning Workshop "

DRAFT PROGRAMME AND AGENDA

3 DAY ROAD SAFETY ACTION PLANNING WORKSHOP
DAY 1:
OFFICIAL OPENING AND OVERVIEWS OF THE PROBLEM

0830-0900 Registration of delegates
0900-0910 Official opening ceremony /welcome
0910-1920 Ministerial address (Minister of Health, Transport or Interior, depending on country)
0920-0930 EU speech (EU local Delegation Ambassador or representative from the EU delegation)
0930-1015 Global overview, International developments and Lessons in Tackling Road safety Issues
1015–1045 Overview of TRACECA regional safety project and role of EU in supporting road safety activities across TRACECA region. This will include results from project benchmarking assessment activities to show how the country compares with regional averages
1030-1045 COFFEE BREAK
1045- 1145 Overview of responsibilities, current activities/successes, obstacles and suggested action areas in key government agencies [2]

- Ministry of Public Health
- Ministry of Transport or infrastructure
- Ministry of Interior/ traffic police
- Ministry of Education
- Roads Agency or Safety Agency (if one exists)

1145--1300 Private sector, academic and community constraints[3]

- Academic representative
- Private sector representatives (e.g. chamber of commerce)
- Insurance Association representatives
- Freight or public transport association
- NGO Representative

1300-1400 LUNCH
1400-1445 Open forum discussion about the needs and problems in that country
1445-1545 Regional and nearby countries' experience /lessons Good practices (project team members who are from these countries)

- Armenia
- Georgia
- Serbia

1545-1600 COFFEE BREAK

[2] Only 10 minutes per organization with no repetition basics and generalities or failings of other agencies. Each organization should talk **only about its own areas of activity,** to present information on 4 aspects (1) statistics on trends of deaths and injuries in its area of activity (2) list any responsibilities in road safety and indicate current activity /successes, (3) identify specific institutional impediments/ obstacles why it cannot be more effective on safety , (4) to indicate what needs to be done in its area of activity to enable it to be more effective .

[3] Only 10 minutes each to outline (1) areas of activity or interest in road safety (2) what constraints are preventing greater academic , private sector and NGO activity/involvement in addressing road safety issues (3) what should be done

1600-1645	International Funding Institutions (IFIs) - Role and funding of road safety activities (ADB, World Bank, EBRD, EIB as available)
1645-1715	Coordination Management and Funding of road safety: an overview
1715-1730	Allocation of participants into breakout groups for Day 2
1730	**CLOSE OF DAY 1**

DAY 2:

BREAK OUT GROUPS WORKING ON SECTORS

0900-0930	Explanation of breakout working and objectives / tasks for the day
0930-1045	Breakout parallel workshop session 1 to discuss/agree specific priority actions needed and target dates for completion of tasks in sectors 1-6 Group 1: Institutional I Issues Group 2: Safer Infrastructure Group 3; Safer Vehicles Group 4: Safer road users Group 5: Emergency Medical services Group 6: Changing Attitudes
1045-1100	**COFFEE BREAK**
1100-1300	Breakout parallel workshop session 2 to continue discussing /agreeing specific actions needed in sectors 1-6. Identify who should lead and those who should be involved Group 1: Institutional I Issues Group 2: Safer Infrastructure Group 3; Safer Vehicles Group 4: Safer road users Group 5: Emergency Medical services Group 6: Changing Attitudes
1300-1400	**LUNCH**
1400-1530	Breakout parallel workshop session 3 to continue discussing /agreeing specific actions needed in sectors 1-6 and budgets needed to implement + possible sources of funding. Group 1: Institutional I Issues Group 2: Safer Infrastructure Group 3; Safer Vehicles Group 4: Safer road users Group 5: Emergency Medical services Group 6: Changing Attitudes
1530-1515	**COFFEE BREAK**
1545-1715	Plenary session for Chairmen of Workshop breakout groups to report briefly (10 minutes each) on actions proposed in each sector and 10 mins each to get discussion /feedback/suggestions /agreement from participants from other breakout groups (chaired by Ross)
1715 -1730	Round up and programme for day 3
1730	**CLOSE OF DAY 2**

DAY 3

PLENARY SESSIONS TO REFINE BREAKOUT RECOMMENDATIONS

0900- 0915	Explanation of activities and tasks for the day
0915 -1015	Sector 1: Institutional issues
1015-1115	Sector 2: Safer Infrastructure
1115-1130	**COFFEE BREAK**
1130-1200	Safer Vehicles

1200-1300	Safer road users
1300-1400	**LUNCH**
1400-1500	Emergency Medical services
1500-1600	Changing Attitudes
1600-1615	**COFFEE BREAK**
1615-1715	Road safety action plans- lessons learned
1700- 1715	Closing remarks and Closing Ceremony
1730	**CLOSE OF DAY 3**

DAY 4:
ACTION PLAN CONSOLIDATION WORKSHOP (AROUND 20 PERSONS MAX BUT INCLUDING THE 6 CHAIRMEN OF THE SECTOR BREKOUT GROUPS FROM 3 DAY WORKSHOPS)

0830-0900	Registration of delegates
0900-0915	Overview of workshop and tasks to be completed
0915-0930	UN Decade of Action – Country obligations
0930-1000	Identifying and setting casualty reduction targets
1000-1030	Road safety action plans and monitoring – Lessons to be learned from other countries
1030-1045	**COFFEE BREAK**
1045-1100	Review of work completed in benchmarking and action planning workshops
1100-1145	Sector 1: Institutional I Issues
1145-1230	Sector 2: Safer Infrastructure
1230-1300	**LUNCH**
1300-1345	Sector 3: Safer Vehicles
1345-1430	Sector 4: Safer Road Users
1430-1515	Sector 5: Emergency Medical Services
1515-1530	**COFFEE BREAK**
1530- 1615	Sector 6: Changing Attitudes
1615-1650	**WRAP UP AND CONCLUSIONS**
1700	**CLOSE OF ACTION PLAN CONSOLIDATION WORKSHOP**

1800-2000hrs Reception /dinner for the 1-day workshop participants
This is to encourage dialogue and networking between senior officials of different organizations and to encourage them to establish a 10-12 person interim working group /expert committee that the Project team can develop and assist as the key coordination body to oversee finalization and to commence implementation of the action plan until a more formal arrangement and coordination body can be established by government.

Instantaneous translation was usually provided on days 1 and 4 to enable effective dialogue during plenary sessions. Whisper/ sequential translation was used during the breakout sessions on day 2 and 3 since work was done in small groups. Throughout the workshop lively discussion was encouraged between participants and between participants and lectures in order to discuss / explore alternative options and interventions.

Workshop attendance: Normally there are around 40 participants in the workshop., information is usually provided in advance to public relation experts at EU Delegations to inform the media about EU funded TRACECA Regional road safety project and the scale and urgency of the road safety problem in the country concerned.

National Action Planning (NAP)

1.1 Moldova

The NAP Workshop (2-W004) was held in Chisinau, Moldova during the period 4-7 October 2014. This NAP is the fourth of the 10 Action Planning Workshops that will be delivered. It was implemented in the Ministry of Interior in Chisinau: using the Generic programme presented in the introduction.

Workshop attendance was around 55 participants from all key stakeholders on the first day of the workshop, and 40-45 participants on the following days, and there was a very active discussion throughout the workshop.

In close consultation and cooperation with the EU delegation, information was provided to media about the EU funded TRACECA Regional Road Safety Project and the scale and urgency of the problem in Moldova.

1.2 Participants of workshop

The list of participants attending all or parts of the workshop is presented below.

No.	Name and Surname	Institution (Organization) and Position	Contact telephone
1.	**Adrian Gavdiuc**	National Patrolling Inspectorate, Superior Inspector, Circulation Systematization Department	
2.	**Andulis Zidkovs**	Advisor to the Ministry of Transport	+37360008829
3.	**Albulesa Dumitru**	AITA	57 25 11
4.	**Alexandre DARRAS**	Attaché - Project Manager EU DELEGATION TO MOLDOVA	+ 373 22 505 210
5.	**Alexei Dolganiuc**	"Universcons" Director	
6.	**Andrei Buraga**	SRL"Astral Project" engineer	+373688412101
7.	**Andrei Cuculescu**	National Secretary of TRACECA Moldova	+373 22 820725, mob. +373 68111230
8.	**Antoci Eduard**	Vice director, College of Transport	
9.	**Constantin Rosca**	Simbio-Proiect Ltd, project engineer	069499948
10.	**Constantin Mitev**	Interpretation Service Company Berlizzo	068468876
11.	**Dan Chirita – did not participate**	Police Colonel and Head of the Informational Technology Service of the Ministry of Internal Affairs of Moldova, Chief of the new video surveillance centre, General Police Inspectorate	069602800
12.	**Dumitru Agachi**	Ministry of Informational Technology	251102

13.	**Dumitru Ceban**	Department of transport management, Technical University Moldova, lecturer	069560525
14.	**Eugen Datco**	Director at the Union of Transport and Road Workers	tel.: +373 (22) 24-45-81 +373 (692) 5-06-14
15.	**Ghenadie Pogorletchi**	Technical University of the Republic of Moldova, Superior lecturer	022539138
16.	**Gheorghe Bagrin**	Teacher of road safety, College of Transport	
17.	**Gela Kvashilava**	Partnership for Road Safety, Georgia	+995599062211
18.	**Igor Girgla**	Teacher of traffic safety, College of Transport	
19.	**Ilie Bricicaru**	President at "Road Safety Moldova" Association	+373 79881190
20.	**Liubovi Popa**	Gas Natural Fenosa	069147519
21.	**Marcel Marian – did not participate**	"Universcons" engineer	
22.	**Marcel Munteanu**	SRL "Astral Project" engineer	
23.	**Marina Golovaci**	Ministry of Health Moldova	069147375
24.	**Mihai Hasan**	Journalist, road safety expert	069103759
25.	**Mihai Netid**	SRL"Astral Project" engineer	
26.	**Mihai Rusu**	Chief of the Evidence and Data Department, Unique Monitoring and coordination Centre	068303751
27.	**Nicolae Bogza**	"Simbo Project" SRL	
28.	**Nicolae Mindra**	Main consultant road development department Ministry of Transport	022820723
29.	**Nicolae Tcaci**	Road Design Specialist, Universcons Ltd, Team Leader	+37368121444; tel.+37322753581
30.	**Nina Lungu**	Project coordinator, Red Cross Moldova	022287174
31.	**Oleg Cojocaru**	Vice President, Union of Drivers, Moldova	079455763
32.	**Oleg Malashevsky**	Head of the Dept of tactical response of rescuers and firefighters of Civil Protection and Emergency Situations Dept, Ministry of Internal Affairs	079904860
33.	**Oleg Plinschi**	"Universinj"	+37322748850

		engineer	
34.	**Olga Popusoi**	ACM	022292703
35.	**Petru Bologan**	Head of Road Safety Service at the State Road Administration	+37369121160
36.	**Petru Mititiuc**	Ministry of Transport, Moldova	022228856
37.	**Roman Corcimari**	Systematization of Road Traffic at Surveillance of Transport and Road Traffic Department of National Patrolling Inspectorate	
38.	**Radu Ostafciuc**	Chief of the Republican Medicine Centre of natural disasters	069470099
39.	**Sergiu Cusnir**	FSP Universinj Ltd. Engineer of Road Dept	+37322748850
40.	**Sergiu Bejan**	Engineer, Technical University of Moldova, Chair of Railways, Roads, Bridges - Head of Chair \ BCPC Ltd "ASTRAL-PROIECT" – Director	tel-fax: (+373) 22 76 85 87, tel-mob: (+373) 69611873
41.	**Sergiu Căpățină**	State Road Administration, Moldova	022748961, 06868445
42.	**Sergiu Mihailov**	"Coca Cola Hellenic" Route auditor	379703748
43.	**Sergiu Nicoara**	"Universcons" engineer	
44.	**Simion Bogza**	SIMBO-PROIECT LTD, Project Chief Engineer, Director	+37369216032, tel/fax (37322) 71 61 24
45.	**Tatiana Mihailova**	ACM	
46.	**Tatiana Baranvoschi**	Ministry of Education	
47.	**Tudor Lozan**	Head of Road Maintenance Department, Ministry of Transport	069142421
48.	**Tudor Rusu**	Vice director at the Union of Transport and Road Workers	
49.	**Vasile Plamadeala**	Department of transport management, Technical University Moldova, lecturer	
50.	**Victor Ceban**	Technical University, Department of transport management	069265033
51.	**Viorel Bulimaga**	Secretary of the National Road Safety Council in Moldova	069455000
52.	**Virginia Mandalac**	ACM	022200012
53.	**Vladimir Belenikii**	Road Traffic System department, National Patrol Inspectorate Moldova	
54.	**Vladimir Goian**	Dr. of technical science, department of transport management, Technical University Moldova	
55.	**Victor Paginu**	Ministry of Education	23 36 78
56.	**Vasile Arama**		

1.3 Results Achieved

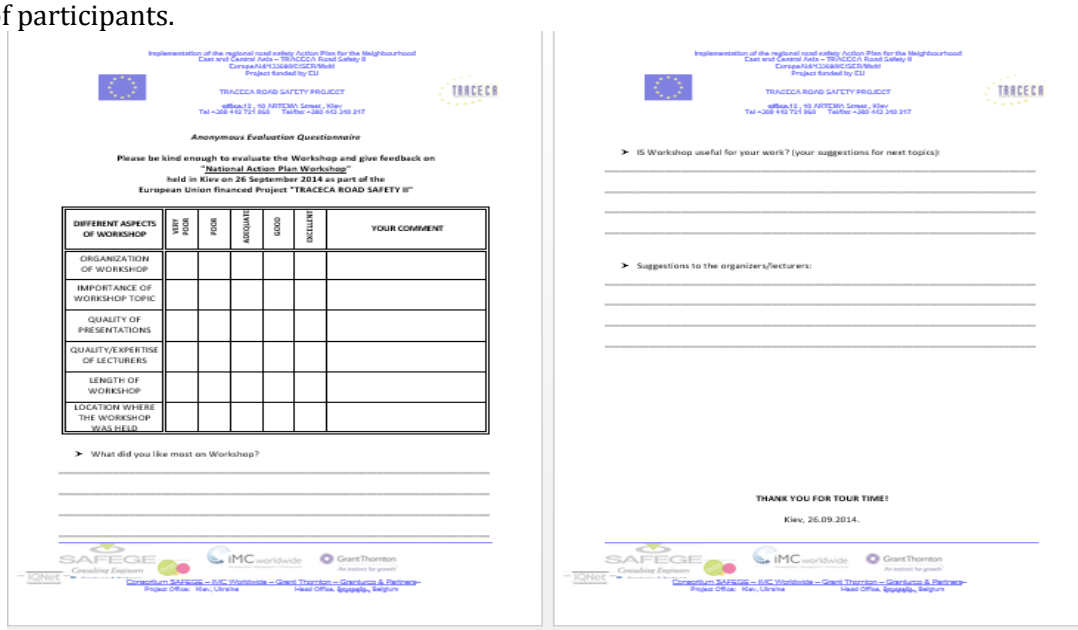
Results Achieved from the Workshop are shown in the following table.

Expected and achieved objectives and outcomes

	Expected objectives and outcomes	Objectives and outcomes Achieved	Comments
Objectives			
1	Discussion of actions needed in each sector to develop a country specific action plan to implement the regional road safety action plan	Yes,	50+ Moldova experts from each sector discussed needs and identified actions required in each sector
Outcomes			
2	Current status of progress in each sector verified	Yes	Sector specific experts checked and where necessary, modified benchmarking percentages to reflect current progress in each sector
3	Priority actions and interventions identified and sector specific draft action plans prepared by local sector specialists	Yes	Sector specific specialists identified priority actions / interventions needed in each sector to comply with regional road safety action plan
4	Country specific draft road safety action plan prepared in compliance with and to enable implementation of the regional road safety action plan	Yes	The 6 sector specific draft action plans can be combined to create a draft country specific road safety action plan. This is now in process of development in consultation between the project team and the interim working group established in each country from the key stakeholders

1.4 Evaluation

An anonymous workshop evaluation form (with 1 as very poor and 5 as excellent) was completed by the 25 most senior participants on the last day. This covered 5 aspects (see form below) and delivered an overall average score of 4.61 out of a maximum 5 indicating the very high satisfaction level of participants.



Implementation of the regional road safety Action Plan for the Neighbourhood East and Central Asia – TRACECA Road Safety II
Project funded by EU

TRACECA ROAD SAFETY PROJECT

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Anonymous Evaluation Questionnaire

Please be kind enough to evaluate the Workshop and give feedback on "National Action Plan Workshop" held in Kiev on 26 September 2014 as part of the European Union financed Project "TRACECA ROAD SAFETY II"

DIFFERENT ASPECTS OF WORKSHOP	VERY POOR	POOR	ADEQUATE	GOOD	EXCELLENT	YOUR COMMENT
ORGANIZATION OF WORKSHOP						
IMPORTANCE OF WORKSHOP TOPIC						
QUALITY OF PRESENTATIONS						
QUALITY/EXPERTISE OF LECTURERS						
LENGTH OF WORKSHOP						
LOCATION WHERE THE WORKSHOP WAS HELD						

➤ What did you like most on Workshop?

➤ IS Workshop useful for your work? (your suggestions for next topics):

➤ Suggestions to the organizers/lecturers:

THANK YOU FOR TOUR TIME!

Kiev, 26.09.2014.

The results of participant's evaluation are shown in tables overleaf.

Evaluation results of Design Workshop 2-W004

25 participants from Moldova (day 4)

Chisinau, 4-7 November 2014.

Main Questions	Participants answers																									
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	AVG
Organization of WS	4	5	4	5	5	5	5	5	4	5	5	5	4	4	5	5	5	4	5	5	3	5	5	5	4	4,64
Importance of WS topics	5	5	4	5	5	5	4	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	4,92
Quality of presentations	-	5	5	5	5	5	2	5	4	5	5	5	4	4	4	5	5	4	4	5	4	4	4	3	4	4,38
Quality/Expertise of lecturers	-	5	4	5	5	5	4	5	4	5	5	5	4	5	5	5	5	5	4	5	4	5	5	5	5	4,81
Length of WS	3	4	4	5	4	5	5	5	5	5	5	4	5	4	5	5	5	5	4	4	5	4	4	4	5	4,52
Location of WS	4	5	4	5	5	3	4	5	4	4	5	4	5	4	3	4	4	5	5	5	5	4	4	4	5	4,36
AVG	4	4,8	4	5	4,83	4,67	4	5	4,33	4,83	5	4,7	4,5	4,3	4,5	4,8	5	5	4,5	4,83	4,33	4,5	4,5	4,33	4,67	**4,61**

Legend: Mark 1: Very poor, 2: Poor, 3: Acceptable, 4: Good, 5: Excellent

Main participants comments:	What did you like most on WS?	Is WS useful for your work?	Suggestions to the organizers/lecturers
1	Importance of topic and representatives and relevant organizations	Yes, we should work on the problem of system development and coordination topics of road safety.	Group information by topics for not losing time.
2	A lot of useful information	Yes	Nothing
3	Report of analysis international experience of crashes	Very useful course. Thank you for your work. Your information will be useful for my work.	These WS should be held more frequently
4	RS is not consumption it is investments	Very useful and actual WS for my work	I would like to present at next WS
5	Reports and International experience	Preparation of professional drivers and Safety transport	To make a general report with suggestions and represent it to government and participants.
6	Actuality of topics	Yes	To inform the government about these problems making allowances for consciousness in RS.

7	Everybody could express their opinions	Useful information	Not spend day for achievements but ask about tasks.
8	Actual information about RS, discussion of issues in a transport and infrastructure sphere.	As for me this WS was very effective, useful and informative.	Sending objectives to educational establishments in Chisinau and whole state.
9	All problems were paid good attention to, there were a lot of solutions	WS was useful. We're getting new methods and technologies from other countries.	A lot of experts in different areas with their own methods and work
10	I mostly liked the discussion of actual problems in RS	Nothing	Nothing
11	Meeting of experts and discussing of problems	Will be useful in my work	To have more international experts
12	Actuality of topics RS and preparation of suggestions for Moldova	The information is interesting for specialists and most be used in educational establishments, courses of road agencies, transport and police.	It is batter to study success and disadvantages in resident state. It is necessary to work with leading foreign specialists
13	Big discussion of main issue	Rising of culture of every member of WS	WS could be for two days if all participants would be present.
14	I mostly liked the way information was presented	This WS is very useful for me	Everything was excellent. I am thankful to TRACECA for invitation. I hope this WS won't be the lost and will bring results
15	Everything	Will be useful for my work	More examples and separated WS with ministry
16	Good international experience	Yes we found something new and I want the next WS to have more examples of organization RS	A would like to see more practical examples
17	I liked the actuality of problem and the way it was presented. I also liked the topic was explained by different specialists and specialists from other countries.	This WS is very useful and I hope all problems discussed there would be implemented then our work would become easier and all the projects would be on a high level	I would like the information to be presented as photos, videos and schemes.
18	Good solutions. International experience.	WS will be useful in my work	Four days - too long.

19	Actual topics.	International experience will be useful for my work	More recommendations
20	International experience in the sphere of RS. A lot of discussion of the problems	It was useful	To increase the level of organization.
21	Number of members	Yes. Use the solutions	Concretization
22	Organization and actuality of the topic	Yes. A lot of useful information. How to involve ministry of education and private sector.	More interesting presentations and less text. More time for discussions.
23	Real situation. International experience. Solutions by Mr. Ross	Very useful for me	To offer the problems we should be discussed for our better informing
24	I liked the discussion of actual problems and the reforms suggested by Alan Ross	This WS is very useful	Its better to show more examples from EU
25	Everything	Very useful for my work	Would like to present in next WS

Workshop organizer response to evaluation:

1. Overall the workshop was obviously considered by participants to be of high quality, but project team will make further improvements to the presentations and identify more example countries to show successes
2. Continue refining presentations to have more impact/ effect and look for local practical examples to show
3. Find time for more discussion

1.5 Photo documentation

Plate 1. Instantaneous translations enabled very active dialogue/discussions between participants and lecturers and exchange of experience between all involved in WS/TC.

Plate 2. Work of sector breakout groups as a part of WS to share the knowledge and experience on current situation of road safety in Moldova and to plan future actions to address road safety issues

DRAFT

MOLDOVA

ROAD SAFETY IMMEDIATE ACTION PLAN

January 2015- December 2017

November 2014

Prepared by
key road safety stakeholders during a 4 day
road safety action planning workshop
organised at Ministry of Interior
Chisinau Moldova
4-6 Nov 2014

With technical support and further assistance from
EU funded TRACECA Road safety Project

Download from https://www.dropbox.com/sh/ayj5t6aft6gv0w5/AADqBHqXevxI9oyk5LEr1TJLa?dl=0

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Comment on structure and content of immediate action plan

For consistency and ease of monitoring progress in both individual countries and the amalgamated progress of all 10 beneficiary countries at regional level, the immediate action plan for each TRACECA beneficiary country has been designed to a common structure. Since all countries are seeking to implement the earlier regional action plan and in particular, its recommendations regarding institutional development and capacity building of key experts in the same 6 sectors, the monitoring framework and the impact indicators used for monitoring are similar for each country as they relate to progress made against the earlier regional action plan.

The content of each immediate action plan and how the regional impacts will be achieved is generally different for each country and depends entirely upon the current stage of development of that country, the scale and characteristics of the road safety problem and the views of the stakeholders who have developed the actions and activities for each sector. All countries however appear to have problems in management, coordination and funding of road safety and many have similar impediments preventing effective action in some other sectors. Consequently, in some cases the tasks and activities will be similar to those being undertaken in other countries. Each country specific immediate Action Plan tries to remove such obstacles and impediments in that country while doing capacity building to equip local road safety experts to be able to do more effective road safety activity.

I IMMEDIATE ACTION PLAN 2015-2017

1. ROAD SAFETY SITUATION IN MOLDOVA

The Republic of Moldova is an independent country situated in South-Eastern Europe between Romania and Ukraine. The territory of the republic has an area of 33.8 thousand km^2 and a population of about 4.4 million; population density is 128 inhabitants per km2. The capital city is Chisinau. The main means of transportation in Moldova are railroads 1,138 km (707 mi) and a highway system (12,730 km or 7,910 mi overall, including 10,937 km or 6,796 mi of paved surfaces

Road safety is a problem worldwide and many countries are now attempting to reduce the numbers killed and injured on their roads. Moldova like many other low and middle-income countries is facing a multitude of political, economic and social problems. One of the serious problems that the country is trying to cope with is that of road crashes - tragedies which take lives of hundreds of people and cause financial hardship to them and their families. In 2009, the World Bank estimated that every life lost on the roads of Moldova "costs" approximately 511.000 US dollars[4] to the national economy. More than 40% of the total number of road accidents occurs in the Chisinau Capital region of the Republic of Moldova, which has a population of about 800,000 inhabitants.

1.1 What are the trends in deaths and injuries in recent years?

The general data provided by the Ministry of Internal Affairs and Police (figure 1.1) shows that in 2013 in Moldova there were 2,603 road crashes reported to police in which 295 people died and 3,221 persons were injured. Compared to the previous year (2012), the total number of road crashes decreased by 4.1%, but the number of deaths was reduced by 33.3%, while the number of injured people decreased by 8.2%.

The main reasons are likely to have been the launch of the video monitoring control centre and instalment of video surveillance in Chisinau, strengthening enforcement, special actions by the Patrolling Police and public awareness campaigns and road safety programmes by NGOs and Media. This was a remarkable achievement deserving recognition and congratulations to those involved.

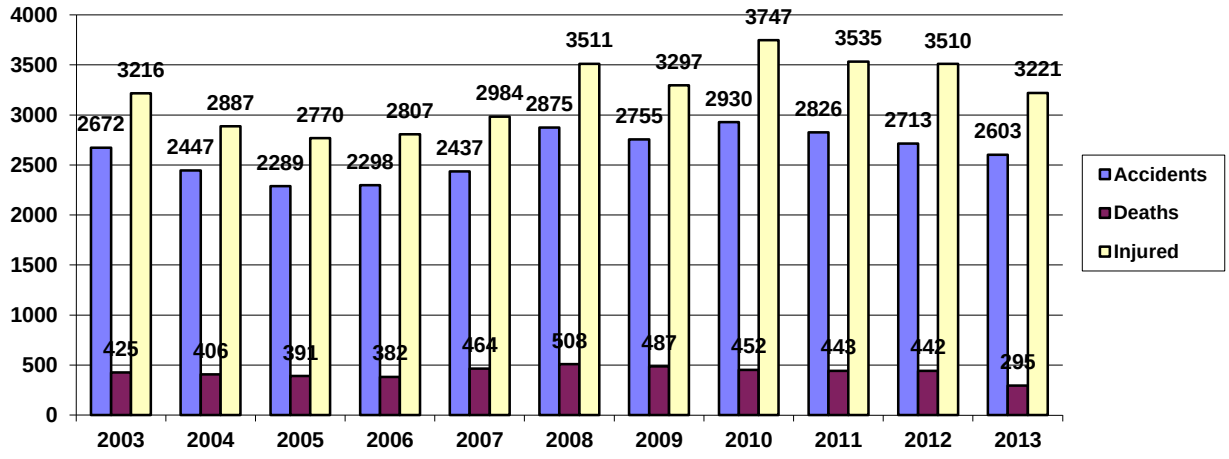

Figure 1.1 recent trends in road crashes, deaths and injuries in Moldova

[4] Reference to be added

1.2 Who gets killed or injured in road crashes and what are the main causes of crashes in Moldova?

1.2.1 Drivers

According to the statistics, the majority of road crashes in both in 2012, 2013 and in previous years were categorized by Police as being the drivers fault[5]. In 2013, the number of road accidents decreased by 6, 3% (from 2435 in 2012 to 2281 in 2013). The number of deaths "caused by drivers" in 2013 decreased by 37, 1%, compared to the recorded number of deaths in fatalities in 2012; the number of injured had decreased by 9, 9% (*see the figure 1.2 below*).

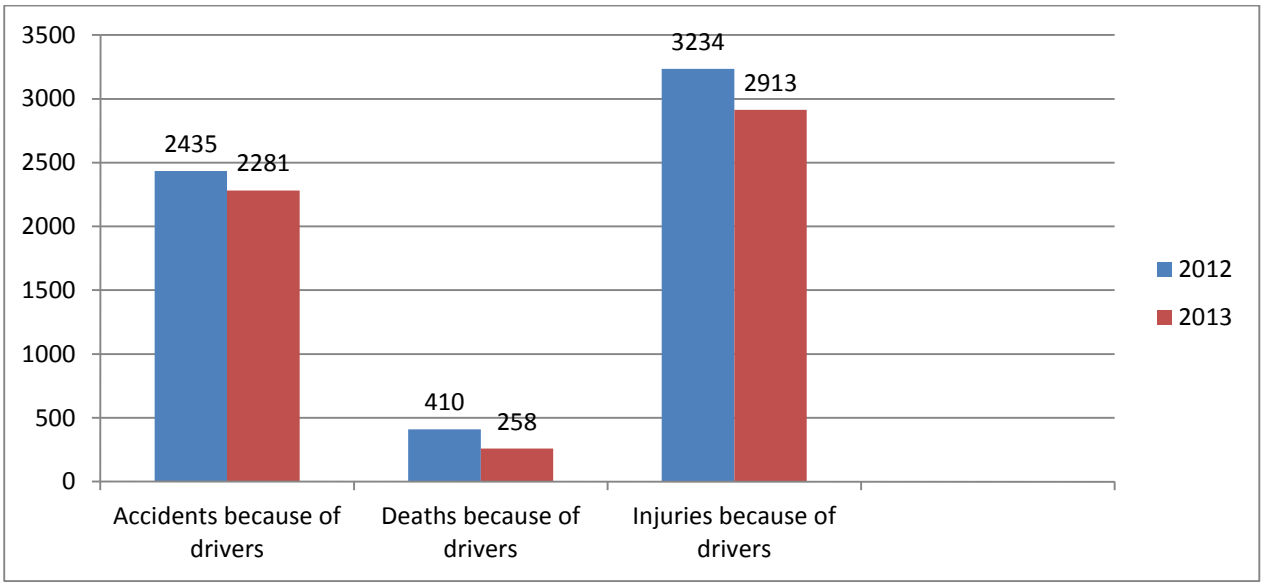

Figure 1.2: Accidents, deaths and injuries where the driver was identified by Police as the "main cause"

1.2.2 Pedestrians

In 2013, most of crashes that were registered by police involved hitting pedestrians - 980 crashes (37.7% out of the 2603 crashes in 2013). These resulted in 103 deaths (35%) and 931 injured people (29%). The number of road crashes involving pedestrians in 2013 increased by 4,81% compared to 2012 but In 2013 but the number of fatalities, involving pedestrians decreased by 21% compared to the recorded number of deaths in 2012. The recorded number of pedestrians injured also decreased in 2013 by 5%. This very significant decrease in pedestrian deaths is further evidence that the efforts of police and others to reduce speed through electronic surveillance appear to be having positive effects on road safety.

[5] Police in every country are prosecution oriented and because they usually do not have technical knowledge of road or vehicle factors , they tend to blame "driver error" instead of asking why the driver made such an error (e.g. was it inadequate or obstructed signs?) so drivers are the usually identified as the main "cause " in most countries.

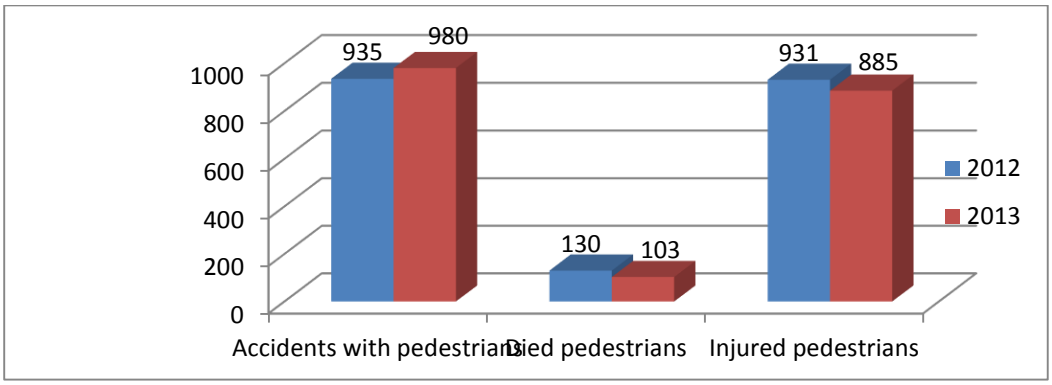

Figure 1.3 Pedestrian crashes, deaths, Injuries 2012, and 2013

An important characteristic of the safety situation on Moldova is that an increasing number of road crashes involving pedestrians, occur on the roads of Municipalities and districts. For example, in Chisinau - 519 crashes (53.0% of all crashes s involving pedestrians), Orhei - 39 (4.0%) Balti - 32 (3 3%), Gagauzia - 30 (3.1%), Cahul and Ialoveni - 29 (3.0%) and Ungheni - 21 (2.1%). Clearly, Chisinau is the urban area, which needs greatest attention and focus in terms of Pedestrian safety.

At national level, in 2013 there were 176 crashes (-9, 74% in comparison to 2012) caused by pedestrians who violated the rules of crossing the roadway and 18% of pedestrians were hit while they were on the road. This resulted in 25 persons dying (-21, 87% compared to 2012) and 155 (-9, 36% compared to last year) people injured. Analysis of road traffic violations committed by Pedestrians in the year 2013 shows that they were as follows:

- crossing the street without looking - 107 crashes (60.8% of all crashes involving pedestrians and their fault);
- crossing the street in prohibited places - 45 (25.6%);
- Unexpected appearance after vehicle barriers - 10 (5.7%);
- Irregular movement/walking on roads - 9 accidents (5.1%).

1.2.3 Children

In 2013 although the number of road crashes involving children decreased by 12,9 % there were still 485 crashes involving children in which 21 children died (- 52,3 % reduction from previous year) and 545 were injured (-10,7 % reduction from previous year). 80 crashes were recorded as involving the child's fault and these resulted in 4 (-42, 9 % reduction since 2013) child deaths and 76 child injuries (-9, 5 % reduction since 2013).

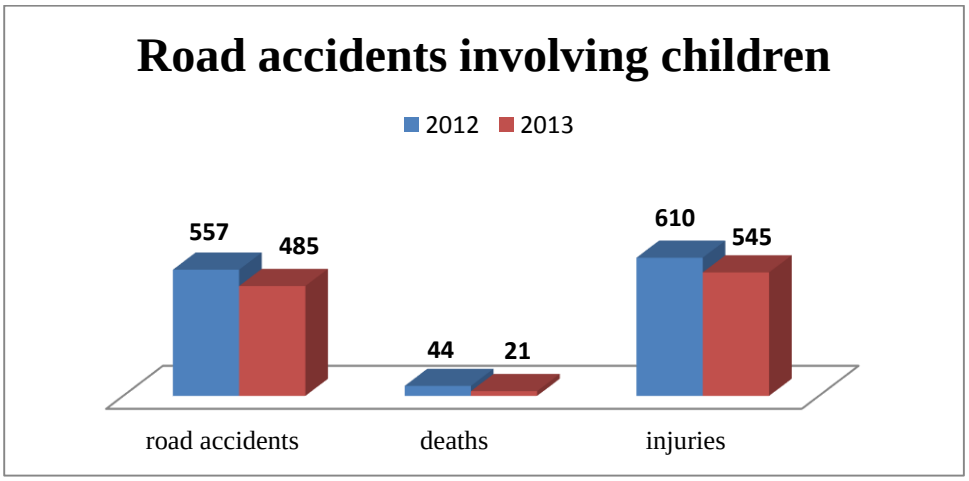

Figure 1.4 Road crashes involving Children

1.2.4 Alcohol usage

During 2013, there were 158 road crashes involving drunk drivers (-8.1%, compared to the figure of 172 in 2012). These resulted in 40 deaths (-25.9%, compared to the 54 in 2012) and 203 (- 14.0%, compared to the 236 in 2012) persons injured.

During 2013, there were 38 (-20.8% compared to the 48 in 2012) road crashes involving drunk pedestrians. These resulted in 11 (+ 83.3%, compared to the 6 in 2012) deaths and 27 (-38 6%, compared to the 44 in 2012 persons injured. It should be noted that the number of road crashes recorded in 2013 as being the fault of drunk pedestrians increased by 83,3% compared to 2012.

1.3 When do road crashes, deaths and injuries happen?

Table 1.1 Road accidents by time of day in 2012 and 2013:

	2012			2013			+,- %		
Time period	**Crashes**	**Deaths**	**Injured**	**Crashes**	**Deaths**	**Injuries**	**Crashes**	**Deaths**	**Injuries**
00.00 – 06.00	**340**	**82**	**488**	**303**	**57**	**425**	-10,88	-30,49	-12,9
06.00 – 08.00	154	42	252	121	18	153	-21,43	-57,14	-39,29
08.00 – 10.00	212	17	287	212	15	297	0	-11,76	3,48
10.00 – 12.00	225	23	306	193	11	233	-14,22	-52,17	-23,86
12.00 – 14.00	244	14	280	243	17	299	-0,41	21,43	6,79
14.00 – 16.00	**291**	**29**	**420**	**267**	**20**	**319**	-8,25	-31,03	-24,05
16.00 – 18.00	**310**	**48**	**359**	**348**	**33**	**423**	12,26	-31,25	17,83
18.00 – 20.00	**381**	**62**	**457**	**369**	**45**	**405**	-3,15	-27,42	-11,38
20.00 – 22.00	289	69	330	305	45	360	5,54	-34,78	9,09
22.00 – 24.00	263	59	321	232	40	292	-11,79	-32,2	-9,03

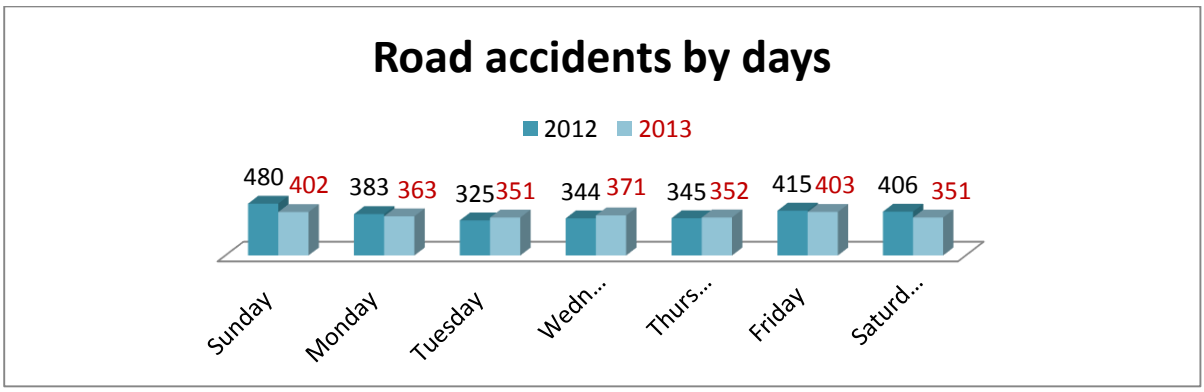

Figure 1.4 Road crashes by day of the week

From the above it would seem that crashes have increased during most days of the working week Tuesday – Friday but have decreased at weekends and on Mondays. Deaths have decreased in every period of the day Injuries too have reduced in most periods of the day but have increased during the morning, lunchtime and evening peak periods when traffic levels are generally higher with workers travelling to from work.

1.4 What are the causes of road crashes in Moldova?

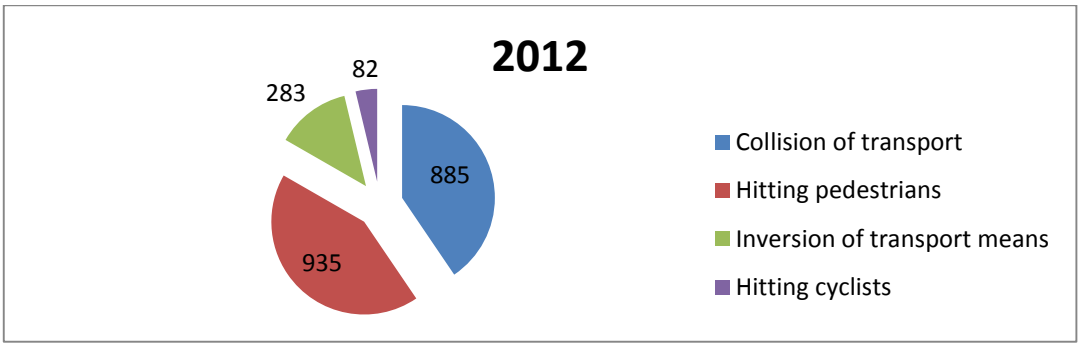

Figure 1.5: Accidents by different categories, 2012

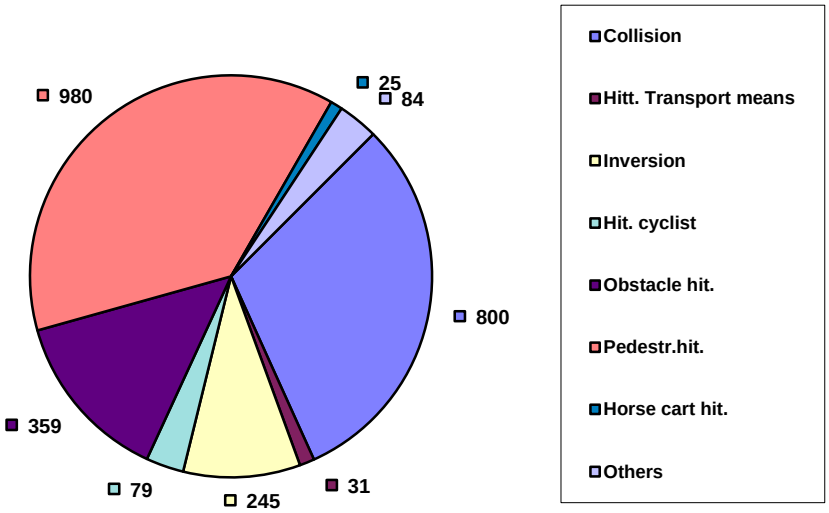

Figure 1.6: Accidents by different categories, 2013

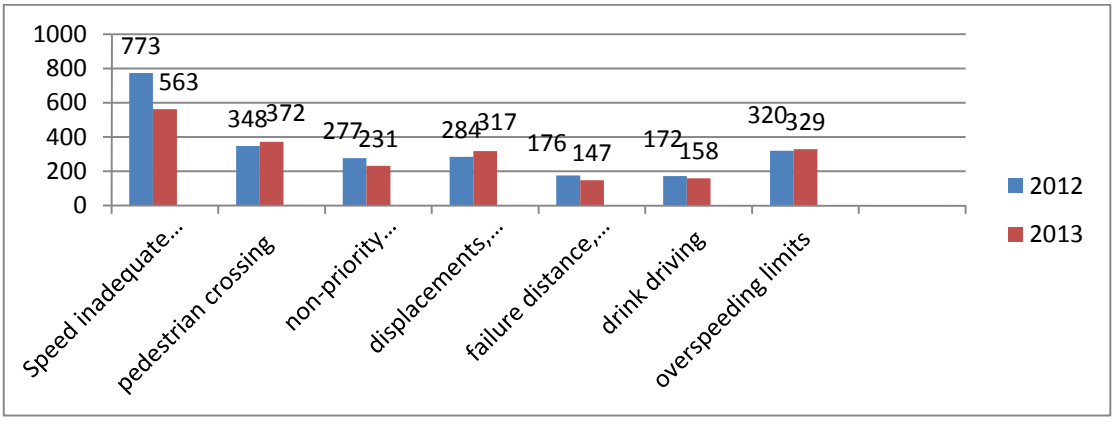

Figure 1.7: The causes of crashes committed by drivers

Out of 2185 crashes in 2012, 925 (42%) Involved pedestrians and out of 2444 crashes in 2013 900 (37%) involved pedestrians so although deaths and injuries have reduced since 2012, pedestrians still remain a major at risk group or road users and contribute towards a significant proportion of the crashes in Moldova.

2. BACKGROUND

2.1 Introduction to Immediate Action Plan

With the help of the EU funded TRACECA regional road safety project, the Ministry of Transport and Ministry of Interior of Moldova and the representatives of key Moldovan institutions have reviewed all sectors of road safety and have developed a road safety immediate action plan for Moldova. **This immediate action plan is not intended to replace any existing long-term road safety strategies or action plans that may already have been developed. Instead, this immediate action plan is intended to remove the obstacles and impediments that are currently preventing effective activity in the key sectors of road safety in Moldova** in order to facilitate more effective interventions and efforts by relevant organisations able to influence road safety. It also identifies the areas for further priority action to continue the excellent work that is already delivering significant reductions in road deaths and injuries in Moldova.

Moldova, although still at a relatively early stage of road safety development appears to have started the process of adopting elements of the best practice "Safe Systems" approach. This seeks to ensure that a holistic and systematic approach is applied in road safety and that efforts are made to ensure safer vehicles, safer roads safer road users and safe support systems. Some good work has already commenced to ensure safer vehicles by introducing a comprehensive vehicle technical inspection system and safer road users are being developed by more effective police enforcement using red light and speed cameras. However, considerable work is still needed in other aspects of road safety and work will need to be done to strengthen capacity, practices and activities in a number of areas before the key systems and knowledge can be in place in other sectors to continue further effective road safety work.

For these reasons, this Immediate Action Plan focuses, primarily on institution building, developing knowledge and capacity, and implementing improved practices and systems to enable more effective road safety work to be undertaken. Analyses of the available data and observations indicates that although some progress has been made in increasing the numbers wearing seatbelts and reducing drink driving, the risk factors of speeding and inadequate protection for pedestrians remain the highest risk factors in Moldova. The Action plan therefore focuses on institution building to develop local capacity and on the key risk factors just to get activities going. In due course, once a new or improved crash data system has been installed, better data analyses being undertaken, data made available to stakeholders and other safety support systems have been put in place, the focus of the action plan can shift if required to any additional local risk factors and identified high risk road user groups based on more detailed sector specific analyses of local data.

The Action plan will:

1. Strengthen the current coordination mechanism by strengthening the existing road safety council by establishing specialist sub committees to oversee implementation of this immediate action plan.
2. Introduce local experts in selected areas to international best practices and to enhance their knowledge and expertise so they can be more affective in addressing road safety issues in their normal work activities.
3. Strengthen the ability of relevant agencies with road safety responsibilities to improve safety by reducing the number and the types of road crashes most frequently contributing to deaths and injuries in Moldova.
4. Encourage stakeholders to continue focussing for the moment on the known highest risk factors which have potential to deliver large reductions in deaths and injuries:
    - Seat belt wearing
    - Speeding
    - Drink Drive
    - Pedestrian safety

Implementation of this Immediate Action plan will be overseen by the interagency road safety council using a Partnership approach, which will enable different government ministries and departments to work together with the Private Sector and civil society/NGO stakeholders. The Inter agency road safety council and interim interagency working group will be responsible for overall coordination, monitoring and implementation of the immediate road safety action plan. The Ministry of Interior and Ministry of Transport will need to decide which of them will chair and which will be the deputy chair of the interagency interim working group until more formal arrangements can be put in place by the Government in Moldova.

Municipal level committees will be encouraged in due course to oversee development and implementation of local authority level road safety action plans.

2.2 Evidence that casualty reductions are possible

There is plenty of evidence that implementing a systematic, scientific safe systems approach can lead to very significant reductions in deaths and injuries. Table 2.1 below shows how a number of ex-Soviet countries with similar organisational structures, systems and constraints to those in Moldova have nevertheless made very dramatic improvements in road safety. They did this by applying the well-proven techniques and approaches that have been developed and applied in EU over the last few decades. Moldova through its recent significant reductions in traffic casualties, has already demonstrated that it is adopting and applying such approaches effectively. There is no reason why experts in Moldova could not continue achieving further success by continuing to adapt and apply such proven approaches so that it too can join the list of ex-soviet countries that are role models for other countries of TRACECA region and who will deliver the UN Target of 50% reduction in road deaths by 2020.

Table 2.1 Ex-Soviet countries who have improved safety significantly by implementing proven EU techniques and approaches to road safety

Country	Road deaths		%Change 2001-2011	Deaths /100.000 population	
	2001	2011		2001	2011
Bulgaria	1011	755	-34.9	12.4	8.9
Czech Republic	1334	802	-47.0	13.0	6.7
Estonia	199	101	-49.2	14.6	7.5
Hungary	1239	638	-48.5	12.1	6.4
Latvia	558	179	-67.9	23.6	8.0

Lithuania	706	297	-57.9	20.2	9.2
Poland	5534	4189	-24.3	14.5	11.0
Romania	2461	2018	-18.0	10.9	9.4
Slovakia	814	324	-47.2	11.6	6.0
Slovenia	278	141	-49.2	14.0	6.9
European Union (EU)	54302	30108	-44.6	11.3	6.0

Source: TRACECA regional road safety Project

As Table 2.1 above shows, Ex-Soviet countries and European Union have demonstrated that it is possible to steadily reduce the fatalities year after year, if effective and determined action is stimulated and coordinated by Government and if appropriate investment is made in road safety interventions. One of the great advantages for Moldova is that it is not alone in facing road safety problems and many other countries in EU including some former Soviet countries with similar systems and structures to those that exist in Moldova have already developed and tested the tools and interventions and identified those that are most effective and applicable in their systems. We can select from the menu of successful interventions implemented in other countries to select those that are most appropriate for Moldovan conditions and current stage of economic and social development. What is clear from the European experience is that setting ambitious targets is very beneficial[6] and even if you do not reach them, they do provide a focus for action and generally lead to much greater reductions than if no targets are set.

2.3 Desired "Safe Systems" outputs if road safety is to be improved

Sector 1: **Institutional issues** Well structured mechanisms and administrative structures in place for Moldova to be more capable of managing, coordinating and monitoring road safety within the national and international contexts.

Sector 2: **Safer roads** Roads authority and road engineers take more responsibility for the Safety of the roads they build and operate so that Modovan Roads and road networks become safer and more "forgiving" to those involved in road crashes.

Sector 3: Safer Vehicles All types of vehicles comply with safe vehicle standards and regulations and adequate controls are in place to ensure that only roadworthy vehicles are permitted to use public roads. Moldova has already made good progress in this sector.

Sector 4: Safer road users All road users know and understand their obligations under the Road Traffic Law, are aware of the main risk factors and how to avoid or minimise liklihood of death or injury in a crash (Moldova has already made good progress in this sector - paricularly on traffic police enforcement to deliver behavioural change which in turn has reduced traffic deaths and injuries)

Sector 5: Post crash care services are timely and highly effective in reducing severity and adverse outcomes of road crash injuries.

Sector 6: Changing Attitudes of government, private sector and communities changes so that all take more responsibility for road safety for themselves,those arround them and those that they can influence.

2.4 Summary of the actions needed in each sector

Sector 1: Road Safety Management

Road safety is a multi-sectoral issue, which requires a multi-dimensional management system and adequate technical and financial resources that allow the responsible agencies to develop and implement appropriate strategies, policies and plans to coordinate the various actors involved in road safety at all levels. It also requires

[6] OECD/ITF, **Towards Zero: Ambitious Road Safety Targets and the Safe System Approach**.`2006

the establishment of appropriate safety support systems such as a crash data system and data analyses that permit the problem to be fully understood and appropriate action to be taken to reduce the numbers of casualties and their severity. Funds are needed for coordination but do not necessarily have to cover all the costs once activities move down to individual municipalities. However, Funds need to be enough to allow sufficient horizontal and vertical coordination activities, cross sector workshops and safety promotion activities at National level and a few demonstration and pilot projects to stimulate road safety activities at all administrative levels within Moldova

The existing National road safety Council in Moldova operates with membership of government and non-government organisations but because there is no permanent secretariat or funding, it is not as effective as it could be. Despite existence of the council there is still little coordination/ cooperation between the key ministries. Although there is a road safety Strategy, there appears to be no designated lead agency to oversee it delivery and special funding to enable its implementation. There is a need to establish a permanent secretariat to support the work of the National road safety Council and a need to establish a mechanism for more sustainable funding of road safety. There would be merit in introducing new safety legislation to designate lead agency to manage / coordinate the national effort to improve road safety, to clearly state the obligations of all government organisations, to establish a permanent Secretariat and to provide the necessary funding to enable the strategy to be implemented. Key tasks will include further strengthening of knowledge and capacity building amongst key sector experts in relevant organisations, improvement to the quality of the police crash database and to make the data more accessible to all stakeholders and general public/NGOs so that safety activities can be decentralised horizontally to individual stakeholders and vertically to Municipalities so they can take action at local level. More road safety research will also need to be initiated within academic and scientific institutions in Moldova. This immediate Action plan should be rigorously monitored and evaluated to ensure that the institutional development goals are being achieved.

Sector 2: Infrastructure:

Infrastructure plays a crucial role in road safety. Well-designed roads can help people use roads safely and minimize the risk that a crash will occur. When a crash does happen, protective and forgiving road infrastructure can mean the difference between life and death. Infrastructure that emphasises traffic calming and that caters to the needs of vulnerable road users (Cyclists ,motorcycle riders, pedestrians, children, peoples with disabilities) is particularly important in Moldova where around 35 % of the deaths and 29% of injuries are to pedestrians. These are amongst the highest percentages of pedestrian deaths in the whole of Europe where pedestrian deaths are typically 10-20% of total deaths.

In this sector, the focus will need to be on engineering solutions, which reduce speed through “traffic calming” measures and speed management, particularly in zones with a high volume of vulnerable road users such as school and residential zones, in build-up areas and in linear villages along major roads. Blackspot, mass action and route action improvement programmes should be implemented along the main road network to improve safety on the existing roads. The recommendations of the EU Directive 2008/96 EC on road safety infrastructure management should be implemented by the State Roads Administration and it should be compulsory for each level of roads administration report annually on road safety of their network and to implement road Safety Audit and Road Safety Inspections on main and local roads. More road engineers should be trained in carrying out such safety activities and safety audits should be compulsory on all future road design and infrastructure projects. There should also be systematic analyses of crash data to identify the most dangerous locations on each level of road network and implementation of hazardous locations (Blackspots) improvement programmes on each network by the responsible level of roads administration.

Sector 3: Safe Vehicles

Improvements to the crash protection and safety features in vehicles have been proven to reduce the number of road deaths and serious injuries. In recent years, there have been significant advances in vehicle safety that protect occupants and other road users and improves the ability to avoid crashes. Increasing the proportion of newer vehicles on roads with high standard safety features, both of company fleets and privately owned vehicles will substantially reduce risks for all road users – drivers, passengers, motorcyclists, pedestrians and cyclists.

However, in this sector, the current economic environment in Moldova suggests that older vehicles and second hand cars will remain a major part of the fleet for the foreseeable future and it is important that we ensure such

vehicles are safe to be on the road. It is therefore particularly encouraging that Moldova has recognised this danger and appears to have already established one of the best vehicle technical inspection systems in the whole of TRACECAA region. This helps to ensure that such vehicles are road worthy before they are allowed to use the roads in Moldova. This system should include random roadside checks and UN announced checks/supervision of the testing stations to minimise corruption and illegality.

Sector 4: Safe Road User Behaviour

All road users share responsibility to use the road system safely and responsibly, and with consideration for other road users. To change the behaviour of the various road users and to protect vulnerable road users, awareness must be increased and attitudes changed of the citizens who use the road. Road users need to be made aware of the main risk factors that increase the probability of road crashes and the risk of them or others sustaining fatal or serious injuries so that they modify their behaviour to minimise such risks.

In this Sector, it is necessary to target the main "risk" factors, identified from analyses of the available data and from observations while using the roads in Moldova. These include, speeding, drink driving, mobile phones and texting when driving and inadequate facilities for pedestrians. Activities will need to include general public education through the various media channels. In addition, there is a need to develop and introduce an age specific road safety curriculum for different classes in schools. Many of the education campaigns should be linked to enforcement actions to maximise their impact.

Vulnerable Road Users include children, pedestrians, motorcyclists, bicyclists, the elderly and people with disabilities. This group of road users (especially pedestrians, suffers disproportionate amount of deaths and injury in the road system in Moldova (38 % of crashes and 35 % of deaths involve pedestrians). This is mostly due to the increased risk they face when travelling on a road system that does not adequately protect them. For example, children often have to cross busy roads without any central refuges to get to school, pedestrians often have to walk along the road because there is no footpath facility for them, and speeds of vehicles are often far too high as they pass through urban areas and especially through linear villages along major roads. Motorists traveling at 80 Kph kph or more through urban areas and linear villages is highly dangerous and must be changed The probability of death occurring to a pedestrian increases rapidly with speed of the vehicle . At 32kph only 5 % of those hit will die, at 60 kph around 38% will die but at 80 Kph 100% will die The reason why so many pedestrians die on Moldovan roads could be because of the very high the speeds that still occur in built up areas – especially rural linear settlements through which rehabilitated roads pass -although the increase use of speed cameras and traffic police surveillance should eventually lead to greater respect of speed limits and reduced pedestrian deaths.

This sector will need to focus on addressing the risks posed to vulnerable road users. Safe school zones should be established throughout the country for children, safe crossings and speed reduction measures should be applied in areas where large numbers of pedestrians can be expected. Car occupants should be targeted particularly on seatbelt wearing and the existing methods of driver training/testing and the enforcement of standards will need to be strengthened and steadily improved.

Sector 5: Post-Crash Care

The likelihood of dying from a serious injury resulting from a road traffic crash is still too high in Moldova. Absence of a single nationwide emergency number and uncoordinated action by rescue services can result in delays in getting urgent treatment to critically injured victims. Each 10 minutes of delay in extracting a severely injured person from a crashed vehicle can reduce chances of survival by 10 %. Thus, many people may be dying needlessly because of the insufficient first aid being available at the scene, slow extraction of injured persons from the damaged vehicle, slow transport to a health centre or hospital, and in some cases, insufficient medical help at the health centre or hospital.

The key principle in this sector is to provide initial stabilization of the injured party during the golden hour (i.e. the first hour after injury). Thus, one approach for Moldova to consider could be somehow to expand the numbers of 1st aid trained persons by mobilising those who are most frequently on the road. Increasing the 1st aid capability of commercial drivers who are frequently on the road or first responders such as traffic police or community volunteers can make a significant impact on the time taken to get basic lifesaving 1st aid to stabilise a traffic victim. A particularly important initiative will be to have joint training of ambulance, police and rescue crews in order to reduce the extrication time for injured victims. The Ministry of Health pilot project in North Region will provide some insights into how the EMS system can best be improved.

Sector 6 Changing attitudes

This is an essential component of a more systematic approach where road safety has to be made everyone's responsibility and not just something, that government gives you. Every individual has the opportunity to influence those around him ranging from protecting himself, protecting and influencing his immediate family, influencing his wider family of relations, to friends and acquaintances, to people in his neighbourhood, to people he works with or who he employs. Attitudes to safety will need to be changed in Government, in private sector and amongst the general public.

Safety has to be made everyone's business as all can make a contribution towards its improvement. and even the attitudes to and acceptance of unsafe behaviours by family and friends and others also has to change to visible and stated disapproval. Those who are anti- social (eg speeders, drink drivers, those ignoring traffic lights ,users of mobiles or those texting when driving) are putting the law abiding citizens at risk and imposing very high costs (e.g. hospital treatment of those injured) upon Moldovan taxpayers which are estimated to be around US$ 198 million/year (3.4 % of Moldova's annual GDP) Such anti-social persons should be made to feel that such behaviour is no longer unacceptable and that they are fools for engaging in such behaviour. In addition, they should be heavily fined and punished for putting others at risk and imposing unnecessary costs upon the taxpayers in Moldova.

2.5 Concluding remarks

This proposed immediate 3-year action plan is based on an assessment of each sector. It was developed by local Moldovan experts drawn from all the key stakeholders in cooperation and discussion with international experts of the EU funded TRACECA road safety project. This plan tries to identify the most urgent needs in Moldova. Appendix A presents the Action Plans for each Sector, Appendix B presents impact indicators that can be used to assesses institutional impact of this immediate action plan. These were used in the initial benchmarking exercise and will be used to monitor "institutional impact" as the project proceeds.

The proposed total road safety investment required in Moldova over the 3 year period is around Euro xx millions. This is a very modest investment given the very high returns that are likely to be achieved .In addition it must always be remembered that road crashes are already costing Moldova **over $US 198 Millions** each year (2.8 % of annual GDP). Therefore **inaction is not an option** as failure to react appropriately and to invest in road safety will result in such losses continuing into the future, year after year.

II APPENDICES

APPENDIX A: ACTION PLANS FOR EACH SECTOR

DRAFT

Sector 1: Institutional strengthening
Sector 2: Safer Roads
Sector 3: Safer Vehicles
Sector 4: Safe road user Behaviour
Sector 5: Emergency Medical Services
Sector 6: Changing Attitudes

To be developed further by local Moldovan stakeholders with assistance from TRACECA Road Safety Project team

1. INSTITUTIONAL IMPROVEMENTS (MOLDOVA)

IMPACT INDICATORS	% of ACH	Actions required witrh time frame	Estimated costs	Lead Stakeholder	Stakeholders involved
1	2	3	4	5	6
Compliance with, accession, ratification and implementation of UNECE Conventions and EU Agreements					
1.1 ADR 1957					
1 Accede to agreements					
2 Translation to local language	100	Nil			
3 Review existing legislation	100	Nil			
4 Ratify and publish	100	Nil			
5 Training/capacity development	100				
6 Regular checks	100	Nil			
7 UNECE Working parties	100	Nil			
	0	7.1 Relevant Moldovan experts attending WP meetings by Sep 15 7.2 Moldovan experts contributing to work of WP BY Dec 15			

Agreements **1.2 Vehicles Regulations Agreement 1958** 1 Accede to agreements 2 Translation to local language 3 Review existing legislation 4 Ratify and publish 5 Training/capacity development 6 Regular check 7 UNECE Working parties	0 0 0 0 0 0 0	CHECK THE SCORES LOOK TOO LOW GIVEN THE TECHNICAL INSEPCTION SYSTEM IN PLAC E IN Moldova 5.1 Training needs study completed by Jun 15 5.2 training courses developed /available by Dec 15 5.3 Relevant persons in key organizations being trained by Apr 16 7.1 Relevant Moldovan experts attending WP meetings by Sep 15 7.2 Moldovan experts contributing to work of WP BY Dec 15			
1.3 Convention on Road Traffic 1968 1 Accede to agreements 2 Translation to local language 3 Review existing legislation 4 Ratify and publish 5 Training/capacity development 6 Regular check 7 UNECE Working parties	100 100 100 100 100 100 0	Nil Nil Nil Nil Nil Nil 7.1 Relevant Moldovan experts attending WP meetings by Sep 15			

		7.2 Moldovan experts contributing to work of WP BY Dec 15			
1.4 Convention on Road Signs and Signals 1968					
1 Accede to agreements	90	Nil			
2 Translation to local language	90	Nil			
3 Review existing legislation	90	3.1 Introduce a programme of systematic removing /replacing non-compliant signs			
4 Ratify and publish	90	Nil			
5 Training/capacity development	90	Nil			
6 Regular check	90	Nil			
7 UNECE Working parties	90	7.1 Relevant Moldovan experts attending WP meetings by Sep 15 7.2 Moldovan experts contributing to work of WP by Dec 15			
1.5 AETR 1970					
1 Accede to agreements	10	Check this section scores look too low ??			
2 Translation to local language	10	3.1 New code to be published 12/17			
3 Review existing legislation	10	3.2 Domestic traffic cooperating AETR BY 03/18			
4 Ratify and publish	10	3.2 Domestic manufacture of Tacheographs to EU Directives 3020 and 3021 by Sep 18			
5 Training/capacity development	10				

6 Regular checks 7 UNECE Working parties	10 10	5.1 Training needs study completed by Jun 15 5.2 training courses developed /available by Dec 15 5.3 Relevant persons in key organizations being trained by Apr 16 6.1 System exists for reporting noncompliance by Jul 15 6.2 System reviewed every 2nd year to ensure effectiveness 7.1 Relevant Moldovan experts attending WP meetings by Sep 15 7.2 Moldovan experts contributing to work of WP BY Dec 15			
1.6 AGR 1975 1 Accede to agreements 2 Translation to local language 3 Review existing legislation 4 Ratify and publish 5 Training/capacity development 6 Regular checks 7 UNECE Working parties	100 100 100 100 100 100 100	Nil Nil Nil Nil Nil Nil Nil			
1.7 Agreement on technical inspections 1997 1 Accede to agreements 2 Translation to local language 3 Review existing legislation 4 Ratify and publish	10 10 10	Check this as scores look far too low / wrong given the good technical inspection system in Moldova most of this already being done			

5 Training/capacity development 6 Regular checks 7 UNECE Working parties	10 10 10 10	7.1 Relevant Moldovan experts attending WP meetings by Sep 15 7.2 Moldovan experts contributing to work of WP BY Dec 15			
Multidisciplinary Road Safety agency 1. Legislation exists 2. Coordination body established 3. Fully staffed and funded Secretariat exists 4. Reliable, sustainable safety funding mechanism in place	50 70 25 50	1.1 Legislation amended re lead agency , secretariat and funding by end 01/15 1.2 Legislation enacted by end 3/15 2.1 Existing council coordination reviewed /improved by3/15 2.1Lead agency specified and responsibilities of all clarified by 3/15, 3.1 permanent secretariat established to support road safety council by 6/15 3.2 Technical support group established (at Director level) to oversee implementation of council decisions by 09/15 4.1 Review international best practice in funding safety by 2/15 4.2 Identify best models of financing to apply in Moldova by 4/15 4.3 Mechanism established for sustainable funding of road safety by 6/15			
Implementation of National Road Safety Strategy 1. Strategy is developed 2. Stakeholders consulted 3. Strategy approved by Government	100	Nil			

4. Implementation commenced	100 100 15	nil nil 4.1 Rd safety Council (RSC) adopt strategy as broad direction of activities by 12/14 4.2 Media and Govt made aware of the huge annual economic losses occurring by 06/15 4.3 Govt assists / facilitates establishment of funding to implement strategy 08/15 4.4 Implementation being funded by 12/15			
Realistic and long term targets for road accident reduction 1. Realistic long term targets in place 2. Action plan prepared to deliver targets 3. Action plan being implemented 4. Progress towards targets being monitored	100 100 50 50	nil nil 3.1 Create the mechanism of independent monitoring. by 03/15 3.2 priority elements of Existing action plan(if any) added into immediate action plan by 03/15 3.3 Govt. approval of a State road safety programme by 04/15 4.1 Monitoring system established for action plan by end 6/15 4.2 RSC reporting progress quarterly to Govt. transport Committee by 9/15			

Long term sustainability of road safety development 1. Annual losses to economy quantified 2. Road Safety funding mechanism exists 3 Budget being allocated for road safety improvement 4 Monitoring demonstrates effectiveness of investments in road safety	0 50 50 50	1.1 Research completed to quantify losses by end 06/15 1.2 Costs available for use in cost benefit analyses by end 09/15 2.1 Road safety Fund established by end 12/14 2.2 Insurance levy on Third party policies goes into road safety fund by end 03 /15 2.3 other streams of income agreed for road safety by end 6/15 2.2 Improve mechanism of tasks performances. 3.1 Govt ministries have a budget item for road safety by 12/15 3.2 Ministries implementing interventions in their areas by 06/16 4.1 Independent monitoring of effectiveness of investments by 09/15 4.2 Annual report published on effectiveness of safety interventions by 12/15			
Establish a mandatory road user insurance scheme 1. Compulsory third party motor insurance exists 2. Enforcement and penalties in place for uninsured vehicles 3. Number of uninsured vehicle minimized	100 100 80	Nil Nil 3.1 annual exchange of information MIA / Motor vehs Bureau by 12/15. 3.2 Require show of Insurance. certificate at (??) annual licensing 12/15 3.3 Increased police random road side checking of documents by 12/15			

Establish requirements for the issuing of driving licenses based on international best practice 1. Adequate theoretical testing in place 2. Adequate practical testing in place 3. Commercial drivers need to pass further tests 4. System complies with best international practices	100 70 80 50	1.1. Seek technical Assistance via EU TAIEX programme to review needs to meet EU requirements for the issuance of driver's licenses. by end 12/14 1.2. Develop and implement EU compliant theory tests by 6/15 1.3. Complete Training for instructors and examiners by 12/15 2.1 Develop and implement EU compliant practical tests by 6/15 2.2 Complete Training for instructors and examiners by 12/15 3.1 require cert of competence for new commercial drivers by 12/15 3.2 existing commercial drivers to pass CoC by 12/17 4.1 System adopted complies with relevant EU directives/ guidelines			
Data collection and evaluation is unified in the region 1. Common core items to be agreed and identified 2. Agreed accident data being collected via police accident forms 3. An adequate data storage system is established	70 80 50	1.1 Collaboration with others via TRACECA project by end 6/15 1.2 Traceca project expert reviews needs by end 6/15 2.2 Crash data form reviewed to meet all stakeholder needs by 12/15 3.1 System reviewed and improvements recommended by 12/15			

4, Adequate data retrieval and analysis system established 5. Adequate data dissemination system is established 6. Crash data accessible to all stakeholders for further analysis 7. Crash data system enables effective analysis of crash causes and remedial measures	80 50 50 70	4.1 System reviewed and improvements recommended by 12/15 5.1 System reviewed and improvements recommended by 12/15 6.1 Data available and accessible for further analyses by stakeholders by 12/15 7.1 police and stakeholders able to do further analyses to identify high risk road users and high risk behaviours by 12/15			
A common system is established for monitoring and evaluating the outcome of defined measures 1. Regional Working group established 2. The impacts to be monitored are agreed 3. Impact monitoring system is established 4. Quarterly monitoring progress reports being circulated 5. Effective strategic management of implementation	10 20 20 20 20	1.1 Regional data group established by 12/15 2.1 impacts indicators for monitoring agreed by 03/15 3.1 Impact monitoring system established by 03/15 4.1 Quarterly reports available / circulated by 06/15 5.1 coordinating group reviewing progress and taking action where progress falling behind by 9/15			

Reviewed and improved road signing systems 1. Signing/standards reviewed 2. Needs and deficiencies identified 3. A program for improvement developed 4. The budgets needed estimated	50 30 30 20	1.1 rod lw changed as necessary to enable improvements 1.2 Existing signing / marking standards reviewed by end 6 /15 2.1 Areas of deficiency identified by end 6/15 3.1 a programme for implementing improvements devised by 9/15 4.1 Prioritise local roads in programme 4.2 budget estimated by 12/15			
Implemented road safety audit (RSA) principles and practices in the design and construction of the existing and new roads 1. Participation in discussions held at Regional level to establish a common RSA approach 2. Implementation of the RSA policies at national levels agreed 3. Participation in discussions for RSA accreditation system developed for region 4. Participation in discussions for preparation of Regional RSA Manual developed 5. Regional RSA Training courses developed	0 0 0 0 0	1.1 Discussions held between roads agency heads by 04/15 1.2 Regional guidelines of RSA in use by 06/15 2.1 RSA policy implemented by 06/15 2.1 RSA s being undertaken in compliance with policy by 12/15 3.1 Road agencies discuss mutual recognition of traceca project trained RSA instructors and accreditation of auditors by 12/15 4.1 Comments made to development of regionl RSA manual by 03/15 4.2 regional RSA manual in use by 12/15 5.1 National RSA course being run 2 times / year by 6/15			

6. RSA trainers trained 7. In country RSA training programs established	0 0	5.2 TRACECA project trained and certified RSA instructors offering regional training courses by 12/15 6.1 at least 3 RSA trainers trained by 12 /15 6.2 At least 10 Road safety auditor trained by 12/ 16 7.1 RSA Training course being implemented at least once a year by 6/15 7.2 Regional society of road safety auditors formed 7/16			
Best practice in road safety shared throughout region 1. TRACECA Road Safety Working Group Established 2, Shared database of Manuals, procedures, standards compiled 3. Annual conferences of best road safety practice organized	0 0 0	1.1 At least 3 sector specific regional working groups by 06/15 2.1 TRACECA countries sharing knowledge via regional working groups by 11/15 2.2 database / repository established for sharing documents / Manuals by 12/15 3.1 At least 1 regional road safety sector meeting / conference by 09 / 15 3.2 Regional working groups agree to hold Annual conferences by 12/15			
Harmonized driving penalties in the region 1. Study existing penalty systems in countries 2. Discuss possible common penalty system across the Region	0	1.1 Seek EU TAIEX assistance to review penalty systems by 09/15 1.2 Produce recommendations for a system by 12/15 2.1 Police in 10 countries to have discussed common penalty system by 12/15			

3. Establish common data system about violations 4. Mutually recognized sanctions being applied across the Region	0 0 0	3.1 Provide access both for the traffic police officers and researchers / universities to fines/ penalties y data base by 09/15 3.2 Police forces across 10 countries discuss possibility of common violations data system by 12/15 4.1 Police discuss and mutual recognition of sanctions across region by 12/15 4.2 Police introduce mutual recognition system y 12/16			

2. SAFER INFRASTRUCTURE (MOLDOVA)

IMPACT INDICATORS	% of ACH	Actions required with time frame	Estimated costs	Lead Stakeholder	Stakeholders involved
1	2	3	4	5	6
Implementation of road safety audit/ assessment 1. Legal basis for RSA 2. Adequate manual in use 3. Trained road safety auditors available 4. Road Authorities have budget to purchase RSA 5 All new, reconstructed and rehabilitated roads being safety audited	80 0 0 100 70	1.1 finalise law no 31 by 3/15 1.2 Coordination with concerned departments; 2/15 1.3 Consideration and approval by 5/15 2.1 Develop RSA policies and Procedures by 6 /15 2.2 regional manual accepted in Moldovan law by 8/15 2.3 Coordinate/ consult with interested others by 8/15 2.4- Register in the relevant ministry by 11/15 3.1 .TRACECA trained auditors training others by 06/15 3.2 MoE approved RSA training courses available at least once / year by 10/15 3.3 RSA training institutionalised by 12/15 4.1. roads agencies include budget for RSA by 06/15 4.2 RSA being commissioned from consultants by 12/15 4.3 Consultants sending staff for RSA training by 12/16 5.1 Amend legislation as necessary by 06/15 5.2 all road authorities required to do annual report on road safety by 12/15 6.1 If RSA recommendations not implemented road authority must do explanatory report by 12/15		1.1Ministry of transport and Road Infrastructure and State Road Administration 1.2 Ministry of transport and Road Infrastructure 1.3 Ministry of transport and Road Infrastructure and Ministry of education 1.4 State Road Administration 1.5 State road Administration 1.6 Local Public Administration	1.1All relevant ministries 1.2 Ministry of transport and Road Infrastructure and Ministry of education 1.3 Ministry of transport and Road Infrastructure and State Road Administration 1.4 State Road Administration and Local Public Administration(2 level); Companies for building and projecting. 1.5 Organizations specialized in relevant spheres. 1.6 Organizations specialized in relevant spheres.

6 RSA Recommendations being implemented by Roads Authority	70				
Implementation of Blackspot management 1. Legal basis for BSM 2. Adequate BSM Manual in use 3. Trained black spot investigators available 4. Annual hazardous improvement program in place	80 0 0 70	1.1 prepare legislation by 04/15 1.2 Coordination with concerned departments; 05/15 1.3 Approval by 06/15 2.1 Develop BSM policies and Procedures by 6/15 2.2 regional manual accepted into Moldovan law by 8/15 2.3 Coordinate/ consult with others by 9/15 2.4- Register in relevant Ministry by 10/15 3.1 .TRACECA project trained BSM Instructors training others by 07/15 3.2 BSM training available at least once / year by 12/15 3.3 BSM training institutionalised by 12/15 4.1. roads agencies include budget for BSM by 10/15 4.2 Blackspot investigations being commissioned from consultants by 03/16 4.3 Consultants training their staff in BSM by 12/15 4.4 Annual BSM programmes in place at each road authority by 12/15 5.1 road authority have budget line for BSM by 10/15		2.1Ministry of interior ; Ministry of transport and Road Infrastructure 2.2State road Administration 2.3 Ministry of interior Ministry of transport 2.4 Ministry of interior State road Administration 2.5 State road Administration 2.6 State road Administration	2.1 Educational agency; Ministry of interior. 2.2 Ministry of interior; Local Public Administration; Ministry of transport; 2.3 State road Administration ; National Patrol Inspection; Ministry of transport and Road Infrastructure; 2.4 Administration of using local roads 2.5 – 2.6 Ministry of interior; Ministry of transport and Road Infrastructure;

5. Road Authorities has dedicated funds for BSM improvements 6. BSM recommendations being implemented by Roads Authority	70 80	5.2 all road authorities required to do annual report on road safety by 12/15 6.1 If Blackspot investigation recommendations not implemented road authority must do explanatory report at year end by 03/16 6.2 Monitoring of BS implementation and reported annually by 03/16 6.3 Review of BSM processes / procedures at 2 yearly intervals by 12/16			
Implementation of the program to define routes for freight avoiding residential areas 1. Legal framework exists 2. Freight traffic surveys done to assess needs 3. Alternative routes defined 4. Signing and markings placed 5. Effective enforcement of commercial vehicle routes	10 90 90 70	1.1 Modify and update law No 509 by 06/15 1.2 Modify update 1073 by 06/15 2.1 Needs assessment completed by 6/15 3.1 Freight routing strategy devised by 12 /15 3.2 Freight routes identified i n 2012 being implemented by 6/15 3.3 Unloading terminals identified and implemented by 12/17 r 4.1Annual Programme of freight route signing devised by 06/15 4,2 Programme of fr eight route signing commenced 12/16 4.3 Advertising signs within “right of way” removed from all roads by 12/17 5.1 Penalties for not using freight routes increased by 12/15		3.1 Ministry of transport and Road Infrastructure 3.2 Ministry of transport and Road Infrastructure; The main inspection of public transport; Local Public Administration; 3.3 Ministry of transport and Road Infrastructure; State road Administration 3.4 Ministry of transport and Road Infrastructure; State road Administration; 3.5 Ministry of transport and Road Infrastructure; State road Administration; Ministry of Economy; 3.6 Local Public Administration	3.1 Administrators of the roads 3.2 Ministry of transport and Road Infrastructure 3.3 National Agency of transport; 3.4 Local Public Administration; Users of the roads; Ministry of interior; 3.5 Administrators of the roads; Ministry of transport and Road Infrastructure; Transporters; Civil society; 3.6 Users of the roads; Advertisement Agency;

6. Commercial through traffic in residential areas reduced	10 80	5.2 Police enforcing non use of freight routes by 06/16 6.1 Freight surveys show lower numbers of commercial vehicles s in urban areas by 06/17			
Cost effective measures by local road authorities 1. Updated cost of crashes and casualties known 2. Cost/Benefit of safety interventions is available 3. Ranking/Prioritization for improvement is done on basis of Cost/Benefit analysis	10 50 10	1.1Economic researchers commissioned and guided to do research by 12/15 1.2 Crash costing research completed by 07/15 2.1 costs of different severity of crash known by 08/15 2.2 Cost of different severity of casualty known by 08/15 3.1 Interventions being assessed using cost benefit analyses (CBA) by 09 /15 3.2 ranking based on CBA by 10/15		4.1 Experts 4.2 State road Administration 4.3 Ministry of transport and Road Infrastructure; State road Administration 4.4 Ministry of transport and Road Infrastructure; State road Administration;	4.1 Ministry of interior; Ministry of transport and Road Infrastructure; Ministry of health; 4.2 Users of the roads; 4.3 Users of the roads; 4.4 Ministry of interior; Ministry of health; Users of the roads;

4. Most hazardous locations are being systematically improved via annual programs	30	4.1 Adequate annual Blackspot improvement budgets for 30 blackspots improvement on their network within each roads authority by 12/15 4.2 Blackspots improvement prioritised on basis of CBA by 11/15 4.3 BS budgets being used most cost effectively by 01/16			
Availability of safe and secure off-road parking for trucks 1. Legal framework 2. Freight transport surveys done to identify parking needs 3 Potential parking sites defined 4.Direction Signing and markings placed 5 Safe secure off-road parking for trucks available and in use on major routes	80 0 50 50 20	1.1 Develop and approve the state target program of construction and arrangement of parking areas for freight vehicles by 06/15 1.2 Amend the norms and update standards to international best practice by 12/15 2.1 Survey completed by 06/15 3.1 Report identifies potential sites along main roads by 12/15 4.1 Signing needs assessed by 12/15 4.2 Systematic programme of signing initiated by 06/16 5.1. Three yearly review of needs occurring by 12/15 5.2 Planned programme of provision by 12/16		5.1 Ministry of transport and Road Infrastructure 5.2 Experts 5.3 Ministry of transport and Road Infrastructure; Local Public Administration; Cadastral Register 5.4 Ministry of transport and Road Infrastructure; State road Administration; 5.5 Ministry of transport and Road Infrastructure; State road Administration;	5.1 companies of transport and logistics. 5.2 Transport companies 5.3 Transport companies 5.4 Users of the roads 5.5 Transport companies; Users of the roads;

Building the capacity of engineers and technical staff 1. Adequate Manuals/Guidelines for safety engineering produced 2. Selected Government, Consultants and Academic staff trained 3. Curricula for University courses produced 4. Students being taught about safe design approaches during their studies	20 10 10 50	1.1Roads administration to be member of PIAR b 06/15 1.2 Acquire, translate + circulate PIARC guides by 12/15 1.3 Adopt TRACECA regional RSA manual by 06/15 1.4 Adopt TRACEC regional BSM manual by 06/15 2.1 RSA and BSM course available in Moldova by 12/15 2.2 TRACECA trained instructors running course by 12/15 2.3 consultants and academics being trained by12/15 2.4 courses self-financing by 12/15 3.1 university assisted to develop curriculum by 06/15 3.2 lecture materials developed for universities by 12/15 4.1 Road safety included in engineering courses by 12/15 4.1 Graduating engineering Students aware of safety issues by 12/16		6.1 Ministry of transport and Road Infrastructure; Ministry of education; 6.2 Ministry of transport and Road Infrastructure; 6.3 Ministry of education; 6.4 Ministry of education; Ministry of transport and Road Infrastructure;	6.1 State road Administration ; Institutes of Projecting; 6.2 Institutes of Projecting; Relevant Educational Establishments 6.3 Technical University; Policy Academy; 6.4 Relevant Higher Education Institutes;

3. SAFER VEHICLES (MOLDOVA)

IMPACT INDICATORS	% of ACH	Actions required with time frame	Estimated costs	Lead Stakeholder	Stakeholders involved
1	2	3	4	5	6
Vehicles regularly checked for technical requirements 1. Int. convention ratified 2. Legal basis for vehicle inspection 3. Manual for vehicle inspection in use 4. Trained certified mechanics doing vehicle inspections 5. Government certified/regulated workshops and inspection stations 6. Regulatory agency adequately funded 7. Number of defective vehicles in traffic reduced	100 100 90 90 100 60 30	1.1 Nil 2.1 Nil as government decision 10\47 of traffic rules 150 dated 2014 3.1 review and update manual as needed by 12/15 4.1 Improve certification process by 09/15 4.2 supplementary courses for mechanics, 03/16 5.1 Nil as Inspection stations all have modern equipt 5.2 All stations quality controlled effectively 6.1 Review of funding and equipment needs completed by 06/15 6.2 Recommendations of review implemented by 06/16 7.1 Periodic random roadside checks being conducted to quantify incidence of defective vehicles by 12/15		1.1 Ministry of interior 1.2 Ministry of transport and Road Infrastructure 1.3 Ministry of interior 1.4 Ministry of transport and Road Infrastructure; Ministry of interior 1.5 Ministry of transport and Road Infrastructure 1.6 Ministry of transport and Road Infrastructure 1.7 Ministry of transport and Road Infrastructure	1.1 Ministry of interior; Ministry of transport and Road Infrastructure; 1.2 Ministry of transport and Road Infrastructure; Ministry of interior; 1.3 Ministry of transport and Road Infrastructure; Ministry of interior; 1.4 National Agency of Vehicles 1.5 National Agency of Vehicles 1.6 National Agency of Vehicles 1.7 National Agency of Vehicles
Internationally recognized vehicle safety regulations applied to imported vehicles 1. Imported vehicles meet International (UNECE) standards	100	1.1 Legislation reviewed to ensure compliance with UNECE standards for imported vehicles by 06/15		2.1Ministry of transport and Road Infrastructure 2.2Ministry of transport and Road Infrastructure 2.3Ministry of transport and Road Infrastructure	2.1Border service, Ministery of Ecology 2.2 Autodillers, Ministry of Ecology 2.3 Autodillers, Border service, Ministery of Ecology

2. Legal basis exists to prevent import of unsuitable/ unsafe vehicles 3. Adequate controls to prevent import of fake spare parts	100 30	2.1 Legislation to prevent import of unsafe vehicles by 06/15 3.1 Standards agency do random checks of spare part imports by 12/15 3.2 Sever penalties for importers of fake parts by 06/16			
Vehicles used to transport dangerous goods meeting the standards of all technical requirements 1. ADR certified vehicles 2. ADR certified drivers 3. Emergency services have had special training to respond to/deal with ADR accidents	90 90 80	1.1 All TIR members checked and certificated by 12/15 1.2 review resources needed for control by 12/15 2.1 review and improve system of driver checking by 12/15 3.1 Police trained in ADR by 12/15 3.2 Rescue /fire crews trained in ADR by 12/15 3.3 Emergency medical personnel trained in ADR by 12/15.		3.1 Ministry of transport and Road Infrastructure 3.2 Ministry of transport and Road Infrastructure 3.3 Ministry of interior	3.1National Agency of Vehicles; Agency of transportation. 3.2 National Agency of Vehicles; Agency of transportation. 3.3 Department of civil protection from emergency setuations; Road's users; National Agency of Vehicles

4. SAFER ROAD USERS (MOLDOVA)

IMPACT INDICATORS	% ofachie vement	Actions required witrh time frame	Estimated costs	Lead Stakeholder	Stakeholders involved
1	2	3	4	5	6
- Legislation in place for:					
1. seat belts	100	Nil			
2. motorcycle helmets	100	Nil			
3. child restraints	50	3.1. Increase penalties for not using child restraints 06/15.			
4. mobile phone use	100	Nil			
5. speed	100	Nil			
6. drink/ drugs	100	Nil			
7 - Effective enforcement of safety legislation	50	7.1 Traffic police trained on new legislation 7.2 review international experience and best practices on sanctions by 12/15 7.3 Implement recommendations of review by 12/16			
Legislation					
1. Safety campaigns use appropriate media	30	1.1 Assess past campaigns effectiveness by 06/15			
2. Government budget exists for road safety campaigns	20	2.1 Review funding needs for govt. campaigns by 12/15 2.2 implement recommendations by 06/16			
3. SCO (NGO) and Private Sector active in financing of road safety campaigns	30	3.1 Encouragement of private sector and NGOs to sign up to road safety charter by 12/15 3.2. Government encouraging (eg tax concessions) private companies to fund road safety activities by 12/15			

4. Age appropriate education material available for children	0	3.3 hold a national workshop to mobilize private sector and NGOs to become more involved by 12/15 4.1 Review existing safety education in schools by 12/15 4.21 Implement improvements and age appropriate materials as needed by 06/16			
Enforcement 1. Traffic police have adequate man power and vehicles 2. Traffic police (TP) have adequate equipment for enforcement 3.Traffic police have adequate training 4. Traffic police enforcement activity is based on crash data analysis	80 60 50	1.1 Traffic police (TP)manpower to be 10-12% of total police by 12/15 1.2Traffic police patrol vehicles ratio to be 1 car per 4 traffic police by 12/15 2.1 TP equipment needs reviewed by 06/15 2.2 TP have xxx speed detection devices by 12/15. 2.3TP have yyy roadside alco testers by 12/15 2.4 TP have zzz evidential alco testers by 12/15 2.5 TP / Govt explore options for extensive programme of red light, speed and video cameras by 12/15 (1 per km of a road) by 06/15 3.1.TP trained on traffic legislation by 12/15 3.2 TP Trained in 1st aid by 12/16 3.3 TP trained in crash investigation by 06/16 3.4 TP trained in managing ADR incidents 3.5 senior / supervising TP trained in data led enforcement strategies and tactics by 06/15 3.6 TP trained in use of enforcement equipment by 12/15 4.1 Relevant TP trained in crash data analyses by 06/15 4.2 All police deployment is data led by 09/15			

	50	4.3 All police enforcement activity data led by 06/16 4.4 Police cooperating with Media and NGOs to publicise activities Expand program of training Young Instructor of Road Movement.			
Public and private institutions practising internal policies of road safety behaviour 1 Government departments have road safety policies related to their employees, drivers and vehicles 2. Large private sector organizations have road safety policies related to their employees, drivers and vehicles 3. Road safety NGOs supporting Government and private sector organizations with guidance and safety materials	0 20 0	1.1 obligatory adoption of road safety policy by ministries and departments by 03/15 1.2 road safety in TOR of senior managers and part of their performance review by 06/15 1.3 Disciplinary action being taken on staff not complying with road safety policies (eg no use if phone when driving , obligatory wearing seatbelts etc) by 12/15 2.1 Road safety charter drafted and road safety policies being promoted to business leaders by 03/15 2.2 Large companies signing up to charter by 06/15 2.3 charter signing companies introducing safety policies by 09/15 3.1 NGOs promoting road safety charter and providing guidance / materials to large companies by 12/15 3.2 NGOs working with / cooperating with Govt agencies to promote road safety to smaller companies by 06/16			

5. IMPROVED MEDICAL CARE FOR CRASH VICTIMS (MOLDOVA)

IMPACT INDICATORS	% of ACH	Actions required with time frame	Estimated costs	Lead Stakeholder	Stakeholders involved
1	2	3	4	5	6
Medical care for crash victims is practiced					
1. Nationwide EMS system exists	90	1.1.review needs of 112 emergency system by 3/15 1.2 Coordination of EMS service with other emergency services by 04/15 1.3. Systematic Training of professional dispatchers in all regions by 12/16 1.4.Systematical trainings of emergency services by 09/15 1.5. Obligatory medical insurance by 10/16			
2. Crash victims getting effective first aid treatments within 30 min	80	2.1. Standard established for maximum ambulance response times by 03/15 2.2. Triage system agreed / in use by 05/15); 2.3 Trained staff Levels in pre hospital activities increased to international best practice levels by 05/15)			
3. Emergency ambulance crews have first aid training	80	3.1. Systematic joint Trainings on EMS, in coordination with other emergency services (Ministry of Internal Affairs Ministry of Defence , State Emergency Services by 03/15; 4.1. Training for police and rescue services on first aid, and transporting the injured by 09/15			

4. Police and rescue services have first aid training 5. Commercial (bus/taxi/truck) drivers have first aid training	50 20	4.2. Systematic joint training in coordination with other emergency services by 05/16 4.3 Police have adequate first aid kits in police cars by 10/15 5.1.Involve freight transport industry in programme of 1st aid training of commercial drivers by 06/15 5.2 Programme of 1 st aid training devised and being implemented by 12/15			
Appropriate hospital trauma care and capacity building 1. Hospital emergency ward equipped to handle crash victims 2. Victims receiving appropriate treatment 3. 70% of hospitals have emergency departments 4. First aid training available to general public	100 80 80 20	1.1 Obligatory Medical insurance by 10/15; 1.2 Material-technical provision (till 10.2016); 2.1. Mandatory medical insurance in place by 10/16; 2.2. Regular assessment of services by 12/15 3.1 at least 1 hospital with an emergency dept. accessible within 30 minutes in each oblast by 06/15 4.1 training course available to public by 06/15 4.2 Driving schools using qualified 1st aiders to teach learner drivers by 06/15			

Appropriate rehabilitation and support for victims 1. Rehabilitation specialists evolved early on in treatment of casualties 2. Victims given appropriate therapy 3. Doctors given special training to deal with injured and bereaved	90 90 90	1.1International best practice reviewed by 06/15 1.2 improvements implemented by 12/15 2.1 victims being assessed regarding needs by 12/15 2.2 appropriate treatments by 12/115 3.1 Medical training includes training in dealing with bereaved by 12/15			
Fair settlements and justice for injured and bereaved 1. Motor vehicle insurance system operates nationwide 2. Crashes investigated professionally by the Traffic Police 3. Accident investigations identify correct crash causes 4. Justice system provides fair settlements and justice for injured and bereaved	90 80 70	1.1 3RD party insurance nationwide by 6/15 1.2 At least 90% of vehicles carry TPP insure by 12/15 1.3 Compensation payout level for victims reviewed and adjusted if appropriate by 03./16 2.1 TP trainers trained in crash investigation by 06/15 2.2 TP training other TP in investigation by 12/15 3.1 crash investigations done by trained crash investigators by 06/16 3.2. Provision exists for contesting the decisions or conclusions of police investigation and submitting an alternative expert report to court by 06/16 4.1 Court decisions generally thought to be fair and unbiassed by 12/16 4.2 Court awarded compensation payments for death or injury are in line with international best practice by 12/17			

	70				
“One call” emergency number 1. Single emergency number established nationwide 2. Control centre staff trained to provide fast and efficient responses to help victims 3. Necessary equipment in place for operation of centre	30 40 60	1.1 .Pilot project in North region-single control centre(901.902.903)->112 by Dec 2015 1.1 Single number system extended Nationwide 12/16 2.1 Review international best practices by 12/15 2.2 Implement improvements by 12/16 3.2 Create and equip centres in accordance with international standards by. 12//17			

6. CHANGING ATTITUDES TO ROAD SAFETY (MOLDOVA)

IMPACT INDICATORS	% of ACH	Actions required with time frame	Estimated costs	Lead Stakeholder	Stakeholders involved
1	2	3	4	5	6
Partnerships between Govt. and Civil Society Organizations 1. Legal basis for CSO (NGO) 2. CSO (NGO) active in road safety 3. CSO (NGO) consulted or involved in decision making on road safety issues at national level 4. CSO (NGO) consulted or involved in decision making on road safety at issues local level	100 100 80 80	Nil Nil 3.1 Existing 3 NGOs on National road safety council to establish a wider safety forum / annual meeting to provide feedback to other NGOs by 06/15 4.1 Safety NGOs / safety forum members represented on municipal and oblast coordinating bodies by 12/15 4.2 NGOs / safety forum members involved on municipal and oblast in decision making re safety by 06/16			
Road safety lessons are conducted regularly in schools 1. National program (curriculum) for traffic safety education exists	10	1.1.review existing safety education in schools in light of best international practice by 06/15 1.2 Establish working group with MoE to develop /adapt materials by 09/15 1.2 National safety education integrated in schools by 12/16 2.1. Age appropriate materials developed for children by 12/15			

2. Age appropriate materials for education exist and are in use in schools (books, etc) 3. Teachers trained in traffic safety 4. Reduction in child casualties or risks of crashes in the locations where safety education has been provided	10 5 5	2.1 Suitable Materials in use in all schools by 12/16 3.1. trainee teachers trained to use safety materials in final year of teacher training by 12/16 3.2 trainee teachers give a safety pack of materials to take to their schools 3.3 In service teacher training use of child safety education materials by 12/17 4.1. Road safety TV-show on the national channel to be shown twice a month by -6/15 4.2 Effectiveness monitoring programme. Of initiatives by 12/15			
Driver rectification courses implemented 1. Legal basis for rectification courses 2. Database of driver's penalty exists and works 3. Program for rectification courses prepared	0 50 0	1.1 Review international practices in driver rectification schemes by 06/15 1.2 If required amend relevant legislation by 12/15 2.1 Driver databases to be improved and unified by 09/15. 3.1 Develop suitable driver rectification scheme by 03/16 3.2 All key stakeholders involved in designing / reviewing scheme content by06/16			

4. Rectification courses are being implemented 5. Course participants knowledge and awareness of safety has been improved	0 0	4.1 Introduce driver rectification scheme after pilot testing by 09/16 5.1 Evaluations of scheme being done by 06/16 5.2 Improvement and fine tuning being done as needed by 12/16			
Good road behaviour is recognised and promoted 1. Good driver nomination system established 2. Reward system established 3. Winners given public recognition	5 0 0	1.1 Driver nomination system needs to be developed by Government and private sector to oversee RS on commercial transport. by 06/15 1.2 Large fleet owners encouraged to establish driver recognition schemes by 09/15 2.1 Create Common Rewards system (certificates, discounts for insurance) and companies encouragement by 12/15. 2.2. Companies running driver recognition schemes being offered insurance discounts as " safe companies " by 06/16 3.1. Information circulated on in Media and Social networks by 12/16) 3.2. Special sites, viral advertising ,special themed talk show. Television programming etc used to give recognition by 12/16			

Summary Total Budget for Action Plan

(euros x thousands) to be completed after further discussion and after all actions agreed

Action Year	2015	2016	2017	Total
Action Plan 1: Institutional Issues				
Action Plan 2: Infrastructure				
Action Plan 3: Safe Vehicles				
Action Plan 4: Safe road user behaviour				
Action Plan 5: Post Crash Care				
Action Plan 6: Changing Attitudes				
Total Budget (Euros x 1000)				

APPENDIX B: PERFORMANCE INDICATORS FOR INSTITUTIONAL DEVELOPMENT

Impact indicators were devised for each of the desired outcomes as follows:

Objectives and desired outcomes	Impact indicators used
1 INSTITUTIONAL IMPROVEMENTS	
1. Compliance with, accession, ratification and implementation of UNECE Conventions and EU Agreements (each assessed separately) 1.1 ADR'67, 1.2 Vehicle Regs agreement 1958 1.3 Convention of road traffic 1968 1.4 Convention of road signs/ signals 1968 1.5 AETR 1970 1.6 AGR 1976 1.7 Agreement on Technical inspections 1997	- Accede to agreements - Translation to local language - Review existing legislation - Ratify and publish - Training/capacity development - Regular check - UNECE Working parties
1.8. Established multidisciplinary Road Safety agency	1. Legislation exists 2. Coordination body established 3. Fully staffed and funded Secretariat exists 4. Reliable, sustainable safety funding mechanism in place
1.9. Implementation of National Road Safety Strategy	1. Strategy is developed 2. Stakeholder consulted 3. Strategy approved by Government 4. Implementation commenced
1.10. Realistic and long term targets for road accident reduction available	1. Realistic long term targets in place 2. Action plan prepared to deliver targets 3. Action plan being implemented 4. Progress towards targets being monitored
1.11. Long term sustainability of road safety development	1. Annual losses to economy quantified 2. Road Safety funding mechanism exists 3. Budget being allocated for road safety improvement 4. Monitoring demonstrates effectiveness of investments in road safety
1.12. Establish a mandatory road user insurance scheme	1. Compulsory third party motor insurance exists

	2. Enforcement and penalties in place for uninsured vehicles 3. Number of uninsured vehicle minimized
1.13. Establish requirements for the issuing of driving licenses based on international best practice	1. Adequate theoretical testing in place 2. Adequate practical testing in place 3. Commercial drivers need to pass further tests 4. System complies with best international practices
1.14. Data collection and evaluation is unified in the region	1. Common core items to be agreed and identified 2. Agreed accident data being collected via police accident forms 3. An adequate data storage system is established 4, Adequate data retrieval and analysis system established 5. Adequate data dissemination system is established 6. Crash data accessible to all stakeholders for further analysis 7. Crash data system enables effective analysis of crash causes and remedial measures
1.15. A common system is established for monitoring and evaluating the outcome of a number of defined measures	1. Regional Working group established 2. The impacts to be monitor are agreed 3. Impact monitoring system is established 4. Quarterly monitoring progress report being circulated 5. Effective strategic management of implementation
1.16. Reviewed and improved road signing systems	1. Signing/standards reviewed 2. Needs and deficiencies identified 3. A program for improvement develop 4. The budgets needed estimated
1.17. Implemented road safety audit (RSA) principles and practices in the design and construction of the existing and new roads	1. Participation in discussions held at Regional level to establish a common RSA approach 2. Implementation of the RSA policies at national levels agreed 3. Participation in discussions for RSA accreditation system developed for region

	4. Participation in discussions for preparation of Regional RSA Manual developed
	5. Regional RSA Training courses developed
	6. RSA trainers trained
	7. In country RSA training programs established
1.18. Best practice in road safety shared throughout region	1. TRACECA Road Safety Working Group established
	2. Shared database of Manuals, procedures, standards compiled
	3. Annual conferences of best road safety practice organized
1.19. Harmonized driving penalties in the region	1. Study existing penalty systems in countries
	2. Discuss possible common penalty system across the Region
	3. Establish common data system about violations
	4. Mutually recognized sanctions being applied across the Region
2 SAFER INFRASTRUCTURE	
2.1. Implementation of road safety audit/ assessment	1. Legal basis for RSA
	2. Adequate manual in use
	3. Trained road safety auditors available
	4. Road Authorities have budget to purchase RSA
	5. All new, reconstructed and rehabilitated roads being safety audited
	6. RSA Recommendations being implemented by Roads Authority
2.2. Black spot treatment (Black Spot Management - BSM)	1. Legal basis for BSM
	2. Adequate BSM Manual in use
	3. Trained black spot investigators available
	4. Annual hazardous improvement program in place
	5. Road Authorities has dedicated founds for BSM improvements
	6. BSM recommendations being implemented by
2.3. Implementation of the program to define routes for freight avoiding residential areas	1. Legal framework exists
	2. Freight traffic surveys done to access needs
	3. Alternative routes defined

	4. Signing and markings placed
	5. Effective enforcement of commercial vehicle routes
	6. Commercial through traffic in residential areas reduced
2.4. Cost effective measures by local road authorities	1. Updated cost of crashes and casualties known
	2. Cost/Benefit of safety interventions is available
	3. Ranking/Prioritization for improvement is done on basis of Cost/Benefit analysis
	4. Most hazardous locations are being systematically improved via annual programs
2.5. Availability of safe and secure off-road parking for trucks	1. Legal framework
	2. Freight transport surveys done to identify parking needs
	3. Potential parking sites identified
	4. Signing and markings placed
	5. Safe secure off-road parking for trucks available and in use on major routes
2.6. Building the capacity of engineers and technical staff	1. Adequate Manuals/Guidelines for safety engineering produced
	2. Selected Government, Consultants and Academic staff trained
	3. Curricula for University courses produced
	4. Students being taught about safe design approaches during their studies
3 SAFER VEHICLES	
3.1. Vehicles regularly checked for technical requirements	1. Int. convention ratified
	2. Legal basis for vehicle inspection
	3. Manual for vehicle inspection in use
	4. Trained certified mechanics doing vehicle inspections
	5. Government certified/regulated workshops and inspection stations
	6. Regulatory agency adequately funded
	7. Number of defective vehicles in traffic reduced
3.2. Internationally recognized vehicle safety regulations applied to imported vehicles	1. Imported vehicles meet International (UNECE) standards
	2. Legal basis exists to prevent import of unsuitable/ unsafe vehicles

	3. Adequate controls to prevent import of fake spare parts
3.3. Vehicles used to transport dangerous goods meeting the standards of all technical requirements	1. ADR certified vehicles 2. ADR certified drivers 3. Emergency services had special training to respond to/deal with ADR accidents
4 SAFER ROAD USERS	
4.1 – 4.7. Legislation to cover :the following are in place and enforced seat belts, motorcycle helmets, child restraints, mobile phone use, speed, drink, drugs	Legislation in place for: 1. seat belts 2. motorcycle helmets 3. child restraints 4. mobile phone use 5. speed 6. drink 7. drugs - Effective enforcement of safety legislation
4.8. Improved public awareness	1. Safety campaigns use appropriate media 2. Government budget exists for road safety campaigns 3. SCO (NGO) and Private Sector active in financing of road safety campaigns 4. Age appropriate education material available for school children
4.9. Well-equipped and trained Road Police on road safety and enforcement	1. Traffic police have adequate man power and vehicles 2. Traffic police have adequate equipment for enforcement 3. Traffic police have adequate training 4. Traffic police enforcement activity is based on crash data analysis
4.10. Public and private institutions practicing internal policies of road safety behavior	1. Government departments have road safety policies related to their employees, drivers and vehicles 2. Large private sector organizations have road safety policies related to their employees, drivers and vehicles

	3. Road safety organizations supporting Government and private sector organizations with guidance and safety materials
5 IMPROVED MEDICAL CARE FOR CRASH VICTIMS	
5.1. Medical care for crash victims is practiced	1. Nationwide EMS system exists
	2. Crash victims getting effective first aid treatments within 30 min
	3. Emergency ambulance crews have first aid training
	4. Police and rescue services have first aid training
	5. Commercial (bus/taxi/truck) drivers have first aid training
5.2. Appropriate hospital trauma care and capacity building	1. Hospital emergency ward equipped to handling crash victims
	2. Victims receiving appropriate treatment
	3. 70% of hospitals have emergency departments
	4. First aid training available to general public
5.3. Appropriate rehabilitation and support for victims	1. Rehabilitation specialists evolved early on in treatment of casualties (30%)
	2. Victims given appropriate therapy (40%)
	3. Doctors given special training to deal with injured and bereaved (30%)
5.4. Fair settlements and justice for injured and bereaved	1. Motor vehicle insurance system operates nationwide
	2. Crashes investigated professionally by the Traffic Police
	3. Accident investigations identify correct crash causes
	4. Justice system provides fair settlements and justice for injured and bereaved
5.5. Fully used “one call” emergency number	1. Single emergency number established nationwide
	2. Control centers trained to provide fast and efficient responses to help victims
	3. Necessary equipment in place for operation of centre
6 CHANGING ATTITUDES TO ROAD SAFETY	
6.1. Partnerships between Government and Civil Society Organizations developed	1. Legal basis for CSO (NGO)
	2. CSO (NGO) active in road safety
	3. CSO (NGO) consulted or involved in decision making on road safety issues at national level

	4. CSO (NGO) consulted or involved in decision making on road safety issues at local level
6.2. Road safety lessons are conducted regularly in schools	1. National program (curriculum) for traffic safety education exists
	2. Age appropriate materials for education exist and are in use in schools (books, etc.)
	3. Teachers trained in traffic safety
	4. Reduction in child casualties in the locations were safety education has been provided
6.3. Driver rectification courses implemented	1. Legal basis for rectification courses
	2. Database of driver's penalty exists and works
	3. Program for rectification courses prepared
	4. Rectification courses are being implemented
	5. Course participants knowledge and awareness of safety has been improved
6.4. Good road behaviour is recognized and promoted	1. Good driver nomination system established
	2. Reward system established
	3. Winners given public recognition

ПРОЕКТ

МОЛДОВА
ПЛАН ДЕЙСТВИЙ ПО БЕЗОПАСНОСТИ ДОРОЖНОГО ДВИЖЕНИЯ
Январь 2015 - Декабрь 2017

Ноябрь 2014

Подготовлен
ключевыми партнерами по дорожной безопасности
в течение 4-дневного семинара по планированию действий по безопасности дорожного движения,
состоявшегося в Министерстве внутренних дел,
Кишинев, Молдова

4-6 ноября 2014

При технической поддержке и дополнительной помощи финансируемого ЕС Проекта по безопасности дорожного движения ТРАСЕКА

Доступ к файлу https://www.dropbox.com/sh/ayj5t6aft6gv0w5/AADqBHqXevxI9oyk5LEr1TJLa?dl=0

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ПРИЛОЖЕНИЕ В: ПОКАЗАТЕЛИ ЭФФЕКТИВНОСТИ ИНСТИТУЦИОНАЛЬНОГО РАЗВИТИЯ .....

Комментарий к структуре и содержанию плана незамедлительных действий

Данный план действий разработан для каждой страны ТРАСЕКА для контроля за прогрессом на региональном уровне. Поскольку все страны стремятся к реализации более раннего регионального плана действий и, в частности, рекомендаций в отношении институционального развития и укрепления потенциала специалистов по 6 направлениям, система мониторинга и показатели воздействия, используемые для контроля, являются одинаковыми для каждой страны (для того, чтобы облегчить анализ прогресса).

Содержание каждого плана немедленных действий, как правило, различно для каждой страны и полностью зависит от текущей стадии развития, масштаба и характеристики проблем безопасности дорожного движения, мнения заинтересованных сторон, которые разработали мероприятия для каждого сектора. Однако, замечена тенденция, что во всех странах существуют аналогичные проблемы управления, координации и финансирования безопасности дорожного движения. Следовательно, в некоторых случаях задачи и мероприятия для всех стран будут похожи. План незамедлительных действий для каждой страны нацелен на устранение препятствий развитию БДД путем укрепления потенциала местных экспертов для их дальнейшей более эффективной деятельности в области безопасности дорожного движения.

I ПЛАН ДЕЙСТВИЙ 2015-2017

1. СОСТОЯНИЕ БЕЗОПАСНОСТИ ДОРОЖНОГО ДВИЖЕНИЯ В МОЛДОВЕ

Республика Молдова является независимым государством, расположенным в Юго-Восточной Европе между Румынией и Украиной. Территория республики имеет площадь 33 800 км^2 и население около 4,4 млн.; плотность населения составляет 128 человек на км^2. Столицей является город Кишинёв. Основные средства передвижения в Молдове - железные дороги протяжённостью 1138 км (707 миль) и система скоростных шоссе (12730 км или 7910 миль в целом, в том числе 10937 км или 6796 миль асфальтированных дорог).

Безопасность дорожного движения является проблемой во всем мире, и многие страны в настоящее время пытаются уменьшить число погибших и раненых на дорогах. Молдова, как и многие другие страны с низким и средним уровнем дохода, сталкивается с многочисленными политическими, экономическими и социальными проблемами. Одной из серьёзных проблем, с которой пытается справиться государство, являются дорожно-транспортные происшествия – трагедии, которые отнимают жизни сотен людей и вызывают финансовые трудности для них и их семей. В 2009 Всемирный банк оценил, что жизнь каждого человека, погибшего на дорогах Молдовы, "стоит" национальной экономике приблизительно 511000 долларов США[7]. Более 40% от общего числа дорожно-транспортных происшествий происходит в столице Республики Молдова Кишинёве, который имеет население около 800000 жителей.

1.1 Каковы тенденции уровней смертности и травматизма в последние годы

Общие данные, предоставленные Министерством внутренних дел и полиции (Рисунок 1.1) показывают, что в 2013 году в Молдове произошло 2603 задокументированных полицией ДТП, в которых 295 человек погибли и 3221 человек получили ранения. По сравнению с предыдущим годом (2012), общее количество дорожно-транспортных происшествий уменьшилось на 4,1%, но число смертей сократилось на 33,3%, в то время как число раненых уменьшилось на 8,2%.

Основными причинами, по-видимому, являются запуск центрального управления видеомониторинга и установка видеонаблюдения в Кишинёве, усиление правоохранительной деятельности, специальные мероприятия Патрульной полиции, кампании по информированию общественности и программы дорожной безопасности, инициированные общественными организациями и СМИ. Это существенное достижение заслуживает признания и поздравления всех участников.

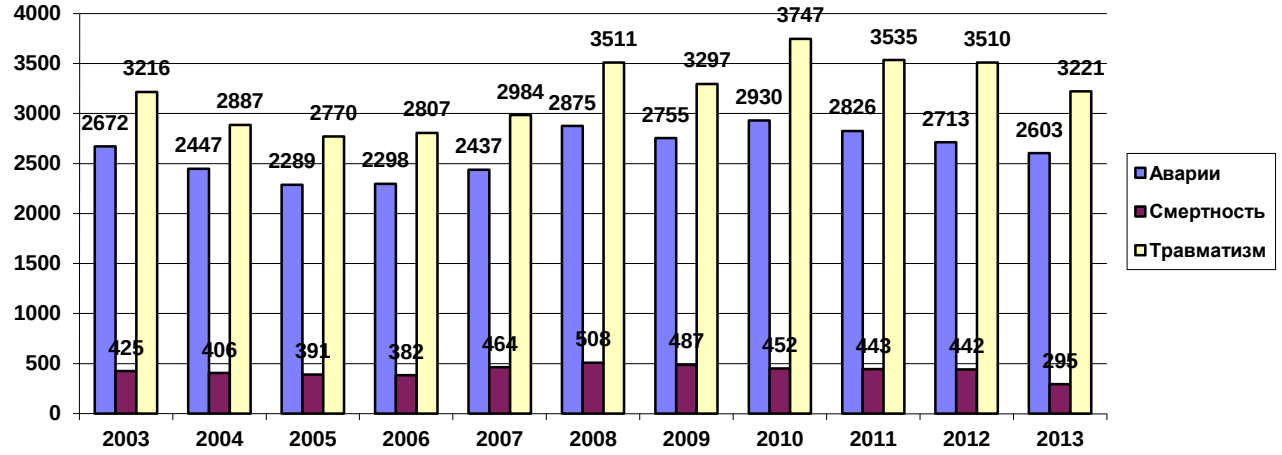


Рисунок 1.1. Последние тенденции дорожно-транспортных происшествий, смертности и травматизма на дорогах Молдовы.

[7] Источник?

1.2 Кто гибнет или травмируется в авариях на дорогах и в чём главные причины аварий в Молдове?

