UKRAINE

PROJECT TECHNICAL NOTES AND WORKING PAPERS FOR UKRAINE

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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Consortium SAFEGE – IMC Worldwide – Grant Thornton – Granturco & Partners–
Project Office: Kiev, Ukraine Head Office, Brussells , Belgium

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Project Title:	**TRACECA – Road Safety II**
Project Number:	EuropAid/133698/C/SER/Multi
Beneficiary Countries:	Armenia, Azerbaijan, Georgia, Kazakhstan, Kyrgyzstan, Moldova, Tajikistan, Ukraine, Uzbekistan.
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 Ukraine
3. DVD (on last page)
   - Electronic PDF-files of Project Technical Notes of Working Papers undertaken in Ukraine
   - 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.

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CONTENT OF WORKING DOCUMENTS REPORT FOR UKRAINE

This Report for UKRAINE contains case study/overviewa 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

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

[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.

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.

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/

UKRAINE

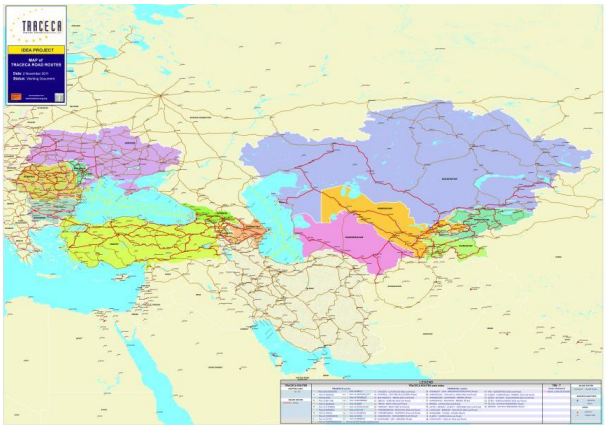
CASE STUDY

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

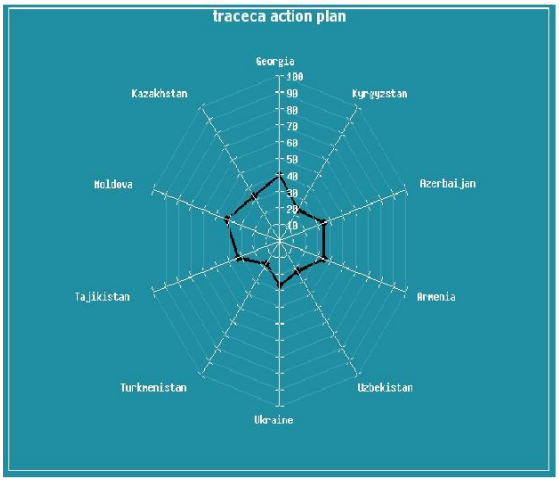
The Safege led consortium project focused in its first 2 phases on understanding the general problems across the region, identifying the particular problems inhibiting development of road safety within key sectors in each of the 10 individual countries and in training of safety engineering and other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

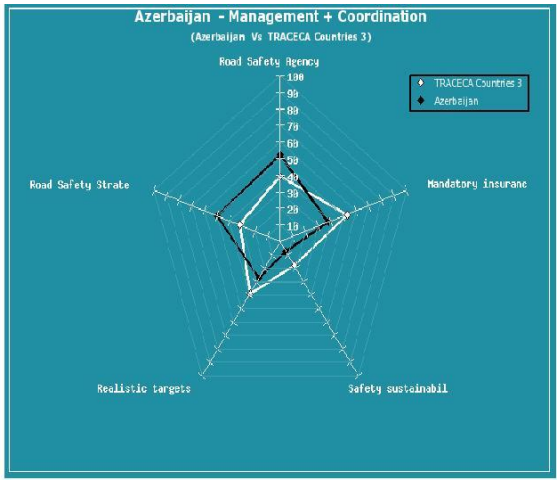
- **Visits to every one of the 10 beneficiary countries during inception period** for discussions with experts in each country so that current status of safety activities and institutional capacity regarding road safety could be "benchmarked" at project commencement against impact indicators related 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.

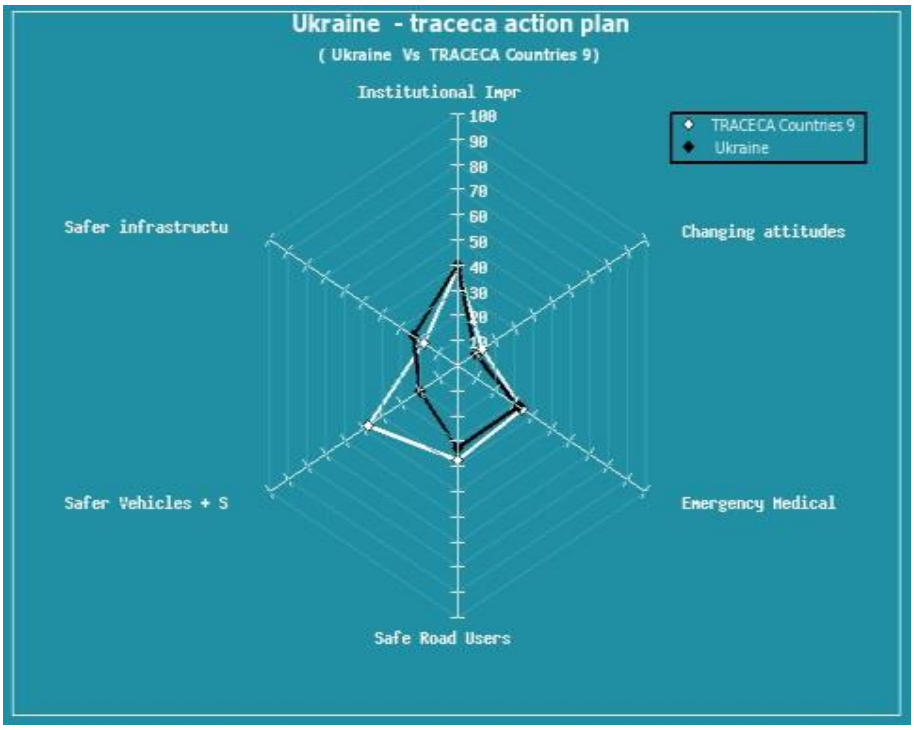
"…..I am currently writing the national road safety strategy for Tajikistan as part of an ADB-funded project. In February 2015, I attended a four-day workshop organised by the TRACECA Road Safety II project in Dushanbe. I was highly impressed at the quality of the discussion developed by the workshop – 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 Ukraine 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 Ukraine and what needs to be done in this area.

COUNTRY: UKRAINE

TEAM: ROAD SAFETY MANAGEMENT TEAM

TOPIC: ROAD SAFETY MANAGEMENT, COORDINATION AND FUNDING STRUCTURE IN UKRAINE

PREPARED BY MANAGEMENT TEAM

Team members:

Alan Ross (KE1)
Mariya Ivchenko (JTE-18)

November 19th, 2015

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* * *

1. Introduction

Ukraine, like most of the TRACECA project beneficiary countries, is still at an early stage of road safety development and does not at present have effective management and funding structures to lead the government's road safety efforts across the various government agencies and the private and NGO sectors.

In accordance with the project ToR for Component 2: "Institutional and Regulatory Reforms" the management team has implemented a series of activities to provide practical assistance and guidance to the road safety stakeholders and where possible, high-level decision makers in Ukraine, on the key aspects of road safety management, coordination and funding.

The main purpose of the inputs and activities was to assist relevant decision makers to explore how and in which organisational form management, coordination and funding mechanisms and structures can be established in Ukraine in order to institutionalise road safety and increase likelihood of sustainability.

A secondary task was to provide follow-up and to oversee the work of the other project teams.

2. Activities undertaken

There is clearly a strong need in Ukraine for a comprehensive traffic safety legislation that will identify the functions and responsibilities of key government agencies, as well as set up road safety management structure and mechanisms for better coordination between them. The project has worked closely and provided some advice and guidance to the group of local experts developing the draft legislation for Ukraine. In the scope of this work the project experts expressed their concern that the legislation is not designed in a way that will be as effective as might be as it will require government approval when any change is required. It is recommended that the draft legislation is reviewed against an international good practice and it's structure is changed to an "umbrella" law that will require the government agencies to take more responsibility for delivering outcomes in areas of responsibility. This proposed alternative approach was also discussed with and supported by the EUAM in Ukraine (Mr Schrage, formerly Strategic Traffic Policing Adviser at EUAM). Mr Igor Didenko, the Member of Parliament (MP) and Chairman of the Parliamentary (Verkhovna Rada) road safety Subcommittee, confirmed the need for the technical support from an international law drafting

expert to address this issue. TRACECA project does not have the possibility to provide such assistance within the current project. The project team has provided the copies of Serbian legislation to be considered by those drafting the new legislation to be used as a template, if applicable.