1.2.1 Водители

По статистике, большинство дорожно-транспортных происшествий как в 2012-2013, так и в предыдущие годы были квалифицированы полицией как возникшие по вине водителей[8]. В 2013 году количество дорожно-транспортных происшествий уменьшилось на 6,3% (с 2435 в 2012 году до 2281 в 2013 году). Число смертей "по вине водителей" в 2013 сократилось на 37,1% по сравнению с зафиксированным числом смертельных случаев в 2012 году; число раненых уменьшилось на 9,9% *(см. Рисунок 1.2 ниже).*

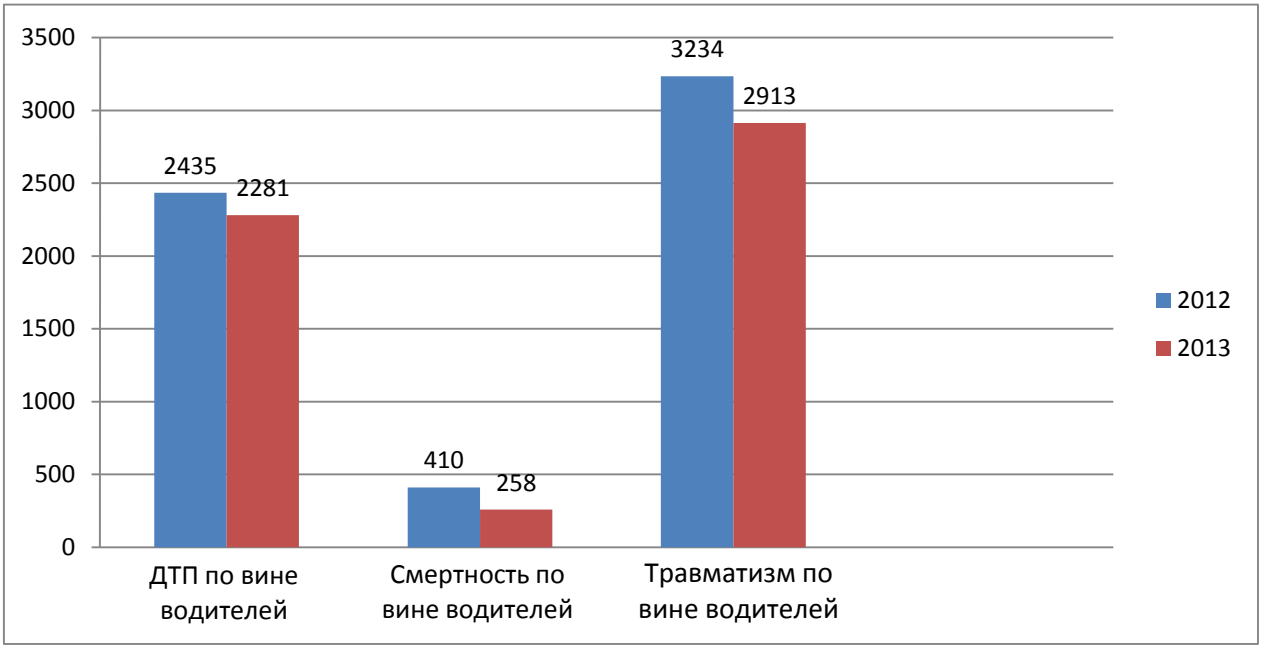


Рисунок 1.2. Смертность и травматизм в дорожно-транспортных происшествиях, квалифицированных полицией как возникшие по вине водителей.

1.2.2 Пешеходы

В 2013 году большая часть аварий, зарегистрированных полицией, произошла с участием пешеходов - 980 ДТП (37,7% из 2603 аварий в 2013 году). Это привело к гибели 103 (35%) и ранениям 931 человека (29%). Число дорожно-транспортных происшествий с участием пешеходов в 2013 увеличилось на 4,81% по сравнению с 2012, но в 2013 уровень смертности пешеходов снизился на 21% по сравнению с зарегистрированным числом смертей в 2012 году. Зарегистрированный уровень травматизма пешеходов также снизился в 2013 году на 5%. Это значительное снижение смертности пешеходов является ещё одним свидетельством того, что усилия полиции и других организаций по снижению скорости путём электронного наблюдения, видимо, имеет положительные последствия для безопасности дорожного движения.

[8] В каждом государстве полиция является ориентированной на обвинение, и потому, что полицейские, как правило, не имеют технических знаний дорожных или транспортных факторов, они склонны винить водителя вместо того, чтобы выяснять причину его ошибки (например, несоответствующие либо заграждённые дорожные знаки), так что водители считаются главной «причиной» ДТП в большинстве стран.

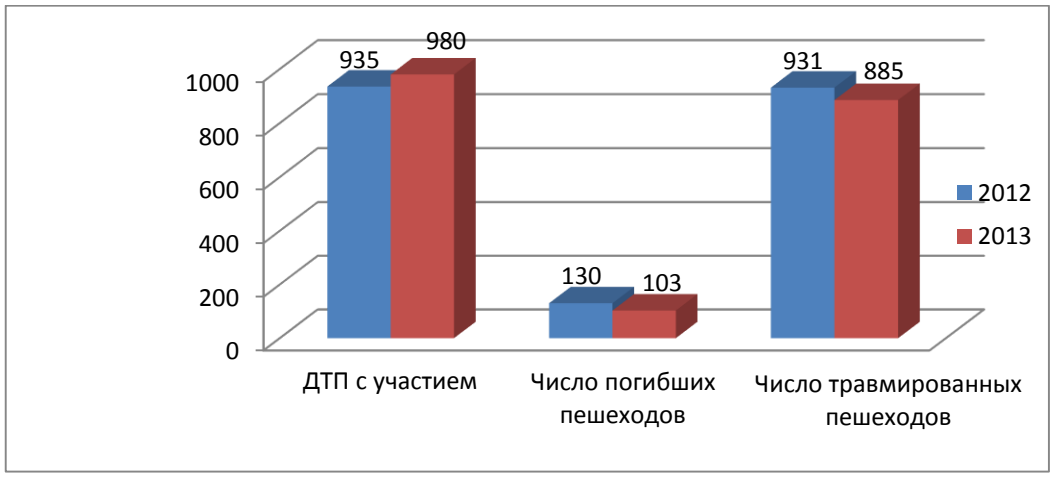


Рисунок 1.3. Число ДТП с участием пешеходов, смертность и травматизм в 2012 и 2013 гг.

Важной характеристикой состояния дорожной безопасности в Молдове является то, что всё большее число дорожно-транспортных происшествий с участием пешеходов происходят на дорогах городов и районов. Например, в Кишинёве - 519 аварий (53,0% всех ДТП с участием пешеходов), в Оргееве - 39 (4,0%), в Бельцах - 32 (3,3%), в Гагаузии - 30 (3,1%), в Кагуле и Яловени - 29 (3,0 %) и в Унгени - 21 (2,1%). Очевидно, что городская местность Кишинёва требует наибольшего внимания и концентрации с точки зрения обеспечения безопасности пешеходов.

На национальном уровне, в 2013 было 176 аварий (-9,74% по сравнению с 2012), вызванных пешеходами, нарушившими правила пересечения проезжей части и 18% пешеходов, были сбиты во время пребывания на дороге. В результате - 25 погибших (-21,87% по сравнению с 2012), и 155 человек (-9,36% по сравнению с предыдущим годом) получили ранения. Анализ нарушений правил дорожного движения, совершённых пешеходами в 2013 году показывает следующее:

- пересечение улицы не глядя - 107 аварий (60,8% от всех ДТП с участием пешеходов и по их вине);
- пересечение улицы в неположенном месте - 45 (25,6%);
- неожиданное появление перед транспортным средством - 10 (5,7%);
- нерегулярное движение / прогулки на дорогах - 9 несчастных случаев (5,1%).

1.2.3 Дети

В 2013 году, хотя число дорожно-транспортных происшествий с участием детей уменьшилось на 12,9%, произошло ещё 485 ДТП с участием детей, в которых погиб 21 ребёнок (- 52,3%) и 545 получили ранения (-10,7%). 80 аварий были квалифицированы как включающие вину ребёнка, и привели к смерти 4 (-42,9%) и травматизму 76 детей (-9,5%).

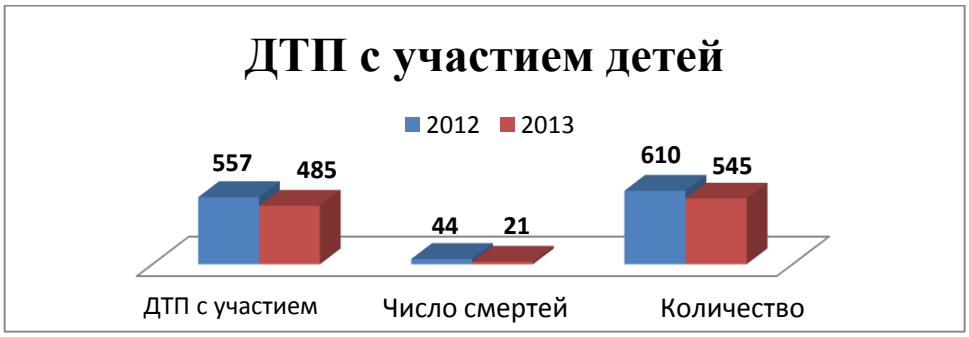


Рисунок 1.4. Дорожно-транспортные происшествия с участием детей.

1.2.4 Употребление алкоголя

В 2013 году произошло 158 дорожно-транспортных происшествий с участием нетрезвых водителей (-8,1% по сравнению с показателем 172 в 2012 году). Это привело к гибели 40 (-25,9% по сравнению с 54 в 2012 году) и ранениям 203 человек (- 14,0% по сравнению с 236 в 2012 году).

За 2013 год произошло 38 дорожно-транспортных происшествий с участием нетрезвых пешеходов (-20,8% по сравнению с 48 в 2012 году). Это привело к гибели 11 (+ 83,3%, по сравнению с 6 в 2012 году) и ранениям 27 человек (-38 6%, по сравнению с 44 в 2012). Следует отметить, что количество дорожно-транспортных происшествий, квалифицированных как возникшие по вине нетрезвых пешеходов, в 2013 году увеличилось на 83,3% по сравнению с 2012.

1.3 Когда происходят аварии, смерти и травмы на дорогах?

Таблица 1.1. Дорожно-транспортные происшествия по времени суток в 2012 и 2013:

Временной промежуток	2012			2013			+,- %		
	ДТП	Смерти	Травмы	ДТП	Смерти	Травмы	ДТП	Смерти	Травмы
00.00 – 06.00	**340**	**82**	**488**	**303**	**57**	**425**	-10,88	-30,49	-12,9
06.00 – 08.00	154	42	252	121	18	153	-21,43	-57,14	-39,29
08.00 – 10.00	212	17	287	212	15	297	0	-11,76	3,48
10.00 – 12.00	225	23	306	193	11	233	-14,22	-52,17	-23,86
12.00 – 14.00	244	14	280	243	17	299	-0,41	21,43	6,79
14.00 – 16.00	**291**	**29**	**420**	**267**	**20**	**319**	-8,25	-31,03	-24,05
16.00 – 18.00	**310**	**48**	**359**	**348**	**33**	**423**	12,26	-31,25	17,83
18.00 – 20.00	**381**	**62**	**457**	**369**	**45**	**405**	-3,15	-27,42	-11,38
20.00 – 22.00	289	69	330	305	45	360	5,54	-34,78	9,09
22.00 – 24.00	263	59	321	232	40	292	-11,79	-32,2	-9,03

Рисунок 1.4. Число дорожно-транспортных происшествий по дням недели.

Из вышеприведённого может показаться, что количество аварий увеличилось в течение большинства дней рабочей недели (Вторник – Пятница), но снизилось в выходные и по понедельникам. Число смертей снизились в каждый период суток. Уровень травматизма также сократился в большинстве периодов суток, но увеличился в пиковые периоды утром, в обед и вечером, когда уровень трафика, как правило, выше в связи с проездом людей на работу и с работы.

1.4 Каковы причины дорожно-транспортных происшествий в Молдове?

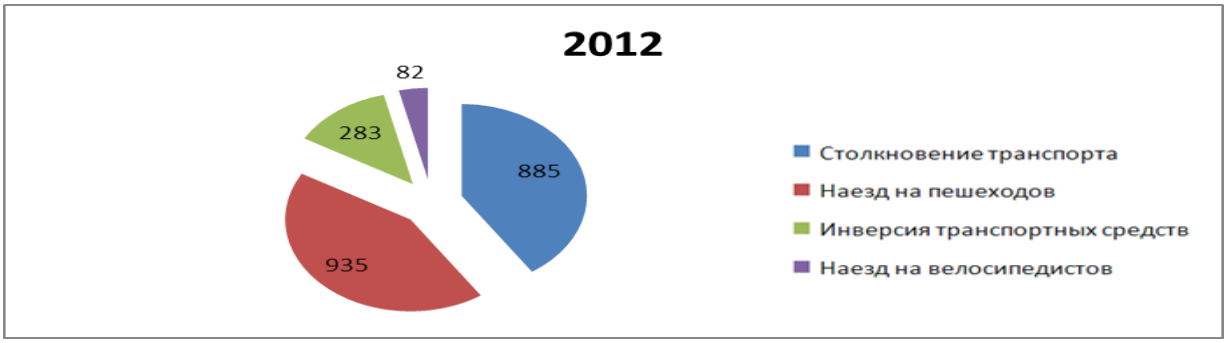


Рисунок 1.5. ДТП по разным категориям, 2012

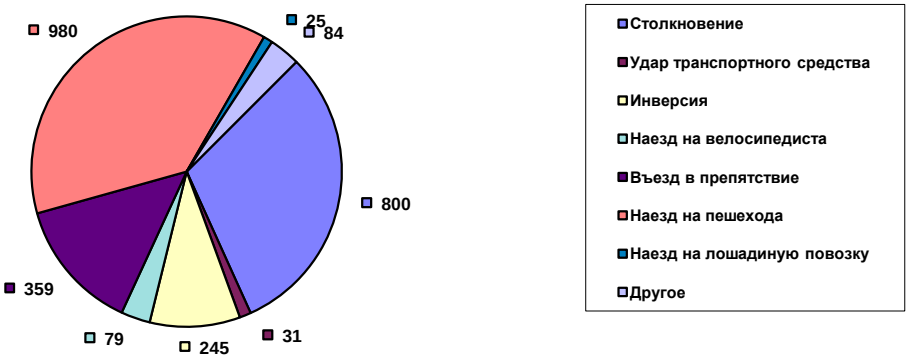


Рисунок 1.6. ДТП по разным категориям, 2013

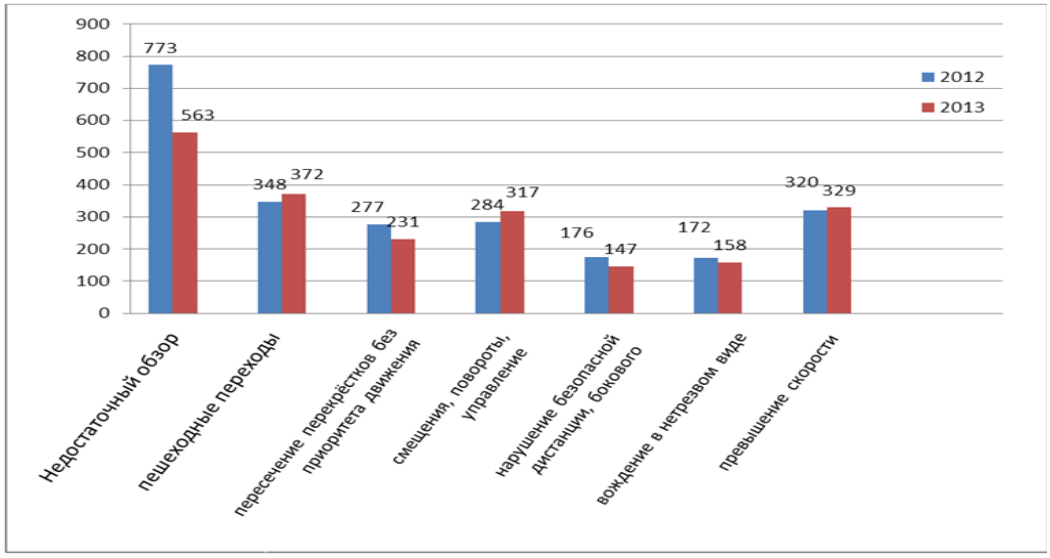


Рисунок 1.7. Причины дорожных аварий, вызванных действиями водителей

Из 2185 аварий в 2012 году - в 925 (42%) вовлечены пешеходы; из 2444 аварий в 2013 году – в 900 (37%) вовлечены пешеходы, поэтому, хотя смертность и травматизм уменьшились с 2012 года, пешеходы по-прежнему остаются основной группой риска на дорогах, и способствуют значительной части аварий в Молдове.

2 ИСХОДНЫЕ ПОЛОЖЕНИЯ

2.1 Введение к Плану действий

При поддержке регионального проекта дорожной безопасности ТРАСЕКА, Министерство транспорта, а также представители ключевых молдавских дорожных организаций пересмотрели все секторы безопасности дорожного движения и разработали План действий по безопасности дорожного движения для Молдовы. **Данный план не предназначен для замены каких-либо существующих долгосрочных стратегий безопасности дорожного движения или планов действий, которые, возможно, уже были разработаны. Вместо этого, данный План незамедлительных действий предназначен для устранения преград и помех, которые в настоящее время препятствуют эффективной деятельности в ключевых секторах безопасности дорожного движения в целях содействия более эффективным мерам и усилиям соответствующих организаций, способных повлиять на безопасность дорожного движения**. Он также определяет области для наиболее срочных действий со стороны соответствующих органов с целью улучшения нынешней ситуации с очень высоким уровнем смертности и травматизма на дорогах Молдовы.

Несмотря на то, что Молдова все еще находится на относительно ранней стадии развития по безопасности дорожного движения, в стране начался процесс принятия элементов передовой практики по подходу безопасных систем. Целью является целостный и систематический подход к БДД, а также действия направлены на обеспечение безопасности транспортных средств, дорог и участников дорожного движения, а также вспомогательных систем. Началась работа по обеспечению безопасности транспортных средств путем введения комплексной системы технических инспекций, а также по обеспечению безопасности участников дорожного движения путем более эффективного полицейского правоприменения с использованием красного света и измерителей скорости. Необходимо выполнить значительную работу по укреплению потенциала, практик и деятельности, прежде чем появятся требуемые знания и ключевые системы для того, чтобы сделать эффективной работу по безопасности дорожного движения.

По этим причинам, данный План незамедлительных действий сосредотачивается, главным образом, на институциональном строительстве, расширении знаний и потенциала, и внедрении усовершенствованных методов и систем для обеспечения проведения более эффективной работы по безопасности дорожного движения. Анализ имеющихся данных показывает, что характерные международные факторы риска, такие как низкий уровень использования ремней безопасности, превышение скорости, вождение в нетрезвом виде и недостаток надлежащей защиты пешеходов также являются наиболее распространенными факторами риска в Молдове. План действий поэтому сосредоточен на создании организационной инфраструктуры для развития местного потенциала, а также на основных факторах риска, с целью обеспечения нынешних действий.

Со временем, когда будет установлена новая или более совершенная система аварийных данных, которые станут доступными для заинтересованных участников, и будут введены в действие другие системы поддержки безопасности, план действий может быть по необходимости перенаправлен на любые дополнительные местные факторы риска и на определенные группы участников дорожного движения повышенного риска на основе более подробного конкретного анализа местных данных.

Данный План действий:

5. Установит промежуточный механизм координации путем создания многоотраслевой межведомственной рабочей группы и специальных отраслевых дополнительных подкомитетов для контроля над выполнением данного плана незамедлительных действий.

6. Ознакомит местных экспертов в отдельных областях с лучшими международными практиками и повысит их знания и опыт, чтобы они могли быть более эффективными в решении вопросов безопасности дорожного движения в обычной рабочей деятельности.

7. Усилит способность соответствующих учреждений с обязанностями по безопасности дорожного движения повышать безопасность за счет сокращения количества и типов ДТП, которые чаще всего приводят к смертности и травматизму в Молдове.

8. Будет стимулировать заинтересованных участников сосредоточиться на известных факторах высокого риска

- Использование ремней безопасности
- Превышение скорости
- Вождение в нетрезвом состоянии
- Безопасность пешеходов

Данный План незамедлительных действий будет осуществляться при помощи партнерского подхода, который позволит различным государственным министерствам и ведомствам работать совместно с частным сектором, гражданским обществом и неправительственными организациями. Временная межведомственная рабочая группа будет отвечать за общую координацию, мониторинг и выполнение Плана незамедлительных действий по безопасности дорожного движения. Министерство внутренних дел и Министерство транспорта решат, будет председательствовать во временной межведомственной рабочей группе, до тех пор, пока более официальные соглашения будут введены в действие новым правительством Молдовы.

Комитетам муниципального уровня предлагается курировать разработку и реализацию местных планов действий по безопасности дорожного движения на соответствующем уровне.

2.2 Доказательство возможности снижения количества ДТП

Существует множество доказательств того, что осуществление систематического, научного системного подхода к безопасности может привести к весьма значительному сокращению смертности и травматизма. Таблица 2.1 показывает, как множество бывших советских стран с организационными структурами, системами и ограничениями, подобными молдавским, тем не менее, осуществили значительные улучшения в области безопасности дорожного движения. Они сделали это путем применения хорошо проверенных методов и подходов, разработанных в ЕС в течение последних нескольких десятилетий. Нет причин, по которым эксперты в Молдове не смогут добиться снижения количества ДТП на 50% к 2020 году, применяя аналогичные подходы.

Таблица 2.1 Другие постсоветские государства значительно повысили уровень безопасности путем применения проверенных методов и подходов ЕС к дорожной безопасности:

Государство	Смертность на дорогах		% изменений 2001-2011	Смертность на 100 000 населения	
	2001	2011		2001	2011
Болгария	1011	755	-34.9	12.4	8.9
Чешская Республика	1334	802	-47.0	13.0	6.7
Эстония	199	101	-49.2	14.6	7.5
Венгрия	1239	638	-48.5	12.1	6.4
Латвия	558	179	-67.9	23.6	8.0
Литва	706	297	-57.9	20.2	9.2
Польша	5534	4189	-24.3	14.5	11.0
Румыния	2461	2018	-18.0	10.9	9.4

Словакия	814	324	-47.2	11.6	6.0
Словения	278	141	-49.2	14.0	6.9
Европейский Союз (ЕС)	54302	30108	-44.6	11.3	6.0

Источник: Проект региональной дорожной безопасности ТРАСЕКА

Как видно из приведенной выше таблицы 2.1, постсоветские страны и Европейский союз продемонстрировали возможность уверенного снижения количества летальных исходов из года в год, если эффективные и решительные действия стимулируются и координируются правительством, и если осуществлены необходимые инвестиции в мероприятия по безопасности дорожного движения. Одним из самых больших преимуществ для Молдовы является то, что она не одинока в решении проблем безопасности дорожного движения, и многие другие страны ЕС, включая некоторые бывшие советские республики с аналогичными системами и структурами, уже разработали и испытали инструменты и мероприятия, и определили наиболее эффективные из них. Мы можем выбирать из списка успешных мероприятий, осуществляемых в других странах, чтобы выбрать те, которые являются наиболее подходящими для молдавских условий и современного этапа экономического и социального развития. Из европейского опыта известно, что установление далеко идущих целей является очень полезным[9], и даже если вы не достигли их, они обеспечивают целенаправленность действий и вобщем приводят к гораздо более значительному снижению, чем в случае с неопределенными целями.

2.3 Ожидаемые результаты улучшения дорожной безопасности

Сектор 1: Хорошо структурированные механизмы и административные структуры на соответствующем для Молдовы уровне, способные управлять, координировать и контролировать безопасность дорожного движения в рамках национальных и международных контекстов.

Сектор 2: Управление автомобильных дорог и дорожные инженеры берут на себя большую ответственность за безопасность дорог, которые они строят и управляют так, что молдавские дороги и дорожные сети становятся более безопасными и "щадящими" для тех, кто вовлечен в дорожно-транспортные происшествия.

Сектор 3: Все типы транспортных средств соответствуют стандартам и правилам техники безопасности транспортных средств, и производится надлежащий контроль в целях обеспечения того, чтобы только исправным автомобилям разрешалось использовать дороги общего пользования.

Сектор 4: Все участники дорожного движения знают и понимают свои обязательства в соответствии с Законом о дорожном движении, знают об основных факторах риска и о том, как избежать или свести к минимуму вероятность смерти или травмы при аварии (Сравнительный прогресс Молдовы в данной области в сравнении с другими странами – снижение количества ДТП)

Сектор 5: Послеаварийные мероприятия и службы являются своевременными и высоко эффективными в снижении тяжести и неблагоприятных исходов дорожно-транспортных происшествий.

Сектор 6: Отношение правительства, частного сектора и сообществ измененяются так, что все берут на себя больше ответственности за безопасность дорожного движения для себя, окружающих и тех, на кого они могут повлиять.

2.4 Краткий обзор мероприятий, необходимых в каждом секторе

Сектор 1: Управление безопасностью дорожного движения

Безопасность дорожного движения является мульти-секторной проблемой, которая требует многомерной системы управления и достаточных технических и финансовых ресурсов, которые позволяют ответственным учреждениям разрабатывать и реализовать соответствующие стратегии,

[9] OECD/ITF, **В направлении к нулю: Амбициозные цели дорожной безопасности и системный безопасный подход,** 2006.

положения и планы для координирования различных субъектов, вовлеченных в сферу безопасности дорожного движения на всех уровнях. Это также требует создания соответствующих систем поддержки безопасности, которые позволяют в полной мере понять эту проблему и принять соответствующие меры для сокращения числа жертв и их тяжести. Необходимы средства для координирования, но не обязательно покрывающие все расходы, когда действия спускаются на уровень отдельных городских администраций. Однако средств должно быть достаточно, чтобы обеспечить необходимые мероприятия по горизонтальной и вертикальной координации, межсекторные семинары и программы по содействию безопасности на национальном уровне и несколько демонстрационных и пилотных проектов, чтобы стимулировать деятельность по безопасности дорожного движения на всех административных уровнях в пределах Молдовы.

В работу существующего Национального совета по безопасности дорожного движения в Молдове включены государство и общественные организации, но в связи с тем, что отсутствует постоянный секретариат и финансирование – работа является не настолько эффективной, насколько могла бы быть. Несмотря на то, что существует Стратегия, отсутствует ведущее учреждение, которое осуществляло бы контроль над выполнением и финансированием реализации данной стратегии.

Существует необходимость создания постоянного секретариата для поддержки работы Национального совета, а также для установления механизма финансирования БДД. Такой секретариат должен попытаться получить новое законодательство в целях обеспечения надлежащего финансирования безопасности дорожного движения, а также развития необходимых знаний и потенциала среди соответствующих групп по выполнению необходимых планов действий. Основными задачами являются внедрение новой или усовершенствованной системы данных ДТП для улучшения качества милицейской базы данных о ДТП; также требуется сделать данные доступными для всех заинтересованных сторон с тем, чтобы мероприятия по безопасности могли быть децентрализованы горизонтально до отдельных участников, и вертикально – до городских администраций, чтобы они могли предпринять действия на местном уровне. Необходимо инициировать дальнейшее изучение дорожной безопасности среди академических и научных учреждений Молдовы. План незамедлительных действий должен строго контролироваться и оцениваться, чтобы гарантировать достижение целей институционального развития.

Сектор 2: Инфраструктура

Инфраструктура играет решающую роль в безопасности дорожного движения. Хорошо спроектированные дороги могут помочь людям использовать их безопасно и свести к минимуму риск возникновения ДТП. Когда аварии случаются, защитные и щадящая дорожная инфраструктура может означать разницу между жизнью и смертью. Инфраструктура, направленная на успокоение трафика и ориентированная на нужды уязвимых участников дорожного движения (водителей мотоциклов, пешеходов, детей, людей с ограниченными возможностями), особенно важна в Молдове, где уровень смертности пешеходов составляет около 35% и 29% случаев травматизма. Это один из самых высоких показателей смертности пешеходов для всей Европы, где смертность пешеходов, как правило, составляет 10-20% от общего числа смертей.

Внимание в этом секторе должно быть направлено на технические решения, которые снижают скорость путём «успокоения трафика» и управления скоростью, особенно в зонах с большим числом уязвимых участников дорожного движения, таких как школы и жилые зоны, на застроенных территориях и в линейных поселениях, расположенных вдоль основных дорог. На главной дорожной сети должны проводиться программы повышения уровня безопасности на чёрных участках, массовых мероприятиях и маршрутах движения. Рекомендации Директивы ЕС 2008/96 ЕК по управлению безопасностью инфраструктур дорожного движения должны осуществляться Государственной администрацией автомобильных дорог, вводя аудит и инспекции безопасности дорожного движения на магистральных и местных дорогах. Необходимо обучать большее число дорожных инженеров для проведения подобных мероприятий по безопасности. Приоритет должен быть направлен на

включение аудита во все будущие проекты дорог и дорожной инфраструктуры, и на осуществление инспекций дорожной безопасности на существующих дорогах в целях выявления недостатки безопасности с целью улучшения опасных зон.

Сектор 3: Безопасные транспортные средства

Улучшение защиты при ДТП и систем безопасности транспортных средств, как было доказано, снижают количество смертей и серьезных травм на дорогах. В последние годы были достигнуты значительные успехи в области безопасности транспортных средств, которые защищают пассажиров и других участников дорожного движения и повышают возможность упреждения аварий. Увеличение доли новых транспортных средств на дорогах с высокими стандартными функциями безопасности, как частных, так и корпоративных, существенно снижает риски для всех участников дорожного движения – водителей, пассажиров, мотоциклистов, пешеходов и велосипедистов.

Однако в данном секторе при нынешних экономических условиях в Молдове старые транспортные средства и подержанные автомобили будут оставаться основной частью транспорта в обозримом будущем. Поэтому очень важно убедиться, что такие транспортные средства пригодны к эксплуатации, прежде чем выпускать их на дороги Молдовы. Существует настоятельная необходимость возобновления технических осмотров для всех транспортных средств и улучшения существующих правил и процедур в области технического осмотра грузовых автомобилей. Качество технического осмотра должно систематически совершенствоваться и проверяться при помощи частых регулярных придорожных проверок транспортных средств

Сектор 4: Безопасное поведение участников дорожного движения

Все участники дорожного движения разделяют ответственность за безопасное и ответственное использование дорожной сети с учетом других участников дорожного движения. Чтобы изменить поведение различных участников дорожного движения и защитить уязвимых из них, необходимо повысить осведомленность и изменить отношение граждан, пользующихся дорогами. Участники дорожного движения должны быть осведомлены о главных факторах риска, увеличивающих вероятность ДТП и угрозу получения серьезных травм и смертельного исхода, чтобы они изменили свое поведение для минимизации подобных рисков.

В данном секторе необходимо сосредоточиться на основных факторах риска, выявленных в результате анализа имеющихся данных и наблюдений за использованием дорог в Молдове. Они включают низкий уровень использования ремней безопасности, превышение скорости, вождение в нетрезвом виде, использование мобильных телефонов и отправка текстовых сообщений во время вождения, не соответствующие требованиям условия для пешеходов. В список мероприятий необходимо включить информирование общественности через различные каналы СМИ, учебные программы по безопасность дорожного движения в школах и университетах, взаимное обучение и другие стратегии. Многие из просветительских кампаний должны быть связаны с правоприменительными действиями, чтобы максимизировать их воздействие.

Уязвимые участники дорожного движения включают детей, пешеходов, мотоциклистов, велосипедистов, пожилых людей и людей с ограниченными возможностями. Эта группа участников дорожного движения (особенно пешеходы), подвержена непропорционально большому количеству смертей и травм в дорожной системе Молдовы (38% ДТП и 35% смертей – пешеходы) в связи с повышенным риском, с которым они сталкиваются при использовании дорожной системы, которая их не защищает. Например, дети, чтобы добраться до школы, часто вынуждены пересекать дороги с плотным транспортным потоком без какого-либо участка безопасности; пешеходам часто приходится

ходить по дороге, потому что отсутствуют пешеходные дорожки, а скорость транспортных средств часто слишком высокая на городских участках и особенно – на линейных поселениях, расположенных вдоль основных дорог. Разрешение автомобилистам ездить в городе и линейных поселениях со скоростью 80 км/ч приводит к повышенной опасности, и должно быть недопустимым. Вероятность смерти пешехода резко возрастает с увеличением скорости транспортного средства. При скорости 32 км/ч погибает только 5% пострадавших от столкновения пешеходов; при скорости 60 км/ч погибает около 38%; но при скорости 70 км/ч погибает более 85%, а при 80 км/ч – все 100% пешеходов. Причиной высокой смертности пешеходов на дорогах Молдовы является, в первую очередь, слишком высокая допустимая скорость движения в населенных пунктах (39% от общего числа смертей за последние 8 лет были связаны с превышением скорости).

В данном секторе необходимо сосредоточиться на решении проблем высоких рисков для уязвимых участников дорожного движения. По всей стране должны быть созданы безопасные школьные участки для детей; необходимо установить безопасные переезды и предпринять меры по снижению скорости движения в районах, где ожидается большое число пешеходов. Пассажиры автомобилей должны быть ориентированы, прежде всего, на использование ремней безопасности; также необходимо усовершенствовать существующие методы обучения и тестирования водителей, повышать и улучшать стандарты безопасности.

Сектор 5: Скорая медицинская помощь

Вероятность смерти от серьезных ранений в результате дорожно-транспортных происшествий в Молдове является высокой. Отсутствие единого номера экстренной службы и несогласованность действий спасательных служб может привести к задержкам в оказании неотложной медицинской помощи тяжелораненым пострадавшим. Каждые 10 минут задержки при извлечении тяжелораненого из разбитого автомобиля снижают шансы на выживание на 10%. Следовательно, многие люди умирают по причине недостаточного оказания первой помощи на месте происшествия, медленного извлечения пострадавших из поврежденного транспортного средства, медленной транспортировки в центры медицинской помощи и больницы, а в некоторых случаях – из-за недостаточной медицинской помощи в самой больнице.

Ключевым подходом для данного сектора является обеспечение первичной стабилизации потерпевшего в течение «золотого часа» (т.е. в первого часа после травмы). Следовательно, ключевым приоритетом в Молдове должно быть увеличение числа обученных оказанию первой помощи людей, которые связаны с дорожной системой. Увеличение возможностей оказания первой помощи водителями коммерческого транспорта или службами экстренного реагирования, такими как ГАИ или гражданские добровольцы, может оказать существенное влияние на своевременность оказания первой помощи потерпевшему, и потенциально спасти ему жизнь. Особенно важно инициировать совместную подготовку служб скорой помощи, милиции и спасателей для того, чтобы сократить время эвакуации пострадавших. Министерству здравоохранения необходимо разработать и усилить службы экстренной медицинской помощи, охватывающие первую помощь, транспортировку, вместимость больниц, механизмы для управления системой и интегрированные информационные системы. Также в этот план должна быть включена физическая реабилитация жертв ДТП.

Сектор 6: Изменение поведения

Это неотъемлемая часть более систематического подхода, при котором проблема безопасности дорожного движения становится ответственность каждого, а не только тем, что дает правительство. Каждый человек имеет возможность влиять на окружающих – от защиты и влияния на ближайших родственников, до воздействия на более широкий круг друзей и знакомых, соседей, сотрудников и подчиненных.

Безопасность должна стать всеобщей задачей, а носителей антисоциального поведения (например, лихачей, пьющих за рулем, игнорирующих сигналы светофора, использующих мобильные

телефоны, отправляющих текстовые сообщения во время вождения), подвергающих законопослушных граждан опасности, необходимо убедить в неприемлемости подобного поведения, и привлечь к ответственности за опасные действия. Кроме того, они должны получать крупные штрафы и наказание за то, что подвергают риску и излишним затратам (например, стационарное лечение пострадавших) налогоплательщиков ($ 198 млн / год - 3,4% от годового ВВП Молдовы).

2.5 Заключительные положения

Предложенный 3-летний план действий основан на оценке каждого сектора и разработан местными специалистами в сотрудничестве и рассмотрении международными экспертами по безопасности дорожного движения проекта ТРАСЕКА. Этим определяются наиболее срочные потребности Молдовы. Приложение А представляет планы действий для каждого сектора; в Приложении В представлены показатели эффективности, которые использовались в сравнительном анализе и могут быть использованы для оценки институционального влияния данного Плана действий.

Предполагаемый итоговый объем инвестиций в безопасность дорожного движения, необходимый Молдове на 3-летний период, составляет около ххх миллионов евро. Это очень скромные инвестиции, учитывая очень высокие потенциальные доходы. Кроме того, следует учитывать, что дорожно-транспортные происшествия уже обходятся Молдове в более чем **198 млн. долларов США** ежегодно (2,8% годового ВВП). Поэтому **бездействие не является выходом**, так как невозможность реагировать соответствующим образом и инвестировать в безопасность дорожного движения будет приводить к подобным потерям и в будущем, год за годом.

II ПРИЛОЖЕНИЯ

ПРИЛОЖЕНИЕ A: ПЛАНЫ ДЕЙСТВИЙ В КАЖДОМ СЕКТОРЕ

Сектор 1: Институциональные улучшения
Сектор 2: Более безопасные дороги
Сектор 3: Более безопасный транспорт
Сектор 4: Безопасное поведение участников движения
Сектор 5: Скорая медицинская помощь
Сектор 6: Изменение отношения

План действий 1: Институциональные улучшения

ИНДИКАТОРЫ ВОЗДЕЙСТВИЯ	% Реализации	Требуемые действия временных в рамках	Предполагаемые расходы	Ведущая организация	Участие Заинтересованных сторон
1	2	3	4	5	6
Соблюдение Соглашений/ Конвенций ЕЭК ООН **1.1 Европейское соглашение о международной дорожной перевозке опасных грузов - 1957** - Присоединиться к соглашениям - Перевод на местный язык - Пересмотреть действующее законодательство - Ратифицировать и публиковать - Проводить обучение и развитие потенциала - Регулярная проверка - Рабочие группы ЕЭК ООН	 100 100 100 100 100 100 0	 - - - - - - 7.1 Участие молдавских экспертов в заседаниях рабочей группы до сентября 2015 7.2 Работа экспертов рабочей группы до декабря 15			
1.2 Соглашение транспортных правил - 1958 - Присоединиться к соглашениям - Перевод на местный язык - Пересмотреть действующее законодательство - Ратифицировать и публиковать - Проводить обучение и развитие потенциала - Регулярная проверка - Рабочие группы ЕЭК ООН	 0 0 0 0 0 0 0	 Проверить оценку Слишком низкие значения Действующая система в Молдове 5.1 Исследование потребности в обучении до июня 15 5.2 Разработка учебных курсов до декабря 15 5.3 Обучение специалистов до апреля 16 7.1 Посещение собраний молдавскими экспертами до сентября 2015 7.2 Работа экспертов до декабря 15			

1.3 Конвенция о дорожном движении -1968 - Присоединиться к соглашениям - Перевод на местный язык - Пересмотреть действующее законодательство - Ратифицировать и публиковать - Проводить обучение и развитие потенциала - Регулярная проверка - Рабочие группы ЕЭК ООН	 100 100 100 100 100 100 0	- - - - - - 7.1 Посещение собраний экспертами до сентября 2015 7.2 Работа экспертов до декабря 15			
1.4 Конвенция о дорожных знаках и сигналах - 1968 - Присоединиться к соглашениям - Перевод на местный язык - Пересмотреть действующее законодательство - Ратифицировать и публиковать - Проводить обучение и развитие потенциала - Регулярная проверка - Рабочие группы ЕЭК ООН	 90 90 90 90 90 90 90	- - 3. Внедрить программу систематического снятия / замены знаков, не соответствующих норме - - - 7.1 Посещение собраний экспертами до сентября 2015 7.2 Работа экспертов до декабря 15			
1.5 Европейское соглашение, касающееся работы экипажей транспортных средств, осуществляющих международные автомобильные перевозки - 1970 **- П**рисоединиться к соглашениям - Перевод на местный язык - Пересмотреть действующее законодательство - Ратифицировать и публиковать - Проводить обучение и развитие потенциала - Регулярная проверка	 10 10 10 10 10 10	Проверить данные (слишком низкая оценка) 3.1 Публикация нового кодекса 12/17 3.2 ЕСТР – Внутренние перевозки 03/18 3.2 Собственное производство тахографов в соответствии с директивами ЕС 3020 и 3021 до 09/18 5.1 Исследование потребности в обучении до июня 15 5.2 Разработка учебных курсов до декабря 2015 5.3 Подготовка представителей ключевых организаций до апреля 2016 6.1. Система для отчетности о несоблюдении разработана до июля 2015 6.2 Система пересматривается каждые 2 года, чтобы обеспечить эффективность			

- Рабочие группы ЕЭК ООН	10	7.1 Посещение собраний рабочей группы молдавскими экспертами до сентября 2015 7.2 Работа экспертов до декабря 15			
1.6 Европейское соглашение о международных автомагистралях - 1975 - Присоединиться к соглашениям - Перевод на местный язык - Пересмотреть действующее законодательство - Ратифицировать и публиковать - Проводить обучение и развитие потенциала - Регулярная проверка - Рабочие группы ЕЭК ООН	 100 100 100 100 100 100 100	 - - - - - - -			
1.7 Соглашение о технических осмотрах - 1997 - Присоединиться к соглашениям - Перевод на местный язык - Пересмотреть действующее законодательство - Ратифицировать и публиковать - Проводить обучение и развитие потенциала - Регулярная проверка - Рабочие группы ЕЭК ООН	 10 10 10 10 10 10 10	Необходимо уточнить, поскольку система техинспекций развита и большинство из указанных пунктов проводится 7.1 Посещение собраний рабочей группы молдавскими экспертами до сентября 2015 7.2 Работа экспертов до декабря 15			
Мультидисциплинарное агентство 1. Законодательство существует 2. Координационный орган создан 3. Существует Секретариат, полностью оснащенный персоналом и финансированием	 50 70 25	 1.1 Разработка законодательства (касательно ведущего учреждения, секретариата, финансирования) до конца 01/15 1.2 Принятие до конца 3/15 2.1 Рассмотрение/улучшение деятельности координационного совета до 3/15 2.2 Определение обязанностей участников ведущего учреждения по БДД до конца 3/15 3.1 Секретариат на постоянной основе 6/15 3.2 Создание группы технической поддержки (на уровне директора) для контроля за выполнением решения Совета 09/15			

4. Надежный, устойчивый механизм финансирования безопасности в действии	50	4.1 Рассмотрение международной передовой практики финансирования безопасности 02/15 4.2 Определение лучших моделей финансирования для применения в Молдове 04/15 4.3 Создание механизма для обеспечения устойчивого финансирования безопасности дорожного движения 6/15			
Реализация Национальной стратегии по БДД 1. Стратегия разработана 2. Заинтересованные стороны проконсультированы 3. Стратегия утверждена правительством 4. Реализация началась	 100 100 100 15	 - - - 4.1 Принятие стратегии деятельности рабочей группы до 12/14 4.2 Информирование медиа и правительства о потерях в экономике до 06/15 4.3 Помощь правительства в установлении финансирования для реализации стратегии 08/15 4.4 Финансирование до 12/15			
Реалистичные долгосрочные цели 1. Реалистичные долгосрочные цели в действии 2. План действий подготовлен для достижения целей 3. План действий реализуется 4. Проводится мониторинг прогресса по достижению целей	 100 100 50 50	 - - 3.1 Установление механизма независимого контроля 03/15 3.2 Приоритетные элементы существующего плана действий добавлены в план незамедлительных действий 03/15 3.3 Государственное утверждение программы безопасности дорожного движения до конца 4/15 4.1 Установление системы контроля над выполнением плана действий до конца 6/15 4.2. Ежеквартальная отчетность о проделанной работе транспортному комитету до 9/15			
Стабильное развитие 1. Оценены ежегодные потери в экономике 2. Существует механизм финансирования безопасности дорожного движения	 0 50	 1.1 Исследование по подсчету потерь завершено до конца 06/15 1.2 Доступны расходы для анализа затрат и выгод до конца 09/15 2.1 Фонд по безопасности дорожного движения – создание до 12/14 2.2 Страховые сборы направляются в фонд – установление до 3/15			

		2.3 Другие источники направляются в фонд - до 6/15 2.4 Улучшение механизма выполнения заданий			
3. Выделяется бюджет для улучшения безопасности дорожного движения	50	3.1 Существует бюджет 12/15 3.2 Министерства реализуют политику в районах 06/16			
4. Мониторинг показывает эффективность инвестиций в области безопасности дорожного движения	50	4.1 Независимый контроль эффективности инвестиций 09/15 4.2 Годовой отчет об эффективности деятельности по БДД 12/15			
Обязательное страхование					
1. 1. Существует обязательное страхование третьей стороны	100	-			
2. Существует правоприменение и штрафование для незастрахованных транспортных средств	100	-			
3. Количество незастрахованных транспортных средств сведено к минимуму	80	3.1 Внедрить взаимодействие МВД и моторно-транспортного бюро, по части обмена информацией до 12/15. 3.2 Требование предоставления страхового сертификата на ежегодном лицензировании 12/15 3.3 Повышение проверки документов ГАИ 12/15			
Установить требования для выдачи водительских прав на основе лучшей международной практики					
1. Адекватное теоретическое тестирование в действии	100	1.1 Запросить техническую помощь через программу TAIEX ЕС для соответствия требованиям ЕС для выдачи водительских прав до конца 12/14 1.2 Разработка и внедрение теоретических экзаменов до 6/15 1.3 Подготовка инструкторов и экзаменаторов до 12/15			
2. Адекватное практическое тестирование в действии	70	2.1 Разработать и внедрить тесты, соответствующие стандартам ЕС до 6/15 2.2 Подготовка инструкторов и экзаменаторов до 12/15			
3. Коммерческие водители должны пройти дальнейшие тестирования	80	3.1 Внедрение подтверждения соответствия профессиональной компетенции водителей коммерческого автотранспорта до 12/15 3.2 Подтверждение компетенции водителей коммерческого автотранспорта до 12/17			

4. Система соответствует лучшей международной практике	50	Соответствие системы стандартам ЕС 4.1 Соответствие системы директивам ЕС			
Единая система сбора и оценки данных 1. . Общие основные пункты согласованы и определены 2. Согласованные данные об авариях собираются с помощью полицейских форм об авариях 3. Установлена адекватная система хранения данных 4. Установлена адекватная система извлечения и анализа данных 5. Установлена адекватная система распространения данных 6. Данные по аварийным происшествиям доступны всем заинтересованным сторонам для дальнейшего анализа 7. Система данных по авариям позволяет провести эффективный анализ причин аварий и предпринять меры по их предотвращению	70 80 50 80 50 50 70	1.1 Сотрудничество с другими учреждениями через проект ТРАСЕКА до конца 6/15 1.2 Оценка потребностей экспертом ТРАСЕКА до 6/15 2.2 Форма данных ДТП удовлетворяет все требования заинтересованных сторон 12/15 3.1 Рассмотрение системы и рекомендации до 12/15 4.1 Рассмотрение системы и рекомендации до 12/15 5.1 Рассмотрение системы и рекомендации до 12/15 6.1 Данные доступны для дальнейшего анализа заинтересованными сторонами 12/15 7.1 ГАИ и заинтересованные стороны определяют группы участников ДД и поведение повышенного риска 12/15			
Мониторинг воздействия 1. . Создана региональная рабочая группа 2. Согласованы индикаторы воздействия для контроля 3. Установлена система мониторинга воздействия 4. Распространяется отчет о прогрессе ежеквартального мониторинга 5. Эффективное стратегическое управление реализацией	10 20 20 20 20	1.1 Создание региональной группы до 12/15 2.1 Утверждение индикаторов контроля 03/15 3.1 Утверждение системы контроля 03/15 4.1 Квартальные отчеты доступны 06/15 5.1 Координационная группа рассматривает прогресс и принимает меры по улучшению 9/15			

Стандарты по расстановке знаков 1. Стандарты по расстановке знаков рассмотрены 2. Выявлены потребности и недостатки 3. Разработана программа для улучшения 4. Необходимый бюджет подсчитан	 50 30 30 20	 1.1 Изменение законодательства в зависимости от необходимости в улучшении 1.2. Пересмотр стандартов 6 /15 2.1 До конца 6/15 определены области первоочередных действий 3.1 Разработана программа по реализации действий 9/15 4.1 Приоритетность местных дорог в программе 4.2 До 12/15 подсчитан бюджет			
Принципы аудита БДД, проектирование, строительство 1. Участие в обсуждениях, состоявшихся на региональном уровне для установления единого подхода по аудиту безопасности дорожного движения 2. Договорена реализация политики аудита безопасности дорожного движения на национальном уровне 3. Участие в дискуссиях по системе аккредитации аудита безопасности дорожного движения разработана для региона 4. Участие в дискуссиях по подготовке регионального Руководства по аудиту безопасности дорожного движения 5. Разработаны региональные учебные курсы по аудиту безопасности дорожного движения 6. Обучены тренера по аудиту безопасности дорожного движения 7. В стране созданы учебные программы по аудиту	 0 0 0 0 0 0 0	 1.1 Обсуждение между руководителями учреждений по БДД 04/15 1.2 Региональные принципы по Аудиту БДД (АБДД) до 06/15 2.1 Политика АБДД 06/15 2.1 Проведении АБДД в соответствии с политикой 12/15 3.1 Обсуждение учреждений по БДД о взаимном признании инструкторов по АБДД, обученных проектом ТРАСЕКА и аккредитации аудиторов до 12/15 4.1 Внесение изменений при разработке Руководства по АБДД до 03/15 И использование Руководства до 12/15 5.1 Национальный курс по АБДД дважды в год до 6/15 5.2 Региональные курсы от обученных проектом ТРАСЕКА и сертифицированных инструкторов по АБДД 12/15 6.1 Подготовка как минимум 3 инструкторов по АБДД 12 /15 6.2 Подготовка как минимум 10 инструкторов по АБДД 12 /16 7.1 Минимум 1 раз в год курс по АБДД 6/15 7.2 Региональное общество Аудиторов БДД 7/16			

безопасности дорожного движения					
Передача опыта 1 Учреждена рабочая группа ТРАСЕКА по дорожной безопасности 2. Соблюдены общая база данных Руководств, процедур, стандартов 3. Организованы ежегодные конференции по наилучшей практике дорожной безопасности	0 0 0	1.1 Минимально 3 региональные рабочие группы по разным направлениям 06/15 2.1 Обмен знаниями, опытом между странами ТРАСЕКА путем региональных рабочих групп до 11/15 2.2 Создание базы данных для обмена документами, руководствами и пр. до 12/15 3.1 Минимум 1 конференция по БДД 09/ 15 3.2 Региональные рабочие группы договорились провести ежегодную конференцию до 12 / 15			
Система штрафов 1. Изучить существующую систему штрафов в государствах 2. Обсудить возможную единую систему штрафов по всему региону 3. Создать единую систему данных о нарушениях 4. Применить взаимно признанные санкции по всему региону	0 0 0 0	1.3 Помощь TAIEX ЕС в рассмотрении штрафных систем до 09/15 1.4 Внедрение улучшенной системы 12/15 2.1 Обсуждение системы штрафования ГАИ всех 10 стран ТРАСЕКА 12/15 3.1 Обеспечение доступа как для сотрудников дорожной полиции, так и исследователей/университетов до 09/15 3.2 Обсуждение базы данных по нарушениям ГАИ всех 10 стран ТРАСЕКА 12/15 4.1 Взаимно признаваемые санкции, применяющиеся в регионе – обсуждение ГАИ 10 стран 12/15 4.2 Представление системы санкций 12/16			

План действий 2: Безопасная инфраструктура

ИНДИКАТОРЫ ВОЗДЕЙСТВИЯ	% Реализации	Требуемые действия временных в рамках	Предполагаемые расходы	Ведущая организация	Участие Заинтересованных сторон
1	2	3	4	5	6
Аудит БДД 1. Правовая основа для аудита безопасности дорожного движения	80	1.1 написание текста изменений к Закону 31; 3/15 1.2 согласование с заинтересованными министерствами и ведомствами; 2/15 1.3 рассмотрение и утверждение; 5/15		1.1 МТДИ и ГААД 1.2 МТДИ	1.1 Все соответствующие министерства 1. МТДИ, Министерство образования 1.3 МТДИ, ГААД
2. Адекватное руководство в использовании	0	2.1 написание нормативных документов по проведению аудита 6/15 2.2 Законное принятие руководства 8/15 2.3 согласование с заинтересованными министерствами и ведомствами 8/15 2.4- Зарегистрировать в Министерстве юстиции; 11/15		1.3 МТДИ и Министерство Образования	1.4 ГААД, МПУ уровня II, строительные и проектирующие компании
3. Доступны обученные аудиторы дорожной безопасности	0	3.1. Аудиторы по БДД (прошедшие обучение ТРАСЕКА) обучают других специалистов 06/15 3.2 Как минимум раз в год обучение по АБДД утверждено министерством образования 10/15 3.3 Институционализация обучения до 12/15		1.4 ГААД 1.5 ГААД	1.5 специализирующиеся организации 1.6 специализирующиеся организации
4. Дорожная администрация имеет бюджет на аудит БДД	100	4.1. Выделение бюджета на АБДД 06/15 4.2 Консультанты имеют право обучать АБДД 12/15 4.3 Консультанты отправляют специалистов для обучения АБДД 12/16		1.6 ГААД и МПУ	
5. Все новые, восстановленные и реабилитированные дороги проходят аудит БДД	70	5.1 Принятие законодательства в установленном порядке 06/15 5.2 Годовые отчеты всех учреждений по БДД в обязательном порядке 12/15			
6. Со стороны дорожной администрации реализуются рекомендации по аудиту безопасности дорожного движения	70	6.1 Пояснительный доклад в случае невыполнения рекомендаций по АБДД 12/15			
Управление местами концентрации ДТП 1. Правовая основа для управления местами концентрации ДТП	80	1.1 Разработать, согласовать и утвердить в установленном порядке; 4/15 1.2 Координация с заинтересованными ведомствами; 5/15 1.3 Рассмотрение и утверждение; 6/15		2.1 МВД, МТДИ	2.1 Образовательные учреждения; МВД

2. Адекватное руководство по управлению черными точками в использовании 3. Доступны обученные исследователи по черным точкам 4. Годовая программа по предотвращению ДТП в действии 5. Дорожные власти распределили средства на улучшение черных точек (управление) 6. Рекомендации по УЧТ выполняются со стороны Дорожных властей.	0 0 70 70 80	2.1 Разработать политику по управлению местами концентрации ДТП до 6/15 2.2 Законное принятие руководства по УМК ДТП 8/15 2.3 Координация и консультации до 9/15 2.4- Утвердить в установленном порядке; 10/15 3.1 Обученные ТРАСЕКА инструкторы обучают других специалистов 07/15 3.2 Обучение минимум раз в год 12/15 3.3 Институционализация обучения 12/15 4.1. Бюджет для УМК ДТП 10/15 4.2 Расследования по УМК ДТП проводятся 03/16 4.3 Консультанты обучают персонал 12/15 4.4 Ежегодные программы в каждом учреждении 12/15 5.1 Бюджет (доступный) 10/15 5.2 Годовой отчет по БДД от всех ведомств 12/15 6.1 Пояснительный доклад в случае невыполнения рекомендаций по УМК ДТП 03/16 6.2 Контроль над выполнением мер в зависимости от уровня финансирования 03/16 6.3 Просмотр процедур и процессов УМК ДТП каждые 2 года 12/16		2.2ГААД 2.3 МВД, Министерство Транспорта 2.4 МВД, ГААД 2.5 ГААД 2.6 ГААД	2.2 МВД, Местные администрации, Министерство транспорта 2.3 ГААД, Национальная патрульная инспекция, МТДИ 2.4 Управление по использованию местных дорог 2.5 - 2.6 МВД, МТДИ
Реализация программы для определения маршрутов грузового транспорта вне жилых районов 1. Существует правовая база 2. Проведены опросы по грузовому движению, чтобы оценить потребности 3. Определены альтернативные маршруты 4. Размещены знаки и маркировка 5. Обеспечено эффективное исполнение торговых путей транспортных средств	10 90 90 70 10	1.1 Разработка, координация и утверждение в установленном порядке закона 509; 12/15 1.2. Внесение изменений в 1073 до 03/16 2.1 Завершить опрос до 06/15 3.1 Альтернативне маршруты стратегия - рассмотрение 12/15 3.2 Маршруты 2012 года - реализация 6/15 3.3 отгрузочные терминалы - реализация 12/17 4.1 Годовая программа расстановки знаков 06/15 4.2 Начало систематической программы 12/16 4.3 «Право проезда» - снятие знаков со всех дорог до 12/17 5.1. Повышение штрафов 12/15 5.2 Контроль над выполнением 06/16		3.1 МТДИ 3.2 МТДИ, Главная инспекция общественного транспорта при МПУ 3.3 МТДИ, ГААД 3.4 МТДИ, ГААД	3.1 Администраторы дорог 3.2 МТДИ 3.3 Национальное агентство автотранспорта 3.4 МПУ, пользователи дорог, МВД

6. Уменьшено количество частных транспортных средств в жилых районах	80	6.1 Оценка показывает низкое количество коммерческого транспорта в жилых зонах 06/17		3.5 МТДИ, ГААД, Министерство экономики 3.6 МПУ	3.5 Администраторы дорог, МПУ, МТДИ, перевозчики, гражданское общество 3.6 пользователи дорог, рекламные агентства
Экономически эффективные меры со стороны местных властей в сфере ДД 1. 1. Обновлена стоимость аварий и известных ДТП 2. Доступны затраты/выгоды интервенции безопасности 3. Проделаны работы по рейтингу/приоритетности для улучшения на базе анализа затрат/выгод 4. Многие опасные зоны систематически улучшаются с помощью ежегодных программ.	10 50 10 30	1.1 Проведение исследования 12/15 1.2 Доступны оценки затрат на ДТП 07/15 2.1 Известна оценка затрат в зависимости от ДТП 08/15 2.2 Известна оценка затрат в зависимости от степени тяжести 08/15 3.1 Оценка мер с помощью анализа затрат и выгод 09 /15 3.2 Ранжирование на основе анализа затрат и выгод 10/15 4.1 Ежегодный бюджет для улучшения 30 черных точек у каждой местной власти/учреждения, за которым закреплены сети дорог 12/15 4.2 Приоритетность «черных точек» в зависимости от анализа до 11/15 4.2 Эффективное использование средств 01/16		4.1 Эксперты 4.2 ГААД 4.3 МТДИ, ГААД 4.4 МТДИ, ГААД	4.1 МВД, МТДИ, Министерство Здравоохранения 4.2 Пользователи дорог 4.3 Пользователи дорог 4.4 МВД, Министерство Здравоохранения, Пользователи дорог
Безопасные стоянки для грузовиков вне дорог 1. Правовая основа 2. Проведены опросы грузовых перевозок для выявления потребностей по парковкам. 3. Выявлены потенциальные площадки для парковки	80 0 50	1.1 Разработка программы, 06/2015 1.2 Разработка Программы строительства и обустройства парковочных площадок для стоянки грузовых транспортных средств, 12/2015 2.1 Завершить до 06/15 2.2 Местный персонал – обучение передовой практике в проектировании парковочных площадок – 09/15 3.1 Отчет определяет потенциальные районы вдоль основных дорог 12/15 3.2 Доступны руководства по международной передовой практике 12/15		5.1 МТДИ 5.2 Эксперты 5.3 МТДИ, МПУ, Кадастровый реестр 5.4 МТДИ, ГААД	5.1 Компании транспорта и логистики 5.2 Транспортные компании 5.3 Транспортные компании 5.4 Пользователи дорог

4. Размещены знаки и маркировка 5. Доступны безопасные парковки на бездорожьях для грузовых автомобилей, и они используются на основных маршрутах.	50 20	3.3. Программа приобретения земли для построения парковочных площадок до 09/15 4.1 Необходимость в расставлении знаков изучена 12/15 4.2 Начало систематической программы 06/16 5.1 Обзор каждые 3 года 12/15 5.2 Программа для обеспечения 12/16		5.5МТДИ, ГААД	5.5 Пользователи дорог, Транспортные компании
Укрепление потенциала инженеров и технических работников 1. Выпущены адекватные Инструкции/Руководства по технике безопасности 2. Обучены специалисты от правительства, консультанты и академический персонал 3. Произведены учебные программы для университетских курсов 4. Во время учебы, ученики обучаются безопасным подходам проектирования	20 10 10 50	1.1 Решить вопрос официального членства дорожной администрации в PIARC до 06/15 1.2 Техническая помощь в получении и переводе пособий, выпущенных под. эгидой PIARC 12/15 1.3 Принятие Руководства по АБДД ТРАСЕКА 06/15 1.4 Принятие Руководства по УМК ДТП ТРАСЕКА 06/15 2.1 Курс по АБДД и УМК ДТП доступен 12/15 2.2 Курс проводится обученными ТРАСЕКА инструкторами 12/15 2.3 Обучение консультантов и ученых 12/15 2.4 Самостоятельное финансирование курсов 12/15 3.1 Университету оказана помощь в разработке учебной программы до 06/15 3.2 Лекционные материалы предоставлены 12/15 4.1 БДД на курсах по инженерии 12/15 4.1 Студенты осведомлены в вопросах БДД 12/16		6.1 МТДИ, Министерство образования 6.2 МТДИ 6.3 Министерство образования 6.4 Министерство образования, МТДИ	6.1 ГААД, Институты проектирования 6.2 Институты проектирования, соответствующие образовательные учреждения 6.3 Технический университет, Полицейская академия и др. 6.4Соответствующие ВУЗы

План действий 3: Более безопасный транспорт

ИНДИКАТОРЫ ВОЗДЕЙСТВИЯ	% Реализации	Требуемые действия временных в рамках	Предполагаемые расходы	Ведущая организация	Участие Заинтересованных сторон
1	2	3	4	5	6
Техосмотры 1. Международная конвенция ратифицирована 2. Правовая основа для осмотра транспортных средств 3. Руководство для осмотра транспортного средства в использовании 4. Обученные сертифицированные механики проводят осмотры транспортных средств 5. Правительство сертифицировало/ регулировало семинары и посты контроля 6. Регулирующее учреждение профинансировано 7. Сокращено количество дефектного транспорта в движении	100 100 90 90 100 60 30	1.1- 2.1 -, Решение правительства 10/47 по ПДД 150 от 2014 года 3.1 Пересмотреть и обновить руководство до 12/15 4.1 Улучшение процесса сертификации до 09/15 4.2 Дополнительные курсы для механиков, 03/16 5.1 -, Посты контроля оснащены современными технологиями 5.2 Качество проверяется на всех станциях 6.1 Обзор потребности в финансировании и оснащении до 06/15 6.2 Реализация рекомендаций 06/16 7.1 Периодические проверки на дорогах для оценки количества транспортных средств с дефектами – до 12/15		1.1 МВД 1.2 МТДИ 1.3 МВД 1.4 МВД, МТДИ 1.5 МТДИ 1.6 МТДИ 1.7 МТДИ	1.1 МВД и МТДИ 1.2 МВД и МТДИ 1.3 МВД и МТДИ 1.4 Национальное агенство автотранспорта и пользователи дорог. 1.5 Национальное агенство автотранспорта 1.6 Национальное агенство автотранспорта 1.7 Национальное агенство автотранспорта
Обеспечить применение правил безопасности, признанных на международном уровне, в отношении импортируемых транс-портных средств 1. Импортированные автомобили соответствуют международным стандартам (ЕЭК ООН) 2. Правовая основа существует для того, чтобы предотвратить ввоз неподходящих/ небезопасных транспортных средств 3. Осуществляется контроль, не позволяющий ввоз поддельных запасных частей	100 100 30	1.2 Пересмотр законодательства для обеспечения соответствия стандартам ЕЭК 06/15 2.1 Изменения в законодательстве для предотвращения импорта небезопасных транспортных средств 06/15 3.1 Выборочные проверки импортных запчастей 12/15 3.2 Строгие наказания для импортеров поддельных запчастей 06/16		2.1 МТДИ 2.2 МТДИ	2.1 Пограничная служба, Минитерство Экологии. 2.2 Автодиллеры, Министерство Экологии 2.3 Автодиллеры, Пограничная служба , Министерство Экологии.

				2.3 МТДИ	
Обеспечить соответствие транспортных средств перевозящих опасные грузы всем техническим стандартам 1. 1. Транспортные средства сертифицированы ДОПОГ 2. Водители сертифицированы ДОПОГ 3. Аварийные службы прошли специальную подготовку, для работы при ДТП ДОПОГ	90 90 80	1.1 Сертификация всех членов МДП 12/15 1.2 Рассмотрение необходимых для контроля ресурсов 12/15, 2.1 Обзор системы проверки водителей 12/15 3.1 Обучение ГАИ 12/15 3.2 Обучение пожарных 12/15 3.3 Обучение служб скорой помощи12/15		3.1 МТДИ 3.2 МТДИ 3.3 МВД	3.1 Национальное Агенство Автотранспорта, Агенство по перевозке 3.2 Национальное Агенство Автотранспорта, Агенство по перевозке 3.3 Депортамент Гражданской Защиты от Черезвычайных ситуаций. Участники дорожного движения. Национальное Агенство Автотранспорта.

План действий 4: Безопасность участников движения

ИНДИКАТОРЫ ВОЗДЕЙСТВИЯ	% Реализации	Требуемые действия временных в рамках	Предполагаемые расходы	Ведущая организация	Участие Заинтересованных сторон
1	2	3	4	5	6
- **Законодательство в действии относительно:** 1. ремней безопасности 2. мотоциклетных шлемов 3. детских удерживающих устройств 4. использования мобильных телефонов 5. скорости 6. употребления алкоголя 7. наркотических препаратов - Эффективное применение законодательства в области безопасности	100 100 50 100 100 100 50	- - 3.1 Увеличить штрафы 06/15 - - - 7.1 Обучение ГАИ новому законодательству 7.2 Обзор международной передовой практики и опыта до 12/15 7.3 Рекомендации – реализовать до 12/16			
Медиакампании 1. . Кампании по дорожной безопасности используют соответствующие средства массовой информации 2. Существует государственный бюджет для кампаний по БДД 3. Общественные организации и частный сектор активны в финансировании кампаний дорожной безопасности 4. Доступен учебный материал для школьников соответствующий их возрасту	30 20 30 0	1.1 Оценка эффективности прошлых кампаний 06/15 2.1 Обзор поребности в финансировании до 12/15 2.2 Реализация рекомендаций 06/16 3.2 Активность частного сектора и общественных организаций 12/15 3.3 Предоставление финансовых и других ресурсов со стороны компаний для кампаний по БДД до 12/15 3.4 Проведение национального семинара для активности частного сектора и общественных организаций 12/15. 4.1.Обзор текущих мероприятий по БДД в школах 12/15 4.2 Соответствующие возрасту материалы в школах – улучшение до 06/16.			

Контроль 1. 1. Дорожная полиция имеет достаточное количество сотрудников и транспортных средств 2. Дорожная полиция имеет соответствующее оборудование для обеспечения порядка 3. Дорожная полиция имеет надлежащую подготовку 4. Правоохранительная деятельность дорожной полиции основана на анализе данных по авариям	80 60 50 50	1.1 Состав ГАИ – 10-12% милиции до 12/15 1.2. Патрульные авто – 1 на 4 милицейских до 12/15 2.1 Обзор необходимого оборудования для ГАИ до 06/15 2.2 Приборы определения скорости в количестве ххх до 12/15. 2.3 Алкотестеры в количестве ууу до 12/15 2.4 Доказательные алкотестеры в количестве ааа 12/15 2.5 ГАИ / правительство изучают возможности реализации программы, касающейся светофоров, скорости и видеокамер до 12/15 (1 км дороги) до 06/15 3.1 законодательная подготовка ГАИ до 12/15 3.2 медицинская подготовка первой медицинской помощи до 12/16 3.3 Обучение расследованию ДТП до 06/16 3.4 ГАИ обучены работе в случаях, касающихся ДОПОГ 3.5 Обучение супервизоров стратегиям и тактикам контроля над выполнением ПДД, основанным на исследованиях - до 06/15 3.6 Обучение использованию оборудования –до 12/15 4.1 Обучение анализу данных по ДТП до 06/15 4.2 Работа ГАИ построена на основе данных по ДТП 09/15 4.3 Контроль над выполнением ПДД основан на данных 06/16 4.4 Сотрудничество ГАИ с медиа и общественными организациями. Расширить программу обучения молодых инструкторов дорожного движения.			
Организации 1. 1. Политика в сфере дорожной безопасности правительственных учреждений касается их работников, водителей и транспортных средств. 2. Политика в сфере дорожной безопасности крупных организаций частного сектора касается их	0 20	1.1 Постановление об обязательном принятии политики дорожной безопасности министерствами и ведомствами до 03/15 1.2 БДД в ТЗ для менеджеров высшего звена и обзор их деятельности до 06/15 1.3 Дисциплинарная ответственность сотрудников, которые не соблюдают ПДД 12/15 2.1 Продвижение политики БДД и хартии руководителями предприятий до 03/15			

работников, водителей и транспортных средств. 3. Организации по дорожной безопасности, поддерживают правительство и организации частного сектора рекомендациями и материалами по безопасности	0	2.2 Подписание хартии руководителями компаний 06/15 2.3 Подписание хартии компаниями, включая политику БДД 09/15 3.1 Продвижение политики БДД и хартии общественными организациями и предоставление материалов до 12/15 3.2 Общественные организации работают/сотрудничают с госучреждениями для продвижения БДД на местном уровне 06/16.			

План действий 5: Скорая медицинская помощь

ИНДИКАТОРЫ ВОЗДЕЙСТВИЯ	% Реализации	Требуемые действия временных в рамках	Предполагаемые расходы	Ведущая организация	Участие Заинтересованных сторон
1	2	3	4	5	6
Медицинская помощь для пострадавших при ДТП					
1. Существует национальная система скорой медицинской помощи	90	1.1. Система экстренных служб 112 – пересмотреть до 3/15 1.2 Координация службы ЭМП другими экстренными службами (до 04.2015) 1.3. Обучение профессиональных диспетчеров службы ЭМП (до 12.2016 по всем регионам и систематически); 1.4. Систематическое проведение общих тренингов экстренных служб (до 09.2015) 1.5. Внедрение обязательного медицинского страхования (до 10.2016).			
2. Жертвы аварий получают эффективную первую помощь в течение 30 минут	80	2.1 Стандарт для максимального времени отклика скорой помощи (до 03.2015); 2.2. Утверждение алгоритма проведения медицинской сортировки (до 05.2015); 2.1 Повышение уровня домедицинской помощи обученными специалистами – до передовых практик (05/15)			
3. Аварийные бригады скорой помощи имеют навыки оказания первой помощи	80	3.1 Обучение скорой помощи при участии других служб экстренной помощи (МВД, службы чрезвычайных ситуаций и пр.) – до 03/15			
4. Полиция и спасательные службы имеют навыки оказания первой помощи	50	4.1. Подготовка полиции и спасательных служб в области первой медицинской помощи и транспортировке больных 09/15 4.2 Систематическое обучение совместно с другими службами 05/16 4.3 Наборы для оказания пмп в полицейских машинах 10/15			
5. Коммерческие водители (автобусов/такси/грузовиков) имеют навыки оказания первой помощи	20	5.1 Включение грузового транспорта в программу обучения пмп коммерческих водителей 06/15 5.2 Программа обучения пмп – улучшение до 12/15			

Травматологическая помощь 1. Отделение скорой помощи больницы оснащено необходимым для ухода за жертвами ДТП 2. Пострадавшие получают соответствующее лечение 3. 70% больниц имеют отделения скорой помощи 4. Обучение по первой помощи доступно общественности	100 80 80 20	1.1 обязательное медицинское страхование 10/15 1.2 материально-техническое оснащение 10/16 2.1 Обязательное медицинское страхование 10/16 2.2 Постоянная оценка служб и качества предоставления помощи 12/15 3.1 Минимум 1 больница с отделением скорой помощи, доступная в течение 30 минут в каждой области – до 06/15 4.1 Популяризация обучения для всех желающих 06/15 4.2 В автошколах обучают ПМП до 06/15			
Необходимая медицинская помощь 1. Специалисты по реабилитации рано оказали медицинскую помощь пострадавшим 2. Пострадавшим было предоставлено соответствующее лечение 3. Доктора получали специальное обучение для работы с жертвами ДТП	90 90 90	1.1 Рассмотрение международных передовых практик до 06/15 1.2 Улучшение в данной области до 12/15 2.1 Изучение потребностей жертв 12/15 2.2 Соответствующее лечение 12/15 3.1 Медицинская подготовка включает работу с понесшими утрату до 12/15			
Справедливое урегулирование 1. Система страхования транспортных средств действует по всей стране 2. ДТП профессионально исследуются дорожной полицией 3. Исследования аварий определяют верные причины аварий 4. Система правосудия обеспечивает справедливые условия для жертв ДТП	90 80 70 70	1.4 Обязательное страхование ответственности перед третьими лицами на национальном уровне до 6/15 1.5 Минимум 90% транспортных средств застрахованы до 12/15 1.6 Уровень выплат компенсаций жертвам пересматривается и уточняется в случае необходимости до 03/16 2.1 Инструкторы обучаются расследованию ДТП до 06/15 2.2 Инструкторы обучают коллег ГАИ расследованию ДТП до 12/15 3.1 Расследования ДТП проводятся обученными специалистами до 06/16 3.2. Существует положение об оспаривании решения или заключения полицейского расследования и представления альтернативного доклада экспертов в суд - до 06/16 4.1 Справедливость и непредвзятость судебных решений по общему мнению – до 12/16			

		4.2 Справедливость и соответствие компенсации международным передовым практикам 12/17			
Единый звонок 1. Создан единый номер службы экстренной помощи по всей стране 2. Центры по контролю обучены для быстрого и эффективного оказания помощи жертвам ДТП 3. Существует необходимое оборудование для работы центра	30 40 60	1.1 Пилотный проект в северном регионе - единая диспетчерская (901,902,903)-112; 12/15 1.2 Единый номер на национальном уровне до 12/16 2.1. Изучить опыт функционирования центров в других странах (до 12.2015); 2.2 Улучшение системы 12/16 3.2 Создать центры и оснастить в соответствии с требованиями (до 12.2017).			

План действий 6: Изменение поведения

ИНДИКАТОРЫ ВОЗДЕЙСТВИЯ	% Реализации	Требуемые действия временных в рамках	Предполагаемые расходы	Ведущая организация
1	2	3	4	5
Партнерство между правительством и НПО				
1. 1. Правовая основа для Общественных организаций	100	-		
2. Общественные организации активно принимают участие в области дорожной безопасности	100	-		
3. Общественные организации консультируют или участвуют в принятии решений по вопросам безопасности дорожного движения на национальном уровне	80	- 3.1 Общественные организации представлены в Национальном Совете по БДД для проведения ежегодного Форума/встречи – до 06/15		
4. Общественные организации консультируют или участвуют в принятии решений по вопросам безопасности дорожного движения на местном уровне	80	4.1 Общественные организации/члены Форума представлены на муниципальном и областном уровне координационного органа - до 12/15 4.2 Общественные организации/Форум задействованы в работе на муниципальном и областном уровне координационного органа 06/16		
Образование				
1. 1. Существует национальная программа (учебная программа) для обучения безопасности дорожного движения	10	1.1.Обзор обучения по БДД в школах в сравнении с передовой международной практикой - до 06/15 1.2 Рабочая группа совместно с Мо3 разрабатывает новые материалы по БДД – до 09/15 1.2 Обучение БДД в школьной программе на национальном уровне - до 12/16		
2. Существуют образовательные материалы, соответствующие по возрасту и они используются в школах (книги, и т.д.)	10	2.1. Соответствующие возрасту материалы 12/15 2.1 Материалы используются в школах 12/16		
3. Преподаватели подготовлены в области безопасности дорожного движения	5	3.1. Предоставление материалов по БДД студентам последних курсов педагогических ВУЗов 12/16 3.2 Раздаточные материалы в школах. 3.3 Материалы по БДД для детей 12/17		
4. Снижение количества детей среди жертв ДТП в местах, где проводится обучение БДД	5	4.1. Телеуроки для детей 06/15 4.2. Программа наблюдения (мониторинга) за эффективностью программы (до 12/2015)		
Курсы переподготовки				
1. Правовая основа для курсов переподготовки	0	1.1. Рассмотрение международной передовой практики 06/15 1.2 Законодательство в этой области 12/15		

2. База данных штрафования водителей существует и работает 3. Программа для курсов переподготовки подготовлена 4. Курсы переподготовки реализуются 5. Улучшение знаний и осведомленности в БДД участников курса	50 0 0 0	2.1. Улучшение базы данных (создание единой) 09/15 3.1. Обзор передовых практик в переподготовке водителей и разработка аналогичной в Молдове 03/16 3.2 Все заинтересованные стороны – задействованы в разработке программы курсов 06/16 4.1 Пилотная программа курсов – проверка 09/16 5.1 Оценка программы курсов 06/16 5.2 Улучшение программы в зависимости от результата 12/16		
Поощрение правомерного поведения 1. 1. Установлена система номинации водителей, выполняющих ПДД 2. Установлена система наград 3. Победители признаются обществом	5 0 0	1.1Разработать систему поощрения государством, честного сектора, за соблюдения коммерческим транспортом и профессионалами ПДД -до 06/15 1,2Предложение создания подобных программ у владельцев автопарков 09/15 2.1 Установить систему наград (грамоты, сертификаты, скидки на страховки в страховых компаниях) – до 12/15 . 2.2. Предложение скидки на страховку для компаний, в которых проводится переподготовка 06/16 3.1. Распространять информацию в СМИ и соц.сетях 12/16 3.2. Создание групп, специальных сайтов, разработка рекламы. Проведение специальных тематических ток-шоу. Создание телевизионных программ 12/16		

Заключение. Общий необходимый бюджет

Действие Год	2015	2016	2017	Всего
План действий 1: Институциональные улучшения				
План действий 2: Более безопасные дороги				
План действий: Более безопасный транспорт				
План действий: Безопасное поведение участников движения				
План действий: Скорая медицинская помощь				
План действий: Изменение отношения				
Всего (Евро)				

ПРИЛОЖЕНИЕ B: ПОКАЗАТЕЛИ ЭФФЕКТИВНОСТИ ИНСТИТУЦИОНАЛЬНОГО РАЗВИТИЯ

Показатели воздействия были разработаны для каждого из желаемых результатов следующим образом:

1. ИНСТИТУЦИОНАЛЬНЫЕ УЛУЧШЕНИЯ

ЗАДАЧИ	ПОКАЗАТЕЛИ ВОЗДЕЙСТВИЯ
Соблюдение следующих Соглашений/ Конвенций ЕЭК ООН:	**1.1** Европейское соглашение о международной дорожной перевозке опасных грузов - 1957 - Присоединиться к соглашениям - Перевод на местный язык - Пересмотреть действующее законодательство - Ратифицировать и публиковать - Проводить обучение и развитие потенциала - Регулярная проверка - Рабочие группы ЕЭК ООН
1.1. Европейское соглашение о международной дорожной перевозке опасных грузов, заключено в 1957	
1.2. Соглашение о принятии единообразных технических предписаний для колесных транспортных средств, предметов оборудования и частей, которые могут быть установлены и/ или использованы на колесных транспортных средствах, и об условиях взаимного признания официальных утверждений, выдаваемых на основе этих предписаний, заключено в Женеве 20 марта 1958	**1.2** Соглашение транспортных правил - 1958 - Присоединиться к соглашениям - Перевод на местный язык - Пересмотреть действующее законодательство - Ратифицировать и публиковать - Проводить обучение и развитие потенциала - Регулярная проверка - Рабочие группы ЕЭК ООН
1.3. Конвенция о дорожном движении, Вена 1968 г.	**1.3** Конвенция о дорожном движении -1968 - Присоединиться к соглашениям - Перевод на местный язык - Пересмотреть действующее законодательство - Ратифицировать и публиковать - Проводить обучение и развитие потенциала - Регулярная проверка - Рабочие группы ЕЭК ООН
1.4. Конвенция о дорожных знаках и сигналах, Вена 1968г.	**1.4** Конвенция о дорожных знаках и сигналах - 1968 - Присоединиться к соглашениям - Перевод на местный язык - Пересмотреть действующее законодательство - Ратифицировать и публиковать - Проводить обучение и развитие потенциала - Регулярная проверка - Рабочие группы ЕЭК ООН
1.5. Европейское соглашение, касающееся работы экипажей транспортных средств, осуществляющих международные автомобильные перевозки, от июля 1970г.	**1.5 Европейское соглашение, касающееся работы экипажей транспортных средств, осуществляющих международные автомобильные перевозки -** 1970 - Присоединиться к соглашениям - Перевод на местный язык - Пересмотреть действующее законодательство
1.6. Европейское соглашение о международных автомагистралях, от 1975г	
1.7. Соглашение о принятии единообразных условий для периодических технических осмотров транспортных средств и о взаимном признании таких осмотров, от 1997г	

	- Ратифицировать и публиковать - Проводить обучение и развитие потенциала - Регулярная проверка - Рабочие группы ЕЭК ООН
	1.6 Европейское соглашение о международных автомагистралях - 1975 - Присоединиться к соглашениям - Перевод на местный язык - Пересмотреть действующее законодательство - Ратифицировать и публиковать - Проводить обучение и развитие потенциала - Регулярная проверка - Рабочие группы ЕЭК ООН
	1.7 Соглашение о технических осмотрах - 1997 - Присоединиться к соглашениям - Перевод на местный язык - Пересмотреть действующее законодательство - Ратифицировать и публиковать - Проводить обучение и развитие потенциала - Регулярная проверка - Рабочие группы ЕЭК ООН
1.8. Создание агентства по безопасности дорожного движения	1. Законодательство существует 2. Координационный орган создан 3. Существует Секретариат, полностью оснащенный персоналом и финансированием 4. Надежный, устойчивый механизм финансирования безопасности в действии
1.9. Разработка национальной стратегии безопасности дорожного движения	1. Стратегия разработана 2. Заинтересованные стороны проконсультированы 3. Стратегия утверждена правительством 4. Реализация началась
1.10. Реалистичные и долгосрочные цели	1. Реалистичные долгосрочные цели в действии 2. План действий подготовлен для достижения целей 3. План действий реализуется 4. Проводится мониторинг прогресса по достижению целей
1.11. Обеспечение долгосрочной стабильности безопасности дорожного движения	1. Оценены ежегодные потери в экономике 2. Существует механизм безопасности дорожного движения 3. Выделяется бюджет для улучшения безопасности дорожного движения 4. Мониторинг показывает эффективность инвестиций в области безопасности дорожного движения
1.12. Создать схему обязательного страхования участников дорожного движения	1. Существует обязательное страхование третьей стороны по двигателям 2. Существует правоприменение и штрафование для незастрахованных транспортных средств 3. Количество незастрахованных транспортных средств минимизировано

1.13. Установить требования к выдаче водительских прав на основе передового международного опыта	1. Адекватное теоретическое тестирование в действии 2. Адекватное практическое тестирование в действии 3. Коммерческие водители должны пройти дальнейшие тестирования 4. Система соответствует лучшей международной практике
1.14. Унифицировать стандарты сбора и анализа данных ДТП в регионе	1. Общие основные пункты будут согласованы и определены 2. Согласованные данные об авариях собираются с помощью полицейских форм об авариях 3. Установлена адекватная система хранения данных 4. Установлена адекватная система извлечения и анализа данных 5. Установлена адекватная система распространения данных 6. Данные по аварийным происшествиям доступны всем заинтересованным сторонам для дальнейшего анализа 7. Система данных по авариям позволяет провести эффективный анализ причин аварий и предпринять меры по их предотвращению
1.15. Разработать единую систему мониторинга и оценки результатов внедрения ряда мер	1. Создана региональная рабочая группа 2. Согласованы воздействия для мониторинга 3. Установлена система мониторинга воздействия 4. Распространяется отчет о прогрессе ежеквартального мониторинга 5. Эффективное стратегическое управление реализаций
1.16. Пересмотреть и улучшить систему расстановки дорожных знаков	1. Подписание / стандарты рассмотрены 2. Выявлены потребности и недостатки 3. Разработана программа для улучшения 4. Необходимые бюджеты оценены
1.17. Внедрить принципы и практику аудита безопасности дорог в проектирование и строительство существующих и новых дорог любой категории	1. Участие в обсуждениях, состоявшихся на региональном уровне для установления единого подхода по аудиту безопасности дорожного движения 2. Договорена реализация политики аудита безопасности дорожного движения на национальном уровне 3. Участие в дискуссиях по системе аккредитации аудита безопасности дорожного движения разработана для региона 4. Разработано участие в дискуссиях по подготовке регионального Руководства по аудиту безопасности дорожного движения 5. Разработаны региональные учебные курсы по аудиту безопасности дорожного движения 6. Обучены тренера по аудиту безопасности дорожного движения 7. В стране созданы учебные программы по аудиту безопасности дорожного движения
1.18. Обеспечить доступ к передовому опыту дорожной безопасности по всему региону	1. Учреждена рабочая группа ТРАСЕКА по дорожной безопасности 2. Соблюдены общая база данных Руководств, процедур, стандартов 3. Организованы ежегодные конференции по наилучшей практике дорожной безопасности
1.19. Общий подход к штрафам по нарушениям правил дорожного движения в регионе	1. Изучить существующую систему штрафов в государствах 2. Обсудить возможную единую систему штрафа по всему региону 3. Создать единую систему данных о нарушениях 4. Применить взаимно признанные санкции по всему региону

2. БОЛЕЕ БЕЗОПАСНАЯ ИНФРАСТРУКТУРА

ЗАДАЧИ	ПОКАЗАТЕЛИ ВОЗДЕЙСТВИЯ
2.1. Внедрить программы оценки\аудита безопасности дорог	1. Правовая основа для аудита дорожной безопасности 2. Адекватное руководство в использовании 3. Доступны обученные аудиторы дорожной безопасности 4. Дорожная администрация имеет бюджет на покупку аудита дорожной безопасности 5. Все новые, восстановленные и реабилитированные дороги проходят аудит безопасности 6. Рекомендации аудита безопасности дорожного движения реализуется со стороны дорожной администрации
2.2. Устранение «черных мест»	1. Правовая основа для управления черных пятен 2. Адекватное руководство по управлению черными пятнами в использовании 3. Доступны обученные исследователи по черным пятнам 4. Годовая программа по предотвращению опасностей в действии 5. Дорожные власти распределили средства на улучшение управления по черным пятнам. 6. Рекомендации по УЧП выполняются со стороны Дорожных властей.
2.3. Осуществление программы определения маршрутов передвижения грузов в объезд населенных пунктов	1. Существует правовая база 2. Проведены опросы по грузовым движениям, чтобы оценить потребности 3. Определены альтернативные маршруты 4. Размещены подписания и маркировка 5. Обеспечено эффективное исполнение торговых путей транспортных средств 6. Уменьшена реклама через транспортные средства в жилых районах
2.4. Применение экономически эффективных мер местными властями	1. Обновлена стоимость аварий и известных несчастных случаев 2. Доступны затраты/выгоды интервенции безопасности 3. Проделаны работы по рейтингу/приоритетности для улучшения на базе анализа затрат/выгод 4. Многие опасные зоны систематически улучшаются с помощью ежегодных программ.
2.5. Обеспечение безопасных и надежных внедорожных стоянок для грузовых автомобилей	1. Правовая основа 2. Проведены опросы грузовых перевозок для выявления потребностей по парковкам. 3. Выявлены потенциальные площадки для парковки 4. Размещены подписания и маркировка 5. Доступны безопасные парковки на бездорожьях для грузовых автомобилей, и они используются на основных маршрутах.
2.6. Укрепление кадрового потенциала инженеров и технического персонала	1. Выпущены адекватные Инструкции/Руководства по технике безопасности 2. Обучены выбранные правительство, консультанты и академический персонал 3. Произведены учебные программы для университетских курсов 4. Во время учебы, ученики обучаются безопасным подходам проектирования

3. БОЛЕЕ БЕЗОПАСНЫЕ ТРАНСПОРТНЫЕ СРЕДСТВА

ЗАДАЧИ	ПОКАЗАТЕЛИ ВОЗДЕЙСТВИЯ
3.1. Проводить регулярный технический осмотр транспортных средств	1. Международная конвенция ратифицирована 2. Правовая основа для осмотра транспортных средств 3. Руководство для осмотра транспортного средства в использовании 4. Обученные сертифицированные механики проводят осмотры транспортных средств 5. Правительство сертифицировало/ регулировало семинары и посты контроля 6. Регулирующее учреждение адекватно профинансировано 7. Сокращено количество дефектного транспорта в движении
3.2. Обеспечить применение правил безопасности, признанных на международном уровне, в отношении импортируемых транс-портных средств	1. Импортированные автомобили соответствуют международным стандартам (ЕЭК ООН) 2. Правовая основа существует для того, чтобы предотвратить ввоз неподходящих/ небезопасных транспортных средств 3. Осуществляется адекватный контроль, не позволяющий ввоз поддельных запасных частей
3.3. Обеспечить соответствие транспортных средств, перевозящих опасные грузы всем техническим стандартам	1. Транспортные средства, сертифицированные ДОПОГ 2. Водители, сертифицированные ДОПОГ 3. Аварийные службы прошли специальную подготовку, чтобы реагировать на/ иметь дело с несчастными случаями ДОПОГ

4. БЕЗОПАСНОСТЬ УЧАСТНИКОВ ДОРОЖНОГО ДВИЖЕНИЯ

ЗАДАЧИ	ПОКАЗАТЕЛИ ВОЗДЕЙСТВИЯ
4.1- 7. Наличие и соблюдение законодательства, охватывающего: ремни безопасности, мотоциклетные шлемы, детские сиденья, использование мобильных телефонов, скорость, алкоголь, наркотики	- Законодательство в действии для: 1. ремней безопасности 2. мотоциклетных шлемов 3. детских удерживающих устройств 4. использования мобильных телефонов 5. скорости 6. алкогольных напитков 7. наркотических препаратов - Эффективное применение законодательства в области безопасности
4.8. Повысить уровень осведомленности населения	1. Кампании дорожной безопасности используют соответствующие средства массовой информации 2. Существует государственный бюджет для кампаний дорожной безопасности 3. SCO -(НПО) и частный сектор активны в финансировании кампаний дорожной безопасности 4. Доступен учебный материал для школьников соответствующий их возрасту

5. УЛУЧШЕННАЯ МЕДИЦИНСКАЯ ПОМОЩЬ ДЛЯ ЖЕРТВ ДТП

ЗАДАЧИ	ПОКАЗАТЕЛИ ВОЗДЕЙСТВИЯ
5.1. Практиковать медицинское обслуживание жертв ДТП	1. Существует национальная система аварийного медицинского обслуживания (EMS)

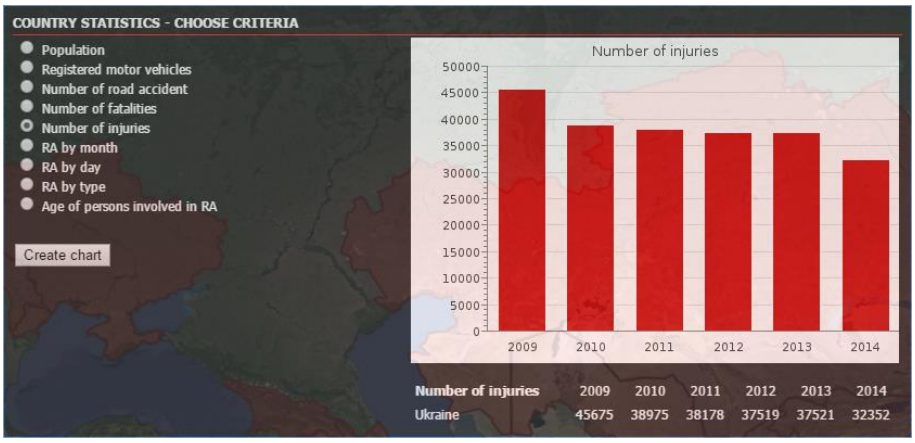
	2. Жертвы аварий получают эффективную первую помощь в течение 30 минут 3. Аварийные бригады скорой помощи имеют навыки оказания первой помощи 4. Полиция и спасательные службы имеют навыки оказания первой помощи 5. Коммерческие водители (автобусов/такси/грузовиков) имеют навыки оказания первой помощи
5.2. Развитие систем стационарной помощи и улучшение их потенциала	1. Отделение скорой помощи больницы оснащено для ухода за жертвами аварий 2. Пострадавшие получают соответствующее лечение 3. 70% больниц имеют отделения скорой помощи 4. Обучение по первой помощи доступно для широкой публики
5.3. Надлежащая реабилитация и поддержка пострадавшим в ДТП	1. Специалисты по реабилитации рано оказали медицинскую помощь пострадавшим (30%) 2. Пострадавшим были предоставлены соответствующие терапии (40%) 3. Доктора получали специальное обучение, чтобы иметь дело с травмированными и погибшими (30%)
5.4. Справедливое урегулирование претензий и судебное расследование для пострадавших в ДТП	1. Система страхования транспортных средств действует по всей стране 2. Аварии профессионально исследованы со стороны дорожной полиции 3. Исследования по авариям определяют правильные причины аварий 4. Система правосудия обеспечивает справедливые условия для травмированных и погибших
5.5. Круглосуточно функционирующий номер службы экстренной помощи “один звонок”	1. Создан единый номер службы экстренной помощи по всей стране 2. Центры по контролю обучены для обеспечения быстрых и эффективных реагирований по оказанию помощи жертвам 3. Существует необходимое оборудование для работы центра

6. ИЗМЕНЕНИЕ ОТНОШЕНИЯ

ЗАДАЧИ	ИНДИКАТОРЫ ВОЗДЕЙСТВИЯ
6.1. Развитие партнерских отношении между Правительством и общественными организациями	1. Правовая основа для Общественной социальной организации CSO – (НПО) 2. CSO (НПО) активно принимает участие в области дорожной безопасности 3. CSO (НПО) консультировала или участвовала в принятии решений по вопросам безопасности дорожного движения на национальном уровне 4. CSO (НПО) консультировала или участвовала в принятии решений по вопросам безопасности дорожного движения на местном уровне

6.2. Организация обучения безопасности дорожного движения в школах на систематической основе	1. Существует национальная программа (учебная программа) для обучения безопасности дорожного движения 2. Существуют образовательные материалы, соответствующие по возрасту, и они используются в школах (книги, и т.д.) 3. Преподаватели подготовлены в области безопасности дорожного движения 4. Были обеспечены обучения по безопасности для снижения аварий со вмешательством детей на местах
6.3. Применение исправительных курсов для водителей	1. Правовая основа для исправительных курсов 2. База данных наказания водителя существует и работает 3. Программа для исправительных курсов подготовлена 4. Исправительные курсы реализуются 5. Знания и осведомленность участников курса о безопасности были улучшены
6.4. Поощрение и признание хорошего поведения на дорогах	1. Установлена система номинаций хороших водителей 2. Установлена система наград 3. Победители были признаны обществом

3. CRASH DATA SYSTEM



Crash data is collected by traffic police in most countries but the completeness of the data at the completeness of the data and its accessibility to other key stakeholders varies markedly. This report outlines the situation and needs in Moldova.

3.1

COUNTRY: **MOLDOVA**

TEAM: **CRASH DATABASE TEAM**

TOPIC: **ANALYSIS OF CRASH DATA SYSTEM**

DATE: **27 – 28 JULY 2015**

REPORT PREPARED BY

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Collection of information and data for the report were done in 27th and 28th July, 2015

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2.	**Activities Undertaken**	
3.	**Current situation (present practices)/deficiencies requiring attention and recommendations (suggested way forward)**	
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1. Introduction

In accordance with project ToR for Component 2: "Regulatory and institutional reforms" Crash Database and Inception report task 2.1.5. Review of current crash data systems and analysis, 2.1.6. Recommendations for improvement of country crash databases/data analysis, 2.1.7. Workshop + Recommendations on a centralised crash database (RS Observatory), the Team has realized a two day visit to Moldova 27-28 July 2015. The Team had a task to ascertain the current situation in terms of database on road accidents, as well as the available data and analyses that are performed on the basis of available data. In addition to this task the Team has made a review of the existing crash data systems in Moldova. The task was also to facilitate a better understanding of the importance of collecting, storing and publishing data on traffic safety and their importance for traffic safety system in its entirety. Also, there are perceived possibilities of Moldova for delivery of existing data into a single database on road accidents for all TRACECA countries.

During the visit, the Team had two days meetings (training-workshop) with representatives of the most important institutions and organizations responsible for individual segments of road safety, especially organizations responsible for establishing a database on road accidents, defining the structure of accident data collected, conducting analyses based on available data and publishing the results. In this context, the Team had meetings with representatives of the Ministry of Interior, Informational Technology Service (Ministry of Interior), National Patrol Inspectorate (Ministry of Interior), Road Safety Department of Municipal Police and Road State Administration.

2. Activities undertaken

27, July, Chisinau: Meeting and workshop in the Ministry of Interior, National Police with representatives from the relevant departments of the Ministry and representatives from other relevant organisations in the field of collecting and using of the road safety data. On the meeting it was discussed about role and tasks of TRACECA project especially crash data system and crash data analysis mission of TRACECA. Also at the same meeting, it was discussed about current crash data system in Moldova, relation between institutions responsible for exchange the road safety data, definition of road safety death, definition for slight and serious injuries, publishing of the road safety reports and road accident data in the Republic of Moldova.
28, July, Chisinau: Second day in the Ministry of Interior with same representatives from the day before. At this meeting, it was discussed about crash data structure in Republic of Moldova. Also, the Team presented CADaS structure of the road accident data recommended by European Commission. At the same meeting, the Team presented the importance of collecting

road accident data for the Black Spot Management and Black spot database. Current examples of open road safety database and black spot database from Republic of Serbia are also presented. In the second part of meeting is discussed about improving of road safety analysis in Moldova and publishing of the road safety reports. Together with representatives from Ministry of Interior responsible for defining the structure of road accident data, the Team made analysis of similarity and difference between CADaS structure and Moldovan structure of road accident data in the database. Main idea was improving current structure of road accident data in Moldova in accordance with CADaS.

Picture 1 and 2 – Work with representatives from Ministry of Interior – Traffic Police Department and IT Department and State Road Authorities, Chisinau, Moldova

3. Current situation (present practices)/deficiencies requiring attention and recommendations (suggested way forward)

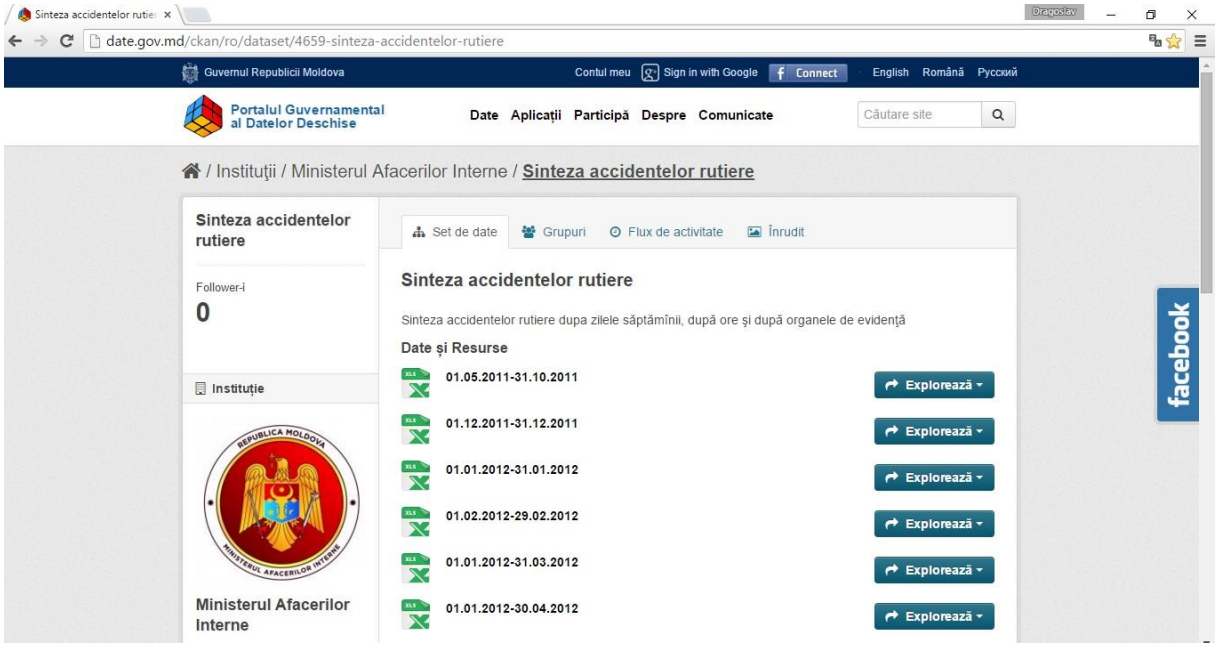
3.1. Current situation

The automated information system "State Register of Road Traffic Accidents" (AIS RRTA) is a state information resource, a set of systematic information and criminological statistics about road traffic accidents, vehicles, and persons involved in an accident.

Territorial police inspectorates collect data in the special Road Traffic Accident Record Card or import the data directly to the AIS RRTA from the Accident Site Inspection Protocol, followed by printing on the Road Traffic Accident Record Card. The data is checked and, if necessary, corrected and complemented in the AIS RRTA system. AIS RRTA is a national database for the formation of national statistics and preparation of annual reports on the state of road traffic safety in the country.

They have formal procedure for checking the quality of entered data into road accident database. They use a metadata standard which is established by the State Enterprise "Centre of State Information Resources "Registru" (SE "CSIR "Registru"), which is the holder of the State Population Register (SPR), the State Register of Legal Entities (SRLE), the State Register of Vehicles (SRV) and the State Register of Drivers (SRD).
The new Database software was established on Microsoft SQL Server. The new database on this platform has been established since 2014 and undergoing further development. Documentation that describes design and structure of database has internal character. Current database system serves inquiries from other stakeholders. The database is accessible via Private Virtual Network, password protected.

Road accidents are available on the website http://date.gov.md/ckan/ro/dataset/4659-sinteza-accidentelor-rutiere. Responsibility for the design of the road accident protocol is under the National Road Police - National Patrol Inspectorate. Ministry of Interior and Ministry of Health has inter-ministry order about exchange of data about injured persons involved in road accident. Road State Administration has limited connection to the road accident database in Ministry of Interior. Decision about details of the road accident data provided to the Road State Administration is on the ministry level (Ministry of Interior and Ministry of Transport).



Picture 3 - Road accident available on the website http://date.gov.md/ckan/ro/dataset/4659-sinteza-accidentelor-rutiere

The first road accident database was established in 2008. The Ministry of Interior - Informational Technology Service is responsible for SQL Server and Application for Road Accident Database. The decision about availability of data is on the highest level of Ministry of Interior and Ministry of Transport.

They have established Monitoring Centre in National Patrol Inspectorate. This centre produces some data for road safety database. Everyone who asked for road accident data gets the data in accordance with Law on protect of personal information.

3.2. Deficiencies requiring attention

*Very high importance – VHI, High importance – HI; Importance – I

Collection of road accident data		
1	They do not collect data about spatial places of road accidents such as: Un-adopted roads, Airports, Hospital areas, Military areas, Industrial areas, etc.	I
2	They do not collect data about speed limit on the place of road accident (if it is intersection speed limit is important from every carriageway that lead to intersection).	HI
3	They do not have data is accident happen on highway (motorway).	I
4	They do not evident is accident happened on the Work Zone (construction zone).	I

5	They do not collect data about road surface, concretely - Surface roughness, surface flatness.	I
6	They do not collect data is there exist some damage on the road surface on the place of accident.	HI
7	They do not collect data about first point of impact on the vehicle (front, front left side, back, offside, nearside, did not impact… etc.).	HI
8	They do not collect data about whacked object on the road, for example: bridge, bridge-side, parked vehicle, previous accident, open door of vehicle, etc.	HI
9	They do not collect data about first object hit off carriageway (road sign, tree, electricity, crash barrier, petrol stations, submerged in water, etc.).	HI
10	They do not collect data about journey purpose.	I
11	If pedestrians were involved in accident, they do not collect separate data about site of accident (pedestrian crossing, carriageway, on the sidewalk, on the shoulder…etc.).	HI
12	They do not collect separate data if pedestrian is the worker in the work zones or in the road environment.	I
13	They do not collect data about existing the child seats in road accident with children.	HI
14	They do not specifically collect data on whether the person died on the place of road accident or in the transport from the place of accident to the hospital, or up to 30 days after road accident.	HI
15	There are differences in the structure of the road accident data currently collected in relation to the CADaS recommendations of the European Commission (CADaS – Common Accident Data Set)[10].	VHI

Exchange of road accident data – Road accident data policy		
1	They have established centralized road accident database and this is very important, but they did not have established open road safety database although they have technical possibilities to work on that.	HI
2	There is no electronic connection between Road accident database and Road authorities in Moldova.	HI
3	There is no electronic connection between the Road accident database and Health sector in Moldova.	HI
4	They need to improve road accident and road safety reports.	I

Usage of road accident data for black spot analysis and other road safety analysis		
1	Road authorities started to identify black spot in 2014.	I
2	They do not have clear definition of black spot.	HI
3	They do not have established black spot database.	HI
4	They collect geographical coordinates on the place of road accident, but it is not clear if they use these coordinates for black spot identification.	HI
5	They need to improve coordination and exchange of detailed data of road accidents for black spot management at all.	HI
6	They need to established identification of dangerous sections and using the risk-mapping tool based on road accidents.	HI

[10] The differences between current structures of Moldova road accident data (Accident data form) and CADaS recommendation from the European Commission are presented in Chapter 3 of this report.

7	Risk analysis based on road accident data is very low developed and need to be on the highest level in accordance with other TRACECA countries, based on existing data in this country.	HI
8	They need to start to implement other road safety infrastructure tools recognized in Directive 96/2008 EC, such as Black Spot Management, Road Safety Inspection, Road Safety Audit, In-depth analysis of serious road accident, etc.	I

3.3. Recommendations (suggested way forward)

- They need to improve road accident reports, road safety reports and road safety analysis. They have very good basis to improve these things.

- The Ministry of Interior - National Patrol Inspectorate and Informational Technology Service need to have better coordination and better exchanging of data with the State road authorities in Moldova. In accordance with mentioned, the State road authorities need to produce other important road safety data (reference system of state roads with name and number of roads, sections, nodes…, traffic signs, black spots, dangerous sections, bridges, tunnels, etc.). All these data are important for road safety database.

- Improving current road accident, road safety reports, with better analysis and usefulness for policy makers and road safety engineers.

- Establishing open road safety database which should not contain only information on road accidents but also other information relevant to road safety such as: roads, sections, nodes, road safety risks by road users and vehicle categories, Safety Performance Indicators (SPI), etc. Open road safety database needs to be established on GIS platform and to be compatible with SQL Server.

- Improving existing structure of the road accident data in accordance with best European practice (CADaS) recommended by European Commission.

- Training the traffic police forces that are obliged to collect data on the place of road accident could be very useful for this stage of Crash data system development in Moldova.
- Improving of exchange of road safety data with other stakeholders especially between Ministry of Interior – National Patrol Inspectorate, Ministry of Transport, State road authorities, universities and other relevant institutions and organisations in Moldova.

4. Conclusions

Having good and quality data of road accidents is very important step in establishing a road safety system in one country. With European Commission Decision 93/704 EC, the obligation for exchanging data about road accidents between EU countries and unique European road accident database was defined. Also, the working group of the European Commission was formed which will make recommendations regarding the collection and exchange of data. Adjusting to the recommendations of the European Commission is a good basis for high quality monitoring data on characteristics of traffic safety, reliably identifying problems and proposing measures to resolve the problems.

At this moment, the Moldova crash data system and structure of collected road accident data are on the highest level in accordance with other TRACECA countries. From the other side

they still have not established open road safety database, although they have good technical performance to do that. They have good position to make future steps in the field of improving their crash data system and to be comparable with many other European countries.
They have medium similarity of current crash data structure in the Republic of Moldova and CADaS structure recommended by European Commission, but maybe the biggest in accordance with other TRACECA countries. For the full implementation of CADaS recommendations, it is necessary to organized trainings for police forces in the aim of collection the new data on the place of road accident. Also, it will be very useful to improve their knowledge in the field of crash data collection and importance of crash database at all. Especially is important to involve new data in road accident database recommended by EC, such as Types of road accident, Vehicle and pedestrian manoeuvres and Contributory factors.

In many aspects, Crash data system in Moldova is one of the best in TRACECA region. Based on all that is concluded and mentioned it will be possible to include the Republic of Moldova in Unique road accident database of all TRACECA countries.

3.2

Benchmarking of crash data system in TRACECA countries

Introduction

Impact indicator for Crash database system analysed within project are: (1) Willingness to share data, (2) Data analysis available by internet, (3) Exchange of data between institutions, (4) Road accident data available since which year, (5) Road accident database available by internet, (6) Quality of the database software platform, (7) Similarity with CADaS and (8) Effective analysis.

1. Willingness to share the road accident data

The existence of the will for displaying data on road accidents is a necessary condition for the development of crash database system. The biggest problem could be with the unwillingness of the Ministry of Interior - Traffic Police to make available road accident data to all interested stakeholders, scientists and to the other individuals. The data need to be available with the same conditions to the all interested for road accident data. In most cases, this depend by the will of country to share and make available road accident and other road safety data.

2.Data analysis available by internet

The existence of available analysis of the state of road safety (road accidents analysis) on the internet shows a willingness to point out the problem of road safety in the country. Also, detailed analysis of the situation of road safety that are available on the internet shows the will of the state to be analytical and treat the area of road safety professionally.

3.Exchange of data between institutions

Data exchange between institutions of road safety is very important argument in assessing the current state of the crash data system in a one country. If each institution keeps the data that collects only for themselves and not share this data with other stakeholders involved in road safety system, it means there is no quality system of monitoring of the road safety, and means there is no quality road safety database.

4.Road accident data available since which year

A longer period of availability of road accident data indicates that the country is in a large period of years recognized the need for collecting the road accident data and their consequences. Also, this means recognition of the importance of collecting and storing the road accidents data, not just for an overview of the current situation but also for monitoring trends over a longer period of time.

5.Road accident database available on internet

The greater availability of road safety and road accident data means greater development of the state. The availability of a road accident database on the internet is the most powerful argument confirming that the country understood the importance of the availability of road accident data to widest range of users. It is a great sign that the state recognized the need to involve other stakeholders in the road safety system.

6.Quality of the database software platform

Quality of the software platform is an important precondition for a quality road accident database. Also, it is important to make corrections to the data structure in a simple manner, as well as customize the software application for easy data input with the possibility of analysis and easy exporting of data for further analysis and processing. Compatibility with other software packages and tools is also of huge importance.

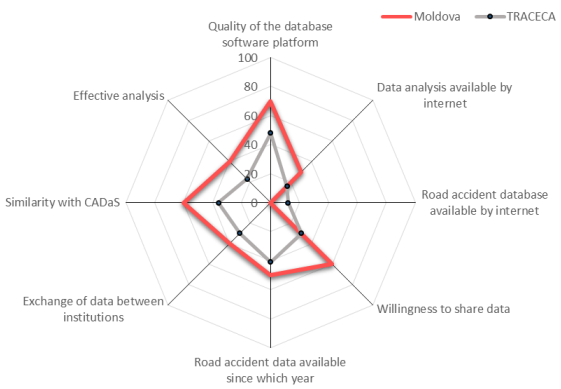
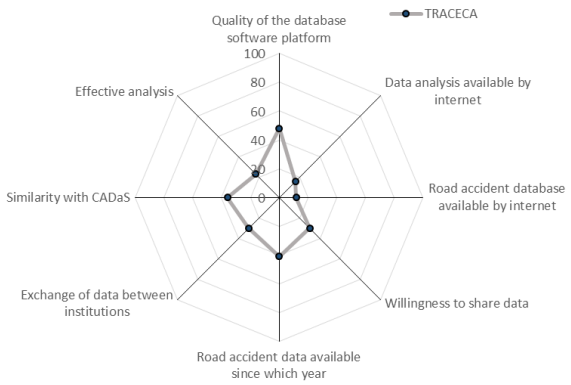
7.Similarity with CADaS

The CADaS is Common Accident Data Set recommended by the European Commission. The Team of road safety experts worked on scope and structure of data presented in CADaS. The scope and structure of data recommended by CADaS has sufficient quality to cover the most of needs and expectations from the road accident database. The database which contains the structure and scope of data recommended by CADaS is a very high quality road accident database.

8.Effective analysis

Efficient and useful analyses in the field of road safety are necessary product of the road accident database. The road accident database with effective analysis and additional information of the road safety features (such as: exposure, road casualty risks, safety performance indicators, social attitudes to the risk of road safety, vehicles data, black spot data, dangerous sections data, etc.) grows into unique road safety database. Effective analysis of road accidents and effective analysis of road safety features are essential for such a transformation.

9.Benchmarking of crash database system – Countries review

Moldova  	Institution responsible for road accident database is Ministry of Interior – Traffic Police Department. Electronic road accident database is established. Type of software platform is Microsoft SQL. General road accident data are available on the internet, but road accident database is not available on the internet. There is no need of official request for general road accident data. The road accident data are available since 2011. The systematic exchange of road safety data exist just between Ministry of Interior and state road authorities. Definition of road death is up to 30 days.
TRACECA  	Generally, the quality of the crash database system in TRACECA countries is on the low level. The worst cases are with availability of road accident database, availability of any kind of road accident analysis and existence of effective road safety analysis. Also, the willingness to share the road accident data is on the very low level. A little better situation is with quality of the database software platform, which is necessary condition for any kind of database, but still there are countries that do not have any kind of software platform for road accident database.

3.3

Comparison of the structure of road accident data of TRACECA countries with CADaS recommendation of the European Commission

Introduction

The recommendation for a Common Accident Data Set (CADaS) consists of a minimum set of standardised data elements, which will allow comparable road accident data to be available in Europe[11]. The CADaS proposes a minimum set of standardized road accident data that needs to be collected in the Member States of the European Union, which will enable the comparability of road accident data between European countries. Variables that were proposed by CADaS recommendations form European Commission are organized into four groups:

1. **Accident related variables – "A";**
2. **Road related variables – "R";**
3. **Traffic Unit (vehicle and pedestrian) related variables – "U";**
4. **Person related variables – "P".**

In the following text, for each of the four groups of variables that are defined in CADaS were compared with a groups of variables based on structure of road accident data which are collects in observed country.

Legend

+	The variable is recorded in the crash data form of observed country on the same way as proposed in CADaS recommendations of the European Commission, or it is need the minimum of necessary adjustments to achieve collection in the required form.
+	The variable is not recorded in the crash data form of observed country as a separate variable, and in the same way as proposed by CADaS recommendations of the European Commission, but the variable is contained in the framework of other variables. In these variables, it is necessary to make a transformation in order to made adaptation to the CADaS.
-	The variable is not recorded in the crash data form in the observed country.

MOLDOVA

[11] CARE Database – CADaS (Common Accident Data Set), Directorate-General for Mobility and Transport, European Commission, Brussel, 2013.

I – ROAD ACCIDENT DATA

CADaS „A“ Accident	ROAD ACCIDENT DATA	
	CADaS variable	**Comparison CADaS vs MOL**
1	Accident ID	+
2	Accident Data	+
3	Accident Time	+
4	NUTS	+
5	LAU	+
6	Weather conditions	+
7	Light conditions	+
8	Accident with pedestrians	+
9	Accident with parked vehicles	+
10	Single vehicle accidents	+
11	At least two vehicles – no turning	+
12	At least two vehicles – turning or crossing	+

II – ROAD INFORMATION

CADaS „R“ Road	ROAD INFORMATION	
	CADaS variable	**Comparison CADaS vs MOL**
1	Accident ID	+
2	Latitude	+
3	Longitude	+
4	E-Road	+
5	E-Road kilometer	+
6	Road functional class – first road	+
7	Road functional class – second road	+
8	Speed limit – first road	-
9	Speed limit – second road	-
10	Motorway	-
11	Urban area	+
12	Junction (crossroad, roundabout, T or staggered junction, multiple junction, interchange)	+
13	Relation to junction/Interchange	-
14	Junction Control	-
15	Surface Conditions	+
16	Obstacles	+
17	Carriageway type	+
18	Number of lanes	+
19	Emergency lane	-
20	Markings	+

21	Tunnel (Yes/No)	+
22	Bridge (Yes/No)	+
23	Work zone	+
24	Road Curve (Yes/No)	+
25	Road Segment Grade (Yes/No)	+

III – TRAFFIC UNIT INFORMATION

CADaS „U“ Unit	TRAFFIC UNIT INFORMATION	
	CADaS variable	**Comparison CADaS vs MOL**
1	Accident ID	+
2	Traffic unit ID	+
3	Traffic unit type	+
4	Vehicle special function	+
5	Trailer	+
6	Engine power	-
7	Active Safety equipment	-
8	Vehicle drive	-
9	Make	+
10	Model	+
11	Registration year	-
12	Traffic unit manoeuvre	+
13	First point of impact	-
14	First object hit in carriageway	-
15	First object hit out of carriageway	-
16	Vehicle insurance for driver	-
17	Hit and Run	+
18	Registration Country	-

IV – PERSON INFORMATION

CADaS „P“ Person	PERSON INFORMATION	
	CADaS variable	**Comparison CADaS vs MOL**
1	Accident ID	+
2	Traffic unit ID	+
3	Person ID	+
4	Date of Birth	+
5	Gender	+
6	Nationality	-
7	Injury severity as reported	+
8	Road user type	+
9	Alco test	+

10	Alco test sample type	-
11	Alco test result	-
12	Alcohol level	-
13	Drug test	-
14	Driving license issue data	-
15	Driving license validity	+
16	Safety equipment	+
17	Seating position in vehicle	-
18	Distracted by device	+
19	Psychophysical/Impairment or condition	+
20	Trip/Journey purpose	-
21	Injury MAIS Scale	-

3.4.1

REGIONAL ROAD SAFETY PROJECT

CRASH DATA SYSTEM v.1

(User manual for TRACECA countries)

Prepared by Crash Data Team

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Administrative Support

Ms Anastasiia Kovalenko, Administrative Assistant

With inputs from the Kiev Project office staff and all the individual experts indicated in the individual sector specific reports.

March 2016

1. Introduction

Crash Data System (CDS) is intended for all participants in TRACECA regional road safety project, as well as for all stakeholders. This User manual is intended for TRACECA countries.

Using CDS, TRACECA countries will be able to deliver all crash data which have been identified as relevant by TRACECA project team.

CDS is available at address: http://78.27.185.155/ (Figure 1.) via “Visitor area” option.

In order to access CDS, each user should have a user account provided by TRACECA project team.

Figure 1. CDS main page

2. TRACECA countries login

Each Team member can register using the available registration form. On the “Main page” click on “Team members area” and then click on the link “Don’t have account? Register”. Registration form will be shown as below.

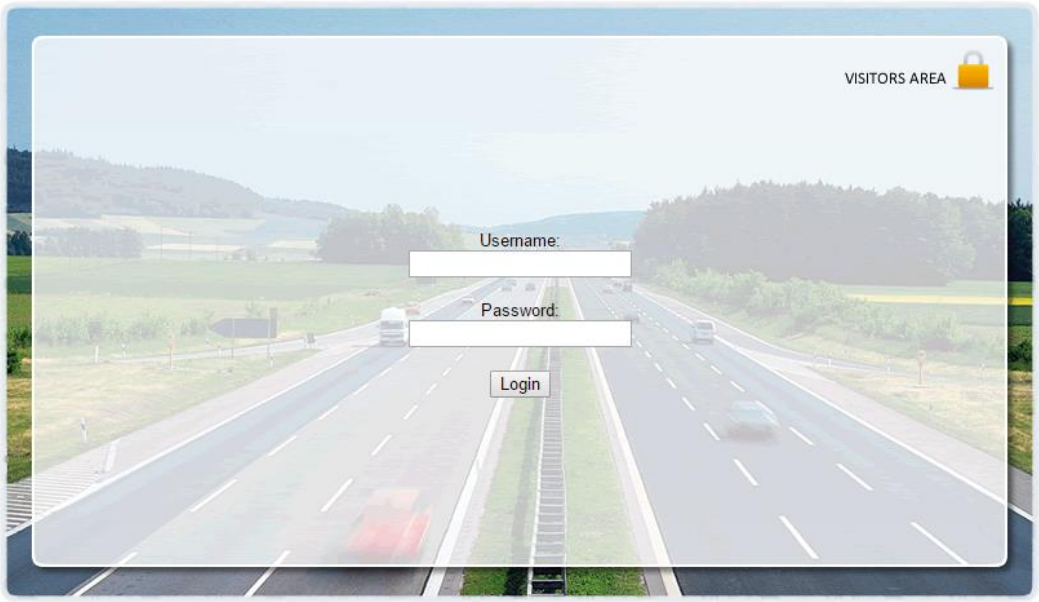

Figure 2. Login page for TRACECA countries

3. CDS Home page

After successful login, you will be redirected to Home page area related to your Country (Figure 3).

Figure 3. CDS Home page

CDS is consisted of three parts:

- Input data

- Country statistics
- Comparison

3.1 Input data

The purpose of this section is entering data (Figure 4) related to relevant crash data types identified by TRACECA project team:

- Population
- Registered motor vehicles
- Number of road accident
- Number of fatalities
- Number of injuries
- Road accident by month
- Road accident by day
- Road accident by type
- Age of persons involved in road accident

After entering data, user has to submit input form via button “Save data”. It is possible to enter data in fazes but we are strongly recommend to enter all data at once because of better results in country comparison section.

Figure 4. CDS input data

3.2 Country statistics

The purpose of this section is to create a chart and tabular form of the data related to your Country. After selecting data type, user has to submit query via “Create chart” button. Result will be like in the Figure 5.

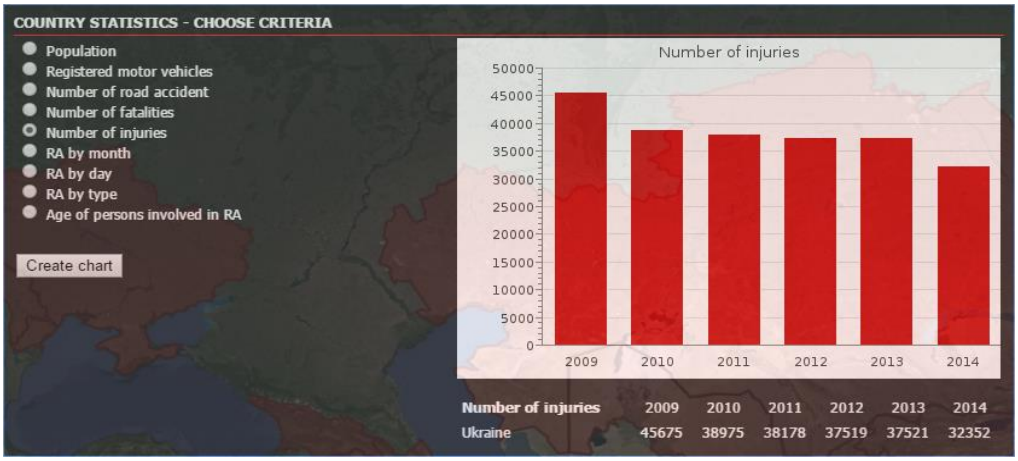

Figure 5. CDS country statistics

3.3 Comparison

The purpose of this section is to create a chart and tabular form of the data related to comparison between countries. After selecting data type, year and countries of interest user has to submit query via “Create chart” button. Result will be like in the Figure 6.

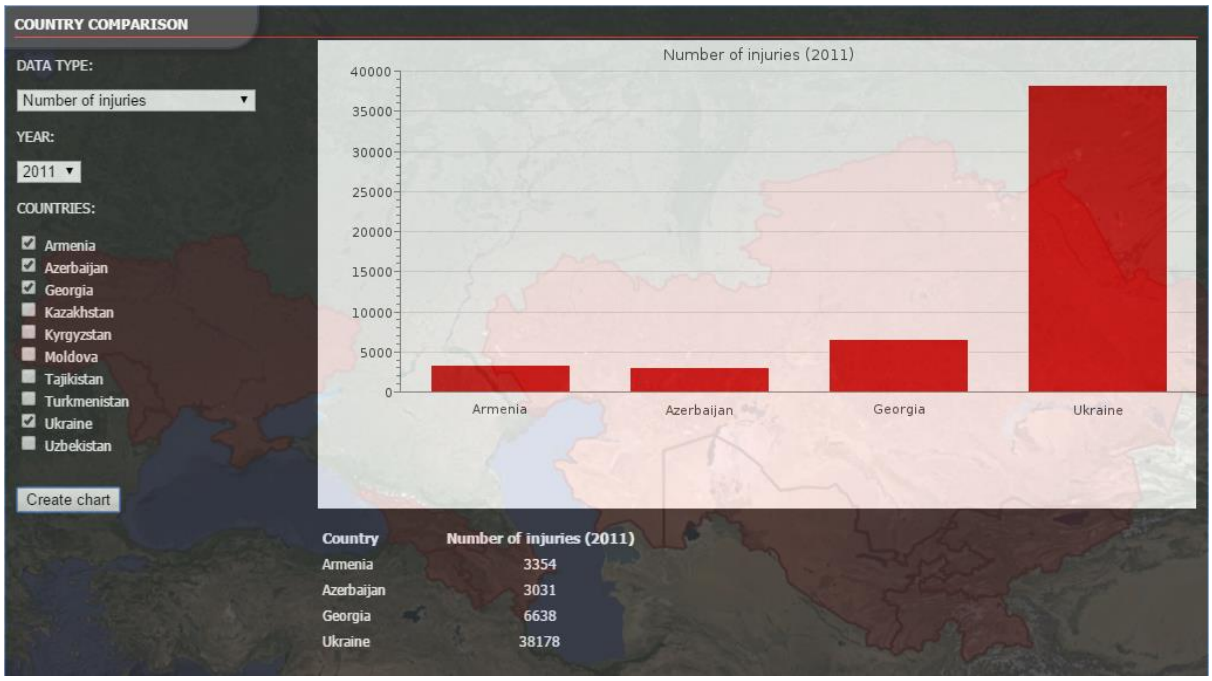

Figure 6. CDS comparison

4. Logout

After finishing your work in CDS it is recommended to logout by “click” on the button “LOGOUT” as shown in Figure 7.

Figure 7. CDS logout button

3.4.2

REGIONAL ROAD SAFETY PROJECT

Regional crash data system v.1

(USER MANUAL FOR STAKEHOLDERS)

This provides possible structure for the proposed TRACECA Regional Crash Database. Discussions are continuing with individual countries about uploading data to thee database. Each country will have its own unique password for entering data.

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Using CDS, TRACECA countries will be able to deliver all crash data which have been identified as relevant by TRACECA project team.

Public CDS is available at address: http://78.27.185.155/public_cds (Figure 1).

Figure 1. CDS main page

2. Countries comparison and statistics

Using the option “Countries comparison and statistics” in the top right corner of the screen, user will be redirected to the page where he can make queries in accordance with available attributes. The purpose of this section is to create a chart and tabular form of the data related to comparison between countries. After selecting data type, year and countries of interest user has to submit query via “Create chart” button. Result will be like in the Figure 2.

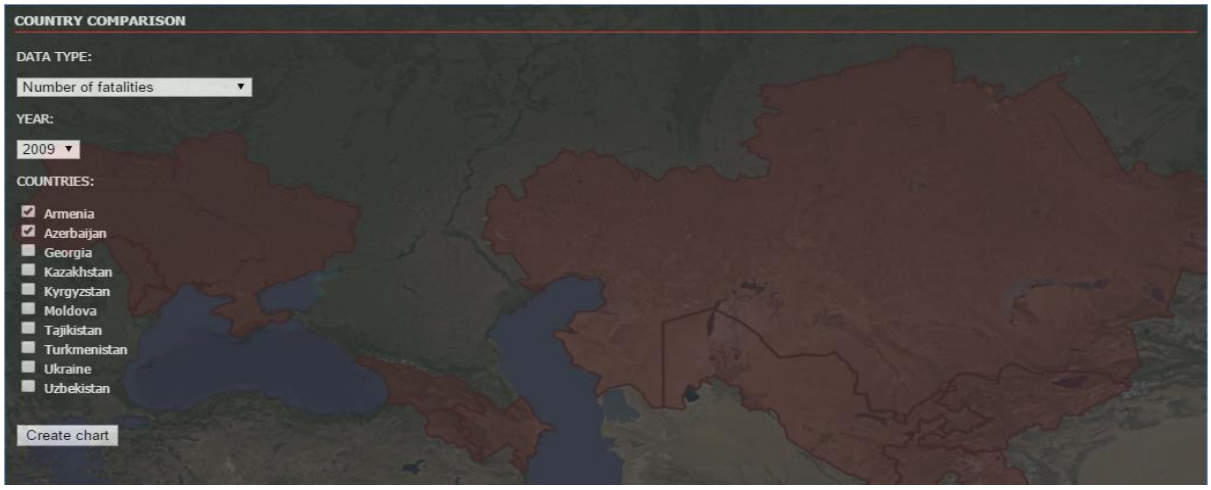

Figure 2. CDS Countries comparison and statistics menu

Option “Countries comparison and statistics” is consisted of three parts:

- Data type
- Year
- Countries

2.1 Data type

Attribute “Data type” includes:

- Population
- Registered motor vehicles
- Number of road accident
- Number of fatalities
- Number of injuries
- Road accident by month
- Road accident by day
- Road accident by type
- Age of persons involved in road accident

2.2 Year

After choosing data type attribute, user has to choose a year related to his analysis. Currently available years are:

- 2009
- 2010
- 2011
- 2012
- 2013
- 2014

2.3 Countries

After choosing data type attribute and relevant year, user has to choose a countries of interest to his analysis. TRACECA countries are:

- Armenia
- Azerbaijan
- Georgia
- Kazakhstan
- Kyrgyzstan
- Moldova
- Tajikistan
- Turkmenistan
- Ukraine
- Uzbekistan

After selecting data type, year and countries of interest user has to submit query via “Create chart” button. Result will be like in the Figure 3.

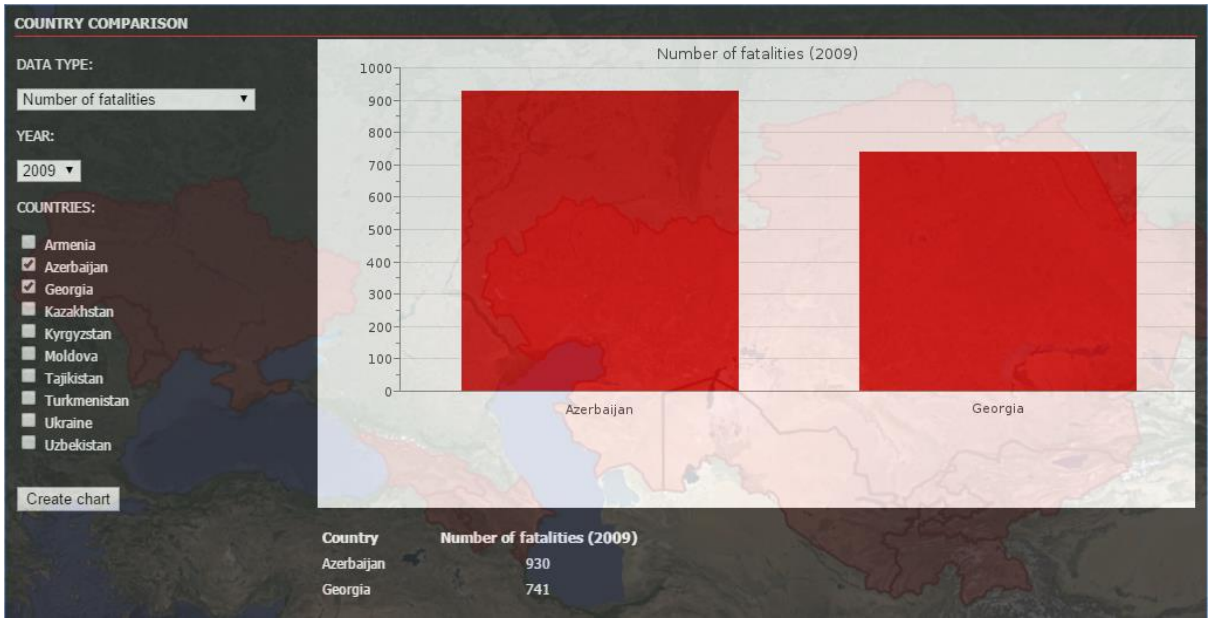

Figure 3. CDS Countries comparison and statistics

4. SAFETY ENGINEERING ROADS

It is important that the road network is as safe as it can be for the users of the network. This report outlines the extensive work undertaken on the issue in Moldova and the tasks remaining to be done.

4.1

COUNTRY: MOLDOVA

TEAM: RSA/BSM TEAM

TOPIC: INSTITUTIONALIZATION OF RSA/BSM IN MOLDOVA

DATE: JULY 27-28 2015

REPORT PREPARED BY

ROAD SAFETY AUDIT AND BLACK SPOT MANAGEMENT TEAM

Team member:

1. Dejan Jovanov (KE2)

June 29th, 2015

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1. **Introduction**
2. **Activities undertaken**
3. **Current situation (present practices)/deficiencies requiring attention and recommendations (suggested way forward)**
4. **Conclusions**

Annexes:

A: Persons met or consulted

* * *

1. Introduction

In accordance with project ToR for Component 3: "Safer infrastructure and vehicles" and Inception Report, tasks No.: 3.1.6 Support the implementation of "in country" road safety audit training courses and 3.1.7 Support programmes on road safety audits, the black spot management and inspection, Road Safety Audit (RSA) and Black Spot Management (BSM) team make a two day visit to Moldova at 27-28 July 2015.

The main RSA/BSM team task was to help local experts to institutionalize of RSA/BSM as regular procedures in Moldova. The secondary task was to finalize the process of certifying/licensing of previously trained specialists (to check quality of their RSA reports).

2. Activities undertaken

The Project Team made a 2-day visit to Chisinau and invited number of relevant participants for two separate meetings. The both meeting were held at the University (Technical University Moldova) in Chisinau.

On the first day (27.07.2015) there was a discussion on full implementation of RSA procedure into the Moldova Road Safety practice. The RSA/BSM team discussed with local experts (see Annex A: Persons met or consulted) the possibilities and necessary steps to introduce the RSA into the general and obligatory practice.

On the second day (28.07.2015) there was a discussion on full implementation of BSM procedure into the Moldova Road Safety practice. The RSA/BSM team discussed with local experts (see Annex A: Persons met or consulted) the possibilities and necessary steps to introduce the BSM into the general and obligatory practice At the end of the meeting all previously trained local experts presented their homework's. Presentations of homework's were good and all trainees will get certificates.

The following topics were discussed at meetings:

International best practices on RSA and BSM procedures (methodologies)

- Short presentation of RSA/BSM procedures with questions (Q) and answers (A). Introduction of Crash Database Team and short presentation of crash database needed for successful Black Spot management (international best practice and practical example of usage of crash database for black spot improvements).

Current situation in Moldova with RSA and BSM (existing bottlenecks and problems in

implementation)

- Long discussion among participants about RSA/BSM + Q & A on different steps of RSA/BSM procedures and how it can be implemented in Moldova.

Improvements of existing situation in accordance with best international practice

- Identification of obstacles (impediments) in each phase necessary for implementation and institutionalization of RSA/BSM procedures.

Project deliverables were presented (Regional RSA Manual, Proposal of Road Safety Audit policy, legislation changes and Training Courses and Regional BSM Guidelines). They will help Moldova to institutionalize the RSA/BSM procedures.

- Short presentation and discussion of project deliverables (and its implementation) that can help in RSA/BSM institutionalization.

Discussion and agreement regarding necessary steps and defining of impact indicators necessary to enable RSA and BSM institutionalization and which will be monitored in next missions.

Implementation of RSA - Impact assessment factors:

- Does legal basis for RSA exist?
- Is there an adequate manual (with RSA Methodology) in use?
- Are trained road safety auditors available?
- Do Road Authorities have budget to purchase RSA and implement RSA proposals?
- All new, reconstructed and rehabilitated roads being safety audited?
- Are RSA Recommendations being implemented by Roads Authority?

Implementation of BSM - Impact assessment factors:

- Does legal basis for RSA exist?
- Is there an adequate BSM Manual (with BSM Methodology) in use?
- Are trained black spot investigators available?
- Is an annual hazardous improvement program in place?
- Do Road Authorities have dedicated founds for BSM improvements?
- BSM recommendations being implemented by Road Administration?

3. Current situation (present practice), deficiencies requiring attention and recommendations (suggested way forward)

Discussion with RSA/BSM relevant stakeholders, based on identified performance indicators identifies current situation (present practice) and major deficiencies (obstacles and impediments) which can prevent implementation of RSA/BSM procedures in country. At the same time, defined impact indicators will be monitored during the next missions as a way to follow up progress.

A) Implementation (institutionalization) of different impact indicators for RSA:

	Selected Impact indicator (current situation)	Deficiencies requiring attention	Recommendations (suggested way forward)
1	**Does legal basis for RSA exist?** - Current legal system recognizes RSA procedure. Note: RSA as routine was proposed and adopted in latest Law on Road Safety change, but by law documents are missing.	- Current law does recognize RSA procedure, and therefore Law should not be improved. - Proposed measures by auditors in some extent cannot be implemented due to road standard limitations (some proposals will not be in compliance with existing standards), but situation is improved in last SNiP changed (2014).	- Implementation of project deliverable "Simple template on Road Safety Audit Policy and proposal of legal changes to make RSA mandatory at national level" at the level of by-laws. This Report provides quality explanation why RSA is needed and guidance on legal (law) amendments that will introduce RSA as obligatory tool.
2	**Is there an adequate manual (with RSA Methodology) in use?**	- RSA procedure is known but only used at International projects.	- Implementation of project deliverable "Regional Road Safety Audit Manual".

	- There is no developed methodology for RSA in country.		This will explain systematic procedure for RSA and introduce unique RSA methodology in auditors work. - There is a wide consensus that RSA should be introduced into common road safety practice in Moldova, since there were some projects funded from International Financial Institutions with the aim of producing RSA Report.
3	**Are trained road safety auditors available?** - No officially certified auditors, - Three trained auditors (by TRACECA project) with ongoing certification.	- No established unified system (RSA training curriculum) for education and licensing of auditors in Moldova.	- Implementation of project Deliverable "Simple template on Road Safety Audit Policy and proposal of legal changes to make RSA mandatory at national level". This Report contain proposal for the auditors training courses (with detailed curriculum). It is foreseen that relevant University will be the education point and another, agreed organization, the licensing body for future auditors.
4	**Do Road Authorities have budget to conduct procurement of RSA and to implement RSA proposals?** - No dedicated budget for purchase of RSA and implementation of proposed measures	- No dedicated budget, this can cause a serious problem and collapse whole RSA procedure. Much bigger problem is financing of RSA recommendations.	- Further discussion and in accordance future law improvements and RSA as mandatory tools, some relatively small financing for the preparation of RSA Reports should be planned. - More funds should be dedicated for the implementation of auditor's recommendations. These amounts can vary and are hard to predict (the level of necessary funds are connected with number and intensity of identified design deficiencies and proposed counter measures). There were some recommendations in this respect (e.g. percentage from the project fund) but also in respect to the RSA implementation project value.
5	**All new, reconstructed and rehabilitated roads being safety audited** - RSA is not mandatory, therefore no obligation for RSA of reconstructed and rehabilitated roads. Some RSA reports produced under projects funded by International Financial Institutions, but implementation of recommendations is unknown. Note: RSA for few road sections is prepared (M2, R6, etc.).	- Legal basis for undertaking RSA exists, but RSA is still not in practice.	- Making of RSA mandatory (explained in row No. 1), not only for international projects but also for existing roads and projects funded by domestic institutions above agreed project value.
6	**RSA Recommendations being implemented by Roads Authority** - RSA not established jet and no implementation of proposed measures (no monitoring).	- No obligation for RSA jet, therefore no implementation of RSA proposals. - No monitoring tools established	- Making of RSA mandatory (explained in row No. 1) - Establish permanent monitoring of RSA recommendations. This can be done by Road Administration reports to the responsible Ministry (or even Government).

B) Implementation (institutionalization) of different impact indicators for BSM:

	Selected Impact indicator (current situation)	Deficiencies requiring attention	Recommendations (suggested way forward)
1	**Does legal basis for BSM exist?** - Current legal system recognizes BSM procedure in some extent and should be improved.	- Current law recognizes BSM procedure in some extent, in general provision (... roads should be build and maintain to enable road safety...) without exact explaining about some very important issues related to BSM (definition of Black Spot, Methodology, Responsibilities, Financing, etc.).	- BSM related articles should be improved (what is Black Spot and BSM, who is responsible to perform it, who should collect, deliver and improve road accident database system), and even sub law act should be considered.
2	**Is there an adequate manual (with BSM Methodology) in use**? - There is no developed methodology (no definition of BS) for BSM in country.	- There is a definition of Black Spot, which is not consistent. - Road Accident documentation exists, but not in electronic form. - Having in mind this, it is not possible to conduct either basic Black Spot identification neither analysis. - No cost-benefit analysis for black spots. - Evaluation of Black Spot treatment is not applied.	- Implementation of project deliverable "Regional Black Spot Management Guidelines" through law and sub law provisions. This will explain BSM and introduce improved methodology for black spot identification, analysis, treatment and monitoring. - Database of black spots needs to be improved upon the above-mentioned Methodology. - Cost benefit analysis should be introduced in future ranking of black spots.
3	**Are trained black spot investigators available?** - No officially trained staff for conducting BSM, except those trained under TRACECA project.	- No established unified system (BSM training curriculum) for education of BSM staff. - No knowledge about cost benefit analysis needed for ranking of black spots.	- BSM staff should get similar training as auditors. - Both training courses will be given to the responsible Universities. - Cost benefit procedure should be spread and widely accepted.
4	**Annual hazardous improvement program in place?** - Some activities exists, but not based on best International BSM practice.	- There is no systematic approach to Black Spot removal.	- Annual black spot removal program should be introduced based upon adopted BSM methodology, which will lead to real implementation of measures developed by national experts.
5	**Do Road Authorities have dedicated funds for BSM improvements?** - No dedicated budget for BSM improvements.	- No dedicated budget, this can cause a serious problem and degrade whole BSM process. Road Administration will implement just measures which can be done under maintenance (cheap ones) and expect that with rehabilitation Black Spots will be eliminated.	- Responsible Ministry should ensure that each Road Administration at each level has specified dedicated money for black spot remedy programs in their annual budget, but this should be done in respect with provisions in law regarding BSM.
6	**Are BSM Recommendations being implemented by Roads Authority?** - BSM remedy measures partly been implemented upon the documents received from Traffic police by Road Administration (under maintenance	- Partial implementation of BSM proposals. - No monitoring tools established.	- Establish permanent monitoring of BSM improvements. This can be done by Road Administration at State and Municipal level annual reports to the responsible Ministry (or even Government).

	and rehabilitation/ reconstruction work).		

Note: For an effective BSM process, an accessible and quality crash database is essential. A crash database exists, but there is a need for improvement and making it accessible to various stakeholders.

4. Conclusions

RSA and BSM are important road safety tools that are stipulated in EC Directive 96/2008 and should be implemented in Moldova. Since there are announced changes into the Moldova legislative in near future there is a need for urgent action to introduce Road Safety Audit and for checking of possible improvements of Black Spot Management as the procedures described in the Law. The Project team has developed Manual and Guidelines for RSA and BSM. These documents present modern methodology (approach) for RSA and BSM that should be used in future with some provisions included into the law and sub law acts. Proposed training courses should be established.

The next important step concerning implementation of proposed measures is the establishment of dedicated and stable funding. Need of new road safety funding mechanism is visible and needs to be discussed.

For BSM improvements, there is a need for harmonization of existing road accident database with the EU Common Accident Data Set protocol. One of the proposed activities would be an implementation of one unified Road Safety Database, which will be consisted from different databases interesting from Road Safety perspective. Nevertheless, while the existing databases opened for use, it should be generally improved.

There is need for more proficient and intensive education of local experts both in RSA and BSM procedures. In addition, there is need for introduction of cost benefit analysis in the BSM process. Special Road Safety Fund should be established, which will be used for implementation of comprehensive RSA and BSM program.

All presented documents (project deliverables) were sent to all participants of the meetings.

ANNEX:
A: Persons meet or consulted

Road Safety Audit and Black Spot Management team
Working visit to Moldova 27th and 28th July 2015 as part of the
European Union financed Project "TRACECA ROAD SAFETY II"

LIST OF PARTICIPANTS

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5.	**Sergiu Bejan**	Engineer, Technical University of Moldova, Chair of Railways, Roads, Bridges - Head of Chair \ BCPC Ltd "ASTRAL-PROIECT" – Director	tel-fax: (+373) 22 76 85 87, tel-mob: (+373) 069611873	serbej@gmail.com
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4.2

COUNTRY: MOLDOVA

TEAM: SAFE DESIGN TEAM

TOPIC: INSTITUTIONALIZATION OF RSA/BSM IN MOLDOVA VIA IMPROVED DESIGN STANDARDS

DATE: AUGUST 24-25, 2015

REPORT PREPARED BY

SAFE DESIGN TEAM

Team member/s:

1. Rajko Branković (STE 9-1)
2. Dejan Jovanov (KE2)

November 21st, 2015

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3. Current situation (present practice), deficiencies requiring attention and recommendations (suggested way forward) .....
4. Additional topics discussed during mission .....
5. Conclusions .....

Annexes:

A: Persons met or consulted

* * *

Introduction

In accordance with project ToR for Component 3: "Safer infrastructure and vehicles" and Inception Report, tasks No.: 3.1.1 Review and enhance safety engineering aspects of road design standards, 3.1.6 Support the implementation of "in country" road safety audit training courses and 3.1.7 Support programs on road safety audits, black spot management and inspection, Safe Design team made a two day visit to Moldova on 24-25 August, 2015.
The main Safe Design team task was to help local experts to overcome problems related to road standards that may occur when they try to implement some of Road Safety Audit recommendations. Problems exist because of the outdated ex-Soviet SNiP and GOST standards and norms. Some of important auditor's recommendations might not survive "compliance checking" with SNiP and GOST and these, obviously much safer solutions (based on best International practice), will be rejected and not implemented. Secondly, team task was to support the implementation of "in country" road safety audit training courses by improving the knowledge of previously trained staff which will be part of future in country RSA trainers. Third task was to support development of National road safety audit and black spot programs. Second and third activity are also supported with Academics country missions (e.g. introducing RSA/BSM and safe design curriculum into regular student educations or as separate courses at University).

Activities undertaken

The Project Team made a 2 day visit to Chisinau and invited a number of relevant participants to participate at the two-day WS (meetings).

The first day meeting (24.08.2015) was held at Technical University of Moldova building (see Annex A. Persons met or consulted) in the department of road safety. The following discussion took place:

1. Assessing the current situation about usage of СНиП construction norms and ГОСТ standards
   - Presentation of RSA-BSM project activities and delivered Manuals and Guidelines
   - Presentation of different RSA improvement recommendations that cannot be implemented due to outdated standards/norms
   - Discussion of current standards/norms in use
   - Brief standards/norms road safety gap analysis (What are the blockages in standards/norms)
2. Discussion of procedures for standards/norms improvement (amendment) + changes
3. What can be done as an intermediate solution?
   - Discussion of possible road safety gaps and what is needed to rectify deficiencies

- How to amend standards/norms to meet best international road safety practice as an interim solution

At the meeting, live discussion was established among participants about the main problems concerning road safety in design and how situation could be improved.

Pictures from first day at the Technical University of Moldova and second day field trip

First part of the second day (25.08.2015) was spent on field trip to the Road M2 (near Orhei) recently rehabilitated and A1/E58 (Chisinau - Vatra) under construction, where group undertook a part of brief RSA (RSI) of existing road and road under construction. After identification of actual road safety deficiencies at selected locations, team discussed risk assessment and proposed measures for improving of road safety (even some real design solutions were discussed). Proposed measures were checked for compliance with the existing standard. After field trip, discussions were continued at Technical University. The following topics were discussed:

1. Discussion of observed actual problems of road safety and how they can be overcome in future (based on auditors proposal)

- Analysis of specific (observed) road safety problems in road safety features
- Presentation of possible solutions within and beyond existing standards
- Proposed improvements of specific, road safety oriented parts of standards.

Current situation (present practice), deficiencies requiring attention and recommendations (suggested way forward)

Discussion with WS participants identifies current situation of main road safety aspects in design and enables brief gap analysis (shown in Table 3.1). Moldova has adopted set of new standards in 2015.

Table 3.1. Gap analysis of road design standards from road safety point of view

<table>
<tr><th></th><th>Analysed topic of SNiP (current situation)</th><th>International best practice</th><th>Recommendations (suggested way forward)</th></tr>
<tr><td>1</td><td>Speed
<table><tr><th rowspan="2">Road Category</th><th colspan="3">Estimated speeds, km/h</th></tr><tr><th rowspan="2">base speeds</th><th colspan="2">allowable in rough terrain conditions</th></tr><tr><th>uneven terrain</th><th>mountainous terrain</th></tr><tr><td>I-a</td><td>150</td><td>120</td><td>80</td></tr><tr><td>I-b</td><td>120</td><td>100</td><td>60</td></tr><tr><td>II</td><td>120</td><td>100</td><td>60</td></tr><tr><td>III</td><td>100</td><td>80</td><td>50</td></tr><tr><td>IV</td><td>80</td><td>60</td><td>40</td></tr><tr><td>V</td><td>60</td><td>40</td><td>30</td></tr></table></td><td>Speed limits in most countries lower than the max. speed for category Ia-roads.
e.g. In German guidelines the comparable design speed is 130 km/h.</td><td>- reduction of speed for the highest road category
- In road categories II –IV there have to be speed limits of 70 km/h in front of intersections

PROPOSAL: None
Already implemented in new design standard.</td></tr>
<tr><td>2</td><td>Speed difference of highway sections

4.2.4 The estimated speeds for adjacent highway sections shall not differ by more than 20 %.</td><td>Design speed of a road is constant. If an exception, i.e. reduction of design limits is necessary, measures for reducing the actual speed must be foreseen.</td><td>- description of measures in the case of required speed reduction

PROPOSAL: None
Already implemented in new design standard</td></tr>
<tr><td>3</td><td>Speed for roads without median

Medians are foreseen only for roads of category I (see chapter 5.1). That allows speed of 120 km/h for opposite traffic without separation in category II.</td><td>Most countries reduce speed for roads without median to 90 km/h and less.</td><td>- reduction of speed for the category II-roads

PROPOSAL: None
Already implemented in new design standard</td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td>1</td><td>Width of Lane

3.75 m for categories I and II
3.50 m for category III
3.00 m for category IV
4.5 m for category V (one lane)</td><td>Wider lanes lead to higher severity of accidents but reduce the number of accidents.
The width of lanes complies with the international experiences.</td><td>- reduction of overpass lanes of category I roads to 3.50 m is possible

PROPOSAL: YES,
To be implemented in the next revision of design standards.</td></tr>
<tr><td>2</td><td>Width of hard shoulder
3.75 m for categories I and II
2.50 m for category III
2.00 m for category IV
1.75 m for category V</td><td>For roads with two carriageways, hard shoulders shall be provided for emergency cases.
On one-carriageway-roads, hard shoulders shall not be provided because they allow illegal overpassing. It may lead to severe accidents if the width of the shoulders is much smaller than the traffic lanes.
For emergency cases passable verges shall be provided.</td><td>- shoulders for roads with one carriageway (category II to V) shall be avoided
- consideration of 2+1-cross section to allow safe overpass on one-carriageway-roads

PROPOSAL: None
Implemented in design standard</td></tr>
<tr><td>3</td><td>Median without barriers

>6 m for Ia-category-roads
>5 m for Ib-category-roads</td><td>In medians, barriers must be provided if the width of medians does not allow the stop of a run-off car without endangering opposite traffic.</td><td>- obligation of barriers in medians

PROPOSAL:
Already implemented in new design standard</td></tr>
</table>

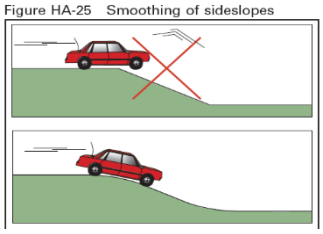
<table>
<tr><th></th><th>Analysed topic of SNiP
(current situation)</th><th>International best practice</th><th>Recommendations
(suggested way forward)</th></tr>
<tr><td>4</td><td>Median with barrier

2 m + width of the barrier for Ia- and Ib-category-roads</td><td>The median must allow the move of the barrier without endangering the opposite traffic in case of run-off of a car. Width of the median and kind of barriers strongly depend on each other.
Width of the median shall be at least 4 m.</td><td>- widening of the median up to at least 4 m
- best width would be between 5 m and 7 m

PROPOSAL: None
Already implemented in new design standard.</td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td>1</td><td>Cross fall in straight lines

Category Ia und Ib roads with two carriageways:
- 15‰ to 25‰ (depending on climatic zone)
Category Ia und Ib roads with one carriageway:
- 20‰ to 15‰ for the first two lanes from the medium (depending on climatic zone)
- 25‰ to 20‰ for the following lanes from the median (depending on climatic zone)</td><td>The cross fall recommendations range from 15‰ to 25‰.
It is not recommended to change the cross fall inside a carriageway.</td><td>- implement constant cross fall inside a carriageway

PROPOSAL: None
Already implemented in new design standard.</td></tr>
<tr><td>2</td><td>Cross fall in curves
<table>
<tr><th rowspan="2">Horizontal curves radii, m</th><th colspan="2">Carriageway cross-fall at superelevations, ‰</th></tr>
<tr><th>basic, the most commonly encountered</th><th>In regions known for frequent icy condition of roads</th></tr>
<tr><td>3000 to 1000 for Category I roads</td><td>20-30</td><td>20-30</td></tr>
<tr><td>2000 to 1000 for Category II-V roads</td><td>20-30</td><td>20-30</td></tr>
<tr><td>1000 to 800</td><td>30-40</td><td>30-40</td></tr>
<tr><td>800 to 700</td><td>30-40</td><td>30-40</td></tr>
<tr><td>700 to 650</td><td>40-50</td><td>40</td></tr>
<tr><td>650 to 600</td><td>50-60</td><td>40</td></tr>
<tr><td>600 and below</td><td>60</td><td>40</td></tr>
<tr><td colspan="3">N o t e - Lesser values of cross-falls at superelevations are in line with the larger horizontal curves radii and vice versa</td></tr>
</table></td><td>Cross fall is defined depending on speed and radius of the curve.
The lower limit is given by ASSHTO with 20‰ and by the German guideline with 25‰.
ASSHTO gives an upper limit of 40‰, German guidelines of 60‰.</td><td>-

PROPOSAL: None
Already implemented in new design standard.</td></tr>
<tr><td>3</td><td>Embankments
<table>
<tr><th rowspan="2">Embankment soils</th><th colspan="3">Maximum steepness of slopes at the embankment slopes height, m</th></tr>
<tr><th>up to 6</th><th colspan="2">up to 12</th></tr>
<tr><td></td><td></td><td>in bottom portion (0-6)</td><td>in top portion (6-12)</td></tr>
<tr><td>Blocks of slightly slacking rocks</td><td>1:1 - 1:1.3</td><td>1:1.3 - 1:1.5</td><td>1:1.3 - 1:1.5</td></tr>
<tr><td>Macrofragmental and sandy (except for fine sands and dust sands) soils</td><td>1:1.5</td><td>1:1.5</td><td>1:1.5</td></tr>
<tr><td>Sandy, fine, dust, clay and loessial soils</td><td>1:1.5
1:1.75</td><td>1:1.75
1:2</td><td>1:1.5
1:1.75</td></tr>
</table></td><td>Standard steepness in Germany is 1:1.5. Often flatter steepness is used.</td><td>- It is important to smooth the shape of the embankment to reduce accident risks.
Figure HA-25 Smoothing of sideslopes
 

PROPOSAL: None
Already implemented in new design standard.</td></tr>
</table>

<table>
<tr><th></th><th>Analysed topic of SNiP
(current situation)</th><th>International best practice</th><th>Recommendations
(suggested way forward)</th></tr>
<tr><td>4</td><td>Cuts
<table>
<tr><th>Soils</th><th>Slope height, m</th><th>Maximum steepness of slopes</th></tr>
<tr><td>Rocky grounds:
- slightly slacking</td><td>up to 16</td><td>1:0.2</td></tr>
<tr><td>- readily slacking:</td><td></td><td></td></tr>
<tr><td>- non-softening</td><td>up to 16</td><td>1.05-1:1.5</td></tr>
<tr><td>- softening</td><td>up to 6
6 to 12</td><td>1:1
1:1.5</td></tr>
<tr><td>Macrofragmental</td><td>up to 12</td><td>1:1-1:1.5</td></tr>
<tr><td>Sandy, clayey, homogeneous hard, half-hard and low-plastic</td><td>up to 12</td><td>1:1.5</td></tr>
<tr><td>Fine barchan sands</td><td>over 2
2 to 12</td><td>1:4
1:2</td></tr>
</table></td><td>Standard steepness in Germany is 1:1.5. Often flatter steepness is used.</td><td>- no recommendation

PROPOSAL: None.</td></tr>
<tr><td>1</td><td>Horizontal curves
<table>
<tr><th>Design speed [km/h]</th><th>Min. radius Basic[m]</th><th>Min. radius Mt. ar. [m]</th></tr>
<tr><td>150</td><td>1.200</td><td>1.000</td></tr>
<tr><td>120</td><td>800</td><td>600</td></tr>
<tr><td>110</td><td>700</td><td>500</td></tr>
<tr><td>100</td><td>600</td><td>400</td></tr>
<tr><td>80</td><td>300</td><td>250</td></tr>
<tr><td>60</td><td>150</td><td>125</td></tr>
<tr><td>50</td><td>100</td><td>100</td></tr>
<tr><td>40</td><td>60</td><td>60</td></tr>
<tr><td>30</td><td>30</td><td>30</td></tr>
</table></td><td>The international experiences comply with the regulation of Kazakh SNiP.
But the min. radius does not depend on the kind of area.</td><td>- setting the limits independent from the kind of area
- in case of mountainous areas reducing the allowed speed reduces accident risks

PROPOSAL: None
Already implemented in new design standard.</td></tr>
<tr><td>2</td><td>Vertical curves
<table>
<tr><th>Design speed [km/h]</th><th>convex [m]</th><th>concave [m]</th></tr>
<tr><td>150</td><td>30.000</td><td>7.000</td></tr>
<tr><td>120</td><td>15.000</td><td>5.000</td></tr>
<tr><td>110</td><td>13.000</td><td>4.000</td></tr>
<tr><td>100</td><td>10.000</td><td>3.000</td></tr>
<tr><td>80</td><td>5.000</td><td>2.000</td></tr>
<tr><td>60</td><td>2.500</td><td>1.500</td></tr>
<tr><td>50</td><td>1.500</td><td>1.200</td></tr>
<tr><td>40</td><td>1.000</td><td>1.000</td></tr>
<tr><td>30</td><td>600</td><td>600</td></tr>
</table></td><td>The international experiences comply with the regulation of Kazakh SNiP.</td><td>- no recommendation

PROPOSAL: None
Already implemented in new design standard.</td></tr>
<tr><td>1</td><td>Barriers at edges of category I-roads

Implementation of barriers depends on all of the following features:
- highway portion
- head-fall
- prospective traffic volume
- embankment height</td><td>The international experiences comply with the regulation of Kazakh SNiP.
But it is unusual to implement barriers depending on all features at the same time.</td><td>- defining conditions for the implementation of barriers from traffic volume and one additional feature

PROPOSAL: None
Already implemented in new design standard.</td></tr>
<tr><td>2</td><td>Barriers at medians

Implementation of barriers depends on median width and traffic volume</td><td>Barriers are implemented in medians always.</td><td>- obligation of barriers in medians

PROPOSAL: None
Already implemented in new design standard</td></tr>
</table>

	Analysed topic of SNiP (current situation)	International best practice	Recommendations (suggested way forward)
1	**Sign poles** Sign poles are required for horizontal and vertical curves under defined conditions and on special points of roads (e.g. culverts). Sign poles are not required in general.	In German guideline sign poles are defined with a constant distance between. On dangerous segments (e.g. sharp curves), the distance is reduced.	- implementation of sign poles on all roads in all segments with distances depending on the risk **PROPOSAL: None** Already implemented in new design standard.

Note: There are new standards accepted and official adopted in 2015.

Additional topics discussed during mission

During the mission other topics were discussed, such as:

- **Classification of roads**. Classification of road network remained unchanged in the recent implementation of standards in the field of road safety, which was kept from the previous period. Existing road category is defined in the USSR and didn't change for decades. The only applicable classification is Administrative classification of the road. Although there have been changes of main routes in the previous period, the classification of the road network remained the same. Certain road routes should get higher significance in the Moldavian road network, while other road routes should be degraded in the hierarchy. This should be done through functional classification of the road network in Moldavia. Methodology for the road classification should be introduced in the Republic of Moldova. Methodology should be developed on minimum two bases of categorization (Administrative and Functional). If there is need for the purpose of maintenance, third classification (terrain) could be implemented as well. Functional classification should be done pursuant to the criteria for determining road class in the road network.
- **Procedure for standards renewing**. Moldavia has recently implemented new standards and sublegal enactments, which has enabled RSA, RSI and BSM to be implemented as a part of activities for improving road safety. During the review of the standards in the field of designing and change of sublegal enactments, it was noticeable that the procedure for change was short and did not provide time for detailed check of the quality of the proposed modifications. The entire procedure lasts less than 6 months, so it was not possible for the designers to test and check. Such a short procedure should be prolonged to at least 12 months and additional 12 months for control and checking of all stakeholders, so that they could propose modifications and improvements. On the other hand, modification of standards could be initiated by any organization and the entire process is on voluntary basis, thus it does not always provide the best solutions.
- **Road rehabilitation**. Rehabilitations of road routes started in the previous period, however it was not obligatory to use road safety tools in the implementation of the started rehabilitations. The implemented rehabilitations often do not have the road safety component incorporated in the solution, and traffic improvement measures are implemented when negative impacts of rehabilitation on traffic safety are spotted. This way, road infrastructure is changed several times, which causes the increase of rehabilitation costs and lack of citizens' trust in the rehabilitation process. It is necessary to include modern road safety tools although legislative procedure is not finished and there is no legislative obligation for the application. Best practice shows that significant savings are achieved if the measures recommended in the RSA proposal are applied on time.
- **Linear settlements**. It was noticed that so called linear settlements are established along the road. Linear settlements have negative impact on road safety. Merging different speeds and needs for users is very dangerous for vulnerable road users. During mission it was noted that there was no satisfactory separation of vulnerable users on the road category I, II and III. Separation of the vulnerable road users should be established especially on high speed roads. This will lead to better traffic safety situation.

- **Billboards next to the road**. Presence of solid obstacles next to the road is not safe solution, because the vehicles can hit them, and also large structures holding billboards can fall on the pavement. Additionally, billboards in the vicinity of the road distract the concentration of participants in traffic on daily basis and also disrupt the visibility on the road.

Placement of billboards and issuing of permits should be under the jurisdiction of the road authority, or the entity in charge of managing road safety. All billboards immediately next to the road and disturbing the visibility should be removed, other billboards should be protected with safety fences.

- **U turn**. Placing of U turn on high speed roads without elements for safe turning represents danger of vehicles running into each other and of accidents with vehicles from the opposite direction.

Conclusions

In close cooperation with two-day WS participants Design team reviewed the most usual Road Safety Audit recommendations and analysed how they complied with existing SNiP and GOST standards/norms.

Main conclusion concerning road safety part of interurban road design standards (safe design approach) is that the situation in Moldova is significantly improved. This means that the latest revision of standards (ongoing and official adopted) already implemented most of the discussed and agreed recommendations. Moldova is one of the leading countries in TRACECA region. They have established legal framework for incorporation of RSA into the system and existing legislation.

With the latest change of design standards and legal documents it seems that important road safety tools that are stipulated in EC Directive 96/2008 RSA can be implemented in most parts.

Important Note:
Beside discussion of road design standards, design team noticed huge road safety problem with some parts of Institutional problems concerning road safety. Different International Financing Institutions and a lot of different Contractors in road sector lead to different level of road safety in Moldova. This means there is no unique approach to the road safety and more importantly low level of applied safety standards. Additional problem is that some rehabilitations and upgrading of roads started before the implementation of RSA procedure in legal system and there wasn't obligation for conducting RSA in these designs.
On the other hand, supervision of Construction (Work zones, quality of applied materials, etc.), maintenance (regular and winter with focus on drainage system) and design (roundabouts, guardrails, signage, etc.) should be focused on the road safety.

Connection between interurban and urban road condition (passing through traffic in cities/villages) has negative influence on road safety. This topic is more connected with planning of roads or urban planning, but if not treated well, it will cause a lot of road safety problems. Simply, design of interurban roads is not adjusted to urban road surroundings. Frequently interurban design is used in through roads without transition and modifications to urban surrounding.

All presented documents (already produced project deliverables and WS presentations) were shared with WS participants.

ANNEX:
A: Persons meet or consulted

Safety in Design mission
Time and place: Moldova, Chisinau 24-25 August 2015
"TRACECA ROAD SAFETY II" SAFEGE Consortium

LIST OF PARTICIPANTS

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4.3

COUNTRY: **MOLDOVA**

TEAM: FREIGHT ROUTE / PARKING TEAM

TOPIC: FREIGHT SAFE ROUTE AND FREIGHT PARKING

DATE: 02 TO 03 JULY 2015

REPORT PREPARED BY:

08 FREIGHT ROUTE / PARKING TEAM

TEAM MEMBER:

1. Walter A. Viti (NKE)
Non-Key Expert – Safety Freight/through traffic routing expert

July 13, 2015

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3. **Activities undertaken**
4. **Current situation and barriers, and the way forward**
5. **Conclusion**

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2. Attendees of workshop and meetings
3. Initial Schedule of Activities

1. Introduction

In accordance with the terms of reference, project Component 3: "Freight Routes and Parking", a team was mobilised to Chisinau, Moldova arriving early morning 02 July until 04 July 2015.

The main task was to meet the freight stakeholders and identify issues with freight route safety and freight parking, and list barriers or gaps in meeting EU standards, and list suggestions for a way forward.

2. Mission Objectives

Increased knowledge about freight through-traffic routing to avoid residential areas among responsible TRACECA countries stakeholders. Guidelines prepared on freight/through traffic routing to avoid residential areas.
Tasks assigned to the expert for Component 3, are: – Prepare guidance on freight/through traffic routing to avoid residential areas and – Support development of pilot routes schemes as examples.
1. Study current situation of commercial traffic through residential areas 2. Prepare basic Guidelines on measures / techniques to deter commercial traffic passing through residential areas 3. Participation in Regional Workshop, if required to present the Guidelines with the help of KE2 and other NKE, and 4. Support / advise on development of pilot routes schemes as example.

3. Activities Undertaken

The Project Team had a two day visit to Moldova to conducted meetings with road managers and freight industry representatives. There was a detailed presentation to the TRACECA team regarding the current situation in Moldova. It was stated very well the progress to current day, and the vision for freight and road development in Moldova.

The participants impressed the team in that Moldova was perceived to be the most prepared to

progress its freight programme compared to other TRACECA countries. It also identified strategic areas for development including freight routes and facilities, and issues currently preventing the road and freight administration.

There was interest in how other countries had achieved or were achieving their freight programme delivery. In addition to these talks was an extensive site visit conducted over various locations for parking. These sites visited included options such as existing petrol station sites, restaurants and hotel properties, vacation parking areas and private property, which could easily be transformed into joint parking and rest facilities.

It was emphasized that for freight services planning would be pending the strategic need and priority, and the given right funding framework and coordination and ownership responsibility progress would move quickly afterwards.

Other sites included newly completed road projects that showed an appropriate standard to cater for freight. What was not seen were the existing roads which have not had any recent investment, or any examples of modest roadside parking within the road boundary? It was agreed that all various parking sizes would be necessary to provide for long term standards.

Figure 1; Potential parking facilities (vacant land current used for parking, and establish restaurant)

Overall, discussions were very informative and helpful for the team to understand the current situation and barriers.

Moldova presented some data of its current situation, but it was clear that there was a need for specific statistics for freight activity. It was not clear if data needed to be collected or existing data needed to be made available for analysis and project feasibility and funding justification.

Moldova was mostly interested in exploring the funding frameworks and opportunities and seeking advice on what had been achieved elsewhere for facility ventures.

Figure 2; Workshop attendees (day 2)

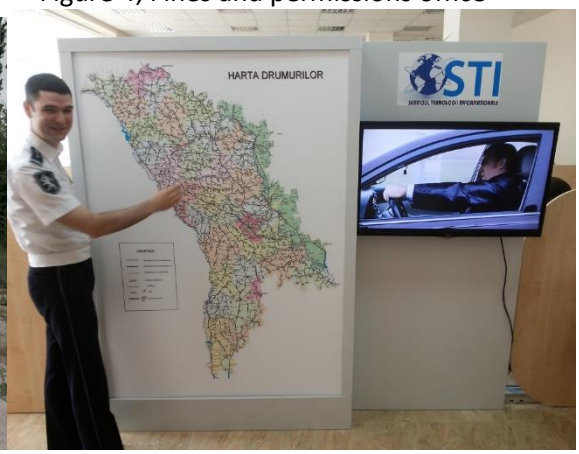
A key outcomes from discussions included agreement for establishing a working group with the freight industry and collaborate for freight route and facility planning and priority implementation. Other issues were assistance in meeting EU best practices by way of study tours as well as implementing improvement suggestions by learning from other countries.

The freight industry representative listed items which would not only meeting EU parking requirements and standards but also assist with reducing cargo weighing and border processing time and attracting the international freight market on Moldovan roads by prioritising the ring road development (southern section).

Road safety representatives requested more specific data on the incidents involving freight such as injuries and crashes, and more road signs for route warnings, parking facility locations and distances to key destinations and road names.

Figure 3; Freight weigh station

Figure 4; Fines and permissions office



Actual Programme:

Date/Time	Name of organisation	Address	Participants of the meetings
Day 1: 02.07.2015 10:00-15:00	Ministry and freight association	State Road Administration	Mixed Stakeholders and round table discussion; Ministry, Freight association & road safety specialists: Walter Viti, Nicolae Minra, Ministry of Transport; Ion Drucec, State Road Administration; Interpreter, Tatiana Mihailova ACM
15:30- 16:30	Technical station/ weighing trucks	Micauti village, M2 Sarateni-Soroca, km 24	Walter Viti, Nicolae Minra, Ministry of Transport; Ion Drucec, State Road Administration; Interpreter, Tatiana Mihailova ACM
15:30-18:30	Parking	M2 Road, Sarateni-Soroca	Walter Viti, Nicolae Minra, Ministry of Transport; Ion Drucec, State Road Administration; Interpreter
Day 2: 03.07.2015 11:00-13:00	Road Traffic Monitoring Center, IT Department of MIA	Iacob Hincu, 3A str, V.Alecsandri, 142 str. Chisinau	Walter Viti, Nicolae Minra, Ministry of Transport; Tatiana Mihailova, ACM; Neli Lelenco Police, Sergiu Rotari, Chief of Road Traffic Monitoring Center, Patrol Police Inspectorate; Dan Chirita, Director of IT Dept MIA
13:00-13:50	Lunch	Meeting	stakeholder road safety - current situation
14:00-17:05	Working Meeting with stakeholders / Seminar	Ministry office	Round table discussion for identifying barriers and suggestion solutions for the way forward

Topics discussed:

1. Best practices, EU objectives and issues for route efficiency and parking facilities
2. Current situation in Moldova
3. Barriers and impediments for planning and implementation for meeting EU standards
4. Improvements and practice required:
    a. planning and design
    b. regulation for enforcement and control of freight traffic
    c. policy and legislation to guide government
    d. access to case studies and achieved standards of parking services
    e. suitable financial models for funding parking facilities development such as PPP or private only or public only project initiatives
    f. monitoring freight traffic and collection of statistical data
    g. training including feasibility assessment for determining priority locations and facilities and justifying funding using up to date statistics; and
    h. re-establishing a committee of representative agencies for the collective progress and monitoring of freight programme
    i. funding
5. Confirming necessary improvement options for implementation freight expectations.

4. Current situation and barriers, and the way forward

	Current situation - Deficiencies requiring attention
	General situation:
1	- The allocation of land for parking facilities is an issue (along with political decision) such as using forest areas, and planning private sector investment by way of PPP for achieving quicker and affordable results - Options for financial set-up are sort for PPP, but availability of land owners' willingness, along with progress with regional authorities or chamber of commerce. - Moldova possesses the strategic mind set and vision within its technical planning and design capability, but lacks some depth regarding meeting EU standards and
2	Status of freight infrastructure: - Freight industry is critical for Moldova both as a producer for export and transitory country for border neighbours - There are no statistics available (or collected) specific to drivers, freight vehicles (international) or cargo loads or dimensions, or freight processing time. Better coordination would assist greatly - The government has chartered its road development programme, and funding from WB has provided opportunity to develop key corridors for all traffic including freight. Approximately 40% of national investment is on roads.
3	The ring road is strategic for bypassing city traffic congestion, and this should take priority.
4	Technical issues; - A master programme was launched for local roads including classification of E-roads types - Parking planning and design capability exist but advice on feasibility or impact assessment and funding justification would be valuable
5	Ministry of Planning stated; - 887km are the most important road for north-south and east-west corridors - 465 km is rehabilitated - 350km is underway - 266km is planned for improvement, and other projects need finance - $0.5million of traffic fines is used to build roads - There is interest in TRACECA opportunities for finance or investment in the next 5 years - EU has given finances for road rehabilitation. - M LD3 project has been finished but need more funding for level crossings
6	The river crossing is a problem (Odessa Road) including surrounding roads
7	The Black sea belt is also important and a feasibility study has been drafted. There may be agricultural funds available - $100-$150,000
8	AITA convention needs to be adopted
9	If funds were made available, the ministry has planned locations for freight parking but land is an issue and needs to be purchased.
10	Safety and security also need to be taken into consideration with new designs
11	There are green corridors to also consider
12	In addition, current freight is traveling through and not stopping. There needs to be strategic planning for parking locations, with provision of appropriate and suitable services and facilities. This needs some planning and design advice so to capture passing freight trade
13	There is only 3.5 hours travel from centre of city to border, and this is an advantage for transit freight. Moldova provides the shortest route in the TRACECA region, especially for Ukraine transit traffic
	Specific issues and needs:
1	Financial assistance needed as there is current no funding available to continue freight infrastructure and capture current opportunities with new suitable roads
2	Freight related laws have already been revised. There is a need to have specified the axle load limits and restrictions such as 11.5 tonnes and greater, and relate these laws to the enforcement and certification and permissions system and framework. The cargo carriers must also be involved for planning out their routes, and assisting with managing international freight traffic
3	Freight parking may be built by the State but operated and maintained by the private sector via PPP frameworks, for larger parking facilities. There needs to be a study on large freight parking needs,

	priorities and locations and design specification.
4	Tachographs need to correspond with international standards
5	Signs for freight traffic and routes needs to be modernised and more informative to indicate; distances, destinations (locations and towns); parking facilities; speed and load limits; dedicate route corridors and other amenities such a fuel or mechanic stations, hotels or goods stores. This would inform all drivers and attract road trade.
6	Forests are current protected, and government is not able to resolve the need for land for freight parking. There needs to be a motivation for government to agree to make land available pending feasible justifications for commercial and road safety benefits. Funding could come from a specific tax from driver licenses, cargo permits, or parking facility profit share, including road safety messages.
7	Freight facility planning needs to incorporate road safety improvement and incident reduction measures. There needs to be specific data collected, assessed and monitored and dedicates resources delegated for this and its coordination.
8	There is current good coordination for security of cargo such as for dangerous goods. The documents must meet revised regulations and control framework. There is a need though for revised documentation to clear issues of permission fees and associated taxes to accumulate funds for road maintenance.
9	There needs to be a better system for weigh measuring and payment for overweight vehicles. How will cargo transport from one to another vehicle be assessed (in parking areas) without incurring the same fee overweight charges? This needs to be controlled and conducted safety if freight is transferred.
10	Moldova wishes to use EU standards and documents for freight vehicle and cargo control but there are current mixed control teams. There is a need to be fully informed of EU standards and control systems and may be achieved via training including truck and weight testing and inspection practices.
11	The perception is that Moldova is not a transit country. This needs to be changed using sings and making information available to drivers and freight companies. Moldova also wants to improve its credibility for attracting and supporting investment.
12	Moldova will need to coordinate road safety investigation and interventions as freight traffic will begin to increase. Related freight incidents, crashes and injuries will need pro-active attention and training.
13	Moldova's freight laws must be the same as in EU countries so to maintain consistency and best practice. This includes the laws for tacho. limits and controls for drivers and freight companies
14	Border queues and cargo processing is not consistent and time can be lost for drivers. This needs improvement
15	International conventions are not being applied, and these need to be all adopted and practiced
16	Moldova needs to dedicated specific freight corridors for specific vehicles or freight types, as currently the routes are not working as drivers are traveling on which ever road. There is little information and control available.
17	There needs to be compulsory scanning of trucks, such as in Romania, for weighing and customs inspection.
18	There needs to be better organisation for control and certification of vehicle safety, driver adherence of regulations and freight type, weight and size. Current system along Moldova-Georgia road is not working well with the single weight certificates. (Perhaps partnership countries need collaboration for this).
19	UN conventions do not appear to be respected (Appendix 8) and the nation freight administration may need to be informed, trained and resources for applying best practice.
Way Forward	
1	Sourcing appropriate funding, for development of parking facilities (such as asMAP). This could be achieved from domestic sources but specific freight data, collaboration and design as well as suitable framework is needed. This must be supported by studies on locations, facility type (small or large plus services; level 1-5), and guided by a strategic plan for long term vision and stepped development starting with priorities. State land authorities must also be consulted so time and effort is not misdirected on unsuitable sites.
2	Working group between the ministry and freight industry for collaborative input for planning and design, and data sharing

3	Study on commercial opportunities linked to road freight, infrastructures and traffic flows, weights and sizes for domestic and international existing and forecasted.	
4	Ring road prioritization for capturing the west to east road trade market for international freight. The parking needs to be included	
5	TRACECA to assist with writing a letter to the government for support of the ring road and push for similar related decisions for capturing freight trade. Feasibility studies need to demonstrate technical and commercial benefits.	
6	'Normalitive documents' meaning adoption of standards and conventions and agreements, and utilisations of documents existing such as from Romania.	
7	Customs data to be available and disseminated, especially for freight industry utilisations for market positioning and scoping, as well as assessment of demand on the road network and infrastructure. Data needs to be accurate and helpful for this purpose	
8	More road signs, and adoption of convention 1968. Guidance on sign strategies that comply with EU and suitable for new and existing roads	
9	Tachometer regulations to comply in practice with AITA agreement and not with local regulations so to be meeting international best practices.	
10	Improved cargo control systems; weight, size, type if toxic.	
11	Adopt the UN convention appendix 8 for weight certificates to reduce processing time at control points. May use a memorandum of understanding.	
12	Moldova's freight fleet is old and many vehicles have been modified to cope with larger heavier loads. This means the original manufacturers' vehicle weight is altered; increased=500kgs. Drivers cannot convince or prove this when weighed. There needs to be a technical passport for each vehicle so its additional weight is recalibrated and certified and considered when cargo is weighed.	
13	There needs to be abroad fund from tax set aside for road works, improvements and re investment. This could come from insurances such as from Australia's TAC framework.	

5. Conclusion

Moldova appears to be one of the better prepared TRACECA countries for developing its vision for freight transport and road network. The main factor emphasised was the lack of funding and knowledge of finance frameworks suitable for planning and attracting each option type for freight parking investment.

There was a need to collect specific data in freight traffic for forecasting and scoping freight route safety and efficiency, and freight parking facility planning and design. This data needs dedicated managers and coordination for monitoring the situation and addressing problems, as well as working closely with the freight industry association.

This also requires consultation from international experts and partnering with other countries for benchmarking and conducting studies for facility feasibility (proposed locations and parking facility size and service complexity) and setting up cross border agreements and application of conventions.

Feasibility studies would assist with convincing land owners and government on the need and priority for freight parking and safety measures and also the decision making and quicker action, as well as justifying funding and prioritisation of projects for freight implementation.

A development in freight infrastructure would also provide the TRACECA freight movers with additional transit options and develop Moldova's freight transit trade.

Annex 1

QUESTIONS - FREIGHT ROUTE AND PARKING MISSION

A. Current Situation:

1. Who are involved in freight routes and parking, and design and control (enforcement), including permission of loads and certification of driver license and training?

2. Do you have designated freight routes, and listed facilities such as secure or non-secure parking?

3. What is the condition of your freight routes and parking facilities?

4. What are the characteristics of the freight traffic today, and expected in future (number of truck companies, licensed drivers volume of trucks (types); typical weights/loads, and number of accidents, km of roads, number of heavy industries, and international freight movement)?

5. What statistics or studies are available?

6. What budget and resources are available specifically for freight traffic and infrastructure?

7. Is there a working relationship with stakeholders such as the industry carriers?

8. How many parking facilities exist and how many are planned new or upgraded to meet demand.

9. What design standards or conditions are currently used?

10. How long would it currently take to implement from planning>design>construction?

11. What costs are expected for upgraded freight routes or parking?

12. What are the plans for addressing international traffic?

13. Does government support the development of freight routes and facilities?

14. What relationships exist with the regions, and property owners and business investors?

15. Is there a lobby group or joint committee for freight interests and safety?

B Weakness and Strengths:

1. Barriers?
2. Gaps?
3. Successes and Progress made?

C Way forward:

1. Demands and Needs?
2. Solution Recommendations?

ANNEX 2
Persons met or consulted

Freight Route Safety and Freight Parking team
Working visit to Chisinau, Moldova, 2-3 July 2015
European Union financed Project "TRACECA ROAD SAFETY II"

LIST OF PARTICIPANTS – Day 1 & 2

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Working visit to Chisinau, Moldova, 2-3 July 2015
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East and Central Asia – TRACECA Road Safety II
EuropeAid/133698/C/SER/Multi
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ANNEX 3
Initial Schedule

TWO DAY FREIGHT TRAFFIC ROUTING AND SAFE PARKING MISSION

(Implementing item 3.1.8 to 3.1.10 of work plan Component 3)

Countries and dates of missions in 2015

Country & mission dates	Armenia (ARM)	Azerbaijan (AZE)	Georgia (GEO)	Kazakhstan (KAZ)	Kyrgyzstan (KGZ)	Moldova (MDA)	Tajikistan (TAJ)	Turkmenistan (TKM)	Ukraine (UKR)	Uzbekistan (UZB)
Calendar week		27	26			27			26	
First visit	-	29-30 June	25-26 June	-	-	2-3 July	-	-	22-23 June	-

Day 1. Workshop/Meeting/Round table discussion/Site visit

Item	Time	Topics to be discussed	Expected participants (to be invited)	Expected outcome of meeting	Proposed place of meeting	Note
1	09.30-13.00	1. Identify and assess the current situation on major TRACECA routes inside the country (and highlight areas of interest and vulnerability) - Present best practices (international) of freight through routing and safe and secure parking in EU. - IS AGR (1975) Convention implemented? 2. Standards available or in use for service facility areas on International roads? - Is SNIP standard on layout of parking areas available or implemented? - Does freight route through traffic avoid residential areas or congestion issues? 3. Is there Strategy or Guidelines about freight through routing or safe and for secure parking or vehicle inspection areas?	1. Representatives from the Ministry of Transport (or equivalent) (2-3 specialists) 2. Representatives of Traffic (Road) Police who are responsible for controlling of freight vehicle within urban areas (2-3 persons) 4. Representatives from Road Administrations (1-2 persons) 5. Representatives of freight companies (IRU) (1-2) persons	1. Situation with AGR documented 2. Current Standard used and regulation understood and documented 3. Status of Guidelines know 4. Major problems identified and proposals for improvement discussed.	Ministry of Transport (or equivalent) (room for meeting up to 12 persons)	Room should be equipped with Video Projector.

		4. How are freight through routing and safe and secure parking regulated? (What are the resources, skills and equipment and specification used?) 5. Provision criteria on city/village by-passes and parking area (including restrictions & limits; noise; emission; loads) 6. Discussion on critical issues for truck vehicles, routes and facilities such as parking.				
2	14.00-17.00	1. Site visit of one typical service area on a major roads (What is the typical driving practice? How are they designed? What are typical facilities for road users? What are the potential problems?), and organisation freight through routing including of enforcement and inspections or testing.	1. Representatives from the Ministry of Transport (or equivalent) (1 spec.) 2. Representatives of Traffic (Road) Police who are responsible for controlling of freight vehicle within urban areas (1 specialist) 3. Representatives of freight companies (IRU) (1 specialist) 4. Representatives from Road Administrations (1 person)	1. Current practices of freight through routing and parking areas are known and documented 2. Major problems identified and documented	Two/three stations Tech. Insp. of vehicles (usage of two cars/taxis)	

Day 2. Meeting/round table discussions

item	Time	Topics to be discussed	Expected participants (to be invited)	Expected outcome of meeting	Proposed place of meeting	Note
1	10.00-11.00	1. Discussion of weaknesses in freight through routing and parking areas. - What are the problems? - How situation can be improved? - How to remove obstacles/impediments? - Discussion of Guidelines needed for freight through routing and parking areas - Identification of case studies/ good examples (to be reviewed in next mission) 2. Discussion of current Strengths and future Needs?	1. Representatives from the Ministry of Transport (or equivalent) (2-3 specialists) 2. Representatives of Traffic (Road) Police who are responsible for controlling of freight vehicle within urban areas (2-3 persons) 4. Representatives from Road Administrations (1-2 persons) 5. Representatives of freight companies (IRU) (1-2) persons	1. Problem of freight through routing and parking areas discussed/defined 2. Potential improvements identified 3. Major problems recognised and proposals for improvements discussed 4. Possible Case Studies/ Examples identified	Ministry of Transport (or equivalent) (room for meeting up to 12 persons)	Room should be equipped with Video Projector.
2	14.00-17.00	1. Presentation of EU best practice related to truck route design, route facilities and problems identified. - freight through routing - parking areas 2. Road map for improving freight through routing and parking areas discussed, including a list of locations of importance and interest for specific design or road safety attention or improvement.	1. Representatives from the Ministry of Transport (or equivalent) (2-3 specialists) 2. Representatives of Traffic (Road) Police who are responsible for controlling of freight vehicle within urban areas (2-3 persons) 4. Representatives from Road Administrations (1-2 persons) 5. Representatives of freight companies (IRU) (1-2) persons	1. EU Best practice concerning freight through routing and parking areas shared 2. Road map (draft) for improving of freight through routing and parking areas discussed	Ministry of Transport (or equivalent) (room for meeting up to 10 persons)	Room should be equipped with Video Projector.

4.4.1

Regional
Road Safety Audit
Guidelines

TRACECA Regional Road Safety Project

Safety Engineering Team

December 2014

The European Union TRACECA programme

For

Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Tajikistan, Turkmenistan, Ukraine, Uzbekistan

PREFACE
TO THE DRAFT REGIONAL ROAD SAFETY AUDIT MANUAL FOR TRACECA COUNTRIES

After almost two decades of experience with Road Safety Audit (RSA) all over the world, this procedure is now recognized as one of the most efficient engineering tools. With its EU Directive no. 2008/96 on road infrastructure safety management, published in October 2008, the European Union has made a clear decision that the RSA will be mandatory for the Trans-European Road Network in forthcoming years. RSA is highly effective and cost effective engineering tool for improvement of safety on roads. It is much cheaper to identify road safety deficiencies in the process of design than later after construction has been done. Therefore, RSAs are amongst the most cost-beneficial investments a Road Authority can undertake.

Unfortunately, in reality there is little application of RSA at present in TRACECA Region. RSAs that are implemented are mostly pushed by IFIs and implemented by foreign consulting companies. Even when RSAs are undertaken the RSA recommendations are not always implemented by the road authorities.

This is why the Project has tried to develop capacity in each country for RSA. The Project team in cooperation/consultation with concerned stakeholders have produced this Regional RSA Manual. This RSA Manual for TRACECA Countries is based on best international theory and practice and it offers a unified approach across the Region. As TRACECA Region contains important transport links (corridors) from China to Europe, the importance of harmonization and elimination of potential risks to the road users is of great importance. This is why the Regional RSA Manual is built on existing Manuals from the Region and tries to apply a common approach to RSA. This will ensure similar approaches are applied for RSA related improvement of road infrastructure in all TRACECA Countries.

Special attention has been given to try to make the Manual and accompanying Checklists user friendly. This RSA Manual has six chapters followed by three Appendices (Checklists).

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Annex 1: Checklists for the Draft (Preliminary) Design (Stage 1)
Annex 2: Checklists for the Detailed Design (Stage 2)
Annex 3: Checklists for the Pre-Traffic Opening of road and Road in Early Operation (Stage 3 and 4)

ABBREVATIONS AND ACRONYMS

BSM Black Spot Management

EC European Commission

EU European Union

IBRD International Bank for Reconstruction and Development (World Bank)

IFI International Financing Institutions

IDS In Depth Studies of Traffic Accidents with fatalities

MoIA Ministry of Internal Affairs

MoIMinistry of Interior

MoTC Ministry of Transport and Communications

NSM Network Safety Management

RAP Road Assessment Program

RIA Road Safety Impact Assessment

PIARC World Road Association (PIARC actually means Permanent International Association of Road Congresses but this name is rarely used)

RSARoad Safety Audit

RSI Road Safety Inspection

SEETO South-East Europe Transport Observatory

TL Team Leader

ToRTerms of Reference

TP Traffic (Road) Police

TRACECA Transport Corridor Europe-Caucasus-Asia

WE-WC Western Europe – Western China International Transit Corridor

WHO World Health Organization

1 INTRODUCTION

Today, all around the world it is well known that road crashes are a big social and economic problem. Different measures and programs have been developed to reduce the number of casualties on roads. On an international level, the United Nation, World Health Organization, International financial institutions (especially IBRD or ADB, EIB, etc.) and some specialized NGOs (PIARC, ETSC, PRI, SEETO, etc.) represent high quality stakeholders of global road safety improvements. Recently, in the autumn of 2009, ministers and stakeholders from all over the world approved the Moscow Declaration on Road Safety (First Global UN Ministerial Conference on Road Safety). Within 2 years this matter was discussed at UN Decade for Action on Road Safety was announced for the period 2011-2020 with a target to reduce the worldwide total of deaths by 50% by 2020.

In most countries, road design guidelines are applied which, in most cases include implementation of road safety issues. Despite this, crashes still occur on new roads. There are several reasons for this. Firstly, design standards often contain minimum requirements regarding road safety and a combination of these elements can sometimes lead to dangerous situations. Furthermore, it is not always possible to comply with the standards. Sometimes, especially in built-up-areas or in difficult terrain, there are reasons which make the application of the standards impossible.

One common misunderstanding is that drivers fault or bad behaviour is the single and only cause of road traffic crashes[12]. As a result of international understanding from various research it is clear that the whole system (driver, road with its environment and the vehicles) is strongly connected and usually at least two of these contributory factors are involved.

This is why "The Safe System Approach" is not focusing anymore on single elements of the transport system but on their interfaces, especially on the Human Factors and the interface between road users and the road which has to be adapted to road users abilities and limitations.

A number of techniques and processes have been developed in last two decades. One of them is Road Safety Audit which is now recognized as one of the most efficient engineering tools. With the Directive of the European Parliament and of the Council no. 2008/96 on road infrastructure safety management, published in October 2008, the European Union clear decision and direction that road safety is important. It is clear that RSA will be mandatory for the trans-European Road Network in the forthcoming years and European Investment Bank is already extending application of the Directive via its lessons to the neighbourhood countries. In this directive, RSA is part of a package of road safety measures, including:

- Road safety impact assessment (RIA),
- **Road safety audit for the design stages of roads (RSA)**,
- Safety ranking and management of the road network in operation, including management of high risk road sections (BSM),
- Road safety inspections of existing roads (RSI) and
- In-depth studies (IDS).

[12] This occurs because in most countries Traffic Police tend to blame the driver for driving too fast, for illegal manoeuvres etc. without asking, "Why the driver may have made that error?" Because they generally do not have understanding of the road engineering and vehicle factors. They do not identify such defects and police statistics always show that "Driver error" is the main factor in 70-90% of road crashes.

These measures are an integrated part of the wider road safety management system, as shown at **Ошибка! Источник ссылки не найден.**.

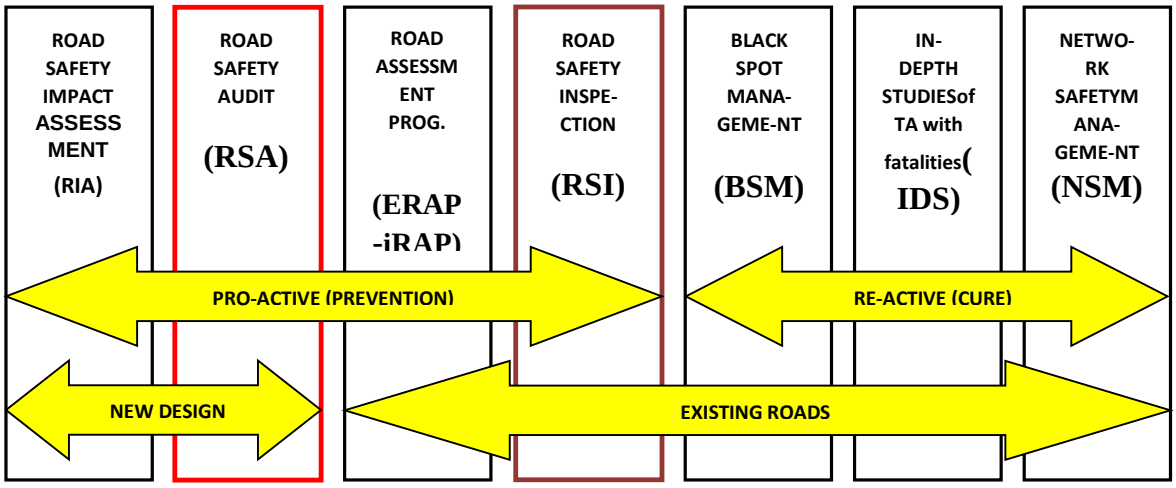

Figure 1-1 RSA as part of the Road Safety Management (Source: SEETO Road Safety Audit Manual, 2009)

It can be seen from **Ошибка! Источник ссылки не найден.** that **RSA** represents a pro-active (preventive) element that should be included in the road design process.

Furthermore, the RSA procedure is:

- A formal process,
- An independent process,
- Carried out by someone with appropriate safety experience and training,
- Restricted to road safety issues of the road and making it safer for all road users.

The outcome of a RSA is a formal Report, which identifies existing and potential road safety deficiencies and, if appropriate, makes recommendations aimed at removing or reducing these deficiencies. With the audit process, it is possible to reduce the number and severity of traffic crashes by improving the road safety performances.

According to the best practice, as well as the previously mentioned EU directive, there are four different stages during which Road Safety Audits are most commonly[13] conducted:

- Stage 1: **draft design**,
- Stage 2: **detailed design**,
- Stage 3: **pre-opening of the road** and
- Stage 4: **early operation, when the road is in use**.

[13] In some countries a 5th stage "planning" is added at the beginning or "Feasibility" stage. Often safety critical decisions can be made even before draft design starts. For example, the route that is selected, junction strategy, future developments all affect safety of the road. If for example it is known that a new government will be built, it may result in huge increase in trucks using certain parts of the road and junctions. This may affect the type of junction that should be selected

The RSA has a lot of similarity with another road safety management procedure and that is the **Road Safety Inspection** (**RSI**). The output of RSI is also a formal report, and the form is slightly different from RSA report.

2 ROAD SAFETY AUDIT BASICS

2.1 What is Road Safety Audit?

RSA is a well- known term used internationally to describe an independent review of a road project to identify road or traffic safety concerns. It can be regarded as part of a comprehensive quality management system. It is a formal examination of a road or a traffic project. The systematic application of RSA increases the safety of all road users. RSA is a pro-active approach with the primary aim of identifying potential safety problems as early as possible in the design process so that decisions can be made about eliminating or reducing the problems, preferably before a scheme is implemented or crashes occur.

The most common definition of RSA is: "**A formal road safety examination of the road or traffic project, or any other type of project which affects road users, carried out by an independent, qualified auditor or team of auditors who reports on the project crash potential and safety performance for all kinds of road users**".

The latest EU Directive presents the following definition of RSA: "**RSA means an independent, detailed, systematic and technical safety check relating to the design characteristics of a road infrastructure project and covering all stages from planning to early operation**".

As part of the road safety engineering process, the Road Safety Audit (RSA) has a strong relationship and a lot of similarities with the Road Safety Inspection (RSI). Therefore, processes and phases explained in the **Ошибка! Источник ссылки не найден.**.

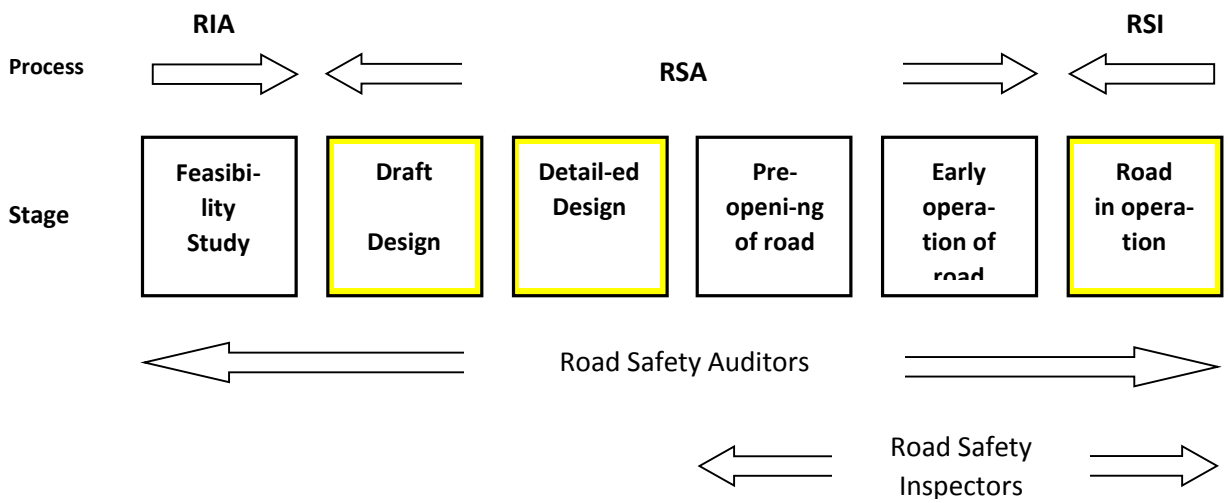

Figure 2-1 Process and phases of RSI and RSA

Bearing in mind similarities between RSA (phases 3 and 4) and RSI, for the production of the Report, the same checklists can be used.

Ошибка! Источник ссылки не найден. explains the interaction between RSA and RSI procedures.

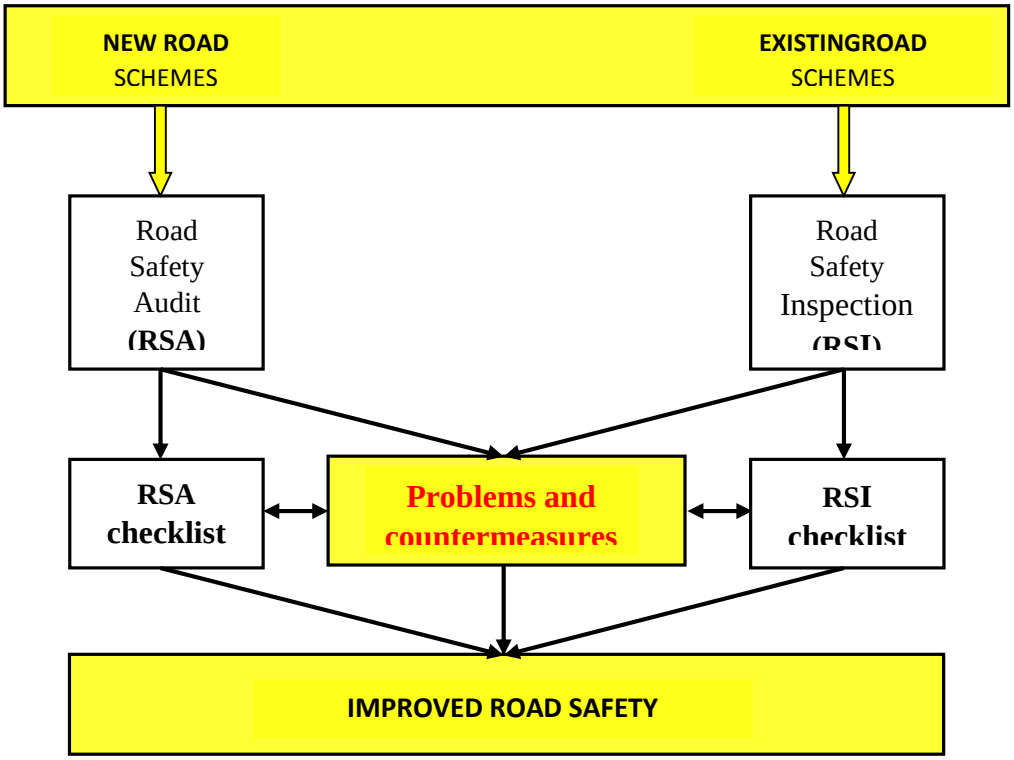

Figure 2-2 Interaction between the RSA and RSI procedures

The outcome of a RSA is a formal report and the time required to undertake a RSA is very short compared to the individual planning stages. It is better if RSA is implemented in the early stages of the design process, before expensive construction begins – after which changes can be costly.

For maximum effectiveness, it is very important that RSA is carried out by independent auditors from private companies, the road administration or some "audit centre", not involved in the actual project design team. All auditors have to be trained and fully qualified.

2.2 Why do we need Road Safety Audit?

Over the last decades, road crashes casualties have specially increased in many countries and road safety has become a serious concern for many national level government stakeholders (usually Ministry of Transport and Communication, Ministry of Interior – Traffic Police, Road Administrations, Ministry of Health, Ministry of Education, etc.). The rapid growth of the road network, the increasing vehicle population, different types of vehicles on the roads, technological advances, etc. have contributed to an environment with significantly increased risks of crashes. Furthermore, the system of the three principal elements which contribute to road crashes: driver, vehicle and road, are also affected by the social and political environment under which they interact. Alongside these changes, road (traffic) experts have been looking at ways of decreasing the risks of road crashes.

In the first phase of the development of road safety, the concentration of most experts was focused on the drivers as this was a general tendency to think "driver error" was the only cause whereas (as earlier explanations indicate) this was simply because the need for "safe system" was not understood. After decades of improvement work a lot was achieved. The same was achieved with cars. Car safety was dramatically increased, and it is still improving.

After these improvements, the remaining factor was the road and its improvement.

The first action was made in establishing the road design standards. While attempting to reduce costs of building roads, engineers take into account a number of different factors during the design process (capacity requirements, right-of-way availability, geotechnical conditions, archaeological considerations, environmental constraints, socio-economic impacts, budget constraints, etc). Designers therefore have a substantial responsibility and difficult task to balance the opposing interests (costs vs improved road safety) that are relevant to any modern road design project. This may lead to compromises sometimes at the expense of safety.

On the other hand, road safety requirements for planning, construction and maintenance of roads, as well as for operation and equipment are inadequately addressed in existing and outdated Standards and norms, such as GOST and SNIP standards which are still in use in ex-soviet countries. Therefore, it often happens that along newly constructed and rehabilitated road sections, a great number of traffic crashes still occur. Sometimes the number of crashes is increased along rehabilitated road comparing to the road before improvements since much higher speeds are now possible on such "improved" roads. This can have a negative impact on linear villages which the new rehabilitated road passes through.

It is not likely that all necessary road safety improvements will be achieved only by using design standards, having in mind how slowly standards are improved or changed. In some of TRACECA Countries old Soviet standards and norms are still in use. Added to this, new scientific findings take some time to find their way into the technical standards and specifications, because they need to be verified and accepted.

Because of previously mentioned reasons, RSA as an approved road safety tool can be used for improvement of the road environment. With the expert knowledge of the Road Safety Audit, it is possible to reduce the number and severity of traffic crashes by improving the road safety performance and safety elements of the road.

2.3 Area of Application (Type of projects)

An RSA should be undertaken on a wide range of projects varying in size, location, type, and classification. The types of projects that can be audited are categorized under the following headings:

- function in the network (International roads, Corridor roads, Regional and Local roads)
- traffic (motor vehicles only or mixed traffic with non-motorized and/or slow agricultural traffic)
- position - locality (outside or inside built up areas).

It is recommended that RSA is implemented for projects that have the value of technical documentation more than 30.000 Euro. RSA is an integral part of the design process but independent from the actual design. The designer[14] of a new road project (or other applicable project) remains responsible for the design. The designer should make regular checks of the implications for safety work as the design progresses.

This manual is applicable for:

- new roads, motorways, state roads of I and II order and other road traffic facilities,
- reconstruction and rehabilitation,

[14] Is a considerable merit in introducing design engineers to concepts of safe design and how to avoid typical safety problems that can occur. The TRACECA regional road safety Project is training 6 design engineers in each country and exploring how the design engineer most actively involved in national regional and municipal road design, whether in government, design institutes or consultations can be given such awareness raising training.

- inside and outside built-up areas.

The types of projects to be mandatorily audited will be defined according to the legal (law or by-law) regulations.

For example, RSA could be implemented for:

- Major projects, i.e. motorways, Highways and other road facilities.
- State roads of I and II order, bypass roads etc.
- Medium-sized projects, i.e. reconstruction and rehabilitation projects
- Minor improvements, i.e. bicycle pathways, footpaths', major maintenance works, etc.
- Traffic management schemes (both permanent and temporary)

RSA can be used for interurban roads as well as for urban arterials.

There is a great chance that in some of TRACECA Countries in the future RSA will be regulated by the Law on Road Traffic.

2.4 Value and Costs of Road Safety Audit

Benefits of RSA are based on pro-active management of road safety, by identifying and preventing the risks associated with road safety deficiencies.

Namely, values of RSA are:

- Safer roads through crash prevention and crash severity reduction.

  Research in the United Kingdom has indicated that up to 1/3 of collisions may be prevented on a road that has been audited. The Austrian Road Safety Board (KfV) estimates that the financial benefit of the RSA in Austria is 50 times higher than the costs. A Danish study in 1995 came to the result of a benefit to cost ratio of 16,8. Scotland has estimated a benefit/cost ratio of 15:1. Germany Insurance Institute for Traffic Engineering (VTIV) has made some case studies about the benefit of the RSA, and benefit/cost ratio was in a range from 4 to 99. New Zealand has estimated the ratio to be closer to 20:1. Other research indicated a 1 to 3 percent reduction in injury collisions.
- Enhancement of road safety engineering.
- Reduced whole life costs of road construction.
- Reduced need to modify new roads after construction.
- A better understanding and documentation of road safety engineering.
- Safety improvements to standards and procedures in the future.
- More explicit consideration of the safety needs of vulnerable road users.
- Encouragement of other institution/personnel's involvement in road safety.
- Foster a principle of safety conscious design among owners and designers.
- Cost savings, lower health care and societal costs due to reduced crashes.
- To improve the awareness of safe design practices of everyone involved in the design.
- Enhancement of the corporate safety culture.
- Cross-fertilization between specialists within a highway department (e.g. Design, Maintenance, Traffic, etc.).

The earlier the project is audited within the design and development processes, the more effects and benefits are achieved. Early auditing can lead to the early elimination of problems and, consequently, minimization of time and cost of redesign at later stages.

In addition it has to be mentioned, that the implementation of RSA leads to intensive discussion between the auditors, client and designer. This discussion is helpful to increase the knowledge of all involved parties and is also helpful to improve the daily work, design procedures and would also be helpful in the process of the renewing of the standards.

The cost of audits is divided into three categories:

- consultant fees,
- the client's time costs to manage the audit, and
- costs associated with implementing recommendations that are adopted.

Some experiences show that a safety audit of a new facility costs approximately the same as a geotechnical survey. Another experience places the average cost of a conventional audit for small to mid-sized projects between $1,000 and $5,000. In other research, fees range vary from $700 to $6,000, with most falling in the $2,000 to $3,600 range. The actual cost depends greatly on the size and complexity of the project and composition of the required audit team.

Some consultants find that audits add approximately 5 to 10 percent to design costs, or less than 0.5 percent to construction expenses. Another approximates that audits will add 4 to 10 percent to the road design costs. As design costs are roughly 5 to 6 percent of the total project sum, road safety benefits far outweigh these small costs.

On smaller projects (traffic calming or retrofits), the costs may be a higher percentage of the overall capital cost. Costs of redesign/rectification should be considered which will vary on a project-to-project basis. The cost of rectifying deficiencies depends on how early in the design process the problem is identified as well as the amount of time required to redesign the area.

2.5 Structure of the Manual

This manual is divided into five chapters as the follows:

The first Chapter introduces the RSA and explains the rationale for existence of RSA procedures.

Chapter 2 presents basics about RSA. This Chapter contains answers to the following questions: What is Road Safety Audit? Which definitions exist? Why do we need RSA? Where can RSA be applied? and What are the values and costs of RSA?

Chapter 3 discusses the stages of RSA. Detailed explanations are provided for: Draft (or Preliminary) Design, Detailed Design, Pre-Opening and Early Operation. The chapter also discusses the methodology used when conducting audits at different project stages.

Chapter 4 presents the RSA process and explains how RSA should be performed. It describes the complete process from the selection of the audit team to the completion meeting and follow-up.

Chapter 5 provides a discussion about the training of the auditors and about legal issues associated with road safety audit.

Annexes 1-3 contain the checklists for road safety audits (for all stages).

3 STAGES OF ROAD SAFETY AUDIT

RSA can be effective for most projects, regardless of size, and at any or all key milestones in the development of a road project. According to the latest international experience, as well as EU Directive 2008/96, there are typically 4 different stages during which Road Safety Audits are conducted:

- Stage 1: **draft (or preliminary) design**,
- Stage 2: **detailed design**,

- Stage 3: **pre-opening of the road** and
- Stage 4: **early operation** - when the road is in use.

The complexity and level of effort of the audit process changes with each stage. An overview of what each of the audit stages entails is provided below.

The audit of the very early design stage (feasibility study or planning) should be made by using the road safety impact assessment method, not by RSA procedure. But in cases of rehabilitations, widening or just major maintenance projects of existing roads Road Safety inspections shoud be performed to detect existing safety deficiencies and the elaboration of countermeasures in the following design and construction phases.

The RSA stage 1 and 2 will be conducted on the basis of the design documentation (drawings, technical reports, explanatory notes, etc.) of the project. Site visits may also be needed, especially for rehabilitation schemes on existing alignments. To ensure an adequate accuracy of the RSA, the design documentation must have sufficient quality and content.

Before opening the new road to traffic with the stage 3, the audit should be made to check if the scheme has been constructed as designed, with full respect to road safety and whether any other road safety deficiencies that were not previously discovered increase the road safety risks after construction. Daylight and darkness checks should also be done for Stage 3 and 4. The final stage 4 of the RSA process is checking the road during early operation. It is important that an evaluation /assessment of actual safety situation is made after some months.

A detailed overview of each of the audit stages is provided below.

3.1 Draft (or Preliminary) Design

During the draft (or preliminary) design stage, the audit team evaluates the general design principles. Primary objectives are to evaluate the relative safety of intersection or interchange types and layout, horizontal and vertical alignment, cross section, sight distance, lane and shoulder widths, super elevation, provisions for pedestrians and other vulnerable road users and other design elements. Audits conducted at this stage should be completed before the finalization of land acquisition to avoid complications if significant alignment changes are required.

3.2 Detailed Design

All elements of the final design should be in place during the detailed design stage. During this stage, the audit team reviews the final geometric design features proposed traffic signing and pavement marking plans, lighting plans, drainage, guardrails and other roadside objects, landscaping, intersections and interchange details (such as tapers, lengths of acceleration and deceleration lanes, and turning radii). The team also reviews provisions for specific users such as motorcyclists, pedal

cyclists, pedestrians (including the particular needs of children and the elderly) and the mobility-impaired.

3.3 Pre-Opening of the road

Immediately before opening a road or facility, the audit team should conduct a site inspection to ensure that the safety needs of all road users (*i.e.*, pedestrians, cyclists, motorists, and others) are adequately satisfied. The audit team should conduct day and night drive and walk through inspections and, if possible, perform the inspection in different weather conditions. This type of audit attempts to determine if hazardous conditions exist which were not evident in the previous audits.

3.4 Early operation – when the road is in use

RSA can be undertaken soon after opening a new or reconstructed/rehabilitated road or facility to the public traffic. When a road "attracts" traffic previously using other routes, some problems may be observed which may not have been detected as road safety deficiencies. Corrective measures, although much more expensive to carry out at this stage, may still be cost effective. RSA can also be conducted on any section of an existing road network to identify safety related deficiencies.

4 ROAD SAFETY AUDIT PROCESS (HOW TO PERFORM A RSA?)

4.1 The participants in the audit process and their roles

In most cases, three different parties are involved in the audit process: the client, the designer and the auditor. The roles and responsibilities of the different parties are similar in different countries.

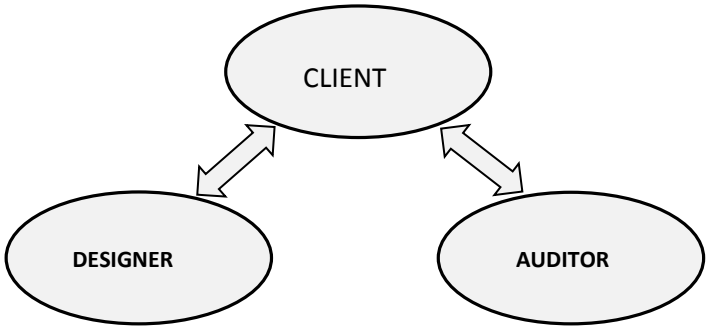

Figure 4-1 The participants in the audit process

The typical roles and responsibilities of all parties involved in the safety audit process are outlined in the following sections.

Client: The organization responsible for the project, sometimes also called the project manager, or project investor. This is often the road authority, or in some cases local stakeholders.

Road safety audit should be considered an integral component of the road design process. It is therefore essential that clients/road authorities allocate sufficient funding and resources to support the road safety audit process. Clients/road authorities should:

- require road safety audits as a part of quality management,
- allocate funds in budget to hire consultants for safety audit work

- commission audits at the proper project stages and

- review the formal audit report and act upon recommendations whenever appropriate and feasible.

Without the client's full commitment to the process, particularly by giving genuine consideration to recommendations, the audit process becomes ineffective. Furthermore, the client/road authority should provide training at all levels within the own organization to ensure that safety is an integral component of all phases of a road project (i.e., planning, design, construction, and maintenance). Correct training of personnel increases the potential of safety issues being identified by the audit team.

It is the responsibility of the client/road authority to:

- select an audit team with the appropriate training and experience,
- provide project documentation;
- ensure that the auditors have satisfied the requirements described in the terms of reference,
- analyse the auditor's report and forward accepted suggestions to designers with request to incorporate them into design,
- attend the initial and completion meetings and
- follow up design work.

At the end of the RSA procedure, the client is supposed to provide the audit team with a written response addressing all safety issues. This includes either accepting the proposed measures and providing a design solution for them, or rejecting the measures and stating the reasons for this action.

Designer: A person or team commissioned by the client to develop the road schemes. The design team can be an independent or part of the client's organization. The designer is fully responsible for the design.

It is the responsibility of the design team/project manager to attend the initial and completion meetings. The responsibility of developing or adopting corrective solutions, suggested by the audit team and accepted by the client, lies with the design team/project manager. The design team/project manager is responsible for all design decisions; however, decisions may sometimes require the involvement of the client/road authority (if design changes increase the project budget significantly).

Auditor: A person or team commissioned (or approved) by the client to carry out the audit. The auditors should be independent from the design team.

The primary role of the audit team is to identify potential safety problems of a road project by reviewing project documentation and drawings and/or conducting site inspections. They typically do not redesign the project or implement changes. The audit team may use a developed set of checklists to assist them while conducting the audit (Annexes 1-3). Checklists identify issues and problems that can arise at the relevant stages of an audit. These checklists are more like guides and should not be used as a substitute for experience. They also provide continuity from audit to audit by ensuring core aspects are checked on every scheme.

The audit team is required to submit a report to the client, identifying critical issues based on safety engineering experience. A completion meeting is held between the audit team, the design team and the client to discuss the audit findings. The audit team is required to review the design team's response to the audit report, if any. It is not the role of the audit team to approve of or agree with the obtained response, this is the client's responsibility.

4.2 Audit team

The size of the audit team will vary depending upon the size and type of project. It is recommended that the team consists of two to five multi-disciplinary individuals. The use of at least two individuals provides cross-fertilization of ideas. It is much better if the audit team is bigger and contains experts with different specialties. There are a few requirements that an audit team must fulfill:

- **Independence**

Road safety auditors should be independent of the project design team to ensure impartiality and so that the proposals are reviewed solely from a road-user's perspective. Audit teams can be established within large organizations or by using consultant firms. It is essential that an environment exists which fosters good communication between the audit team and the client/design team to ensure that the audit is effective.

- **Qualifications**

Road safety audits should be conducted by an individual or team with adequate experience in road safety engineering principles and practices, crash investigation and prevention, traffic engineering and road design. Additionally, members with experience in enforcement, maintenance and human factors can be added to the team on a project by project basis and at different audit stages. Human factor expertise may, in selected areas, contribute to a road safety audit by providing an understanding of the interactive nature of user behavior with the road environment.

- **Experience**

It is imperative that the audit team has substantial collective experience in the key areas noted in the previous section. While audit checklists serve to identify critical items/areas to be considered, they should only be considered memory reminders for individuals with experience and not an exhaustive listing of issues. In some countries, auditors should be accredited (certified) at national level. Accredited auditors must have undertaken a specified course in road safety audits and have participated in a defined number of audits per year. If it is necessary additional expertise may be added to the project team at different stages of the audit process (*i.e.*, police officers, maintenance personnel, human factor experts, and others).

4.3 The practical RSA workflow (How to perform a RSA?)

As a relatively new road safety tool, RSA has to be organized with an effective structure and with clear responsibilities.

The general RSA procedure will include three main phases:

- **ordering**,
- **undertaking** and
- **completion**.

The **Ошибка! Источник ссылки не найден.** describes the typical audit process.

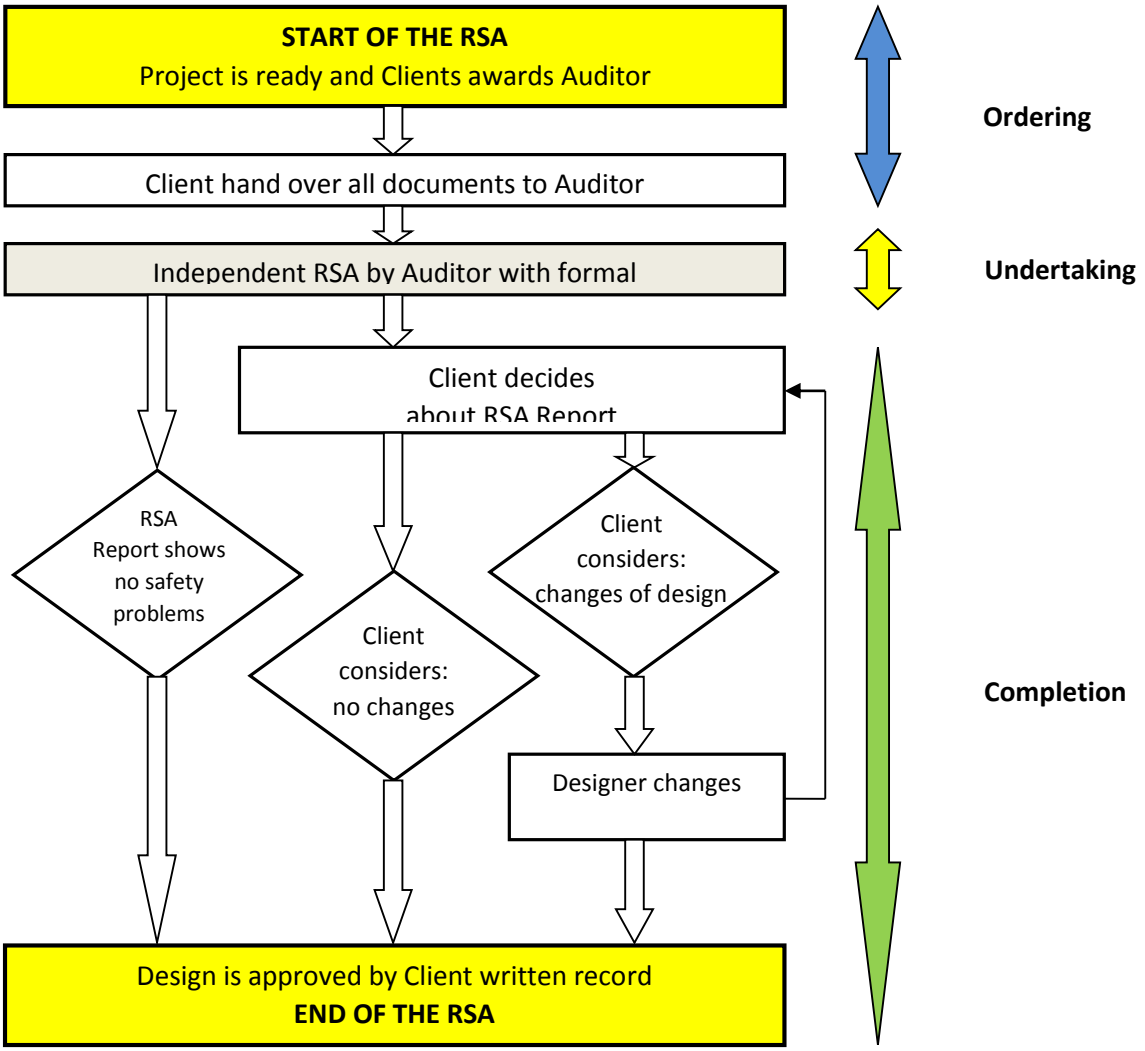

Figure 4-2 The RSA workflow (main steps)

Bearing in mind the scope and nature of a road infrastructure project, and regardless of audit stage, it is possible to conduct the RSA on the basis of this diagram.

It has to be mentioned, that in the RSA stage 3 and 4 in most cases no design work would be necessary. Often the changes can be organized directly by the construction company (contractor) for the stage 3 or the maintenance unit of the client for stage 4.

Depending on type of changes in design, sometimes it may be necessary to have a partial repetition of the RSA, to check the changed documentation. In case of doubt the client should send the auditor the relevant documents.

4.3.1 Ordering a Road Safety Audit

Ordering the audit

Usually, the decision to start the audit is taken by the client/road authority. But it may be regulated by Ministry decision or by law as well as by the financing institutions. In this phase the client hands over all necessary documentation to the Auditor.

Selecting the team

It is the responsibility of the client to select the audit team. As previously noted the audit team should be independent of the design team and should have appropriate experience and training in road safety engineering. A list of potential auditors, including qualifications, would be beneficial to the client when selecting the audit team. The audit team leader should be someone who has experience in road safety engineering and has participated in previous audits. The client should exercise caution when selecting the audit team. The team with the lowest bid is not always the most experienced. In road safety audits, experience is paramount, and cost is secondary.

The nature and composition of the team depends upon the complexity, size and type of the scheme being audited. It can also vary for each audit stage.

The first two design stages should be undertaken by experienced auditors including road safety specialists, crash investigation specialists and road design engineers.

At the detailed design stage, it is beneficial to have an audit team with members having expertise in road design, traffic signals, lighting and drainage, non-motorized users etc., depending on the type of scheme being audited. A person with knowledge of human behavioral aspects of road safety could also be very useful.

At the pre-opening and post-opening stages, it is important to have in the team members with experience in aspects of facility maintenance including signage, lighting, traffic controls, vegetation, snow removal etc. It may be useful to include a Police officer who is experienced in road safety and crash investigation.

Collection of background information and Audit Brief

The client is responsible for providing all relevant project documentation, including reports, data, drawings, contract documents and, where required, traffic volumes. This information will be used by the audit team to assess the project from a safety perspective.

It is important that the audit team is given all required documents at the beginning. Incomplete documents lead to questions and additional demands, resulting in more time and work being necessary for the audit.

The Audit Brief (or Initial meeting) is the meeting with all parties involved in the audit, where the audit team gets instructions describing the scheme to be undertaken. The meeting must provide sufficient background information to enable the audit to be successfully carried out.

As a minimum, the brief should include:

- a brief project description,
- an account of project conditions and design parameters (design speed, radii of curves, super elevation, sight criteria, traffic volume, vehicle types, crash data, etc.),
- set of drawings (hard copies are essential),
- details and reasons for any deviation from road standards,
- any previous RSA or RSI reports,

- for reconstruction or rehabilitation schemes on existing roads, crash statistics should be provided.

The number of documents required increases as the design phases proceed. A complete recommendation about the minimum requirements for contents of the documentation is shown in the **Ошибка! Источник ссылки не найден.**.

Table 4.3.1.1 Recommended minimum of documentation for RSA

Preliminary Design	Detailed Design	Traffic Opening
Explanatory report with: Traffic analysis with traffic volume estimates Crash diagrams and maps with dangerous locations and road sections highlighted Overview map: Site plans with types of junction Overview of vertical alignment Cross sections Horizontal alignments Vertical alignments Construction sketches Site plans of accompanying landscape measures Any existing signing and marking plans	Result of previous audit stage with Client's decision Explanatory report Overview map Cross sections Horizontal alignments Vertical alignments Construction plans Site plans of landscaping detail Signing and marking plans Site plans with road equipment Junction drawings with all signs, markings and traffic signal installations Documents for traffic signals	Result of previous audit stage with Client's decision Explanatory report Horizontal alignments Vertical alignments Site plans of landscaping detail Signing and marking plans Site plans with road equipment Signal installation plans Documents for traffic signals

4.3.2 Undertaking the Road Safety Audit

After the Brief or initial meeting, it is the responsibility of the audit team to assess the project documentation and to conduct the RSA. If it is possible, it is useful to organize field studies to help determine the safety related issues of the project. The following sub-sections present the process used when conducting road safety audits.

Analysis of background information

Once all the background information is collected, the audit team needs to assess/evaluate and analyse all the available information.

For audits at the draft (preliminary) design or detailed design stage (stages 1 & 2), the audit team should examine the details about the proposed project, details of plans and background information on a section by section basis. This provides an opportunity to consider the road safety impact of the design on all road users. Auditors should be given sufficient time to carry out a RSA.

If the audit is being conducted at the pre-opening or early-operation stage (stages 3 & 4), the team should analyse all relevant and available information such as for example crash reports (this does not apply to pre-opening stage). The analysis of crash reports is not intended to be used as analysis at dangerous locations, but as an aid for the auditors in identifying potential areas with safety problems.

Field studies

Field studies (inspections) are required at all stages because they provide the team with a feeling for the existing conditions. A field inspection allows the auditor to see how the proposal interacts with surrounding and nearby roads.

Before going to the field, the audit team should become familiar with the drawings and checklists to ensure that the inspection is productive and relevant concerns are raised.

For audits at the stages 1 & 2, the team should conduct site inspection, including "green field" sites, upon completion of the preliminary assessment. The audit team should examine the correlation and transition between any new and existing roads to ensure consistency. This includes all types of road users.