The team has worked closely with the World Bank, European Investment Bank and European Bank for Reconstruction and Development so that the projects funded by IFIs build upon the recommendations of TRACECA project to address safer infrastructure issues and to establish fully operational road safety audit system in Ukraine. As a consequence of the project team requests and inputs a new 3-year project funded by EIB has been launched in December 2015 to address the problem of ex-Soviet technical standards and processes in the design and construction of roads in Ukraine. The project team will coordinate their activities and exchange knowledge with the consultants appointed to do the EIB project so that they can built on the work and activities already done.

The team has had discussions with and provided some input to World Bank road safety management capacity review which agrees with the project view that the focus in Ukraine should be placed on developing and strengthening road safety management systems at national and municipal level and establishing sustainable funding mechanism to significantly improve the current level of road safety in the country.

Efficient road safety measures start with good crash data system, effective data analyses and scientific research to develop and implement evidence-based approach. Given the extraordinary pressures and economic constraints that Ukraine is currently facing, only the proven road safety measures should be considered in any future road safety programme. In this regard, the project team has emphasized on the need for engaging universities and research institutes in doing road safety research on two main topics: speeding and seat-belt usage. The team has had meetings with the rectors of two major universities in Ukraine: National Kiev Transport University and Kharkov Automobile and Transport Institute to consider the possibilities of such scientific research done by the local professors on the following key topics:

- speeding;
- seat-belt usage;
- crash costing.

Currently there is no road safety research done in Ukraine that could be used by the decision makers to implement cost-benefit approach in tackling road safety problems. A separate report will discuss this issue.

There is an obvious lack of political will to address road safety problems in the systematic way and there are constraints on road safety funding. Therefore, an “economic case” has to be made for road safety to draw attention both of the political and professional decision makers as well as general public and media. The socio-economic cost of road trauma in Ukraine has been estimated at about 4$ billion (approximately 3.4% of the country’s GDP in 2014) and around 5% of the annual country budget. In order to get a more precise figure it is recommended that the estimation is done by the local research institute with some guidance from the TRACECA project. The feasibility of this research done locally has been discussed with a range of local stakeholders.

There have been a number of meetings and consultations with the key road safety stakeholders and high-level officials to agree on the measures that should help to improve road safety in Ukraine (see Annex 1. List of people met).

The key issues discussed at the meetings:

1. Implementation of the priority road safety action plan developed by 40-50 representatives of key stakeholders with assistance of the TRACECA road safety project, ensuring all key agencies do their part to improve road safety.
2. Need to identify a lead agency to be responsible for coordination of national efforts to improve road safety.
2. Changes in road safety legislation required to move safety forward:

- to designate a lead agency to be responsible for road safety;
- to re-establish a high-level National Road Safety Council or Commission (NRSC) to coordinate activities;
- to establish a Permanent Secretariat (5-6 persons working under Prime Minister's Office) to implement NRSC decisions;
- to do horizontal and vertical coordination and to ensure all key agencies do their part to improve road safety and that municipalities start to do safety activities on their road networks.
3. Improving crash data system and making information available to all the key stakeholders so they can do further sector specific analyses and develop interventions in their areas of expertise.
4. Improving capability to do road safety research and crash data system analyses to develop road safety interventions that are based on results of scientific research.
5. Providing adequate sustainable funding and staffing to enable effective management and coordination of road safety.

The key persons with whom these issues have been discussed agreed that the primary need is related to the more effective management and funding of road safety. This requires review of safety legislation, establishment of more effective structures for coordination, management and financing of road safety, making more effective use of the crash data that is being collected and making the roads department take more responsibility for developing building and operating a safe road network.

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

Discussions with the relevant stakeholders, based on identified performance indicators, give an idea of the progress towards the desired situation. Major deficiencies (obstacles and impediments) which can prevent road safety happening in Ukraine. Impact indicators will be monitored as a way to follow up progress and to assess institutional impact of the project.

Progress towards desired situation:

	Selected Impact indicator ("Desired" situation)	**Deficiencies requiring attention (Current practice)**	**Recommendations (suggested way forward)**
1	**Multidisciplinary Road Safety Agency** 1. Legislation exists	1. Draft legislation (2562-1) has been prepared by the MoI in consultation with the other key road safety stakeholders. Project team has provided advice and input where possible. The legislation is far too detailed and it will be difficult to do any small changes once it is approved by the Parliament.	1. It is recommended that the draft legislation is reviewed against international good practice and its structure is rather changed to an "umbrella" law with key ministries delegated to take specified responsibilities and to make any supporting regulations / changes at ministerial level.
	2. Coordination body established	2. There is no lead agency nominated by Government of Ukraine. The Ministry of Interior (MoI) used to perform some functions of the road safety lead agency, but ongoing reform of traffic police has changed the structure of the service and there is evidence that the number of its road safety functions are being substantially reduced. The Ministry of	2. Whatever the organisational form in which it is established the lead agency needs to have an effective mandate, full time Secretariat and sustainable funding to perform the role effectively. This does not exist at present.

		Infrastructure carries out responsibility for some aspects of road safety, i.e. safety of commercial transport, vehicle safety standards and national highways. There is also an ongoing reform of the State Inspection of Ukraine for Land Transport Safety that will be looking after safety of all types of commercial land transport apart from aviation. This Inspection could potentially play a role of the lead agency if the private transport safety was added to it's responsibilities.	
	3. Fully staffed and funded Secretariat exists	3. There is no Secretariat existing at the moment.	3. It is recommended that Secretariat is established and experts of the key government agencies are seconded to guarantee the actual implementation of the road safety activities.
	4. Reliable, sustainable safety funding mechanism in place	4. There are obvious constraints on road safety funding from the Government of Ukraine. There is a small potential for serious financial recourses to be allocated for the road safety activities in the short term.	4. It is recommended to make the road safety problem an "economic case", so it can be seen by the decision-makers as an "investment", not a "cost" to the government. It is also recommended to consider the alternative sources of funding, i.e. insurance premiums, road traffic enforcement fines and innovative funding mechanisms (Development Impact Bonds - DIBs) to finance the road safety programme.
2	**Implementation of National Road Safety Strategy**		
	1. Strategy is developed	1. In May 2011 (shortly after Ukraine joined the UN Decade of Action for Road Safety 2011-2020) the National Strategy for Improving Road Safety in Ukraine until year 2015 was approved by the government. The Ministry of Internal Affairs and other government agencies were delegated by the government to develop the road safety action plan and this prepared in March 2012. In July of the same year the State Target Program designed to improve road safety in Ukraine until 2016 was adopted by the government. The comprehensive road safety action plan including the implementation dates, budgets, etc. until year 2020 was to be finalized shortly by the government agencies responsible for road safety. The actual document has never been sufficiently prepared and no money has been allocated in the budget to deliver the desired program outcomes.	1. It is recommended that a new Strategy is prepared with the focus on safe system approach, clear targets and performance indicators. In the Interim period the Action plan developed by local stakeholders with assistance of the TRACECA project team can be implemented to reduce/eliminate the obstacles and impediments preventing effective road safety management in Ukraine.
	2. Stakeholders	2. The key stakeholders were officially invited to participate/comment on the	

	consulted 3. Strategy approved by Government 4. Implementation commenced	Strategy, but since the road safety problem has always been seen as a problem of driver's behaviour that should be addressed only by traffic police enforcement measures, there was little contribution from the side of the other government agencies to the development of the actual document. 3. The Strategy was approved by Administrative Order dated 25th May 2011 # 480-r. 4. The implementation of the Strategy was suspended mainly due to financial constraints.	
3	**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	1. There are no long-term targets set. 2. There is no approved action plan. 3. There is no action plan being implemented. 4. There is no monitoring and evaluation of the action plan implementation.	2. It is recommended that the 3-year priority action plan based on the work done at the action planning workshop in September 2014 is used as an interim document specifically designed to remove / reduce obstacles and impediments currently preventing effective road safety action in Ukraine.
4	**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	1. There is no annual estimation of losses to economy. 2. There are no funding mechanisms. 3. There are no funds allocated to road safety.	1. Local research on socio-economic cost of road trauma in Ukraine should be initiated is implemented with some guidance from the TRACECA project. It should help the high-level decision makers recognise the real scale of the problem and get the high-end political mandate. 2. It is recommended that the alternative sources of funding be explored, i.e. insurance premiums, road traffic enforcement fines and innovative funding mechanisms (Development Impact Bonds - DIBs).

	improvement 4. Monitoring demonstrates effectiveness of investments in road safety	4. There is no monitoring and evaluation.	