Audits at stages 3&4 review the physical characteristics of the project by conducting site inspections. These inspections involve assessing the furniture, signs, lighting, markings, delineation, and geometric features from a multi-modal perspective. The team should identify issues that may affect the road users' perception of the road or restrict sight lines.

The audit team should conduct the inspection by driving and walking (if feasible) through the project in all directions. In addition, site inspections should be conducted at night and in adverse weather conditions if possible.

Photographs, video and voice memos, with GPS co-ordinates where possible, can be useful for later discussions.

Reviewing documentation

The auditor carries out the Safety Audit on the basis of his personal experience and his knowledge of road safety. To ensure that safety aspects have not been overlooked during this experience-based procedure, checklists (Appendix 1-3) can be used to assist in this.

The auditors must have the following basic questions in mind:

- Who can be hurt and in what way?
- Is the proposed solution safe for all potential road users?
- Is the design that has been selected the best for traffic safety, within the framework of the regulations?
- Do new findings concerning traffic safety and road design make a different design seem advisable?

Checklists

Different checklists have been developed for different stages of a project's development process and they are attached as Appendix 1-3 to this Manual. The checklists present different questions regarding the safety of all users and they should help the auditor to identify issues and problems that can arise at the relevant stage of an audit.

Checklists are based on experience collected from earlier audits, findings from crash investigations, knowledge from experience with black spot management, road safety follow up, best practice, etc.

Audit findings and report

At the end of analysis process, the audit report is prepared. The report should clearly and concisely describe the project, the audit stage, the audit team members, the process of the audit, any safety deficiencies identified and proposed countermeasures. These countermeasures are conceptual in nature and should not provide the design team with design solutions. There is, for example, the possibility to give clear advices in the RSA report with cross references to guidelines and norms. On the other hand, some sketches with ideas about improvements in the audited design, as an annex to the main text of the report, can be helpful. It is not within the auditor's task to create a new design .That is the task and responsibility of the design engineer

The RSA report for phases 1 and 2 should contain the following information:

General or detailed project details: Name of project, audit stage, date of audit and dates and times of any inspection, weather conditions during inspections, etc. A statement regarding which stage of the audit process the report relates to. Details of the team involved. An overview about the content of the audited documentation.

Audit results: Details of the specific deficiencies identified, with reasons why these are regarded as deficiencies. Recommendations for actions to remove or reduce the impact of these deficiencies.

To give the client a better understanding of the audit results, the RSA report for phases 1 and 2 should be structured as follows:

- **Problems** are findings that clearly affect road safety. That means that a noticed deficiency will increase the crash risk or severity. With the proposed changes (measures), crashes and risks should be reduced. The auditor can illustrate his recommendations verbally or with sketches, but it is never the auditor's job to design the change.

- **Remarks** should be made regarding findings which will probably not lead to more crashes and severity, but could improve the overall road safety situation and sustainability of the project or can ease the demands on the road user. Contents of the remarks can also be related to the next project steps, so that it could help and lead the designer how to improve safety at that point.

It is very important to write down findings on the drawings or other working documents and this must be kept as evidence. In this way, the checklists can be helpful as working documents. In the last checklist row "comments" the auditor could make remarks which will help if the client later asks for some more explanation. Also, in the case of findings which are not deemed to be as relevant and therefore not part of the formal report, it may be useful to note them there.

During the audit procedure the auditor may find deficiencies in the project documentation which are not safety related. It is recommended not to include these findings in the audit report. Instead it is recommended to mention them in a cover letter or in a separate (informal) annex to the report.

The final report is sent to the Client.

A typical table of contents of RSA for phases 3 and 4:

1. **Introduction** including details about road sections of the road being inspected and the composition of the inspection team, date, times and conditions at the time of the inspection.
2. **Part A.** Project data (road function, traffic situation, road standards and surroundings). This part should outline the background data obtained during the preparatory work in the office and a description of the activities undertaken.

3. **Part B.** Investigation results with the deficiencies specified, the content should be sorted in a formal way, following the headings in the checklist. This part describes the shortcomings or deficiencies which were found and an assessment of these deficiencies. It should contain the completed investigation form and the documentation with pictures. The part B should be finished with a conclusion about the findings ("Assessment of deficits")
4. **Part C.** Proposals and options for countermeasures – short term (e.g. low cost measures which could be as part of a maintenance program), medium term (e.g. small investments, e.g. adding guardrails) and long term (larger investments).

The RSA report for phases 3 and 4 needs to contain an introduction, three main parts and appendices with maps, pictures and illustrations as necessary.

To clarify the proposals and their locations, maps, illustrations, photos and sketches of countermeasures may be included as separate Annex, or could included in Part B.

4.3.3 Completion of the Road Safety Audit

Upon receipt of the RSA report, the client must consider the problems and proposals and make a decision how the project should proceed. The client refers the audit report to the designer, with his request what should be accepted and changed in design.

Completion meeting

Once the audit report has reached the stage where all findings are clearly documented, a completion meeting should be held to allow all interested parties a chance to interact and discuss the results. This meeting should precede the development of client responses to the audit team's findings. The completion meeting should involve the audit team, the client, the design team, and any other employees who might be involved in formulating responses to the audit findings.

The meeting provides an opportunity to:

- informally present the audit findings and clarify or elaborate their meaning,
- suggest improvements to the report structure,
- discuss possible remedial measures for the problems identified, and
- set a timetable for completion of client responses.

It must be noted that it is crucial that a positive, constructive, and cooperative tone pervades on the meeting. The meeting should commence with a reminder that the intent of an audit is simply to enhance safety of the final project and that it is not a critique of individual or design team performances. It is essential for those involved to understand that the audit is a beneficial part of project development. Special effort therefore should be made to ensure that those involved have been informed about the audit process and positive experiences associated with it. Meeting facilitators should be careful to maintain an atmosphere for positive exchange of views and not permit animosity or unfounded disagreement.

Response to the Audit report

The client reviews the formal audit report and considers the indicated problems and proposals. The client can ask the designer to comment and give response to the report's recommendations, but the client has the final decision whether recommendations are to be adopted or not. He has to determine if, and to what extent, the remarks and proposals in the audit report will lead to design modifications. All recommendations must be given due consideration. Those that are accepted should be implemented without delay.

The client response should be given directly to the auditor. It is important that this formal response contains a clear and complete account of the reasons why any recommendations are not accepted. This response acts as an evidence trail through the decision making process.

Following the client's decision, the designer modifies the scheme in accordance with the accepted amendments. The client then decides whether if it is necessary to have a partial repetition of the RSA to check the changed documentation. This will depend on the nature and extent of the changes in design. In case of doubt, the client should send the relevant documents to the auditor.

The client's written response to the audit report will become part of the project documentation.

Follow up

The follow up process is led by the client. The client reviews the audit report and prepares a written response to each problem. Each measure proposed by the auditor in the audit report can be accepted or rejected by the client. Then, the designer makes the changes in the scheme to diminish the safety hazards. The client will check that the designer has made the agreed changes.

For each audit suggestion rejected, justification should be documented in the report by the client. Both the audit report and the client's response become part of the final audit record. All relevant documents should be kept as evidence.

5 TRAINING OF THE AUDITORS AND LEGAL ASPECTS

5.1 Training of the auditors

It is important that the auditor has extensive experience in road safety issues.

Proposal is that RSA team leader (TL) should have completed relevant university education preferably with Master degree and have significant experience in road safety engineering (design) and/or road traffic crash investigation. About three years of working with RSA and more than 3 RSA Reports produced would be minimal requirement for an RSA Team Leader.

RSA Team Members (TM) should have at least a bachelor education and about three years of experience in road safety engineering (design) and/or road traffic crash investigation.

Auditors should possess driving licenses and have good knowledge about Road Design Standard, the Traffic Safety Law and the Law for roads. The knowledge of other road standards is highly desirable.

To ensure the quality of the audit, auditors should undergo initial training, resulting in the award of a certificate of competence and should then take part in additional periodic training courses. Where audits are undertaken by teams, at least one member of the team shall hold a certificate of competence.

The content of training should include road safety related topics like crash investigation, road safety network management, road safety engineering and design. In several European countries like Germany, Denmark and Great Britain developed and well respected RSA training courses.

Two alternative approaches exist in Europe with regard to how road safety audit is done. The first is to have qualified staff as employees of the public administration, public road safety institute or similar. In the literature this solution is often called "internal auditor". The other possibility is to have contracts with RSA experts from private consultants - "external auditor".

In addition, the creation of a national Audit Centre (preferably inside some of existing organization) can be helpful for long-term sustainability. Such an institution could organize the training, certification and refresher courses for the authorized auditors. The association or Society of road engineers or similar body can be a suitable body to organise regular courses.

5.2 Legal aspects

Safety audits are a way to identify deficiencies or problems which have the capacity to impact on the safety of road infrastructure. They also identify remedial actions that could reduce or eliminate the potential safety problems. Sometimes audits can raise legal issues which the auditor should consider.

Experience in many countries indicates that claims related to the use of RSA have not been a problem. RSA provide a means to check that all reasonable safety initiatives have been taken in the design, construction and operation of schemes. The auditors are simply identifying safety issues or concerns that have the potential to reduce the safety level of a future road or existing road.

It should be stressed that the correct undertaking of RSA should not expose those authorities that adopt them to undertake a greater liability. With regard to legal liability, the following main principles can be expressed:

- If the road safety audit procedures are deemed to be an asset to the public, the fears of legal liability should not be used to prevent their use,Documentation is essential. The client's response to an audit report must provide reasons for not accepting the auditor's recommendation, where applicable. The response should be detailed and defendable,
- The audit report and formal response report must be placed in the project file. They could be used for any future legal investigation, and
- A follow up procedure of the actions or inactions taken by the client/road authority and identifying what was said and done at the time of responding to the audit is helpful.

A simple answer to the question: Will the undertaking of RSA expose road safety authorities to a greater responsibility than the one they already have?, would be: "No" .

Some legal experts have even more advanced opinions, that consideration should be given to the possibility that the non-use of road safety audits in an environment where they are being applied could raise another question: "*Will the absence of the use of a road safety audit which could have identified the safety problem under consideration be considered in a negative context by the courts*?". They believe that the answer to this question will eventually be: "*yes"*.

Furthermore, it should be kept in mind that the EU has published the Directive 2008/96 on road infrastructure safety management, which made a clear decision that the RSA will be mandatory for the trans-European Road Network in the next few years. In addition, the eight multilateral development banks have now agreed a joint approach to emphasizing road safety in all their infrastructure activities and this will put more pressure to have road safety audit on all roads that they finance.

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ПРОЕКТ

Техническое примечание 2

РЕГИОНАЛЬНОГО РУКОВОДСТВА ПО АУДИТУ БЕЗОПАСНОСТИ ДОРОЖНОГО ДВИЖЕНИЯ

Региональный план действий по безопасности дорожного движения ТРАСЕКА

Команда по технике безопасности

Март 2015

Финансируемый ЕС проект по безопасности дорожного движения ТРАСЕКА

для

Армении, Азербайджана, Грузии, Казахстана, Киргизстана, Молдовы, Таджикистана, Туркменистана, Украины, Узбекистана

ПРЕДИСЛОВИЕ
К ПРОЕКТУ РЕГИОНАЛЬНОГО РУКОВОДСТВА
ПО АУДИТУ БЕЗОПАСНОСТИ ДОРОЖНОГО ДВИЖЕНИЯ
ДЛЯ СТРАН TRACECA

По прошествии почти двух десятилетий применения во всём мире аудита безопасности дорожного движения (АБДД) сегодня данная процедура признана одним из наиболее эффективных инструментов инжиниринга. Путём принятия Европейским Парламентом и Советом опубликованной в октябре 2008 года Директивы № 2008/96 по управлению безопасностью дорожной инфраструктуры Европейский Союз принял чёткое решение, согласно которого проведение АБДД в последующие годы будет обязательным на трансъевропейской сети автомагистралей. АБДД является высокоэффективным и экономически выгодным инструментом для повышения уровня безопасности автодорог. Найти недостатки в безопасности дорожного движения на стадии проектирования намного дешевле, чем выявить их по завершению строительства. Поэтому АБДД является одним из наиболее экономически выгодных направлений инвестирования, которые может применять собственник автодороги.

К сожалению, в реальности в регионе TRACECA в настоящее время АБДД применяется мало. Реализованные проекты АБДД в подавляющем большинстве выполнены по инициативе международных финансовых учреждений иностранными консалтинговыми компаниями. При этом рекомендации АБДД не всегда учтены собственниками автодорог.

Именно по этой причине в рамках настоящего проекта предпринимается попытка создать возможности по проведению АБДД в каждой из стран. Командами проекта совместно с заинтересованными сторонами стран создаётся Региональное руководство по АБДД.

Руководство по АБДД для стран TRACECA основывается на передовых мировых теоретических основах и опыте и использует унифицированный подход по всему региону. Поскольку через регион TRACECA проходят важные транспортные коридоры между Китаем и Европой, то важно сделать акцент на унификации потенциальных рисков для участников дорожного движения. Именно поэтому Региональное руководство по АБДД построено на основе существующих в регионе руководств и является попыткой создать единый подход к АБДД. При таком подходе будут созданы аналогичные условия для улучшения дорожной инфраструктуры с помощью АБДД во всех странах TRACECA.

Особое внимание уделяется удобству использования Руководства и прилагающихся контрольных списков.

Руководство по АБДД включает шесть разделов и три приложения (контрольные списки).

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Аббревиатуры и сокращения

УМК	Управление местами концентрации ДТП
ЕК	Европейская Комиссия
ЕС	Европейский Союз
МБРР	Международный банк реконструкции и развития (Мировой банк)
МФУ	Международные финансовые учреждения
МВД	Министерство внутренних дел
МТС	Министерство транспорта и связи
PIARC	Всемирная дорожная ассоциация (PIARC фактически означает Постоянно действующую международную ассоциацию дорожных конгрессов, но такое название употребляется редко)
АБДД	Аудит безопасности дорожного движения
ИБДД	Инспекция безопасности дорожного движения
SEETO	Юго-восточная европейская транспортная обсерватория
РГ	Руководитель группы
ТЗ	Техническое задание
ДП	Дорожная полиция
TRACECA	Транспортный коридор Европа – Кавказ - Азия
ЗЕ-ЗК	Международный Транзитный Коридор «Западная Европа – Западный Китай»
ВОЗ	Всемирная организация здравоохранения

1. ВВЕДЕНИЕ

Широко известно, что дорожно-транспортные происшествия представляют собой огромную социальную и экономическую проблему. Для сокращения количества смертей в результате несчастных случаев на дорогах были разработаны различные меры и программы. На международном уровне Организация Объединенных Наций, Всемирная организация здравоохранения, международные финансовые институты (особенно ВБ, АБР, ЕБРР, ЕИБ и т.д.), а также ряд специализированных неправительственных организаций (PIARC, ETSC, PRI, SEETO, и т.д.) представляют собой высококвалифицированных участников, заинтересованных в повышении безопасности дорожного движения на глобальном уровне. В недавнем прошлом, осенью 2009 года, министрами и участниками со всего мира была принята Московская декларация по безопасности дорожного движения (Первая всемирная министерская конференция по безопасности дорожного движения). После 2 лет обсуждения данного вопроса ООН на 2011-2020 годы было объявлено Десятилетие действий по безопасности дорожного движения, имеющее целью снижение на 50 % общего количества смертей в ДТП в мире к 2020 году.

В большинстве стран, применяются руководства по проектированию, которые в большинстве случаев включают в себя реализацию задач безопасности дорожного движения Несмотря на это, дорожно-транспортные происшествия продолжают происходить на новых автодорогах, чему имеется несколько причин. В первую очередь, нормы проектирования зачастую содержат минимальные требования в отношении дорожной безопасности, и сочетание таких элементов способно привести к созданию опасных ситуаций. Более того, соблюдение норм не всегда представляется возможным. В ряде случаев, особенно на застроенных участках или в труднопроходимой местности, существуют причины, делающие применений норм невозможным.

Существует распространенное ошибочное представление, что вина водителя или его ненадлежащие поведение является единственной причиной, приводящей к дорожно-транспортным происшествиям [15]. В результате полученных на основании различных исследований международных знаний, была выявлена целая система, заключающаяся в том, что помимо вины водителя, присутствуют влияние автодороги и окружающих ее условий, а также автотранспортных средств.

Именно поэтому «Принцип безопасной системы» больше не основывается на данных отдельных элементах транспортной системы, а на их областях взаимодействия, особенно на человеческом факторе при взаимодействии между участниками дорожного движения и автодороги, которая должна отвечать способностям и ограничениям ее пользователей.

За последние двадцать лет были разработаны ряд технологий и процедур. Одной из них является аудит безопасности дорожного движения, который сегодня признан одним из наиболее эффективных инструментов инжиниринга. Путём принятия Европейским Парламентом и Советом опубликованной в октябре 2008 года Директивы № 2008/96 по управлению безопасностью дорожной инфраструктуры Европейский Союз принял чёткое решение о важности безопасности дорожного движения. Проведение АБДД в ближайшие годы станет обязательным на трансъевропейской сети автомагистралей, а Европейский инвестиционный банк через свои проекты уже распространяет применение

[15]Это происходит из-за того, что во многих странах дорожная полиция склонна обвинять водителя в превышении скорости, неправильном маневрировании и т.д., не задаваясь вопросом «А почему водитель сделал эту ошибку?», поскольку обычно работники ДП не имеют понимания о инжиниринге автодорог и факторах транспортных средств. Подобные недостатки не выявляются и полицейская статистика всегда демонстрирует, что «Ошибка водителя» является главным фактором в 70-90 % ДТП.

Директивы на страны Восточного партнёрства. Согласно директивы АБДД является частью комплекса мер по безопасности дорожного движения, включающего:

- Оценку воздействия на безопасность дорожного движения (ОВБДД),
- **Аудит по безопасности дорожного движения на разных стадиях проектирования автодорог (АБДД)**,
- Оценку безопасности и управление дорожной сетью на стадии эксплуатации, включая управление аварийно-опасными участками дороги (УМК),
- Инспекцию безопасности дорожного движения на существующих автодорогах (ИБДД), а также
- Детальный анализ дорожно-транспортного происшествия (ДАДТП).

Данные меры являются неотъемлемой частью обширной системы управления безопасностью дорожного движения, как показано на Рисунке 1.1.

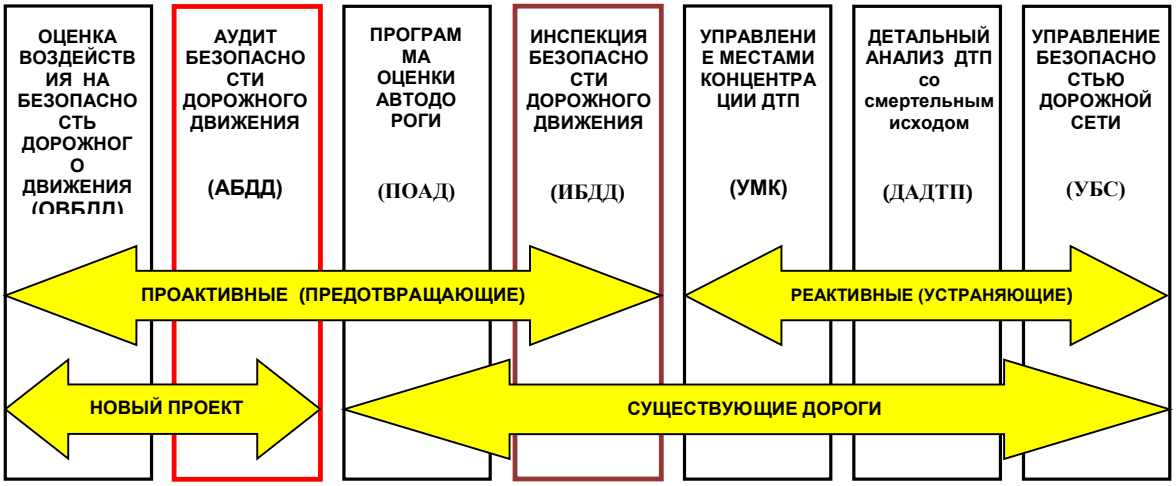


Рисунок 1.1. АБДД как часть Управления безопасностью дорожного движения (Источник: Руководство SEETO по аудиту безопасности дорожного движения, 2009 год)

Из рисунка 1.1 становиться понятно, что **АБДД** является проактивным элементом, который должен включаться в процесс проектирования автодорог.

Более того, процедура АБДД является:

- формализованным процессом,
- независимым процессом,
- выполняется лицом, обладающим соответствующим опытом и знаниями,
- ограниченной вопросами безопасности дорожного движения и делающей дорогу более безопасной для всех участников движения.

Результатом проведения АБДД является официальный отчет, определяющий существующие и потенциальные недостатки безопасности дорожного движения и, в случае необходимости, содержащий рекомендации по устранению и сокращению таких недостатков. При проведении аудита становится возможным сокращение количества и

смягчение тяжести дорожно-транспортных происшествий за счет улучшения характеристик дороги, касающихся безопасности дорожного движения.

В соответствии с передовым опытом, а также согласно ранее упомянутой директиве ЕС, АБДД обычно проводится в ходе четырёх различных стадий[16]:

Стадия 1: **эскизный проект**,
Стадия 2: **рабочий проект**,
Стадия 3: **предэксплуатационная стадия**, и
Стадия 4: **начальная эксплуатация, когда автодорога уже используется**.

АБДД имеет множество общих элементов с другими процедурами управления безопасностью дорожного движения, например с **Инспекцией безопасности дорожного движения (ИБДД)**. Результатом ИБДД также является официальный отчет, однако по форме он немного отличается от отчета по АБДД.

2. ОСНОВНЫЕ СВЕДЕНИЯ ОБ АУДИТЕ БЕЗОПАСНОСТИ ДОРОЖНОГО ДВИЖЕНИЯ

2.1. Что такое аудит безопасности дорожного движения?

АБДД – это широко известный термин, используемый на международном уровне и представляющий независимый обзор проекта с целью определения проблем в области безопасности дорожного движения, и может считаться частью всеобъемлющей системы управления качеством. АБДД является официальной проверкой проектов в области управления дорожным движением или строительства дорог. Систематическое применение АБДД повышает уровень БДД для всех участников движения. АБДД представляет собой проактивный подход, основная цель которого заключается в определении потенциальных проблем в области дорожной безопасности на как можно более ранней стадии процесса проектирования с тем, чтобы имелась возможность принять решение по устранению и сокращению проблем, предпочтительно до начала реализации проекта или наступления несчастного случая.

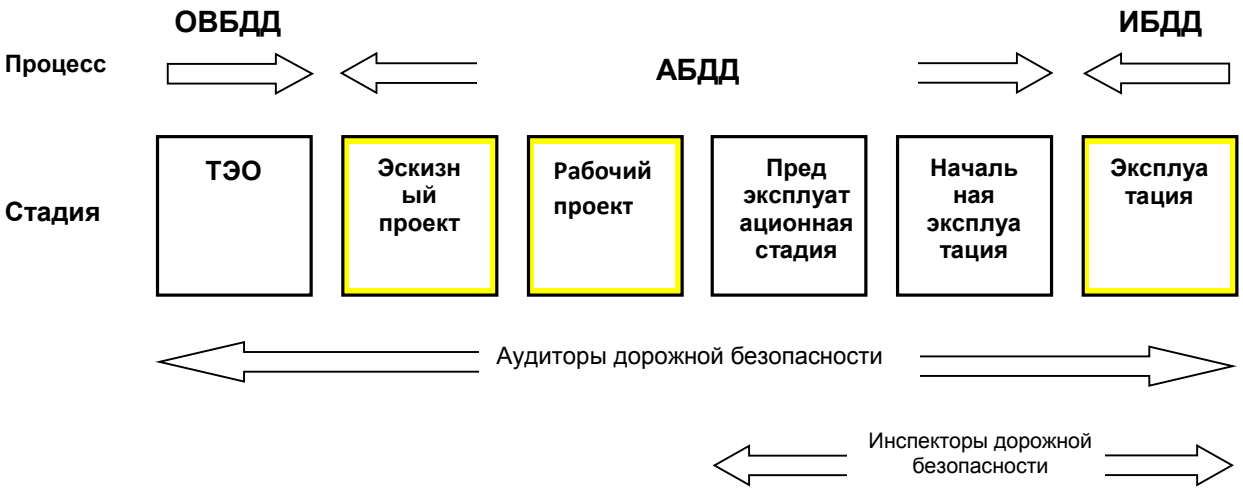
Самое распространенное определение АБДД звучит так: “**Официальная проверка проекта строительства автодороги, дорожного движения, или проекта какого-либо другого типа, затрагивающих пользователей автодорог, проводимая независимым, квалифицированным аудитором или группой аудиторов, которые подготавливают отчеты по возможности наступления несчастного случая в рамках проекта и показателям безопасности в отношении всех типов участников дорожного движения**”.

Последняя директива ЕС даёт следующее определение АБДД: “**АБДД означает независимую, детальную, систематическую и техническую проверку безопасности, относящуюся к характеристикам проекта дорожной**

[16] В некоторых странах в начале процесса или на стадии технико-экономического обоснования добавляется 5-я стадия «Планирование». Нередко важные решения по БДД могут быть приняты ещё до начала разработки эскизного проекта. Например, и выбор трассы, и стратегия устройства пересечений, и планирующаяся застройка влияют на уровень безопасности автодороги. Если, к примеру, известно, что будет строиться новый порт или объект, то это может привести к значительному росту объёмов движения грузовых ТС на определённых участках дороги и развязках. Данный фактор может повлиять на выбор типов развязок.

инфраструктуры и покрывающую все стадии строительства от планирования до начала эксплуатационного периода”.

Будучи частью процесса проектирования безопасности дорожного движения, Аудит (АБДР) имеет прочную связь и множество схожих элементов с инспекцией безопасности дорожного движения (ИБДД). Таким образом, процессы и фазы отражены на Рисунке 2.1.1.



Принимая во внимание сходства между АБДД (фазы 3 и 4) и ИБДД, при составлении отчета могут применяться схожие контрольные списки.

Рисунок 2.1.1 Процессы и фазы АБДД и ИБДД

Рисунок 2.1.2. демонстрирует взаимодействие между процедурами АБДД и ИБДД.

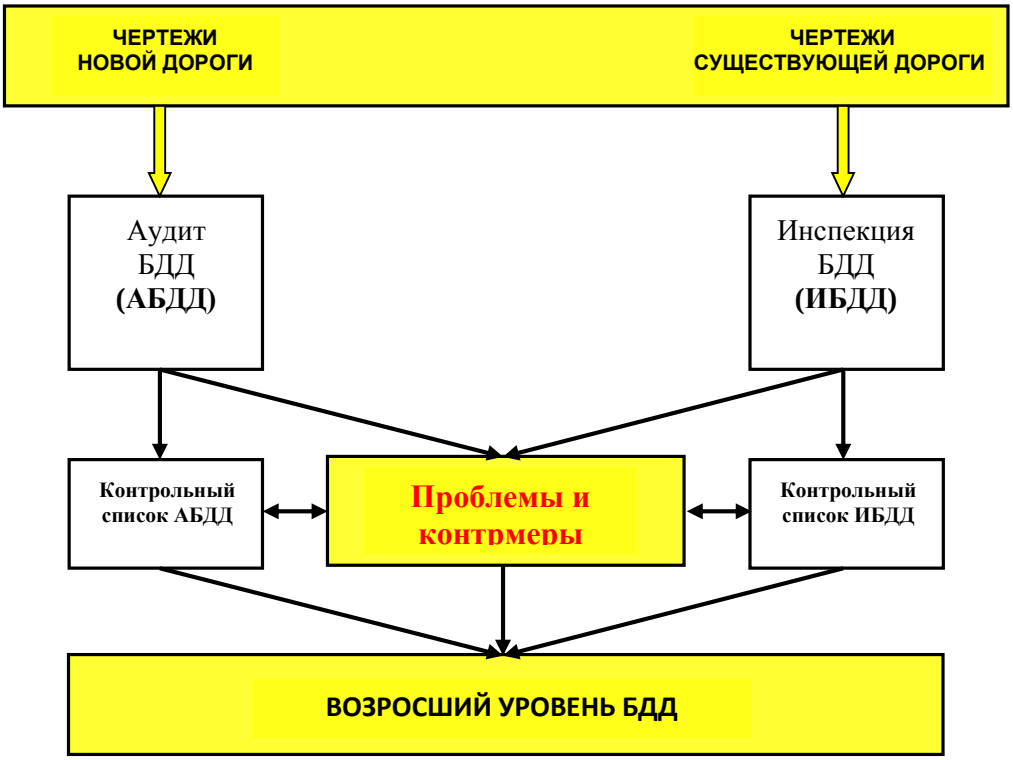


Рисунок 2.1.2. Взаимодействие между процедурами проведения АБДД и ИБДД

Результатом проведения АБДД является официальный отчет, и время, необходимое для проведения аудита, довольно ограничено по сравнению, с тем, что отводится для стадий индивидуального планирования. Правильнее проводить АБДД на ранних стадиях процесса проектирования, до начала дорогостоящего строительства, после начала которого изменения способны повлечь большие расходы.

Для достижения максимальной эффективности весьма важно проведение аудита независимыми аудиторами из частных компаний, дорожных администраций либо из «аудиторских центров», не задействованных в разработке проекта. Все аудиторы должны быть квалифицированными и полностью обученными.

2.2. Почему нам необходим аудит по безопасности дорожного движения?

За последние десятилетия смертность в ДТП во многих странах значительно возросла и безопасность дорожного движения стала серьёзным вопросом для многих заинтересованных участников на национальном уровне (обычно это министерство транспорта и связи, министерство внутренних дел – дорожная полиция, автодорожная администрация, министерство здравоохранения, министерство образования и т.д.). Быстрое развитие сети автодорог, растущая автомобилизация населения, появление различных видов автотранспорта на дорогах, технологический прогресс и т.д. способствуют развитию условий, значительно повышающих опасность дорожно-транспортного происшествия. Кроме того, система трех основных элементов, способствующих дорожно-транспортному происшествию: водитель, транспорт и дорога, также испытывает влияние социальной и политической сред, в условиях которых они

взаимодействуют. Наряду с этими изменениями, эксперты в области автодорог (дорожного движения) разрабатывали способы снижения вероятности возникновения дорожно-транспортного происшествия.

На первом этапе развития безопасности дорожного движения, основное внимание экспертов было направлено на водителей, поскольку существовала тенденция воспринимать «ошибку водителя» как единственную причину, хотя скорее, как показывают исследования того времени, дело было в непонимании необходимости в «безопасной системе». В результате десятилетий работы по улучшению ситуации много было достигнуто. То же самое было достигнуто в отношении автомобилей. Безопасность автомобиля была существенно повышена, и до сих пор продолжает совершенствоваться.

После достижения улучшений в данных компонентах, остается дорога и ее усовершенствование.

Первое действие было предпринято в утверждении норм проектирования автодорог. При попытке сократить расходы на строительство дорог, инженеры учитывают ряд различных факторов в ходе процесса проектирования (требуемая пропускная способность, наличие полосы отвода, геотехнические условия, археологические аспекты, социально-экономическое воздействие, бюджетные ограничения и т.д.). На проектировщиков, таким образом, возлагается значительная ответственность по достижению баланса противоположных интересов (затрат и уровня безопасности дорожного движения), которые сопутствуют любому современному проекту автодороги, что может привести к компромиссам, иногда в ущерб безопасности.

С другой стороны, требования к безопасности дорожного движения при проектировании, строительстве и эксплуатации автодорог, а также при их использовании и к технике, в существующих и устаревших стандартах и нормах (таких как ГОСТы и СНИПы, всё ещё используемые в постсоветских странах), рассмотрены недостаточно. Таким образом, ситуация такова, что на только что построенных и реконструированных участках автодороги до сих пор имеет место огромное количество дорожно-транспортных происшествий. В ряде случаев на участках реконструированной дороги количество ДТП увеличивается по сравнению с дорогой до реконструкции, поскольку на такой «усовершенствованной» дороге возможны значительно более высокие скорости. Подобная ситуация может негативно влиять на уровень жизни в расположенных вдоль реконструированной дороги населённых пунктах.

Маловероятно, что все необходимые улучшения в области безопасности дорожного движения будут достигнуты только за счет применения норм проектирования, принимая во внимание медленный процесс внедрения изменений и улучшений в систему стандартов. В некоторых из стран TRACECA до сих пор используются старые советские стандарты и нормы. Кроме этого, требуется некоторое время, чтобы новые научные открытия нашли свой путь к техническим стандартам и спецификациям, потому что их необходимо проверить и принять.

По причинам, перечисленным выше, АБДД в качестве утвержденного инструмента в области безопасности дорожного движения может применяться для улучшения окружающих условий автодорог. . С применением экспертных знаний, заложенных в АБДД, становится возможным сократить количество и уменьшить тяжесть дорожно-транспортных происшествий за счет улучшения показателей безопасности.

2.3. Области применения (типы проектов)

АБДД следует применять в широком спектре проектов, различающихся по масштабу, типу, и классификации. Типы проектов для проведения аудита разделены по категориям, озаглавленным следующим образом:

- действия с дорожной сетью (международные дороги, транзитные дороги, дороги регионального и местного значения)
- дорожное движение (только движение автотранспорта или смешанное движение с безмоторными ТС и/или медленной сельскохозяйственной техникой)
- положение – месторасположение (в пределах либо вокруг застроенных зон).

Рекомендуется проводить АБДД в проектах со стоимостью технической документации более 35 000 Евро. АБДД является неотъемлемой частью процесса проектирования, но независимой частью от самого проекта. Проектировщик[17] проекта новой дороги (или другого применимого проекта) несет ответственность за разработку проекта, и ему следует на регулярной основе проводить проверки выполнения задач по безопасности в ходе разработки проекта.

Настоящее руководство применяется в:

- строительстве новых автодорог, автомагистралей, дорог государственного значения I и II категории, а также прочей придорожной инфраструктуры,
- реконструкции и капитальном ремонте автодорог,
- в пределах и вокруг застроенных зон.

Типы проектов, для которых аудит будет являться обязательным, будут определены в соответствии с правовыми нормами (законом и подзаконными актами).

Например, АБДД может применяться для:

- Крупных проектов, в т.ч. автомагистралей и других объектов дорожной инфраструктуры.
- Дорог государственного значения I и II категории, объездных дорог и т.д.
- Среднемасштабных проектов, т.е. проектов реконструкции и капитального ремонта
- Небольших улучшений, т.е. устройства велосипедных дорожек, тротуаров, при проведении работ по эксплуатации, и т.д.
- Схем организации дорожного движения (постоянных и временных).

АБДД может проводиться при строительстве междугородних дорог, а также городских магистральных улиц.

Есть вероятность, что в будущем применение АБДД в некоторых странах TRACECA будет регулироваться Законом о дорожном движении.

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[17]От уровня инженеров-проектировщиков значительно зависит внедрение концепций безопасного проектирования и предотвращения типичных проблем с БДД, которые могут наблюдаться. Проектом региональной БДД TRACECA проводится обучение 6 инженеров-проектировщиков в каждой стране и изучение того, каким образом инженер-проектировщик может наиболее активно вовлекаться в проектирование национальных, региональных и муниципальных автодорог независимо от того, будет проводиться подобное обучение для государственных органов, проектных институтов или компаний-консультантов.

2.4. Ценность АБДД и затраты на его проведение

Преимущества АБДД основаны на проактивном управлении безопасностью дорожного движения за счет определения профилактики рисков, связанных с пробелами в области дорожной безопасности.

То есть, ценность АБДД заключается в:

- Создании безопасных дорог путём предотвращения ДТП и смягчения их тяжести.
  Проведенное в Великобритании исследование показало, что на дорогах, при строительстве которых проводился АБДД, может быть предотвращено до 1/3 всех столкновений. Австрийский комитет по безопасности дорожного движения (KfV) подсчитал, что финансовые выгоды от АБДД в Австрии в 50 раз превышает затраты. Исследование в Дании в 1995 году пришло к результату, что коэффициент рентабельности равен 16,8. В Шотландии такой коэффициент был оценен как 15:1. Немецким страховым институтом по организации дорожного движения (VTIV) были проведены исследования в области рентабельности АБДД, и было выяснено, что значение коэффициента варьировалось от 4 до 99. В Новой Зеландии показатель выгода/затраты имеет значение около 20:1. Другие исследования показали уменьшение количества столкновений, приводящих к травмам, на 1-3 процента.
- Усовершенствовании организации дорожного движения.
- Сокращении общих затрат жизненного цикла на строительство автодорог.
- Уменьшении необходимости улучшения новых дорог после строительства.
- Более четком понимании и лучшем документировании организации безопасности дорожного движения.
- Внедрении в будущем усовершенствований по БДД в стандарты и процедуры.
- Более четком рассмотрении потребностей уязвимых участников движения.
- Стимулировании привлечения других институций/специалистов в сферу БДД.
- Продвижении принципов безопасного проектирования среди собственников и проектировщиков.
- Экономии средств, сокращении социальных расходов и расходов на медицинское обслуживание за счет сокращения ДТП.
- Повышении информированности о практике безопасного проектирования для каждого участника проекта.
- Повышении корпоративной культуры в области безопасности.
- Взаимном плодотворном сотрудничестве между специалистами разных сфер управления автодорогами (т.е. Проектирование, Эксплуатация, Организация движения и т.д.)

Чем раньше будет выполнен АБДД проекта в ходе процессов проектирования и разработки, тем больше результатов и выгод будет достигнуто. Своевременный аудит позволит раньше устранить проблемы, а, следовательно, минимизировать время и средства, затраченные на перепроектирование на более поздних стадиях строительства.

Кроме того, необходимо отметить, что реализация АБДД приводит к активной дискуссии между аудиторами, заказчиком и проектировщиком. Подобное обсуждение оказывается целесообразным для повышения осведомленности всех задействованных сторон, улучшения исполнения ежедневных задач, процедур проектирования, а также процесса обновления стандартов.

Затраты на проведение аудита делятся на три категории:

- оплата услуг консультанта,
- временные затраты заказчика на организацию проведения аудита, и
- расходы, связанные с выполнением принятых рекомендаций.

Опыт показывает, что расходы на аудит БДД нового объекта приблизительно равен расходам на проведение инженерных изысканий. Другие примеры показывают, что средняя стоимость условного аудита для небольших и средних проектов варьируется между $1000 и $5000. В других исследованиях стоимость аудита варьировалась от $700 до $6000, при этом большинство проектов находились в интервале между $2000 и $3600. Фактическая стоимость во многом зависит от масштабов и сложности проекта, а также от требуемого состава группы аудиторов.

Некоторые консультанты определили, что аудит добавляет приблизительно 5 - 10 % к затратам на проектирование, или менее 0,5 % к затратам на строительство. Другими выяснено, что приблизительная стоимость аудита добавляет 4 - 10 % к расходам на проектирование автодороги. Так как затраты на проектирование составляют примерно 5 - 6 % от общей суммы проекта, то выгоды от безопасного дорожного движения значительно перевешивают такие небольшие затраты.

В небольших проектах (ограничение скорости движения или отдельные улучшения) затраты могут составлять более высокий процент от общих капиталовложений. Затраты на повторное проектирование / устранение недостатков должны рассматриваться как изменяющиеся от проекта к проекту. . Стоимость устранения недостатков зависит от этапа процесса проектирования, на котором была выявлена проблема, а также количества времени, необходимого на перепроектирование участка.

2.5. Структура Руководства

Настоящее руководство состоит из следующих пяти разделов:

В первом Разделе представлен АБДД и объясняется необходимость в существовании процедур проведения АБДД.

В Разделе 2 представлены основные сведения об АБДД. Раздел содержит ответы на следующие вопросы: Что такое Аудит безопасности дорожного движения? Какие существуют определения? Почему нам необходим АБДД? Где АБДД может применяться? Какова ценность АБДД и расходы на его проведение?

В Разделе 3 описываются этапы АБДД. Подробные разъяснения предоставлены для: эскизного (предварительного) проекта, рабочего проекта, предэксплуатационной стадии и начальной эксплуатации. В разделе также обсуждается методология, применяемая в проведении аудитов на разных стадиях проекта.

В Разделе 4 представляется процесс проведения АБДД и поясняется процедура проведения аудита. В разделе описывается полный процесс от подбора группы аудиторов до проведения совещания по завершении процедуры и последующим мероприятиям.

Раздел 5 отражает обсуждение проведения обучения для аудиторов и правовых вопросов, связанных с аудитом безопасности дорожного движения.

Приложения 1-3 содержат контрольные списки для аудита безопасности дорожного движения (для всех этапов).

3. ЭТАПЫ АУДИТА БЕЗОПАСНОСТИ ДОРОЖНОГО ДВИЖЕНИЯ

АБДД может быть эффективным для большинства проектов, независимо от масштаба, и на любом или на все ключевых этапах разработки проекта автодороги. В соответствии с последним международным опытом, и на основании директивы 2008/96 ЕС, существуют четыре типовых этапа, на которых проводится АБДД:

- Стадия 1: **эскизный (предварительный) проект**,
- Стадия 2: **рабочий проект**,

- Стадия 3: **предэксплуатационная стадия,** и
- Стадия 4: **начальная эксплуатация** – когда дорога используется.

Сложность и затрачиваемые усилия в ходе АБДД меняются на каждом этапе. Далее представлен обзор того, что влечет за собой аудит на каждой стадии.

Аудит на самой ранней стадии проектирования (ТЭО или планирование) должен проводиться с применением метода оценки воздействия на безопасность дорожного движения, а не по процедуре АБДД. Но в случае капитальных ремонтов, уширения или просто крупных проектов по эксплуатации существующих автодорог, должна быть проведена инспекция БДД для выявления существующих недостатков в безопасности движения и разработки контрмер на последующих стадиях проектирования и строительства.

АБДД на стадиях 1 и 2 должны проводиться на основе проектной документации проекта (чертежи, технические отчеты, пояснительные записки и т.д.). Может понадобиться посещение участка, особенно для изучения чертежей капитального ремонта существующих покрытий. Для обеспечения необходимой точности в проведении АБДД, проектная документация должна иметь достаточно качественное содержание.

До запуска новой дороги в эксплуатацию на стадии 3 должен быть проведен аудит с целью проверки соответствия строительства проектным чертежам в полном соответствии с требованиями безопасности, а также выявления, не проявились ли после строительства какие-либо невыявленные ранее недостатки в безопасности автодороги, которые повышают риски безопасности. Также на стадиях 3 и 4 должны проводиться проверки безопасности в дневное и темное время суток. Финальная стадия 4 АБДД заключается в проверке автодороги в ходе начального этапа эксплуатации. Важно, чтобы оценка фактической ситуации с безопасностью дорожного движения была проведена спустя несколько месяцев.

Ниже представлен детальный обзор каждой стадии проведения аудита.

3.1. Эскизный (или предварительный) проект

В ходе разработки эскизного (или предварительного) проекта, команда аудиторов проводит оценку общих принципов проекта. Основной целью является оценка относительной безопасности типов и планов перекрестков или развязок, плана трассы и вертикальных кривых, поперечного профиля, дальности видимости, ширины полос и обочин, подъема виражей, средств для пешеходов и других уязвимых пользователей автодорог и прочих элементов проекта. Аудит, проводимый на данной стадии, должен быть завершён до окончания процесса отвода земель во избежание осложнений в случае, если потребуются существенные изменения в плане трассы.

3.2. Рабочий проект

На стадии рабочего проекта в наличии должны быть все элементы окончательного проекта. На данном этапе группа аудиторов рассматривает окончательные геометрические параметры проекта, предложенные схемы установки дорожных знаков, нанесения дорожной разметки и устройства освещения, водоотводы, барьерные ограждения и другие придорожные объекты, озеленение, детали перекрестков и развязок (например, сужения, протяженность полос разгона и торможения, радиусы поворота). Группа также рассматривает средства для особых участников движения, таких как мотоциклисты, пешеходы (включая особые потребности детей и пожилых людей) и лица с ограниченной подвижностью.

3.3. Предэксплуатационная стадия

Непосредственно перед запуском автодороги или объекта в эксплуатацию, группе аудиторов необходимо провести проверку участка, чтобы удостовериться в том, что потребности безопасности всех пользователей (т.е. пешеходов, велосипедистов, мотоциклистов и прочих) в достаточной степени удовлетворены. Группа аудиторов должна провести проверки на основе вождения в дневное и ночное время суток, а также, при возможности, в различных погодных условиях. . Данный тип аудита призван попытаться выяснить, существуют ли опасности, не выявленные при проведении предыдущих аудитов.

3.4. Начальная эксплуатация – когда дорога используется

АБДД может проводиться непосредственно после запуска новой или реконструированной / отремонтированной дороги или объекта в эксплуатацию. Когда дорога «привлекает» участников движения, пользующихся другими маршрутами, могут быть замечены некоторые проблемы, которые ранее, возможно, не казались недостатками безопасности дорожного движения. Корректирующие мероприятия на данной стадии намного более дорогостоящие, но всё ещё могут быть экономически выгодными. АБДД также может быть проведен на любом участке существующей дорожной сети для выявления недостатков в области безопасности.

4. ПРОЦЕСС ПРОВЕДЕНИЯ АУДИТА БЕЗОПАСНОСТИ ДОРОЖНОГО ДВИЖЕНИЯ (КАК ПРОВОДИТЬ АБДД?)

4.1. Участники процесса аудита и их роли

Главным образом, в процессе задействованы три стороны: заказчик, проектировщик и аудитор. Роли и обязанности сторон схожи в разных странах.

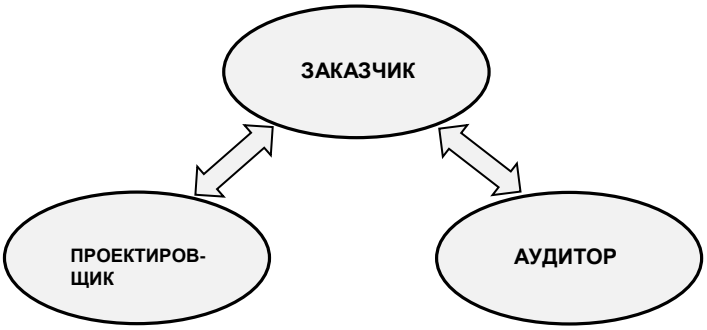

Рисунок 4.1.1: Участники процесса аудита

Типичные роли и обязанности всех задействованных в процессе аудита сторон отражены в следующих параграфах.

Заказчик: Организация, ответственная за проект, иногда также называется менеджер проекта или инвестор проекта. Зачастую это орган управления автодорогами, или в некоторых случаях местный заинтересованный участник.

Аудит БДД должен рассматриваться как неотъемлемый компонент процесса проектирования автодороги. Таким образом, необходимо, чтобы заказчик / орган управления автодорогами выделил достаточно средств и ресурсов для проведения аудита безопасности дорожного движения. Заказчик / орган управления автодорогами должен:

- требовать проведения АБДД как части процесса управления качеством,
- предусмотреть в бюджете средства для найма консультантов, выполняющих работы по аудиту БДД
- назначать выполнение аудита на соответствующих стадиях проекта, и
- рассмотреть официальный отчет и действовать в соответствии с рекомендациями там, где это целесообразно и возможно.

Без полноценного участия заказчика в процессе, особенно без подлинного внимания к рекомендациям, аудиторский процесс становится неэффективным. Более того, заказчик / орган управления автодорогами должны обеспечить проведение обучения на всех уровнях в рамках собственной организации с целью подтвердить то, что безопасность является неотъемлемым компонентом всех стадий проекта (планирование, проектирование, строительство и техническое обслуживание). Правильное обучение персонала повышает потенциал аспектов БДД, выявленных группой аудиторов.

Обязанностями заказчика / органа управления автодорогами являются:

- подбор группы аудиторов с соответствующим опытом и знаниями,
- предоставление проектной документации;
- проверка соответствия аудиторов требованиям, описанным в ТЗ,
- анализ отчета аудитора и передача согласованных предложений проектировщикам для включения их в проект,
- присутствие на стартовом и заключительном совещаниях, и
- отслеживание проектных работ.

По завершении процедуры АБДД, заказчик должен предоставить группе аудиторов письменный ответ, отвечающий на все вопросы по безопасности. Ответ должен включать в себя как принятие предложенных мер и предоставление проектного решения, так и отказ в принятии мер с указанием причин.

Проектировщик: Лицо или группа лиц, нанятые заказчиком для разработки чертежей автодороги. Команда проектировщиков может быть независимой либо входить в состав организации заказчика. Проектировщик несет полную ответственность за проект.

Ответственностью проектной группы / менеджера проекта является присутствие на стартовом и заключительном совещаниях. Ответственность за детальную разработку или включение корректив, предложенных группой аудиторов и согласованных заказчиком, возлагается на проектную группу / менеджера проекта. Проектная группа / менеджер проекта несёт ответственность за принятие всех проектных решений, однако иногда решения могут потребовать участия заказчика / органа управления автодорогами (в случае, если изменения в проекте значительно увеличивают бюджет).

Аудитор: Лицо или группа лиц, нанятые (или утверждённые) заказчиком для

проведения аудита. Аудиторы должны быть независимы от проектировщиков.

Основная роль группы аудиторов заключается в определении потенциальных проблем в части БДД в проекте автодороги на основании изучения проектной документации и чертежей и/или проведения полевых проверок. Обычно аудиторы не перерабатывают проект и не вносят изменения. Аудиторы могут воспользоваться разработанным комплектом контрольных списков, помогающих в проведении аудита (Приложения 1-3). В списках определены вопросы и проблемы, которые могут возникать на соответствующих этапах процесса аудита. Списки служат скорее руководством, но не заменой опыту. С их помощью также обеспечивается непрерывность процесса аудита по стадиям, обеспечивающая проверку ключевых аспектов для каждого чертежа.

Группа аудиторов должна представить заказчику отчет, в котором на основании опыта в разработке средств обеспечения безопасности определены критические проблемы. По завершению аудита для обсуждения выявленных в его ходе проблем проводится совещание с участием аудиторов, проектировщиков и заказчика. Группа аудиторов должна рассмотреть ответ проектировщиков на аудиторский отчёт при наличии такового. Аудиторы не обязаны утверждать либо согласовывать полученный ответ, это является обязанностью заказчика.

4.2. Группа аудиторов

Количество аудиторов в группе может изменяться в зависимости от масштаба или типа проекта. Рекомендуемое количество участников - от двух до пяти специалистов разного профиля. Участие как минимум двух аудиторов обеспечивает возможность обмена идеями. Но намного выгодней, когда группа состоит из большего количества экспертов с разными специальностями. Существует несколько требований, которым должна соответствовать группа аудиторов:

- **Независимость**

Аудиторы безопасности дорожного движения должны быть независимы от проектной группы с тем, чтобы сохранить беспристрастность и рассматривать предложения исключительно с точки зрения участников движения. Группы аудиторов могут быть созданы в рамках крупной организации либо при участии консалтинговых фирм. Важно создать обстановку, способствующую плодотворному общению между группой аудиторов и заказчиком / проектировщиками для обеспечения эффективности аудита.

- **Квалификация**

Аудит безопасности дорожного движения должен проводиться лицом либо группой, обладающими соответствующим опытом относительно принципов и практики в области разработки средств обеспечения безопасности дорожного движения, проведения расследований несчастных случаев и их предотвращения, организации дорожного движения и проектирования автодорог. Кроме того, к группе на проектной основе и на разных этапах аудита могут присоединяться участники с опытом в обеспечении контроля соблюдения, эксплуатации и в области человеческих факторов. Профессиональные знания о человеческих факторах могут в выбранных областях внести вклад в аудит дорожной безопасности путём понимания интерактивной природы человеческого поведения в придорожном окружении.

- **Опыт**

Обязательным является то, чтобы у группы аудиторов имелся значительный коллективный опыт работы в ключевых сферах, указанных в предыдущем разделе. Контрольные списки аудита служат для определения ключевых моментов / областей для рассмотрения и должны восприниматься исключительно как памятки для аудиторов с опытом, а не как исчерпывающие перечни проблем. В некоторых странах аудиторы должны быть аккредитованы (сертифицированы) на государственном уровне. Для прохождения аккредитации, аудиторы должны пройти специализированный курс по аудиту безопасности дорожного движения и ежегодно принимать участие в определенном количестве аудиторских проверок. При необходимости, в проектную группу на разных этапах процесса аудита могут привлекаться дополнительные специалисты (например, офицеры полиции, эксплуатационный персонал, эксперты в области человеческих факторов и другие).

4.3. Практическое проведение АБДД (Как проводить АБДД?)

Как относительно новый инструмент в области безопасности дорожного движения, АБДД должен иметь эффективную структуру с четко обозначенными обязанностями.

В целом процедура проведения АБДД включает в себя три этапа:

- **заказ**,
- **проведение** и
- **завершение**.

На рисунке 4.3.1. описан типичный процесс аудита.

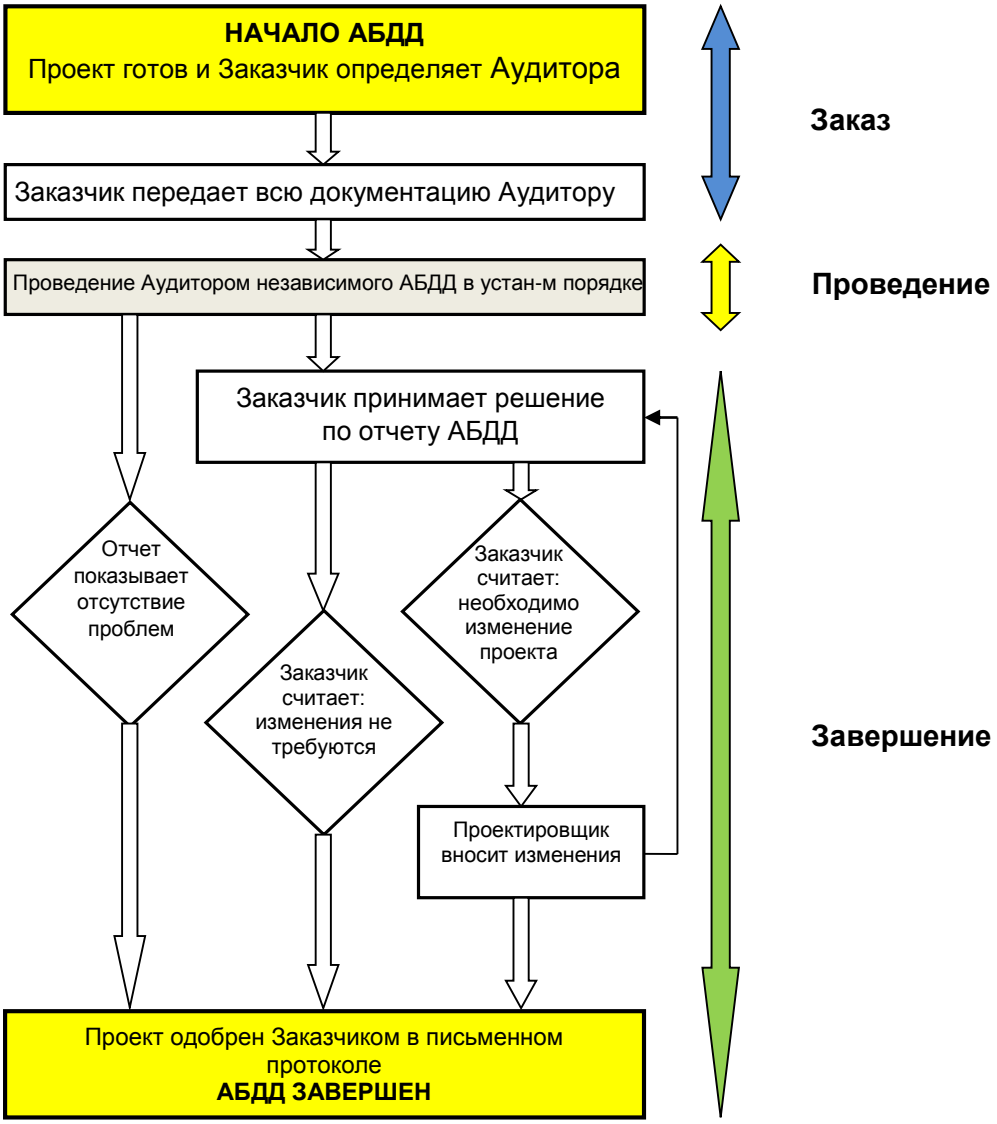

Рисунок 4.3.1: Процесс проведения АБДД (основные шаги)

Принимая во внимание объем и характер проекта строительства дорожной инфраструктуры, независимо от стадии аудита, существует возможность провести аудит на основе указанной схемы.

Необходимо отметить, что на этапах 3 и 4 процесса аудита в большинстве случаев потребность в проектной работе отсутствует. Нередко изменения могут быть выполнены непосредственно строительной компанией (подрядчиком) на этапе 3 либо эксплуатационным подразделением заказчика на этапе 4.

В зависимости от вида изменений в проекте, иногда может возникнуть необходимость в частичном повторном проведении АБДД для проверки изменённой документации. В случае возникновения сомнений заказчик должен направить аудитору соответствующие документы.

4.3.1. Заказ проведения аудита безопасности дорожного движения

Заказ аудита

Как правило, решение о проведении аудита принимается заказчиком / управлением дорожного хозяйства. Однако проведение аудита может регулироваться решением Министерства либо законодательством, а также финансовыми институтами. На данной стадии заказчик передает аудитору всю необходимую документацию.

Выбор группы аудиторов

Выбор участников группы является обязанностью заказчика. Как было сказано ранее, аудиторы должны быть независимы от проектировщиков, и должны обладать соответствующим опытом и знаниями по разработке средств обеспечения безопасности дорожного движения. Список потенциальных аудиторов, с указанием квалификации, будет полезным для заказчика при укомплектовании группы аудиторов. Руководителем группы аудиторов должен стать кандидат, обладающий опытом в разработке средств обеспечения безопасности, а также принимавший участие в предыдущих аудитах. Заказчик должен проявить аккуратность при выборе аудиторов. Группа, подавшая самое экономное предложение, не всегда обладает лучшим опытом. В аудите безопасности дорожного движения опыт имеет первостепенное значение, а стоимость - на втором месте.

Характер и состав группы зависят от сложности, масштаба и типа проекта для проведения аудита, а также может варьироваться на каждом этапе аудита.

Первые два этапа должны проводиться опытными аудиторами с участием специалистов в области безопасности дорожного движения, расследования ДТП и проектирования автодорог.

На стадии рабочего проекта полезно иметь в группе аудиторов специалистов в области проектирования автодорг, дорожных знаков, освещения и систем водоотвода, безмоторных ТС и т.д. в зависимости от типа проекта для проведения аудита. Также будет весьма полезен участник, обладающий знанием аспектов человеческого поведения в области безопасности дорожного движения.

На предэксплуатационной и эксплуатационной стадиях важно, чтобы в состав группы входили участники, обладающие опытом эксплуатационной работы включая установку дорожных знаков, содержание освещения, светофоров, озеленения, снегоуборку и т.д. Полезным может быть привлечение офицера полиции, обладающего опытом в области безопасности дорожного движения и расследовании ДТП.

Сбор исходной информации и аудиторский инструктаж

Заказчик несёт ответственность за предоставление всей документации по проекту, включая отчеты, данные, чертежи, контрактные документы и, при необходимости, данные по интенсивности дорожного движения. Данная информация будет полезной в процессе оценки аудиторами проекта с точки зрения безопасности.

Важно, чтобы группе аудиторов были предоставлены все необходимые документы в самом начале. Неполный комплект документов ведет к возникновению вопросов и дополнительных запросов, что в результате потребует большего количества времени и работы на проведение аудита.

Аудиторский инструктаж (стартовое совещание) – это совещание с участием всех сторон, задействованных в аудите, на котором аудиторы получают инструкции, описывающие схему для начала аудита. На совещании предоставляется достаточный объем исходной информации для успешного проведения аудита.

Как минимум, инструктаж должен включать:

- краткое описание проекта,
- отчёт об условиях проекта и проектных параметрах (проектная скорость, радиусы поворотов, подъем виража, дальность видимости, интенсивность движения, типы автотранспорта, данные по ДТП и т.д.),
- комплект чертежей (обязательны печатные экземпляры),
- детали и причины любых отклонений от дорожных стандартов,
- отчеты любых предыдущих АБДД и ИБДД,
- в случае реконструкции или капитального ремонта должны быть предоставлены чертежи существующих автодорог и статистика ДТП.

Количество необходимых документов возрастает с переходом к следующим стадиям проекта. Сводная рекомендация по минимальным требованиям к содержанию документации отражена в Таблице 4.3.1.1.

Таблица 4.3.1.1. Рекомендуемый минимум документации для проведения аудита

Эскизный проект	**Рабочий проект**	**Открытие движения**
Пояснительная записка с Анализом условий движения с оценкой интенсивности движения Схемы ДТП и карты с выделенными опасными участками дороги Обзорная карта: планы отдельных мест с указанием типов примыканий Обзор продольного профиля Поперечные профили План трассы Продольный профиль Технологические схемы Планы с обустройством окружающего ландшафта Все существующие схемы расположения дорожных знаков и разметки	Результат предыдущего этапа аудита с решением Заказчика Пояснительная записка Обзорная карта Поперечные профили План трассы Продольный профиль Строительные планы Планы ландшафтных работ Схемы установки дорожных знаков и нанесения разметки Планы с расположением элементов обустройства дороги Чертежи примыканий со всеми дорожными знаками, разметкой и установкой светофоров	Результат предыдущего этапа аудита с решением Заказчика Пояснительная записка План трассы Продольный профиль Планы ландшафтных работ Схемы установки дорожных знаков и нанесения разметки Планы с расположением элементов обустройства дороги Планы установки светофоров Документы на установку светофоров

	Документы на установку светофоров	

4.3.2. Проведение аудита безопасности дорожного движения

После инструктажа или стартового совещания группа аудиторов обязана провести оценку проектной документации, а затем аудит БДД. При возможности полезной будет организация полевых исследований для определения вопросов в проекте, относящихся к безопасности. В следующих подразделах представлен процесс, применяемый при проведении аудита БДД.

Анализ исходной информации

По завершении сбора информации, аудиторам необходимо провести оценку и анализ всей имеющейся информации.

Для аудита на стадии эскизного (предварительного) и рабочего проектов (стадии 1 и 2), группа аудиторов должна изучить детали предлагаемого проекта, детали планов и исходной информации шаг за шагом, что даст возможность рассмотреть воздействие проекта в части безопасности дорожного движения на всех участников движения. Аудиторам должно быть предоставлено достаточное количество времени на проведение АБДД.

В случае если аудит проводиться на предэксплуатационной или эксплуатационной стадиях (стадии 3 и 4), аудиторы должны проанализировать всю соответствующую и имеющуюся информацию, такую как отчеты о ДТП (не относится к предэксплуатационной стадии). Анализ отчетов о ДТП применяется не для изучения аварийно-опасных мест, а как вспомогательное средство для аудиторов при определении потенциальных зон, имеющих проблемы с безопасностью.

Полевые исследования

Полевые исследования (инспекции) необходимы на всех этапах, поскольку они дают аудиторам понимание существующих условий. Полевое исследование позволяет аудитору увидеть, как предложенное решение взаимодействует с окружением и пролегающими дорогами.

Перед посещением объекта аудиторы должны ознакомиться с чертежами и контрольными списками для обеспечения продуктивности осмотра и рассмотрения всех соответствующих вопросов.

Для проведения аудита на стадиях 1 и 2 аудиторы должны провести осмотр объекта, включая участки «чистого поля», до завершения предварительной оценки. Группа должна изучить взаимодействие и переход между новой и существующими дорогами для обеспечения согласованности, в том числе и все типы участников движения.

При аудите на стадиях 3 и 4 рассматриваются физические характеристики проекта путём проведения инспекций на объекте. Такие проверки включают в себя оценку обустройства дороги, дорожных знаков, освещения, разметки, потоков и геометрических характеристик с точки зрения разных видов транспорта. Аудиторы должны определить проблемы, способные оказать воздействие на восприятие пользователей автодороги либо ограничить поля зрения.

Группе аудиторов следует провести инспекцию путём езды за рулём и хождения (по возможности) по объекту во всех направлениях. Кроме того, инспекция участка при возможности должна быть проведена в тёмное время суток и при неблагоприятных погодных условиях.

Фотографии, видеозаписи и голосовые заметки, по возможности с указанием GPS координат, будут весьма полезны на последующих совещаниях.

Изучение документации

Аудитор проводит проверку безопасности дорожного движения основываясь на собственном опыте и знаниях в области безопасности дорожного движения. Чтобы удостовериться в том, что в ходе данной основанной на опыте процедуры не были пропущены какие-либо аспекты безопасности, могут использоваться **контрольные списки** (Приложения 1 - 3).

Аудиторы должны держать в памяти следующие основные вопросы:

- Кто может пострадать и каким образом?
- Является ли предложенное решение безопасным для всех потенциальных участников движения?
- Является ли выбранное проектное решение лучшим с точки зрения дорожной безопасности в рамках норм?
- Можно ли рекомендовать применение другого проектного решения с точки зрения последних разработок в сфере БДД и проектирования автодорог?

Контрольные списки

Разработаны отдельные контрольные списки для разных стадий проекта, приведённые в Приложениях 1 - 3 к данному руководству. Контрольный список включает различные вопросы относительно безопасности всех участников движения и помогает аудитору определить проблемы, которые могут возникать на соответствующем этапе аудита.

Контрольные списки основаны на опыте предыдущих аудитов, выводах из расследований ДТП, опыте управления местами концентрации ДТП, мониторинге БДД, передовом опыте и т. д..

Выводы аудита и отчет

По завершении анализа составляется отчёт об аудите. В отчёте должны содержаться в четкой и сжатой форме описание проекта, стадия проекта, список участников группы аудиторов, процесс проведения аудита, выявленные недостатки в БДД и предлагаемые меры по их устранению. Такие меры должны носить концептуальный характер и не предоставлять проектной группе проектные решения. Существует, например, возможность дать чёткие советы в отчёте об АБДД со ссылками на руководства и нормы. С другой стороны, могут быть полезными отдельные эскизы с идеями по усовершенствованию проекта как приложение к основному тексту отчёта. Создание нового проектного решения не входит в задачи аудитора. Это задача и обязанность инженера-проектировщика.

Отчёт об АБДД для стадий 1 и 2 должен содержать следующую информацию:

- **Детали генерального или рабочего проекта**: Название проекта, стадия аудита, дату аудита, даты и время каждой проверки, погодные условия в ходе проверок и т.д.. Пояснение относительно стадии аудита, к которому относится отчёт. Информация о задействованной группе аудиторов. Обзор содержания

проверенной документации.

- **Результаты аудита**: детали выявленных конкретных недостатков, с указанием причин, по которым они рассматриваются как недостатки. Рекомендации к действию по устранению или сокращению влияния данных недостатков.

Для лучшего понимания результатов заказчиком отчёт АБДД на стадиях 1 и 2 должен иметь следующую структуру:

- **Проблемы –** это полученные результаты, которые прямо воздействуют на безопасность дорожного движения. Т.е. указанные недостатки ведут к росту риска ДТП или его тяжести. С помощью предлагаемых изменений (мер) количество ДТП и рисков должно сократиться. Аудитор может пояснить рекомендации устно либо в виде эскизов, но внесение изменений в проект не является его задачей.
- **Примечания** делаются в отношении обнаруженных факторов, которые не обязательно приведут к росту числа ДТП или степени их тяжести, но способны улучшить общую ситуацию в области безопасности дорожного движения, обеспечить устойчивое функционирование проекта или упростить действия участников движения. Содержание примечаний также может относиться к последующим этапам реализации проекта, с тем, чтобы подвести проектировщика к повышению безопасности в конечном итоге.

Важно изложить выводы письменно на чертежах или других рабочих документах, что будет служить их доказательством. В этом отношении контрольные листы могут быть полезны в качестве рабочих документов. В последней строке проверочного списка «комментарии» аудитор может оставить примечания, которые позднее пригодятся, если заказчику потребуются дополнительные пояснения. Также, в случае обнаружения факторов, не относящиеся к вопросу и, таким образом, не являющиеся частью официального отчета, они могут быть отмечены в данной строке.

В ходе процесса аудита могут быть обнаружены недостатки в проектной документации, не относящиеся к вопросу безопасности. Рекомендуется не включать такие выводы в отчёт, а вместо этого изложить их в сопроводительном письме или в отдельном (неофициальном) приложении к отчету.

Заключительный отчёт направляется Заказчику.

Типовое содержание АБДД на стадиях 3 и 4:

5. **Введение,** включающее информацию о инспектируемом участке дороги, о составе инспекционной группы, даты, времени и условий на момент проверки.
6. **Часть А.** Данные о проекте (назначение автодороги, условия дорожного движения, автодорожные стандарты и окружение). В этой части должна быть очерчена исходная информация, полученная в процессе подготовительных работ в офисе и описаны предпринимаемые действия.
7. **Часть Б.** Результаты исследования с указанием недостатков, содержание должно быть формально структурировано согласно разделам контрольных списков. . В этой части содержится описание выявленных недостатков и недочетов, их оценка, а также заполненная форма исследования и документация с фотографиями. Часть В должна заканчиваться выводом по полученным результатам (Оценка недостатков).
8. **Часть В.** Предложения и варианты мер по устранению – краткосрочные (т.е. малозатратные меры, способные стать частью программы по эксплуатации), среднесрочные (т.е. небольшие капиталовложения, например дополнительные барьерные ограждения), и долгосрочные (крупные капиталовложения).

Отчет АБДД для третьего и четвертого этапов должен состоять из введения, трех основных частей и приложений с картами, рисунками и иллюстрациями при необходимости.

С целью пояснения предложенных решений и места их применения карты, иллюстрации, фотографии и эскизы контрмер могут быть приложены в отдельном Приложении либо включены в Часть Б.

4.3.3. Завершение аудита безопасности дорожного движения

По получении отчета АБДД заказчик должен рассмотреть проблемы и предложения, а затем вынести решение о дальнейшем ходе проекта. Заказчик направляет отчет по аудиту проектировщику с указанием того, что должно быть принято и изменено в проекте.

Заключительное совещание

Как только отчёт по аудиту достиг этапа, когда все выявленные недостатки чётко задокументированы, должно быть созвано совещание, на котором все заинтересованные стороны получат возможность взаимодействовать и обсудить результаты. Данное совещание должно предшествовать подготовке ответа заказчика на выводы группы аудиторов. В заключительном совещании должны принимать участие группа аудиторов, заказчик, проектная группа и другие сотрудники, задействованные в составлении ответа на выводы аудитора.

Совещание предоставляет возможность:

- неофициально представить результаты аудита и прояснить или проработать их значение,
- вынести предложения по улучшению структуры отчёта,
- обсудить возможные меры по устранению выявленных проблем, и
- установить сроки подготовки ответов заказчиком.

Необходимо отметить крайнюю важность проведения совещания в позитивном, конструктивном и открытом для сотрудничества тоне. Совещание должно начаться с напоминания о том, что целью аудита является именно повышение безопасности окончательного проекта, а не критика в отношении качества работы кого-либо или проектной группы в целом Всем участникам крайне необходимо понимать, что аудит представляет собой весьма выгодную часть разработки проекта. Особое усилие должно быть приложено для заблаговременного информирования задействованных лиц о процессе аудита и связанных с ним положительных результатах. Организаторам совещания следует внимательно поддерживать атмосферу позитивного обмена мнениями и не допускать враждебности и необоснованных разногласий.

Ответ на отчет по проведенному аудиту

Заказчик рассматривает официальный отчет и изучает указанные проблемы и предложения. Заказчик может обратиться к проектировщику с просьбой прокомментировать и дать ответ на рекомендации в отчете, но решение о принятии либо отклонении рекомендаций остается за заказчиком. Он должен определить приведут ли и в какой степени предложения в отчете по аудиту к изменениям в проекте. Все рекомендации должны быть должным образом рассмотрены. Принятые рекомендации должны быть исполнены безотлагательно.

Ответ заказчика направляется напрямую аудитору. Важно, чтобы в данном официальном ответе содержалось чёткое и полное перечисление причин, по которым какие-либо из рекомендаций не согласованы. Данный ответ служит свидетельством, фиксирующим процесс принятия решения.

Следуя решению заказчика проектировщик вносит изменения в чертежи в соответствии с согласованными корректировками. Затем заказчик принимает решение о необходимости (или ее отсутствии) в частичном повторном проведении АБДД для проверки скорректированной документации. Это будет зависеть от характера и степени изменений в проекте. В случае возникновения сомнений заказчик должен направить соответствующие документы аудитору.

Письменный ответ заказчика на отчет по аудиту входит в состав проектной документации.

Контроль исполнения

Последующая процедура проводится под руководством заказчика. Заказчик рассматривает отчет по аудиту, затем подготавливает письменный ответ по каждой проблеме. Каждое предложенное аудитором в отчете по аудиту мероприятие может быть принято либо отклонено заказчиком. Далее проектировщик вносит изменения в чертежи для снижения рисков БДД. Заказчик проверяет внесение согласованных изменений проектировщиком.

Заказчик должен документально оформить обоснование для каждого отклонённого предложения из отчета по аудиту. Как отчёт по аудиту, так и ответ заказчика входят в состав окончательного протокола аудиторской проверки. Все соответствующие документы должны храниться в качестве подтверждения.

5. ОБУЧЕНИЕ АУДИТОРОВ И ПРАВОВЫЕ АСПЕКТЫ

5.1. Обучение аудиторов

Важно, чтобы аудитор обладал обширным опытом в вопросах БДД.

Руководитель группы аудиторов (РГ) должен иметь полное профильное высшее образование, предпочтительно на уровне магистра, и обладать значительным опытом в области безопасности дорожного движения (или проектирования автодорог) и/или расследования ДТП. Минимальными требованиями для руководителя группы является более 3-х лет работы в АБДД и более 3-х составленных отчётов по АБДД.

Участники группы аудита (УГ) должны иметь как минимум образование на уровне бакалавра и более 3-х лет работы в области безопасности дорожного движения (или проектирования автодорог) и/или расследования ДТП.

Аудиторы должны иметь удостоверение водителя, хорошо знать стандарт на проектирование автодорог, закон о безопасности дорожного движения и закон об автомобильных дорогах. Знание других стандартов по автомобильным дорогам крайне приветствуется.

Для обеспечения качественного аудита аудиторы должны пройти начальное обучение, в результате которого им выдаётся свидетельство о присвоении квалификации, затем они должны принимать участие в дополнительных периодических курсах. Если аудит проводиться группой аудиторов, то как минимум один участник группы должен обладать свидетельством о присвоении квалификации.

В программу обучения должны входить темы, относящиеся к БДД, например расследование ДТП, управление безопасностью дорожной сети, разработка и проектирование средств обеспечения БДД. В некоторых европейских странах, таких как Германия, Дания и Великобритания, разработаны и хорошо зарекомендовали себя учебные курсы по АБДД.

На сегодняшний день в Европе представлены два подхода к проведению АБДД. Первый заключается в том, чтобы в аудите участвовал квалифицированный персонал, например сотрудники государственной администрации, института по безопасности дорожного движения и т.п.. В литературе такое решение зачастую называется «внутренний аудитор». Второй подход состоит в заключении контрактов с экспертами по проведению АБДД из частных консалтинговых фирм – «внешний аудитор».

В дополнение, для долгосрочного развития может быть целесообразным создание национального Аудиторского центра (предпочтительно внутри какой-либо из существующих организаций). Подобная структура могла бы организовывать обучение, сертификацию и курсы повышения квалификации для сертифицированных аудиторов. Ассоциация или общество дорожных инженеров или другая подобная организация может быть подходящим организатором регулярных курсов.

5.2. Правовые аспекты

Аудиты БДД являются одним из способов выявить недостатки или проблемы, потенциально способные влиять на безопасность дорожной инфраструктуры. В их ходе также определяются меры по исправлению положения, которые могут уменьшить или устранить потенциальные проблемы безопасности. Иногда аудит может коснуться правовых вопросов, которые аудитор должен принять во внимание.

Опыт многих стран показывает, что претензии, связанные с применением АБДД, не являются проблемой. АБДД предоставляет средства проверки того, чтобы все обоснованные инициативы по БДД были предприняты в проекте, при строительстве и эксплуатации. Аудиторы только определяют вопросы или проблемы безопасности, способные снизить уровень безопасности будущей или существующей дороги.

Необходимо указать, что при правильном проведении АБДД на применяющий его орган управления не налагается дополнительная ответственность. Принимая во внимание правовую ответственность, можно выделить следующие основные принципы:

- В случае, если процедуры аудита БДД могут считаться общественным активом, то опасения в отношении юридической ответственности не должны использоваться как препятствие к их применению,
- Документация имеет большое значение. Ответ заказчика на аудиторский отчет должен содержать причины отклонения рекомендации аудитора, если это имеет место. Ответ должен быть подробным и обоснованным,
- Отчёт по аудиту и официальный ответ должны быть подшиты к проектной документации, так как они могут быть использованы в рассмотрении какого-либо дела в будущем, и
- Целесообразными являются последующие действия или их отсутствие, предпринятые заказчиком / органом дорожного хозяйства, а также фиксация того, что было сказано и выполнено в ответ на аудит.

Краткий ответ на вопрос «Приведет ли проведение АБДД к дополнительной ответственности органа управления безопасностью?» может быть «нет» .

Некоторые юристы придерживаются более прогрессивного мнения, что в случае отказа от проведения аудита БДД там, где он может быть проведен, необходимо рассмотреть возможность появления другого вопроса: “*Может ли отказ от проведения аудита безопасности дорожного движения, способного выявить проблемы безопасности, рассматриваться в суде в негативном контексте*?”. Юристы уверены, что ответом на этот вопрос в конечном итоге может быть «*да*».

Кроме того, необходимо учитывать, что ЕС опубликована Директива № 2008/96 по управлению безопасностью дорожной инфраструктуры, содержащая чёткое решение об обязательном проведении АБДД на сети трансъевропейской автомагистралей в ближайшие годы. Также, восемь многоотраслевых инвестиционных банков сейчас пришли к соглашению о едином подходе в отношении акцента на безопасности дорожного движения во всех своих инфраструктурных проектах и это решение усиливает давление на необходимость проведения аудита БДД на всех дорожных проектах, финансируемых ими.

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4.4.2

SIMPLE TEMPLATE ON ROAD SAFETY AUDIT POLICY AND PROPOSAL OF LEGAL CHANGES TO MAKE RSA MANDATORY AT NATIONAL LEVEL

TRACECA Regional Road Safety Project

Safety Engineering Team

March 2015

EU funded road safety project
For
Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Tajikistan, Turkmenistan, Ukraine, Uzbekistan

PREFACE
TO THE TEMPLATE ON ROAD SAFETY AUDIT POLICY
AND
PROPOSAL OF LEGAL CHANGES TO MAKE RSA MANDATORY
AT NATIONAL LEVEL

With EU Directive no. 2008/96 on road infrastructure safety management, published in 2008, the European Union has made a clear decision that the Road Safety Audit (RSA) will be mandatory for the Trans-European Road Network in forthcoming years. It is well known fact that RSA is highly effective and cost effective engineering tool for improvement of safety on roads.

Unfortunately, in reality there is little application of RSA at present in TRACECA Region. RSAs that are implemented are mostly pushed by IFIs and implemented by foreign consulting companies. Even when RSAs are undertaken the RSA recommendations are not always implemented by the road authorities.

This is why the Project was requested to develop capacity in each country (at National level) for undertaking of RSA. The Project team in cooperation/consultation with concerned stakeholders on Workshops have produced this, simple template on Road Safety Audit Policy and proposal of legal changes to make RSA mandatory at National level.

RSA Policy has been developed for all TRACECA countries to address the common road safety problems related of planning, design and operation of road infrastructure and therefore some localization should be done (empty places should be fulfilled with local specific national data from each specific country).

Similar situation is with proposed legal changes that should be undertaken for full implementation of RSA at National level.

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A) TEMPLATE ON ROAD SAFETY AUDIT POLICY

1. PURPOSE OF ROAD SAFETY AUDIT POLICY

This Policy sets out how the (*name of the country*) and responsible Ministry (name of the responsible Ministry) or Road Administration (name of Road Administration) will organize and implemented Road Safety Audits (RSA) as a regular procedure for increasing the road safety of infrastructure.

2. WHAT IS ROAD SAFETY AUDIT

RSA is a well known term used internationally to describe an independent review of a project to identify road or traffic safety deficiencies. It is a formal examination of a road or a traffic project and can be regarded as part of a comprehensive quality management system.

RSA is a pro-active approach with the primary aim of identifying potential safety problems as early as possible in the process so that decisions can be made about eliminating or reducing the problems, preferably before a scheme is implemented or accidents occur.

The most common definition of RSA is: "A formal road safety examination of the road or traffic project, or any other type of project which affects road users, carried out by an independent, qualified auditor or team of auditors who reports on the project accident potential and safety performance for all kinds of road users".

3. AREA OF APPLICATION

A RSA should be undertaken on a wide range of projects varying in size, location, type, and classification. The types of projects that can be audited are categorized under the following headings:

- function in the network
  (International roads, Magisterial roads, Regional and Local roads)
- traffic
  (motor vehicles only or mixed traffic with non motorized or slow agricultural traffic)
- position - locality
  (outside or inside built up areas).

A RSA is recommended to be taken for any design of new roads.

In nearby future, RSA could be extended on any proposal for changes in existing roads or road environment which are likely to alter interactions between different road users, or between road users and their environment. It is recommended in the Regional Road Safety Audit Manual for TRACECA Countries (2014) that RSA should be undertaken for all projects that have the value of technical documentation more than 30.000 Euro.

Therefore, RSA could be conducted on:

- new roads, motorways, highways and other road traffic facilities,
- reconstruction and rehabilitation,
- inside and outside built-up areas.

The types of projects to be mandatorily audited will be defined according to the legal (law or by-law, or Ministry decree) regulations.

4. STAGES OF ROAD SAFETY AUDIT

According to the International best practice and Regional Road Safety Audit Manual for TRACECA Countries, RSA should be conducted in four different stages:

Stage 1: draft (or preliminary) design,
Stage 2: detailed design,
Stage 3: pre-opening of the road and
Stage 4: early operation, when the road is some time in operation.

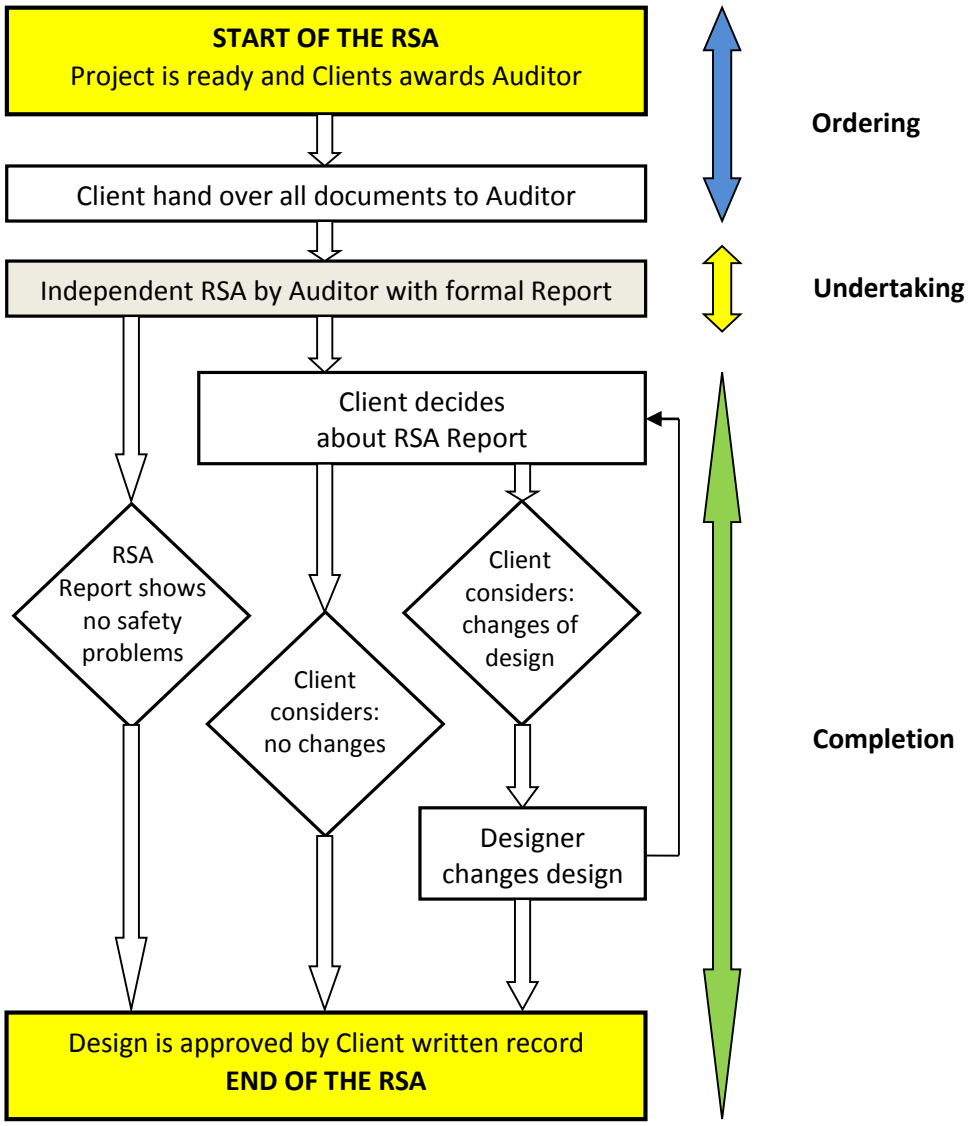
5. ROAD SAFETY AUDIT PROCESS

As a relatively new road safety procedure, RSA has to be organized with an effective structure and with clear responsibilities.

The general RSA procedure will include three main phases:

- ordering,
- undertaking and
- completion.

The following picture (Figure A.5.1.) describes the typical RSA process.



Financing for RSA should be provided from the different resources:

- for Internationally financed road project, RSA costs should be calculated and integrated in whole project costs,
- for National road projects, RSA costs should be provided from local Road Administration budget.

Road Administration* *(specify exact unit. E.g. Road Safety Audit Unit)*, are responsible for implementation of RSA procedures on all roads under their responsibility.

* or equivalent organization

6. QUALIFICATION OF ROAD SAFETY AUDITORS

It is important that the auditor has extensive experience in road safety issues.

Proposal is that RSA team leader (TL) should have completed relevant university education preferably with Master degree and have significant experience in road safety engineering (design) and/or road traffic crash investigation. About three years of working with RSA and more than 3 RSA Reports produced would be minimal requirement for an RSA Team Leader.

RSA Team Members (TM) should have at least a bachelor education and about three years of experience in road safety engineering (design) and/or road traffic crash investigation.

Auditors should possess driving licenses and have good knowledge about Road Design Standard, the Traffic Safety Law and the Law for roads. The knowledge of other road standards is highly desirable.

To ensure the quality of the audit, auditors should undergo initial training, resulting in the award of a certificate of competence and should then take part in additional periodic training courses. Where audits are undertaken by teams, at least one member of the team shall hold a certificate of competence.

The content of training should include road safety related topics like crash investigation, road safety network management, road safety engineering and design.

Road Safety Audits are required to be carried out generally in accordance with the Regional Road Safety Audit Manual for TRACECA Countries (2014), which is developed within TRACECA Road Safety II Project.

7. ACCREDITATION PROCESS

Responsible Ministry (*name of Ministry*) is encouraged to support the accreditation process for Road Safety Auditors.

The National accreditation of Road Safety Auditors should be implemented preferably in accordance with the model provided by TRACECA Road Safety II Project.

In _____

Date: _____

Signed by: _____

Annex 1: **Road Safety Audit Policy Statement**

ANNEX 1:

ROAD SAFETY AUDIT POLICY STATEMENT

The following Road Safety Audit Policy has been developed with the aim of having adopted it as a formal Policy of main road safety stakeholders in each TRACECA country.

ROAD SAFETY AUDITS POLICY

Policy Objective

To strengthen the usage and implementation of a Road Safety Audit procedures inside the (Name of the country).

Policy Statement

RSA policy requires that the following actions will be adopted as part of a increasing the road safety level within the (Name of the country).

a) Ministry of Transport *(or equivalent)* will include Road Safety Audit goals and objectives in its business (financial) plans.
b) Adopted RSA procedures shall be in accordance with the TRACECA Road Safety Audit Manual and accompanying Checklists (2014).
c) Ministry of Transport *(or equivalent)* will initiate amendment to the legalisation which will makes Road Safety Audit obligatory (e.g. Law amendment or Ministry Decree for mandatory usage of Road Safety Audit).
d) Ministry of Transport *(or equivalent)* acknowledges that all new road projects that have the value of technical documentation more than 30.000 Euro will be subject to a Road Safety Audit.
e) Sections of existing state owned road network with high risk of road accidents will be subject to audit within a defined timeframe (every 5 years).
f) Ensure that appropriately trained, experienced and independent Road Safety Auditors are used in undertaking of Road Safety Audits.
g) Ministry of Transport *(or equivalent)* will push and stimulate the local municipalities to undertake the Road Safety Audit for the roads under their responsibility.

B) PROPOSAL OF LEGAL CHANGES TO MAKE RSA MANDATORY AT NATIONAL LEVEL

1. INTRODUCTION TO LEGAL CHANGES FOR MAKING RSA MANDATORY

Having in mind different situations regarding the road safety legislations in TRACECA countries Project team discussed on workshops possible and efficient ways of implementing the Road Safety Audit as mandatory procedure at national levels and comes to the following solution - proposal of three way approach**.**

Proposal for Law and Regulation for implementing mandatory RSA was prepared in accordance with EU Directive 2008/96/EC, fact findings in TRACECA countries and best practice worldwide.

Main goal of this proposal is to support all TRACECA Countries in implementing the RSA as mandatory routine via legislation system.

Three way approach, for implementing the RSA as mandatory routine is presented at Figure B.1.1.

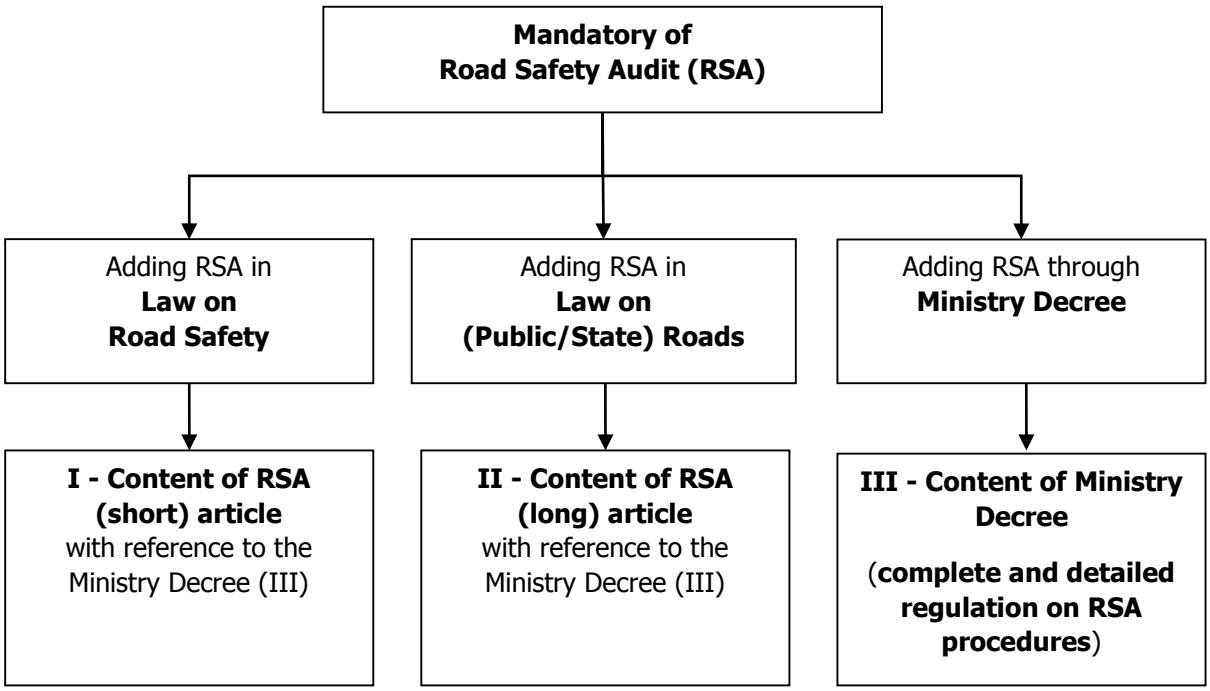


Figure B.1.1. Possible approach for implementing mandatory RSA

Road Safety Audit is concentrated on the improvements of the safety of road infrastructure. RSA concerns all four stages of road design and operation, e.g. preliminary (draft) design, detailed design, pre-opening of the road and the road being in early operation.

Project team in cooperation with national experts at workshops find out that most efficient ways of implementing the RSA as a mandatory routine at national levels could be adding the

specific article into the concerning laws (Law on Road Safety or Law on Roads) with a full description of RSA procedure in responsible Ministry (most usual Ministry of Transport or equivalent) Decree.

Note: This is just a proposal how implementation of mandatory RSA at National level could look like. If decided, this proposal should be reviewed and improved (localised) by national legal experts.

2. PROPOSAL OF LEGAL CHANGES (3 Way Approach)

2.1. Amendment to the Law on Road Safety (short) article - (I)

Art. No. ___

In order to improve infrastructure road safety there shall be established and implemented a mandatory Road Safety Audit system (RSA). The details of RSA procedure are regulated by Ministerial Decree.

2.2. Amendment to the Law on Roads (long) article - (II)

Art. No. ___

(1) In order to improve road safety of infrastructure there shall be established and implemented a systematic and independent assessment of the safety performance of a road infrastructure project on TRACECA Core Network. In the stage of design, construction including reconstruction, rehabilitation and major maintenance of the road infrastructure, a certified auditor shall verify independently whether the infrastructure requirements in relation to the road safety were met (this procedure is called Road Safety Audit-RSA). RSA is restricted on projects that have the value of technical documentation more than 30.000 Euro.

(2) The MoT (or equivalent) shall adjust the application of Article 1 in Ministerial Decrees, and RSA Manuals. The MoT (or equivalent) is entitled to extent by Ministerial Decree the application of this law also for cases of design and construction work on other roads than those of the TRACECA Core Network.

(3) There shall be installed a Road Safety Audit (RSAU) in the Road Administration (or equivalent organisation). The RSAU shall be in charge for RSA procedures which are applied by the MoT (or equivalent). Overall control of RSA process implementation should be under MoT (or equivalent). The RSAU, under the control of MoT, shall form the model of contract which should be used for contracts concerning the performing the RSA. The RSAU can impose fees for the audit activities.

(4) RSA auditors can get the certificate of competence as an auditor in compliance with the following conditions:

(a) Relevant experience or training in road design, road safety engineering and accident analysis;

(b) Undergoing an initial training course, passing successfully a final and examination course.

(c) To keep his certificate of competence the auditor has to take part in periodic further training courses.

(5) Certificates on national, regional and international level awarded before the entry into force of this law shall be recognized, if they meet the requirements for the new auditors. The certificates shall be organized in accordance to the requirements of RSA Law (and upon the manuals). National, regional and international experts can be auditors if they meet the requirements. Certificates can be organized at the different ways (by Governmental organization, Universities or Engineer associations).

(6) For the purpose of the road project audited the auditor shall not at the time of the audit be involved in the conception or operation of the relevant road constructing project. There shall be a continuous improvement of safety management practices and the improvement of the road safety regulations, standards and norms. Regarding this aim there shall be a constant exchange of best practices in the Region.

(7) Infringements against this Article by the members of the auditors of the RSAU and MoT, if not petty have to follow sanctions. Infringements by the investor, designer or contractor, if not petty have to been fined up to 5 % of the total sum of the contract.

(8) A contract concerning all sorts of road design or construction shall be void if it doesn't contain a regulation about a mandatory road safety audit in the sense of this law, the Ministry Decrees and Road Safety Audit Manuals there from.

(9) The details of RSA procedure are regulated by Ministerial Decree.

2.3. Proposal for a Ministerial Decree (MoT or equivalent) regarding the Road Safety Audit - (III)

Based on the article _____ of the *Law on Road Safety* or *Law on Roads* the Minister of Transport (or equivalent) gives the following decree:

Chapter I - General provisions

Art.1
Scope and Subject matter

(1) The application of this decree concerns exclusively improvement of road safety in design, construction and operation of TRACECA Core Road Network, including the National roads which are the part of the TRACECA Core Network.
(2) Based on the *Law on Road Safety* or *Law on Roads*, this decree

- establishes the procedures for the road safety audit activities,
- determines the conditions for acting as an auditor,
- enables to impose fees for the audit activities and for the training courses and examinations and
- establishes responsible bodies in the field of road safety audit.

Art. 2
Definitions

For the purposes of this decree, the following definitions shall apply:
a) *Audit (Road Safety Audit - RSA)*

means an independent detailed systematic and technical safety check of design characteristics of a road infrastructure project covering the four stages draft design, detailed-design, pre-opening of the road and early operation of roads.
b) *Auditor* (*Road Safety Auditor)*
is a natural person who is certified in accordance with this decree and who discharges his functions according to this decree independently;
c) *Audit Report*
is a written report which contains the results of the audit with identified safety deficiencies and recommendations;
d*) Client*
is the road Road Authority or the private road operating company which constructs the road on own account, and who orders the project work from the designer resp. from the contractor. This body is the natural or legal person who is obligated by law or by contract to overtake the responsibility for the construction or the maintenance of a road on a defined quality level also concerning road safety;
e) *Contractor*
is a natural or a legal person who is obligated by law or by contract (i.e. building contractor) to build a road or an engineering structure on a defined level also concerning road safety;
f) *Core Network*
means the national core network (national roads) including the Core Network described in the TRACECA official road map
g) *Designer*
is the natural or legal person who is obligated by law or by contract to plan or design a road or an engineering structure on a defined quality level also concerning road safety;
h) *Guidelines or Manuals*
means measures, which lay down the steps to be followed and the elements to be considered in applying the road safety audit procedures set out in this decree;
i) *Road Safety Audit Unit - RSAU*
is the unit in the Road Administration (or equivalent) designated by *Law on Roads* (alternative: by decision based on this decree) to be in charge for RSA procedures;

Chapter II - Road Safety Audit

Art. 3

Mandatory Execution, Nullity of a contract

(1) The audit is an integral part of a comprehensive quality management system during the flowing of the draft design, detailed design, pre-opening of the road and of the road being in early operation.
(2) The execution of the audit corresponding to this decree is mandatory.
(3) According to Art. No. ___ Para (1) of the Law on Roads, a contract on design/construction and execution of a projects that have the value of technical documentation more than 30.000 Euro, between the client on one side and any other contracting party on the other side is void if it does not contain an explicit term about the implementation of an audit according to this decree.

Art. 4
Principles and Aims of the Road Safety Audit - RSA

The principles governing the audit are:

a) Preventing human and material damages resulting from traffic accidents on the assessed road
a) Avoiding a later necessary reconstruction of newly built public roads due to the noncompliance with traffic safety regulations.
b) The audit shall be carried out exclusively by certified auditors. In general the audit shall be carried out by at least two auditors; at least one member of this team shall hold a certificate of competence as referred to in Art. 11.
c) The selecting and contracting of the performing auditors by the RSAU shall be carried out without any discrimination.
d) The auditors shall be independent in relation to the client, the designer and the contractor. They shall be independent in relation to the RSAU and to the road administration as far as the audit is concerned.
e) The audit will be carried out in compliance with the regulations and the best practice in the field, on national and international level, in what regards the training and the certification of the auditors and the execution of the audit. When carrying out an audit, the auditors shall endeavour to meet the criteria set out in ministerial decrees, manuals and guidelines.
f) The auditors shall set out safety critical design elements in an audit report for each stage of the road construction project.
g) The auditors shall give the results to no other person and to no other institution than to their client, to the road administration, to the RSAU (Art. 5). They have to observe absolutely confidentiality to third parties.
h) On demand of the RSAU the auditors shall support the road administration to develop and propose guidelines and regulations in the field of road safety aspects; this is a subject to possible additional payment.

Art 5
Road Safety Audit and Inspection Unit - RSAU

(1) There is established at the XX.XX.XXXX. the RSAU as a special unit of the Road Administration (alternative: RSAU can be installed differently in accordance with local conditions)
(2) The RSAU shall be the only competent institution in the field of audits for national roads (alternative: and local roads) and private roads open for public traffic.
(3) The tasks of the RSAU are in particular

a) To verify the requirements to a person who wants to become an auditor / inspector (art.10)
b) To elaborate its own procedures of designation of the road safety auditors together with the MoT (or equivalent); the procedure of designation shall be published on the internet site of the MoT (or equivalent);
c) To designate the auditor;
d) To keep the register (Art.13). The registry of road safety auditors shall be published on the internet site page of the MoT (or equivalent);

e) To regulate the contractual aspects with the clients, to contract and to pay the road safety auditors for having performed the road safety audit, to regulate the information and documents flow between the parties involved in the process of audit;
f) To supervise the performing of the audits inclusive the independence of the auditor according to this decree;
g) To organize meetings for auditors regarding the results of research and practice in this field;
h) To make proposals on the updating of the legislation, norms, standards and technical guidelines in accordance with UN Resolutions, EU Directives and International best practice;
i) To participate in specific activities at national and international level;

(4) The RSAU may offer its services to entities outside Country.
(5) The RSAU is endorsed for these tasks by the MoT (or equivalent).
(6) The RSAU gives a yearly progress report inclusive the situation of the annual budget to the MoT (or equivalent) on every 1. March of the year (or another nationally accepted day).
(7) The RSAU should be supervised by MoT (or equivalent).

Art. 6
Controlling function inside MoT (or equivalent)
The Controlling function inside MoT (or equivalent) shall get the full responsibility for monitoring and controlling the whole auditing process.

Art. 7
Guidelines and Manuals
(1) In order to support the competent entities in the application of this law the MoT (or equivalent) will adopt guidelines and manuals by 2 month after the publishing of the law in the official journal.
(2) These guidelines should be in compliance with Regional Road Safety Audit Manual develop for the TRACECA Region.

Art. 8
Audit part of implementation period
The client shall calculate the time period necessary for performing the audit as being part of the project's implementation period. The costs of the performance of the audit shall be paid by the road administration (in the case of national financing) or out of the project budget (in the case of international projects).

Chapter III - Road Safety Auditors

Art. 9
Members of the road administration or or private organizations
(1) Auditors may be
a) members of the staff of the road administration, or
b) members of a university charged with audits, or
c) Consultants experienced in audits.

(2) As far as auditors are members of the staff of a state authority or of a local authority they have to carry out the audit in special units charged with audits; they shall not be involved in the further planning, designing and execution work concerning the road which is to be audited by them. As much as their audit work is concerned they are independent.
(3) Auditors shall not be members of the staff of the designer and of the contractor.

Art. 10
Requirements for the Auditor
(1) Any person who wants to become an auditor has to meet the following requirements cumulatively:

a) A university degree in the field of traffic/road engineering;
b) Professional experience in the field of road design, road safety engineering and accident analysis for at least three years;
c) A graduation of the training courses for auditors (Art.11) and successful examination with a certificate as auditor under conditions laid down in this decree;
d) Physical ability to execute the task ;
e) Full capacity to exercise the civil rights;
f) No legal prohibition on practicing an audit.

Art. 11
Training Courses; Examination; Certificate
(1) A person who wants to become an auditor and who fulfils the requirements (Art. 10), has to undergo an initial training. The person has to pass successfully an examination to get a certificate of competence as an auditor. The auditor has to take part in periodic further training courses (minimum one per two years).
(2) The MoT (or equivalent) in co-operation with the RSAU, Universities and Engineers Associations lay down the requirements for the training courses (e.g. the number of days of the training courses; the number of teachers; the teaching material, fees), for the examination and for publishing the results within 45 days since the publication date of this decree; these requirements are content of the RSA manuals. The procedure of designation of the auditors shall be published on the internet site of the MoT (or equivalent).
(3) Certificates awarded before the entry into force of this degree shall be recognized provided the person fulfils the requirements of this decree.

Art. 12
Trainer, Collaboration
(1) A person granted with the quality of auditor under the conditions of this decree may also fulfil the position of a trainer for training courses and improvement in the field of audits.
(2) The MoT (or equivalent) shall collaborate with accredited universities, institutions and professional bodies that are experienced and authorized in the field of professional training of adults for carrying out the training courses and improvement programs in the field of audits. The list of institutions provided for cooperation in the field of audits shall be made available to the public at the head quarters of MoT (or equivalent) and on MoT internet sides, for being consulted by any interested person.

Art. 13
Register of Road Safety Auditors
(1) The MoT (or equivalent) in accordance with the RSAU records the name and identification dates of persons graduating the examination provided in the "Register of Road Safety Auditors part 1".
(2) The dates of a person that has been granted the quality of auditor abroad and that wishes to perform the audit activity in this country are recorded in the "Register of Road Safety Auditors part 2" on conditions that he presents the documents that prove the quality of an auditor.
(3) The MoT (or equivalent) in accordance with the RSAU records the name and identification dates of persons who work as trainers in the "Register of Road Safety Auditors part 3".

Art. 14
Frame Contract; No refusal
(1) Between the RSAU and the auditors shall be made a frame contract about the expected performances.
(2) The RSAU decides on every performance of the auditor.
(3) Auditors cannot refuse the designation by the RSAU to perform an audit within a construction contract but only for objective reasons or for incompatibility situations.

Art. 15
Termination
(1) The capacity of auditor shall terminate:
a) by request of the auditor; the auditor shall send a letter to the RSAU in which he declares his resignation;
b) by decision of the RSAU in the case that the conditions mentioned in Art. 10 are no longer met;
c) by notice because of contract breaching

In case of termination of the capacity of auditor the dates of the respective person shall be radiated from the register of auditors.
(2) Para. 1 is applicable analogously to the termination of the capacity of the trainer.

Chapter IV
The Road Safety Audit's field of Application and Performance

Art. 16
Contract with a client
(1) The client on one side and the RSAU on the other side shall make a contract to ensure the involvement of an auditor in concrete terms.
(2) The RSAU shall nominate the auditors within 5 working days from signature date of the contract according to Para. 1.

Art. 17
Technical documentations to the auditor
(1) The client shall submit to the RSAU the documentation of the project to be audited within maximum 10 working days from the signature date of the contract and notify accordingly the designated auditors.

(2) The client, the designer and the contractor shall submit to the RSAU, at request, the further technical documentation of the project, containing written and drawn pieces, as well as any information, documents, schemes, maps or graphics necessary for performing the audit under good conditions. The RSAU shall give the documents as fast as possible to the auditors.
(3) The auditors shall keep the confidentiality over the information acknowledged during the activity of performing the audit, as well as over the documents elaborated, or documents he was handed-over, even after terminating the assignment, except for such cases in which the law provides otherwise.
(4) For the RSA stage 4 the RSAU shall deliver to the auditor the accident data and data about the traffic volume.

Art. 18
Incompatibility and arbitration
(1) The auditor shall inform the RSAU of any circumstance that may prejudice the principle of the auditor's independence in relation with the client, designer or contractor involved in the project subject to the audit, as soon as he acknowledged existence of such a case.
(2) In cases the rejection of the audit requirements by the client with serious disadvantages for the road safety, the auditor shall inform the RSAU in a written way and can ask MoT (or equivalent) for arbitration.

Art. 19
Audit Report
The results of the audit shall be presented by the auditors in a written and hand signed audit report, at the end of each project stage, in compliance with the time periods stipulated in the methodology for the audit performance. The audit report gives hints on identified safety deficiencies and gives recommendations.
Art. 20
Conclusions of the audit report
(1) It is the obligation of the client to undertake the necessary actions out of the report's results, in relation with the designer and the contractor, in order to ensure the necessary implementation before completion of the respective stage of the project subject.
(2) In case the client does not contest the demands and recommendations of the audit report he has to give an immediately written justification to every single argument.
(3) The road safety audit report and written justification of the client have to be given within 10 days to the MoT (or equivalent). These documents shall make part of the project documentation.

Chapter V
Costs
(Art. 21 - 23 on request!)
Art. 21
Levy for the Audit / Inspection
(1) For performing the audit for the big-seized projects (over 100.000 Euro), a tariff of 1‰ from the total value of investment shall be levied for the projects for constructing public roads and, of 2‰ from the total value of investment for the projects for rehabilitation and/or modernization of the public roads. The levy for RSA should not be less than the equivalent of 800 EURO per stage.

(2) For performing the audit for the small-sized projects (bellow 100.000 Euro), a fix tariff of 3‰ from the total value of the investment shall be levied, but not less than the equivalent of 800 EURO per stage.
(3) The afferent percentages of the tariffs requested for each project stage shall be established through the contract signed by the client and the RSAU according to provisions.
(4) The terms and the modality of tariff payment by the client shall be established through the contract signed by the client and the institution responsible in the field of audit according to provisions.

Art. 22
Auditor's claims

The amounts collected under the provisions of art. 21 shall be spent by the Client in order to pay the auditors for the activities developed and to finance its own activities established by this decree in the field of the audit.

Art. 23
Auditors' honorarium

(1) For the activities developed under the contract concluded with the decree the auditor has the right to a honorarium and to be reimbursed for the expenditures made to fulfil the respective activities.
(2) The honorarium of the auditors shall be of 80% from the tariff levied by the RSAU in accordance with the provisions of art. 21.
(3) The honorarium amount and the conditions of payment shall be established in the contract concluded between the auditor and the RSAU.

Chapter VI
The responsibility of the client, designer and contractor

Art. 24
Petty offences

(1) The following deeds shall represent petty offences:
a) non-compliance with the provisions of art. 9 by the client;
b) non-compliance with the provisions of art. 12 para. (2), by the client, designer and contractor.

(2) The petty offences provided under para. 1 shall be sanctioned as follows:
a) with fine between 10.000 € for the deed provided under let. a)
b) with fine between 20.000 € for the deed provided under let. b).

(3) The ascertaining of the petty offences provided under para 1 and applying the sanctions provided under para. 2 shall be made by the authorized personnel of the Road Authority, State Inspection in constructions, public works, urbanism and land-use planning, and of the MoI (or equivalent).
(4) The provisions of the penal code shall be applicable to petty offences.

Chapter VII – The road safety auditor's/inspector's responsibility

Art. 25
Breach of contract

The contractual responsibility of the road safety auditor is drawn by the following infringements :

a) infringement of the obligation of confidentiality
b) performance of the road safety audit in non-compliance with the obligation provided
c) performance of the road safety audit in non-compliance with the methodology for the road safety audit performance
There can be contractual penalties.

Chapter VIII– Final and transitory provisions

Art. 26
Regulations for the RSAU
(1) The MoT (or equivalent) and the Road Authority shall take all the necessary measures in order to ensure the budget, personnel and office space necessary for the Controlling function at the MoT (or equivalent) and the RSAU to perform its activities, in accordance with provisions of this decree.
(2) The persons who attended training courses for road safety auditors with a duration specified in RSA Manual, in the country or abroad, until commencement date of this decree, and who meet the conditions provided under Art. 10 can require the certification of the capacity of road safety auditor quality and for registration in the registry of road safety auditors.
(2) The application shall be submitted in written form to the RSAU within 60 days from commencement date of the Ministerial Order together with the documents that certify fulfilment of conditions.
(3) The RSAU shall verify the fulfilment of the conditions and shall decide upon awarding the certification of the capacity of road safety auditor, within 15 working days from registration date of the application.

Art. 27
Endorsement
The award of the endorsement provided under Art ___ by the MoT (or equivalent) shall become applicable on commencement date of the ministerial order provided under Art. 5 para. 5.

Art. 28
Enter into force
This law shall enter into force within 90 days from date of publication in the Official Journal of _____ date _____ .

ANNEX 2:

PROPOSAL OF RSA ACCREDITATION SYSTEM AND RSA TRAINING CURRICULUM

A. PROPOSAL OF RSA ACCREDITATION SYSTEM

The most common way for establishing road safety audit accreditation system is to use existing or slightly changed organizations and institutions within country, such as: University, Association of Engineers, Ministry of Transport (MoT) or equivalent, National Council for Road Safety if exists, Institutes, etc.

MoT (or equivalent) should accept Road Safety Audit Policy (document developed TRACECA Road Safety II Project) and become the main road safety audit stakeholder. After that, MoT (or equivalent) could use or build the necessary RSA institutions.

- TRAINING for road safety auditors

At the beginning of establishment of RSA system, trainings of auditors could be done by using external resources (International consultants). The professors from relevant Universities, Institutes (or similar institution) should be between the first one who pass this training courses. After that Universities/Institutes, by itself or in cooperation with some international RSA experts should establish its own program of RSA training courses. With this, sustainable system for education of road safety auditors will be established within country.

- ACCREDITATION (CERTIFICATION) of road safety auditors

Accreditation (certification) could be done at few different ways, depending on available country resources and existing practice with similar licenses (for example, if similar certifications exist for road designers, road work supervisors, etc.).

The certification of auditors could be done, by the same institutions which provide the training, or by other institution which is authorised for providing licences and which will define all necessary documentation for getting RSA licence (E.g. certification of passed exam on RSA training course + another prescribed documents).

Certified auditors should be accepted and recognized by Ministry of Transport (or equivalent) and Road Administration, as major users of road safety auditors.

- DATABASE OF AUDITORS

It is most logical to develop database of auditors by the main user of their services - Road Administration, which are most usual under MOT (or equivalent)

B. PROPOSED RSA TRAINING CURRICULUM

For best results on RSA Training specific Curriculum is proposed. Training Curriculum is based on different training modules aiming to provide trainees with relevant road safety knowledge necessary for undertaking the Road Safety Audits.