4. Conclusions

The fundamental problem in Ukraine is the absence of effective management, coordination and funding of road safety and the lack of any designated lead to be responsible for road safety. The responsibilities are shared between many stakeholders mainly Ministry of Infrastructure and Ministry of Interior but there is no one to ensure road safety activities are done. With no lead agency and no funding very little road safety is currently being undertaken.

The establishment of the Parliamentary Road Safety Subcommittee whom the project team have been collaborating with and assisting is a positive development and the project team will continue assisting it to strengthen road safety activities in Ukraine.

ANNEX:

A: Persons met or consulted

"Management, coordination and funding of road safety" team
EU funded TRACECA ROAD SAFETY II project
LIST OF PARTICIPANTS

No.	Name and Surname	Institution (Organization) and Position	Contact telephone	E-mail
1.	**Igor Didenko**	The head of the subcommittee on road safety, transport committee of Verkhovna Rada of Ukraine	XXXX	igor.didenko@samopomich.ua
2.	**Nikolay Gorbakha**	Advisor to the Minister of Infrastructure	-	MGorbakha@mtu.gov.ua
3.	**Oksana Reiter**	Deputy Minister of Infrastructure responsible for European Integration	XXXX	
4.	**Volodymyr Koskovetskii**	Director of Transport safety Department - Head of traffic safety and transport of dangerous goods unit	044 351 40 63	vkosko@mtu.gov.ua
5.	**Olena Sotnyk**	Member of Parliament, Head of the subcommittee on the approximation of Ukrainian legislation to EU law	044 255 28 60	lenasotnik@samopomich.in.ua
6.	**Vladimir Shulmeister**	First Deputy Minister, Ministry of Infrastructure of Ukraine	044 351 48 09 044 351 48 52	shulmeister@mtu.gov.ua
7.	**Istvan Heinczinger**	Senior Sector Specialist, Transport Mobility Department Projects Directorate	044 390 80 10	i.heinczinger@eib.org.
8.	**Yevhen Bulakh**	Transport Specialist, World Bank	044 492 39 13	ybulakh@worldbank.org
9.	**Teodora Andreeva**	Sector Manager Transport policy European Union Delegation to Ukraine	044 390 80 10	Teodora.ANDREEVA@eeas.europa.eu
10.	**Bogdan Aganin**	Head of Traffic Management and Road Safety Department of the Road Traffic Police Service	067 220 47 90	Aganin@i.ua
11.	**Vasiliy Bryantsev**	Deputy Head of Road Safety Unit under the Department of Preventive Measures of Patrol Police of Ukraine	044 272 56 77	vvb@sai.mia.gov.ua
12.	**Juriy Chorniy**	Head of "Ukrainian Medical Center for traffic safety and information technologies" Ministry of Health of Ukraine	067 411 99 99	director@umcbdr.com.ua

2.2

TRACECA Regional Road Safety Project

Action Planning Workshop

UKRAINE

«NATIONAL ACTION PLANNING WORKSHOP»

2-W008

Kiev,
23-26 September 2014

National Action Planning (NAP)

1.1 Ukraine

The NAP Workshop (2-W008) was held in Kiev, Ukraine during the period 23-26 September 2014. This NAP is the first of 10 Action Planning Workshops that will be delivered. It was implemented in the Ministry of Infrastructure in Kiev: using the Generic programme presented in the introduction.

Workshop attendance was 60 participants from all key stakeholders on the first day, and 40-45 participants on days 2-4, and there was a very active discussion throughout the workshop.

In close consultation and cooperation with, information was provided to the EU delegation media about the EU funded TRACECA Regional Road Safety Project and the scale and urgency of the problem in Ukraine so that suitable media coverage could be 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
1.	Abramova Ludmila	Associate; Kharkiv National Automobile and Highway University	abramova_ls@ukr.net 057 707 37 06
2.	Babich Teresia	Head of the International Cooperation and Investment Department; Ukravtodor	
3.	Babiy Oksana	Ministry of Infrastructure; Head of Department of Advanced Development of priority transport networks; Department of Strategic Infrastructure Development and Science and Technology Policy	
4.	Berlin Michael	NGO "Association for Road Safety"; President	office@roadsafety.org.ua 044 270 54 86 // 067 238 72 88
5.	Bozhko Olga	Ministry of Regional Development of Ukraine; Head of Public service Department	OlgaBozhko@meta.ua 093 403 03 83
6.	Bondar Anna	KCA; Head of Department of decoration and landscape architecture	bondar.hanna@gmail.com 050 353 12 21
7.	Bondar Tatiana	SE "DerzhdorNDI"; Head of the Department of Road Safety	bdrndi@ukr.net (044)201-08-55
8.	Bryantsev Vasily	State Autoinspection MIA of Ukraine; Head of the legal provision Department	vvb@sai.mia.gov.ua 067 232 25 81 // 044 374 10 36
9.	Budnik Sergiy	State Autoinspection MIA of Ukraine; First Deputy Head	
10.	Buryak Inna	EBA; Manager of commitees	
11.	Vavrish Andrew	KCA; Deputy Director, Chief of urban cadastre service	vavrysh.av@me.com 067 329 07 88
12.	Vovk Sergiy	Centre for Transport Strategies; Director	info@cfts.org.ua
13.	Garazha Mariya	"Scientific-Practical Medical Rehabilitation and Diagnostic Centre, Ministry of Health of Ukraine; Practical psychologist; scientist	rdckonst@mail.ru 06272 2 55 00
14.	Hasenko Lina	Poltava Technical University; Assistant, Graduate Student, Department of roads, surveying and architecture of rural buildings	lin02011@meta.ua 095 663 21 46
15.	Holotsvan Alexander	Ukrautodor; Head of Road Safety Department; Operational road maintenance and road safety Administration	bezpeka@ukravtodor.gov.ua 067-232-25-67

16.	Horbakha Mykola	Ministry of Infrastructure; Director of Safety Department	mgorbakha@mtu.gov.ua 044 351 48 37
17.	Horpyniuk Andrew	"DerzhavtotransNDIproekt"; Deputy Director of Research	agorpinuk@insat.org.ua (044) 201-08-38
18.	Guryev Sergiy	Ukrainian Research Center for emergency medical care and disaster medicine; Deputy Director	disastermed2@gmail.com 067 735 15 09
19.	Deminska Kateryna	Ministry of Infrastructure; Lead specialist of Department of Advanced Development of priority transport networks; Department of Strategic Infrastructure Development and Science and Technology Policy	063 374 29 92
20.	Didkivskyy Vyacheslav	Ministry of Infrastructure; Deputy Head of Safety Department; Head of Labour and Social Protection	didkivsky@mtu.gov.ua 044 351 40 58
21.	Dovgykh Yuriy	State Architectural Inspection of Ukraine; Chief State Inspector	dovgic@i.ua dovgic@dabi.gov.ua 097 990 55 59// 044 291 69 85
22.	Drazhenko Alevtina	Public Council of Strategic initiative "Dnipro Pearl"; Project Manager, Secretary	alevtina.drazh@gmail.com 093 634 73 35
23.	Dudnyk Natalya	Ukrautodor; Chief Specialist of Safety Department; Operational road maintenance and road safety Administration	nmalush@rambler.ru 067-225-12-10
24.	Yefymenko Roman	SE "DerzhdorNDI"; Junior researcher at the Department of Road Safety	bdrndi@ukr.net (044)201-08-42
25.	Zalivan Alexander	NGO "Society of road users"; Vice President	azalivan@meta.ua 057 750 88 54
26.	Zerschykov Alexander		a.zerschikov@gmail.com
27.	Ivasenko Victoria	Poltava Technical University; Graduate Student, Department of roads, surveying and architecture of rural buildings	tikhovika@yandex.ru 095 509 03 43
28.	Kalashnikov Yegor	Road safety assistance fund; chairman of the Board	
29.	Karina Natalya	Red Cross National Committee; Head of the department of health and social programs and assistance in emergency situations	guman@redcross.org.ua 044 279 36 78
30.	Kvitka Mykola	State Emergency Service of Ukraine; Chief Specialist of First Aid; Health care for adults Administration; Department of Medical aid	kvitka@moz.gov.ua 095 495 80 80 044 253 82 92
31.	Kyyanovskyy Pavlo	State Agency on Emergency Situations	kiyanovskiy@mns.gov.ua 044 247 32 28// 044 247 32 83
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1.3 Results Achieved