In the following figure training concept is presented.

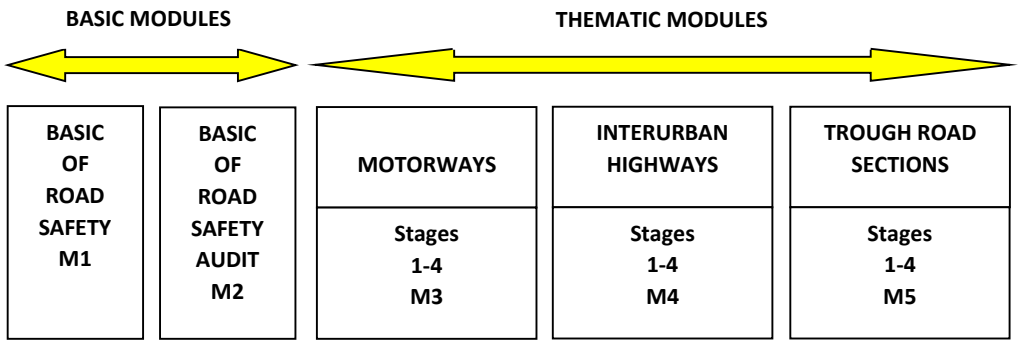


Figure A2-B.1. Modular training procedure for RSA

In this concept, training is performed in two time separate training blocks - workshops combined with additional time for homework.

Trainees are obliged to present 2 of their own RSA reports, (one after the first training block M1+M2+M3 and another after second training block M4+M5), as a part of the homework and pre-requirements for getting the Certificate.

Only candidates who take the classes and successfully finished all two RSA Reports will have an opportunity to pass the final exam and get the Certificates of basic RSA competence.

Having in mind that RSA training suppose to be extension of all previously knowledge collected by candidates, there are some of preconditions that trainees are must satisfy:

- they need to posses basic knowledge in the design of roads and road safety (usually a University degree in traffic engineering or in civil engineering of road traffic) and
- some professional practice in road design or in the field of accident analysis (e.g. as court expert for accident analysis, etc.) is needed.

Figure A2-B.2. shows the general workflow of the proposed training procedure.

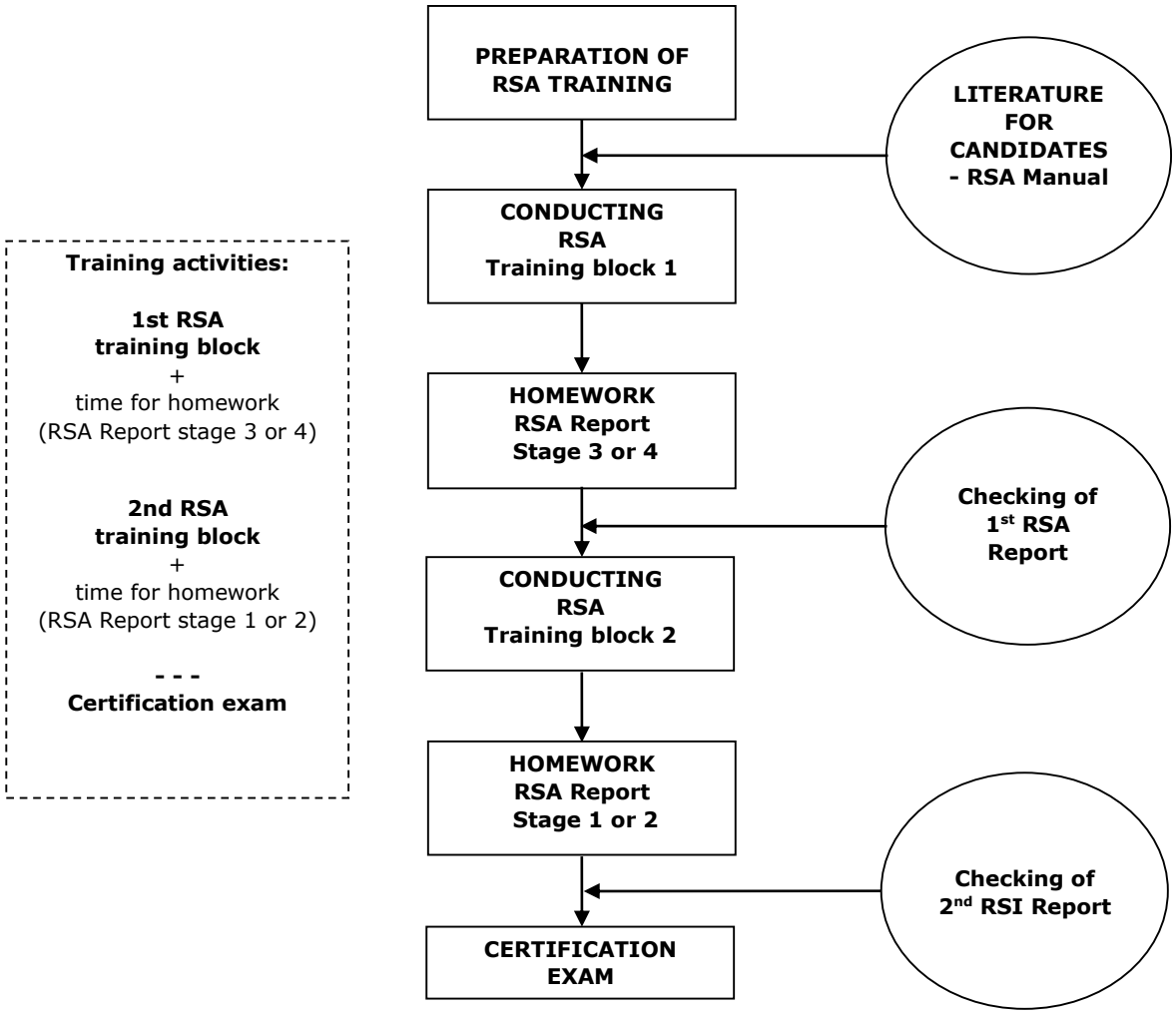


Figure A2-B.2. General workflow of the proposed training curriculum

DETAILS OF PROPOSED RSA TRAINING

In Table A2-B.3. Basic RSA course is presented with two week (10 working days) of intensive training and additional two weeks for homework.

Table A2-B.3. Basic RSA Training details

Module	Duration	Core topics (subjects)
Block 1		
M1 Basics of road safety	**2 days**	- Basics about road safety and road safety engineering, - Phases of road safety, - Road Safety Indicators, - Global approach to road safety (road safety factors),

		- William Headon's matrix, - Road Safety Procedures for improving the road (EU Directive 96/2008), - Speed influence on road accidents, - Roadside hazard management, - Safety barriers, - Accident records and collision diagrams and - Potential Crash Savings. - - - - - Principles of Road Safety Engineering. Analysis and discussion of road safety problems and solutions inside following sections: - Function, - Cross Section, - Alignment, - Intersections, - Public and Private Services, - Vulnerable Road Users, - Traffic Signing, Markings, Lighting and - Roadside Features.
M2 Basics of Road Safety Audit	**1 day**	- What is Road Safety Audit? (Definition), - Why do we need Road Safety Audit?, - Area of Application (Types of projects), - Value and Costs of Road Safety Audit, - Stages of RSA, - Road Safety Audit process (How to perform a RSA?) - Checklists, - Reporting, - Models of RSA Report - Typical road safety deficiencies (safe road design), etc.
M3 Motorways	**2 days** + homework: finalization of 1st RSA	Training with lecture about safety issues of the motorway design and most usual RS deficiencies: - Function of the road (Design and operating elements), - Cross section, - Alignment, - Intersections (Interchanges, Traffic signals and ITS measures, ...), - Public and Private Services (Rest areas, Toll stations, Public transport stops, ...), - Vulnerable Road Users, - Traffic Signing, Marking, Lighting, - Road side features and passive safety installations. - - - - - - Practical training of a RSA (stage 1 or 2) in team work, - Case Study with preparing of 1st RSA Report.
Block 2		

M4 Interurban highways	**2 days**	Training with lecture about safety issues of the Interurban highway design and most usual RS deficiencies: - Function of the road (Design and operating elements), - Cross section, - Alignment, - Intersections (Roundabouts, Traffic signals, Railway crossings , ...), - Public and Private Services, access control (Public Transport stops, Other needs of Pedestrian, Bicyclists, ...), - Vulnerable Road Users, - Traffic Signing, Marking, Lighting, - Road side features and passive safety installations - - - - - - Practical training of a RSA in team work
M5 Through road sections of interurban highways	**2 days** + homework: finalization of 2nd RSA	Training with lecture about safety issues of the through road sections design and most usual RS deficiencies: - Function of the road (Design and operating elements), - Cross section, - Alignment, - Intersections (Roundabouts, Traffic signals, Railway crossings , ...), - Public and Private Services, access control (Public Transport stops, Other needs of Pedestrian, Bicyclists, ...), - Vulnerable Road Users, - Traffic Signing, Marking, Lighting, - Road side features and passive safety installations - - - - - - Field study, - - - - - - Practical training of a RSA (stage 3 or 4) in team work, - Case Study with preparing of 2nd RSA Report.
1 day	**Certification exam**	

This kind of training is adjusted to be run at the University (or similar institution) level, which means that it could be easily implemented as one of after graduate programs or as specialization courses.

Note: PowerPoint presentations, for all modules, used in RSA Trainings are attached on accompanying CD ROM

ПРОЕКТ

Техническое примечание 1

УПРОЩЁННЫЙ ШАБЛОН ПОРЯДКА ПРОВЕДЕНИЯ АУДИТА БЕЗОПАСНОСТИ ДОРОЖНОГО ДВИЖЕНИЯ

И

ПРОЕКТ ЗАКОНОДАТЕЛЬНЫХ ИЗМЕНЕНИЙ ДЛЯ ОБЕСПЕЧЕНИЯ ОБЯЗАТЕЛЬНОСТИ АБДД НА НАЦИОНАЛЬНОМ УРОВНЕ

Проект по безопасности дорожного движения ТРАСЕКА

Команда по технике безопасности

Март 2015

Финансируемый ЕС проект по безопасности дорожного движения
для
Армении, Азербайджана, Грузии, Казахстана, Кыргызстана, Молдовы, Таджикистана, Туркменистана, Узбекистана, Украины

ПРЕДИСЛОВИЕ
К ШАБЛОНУ ПОРЯДКА ПРОВЕДЕНИЯ АУДИТА БДД
И
ПРОЕКТУ ЗАКОНОДАТЕЛЬНЫХ ИЗМЕНЕНИЙ ДЛЯ ОБЕСПЕЧЕНИЯ ОБЯЗАТЕЛЬНОСТИ АБДД НА НАЦИОНАЛЬНОМ УРОВНЕ

Директивой ЕС № 2008/96 об управлении безопасностью дорожной инфраструктуры, опубликованной в 2008 году, Европейский Союз принял чёткое решение о том, что аудит безопасности дорожного движения (АБДД) будет обязательным для Трансъевропейской дорожной сети в ближайшие годы. Это хорошо известный факт, что АБДД является высокоэффективным и экономически выгодным инструментом для улучшения безопасности на дорогах.

К сожалению, АБДД практически не применяется в странах региона ТРАСЕКА. Осуществление АБДД поддерживается в основном МФИ, и применяется иностранными консалтинговыми компаниями. Даже в случае проведения АБДД соответствующие рекомендации не всегда выполняются дорожными властями.

Именно поэтому был запрошен Проект по укреплению потенциала для реализации АБДД в каждой стране (на национальном уровне). Команда Проекта, в сотрудничестве и консультациях с заинтересованными сторонами, на совещаниях рабочей группы разработала данный упрощённый шаблон порядка проведения аудита БДД и проект законодательных изменений для обеспечения обязательности АБДД на национальном уровне.

Порядок проведения АБДД был разработан для всех стран ТРАСЕКА для решения общих проблем БДД, связанных с планированием, проектированием и функционированием дорожной инфраструктуры, и поэтому необходимы локальные поправки (необходимо заполнить пробелы конкретными местными национальными данными для каждой страны).

Подобное касается также предложенных законодательных изменений, которые должны быть осуществлены для обеспечения обязательности АБДД на национальном уровне.

Оглавление:

ПРЕДИСЛОВИЕ

A) ШАБЛОН ПОРЯДКА ПРОВЕДЕНИЯ АУДИТА БДД

1. ЦЕЛЬ ПОРЯДКА ПРОВЕДЕНИЯ АУДИТА БДД

2. ЧТО ТАКОЕ АУДИТ БДД

3. ОБЛАСТЬ ПРИМЕНЕНИЯ

4. УРОВНИ АУДИТА БДД

5. ПРОЦЕСС АУДИТА БДД

6. КВАЛИФИКАЦИЯ АУДИТОРОВ БДД

7. ПРОЦЕСС АККРЕДИТАЦИИ

ПРИЛОЖЕНИЕ 1: ИЗЛОЖЕНИЕ ПОРЯДКА ПРОВЕДЕНИЯ АБДД

*** * ***

B) ПРОЕКТ ЗАКОНОДАТЕЛЬНЫХ ИЗМЕНЕНИЙ ДЛЯ ОБЕСПЕЧЕНИЯ ОБЯЗАТЕЛЬНОСТИ АБДД НА НАЦИОНАЛЬНОМ УРОВНЕ

1. ВСТУПЛЕНИЕ К ЗАКОНОДАТЕЛЬНЫМ ИЗМЕНЕНИЯМ ДЛЯ ОБЕСПЕЧЕНИЯ ОБЯЗАТЕЛЬНОСТИ АБДД

2. ПРОЕКТ ЗАКОНОДАТЕЛЬНЫХ ИЗМЕНЕНИЙ (3-сторонний подход)

2.1. Поправки к закону о БДД: статья I (краткая)

2.2. Поправки к закону о дорогах: статья II (подробная)

2.3. Проект указа министерства (МТ или равносильного), касающегося аудита БДД - III

ПРИЛОЖЕНИЕ 2: ПРОЕКТ СИСТЕМЫ АККРЕДИТАЦИИ АБДД И УЧЕБНАЯ ПРОГРАММА ПО АБДД

C) ШАБЛОН ПОРЯДКА ПРОВЕДЕНИЯ АУДИТА БДД

1. ЦЕЛЬ ПОРЯДКА ПРОВЕДЕНИЯ АУДИТА БДД

Порядок проведения устанавливает, каким образом *(название страны)* и ответственное министерство (название ответственного министерства) либо дорожное управление (название дорожного управления) будут организовывать и осуществлять аудиты безопасности дорожного движения (АБДД) в качестве регулярной процедуры для повышения безопасности дорожной инфраструктуры.

2. ЧТО ТАКОЕ АУДИТ БДД

АБДД – это широко известный термин, используемый на международном уровне для описания независимого анализа проекта с целью выявления недостатков безопасности дороги или транспортного потока. Это официальная экспертиза проекта дороги или дорожного движения, которая может рассматриваться как часть комплексной системы управления качеством.

АБДД является упреждающим подходом с первостепенной целью наиболее раннего выявления потенциальных проблем безопасности, обеспечивая возможность принятия решений об устранении или уменьшении проблем, желательно до реализации проекта или возникновения ДТП.

Наиболее распространённым определением АБДД является следующее: это «официальная экспертиза безопасности проекта дороги или дорожного движения, или любого другого проекта, влияющего на участников дорожного движения, осуществляемая независимым, квалифицированным аудитором или командой аудиторов, которые представляют отчёт об аварийном потенциале проекта и показателях безопасности участников дорожного движения всех типов».

3. ОБЛАСТЬ ПРИМЕНЕНИЯ

АБДД должны проводиться для многих проектов, различающихся по масштабу, расположению, типу и классификации. Ниже представлены категории проектов, для которых может быть проведён аудит:

- функциональные элементы дорожной сети (международные дороги, магистрали, региональные и локальные дороги)
- дорожный поток (только моторные транспортные средства – либо смешанный дорожный поток с немоторизованными или медленными сельскохозяйственными транспортными средствами)
- расположение – локализация (вне или внутри застроенных участков).

Рекомендуется проведение АБДД для любого проекта новой дороги.

В скором времени АБДД могут быть распространены на любые предложения по изменению существующих дорог или дорожных условий, которые могут изменить взаимодействие между различными участниками дорожного движения, или между последними и их окружением. Региональное Руководство по аудитам БДД для стран ТРАСЕКА (2014) рекомендует проведение АБДД для всех проектов, стоимость которых по технической документации превышает 30 000 евро.

Следовательно, АБДД должны проводиться для проектов:

- новых дорог, трасс, шоссе и других объектов дорожного движения,
- по ремонту и восстановлению,
- внутри и вне застроенных участков.

Типы проектов, для которых проведение АБДД является обязательным, определяется в соответствии с законодательством (законы, подзаконные акты, указы министерств).

4. УРОВНИ АУДИТА БДД

В соответствии с передовой международной практикой и Региональным Руководством по аудитам БДД для стран ТРАСЕКА, АБДД должны проводиться на четырёх различных уровнях:

Уровень 1: предварительный (технический) проект,
Уровень 2: детализированный проект,
Уровень 3: предварительный ввод дороги в эксплуатацию,
Уровень 4: ранняя эксплуатация, когда дорога уже некоторое время функционирует.

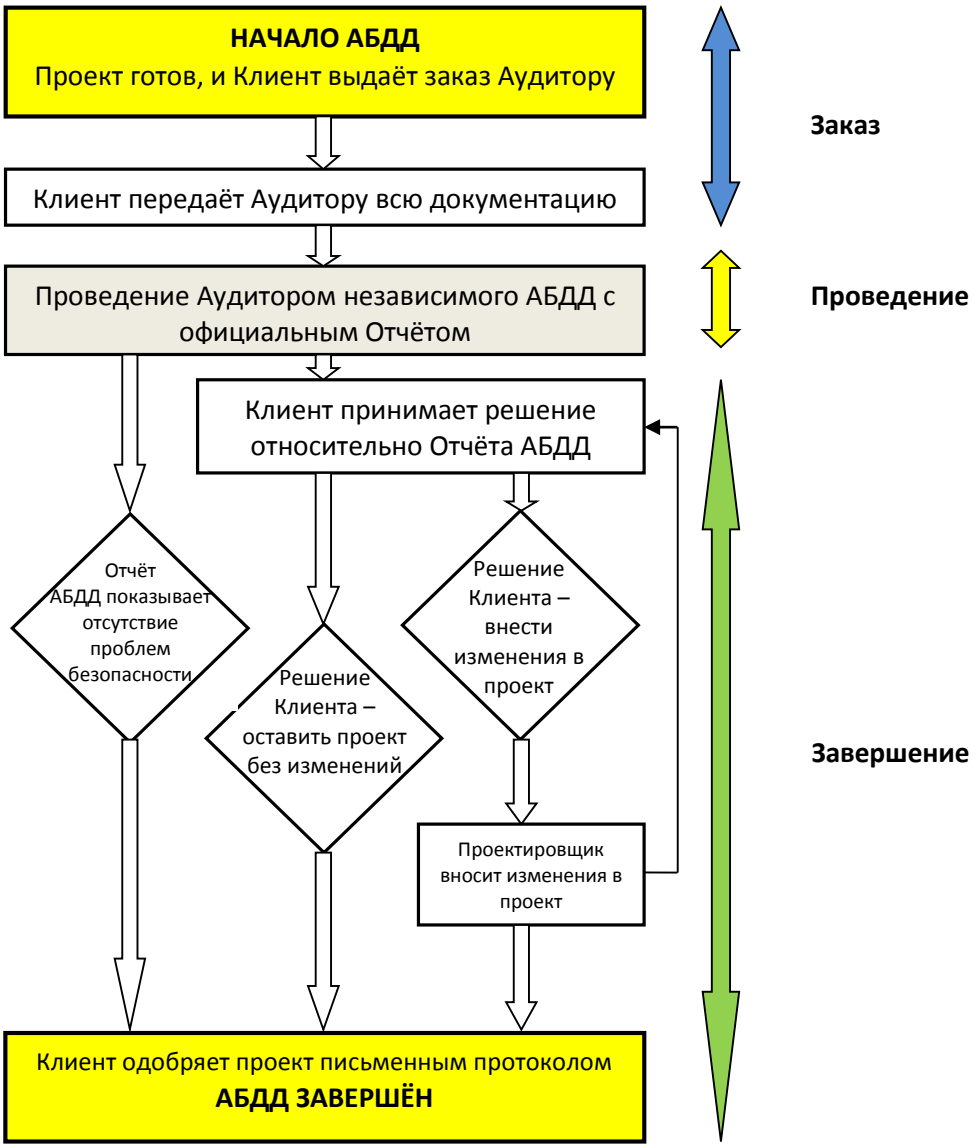
5. ПРОЦЕСС АУДИТА БДД

Как относительно новая процедура в сфере БДД, АБДД должен быть эффективно структурирован и организован с чётким определением обязанностей.

Обобщённая процедура АБДД включает три основных стадии:

- заказ,
- проведение и
- завершение.

Следующая схема (рисунок А.5.1.) описывает типичный процесс АБДД.



Финансирование АБДД следует осуществлять за счёт нескольких источников:

- для международных дорожных проектов расходы на проведение АБДД должны быть рассчитаны и включены в смету всего проекта,
- для национальных дорожных проектов расходы на проведение АБДД должны быть покрыты за счёт местного бюджета Дорожного управления.

Дорожное управление* и (*уточнить конкретное подразделение, например, Отдел аудита БДД)*, несут ответственность за осуществление процедур АБДД на всех дорогах под собственную ответственность.
* либо эквивалентная структура

6. КВАЛИФИКАЦИЯ АУДИТОРОВ БДД

Важно, чтобы аудитор имел большой опыт в вопросах безопасности дорожного движения.

Предложение заключается в том, чтобы руководитель группы (РГ) АБДД имел соответствующее высшее образование, желательно степень магистра, а также значительный опыт в области планирования (проектирования) безопасности дорожного движения и/или расследования дорожно-транспортных происшествий. Минимальное требование для руководителя группы АБДД – около трёх лет работы в области АБДД с более чем 3 отчётами по АБДД.

Эксперты группы (ЭГ) АБДД должны иметь как минимум степень бакалавра и около трёх лет опыта работы в области планирования (проектирования) безопасности дорожного движения и/или расследования дорожно-транспортных происшествий.

Аудиторы должны иметь водительские удостоверения и хорошие знания стандартов дорожного проектирования, закона о безопасности дорожного движения и закона о дорогах. Знание других дорожных стандартов крайне желательно.

Для обеспечения качества аудита, аудиторы должны пройти начальную подготовку, по результатам которой выдаётся сертификат компетентности, и в дальнейшем должны проходить дополнительные периодические обучающие курсы. Если аудит осуществляется группами, по крайней мере один эксперт из группы должен иметь сертификат компетентности.

Программа обучения должна включать темы, связанные с дорожной безопасностью, такие как расследование ДТП, управление безопасностью дорожной сети, планирование и проектирование БДД.

Аудиты БДД необходимо проводить в соответствии с общими требованиями Регионального Руководства по аудитам БДД для стран ТРАСЕКА (2014), разработанного в рамках Проекта ТРАСЕКА Безопасность дорожного движения II.

7. ПРОЦЕСС АККРЕДИТАЦИИ

Ответственному министерству (*название министерства*) предлагается поддержать процесс аккредитации аудиторов БДД.

Национальную аккредитацию аудиторов БДД желательно проводить в соответствии с моделью, предоставленной Проектом ТРАСЕКА Безопасность дорожного движения II.

Место_____
Дата: _____

Подписано: _____

ПРИЛОЖЕНИЕ 1:

ИЗЛОЖЕНИЕ ПОРЯДКА ПРОВЕДЕНИЯ АУДИТА БДД

Нижеследующий Порядок проведения аудита БДД был разработан с целью его принятия главными заинтересованными участниками в каждой стране ТРАСЕКА в качестве официального Порядка проведения.

ПОРЯДОК ПРОВЕДЕНИЯ АУДИТОВ БДД

Цель Порядка проведения

Усилить использование и реализацию процедур аудита БДД в (название страны).

Изложение Порядка проведения

Порядок проведения АБДД требует принятия следующих мер в рамках повышения уровня БДД в (название страны).

h) Министерство транспорта *(или равносильное)* включит цели и задачи аудитов БДД в свои финансовые (бизнес) планы.
i) Принятые процедуры АБДД должны соответствовать Руководству по аудитам БДД для стран ТРАСЕКА и прилагаемым контрольным спискам (2014).
j) Министерство транспорта *(или равносильное)* должно инициировать внесение поправок в законодательство с целью обеспечения обязательности аудитов БДД (например, поправка к закону или указ министерства об обязательном проведении аудитов БДД).
k) Министерство транспорта *(или равносильное)* признаёт правомерность нормы о том, что проекты новых дорог, стоимость которых по технической документации превышает 30 000 евро, должны подвергаться аудиту БДД.
l) Участки существующих дорог с повышенным риском ДТП, находящиеся на государственном балансе, должны подвергаться аудиту в чётко установленные сроки (каждые 5 лет).
m) Следует обеспечить проведение аудитов БДД независимыми аудиторами, имеющими соответствующую подготовку и опыт.
n) Министерство транспорта *(или равносильное)* должно стимулировать и поощрять проведение аудитов БДД городскими властями под их ответственность.

1. ВСТУПЛЕНИЕ К ЗАКОНОДАТЕЛЬНЫМ ИЗМЕНЕНИЯМ ДЛЯ ОБЕСПЕЧЕНИЯ ОБЯЗАТЕЛЬНОСТИ АБДД

Учитывая различия в состоянии законодательства о БДД в странах ТРАСЕКА, команда проекта обсудила на семинарах возможные и эффективные способы внедрения аудитов БДД как обязательной процедуры на национальном уровне, и пришла к следующему решению – проекту трёхстороннего подхода.

Проект законодательных норм, имплементирующих обязательный аудит БДД, был подготовлен в соответствии с Директивой ЕС 2008/96/ЕС, установленными фактами в странах ТРАСЕКА и передовой мировой практикой.

Основная цель данного проекта – поддержать все страны ТРАСЕКА в имплементации АБДД как обязательной процедуры посредством законодательной системы.

Трёхсторонний подход к имплементации АБДД как обязательной процедуры представлен на рисунке В.1.1.

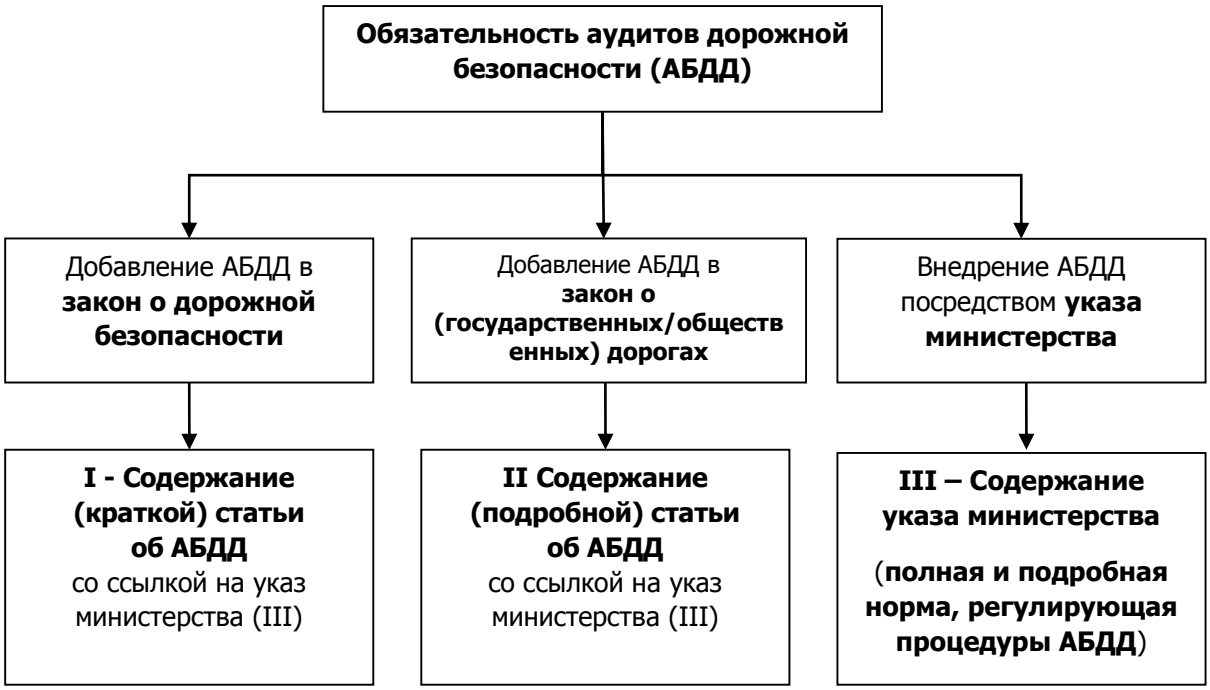


Рисунок В.1.1. Возможный подход к имплементации обязательного АБДД

Аудит БДД направлен на повышение безопасности дорожной инфраструктуры. АБДД касается всех четырёх уровней проектирования и эксплуатации дороги, а именно: предварительного (технического) проекта, детализированного проекта, предварительного ввода дороги в эксплуатацию и ранней эксплуатации дороги.

Команда проекта в сотрудничестве с национальными экспертами выяснила на семинарах, что наиболее эффективным способом имплементации АБДД как обязательной процедуры на национальном уровне может быть добавление конкретной

статьи в соответствующие законы (закон о БДД или закон о дорогах) с полным описанием процедуры АБДД в указе ответственного министерства (чаще всего – Министерство транспорта или равносильное).

Примечание: Это лишь возможный проект имплементации обязательных АБДД на национальном уровне. Если будет принято соответствующее решение, данный проект должен быть пересмотрен и улучшен (с учётом локальной специфики) национальными экспертами.

2. ПРОЕКТ ЗАКОНОДАТЕЛЬНЫХ ИЗМЕНЕНИЙ (3-сторонний подход)

2.1. Поправки к закону о БДД: статья I (краткая)

Статья № ___

С целью повышения безопасности дорожной инфраструктуры должна быть создана и внедрена система обязательного аудита БДД (АБДД). Детали процедуры АБДД регулируются соответствующим Указом Министерства.

2.2. Поправки к закону о дорогах: статья II (подробная)

Статья № ___

(10) С целью повышения безопасности дорожной инфраструктуры должна быть создана и внедрена система независимой оценки показателей безопасности проекта дорожной инфраструктуры основной сети ТРАСЕКА. На стадии проектирования, строительства, включая реконструкцию и ремонт, и основного обслуживания дорожной инфраструктуры, сертифицированный аудитор должен убедиться самостоятельно, соблюдены ли инфраструктурные требования в отношении БДД (данная процедура называется «аудит БДД – АБДД»). АБДД распространяется только на проекты, стоимость которых по технической документации превышает 30 000 евро.

(11) Министерство транспорта (или равносильное) обязано регулировать применение Статьи 1 посредством указов министерства и руководств по проведению АБДД. Министерство транспорта (или равносильное) посредством Указа Министерства уполномочено расширить применение настоящего Закона также на все случаи проектных и строительных работ на дорогах, не входящих в основную сеть ТРАСЕКА.

(12) В Дорожном управлении (или равносильной организации) должен быть создан Отдел аудитов БДД (ОАБДД). ОАБДД осуществляет руководство процедурами АБДД, применяемыми Министерством транспорта (или равносильным). Общий контроль над процессом реализации АБДД осуществляет Министерство транспорта (или равносильное). ОАБДД, под руководством Министерства транспорта, обязан разработать типовой договор, который должен использоваться для контрактов по осуществлению АБДД. ОАБДД может устанавливать плату за аудиторскую деятельность.

(13) Аудиторы, осуществляющие АБДД, могут получить сертификат компетентности в случае выполнения следующих условий:

(а) соответствующий опыт или подготовка в проектировании дорог, планировании и проектировании безопасности дорожного движения и анализе ДТП;

(б) прохождение курса начальной подготовки, успешное прохождение экзаменационного курса и финальной проверки;

(в) для сохранения сертификата компетентности аудитор обязан проходить дальнейшие периодические курсы повышения квалификации.

(14) Сертификаты национального, регионального и международного уровня, выданные до вступления в силу данного закона, должны быть признаны, если они соответствуют требованиям, выдвигаемым к аудиторам. Сертификаты должны быть организованы в соответствии с требованиями законодательства в области БДД (и соответствующих руководств). Национальные, региональные и международные эксперты могут быть аудиторами, если они соответствуют критериям. Сертификаты могут быть организованы различным способом (правительственная организация, университеты или инженерные ассоциации).

(15) Для проведения аудита дорожного проекта аудитор не должен в это время участвовать в разработке или реализации соответствующего дорожно-строительного проекта. Должно осуществляться постоянное совершенствование методов управления безопасностью и улучшение правил, стандартов и норм безопасности дорожного движения. С этой целью в регионе должен проводиться постоянный обмен передовым опытом.

(16) Значительные нарушения данной Статьи аудиторами – сотрудниками ОАБДД и Министерства транспорта караются санкциями. Значительные нарушения инвестором, проектировщиком либо подрядчиком должны караться штрафом в размере 5% от общей суммы договора.

(17) Договор, касающийся всех видов дорожного проектирования или строительства, должен считаться недействительным, если в нём отсутствует пункт об обязательном аудите БДД в объёме, установленном настоящим Законом, Указами Министерства и Руководствами по аудитам БДД.

(18) Детали процедуры АБДД регулируются соответствующим Указом Министерства.

2.3. Проект указа министерства (МТ или равносильного), касающегося аудита БДД - III

В соответствии со Статьёй _____ *Закона о БДД* либо *Закона о Дорогах* Министр транспорта (или равносильного министерства) издаёт следующий Указ:

Глава I – Общие положения

Статья 1
Сфера применения

(1) Применение данного Указа касается исключительно повышения БДД на уровнях проектирования, строительства и эксплуатации дорожной инфраструктуры основной сети ТРАСЕКА, включая национальные дороги, являющиеся частью инфраструктуры основной сети ТРАСЕКА.

(2) Основываясь на *Законе о БДД* либо *Законе о Дорогах*, данный Указ

- устанавливает процедуры деятельности в области аудита БДД,
- определяет условия для деятельности аудитора,

- позволяет установить плату за деятельность, связанную с аудитом, а также за подготовительные курсы и экзамены, и
- устанавливает ответственные органы в области аудита БДД.

Статья 2
Определения

Для целей данного Указа применяются следующие определения:
а) *Аудит (аудит безопасности дорожного движения – АБДД)*
независимая детальная систематическая и техническая проверка безопасности конструктивных характеристик дорожно-инфраструктурного проекта, охватывающая четыре уровня: предварительный проект, детализированный проект, предварительный ввод дороги в эксплуатацию и раннюю эксплуатацию дорог.
б) *Аудитор* (*аудитор БДД)*
физическое лицо, сертифицированное в соответствии с данным Указом и самостоятельно выполняющее свои функции в соответствии с данным Указом;
в) *Аудиторский отчёт*
письменный отчёт, содержащий результаты аудита, включая установленные недостатки безопасности и рекомендации;
г) *Клиент*
государственная структура дорожного управления либо частная дорожно-эксплуатационная компания, которая осуществляет строительство дороги за собственный счёт, и заказывает проектные работы у соответствующего подрядчика. Это физическое или юридическое лицо, которое по закону или договору несёт ответственность за строительство и техническое обслуживание дороги на определённом уровне качества, включающем дорожную безопасность;
д) *Подрядчик*
физическое или юридическое лицо, обязанное по закону или по договору (например, строительный подрядчик) строить дорогу или инженерное сооружение на определённом уровне, включающем дорожную безопасность;
е) *Основная сеть*
основная национальная дорожная сеть, которая включает Основную сеть, описанную в официальной дорожной карте ТРАСЕКА;
ж) *Проектировщик*
физическое или юридическое лицо, обязанное по закону или по договору планировать или проектировать дорогу, или инженерное сооружение на определённом уровне качества, включающем дорожную безопасность;
з) *Руководства или инструкции*
перечень основополагающих мер, шагов и элементов, которые следует учесть при реализации процедур аудита БДД, установленных данным Указом;
и) *Отдел аудита БДД – ОАБДД*
структурная единица Дорожного управления (или равносильной структуры), специально назначенная *Законом о Дорогах* (альтернатива: решением, основанным на данном Указе) для руководства процедурами АБДД.

Глава II – Аудит БДД

Статья 3

Обязательное исполнение, недействительность договора

(1) Аудит является неотъемлемой частью комплексной системы управления качеством на уровнях предварительного проекта, детализированного проекта, предварительного ввода дороги в эксплуатацию и ранней эксплуатации дороги.
(2) Проведение аудита, соответствующего данному Указу, является обязательным.
(3) В соответствии со Статьёй №___ Параграфа (1) Закона о Дорогах, договор между клиентом с одной стороны и любой другой договаривающейся стороной – с другой стороны о проектировании/ строительстве и реализации проектов, стоимость которых по технической документации превышает 30 000 евро, признаётся недействительным,
если в нём отсутствует конкретный пункт об обязательном аудите, соответствующем данном Указу.

Статья 4
Принципы и цели аудита БДД – АБДД

Принципами, регулирующими аудит, являются:

а) Предотвращение человеческих потерь и материальных убытков от дорожных происшествий на анализируемой дороге.
б) Предотвращение дальнейшей необходимости реконструкции вновь построенных дорог общего пользования из-за несоблюдения правил безопасности движения.
в) Аудит должен осуществляться исключительно сертифицированными аудиторами. Как правило, аудит должен проводиться по меньшей мере двумя аудиторами; по крайней мере один член этой команды должен иметь сертификат компетентности, как указано в Статье 11.
г) Отбор и заключение договора между исполнителями аудита и ОАБДД должны осуществляться без какой-либо дискриминации.
д) Аудиторы должны быть независимыми от клиента, проектировщика и подрядчика. Они должны быть независимыми от ОАБДД и дорожного управления по всем вопросам, касающимся аудиторской деятельности.
е) Аудит должен проводиться в соответствии с правилами и передовой мировой практикой в данной сфере, на национальном и международном уровне, касающимися подготовки и сертификации аудиторов и осуществления аудита. При проведении аудита аудиторы должны стремиться к соответствию критериям, изложенным в министерских указах, методических пособиях и рекомендациях.
ж) В аудиторском отчёте аудиторы должны указывать критические проектные элементы, касающиеся БДД, для каждой стадии проекта по строительству дороги.
з) Аудиторы обязаны предоставить результаты исключительно заказчику, дорожному управлению, ОАБДД, и никакому другому лицу или организации (Статья 5). Они обязаны соблюдать абсолютную конфиденциальность по отношению к третьим сторонам.
и) По требованию ОАБДД аудиторы должны оказывать поддержку дорожной администрации по вопросам разработки и предложения рекомендаций и методических указаний по БДД; это является предметом для возможной дополнительной оплаты.

Статья 5
Отдел аудита БДД – ОАБДД

(1) XX.XX.XXXX г. создан ОАБДД – специальный отдел Дорожного управления (альтернатива: ОАБДД может быть создан в соответствии с другим механизмом, учитывая местные условия).
(2) ОАБДД является единственной уполномоченной структурой в сфере аудита национальных дорог (альтернатива: и местных дорог) и частных дорог, открытых для общественного движения.
(3) Заданиями ОАБДД являются, в частности:

а) Проверка требований к лицу, желающему стать аудитором (Статья 10).
б) Разработка собственного порядка назначения аудиторов БДД совместно с Министерством транспорта (или равносильным); порядок назначения должен быть опубликован на интернет-сайте Министерства транспорта (или равносильного)
в) Назначение аудитора.
г) Ведение реестра (Статья 13). Реестр аудиторов БДД должен быть опубликован на интернет-сайте Министерства транспорта (или равносильного).
д) Регулирование договорных аспектов с клиентами, заключение договора и оплата работы аудиторов БДД, регулирование оборота документов и информации между сторонами, вовлечёнными в процесс аудита.
е) Контроль над процессом проведения аудитов, в том числе независимость аудиторов соответственно с данным Указом.
ж) Организация совещаний для аудиторов касательно результатов исследований и практики в данной сфере.
з) Внесение предложений по обновлению соответствующего законодательства, норм, стандартов и технических рекомендаций в соответствии с резолюциями и директивами ООН, а также передовой международной практикой.
и) Участвовать в соответствующих мероприятиях на национальном и международном уровне.

(4) ОАБДД может предлагать свои услуги организациям за пределами данного государства.
(5) Одобрение данных заданий ОАБДД осуществляется Министерством транспорта (или равносильным).
(6) ОАБДД представляет Министерству транспорта (или равносильному) ежегодный доклад о проделанной работе, включающий данные о годовом бюджете, 1 марта каждого года (либо в другой международно признанный день).
(7) Деятельность ОАБДД контролируется Министерством транспорта (или равносильным).

Статья 6
Контролирующие элементы Министерства транспорта (или равносильного)
Контролирующие элементы Министерства транспорта (или равносильного) несут полную ответственность за мониторинг и управление всем процессом аудита.

Статья 7
Руководства и инструкции

(1) С целью поддержки компетентных служб по реализации данного закона Министерство транспорта (или равносильное) должно принять руководства и инструкции через 2 месяца после публикации данного закона в официальном вестнике.
(2) Эти руководства должны соответствовать Руководству по аудитам БДД, разработанному для региона ТРАСЕКА

Статья 8
Аудит как часть периода имплементации
Клиент должен рассчитать временной период, необходимый для проведения аудита, являющийся частью периода по имплементации проекта. Расходы, связанные с проведением аудита, должны быть покрыты Дорожным управлением (в случае национального финансирования) либо из бюджета проекта (в случае международных проектов).

Глава III - Аудиторы безопасности дорожного движения

Статья 9
Члены дорожной администрации или частных организаций
(1) Аудиторами могут быть:
а) сотрудники дорожной администрации; или
б) члены университетов (организаций) ответственных за аудит; или
в) консультанты, имеющие опыт в аудите.
(2) Поскольку аудиторы являются представителями государственной или местной власти, они должны проводить аудит в составе отдельного подразделения, ответственного за аудит; они не должны принимать участие в дальнейшем планировании, проектировании и проведении работ в отношении дороги, которая ими проверяется. Они должны быть независимыми настолько, насколько позволяет их деятельность.
(3) Аудиторы не должны быть сотрудниками компаний проектировщика и/или подрядчика.

Статья 10
Требования к аудитору
(1) Любой человек, желающий стать аудитором должен отвечать всем нижеперечисленным требованиям:
а) Высшее образование в области дорожного движения / дорожного строительства;
б) Опыт работы не менее трех лет в области проектирования дорог, безопасности дорожного движения и анализа ДТП;
в) Прохождение учебных курсов для аудиторов (ст. 11) и успешное прохождение проверки знаний с последующим получением сертификата, в соответствии с условиями, изложенными в этом документе;
г) Физическая возможность выполнить задачу;
д) Способность полностью соблюдать гражданские права;
е) Не иметь правового запрета на занятие аудиторской деятельностью.

Статья 11
Учебные курсы; Проверка знаний; Сертификат
(1) Человек, желающий стать аудитором и соответствующий всем требованиям (ст. 10), должен пройти начальное обучение. Ему необходимо успешно пройти проверку знаний,

чтобы получить аудиторский сертификат компетентности (соответствия). Впоследствии аудитор также должен принимать участие в курсах повышения квалификации (не менее, чем один раз в два года).
(2) В течение 45 дней с даты публикации настоящего документа Министерство транспорта (или другая соответствующая организация) в сотрудничестве с ОАБДД (отдел аудита безопасности дорожного движения), университетами и инженерными ассоциациями должна определить требования к учебным курсам (например, продолжительность курсов, количество преподавателей; учебный материал; оплата), к проверке знаний и к оглашению результатов; Эти требования должны соответствовать руководящим принципам по АБДД (аудит безопасности дорожного движения). Порядок назначения аудиторов должен быть опубликован на интернет-сайте Министерства транспорта (или другой соответствующей организации).
(3) Сертификаты выданные до вступления в силу данного руководства должны быть подтверждены для лиц, соответствующих требованиям настоящего документа.

Статья 12
Инструктор, Сотрудничество
(1) Человек, получивший сертификат аудитора в соответствии с условиями настоящего документа, может также выполнять обязанности инструктора на учебных курсах и курсах повышения квалификации в области аудита.
(2) Министерство транспорта (или другая соответствующая организация) должно сотрудничать с аккредитованными университетами, институтами и самостоятельными специалистами, которые имеют соответствующий опыт и необходимые разрешения в области профессионального обучения, с целью проведения учебных курсов и курсов повышения квалификации в области аудита. Перечень учреждений, подходящих для сотрудничества в области аудита, должен быть обнародован перед руководящим составом Министерства транспорта (или другой соответствующей организации) и Министерством транспорта на интернет-странице, для того, чтобы любое другое заинтересованное лицо также могло получить консультацию.

Статья 13
Регистрация аудиторов безопасности дорожного движения
(1) Министерство транспорта (или другая соответствующая организация) совместно с ОАБДД вносит имена и идентификационные данные лиц, успешно прошедших проверку знаний, в "Реестр аудиторов безопасности дорожного движения Часть 1".
(2) Данные о человеке, которому был выдан сертификат аудитора за рубежом и который желает выполнять аудиторскую деятельность в этой стране, отражаются в "Реестре аудиторов безопасности дорожного движения Часть 2" при условии предоставления им документов, подтверждающих его квалификацию аудитора.
(3) Министерство транспорта (или другая соответствующая организация) совместно с ОАБДД вносит имена и даты следующих проверок знаний лиц, которые работают в качестве инструкторов в "Реестр аудиторов безопасности дорожного движения Часть 3".

Статья 14
Предварительное соглашение; Безотказность
(1) Между ОАБДД и аудиторами должно быть заключено предварительное соглашение об ожидаемых рабочих задачах.
(2) ОАБДД выбирает аудитора для каждого конкретного задания.

(3) В случае назначения его ОАБДД, аудитор не может отказаться от проведения аудита в рамках договора подряда, исключением могут являться лишь объективные причины либо несовместимость ситуаций.

Статья 15
Прекращение полномочий
(1) Полномочия аудитора аннулируются:

а) по запросу аудитора; аудитор должен отправить письмо в ОАБДД, в котором он заявляет об отказе от должности;

б) по решению ОАБДД в случае, если условия, указанные в ст. 10 более не выполняются;

в) по уведомлению, в случае нарушения условий контракта

В случае аннулирования полномочий аудитора данные соответствующего лица должны быть исключены из реестра аудиторов.
(2) Прекращение полномочий инструкторов происходит при тех же условиях, которые определены в параграфе (1).

Глава IV Порядок подачи заявлений и выполнения работ по аудиту безопасности дорожного движения

Статья 16
Договор с заказчиком
(1) Заказчиком с одной стороны и ОАБДД с другой стороны должны заключить договор для обеспечения участия аудитора в конкретные сроки.
(2) ОАБДД назначает аудиторов в течение 5 рабочих дней с даты подписания договора в соответствии с параграфом (1).

Статья 17
Техническая документация для аудитора
(1) Заказчик должен предоставить в ОАБДД документацию проекта, подлежащего аудиту в течение не более 10 рабочих дней с момента подписания договора и уведомить об этом назначенных аудиторов.
(2) Заказчик, проектировщик и подрядчик должны представить в ОАБДД, по запросу, дальнейшую техническую документацию проекта, включая как письменную, так и графическую части, а также любую информацию, документы, схемы, карты и графики, необходимые для качественного выполнения аудита. ОАБДД должен максимально быстро предоставлять эти документы аудиторам.
(3) Аудиторы должны сохранять конфиденциальность информации, полученной в процессе деятельности, а также конфиденциальность документов, составленных или полученных ими в течение работы, даже после истечения срока договора, если законодательство не предусматривает иного.
(4) Для четвертой стадии АБДД отдел аудита безопасности дорожного движения должен предоставить аудитору данные о ДТП и об объемах трафика.

Статья 18
Несоответствие и арбитраж
(1) Аудитор должен проинформировать ОАБДД о любых обстоятельствах, которые могут нанести ущерб принципу аудиторской независимости в отношениях с заказчиком,

проектировщиком или подрядчиком, участвующими в проекте, как только он определил наличие таких обстоятельств.
(2) В случае отклонений от аудиторских требований к заказчику, подразумевающих серьезные недостатки в отношении безопасности дорожного движения, аудитор должен проинформировать ОАБДД в письменной форме и может попросить Министерство транспорта (или другую соответствующую организацию) об арбитраже.

Статья 19
Аудиторский отчет
Результаты аудита должны быть представлены аудиторами в письменной форме в виде собственноручно подписанного аудиторского заключения, в конце каждой стадии проекта, в соответствии с временными промежутками, предусмотренными в методологии проведения проверок. Аудиторский отчет показывает выявленные недостатки в обеспечении безопасности и дает рекомендации по их устранению.

Статья 20
Выводы по аудиторскому отчету
(1) Обязанностью заказчика является принятие всех необходимых действий, указанных в отчете, совместно с проектировщиком и подрядчиком, и убедиться в их полной реализации до завершения соответствующего этапа проекта.
(2) В случае, если заказчик не оспаривает требования и рекомендации, содержащиеся в аудиторском отчете, он должен дать немедленное письменное объяснение к каждому конкретному аргументу.
(3) Аудиторский отчет по безопасности дорожного движения и письменное объяснение заказчика должны быть переданы в течение 10 дней в Министерство транспорта (или другую соответствующую организацию). Эти документы становятся частью проектной документации.

Глава V
Расходы
(Статья 21 - 23. По запросу)

Статья 21
Сбор за аудит / инспекцию
(1) Для проведения аудита крупных проектов (дороже 100,000 евро), взимается тариф в 1‰ от общей стоимости инвестиций для проектов по строительству автомобильных дорог общего пользования и 2‰ от общей стоимости инвестиций для проектов по реконструкции и / или модернизации автомобильных дорог общего пользования. Сбор за АБДД не должен быть меньше 800 евро (или эквивалента этой суммы) на каждой стадии проекта.
(2) Для проведения аудита малых проектов (дешевле 100,000 евро), взимается тариф 3‰ от общей стоимости инвестиций, но не менее, чем 800 евро (или эквивалент этой суммы) на каждой стадии проекта.
(3) Афферентные проценты тарифов, запрашиваемых для каждой стадии проекта должны быть определены договором, подписанным клиентом и ОАБДД в соответствии с положениями.
(4) Условия и модальность тарифной оплаты заказчиком должны устанавливаться договором, подписанным клиентом и организацией, ответственной за проведение аудита, в соответствии с положениями.

Статья 22
Требования аудиторов
Суммы, взимаемые в соответствии с положениями ст. 21 должны быть потрачены Заказчиком для оплаты аудиторам за разработанные ими мероприятия и для финансирования их деятельности в области аудита, установленной настоящим документом.

Статья 23
Гонорар аудитора
(1) За мероприятия, разработанные аудитором в рамках заключенного контракта, он имеет право на гонорар и компенсацию за расходы, связанные с выполнением соответствующих работ.
(2) Гонорар аудиторов должен составлять 80% от тарифа, взимаемого ОАБДД в соответствии с положениями ст. 21.
(3) Сумма гонорара и условия оплаты должны быть определены в договоре, заключенном между аудитором и ОАБДД.

Глава VI Ответственность заказчика, разработчика и подрядчика

Статья 24
Мелкие правонарушения
(1) Следующие действия являются мелкими правонарушениями:
а) несоблюдение заказчиком положений ст. 9;
б) несоблюдение заказчиком, проектировщиком и подрядчиком положений ст. 12 пар. (2).
(2) Мелкие правонарушения, описанные в пар. 1, влекут за собой наложение штрафов в размере:
а) Не более 10,000 € за действия, предусмотренные в пункте а)
б) Не более 20,000 € за действия, предусмотренные в пункте б).
(3) Установление факта мелкого правонарушения, предусмотренного в пар. (1) и применение санкции, предусмотренной в пар. (2) производится уполномоченными сотрудниками дорожной администрации, Государственной инспекции по строительству, общественным работам, урбанизму и планированию землеустройства, и Министерство внутренних дел (или другая соответствующая организация).
(4) Положения Уголовного кодекса могут применяться к мелким правонарушениям.

Глава VII Ответственность аудитора/инспектора по безопасности дорожного движения

Статья 25
Нарушение договора
Договорная ответственность аудитора по безопасности дорожного движения заключается в следующих нарушениях:
а) нарушение обязательств конфиденциальности;
б) проведение аудита безопасности дорожного движения в несоответствии с установленными обязательствами;
в) проведение аудита безопасности дорожного движения в несоответствии с методологией проведения данного аудита.
За данные нарушения контрактом могут быть предусмотрены штрафы.

Глава VIII Заключительные и переходные положения

Статья 26
Предписания для ОАБДД

(1) Министерство транспорта (или другая соответствующая организация) и Дорожное управление должны принимать все необходимые меры для обеспечения бюджета, персонала и офисных помещений, необходимых для работы Отдела контроля в Министерстве транспорта (или другой соответствующей организации) и ОАБДД для осуществления своей деятельности, в соответствии с положениями настоящего указа.

(2) Лица, которые посещали учебные курсы для аудиторов по безопасности дорожного движения продолжительностью, определенной в Руководстве по АБДД, в пределах страны или за границей, до момента вступления в силу данного документа, и которые соответствуют условиям, указанным в ст. 10, могут потребовать сертификации своей возможности проведения аудиторской деятельности, а также регистрации в списке аудиторов безопасности дорожного движения.

(2) Заявка должна быть предоставлена в письменной форме в ОАБДД в течение 60 дней с начальной даты Министерского приказа, вместе с документами, подтверждающими соответствие условиям.

(3) ОАБДД должен проверить соответствие условиям и принять решение о сертификации возможности проведения аудиторской деятельности по безопасности дорожного движения в течение 15 рабочих дней с даты регистрации заявления.

Статья 27
Подтверждение

Выданное подтверждение, предоставляемое в соответствии со ст. ___ Министерством транспорта (или другой соответствующей организации), вступает в силу с начальной даты Министерского приказа, в соответствии со ст. 5 пар. (5).

Статья 28
Вступление в силу

Настоящий закон вступает в силу в течении 90 дней с даты его опубликования в Официальном Журнале _____ дата _____.

ПРИЛОЖЕНИЕ 2

ПРОЕКТ СИСТЕМЫ АККРЕДИТАЦИИ АБДД И УЧЕБНЫЙ ПЛАН

А. Проект системы аккредитации АБДД

Самый распространенный способ установления системы аккредитации АБДД - использование уже существующих учреждений, институтов в стране, таких как: университет, Союз инженеров, Министерство транспорта (Минтранс) или равносильных, а также Национальный Совет безопасности, если таковой существует, институты и т.д.

Министерству транспорта (Минтранс) следует принять Политику аудита безопасности дорожного движения (документ, разработанный проектом ТРАСЕКА Безопасность Дорожного движения II и стать единственной заинтересованной стороной в области АБДД. После этого Минтранс (или аналог) может использовать или создать все необходимые институты по АБДД.

- Обучение аудиторов безопасности дорожного движения

Обучение аудиторов в начале внедрения АБДД может быть выполнено с помощью внешних ресурсов (иностранные инструкторы). Профессора из соответствующих университетов, институтов (или подобных организаций) - первые кандидаты для прохождения этих курсов. После этого, университеты и институты, сами или вместе с другими международными экспертами АБДД должны представить свою собственную программу учебных курсов по АБДД. Учитывая последнее, необходимо установить систему обучения аудиторов в стране.

- Сертификация аудиторов безопасности дорожного движения

Аккредитацию (сертификацию) следует проводить различными способами, учитывая возможности страны и существующую практику подобной сертификации (например, если существуют аналогичные сертификаты для дорожных проектировщиков и контролеров, и т.д.).

Аттестацию аудиторов могут проводить те же учреждения, которые предоставляют обучение, или другое учреждение, которое имеет право на предоставление лицензии и определяет перечень необходимых документов для получения лицензии АБДД (подтверждение сдачи экзамена по курсу АБДД и другие определенные документы).

Сертифицированные аудиторы должны быть приняты и признаны Министерством транспорта (или его аналогом) и дорожной администрацией, которые пользуются услугами АБДД в большей мере.

- База данных аудиторов.

Вполне логично, что базу данных аудиторов должна развивать дорожная администрация, более известная как МОТ (или ее аналог), которая является основным пользователем услуг аудиторов.

В. ПРЕДЛАГАЕМАЯ УЧЕБНАЯ ПРОГРАММА ОБУЧЕНИЯ АУДИТОРОВ БЕЗОПАСНОСТИ ДОРОЖНОГО ДВИЖЕНИЯ

Для того, чтобы достичь наилучших результатов обучения аудиторов, предлагается учебная программа. Она базируется на различных учебных модулях, которые направлены на обеспечение соответствующих знаний в области безопасности дорожного движения, которые будут необходимы при проведении АБДД.

На следующем рисунке представлена схема обучения.

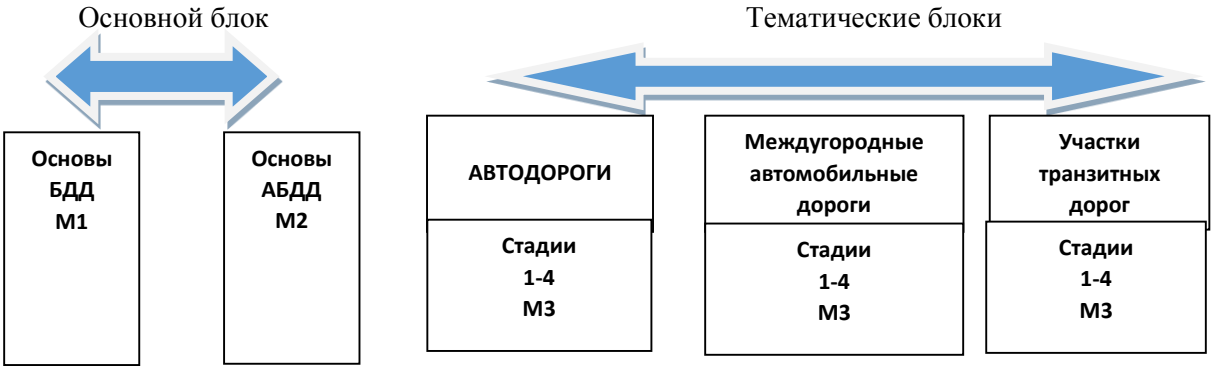


Рисунок А2-В1. Модульная процедура подготовки АБДД

В данном случае, обучение состоит из двух тематических блоков, причем теория сочетается с практикой и выделяется дополнительное время на домашнюю работу.

Слушатели должны представить на выбор 2 собственных доклада по теме АБДД, которые являются частью домашнего задания и предварительным требованием для получения сертификата (первый - после изучения блока М1 + М2 + М3, а другой - после второго учебного блока М4 + М5).

Только слушатели, которые присутствовали на всех этапах обучения и два раза успешно выступили с докладом на тему аудита, имеют шанс сдать экзамен и получить сертификат АБДД.

Учитывая тот факт, что посетители курсов АБДД имеют предварительные знания по этой теме, но этого может быть недостаточно, существуют следующие требования, которым должны соответствовать будущие аудиторы:

- Они должны обладать базовыми знаниями в области проектирования дорог и безопасности дорожного движения (как правило, высшее образование по специальности дорожное дело или строительство) и
- Необходимо иметь опыт работы в проектировании дорог или в области анализа ДТП (например, эксперт-криминалист).

Рисунок А2-В.2. показывает порядок действий в предложенной методике обучения.

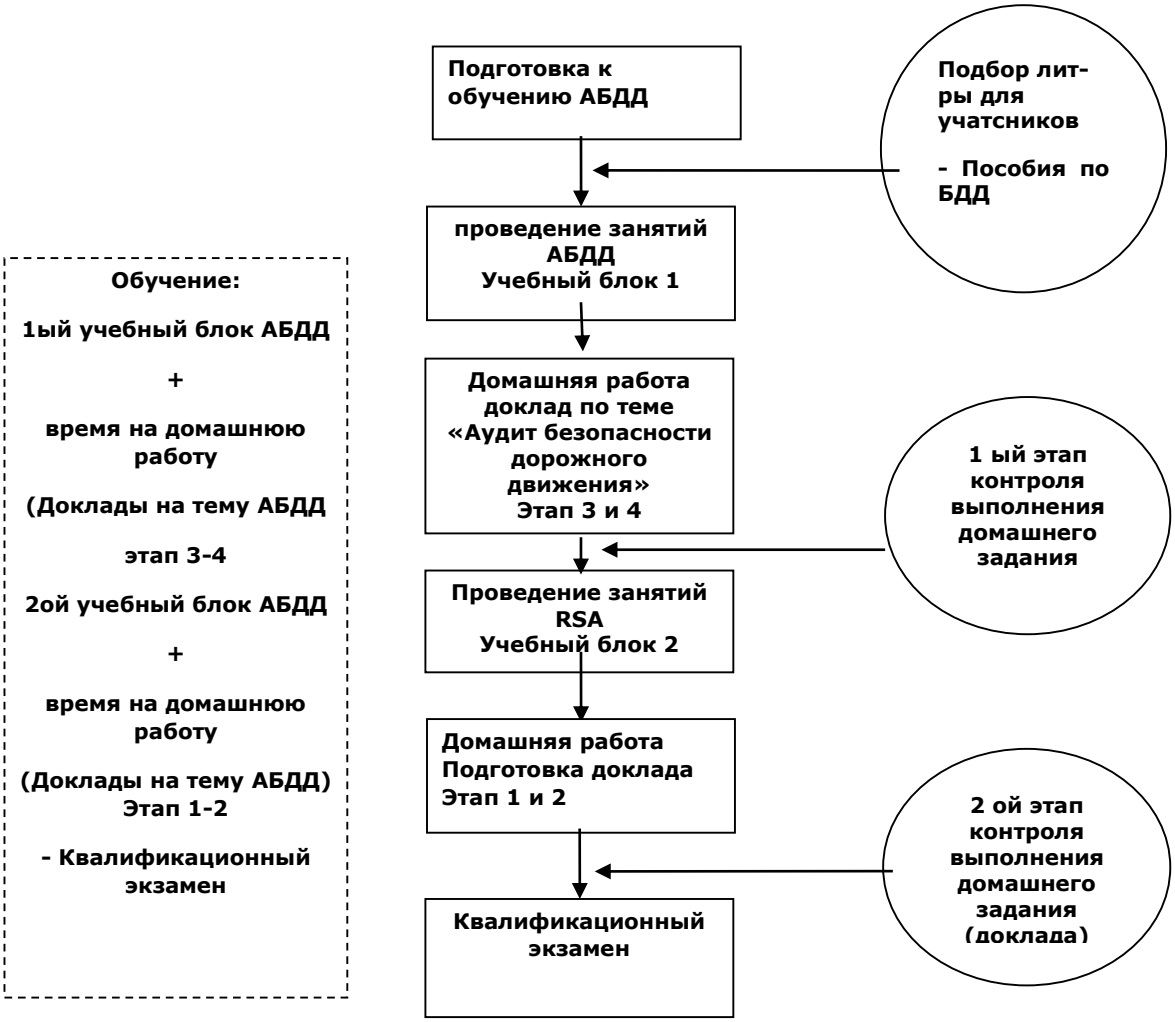


Рисунок А2-В.2. Общая последовательность предлагаемого учебного плана

ДЕТАЛИ ПРЕДЛАГАЕМОГО ОБУЧЕНИЯ

Таблица А2-В.3. Базовый курс АБДД представлен в виде двухнедельного (10 рабочих дней) интенсивного обучения и дополнительных двух недель для домашних заданий.

Таблица А2-В.3. Основные детали обучения

Модуль	Продолжительность	Основные темы
Учебный блок № 1		
М1 Основы безопасности дорожного движения	**2 дня**	- Основы о безопасности дорожного движения и безопасности дорожного движения техника, - Этапы безопасности дорожного движения, - Показатели безопасности дорожного движения - Глобальный подход к обеспечению безопасности дорожного движения (факторы безопасности дорожного движения), - Матрица Уильяма Хадона,

		- Процедуры по безопасности дорожного движения для улучшения дорог (Директива ЕС 96/2008), - Влияние скорости на ДТП - Защитные барьеры, - Записи аварий и диаграммы столкновений - Потенциальные сбережения
М2 Основы аудита безопасности дорожного движения	**1 день**	- Что такое Аудит безопасности дорожного движения? (Определение), - Почему необходимо проводить аудит безопасности дорожного движения?, - Область применения (типы проектов), - Значение и расходы на аудит безопасности дорожного движения, - Этапы АБДД, - Процесс аудита безопасности дорожного движения - Контрольные листы, - Отчетность, - Виды отчетов АБДД - Типичные недостатки БДД
М3 Автомагистрали	**2 дня** + домашнее задание: завершение 1-го АБДД	Обучение с лекцией о проблемах безопасности проектирования автомагистралей - Функция дороги (проектные и рабочие элементы), - Поперечное сечение, - Выравнивание, - Пересечения (транспортные развязки, сигналы - государственные и частные услуги (Зоны отдыха, пункты сбора платы, остановки общественного транспорта, ...), - Уязвимые участники дорожного движения, - Дорожные Знаки, маркировка, освещение, - Особенности придорожного окружения и пассивное оборудование для обеспечения безопасности. - Практическое обучение АБДД (стадия 1 или 2) в команде, - Тематическое исследование с подготовкой 1-го доклада АБДД.

Учебный блок №2		
М4 междугородные магистрали	**2 дня**	Лекция на тему «Безопасное проектирование междугородних магистралей и типичные ошибки дорожного движения»: - Функция дороги (Проектные и рабочие элементы),

		- Перекресток, - Трасса дороги, - Перекрестки (перекресток с круговым движением, светофоры, железнодорожные переезды), - Коммунальные и частные услуги, контроль доступа (Остановки городского транспорта, другие потребности пешеходов, велосипедистов, ...), - Уязвимые участники дорожного движения, - Дорожные знаки, маркировка, освещение, - Особенности придорожного окружения и пассивное оборудование для обеспечения безопасности. - - - - - Практическое обучение в команде
M5 По перекрестку междугородных магистралей	**2 дня** + домашнее задание: завершение второго доклада по АБДД	Лекция на тему безопасного проектирования перекрестков и типичные ошибки дорожного движения: - Функция дороги (Проектные и рабочие элементы), - Перекресток, - Трасса дороги, - Перекрестки (перекресток с круговым движением, светофоры, железнодорожные переезды), - Коммунальные и частные услуги, контроль доступа (Остановки городского транспорта, другие потребности пешеходов, велосипедистов...), - Уязвимые участники дорожного движения, - Дорожные знаки, маркировка, освещение, - Состояние дороги и пассивное оборудование для обеспечения безопасности - - - - - - Обучение в реальных условиях, - - - - - - Практическое обучение в команде (этап 3 и 4), - Тематическое исследование с подготовкой 2-го доклада АБДД.
1 день		**Квалификационный экзамен**

Этот вид обучения меняется для введения в университете (или в учреждении аналогичного уровня), и это означает, что его можно легко адаптировать для введения в программу последипломного обучения или специализированных курсов.

Примечание. Презантации Power Point, которые используются во время обучения АБДД, находятся на диске и читаются с любого электронного носителя.

4.4.3

REGIONAL BLACK SPOT MANAGEMENT GUIDELINES

TRACECA Regional Road Safety Project

Safety Engineering Team

March 2015

EU funded road safety project

For

Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Tajikistan, Turkmenistan, Ukraine, Uzbekistan

PREFACE
TO THE DRAFT REGIONAL BLACK SPOT MANAGEMENT GUIDELINES FOR TRACECA COUNTRIES

Black Spot Management (BSM) is one of the first road safety tools used for improving the dangerous locations and sections on roads. Despite many years of black spot improvement work, experience from developed and developing countries shows that BSM is still a highly effective and cost effective engineering tool in order to improve the safety of roads.

The identification, analysis and treatment of Black Spots is a well proven method for reducing the number and severity of crashes on the road network. Low cost remedial treatments can offer first year rates of return of several hundred percent and black spot treatments are amongst the most cost-beneficial investments a Road Authority can undertake.

Since there is no universally applicable definition of what should be regarded as a black spot, Project team jointly with concerned stakeholders have proposed a suitable unique definition of Black Spot for use in TRACECA Countries. The proposed definition of a Black Spot for the purposes of this manual is defined as "Any location on a road with a maximum length of 300 meters, at which at least four fatal* crashes have been recorded during the last three years".

Special attention has been given to making the Guidelines user friendly and the Project Team are building on existing good practice and examples from the Region. Throughout these guidelines, the word "crash" is used instead of "accident" to emphasize that these events are preventable and avoidable and not some inevitable event outside of human control.

These Black Spot Identification and Treatment Guidelines have six chapters followed by an Appendix. They draw, as necessary, upon best international practices and manuals available in use around the world. The authors of these guidelines would like to acknowledge their indebtedness to such manuals and their authors – the key ones of which have been listed in the references.

These guidelines have been developed to provide a recommended methodology for Black Spot management to the TRACECA region countries. The main purpose of these guidelines is to provide the reader with a clear overview of the necessary steps for Black Spot elimination.

** A fatal crash is where at least one person has been killed*

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4. Walter Viti

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Abbreviations and acronyms

ADB	Asian Development Bank
BSM	Black Spot Management
EC	European Commission
EIB	European Investment Bank
ETSC	European Transport Safety Council
EU	European Union
GLONASS	Global Navigation Satellite System
IBRD	International Bank for Reconstruction and Development
IDS	In-depth Studies
IFI	International Financing Institutions
MoIA	Ministry of Internal Affairs
MoI	Ministry of Interior
MoTC	Ministry of Transport and Communications
NGO	Non-governmental organization
NP	National (Country) Program
PIARC	World Road Association (PIARC actually means Permanent International Association of Road Congresses but this name is rarely used)
PRI	La Prévention Routière Internationale a.s.b.l.
RIA	Road Impact Assessment
RSA	Road Safety Audit
RSI	Road Safety Inspection
SEETO	South-East Europe Transport Observatory
TL	Team Leader
ToR	Terms of Reference
TP	Traffic (Road) Police
TRACECA	Transport Corridor Europe-Caucasus-Asia
WE-WC	Western Europe – Western China International Transit Corridor
WHO	World Health Organization

1. INTRODUCTION

Road crashes are now widely recognized as a serious social and economical problem. And different measures and programs were devised to reduce the blood toll on roads. On the international level, United Nations, World Health Organization, European Commission, International financing organization (especially World Bank, ADB, EIB, IBRD, Islamic Bank,...) and some specialized NGO (PIARC, ETSC, PRI, SEETO, ...), are now working to improve global road safety. In autumn 2009, ministers and stakeholders from all over the world met in Moscow (First Global ministerial conference on Road Safety) and called upon the United Nations to take leadership of this global problem affecting all nations. This issue was discussed at United Nations and a worldwide decade for road safety was announced in 2011. The international community of United Nations Regional Economic Commission, WHO, development banks, major road safety research institutes; Global companies and NGOs are now cooperating to address this global problem.

One of the popular misconceptions is that the faults or bad behaviour of a driver are alone in almost all cases, the cause of road traffic crashes[18]. As result of a basic research project, it is evident (Figure 1.1.), that in every third crash the road environment has at least some influence (road environment factors 34 %) on the occurrence of a crash.

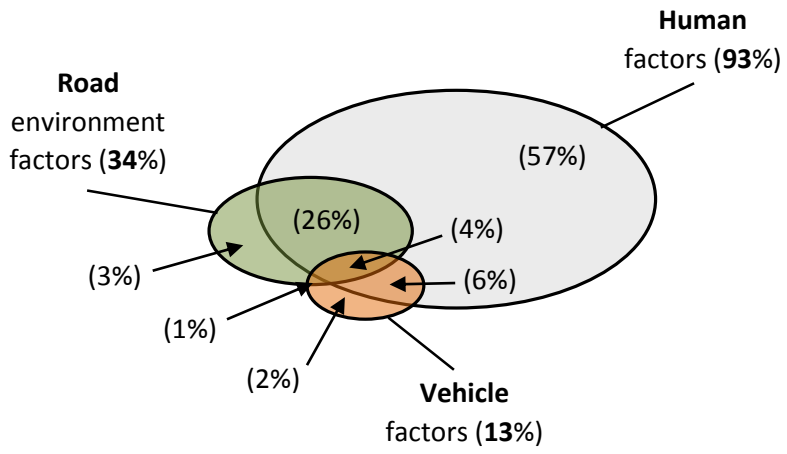

Figure 1.1. The contribution of crash factors
(Source: Road Safety Manual, PIARC, 2003)

As a consequence of recognition that most crashes have multiple contributory factors, Road Safety Management was developed as the best way to decrease the total number of crashes in a country.

The identification, analysis and treatment of Black Spots is a well proven method for reducing

[18] This is partly because police reporting of crashes tend to focus on blaming and as a consequence the vast number of crashes appear to involve human factor / driver error. However, what is often not explored by police or recorded in statistics is why the driver made that error (e.g. was it because of misleading information, missing signs or even unsafe elements of road design or the vehicle.)

the number and severity of crashes on the road network. High effective and low cost remedial treatments can offer first year rates of return of several hundred percent. Black Spot treatments are amongst the most cost-effective investments a Road Authority can undertake.

With its Directive of the European Parliament and of the Council no. 2008/96 on road infrastructure safety management, published in October 2008, the European Union made a clear decision that the BSM should be mandatory for the trans-European Road Network in the following years.

In the mentioned EU directive, the BSM is part of a package road safety measures as follows:

- Road safety impact assessment (RIA),
- Road safety audit for the design stages of roads (RSA),
- **Safety ranking and management of the road network in operation, including management of high risks road sections (BSM),**
- Road safety inspections for existing roads (RSI) and
- In-depth crash analysis (IDS).

The introduced measures are an integral part of the wider road safety management system, and they are shown at Figure 1.2.

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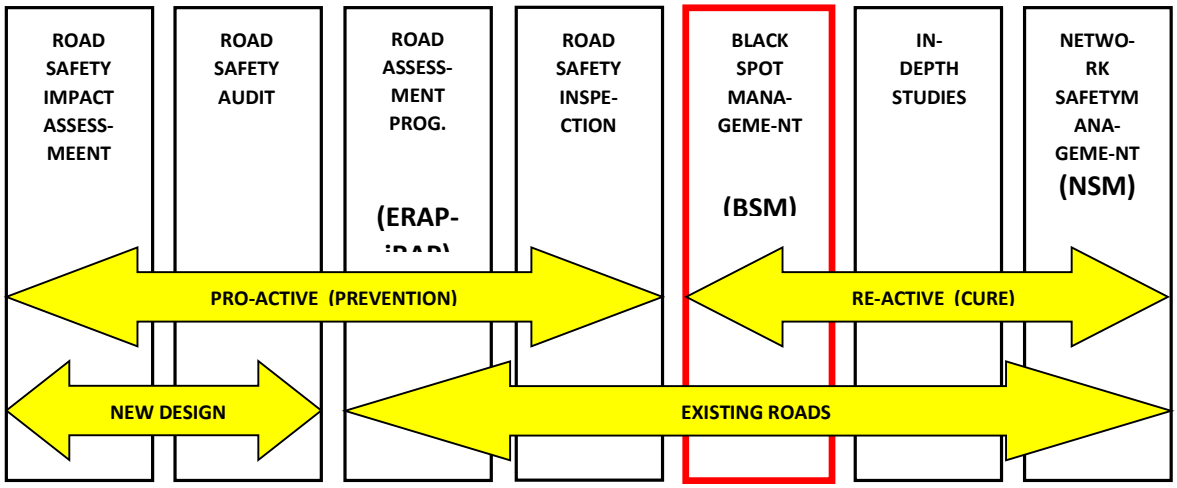

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• *Figure 1.2. The BSM as part of the Road Safety Management (Source: Road Safety Audit Manual, SEETO, 2009)*

•

It can be easily seen from Figure 1.2. that BSM represents re-active procedure that should be undertaken on existing roads.

The output of BSM is normally a proposal of countermeasures which will decrease the risk of crashes at the treated locations.

The Black Spot identification and treatment Guidelines are based on best international practice and special attention is given to the harmonization of black spot management approaches in TRACECA Countries.

2. INTRODUCTION TO BLACK SPOT MANAGEMENT

2.1. What is Black Spot Management? (Definition)

Black Spot management presents a systematic approach for identification, analysis, treatment and evaluation of countermeasures used at hazardous locations on the road network. The basis for Black Spot identification is statistical data analysis of road crash record and mapping of crash locations. Therefore, an adequate crash database is an essential and necessary tool for effective Black Spot work.

Output of BSM is improvement dangerous road locations, with usage of optimal measures which will prevent occurrence of future crashes and increase the total level of road safety of network.

The database should include most precise information about crash site location (preferably done by GPS/GLONASS coordinates), details about the type of crash, collision diagram, details of drivers and if it is a fatal or a crash with injuries, information about the casualties. Information about vehicles and roads involved, as well as weather conditions, when the crash occurred are other important facts useful for crash analysis.

There is no unique definition of what should be regarded as a Black Spot. Researchers generally agree that Black Spot could be defined as a **location which has a higher expected number of crashes than similar locations, as a result of local risk factors**. However, this is not an easy definition for practical work.

Jointly with concerned stakeholders in different TRACECA Countries, the project team proposes a suitable and common definition for Regional usage. The proposed definition of Black Spot is defined as **"Any location on a road with a maximum length of 300 meters, at which at least four fatal crashes have been recorded during the last three years".**

Furthermore, a Black Road Section is defined as **"any road section with a maximum length of 1000 meters, at which at least six fatal crashes have been recorded during the last three years".**

The above proposed definitions belong to the class of Numerical definitions, and they are suggested for use during the initial period of Black Spot Management. Main reasons why Project proposed unified definition is to have a single common depiction instead of having 10 different local definitions. This will help to harmonize Black Spot Management in the Region as well as fast level up of black spots all over the important transport corridors which are crossing the Region. Proposed approach will also help IFI in their transport and road safety projects and most important will help drivers in region to easily recognize the black spots on the road due to harmonized signalization and possible web based database of black spots (initiative of some NGO for such a project already exists).

All suggested variables in black spot definitions should be tested and if they provide useable and logical output (*for example*: ***total number of identified black spots in country are between 50-150***), they should be applied. It should be noticed that definition could be corrected in future, when most (at least 2/3) of identified dangerous locations are treated (improved).

In future, some of more complex models could be used. For example, analysis of the spatial distribution of road crashes (which relies on modern GIS tools) allows more accurate identification of crash location with accumulation of crashes. Alternatively given that the observed road crashes have different casualties, each crash could be assigned with a weight index based on the degree of severity. Weight indices are based on the costs of crashes suggested by World Road Association (PIARC) and as follows:

- crash with minor (slight) physical injuries should be multiplied by the weight index of 1,
- crash with serious physical injuries should be multiplied by the weight index of 10 and
- crash with fatalities should be multiplied by weight index 85.

In this way, for each of the Black Spots, could be provided so-called "crash weight index" which represents every Black Spot with one unique number. Upon this number, ranking of Black Spots could be developed and a number of dangerous locations selected for improvement, in accordance with the budget available.

2.2. Methodology used for Black Spot Management

Guidelines have been developed based on EU financed research work (RIPCORD - ISEREST), project team experiences and in close cooperation with concerned counterparties, this.

The flowchart for the Black Spot process is made having in mind international best practice as well as specific needs of TRACECA Countries. It is recognized that huge changes in organization of involved institutions, as well as highly complex models, will not be possible to implement, so proposed Black Spot management methodology is a combination of minimal functional requirements for modern black spot management in Region.

Proposed flowchart for the Black Spot process is given in Figure 2.2.1.

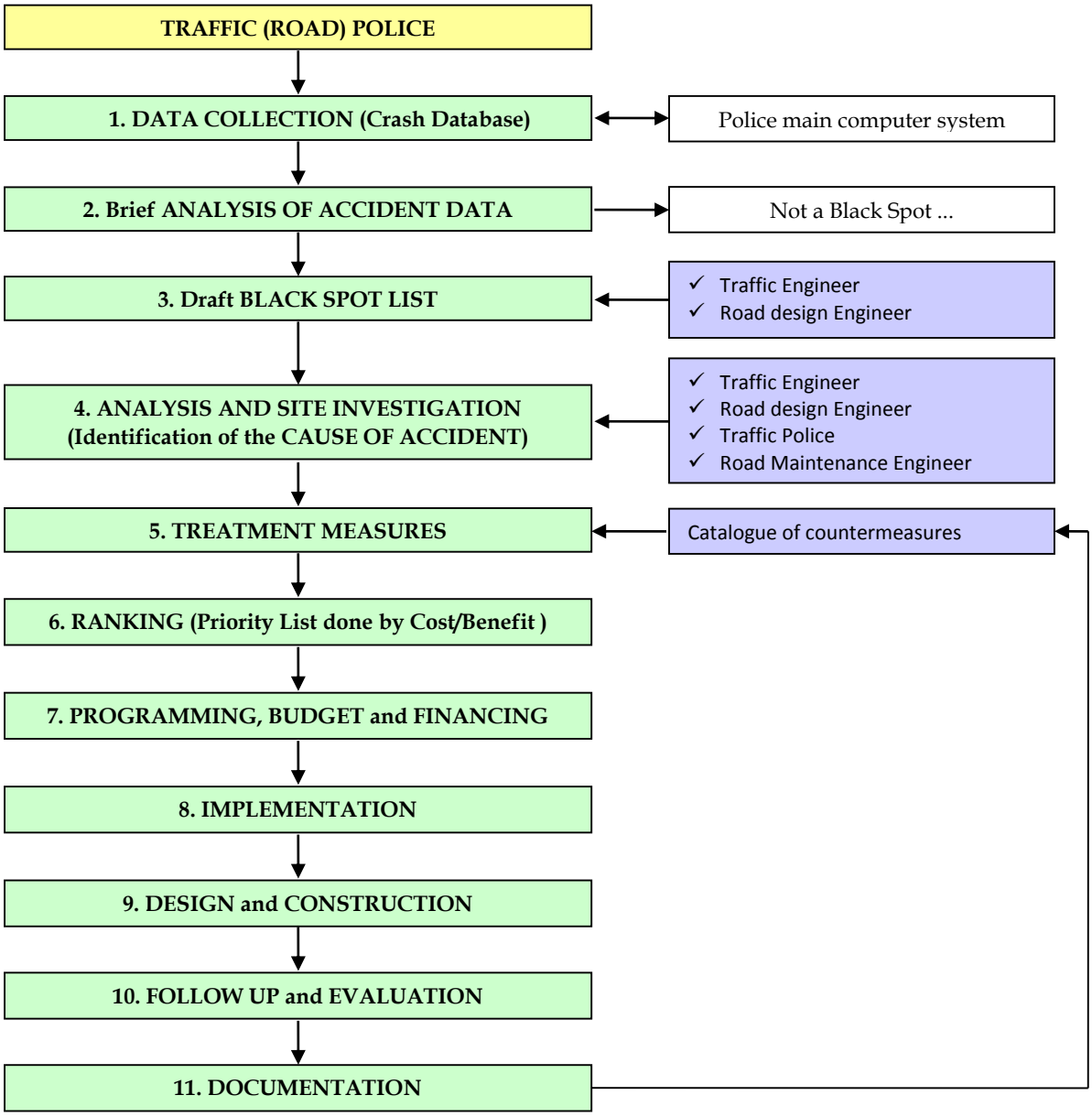


Figure 2.1.1. Flowchart for the proposed Black Spot process (Source: EU funded Project RIPCORD-ISEREST, 2007)

2.3. Structure of the Guideline

This manual is divided into six chapters as follows:

The first Chapter introduces BSM concepts and explains the need for the BSM procedures to be applied.

Chapter 2 presents basics about BSM. This Chapter contains answers to the following questions: What is BSM?, What is its Definition? and Methodology used for Black Spot Management.

Chapter 3 discusses the BSM process. Detailed explanations are provided for all steps: Data Collection (Reporting and Database), Analysis of Crash Data, Identification (Preparation of Black Spot Lists), Analysis of the Causes of Crashes (in office and on site), Determination of Black Spot Treatment, Ranking (Priority Listing upon cost/benefit analysis), Programming, Budget and Financing, Implementation of Treatment measures, Follow up and Evaluation and Documentation. The chapter also discusses a detailed methodology used for conducting BSM.

Chapter 4 presents a typical Black Spot with most frequently observed road safety deficiencies. All examples used in Guidelines are collected in TRACECA Countries.

Chapter 5 contains the most commonly used countermeasures with specified crash savings.

Chapter 6 presents the literature used.

3. BLACK SPOT MANAGEMENT PROCESS

3.1. Data Collection (Reporting and Database)

Existence of quality and available road crashes database is the most important prerequisite for managing the Black Spots. Without adequate road crash database, it is not possible to identify and monitor Black Spots on a road network. Even, if there is an existing crash database, but it is not made easily available (for further analyses by specific organizations, police), the process of establishing a system of BSM will not be successful. Crash data does not belong to the police but in a resource that has to be made available (once confidential information of driver an vehicle details is removed) to all key stakeholders, such as road engineers, so that further more detailed analyses can be undertaken of the most hazardous locations.

Usually Ministry of Internal Affairs (or Interior) through Traffic Police possesses the crash database that can be used as a basis for BSM. From the Project Inception period visits the Project Team is aware that crash databases exist in each TRACECA Country but in some of them important improvements need to be undertaken, and in some cases, the data needs to be made available for successful BSM usage. The following data could improve the quality of police crash data systems:

- adding of **collision diagram**,
- introducing of **GPS/GLONASS coordinates**,
- adding location whether inside or outside of settlements
- adding information about nearby schools or other public and private services
- surrounding characteristics of interurban roads (desert, agriculture, forests,

mountains)
- adding of **weather information,**
- introducing the **posted speed limit, etc.**

Specially designed integrated databases with data about roads, traffic counting and traffic crashes enable high-quality inputs for BSM. This kind of database output would provide adequate spatial and time analysis of crash and enabled increased reliability the understanding of basic causes and circumstances of traffic crashes. There are also other sources, which can be used for improving the quality of the integrated database, such as reports of injuries from hospitals, court records, records from insurance companies, etc. However, data from these sources are often hard to provide and to integrate.

Until now, there seems to be only minimal systematic analysis of crash data with BSM procedures. One of the reasons has been the fast development of road networks with no inclusion of road safety topics. Other, more technical reasons could be that there is no use of Geographic information systems (GIS) and GPS/GLONASS data about crash locations which makes BSM more complex (it is not easy to identify and analyse Black Spots just by looking at long tables without the possibility to see them on the map). The result of that situation is that very little effective BSM analyses have been carried out in the past.

However, by using available information from the Police, Road Authority can improve some of the identified road locations. Without clear definition of Black Spot and of outdated crash database continue to be used, this work is rather time consuming. As a consequence, identification, analysis and treatment of black spots has up to now, not been done systematically and has not been managed in a modern way in TRACECA Region.

Based on BSM international best practice there are two mostly methods used for collecting and preparing the data:

- First method is based on the analytical procedure to enable the list of crashes on different roads. Usually, output is spreadsheet with sorted crash data. In this way, the most dangerous locations can be identified.
- Second one is based on more sophisticated procedure and relies on GIS. This means that all crashes are presented on geo-coded maps. Using GIS, it is easy to identify Black Spots visually from the displayed data.

For both methods, one of most important prerequisite is knowing the exact location of the road crash. For this purpose, road km poles are often used to identify the location. This is good way, but it has few disadvantage:

- Sometimes km poles are missing which complicates the work of the police,
- If road length was change (changing of road alignment, creating the by-pass) there is a problem with km signs and
- All crash data (the part about location) should be transformed into X, Y (or North/South) coordinates, so that they can be used in a GIS road database (which is in the phase of preparation).

Therefore, the usage of “Global Positioning System” (GPS) or “Global Navigation Satellite System” (GLONASS) instruments is strongly recommended for the location of crashes from the beginning. The Traffic Police should enter the GPS/ GLONASS location in the “Road Crash Form” under “Location of the traffic crash”.

Beside data about GPS Location, it is important that crash data includes information on the events and manoeuvres that led to the crash (collision diagram). This information can be also added by the police officers, if it is known.

In this way more quality data will be collected for future BSM work.

According existing data collection in all TRACECA Countries, the Traffic (road) Police is responsible for filling the crash form and import in it into the centralized computer system. In most countries, from time to time, police have meetings with Road Authority (if Road Safety Unit exists) and exchange data about dangerous places. In some of countries, specific Institutes exist and they also receive crash data from the police. These Institutes can be used as a first step in processing the data for BSM.

Traffic (Road) Police preferably or in some cases specialized road safety research Institutes, can perform brief analysis of crash data and prepare draft Black Spot lists.

3.2. Analysis of Crash Data

The black spot can be either an intersection or a section of a road. Generally there are two methods in most common use:

Method based on crash statistics

Based on crash statistics (from police database) in early development of BSM activities, Traffic (Road) Police or specific Institute should make brief analysis of crash data and prepare a draft list of Black Spots in accordance with the adopted definition. The list could include both intersections and road sections and constitute the basis for further Black Spot investigation and processing which will be done inside Road Authority (Road Safety Unit if such exists). Later on, as methods are improved, Traffic (Road) Police or a specific Institute can use a weighted index based on the type of consequence as follows:

- crash with minor (slight) physical injuries should be multiplied by the weight index of 1,
- crash with serious physical injuries by the weight index of 10 and
- crash with the fatalities by weight index 85.

This gives ratio 1:10:85 and is broadly based on the principle that the more serious crashes result in more serious casualties and higher costs to society. Hence, fatal crashes should be given much more priority and importance than light injury crashes. [Note this particular one does not put any weight on damage only crashes but some other systems also include weighting for damage only crashes].

All black spots can be ranked based upon crash weight index. This list should then be sent to Road Authorities (at state and community level) for further analysis of potential improvements at those locations.

Method based on “Pin map”

Another possibility of crash data analysis could be the usage of a “Black Spot Pin Map” (Figure 3.2.1.) as a tool for Black Spot identification. Geo coded road maps can be produced and used for adding the road crashes on it. Each road crash should be marked on the map by a pin. The pins should have different colours to indicate different types or severities of crashes (e.g. crashes with fatal – black colour, crashes with severe injuries – read colour and crashes with slight injuries – blue). The map should be continuously updated with all new crashes as the

data becomes available.

Crashes from previous years should be also marked on the map, so that annual trends of number of crashes could be easily visible. In that case, the map would show the number and type of crashes over a period of several years. The situation at year end can be photographed as a record of the data for the year and plotting of locations can continue.

A visual interpretation of the Black Spot pin map provides a good presentation of potential Black Spot locations. If GIS are used, more sophisticated analysis could be provided. Based on the pin map and adopted definition, a preliminary Black Spot list could be drafted easily upon different criteria. The list could include both intersections and road sections and serve as a basis for further Black Spot investigation and processing inside the Road Authority.

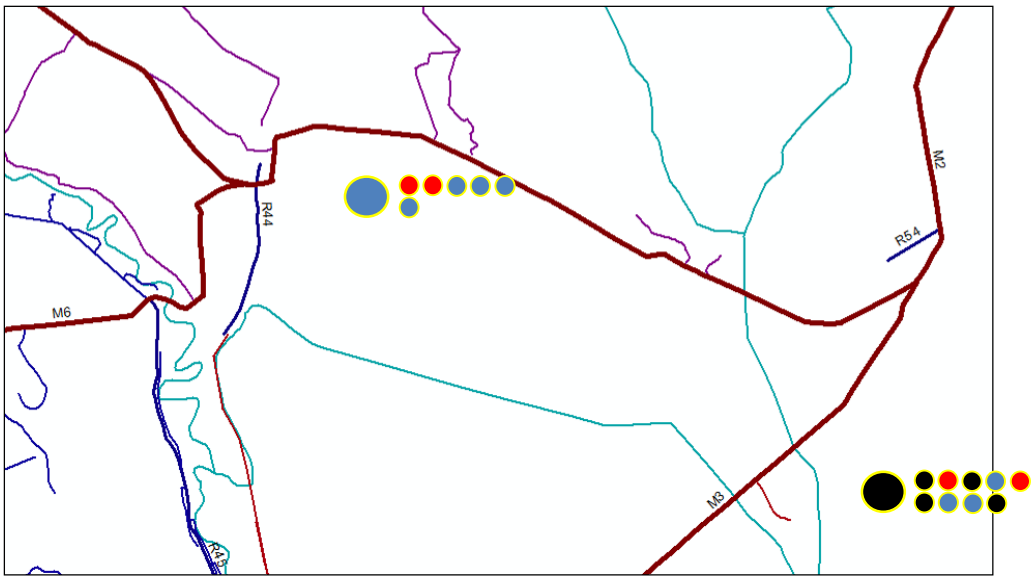


Figure 3.2.1. Example of typical Black Spot Pin Map

3.3. Identification (Preparation of Black Spot Lists)

The draft Black Spot list is prepared in accordance to the adopted definition. Later on, when the system starts to work, the list could be improved by use of a weighted index. The draft list serves as a basis for further investigation and analysis.

The preparation of initial Black Spot list could be carried out by Traffic (Road) Police (or specific Institute if such exists). Data about all single vehicle crashes in defined Black Spots should be double checked and reviewed. There should not be mistakes in crash data forms data which can influence the total statistics and conclusions. If it is necessary, more data about specific crash should be requested from police. In this way, quality of collected data will be improved.

Special attention should be given to the preparation of the collision diagram (if it does not exist inside police crash report), because it presents the easiest way to understand why and how the crash happened.

The final Black Spot list should consist of newly identified Black Spots and Black Spots which have already been analysed, but not yet treated in the past. Black Spots with the highest

number of fatal crashes (or with highest weight index) should be given the highest priority to be analysed in-depth.

3.4. Analysis of the Cause of Crash (in office and on site)

The aim of the analysis of the cause of crash is to understand the chain of events which directly lead to the crash. Many factors contribute to an crash, which means that it is not easy to get a full understanding. Therefore, it is important to carry out the analysis systematically using all known facts. Proposed analysis could be done inside Road Authority (and Road Safety Unit if such exists). Usually there are two types of analysis: in office and on site.

3.4.1. In office analysis - Collecting and processing of crash data

In order to carry out a proper analysis, at least the following data are required for in office analysis:

- Crash data,
- Traffic data,
- Road data and
- Supplementary data.

Crash data

Basic data on the crash scene is recorded by the traffic (road) police. Their report and follow up file includes all important data for crash analysis including statements of witnesses and those directly involved in the crash.

Traffic data

In order to choose an optimal countermeasure, additional data would be needed, such as:

- the traffic volume, by vehicle type, direction and time,
- average speeds at that location, if it is available from automatic traffic counters,
- the volume of specific groups of road users or modes of transport normally passing through that location,
- any changes in the traffic structure during the study period, including volume and vehicle type, etc.

Often this information can be collected from different Institutions like Road Authority, local communities and people who are living nearby.

Road Data

Apart from photos a sketch of the crash site is very useful. The sketch should show the final location of vehicles involved, all traffic facilities and obstacles contributing to the crash. The sketch should, if possible, to scale and as detailed as possible and should contain information about the location and road such as:

- Dimensions and layout of the carriageway, lanes, shoulders, medians, curve radius, super elevation and skid resistance,
- Structures and fixed hazards,
- Contours of surrounding terrain,
- Cyclist or pedestrian lanes,
- Existing guardrails and or barriers,
- Delineator posts, signs and lighting (including poles),
- Road markings and pavement markers (including pedestrian crossing),
- Road signs,
- Connecting roads with dimensions and surface type,
- Type of surface layer (carriage way/shoulder),
- Estimated traffic flow/type of traffic/traffic speed,
- Traffic Islands and dimensions,
- Trees, houses and private roads/entries, etc

Supplementary data and information

Sometime it will be useful to collect additional information about the road crash and location, such as dominant vehicle types using the road, signed speed as well as average speed, specific road conditions, obstacles on or nearby the road, etc. This information could be obtained from the local Road Agency, the local Police, from people living near the crash site location and from other sources.

Collected data could be used to draw the Collision diagram (Figure 3.4.1.1). and a Crash summary table (Figure 3.4.1.2.).

Collision diagram

The collision diagram is a schematic representation of all crashes that have occurred at the hazardous location. The characteristics of the crash are shown using the manoeuvre illustration. The movements involved in the crash are graphically explained using arrows, which represent the preliminary collisions parties. The following data are also shown in the collision diagram:

- the exact location of each crash within the junction or section of road.
- the travel direction of each vehicle
- the manoeuvres of each vehicle (straight ahead, turning, loss of control);
- the type of collision (right angle, rear-end, etc.).

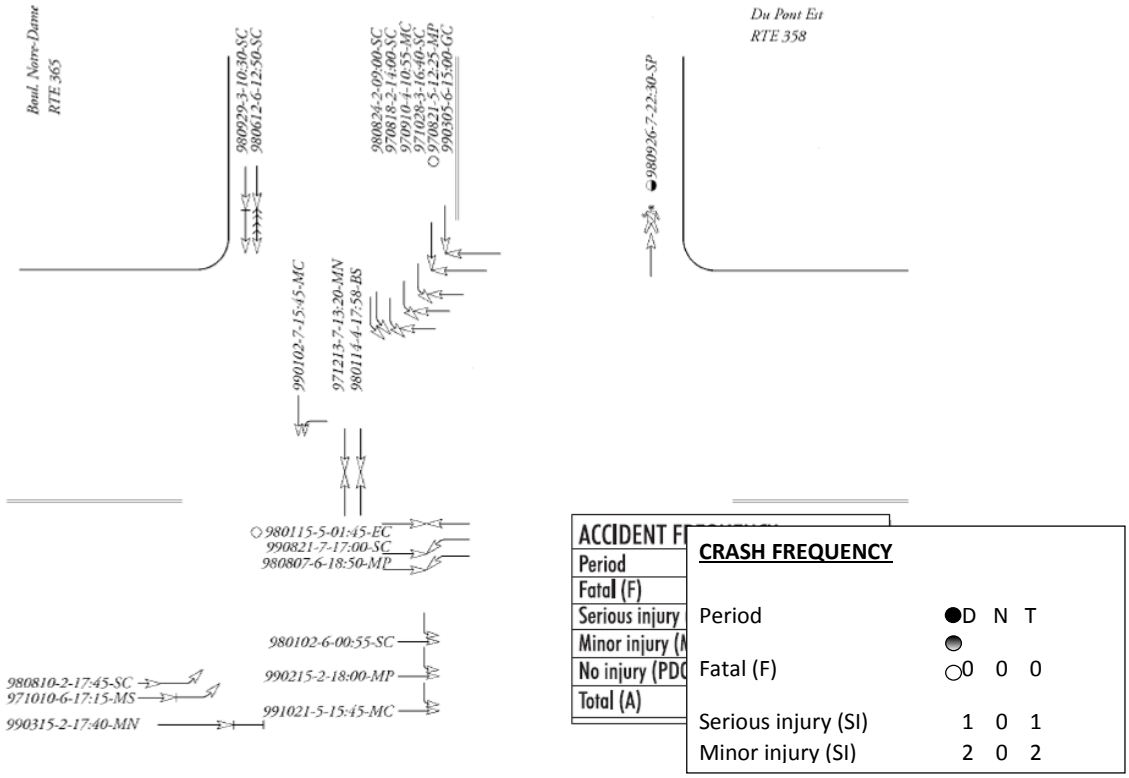


Figure 3.4.1.1. Example of a typical collision diagram

The collision diagram makes it easier to recognize the most frequent crash types and their concentration and given insights into the potential problems and manoeuvres at that location.

Summary tables of crashes

The crash summary tables contains the most important data available for the several crashes that have happened at a single location. From this table it is easy to understand the most common factors and circumstances for all crashes occurring at that location.

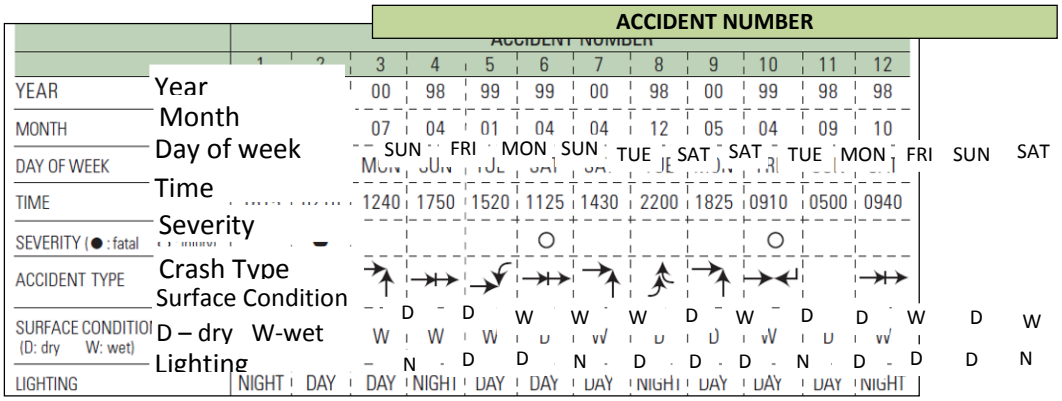


Figure 3.4.1.2. Example of a typical crash summary table

3.4.2. Crash analysis

Dominant crash types

If a collision diagram is available, it should be used at the beginning of the analysis process. Through this diagram an initial grouping of crashes will already have already been carried out showing exact location of each crash, travel direction of each vehicle and manoeuvres of each vehicle (type of crash).

The type and location of the crash generally provide the most important information for crash analysis. From the collision diagram, the dominant crash types can be deduced. A crash type is considered dominant when occurring in a cluster of 4 crashes or more. Other types of crashes, not belonging to a dominant group, are not significant enough for crash analysis and cannot lead to conclusions based on common characteristics.

It must be noted that crashes of different characteristics may have the same cause. If an intersection is not easy noticeable, this can lead to both give-way crashes (reacting too late to traffic with priority crossing) and rear-end crashes (reacting too late to the car in front slowing/stopping, standing still and waiting to give way). This means that all crashes should be thoroughly considered.

At a location with relatively few crashes, for example 3 crashes in 3 years, a dominant crash type could be hard to identify. At such locations, dominant crash characteristics (direction of approach, time, light and so forth) will facilitate the analysis better than the crash type.

With low numbers of crashes percentages should not be used when formulating conclusions, because this could provide inappropriate and misleading interpretation. For example: "3 out of 4 crashes occur in the dark" illustrates the actual situation better than "75% occur in the dark" and gives information on the small sample size.

Dominant characteristics

The analysis is initially carried out per dominant crash type. Within this group of crash similarities with other characteristics are required.

With a dominant crash type and a large number of crashes further analyses could be done. For example, if 12 of a cluster out of 20 single crashes turn out to have occurred in the dark, a separate further analysis of these 12 crashes is needed to disclose other similarities (e.g. driver's age, alcohol, etc.).

In addition to determination of dominant crash types and/or characteristics, the remaining part of the analysis can best be carried out using a "question and answer" technique. Two main questions should be asked:

- Does the similarity have any significance?
- What conclusion can be drawn from this?

If, for example, it turns out that 70% of the crashes occurred on wet road surface, specific questions are:

- Is that number larger than can be expected, based on the dry-wet road surface-time

relation?

- Does this serve as a basis for formulating a hypotheses regarding possible crash cause?

3.4.3. Formulating hypotheses

Based on the “in office” analysis, hypotheses regarding the possible crash causes should be formulated. This should be done for each dominant crash type or characteristic separately.

It is important for various conclusions from the crash analysis to be compared and put together as a puzzle. They can be either contradictory or even complementary to each other.

Additionally various types of crashes sometimes have same cause.

The hypotheses regarding possible crash cause should be formulated for each individual dominant type of characteristic, based on the total picture of the crash analysis.

3.4.4. On site investigation - Collecting and processing of crash data

When the “in office” crash analysis has been carried out, each of the sites will require a site investigation. A site survey should be carried out in order to add more details and to "test" the hypotheses. The assumptions as regards the possible causes should be examined as careful as possible to determine the accuracy.

The road and traffic situation at the location should be examined using the results of the crash analysis as the starting point. The investigation has to take into consideration the **triggers** of the driver's reactions and patterns of behaviour, which may result in an crash.

In the application of the Human Factors concept to traffic accidents, the road safety expert asks for the reasons that led to a driver’s **operational error**, which finally resulted in an crash. This approach is not very new in road construction. In the 1930s, basic ideas from the Human Factors concept were taken into account in planning major roads and highways.

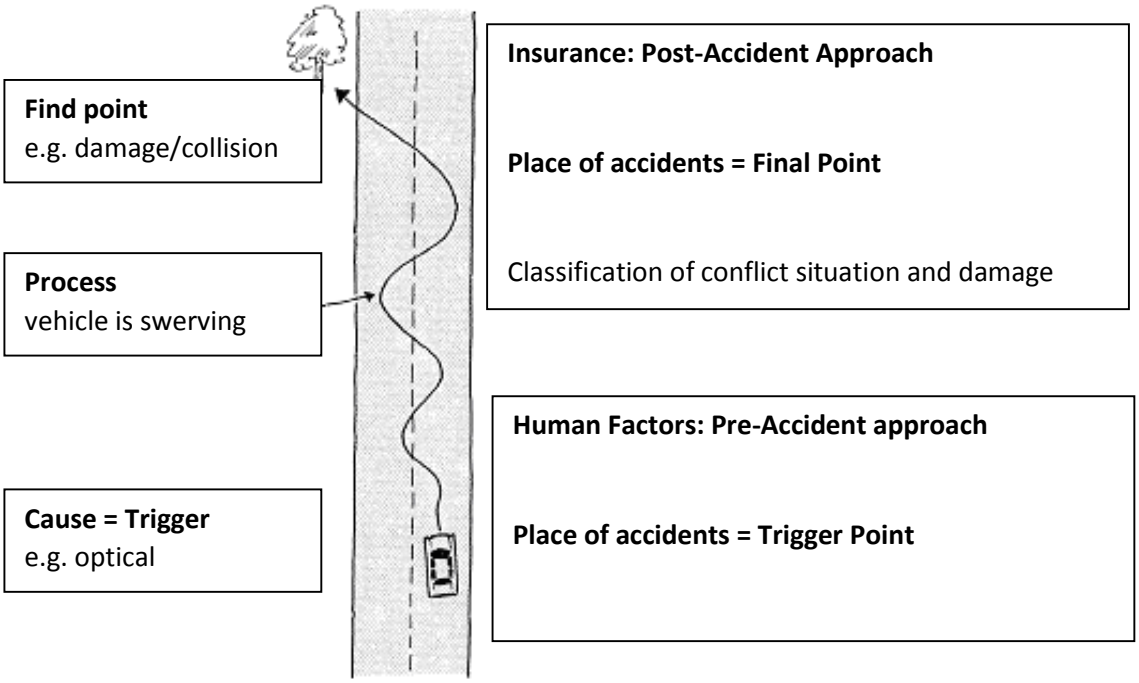


Fig. 1: Post-Crash and Pre-Crash approach [15]

The Human Factors concept considers the driver's operational error as the first step in a chain of events that may lead eventually to a crash. Many of the often-observed operational errors result from the direct interaction between the road and the driver's reaction characteristics. Road features determine driver behaviour. Since the driver's reaction characteristics cannot be changed, attention should be focused on the road characteristics. This deduction makes it possible and obligatory to take into consideration the human limitations of drivers' perception, information processing and action and must be taken into account when roads are planned and constructed.

It is the aim of the Human Factors concept to reduce the probability of operational errors and ultimately to reduce the probability of driving errors by a user-friendly and self-explanatory road design. This means that the road has to be constructed clearly, so the driver has clear information to enable safe driving. This required that dangerous points have to be designed so as to be easily understood, perceptible and recognisable. The road user should be neither confused nor invited to take risks. The goal of the notion of "self- explanatory road design" is to increase the unmistakable interpretation of road features. Such a user-friendly, self-explanatory road design should directly result in a decrease in the frequency of crashes. (see more in PIARC Human Factors Guideline).

There are a number of parameters which can be collected on site and which can substantially improve the understanding of the cause of crashes. The most important ones are: number of vehicles and average speed in at the location being analysed and the road situation as well as information regarding cross fall, skid resistance etc.

Traffic counting

Traffic counting is a procedure which enable crashes counting of road users (vehicles,

pedestrians, ...) which are passing through a certain point in the road network (a section, intersection, etc.). In traffic counting road users can be sorted by category (e.g. motorized traffic, non-motorized traffic, pedestrian traffic, etc.), and by time of day. The results of traffic counts are entered in pre-prepared forms, so that those counting should only count vehicles that are passed through their location.

The methodology of traffic counting is well developed and widely accepted and already used in all TRACECA Countries, so the procedure and methods of traffic counting will not be explained any more.

An output of traffic counting should be diagram, which shows traffic load of road, intersection legs, some location, etc. Counting could also provide information on traffic composition (percentage of different types of vehicles in traffic flow). These outputs can contribute for the better understanding of the existing road situation and improve the hypotheses and decision-making about which counter measures should be taken at Black Spots.

Vehicle speed measurement

Vehicles speed is usually one of the main factors which increases the risk of road crashes. Often, speed is a direct cause of a traffic crash, and more often it has a direct contribution to the severity of consequences. According to available information, speed measurement of vehicles on the road network and statistical analysis of speed has not so far been carried out in systematically way in TRACECA Countries. Therefore, method of speed recording will be more explained.

Exceeding the maximum permitted speed limit on the roads is one of the most important risk factors and acute problem of traffic safety in each country. Modest experience, collected inside field trips and researches of Black Spots in different TRACECA Countries, shows that speeds at the observed locations were often above the permitted speed limits. This clearly indicates the need of speed analysis at each Black Spot location.

Speed measurement should be done at the same period of day as when the biggest number of crashes happen.

Speed measurement of the vehicle can be implemented manually or with automated devices. In the case of usage of automatic devices for speed recording (inductive loops or modern laser devices / video / ultra-red / microwave detectors) the speed of vehicles can be recorded over longer periods of time.

Speed measurement results should be used for getting data about average speed of vehicles, standard deviation, the percentage of drivers which exceed the maximum allowable speed, speed of 85% of the vehicles in flow, the percentage of slow vehicles, etc.

Previous analysis will enable good understanding of driver behaviour and speed influence on Black Spot location.

Traffic conflict techniques

For crash analysis researchers usually use the information contained on crash reports to identify and understand failures of the road system and then to propose appropriate

treatments. Sometimes, data from crash reports are not enough and need to be complemented by field observations in order to improve the accuracy of safety diagnoses.

Over the years, different tools have been proposed to assist safety analysts in making field observations. One of most useful formalized techniques for recognizing the risks at analysed location is traffic conflict techniques.

In a traffic conflict technique, trained observers watch the traffic and note the frequency and types of conflicts that occur at a specific location. Since conflict studies imply direct observations of road users' behaviour, they help in identifying manoeuvres that are particularly hazardous, and that can easily became the real crashes if someone did not react quickly enough.

A well-accepted definition of traffic conflict is: “An observable situation in which two or more road users approach each other in space and time to such an extent that there is a risk of collision if their movements remain unchanged”.

For successfully implementation of traffic conflict techniques the following conditions are needed:

- Recorders must be trained to recognize and capture the conflicts,
- If more than one recorder is using, they all should apply the same criteria for identifying the conflicts, as well as severity of conflicts and
- Conflict recording period should correspond to the time when most of crashes have happened.

One of most used models for traffic conflict technique is the so called “Swedish model” or “Swedish conflict technique”. According to this model, a dangerous place is the place where are three conflicts recorded in the period of 60 min.

As a help, recorders could use predefined form. An example of a typical form is shown at Figure 3.4.4.1.