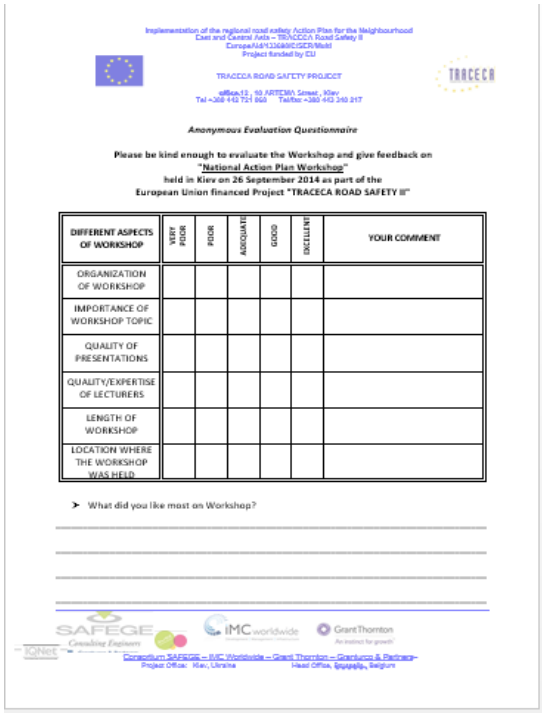
Results Achieved from the Workshop are shown in the following table.

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,	40 + Ukrainian 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 20 or so participants on the last day. This covered 5 aspects (see form below) and delivered an overall average score of 4.65 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
EuropeAid/132680/IC/SER/Multi
Project funded by EU

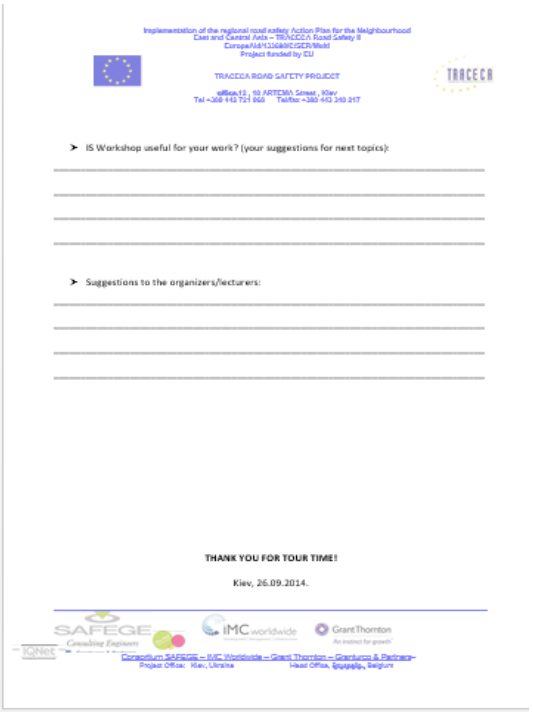
TRACECA ROAD SAFETY PROJECT

Anonymous Evaluation Questionnaire

Please be kind enough to evaluate the Workshop and give feedback on "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?



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➢ 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.

Evaluation results of Action planning Workshop 2-W008

21 participants from Ukraine

Kiev, 26 Sept 2014.

Main Questions		Participants answers																					AVG
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	
1	Organization of WS	5	5	4	5	5	5	5	5	4	5	4	5	4	5	5	5	5	4	5	5	5	4,8
2	Importance of WS topics	5	5	5	5	5	5	5	5	3	5	5	5	5	5	5	5	5	5	5	5	5	4,9
3	Quality of presentations	5	3	5	4	5	5	5	5	4	5	3	5	5	5	5	5	5	4	5	5	5	4,7
4	Quality/Expertise of lecturers	5	4	5	4	5	5	5	5	4	5	4	5	5	5	5	5	5	4	5	5	5	4,8
5	Length of WS	4	4	5	4	5	5	5	4	3	4,5	2	3	3	5	5	5	4	3	4	4	4	4,1
6	Location of WS	5	5	5	5	4	5	5	5	4	5	4	4	4	5	5	5	5	4	5	5	5	4,7
AVG		4,8	4,3	4,8	4,5	4,8	5	5	4,8	3,7	4,9	3,7	4,5	4,3	5	5	5	4,8	4	4,8	4,8	4,8	**4,65**

Legend:

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

What did you like most on WS?		Is WS useful for your work?	Suggestions to the organisers/lecturers
1	Communication with experts from different sectors	Yes	-
2	Learning important problems in RS, communication	Yes	-
2	Discussion, good facilitation. The most important thing is an action plan	Very important. Now everything needs to be done	Need to convince government to include this action plan into theirs and to get funding from EU banks
4	Alan Ross	World practice in RS management	-
5	RSA, EU directives	Yes	More materials on EU RS norms (e.g. norms of 2-3 countries on barriers, markings etc.)
6	It was interesting to understand how RS works in other countries; financing and management	-	-

7	Unique approach to solving various issues; good examples of international practice and presentations of lecturers	100% useful; Transport safet, international provision	Experts depending on areas
8	Organisation; approach	Yes, very useful	More events like this
9	Atmosphere - creative	Yes, very much.	Some suggestions are used but no potential for future. Need to take into consideration the real situation in the country. More details on RS management and funding sources
10	Active discussion; different points of view	Of course. Differences in RS in different countries	-
11	Draft of the document; range of issues	Partly	Higher representation of people who make decisions
12			
13	Methodology of RS management, international practice	WS's should be in different areas to be more focused and to achieve the goal	There was no analysis of the situation in Ukraine and there were no important problems outlined
14	Great selection of participants; high level of professionalism of the organisers		
15	Perfect		
16	Relevance, motivation		
17	Mariya Ivchenko		
18	Opportunity to to bring public opinion to influence government processes	Yes. Many statistics were shown for Ukraine, interesting international practice	Very short WS, need to organise extra breaks as we needed to consult experts
19	Important issues	Yes. Would like to know more abou specific norms, standards, methodics in RS in international countries (top)	
20	Level of communication, important information and international practice	Useful and important. The data about international practice is very important for modernisation and improvement of RS in Ukraine. Special thanks for raising questions on EMS.	Fully involve specialized organisations
21	Information content and importance. It was very useful to analyse, compare and develop actions for RS improvement	Yes. It is important to hear about cyclists and their safety	Continue on the same level

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. Change order of presentations to have impact/ effect

3. 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.

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 Ukraine and to plan future actions to address road safety issues.

Plate 3. WS participants, project team lecturers and Kiev project office staff at WS/TC in Kiev, 23-26 Sept. 2014

DRAFT

Version 1: 26 November 2014

UKRAINE
ROAD SAFETY IMMEDIATE ACTION PLAN
January 2015- December 2017

September 2014

Prepared by
key road safety stakeholders during a 4 day
road safety action planning workshop
held at Ministry of Infrastructure,
Kiev, Ukraine

23-26 Sept 214

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

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I ACTION PLAN 2015-17 DEVELOPMENT

1. ROAD SAFETY SITUATION IN UKRAINE

Road safety is a problem worldwide and many countries are now attempting to reduce the numbers killed and injured on their roads.

Table 1 below presents the road crashes, deaths and injuries reported to the Traffic police in Ukraine in recent years and it can be seen that although the numbers of deaths appear to have reduced since the peak in 2007, road deaths are still unacceptably high at around around 5000 deaths per year . A particularly worrying aspect is that nearly 40% of those killed are pedestrians. In just the last 8 years, 49,970 persons have been killed and 399,673 have been injured on Ukrainian roads causing immense hardship and grief to numerous families in Ukraine. A sad fact is that 1840 children were killed on the roads during this period.