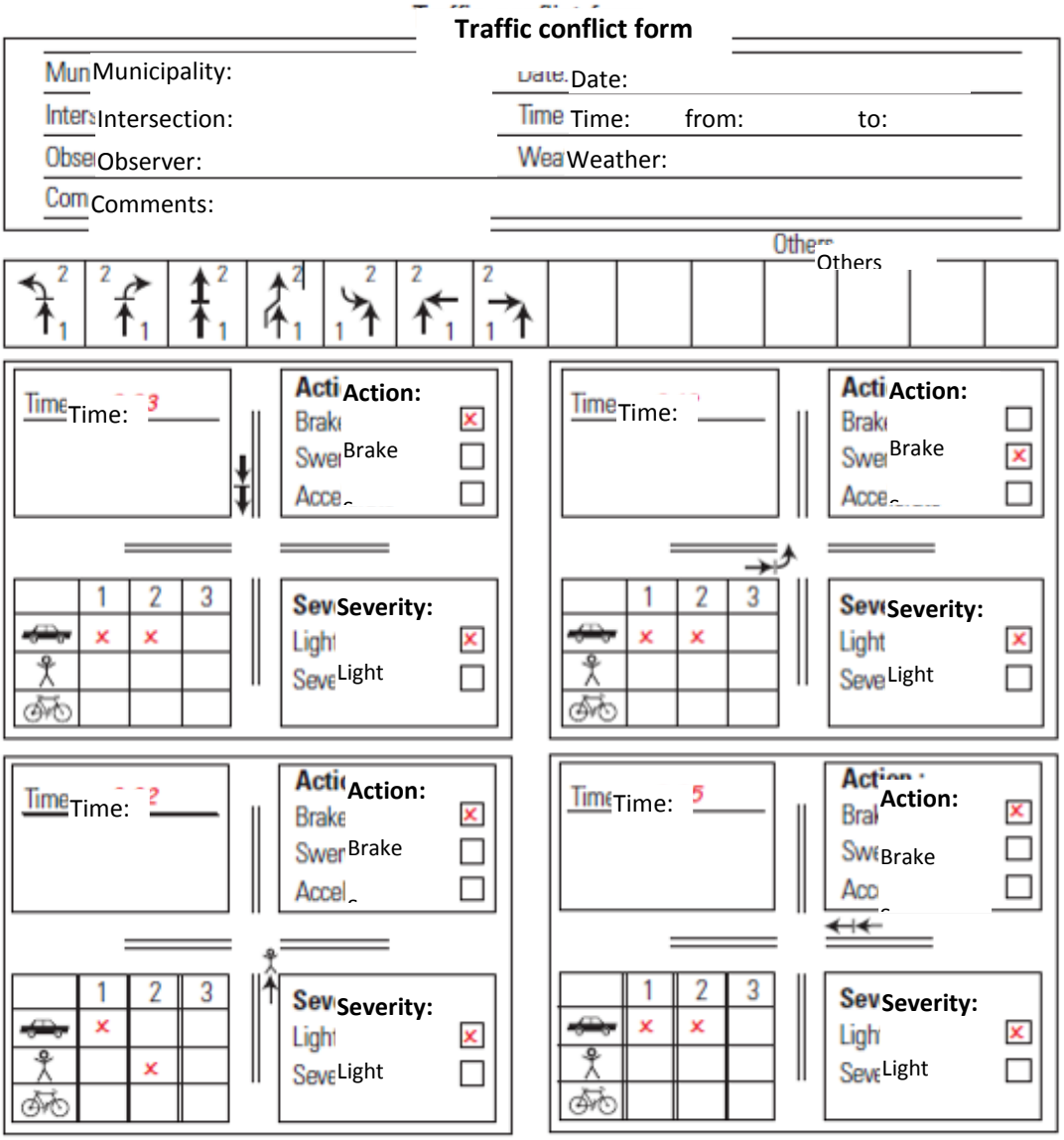


Figure 3.4.4.1. Possible look of Traffic conflict form

Beside, previously mentioned methods and techniques for field analysis, the following recommendations should be followed:

- The investigator should put himself, as best as possible, in the crash situation. The location should be approached a number of times with the "dominant" mode of vehicle from the relevant direction. Attention should also be given the route leading to the location.
- The field analysis should be carried out, as much as possible, under the circumstances similar to those prevailing at the time of the crash (time, light, weather conditions, etc.).
- It is sensible to make a list of points of attention per hypothesis for the site investigation beforehand, based on the crash analysis.
- The traffic behaviour at the intersection or road section should be observed. Entrance behaviour, observation situation, functioning of priority regulation, crossing behaviour and complexity of the manoeuvre should be studied carefully.

- Possible causes, not found during the crash analysis, may be found during the site investigation. It could be useful to take photos or video in order to enable assessment of the situation afterwards. The recording should preferably be made from position of the parties involved (location and eye level).
- Always take good time for the site investigation. Talking to people living nearby could generate useful supplementary information.
- Try to find the relation between the crash pattern and the road/road environment.

3.4.5. Determine the cause of crash

If the site investigation provides sufficient evidence for the hypotheses, then the probable crash causes can be determined for each dominant crash type.

It is important to compare the various findings from the site investigation. They can be complementary but can also sometimes be contradictory. Different types of crashes can sometime have the same cause.

Based on the findings, the hypotheses could be confirmed or rejected for each dominant type of crash characteristic. The dominant cause of crash should be determined in order to guide the decision about countermeasures proposed.

3.5. Determination of Black Spot Treatment

When the causes of each dominant crash type have been established, the results should be discussed among concerned stakeholders. Next, the objectives and solutions have to be defined and decided on.

The countermeasures

The countermeasures should eliminate the main causes of crashes. The various counter measures for preventing the various dominant types of crashes should form a unified whole solution. If the research brings deficiencies in the existing design to light, the design has to be adjusted. Some of typical black Spots and preventive countermeasures and potential crash savings are presented in Chapter 4 and 5.

If the cause of crashes lies in the use of infrastructure and little can be done through infrastructural measures, or only at extraordinarily high cost, then activities such as traffic safety education, media campaign and strong law enforcement are more suitable. However, much can also be done to improve road user behaviour through improved traffic signing, speed limits and warnings.

All proposed measures should be oriented towards problem solving. It should be noted that combating against one kind of crash might, after all, lead to generation of another crash type or transference of the crashes to another place. For example, a speed limiting measure such as a speed hump in an intersection can have a beneficial effect on the number of give-way crashes. When the same measure is applied to a main road, with high traffic volumes and speed over 50 km/h (where such measure not expected by drivers), this measure can lead to a worse situation than the original problem.

When countermeasures proposal consists of structural measures special attention should be given to potential side effects, and especially to the measures which may influencing traffic

circulation.

In the process of determination of the Black Spot treatments priority should be given to the, so called, "low cost" solutions. Low cost does not mean low quality. This means low capital cost and therefore rapid implementation by upgrading road infrastructure in as many as possible Black Spots which will lead to the decreasing the number of crashes. Better delineation, installation of guardrails, use of "speed bumps", improving of lighting, use of traffic signs with high retro reflection and high quality line markings and reflective signing are typical low cost measure which are often all that is needed at many rural Black Spots in TRACECA Countries to improve their level of safety.

When proposing measures, several alternatives or a combination of measures may be suggested. The output from this step is expected to be the proposal of Black Spot treatment with preferably application of high effective and low cost measures. The final choice of measure will be made upon cost/benefit analysis.

Until TRACECA Countries develop their own experiences in countermeasure effectiveness, World Road Association - PIARC Catalogue of design safety problems and potential countermeasures (2009) can be used. This catalogue was prepared by a team of experts drawn from the roads authorities around the world.

Estimation of crash reduction

Until now in TRACECA Region there are not too many documented experiences about the effects of implemented road safety countermeasures.

Chapter 5 contained a list of evaluated countermeasures from different courtiers, which can be used until the regions own experiences is collected. A set of expected reduction factors is given in the list where all measures are accompanied with the expected percentage of crash reduction. This list is made as a result on different case studies and research work. Usually, the analysis of road crashes is done before and after the implementation of the particular countermeasures and effects were recorded.

The expected road crash reduction factors can be used to estimate the potential crash reductions for selected countermeasures. Crash reduction factors can be also used for estimating the economic worth of projects and prioritization.

In time, crash reduction factors for each TRACECA Country will be developed, and these will allow more accurate estimates of benefits to be made.

3.6. Ranking (Priority listing upon cost/benefit analysis)

In the early years of BSM usage, ranking was pretty simple and based on number of crashes (primarily on crashes with fatality). In this way, a ranking list of Black Spots was prepared focusing only on total number of fatal crashes. Even with usage of a weighted index proposed model is pretty simple for usage.

Soon, in the process of BSM (especially in the part of determining treatment measures for improving the road safety), the following question arises: “What profits the investment into various measures (solutions) will bring in return?” To answer this question, the effect of the treatment must be related to their costs. Methods being used for this purpose are generally known as cost/benefit analysis.

The characteristics of cost/benefit analysis are that it relates the effects and cost of implemented measures.

The purpose of cost/benefit analysis is to determine priorities of measures (ranking). The determination of priorities can be used in two ways:

1. To identify the most effective measures within a determined budget.
2. To calculate the budget required for the best effect.

In most cases the first aim prevails, as the budgets are always limited.

The required information or input to carry out the cost benefit is:

1. A working list of Black Spots locations.
2. Design and cost estimates of proposed measures.

Procedure of cost benefit analysis is:

1. Calculate the annual cost per measure,
2. Estimate the number of prevented crashes,
3. Calculate the cost-benefit ratio of measures and
4. Determine priorities of measures.

Simplified method of calculating Fatality Cost Ratio (FCR):

In order to accurately determine the benefits which society will have after treatment of Black Spot, it is necessary to know the value of human life. It is normal to calculate the economic value of human life a value and calculate the amount of money that society will save by preventing fatalities by implementing proposed measures.

A detailed calculation model for "cost/benefit calculations" can be used in future, but simplified calculation model has been accepted and used for some years.

Even that value of human life has not yet been officially established in most of TRACECA Countries, for the purpose of presentation of the proposed model, crash costs from a previous Study undertaken in one of TRACECA Countries was used. So, for the purpose of testing the model, human life value will be set to **290 652** Euro.

FCR - Fatality Cost Ratio = (fatalities per year * 290 652) / cost of countermeasures

The above formula, presents a simplified calculation model where the number of fatalities at a Black Spot per year is taken from historical records, multiplied by adopted value of fatal crashes and divided by the cost of relevant countermeasures. This formula can be also be used where fatalities are substituted by casualties. Casualties in this case mean the total of any fatal crashes and any injury crashes.

For example, let us assume that a particular Black Spot has 4 recorded fatalities over a three year period (an average of 1.33 fatalities per year). After a site investigation and assessment of crash report data, it is calculated that the cost of countermeasures are about 30000 Euro.

The Fatality Cost Ratio then becomes:

FCR 1 = (1,33 * 290652)/ 30000
FCR 1 = 386567.16/ 30000

FCR 1 = 12,88:1

Now let's say, that another Black Spot site has the average of 3 fatalities per year, and after the site investigation it is shown that the cost of countermeasures comes to 20000 Euro.

The Fatality Cost Ratio then becomes:

FCR 2 = (3 * 290652)/ 20000
FCR 2 = 871956/ 20000
FCR 2 = 43,59:1

This shows that the second site, with a FCR 2 of 43,59:1, gives almost four time more benefit than the first site which only gave an FCR of 12:88:1 so site 2 should be given more propriety for implementation. This systematic, scientific approach enables more rational decision-making and more effective use of the limited funds available for road safety.

This is a very simple technique for prioritising which shows which Black Spot treatments give society the best return on investment.

Priority list based on Fatality Cost Ratio:

The ranking list of remedial measures should be made on the basis of the FCR. From this list measures may be ranked in order of priority for implementation.

Some other factors should be also considered before the final priority list is created. These factors could be implementation problems (physical, legal, ecological, etc.), limited funds available for investment, other consequences for the transport system (such as costs of congestion, etc.) and others. Experience shows, that plans based only on effective but unpopular counter measures may end up not being implemented. However, if the final decision differs from the ranking order, such deviation from procedure should be clearly pointed out in order to present leading and justification to that decision.

Prioritized treatment measures should be put into the annual Business or Action program (plan) of the Road Authority as a separate and transparent parts of the plans. If there are not enough funds in the eventual annual budget, some of proposed Black Spots could be rescheduled for the following year.

3.7. Programming, Budget and Financing

After the Black Spots are prioritized the next step is making a National (Country) Program (NP) for their treatment (implementation of measures). A national medium or long term road safety Program is a prerequisite for achieving sustainable improvements in road safety and improvement of Black Spots. The NP should set measurable mid/long term road safety targets.

The most urgent remedial measures, ranked according priority, have to be put into the priority Business/Action Plan and a basic system or standard institutional implementation procedure for effective Black Spot treatment should be established.

The main objective of the NP should be to reduce the social and economic costs of road crashes and trauma by:

- cost effective treatment of locations with a history of fatality crashes,
- placing significant focus on the need to reduce road trauma,

- coordinating and strengthening the activities of all the key road safety stakeholders who can influence on road safety and
- allocate adequate funds to treat selected locations.

Under the NP, implementation of the priority Action Plan should be undertaken for the implementation of program. In most cases, the Action Plan for Black Spot treatment incorporated into Road Authority activities and take a transparent place in their annual business and budgeting plans. The number of annually treated locations should be in accordance with available budget of Road Authority for BSM. It is likely that the number of Black Spot will be bigger than the available annual budget; NP should be made for three years.

A time scale of three year is suggested, because it allows implementation of measures for a reasonable number of Black Spots. External specialist road safety advisory input might be required for this purpose.

As the Black Spot treatment NP usually will cover a period of 3-5 years (with annul revisions), a long term sustainable funding (financing) is required to cover the implementation.

In order to achieve the benefits of a Black Spot program, it has to be systematically implemented over a period of time. Equally important is the evaluation of effects from the program implemented.

3.8. Implementation of Treatment measures

The Road Authority is responsible for initiating, coordinating and overseeing project implementation, including procurement, financial management, project monitoring and reporting, and the day-to-day supervision of project activities.

The main objectives of Road Authority are:

- To provide leadership and framework for effective implementation of road safety measures and
- High standard of road safety during implementation.

3.9. Design and Construction

Depending on to the character and the size of the construction work on Black Spot locations the Road Authority could either use the internal or external design capacity and maintenance department or external contractor for the design or work implementation.

It is the responsibility of the Road Authority (or delegated organization) to ensure safety at road works. The work site should be properly signed with temporary signalization during road works period. Risks for the road workers as well as for the road users must be avoided.

In addition any delays of construction work which can cause discomfort for the road users or neighbourhoods and should be minimized.

3.10. Follow up and Evaluation

When a period of time (1-2 years) has elapsed and the road users are familiar with the new traffic situation some after-research should be carried out in order to evaluate the effects of

the implemented counter measures. This could be done by Road Authority (Road Safety Unit if such exists).

Evaluation is the permanent monitoring of the effects of measures implemented, followed by the comparison with the goals set. Monitoring means collection of traffic data and crash data, complaints and general views on the situation. Experience shows that implemented measures sometime do not immediately lead to an improvement of the situation.

Comparison with the goals set. This means: an answer to the question whether results are as expected (do the results comply with the goals) or not.

An evaluation period of 1-2 years (sometimes even 3 years) is generally used in many countries before any definite conclusions can be made. If the effects are not satisfactory, then analysis should be repeated and corrected or new measure should be introduced.

The “after-data” should be documented together with “before-data” and used as an experience bank (Catalogue of road safety countermeasures) for the future.

For example, "before and after" crash levels at the Black Spot site should be monitored. Part of this analysis includes using the database to make sure that there has been a significant reduction in the number of crashes at a Black Spot site. The results are used to create a new entries to the list with data about reduction of crashes (Chapter 5).

The crash analysis experts should analyse the “after studies”, because it is important to fully understand the effect of the Black Spot measures and Program and eventually if necessary make adjustments.

3.11. Documentation

It is important that all technical and financial documentation of Black Spot Management is saved and available for future users. To determine the actual effect of countermeasures actual effect on fatal crashes, independent evaluation of the project may be conducted from time to time. Road Authority should maintain all the adequate documents and records for the whole process so that appropriate data will be available for this purpose.

Documentation is also a valuable tool for education and training of people involved in the Black Spot remedial process. To learn from successful and less successful countermeasures is essential. Also, data from documentation could be used for adding the information in Catalogue of countermeasures.

4. TYPICAL BLACK SPOTS

According to international best practice, there are some types of typical dangerous places on roads in TRACECA region.

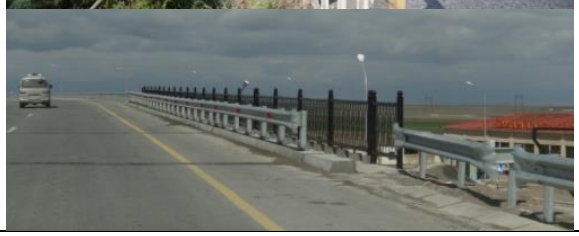
Surveys of Black Spots in some of TRACECA Countries and examination of the road networks, were used for preparation of this chapter of Guidelines. BSM surveys were done in combination of office and field work.

After detailed analysis of investigated locations (Black Spots or Black Sections), as well as survey of other parts of the road network (Project team have had an opportunity to examine more than 5000 km of major roads in different TRACECA Countries), the following typical locations/problems can be pointed out, as more dangerous than others:

Figure 4.1. Typical black spots and countermeasures

Black spot description / Typical countermeasures	**Illustrations**
- Roads passing through towns (too many access roads, mixed traffic, high speeds, illegal parking of vehicles, pedestrians, insufficient visibility, street markets, ...).	
- access control (closing of illegal access roads) - separation of shoulders by barriers - traffic calming (signs, physical obstruction, road surface and larger schemes) - construction of foot pass - construction of pedestrian crossing help - new signing and marking - installation of artificial lighting - add specific (UN-standard) signs - ...	
- Intersections **Problems** (dangerous types such as "Y" intersections, dangerous roundabouts with inadequate deflection, bad design or intersections without enough visibility, with inadequate signing and marking, problems with pedestrians, ...).	
Possible solutions - reconstruction of intersection (adding of channelization islands, improving of visibility, ...) - improving of signings and markings (clear wait and right of way) - installation of artificial lighting - add specific (UN-standard) signs - ...	
- Dangerous curves **Problems** (curve with the lack of visibility, too small radius for the road range, inadequate cross-slope, without the necessary signing and marking, ...).	
Possible solutions - improving of geometry (increase the curve radius if necessary) - improving of visibility (signings and markings, adding of rumble strips, etc.) - additional vertical signalization (warning signs, chevron signs) - add built-in asphalt markers - add guardrails	

- add specific (UN-standard) signs - ...	

- Road narrowing **Problems** (at bridges and culverts, with the traffic conditions that compromise road safety, with inadequate signs and markings, ...).	
Possible solutions - widening of the narrow section - improving of signings and markings - additional vertical signalization - add built-in asphalt markers - add guardrails - add specific (UN-standard) signs - ...	
- Bridges *(Tunnels)* **Problems** (objects on the road usually between two curves, lack of visibility, without adequate traffic signing and marking, mostly without vehicle guardrails, ...).	
Possible solutions - improving of signings and markings - additional vertical signalization - add built in asphalt markers - add guardrails against EN 1317 - usage of tunnel safety standards and norms - adding of artificial lightening - add specific (UN-standard) signs - ...	

- Pedestrian crossing **Problems** (Inadequately designed, signed and marked, poorly visible, without the necessary traffic equipment in areas of intense movement of children, with no lighting).	

Possible solutions - improving of design and signings and markings - traffic calming (signs, physical obstruction, road surface and larger schemes, especially usage of humps and rumble strips - construction of pedestrian crossing help (refugee islands, pedestrian guard rails,) - adding of pedestrian fences - installation of artificial lighting - add specific (UN-standard) signs - ...	
- Railway crossings **Problems** (Crossing of road and rail at small angle, lack of transparency and visibility, inadequately secured and marked places, ...). **Possible solutions** - improving of signings and markings - additional vertical signalization - add built-in asphalt markers - add specific (UN -standard) signs - ...	

Apart from typical dangerous places (Black Spots), there are usually a few systemic deficiencies of active and passive road safety, such as:

- absence of UN compliant road signings and markings,
- low quality of passive road elements (guardrails are not in accordance with road range or not made upon adequate specification),
- a large number of commercial activities and stalls are too close to the state roads, especially on the sections of roads where they pass through populated places (cities),
- a large number of unregulated (illegal) access roads, etc.

Understanding the most typical occasion, which produces the Black Spots, is as important as desire to be active and to prevent them. The causes of Black Spots could be removed in the design phase, construction works and road maintenance.

It can be concluded that in almost all locations, there is a lack of signings and markings, to provide adequate guidance and information to its driver, as well as missing guardrails to protect them even if they make a mistake.

One suggestion could be, that all identified Black Spots should be marked with non-standard traffic signs. With this, the dangerous locations will be easily recognized by road users (mostly drivers), and they will adjust their behaviour (speed) to local road conditions. These signs will be removed after improvement (reconstruction, rehabilitation or else) at that location.

Proposed countermeasures and ways of signing the Black Spots are based on the experiences of developed countries and international associations (IRF, ERF, PIARC, PRI, WB, OECD, ECMT, etc.) Thus, provide an effective and uniform management system of Black Spots on the entire

network of State roads.

5. POTENTIAL CRASH SAVINGS

For any kind of countermeasure proposal it is necessary to know crash reduction potential. Therefore a list is proposed of the most usual low cost countermeasures with their expected effects.

The following table is collated from results of different international research projects and case studies and can be use for understanding the potential crash savings of different countermeasures. Table 5.1. presents each different proposed countermeasure (treatment) and its potential crash reduction as a percentage. Usually, minimum and maximum effects are presented.

Table 5.1. Efficiency (crash reduction) of different countermeasures

Treatment	Potential crash reduction [%]
Road Standard	
Improve to higher standard	19-33
Increase number of lanes	22-32
Lane widening 0,3 – 0,6 m	5-12
Paved shoulder widening 0,3 - 1 m	4-12
Add median strip	40
Bridge widened or modified	25
Widen shoulder	10
Overtaking lane	20
Right turn lane	40
Left turn lane	15
Pedestrian overpass	10
Side slope flattening from: 2:1	
to 4:1 ... 7:1 or flatter	6 ... 15
Side slope flattening from: 4:1	
to 5:1 ... 7:1 or flatter	3 ... 11
Service roads	20-40
Traffic calming	12-60
Speed reduction from 70 km/h to 50 km/h	10-30
Speed reduction from 90 km/h to 60 km/h	17-40
Horizontal Alignment	
Improve geometry	20-80
Curvature: improving radius	33-50
Vertical Alignment	
Gradient / removing crest	12-56
Super elevation improvement/introduction	50
Passing lane	11-43
Climbing lane	10-40
Road Structure	
Lane widening	12-47
Skid resistance improvement	18-74

Shoulder widening	10-40
Shoulder sealed	22-50
Road verge widening	13-44
Junction Design	
Staggered (from straight) crossroads	40-95
T-junctions (from Y-junctions)	15-50
Fully controlled right turn phase	45
Roundabouts (from uncontrolled)	25-81
Roundabouts (from traffic signals)	25-50
Mini roundabouts (from uncontrolled)	40-47
Turning lanes	10-60
Traffic islands	39
Sheltered turn lanes (urban)	30
Sheltered turn lanes (rural)	45
Additional lane at intersection	20
Skid resistant overlay	20
Red light camera	10
Law enforcement by the Police	7-25
Traffic Control	
Regulatory signs at junctions	22-48
Guidance/directional signs at junction	14-58
Overhead lane signs	15
Side road signs	19-24
Brighter signs and markings	24-92
Signs and delineation	29-37
Bend warning signs	20-57
Stop ahead sign	47
Speed advisory sign	23-36
Warning/advisory signs	20
Speed limit lowering - & sign	16-19
Yield/Give Way	59-80
Stop sign	33-90
Signals from uncontrolled	15-32
Signals - modified	13-85
Junction channelization	10-51
Remove parking from road side	10-25
Visibility	
Lane markings	14-19
Edge markings	8-35
Yellow bar markings	24-52
Raised reflective pavement marking	6-18
Delineator posts	2-47
Flashing beacons	5-75
Lighting installations	6-75
Sightline distance improvement	28
Channelization medians	22-50
Crash Amelioration	
Median barrier	14-27
Side barriers	15-60
Frangible signs	30
Tree removal (rural)	10

Pole removal (lighting poles, urban)	20
Embankment treatment	40
Guardrail for bridge end post	20
Impact absorber	20
Pedestrian Facilities	
Pedestrian walkways	33-44
Pedestrian zebra crossings	13-34
Raised zebra crossings	5-50
Pelican crossings	21-83
Marking at zebra crossing	-5-14
Pedestrian refuges	56-87
Footbridges	39-90
Pedestrian fencing	10-35
Cycling Facilities	
Cycle schemes	33-56
Marked cycle crossing at signals	10-15
Cyclist advanced stop line at junctions	35
Rail Crossings	
Flashing signals	73-91
Automatic gates	81-93
Traffic Calming	
30 km/h zones (inc. humps, chicanes etc.)	10-80
Rumble Strips	27-50
Rumble Strips and Bumps	20-80

NOTES:

1. Crash Reductions are NOT ADDITIVE, use highest value if multiple treatments are proposed for a particular location.
2. Reductions apply to all crashes within single intersections or single midblock that contain the treatment.

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ПРОЕКТ

Техническое примечание 3

РЕГИОНАЛЬНЫХ РЕКОМЕНДАЦИЙ ПО УПРАВЛЕНИЮ МЕСТАМИ КОНЦЕНТРАЦИИ ДТП

Региональный план действий по безопасности дорожного движения ТРАСЕКА

Команда по технике безопасности

Март 2015

Финансируемый ЕС проект по безопасности дорожного движения ТРАСЕКА
для
Армении, Азербайджана, Грузии, Казахстана, Киргизстана, Молдовы, Таджикистана, Туркменистана, Украины, Узбекистана

ПРЕДИСЛОВИЕ К ПРОЕКТУ РЕГИОНАЛЬНЫХ РЕКОМЕНДАЦИЙ ПО УПРАВЛЕНИЮ МЕСТАМИ КОНЦЕНТРАЦИИ ДТП ДЛЯ СТРАН TRACECA

Управление местами концентрации ДТП (УМК) является одним из первых инструментов безопасности дорожного движения, применяемых для улучшения аварийно-опасных мест и участков дорог. Даже сегодня опыт развивающихся стран демонстрирует высокую эффективность и экономичность УМК как инструмента для повышения безопасности автодорог.

Выявление и анализ мест концентрации ДТП, проведение мероприятий в них является зарекомендовавшим себя способом снижения количества и тяжести ДТП на дорожной сети. Эффективные и экономичные мероприятия по их ликвидации могут дать в первый год рентабельность в несколько сот процентов. Мероприятия по ликвидации мест концентраций ДТП входят в число наиболее экономически выгодных инвестиций, которые может предпринять орган управления автодорогами.

В связи с тем, что не существует единого понятия «черная точка», команда настоящего проекта совместно с заинтересованными сторонами предложила соответствующее и унифицированное определение места концентрации ДТП для использования в странах TRACECA. Предложенное определение места концентрации ДТП звучит так: «Какой-либо участок автодороги максимальной протяжённостью 300 м, на котором за последние три года зафиксировано не менее четырёх ДТП со смертельным исходом»[19].

Отдельное внимание уделено удобству рекомендаций для применения и команда проекта строит их на существующем позитивном опыте и примерах в регионе. В настоящих рекомендациях вместо слова «авария» применяется словосочетание «дорожно-транспортное происшествие» с целью сделать акцент на том, что это событие можно упредить и избежать, и оно не является чем-то неизбежным, что находится вне зоны контроля человека.

Настоящие рекомендации по выявлению и ликвидации мест концентрации ДТП состоят из шести разделов и приложения. При необходимости, они опираются на передовой мировой опыт и руководства, существующие по всему миру. Авторы настоящих рекомендаций хотели бы выразить свою признательность перед подобными руководствами и их авторами, а ключевые из них указаны в списке источников.

Данные рекомендации были разработаны для обеспечения использования рекомендуемой методики управления местами концентрации ДТП в странах ТРАСЕКА. Основной целью данных рекомендаций является предоставление читателю четкого представления о необходимых шагах для ликвидации мест концентрации ДТП.

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[19] ***Примечание:***

** ДТП со смертельным исходом – при котором погиб как минимум один человек.*

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Аббревиатуры и сокращения

АБР	Азиатский банк развития
УМК	Управление местами концентрации ДТП
ЕК	Европейская Комиссия
ЕИБ	Европейский инвестиционный банк
ЕСБТ	Европейский Совет по безопасности на транспорте
ЕС	Европейский Союз
GLONASS	Глобальная навигационная спутниковая система
МБРР	Международный банк реконструкции и развития
МФУ	Международные финансовые учреждения
МВД	Министерство внутренних дел
МТС	Министерство транспорта и связи
PIARC	Всемирная дорожная ассоциация (PIARC фактически означает Постоянно действующую международную ассоциацию дорожных конгрессов, но такое название употребляется редко)
АБДД	Аудит безопасности дорожного движения
ИБДД	Инспекция безопасности дорожного движения
SEETO	Юго-восточная европейская транспортная обсерватория
РГ	Руководитель группы
ТЗ	Техническое задание
ДП	Дорожная полиция
TRACECA	Транспортный коридор Европа – Кавказ - Азия
ЗЕ-ЗК	Международный Транзитный Коридор «Западная Европа – Западный Китай»
ВОЗ	Всемирная организация здравоохранения

1. ВВЕДЕНИЕ

В настоящее время ДТП общепризнаны серьёзной социальной и экономической проблемой и разработаны различные мероприятия и программы для уменьшения кровавой дани на дорогах. На международном уровне Организация объединённых наций, Всемирная организация здравоохранения, Европейская комиссия, международные финансовые учреждения (особенно Мировой банк, АБР, ЕИБ, МБРР, Исламский банк и др.) и ряд специализированных неправительственных организаций (PIARC, ETSC, PRI, SEETO и др.) сегодня работают над повышением БДД в глобальном масштабе. Осенью 2009 года министры и заинтересованные лица со всего мира встретились в Москве на Первой глобальной министерской конференции по безопасности дорожного движения и призвали ООН взять на себя руководство данной глобальной проблемой, влияющей на все нации. Вопрос был обсуждён в ООН и в 2011 году было объявлено десятилетие безопасности дорожного движения. В настоящее время международное сообщество в лице РЭК ООН, ВОЗ, инвестиционных банков, крупных исследовательских институтов в сфере БДД, глобальных компаний и НПО сотрудничают для решения этой глобальной проблемы.

Одним из популярных заблуждений является то, что почти во всех случаях единственной причиной ДТП являются ошибки или некорректные действия водителя.[20] Из результатов основополагающего исследовательского проекта очевидно (рисунок 1.1), что в каждом третьем ДТП дорожные условия имели как минимум такое же влияние на совершение ДТП (факторы дорожных условий составили 34 %).

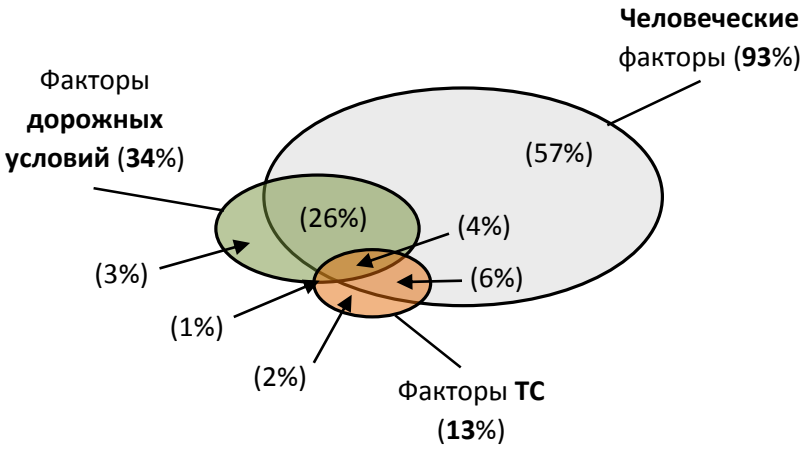

Рисунок 1.1. Влияние факторов ДТП
(Источник: Руководство по безопасности дорожного движения, PIARC, 2003)

Вследствие признания того факта, что большинство ДТП возникли под влиянием нескольких факторов, был создан менеджмент безопасности дорожного движения как наилучший путь снижения общего количества ДТП в стране.

[20]Частично причиной этого является тенденция полиции фокусироваться в отчётности на наказании и кажущееся наличие в подавляющем большинстве ДТП человеческого фактора / ошибки водителя. Однако, полицией часто не выясняется и в статистике не фиксируется ответ на вопрос «Почему водитель совершил данную ошибку?» (например, из-за вводящей в заблуждение информации, отсутствия дорожных знаков или даже небезопасных элементов дороги или транспортного средства).

Выявление, анализ и мероприятия по ликвидации мест концентрации ДТП являются зарекомендовавшим себя способом снижения количества и тяжести ДТП на дорожной сети. Эффективные и экономичные мероприятия по их ликвидации могут дать в первый год рентабельность в несколько сот процентов. Мероприятия по ликвидации мест концентраций ДТП входят в число наиболее экономически выгодных инвестиций, которые может предпринять орган управления автодорогами.

Путём принятия Европейским Парламентом и его Советом опубликованной в октябре 2008 года Директивы № 2008/96 по управлению безопасностью дорожной инфраструктуры Европейский Союз принял чёткое решение о том, что УМК в ближайшие годы станет обязательным на трансъевропейской сети автомагистралей.

В указанной директиве УМК является частью комплекса мер по БДД, включающего:

- Оценку воздействия на безопасность дорожного движения (ОВБДД),
- Аудит безопасности дорожного движения на разных стадиях проектирования автодорог (АБДД),
- **Оценку безопасности и управление дорожной сетью на стадии эксплуатации, включая управление аварийно-опасными участками (УМК),**
- Инспекцию безопасности дорожного движения на существующих автодорогах (ИБДД), а также
- Детальный анализ дорожно-транспортного происшествия (ДАДТП).

Данные меры являются неотъемлемой частью обширной системы управления безопасностью дорожного движения, как показано на Рисунке 1.2.

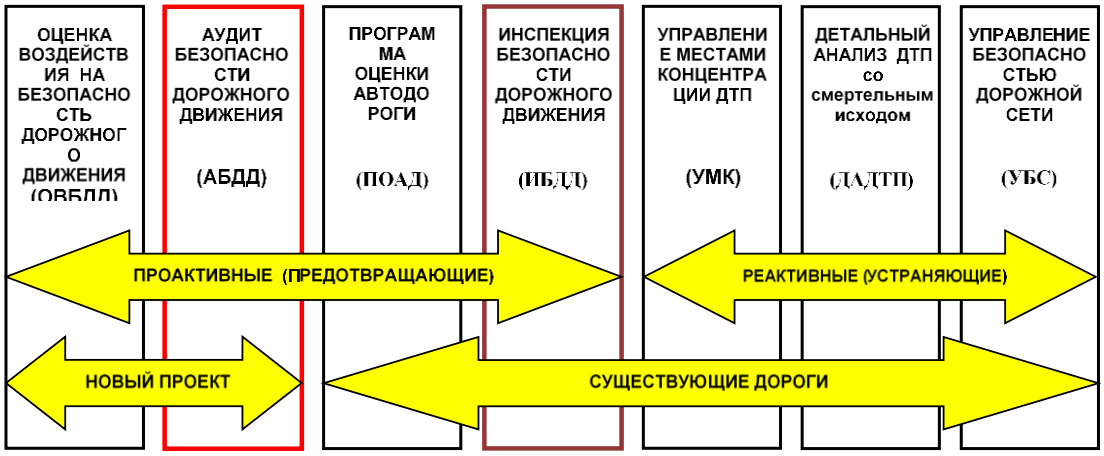

Рисунок 1.2. УМК как часть управления безопасностью дорожного движения (Источник: Руководство по аудиту БДД, SEETO, 2009 год)

Из рисунка 1.2 понятно, что УСМ является реактивной процедурой, которая выполняется на существующих автодорогах.

Результатом УМК обычно является предложение мероприятий, которые снизят риск ДТП на рассматриваемом участке.

Рекомендации по выявлению и ликвидации мест концентраций ДТП основываются на мировом передовом опыте, особое внимание уделено гармонизации подходов к управлению местами концентрации ДТП в странах TRACECA.

2. ВВЕДЕНИЕ В УПРАВЛЕНИЕ МЕСТАМИ КОНЦЕНТРАЦИИ ДТП

2.1. Что такое управление местами концентрации ДТП? (Определение)

Управление местами концентрации ДТП представляет собой системный подход к выявлению, анализу, проведению мероприятий по ликвидации и оценке мероприятий относительно опасных участков на дорожной сети. Основой выявления мест концентрации ДТП является анализ статистических данных карточек ДТП и нанесения мест ДТП на карту. Поэтому важным и необходимым инструментом для эффективной работы с местами концентрации ДТП является соответствующая база данных ДТП.

Результатом УМК является улучшение условий на опасных участках автодороги после применения оптимальных мер, которые предупреждают возникновение ДТП в будущем и увеличивают общий уровень безопасности дорожного движения на сети.

В базе данных должна содержаться как можно более точная информация о месте ДТП (желательно с GPS-координатами), информация о виде ДТП, схема столкновения, данные о водителях, и, если были смертельные случаи или травмы, информация о жертвах. Информация о участвующих в ДТП ТС и состоянии дороги, а также погодных условиях во время ДТП, также является важными фактами для анализа ДТП.

Нет единого определения того, что должно относится к местам концентрации ДТП. Исследователи в целом соглашаются, что место концентрации ДТП можно описать как **место, в котором происходит большее количество ДТП по сравнению с аналогичными местами в результате местных факторов риска**. Однако, на практике это определение оказывается не таким простым.

Команда настоящего проекта совместно с заинтересованными сторонами в разных странах TRACECA предложила соответствующее и общее определение для регионального применения. Предложенное определение места концентрации ДТП звучит так: **«Какой-либо участок автодороги максимальной протяжённостью 300 м, на котором за последние три года зафиксировано не менее четырёх ДТП со смертельным исходом».**

Более того, определён участок концентрации ДТП на дороге как **какой-либо участок автодороги максимальной протяжённостью 1000 м, на котором за последние три года зафиксировано не менее шести ДТП со смертельным исходом.**

Предложенные выше определения относятся к классу числовых и предлагаются для применения в ходе начального периода управления местами концентрации ДТП. Главная причина, по которой команда проекта предлагает унифицированное определение, состоит в необходимости иметь одну общую картинку вместо 10 различающихся местных определений. Данный подход поможет гармонизировать управление местами концентрации ДТП в регионе, а также быстро установить количество мест концентраций ДТП на всех важных транспортных коридорах, пересекающим регион. Также предложенный подход поможет МФУ в реализации проектов в транспортной сфере и сфере БДД, а, главное, - поможет водителям региона легко определять место концентрации ДТП на дороге благодаря согласованным знакам и, возможно, доступной через интернет базе данных мест концентрации ДТП (уже есть инициативы некоторых НПО на выполнение подобного проекта).

Все предложенные числовые значения в определении места концентрации ДТП должны быть протестированы и применяться в дальнейшем только, если они обеспечат

применимый и логичный результат (*например,* ***общее количество выявленных мест концентрации ДТП в стране – от 50 до 150***). Необходимо отметить, что определение может быть скорректировано в будущем, когда большинство (не менее 2/3) выявленных опасных мест будут ликвидированы (улучшены).

В будущем могут применяться некоторые из более сложных моделей. Например, анализ пространственного распределения ДТП (опирающийся на современные ГИС-инструменты), позволяющий более точное выявление мест ДТП с накоплением информации о ДТП. С другой стороны, учитывая различие типов жертв в наблюдаемых ДТП, каждому из них может быть присвоен весовой коэффициент, основанный на степени тяжести. Весовые коэффициенты исходя из затрат на последствия ДТП, предложенные Всемирной дорожной ассоциацией (PIARC), следующие:

- ДТП с лёгкими телесными повреждениями умножается на весовой коэффициент 1,
- ДТП с серьёзными телесными повреждениями умножается на весовой коэффициент 10 и
- ДТП со смертельным исходом умножается на весовой коэффициент 85.

Таким образом, каждому из мест концентраций ДТП может быть присвоен так называемый «весовой индекс ДТП», который характеризует это место концентрации ДТП одним уникальным значением. На основании этого значения может быть проведено ранжирование мест концентрации ДТП и выбрано к ликвидации определённое количество опасных участков согласно имеющемуся бюджету.

2.2. Методология управления местами концентрации ДТП

Рекомендации разработаны на основании исследовательского проекта за средства ЕС RIPCORD – ISEREST, опыта команды настоящего проекта и в тесном сотрудничестве с заинтересованными сторонами.

Схема процесса управления местами концентрации ДТП составлено с учётом мирового передового опыта, а также специфических потребностей стран TRACECA. Выяснено, что существенное изменение структуры вовлечённых организаций, а также использование сложных комплексных моделей не представляются возможными для реализации, поэтому предложенная методология управления местами концентрации ДТП является сочетанием минимальных функциональных требований к существующему управлению местами концентрации ДТП в регионе.

Предлагаемая схема процесса управления местами концентрации ДТП приведена на рисунке 2.2.1.

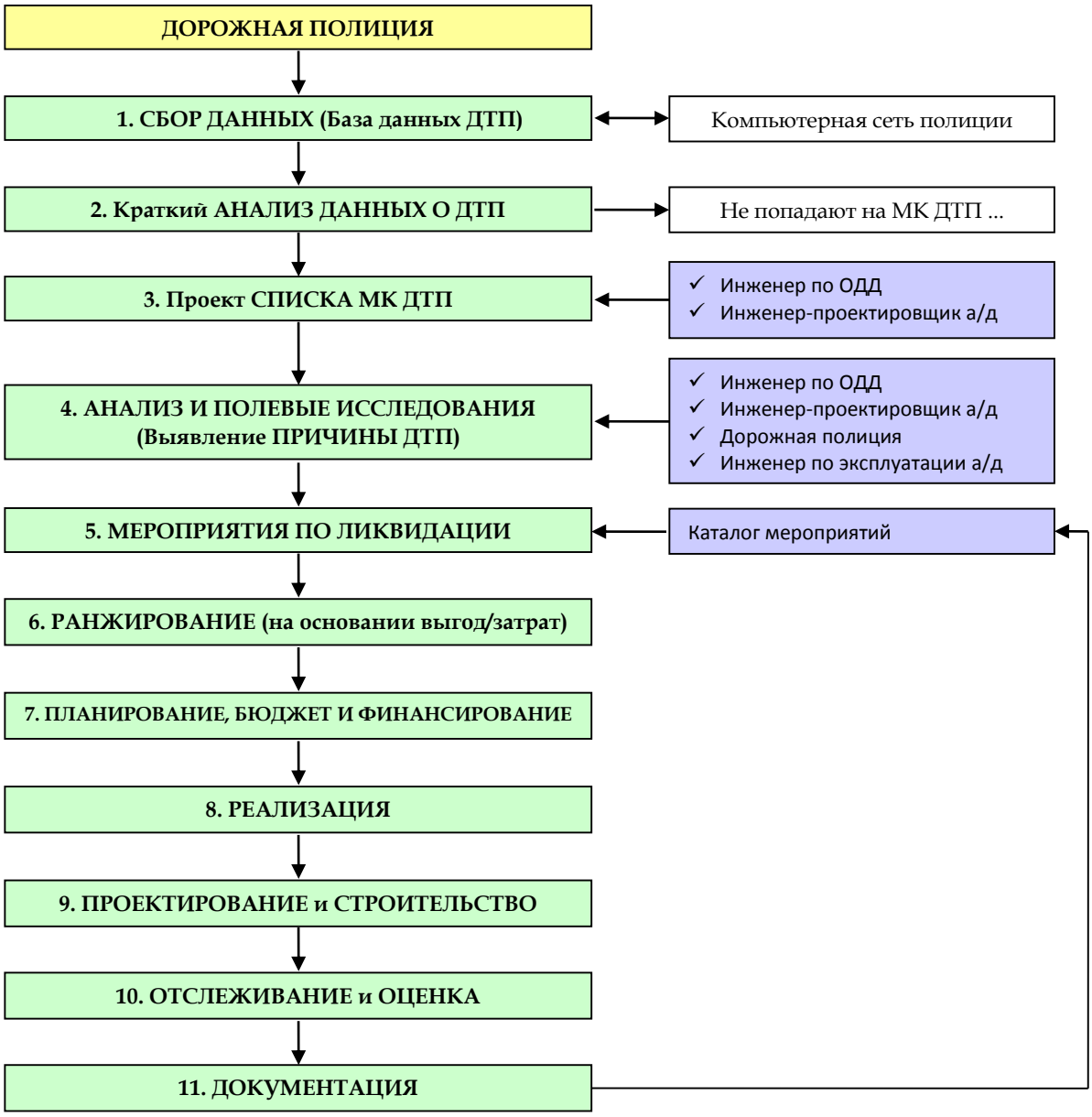

Рисунок 2.1.1. Схема предлагаемого процесса УМК
(Источник: проект за средства ЕС RIPCORD-ISEREST, 2007)

2.3. Структура рекомендаций

Настоящее руководство состоит из шести разделов:

В разделе 1 излагается концепция УМК и поясняется необходимость применения процедур УМК.

В разделе 2 представлены основы УМК. В данном разделе содержатся ответы на вопросы «Что такое УМК?», «Каково определение УМК?», а также методология управления местами концентрации ДТП.

В разделе 3 обсуждается процесс УМК. Предоставлены детальные пояснения всех шагов: Сбор данных (отчётность и база данных), Анализ данных ДТП, Выявление (подготовка списков мест концентрации ДТП), Анализ причин ДТП (камеральный и полевой), Определение мероприятий по ликвидации ДТП, Ранжирование (сортировка на основе анализа затрат/выгод), Планирование, бюджет и финансирование, Реализация мероприятий по ликвидации, Отслеживание и оценка и Документация. В разделе также подробно обсуждается методология, используемая для проведения УМК.

В разделе 4 представлены типичные места концентрации ДТП с наиболее часто встречающимися недостатками БДД. Все приведённые примеры взяты в странах TRACECA.

В разделе 5 содержатся наиболее часто применяемые мероприятия по ликвидации мест концентрации с указанием выгод от предотвращения ДТП.

В разделе 6 представлена использованная литература.

3. ПРОЦЕСС УПРАВЛЕНИЯ МЕСТАМИ КОНЦЕНТАРЦИИ ДТП

3.1. Сбор данных (отчётность и база данных)

Существование качественной и доступной базы данных ДТП является наиболее важной предпосылкой для управления местами концентрации ДТП. Без наличия адекватной базы данных ДТП выявить и отслеживать места концентрации ДТП на дорожной сети невозможно. И даже если база данных ДТП существует, но с трудом доступна для проведения дальнейших исследований специализированными организациями, полицией, то процесс организации системного УМК не будет успешен. Данные о ДТП не являются собственностью полиции, а являются ресурсом, который должен быть доступен (после удаления конфиденциальной информации о водителях и ТС) для всех ключевых заинтересованных сторон, таких как инженеры-дорожники, с тем, чтобы можно было провести дальнейшее детальное исследование наиболее опасных участков.

Как правило, базой данных ДТП, которая может быть использована как основа УМК, обладает Министерство внутренних дел в лице дорожной полиции. В ходе рабочих поездок команды проекта во время начального периода проекта стало ясно, что базы данных ДТП существуют во всех странах TRACECA, но в некоторых из них должны быть проведены важные усовершенствования, а в некоторых случаях – данные должны стать доступными для успешного применения в УМК. Следующие мероприятия могут повысить качество систем данных о ДТП, имеющихся в полиции:

- добавление **схемы столкновения**,
- предоставление **GPS/GLONASS-координат**,
- указание о нахождении места ДТП в пределах или вне населённого пункта,

- добавление информации о находящихся неподалёку школах или других общественных или частных службах,
- характеристика окружения междугородных дорог (пустыня, с/х территория, лес, горы),
- добавления информации о **погодных условиях,**
- предоставление **установленного ограничения скорости и т.п.**

Специально разработанные интегрированные базы данных, содержащие данные о дорогах, интенсивности движения и ДТП, позволяют получить высококачественные исходные данные для УМК. Результаты подобных баз данных могут обеспечить адекватный пространственный и временной анализ ДТП и дают возможность повысить точность определения базовых причин ДТП и его обстоятельств. Также существуют и другие источники, которые можно использовать для повышения качества интегрированной базы данных, такие как отчёты о травмах из больниц, судебные материалы, материалы страховых компаний и т.д. Однако данные из указанных источников часто тяжело получить и интегрировать.

До сих пор, похоже, выполняется только минимальный системный анализ данных ДТП по процедурам УМК. Одной из причин этого был быстрый рост дорожной сети без должного учёта вопросов БДД. Возможны также и скорее технические причины того, что отсутствует использование геоинформационных систем (ГИС) и GPS/GLONASS-данных о местах ДТП, а это усложняет проведение УМК (непросто выявить и проанализировать места концентрации ДТП, просто читая длинные таблицы и не имея возможности видеть данные на карте). Результатом подобной ситуации стала очень низкая эффективность анализа в рамках УМК, проводимого в прошлом.

Используя существующую информацию от полиции, органы управления дорогами всё же могут ликвидировать некоторые из выявленных мест на дорогах. Но без чёткого определения понятия «место концентрации ДТП» и с применением устаревшей базы данных ДТП эта работа требует довольно много времени. Как следствие, выявление, анализ и выполнение мероприятий по ликвидации мест концентрации ДТП в регионе TRACECA до сих пор не выполнялись систематически и не управлялись на современном уровне.

Исходя из мирового передового опыта УМК, существует два наиболее распространённых метода сбора и подготовки данных:

- Первый метод основан на аналитической процедуре составления списка ДТП по разным дорогам. Как правило, результатом является таблица, содержащая отсортированные данные о ДТП. Таким образом могут быть выявлены наиболее опасные участки.
- Второй метод основан на более сложной процедуре с применением ГИС. Согласно ему все ДТП представляются на карте с геопривязкой. С применением ГИС места концентрации ДТП можно легко выявить визуально по отображённым данным.

Какой бы метод ни использовался, одной из наиболее важных предпосылок является информация о точном месте ДТП. Для этой цели часто используются дорожные километровые знаки при определении места, что является хорошим способом, но имеет некоторые недостатки:

- В некоторых случаях километровые знаки отсутствуют, что затрудняет работу полиции,
- Если изменяется протяжённость дороги (изменение трассы, строительство

обхода), то появляется проблема с километровыми знаками, и

- Все данные ДТП (в т.ч. и место) должны быть переведены в координаты X и Y (или север/юг), чтобы их можно было использовать в геоинформационной базе данных автодорог (которая находится на стадии подготовки).

Поэтому с самого начала настоятельно рекомендуется использовать «Глобальную систему позиционирования» (GPS) или «Глобальную навигационную спутниковую систему» (GLONASS) для определения места ДТП. Дорожной полицией в карточку ДТП должны вносится GPS/GLONASS-координаты в поле «Место ДТП».

Кроме GPS/GLONASS-данных местоположения, важно включение в данные ДТП информации о событиях и манёврах, которые привели к ДТП (схема столкновения). Подобная информация, если она известна, может также быть приложена работниками полиции.

Таким образом будут собираться качественные данные для дальнейшей работы по УМК.

Согласно существующим процедурам сбора данных во всех странах TRACECA, дорожная полиция ответственна за заполнение карточек ДТП и внесению их данных в централизованную компьютерную систему. В большинстве стран время от времени полиция проводит совещания с органами управления дорогами (если в них существует отдел БДД) и проходит обмен данными об опасных местах. В некоторых странах существуют специальные институты, и они тоже получают данные о ДТП от полиции. Указанные институты могут использоваться в качестве первого этапа обработки данных для УМК.

Дорожная полиция (предпочтительно) или, в некоторых случаях, специализированные исследовательские институты по вопросам БДД могут выполнять короткий анализ данных о ДТП и составлять проект списков мест концентрации ДТП.

3.2. Анализ данных о ДТП

Место концентрации ДТП может быть как пересечением, так и участком дороги. В целом существует два наиболее распространённых метода:

Метод, основанный на статистике ДТП

Основываясь на статистике ДТП (из базы данных полиции) на начальной стадии действий по УМК дорожная полиция или специальный институт могут провести короткий анализ данных о ДТП и подготовить проект списка мест концентрации ДТП в соответствии с принятым определением. Список может содержать как пересечения, так и участки дорог, и стать основой для дальнейшего исследования и работы с местами концентраций ДТП, выполняемой в органе управления дорогами (отделе БДД, если таковой существует). Позднее, при совершенствовании метода, дорожная полиция или специализированный институт могут применять весовой коэффициент исходя из следующей последовательности видов ДТП:

- ДТП с лёгкими телесными повреждениями умножается весовой коэффициент 1,
- ДТП с серьёзными телесными повреждениями умножается на весовой коэффициент 10, и
- ДТП со смертельным исходом умножается на весовой коэффициент 85.

Указанная схема даёт соотношение 1:10:85 и в целом базируется на принципе, согласно которому более серьёзные ДТП приводят к более серьёзным жертвам и более высоким затратам для общества. Следовательно ДТП со смертельным исходом должны иметь значительно более высокий приоритет и важность, чем ДТП с лёгкими повреждениями.

[Примечание: в данном конкретном случае не выполняется взвешивание ДТП, нанёсшим только материальный ущерб, но существуют системы, в которых выполняется взвешивание и таких ДТП тоже].

Все места концентрации ДТП могут быть отсортированы на основании весового индекса ДТП. Данный список затем должен быть передан органу управления дорогами (на государственном и местном уровне) для дальнейшего анализа потенциальных мероприятий на указанных участках.

Метод, основанный на «карте с флажками»

Другой возможностью анализа данных о ДТП может быть применение «карты мест ДТП с флажками» (рисунок 3.2.1) в качестве инструмента для выявления мест концентрации ДТП. Могут быть созданы карты автодорог с геопривязкой, а потом на них нанесена информация о ДТП. Каждое ДТП помечается на карте флажком. Флажки должны иметь разные цвета для отображения разных видов ДТП или их тяжести (например, ДТП со смертельным исходом – чёрный цвет, с тяжёлыми повреждениями – красный, с лёгкими – синий). Карта должна беспрерывно обновляться по мере поступления данных о каждом из новых ДТП.

На карте также должны быть нанесены ДТП за предыдущие года, чтобы можно было легко увидеть тенденцию изменения количества ДТП. В этом случае карта может отражать количество и типы ДТП за несколько лет. Ситуация на конец года может фиксироваться как результат за год, после чего нанесение мест ДТП продолжается.

Визуальное представление «карты мест ДТП с флажками» даёт хорошее отображение потенциальных мест концентрации ДТП. При использовании ГИС может быть проведён более сложный анализ. На основании карты с флажками и принятого определения можно легко составить предварительный список мест концентрации ДТП по разным критериям. Список будет включать как пересечения, так и участки дороги, и служить основой для дальнейшего исследования и работы с местами концентрации ДТП в органе управления автодорогами.

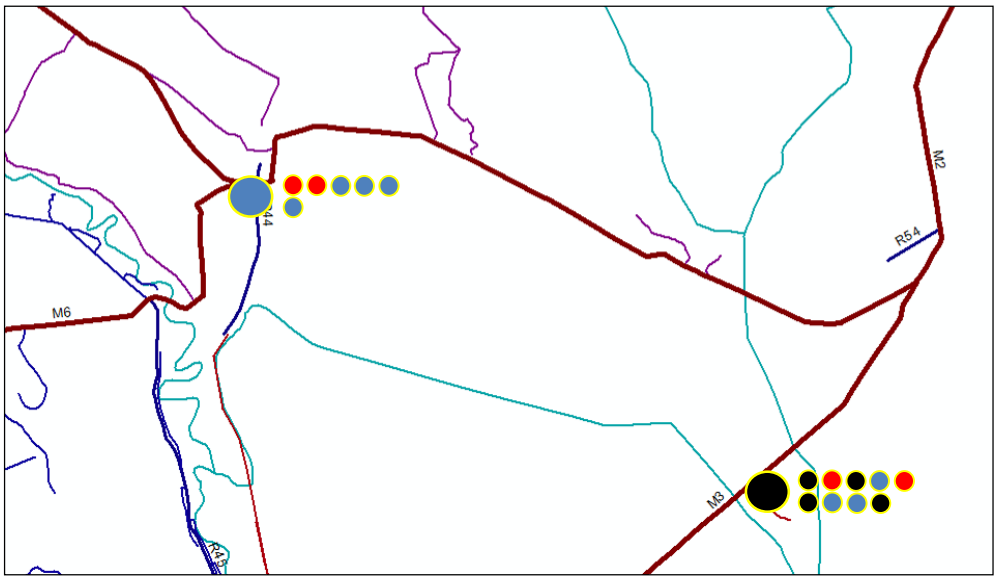

Рисунок 3.2.1. Пример типичной карты мест ДТП с флажками

3.3. Выявление (Подготовка списка мест концентрации ДТП)

Проект списка мест концентрации ДТП составляется в соответствии с принятым определением. Позднее, когда система начнёт работать, список будет усовершенствован применением весового индекса. Проект списка служит основой для дальнейшего исследования и анализа.

Подготовка первичного списка мест концентрации ДТП может выполняться дорожной полицией (или специализированным институтом, если таковой имеется). Данные о каждом ДТП с участием ТС в установленных местах концентрации ДТП должны быть дважды проверены и пересмотрены. В данных карточек ДТП не должно быть ошибок, которые могут повлиять на общую статистику и выводы. При необходимости от полиции могут быть запрошены дополнительные данные о конкретном ДТП. Таким образом будет улучшено качество данных.

Отдельное внимание должно быть уделено составлению схем столкновения (если они ещё не предусмотрены в акте полиции о ДТП), поскольку они представляют собой кратчайший путь к пониманию того, почему и как произошло ДТП.

Окончательный список мест концентрации ДТП должен состоять из выявленных мест концентрации и тех, которые в прошлом уже были изучены, но мероприятия на которых ещё не проведены. Местам концентрации ДТП, имеющим наибольшее количество ДТП со смертельным исходом (или самый высокий весовой индекс), должен быть предоставлен наивысший приоритет при проведении глубинного анализа.

3.4. Анализ причин ДТП (камеральный и полевой)

Целью анализа причин ДТП является понимание цепочки событий, которые непосредственно привели к ДТП. ДТП способствуют многие факторы, а значит получить полное представление не так просто. Поэтому важным является системное проведение анализа с применением хорошо известных фактов. Предлагаемый анализ может выполняться в органе управления дорогами (и отделе БДД, если таковой существует). Анализ бывает двух видов: камеральный (в офисе) и полевой (на месте).

3.4.1.Камеральный анализ – Сбор и обработка данных о ДТП

Для проведения надлежащего анализа в камеральных условиях требуются как минимум следующие данные:

- данные о ДТП,
- данные об условиях движения,
- данные о дороге, и
- дополнительные данные.

Данные о ДТП

Базовая информация фиксируется дорожной полицией на месте ДТП. Соответствующий акт и последующие документы содержат все важные данные для анализа ДТП, включая показания свидетелей и участников ДТП.

Данные об условиях движения

Для выбора оптимального мероприятия могут потребоваться дополнительные данные,

такие как:

- интенсивность движения по типам ТС, направлению и времени,
- средняя скорость движения в данном месте, если она предоставлена автоматическими счётчиками движения,
- количество участников движения или видов транспорта, относящихся к специфическим группам, обычно движущихся на данном участке,
- какие-либо изменения в структуре движения за период изучения, включая интенсивность, типы ТС и т.п.

Нередко указанная информация собирается из разных источников, таких как орган управления дорогами, местные власти и живущие вокруг люди.

Данные о дороге

Наряду с фотографиями места ДТП очень полезен и его эскиз. На эскизе должны быть отображены окончательная позиция участвующих ТС, все средства организации дорожного движения и препятствия, касающиеся ДТП. По возможности эскиз должен быть выполнен в масштабе, быть максимально подробным и содержать следующую информацию о месте ДТП и дороге:

- Габариты и расположение проезжей части, полос, обочин, оси, радиус кривой, подъём виража и коэффициент сцепления,
- Строения и стационарные препятствия,
- Контуры окружающей местности,
- Велосипедные и пешеходные дорожки,
- Существующие барьерные или транспортные ограждения,
- Сигнальные столбики, знаки и освещение (включая опоры),
- Дорожная разметка и маркеры на покрытии (включая пешеходные переходы),
- Дорожные знаки,
- Примыкающие дороги с габаритами и типом покрытия,
- Тип верхнего слоя покрытия (проезжей части/обочины),
- Приблизительная интенсивность движения/тип движения/скорость потока,
- Островки безопасности и их размеры,
- Деревья, дома, подъездные дорожки и т.п.

Дополнительные данные и информация

В некоторых случаях целесообразно собрать дополнительную информацию о ДТП и его месте, такую как преобладающие типы ТС на участке дороги, скорость, установленная дорожными знаками, а также средняя фактическая, отдельные параметры дороги, препятствия на или около дороги и т.п.. Указанная информация может быть получена от местного органа управления дорогами, местной полиции, живущих неподалёку от места ДТП людей и других источников.

Собранные данные используются для создания Схемы столкновений (рисунок 3.4.1.1) и сводной таблицы ДТП (рисунок 3.4.1.2).

Схема столкновений

Схема столкновений является схематическим представлением всех ДТП, произошедших на опасном участке. Характеристики ДТП показаны с помощью изображения манёвра.

Перемещения участников ДТП поясняются графически с помощью стрелок, которые отображают предшествующие столкновению действия. На схеме столкновений также показывается следующая информация:

- точное место каждого ДТП в пределах развязки или участка дороги,
- направление движения каждого ТС,
- манёвры каждого ТС (движение прямо, поворот, потеря управления),
- тип столкновения (под прямым углом, наезд и т.п.).

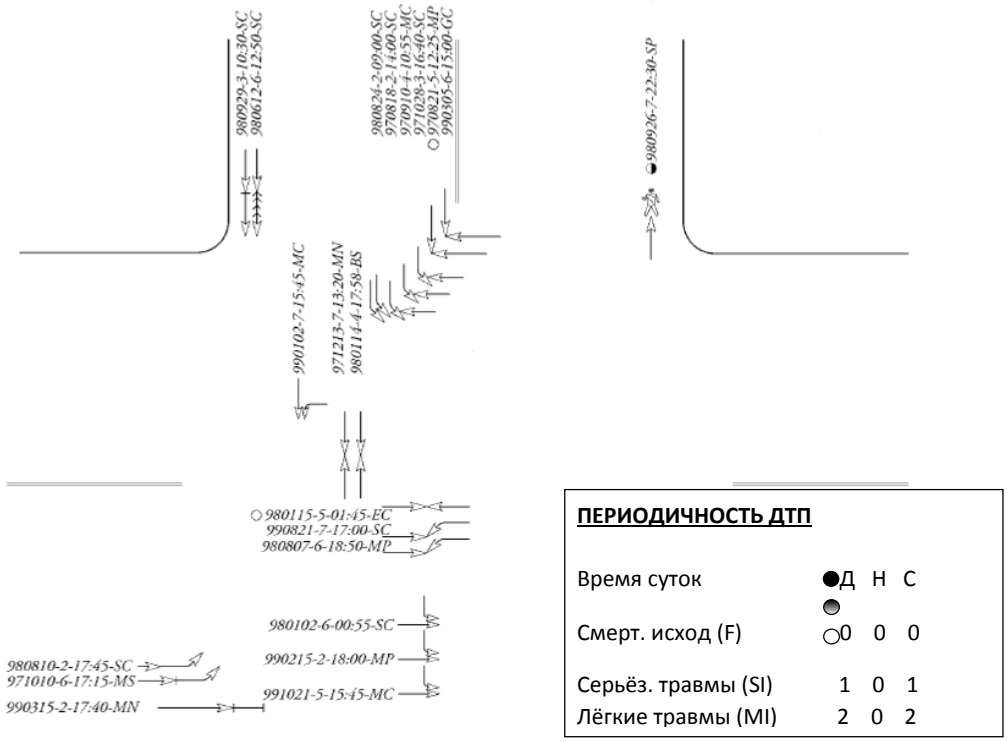

Рисунок 3.4.1.1. Пример типичной схемы столкновений

Схема столкновений облегчает определение наиболее частых типов ДТП и их доли, а также даёт идеи относительно потенциальных проблем и манёвров в данном месте.

Сводная таблица ДТП

В сводной таблице ДТП содержатся наиболее важные данные о нескольких ДТП, произошедших в одном и том же месте. С помощью подобной таблицы легко выяснить общие факторы и обстоятельства для всех ДТП, произошедших на данном месте.

	№ ДТП											
	1	2	3	4	5	6	7	8	9	10	11	12
Год	00	99	00	98	99	99	00	98	00	99	98	98
Месяц	02	03	07	04	01	04	04	12	05	04	09	10
День недели	Вс	Пт	Пн	Вс	Вт	Сб	Сб	Вт	Пн	Пт	Вс	Сб
Время	1615	0210	1240	1750	1520	1125	1430	2200	1825	0910	0500	0940
Тяжесть		●				○				○		
Тип ДТП												
Покрытие С - сух. В - влаж.	С	С	В	В	В	С	В	С	С	В	С	В
Освещение	Н	Д	Д	Н	Д	Д	Д	Н	Д	Д	Д	Н

Рисунок 3.4.1.2. Пример типичной сводной таблицы ДТП

3.4.2. Анализ ДТП

Преобладающие типы ДТП

При наличии схемы столкновений она должна использоваться в начале процесса анализа. С помощью данной схемы уже проведена первичная группировка ДТП, показывающая точное место каждого события, направление движения и манёвры каждого ТС (тип ДТП).

Тип и место ДТП обычно дают самую важную информацию для анализа ДТП. Из схемы столкновений могут стать понятны преобладающие типы ДТП. Тип ДТП считается преобладающим, если подобные ДТП произошли группой из 4 событий и более. ДТП других типов, не принадлежащие к преобладающему типу, не настолько важны для анализа ДТП и могут не учитываться в общих выводах.

Необходимо отметить, что ДТП с разными характеристиками могут иметь одну и ту же причину. Если на пересечении недостаточная видимость, то это может приводить как к ДТП из-за нарушения преимущества в движении (запоздалая реакция на наличие движения по главной дороге), так и к наездам (запоздалая реакция на торможение/остановку автомобиля впереди или на стоящий и уступающий движение). По этой причине каждое ДТП должно быть тщательно рассмотрено.

В местах с относительно низким количеством ДТП, например 3 события за 3 года, может быть непросто выявить преобладающий тип. В таких случаях преобладающие характеристики ДТП (направление движения, время, уровень освещения и т.п.) могут способствовать анализу лучше, чем тип ДТП.

При малом количестве ДТП не должны применяться процентные доли при формировании выводов, поскольку их использование ведёт к неправильным и вводящим в заблуждение представлениям. Например, вывод «3 из 4 ДТП произошли в темноте» лучше иллюстрирует реальную ситуацию, чем фраза «75 % ДТП произошло в темноте», поскольку даёт информацию о малом объёме выборки.

Преобладающие характеристики

Сначала анализ проводится для преобладающего типа ДТП. В пределах данной группы требуются другие критерии сходства ДТП.

При наличии преобладающего типа ДТП и большом их количестве проводится дальнейший анализ. К примеру, если оказывается, что группа в 12 ДТП из 20 событий произошла в темноте, то требуется отдельный анализ указанных 12 ДТП для выявления

их сходства (например, возраст водителя, наличие алкоголя и т.п.).

После определения преобладающего типа и характеристик ДТП лучшим способом проведения остальной части анализа будет техника «вопросов и ответов». Должно быть поставлено два главных вопроса:

- Имеет ли сходство ДТП какое-либо важное значение?
- Какой вывод может быть сделан из данного факта?

Если, к примеру, выясняется, что 70 % ДТП произошли при влажном покрытии дороги, то конкретные вопросы следующие:

- Превышает ли это количество то, которое можно ожидать исходя из взаимосвязи состояния покрытия и времени суток?
- Может ли данный факт служить основой для формулировки предположения о возможной причине ДТП?

3.4.3. Формулирование предположения

На основе камерального анализа должно быть сформулировано предположение о возможных причинах ДТП. Данное действие должно быть сделано отдельно для каждого преобладающего типа или характеристики ДТП.

Важно сравнить и собрать как элементы головоломки различные выводы из анализа ДТП. Они могут как противоречить, так и дополнять друг друга.

Кроме того, разные типы ДТП в ряде случаев имеют одну и ту же причину.

Предположения о возможной причине ДТП должны быть сформулированы для каждого отдельного преобладающего типа или характеристики исходя из общей картины, полученной в результате анализа ДТП.

3.4.4. Полевые исследования – Сбор и обработка данных о ДТП

После проведения камерального анализа ДТП для каждого из мест требуется проведение полевого исследования. Полевые изыскания должны быть проведены для получения дополнительных деталей и «тестирования» предположений. Предположения о возможных причинах должны как можно тщательно проверяться для обеспечения их точности.

Состояние дороги и характеристики движения в месте ДТП должны быть проверены с использованием результатов анализа ДТП в качестве отправной точки. В исследовании должны быть приняты во внимание **триггеры** внимания водителя и модели поведения, которые могли привести к ДТП.

При применении к ДТП концепции человеческих факторов специалист по БДД ставит вопросы о причинах, приведших к **ошибке в действиях** водителя, которая в результате привела к ДТП. Указанный подход не так уж и нов для дорожного строительства. В 1930-е гг. базовые идеи концепции человеческих факторов учитывались при планировании основных автодорог и автомагистралей.

Рис. 1: Пост- и предаварийный подход [15]

Согласно концепции человеческих факторов ошибка в действиях водителя является первым звеном в цепи событий, которые в конце концов могут привести к ДТП. Многие из распространённых ошибок в действиях происходят из непосредственного взаимодействия дороги и реакции водителя. Особенности дороги определяют поведение водителя. А поскольку реакции водителя мы не можем изменить, то внимание должно быть сфокусировано на характеристиках дороги. Согласно данному выводу возможно и необходимо учитывать природные ограничения восприятия водителя, обработку им информации и действия, и весь этот комплекс должен быть учтён при проектировании и строительстве автодороги.

Цель концепции человеческих факторов состоит в снижении вероятности ошибок в действиях и, в конечном итоге, снижении вероятности ошибок вождения с помощью удобной для использования и интуитивно понятной конструкции дороги. Т.е. дорога должна быть понятной настолько, чтобы водитель получал чёткую информацию, позволяющую безопасное вождение. Отсюда требуется выполнять проектирование опасных мест таким образом, чтобы они были понятны, ощутимы и узнаваемы. Участник движения не должен вводиться в заблуждение и побуждаться к рискованным действиям. Целью понятия «интуитивно понятная конструкция дороги» является увеличение количества безошибочных интерпретаций особенностей дороги. Подобная удобная для использования, интуитивно понятная конструкция дороги непосредственно ведёт к снижению частоты ДТП (дополнительную информацию см. в Рекомендациях PIARC по человеческим факторам).

Существуют определённые параметры, которые могут быть определены на месте и могут существенно облегчить понимание причины ДТП. Наиболее важные из них: интенсивность движения и средняя скорость ТС на анализируемом участке, дорожной ситуации, а также информация относительно поперечного уклона, коэффициента сцепления и т.д.

Подсчёт интенсивности движения

Подсчёт интенсивности движения – это процедура, дающая возможность определения количества участников движения (ТС, пешеходов и т.п.), перемещающихся через определённую точку дорожной сети (участок, пересечение и т.п.). При подсчёте интенсивности участники движения сортируются по категориям (например, моторные ТС, безмоторные ТС, пешеходы и т.п.), а также времени суток. Результаты подсчёта вносятся в заранее приготовленные формы, так что проводящему подсчёт необходимо только фиксировать ТС, перемещающиеся через определённое место.

Методология подсчёта интенсивности движения детально разработана, хорошо известна и уже применяется во всех странах TRACECA, так что процедура и методы подсчёта здесь детальнее поясняться не будут.

Результатом подсчёта интенсивности движения должна быть схема, на которой показана загруженность дороги, съездов пересечений, определённых мест и т.д. Подсчёт может также дать информацию о составе движения (процент разных типов ТС в потоке). Данные результаты могут способствовать лучшему пониманию дорожной ситуации и уточнению предположений и принятых решений относительно мероприятий, которые необходимо выполнить в месте концентрации ДТП.

Измерение скорости ТС

Скорость ТС обычно является одним из главных факторов, увеличивающих риск ДТП. Нередко скорость является непосредственной причиной ДТП, а ещё чаще – напрямую способствует тяжести последствий. Согласно имеющейся информации измерение скорости ТС на дорожной сети и статистический анализ скоростей до сих пор системно не проводится в странах TRACECA. Поэтому способ фиксации скоростей будет пояснён более детально.

Превышение максимально допустимой скорости на дорогах является одним из наиболее важных факторов риска и острой проблемой БДД во всех странах. По последним данным, собранным во время рабочих поездок и изучения мест концентрации ДТП в разных странах TRACECA, скорости в наблюдаемых местах часто превышают установленные пределы. Это ясно указывает на необходимость анализа скоростей в каждом из мест концентрации ДТП.

Измерение скоростей должно выполняться в то же самое время дня, когда происходит наибольшее количество ДТП.

Измерение скоростей ТС может выполняться вручную или с помощью автоматических устройств. В случае применения автоматических устройств фиксации скорости (индуктивных петель, современных лазерных устройств, видео-, инфракрасных и микроволновых датчиков) скорость ТС может фиксироваться на протяжении длительного периода.

Результаты измерения скорости нужны для получения данных о средней скорости ТС, стандартном отклонении, проценте водителей, превышающих допустимую скорость, скорости 85 % ТС в потоке, проценте медленно движущихся ТС и т.п..

Подобный анализ позволит получить ясное понимание поведения водителей и влияния скоростного режима на месте концентрации ДТП.

Метод дорожных конфликтов

При проведении анализа ДТП исследователи часто используют информацию, содержащуюся в актах ДТП, для выявления и понимания сбоев в работе дороги и последующего составления необходимых мероприятий. В некоторых случаях информации из актов ДТП недостаточно и для повышения точности решения требуется её дополнение в ходе полевых изысканий.

На протяжении многих лет в помощь экспертам по БДД предлагались многочисленные инструменты для проведения полевых изысканий. Одним из наиболее полезных структурированных методов выявления источников риска в анализируемом месте является метод дорожных конфликтов.

Согласно указанному методу обученные изыскатели наблюдают за движением и фиксируют частоту и типы возникновения конфликтов, происходящих в определённом месте. Поскольку изучение конфликтов подразумевает непосредственное наблюдение за поведением участников движения, то в ходе него выявляются особенно опасные манёвры, которые легко могли превратиться в ДТП при недостаточно быстрой реакции участников ситуации.

Общепринятое определение дорожного конфликта таково: «Наблюдаемая ситуация, когда два или более участника движения настолько близко приближаются друг другу по расстоянию и по времени, что появляется риск столкновения, если характеристики их движения не изменятся».

Для успешной реализации метода дорожных конфликтов требуются следующие условия:

- Наблюдатели должны быть обучены выявлению и фиксации конфликтов,
- Если работает более одного наблюдателя, то они должны применять одинаковые критерии при выявлении конфликтов, а также при определении их тяжести, и
- Период фиксации конфликтов должен соответствовать времени, в которое произошло большинство ДТП.

Одной из наиболее популярных моделей метода дорожных конфликтов является «шведская модель» или «шведский метод конфликтов». Согласно данной модели опасным местом является участок, на котором зафиксировано три конфликта за 60 мин.

Для упрощения работы наблюдатели могут использовать подготовленную карточку. Пример типовой карточки приведён на рисунке 3.4.4.1.

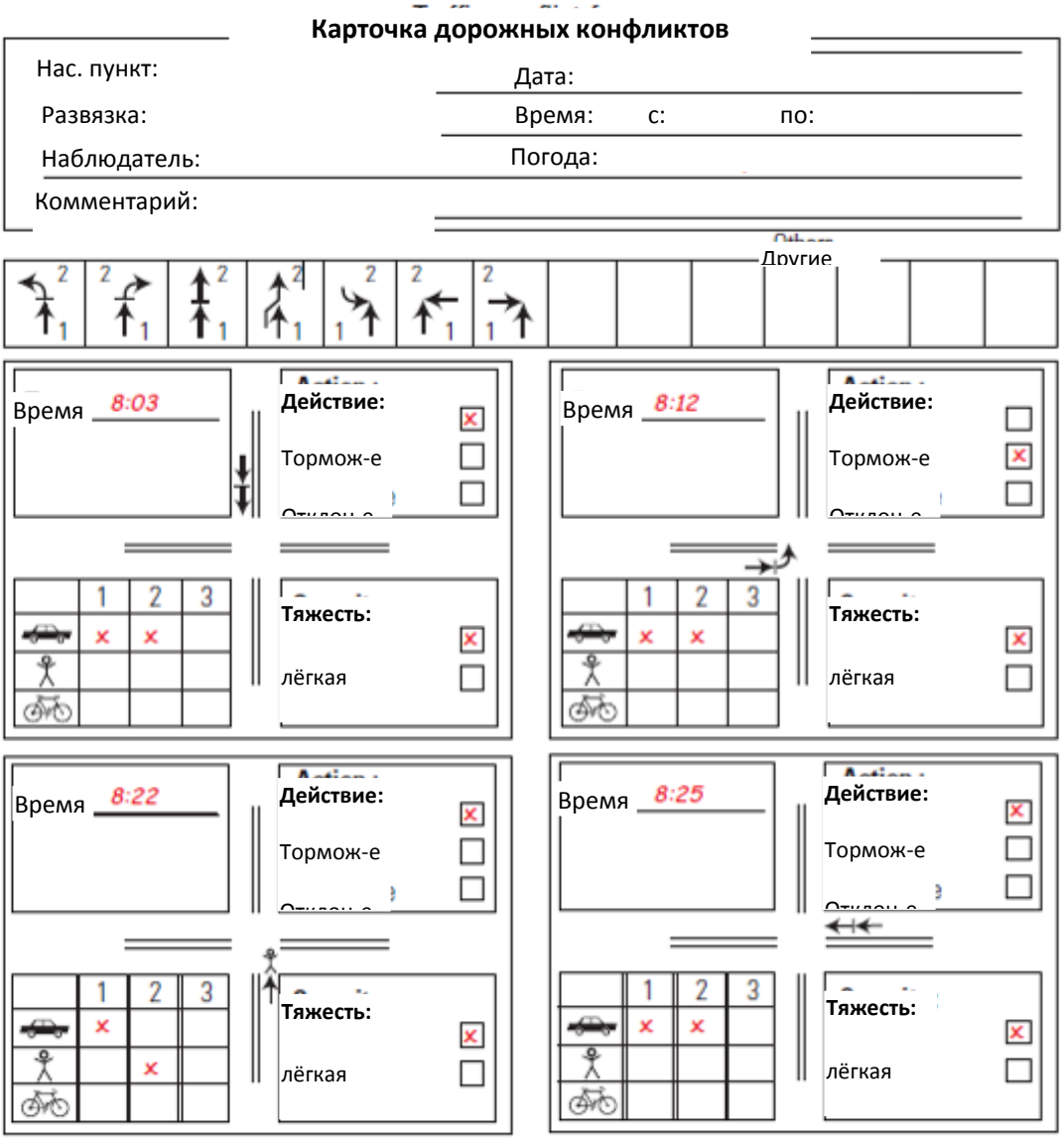

Рисунок 3.4.4.1. Возможная форма карточки дорожных конфликтов

Кроме того, при всех упомянутых методах полевых исследований необходимо следовать таким рекомендациям:

- Исследователь должен поставить себя, насколько это возможно, на место участников ДТП. Необходимо подъехать несколько раз к месту события в качестве «преобладающего» ТС с соответствующего направления. Также необходимо уделить внимание пути, ведущему к месту события.
- Полевое исследование должно проводиться, насколько это возможно, при обстоятельствах, аналогичных преобладающему времени ДТП (время суток, освещение, погодные условия и т.п.).
- Целесообразно заранее составить список точек внимания относительно предположения, основанного на анализе ДТП.
- Необходимо понаблюдать за режимом движения на развязке или участке дороги. Должны быть тщательно изучены режимы приближения к месту, ситуация с видимостью, соблюдение приоритета движения, режимы пересечения и сложность манёвров.

- В ходе полевых изысканий могут быть выявлены возможные причины, не выявленные в ходе анализа ДТП. Могут оказаться полезными фотографии или видеозапись для оценки ситуации впоследствии. Фиксацию предпочтительно сделать с позиции участников ДТП (с их места и на уровне глаз).
- Всегда выделяйте достаточно времени для полевых изысканий. Разговор с живущими рядом людьми может дать полезную дополнительную информацию.
- Попытайтесь найти взаимосвязь между процессом ДТП и дорогой.

3.4.5. Определение причины ДТП

Если в ходе полевых изысканий получены достаточные доказательства в поддержку предположений, то можно установить вероятные причины ДТП для каждого преобладающего типа ДТП.

Важно сравнить различные выводы полевых изысканий. Они могут дополнять друг друга, но в некоторых случаях и противоречить. Различные типы ДТП в некоторых случаях могут иметь одну причину.

Исходя из выводов подтверждаются или отклоняются предположения для каждого преобладающего типа характеристик ДТП. Преобладающая причина ДТП должна быть установлена для разработки решения относительно предлагаемых мероприятий.

3.5. Определение мероприятий относительно мест концентрации ДТП

После установления причин каждого преобладающего типа ДТП результаты должны быть обсуждены заинтересованными сторонами. На следующем этапе должны быть определены и зафиксированы цели и решения.

Мероприятия по ликвидации

Мероприятия по ликвидации должны устранить главные причины ДТП. Несколько мероприятий, предотвращающих разные преобладающие типы ДТП, составляют единое решение. Если исследованием выявлены недостатки в существующей конструкции освещения, то его конструкция должна быть скорректирована. Некоторые типичные места концентрации ДТП, профилактические мероприятия и потенциальные выгоды от их реализации представлены в разделах 4 и 5.

Если причина ДТП состоит в использовании инфраструктуры и технические мероприятия приведут к слабому результату или требуют чрезвычайно больших затрат, то больше подходят такие действия, как образование по вопросам БДД, кампания в СМИ и плотный правоохранительный контроль. Однако, путём усовершенствования расстановки дорожных знаков, ограничения скорости и предупреждений также может быть сделано многое для улучшения поведения участников движения.

Все предлагаемые мероприятия должны быть направлены на решение проблемы. Следует отметить, что борьба с одним видом ДТП может в результате привести к появлению другого типа ДТП или переносу ДТП в другое место. К примеру, такое средство ограничения скорости как «лежачий полицейский» перед перекрёстком может позитивно повлиять на количество ДТП из-за несоблюдения приоритета. Если такое же средство применено на главной дороге с большой интенсивностью движения и скоростями более 50 км/ч (т.е. там, где указанное средство не ожидается водителями), то оно может только ухудшить ситуацию по сравнению с исходной проблемой.

Если предлагаемые мероприятия состоят из структурных мероприятий, то отдельное внимание должно быть уделено потенциальным побочным эффектам, особенно в случае мероприятий, которые могут повлиять на движение по кругу.

В процессе определения мероприятий по ликвидации мест концентрации ДТП предпочтение должно отдаваться так называемым «экономным решениям». Низкая стоимость не означает низкого качества. Она означает низкие капитальные затраты и, следовательно, быстрое внедрение путём улучшения дорожной инфраструктуры в как можно большем количестве мест концентрации ДТП, что приведёт к снижению количества ДТП. Улучшение разграничения потоков, установка барьерного ограждения, использование «лежачих полицейских», улучшение освещения, использование дорожных знаков с высокой степенью отражения, высококачественной горизонтальной разметки является типичными экономными мероприятиями, и нередко это всё, что необходимо в странах TRACECA для повышения уровня БДД на многих местах концентрации ДТП, находящихся в сельской местности.

В процессе предложения мероприятий может быть вынесено несколько альтернатив или сочетание средств. Результатом этого этапа должно стать предложение мероприятий по ликвидации места концентрации ДТП, желательно с применением высокоэффективных и экономных средств. Окончательный выбор средств выполняется исходя из анализа затрат/выгод.

До наработки странами TRACECA собственного опыта в оценке эффективности мероприятий может применяться Каталог Всемирной дорожной ассоциации – PIARC по проблемам проектирования БДД и потенциальным мероприятиям (2009 год)[21]. Указанный каталог составлен группой экспертов, представляющих органы управления дорогами со всего мира.

Оценка снижения количества ДТП

На данный момент в регионе TRACECA нет достаточного опыта документирования эффекта от реализованных мероприятий по БДД.

В разделе 5 содержится список мероприятий, получивших оценку в разных странах, который может применяться до наработки собственного опыта в регионе. Набор коэффициентов ожидаемого снижения количества приведён в списке, в котором каждое мероприятие сопровождается ожидаемым процентом снижения количества ДТП. Данный список составлен на основе различных практических примеров и исследовательских работ. Как правило, анализ ДТП проводится до и после реализации конкретных мероприятий, а полученный эффект фиксируется.

Коэффициенты ожидаемого снижения количества ДТП могут применяться для оценки потенциального уменьшения количества ДТП при выбранных мероприятиях. Указанные коэффициенты также могут применяться для оценки экономического эффекта проектов и расстановки приоритетов.

Со временем будут разработаны коэффициенты снижения количества ДТП для каждой страны TRACECA, что позволит проводить более точную оценку получаемых выгод.

3.6. Расстановка приоритетов (на основе анализа затрат/выгод)

В первые годы применения УМК сортировка по приоритетам была довольно простой и основывалась на количестве ДТП (в первую очередь со смертельным исходом). По данному способу отсортированный список мест концентрации ДТП составлялся с фокусом только на общем количестве ДТП со смертельным исходом. Даже при использовании весового индекса указанная модель весьма проста для применения.

Вскоре в процессе применения УМК, особенно в части определения мероприятий по ликвидации для повышения БДД, возник следующий вопрос: «Какую прибыль принесёт инвестирование в различные средства (решения)?» Для получения ответа на данный вопрос эффект от мероприятий должен быть отнесён к затратам на них. Методы, применяемые для этой задачи, в целом известны как анализ затрат/выгод.

Отличительной чертой анализа затрат/выгод является то, что он увязывает эффект и затраты на реализуемые мероприятия.

Целью анализа затрат/выгод является определение приоритетов среди мероприятий (сортировка). Расстановка приоритетов может быть использована двумя путями:

3. Выявить наиболее экономически выгодные мероприятия в пределах определённого бюджета.
4. Рассчитать бюджет, требуемый для максимального эффекта.

В большинстве случаев преобладает первая задача, поскольку бюджеты всегда ограничены.

Необходимой информацией (входными данными) для проведения анализа затрат/выгод является:

3. Рабочий список мест концентраций ДТП.
4. Проект и смета предлагаемых мероприятий.

Этапы процедуры анализа затрат/выгод:

5. Расчёт годовых затрат на мероприятие,
6. Оценка количества предотвращённых ДТП,
7. Расчёт показателя рентабельности для мероприятий, и
8. Определение приоритетных мероприятий.

Упрощённый способ расчёта коэффициента затрат на смертельные случаи (FCR):

Для точного определения выгод, которые получит общество от ликвидации места концентрации ДТП, необходимо знать стоимость человеческой жизни. Рассчитать экономическую стоимость человеческой жизни и объём финансов, которые сэкономит общество путём предотвращения смертельных случаев благодаря реализации предлагаемых мероприятий, – абсолютно нормально.

Подробная модель расчёта затрат/выгод может быть использована в будущем, а в ближайшие годы должна быть принята и применяться упрощённая модель расчёта.

Хотя стоимость человеческой жизни ещё официально в большинстве стран TRACECA не установлена, в целях презентации предлагаемой модели использованы затраты на ДТП, установленные в проведённом исследовании в одной из стран TRACECA.[22] Таким

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образом, для целей тестирования модели стоимость человеческой жизни будет установлена в **290 652** Евро.

FCR (коэффициент затрат на смертельные случаи) = (количество ДТП со смертельным исходом в год * 290 652) / стоимость мероприятий

Приведённая формула представляет упрощённую модель расчёта, в которой количество смертельных случаев в месте концентрации ДТП за год берётся из статистики, умножается на принятые затраты на ДТП со смертельным исходом и делится на стоимость соответствующих мероприятий. Данная формула может также применяться при использовании термина «жертвы». Под ними в данном случае подразумеваются общее количество ДТП, как со смертельных исходом, так и с травмами.

Например, давайте допустим, что в конкретном месте концентрации ДТП зафиксировано 4 смертельных случая за три года (в среднем 1,33 смертельных случая за год). В результате полевых изысканий и оценки данных актов ДТП рассчитано, что стоимость мероприятий по ликвидации составляет около 30000 Евро.

Коэффициент затрат на смертельные случаи составит:

FCR 1= (1,33 * 290652)/ 30000
FCR 1 = 386567.16/ 30000
FCR 1 =12,88:1

Теперь допустим, что в другом месте концентрации ДТП наблюдается в среднем 3 смертельных случая в год и после полевых изысканий выяснилось, что затраты на мероприятия по ликвидации приближаются к 20000 Евро.

Коэффициент затрат на смертельные случаи составит:

FCR 2 = (3 * 290652)/ 20000
FCR 2 = 871956/ 20000
FCR 2 = 43,59:1

Таким образом мы видим, что второе место, имея значение FCR2 43,59:1, имеет рентабельность в четыре раза большую, чем первое со значением FCR всего 12:88:1, т.е. место 2 должно получить более высокий приоритет при реализации. Подобный системный и научный подход позволяет принимать более рациональные решения и более эффективно использовать ограниченные средства, выделяемые на БДД.

Указанный метод расстановки приоритетов очень прост и он показывает, какие из мероприятий по ликвидации мест концентрации ДТП обеспечат обществу наилучший эффект от инвестиций.

Список приоритетов по коэффициенту затрат на смертельные случаи:

Окончательный список мероприятий по ликвидации должен составляться на основании значений FCR. В этом списке мероприятия можно отсортировать в порядке приоритетов для реализации.

Перед составлением окончательного списка с приоритетами должны быть учтены также некоторые другие факторы. Такими факторами могут стать проблемы реализации (физические, законодательные, экологические и т.д.), ограничение средств к инвестированию, возможные последствия для дорожной сети (такие как затраты на заторы и т.п.) и другие. Опыт показывает, что планы, основанные только на эффективных, но непопулярных мерах, могут в конце концов не реализоваться вообще. Однако в случае, если окончательное решение отличается от порядка приоритетов, такое

отклонение от процедуры должно быть чётко указано с предпосылками и обоснованием подобного решения.

Приоритетные мероприятия по ликвидации должны быть включены в годовой план или программу действий органа управления автодорогами в виде отдельного и чётко указанного раздела плана. В случае отсутствия достаточного количества средств в годовом бюджете, некоторые из предложенных мест концентрации ДТП могут быть перенесены на следующий год.

3.7. Планирование, бюджет и финансирование

После сортировки мест концентрации ДТП по приоритетам следующим шагом является создание Национальной (государственной) программы (НП) по их ликвидации (реализации мероприятий). Средне- или долгосрочная национальная программа по безопасности дорожного движения служит необходимым условием для достижения стабильного повышения уровня БДД и ликвидации мест концентрации ДТП. В национальной программе должны быть установлены измеримые средне- и долгосрочные цели в сфере безопасности дорожного движения.

Наиболее неотложные мероприятия по ликвидации, выявленные при расстановке приоритетов, должны быть внесены в приоритетный План действий, при этом должна быть создана стандартизированная институциональная процедура реализации для эффективной ликвидации мест концентрации ДТП.

Главной целью НП должно быть снижение социальных и экономических потерь от ДТП и травматизма путём:

- экономически выгодного проведения мероприятий в местах, где были зафиксированы ДТП со смертельным исходом,
- концентрирования внимания на необходимости снижения травматизма на автодорогах,
- координации и активизации деятельности всех ключевых заинтересованных сторон в сфере БДД, которые могут повлиять на БДД, и
- выделения достаточных средств на мероприятия в выбранных местах.

Согласно НП для её реализации должен быть выполнен приоритетный План действий. В большинстве случаев План действий по выполнению мероприятий по ликвидации мест концентрации ДТП включается в деятельность органа управления автодорогами и занимает чёткое место в его годовых планах работ и финансирования. Количество мест концентраций ДТП, на которых за год выполняются мероприятия, должно соответствовать имеющемуся бюджету органа управления автодорогами на УМК. Вполне вероятно, что количество мест концентрации ДТП окажется больше, чем можно ликвидировать в рамках имеющегося годового бюджета, поэтому НП должна быть рассчитана на три года.

Период в три года предлагается, поскольку позволяет реализовать мероприятия на существенном количестве мест концентрации ДТП. Для данной цели могут потребоваться консультативные услуги привлечённого эксперта по БДД.

Поскольку НП по ликвидации мест концентрации ДТП обычно простирается на 3-5 лет (с ежегодной корректировкой), то для обеспечения её реализации требуется стабильное долгосрочное финансирование.

Для достижения выгод от программы по местам концентрации ДТП она должна

системно реализовываться на протяжении определённого времени. Также важно проведение оценки эффекта от программы.

3.8. Реализация мероприятий по местам концентрации ДТП

Орган управления автодорогами отвечает за запуск, координирование и контроль проекта, включая закупку работ, финансовый менеджмент, мониторинг и отчётность проекта, а также ежедневный надзор за действиями по проекту.

Главные цели органа управления автодорогами:

- Обеспечивать руководство и платформу для эффективной реализации мероприятий по БДД, и
- Высокий уровень подхода к работам по БДД при реализации.

3.9. Проектирование и строительство

В зависимости от характера и объёмов строительных работ на местах концентрации ДТП орган управления автодорогами может использовать как привлечённые, так и собственные проектные группы, а также как эксплуатационное подразделение, так и внешнего подрядчика для выполнения проектных и строительных работ.

Обязанностью органа управления автодорогами (или уполномоченной организации) является обеспечение безопасности в ходе дорожных работ. Место проведения работ должно быть соответствующим образом огорожено временными дорожными знаками на время выполнения работ. Следует избегать дополнительных рисков как для дорожников, так и для участников движения.

Кроме того, должны быть минимизированы любые задержки строительных работ, которые могут привести к неудобствам для участников движения или окружающих.

3.10. Отслеживание и оценка

По прошествии времени (1-2 лет), когда участники движения уже привыкли к новой дорожной ситуации, должны быть проведены некоторые пост-исследования для оценки действия реализованных мероприятий. Данный процесс может быть выполнен органом управления автодорог (отделом БДД, если таковой существует).

Оценка представляет собой постоянный мониторинг результатов реализованных мероприятий в сравнении с поставленными целями. Мониторинг состоит в сборе данных о движении и ДТП, жалоб и общих отзывов. Опыт показывает, что реализованные мероприятия иногда не ведут немедленно к улучшению ситуации.

Сравнение с поставленными целями. Включает получение ответа на вопрос, соответствуют ли результаты ожидаемым или нет.

Как правило, в большинстве стран используется **период оценки в 1-2 (иногда и 3) года** перед тем, как делаются определённые выводы. Если результаты неудовлетворительны, то должна быть повторно выполнена процедура анализа и реализованы скорректированные или новые мероприятия.

Данные после мероприятий должны быть задокументированы вместе с исходными данными и использоваться в будущем как банк опыта (каталог мероприятий по БДД).

К примеру, необходимо отслеживать количество ДТП в месте концентрации ДТП до и после мероприятий. Частично данный анализ включает использование базы данных для

проверки существенного снижения количества ДТП в месте концентрации. Результаты используются при получении исходных данных для нового списка с учётом данных о сокращении количества ДТП (раздел 5).

Специалисты по анализу ДТП должны изучить данные пост-исследований, поскольку полное понимание действия мероприятий на местах концентрации ДТП и Программы является важным, особенно если её необходимо скорректировать.

3.11. Документация

Важным моментом является сохранение и доступность в будущем всей технической и финансовой документации по управлению местами концентрации ДТП. Для определения реального влияния мероприятий на количество ДТП со смертельным исходом время от времени может проводиться независимая оценка проекта. Орган управления дорогами должен хранить все соответствующие документы и записи относительно процесса с тем, чтобы для подобной оценки были необходимые данные.

Документация также является ценным инструментом для обучения специалистов, участвующих в процессе ликвидации мест концентрации ДТП. Важно учиться на успешных и не очень мероприятиях. Также, данные из документации могут использоваться для дополнения каталога мероприятий.

4. ТИПИЧНЫЕ МЕСТА КОНЦЕНТРАЦИИ ДТП

Согласно передовой международной практике, существует несколько видов типичных опасных участков концентрации ДТП на дорогах в регионе TRACECA (**Тра**нспортный **К**оридор **Е**вропа-**К**авказ-**А**зия).

Для подготовки данной главы Руководства были использованы результаты исследований мест концентрации ДТП и проверки сетей дорожного движения в некоторых странах TRACECA. Исследования участков концентрации ДТП осуществлялись комбинацией удаленной (офисной) и практической (полевой) работы.

После детального анализа исследованных участков (также известных, как Чёрные Участки или Чёрные Секции), и обследования других частей сети дорожного движения (команда проекта имела возможность изучить более 5000 км основных дорог в разных странах TRACECA), можно выделить следующее типичные проблемные участки дороги:

Рисунок 4.1. Типичные места концентрации ДТП и меры противодействия

Описание места концентрации ДТП / Типичные меры противодействия	**Изображения**
<u>- Дороги, проходящие через города</u> (слишком много подъездных путей, разнородный трафик, высокие скорости, незаконные стоянки транспортных средств, пешеходы, недостаточная	

видимость, уличные рынки...).	
- контроль доступа (закрытие нелегальных подъездных дорог) - разделение ответвлений барьерами - замедление трафика (знаки, физическое препятствие, дорожное покрытие и крупные схемы) - строительство пешеходного прохода - строительство вспомогательных средств для пешеходных переходов - новая дорожная разметка и маркировка - установка искусственного освещения - добавление точных (по стандартам ООН) знаков - ...	
<u>- Проблемы перекрёстков</u> (опасные типы, такие как "Y"-перекрёстки, опасные круговые развязки с недостаточным прогибом, неправильно спроектированные перекрёстки без достаточной видимости, с плохой разметкой и маркировкой, проблемы с пешеходами…).	
<u>Возможные решения</u> - перестройка перекрёстков (добавление островков безопасности, улучшение видимости...) - улучшение разметки и маркировки (чёткая маркировка ожидания и права проезда) - установка искусственного освещения - добавление точных (по стандартам ООН) знаков - ...	
<u>- Проблемы опасных поворотов</u> (повороты с ограниченной видимостью, слишком малым радиусом для данной	

дороги, несоответствующий поперечный наклон, отсутствие необходимой разметки и маркировки...).	
<u>Возможные решения</u> - улучшение геометрии (увеличение радиуса кривой при необходимости) - улучшение видимости (разметка и маркировка, добавление отбойников и т.д.) - дополнительная вертикальная сигнализация (предупреждающие знаки, шевроны) - добавление встроенных асфальтных маркеров - добавление ограждений - добавление точных (по стандартам ООН) знаков - ...	
<u>- Проблемы сужения дорог</u> (на мостах и водопропускных сооружениях; в условиях движения, угрожающего безопасности его участников; при несоответствующей разметке и маркировке...).	
<u>Возможные решения</u> - расширение узких участков - улучшение разметки и маркировки - дополнительная вертикальная сигнализация - добавление встроенных асфальтных маркеров - добавление ограждений - добавление точных (по стандартам ООН) знаков - ...	
<u>- Проблемы мостов (туннелей)</u> (объекты на дорогах, обычно между двух поворотов; отсутствие видимости; несоответствующая разметка и маркировка; обычно без ограждений…).	

<u>Возможные решения</u> - улучшение разметки и маркировки - дополнительная вертикальная сигнализация - добавление встроенных асфальтных маркеров - добавление ограждений по EN 1317 - использование стандартов и норм туннельной безопасности - усиление искусственного освещения - добавление точных (по стандартам ООН) знаков - ...	
<u>- Проблемы пешеходных переходов</u> (неверно спроектированные, размеченные и маркированные; плохо видимые; недостаточно оборудованные в участках интенсивного движения детей; без освещения).	
<u>Возможные решения</u> - улучшение планировки, разметки и маркировки - замедление трафика (знаки, физическое препятствие, дорожное покрытие и крупные схемы, особенно использование искусственных неровностей и предохранительных полос) - строительство вспомогательных средств для пешеходных переходов (островки безопасности, перила и ограждения) - добавление заборов, ограждающих пешеходов от дороги - установка искусственного освещения - добавление точных (по стандартам ООН) знаков - ...	
<u>- Проблемы железнодорожных переездов</u> (пересечение дороги и ж/д полотна под острым углом; недостаточность	

видимости и обзора; неадекватная разметка и неправильное ограждение участков…).	
<u>Возможные решения</u> - улучшение разметки и маркировки - дополнительная вертикальная сигнализация - добавление встроенных асфальтных маркеров - добавление точных (по стандартам ООН) знаков - ...	

Описание места концентрации ДТП / Типичные меры противодействия	Изображения
<u>- Дороги, проходящие через города</u> (слишком много подъездных путей, разнородный трафик, высокие скорости, незаконные стоянки транспортных средств, пешеходы, недостаточная видимость, уличные рынки...).	
- контроль доступа (закрытие нелегальных подъездных дорог) - разделение ответвлений барьерами - замедление трафика (знаки, физическое препятствие, дорожное покрытие и крупные схемы) - строительство пешеходного прохода - строительство вспомогательных средств для пешеходных переходов - новая дорожная разметка и маркировка - установка искусственного освещения - добавление точных (по стандартам ООН) знаков - ...	
<u>- Проблемы перекрёстков</u> (опасные типы, такие как "Y"-перекрёстки, опасные круговые развязки с недостаточным прогибом, неправильно спроектированные перекрёстки без достаточной видимости, с плохой разметкой и маркировкой, проблемы с пешеходами…).	
<u>Возможные решения</u> - перестройка перекрёстков (добавление островков безопасности, улучшение видимости...) - улучшение разметки и маркировки (чёткая маркировка ожидания и права проезда) - установка искусственного освещения - добавление точных (по стандартам	

ООН) знаков - ...	
- Проблемы опасных поворотов (повороты с ограниченной видимостью, слишком малым радиусом для данной дороги, несоответствующий поперечный наклон, отсутствие необходимой разметки и маркировки...).	
Возможные решения - улучшение геометрии (увеличение радиуса кривой при необходимости) - улучшение видимости (разметка и маркировка, добавление отбойников и т.д.) - дополнительная вертикальная сигнализация (предупреждающие знаки, шевроны) - добавление встроенных асфальтных маркеров - добавление ограждений - добавление точных (по стандартам ООН) знаков - ...	
- Проблемы сужения дорог (на мостах и водопропускных сооружениях; в условиях движения, угрожающего безопасности его участников; при несоответствующей разметке и маркировке...).	
Возможные решения - расширение узких участков - улучшение разметки и маркировки - дополнительная вертикальная сигнализация - добавление встроенных асфальтных	

маркеров - добавление ограждений - добавление точных (по стандартам ООН) знаков - ...	
<u>- Проблемы мостов (туннелей)</u> (объекты на дорогах, обычно между двух поворотов; отсутствие видимости; несоответствующая разметка и маркировка; обычно без ограждений…).	
<u>Возможные решения</u> - улучшение разметки и маркировки - дополнительная вертикальная сигнализация - добавление встроенных асфальтных маркеров - добавление ограждений по EN 1317 - использование стандартов и норм туннельной безопасности - усиление искусственного освещения - добавление точных (по стандартам ООН) знаков - ...	
<u>- Проблемы пешеходных переходов</u> (неверно спроектированные, размеченные и маркированные; плохо видимые; недостаточно оборудованные в участках интенсивного движения детей; без освещения).	
<u>Возможные решения</u> - улучшение планировки, разметки и маркировки - замедление трафика (знаки, физическое препятствие, дорожное покрытие и крупные схемы, особенно использование искусственных неровностей и предохранительных полос) - строительство вспомогательных средств для пешеходных переходов (островки	

безопасности, перила и ограждения) - добавление заборов, ограждающих пешеходов от дороги - установка искусственного освещения - добавление точных (по стандартам ООН) знаков - ...	
<u>- Проблемы железнодорожных переездов</u> (пересечение дороги и ж/д полотна под острым углом; недостаточность видимости и обзора; неадекватная разметка и неправильное ограждение участков…).	
<u>Возможные решения</u> - улучшение разметки и маркировки - дополнительная вертикальная сигнализация - добавление встроенных асфальтных маркеров - добавление точных (по стандартам ООН) знаков - ...	

Наряду с типичными местами концентрации ДТП (чёрными участками), обычно присутствуют систематические недостатки активной и пассивной безопасности дорожного движения, такие как:

- отсутствие соответствующей стандартам ООН дорожной разметки и маркировки,
- низкое качество пассивных дорожных элементов (ограждения, которые не соответствуют типу дороги, или разработаны с нарушением спецификаций),
- высокая торговая активность и большое число торговых палаток в излишней близости к государственным дорогам, особенно на участках, где дороги проходят через населённые пункты (города),
- большое число нерегулируемых (незаконных) подъездных дорог, и т.д.

Понимание наиболее распространенных причин, из-за которых возникают места концентрации ДТП, является столь же важным, сколь и желание их предотвратить. Причины возникновения мест концентрации ДТП могут быть устранены на этапе проектирования, строительных работ и технического обслуживания дорог.

Можно сделать вывод, что почти на всех подобных участках недостаточно качественная дорожная разметка и маркировка, призванная обеспечить указания и информацию для водителя, а также отсутствуют ограждения, которые могли бы защитить его в случае

ошибки.

Одно из предположений – маркировать все выявленные места концентрации ДТП дорожными знаками по стандартам ООН. При этом опасные участки будут легко узнаваемы участниками дорожного движения (в основном водителями), и последние будут корректировать своё поведение (скорость) в соответствии с локальными дорожными условиям. Эти знаки будут удалены после усовершенствования (перепланировки, реконструкции и др.) данного участка.

Предложенные меры противодействия и способы маркировки мест концентрации ДТП основаны на опыте развитых стран и международных ассоциаций (IRF, ERF, PIARC, PRI, WB, OECD, ECMT, и др.), следовательно, являются эффективной и единой системой управления местами концентрации ДТП на всей сети государственных дорог.

5. ПОТЕНЦИАЛЬНАЯ ЭКОНОМИЯ ПРИ СНИЖЕНИИ АВАРИЙНОСТИ

Для предложенных мер противодействия любого типа необходимо знать потенциал снижения аварийности. Поэтому предлагаем список наиболее распространённых бюджетных мер противодействия с ожидаемыми от них эффектами.

Следующая таблица составлена по результатам различных международных исследовательских проектов и тематических исследований, и может быть использована для понимания потенциальной экономии при снижении аварийности с учётом различных мер противодействия. Таблица 5.1. содержит перечень способов и мер противодействия и их потенциал снижения аварийности. Чаще всего, представлены минимальный и максимальный эффекты.

Таблица 5.1. Эффективность (снижение аварийности) различных мер противодействия

Решение	Потенциал снижения аварийности [%]
Дорожный стандарт	
Улучшение до высокого стандарта	19-33
Уменьшение числа полос движения	22-32
Расширение полосы на 0,3-0,6 м	5-12
Расширение асфальтированной обочины на 0,3 - 1 м	4-12
Добавление разделительной полосы	40
Расширение и модификация моста	25
Расширение обочины	10
Полоса для обгона	20
Полоса для правого поворота	40
Полоса для левого поворота	15
Наземный пешеходный переход	10
Уплощение бокового склона с 2:1 до 4:1 ... 7:1 или более	6 ... 15
Уплощение бокового склона с 4:1 до 5:1 ... 7:1 или более	3 ... 11

Сервисные дороги	20-40
Снижение трафика	12-60
Снижение скорости с 70 км/ч до 50 км/ч	10-30
Снижение скорости с 90 км/ч до 60 км/ч	17-40
Горизонтальное выравнивание	
Улучшение геометрии	20-80
Кривизна поворота: улучшение радиуса	33-50
Вертикальное выравнивание	
Плавность подъёма/удаление холмистости	12-56
Улучшение/введение возвышения	50
Проходная полоса	11-43
Восходящая полоса	10-40
Структура дороги	
Расширение полосы	12-47
Улучшение сопротивления заносу	18-74
Расширение обочины	10-40
Ограждение обочины	22-50
Расширение зоны мульчера для обочин	13-44
Проектирование развязок	
Смещённые перекрёстки (вместо прямых)	40-95
Т-развязки (вместо Y-развязок)	15-50
Полностью контролируемый правый поворот	45
Круговые развязки (вместо неконтролируемых)	25-81
Круговые развязки (вместо светофорных)	25-50
Небольшие круговые развязки (вместо неконтролируемых)	40-47
Полосы для поворота	10-60
Островки безопасности	39
Защищённые полосы для поворотов (городские)	30
Защищённые полосы для поворотов (сельские)	45
Дополнительная полоса на перекрёстке	20
Слой против скольжения	20
Камера красного света	10
Присутствие полиции	7-25
Контроль движения	
Регулирующие знаки на перекрестках	22-48
Информационно-указательные знаки на	14-58

развязках	
Знаки над дорогой	15
Знаки на обочине	19-24
Более яркие знаки и маркировка	24-92
Знаки и разграничение	29-37
Знаки, предупреждающие об изгибе	20-57
Знак «впереди стоп»	47
Знаки, регулирующие скорость	23-36
Предупреждающие знаки	20
Знаки снижения скорости движения	16-19
Выезд/Уступи дорогу	59-80
Знак «Стоп»	33-90
Сигналы – вместо неконтролируемой дороги	15-32
Изменение сигналов	13-85
«Канализация» развязок	10-51
Запрет парковки на обочине	10-25
Видимость	
Маркировка полос	14-19
Маркировка края дороги	8-35
Жёлтая поперечная разметка	24-52
Светоотражательная асфальтная разметка	6-18
Указательные столбы	2-47
Проблесковые маяки	5-75
Установка освещения	6-75
Улучшение расстояния видимости	28
Каналообразующие медианы	22-50
Смягчение последствий аварий	
Медианные барьеры	14-27
Боковые барьеры	15-60
Ломкие знаки, не вредящие автомобилю в случае столкновения	30
Удаление деревьев (сельские дороги)	10
Удаление опор освещения (городские дороги)	20
Обработка насыпей	40
Ограждение для концевых мостовых опор	20
Смягчители удара	20
Оборудование для пешеходов	
Пешеходные дорожки	33-44
Пешеходные переходы «зебра»	13-34
Поднятые пешеходные переходы «зебра»	5-50
Переходы «пеликан»	21-83

Разметка на переходах «зебра»	-5-14
Островки безопасности для пешеходов	56-87
Пешеходные мосты	39-90
Заборы, ограждающие пешеходов	10-35
Оборудование для велосипедистов	
Велосипедные дорожки	33-56
Маркированные велосипедные переходы по сигналам	10-15
Выдвинутые вперёд линии остановки велосипедистов на развязках	35
Железнодорожные переезды	
Световые сигналы	73-91
Автоматические ворота	81-93
Замедление трафика	
Зоны 30 км/ч (включающие искусственные возвышенности и шиканы, и т.д.)	10-80
Предохранительные полосы (грохота)	27-50
Предохранительные полосы (грохота и возвышения)	20-80

ПРИМЕЧАНИЯ:

1. Значения потенциалов снижения аварийности НЕ СУММИРУЮТСЯ, следует использовать то решение, которому соответствует наибольший показатель из списка возможных для данного участка.
2. Потенциал снижения аварийности применяется ко всем дорожным происшествиям на одном перекрёстке или отрезке дороги, где реализовано соответствующее решение.

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4.4.4

REGIONAL GUIDELINES
FREIGHT THROUGH TRAFFIC ROUTING
TO AVOID RESIDENTIAL AREAS

DRAFT

Technical Note 4.4.4

REGIONAL GUIDELINES
FREIGHT THROUGH TRAFFIC ROUTING
TO AVOID RESIDENTIAL AREAS

TRACECA II Regional Road Safety Project

Freight / Road Safety Engineering Team

December 2015

EU funded road safety project
for
Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Tajikistan, Turkmenistan, Ukraine, Uzbekistan

PREFACE

The movement of road freight has generally doubled globally in the last twenty years and is forecast to double again in the next twenty years. The distribution of goods and services relies heavily on the freight industry, and does the global postal system.

Roads that are important for major freight movements have a different role and function to most other roads. They require specific treatment and management. Increasingly, road agencies are realising that there are significant benefits in publicly identifying freight route networks, and investing in their maintenance or improvement. Countries recognising the opportunities including the European Community, have commenced publicly identifying freight route networks of different types, mainly through statutory planning processes.

The Austroads Freight Program has lead this recognition, and their approach to thoroughly research and provide planning guidance on how to facilitate increasing demand for freight, while addressing community issues and their concerns.

As part of the TRACECA project and document package, this report outlines a guideline for such objectives. It offers processes for identifying and planning rural and urban freight routes of importance. Focusing more towards the urban situation where freight transport movement is concentrated and the community is potentially negatively impacted by the road freight.

This guideline outlines why and how to identify road freight routes that are of economic importance for the growing freight chain and offering the industry suitable options for distribution and transit travel. It explains why road freight networks need to be identified and the benefits. It provides processes through various approaches to planning for each issue, including protecting community interested as well as road freight economic importance through statutory planning mechanisms.

Road authorities should be encouraged and apply a number of innovative approaches to identify and support freight routes for specific purposes. The successful approaches that may be used at national, regional, metropolitan and provincial city level should ensure route networks are studied, and improvement prioritised.

Route access for specific truck types or truck loads and cargo type is slightly outside the scope but it is highlighted in this report. Road design and performance investment, road use and operation, or road safety impacts of road freight vehicles are likewise discussed. These issues must be strongly address by TRACECA road and traffic regulatory publications.

This guideline has been drafted to list the issues and necessary effort needed to address the complexity and importance of the route network and community safety and ambience. It challenges any existing objectives and freight route network design standards and policy and includes suggests on how to manage it, and the processes that are practical for freight route identification and route planning, for avoiding residential areas or reducing the impact on communities.

This guideline attempts to provide a framework to assist all levels of government and the private sector to understand the importance of better managing different types of freight movement to grow our economy and minimise negative community impacts.

Readers are presented with a collection of successful approaches for road freight networks that reflect the diversity of needs across the nation, as well as processes for planning, identifying and protecting them. The Project team in cooperation and consultation with

TRACECA Country representatives has discussed the local issues and best international theory and practice. They offer unified approach for across the Region.

As TRACECA Region contains important transport corridors between the production national and consuming nations, China and Europe, harmonization of standards and road performance and elimination of potential traffic risks to all road users is importance.

This information should be used to build upon existing State manuals. This will ensure similar approaches are applied for related improvement of road infrastructure in all TRACECA Countries.

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Abbreviations and acronyms

BSM	Black Spot Management
EC	European Commission
EU	European Union
IBRD	International Bank for Reconstruction and Development (World Bank)
IFI	International Financing Institutions
ITS	Intelligent Transport Systems
MoIA	Ministry of Internal Affairs
MoI	Ministry of Interior
MoTC	Ministry of Transport and Communications
PIARC	World Road Association (PIARC actually means Permanent International Association of Road Congresses but this name is rarely used)
RSA	Road Safety Audit
RSI	Road Safety Inspection
SEETO	South-East Europe Transport Observatory
State or USA)	Statutory boundary and independent responsible jurisdiction (States of Australia
TL	Team Leader
ToR	Terms of Reference
TP	Traffic (Road) Police
TRACECA	Transport Corridor Europe-Caucasus-Asia
WE-WC	Western Europe – Western China International Transit Corridor
WHO	World Health Organization

1. INTRODUCTION

In accordance with the TRACECA II project's terms of reference, Component 3: "Freight Routes and Parking", this document has been drafted as a result of workshops and consultation meetings on local situations and international best practices regarding freight route management and design, and community safety.

The additional aim was to encourage pilot studies and schemes focused on freight route and facilities and safety.

The freight specialist team mobilised to the TRACECA countries in June 2015, until July 2015. The mission met with various freight stakeholders including transport ministries, traffic and road safety agencies, Traffic Police, and freight associations, as well as local representative for TRACECA. The aim was so to identify and discuss issues experienced locally with freight routes, traffic safety, and needed facilities such as parking, and solutions to avoiding freight route through communities.

This guideline highlights key freight route design considerations so to maximise safety and avoid residential areas, as well as suggestions for a way forward for achieving current international best practices and possibly meeting EU standards.

The details provide a breakdown of common issues and key factors for freight movement management and safety, for consideration by national road, transport, road safety and enforcement agencies for technical and institutional framework improvement.

1.1 Scope

This component activity consists of a study, in close cooperation with the beneficiary countries, to identify typical problems and situations that occur in their respective countries for road safety.

The guidelines will outline typical problems and possible solutions that could be applied and would provide a core body of information and guidance that could be incorporated into local guidelines developed in each country.

Prepare guidance on freight through traffic routing to avoid residential areas.

Terms of Reference;

"…*Simple Guidelines will be prepared on how to prevent such through traffic in residential areas. The guidelines will outline typical problems and possible solutions that could be applied and would provide a core body of information/guidance that could be incorporated into local guidelines developed in each country.*

This would provide a common and consistent approach across the region while allowing each country to localise their country specific guidelines to meet their particular needs. It would lead into the definition and design of a network of major freight routes (for transit traffic) avoiding residential areas.

In conjunction with the above objective, the countries will be encouraged, via a regional road safety coordination group, to cooperate in establishing a network of safe and secure parking areas along the major regional routes. International experience will be shared to ensure that the locations and facilities made available are such that they encourage truck drivers to use

them, instead of parking at potentially more dangerous parking areas and places not designed for that purpose."

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International experience will be shared to ensure that the locations and facilities made available are such that they encourage truck drivers to use them, instead of parking at potentially more dangerous parking areas and places not designed for that purpose.

The Project team will introduce best practice in traffic routing through the production of a guideline document that outlines basic principles that all countries should abide by to avoid commercial traffic passing through residential areas. Alternative strategies and options will be discussed at a joint workshop, following which suitable schemes will be pilot tested in selected countries.

This core activity will consist of the identification and promotion of best practice, of successful cases developed in TRACECA region, either in the course of the implementation of the present project or other similar projects and initiatives. Experience shows that solutions from other countries within a region are often effective in inspiring neighbouring countries to do the same. This activity is very important and great care will be taken in selecting case studies and examples.

1.2 Background

Successes and effective policy framework from other countries will also be referred to as guidance for freight management and enforcement administrators within each TRACECA country.

Guidelines form a comprehensive approach to assist governance in road freight management also for international reference, such as TRACECA.

An initiative to apply these approaches by TRACECA countries has significant potential to learn lessons of best practice, by providing improvements to the transport industry, economic benefits to states and regions and high potential for lifestyle and social benefits for those living or working near major freight roads, especially in urban areas.

Purpose of guidelines

The guideline encourages development and pilot schemes, and to provide to State road agencies and transport industry:

- Benefits of identifying, approving and managing urban and rural freight route networks for state road agencies, the transport industry and nearby communities
- Describing the types of freight routes that state road agencies should consider progressing as a freight route network
- Outlining criteria (and rules of thumb), a process and jurisdictional success stories in determining freight route networks

- Provide detailed planning guidance for nominating particular links – which may be sensitive or where there are competing choices – as components of a freight route network.

In essence this guideline outlines how best to identify and protect road routes that are of high importance to road freight, and what to provide as facilities or how to solve potential conflict between freight movers and vulnerable road.

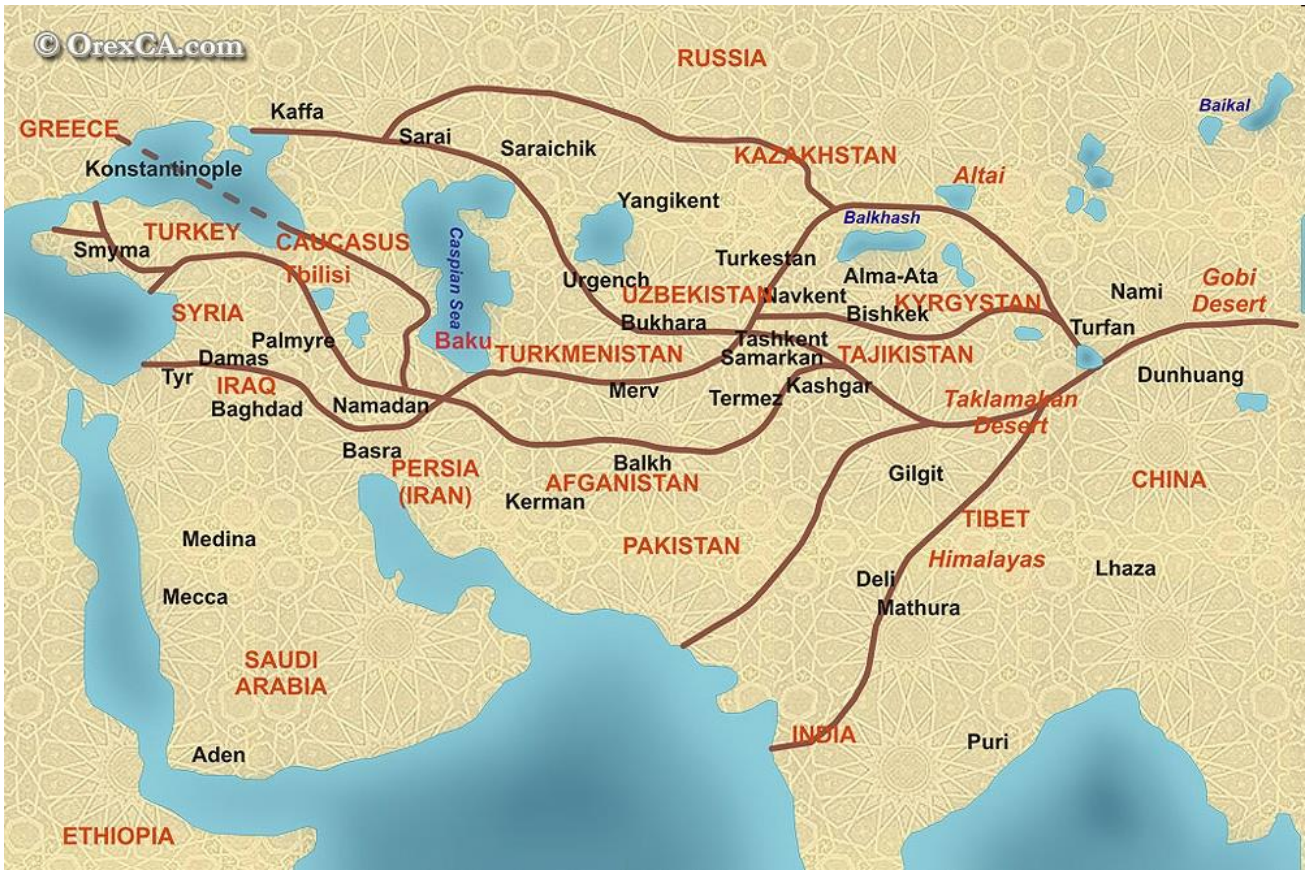
While this guideline provides special guidance about freight routes in urban and rural areas, it should be part of a comprehensive national package of guidelines and standards as well as policies. It must work together with other ministries to assist the State road stakeholders to grow regional economies through facilitating the movement of freight by the transport industry, while reducing the impacts of road freight movement on nearby communities and their safety.

The guideline has been designed to outline the issues for identifying in statutory planning documents on different types of freight networks. It is designed to assist State road agencies to make an effort to address the complexity and importance of the freight activity and route network.

It is necessary to undertake studies to confirm the degree of the issues in your country. In most instance, a more comprehensive planning approach will be needed, especially if coordination is required with neighbouring countries with related freight routes and shared customs borders.

The planning and study reports should involve other stakeholder ministries in which can learn from them and potentially adapt their policy approach and application of resources to their local situation.

Key freight routes through TRACECA;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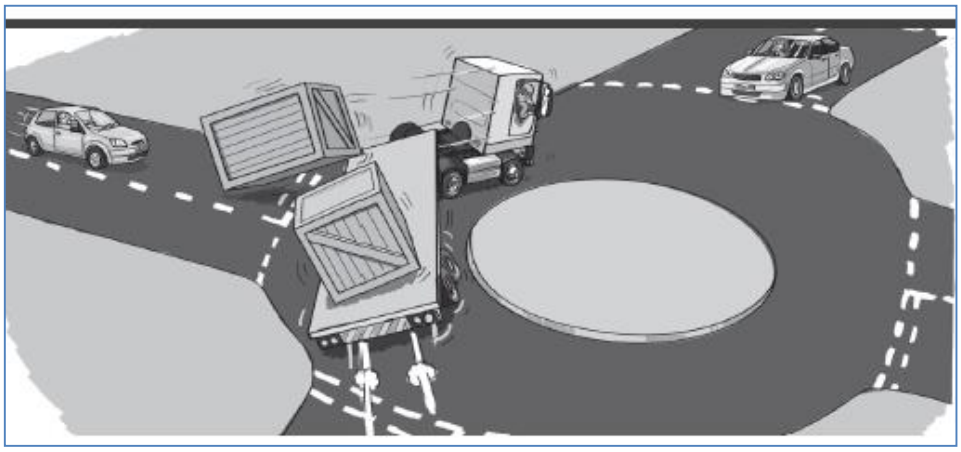
RUSSIA
Baikal
GREECE
Kaffa
Sarai
Saraichik
KAZAKHSTAN
Altai
Konstantinople
Yangikent
Balkhash
TURKEY
CAUCASUS
Caspian Sea
Smyma
Tbilisi
Turkestan
Urgench
Alma-Ata
Nami
Gobi Desert
SYRIA
UZBEKISTAN
Navkent
KYRGYSTAN
Bishkek
Bukhara
Turfan
Palmyre
Baku
TURKMENISTAN
Tashkent
Samarkan
TAJIKISTAN
Damas
Tyr
IRAQ
Merv
Kashgar
Dunhuang
Baghdad
Namadan
Termez
Taklamakan Desert
Basra
PERSIA (IRAN)
Balkh
AFGANISTAN
Gilgit
CHINA
Kerman
TIBET
Medina
PAKISTAN
Himalayas
Lhaza
Deli
Mecca
Mathura
SAUDI ARABIA
INDIA
Puri
Aden
ETHIOPIA

2. UNDERSTANDING THE TASK

2.1 Freight through traffic routing avoiding residential areas

Avoiding residential areas could only be achieved by specific road planning and construction of infrastructure, and administrative framework from legislation and policy adhered by the freight industry and supported by the preparedness of their drivers, vehicles and cargo.

Cargo safety;



Planning and improvement programmes where the conflicts are reduced or completely eliminated. Areas in which have existing freight routes passing through with the community strongly and justifiably objecting will require increased priority for investment and redevelopment.

A technical approach by improving physical aspects of the road and traffic access network reducing the negative impacts for freight and negotiating progressive change of the road and resolution or separation between the source of conflict and specific community members.

Major investment options include:

- Bypasses
- Over passes or under passes including tunnels
- Road division or segmentation between freight and vulnerable road users and community

Minor investment option:

- Service roads, with central traffic island or median
- Overtaking lanes for hill areas, or double lanes for separating slow traffic and freight traffic
- Traffic calming treatment for through freight traffic
- Restriction of access roads or times (within residential areas)
- Restricted vehicle types or weights, or cargo types
- Avoiding air-brakes usage (noise reduction)
- Maintaining road surfaces that are not smooth (reducing vibration and noise)

Industry investment:

- Strict freight policy in line with regional and national ambience and safety objectives
- Higher level driver training and disciplinary performance benchmark for promoting safe driver behaviour, and preparedness when travelling long haul distance with route choice, and with specific types of cargo, including full understanding of traffic regulations and vehicle maintenance

Community:

- Committee establishment providing feedback and consultation of local issues
- Minor tolerance
- Negotiation with the freight industry for sharing benefits of freight activity and route usage

Framework

State ministries responsible for road infrastructure and traffic management are obliged to have identified the roads and route corridors and facilities necessary to facilitate freight movement for domestic and international cargo transit distribution.

This can only be successful if communities accept this progression, and safety concerns are appropriately addressed, along with sharing benefits of the improvement for road access and usage.

Each TRACECA country should have, at its disposal at intra-ministry level, a plan and map of the nation's entire road network in which includes suitable roads specifically used by freight vehicles, of specific sizes and weights, including frequency of cargo type, and daily traffic flow volume (at peaks).

Freight directions;

Scoping and profiling your road network will assist with prioritisation and funding distribution for future development, maintenance and enforcement for freight, as well as identify and verifying community concerns regarding safety and access. Associated with this road network plan, should be linked to a list of road maintenance expenditure each year since keeping the record.

Scoping profiles the investment of each road and of the financial commitment needed for up-keeping the performance of the corridors for community and freight industry support. A focus

on road safety performance should link the road incidents and crash records so to highlight areas of concern such as Blackspots, and the freight routes. This information will identify necessary treatments, or establish where freight routes are to be discouraged and roads demoted.

Connecting freight generators and road distribution while avoiding residential areas;

Freight planning

Transport infrastructure

- *condition: e.g. maintenance and improvement of main freight routes*
- *congestion: increases or decreases*
- *expansion or contraction: e.g. altering major freight movement corridors (freeways & primary arterial roads), construction of intermodal facilities*
- *heavy vehicle access to intermodal and other facilities: e.g. queuing, loading/transfers*
- *location of intermodal facilities and their connection with principle arterials and national highway network*

Freight generation

- *industry developments: e.g. e-commerce, logistics operation (JIT) manufacturing/warehousing systems, changes in competition between operators and modes, technology adoption*
- *changes in product supply or demand, input costs and market prices*

Transport policy

- *taxes/fees: e.g. registration, road tolls, fuel excise*
- *regulation: e.g. safety, entry/exit barriers, load specifications*
- *subsidies: e.g. infrastructure, fuel*

Land use zoning

- *changes in location of product suppliers, large multi-purpose retail outlets, warehousing distribution centres*

Local area traffic management

- *local access: e.g. parking, local street access, designated routes for 'over-dimension' vehicles*
- *environmental and safety concerns: e.g. noise*

Commodities moved

- *identification of key economic sectors that generate the most important freight traffic within a given geographic region e.g. packaging, disposable foodstuffs,*
- *distinguish specific layers of commodities e.g. refrigerated food products, building materials*
- *allows for a simplified separation of freight into groupings with similar transportation requirements*

(Source: Austroads, Planning for Freight in Urban Areas AP-R228, 2003, p24)

2.2 Road and traffic consideration

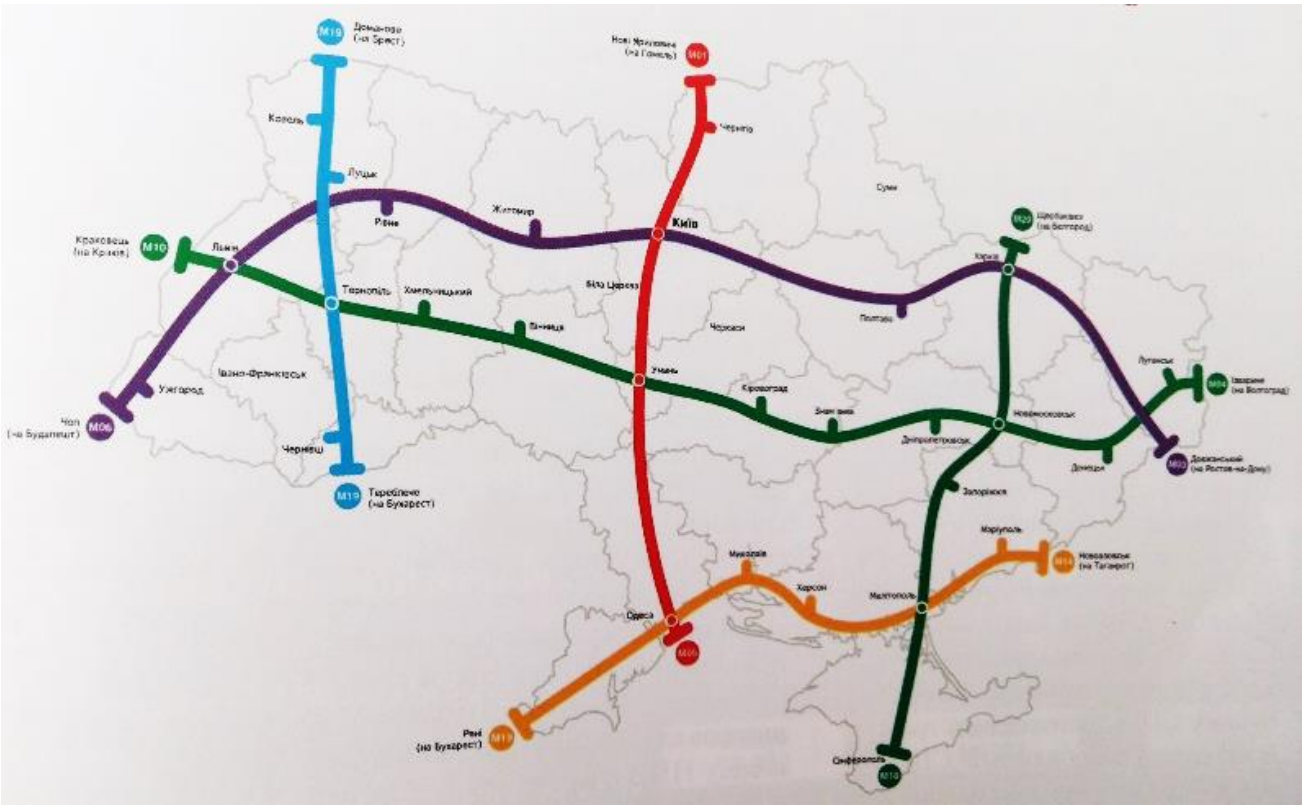
I. Routes;

The origin and destination of freight traffic must be defined. These are often linked to transport hubs such as sea and air ports, rail yards, industrial districts and national borders and river and mountain crossings. Authorities must also management and control these roads so to ensure traffic flow and safety as well as condition.

Selection and maintenance of the freight corridors should provide uninhibited traffic flow for large heavy vehicles, but also offer opportunities and facility for driver rest, vehicle repair and law enforcement.

In addition, control the movement any conflict between slow and fast moving traffic and if necessary separation between freight vehicles and road users and also reducing any disturbance to residential communities and ambience.

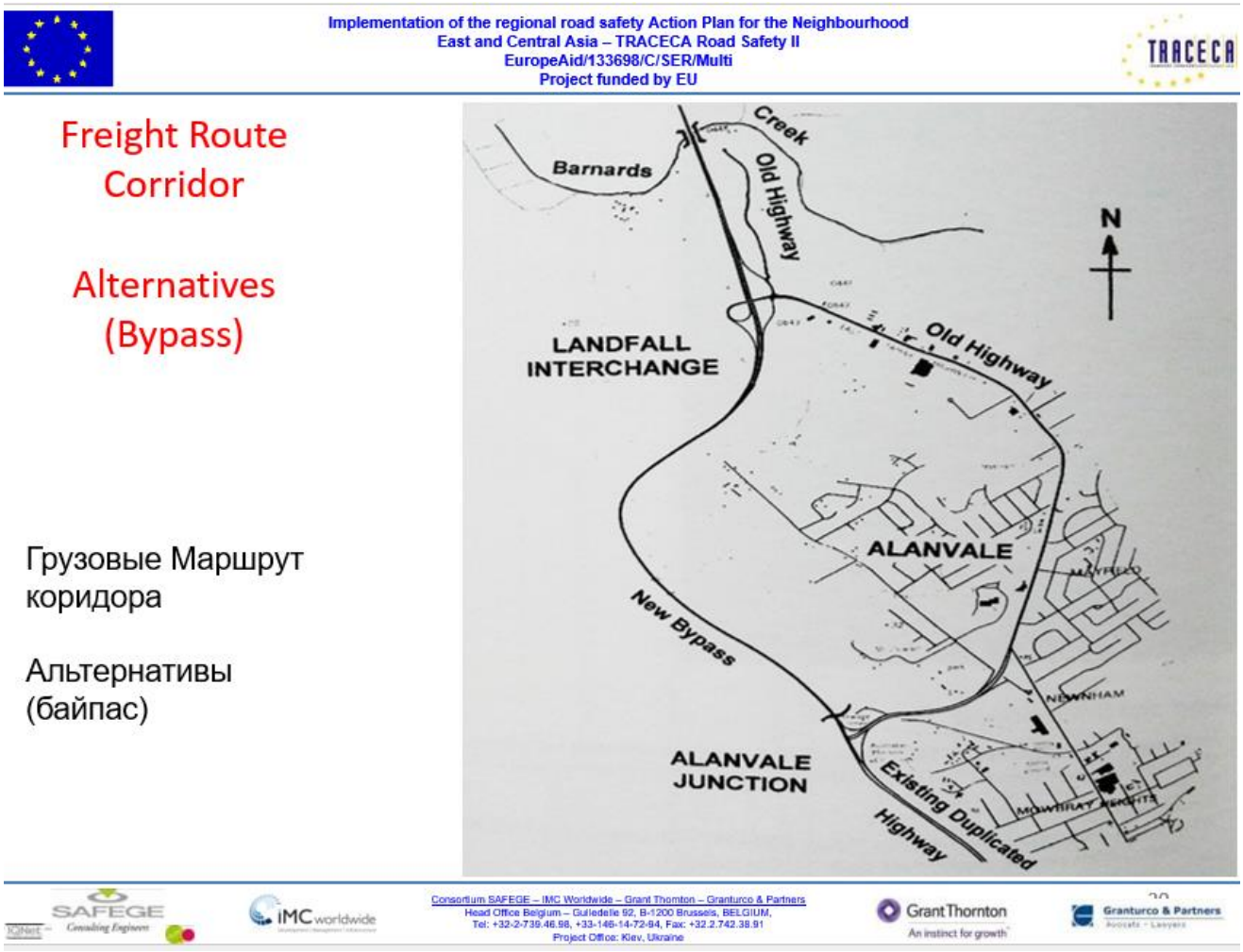
Route planning at the macro level;



Freight routes must also provide for specific traffic and vehicles, as well as provide access during all weather conditions.

If large or heavy vehicles cannot ensure safety by use of specific routes or sections of roads, an alternative must be provided, with advance warning especially during adverse weather conditions or between summer and winter seasons.

Determine the key routes, and potential conflict residential areas;



II. Road infrastructure;

Pavements must be designed for the average weight of the freight as well as provide clearance for height and widths considerations of cargo sizes. New pavements often suffer early repair or maintenance as the road design guidelines being used are not up to date with modern freight weight. Old standards allowed for 12 tonnes but modern freight is carrying 20-40 tonnes, especially if there are quarries and metal yards along the corridor.

Road surfacing is also a significant factor in location where water and ice formation could impact on safety. Open graded surfaces have been used to assist with better traction during heavy rain, or where there is incidental frost or ice formation.

Other climate factors to consider for road surfacing and infrastructure design is where there is dust and wind, as well as mountainous road section. Wide or sheltered carriageways could offer protection for tall vehicles against wind and dust, and escape roads or lanes could ensure trucks with over used brakes can leave the traffic lanes safely when brakes may fail.

This consideration must also include all structures along the corridor.

III. Structures;

With the consideration of the issues mentioned above, the structures in which must be suited when designed and constructed or upgraded and maintained must address axle loads, vehicle size and turning arc, cargo height and width and driver requirements.

Structure should include culverts, bridges, sign board and gantries, embankments, safety fencing and crash barriers, as well as pavement types and depths. Design for these must take into consideration traffic speeds, weight of vehicles in addition to dimensions of vehicle and cargo.

In ensuring freight routes are suitable these structures require assessment and vetting to confirm tolerances for freight dimensions and vehicle movement (turning arcs) and weights so to provide sufficient pavement flexibility and avoid rutting and prevent cracking (particularly for shoulders and stopping areas).

IV. Traffic control devices;

Devices should include; signs (traffic control, advisory and information), variable message signs boards; alarms (flashing lights for weather condition warning; wind, road hazard, traffic incident); traffic signals specifically for controlling freight vehicles particularly when there is potential conflict with other traffic, and the expected delineation devices including road markings, marker studs or rumple strips, reflectors and posts.

Controlling freight transport (weight);

It is important to state that some countries may consider using speed humps for traffic or speed calming but this is to be discouraged. The alternative is to use a series of traffic islands supported by road markings, marker studs and signs, along with Traffic Police enforcement. Modern enforcement now involves high technological systems such as radar and CCTV.

Managing the existing road users;

V. Enforcement;

Traffic Police and Customs must be provide for so to enforce national laws or policies for freight vehicle (and drivers) and cargo control. This includes vehicle speeds, dimensions, access and stopping (parking) restriction, cargo size as well as dangerous or hazardous good (restricted goods control including human trafficking), and emissions such as CO2, carbon and noise and vibration.

Authorities must define strategic locations and facilities along freight corridors in which are suitable for sufficient control of each of these factors, and ensure the safety of the enforcement officers as well as the drivers and their assets.

VI. Customs;

The operation of customs is critical for a nation's incoming and outgoing freight control. Specific facilities must be provided, along with appropriate protocol for processing drivers, vehicles and cargo.

This issue complicated with differences with driver origin where language could be a barrier for understanding cargo, weight or dimension restrictions, in advance. Facilities should aim to have appropriate staff who are suitably trained and supported by control devices and facilities for checking and withholding goods, drivers and vehicles in a safe and secure area.

VII. International transit;

International agreements and collaboration assist with monitoring and control of international transit of freight, drivers and vehicles. The suitability and success of a freight corridor depends upon its position as well as attraction for freight movers. If agreements to share information

and customs control data could ensure better security of State interests, and provide a more efficient movement of a freight route and its cargo processing and road performance.

VIII. Policy and Law;

TRACECA countries have the opportunity to learn the lessons from other countries who have developed freight movement as a main industry. This includes Europe and other countries such as Australia.

The policies and laws from these places could be used to draw upon the current best practices. Most of the issues have already been discussed here but primarily cover cargo control and movement efficiency, safety and security, as well as crime prevention and law enforcement.

IX. Emissions;

Traffic Police and Customs must be provide enforcement of national laws or policies for vehicle control. This includes specification of restriction and prohibition of dangerous or hazardous goods (including seepage, or securing loads in instance of collisions and lost loads), and emissions of the vehicle such as CO2, CO, and noise and vibration.

These factors must be covered by policy and law, and enforcement agencies should be supported with appropriate equipment, resources and budgets so to control these factors. Villages and townships are often at risk, and consultation often exposes their vulnerability to such potential hazardous events. It also places importance on monitoring emissions and measuring in accordance to targets or limits.

2.3 Community road users

The relationship between community road users and freight transport is often in conflict. The challenge is to manage slow moving short journey local travellers (pedestrians, bicyclists, motorcyclists, tri-wheelers or agricultural vehicles) mixing with long haul faster bigger moving trucks travelling between ports and towns or inter-city. The alternative is to provide separation and this may impart significant infrastructure costs, and so may not be the first suitable option.

The potential conflicts between freight and other road users is always present, especially in rural areas. Slow moving short journey traffic is in conflict with long haul faster traffic, and most countermeasures involve either separation or traffic calming, or both. Examples of slow movers are agricultural vehicles, animals, market areas where vehicles are constantly moving slowly or stopping.

The ideal situation is to have freight traffic separated by design, and this would mean via service roads, bypasses or overpasses. With every new road project, current best practice requires a committee to be developed that involves the local village or township representative to consult to the project planners and implementers so that road safety issues can be capture early, or, as they develop before escalation. Other options for freight involves restricted access in some areas, such as during specific times or roads, and avoiding direct conflict with vulnerable road users such as schools students and commuters during peak hours.

2.4 Freight travel road safety

Road safety for freight movers means driver safety. Drivers are travelling for long distances over various terrains and weather conditions. There are many hazards and risks in which present themselves in this situation.

Freight transport planning involve preparation and avoiding hazards;

Countries who are investing in freight transport and infrastructure realise the difficulty of freight transport. They must also realise government regulation and employment policy must focus on driver fatigue, training and vehicle maintenance as key factors for securing road safety for the drivers, and other road users who are in contact.

Part of this is supporting the freight industry with workable policies and regulations for improved freight movement. This includes domestic transport as well as international freight movers.

Drivers must be employed with an existing level of capability, then obtain training for specific freight driver skills. Training should involve reducing risks while driving and carrying heavy or large loads, and how best to secure them on the vehicle. In addition, regular rest must be obligatory and drivers should plan their route, on known roads capable for tolerating heavy or wide loads, while also providing fuelling, repair and rest and refreshment areas.

These selected roads should avoid ambient areas such villages where possible, and avoid conflicts with vulnerable road users. Vehicle speed and control is imperative for freight road safety. They are many reports from truck drivers that there are inconsiderate private vehicle drivers in which involve freight vehicles in high risk manoeuvres such as cutting in front and

creating shorter stopping distances. Drivers must be trained to be vigilant for speed control and also proper use and maintenance of brakes.

In addition, discipline needs to be installed for awareness affects and consumption of alcohol and drug influence on driving behaviour.

2.5 Enforcement; driver, vehicle, and cargo

Traffic control authorities and Traffic Police must be in position to carry out enforcement of traffic regulations and laws. These must specifically focus for monitoring driver, vehicle and cargo condition and performances.

It has already been mention above that driver fatigue, drink or drug consumption and speed management must be priority for enforcers and for securing and maintaining community safety. Vehicle and cargo controls should ensure the truck is fit for road use and for carrying specific cargo without damaging road infrastructure or risking hazard to other road users, such as wide loads or loose cargo or heavy loads (requiring weigh stations; fix or mobile). Cargo type has also been discussed earlier and this subject relates to hazardous or perishable goods, or restricted goods such as dangerous or toxic.

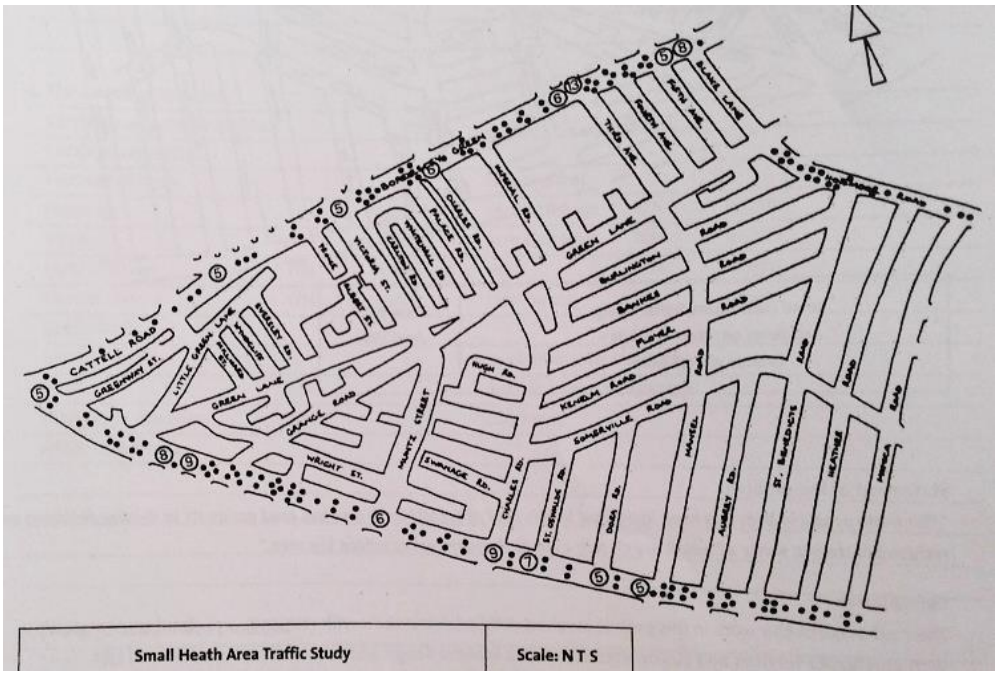
These issues require specific regulations and monitoring facilities for enforcers to proactivity control potential problems, at locations best suited for capturing law offenders and impound, if needed.

Many modern freight parking facilities provide information and registration centres for drivers to register cargo or vehicles or conduct necessary research of local laws or preferred route corridors for safe travel. Providing access to information for domestic and international drivers provides the best option for preventing breaches of law and regulation.

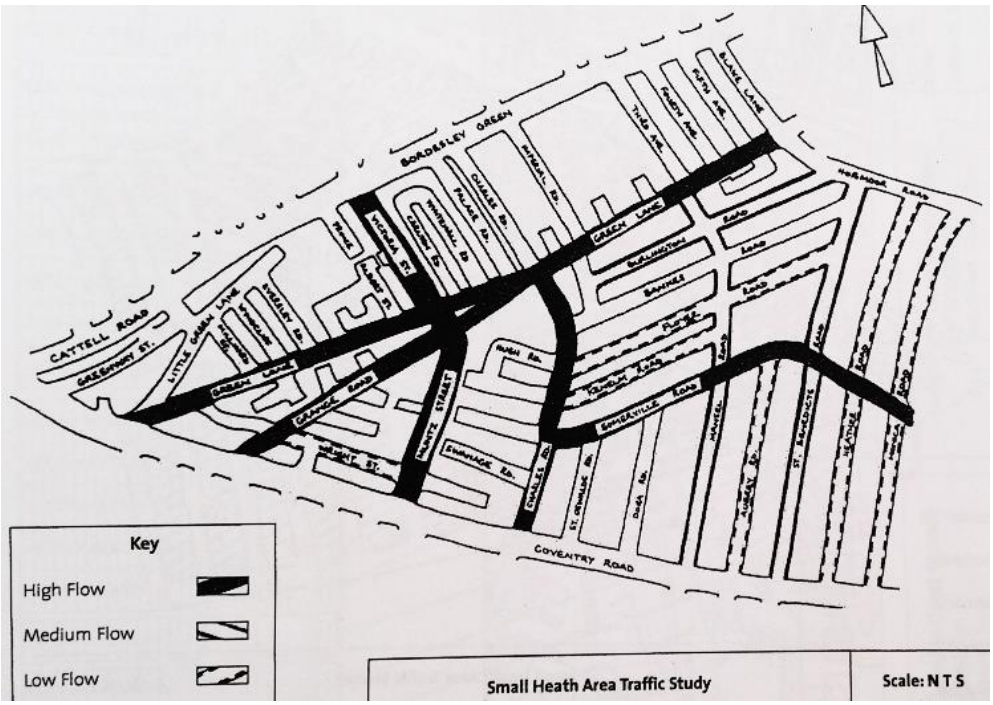
3. FREIGHT ROUTE NETWORK

It should be a primary concern of road authorities to have freight routes identified as existing and proposed, but also have identified all locations and potential issues associated with villages, townships, industries along these routes, as well as any key factors and impact on nearby areas such as environment and touristic features and climatic influences.

Authorities must review the residential road network, and distinguish freight routes from other areas.



Traffic studies and consultation with community groups and local freight industry for route identification



3.1. Transport road network identification

Freight routes different from other roads

Not all roads are designed and maintained for modern freight transport. Larger heavier transport has been growing and some roads and land uses cannot cope with this growth regarding road maintenance costs and road safety. Freight transport has been identified for supporting and enhancing global economy, including at the local level. Countries have realised the value of investing in road transport for the efficient distribution of good s and services for keep costs lower.

The movement of road freight has generally been increasing (doubled in some countries) in the last twenty years. It is forecast to double again in the following twenty years. Specific road design and facility considerations are required so to ensure the industry has provided the best road network that can cater for this demand, and prevent conflicts which are associated with other road users in areas often being residential or townships.

This situation impacts on State road agency management and the major road network. Maintenance and expenditure comes critical and a long term commitment. In addition, new road design policy and standards requires constant review and updating in order to address changing transport conditions and demands. State road agencies adjust maintenance processes such as to night hours when traffic is less severe and congestion and interruption is minimised.

Increasing ‘off-peak’ freight traffic flow and addressing community concerns such as safety, emissions, vibration and noise has been the modern challenge with freight growth.

Freight route monitoring is essential for identifying any changes;

Road agencies are designing and constructing major roads carrying freight so major maintenance is prolonged. Road use and operational management practices must be significantly upgraded for key routes. It is becoming increasingly evident that the volume and size of trucks on key roads require new heavy duty pavements and taller, stronger bridges and culverts. Community concerns focus on roads with major freight movements.

These aspects led to a growing realisation that roads carrying major freight movements are different. They perform a different role and function that requires tailored treatment and management, and in some instances exclusive access and usage. (It is important to note that current thinking is to provide freight transit lanes on existing carriageways on corridors in which has no other opportunity to widen. One traffic lane is dedicated only to freight, coaches or similar vehicles). It is understood that major freight roads form a strategic network in which industry can grow, often at the price of local communities.

These networks of major freight roads are crucial to economic development, while the road freight impacts on nearby communities. The road must interact with adjacent land use and requires special consideration and investment in its planning, design, development, maintenance and operation to ensure travel performance and road safety for all that use the road.

This guideline refers to a package that Austroads has developed to assist State road agencies to understand the role and function of freight route networks. To identify and dedicate these networks to specific usage (or shared usage, as necessary), and upgrade their overall management to address industry demand as well as community safety and access requirements.

Urban and rural areas

Identifying roads as a component of a freight distribution route network has not been a common focus for many road authorities. Exclusive truck access would not be well accepted by the community, and shared roads is equally disputed by residents and those concerned about safety. These announcements have been well accepted by industry but objected by the community.

The key for modern design is to designate freight routes, within urban and rural areas. The objective is to provide freight movers with transit options for avoiding traffic congestion, and for avoiding hazards and risks of conflicts with vulnerable road users, such as schools and the elderly as well as bicyclists and pedestrians.

The key factors in selecting, design, or constructing freight routes are; appropriate speed; manoeuvrability; weight, height and width dimension tolerance of the road carriageway; conflict movements, vulnerable road users; traffic congestion and land usage; and, traffic control and information for origin and destination advice for unfamiliar drivers.

Identifying freight routes should provide varying levels of access and safety to specific road user type, role and function of travel, and should offer best performance during specific timing either during peak or off-peak periods. Both urban and rural roads present different road environments and each must be addressed individually so to resolve specific issues to ensure access and safety efficiency for all.

Freight networks are different from other road sets. These freight routes have specific requirements that need to be incorporated into road agency processes. Unless freight route networks are identified, road agency processes cannot address the needs. If a road agency does not identify a freight route network as a special category for investment, its investment allocation processes for a class of roads are likely to be inconsistent and sub-standard, leading to inefficient economic and outcomes.

Benefits in identifying freight route networks:

1. Provides industry with a level of freight movement guarantee so they can reduce costs and develop their businesses in locations for growth prospects

2. Road agencies can improve processes for road asset management and reduce long term costs during the planning, design, construction, maintenance and operation of roads

3. Road agencies can improve investment allocation for better travel performance outcomes and driving public benefits through better address of freight route networks in urban and rural areas. Local commerce often improves with freight route development

4. Better managed freight roads impacts positively on local communities. This relates to better land use design. Land use planning and development is primarily managed by local governments but can negatively impact on freight routes. National governments can influence this with planning legislation but this requires lengthy consultation. If a shared benefit is established, road agencies can collaborate better for identifying freight

routes in statutory planning, with support from local governments, immediately addressing local conditions and avoiding objections and costs

5. Increasing public consultation requiring a greater openness from government assists with better planning and improved road design and road location choice. The community responds very negatively when state road agencies dictate their planning

Governments' policy for freight route network identification must adapt to changing goals for economic growth and social development and amenity in urban and rural areas. Public consultation for identification of important issues, such as road safety and freight access control, plays a strategic benefit for negotiation and benefit delivered over time, securing important freight routes and facilities.

It must be acknowledged that some existing road links must be commandeered for heavily vehicle use as new or as an alternative route on the freight route network. These roads may need improved design or maintenance for their adjusted role and function. National and regional government must development suitable access in situation of road incidents or climate change and congested land use when road access is blocked. This is more extensive covered by proper planning and consultation, and is required before a freight network can be identified.

Route types

Freight is diverse in its characteristics and needs road diversity fit for purpose. This is so to minimise the impact on the needs of other vehicles and community needs, while also offering access and safety to freight movers.

These are to be considered in the route planning processes, and can be considered in terms of;

- 'Primary Networks,' serving inter regional and strategic industrial areas, including freight terminals and transport hubs to end-users or further processing,

- 'Distribution Networks,' serving numerous longer distanced origins and destinations in a regional or local area, and

- 'International Networks,' servicing the transitory flow across borders, for north-south and east-west global corridors, where vehicles are not stopping and distributing cargo.

Route approaches

Decision-making, investment allocation and management of freight route networks should follow a coordinated process irrespective of where their routes or location. However differences between urban and rural areas in the operational and safety issues faced, requires interactions and decisions for a range of actions.

The overall approach is to plan, consult and design, with an urban or rural community focus.

A. <u>Urban freight route network drivers and issues</u>

Route consideration includes high volume and concentration of road freight:

- Freight route continuity across cities

- Location of inter-modal and freight generating activities adjacent to the route
- Sensitive land uses and activities; noise and vibration impacts in residential areas
- Volume and type of other road traffic; high levels of congestion are typical and the allocation of road space between freight, public transport and private vehicles is an issue in route selection and management. Freight may be restricted between specific times as a solution
- Acceptance; a link may not be ideally developed, but if it is already performing as a freight route due to historical usage, objections cannot be considered completely
- Physical constraints may limit the ability to provide new infrastructure in dense urban areas

B. <u>Rural freight route network drivers and issues</u>

Route network includes:

- Heavier loads, larger vehicles, may be lower volumes but higher speeds
- Route continuity across regions and interstate, supported by planned and purposeful signs for origin and destination, traffic regulation, road safety awareness and alerts and warnings
- Volume (or tonnage) of road freight is difficult to control because of remote areas and expanse of road network
- Pavements and bridge infrastructure condition and physical constraints must be noted for certain vehicle types and cargo being carried. Enforcement is essential for addressing this
- Freight generating locations and seasonal demands may differ and impact on movements and suitability of some roads for safe operation and community acceptance
- International traffic may require specific monitoring and control
- Trucks that are slower such as in hill terrain mixing with faster moving traffic may require short overtaking lanes on some roads
- Mix of freight and tourism traffic, particularly at weekends and holiday periods may require action and awareness for both road users
- Research must show how rural communities can accommodate trucks as with urban communities. Consideration needs to be given to noise, vibration, speeds, access impacts on adjacent communities, particularly at night
- Enforcement and control

Major routes

Major Freight Routes are roads that carry very large volumes or constant traffic particularly of heavy freight vehicles on a daily basis. These routes are easily identifiable and must have importance placed on them for performance assurance.

Conduct traffic studies and data collection for analysis;

They consist of inter-city motorways, inter-regional highways, and the linking network of major roads that provide connections between routes and freight storage, generating transit stations and terminals, sea ports and major industrial areas.

In many cases these roads have developed in some way to accommodate freight over time. Often they need to be further developed to minimise impact to the community in which often had existed while the freight developed.

Purposely design major routes often bypass townships I some way and avoid freight traversing through sensitive or vulnerable areas. Purpose built and developed roads must have a minimum level of investment to ensure benefit to all road users and local areas avoiding any negative impacts (including environmental, economical, transport and social).

In rural areas the major freight network is almost similar. They are often determined through historic usage but should be on a national basis by government for strategic network planning and maintenance. The Transport authority should have specific requirements to achieve for the road for meeting industry performance and enforcement objectives. These should be incorporated into a corridor strategic profile and network for freight road programme.

The national network should be supplemented with major freight routes identified by State and local governments, compared with other freight routes as a hierarchy, with specific guidelines

for development and maintenance intended to assist and clarify for better driver decision and behaviour.

Route network and links

Many of the roads that become part of a freight route already carried freight traffic and their usage is unlikely to be contentious with local objectors, or have rejection to significantly change to the amount of traffic carried.

Much will be gained by undertaking a comprehensive route planning process to confirm the role of each road, identifying their hazard and risk areas, and the selection of the best route for defined origin-destination definition.

The focus for managers is primarily on how best to identify, protect and manage the route so that its freight function is enhanced and secured. However, it is recommended that freight route planning guidelines are reviewed to ensure that no factors could impact on effectiveness and acceptability of the decision-making regarding the network.

Questions to be considered before declaring a freight network or link roads include:

- What roads are freight vehicles using?
- Does the road meet freight travel and connection objectives?
- What road users are currently using the road, and how many and when?
- What are the hazards, behaviour risks, and crash history?
- Why is the entire corridor route declared?

  Network declaration should lead to specific management or funding. A priority is likely to be managed differently to other road of the network due to industry expectations, characteristics of vehicles, wear and tear, and impact of these on other road users and surrounding areas.

- What are the current land users?

  Land use shaped by freight activity adjacent to the road
  What are the conflicts, and infrastructure and management required?

- Is freight demand expected to continue to operate into the future?

  Freight demands can change, and a high level of confidence is necessary if significant freight specific investments are to be made on a route.

- Do the freight routes need specific improvement for special vehicles, such as high wide or heavy loads?
- What are the impacts of freight vehicles on vertical and horizontal clearances to structures, such as for articulated vehicles?
- What is required to maintain road capacity and to ensure compatible vehicle operations?

- What are the road safety records on the network and link roads, such as Blackspot areas?
- What investment is required by the freight industry?

3.2. Freight routes and safe and secure parking

Safe and secure parking facilities have been traditionally provided for specific functions, such as; emergency stopping (rest and repair); rest and refreshment (possible overnight stays); parking stations for longer term stays, refuelling and refreshment.

This is in addition to statutory parking for Customs and Police enforcement campaigns where drivers and cargo may be detained for some time, and safety and security needs to be provided and assured.

The placement of such facilities have commonly been associated with travel distances, cross border locations, proximity to remote areas or townships where communities have restricted freight vehicle access through the town, but drivers are still near to amenities, and also where Customs and Police authorities require control of drivers, vehicles, and cargo type and weights.

These locations vary for motorways, highways, arterials roads and townships. Distances for long haul routes are commonly spaced evenly for extraordinary road lengths, such as 20-30 kilometres spacing, in addition to placement of fuelling and convenience stations.

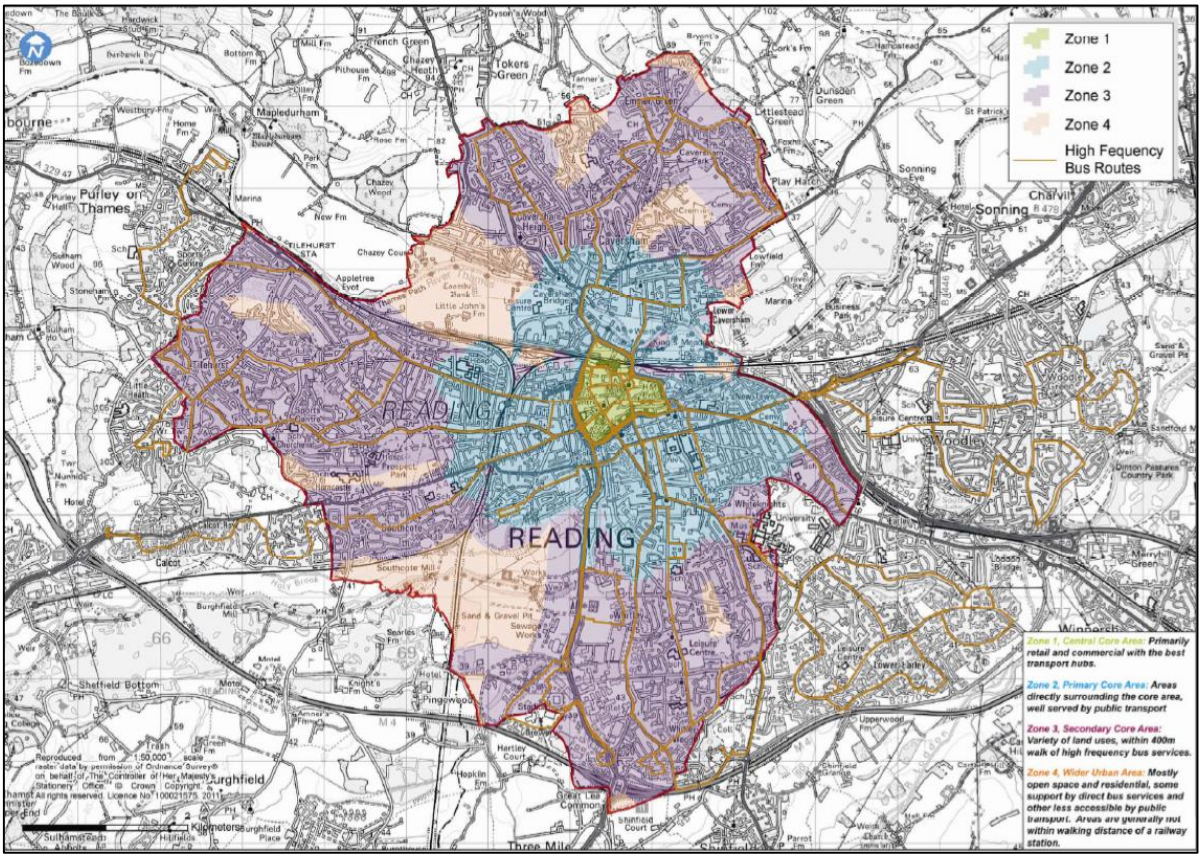
Small parking area example;

Some parking facilities may only accommodate drivers with an unsurfaced road side bay, with no street lighting, minor toilet convenience or for refuse disposal. These facilities are generally low cost and may only require the expense of minor clearing land and construction and crushed

rock surfacing, with some short lengths of crash barriers or bollards, markers, and advanced signs.

The objective is to provide long haul drivers with options to load/deliver goods where practical, and rest and avoid fatigue driving which is a causal factor for single vehicle collisions.

Townships should zone the areas according to access and tolerance (Reading, UK);



All facilities must provide appropriate parking space (secured and specifically serviced), and others should offer suitable deceleration and acceleration lanes so that fast moving freight traffic can safely exit and enter high speed road ways.

Large parking area example;

Other more complex facilities usually funded by the freight industry, or local commercial investors, are placed strategically for maximum use and provision of high level conveniences and multiple parking including for sanitary (washing and cleaning), food (restaurant and shopping), modern communication services (internet, office equipment and freight regulatory information and registration), as well as accommodating religious needs (churches and shrines).

These facilities are commonly located outside of townships and near to transport hubs where long waiting periods or rest is required.

These facilities may cover significant land footprints (50-200 bays), and require investment from $1,000,000 USD upwards, depending on construction costs, facilities and progress staging. The outright benefits of these complex facilities is that it encourages and attracts driver usage and further local investment of support services and staff resources.

Planning specific freight parking facilities;

Security for either of these facilities has become an issue in recent years. There has been issues with criminal activity such as taking diesel fuel from the vehicle, forcing opening cargo packaging and containers and taking contents, as well as robbery of the driver's valuables.

Fencing and clearing of nearby land provides sight visibility, including provision of street lighting can also assist with this factor. Drivers can take better precautions, and Police can carry out better monitoring of the parking facilities and surrounding area.

Urban or rural parking area provision is typically determined by vehicle type, function, and demand and usage.

Zoning area system example in UK;

	Maximum Parking Standards			
	Zone 1	Zone 2	Zone 3	Zone 4
Commercial 1 space per m^2				
B1(a) Office	$250m^2$	$100m^2$	$50m^2$	*
B1(b) Research & High Tech	$250m^2$	$100m^2$	$50m^2$	*
B1(c) Light Industrial	$250m^2$	$125m^2$	$100m^2$	*
B2 – B7 General & Specific Industrial	$250m^2$	$125m^2$	$100m^2$	*
B8 Storage & Distribution	$250m^2$	$200m^2$	$150m^2$	*

3.3. Freight movement control

The principle factors of freight traffic is, as with any other road motor transport, to define the influences to usage and management such as cost, performance as well as duration.

This information must be collected and assessed so as to avoid obvious conflicts with the community or to identify causal factors to residential community conflicts.

(Austroads)

Control of freight traffic and facilities is essential to achieve a balance, to ensure efficient access and accepted level of safety. These would involve:

- Vehicle type, dimension, axle number, and weight, and performance
- Cargo dimension; weight, height; and cargo width, and cargo type (fragile, perishable, refrigerated, hazardous, dangerous, restricted or prohibited)

- Emissions
- Driver training and skill
- Enforcement and control (customs)

Once these key factors are identified and their planning, implementation, operation and control are being coordinated by stakeholders, the process for movement control becomes more obvious pending available funding and resources as well as the level of political support.

The objectives must always be agreed for movement control, being:

- Provision of suitable and efficient traffic flow and journey time
- Road performance and comfort as well as safety
- Access assurance, and useful information and advice
- Suitable sites for monitoring and control, as well as refuelling and rest

High wide load routes

Drivers must be informed in advance and prepared for what routes are suitable for high wide roads, and avoid potential risks to community safety, or damage to road infrastructure causing significant repair or traffic journey delay.

These road and travel situations require application for permits to be issued and approved before usage. Any contravention to using unapproved access especially on unsuitable roads must be treated strictly with high penalties for the driver, vehicle and cargo owners. There must be suitable and advanced warning so to discourage such behaviour as the damage to road infrastructure can be extensive, and experienced some time later after the offensive action. Prevention is best!

Oversized cargo control;

(Austroads)

High wide load (HWL) routes have a number of names including OSOM (over size over mass), ODOM (over dimension over mass). They are serviced by Restricted Access Vehicles which require a permit from the jurisdiction to access that set of roads. High wide loads are typically associated with agriculture, mining, or large engineering projects such as power stations or manufacturing.

There is a growing trend in heavy fabrication with agriculture and mining industries, so to reduce the level of on-site fabrication by building large modules in factories and workshops, and then transporting these prefabricated modules to the project site for further assembly. This method of construction has several advantages in terms of time, cost savings and improved quality, particularly when skilled personnel are in short supply in regional areas.

Industry places significant expectation on the roadway. Governments need to be well informed by industry if this demand is expected from the network so to ensure proper movement of freight.

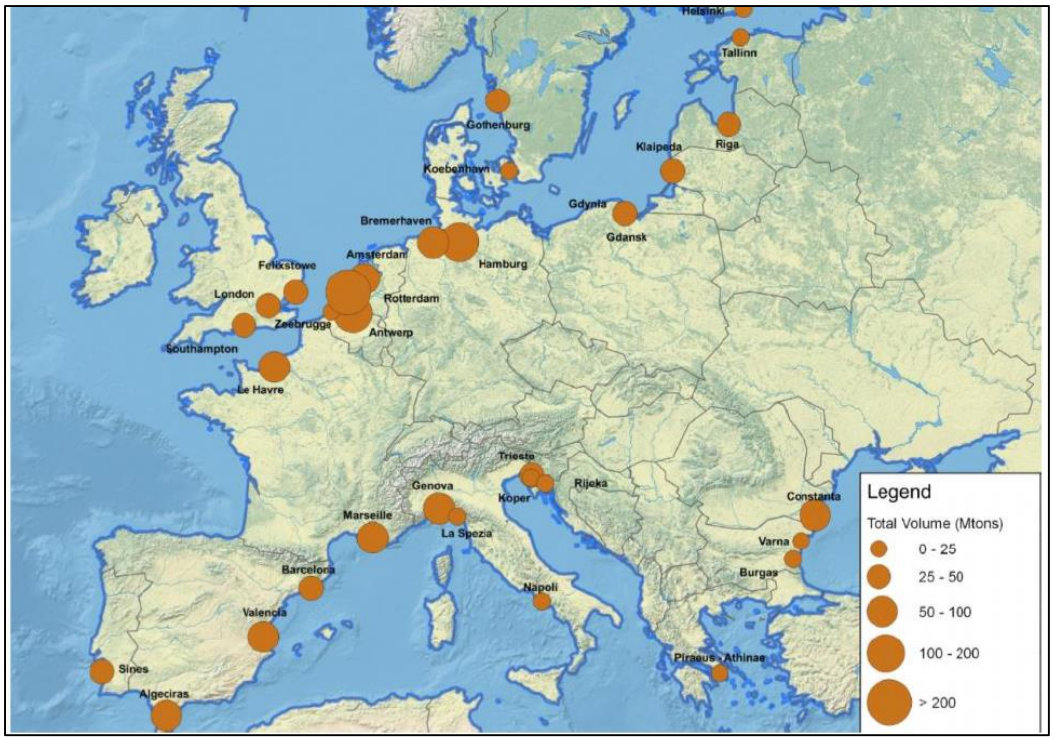
Long freight;

(Austroads)

Freight generating areas

These areas are generally warehouse, container, or port storage or assembly yards where goods are produced or brought into the country from other transport modes.

Distribution begins from these locations outwards to other national regions or across borders to other production houses or end-user places. There should be planned locations, with road characteristics to accommodate likely freight movement and activity generation (such as sea ports).



(Source: EC, Modal Share of Freight Transport to and From EU Ports, Study, 2015)

This requires stronger land development policy, and road and land development linking so one is developed in conjunction with future or developing commercial objectives and defined freight route network investment:

- National Land Transport Network
- Roads and highways, which connect areas of strategic freight and economic importance (ports, industrial centres, freight hubs, distribution centres, regional centres, resource provinces)
- Local government roads provide network connectivity to serve areas of strategic freight importance
- Roads with a high tonnage of freight currently carried requires investment in maintenance
- Roads in urban areas must have a minimum investment for community safety, and preventing or treating Blackspots
- Alternative routes (other than for freight) may be essential but impact on a sensitive areas

Hierarchy

Not all freight routes are equally important. This is typically determined by presence of industry and their demands, and traffic volume totals and peaks, and road connection to manufacturing, storage and shipping terminals, and end users and also borders.

Different ways are used to differentiate important routes that warrant particular supportive management and investment treatments.

Primary freight routes are arterial roads that typically are:

- Strategically important economic regions (key freight centres, industrial, agricultural

and manufacturing areas, intermodals, sea and airports), within and external to a state

- High volume for heavy freight vehicles through the majority of the day
- Provide access for long distance freight vehicle movements.

Secondary freight route can be defined as:

- Supplements primary freight routes
- Provides sub-regional (urban and rural) access and linking to primary freight routes
- Lower proportion of heavy freight vehicles than primary routes, but performs are branched distributary function, rather than long hauling from point to point

Freight Facilities must be located and suited in the best area;

4. FREIGHT ROUTE PLANNING

4.1 Principles

Irrespective of the type of freight route that is being planned there are principles that should be considered when identifying and deciding on how it should be managed. Designs and policy should cover key community and national issues, and set appropriate and agree able performance standards and targets.

There must be a clear understanding of roles, objectives and function within the industry chin between freight companies and associations, road infrastructure and traffic management authorities, and traffic and customs Police. Each of these would benefit from collaboration, sharing information and objectives, and being properly resourced with continual development planning.

While in operation, all drivers must be kept informed, alerted and guided while making decisions on and off the road, the community should be assured the freight industry uses trained and disciplined drivers, vehicles must be properly maintained and suited to carry the loads, loads must be legitimate and properly secured to trucks, and freight routes used must be planned and appropriate for the vehicle and cargo being carried while ensuring safety for other road users.

Route and link planning should be specifically addressed in guidelines:

- Route and link planning for national corridor dedication, and local area benefit strategy
- Routes to be fully signed with traffic control devices and information (origin-destination, kilometre markers, rest and fuel areas, warnings, land marks), alignment options, and weight, height and width restrictions of the road and structures, as well as speed limits and advice
- Plans should typically cover a 15 to 20 year period, with commitment from stakeholder chains and planned reviews for improvement. Plans should contain a mission statement of intent, and broadly indicating expectations about future function and likely initiatives so that future governments and authorities share a long term vision
- Priority placed on specific routes for initial attention and funding consideration (improvement, upgrade or maintenance), and limitations in funding must be planned for supplementary revenue options, such as from traffic offences or breaches with cargo with customs
- Set up of national and regional committees for freight issues, incorporating safety and traffic access, enforcement, emissions, and local ambience

Freight routes should be designed to achieve community relevant economic, social and environmental objectives, and operational objectives. These should be responsive to government priorities and policies, as well as regulations and design standards.

Freight routes are part of interactive transport and land use systems. These routes should be specifically planned and managed as an integral part of the road system and economic development.

4.2 Data sources

Information collection, statistics, and feedback from interest groups and community surveys are the modern tools for capturing priorities and concerns with respect to traffic, safety and freight.

Some obvious examples of key sources are:

a) Traffic volumes (origin and destination)
b) Crash statistics and Traffic Police reports
c) Road maintenance expenditure
d) Climate forecasts and weather reports

Other sources in which should be considered are:

e) Customs processing data; cargo (permitted and restricted or prohibited); vehicle; and driver
f) Enforcement statistics regarding law offences; speed; driver behaviour; restricted cargo breaches; emissions (CO2, CO, noise and vibration)
g) Public surveys and focus groups
h) Local committee feedback and community road safety committees
i) Road design standards and guideline reviews
j) Land development planning, including tourism and industry development
k) Freight Association feedback
l) Main industry feedback (Mining or quarry, fossil fuel, chemical or steel)
m) CCTV records

It has been discussed earlier, road authorities must have the best understanding of the route network profile and characteristics. There should be identified what issues are priority, their locations and analysis must identify what is needed to counter any problems or deficiencies. The data collected must be purposeful so to achieve this objective.

4.3 Routes and Corridors

Freight vehicle drivers may have several alternative routes to a major destination. Decisions on routes may be made several hundred kilometres before, and road authorities must play a role in determining the preference. This may include route segments leading up to the route corridors.

Alternative route options to preferred corridors should be by design such as weather affected roads (winter and summer roads) or where heights or widths are larger for bigger vehicles and their cargo, or load weights are more tolerable on purpose built roads were less damage is made on unsuitable roads.

This focus on how vehicles use the network and not on the administrative classification of road links. Administrative classifications must be relevant for the management of the roads. Driver decisions may be influenced on what information is provided on the road or to the freight

industry for the most appropriate route. This should occur as an intended plan for network operation for freight vehicles.

In freight corridor planning, logistics efficiency must be priority along with safety. Management of the total logistics chain is necessary and could assist with route selection, improvement and maintenance. Each vehicle mode and cargo type has a potential role to play in this chain. This is how statistics can contribute to a better understanding of freight movement.

Road freight route planning should include analysis of cost effectiveness so to carry freight amongst other road users. Effective multi-use of roads requires the provision of appropriately located facilities, traffic controls such as separation between fast and slow traffic or vulnerable road users, and designing of the road asset. A multi-modal network planning approach focuses on serving on specific areas where freight and other users are address equally and with benefit for each, or rather, address any disadvantages in which may have developed over time.

Route Continuity

Freight route planning requires location to location planning with specific assessment for each village and township and necessary road facility, from freight origins to destinations so targeted vehicles are able to use the total route.

Alternative routes should not be the first consideration for drivers. Road authorities are then in better position to monitor and control traffic flow and safety. This could include purpose designed and signed arterial roads and local road catchments that link freight generating centres to the corridor network.

On some routes, it may not be feasible to achieve physical design standards, such as traffic lane and shoulder widths along the full route. The maximums and minimums that are appropriate for freight vehicles can be expected to be used on specific route sections. This approach can save design and implementation costs as well as future maintenance expenditure, and must be a consideration for route planners and road operation and maintenance managers.

In most freight roads and routes, including their collector roads, it may be appropriate to accept different design standards in order to achieve route continuity. If a variation of the standards are accepted then constraints may be required on the operation of freight vehicles, such as restricted vehicle speeds, loads, time of access. In these instances, an assessment of the existing situation and needed road design and facility capability requires professional advice for authority decision-making. The objective must be to ensure traffic access, efficient flow and safety for all road users involved.

4.4 Safe and secure parking

In urban areas road space is often restrictive and the feasibility of freight sharing may influence the choice of a preferred route. Decisions may be necessary on whether road space should be allocated to priority vehicles, where it is typically public transport or freight. Public transport priority is more likely to be supported by most communities. This will help to reduce the demand

for private car travel within the corridors, and shift the opportunities for improving freight movement.

For rural areas, freight facilities such as parking are usually kept outside the township precinct, unless there are specific parking and resting areas for long haul drivers. Not many rural communities would readily accept freight traffic passing through their area without some restriction or separation from their vulnerable road users. Routes must be capable to accommodate the vehicles that will be using them, while also providing for local traffic demands and needs.

In some cases there may be a desire to allow vehicles to use the freight route only during certain times. In other situations the route will need to be tested for its ability to physically accommodate these vehicles, in consultation with the local community.

Safety and parking must be design along with selection of freight routes. Administrators and planners must expect large and heavy vehicles need to access conveniences in townships, as well as access any purpose built parking or rest and fuelling areas. This must also be at the benefit of the local community and commercial establishment otherwise negotiation becomes more difficult. This therefore places importance on understanding what freight drivers' needs, what the local community can provide, and how best Traffic Police and Customs carry out monitoring can and control practices.

Triggers for route safety and parking planning

There is no simple answer when should a particular section of road be identified as a freight route and what facilities are best suited.

Most roads should be able to accommodate the majority of freight vehicles that operate on the road network. As previously discussed, there are benefits in identifying as early as possible common freight traffic, their routes and where freight traffic are coming from and to so they can be managed appropriately. This clarity provides understanding what facilities are needed, and where the areas of safety concerns are concentrated.

Safety and security obviously must act against risks to vulnerable road users such as pedestrians and bicyclists, and other slow moving vehicles, and offer a level of security for the driver and freight vehicle and cargo owner.

The safety and security facilities that should be considered are:

a) Parking bays (overnight or for repair)
b) Fuelling and rest stations specifically for freight drivers (with security fencing and food and sanitary conveniences including travel advice and legislation information)
c) Town service roads for traffic separation
d) Traffic islands (central medians, turning separators, and pedestrians refuges)
e) Traffic calming treatments and crash barriers for township approaches
f) Information signs; origin-destination routes, town and landmarks and kilometre markers
g) Emergency stopping bays, and emergency escape lanes (at hill terrain)
h) Reinforced shoulders (for tolerating heavy loaded vehicles)

i) Pedestrian over passes and under passes, or pedestrian crossing traffic signals
j) Access restriction signs through townships, and supported by recommended stopping areas or advice for through traffic

Factors that determine a route facilities include:

- Manage freight performance to achieve economic, social and environmental objectives identified for the nation and its region
- Meeting changing traffic conditions and freight needs; traffic demand, route continuity, safety and crash records
- Origin and destination routes meeting best freight travel times
- Encouraged use of one route reduces negative impacts on other routes
- Historic usage

Cross region and international considerations

International freight opportunities are recognised as an important aspect for developing economies.
This is not just for cross border transitory freight but also for integrated freight. The industry plays a critical role for part production and assembly chains across many industries. In recent history parcel and product delivery from internet purchasing means that manufacturing and packaging occurs where ever economies of scale dictate. Countries should plan and attract this as part of State or national transport plans and commercial development planning.

The difficulty with cross border freight and international supply chains is the dependency upon adequate enforcement controls versus processing times (Customs and Traffic Police). Foreign languages and varying legislation and unfamiliarity with the route network or traffic restrictions contribute to the difficulty for enforcing and processing time. This also impacts on the type of facilities needed especially if drivers, cargo or vehicles need impounding and detention.

A recent phenomenon of modern criminal activity is the issue of trafficking including contraband products as well as humans. This place pressure on authorities to invest in high-technology devices such as sensors, radars, detection devices, and weigh machines (both fixed and mobile stations) for identification of illegal activity and law interventions.

Intelligent transport systems are adding to the facilities of freight route networks and management and control methods. This is a significant investment requirement in addition to the road infrastructure and furniture for simple freight movement.

A comprehensive planning process can resource locations where priorities are evident or demanded. Panning and consultation will provide a sound and defensible basis for decision making. If a rigorous discussion is not followed with action then there is a risk the desired outcomes will not be achieved, and costs for solution may escalate as a result of no-action with needed facilities.

Physical characteristics and challenges

As discussed earlier there is a need to understand the full logistics chain and identify where constraints occur. The facilities for safety and parking should include current conditions and an estimate of future challenges.

Analysis of the route(s) in sectors or sub-regions that have common characteristics such as road condition, demand, abutting land use can identify common potential weakness. The lessons learnt can be applied across other areas and road links for programming works on flood prone sections, strategic bridges, wind affected roads and selecting alternative routes so to maintain continuity.

Land use along freight routes can impact adversely on the safety and security viability. In particular, facilities for safety and security must take into account the 'last kilometre' of the freight journey. These facilities may be compromised if incompatible with freight sensitive land uses or communities. These locations will require consideration of bypasses or facilities distanced from the restriction.

Other constraints to consider will take the form of topography and terrain and weather conditions in which determine what safety devices are required.

Impediments to planning for facilities can include:

- Geometric impediments; bridge clearances, railway crossings,
- Infrastructure condition and repair; weight restrictions, pavement and structure strength
- Operational impediments; routes cannot achieve optimum truck speeds and are below speed performance targets set for the importance of the route
- Connectivity impediments; gaps in the network of freight roads, or lack of facilities, or routes are not well known
- Community objection; benefits of freight traffic is not supported
- History; road crash record of traffic incidents or tragic collisions
- Structural limitation or restriction, such as bridges, over passes, underpasses and tunnels
- Heritage landmarks and archaeological features

In rural areas physical road conditions may present the most significant blocking point that potentially delays the movement of goods, and may pressure freight into considering alternative roads that are unsuitable and longer through restricted areas.

4.5 Driver behaviour

Freight drivers cover those that are properly trained and licensed to control and mange a large heavy vehicle and loads, and those that have been recruited to the role without much guidance and initiation. Whichever driver is placed in a vehicle and is control of a heavy vehicle and its cargo must abide by the principles of safe driving, and be prepared and informed of preferred routes and restricted areas.

It is now international practice that freight drivers familiarise themselves with the planned route and traffic control and cargo regulations including those across borders. This best practice extends to abiding to local traffic speed restrictions and traffic lane use discipline.

It is evident where freight drivers are breaching their driving performance and obedience especially where there are wheel marks on traffic islands, damaged road furniture and road side shoulders, or where inappropriate roads are being used and surfaces and pavements are

being damaged. In addition, regular complaints from residents of truck activity during restricted or ambient hours of the day, or where there are potential of actual conflicts with vulnerable road users. Traffic Police could also be able to identify hazardous locations on freight routes or where freight drivers are abusing traffic regulations such as speed limits.

Best driver behaviour is created and reinforced by government and industry regulation and monitoring and enforcement. If government agencies are making investments on the roads and facilities, freight industry at all levels must abide by best practices and regulations so that the benefits of freight traffic is shared and any negative effects are identified and appropriately treated or prevented.

4.6 Stakeholders

The core stakeholders for freight traffic and transport are:

- Road and traffic authority (planners, designers, implementers and policy makers)
- Freight logistics companies and associations
- Traffic Police (regulation makers and enforcers)
- Customs officers (cargo controllers)
- Drivers, and owners of vehicles and cargo
- Maintenance Contractors (road and vehicle)
- Local communities and townships (residents and planners)
- Other road users

Each of these stakeholders may influence their needs on freight route planning, facility selection and design, and level of government investment and maintenance commitment.

In order for freight planners to best achieve long term objectives it may be suggested to establish local and regional committees for an integrated approach, and avoid rejections in future plans. The ultimate objective is to provide a platform for sharing the benefit of freight route traffic, especially to those that either contribute most, stand to benefit or stand to be adversely affected such as with safety and security.

Social and political pressure

Even if routes meet technical and cost criteria, the social and political concerns can significantly influence the feasibility of freight route and facilities. This can result in the imposition of constraints on the operation of the route. Town centre leaders or sensitive land uses including influential local industry may place political pressure. This situation will warrant investigation and may require significant design consideration such as bypasses, alternate routes or special treatments.

Land use decision-making is usually locally focussed and is subject to many more influences than freight route planning. Local government decision-making will be a major determinant along freight routes and so the plans of local government should be understood and integrated into national plans and so part of the scoping stage. These influences should be identified and factored into the route planning process.

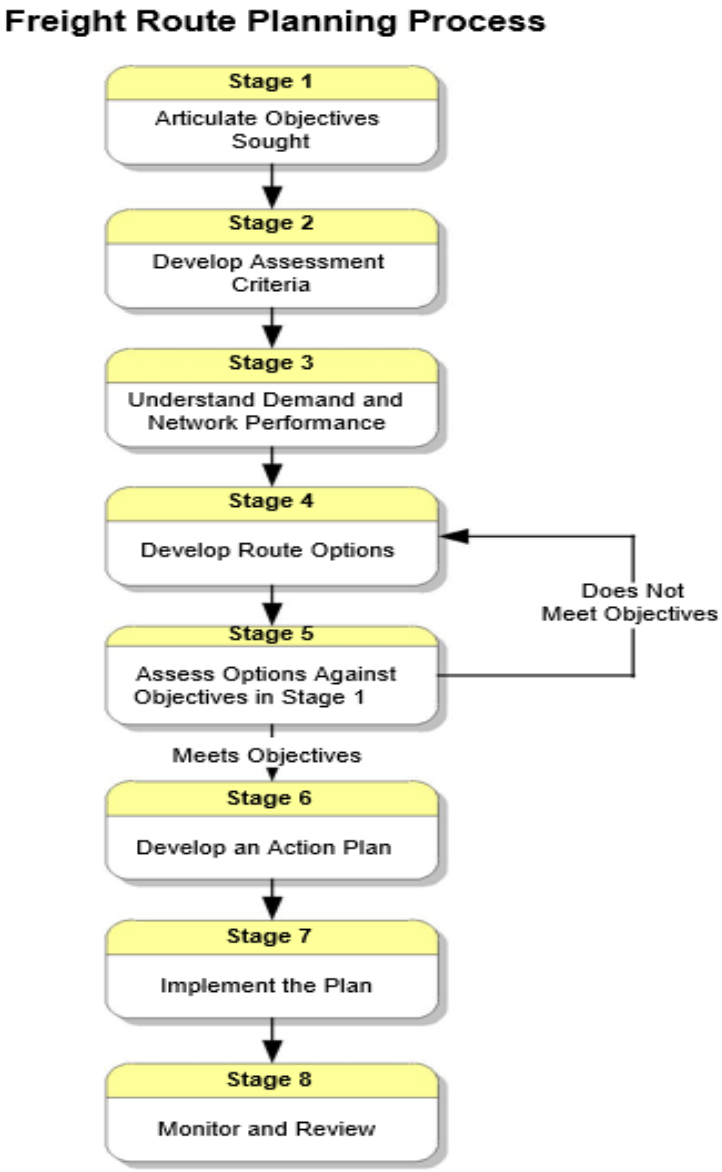
Freight facilities including safety and secure parking are often an afterthought in land use planning rather than an integral part of land use planning. Public authorities, such as Councils and planning authorities may be more focussed on regulating and restricting freight based land uses rather than understanding and planning for their needs.

Land use planners

The identification of freight routes puts transport agencies in a better position to positively influence councils in their land use decision-making so that planning facility regulations complement freight objectives, rather than responding negatively to freight impacts.

Early and ongoing discussion with these authorities is necessary to ensure freight route planning is not compromised through independent land use and development decisions.

4.7 Route Planning Process Guide



(Source: Austroads Research Report, Guideline for Freight Routes in Urban and Rural Areas, AP-R316/07, 2007)

A. Identify objectives

These have been described at length in previous sections, and priorities must be placed on each according to local preference, situation, and expectations levels.

B. Define the area

When making decisions on freight routes, the interactions between different corridors and routes within a corridor may be relevant. Although a single route will usually be selected as the designated freight route, the planning process should consider if there is a range of feasible alternative routes and areas of influence.

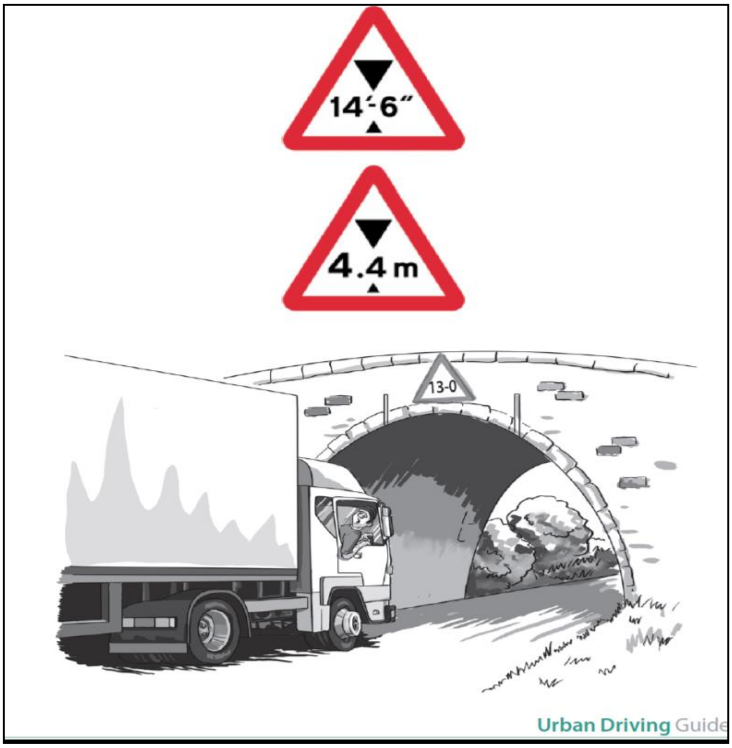
In some cases these alternatives may be a significant distance from a section of road that is the major focus of the study. For example, freight may be able to use alternative routes between capital cities or regions, such as a coastal and inland route, and actions in one corridor may influence freight demands in the other.

These broad network interactions require that a regional or corridor view to be taken of the geographic extent of the study. The study area may include roads coming under different political or road management responsibilities, including roads in other states. This network should include local roads that link to freight generating areas and intermodal sites.

C. Understand freight route demands and needs

Freight routes do not operate in isolation from their surrounding environment and they form one element of the total transport system. Usually freight routes serve multiple functions for freight and non-freight road users, and for non-road users on abutting land. Furthermore, there are various levels at which the freight system operates. The total system encompasses a national transport network that in turn includes regional/local transport networks, and again these networks encompass freight routes.

Clearances and warnings;



Freight route planning operates at the detailed level of particular road links but it cannot be undertaken separately from other elements of the system, or the surrounding land activities.

D. Mobility versus accessibility

As a primary objective for identifying freight routes is to improve economic efficiency and hence economic development, then the ability of freight to access key activities efficiently and to a

standard that meets the needs of the products carried is more critical than the ability to move around the whole network. This puts the focus of route planning onto freight accessibility rather than vehicle mobility.

Accessibility can be determined by many more factors than mobility. An understanding of user needs and the impacts of packages of actions on freight efficiency are necessary to understand accessibility. Accessibility determinants may vary across a network. Depending on what product is carried factors such as travel time reliability, speed, load carrying capacity or road smoothness can all be major determinants of the quality of accessibility. Similarly, if heavy vehicle priority is only required at certain times, such as during harvest time, then accessibility might be met with freight routes that operate seasonally.

E. Consultation

Public officials are more likely to have success with gaining industry support and input if they understand the freight business and the perspectives of industry. In turn consultation can lead to improved understanding within the freight sector of government processes, such as the checks and balances in the public sector that often determine planning timelines and outcomes.

Freight generators and operators understand the needs of their sector better than most public servants and industry can provide valuable input on issues and potential responses. Freight industry stakeholders can be difficult to identify and engage, particularly if there is scepticism on what will be achieved through the planning process.

There can also be a mismatch in planning horizons between professionals and industry, with the public sector taking a 15-20 year perspective, and private sector vision of 1-1.5 years. Effective consultation is likely to be enhanced by the establishment of good ongoing collaborative relationships with the industry before a specific route planning exercise is started.

Where a freight route may impact on non-industry groups, consultation with these groups will also be necessary in order to ensure that the multiple concerns and objectives of the affected groups are understood.

The views received through consultation will legitimately represent the focussed views of a particular sector and so they should be tested with sound analysis to ensure their completeness and veracity. The results of this analysis should be fed back to those who were involved in the consultation to show how they have been considered during the planning process.

F. Understanding freight demand

Freight route planning should be based on a 15-20 year planning horizon to reflect the scale of investment that is made in major freight routes and the inertia of many economic systems. In some instances it may be warranted to take a shorter-term perspective if the demand and the benefits are high; linking mining that may have a less than 20 year life to a sea-port. Freight demands are influenced by many factors and where possible forecasts of future flows should

be developed from multiple sources to improve understanding of their sensitivity to major drivers.

Influences on route/network demand include:

- **Economic Activity;** Understand which industries are likely to drive the economy and the medium/long term viability of industries
- **Patterns of Activity;** Changes in the location and magnitude of freight generators and attractors; changes in national and international trade patterns
- **Pricing and Cost Structures;** Changes in infrastructure pricing policies; changes in industry cost structures; cost differentials between modes
- **Transport Infrastructure and Management;** physical and operational performance
- **Regulations;** can facilitate the use of some routes and limit the use of others; safety regulations; vehicle regulations
- **Vehicle Characteristics;** may limit the alternatives available to large vehicles
- **Industry practices;** Just in Time, distribution practices
- **System performance;** Congestion; route continuity; ITS

G. Speed of delivery (reliability of delivery) versus quality of transportation expected

Factors such as the speed of delivery or the reliability of delivery time may be important depending on the characteristics of the commodity and the logistics chain within which it is being moved. If a commodity has to access an inter-modal site or delivery point within tightly specified time limits then the reliability of the vehicle travel time may an important factor in route selection. If the commodity carried is susceptible to deterioration e.g. fruits and vegetables, then the time taken to deliver commodities to their destination may be more critical.

H. Local, regional and national freight operating on the one route

Freight vehicles on a route can be difficult to categorise. Most freight studies are unable to differentiate between local traffic and long distance traffic on any particular section of a route. Most corridors operate as a series of pulses, with traffic using part of a route between major centres.

If the role of potential rural routes are understood within their region and possibly national context then it is possible to build an economic case for intervention. Factors such as system reliability and inefficiencies will impact on their economic impact.

Due to the problems in getting reliable data it is usually necessary to test the robustness of assumptions on demands by comparing multiple primary and secondary sources of data. A combination of bottom up and top down data can provide insights and checks that increase the user's confidence in the available data.

Freight and economic data is often incomplete and dispersed so that access may be required to multiple transport and non- transport data sets to interpret information on demands and needs. Data may be commercially sensitive and confidential. Economic indicators can be used

to estimate commodity demands that in turn can be converted to vehicle demands. Changes in the location of freight generating activities can change freight travel patterns.

I. Develop route options

Identify the range of potential solutions that could achieve the transport and non-transport objectives.
If the route cannot be managed appropriately to meet both transport and other objectives then it may not be a viable long term freight route.

J. Planning scenarios

A technique that can assist in the development of robust strategies where future conditions are uncertain is scenario planning. Scenarios can help focus planning down from a large number of possibilities to a small number of feasible futures that warrant close consideration.

They can be useful for testing the implications and sensitivity of demand assumptions and the implications of alternative actions. Scenarios can be used to test the implications of changes in freight drivers, the cost effectiveness of alternative routes, the impact of different intervention strategies and trigger points that would result in the need for intervention. In order to keep the analysis within reasonable resource commitments approximately 3-4 scenarios should be selected so that they cover a realistic but wide range of futures.

Through the process of scenario development and evaluation an appropriate course of action is likely to evolve. Sketch planning can be used to facilitate the generation of scenarios for this process. Scenarios can reflect assumptions on demand drivers, mode split, route choice and pricing.

K. Demand scenarios

Freight is generated by the level, characteristics and distribution of economic activity. Because of the number of factors that can influence these drivers' long-term trends is difficult to forecast with a high degree of certainty.

A range of demand estimates can be developed based on assumptions of future changes to drivers in the key industry groups and the way they use transport that currently or are expected to generate freight.

L. Route choice scenarios

Changing operating conditions within sections of one route may change freight patterns across a region if these changes impact on travel quality between the alternatives.

M. Determine the route hierarchy

Not all freight routes are equally important. Part of the process of route selection is to determine where in the hierarchy individual links and routes sit. This hierarchy can be used to determine

how the route is to be managed, including whether or not the route is recognised explicitly in land use planning regulations, and funding priorities.

The National Highway Network agency and corridor plans identify the most important links. Jurisdictions use different methods to define their freight hierarchy but these routes are typically determined through similar criteria:

- Importance as an interregional/interstate link
- Freight volume
- Link to major freight activity areas, such as ports and transport hubs
- Route continuity

N. Policy instruments

Although the focus of this project is on the identification of freight routes rather than their management, the policy instruments available to manage routes will impact on route planning decisions. Policy instruments can be transport and non-transport based and no single organisation is responsible for their delivery. An understanding of the potential actions and the feasibility of their use is an integral part of route planning and decision-making.

Even if there is agreement between the key stakeholders on the high level objectives there may be different interpretations of what this means in practice on the ground. If the implementation actions are left undefined then they can be interpreted differently by different organisations and an agreement that was assumed to be binding on parties may not be sustained as it is implemented.

This potential confusion over the conversion of strategies into action and the relationship between objectives and policy instruments, particularly if responsibility for implementation is spread over several organisations, reinforces the need to achieve agreement on clearly articulated objectives across organisations at the start of the planning process and agreement on implementation plans at the end.

O. Assess Options

The assessment of options occurs at various stages during the planning process. At the corridor or network planning level the assessment of options is often based on modelling considerations re: demand analysis. At the route planning level analysis is based primarily on appraisal methods when comparing options including economic analysis and road performance.

Evaluation of road freight routes comprises more than ‘predict and provide’. Analysis of freight route alternatives will typically consider consistency with objectives, demand and engineering aspects of the route, and economic, environmental and social elements.

Evaluation methodologies are not value neutral and so the implications of the approaches used should be understood.

P. System performance

When planning routes level of service is usually used at a tactical level to describe a road. This usually defines parameters that are easily measured at road class and network level:

- **Condition indicators**, such as roughness, rutting, texture or bridge strength
- **Configuration parameters,** such as seal width, design speed, bridge width
- **Traffic flow indicators,** such as traffic flows, accidents and overtaking opportunities
- **Availability parameters,** such as number of days of closure due to flooding

Each of these parameters is road class specific and has predefined a maximum intervention level and maximum defective condition. Most road authorities use the conditions and configuration intervention criteria to identify 'gaps' in network performance.

Q. Route evaluation

Significant progress has been made in Australia over the past decade in the development of multi-criteria evaluation processes.

Techniques for the assessment of non-monetary impacts in the project appraisal process which are important for integrated transport and land use planning projects being developed by state and national agencies. These assess the environmental, land use and social outcomes of projects using multi-criteria assessment, which either incorporates or supports the more traditional Benefit Cost Assessment.

The level of analysis that is appropriate will vary with the stage in decision-making – more detailed analysis is required as strategies and projects are refined. Strategic and rapid appraisal is usually necessary during route planning.

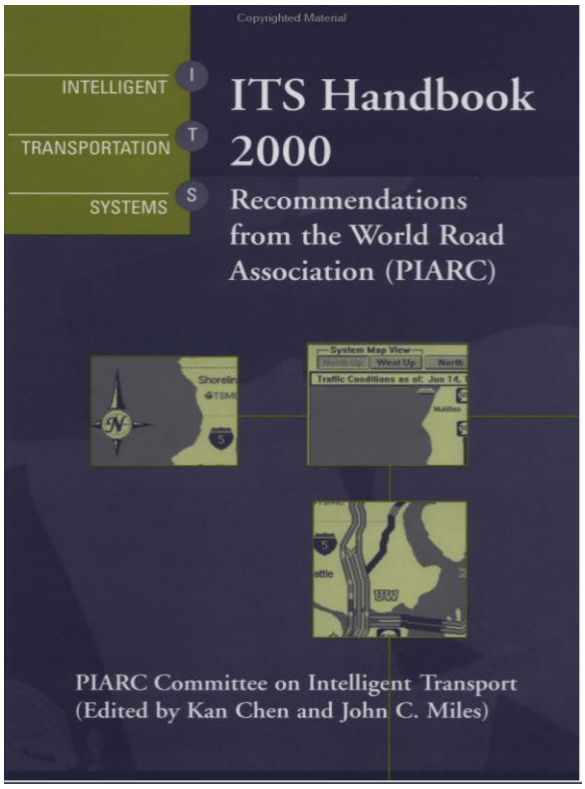
R. Monitor and Review

The primary measure of effectiveness for a route strategy can be measured in terms of its ability to achieve the objectives and outcomes set.

This can include:

- Achievement of the corridor or route objectives e.g. improving access of grain to rail silos
- Achievement of route performance targets e.g. safety, speed
- Support for high level objectives e.g. increase in the number of jobs in a region

Effectiveness of the planning processes should also be reviewed so that lessons from each route strategy can be built on for future activities. Measures could be the degree to which agencies understood and implemented the route strategy, or was on-ground implementation consistent with the adopted action plan. Whilst the monitor and review stage is an essential part of any project the level of resourcing of this phase is often low.



The key principles of a performance review of a route strategy/plan/project include:

i. Measurement of actual versus desired freight transport system outcomes – these involve the comparison of 'ex-post' versus 'ex-ante' studies and whether specific performance targets were met. Performance targets can include, but not be limited to efficiency, safety, security, the environment, social equity and economic ends.

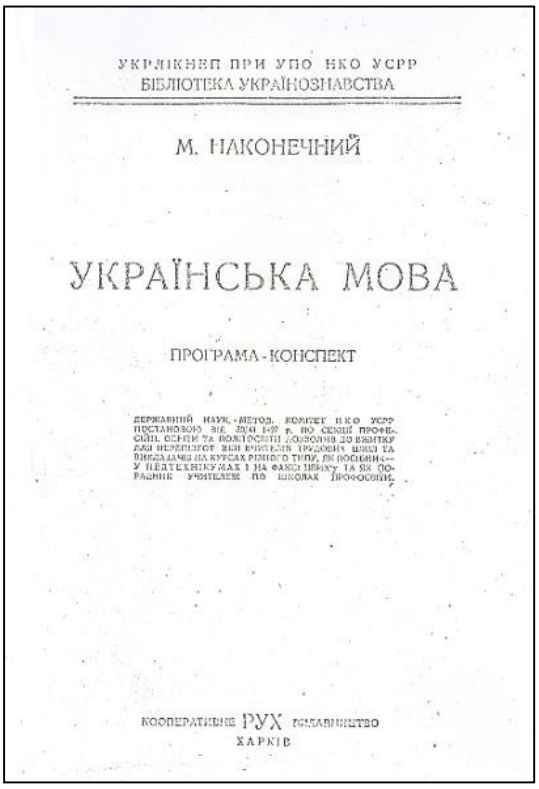
ii. The actual effectiveness of the implemented plan (policies and projects) in supporting or undermining specific performance targets agreed to at the beginning of the process. In other words did the project over-perform or under-perform and what were the causes

iii. The effectiveness of the broader freight transport system management framework in achieving the desired outcomes/objectives. Post completion evaluation is usually bottom up beginning with how well outputs were delivered (inputs and project management processes), whether the outputs affected the performance of the system in a positive/intended way, and furthermore whether the use of the system leads to the appropriate outcomes (supports or undermines).

5. CHALLENGES

The primary objective should be to ensure road infrastructure and traffic management and control is supported by suitable policy, strategic planning, and design standards and enforcement.

GOST Road Design Standards;


УКРЛІКНЕП ПРИ УПО НКО УСРР
БІБЛІОТЕКА УКРАЇНОЗНАВСТВА

М. НАКОНЕЧНИЙ

УКРАЇНСЬКА МОВА

ПРОГРАМА-КОНСПЕКТ

КООПЕРАТИВНЕ РУХ ВИДАВНИЦТВО
ХАРКІВ

Governments will need to modernise as well as learn lessons from other countries. This requires appropriate investment and funding for road planning, maintenance, and resources and their training. The following are the current issues for consideration by any country when investing in freight route development or enhancement.

5.1 Urban areas

Access;
In the discussion of freight routes and communities, the challenge must be to offer access to all road users, fast and slow, large and vulnerable, local or long haul travellers.

Urban planning and road design will be the key to achieve this, using the lessons from other projects and countries, and keeping standards and policies updated for meeting international best practices while always focusing on future developments.

Safety;
Prevention of conflicts, collisions and injuries will provide the most benefit based upon appropriate investment and skills development and programmes. Monitoring road safety

issues and collecting key data will be fundamental for understanding what priorities need attention and where they occur.

Ambience;
Often freight routes through urban areas have been long established, but road authorities and town leaders must still be obliged for improvement and ensuring an acceptable level of safety and access for local communities.

Each urban area must have produced a list of areas that restrict as well as encourage freight activity and access. These must be promoted and freight industry informed for avoid any conflicts, but ensuring a community ambience at specific times and places. It is important to link freight vehicle emission to this category, especially for meeting community expectations as well as national emission targets.

Traffic congestion;
Traffic flow and access and route linking will be a key priority for countries wanting to develop or enhance their freight industry. As with road safety, traffic congestion must be monitored and responded with appropriate action plans, resources and solution options suitable for keep priority traffic moving without an increase in risks to safety.

Traffic conflicts;
Freight route networks and road links are essential for connecting freight traffic from transport hubs and storage and cargo entry centres. Purposely planned routes that avoid congested community centres and complex cross roads and intersections must commence from initiation of freight route strategies, through to constant monitoring, improvement and maintenance of the routes so to ensure conflicts are identified and resolved.

There is a need to establish regional committees in which are linked to national bodies and road safety and traffic management agencies. The planning and road design strategies must be shared and agreed, and any future issues should be prioritised so that important conflicts are addressed and minor issues are appropriately monitored, reported for further investigation.

Facilities;
Space availability and support for new or enlarged freight facilities is restrictive. Support or endorsement is often improved by sharing the benefits achieved through improved freight facilities.

Freight vehicles are becoming larger and heavier, including their cargo. Providing for this development in future may not be possible. Identifying areas for potential land and facility development, and inviting investors for commercial planning and development may be one way for progress.

Otherwise, expansion for accommodating larger vehicles may be further restricted in urban areas. This may change the economic and social balance of an area as the activity for freight shifts or reduces. Planning authorities must be prepared for anticipation of these events, and design contingencies for adaption.

5.2 Rural areas

Safety and traffic conflicts;

Road incidents and traffic collisions injury history records must be maintain and accessible to road safety stakeholders. Assessment and analysis of conflicts can then permit prioritisation of resources and budgets for countermeasures, or further investigation. Any safety issues or development of hazards must be identified as early as possible. Solutions may take the form of simple road maintenance or road improvements of new infrastructure.

Speed control;
Traffic speed management is a particular road safety issues, not only associated with freight traffic. Long straight roads (urban or rural) encourage some drivers to exceed limits. It is essential that road safety awareness signs and traffic speed countermeasures are placed at these vulnerable locations. They should also be supported by regular Traffic Police presence and enforcement campaigns, especially on approach to villages and townships. Having said this, speed limit signing must be provided on freight specific routes, and reinforced with repeater signs and related road markings.

Ambience;
Freight vehicles that need to travel during the night or close to residential areas but best when noise and vibration is minimised. The challenges are to maintain movement of the freight traffic without slowing down or sudden stopping. This will require potential hazards to be investigated and designed out of the route. Noise is a particular issue for trucks, with empty containers, and travel on hilly roads or when surfaces are not smooth. Instances when ambience must be assured for the communities could restrict freight travel during certain hours or days, with provision of alternative routes or bypasses.

Facilities;
Specific facilities for rural areas may include parking in remote areas, as well as service roads for freight routes that pass through villages and townships. Objectives for these must be so to provide options for safety and efficiency for freight drivers and local road users, especially the vulnerable.

Some facilities can be developed from existing infrastructure;

In addition to these options, are rest and fuelling stations in which meet freight route needs as well as provides support to local industry and employment in the rural areas.

5.3 Cross borders

Cargo processing time;
During many consultation meetings for TRACECA II project, it was commented that freight cargo processing time at borders sometimes takes multiple hours or days. During winter conditions or road with restricted road widths, traffic lanes and alternative roads can be a safety and security matter for drivers and local communities.

Current international best practices is to conduct monitoring and control in efficient time, so that freight journey times and costs are also kept to a minimum. If peak traffic volumes are congested at the borders, there may be a contingency to stage a measured quantity of vehicles for border processing at a set time. This may require advanced agreements and information to freight carriers, and provision of holding centres or freight parking bays.

Information and languages;
Countries in which experience freight drivers from many nations of varying languages may consider preparing advisory information in multi lingual options, suited to the drivers' origins. This will also assist with dissemination of traffic and Customs' regulations and restrictions, as

well as discouraging law offences or contraband. It may also assist with development improved road safety awareness and best driver behaviour when entering the country.

Collaboration between nations;
Cross border relations is essential for establishing security and Customs measures where borders share fright route corridors. It is recommended that information be shared especially for cargo and driver and vehicle monitoring and enforcement, so that congestion at the borders are effective but thorough and efficient. This can only be achieved if resources are shared and collaboration is achieved on a daily basis.

Trafficking;
A modern phenomenon has developed in recent years which is human trafficking. This is fact has particularly affected European and eastern European freight routes. There will be no limits to this geographically should the preferred option of freight transport be used for this. Government agencies and immigration offices must participate in national policies and enforcement practices involving freight transport and route network.

5.4 Route design and facility considerations

Width, height, and weight;
Network routes, roadways, traffic lanes and service roads including road structures must offer sufficient clearance and manoeuvrability as well as strength. Government policy and road authority strategies and programmes must be prepared to plan, assess and implement improvement and maintenance works so to ensure road performance to current and future freight traffic needs.

Avoiding restricted areas;

The freight industry must be given information regarding any restrictions as well as being encouraged for using special routes specific for certain freight dimensions and weights. Advanced journey preparation and information should include warnings and alerts on the road. In addition, specific freight use roads or routes should be considered for separation from village or township areas therefore avoiding any conflicts with residential communities.

Facilities; monitoring, parking and other;
Freight route facilities should include specific provisions for long haul drivers, community safety and Customs and Traffic regulation enforcement. Parking provision must reflect industry feedback as well local regional and community consultation. Parking facilities should aim to provide a mixture of simple and complex parking stations, but at regular distances, with advanced notice, for drivers during various journey times. These facilities play a significant role for road safety and driver fatigue solution.

CCTV and sensors are now actively informing road authorities of enforcement monitoring as well as statistical data collection for detail analysis including crash and injury history reporting.

Shoulders;
Decision for surfaced and unsurfaced shoulders must be made with expectation that freight vehicles occasionally will stop or travel on them. Cracking of asphalt or pavements, rutting or drainage issues commonly development as a result. Strength of pavement and edges as well as road markings must be adequate on installation or regularly maintained. Otherwise, expenditure for repair or rehabilitation of the entire carriageway may eventually be inevitable.

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3-W004
"ROAD SAFETY AUDIT AND BLACK SPOT MANAGEMENT"
(two regional WS)

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1.2. Objectives and Expected Outcomes
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* * *

1.1. Brief Introduction
(Overview of the Workshop/Training Course)

In accordance with the Project Terms of Reference and Inception Report it was agreed that the Project should implement two sub-regional Workshops/Training Courses (WS/TC) "Road Safety Audit and Black Spot Management" in Georgia and Kazakhstan.

These WS/TC content is based on a number of different publications, guidelines and International best practice manuals written to help road safty auditors in the analysis (audit) of design and existing roads.

The main WS/TC target groups for those WS/TC are representatives of MoT, Road Administrations, Road design Companies, Traffic Police representatives etc.

Duration of intensive Workshop/Training course was 5 days.

The number of participants invited was:
5 x 3 participant from Armenia, Azerbaijan, Georgia, Moldova and Ukraine (3-W004-1 WS was held in Georgia (Tbilisi) on 20-24 October 2014.)
5 x 3 participants from Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan (3-W004-2 WS was held in Kazakhstan (Astana) on 24-28 November 2014.)

The safety engineering team which provided inputs to development of WS/TC training materials and presented at the actual WS/TC were KE2, **3** NKE (STE 12-1/STE 10, STE 12-2, STE 9-1).

The safety engineering team consist of experts from Germany, Australia, UK, Croatia, Bosnia and Herzegovina and Serbia so encompasses the experience from some of the most developed and safest countries at the world as well as former Soviet countries who had structures and systems similar to those still in place in TRACECA countries.

1.2. Objectives and Expected Outcomes

Agreed WS/TC objective is to implement the two sub-regional Workshops (Training Courses) to develop trainers (local instructors) in safety audit, safety inspection and black spot management programmes.

The most important outcome is implementation of two WS and key staff trained for undertakin by its own Road Safety Audits in their countries.

1.3. Program

The program of the first Workshop is presented bellow.

"ROAD SAFETY AUDIT AND BLACK SPOT MANAGEMENT

18-24th October 2014

Ministry of Infrastructure, Tbilisi, Georgia

PROGRAMME AND AGENDA

Monday, 20.10.2014.

09.00 Module M1-A: Basics of Road Safety - Background
10.20 Module M1-B: Basics of Road Safety - Risk Factors

11.30 Coffee break

11.40 Module M1-C: Basics of Road Safety - Principles of Road Safety Engineering

13.45 Lunch

15.00 Module M2-A: Basics of Road Safety Audit
16.30 Module M2-B: Road Safety Audit Policy

16.50 Coffee break

17.00 Module M2-C: Changing of Legislation to Enable Road Safety Audit as Mandatory Routine
17.30 Discussion

Tuesday, 21.10.2014.

09.00 Summary of Day 1
09.15 Module M2-D: Human Factors in Road Design and Operations
10.30 Module M2-E: Network Planning and Road Hierarchy in Road Safety Audit

11.20 Coffee break

11.30 Presentation of Road Safety Manual and Checklists
12.30 Presentation of Current Situation in TRACECA Countries about Road Safety Audit and Black Spot Management Usage

13.00 Lunch

14.15 Module M2-F: Linear Settlements along Highways
15.00 Module M2-G: Basic Road Safety Design Axioms

15.40 Coffee break

15.50 Module M3-A: Safer Designs of Interurban Roads and Motorways – Function and Cross Section
17.00 Module M3-B: Safer Designs of Interurban Roads and Motorways – Alignment
17.30 Discussion

Wednesday, 22.10.2014.

09.00 Summary of Day 2
09.15 Module M3-C: Safer Designs of Interurban Roads and Motorways – Intersections

11.00 Coffee break

11.10 Module M4: Road Safety Audit of Interurban Highways
11.30 Module M5-A: Road Safety Audit of Through Road Sections – Vulnerable Road Users (Pedestrians and Bicyclists)
12.30 Module M5-B: Road Safety Audit of Through Road Sections – Traffic Islands

13.00 Lunch

14.15 Module M6 - BLACK SPOT MANAGEMENT
17.30 Discussion

Thursday, 23.10.2014.

10.00 Field trip (survey of road nearby place of WS in two groups: RSA and BSM teams)

13.30 Lunch

15.00 Preparation of Road Safety Audit Report I (Stage 3/4 - group work)
17.00 Discussion

Friday, 24.10.2014.

Two parallel sections:

I Road Safety Audit participants

09.00 Preparation of Road Safety Audit Report I (Stage 3/4 - group work) - continuation

13.15 Lunch

14.30 Preparation of Road Safety Audit Report II (Stage 1/2 - group work)

II Black Spot Management participants

09.00 Analysis of selected Black Spots on surveyed road

13.15 Lunch

14.30 Analysis of selected Black Spots on surveyed road - continuation
17.00 Evaluation of WS and providing of participants homework's

Closing session

All participants to WS/TC got printed presentations and program with DVD rom which contains:

1. 3-W001 Workshop/Training Course Presentations
2. Important International documents regarding Workshop/Training Course
3. List of participants with contact details
4. Photographs from the WS/TC

Through all two WS/TC there was lively question and answer discussions between participants and lecturers.

1.4. Attendance

WS/TC 3-W004-1

WS/TC 3-W004-1 was attended by 9 representatives from Georgia (3), Moldova (3) and Ukraine (3).

List of participants are presented on next tables.
GEORGIA

No.	Name and Surname	Institution (Organization) and Position	Contact telephone	E-mail
1	Mr. Mamuka Patashuri	Georgian Roads Department of the Ministry of Regional Development and Infrastructure of Georgia		
2	Mr. Besik DauTashvili	Georgian Roads Department of the Ministry of Regional Development and Infrastructure of Georgia		
3	Mr. Vazha Marsagishvili	Ministry of Internal Affairs of Georgia		

MOLDOVA

No.	Name and Surname	Institution (Organization) and Position	Contact telephone	E-mail
1	Oleg Plinschi	FSP Universinj Ltd., Engineer of Road Department	+37322748850	universu@mtc.md
2	Petru Bologan	Head of Road Safety Service at the State Road Administration	+37369121160	bologan@asd.md
3	Ilie Bricicaru	President at “Road Safety Moldova” Association PhD student, Civil Engineering (Road safety), Technical University, "Gheorghe Asachi", Iasi, Romania,	+3737 988 11 90	ilie.bricicaru@gmail.com

UKRAINE

No.	Name and Surname	Institution (Organization) and Position	Contact telephone	E-mail
1	Dudnik Nataiya Mykolaivna	Ukravtodor (Head specialist of Road Safety Department, Road Maintenance and Safety Administration)	044 287 72 17 067 232 25 67	bezpeka@ukravtodor.gov.ua
2	KOTUL IGOR			
3	Kryzhanivsky Alexander Yevgeniyovych	State Enterprise "Ukrainian state institute of road facilities design" SE "Ukrdiprodor", Head of Engineering Department	(044)206-64-08, M: 099-244-35-58	kaeuad@gmail.com

WS/TC 3-W001-2

WS/TC 3-W004-2 was attended by 13 representatives from: and.

List of participants are presented on next tables.

KAZAKHSTAN

No.	Name and Surname	Institution (Organization) and Position	Contact telephone	E-mail
1	SADVAKASOV KANAT	Head of Administration KAP MIA	87015147713; 87172715055	Sadvakasov63@mail.ru
2	MUKHAMEDYANOV RAMAYAN	MIA		

KYRGYZSTAN

No.	Name and Surname	Institution (Organization) and Position	Contact telephone	E-mail
1	ASKAROV AIBEK	Specialist of Department of automobile transport, Administration of automobile and railway transport	031 231 42 88	aaskarov@mtk.gov.kg aaskarov_mtk.gov.kg@mail.ru
2	SOLTOBAEV TALANTBEK	Design and survey institute "Kyrgyzdortransproject"	031 256 11 23	kyrgyzdortrans@yandex.ru
3	SUBANBEKOV NUSUP	Head of Sector of road supervision, Design and survey institute "Kyrgyzdortransproject"	055 052 60 65 031 256 69 39	kyrgyzdortrans@yandex.ru

TAJIKISTAN

No.	Name and Surname	Institution (Organization) and Position	Contact telephone	E-mail
1	AZIZOV FATKHIDDIN	Head of Supervision and control of road facilities department, State	+992 93 888 10 25	Azizov_1979@inbox.ru

		Service on supervision and regulation of road facilities, MoT		
2	NAZRISHOEV SOLIM	Head of Surveying and road design department, "Scientific-research and project-surveying institute" MoT	93 504 31 83	Solim_61@mail.ru
3	ZIYOEV BEGIJON	Lead specialist of road transportation and safety department, Land transport administration, MoT	+992 93 524 31 29	begijon@mail.ru

UZBEKISTAN

No.	Name and Surname	Institution (Organization) and Position	Contact telephone	E-mail
1	MAGAY GALINA	Head of Department of regulations development, Uzbek Automobile and River Transport Agency	+99871 241 20 54 +99890 350 88 13	g.magay@uzaart.uz
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4	ZIYAYEV OYBEK	Head of road scientific-research institute, "Uzavtoyul"	+99871 255 08 31 293 49 31	ayiti@uzavtoyul.uz
5	RADJABOV FAZIL	Deputy head of Maintenance and technical analysis of highways, "Uzavtoyul"	+99871 237 01 66	Rajabov@uzavtoyul.uz

After checking of two remaining homework/projects is completed for each trainees, it will be known what kind of certificates they will get. Evaluation criteria consists of four requirements: 1. marks from three mini tests taken at key stages during the training (max 10 points), marks from final exam (max. 40 marks), and marks for two homework/projects (max 50 points, 25 each). In accordance with total number of marks achieved different types of RSA certificates will be provided to the participants as below.

1. RSA Instructors auditors: Those achieving 75% or more
2. RSA Inspectors: Those achieving 50-74%
3. Certificate of attendance: Those not achieving over 50%

1.5. Results Achieved

Results Achieved from the three WS/TC are shown in the following table.

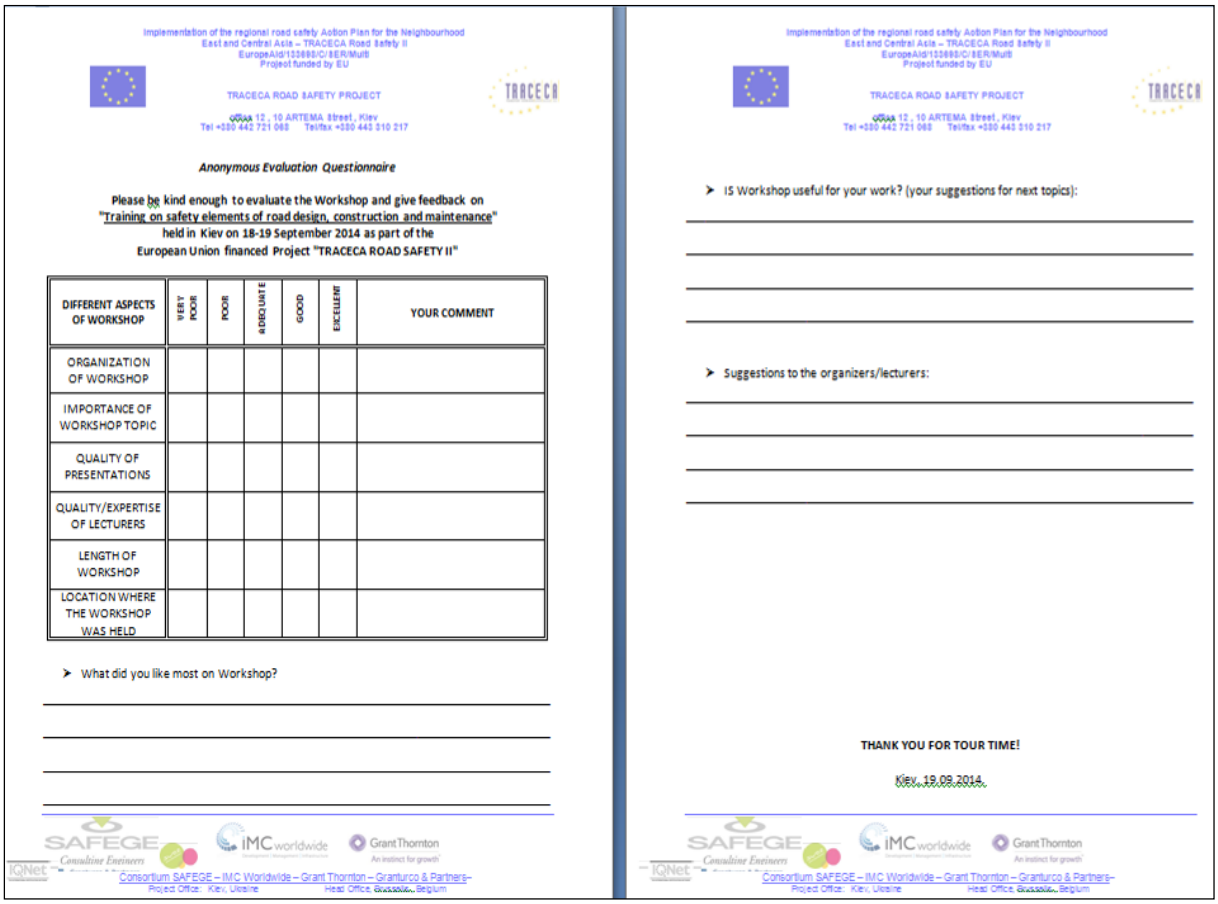
Expected and achieved objectives and outcomes

	Expected objectives and outcomes	Objectives and outcomes Achieved	Comments
Objectives			

1	To develop trainers (local instructors) in safety audit, safety inspection and black spot management programmes.	Yes,	22 participants from 7 countries (except Armenia, Azerbaijan and Turkmenistan) were trained
Outcomes			
2	Selected staff were trained in RSA/BSM (WS held)	Yes	22 participants from 7 countries (except Armenia, Azerbaijan and Turkmenistan) were trained
3	Key staff trained for undertakin by its own Road Safety Audits in their countries	Yes	22 participants from 7 countries (except Armenia, Azerbaijan and Turkmenistan) were trained trained

1.6. Evaluation

For evaluation of WS/TC anonymous evaluation questionnaire were used. Questionnaire template is presented at figure below.