Table1.1: Basic safety statistics for Ukraine[2]

Item \ year	2006	2007	2008	2009	2010	2011	2012	2 013
Traffic accidents	196376	278837	312751	229885	204242	186225	196410	191005
Casualties								
Deaths	7592	9574	7718	5348	4875	4908	5131	4824
Injuries	60018	78528	63254	45675	38975	38178	37519	37526
Child deaths	206	234	226	166	250	233	266	259
Pedestrians deaths	2608	3280	2859	1914	1871	1896	1946	1903
Drivers deaths	7650	9587	7426	5146	4705	4736	4993	4676
Passengers deaths	383	633	3152	2158	1988	1916	2011	1803

Source: Ministry of Interior of Ukraine

The most recently published international comparative statistics[3] indicate that after corrections are made for under reporting and definitions , Ukraine in 2010 had around 6 400[4] deaths and 50 900 injuries in road crashes Given that the numbers of police reported deaths in 2013 are almost exactly the same as in 2010 and definitions and under reporting has not changed in the interim it would not be unreasonable to assume that actual internationally comparable road deaths now in Ukraine are still around 6400 per year and that injuries remain around 50900 per year. Some of those injured may be disabled for the rest of their lives. Many victims require medical treatment and many may be temporarily or permanently unable to work after the accident.

Internationally it is known that for every death one can expect around 10 serious injuries and around 60-70 slight injuries, many of which are never recorded in police statistics, as they are often not reported to the police. Consequently, every year there are likely to be an additional 300,000 slight injuries resulting from road crashes. Over the last 8 years, with 50,000 deaths and nearly 400,000 injuries reported by police (and perhaps as many as 3 million slight injuries not recorded) road crashes may have resulted in as many as 3,450,000 casualties in Ukraine. This should be unacceptable in any civilised society and action can and must be taken to reduce such unnecessary deaths and injuries.

[2] These are police reported deaths and injuries which does not include corrections for under reporting or differing definitions

[3] Global status report on road safety , World Health Organization , 2013

[4] A later more comprehensive study funded by the World bank suggests that the true internationally comparable number of road deaths may be as high as 8000 deaths .

1.1 Road Traffic crash trends in Ukraine

Table 1.1: Reported crash deaths and injuries 2004-2013

Item	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013
Deaths	6966	7229	7592	9574	7718	5348	4875	4908	5131	4824
Injuries	53638	55999	60018	78528	63254	45675	38975	38178	37519	37526
Total casualties	60604	63228	67610	88102	70972	51023	43850	43086	42650	42350

Source: Ministry of Interior, Ukraine

1.2. Which road users die most frequently in road accidents in Ukraine?

The data for the last 8 years indicates that out of the 49970 persons who died[5] during the period 2006-2013 there were

PEDESTRIANS	18277 (37%)
TRUCK CRASH VICTIMS	9187 (18%)
CYCLISTS	3338 (7%)
BUS CRASH VICTIMS	2860 (6%)
CHILDREN	1840 (4%)
PASSENGERS	14044 (28%)

1.3. Where do people get killed or injured on Ukrainian roads?

Zagreba[6] in analysing the data for the 3 years 2010 -2012 showed that the capital region (Kiev province excluding the capital city of Kiev) has significantly higher death rate in relation to population than other provinces and is about twice as high as the average for the rest of the country This is partly explained by the fact that vehicle ownership is higher in that region and traffic levels because of commuting and transit traffic ,are also likely to be higher. However there are 6 other provinces which have significantly higher death rates than average for the country. Table1.3 below provides details of these provinces where risk of death on roads is highest

The relatively low rate of Kiev city at 66 deaths/million population shown in Table 1.3 overleaf should not be misinterpreted as Kiev being safe[7]. We need to compare Kiev to other European capital cities. The average fatality rate in major European capitals as a percentage of the national average rate is around 46% whereas in Kiev this is 68% The fatality rate in Kiev at 66 / million population also is significantly higher than in other European Capitals e.g. Paris (17 deaths / million), Madrid (27 deaths / million , Berlin (16 deaths / million). Hence, Kiev still has considerable scope for improvement. Kiev city and the surrounding province there may be worth focussing on as the initial priority area for attention

[5] This will not total 100% as some may appear in two categories (e.g. some of the truck crash victims may be pedestrians) . however this does indicate the main target areas for action to reduce deaths

[6] Zagreba V Measuring effectiveness and efficiency of road safety interventions in the United States , the European Union and Ukraine: a comparative study, Maryland School of Public Policy, 2013

[7] Zagreba – op cit

Table 1.3 : Most dangerous provinces in Ukraine

Province	Population Millions(2012)	Deaths (2010-12) per million population
Kiev Province (excluding Kiev city)	1.72	245.81
Zhytomyr	1.27	164.42
Chernigiv	0.91	145.44
Poltava	1.48	135.39
Kherson	1.08	134.45
Crimea	1.96	133.13
Zapoizka 1.72	1.79	124.28
Kiev capital city	2.81	66.09
National Average	45.6	107.2

1.4 Why do people die or get injured on Ukrainian roads ?

Table 1.4: Main Contributory Factors identified by police (Data for the 8 year period 2006-2013)

	Main violations	**Deaths**		**Injuries**	
		No	**%age**	**No**	**%age**
1	*drink drive*	*1218*	*2*	*2436*	*1*
2	*speed related*	*19526*	*39*	*36273*	*9*
3	*Manoeuvring*	*8005*	*16*	*14786*	*4*
4	*pedestrian crossing rules*	*1152*	*23*	*2163*	*1*
5	*overtaking*	*1126*	*23*	*2030*	*1*
6	*entry to oncoming lane*	*6793*	*14*	*12459*	*3*
7	*passing through intersection*	*1491*	*30*	*2745*	*1*
8	*safe distance*	*1586*	*32*	*2969*	*1*
9	*sleeping when exhausted*	*977*	*2*	*1825*	*1*
10	*crosswalk in wrong place ?*	*5060*	*10*	*9224*	*2*
11	*Cross walking unexpectedly*	*4799*	*10*	*8717*	*2*
12	*Cross walking when drunk*	*954*	*2*	*1777*	*1*

Source: Ministry of Interior of Ukraine

Note: Some deaths may be counted under 2 or more violations as the purpose here is just to show the major contributory causes leading to death and injury on Ukraine roads

From the above it can be seen that the major areas for urgent attention are speed, overtaking, entry into to oncoming lanes, passing through intersections, keeping a safe distance and pedestrian safety. Although not showing up as too big a problem in the above aggregated statistics for the 8 year period. There are around 250-300 deaths and around 3000 injuries each year due to drink driving (drink drive enforcement did not start until around 2008 so the total numbers covers a shorter period than other factors so looks less important). Other major potential factors of not wearing seatbelt wearing and texting/telephoning while driving are not recorded by police but like to be very important

2. BACKGROUND

2.1 Introduction to Immediate Action Plan

With a help of TRACECA regional road safety project, the Ministry of Infrastructure of Ukraine and the representatives of key Ukrainian road institutions have reviewed all sectors of road safety and have

developed a road safety immediate action plan for Ukraine. This 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 order to facilitate more effective interventions and efforts by relevant organisations able to influence road safety. It also identifies the areas for most urgent action by relevant agencies to improve the very high number of road deaths and injuries in Ukraine

Ukraine is still at a relatively early stage of road safety development and many of the basic facilities, activities and capabilities required for the desired "Safe Systems" approach are just not available at this time amongst the key stakeholders or in the existing government systems and procedures in Ukraine. Considerable work will first need to be done to strengthen capacity, practices and activities before the key systems and knowledge can be in place to do 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 indicates that the common international risk factors of low seatbelt wearing, speeding, drink driving and inadequate protection for pedestrians are also the most common risk factors in Ukraine . The Action plan therefore focuses on institution building to develop local capacity and on the key risk factors for the present just to get activities going. In due course, once a new or improved crash data system has been installed , 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. Establish an interim coordination mechanism by setting up a multi sector inter agency working group and sector specific 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 Ukraine
4. Encourage stakeholders to focus on the known highest risk factors
    - Seat belt wearing
    - Speeding
    - Drink Drive
    - Pedestrian safety

The Immediate Action plan will be implemented via a Partnership approach, which will enable different government ministries and departments to work together with the Private Sector and civil society/NGO stakeholders. The interim interagency working group will be responsible for overall coordination, monitoring and implementation of the immediate road safety action plan. The road safety Department within the Ministry of transport will chair the interim interagency working group until more formal arrangements can be put in place by the new government in Ukraine .

Municipal level committees will be encouraged 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 Ukraine have nevertheless made very dramatic improvements in road safety. They did this by applying the well proven techniques and approaches that have been developed in EU over the last few decades There is no reason why experts in Ukraine could not achieve similar success by applying similar approaches

Table 2.1 Other ex-Soviet countries 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 Ukraine is that is not alone in facing road safety problems and many other countries in EU including some former Soviet countries with similar systems and structures have already developed and tested the tools and interventions and identified those that are most effective. We can select from the menu of successful interventions implemented in other countries to select those that are most appropriate for Ukrainian conditions and current stage of economic and social development. What is clear from the European experience is that setting ambitious targets is very beneficial[8] 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 Outputs if road safety is to be improved

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

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

Sector 3: 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.

Sector 4 : 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

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

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

Sector 6: 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 the establishment of appropriate safety support systems that enable 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 Ukraine

The interim inter-agency working group should try to get new legislation in place to ensure adequate funding to enable road safety as well as developing the required expertise and capacity among relevant groups to implement the required actions. Key tasks will be to implement a new or improved crash data system to improve the quality of the police crash database and to make the data accessible to all stakeholders so that safety activities can be decentralised horizontally to individual stakeholders and vertically to Municipalities so they can take action at local level . levels. More road safety research will also need to be initiated within academic and scientific institutions in Ukraine. The 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 (motorcycle riders, pedestrians, children, peoples with disabilities) is particularly important in Ukraine where around
39 % of the deaths are to pedestrians . These are 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 conducted along the main road network. The recommendations of the EU Directive 2008/96 EC on road safety infrastructure management should be implemented by Ukravtodor introducing Road Safety Audit and Road Safety Inspections on main and local roads. More road engineers should be trained in carrying out such safety activities. Priority should be placed on incorporating audits into all future road design and infrastructure projects and implementing road safety inspections on existing roads to identify safety deficiencies so that hazardous locations can be improved.

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 improve 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 Ukraine suggests that older vehicles and second hand cars will remain a major part of the fleet for the foreseeable future. It is therefore essential to ensure that such vehicles are road worthy before they are allowed to use the roads in Ukraine. There is an urgent need to resume technical inspections for all vehicles and to improve the current practices and procedures in technical inspection of commercial vehicles. The quality of technical inspection should be systematically improved and checked via regular, frequent road side inspections of vehicles

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 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 Ukraine . These include low seatbelt wearing rates, speeding, drink driving, mobile phones and texting when driving and inadequate facilities for pedestrians. Activities will need to include public education through the various media channels, road safety curriculum in schools and universities, peer education and other strategies. 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 Ukraine due to the increased risk they face when travelling in a road system that does not 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. Even though the speed limit is supposed to be 60 Km per hour in urban areas police do not prosecute motorists unless they exceed 70 kph. Allowing motorists to travel at 70 kph 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 70 kph over 85% will die and at 80 Kph 100% will die The reason why so many pedestrians die on Ukraine road is primarily because of the very high the speeds that are permitted in built up areas (39% of total deaths over the last 8 years were related to excessive speed)

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 high in Ukraine and according to Ministry of Health 13 % of deaths in Ukraine occur because medical assistance did not reach them within the golden hour. Absence of a single 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 are dying needlessly because of the insufficient first aid at the scene, slow extraction of injured persons from the damaged vehicle, slow transport to a medical facility, 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, a key priority in Ukraine will be in expanding the numbers of 1st aid trained persons who are 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 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 will need to develop and strengthen emergency medical services which would involve first aid, transport, capacity of hospitals, mechanisms to manage the system and integrated information systems. Physical rehabilitation of the victim post-crash will also be included in the Plan.

Sector 6 Changing attitudes
This is an essential part 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 and influencing his immediate family to wider family of relations, to friends and acquaintances, to people in his neighbourhood, to people he works with or who he employs.

Safety has to be made everyone' s business and 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 should be made to feel that such behaviour is unacceptable and they should be heavily fined and punished for putting others at risk

2.5 Concluding remarks

The proposed 3 year action plan is based on an assessment of each sector and was developed by local experts in cooperation and discussion with international experts of the TRACECA road safety project . This identifies the most urgent needs in Ukraine. 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 . Appendix C presents a number of performance indicators that can be used by local experts to monitor and assess progress in road safety over the coming years to ensure that sure that adequate progress is being made in each area.

The proposed total road safety investment required in UKRAINE over the 3 year period is around Euro xxx 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 Ukraine **over $US 4400 Millions** each year 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 stakeholders with assistance from TRACECA Road Safety Project

Action plan 1: Institutional improvements

IMPACT INDICATORS	% ACHIEVEMENT	Actions required with time frame	Estimated costs	Lead Stakeholder	Stakeholders involved
1	2	3	4	5	6
1.1 ADR 1957			To be discussed Reviewed		
1 Accede to agreements	100	Nil			
2 Translation to local language	100	Nil			
3 Review existing legislation	90	3.1 Introduce pre-licensing inspection by Jun 15 3.2 Review legislation by Sept 1515, 3.3 Establish regular monitoring procedure by Dec 15		MI, MIA	AsMap
4 Ratify and publish	100	Nil			
5 Training/capacity development	70	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		MI, MIA	
6 Regular checks	50	6.1 Random checking procedures in place by June 15 6.2 Random rigorous checks being undertaken by Dec 15 6.3 Over 95% compliance with requirements			
7 UNECE Working parties	50	7.1 Relevant Ukrainian experts attending WP meetings by Sep 15 7.2 Ukrainian experts contributing to work of WP BY Dec 15	provide expenses for the UNECE, 2 delegation	MI, MIA	Ukrainian professional organizations and the participants of the process
1.2 Vehicles Regulations Agreement 1958					
1 Accede to agreements	100	Nil			
2 Translation to local language	100	Nil			
3 Review existing legislation	90	3.1 Review / improve existing legislation by Jul 15			
4 Ratify and publish	100	Nil l			OS, Technical Services
5 Training/capacity development	0	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		MI	OS, hardware manufacturers, technical services
6 Regular check	0	6.1 Form state enterprise "DerzhavtotransNDIproekt" (in accordance with orders Cabinet of Ministers № 847 of 17.09.14) 6.2 System reviewed every 2nd year to ensure effectiveness	20 million euros ??		
7 UNECE Working parties	10	7.1 Relevant Ukrainian experts attending WP meetings by Sep 15 7.2 Ukrainian experts contributing to work of WP BY Dec 15	provide expenses for the UNECE , 2 delegation	MI	

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 90 100 80 100 20	 Nil Nil 3.1 Review and Finalize legislation by Jun 15 Nil 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 Nil 7.1 Relevant Ukrainian experts attending WP meetings by Sep 15 7.2 Ukrainian experts contributing to work of WP BY Dec 15	Jun 15	 MIA ME, MIA,MI MIA,MI	 National forum on issues of road safety International carriers and road users
1.4 Convention on Road Signs and Signals 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 50 100 80 100	 Nil Nil 3.1 Review and Finalize legislation by Jun 15 3.2 Introduce a programme of systematic removing /replacing non compliant signs Nil 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 Nil 7.1 Relevant Ukrainian experts attending WP meetings by Sep 15 7.2 Ukrainian experts contributing to work of WP BY Dec 15	 50 thousand euros per year 50 thousand euros	 UKRAVTODOR Avtodor of local authorities MIA, MI MI, UKRAVTODOR	 Specialized non-governmental organizations, and central government bodies

1.5 AETR 1970 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 10 10 10	 Nil Nil Nil Nil 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 non compliance by Jul 15 6.2 System reviewed every 2nd year to ensure effectiveness 7.1 Relevant Ukrainian experts attending WP meetings by Sep 15 7.2 Ukrainian 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 check 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 1Accede to agreements 2Translation to local language 3 Review existing legislation 4 Ratify and publish 5 Training/capacity development 6 Regular check 7 UNECE Working parties	 100 100 10 100 10 10 10	To be checked with relevant experts ?? this cannot be right since no testing being done ?? ??l	MI, MIA		

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	 0 0 0 0	1.1 Legislation developed by end 12/14 1.2 Legislation enacted by end 3/15 2.1 Interim interagency working group (IWG) by end 11/14 2.2 Lead agency specified by 3/15 2.3 Official coordination body established + operating by end 6/15 3.1 Full time secretariat with at least 3 persons by end 3/15 3.2 Staff secondments to Secretariat as needed by end 6/15 3.3 Secretariat has funds for operations and activities by end 3/15 4.1 3rd party ins levy insurance funds to overseen IWG by end 4.2 National road safety Fund established by end 6/15		The Cabinet of Ministers of Ukraine	MIA MIU ME MF UTI UKRAVTODOR
Implementation of National Road Safety Strategy 1. Strategy is developed 2. Stakeholder consulted 3. Strategy approved by Government 4. Implementation commenced	 100 100 100 10	 Nil Nil Nil 4.1 IWG adopt strategy as broad direction of activities by 12/14 4.1 IWG commence implementing where feasible by 3/15			
Realistic and long term targets for road crash 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 75 75 50	 Nil 2.1 Existing action plan reviewed /updated as necessary by end 12/14 3.1 Govt approval of a State road safety programme by end 6/15 4.1 Monitoring system established for action plan by end 6/15 4.2 IWG reporting progress quarterly to Govt transport c/tttee by 6/15			
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	 0 0 0	 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 goes into road safety fund by end 1 /15 2.3 other streams of income agreed for road safety by end 6/15 3.1 Govt ministries have a budget item for road safety by 12/15 3.2 Minstries implementing interventions in their areas by 06/16	E		