Implementation of the regional road safety Action Plan for the Neighbourhood East and Central Asia – TRACECA Road Safety II
EuropeAid/133880/C/SER/Multi
Project funded by EU

TRACECA ROAD SAFETY PROJECT

Kiev 12 , 10 ARTEMA Street, Kiev
Tel +380 442 721 068 Telifax +380 443 310 217

Anonymous Evaluation Questionnaire

Please be kind enough to evaluate the Workshop and give feedback on "Training on safety elements of road design, construction and maintenance" held in Kiev on 18-19 September 2014 as part of the European Union financed Project "TRACECA ROAD SAFETY II"

DIFFERENT ASPECTS OF WORKSHOP	VERY POOR	POOR	ADEQUATE	GOOD	EXCELLENT	YOUR COMMENT
ORGANIZATION OF WORKSHOP						
IMPORTANCE OF WORKSHOP TOPIC						
QUALITY OF PRESENTATIONS						
QUALITY/EXPERTISE OF LECTURERS						
LENGTH OF WORKSHOP						
LOCATION WHERE THE WORKSHOP WAS HELD						

- What did you like most on Workshop?

Consortium SAFEGE – IMC Worldwide – Grant Thornton – Grantourco & Partners–
Project Office: Kiev, Ukraine Head Office: Brussels, Belgium

Implementation of the regional road safety Action Plan for the Neighbourhood East and Central Asia – TRACECA Road Safety II
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TRACECA ROAD SAFETY PROJECT

Kiev 12 , 10 ARTEMA Street, Kiev
Tel +380 442 721 068 Telifax +380 443 310 217

- IS Workshop useful for your work? (your suggestions for next topics):

- Suggestions to the organizers/lecturers:

THANK YOU FOR TOUR TIME!

Kiev, 19.09.2014.

Consortium SAFEGE – IMC Worldwide – Grant Thornton – Grantourco & Partners–
Project Office: Kiev, Ukraine Head Office: Brussels, Belgium

The results of participant's evaluation of two WS/TC are shown in tables overleaf.

Evaluation results of RSA/BSM Workshop 3-W004-1

9 participants from UKR (3), Moldova (3) and Georgia (3+1 from time to time) and 9 evaluation lists received
Tbilisi, 20-24 October 2014.

		Participants answers									
		1	2	3	4	5	6	7	8	9	AVG
Main Questions	Organization of WS	5	5	5	5	5	4	5	5	3	4.67
	Importance of WS topics	5	5	4	5	4	5	5	5	4	4.67
	Quality of presentations	5	5	5	5	4	5	5	5	5	4.89
	Quality/Expertise of lecturers	5	5	5	5	4.5	5	5	5	5	4.94
	Length of WS	4	5	4	4	2	5	3	5	5	4.11
	Location of WS	5	5	5	5	5	5	4	5	4	4.78
	AVG	4.8	5	5	5	4.1	4.8	4.5	5	4.3	**4.68**

Legend:
Mark 1: Very poor, 2: Poor, 3: Acceptable, 4: Good, 5: Excellent

Main participants comments:	What did you like most on WS?	Is WS useful for your work?	Suggestions to the organizers/lecturers
1	Information, activeness	Best practice in installation of road barriers	Provide more qualified translation
2	Organisation of the course, learnt many new things, e.g. RSA	Yes, will use in future implementation of projects	Separate courses (and give more sessions - longer)
2	Knowledge of lecturers, methodology of education, problems and their solving	Very useful	Have a good health!
4	Volume of information and level of knowledge of lecturers	Yes; Give more attention to BSM	Translation of documents needs improvement; involve experts from TRACECA countries
5	Organisation	Yes	Not enough time; need more specific translation
6	Importance of the problems	-	
7	Very important topic, very difficult to grasp information in such a short period	Yes, very useful. Need to implement education on Road Design	
8	Everything	Yes	More time for the workshop
9	International experience	Yes	
10			More detailed information on site visit

Project response to evaluation results:

1. Next WS should be longer (more time dedicated for discussions and examples)
2. Improved translation of presentations for next WS (to be checked by one of TRACECA country representative)
3. Longer site visit and more discussions

Evaluation results of RSA/BSM Workshop 3-W004-2

13 participants from Kazakhstan (2), Uzbekistan (5), Kyrgyzstan (3) and Tajikistan (3) and 13 evaluation lists received

Astana, 24-28 November 2014.

		Participants answers													
		1	2	3	4	5	6	7	8	9	10	11	12	13	AVG
Main Questions	Organization of WS	5	5	5	5	3	5	4	4	4	5	4	5	5	4.54
	Importance of WS topics	5	5	5	5	5	5	5	5	4	4	5	5	5	4.85
	Quality of presentations	5	5	5	5	4	5	5	4	4	5	5	5	5	4.77
	Quality/Expertise of lecturers	5	5	5	5	5	5	5	5	4	5	5	5	5	4.92
	Length of WS	3	5	5	5	4	5	5	4	4	5	5	5	5	4.62
	Location of WS	5	5	5	5	5	5	4	5	4	5	5	5	5	4.85
	AVG	4.6	5	5	5	4.3	5	4.6	4.5	4	4.8	4.8	5	5	**4.76**

Legend:
Mark 1: Very poor, 2: Poor, 3: Acceptable, 4: Good, 5: Excellent

Main participants comments:	What did you like most on WS?	Is WS useful for your work?	Suggestions to the organizers/lecturers
1	Practical course, level of knowledge of lecturers		Too long
2	Level of knowledge, organisation (+hotel)	Yes	Need to organise trips to road sections
2	Information; translators		Simulaneous translation, not Sequential Interpretation
4	Standards, knowledge	Yes	Do in all TRACECA countries
5	Examples, RSA	Yes	Separate person should organise WS, not to disturb lecturers
6	Information		
7	Lecturers, translators	Yes	
8	RSA	Yes; will use in road maintenance	
9	Good and useful discussions, RSA, high level	Yes	Organisation needs to be improved
10	Discussion on RSA	Yes	
11	Discussion on RS on highways and RSA	Yes	
12	Topic, Organization		
13	Everything		

Project response to evaluation results:

1. Next Workshops should have more logistical support
2. More WS with similar contents in TRACECA countries

1.7. Photo documentation

WS/TC 3-W004-1

Plate 1.

Active dialogue between participants and lecturers were established during 3-W004-1 WS

Plate 2.

WS/TC participants

WS/TC 3-W004-2

Plate 1.

Finalisation of 3-W004-2 WS

3-W003
"TEMPLATE ON ROAD SAFETY AUDIT POLICY/LEGISLATION"
(two regional WS, part of 3-W004 WS)

The EU Directive 2008/96/EC on Road Infrastructure Safety Management requires EU member states to actively manage the safety of the trans-European road network (TERN). One of most important safety measures is implementation of Road Safety Audits on main road network. Although, the Directive at present only applies formally to the TERN, these safety management principles have general validity and it will benefit all TRACECA countries. It is recommend that the scope of the Directive be extended to the whole TRACECA main road network.

The Project Team developed a simple template on Road Safety Audit Policy and possible legislation changes at three levels (as amendment of Law on Road Safety or Law on Roads and a Ministerial Decree about audit).

Model of RSA Policy and possible legal changes to make a Road Safety Audit process mandatory was presented and discussed at Road Safety Audit and Black Spot Management workshop (3-W004). Therefore 3-W003 Workshop/Training Course becomes an integrated part of 3-W004, as well as a reporting about 3-W003.

After presentation, discussion and comments, template of RSA Policy and amendments to legislation to make RSA mandatory was finalized and will be distributed to the TRACECA countries.

3-W001
"TRAINING ON SAFETY ELEMENTS OF ROAD DESIGN, CONSTRUCTION AND MAINTENANCE"
(three regional WS)

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* * *

1.4. Brief Introduction
(Overview of the Workshop/Training Course)

In accordance with the Project Terms of Reference and Inception Report it was agreed that the Project should implement three sub-regional Workshops/Training Courses (WS/TC) "Training on safety elements of road design, construction and maintenance" in Ukraine, Georgia and Kazakhstan.

These WS/TC content is based on a number of different publications, guidelines and International best practice manuals written to help designers and road authorities in the design of safe roads taking into account the needs of both motorized vehicles and vulnerable road users (VRU). Participants are introduced to new approach such as the "safe system approach".

The main WS/TC target groups for those WS/TC are representatives of MoT, Road Administrations, Road design Companies, Traffic Police representatives etc.

Duration of Workshop/Training course is 2 days.

The number of participants invited was:
2 x 6 participant from Moldova and Ukraine
(3-W001-1 WS was held in Ukraine in Kiev on 18-19 September 2014.)
3 x 6 participants from Armenia, Azerbaijan and Georgia

(3-W001-2 WS was held in Georgia in Tbilisi on 16-17 October 2014.)
5 x 6 participants from Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan and Uzbekistan
(3-W001-3 WS was held in Kazakhstan in Astana on 20-21 November 2014.)

The safety engineering team which provided inputs to development of WS/TC training materials and presented at the actual WS/TC were KE2, **3** NKE (STE 9-1, STE 9-2 and STE 12-1).

The safety engineering team consist of experts from Germany, Australia, UK, Croatia, Bosnia and Herzegovina and Serbia so encompasses the experience from some of the most developed and safest countries at the world as well as former Soviet countries who had structures and systems similar to those still in place in TRACECA countries.

Different individuals are selected as needed and relevant for each WS/TC from the pool of experts that we have established in project safety engineering team that we can bring relevant expertise to each WS/TC.

In addition, inputs are included from experts with knowledge of the local safety engineering problems in the country where WS/TC has been held.

1.5. Objectives and Expected Outcomes

Agreed WS/TC objective is to implement the three sub-regional Workshops (Training Courses) to increasing knowledge of road designers about safety elements in design, construction and maintenance of the roads.

The most important outcome is the key staff trained will have better understanding of road safety elements in design, construction and maintenance and will use that knowledge in their future work to design and operate safer roads.

1.6. Program

Before implementation of the WS/TC visit was made to all countries within Project inception period and some road safety meetings were organized to collect relevant information. Field trips (road surveys) were organized in some countries during such visits to collect some typical road safety problems for use in WS/TC as examples of bad (or good) road safety practice.

The program of the first Workshop is presented below.

WORKSHOP/TRAINING COURSE
3-W001-1

"SAFETY ELEMENTS OF ROAD DESIGN, CONSTRUCTION AND MAINTENANCE"

18-19th September 2014

Ministry of Infrastructure, Kiev, Ukraine

PROGRAMME AND AGENDA

Thursday, 18.09.2014.

10.00 Registration
10.05 Welcome note & Introduction of Participants
10.30 Introduction to Workshop – Accident Statistics
10.45 Most important International Conventions, EU Directives and Standards in use
11.30 EU Regulation (Express Roads)

11.45 Coffee break

12.15 Current situation in TRACECA countries concerning International agreements
12.25 Best practice in Safety Elements of Road Design + Discussion
13.10 Best practice in Safety during Road Construction + Discussion

14.00 Lunch

15.15 Best practice in Safety during Road Maintenance + Discussion
16.00 SNiP solutions compared to International Practice

16.30 Coffee break

17.00 Additional recommendations for SNiP
17.30 Short country presentation on usage of standards (if any)
18.00 Questions and discussion
18.15 End of day 1

Friday, 19.09.2014.

09.00 Summary of Day 1
09.05 Major Road Safety Gaps
10.05 Case study: M-06 Road Safety Inspection (RSI) Findings

11.05 Coffee break

11.35 Technical session 1: Most important road safety deficiencies in Design

13.00 Lunch

14.30 Technical session 2: Most important road safety deficiencies in Road Construction (Including Working Zones)
15.15 Technical session 3: Most important road safety deficiencies in Road Maintenance (Including Winter Maintenance)

15.45 Coffee break

16.15 Future steps for improving Design, Road Construction and Maintenance
16.30 Evaluation of WS and Closing Session
16.45 End of day 2

All participants to WS/TC got printed presentations and program with DVD room which contains:

1. 3-W001 Workshop/Training Course Presentations
2. Important International documents regarding Workshop/Training Course
3. List of participants with contact details
4. Photographs from the WS/TC

An instantaneous translation was provided to enable effective dialogue. Through all three WS/TC there was lively question and answer discussions between participants and lecturers.

There were considerable discussions about practical issues and case studies included in WS/TC.

1.7. Attendance

WS/TC 3-W001-1

WS/TC 3-W001-1 was attended by 12 representatives from: Ukraine (6) and Moldova (6) and the Sector Manager Transport Policy of EU Delegation in Ukraine. In close consultation with EC Delegation information was provided to the EU Delegation public relation expert about the EU funded Regional road safety project and training. The Project Team Leader was interviewed by the national TV station.

List of participants are presented on next tables.

UKRAINE

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1	Dudnik Nataiya Mykolaivna	Ukravtodor (Head specialist of Road Safety Department, Road Maintenance and Safety Administration)	044 287 72 17 067 232 25 67	bezpeka@ukravtodor.gov.ua
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MOLDOVA

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3	Oleg Bîcu	Head of the Systematization of Road Traffic at Surveillance of Transport and Road Traffic Department of National Patrolling Inspectorate, at General Police Inspectorate of Ministry of Internal Affairs	+37369161316	oleg.bicu@igp.gov.md
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5	Simion Bogza	SIMBO-PROIECT LTD, Project Chief Engineer, Director	(37322) 71 61 24	bogza61@mail.ru
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WS/TC 3-W001-2

WS/TC 3-W001-2 was attended by 18 representatives from: Armenia (6), Azerbaijan (6) and Georgia (6).

List of participants are presented on next tables.

ARMENIA

No.	Name and Surname	Institution (Organization) and Position	Contact telephone	E-mail

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AZERBAIJAN

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GEORGIA

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3	Mr. Vasil Margishvili	LEPL "Land Transport Agency"		
4	Ms. Tamar Gabrichidze	LEPL "Land Transport Agency"		
5	Mr. Mamuka Patashuri	Georgian Roads Department of the Ministry of Regional Development and Infrastructure of Georgia		
6	Mr. Davit Kurdadze	Georgian Roads Department of the Ministry of Regional Development and Infrastructure of Georgia		
7	Mr. Davit Pashalishvili	Georgian Roads Department of the Ministry of Regional Development and Infrastructure of Georgia		
8	Mr. Zaza Devdariani	Ministry of Internal Affairs of Georgia		
9	Mr. Vazha Marsagishvili	Ministry of Internal Affairs of Georgia		

WS/TC 3-W001-3

WS/TC 3-W001-3 was attended by 17 representatives from: Kazakhstan (2), Kyrgyzstan (6), Tajikistan (6) and Uzbekistan (3).

List of participants are presented on next tables.

KAZAKHSTAN

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2	Uvoev Nurlan	Deputy head of ODTI UAP OVO	87015120072; 87172532600	

KYRGYZSTAN

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Certificate of attendance at two day (16 hours of lecturers) WS/TC were presented to participants at the end of the training.

1.8. Results Achieved

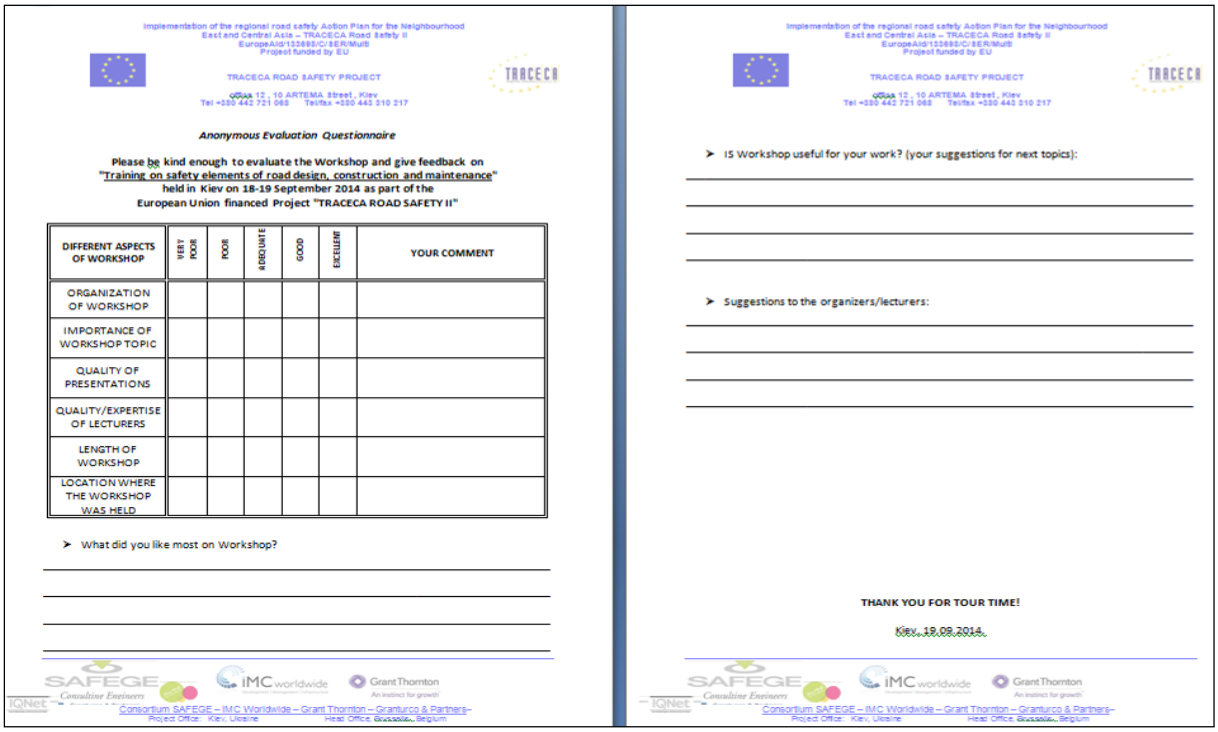
Results Achieved from the three WS/TC are shown in the following table.

Expected and achieved objectives and outcomes

	Expected objectives and outcomes	Objectives and outcomes Achieved	Comments
Objectives			
1	Introduction of the concept of safe road design, construction and maintenance to trainees	Yes,	47 participants from 9 countries (except Turkmenistan) were trained
Outcomes			
2	Selected staff were trained in safe design construction and maintenance of roads	Yes	47 participants from 9 countries (except Turkmenistan) were trained
3	Knowledge increased and awareness raised about usage of safe elements in design, construction and maintenance of the roads	Yes	47 participants from 9 countries (except Turkmenistan) were trained

1.9. Evaluation

For evaluation of WS/TC anonymous evaluation questionnaire were used. Questionnaire template is presented at figure below.



Implementation of the regional road safety Action Plan for the Neighbourhood East and Central Asia – TRACECA Road Safety II
EuropeAid/133693/C/SER/Multi
Project funded by EU

TRACECA ROAD SAFETY PROJECT

Office 12 , 10 ARTEMA Street , Kiev
Tel +380 442 721 068 Tel/fax +380 443 310 217

Anonymous Evaluation Questionnaire

Please be kind enough to evaluate the Workshop and give feedback on "Training on safety elements of road design, construction and maintenance" held in Kiev on 18-19 September 2014 as part of the European Union financed Project "TRACECA ROAD SAFETY II"

DIFFERENT ASPECTS OF WORKSHOP	VERY POOR	POOR	ADEQUATE	GOOD	EXCELLENT	YOUR COMMENT
ORGANIZATION OF WORKSHOP						
IMPORTANCE OF WORKSHOP TOPIC						
QUALITY OF PRESENTATIONS						
QUALITY/EXPERTISE OF LECTURERS						
LENGTH OF WORKSHOP						
LOCATION WHERE THE WORKSHOP WAS HELD						

➢ What did you like most on Workshop?

SAFEGE Consulting Engineers · IMC worldwide · Grant Thornton An instinct for growth

Consortium SAFEGE – IMC Worldwide – Grant Thornton – Granturco & Partners–
Project Office: Kiev, Ukraine Head Office, Brussels, Belgium

Implementation of the regional road safety Action Plan for the Neighbourhood East and Central Asia – TRACECA Road Safety II
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Project funded by EU

TRACECA ROAD SAFETY PROJECT

Office 12 , 10 ARTEMA Street , Kiev
Tel +380 442 721 068 Tel/fax +380 443 310 217

➢ IS Workshop useful for your work? (your suggestions for next topics):

➢ Suggestions to the organizers/lecturers:

THANK YOU FOR TOUR TIME!

Kiev, 19.09.2014.

SAFEGE Consulting Engineers · IMC worldwide · Grant Thornton An instinct for growth

Consortium SAFEGE – IMC Worldwide – Grant Thornton – Granturco & Partners–
Project Office: Kiev, Ukraine Head Office, Brussels, Belgium

The results of participant's evaluation of three WS/TC are shown in tables overleaf.

Evaluation of Workshop 3-W001-1

12 participants from: Ukraine (6) and Moldova (6) and 12 evaluation lists received

Kiev, 18-19 Sept 2014.

		Participants answers												
		1	2	3	4	5	6	7	8	9	10	11	12	AVG
Main Questions	Organization of WS	4	5	5	5	5	5	5	5	5	5	5	5	4.92
	Importance of WS topics	5	4	5	5	5	5	5	5	5	5	5	5	4.92
	Quality of presentations	4	4	4	5	5	5	5	5	5	5	5	5	4.75
	Quality/Expertise of lecturers	4	5	5	5	4	5	5	5	5	5	5	5	4.83
	Length of WS	5	4	5	5	4	4	5	4	4	5	4	5	4.5
	Location of WS	4	5	5	5	4	5	4	5	4	5	5	5	4.67
	AVG	4.33	4.5	5	5	5	4.80	4.83	4.83	4.67	5	4.8	5	**4.77**

Legend:

Mark 1: Very poor, 2: Poor, 3: Acceptable, 4: Good, 5: Excellent

Main participants' comments:	What did you like most on WS?	Is WS useful for your work?	Suggestions to the organisers/lecturers
1	Active dialogue	Yes	-
2	Importance of the problem; level of knowledge of lecturers	Yes, will use in future work	-
2	Everything	For me and for my work - very important; Waiting for RSA and BSM WS	We need to learn from them. Good job.
4	Information on EU Directives; RSA materials	-	-
5	Examples	-	Examples need to be more real (countries in which WS is organised); Everything is perfect
6	-	-	-
7	Level of experts and approach methods in RS	Yes, especially in methodological material and experience exchange	More practical examples of solving important issues
8	Excellent - everything	Yes, a lot. I learnt many new things	Need more time for WS and organise more frequently
9	Organisation; Importance of the problems and solving these issues	Yes, very interesting	Keep working on the same level
10	We save people's lives and think about safety and comfort of transport and pedestrians; openness of the lecturers	100% useful	Organise WS with more specialists, not design only
11	Very interesting, especially information on vulnerable road users	Of course, especially at this stage of the beginning of my career	
12	Have answers for many questions	Yes	Could be in Ukravtodor; use examples from countries where the WS is held

Project response to evaluation results:

1. Overall the WS/TC was obviously considered by participants to be of high quality, but WS/TC team will make further improvements to the presentations.
2. Add more local examples of good and bad practice for illustrations and discussions during the WS/TC.

Evaluation of Workshop 3-W001-2

18 participants from: Armenia (6), Azerbaijan (6) and Georgia (6+3 temporary) and 16 evaluation lists received

Tbilisi, 16-17 October 2014.

		Participants answers																
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	AVG
Main Questions	Organization of WS	5	5	5	3	3	5	5	5	5	5	5	5	4	4	4	4	4.5
	Importance of WS topics	5	5	5	3	3	5	5	5	5	5	5	5	4	4	4	5	4.56
	Quality of presentations	5	5	5	4	4	5	5	5	5	5	5	5	5	4	4	5	4.75
	Quality/Expertise of lecturers	5	5	5	5	4	5	5	5	5	5	5	5	4	4	4	5	4.75
	Length of WS	5	5	5	3	3	5	5	5	5	5	5	4	3	2	2	5	4.19
	Location of WS	4	4	5	4	3	5	5	5	5	5	5	4	4	4	3	5	4.38
	AVG	4.83	4.8	5	4	3.3	5	5	5	5	5	5	4.7	4	3.7	3.5	4.8	**4.52**

Legend:
Mark 1: Very poor, 2: Poor, 3: Acceptable, 4: Good, 5: Excellent

Main participants comments:	What did you like most on WS?	Is WS useful for your work?	Suggestions to the organizers/lecturers
1	-	-	-
2	Quality of presentations	Yes, very useful	-
2	-	-	-
4	Very detailed which is good	Yes	The participants could live in the same hotel where we had lectures
5	Presentations	Yes	-
6	Everything	-	-
7	-	-	-
8	-	-	-
9	-	-	-
10	-	-	-
11	Everything	-	-
12	-	-	-
13	Questions discussed	-	-
14	Questions discussed	Yes	Nothing
15	Questions discussed	Yes	Nothing
16	-	-	-

Project response to evaluation results:

1. Improvement of organisation (lecturers at the same hotel

Evaluation of Workshop 3-W001-3

17 participants: Kazakhstan (2), Kyrgyzstan (6), Tajikistan (6), Uzbekistan (3) and 15 evaluation lists received

Astana, 20-21 November 2014.

		Participants answers															
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	AVG
Main Questions	Organization of WS	4	5	4	5	4	4	5	4	5	5	4	4	5	5	3	4.4
	Importance of WS topics	5	5	4	5	5	4	5	4	5	4	5	5	5	4	5	4.67
	Quality of presentations	5	5	5	5	5	5	5	4	5	5	5	5	5	5	5	4.93

	Quality/Expertise of lecturers	5	5	5	5	5	4	5	5	5	5	5	5	5	5	5	4.93
	Length of WS	5	5	4	3	4	4	5	5	5	3	4	5	4	4	3	4.2
	Location of WS	5	5	5	5	5	4	5	5	5	5	5	4	5	5	5	4.87
	AVG	4.8	5	5	5	4.7	4.1	5	4.5	5	4.5	4.7	4.7	4.8	4.7	4.3	**4.67**

Legend:
Mark 1: Very poor, 2: Poor, 3: Acceptable, 4: Good, 5: Excellent

Main participants comments:	What did you like most on WS?	Is WS useful for your work?	Suggestions to the organizers/lecturers
1	Lecturers	Yes, please do more WS like this one	
2	Topic and ways to improve	Yes, this one is related to my work (winter slipperiness)	More analysis, modern methodology, teach experts
2		Yes	More new topics
4	Topic, problem is common for all TRACECA countries; quality of lectures; wide experience of lecturers	Yes, please do more WS like this one	45 min lectures, 5 min break
5	very important topic, high interest, need to use recommendations in practice	Yes	
6		Yes	More specific examples from neighbouring countries
7		Yes	More WS like this one
8	Planning and organisation	Yes	Analyse and compare EU countries and Asian countries and choose the most effective option
9	RS, signing, barrier installation	Yes	
10	Information	Yes	Hold such a WS in all TRACECA countries
11	Topic, level of knowledge of lecturers	Yes	More WS like this one (international practice, EU)
12			
13		Yes	
14	International road parameters	Yes, regarding winter maintenance	
15	Examples of mistakes, new methods, legislation review	Yes	

Project response to evaluation results:

1. Prepare more road safety examples and measures from different cour
2. Organisation of more WS with same topics

1.10. Photo documentation

WS/TC 3-W001-1

Plate 1.

Instantaneous translations enabled very active dialogue/discussions between participants and lecturers and exchange of experience between all involved in WS/TC.

Plate 2.

Apart from design engineering/police participants from Moldova and Ukraine TL sat in at the back of the room for part of the training course to access quality and to make comments to the safety engineering team/presenters on how the presentations could be improved for the next WS/TC.

Plate 3.

WS/TC participants Transport Specialist from EU Delegation, project team lecturers and Kiev project office staff at WS/TC in Kiev, 18-19 Sept. 2014

WS/TC 3-W001-2

Plate 1.

Working section of 3-W001-2

WS/TC 3-W001-3

Plate 1.

Working section of 3-W001-3

3-W002
"INTRODUCTION TO EU DIRECTIVE ON SAFETY IN ROAD TUNNELS"

Table of contents

1.1. Brief Introduction
1.2. Objectives and Expected Outcomes
1.3. Program
1.4. Attendances
1.5 Results Achieved
1.6. Evaluation
1.7. Photo documentation

* * *

1.1. Brief Introduction
(Overview of the Workshop/Training Course)

In accordance with the Project Terms of Reference and Inception Report it was agreed that the Project should implement one regional Workshops/Training Courses (WS/TC) "Introduction to eu directive on safety in road tunnels" in Kyrgyzstan.

Tunnels are important infrastructures which facilitate communication between different areas and are therefore essential for long-distance transport and the development of regional economies. However, accidents in tunnels, and particularly fires, can have dramatic consequences and can prove extremely costly in terms of human life, increased congestion, pollution and repair costs.

These WS/TC content is based on a number of different UN and EU publications concerning Tunnel Safety and particularly on EU Directive on safety in road tunnels.

The main WS/TC target groups for those WS/TC are representatives of MoT, Road Administrations, Road design Companies, Traffic Police representatives etc.

Duration of Workshop/Training course is 2 days.
Two participants from each TRACECA countries was invited to WS/TC.

The safety engineering team which provided inputs to development of WS/TC training materials and presented at the actual WS/TC were KE2 and NKE 11.

1.2. Objectives and Expected Outcomes

Agreed WS/TC objective is to increase the knowledge among relevant stakeholders (specialists) in each of TRACECA countries about EU Directives and related Agreements concerning tunnel safety.

The most important outcome is the key staff trained will have better understanding about EU Directive/ Agreements on tunnels safety and its implementation.

1.3. Program

The program of the Workshops is presented bellow.

WORKSHOP/TRAINING COURSE
3-W001-2

"INTRODUCTION TO EU DIRECTIVE ON SAFETY IN ROAD TUNNELS"

30-31th October 2014
Kyrgyzstan, Bishkek

PROGRAMME AND AGENDA

Thursday, 30.10.2014.

10.00 Registration
10.10 Welcome note
10.15 Introduction to tunnel safety (overview of the accidents in the World's Road Tunnels, the importance of traffic safety in tunnels)
10.20 Video – Mont Blanc tunnel disaster
11.00 Most important International Documents in use
11.05 Videos - Safety Pillars 1-5
11.30 Presentation of UNECE Conventions (similarity, uniformity)

12.30 Lunch

14.00 Presentation of EU Directive on safety in road tunnels
15.00 Presentation of PIARC documents
(Tunnel Safety Manual – general information)

15.45 Coffee break

16.00 Conventions and Directives (possible steps in implementation)
16.05 RABT and RVS – guidelines general
16.15 Video - Behaviour in a road tunnel
16.30 Discussion
16.40 End of the Day I

Friday, 31.10.2014.

09.00 Summary of Day 1
09.05 Technical section I
- Most important rules (Tunnel systems - table)
- Tunnel Management Systems – general (Video TM Doha)
- Power energy supply system, lighting system, Ventilation - energy savings strategy, fire detection and alarm system, surveillance video system, emergency call stations (intercom and phone), visibility, air speed and pollution (CO, NO) monitoring, tunnel, traffic radio and loudspeakers, emergency stop stations, VMS, lights and signs, meteorology stations, water supply system, system of tunnel closure, Control Center (SCADA)
- Videos

12.30 Lunch

14.00 Technical session II:
- Show case of experience - Croatia (EU awarded tunnels)
- Serbia (details)

15.45 Coffee break

16.00 Technical session II: continuation
16.30 Future steps of improving tunnel safety + Discussion
17.00 Evaluation of WS and closing session
17.15 End of WS

All participants to WS/TC got printed presentations and program with DVD room which contains:

1. 3-W001 Workshop/Training Course Presentations
2. Important International documents regarding Workshop/Training Course
3. List of participants with contact details
4. Photographs from the WS/TC

Instantaneous translation was provided to enable effective dialogue. Throughout the WS/TC there was lively question and answer discussions between participants and lecturers.

There were considerable discussions about practical issues and case studies included in WS/TC.

1.4. Attendances

WS/TC 3-W002 was attended by 14 representatives from seven TRACECA countries (except representatives from Kazakhstan, Turkmenistan and Uzbekistan).

Armenia

No.	Name and Surname	Institution (Organization) and Position	Contact telephone	E-mail
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2	Mammadov Safa			

Georgia

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		Management, Ministry of Transport and Communications, Kyrgyz Republic		

Moldova

No.	Name and Surname	Institution (Organization) and Position	Contact telephone	E-mail
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Tajikistan

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1.5. Results Achieved

Results Achieved from the three WS/TC are shown in the following table.

Expected and achieved objectives and outcomes

	Expected objectives and outcomes	Objectives and outcomes Achieved	Comments
Objectives			

1	Increase the knowledge among relevant stakeholders (specialists) in each of TRACECA countries about EU Directives and related Agreements concerning tunnel safety.	Yes	14 participants from 7 countries were trained
Outcomes			
2	Selected staff were trained in tunnels safety	Yes	14 participants from 7 countries were trained
3	Selected staff trained will have better understanding about EU Directive/ Agreements on tunnels safety and its implementation	Yes	14 participants from 7 countries were trained

Evaluation

For evaluation of WS/TC anonymous evaluation questionnaire were used. Questionnaire template is presented at figure below.

Implementation of the regional road safety Action Plan for the Neighbourhood East and Central Asia – TRACECA Road Safety II
EuropeAid/133898/C/SER/Multi
Project funded by EU

TRACECA ROAD SAFETY PROJECT

Anonymous Evaluation Questionnaire

Please be kind enough to evaluate the Workshop and give feedback on "Training on safety elements of road design, construction and maintenance" held in Kiev on 18-19 September 2014 as part of the European Union financed Project "TRACECA ROAD SAFETY II"

DIFFERENT ASPECTS OF WORKSHOP	VERY POOR	POOR	ADEQUATE	GOOD	EXCELLENT	YOUR COMMENT
ORGANIZATION OF WORKSHOP						
IMPORTANCE OF WORKSHOP TOPIC						
QUALITY OF PRESENTATIONS						
QUALITY/EXPERTISE OF LECTURERS						
LENGTH OF WORKSHOP						
LOCATION WHERE THE WORKSHOP WAS HELD						

- What did you like most on Workshop?

- IS Workshop useful for your work? (your suggestions for next topics):

- Suggestions to the organizers/lecturers:

THANK YOU FOR TOUR TIME!

Kiev, 19.09.2014.

The results of participant's evaluation WS/TC are shown in table below.

Evaluation results of Tunnel Safety Workshop 3-W002

14 participants (except from Kazakhstan, Uzbekistan and Turkmenistan) and 14 evaluation lists received Bishkek, 30-31 October 2014.

		Participants answers														
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	AVG
Main Questions	Organization of WS	5	5	5	5	4	5	5	5	4	5	5	5	5	5	4.86
	Importance of WS topics	5	5	5	5	4	4	5	5	5	4	5	5	5	5	4.79
	Quality of presentations	5	5	5	5	4	5	5	5	4	5	4	4	4	4	4.57
	Quality/Expertise of lecturers	5	5	4	5	3	5	5	5	4	5	5	5	5	5	4.71
	Length of WS	4	4	4	4	4	3	5	5	5	3	4	3	4	3	3.93
	Location of WS	5	5	5	4	5	4	5	5	5	5	5	4	5	5	4.79
	AVG	4.83	4.8	4.7	4.7	4	4.3	5	5	4.5	4.5	4.7	4.3	4.7	4.5	**4.61**

Legend:
Mark 1: Very poor, 2: Poor, 3: Acceptable, 4: Good, 5: Excellent

Main participants comments:	What did you like most on WS?	Is WS useful for your work?	Suggestions to the organizers/lecturers
1	Level of knowledge	Yes, especially construction and rehabilitation of roads	Should last 3 days; more practical examples (the hosting country, problems and methods to improve)
2	Organisation	Very useful	Need a longer WS (more days)
2	Very important topic, freight and passenger transport, especially in tunnels in countries with different levels of road safety	Yes	More lecturers from different countries
4	Detailed information with examples	Yes, will use in development of legislation	Future topic: "Methods of RS improvement on pedestrian crossings". Indicate the lecturer on the programme
5	-	Yes	Length - 4 days
6	Organisation, the speaker	Yes, especially catgorization of tunnels	Length at least 3-4 days
7	Importance of the topic	Very useful. Will use in design of new tunnels	Would like to know more about road construction technologies
8	All the topics	Will use the methods and examples which were shoewn on the WS	
9	Topic,discussion, understanding each other, skills	Very useful and important. Development of new standards	More WS on different topics in the area of transport and road construction
10	Videos	Yes	In future please invite thoe participants who have already participated in such WS
11	New topic, video materials, lecturer	Yes, related to my work, will follow the recommendations	More discussions during the lecturer's speech
12	The topic of the WS is chosen correctly, high level of lectures	Yes	More time (WS length)
13	New technologies which allow quick management and make the work of the operating personnel easier	Yes, Interested in the topic "smart roads"	More practical examples
14	Importance of the problem and how it is presented	Yes	Need a longer WS (more days)

Project response to evaluation results:

1. WS should be longer (3 days) with increased number of examples
2. To organise more WS with tunnel safety topics

1.6. Photo documentation

WS/TC 3-W002

Plate 1.

Instantaneous translations enabled very active dialogue/discussions between participants and lecturers and exchange of experience between all involved in WS/TC.

Plate 2.

WS participants

5. SAFETY ENGINEERING VEHICLES

Although vehicle related issues were included under UN Conventions (Section 6), there was considered additional need to review Vehicle Technical Inspections to ensure road worthiness. This section contains the country report on that topic.

5.1

COUNTRY: MOLDOVA

TEAM: TIV/ TEAM

TOPIC: INSTITUTIONALIZATION OF TIV/MVSRB IN MOLDOVA

DATE: JUNE 11-12, SEPTEMBER 17-18 2015

REPORT PREPARED BY
TECHNICAL INSPECTION OF VEHICLES & MOTOR VEHICLE SAFETY REGULATIONS/STANDARDS TEAM

Team member/s:

1. Dušan Mladenović (STE 14&STE15)

June 15th, September 30th, 2015

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2. **Activities undertaken**
3. **Current situation (present practices)/deficiencies requiring attention and recommendations (suggested way forward)**
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A: Persons met or consulted

* * *

1. Introduction

In accordance with the project ToR for Component 3: "Safer Infrastructure and Vehicles" and Inception Report, tasks No.: 3.2 Safer Vehicles, precisely 3.2.1 Training and International Best Practice for Technical Inspection of Vehicle as well as 3.2.2 Training on International Recognized Motor Vehicle Safety Regulations, Vehicle Technical Inspection Team (DM) made a two-day visit to **Moldova 11-12 June 2015 and September 17-18.** The main task of VTI/VR (Vehicle Inspection Team) was to analyse the legal framework of periodic vehicle inspection and vehicle regulations in **Moldova.**

In addition, it was necessary to understand the level of control in real conditions (on the technical inspection stations), testing standards as well as the quality of equipment and the level of knowledge of the controllers.

2. Activities undertaken

On the first day of first mission (11th June) a round table and training was organized in the Ministry of Infrastructure where VTI/VR Team (DM) presented the institutional and legal framework of the functioning of PVTI system in certain countries of EU and UNECE. Fourteen representatives attended the meeting – representatives from government sector, representatives of the companies who are dealing with vehicle control, insurance, associations, training centres (Annex A). The following presentations were shown and consider:

Road Transport in General and Vehicle Regulations (1958 Agreement on Vehicle Construction and 1997 on Periodical Technical Inspection)

Legal Framework of International Periodical Technical Inspection system (EU Directive)

Periodical Technical Inspection System in Transient Countries (examples of Serbia)

International Best Practices in PTI (Statistics, main goals and best practices)

During and after the presentation there was a discussion based on a series questions and answers. The following topics were discussed at the meeting: periodicity of control of certain types of vehicles, volume of control monitoring through cameras, statistical analysis, licensing and surveillance of VTI stations, trends of vehicle testing and technologies, and particularly, the rigorous anti-fraud procedures.

On the same day, upon finishing the discussion, the expert had a visit to a VTI station, namely SA “Autoforta” where the training for inspectors was held in real conditions.

On the second day (12th June), the expert made a visit to the ANTA Agency (National Agency for AutoTransport) which has jurisdiction and responsibility on organizing PVTI system in Moldova. The meeting was attended Belenkii Vladimir (MoI), Gheorghitsa Oleg (ANTA), Goncear Aurel (ANTA), Savin Andrian (ANTA), Covalski Alexandre (CIPTI) and other representatives of the ANTA.

ANTA is in charge for Information system, which was particularly discussed. ANTA is responsible for

collection and storage of all the relevant data for each car, as well as the statistical treatment and reports. A check and data comparison was carried out – data from the IT ANTA database and data from the VTI station which had been visited the previous day.

After finishing the visit to ANTA, VTI/VR team made the visit to the training centre CIPTI, which is accredited for training by IRU Academy. Types of training and minimal levels of qualification of controllers on VIS were discussed during the talks with Dr. Sergei Taran, the Director of CIPTI and Covalski Alexandr, Manager.

At 17.00, the VTA team with the representatives of ANTA Agency and the representative of the Ministry of Internal Affairsmade a visit to another VTI station, which controls all types of vehicles. The goal of the visit was to discuss the way of functioning of the computer network on VIS, and the type of data transfer to the central database.

The second visit was on September 18-19th. Workshop delivered on the first day (September 18th) was led by Juan Ramos. The main topic is to promote type approval requirements that take into (?) account in-service enforcement.

During the meeting held in ANTA on the second day (September 19th), the possibilities of improvement of Information platform for management of Moldavian PVTI aiming to eliminate bribery and corruption were discussed.

After the visit to ANTA, the discussion was focused on work in real conditions, particularly the role of Ministry of Technology in the process of type approval.

3. Current situation (present practice), deficiencies requiring attention and recommendations (suggested way forward)

Regular Roadworthiness Test (RRT) also called PTI (Periodical Technical Inspection) is a regularly (regarding time) performed comprehensive vehicle inspection. PTI help to keep vehicle roadworthy. PTI is obliged in Moldova (Roadworthiness enforcement) for all type of vehicles.

In Moldova, the regulations, which define the method of carrying out the control, were largely taken from the Directive 96/96/EC and Directive 2009/40. Directive 96/96/EC has a certain effect on that as other enforcement methods are permitted bat at least a minimum PTI is mandatory.

The level of equipment on VIS is of the latest technology, and stations (VTS) are equipped with the brake-testing device, headlight beam testing device, emission tester for diesel engines-opacimeter, device for measurement of exhaust components, such as CO, CO2, HC, O2, NO, but also the side slip tester for rapid axle geometry test device. The obligatory devices are: play detector for inspection of wheel bearing movement, as well as suspension and shock absorber testing devices. Noise level meter device is obligatory. The control system is supported by administration software. All the devices and measuring equipment contain an electronic interface for computer networking system and are connected to a computer networking system. The calibration is obligatory, and it is carried out annually.

Regulatory agency is adequately funded. ANTA is government Agency established under the Ministry of transport and is responsible for:

- Organization and coordination of PTI
- Preregistration inspection of vehicles
- PTI controllers training and certification

The training program includes knowledge of norms and standards (legislations), training for work with the equipment and the Methodology of Work like:

- Issue type approval
- Approval of rebuilding
- Vehicle and their component type approval
- Manages the databases of Motor vehicle and VTI Stations.

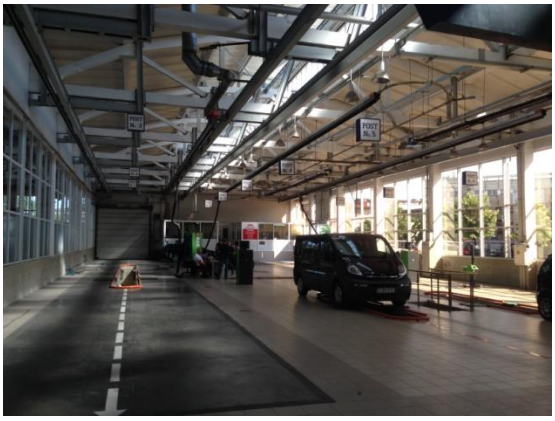
- Connections with other databases in the future

ANTA in the future should encourage public and transparent data and use of online mechanisms for efficient data exchange which could decrease fraud and allow vehicle holders to check their car history, accident history, PTI history and Odometer history online.

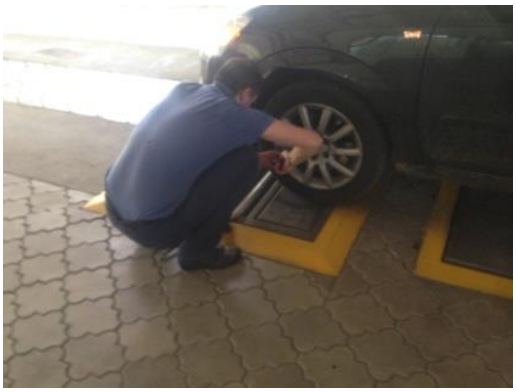
After visiting ANTA at Vehicle Inspection Station (VIS) the discussion was focused on the process of control of newly registered used vehicles (imported) conducted by the Ministry of Technology as well as by VIS in sense of technical accuracy.

The total number of registered vehicles in 2011 was 640 727. The total number of registered vehicles in 2014 was 700 000 approximately. The total number of inspections in 2014 was 494 907. Control by the representatives of the Ministry of Technology in the framework of VIS covers control of certificates issued by Customs, identification of vehicles according to VIN code, registering of vehicles after making of photos of interior and exterior of vehicles and reporting on registered vehicles.

After type check, roadworthiness control is carried by authorized VIS where the vehicle data are entered into database, which is the responsibility of ANTA. After this procedure, administration of the Ministry of Technology issues license plates and traffic license for vehicles. This total process is considered as an abbreviated procedure of vehicle type control.



Picture M1: Training in VIS Autofortha (BOSH equipment)



Picture M2: Training in VIS Cargo test SLR

A) Implementation (institutionalization) of different impact indicators for VTI:

	Selected Impact indicator (current situation)	Deficiencies requiring attention	Recommendations (suggested way forward)
1	Does legal basis for VTI exist? - Current legal system is obligatory and under MOIT. -Vienna Agreement 1997 is ratified -Control procedures is at the level of Directive 2009/40 EC	No RSI (road side inspection) -main reason is problem of police corruption - no legal framework for RSI (like 2000/30/EC)	-To prepare for the introduction of RSI -Undertake further work to develop proposals of improving compliance and the effectiveness and efficiency -Prepare for Directive 2014/45/46/47 - Involve 2000/30/EC - Improving the level of compliance
2	Is an adequate manual for VTI Methodology in use? -They have developed methodology to control VTI -Controllers at the VTI station have high level of education and licensing	No manual for irregular inspections	-Inspection at change of ownership -inspection after accidents -inspection after vehicle Modifications
3	Equipment on PVTI available? -Most modern equipment is in use	-inspection of electronic systems	-prepare VTIS for the control of electronic equipment for the vehicles with modern electronic devices
4	Information system? Information system is contemporary Statistics about inspection and vehicles is available for ANTA and MOI	No on-line web camera surveillance (only pictures)	-upgrade the information system, both in the part that concerns recognition of vehicles in real time via cameras and suitable backing software connections with other databases (police database, stolen vehicles, Insurance register)
4	Social aspect of VTI -How to introduce motorized vehicles into society	How to harmonize the social aspect of the technical level of control. Relation between Vehicle defects and Road traffic accident.	-improve linkages between forms of roadworthiness enforcement -improve proof of compliance to demonstrate that vehicles has been checked for roadworthiness
5	Agreement 58 and EU directive Int. convention ratified (Agreement 58).	No database for Approval of rebuilding No database for vehicle and their component type-approval	-Update the regulations and Directives governing roadworthiness enforcement as an on-going process -Make a new database for vehicle type approval, approval of rebuilding
6	Regulatory agency adequately funded Yes. ANTA has the capacity for raising the level of safety management.	Structure of organizations	Make Electronic roadworthiness test management system in ANTA. Main function is to issue the PTI/RSI test reports and to give to the inspectors as well as to produce reports for other response institutions
7	Legal basis exists to prevent import of unsuitable/unsafe vehicles-Allowed to import used cars with a minimum standard of EURO IV	Adequate controls to prevent import of fake spare parts (no control)	Make new, type approval database and connect with Motor vehicle register

4. Conclusions

After the workshop and training in MoIT, the meeting in ANTA Agency, visit and analysis of the work of the two VTI stations, the conclusion is that Moldova has established the system of periodical technical inspection of vehicles on a legal regulation which ensues from European Directive 96/96/EC

and 2009/40/EU. Legislation level and surveillance provide a high level of vehicle control. In the definition of equipment necessary for vehicle control, the highest standards are met (both VIS stations which were visited are equipped with devices produced in Germany by BOSH). The defined levels of expertise of the controllers and the level of controller training are above the minimal standards of certain EU countries.

Moldova is a signatory of both agreements, which deal with vehicle safety, Agreement Concerning the Adaption of Uniform Conditions for Periodical Technical Inspection of Wheeled Vehicles 97 and Agreement Concerning the Adaption of Uniform Technical Prescriptions for Wheel vehicles of 58.

The periodical vehicle safety inspection is mandatory for every vehicle regardless of where the vehicles are made, sold or used. Periodical technical vehicle inspection stations are private companies, which have to fulfil the conditions regarding the facilities, equipment, control staff and information system. Control of fulfilling of working conditions as well as the supervision of following the legislation in work of the stations (VIS) is performed by ANTA (National Agency for Road Transport), which is formed within the Ministry of Infrastructure and Transport.

The level of information system, which is established in Moldova, is a good way of protection against the manipulation and illegal activities during the vehicle inspections. The unique database, automatic vehicle identification, connections between all the devices and the equipment with the central computer on VTI stations and data exchange with the central (government) computer have prevented many illegal activities in Moldova. It provided that the certificate concerning the proper functioning of the vehicles can only be issued if no significant impairments have been noticed on vehicle during the testing. PTI Stations (PTI Testing Centre) run reports directly in the online system of ANTA. ANTA has the capacity for raising the level of safety management of the vehicle and in terms of Periodical Vehicle Technical Inspection and in terms of Vehicle Regulations.

It is necessary to upgrade the information system, both in the part that concerns recognition of vehicles in real time via cameras and suitable backing software, and in the part that concerns analysis and reports upon which the decisions regarding the vehicle safety management could be made. This would particularly be significant in the upgrading roadside inspections, which are not carried out in Moldova, due to the lack of possibility of control of the potential illegal activities.

It is important to include roadside technical inspections. Compulsory technical inspection undertaken at the roadside for commercial vehicles (in accordance with Directive 2000/30/EC). Must be undertaken by organisations that have a legal power to stop vehicles. It is an effective deterrent and means of detection of illegally operated vehicles.

ANNEX:
A: Persons meet or consulted

Road Safety Vehicle Technical Inspection
Working visit Vehicle Technical Inspection/Vehicle regulations team, 11-12 June 2015, Chisinau
as part of the
European Union financed Project "TRACECA ROAD SAFETY II"

LIST OF PARTICIPANTS

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as part of TRACECA Road Safety II EU funded project

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6. UN CONVENTIONS AND EU AGREEMENTS

A regional workshop was held on the most important UN Conventions and EU Agreements related to road safety. Each country identified the aspects of greatest need in terms of technical assistance from the follow up visits to those countries to provide further support/information and training.

6.1

EU/UNECE Conventions and Agreements Workshop

Kiev, Ukraine

10-13 March 2015

1.1 Workshop

The EU/UNECE Conventions and Agreements Workshop was held in Kiev, Ukraine during the period 10-13 March 2015. It was implemented in the Ministry of Infrastructure in Kiev. Mr. Adamantiadis was unable to attendthe workshop to do his presentations due to illness so his presentations were done by other members of the project team.

Workshop attendance was 22 participants from 8 TRACECA countries, and there was a very active discussion throughout the workshop.

Information was provided to the media about the EU funded TRACECA Regional Road Safety Project and the scale and urgency of the problem in Ukraine and media coverage was organized.

1.2 Participants of workshop

The list of participants attending all or parts of the workshop is presented below.

No.	Name and Surname	Institution (Organization) and Position	Contact telephone	**E-mail**
		Armenia		
1.	Sahakyan Sargis	Lead specialist “Roads Directorate of Republic of Armenia”		
		Azerbaijan		
2.	Mirzoyev Sabir Mashi oglu	Head of Sector "Transport Safety" of the Ministry of Transport of Azerbaijan		
3.	Babaev Ruslan Fizuli oglu	Expert of Department "Organization and traffic safety" of "AzerDorServis" of the Ministry of Transport of Azerbaijan		
		Georgia		
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Tajikistan				

12.	Makhmudov Firuz	Deputy Head of the International Cooperation Ministry of Transport	919 22 55 57	Mahmudov.firuz@mail.ru
13.	Quodirov Sayfullo	Chief specialist of road transport and transport security department	917 68 65 68	Sayfullo-80@mail.ru
Ukraine				
1.	Gorbakha Mykola Mykolayovych	Head of Safety Department, Ministry of infrastructure of Ukraine		
2.	Koskovetsky Volodymyr Mykolayovych	Deputy Director of Safety Department, Head of traffic safety and transport of dangerous goods Department, Ministry of infrastructure of Ukraine		
3.	Mikov Dmytro Igorovych	Chief Specialist of Road Safety and transportation of dangerous goods Division, Safety Department, Ministry of infrastructure of Ukraine		
4.	Proskura Olena Oleksandrivna	Deputy Director - Head of European Integration and International Organizations Division Department of International Cooperation and Investment of the Ministry of Infrastructure of Ukraine		
5.	Babiy Oksana Stepanivna	Head of Advanced Development of priority transport networks Division, Department of Strategic Infrastructure Development and Science and Technology Policy of the Ministry of Infrastructure of Ukraine		
6.	Deminska Katerina Gennadiivna	Chief Specialist of the prospective development of priority transport networks Division, Department of Strategic Infrastructure Development and Science and Technology Policy of the Ministry of Infrastructure of Ukraine		

7.	Gritsenko Victor Mykolayovych	Chief Specialist of Department of development strategy of road and public transport Department of Road Transport and Highways Strategic Development Ministry of Infrastructure of Ukraine		
8.	Majboroda Yuriy Mykolayovych	Head of Department of disaster and accidet prevention work, State Inspectorate of Ukraine on land transport safety		
9.	Gerega Ivan Vasilyovych	Deputy head of Department of disaster and accidet prevention work, State Inspectorate of Ukraine on land transport safety		
10.	Holotsvan Oleksandr Vasylyovych	Head of department of operational road maintenance and safety of the State Agency for Roads of Ukraine		
11.	Dudnik Natalia Mykolayivna	Chief Specialist of Department of operational safety management of road maintenance and safety Department of the State Agency for Roads of Ukraine		
12.	Horpyniuk Andriy Vasylyovych	Deputy Director of Research of the State Enterprise "State Road Transport Research and Design Institute"		
13.	Habutdinov Arseniy Romanovych	Head of Department of Transportation Safety of state enterprise "State Road Transport Research and Design Institute"		
14.	Simonenko Roman Viktorovych	Head of Sector - Certifying services secretariat, inspection and support of implementation of AETR laboratory studies of fuel consumption and ecology, state enterprise "State Road Transport Research and Design Institute"		
15.	Nazarenko Mykola Borysovych	Senior Research Fellow of sector - Certifying _ services secretariat, inspection and support of implementation of AETR laboratory studies of		

		use of fuels and ecology, state enterprise "State Road Transport Research and Design Institute"		
16.	Kolinchenko Yuriy Petrovych	Engineer of 2 category of sector - Attestation services secretariat, inspection and support of implementation of AETR laboratory studies of use of fuels and ecology, state enterprise "State Road Transport Research and Design Institute"		
17.	Shum Inna Vitaliyivna	Head of the department of public transportation enterprise "State Road Transport Research and Design Institute"		
18.	Eremenko Mykhailo Oleksandrovych	research fellow of freight traffic department of state enterprise "State Road Transport Research and Design Institute"		
19.	Terent'ev Vitaliy Oleksandrovych	Category 2 engineer Department of engineering development and scientific and technical expertise state enterprise "State Road Transport Research and Design Institute"		
20.	Gutarevych Sergiy Yuriyovych	Deputy Director of Research state enterprise "State Road Transport Research and Design Institute"		
21.	Zharov Kostyantyn Sergiyovych	Head of the department of registration, information provision and management of the state enterprise "State Road Transport Research and Design Institute"		
22.	Matviichuk Svitlana Ruslanivna	Assistant and consultant to National Deputy of Ukraine		

1.3 Agenda

Tuesday, March 10

Time	Theme	Who delivers
09:30	Welcome and registration	
Opening session		
10:00	Welcome Opening Speech Introduction of the TRACECA Road Safety Project Phase II Introduction of the project component 2 "Regulatory and institutional reforms", the Workshop Agenda, methodology and organizational aspects Presentation of the UNECE film on UN the Decade of Action 2011-2020 (8 minutes)	***Ministry of Infrastructure of Ukraine*** **EU Delegation, Ukraine** **Mr. Alan Ross,** Road Safety Adviser and Team Leader of the TRACECA Regional road safety project **Mr. Michalis Adamantiadis**, UNECE Road Safety Agreements and EU Regulations Expert and Activity Coordinator, TRACECA Regional road safety project, former Chief of Transport Facilitation and Economics Section, UNECE Transport Division (Given by Alan Ross since Mr. Adamantiadis was ill)
11.30	Coffee Break	
Item I: The Vienna Conventions – objectives - key provisions – benefits and related EU Legislation		
12.00	**Convention on Road Traffic, 1968** **Convention on Road Signs and Signals, 1968** **Training and licensing in the EU with emphasis to these relating to professional drivers** **Questions/ Answers**	**Mr. Robert Nowak,** Head of Unit, Road Transport and Road Traffic Safety & Secretary of the Working Party on Road Transport (SC.1) and the Road Safety Forum (WP.1), Transport Facilitation and Economics Section, Transport Division, UNECE **Mr. Soren Christiansen**, Road Safety and Dangerous Goods transport Expert, TRACECA Regional road safety project All attendants
13:30	Lunch Break	
15:00	**Status of accession and implementation, strengths and weaknesses across the region, sharing best practices amongst the project beneficiary countries** **Debate**	**Experts of project beneficiary countries** (Armenia, Azerbaijan, Georgia, Moldova, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Ukraine and Uzbekistan) All attendants
16:30	Coffee Break	
17:00	**Discussing the needs and the follow up work**	All attendants

18.00	**End of the first day**

Wednesday, March 11

Time	Theme	Who delivers
Session II: European-Agreement concerning the Work of Crews of Vehicles Engaged in International Road Transport (AETR), 1970		
10:00	**The AETR Agreement objectives - key provisions – benefits and related EU Legislation** **Experiences of the Eastern European countries and in particular of Ukraine in implementing the AETR and the digital tachograph** **Questions/ Answers**	**Mr. Robert Nowak**, UNECE **Mr. Roman Symonenko,** Chairman of the UNECE Working Party on Road Transport (SC.1), Ministry of Infrastructure, Ukraine (TBC) All attendants
11:30	Coffee break	
12:00	**Road Map on the accession to and implementation of the AETR Agreement** **Status of accession and implementation, strengths and weaknesses across the region, sharing best practices amongst the project beneficiary countries** **Discussing the needs and the follow up work**	**Mr. Michalis Adamantiadis,** TRACECA project (Given by Soren Christiansen) **Experts of project beneficiary countries** (Armenia, Azerbaijan, Georgia, Moldova, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Ukraine and Uzbekistan) **All attendants**
13:30	Lunch break	
Session III: European Agreement concerning the International Carriage of Dangerous Goods by Road (ADR), of 1957		
15:00	**The ADR Agreement objectives - key provisions – benefits** **Definitions – Roles and Responsibilities – Classes - Vehicle requirements – Packaging, Labelling and transportation documents - Training** **Questions/ Answers**	**Mr. Soren Christiansen,** TRACECA project
16:30	Coffee break	
17:00	**Status of accession and implementation, strengths and weaknesses across the region, sharing best practices amongst the project beneficiary countries** **Discussing the needs and the follow up work**	**Experts of project beneficiary countries** (Armenia, Azerbaijan, Georgia, Moldova, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Ukraine and Uzbekistan) **All attendants**
18:00	**End of the second day**	

Thursday, March 12

Time	Theme	Who delivers
Session IV: Vehicle Regulations – objectives - key provisions – benefits		
10:00	**Agreement concerning the Adoption of Uniform Technical Prescriptions for Wheeled Vehicles, Equipment and Parts which can be fitted and/or be used on Wheeled Vehicles and the Conditions for Reciprocal Recognition of Approvals Granted on the Basis of These Prescriptions, 1958** **Agreement concerning the Adoption of Uniform Conditions for Periodical Technical Inspections of Wheeled Vehicles and the Reciprocal Recognition of such Inspections, 1997** **Questions/ Answers**	**Mr. Juan Ramos**, Vehicle Regulations Expert, TRACECA Regional road safety project, former Chief, Vehicle Regulations and Transport Innovations Section, Secretary World Forum Harmonization of Vehicle Regulations (WP.29), Transport Division, UNECE and former Detached Expert to the European Commission
11:30	Coffee break	
12:00	**Status of accession and implementation, strengths and weaknesses across the region, sharing best practices amongst the project beneficiary countries** **Discussing the needs and the follow up work**	**Experts of project beneficiary countries** (Armenia, Azerbaijan, Georgia, Moldova, Kazakhstan, Kyrgyzstan, Tajikistan, Turkmenistan, Ukraine and Uzbekistan) **All attendants**
13:30	Lunch break	
Session V: Site visit in Kiev of place(s) providing good example of the implementation of the UNECE Road Safety related Agreements		
15:00	**Transfer of participants by bus (to be confirmed)** *Visit(s) could be to the State Road Transport Research Institute (testing center for vehicles) or a vehicles' technical inspection center - ADR tank certification or tank cleaning station - Real life Road Side control of vehicles – Professional drivers training center*	
18:00	**Return of participants - End of the third day of the workshop**	

Friday, 13 March

Time	Theme	Who delivers
Session VI: The European Agreement on Main International Traffic Arteries (AGR), of 1975		
10:00	**AGR Agreements – objectives - key provisions – benefits** **Questions/ Answers** **Status of accession and implementation, strengths and weaknesses across the region, sharing best practices amongst the project beneficiary countries** **Discussing the needs and the follow up work**	**Mr. Michalis Adamantiadis,** TRACECA project (Given by Mr. Nowak) **All attendants** **Experts of project beneficiary countries** (Armenia, Azerbaijan, Georgia, Moldova, Kazakhstan, Kyrgyzstan, Tajikistan,

		Turkmenistan, Ukraine and Uzbekistan) **All attendants**
11:30	Coffee break	
Session VII: The way forward		
12:00	**Discussion on the overall situation with regard to the status of accession and implementation, strengths and weaknesses across the region, and possibilities of sharing best practices amongst the project beneficiary countries**	**Mr. Soren Christiansen** **Mr. Juan Ramos** **Mr. Michalis Adamantiadis** **All attendants**
13:30	Lunch break	
15:00	**The way forward: Identification of the follow up actions at regional and national level for implementation by the project**	**Mr. Soren Christiansen** **Mr. Juan Ramos** **Mr. Michalis Adamantiadis** **All attendants**
16:30	Coffee break	
Closing session		
17:00	**Conclusion and closure**	**Mr. Michalis Adamantiadis** **Mr. Alan Ross** ***Ministry of Infrastructure of Ukraine***
17:30	**End of the fourth day and of the workshop**	

1.4 Evaluation

An anonymous workshop evaluation form (with 1 as very poor and 5 as excellent) was completed by the 15 participants on the last day. This covered 5 aspects (see form below) and delivered an overall average score of 4.64 out of a maximum 5 indicating the very high satisfaction level of participants.

Evaluation results of EU/UNECE Conventions and Agreements workshop

Completed on last day 15 participants

Kiev, 10-13 March 2015

Questions asked	Participants answers															AVG
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	
Organization of WS ?	5	4	5	4	4	4	5	5	5	5	3	4	5	4	5	4,5
Importance of WS topics ?	5	4	5	4	5	5	5	5	5	5	4	5	5	4	4	4,7
Quality of presentations ?	5	5	5	5	5	5	5	5	5	5	5	5	5	5	4	4,9
Quality/Expertise of lecturers ?	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Length of Workshop ?	4	3	3	3	4	4	5	5	5	5	4	5	5	4	5	4,3
Location of Workshop ?	5	4	5	4	4	4	5	4	5	5	3	5	5	4	5	4,5
Average	4,83	4,2	5	4	5	4,5	5	4,83	5	5	4	4,8	5	4,3	4,7	**4,64**

1= very poor, 2= poor , 3 = adequate , 4 good , 5 = Excellent

Main participants comments:	What did you like most on WS?	Is WS useful for your work?	Suggestions to the organizers/lecturers
1	International experience	Yes	
2	Lectures, experience exchange, conventions '58	Yes	Statistics (RS, signs, reducing accidents) in country, do research
3	Knowledge of experts, humour, organisation	Yes	9am till 6pm is too long
4	Juan Ramos lecture on agreement '58	Yes	
5	Lectures	Yes	
6	All topics were important; good presentations	Yes	Didn't like the place of the event; no WiFi
7		Yes	
8	Experience exchange and example of implementation of conventions	Yes	
9	Level of knowledge; organisation	Yes	
10	High level of knowledge of lecturers and participants	Yes; experience exchange	Whole list of participants with contacts before the event or after we meet
11	Discussion; examples of country experience	Yes	Higher day allowance
12		Yes	
13	Technical inspections (field trip)		
14	Technical inspections (field trip)	Yes	
15	Experience exchange; discussion and feedback	Yes	More practical tasks; field trips to government/agencies; involve experts from TRACECA countries

Workshop organizer response to evaluation:

3. Overall the workshop was obviously considered by participants to be of high quality, but project team will make further improvements to the presentations and identify more example countries to show successes
4. Change order of presentations to have impact/ effect
5. Present more analyses of greater local problem an what can be done

1.5 Photo documentation

Plate 1. Instantaneous translations enabled very active dialogue/discussions between participants and lecturers and exchange of experience between all involved in WS/TC.

AETR Agreement

No country report prepared on this topic

AETR Agreement

Guideline for the agreement of workshops

By Gilles Baranger

Road Transport Expert

AETR & Digital Tachograph

April 2015

Preamble

The digital tachograph is a system setting down on three pillars:

- on board measuring instrument, the tachograph with a Vehicle Unit (VU), Motion Sensor (MS) and cables
- Enforcement by technical and legal bodies
- Regulations (international as AETR and national)

Workshops play a key role in the technical enforcement: they check, install and repair digital tachograph systems on vehicles. In addition they are responsible for decommissioning invalid VU and MS.

Agreed workshops may be requested by legal enforcers checking a tachograph installation, in case of doubt at a roadside check.

Commercial vehicles shall comply with the regulation, i.e. driving with a working tachograph system. They are considered by owners as production tools. Consequence is that commercial vehicles cannot be stopped for long period , that is why it is important to have a workshop network spread out on the territory in scope of AETR Agreement of each Contracting Party, in order to give a fast access to vehicles in case of tachograph failure.

A second consequence is that national administrations do not usually have possibility of performing all tasks of a workshop within a short time (some hours). The role of an administration is usually to check, not to repair.

In order to properly achieve their task, workshops are agreed by a national competent body. Then workshops technicians receive a “workshop card” allowing them setting up digital tachographs on vehicles.

Each workshop card is personal and has a PIN code which shall be exclusively known by the owner.

All activities performed by a technician on a digital tachograph are recorded on the very tachograph, so it is possible knowing afterwards who is responsible of the installation and setting up.

Then it becomes necessary that a national competent administration empowers private companies applying for an agreement of their workshop.

Even though AETR Agreement does not explicitly require al the followings, due to the importance of the agreed workshops for digital tachograph, this guideline provides national administrations with a minimum set of requirements allowing a possible empowerment.

1. The company

The company which applies to a digital tachograph workshop agreement shall justify the followings:

- Creation date and registration number
- Shareholders (it is highly recommended that the company is fully independent of haulage companies and vehicles retailers, avoiding commercial stress on the activities of the workshop, which could weaken probity of technicians). The involvement of shareholders complying with the requirements is needed.
- Activities: the company may have several activities (e.g. breakiing specialist, tires,…) but the agreed workshop shall be clearly (physically and organization) separated from others.
- People: responsibilities shall be written down. Responsible person of the agreed workshop activity, technicians…
- Quality system: It is not mandatory having a formal and approved quality system (e.g. ISO 9000), but each workshop shall have, as a minimum, a booklet of executive procedures (technical and administrative) and the official texts (regulations, laws,..) which rule the activity:

i. Installation procedure
ii. Repair procedure (conformity of an installation)
iii. Check procedure (initial and periodical)
iv. Procedures for engaged people: initial skill, specific training, periodical trainings…
v. Procedure for equipments (tools, housing, parking places for commercial vehicles…)
vi. Regulations and follow up of the regulation (procedure)
vii. Commitment of the management complying with requirements

2. Engaged persons

- A job description for each responsibility shall be written:
  i. Responsibility of the digital tachograph activity
  ii. Responsibility of the security
  iii. Technicians
- For each person an updated file shall describe:
  i. Initial skill and training
  ii. Specific trainings (Digital Tachograph)
  iii. Experience (certificates…)

3. Building and equipments

- Building and environment
  i. Accessibility to commercial vehicles (trucks and buses)
  ii. Parking places for commercial vehicles
  iii. Space for a 20m measuring track with clearance (40m about)
  iv. Dedicated room for specific instruments
  v. Dedicated space for spare parts
  vi. Dedicated space for decommissioned items
- standard tools:
  i. mechanics for mounting dismounting tachograph components
  ii. Electrical for vehicles
  iii. Dedicated for tachograph (cables, sealing tool…)
- Measuring tools (see Appendix below)
  i. Tachograph bench,
  ii. Cells and light barrier for the 20m track,
  iii. Manometer,
  iv. Triple decameter, …

4. Workshop management

- logbook of the workshop (register where all actions on tachographs are described)
- Invoicing (invoicing shall reflect the workshop register)[1] with:
  i. manpower,
  ii. spare parts,
  iii. flat rate for use of benches
- Personal follow-up (periodical trainings)
- Building and equipment follow-up
  i. maintenance,
  ii. Periodical check of measuring tools,…
- Regulations follow-up: procedure for checking the evolution of the regulations

5. Audits

- Initial audit shall check that all requirements are fulfilled. Any lack or invalid statement shall be noted and addressed to the applicant workshop. The applicant workshop shall answer on each point with a commitment for solutions with dates. A second audit may be accordingly necessary before granting the agreement.

- Follow-up audits shall check that all initial requirements are still in use. In addition it shall check the reliability of the records (workshop register) and the quality of operations (e.g. attending to a complete periodical check of a vehicle). Such audit should be driven once a year about (validity of workshop cards is limited to one year by the AETR).

- Random audits will mainly consist in checking that the workshop makes a good job. Typically the best way is to check the last vehicle which was checked by the workshop and comparing records and results of the two consecutive checks.

Appendix: Measuring tools for Digital Tachograph

Calibration of vehicles equipped with a digital tachograph requires a dedicated set of measuring tools.

The accuracy of data measured by a digital tachograph on a vehicle depends on the measurement of vehicle parameters:

- "l" = tire circumference of the motorized axle (unit = mm)

- "w" = pulses number per kilometer measured at the output of the gearbox, allowing the measurement of the real driven distance and the speed. (unit = imp/km).

The tachograph coefficient k is then adapted to the measured w. For digital tachographs, usually the formula k = w is applied.

The following measuring tools allow the above mentioned measurements:
- 20 m track for a manual measurement of the vehicle coefficient "w"
- A rolling road system (bench) for automatic measurement of the vehicle coefficient « w » and the tires circumference « l » (option)[2]
- Pulse generator checking the counting of pulses by the digital tachograph
- triple decameter measuring and setting up the light barriers on the beginning and end of the 20 m track, and manually measuring the tires circumference “l”.
- Manometer checking the tires pressure in accordance with the specified value by the tire manufacturer.

Each measuring instrument in a tachograph workshop shall have: its own records written on a life booklet (at each maintenance or repair), an acquisition procedure (which measuring tool for which measurement, range of measurements, required accuracy…), and a working procedure.

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[1] The invoiced cost of tachograph operations (installation, checks,…) may be a good indicator for the seriousness of a workshop. Very low cost may indicate that people are working very fast and likely do not roll out the complete procedure of operations.

[2] The rolling road system is not mandatory according to AETR, but in some Contracting Parties depending on national regulation. Nevertheless it is highly recommended, because automatic measurements are much more reliable than manual. In addition, when automatic measurements are performed, one can be sure they have been properly done

6.3

COUNTRY: MOLDOVA

TEAM: Vehicle Regulations Team

TOPIC: ACCESSION TO AND IMPLEMENTATION OF THE UN 1958 AGREEMENT AND ITS UN REGULATIONS ANNEXED TO IT IN MOLDOVA

DATE: SEPTEMBER, 17 & 18 SEPTEMBER 2015

REPORT PREPARED BY

Juan RAMOS-GARCÍA,
TRACECA Senior Non-Key Expert
Expert on Vehicle Regulations

October 2, 2015

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1. **Introduction**
2. **Activities undertaken**
3. **Current situation (present practices)/deficiencies requiring attention and recommendations (suggested way forward)**
4. **Conclusions**

Annexes:

A: Persons met or consulted
B: Suggested list of UN Regulations to be made mandatory in a first step

* * *

1.Introduction

In accordance with project ToR for Component 2: Regulatory and institutional reforms, task 2.1.4 Implementation support for EU/ECE Agreements and Conventions including national workshops, Juan Ramos, Senior Non-Key Expert, made a two day visit to Chisinau, Moldova, on 17 and 18 September 2015.

The main task was to provide technical assistance to local experts to institutionalize the accession to the UN 1958 Agreement and the application of the UN Regulations annexed to the UN 1958 Agreement as the basic legislation and condition for the registration of motor vehicles in Moldova. The ultimate goal of the accession to the Agreement and the application of the UN Regulations annexed to it is to reduce the number of accidents, their fatalities and injuries having as primarily cause the safety condition of vehicle. A secondary task was to define and implement the legal and technical requirements for the correct application of the provisions of the UN 1958 Agreement and its UN Regulations.

2.Activities undertaken

The Senior NKE made a 2 day visit to Chisinau. The TRACECA national coordinator invited to participate in the two session meetings relevant representatives of the administration and some private associations. The meetings were held in the premises of the Road State Administration. A total of 14 people from the Ministry of Transport and Road Infrastructure, Ministry of Interior (Police and Registration Services), Registration and Identification of Transport Department, "REGISTRU" CRIS, National Agency Auto Transport (ANTA), Transport and Road Traffic Surveillance, Road State Administration, the TRACECA National Secretary the International Association of Road Hauliers of Moldova (AITA), Road State Administration, Union of Road Transporters, Union of Insurers of Moldova and the Centre for Implementing Training Programs (CPTI), participated at the meetings. An interpreter, the TRACECA NKE on Periodical Technical Inspection (PTI), the TRACECA local coordinator and the NKE on Vehicle Regulations, also participated (see Annex A, List of participants).

On the two day meetings, (17 & 18.09.2015) the following topics were considered:

2.1 Presentation of the 1958 Agreement and of the activities of the UN World Forum for Harmonization of Vehicle Regulations (WP.29). The World Forum WP.29 is the UN body which administers the three UN Agreements on vehicles, among them the UN 1958 Agreement concerning the adoption of uniform technical prescriptions for wheeled vehicles, equipment and parts which can be fitted and/or be used on wheeled vehicles and the conditions for reciprocal recognition of approvals granted on the basis of these prescriptions (the UN 1958 Agreement),

2.2 Advantages of becoming a Contracting Party to the 1958 Agreement,

2.3 Consequences of becoming a Contracting Party to the Agreement,

2.4 List of UN Regulations currently in force,

2.5 Nomination of the national Type Approval Authority (TAA) and consideration of the need to nominate competent Technical Service(s) (TS) for conduct the mandatory tests included in the UN Regulations,

2.6 Instrument of Accession: Conditions, Model and Procedure,

2.7 Analysis of the national legislation regarding the existence or implementation of a Type Approval of Vehicles System in place,

2.8 Amendments to national legislation to make mandatory the last version of the UN Regulations annexed to the 1958 Agreement as a condition for the registration of vehicles,

2.9 For each category of vehicles covered by the national type approval system, identify which UN Regulations shall be made mandatory,

2.10 Conservation of existing national provisions as alternative for the UN Regulations for a limited period of time,

2.11 Consider a system to easily update the references to the latest versions of the UN Regulations in the national legislation,

2.12 Procedure of type approval in Moldova and in the framework of the 1958 Agreement,

2.13 Type Approval Certificate and report by the Technical Service,

2.14 Verification of the documentation and the vehicle. Items to be checked,

2.15 Analysis of the World Forum WP.29 website, including the Status of the 1958 Agreement: Status of each UN Regulation, their application by the different Contracting Parties, the Type Approval Authorities (TAA) and the Technical Services

Moldova is not yet a Contracting Party to the UN 1958 Agreement, although the internal process for defining the Governmental position on the accession has been initiated.

Following the presentation of the activities of the World Forum WP.29, including the advantages and consequences of becoming a Contracting Party to the UN 1958 Agreement, a debate was open on the Agreement and on the application of the UN Regulations by a Contracting Party to the Agreement.

Neither the detailed presentation of the UN 1958 Agreement nor the conditions of a valid Instrument of Accession to the UN Agreements were examined because the authorities indicated their knowledge of them. Nevertheless, it was noted that it would be necessary to indicate in the instrument of accession to the Agreement to which UN Regulations Moldova intends not to be bound. If no indication is made, Moldova will apply all the 136 UN Regulations in force at the moment of its accession.

The basic principles of the Agreement, i.e. the Vehicle Type Approval (VTA) System and the Mutual Recognition of the VTA granted were considered in detail.

It was noted that the application of UN Regulations by a Contracting Party (CP) to the Agreement obliges to any CP to accept the vehicles type approved by other CP. Similarly the vehicles type approved by Moldova shall be accepted by the other CPs to the Agreement. Nevertheless, the application by a country of some UN Regulations does not made them mandatory for the registration of vehicles in their territory unless a National legislation make them mandatory. In addition, the UN Regulations can be optional to existing national legislation, which can be kept but having in mind that vehicles type approved in accordance to the UN Regulations that Moldova would apply, shall be considered as complying with the national legislation in the matter covered by the UN Regulation.

A detailed explanation of the concept and the process of the Vehicle Type Approval (VTA) system were made. It was analysed, on the basis of a UN Regulation, the Communication of the VTA granted and the approval marking. Both the VTA Certificate and the marking provide the necessary information concerning technical characteristics of the vehicle approved and can be used for the verification if the vehicle to be registered belongs or not to a type approved one.

Following the presentation of the national legislation on vehicles in Moldova, it appears that the Ministry of Transport and Road Infrastructure is the responsible Minister for the regulatory process in Moldova regarding the technical conditions of vehicles for their registration in the country. The Ministry of Information Technologies and Communications is the organ of the administration responsible for the registration of vehicles. For the vehicles' registration purposes there is a national database to which administrative departments of the country have access.

It appears that Moldova has a kind of verification of documentation (using the above-mentioned database) prior to the registration of both new and second hand vehicles imported in Moldova. This national legislation could be the basis to update it for becoming a complete National Vehicle Type Approval System for registration of vehicles. It was noted that the development of a national vehicle type approval systems should be based in the system of the VTA of the 1958 Agreement. The UN 1958 Agreement VTA system can be used for free and has demonstrated its effectiveness in all the current Contracting Parties to the Agreement. It was also noted that the European Union has derogated a considerable number of EU Directives and replaced them for the direct application of the equivalent UN Regulations in its own territory (EU Regulation No. 407/2011).

The possible development of this VTA mechanism and the way for the transposition of mandatory UN Regulations in the nations VTA system was also considered. The participants noted that the UN 1958 Agreement was in a revision process. In this Revision 3 of the Agreement it is expected to develop a database with complete information of the VTA and their parts granted in the system of the UN 1958 Agreement.

In the Moldavian registration system, the second hand imported vehicles are submitted to a Technical Inspection, similar to that of Periodical Technical Inspection (PTI) for registered vehicles. This system does not allow identifying if the vehicle belongs to a type approved one, but it could be possible, making additional checking with the documentation, to verify if the inspected vehicle belongs to a type approved one. To do that, it will be necessary to find adequate staff (i.e. Mechanical Engineers) and to form them with adequate training in the specific tasks of the VTA system. It was also noted that, when the Revision 3 of the Agreement would enter into force, the above-mentioned database could provide a lot of information to check if a vehicle belongs to a type approved one. Some participants expressed their support to this possible procedure.

3.Current situation (present practice), deficiencies requiring attention and recommendations (suggested way forward)

Discussion with Vehicle Regulations relevant stakeholders, based on performance indicators, identifies current situation (present practice) and major deficiencies (obstacles and impediments) which can prevent the accession to the 1958 UN Agreement and the implementation of both the Agreement and the UN Regulations annexed to it in the country. At the same time, defined impact indicators will be monitored at next missions as a way to follow-up progress.

Implementation (institutionalization) of different impact indicators for the accession to the UN 1958 Agreement, its implementation and mandatory application of UN Regulations annexed to the Agreement:

	Selected Impact indicator (current situation)	Deficiencies requiring attention	Recommendations (suggested way forward)
1	**Legal basis for the UN 1958 Agreement** - The country is not a Contracting Party (CP) to the UN 1958 Agreement - Current national legal system imposes a kind of national Vehicle Type Approval (VTA) System.	- The country is not a CP to the UN 1958 Agreement, and therefore it cannot be implemented. - The non-existence of a national VTA System based on the provisions of the 1958 Agreement in the country makes more complicated the mandatory application of UN Regulations.	-The accession to the UN 1958 Agreement is highly recommended. Ministry of Transport has initiated the internal process to fix the Moldavian position. - Development of a national VTA System in parallel to the accession is needed. Some basic UN Regulations shall be made mandatory on a first step.
2	**Adequate procedure for the mandatory application of UN Regulations in use in use**? - There is no developed methodology for VTA System in the country.	- Some of the stakeholder's think that a technical inspection of the imported vehicles previous their registration is enough to guarantee their safety and environmental performance.	- A minimum number of UN Regulations should be made mandatory for the national type approval. See a suggested list in Annex B to this report - Establish a technical inspection system to check if vehicles are type approved in conformity with the UN Regulations made mandatory
3	**Trained technical staff or auditors are available?** - No officially certified auditors, - There are adequate staff conducting periodical technical inspections of vehicles	- There is not a system for educating engineers in the technical aspects related to the Vehicle Type Approval System	- Once a VTA system in the country is developed, it will be necessary training adequate technical staff to verify that new and second hand vehicles corresponds to the Type Approved one. These staff should be engineers, preferably mechanical engineers

	Selected Impact indicator (current situation)	Deficiencies requiring attention	Recommendations (suggested way forward)
4	**National Authorities have budget to implement VTA proposals?** - No dedicated budget is available	- The non-existence of dedicated budget can difficult the development and implementation of a national VTA system based on the provisions of the 1958 Agreement and the mandatory application of some of the UN Regulations.	- For the development of a national law on VTA based on the 1958 Agreement a small budget will be needed. - The training of adequate technical staff will probably need some resources. These resources can be relatively small, provided than in the Periodical Technical Inspection centres be Engineers and technicians to be trained. - The establishment of a Technical Service (TS) for conducting the mandatory tests of the UN Regulations will need a considerable budget for both, the adequate technical staff and the needed equipment. It is suggested to cooperate with the current vehicle laboratories at the national University and to slowly proceed with the development of a national testing Technical Service

4.Conclusions

A non-negligible number of road accidents, including fatalities and injuries, are caused by deficiencies in the technical condition of vehicles. To reduce them, it is crucial to have a national legislation for ensuring that the new registered vehicles in the country have some minimum requirements in both safety and environmental performance as a condition prior to their registration in the country. This legislation should be applied to both, new and second hand vehicles that intend to be registered in the country. In addition, it is also essential to ensure that registered vehicles keep the necessary safety and environmental requirements during their complete life. The aspect related to the technical conditions of vehicles for their registration is covered by this report. On the contrary, the maintenance of the conditions during the vehicles' life is guaranteed by the Periodical Technical Inspection (PTI) of vehicles in use, which is covered by other area in the TRACECA programme.

The establishment of a Vehicle Type Approval (VTA) system based on the UN 1958 Agreement in Moldova is essential to introduce an adequate national legislation requiring technical requirements for vehicles prior their registration in the country. The development of a quite new legislation on this matter is technically difficult, expensive and needs a long time. This is why it is highly recommended to use an existing system, the UN 1958 Agreement, which has demonstrated its effectiveness in a considerable number of countries.

The United Nations (UN) 1958 Agreement concerning the adoption of uniform technical prescriptions for wheeled vehicles, equipment and parts which can be fitted and/or be used on wheeled vehicles and the conditions for reciprocal recognition of approvals granted on the basis of these prescriptions is the recommended tool on which the national legislation for the VTA in Moldova should be based. This Agreement is administered by the UNECE World Forum for Harmonization of Vehicle Regulations (WP.29) and is open to all the nations belonging to the UN system.

It is recommended that Moldova become a Contracting Party to the UN 1958 Agreement. It is important to note that the EU is a Contracting Party to this Agreement and its EU legislation is based on the UN Regulations annexed to it.

The UN 1958 Agreement has annexed to it 136 UN Regulations. For the development of new legislation on VTA it is recommended to proceed step by step, making, in a first one, mandatory some key UN Regulations and not all of them. In the discussions a suggested list of UN Regulations to be made mandatory was identify (see Annex B to this report). The final decision about making mandatory the UN Regulations including in the list belongs to the Government.

The UN 1958 Agreement is quite flexible. Contracting Parties to it can apply as many as UN Regulations they wish. Contracting Parties are also free to make mandatory or not the UN Regulations they apply. Furthermore, countries can keep their national legislation in force.

For a correct application of the provisions of the UN 1958 Agreement it is necessary to establish an adequate system for verification of the vehicles' technical condition prior their registration. This can be made using the current possibilities of the PTI centres with adequate and trained staff.

The establishment of Technical Services (TS) for conducting the regulatory tests will need more resources (technical staff and equipment). Cooperation with current vehicle laboratories of the Universities is recommended to establish a medium or long term process to establish national TSs.

Further Technical Assistance to Moldova is needed for: developing legislation based on a Vehicle Type Approval (VTA) System and for making mandatory some UN Regulations; training technical specialists to analyse the documentation of VTA and to check if vehicles belong to the VTA; establishing Technical Services able to perform the tests of the UN Regulations.

With resolution A/RES/64/255 of 10 May 2010, the UN General Assembly proclaimed the period 2011–2020 as the **Decade of Action for Road Safety**, with a goal to stabilize and then reduce the forecast level of road traffic fatalities around the world by increasing activities conducted at the national, regional and global levels. A **Global Plan for the Decade of Action for Road Safety** was developed and adopted later. This Global Plan is based in five pillars. Pillar 3 refers to safe vehicles. Activity 1 of Pillar 3 encourages Member States to apply and promulgate motor vehicle safety regulations as developed by the United Nation's World Forum for the Harmonization of Vehicle Regulations (WP 29). Other activities under this Pillar 3 encourage concrete application of safety devices developed in the UN Regulations annexed to the UN 1958 Agreement. The Global Plan is available at: http://www.who.int/roadsafety/decade_of_action/plan/en/**.** To comply with the above-mentioned UN General-Assembly resolution and with the activities recommended under Pillar 3 of its Global plan it is necessary to accede to the UN 1958 Agreement and to mandatory apply the UN Regulations annexed to the Agreement.

* * *

ANNEXES:
A: Persons meet or consulted
B: Recommended list of UN Regulations to be made mandatory for vehicle registration

Annex A
Persons meet or consulted

List of participants of meetings on TAA –TRACECA project.
17-18 September 2015
(Venue, Chisinau, Moldova)

Surname, name	Organisation, position	Telephone, email
Aurel Goncear	Main Inspector ANTA	022 498 435, avgoncear@mail.ru
Dumitru Albulesa	Union of Road Transporters	069103780 dumitru.albulesa@gmail.com
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Grigore Bernavschi	President of AITA	+ 373 22 27 88 44 Email : info@aita.md
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Ion Gurdis	State senior auto inspector of Transport and Road Traffic Surveillance Dept of the National Patrolling Inspectorate,	ion.gurdis@igp.gov.md , 62102305
Petru Bologan	Head of Road Safety service at the State Road Administration	069121160, bologan@asd.md
Petru Mititiuc	Deputy Chief , Road Transport Department, Ministry of Transport and Road Infrastructure (MTRI)	022 228,856, mititiuc75@mail.ru
Oleg Petrov	CIPTI centre	opetrov@post.com
Valentin Gorceac	Chief of the State Inspectorate of Vehicles at the Department of Transport and Road Traffic Surveillance of the National Patrolling Inspectorate	valentin.gorceac@igp.gov.md , 69602929
Vladimir Railean	Senior Inspector, Registration and identification of transport department, “REGISTRU” CRIS	vladimir.railean@registru.md 069128500

Surname, name	Organisation, position	Telephone, email
Neli Lelenco	Secretary Executive at CNRS	neli.lelenco@igp.gov.md 078774286
Vladimir Belenkii	Inspector, JAS INP	vladimir.belenkii@igp.gov.md 068511118
Inna Grineo	Translator	
Tatiana Mihailova	TRACECA local coordinator	mihailovat@yahoo.com
Dusan Mladenovich	TRACECA NKE on PTI	
Juan Ramos	TRACECA NKE on Vehicle Regulations	juanramos140652@gmail.com

Annex B
Recommended list of UN Regulations to be made mandatory for vehicle registration

Suggested UN Regulations to be made mandatory in Tajikistan in a first step

The list of all UN Regulations is available in the Status of the UN 1958 Agreement document at: http://www.unece.org/trans/main/wp29/wp29wgs/wp29gen/wp29fdocstts.html

Suggested list in English (note: the suggested list in Russian language is reproduced below)

UN Regulation No.	*Title*	*Responsible GR*
12	Uniform provisions concerning the approval of vehicles with regard to the protection of the driver against the steering mechanism in the event of impact	GRSP
13	Uniform provisions concerning the approval of vehicles of categories M, N and O with regard to braking	GRRF
13-H	Uniform provisions concerning the approval of passenger cars with regard to braking	GRRF
14	Uniform provisions concerning the approval of vehicles with regard to safety-belt anchorages, ISOFIX anchorages systems and ISOFIX top tether anchorages and i-Size seating positions	GRSP
16	Uniform provisions concerning the approval of: I. Safety-belts, restraint systems, child restraint systems and ISOFIX child restraint systems for occupants of power-driven vehicles II. Vehicles equipped with safety-belts, safety-belt reminders, restraint systems, child restraint systems and ISOFIX child restraint systems and i-Size child restraint systems	GRSP
17	Uniform provisions concerning the approval of vehicles with regard to the seats, their anchorages and any head restraints	GRSP
22	Uniform provisions concerning the approval of protective helmets and their visors for drivers and passengers of motor cycles and mopeds	GRSP
24	Uniform provisions concerning: I. The approval of compression ignition (C.I.) engines with regard to the emission of visible pollutants II. The approval of motor vehicles with regard to the installation of C.I. engines of an approved type III. The approval of motor vehicles equipped with C.I. engines with regard to the emission of visible pollutants by the engine IV. The measurement of power of C.I. engine	GRPE
30	Uniform provisions concerning the approval of pneumatic tyres for motor vehicles and their trailers	GRRF
44	Uniform provisions concerning the approval of restraining devices for child occupants of power-driven vehicles ("Child Restraint Systems")	GRSP
49	Uniform provisions concerning the measures to be taken against the emission of gaseous and particulate pollutants from compression-ignition engines and positive-ignition engines for use in vehicles	GRPE
54	Uniform provisions concerning the approval of pneumatic tyres for commercial vehicles and their trailers	GRRF

UN Regulation No.	*Title*	*Responsible GR*
66	Uniform provisions concerning the approval of large passenger vehicles with regard to the strength of their superstructure	GRSG
83	Uniform provisions concerning the approval of vehicles with regard to the emission of pollutants according to engine fuel requirements	GRPE
94	Uniform provisions concerning the approval of vehicles with regard to the protection of the occupants in the event of a frontal collision	GRSP
95	Uniform provisions concerning the approval of vehicles with regard to the protection of the occupants in the event of a lateral collision	GRSP
107	Uniform provisions concerning the approval of category M_2 or M_3 vehicles with regard to their general construction	GRSG
129	Uniform provisions concerning the approval of Enhanced Child Restraint Systems (ECRS)	GRSP

Suggested list in Russian

№ Правила ООН	Название Правила	Ответственные РГ
12	Единообразные предписания, касающиеся официального утверждения транспортных средств в отношении защиты водителя от удара о систему рулевого управления	GRSP
13	Единообразные предписания, касающиеся официального утверждения транспортных средств категорий M, N и O в отношении торможения	GRRF
13-H	Единообразные предписания, касающиеся официального утверждения легковых автомобилей в отношении торможения	GRRF
14	Единообразные предписания, касающиеся официального утверждения транспортных средств в отношении креплений ремней безопасности, систем креплений ISOFIX, креплений верхнего страховочного троса ISOFIX и сидячих мест размера i	GRSP
16	Единообразные предписания, касающиеся официального утверждения: I. ремней безопасности, удерживающих систем, детских удерживающих систем и детских удерживающих систем ISOFIX, предназначенных для лиц, находящихся в механических транспортных средствах II. Транспортных средств, оснащенных ремнями безопасности, сигнализатором непристегнутого ремня безопасности, удерживающими системами, детскими удерживающими системами, детскими удерживающими системами ISOFIX и детскими удерживающими системами размера i	GRSP
17	Единообразные предписания, касающиеся официального утверждения транспортных средств в отношении сидений, их креплений и подголовников	GRSP
22	Единообразные предписания, касающиеся официального утверждения защитных шлемов и их смотровых козырьков для водителей и пассажиров мотоциклов и мопедов	GRSP

№ Правила ООН	Название Правила	Ответственные РГ
24	Единообразные предписания, касающиеся: I. официального утверждения двигателей с воспламенением от сжатия в отношении выброса видимых загрязняющих веществ II. официального утверждения автотранспортных средств в отношении установки на них двигателей с воспламенением от сжатия, официально утвержденных по типу конструкции III. официального утверждения автотранспортных средств с двигателем с воспламенением от сжатия в отношении выброса видимых загрязняющих веществ IV. измерения мощности двигателей с воспламенением от сжатия	GRPE
30	Единообразные предписания, касающиеся официального утверждения шин для автомобилей и их прицепов	GRRF
44	Единообразные предписания, касающиеся официального утверждения удерживающих устройств для детей, находящихся в автотранспортных средствах (детские удерживающие устройства)	GRSP
45	Единообразные предписания, касающиеся официального утверждения устройств для очистки фар, а также официального утверждения механических транспортных средств в отношении устройств для очистки фар	GRE
49	Единообразные предписания, касающиеся подлежащих принятию мер по ограничению выбросов загрязняющих газообразных веществ и твердых частиц из двигателей с воспламенением от сжатия и двигателей с принудительным зажиганием, предназначенных для использования на транспортных средствах	GRPE
54	Единообразные предписания, касающиеся официального утверждения шин для грузовых транспортных средств и их прицепов	GRRF
66	Единообразные предписания, касающиеся официального утверждения крупногабаритных пассажирских транспортных средств в отношении прочности верхней части конструкции	GRSG
83	Единообразные предписания, касающиеся официального утверждения транспортных средств в отношении выбросов загрязняющих веществ в зависимости от топлива, необходимого для двигателей	GRPE
94	Единообразные предписания, касающиеся официального утверждения транспортных средств в отношении защиты водителя и пассажиров в случае лобового столкновения	GRSP
95	Единообразные предписания, касающиеся официального утверждения транспортных средств в отношении защиты водителя и пассажиров в случае бокового столкновения	GRSP
107	Единообразные предписания, касающиеся официального утверждения транспортных средств категорий M2 и M3 в отношении их общей конструкции	GRSG
129	Единообразные предписания, касающиеся официального утверждения усовершенствованных детских удерживающих систем, используемых на борту автотранспортных средств	GRSP

6.4

ADR

No country report prepared on this topic

7. ROAD SAFETY IMPLEMENTATION TEACHING AND RESEARCH

Visits were made to all beneficiary countries and local academics and universities were given encouragement and guidance on how to develop and undertake road safety research project. This section indicates the experts' findings in Moldova.

No country report prepared on this topic

8.STUDY TOUR AND MOTIVATION

A study tour was arranged to Serbia for the most senior officials from Traffic Police, roads departments and the Ministry of Transport. Serbia is an ex-socialist country which had similar constraints and systems to those that still exist in the TRACECA Region. Study tour participants were introduced to international best practice in each sector o road safety and then open opportunities to have direct discussions with the individuals and organisation who delivered the reforms that led to a 40-50% reduction in road deaths in Serbia. The DVD at the rear of the report shows the Study Tour.

TRACECA Regional Road Safety Project

Study Tour to Serbia

For high level officials from TRACECA Countries

Organised by

Dr. Alan Ross
Alanross999@gmail.com

Professor Krsto Lipovac
k.lipovac@gmail.com

With support from:
Mariya Ivchenko
Anastasiia Kovalenko

Belgrade, Serbia

23-28 March 2015

1.1 Workshop

The Study Tour was held in Belgrade, Serbia during the period 23-28 March 2015. It was implemented in the Police Academy, with site visits to RE "Roads of Serbia" PERS, work zone, Traffic Police HQ, Vehicle inspection (''Dunav auto''), NAVAK drivers training center.

Workshop attendance was 22 participants from 8 TRACECA countries, and there was a very active discussion throughout the workshop. Participants were:

- Heads or Deputy heads of Traffic Police

- Heads or Deputy heads of Roads Administrations

- Heads or Deputy heads of Ministry of Transport, Safety Department.

The Study Tour was arranged to Serbia because it has implemented many successful road safety interventions and established effective road safety systems over the last 10 years. By adapting and implementing a similar "Safe systems" approach as has been applied in EU countries, Serbia has managed to reduce road deaths by 50% over the last decade.

The participants attended some lectures and visits jointly and some in their respective sector groups (police, roads, MoT) so that they could see activities and meet with counterparts from their sectors. In addition, the participants worked in break out groups by country and by section and agreed to establish regional working groups in the following sectors:

- Traffic Policing

- Road Engineering

- Ministry of Transport

The fact that Serbia, a non-European country and which had a similar ex-communistic administration structures and practices as currently exist in many TRACECA countries, has been successful in addressing road safety, demonstrates that any one of the TRACECA countries could also achieve similar improvements if they adopt such approaches to road safety.

1.2 Participants of workshop

The list of participants attending all or parts of the workshop is presented below.

No.	Name and Surname	Institution (Organization) and Position	Contact telephone	**E-mail**
		Azerbaijan		
	Gulamov Elchin	President of freight forwarding company "Eltrans", member of the National Road Safety Working Group	+994 50 214 68 56 +994 12 493 64 93	office@eltrans.net
	Karimov Anvar	Head of Sector "Transport Safety", Ministry of Transport of Azerbaijan	+99450 240 31 77	e.kerimov@mintrans.az
	Hajiyev Vagif	Deputy Chairman of JSC "AzerDorServis"	598 12 24 +99450 212 24 50	info@azeryol.az
		Georgia		
	Mr. Shalva Uriadmkopeli	Head of Land Transport Safety Department of LEPL "Land Transport Agency"	+995599396644 0322365501 (140)	shuriadmkopeli@lta.gov.ge
	Mr. Kakhaber Tchanturishvili	Head of Traffic safety and Analysis System Management Division of Patrol Police Department of Ministry of Internal Affairs	+995 32 241 88 70 +995 577 77 24 05	k.tchanturishvili@mia.gov.ge
		Moldova		
	Lelenco Neli	Secretary of the National Council for Road Safety	+37369182554	neli.lelenco@mai.gov.md
	Mindra Nicolai	Chief Consultant, Road Development Department, Ministry of Transport and Road Infrastructure	+373 69936881	nicolae.mindra@mtid.gov.md

	Drucec Ion	Deputy Director General, responsible for road maintenance and road safety, State Road Administration	+373 69233417	ion.drucec@asd.md
Kazakhstan				
	Kubeisinov Zhantore	Senior Expert of department of Department of operations, Roads Committee of the Ministry of Investment and Development of the Republic of Kazakhstan	8 (7172) 75-46-49	zhantorekub@mail.ru zh.kubeisinov@mid.gov.kz
	Sadvakassov Kanat	Head of road safety coordination department, Administrative Police Committee of the Ministry of Internal Affairs of the Republic of Kazakhstan	8 717 2 71-50-55 87015147713	Sadvakasov63@mail.ru
	Baltashev Bakhytzhan	Head of State Automobile Inspection Department, Administrative Police Committee, Ministry of Internal Affairs of the Republic of Kazakhstan	8 717 2 71-58-10 87011112260 +77771002209	Riza.2000@mail.ru
Tajikistan				
	Azizov Fatkhiddin	Head of supervision and regulation of road facilities Department, State Service for Supervision and Regulation of Transport Ministry of Transport of RT	+992938881025	azizov_1979@inbox.ru
	Ziyoev Begijon	Chief specialist of road transport and transport safety Department Ministry of Transport of RT	+992935243129	begijon@mail.ru
	Murodov Sherkhon	First Deputy Head of SAI Ministry of Interior of the Republic of Tajikistan	+992900404040	
Ukraine				
	Koskovetskyi Volodymyr	Deputy Director of Transport safety Department - Head of traffic safety and transport of dangerous goods unit Ministry of Infrastructure	+38 044 351 40 63	vkosko@mtu.gov.ua
	Fedorenko Oleg	Head of Department of Operational Maintenance of Roads And Road Safety, State Agency of Automobile Roads of Ukraine	+38 044 287 72 17	50281@ukr.net
	Briantsev Vasyl	Head of the regulatory division of the Department of SAI of MIA	067 232 25 81 044 374 10 36 272 56 77	vvb@sai.mia.gov.ua
Uzbekistan				
	Saydaliev Kholmatjon	Chief of Road Safety Department, Ministry of Internal Affairs of Uzbekistan, Colonel	+99898-3670217	
	Ulmasov Asfandiyor	Deputy Head of road transport safety, Uzbek Agency for Automobile and River Transport	+99871-2414620 +99 893 395 92 76	a.ulmasov@uzaart.uz
	Shokosimov Sadriddin	Head of Tashkent city-territorial office of the Uzbek Agency for Automobile and River Transport	+99898 363 25 90 +99894 669 88 09	s.shoqosimov@aart.uz

1.3 Agenda

PROGRAM, Monday, 23.03.2015

(Lectures/presentations at Police academy)

Monday, 23.03.2015.	09.00 – 11.00	Introduction of participants (A. Ross) 1.1 Presentation of Study Tour 5 day program (K. Lipovac) 1.2 Overview of TRACECA RS II Project (D. Jovanov) 1.3 International Overview of Road Safety + Lessons from successful countries (A. Ross) 1.4 UN Decade, WHO Plan of UN decade (K. Lipovac)
	11.00 – 11.30	COFFEE BREAK
	11.30 – 12.45	1.5 Overview of current road safety situation in TRACECA countries (Mariya Ivchenko and Alan Ross) 1.6 Overview of current road safety situation in Serbia (D. Kukić & M. Nešić)
	12.45 – 14.00	LUNCH BREAK
	14.00 – 15.00	1.7 Safe systems approach, The most important stakeholders in Road safety and the need for a multidisciplinary, Holistic approach (K. Lipovac)
	15.00 – 15.30	COFFEE BREAK
	15.00 – 16.45	1.8 Management, Coordination and funding of road safety activities and financing of national road safety programmes (A. Ross & K. Lipovac)
	19.00 – 21.00	Visit to Museum of Automobiles (Movie & Cocktail)

PROGRAM, Tuesday, 24.03.2015

Tuesday 24.03.2015. (The whole day in the company NAVAK)	07.30 – 08.30	Transfer to NAVAK (National Driving Academy)		
	08.30 – 09.00	Refreshments, Introduction		
	09.00 – 10.15	2.1 Road safety strategies and action plans (M. Vujanić, K. Lipovac & B. Antić)		
	10.15 – 10.30	COFFEE BREAK		
	10.30 – 11.45	2.2 Role and Importance of road accident database and the need to share with all stakeholders, Coordination and cooperation in Road safety (D. Kukić & D. Pešić)		
	11.45 – 12.00	COFFEE BREAK		
	12.00 – 13.15	2.3 Police role in delivering traffic road safety (M. Nešić & K. Lipovac)	2.4 Vehicle technical inspections to ensure safe vehicles (D. Mladenović & D. Pešić)	2.5 Safe road design concepts (D. Jovanov & D. Pešić)
	13.15 – 14.00	LUNCH BREAK		
	14.00 – 17.00	2.6 Presentations by groups (rotation group at 60 minutes) (NAVAK, AMSS, iRAP, Model 5, Geoput, Road Safety Equipment Claster, …)		
	17.00 – 17.15	Discussion, Closing speech		
	17.30 – 18.30	Transfer to hotel		

PROGRAM, Wednesday, 25.03.2015

Wednesday 25 .03.20,15	09.00 –10.30	3.1 Road safety legislation – International Conventions / Agreements and Domestic Legislative as a framework to improve road safety (M. Vujanić, B. Antić & D. Mladenović)	
	10.30 – 11.00	COFFEE BREAK	
	11.00 – 12.30	3.2 International Best practices in Law enforcement – Police control / management of traffic (M. Nešić & K. Lipovac)	3.3 EU Directive 2008/96 on road safety and importance of road safety audit (RSA), road safety inspection(RSI) and Blackspot management programmes (BSM) to deliver safer roads (D. Jovanov & B. Antić)
	12.30 – 13.30	LUNCH BREAK	
	13.30 – 14.45	3.4 International Best practices in Traffic law enforcement strategies (M. Nešić & K. Lipovac)	3.5 ISO 39,001 Quality Assurance in Road safety Management (B. Antić & D. Kukić)
	Site visits: 14.45 – 17.00	Each group travels to their relevant site visit location - Visit to Traffic Police HQ + discussions with senior officers - Visit to RE "Roads of Serbia" PERS + discussions with senior officials - Visit to work zone on a roads project to see work zone safety management	
	18.00 – 20.00	International Motor Show at Belgrade fair	

PROGRAM, Thursday, 26.03.2015

Thursday, 26.03.20,15.	09.00 – 10.30	4.1 Joint Road safety campaigns and roles / activities of key parties (D. Jovanov & B. Antić)	
	10.30 – 11.00	COFFEE BREAK	
	11.00 – 12.30	4.2 Road safety policy and strategy (for Road Administrations), Risk Mapping, BSM, Network Safety Management (NSM) and in Depth Studies (D. Kukić & D. Pešić)	
	12.30 – 13.30	LUNCH BREAK	
	13.30 – 15.00	4.3 Best practices and systems in driver training and testing to ensure safer drivers, CPC for professional drivers (M. Vujanić, D. Mladenović & D. Pešić)	
	Site visit	Each group travels to their relevant site visit location	
	15.00 – 17.00	Vehicle inspection (''Dunav auto'')	Visit to Geoput company, Working Zone

PROGRAM, Friday, 27.03.2015

Friday, 27.03.2015.	SECTOR SPECIFIC BREAK OUT GROUP WORK			
	09.00 – 10.30	Regional cooperation and harmonization 1 Regional working group 2 crash data + systems 3 Regional database 4 Penalties for drivers 5 legislation	Regional cooperation and Harmonization 1 Regional working group 2 driver testing systems 3 vehicle technical inspections 4 Regional database 5 Legislation	Regional cooperation and Harmonization 1 Regional working group 2 Design standards modernization 3 Recognition of certified RSA auditors 4 Regional RSA Guidelines 5 Regional BSM guidelines
	10.30 – 10.45	COFFEE BREAK		
	COUNTRY SPECIFIC BREAK OUT GROUP WORK			
	10.45 – 12.15	The 3 specialists from each country to work together so that we create 10 separate breakout groups, each group to discuss road safety in their respective country and to agree how they will cooperate to promote road safety on their return to their country. They will agree actions to be taken on their return.		
	12.15 – 12.45	Study tour and training course + Evaluation (D. Jovanov, D. Mladenović & M. Ivchenko		
	12.45 – 14.00	LUNCH BREAK		
	14.00 – 16.30	Visit to Road Traffic Safety Agency of the Republic of Serbia - Overview by Ministry of Transport - Presentation of the Road Traffic Safety Agency and its functions		
	19.00 – 21.00	STUDY TOUR / TRAINING COURSE CONFERENCE DINNER		

1.4 Evaluation

An anonymous workshop evaluation form (with 1 as very poor and 5 as excellent) was completed by the 20 participants on the last day. This covered 5 aspects (see form below) and delivered an overall average score of 4.80 (96%) out of a maximum 5 indicating the very high satisfaction level of participants.

Evaluation results of Serbia Study Tour

Completed on last day 20 participants

Belgrade, 27 March 2015

Questions asked	Participants answers																				AVG
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	
Organization of WS ?	5	5	5	4	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	4,95
Importance of WS topics ?	4	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	4,95
Quality of presentations ?	4	5	5	4	5	5	5	4	5	5	5	5	5	5	5	5	5	5	5	5	4,85
Quality/Expertise of lecturers ?	4	5	5	4	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	4,9
Length of Workshop ?	5	4	5	4	4	5	5	5	5	5	4	4	4	5	4	5	4	5	5	5	4,6
Location of Workshop ?	5	5	5	4	4	5	4	4	5	5	4	4	4	5	4	5	4	5	5	5	4,55
Average	4,5	4,83	5	4,2	4,67	5	4,8	4,67	5	5	4,67	4,67	4,67	5	4,7	5	4,67	5	5	5	**4,80**

Main participants comments:	What did you like most on WS?	Is WS useful for your work?	Suggestions to the organizers/lecturers
1	Organisation	Yes	
2	Organisation	Yes	
3	Interesting	Yes	
4	Crash data	Yes	
5	Importance of the problem; legislation and practical kowledge	Yes	Give more examples
6	Trip to NAVAK	Yes	Involve more experts, continue the same way
7	Organisation, friendliness, information given	Yes	
8	Everything	Yes	
9	Everything	Yes	
10	Everything	Yes	
11	Experience exchange, best practice, topics for discussion, methods of improving Road Safety	Yes	Hold such Workshops more often
12	Organisation, Strategy	Yes	Thank you
13	Organisation, getting to know other experts and colleagues	Yes	Thank you
14	Level of knowledge	Yes	More discussions
15	Lectures	Yes	
16	Thnak you very much for organisation of such useful workshops. Very good lectures, trip to NAVAK	Yes	

17	Especially liked the lecture by Prof. K. Lipovac "System approach to RS" and Dr. Jovanov's lecture at NAVAK	Yes	
18	Experience exchange	Yes	
19	Importance of the problem; lecturer's knowledge and openness	Yes	Good luck!
20	Importance of the problem	Yes	Thank you

Workshop organizer response to evaluation:

6. Overall the workshop was obviously considered by participants to be of high quality, but project team will make further improvements to the presentations and identify more example countries to show successes
7. Change order of presentations to have impact/ effect
8. Present more analyses of greater local problem an what can be done

1.5 Photo documentation

Plate 1. Lectures at NAVAK Driver Training Academy

Plate 2. Field trip to NAVAK Driving Academy

Plate 3. Vehicle Testing Station

Plate 4. Police station

Plate 5. Police Academy

Plate 6. Participants of the Study Tour

9. DVD OF ALL REPORTS

Two DvDs are included. These contain:

1. **Electronic versions of all working documents and technical notes related to Moldova.**
2. **The Study Tour of high level officials.**

TRACECA Regional Road Safety Project
Project Documentation

The EU funded project produced a number of documents as shown below.

A. CONTRACTUAL REQUIREMENTS

1. Inception Report
2. Benchmarking Report
3. Interim Reports (4) (at 6 month intervals)
4. Final Report

1

2

3

4

B. ADDITIONAL DOCUMENTATION

B1

B1. Benchmarking Report (including initial position and impacts delivered)

B2. Regional Guidelines

G01. Road Safety Audit
G02. Blackspot Programmes
G03. Legislative Changes
G04. Safety Engineering Problems
+ Solutions
G05. Freight routing to avoid urban areas

G01

G02

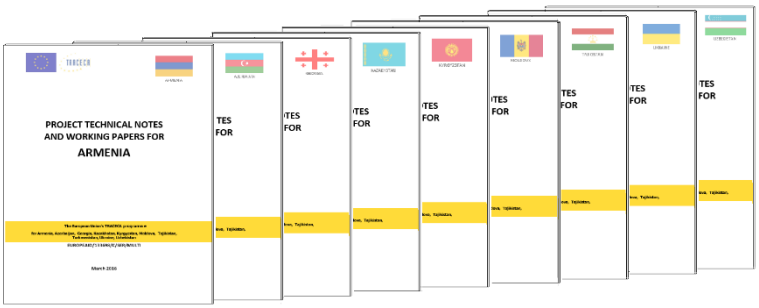
G03

G04

G05

B3. Country Specific Reports (9), Technical notes and working papers

CR01 Armenia
CR02 Azerbaijan
CR03 Georgia
CR04 Kazakhstan
CR05 Kyrgyzstan
CR06 Moldova
CR07 Tajikistan
CR08 Ukraine
CR09 Uzbekistan



Information about the project, project team and official documentation (apart from the Action Plans and Technical working papers, which are confidential to each country) is downloadable from:

http://www.traceca-org.org/en/technical-assistance/traceca-road-safety-ii/documents/