4. Monitoring demonstrates effectiveness of investments in road safety	0				
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 50	nil Nil 3.1 annual exchange of information MIA / Motor vehs Bureau by 12/15. 3.2 Require to show insur. certificate at (?)annual licensing 12/15 3.3 Increased police checking of documents by 12/15	500 thousand euros ?	Motor (Transport) Insurance Bureau of Ukraine and MIA MIU	The subjects the insurance market
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	10 10 10 10	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 System 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 crash data being collected via police crash 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	0 100 100 100 100 100 70	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 4.1 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	50 thousand euros	MIA ME	National forum on issues of road safety

7. Crash data system enables effective analysis of crash causes and remedial measures		7.1 police and stakeholder able to identify high risk rod users and high risk behaviours by 12/15		MI	
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 report being circulated 5. Effective strategic management of implementation	 0 0 0 0 0	 1.1 Regional group establishe by 12/15 2.1 impacts for monitoring agreed by 03/15 3.1 Impact monitoring system established by 03/15 4.1 Quarterly reports available 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 develop 4. The budgets needed estimated	 70 70 70 0	 1.1 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 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 6. RSA trainers trained 7. In country RSA training programs established	 0 0 0 0 0 0	 1.1 discussions held between roads agency heads by 06/15 1.2 Regional guidelines of RSA in use by 09/15 2.1 RSA policy implemented by 06/15 2.1 RSA s being undertaken in compliance with policy by 12/15SA 3.1 Discussion completed with other Road agencies about 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 5.2 TRACECA project trained and certified RSA instructors offering regional training courses by 12/15 6.1 RSA trainers trained by 03 /15 7.1 RSA Training course being implemented at least once a year by 6/15			

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 / experience via regional working groups by 09/15 2.2 database / repository established for sharing documents . manuals , procedures by 12/15 3.1 At least 1 regional road safety conference by 12/ 15 3.2 Regional working groups agree to hold Annual conference 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 3. Establish common data system about violations 4. Mutually recognized sanctions being applied across the Region	 70 0 0 0	 1.1 Seek EU TAIEX assistance to review penalty systems by 06/15 1.2 implement revised system by 12/15 2.1 Police in 10 countries to have discussed common penalty system by 06/15 3.1 Provide access both for the traffic police officers and UTI to a single fine base by 09/15 3.2 Discussions with police forces across 10 countries about a common violations data system by 12/15 4.1 Mutually recognized sanctions being applied across the region discussed by Police of 10 countries by 12/15	 Traceca project 50,000 euro Traceca project Traceca project	 MIA, M MIA, MI I 	 Motor (Transport) Insurance Bureau of Ukraine and National forum on issues of road safety Motor (Transport) Insurance Bureau of Ukraine and National forum on issues of road safety

Action Plan 2: Safer road Infrastructure

IMPACT INDICATORS	% of ACH	Actions required with time frame	Estimated costs (euro x1000)	Lead Stakeholder	Stakeholders involved
1	2	3	4	5	6
Implementation of road safety audit/ assessment			To be discussed		
1. Legal basis for RSA	0	1.1 prepare legislation and Cabinet of Ministers Regulation; 04/15 1.2 Coordination with concerned departments; 06/15 1.3 Consideration and approval of the Council (Verhovna Rada) and The Cabinet of Ministers; 07/15	Reviewed 10	Ukravtodor CMU	Ministry of Interior, Ministry of Finance, Ministry of Economy, Ministry of Regional Development, the State Committee (SCURPE)
2. Adequate manual in use	15	2.1 Develop RSA policies and Procedures by 6/15 2.2 regional manual accepted in Ukraine law by 8/15 2.3 Coordinate/ consult with others by 9/15 2.4- Register in the Ministry of Justice; 10/15	10	Ukravtodor	Ministry of Infrastructure, Ministry of Interior, Ministry of Finance, Ministry of Economy, Ministry of Regional Development, the State Committee (SCURPE) Ministry of Education, Ministry of Interior,
3. Trained road safety auditors available	0	3.1 .traceca trained auditors training others by 06/15 3.2 RSA training available at least once / year by 10/15 3.3 RSA training institutionalised by 12/15		Ukravtodor	Ministry of Infrastructure, Ministry of Interior, Ministry of Finance, Ministry of Economy, Ministry of Regional Development, the State Committee (SCURPE)
4. Road Authorities have budget to purchase RSA	10	4.1. roads agencies include budget for RSA by 06/15 4.2 RSA being commissioned from consultants by 12/15 4.3 Consultants training their staff in RSA by 12/15	10	Ukravtodor CMU	Ministry of Infrastructure, Ministry of Interior
5. All new, reconstructed and rehabilitated roads being safety audited	10	. 4.1 Amend legislation as necessary by 06/15 4.2 all road authorities required to do annual report on road safety by 12/15	10		Ministry of Infrastructure, Ministry of Interior
6. RSA Recommendations being implemented by Roads Authority	10	5.1 If RSA recommendations not implemented road authority must do explanatory report by 12/15		Ukravtodor Ukravtodor	
Implementation of Blackspot management ent					
1. Legal basis for BSM	80	1.1 prepare legislation and Cabinet of Ministers Regulation; 04/15 1.2 Coordination with concerned departments; 06/15 1.3 Consideration and approval of the Council (Verhovna Rada) and The Cabinet of Ministers; 07/15	10	Ukravtodor CMU	Ministry of Infrastructure, Ministry of Interior, Ministry of Finance, Ministry of Economy, Ministry of Regional Development, the State Committee (SCURPE)

2. Adequate BSM Manual in use	20	2.1 Develop BSM policies and Procedures by 6/15 2.2 regional manual accepted in Ukraine law by 8/15 2.3 Coordinate/ consult with others by 9/15 2.4- Register in the Ministry of Justice; 10/15			Ministry of Infrastructure, Ministry of Interior, Ministry of Finance, Ministry of Economy, Ministry of Regional Development, the State Committee (SCURPE)
3. Trained black spot investigators available	10	3.1 .traceca trained BSM Instructors training others by 06/15 3.2 BSM training available at least once / year by 10/15 3.3 BSM training institutionalised by 12/15	20	Ukravtodor	MIA, MI. ME, Ukravtodor
4. Annual hazardous improvement program in place	80	4.1. roads agencies include budget for BSM by 06/15 4.2 Blackspot investigations being commissioned from consultants by 12/15 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		MI Ukravtodor	MIA. MI
5. Road Authorities have dedicated funds for BSM improvements	10	5.1 road authority have budget line for BSM by YAmend legislation as necessary by 06/15 5.2 all road authorities required to do annual report on road safety by 12/15	20		MI, MIA
6. BSM recommendations being implemented by Roads Authority	50	6.1 If Blackspot investigation recommendations not implemented road authority must do explanatory report by 12/15 6.2 Monitoring over the implementation of measures based on the level of funding(the end of the year)	5	Ukravtodor Ukravtodor	MI, MIA
Implementation of the program to define routes for freight avoiding residential areas					
1. Legal framework exists	10	1.1 Develop, coordinate and duly approve CMU Resolution; 04/15	10	Ministry of Infrastructure	Ukravtodor
2. Freight traffic surveys done to assess needs	70	2.1 Needs assessment completed by 6/15			Ministry of Infrastructure
3. Alternative routes defined	30	3.1 Freight routing strategy devised by 12 /15 3.2 Freight routes identified by 03/16			Ukravtodor
4. Signing and markings placed	80	4.1 Programme of freight route signing devised by 12/15 4,2 Programme of freight route signing commenced 12/16			
5. Effective enforcement of commercial vehicle routes	80	5.1 Penalties for not using freight routes increased by 12/15 5.2 Police enforcing non use of freight routes by 06/16			
6. Commercial through traffic in residential areas reduced	90	6.1 Freight surveys show low numbers of commercial vehs 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 4. Most hazardous locations are being systematically improved via annual programs	10 0 0 20	1.1Economic researchers guided do research by 03/15 1.2 Crash costing estimates available by 07/15 2.1 costs of different severity of crash known by 07/15 2.2 Cost of different severity of casualty known by 07/15 3.1 Interventions being assessed using on cost benefit analyses (CBA) by 09 /15 3.2 ranking based on CBA by 09/15 4.1 Blackspots prioritised on basis of CBA by 09/15 4.2Funds being used most cost effectively by 10/15	20	Ministry of Infrastructure, Ministry of Interior, Ministry of Finance, Ukravtodor, MoH	Ministry of Regional Development
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	20 90 90 90 80	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	20	UkrAvtoDor, Ministry of Internal Affairs, Ministry of Regional Development, ASMAP ASMAP, UkrAvtoDor	Ministry of Infrastructure Ministry of Infrastructure
Building the capacity of engineers and technical staff 1. Adequate Manuals/Guidelines for safety engineering produced	20	1.1Ukravtodor in PIARC; 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 by 12/15		MoEd	Ukravtodor

2. Selected Government, Consultants and Academic staff trained	20	2.2 TRACECA trained instructors run course by 12/15 2.3 consultants and academics being trained by12/15 2.4 courses self financing by 12/15		Ukravtodor, MIA	MoEd
4. Curricula for University courses produced	0	3.1 university assisted to develop curriculum by 06/15 3.2 lecture materials provided to universities by 12/15 4.1 Road safety in engineering courses by 12/15			Ukravtodor
4. Students being taught about safe design approaches during their studies	0	4.1 Students aware of safety issues by 12/16		CMU, MoEd, MIA, MEA	

Action Plan 3: Safer Vehicles

IMPACT INDICATORS	% of ACH	Actions required within time frame	Estimated costs	Lead Stakeholder	Stakeholders involved
1	2	3	4	5	6
Vehicles regularly checked for technical requirements			To be discussed Reviewed		
		1.1 Analysis of EU legislation (translation) by 02/15			
1. Int. convention ratified	60	Approval by 0315	CO	MI	MI, Social organisations, EU representatives
2. Legal basis for vehicle inspection/Legal basis for control and access for operators of transport services	70	2.1 EU compliant legislation /standards for the technical inspection of commercial vehicles by 06 /15			MI, Social organisations, EU representatives
		2.2 EU compliant legislation/ standards for technical inspection of all vehicles 06/)		MI	
					MI, Social organisations, EU representatives
3.. Government certified/regulated workshops and inspection stations	0	3.1 Criteria, standards, rules, tendering procedures for potential inspection station by 06/15			
		3.2 Large vehicle manufacturers invited to tender for inspection services by 09/15			MI, Social organisations, EU representatives
		3.3 Inspection procedures documented in Manuals by 06/15		MI	MI, Social organisations, EU representatives
		3.4 inspection stations meeting criteria registered ,licenced and supervised by 12/15		MI	MI
		3.5 Implementation of relevant EU directives and guidance on technical inspection by 03/16		MI	MI, EU representatives
		3.6 Effective monitoring / controls in place to ensure tech inspections system working correctly by 06/16		MI	MI, Social organisations, EU representatives
				MI	MI, Social organisations, EU representatives
4. Number of defective vehicles in traffic reduced	10	4.1 frequent random road side checks being implemented by police and land transport safety inspection authority by 06/16		MI MI MIA	Social organisations
Internationally recognized vehicle safety regulations applied to imported vehicles					
1. Imported vehicles meet International (UNECE) standards	50	1.1 Legislation reviewed to ensure compliance with unece standards for imported vehs by 06/15		MI	MIA ,MI business entities, road users
2. Legal basis exists to prevent import of unsuitable/ unsafe vehicles	70	2.1legislation amended to prevent import of unafe vehicles by 12/15		MI	MIA ,MI business entities, road users
		3.1 Standards agency do random checks of spare part imports by 12/15			Social organisations,The consumer right protection

3. Adequate controls to prevent import of fake spare parts	5	3.2 Sever penalties for importers of fake parts by 06/16		MI	
Vehicles used to transport dangerous goods meeting the standards of all technical requirements					
1. ADR certified vehicles	30	1.1 All vehs carrying dangerous goods ADR certified by 06/15 1.2 Rigorous enforcement of ADR regs by 09/15,		MI	MIA ,MI business entities, road users
2. ADR certified drivers	30	2.1 Drivers with dangerous cargoes all ADR certified by 06/15 2.2 Rigorous enforcement of ADR regs by 09/15	0	MI	MIA ,MI business entities, road users
3. Emergency services have had special training to respond to/deal with ADR accidents	30	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 inADR by 12/15	0	MoH, MoEm	MIA ,MI business entities, road users

NOTE: The group decided to add 55,369(268) article from the Plan of the events about the EU implementation
"The establishment of "State auto-transport project institute of scientific research" based on the governmental power"

Action Plan 4: Safe road user behaviour

IMPACT INDICATORS	% of achievement	Actions required with time frame	Estimated costs	Lead Stakeholder	Stakeholders involved
1	2	3	4	5	6
- Legislation in place for: 1. Seat belts	50	1.1 Require all vehs to have functioning seat belts by -6/15 1.2 require front and rear seatbelt wearing by all veh occupants 09/14 1.3 Make driver liable if any occupant not wearing seatbelt by 09/15	To be discussed Reviewed 1. Till 01.01.15 - 8 000 UAH	1. MIA, MI	1. Discussing the questions at the Road Safety Forum (November 2014)
2. motorcycle helmets + (bicycles)	30	2.1 Require all motor cyclists to wear helmet by 06/15 2.2 Require obligatory usage of retro reflectors by 09/15	2. Till 01.01.15 - 8 000 UAH	2. MIA	2. Population
3. child restraints	10	3.1 Include requirements for child restraints in law by 06/15	3. Till 01.01.2015 Expenses — 8 000 UAH.		Discussing the questions at the Forum
4. mobile phone use	10	4.1 Introduce severe when driving by 06/15	Social campaign — from 50 000 UAH per year		
5. speed	30	5.1 50 km/h limit for towns / built up areas with a 5 km/h allowance error by 06/15 5.2 amend design standards to permit traffic calming by 06/15	4.2 Till 01.01.2015— from 50 000 UAH per year		Social organizations, MoH, MIA, MOEd, business
6. drink	40	6.1 set Drink Drive limit at 0.3 by 06/15 6.2 New drivers (under 2 years exper) limit =0	6.2 — 3% of the cost of alcoholic drinks Possible to realise till 01.01.2015		Discussing the questions at the Forum
7. drugs	20	7.1 Review EU best practices by 03/15 7.2 Introduce legislation according to European standards of traffic policing by 12/15	Till 01.03.2015		
8. Effective enforcement of safety legislation	50	8.1 Police trained on new safety legislation by 12/15 8.2 Police doing effective enforcement by 06/16			
Safety Campaigns 1. Safety campaigns use appropriate media	5	1.1 Wkg group sub committee to oversee/ coordinate safety campaigns by 06/15	till 01.01.15	1. Coordinating Council	1. MIA, MoH, ME, Business, social organizations

2. Government budget exists for road safety campaigns	0	1.2 calendar of campaigns using appropriate media developed by 06/15 2.1 Road safety fund orividing a budget for road safety campaigns by 06/15 2.2 Govt provides free access to govt TV and radio channels	till 01.01.15	2. The Cabinet Ministers	
3. SCO (NGO) and Private Sector active in financing / supporting of road safety campaigns	10	3.1 Insurance industry TPP levy into safety fund by 03/15 3.2 NGOs active in road safety 3.3 Business providing monetary and non monetary resources for campaigns by 06/15 3.4 NGOs active in Road Safety Forum and its tasks by 12/15.	till 01.01.15	3. Ministry of Finance, EBA	MoEd, The association of driving schools, training centers, universities
4. Age appropriate education material available for school children	0	4.1. Review needs and existing activities in light of best international practice by 09/15 4.2 develop age appropriate materials for schools by 03/16. 4.3. Train teachers in last year of teacher training colleges how to teach road safety by 06/16 4.4 issue each teacher a road safety training pack to take with them to their school by 12/16. 4.5. Develop a Road Safety informational portal for teachers, parents, children.	4.1. till 01.06.15. 200,000 UAH 4.2. 200,000 UAH 4.3. 100 000 UAH	4 .Sesame Street, MoEd.	Driving Schools
Enforcement					
1 Traffic police have adequate man powe, and vehicles	20	1.1 Traffic police (TP)manpower to be 10-12% of total police by 12/151.1 1.2Traffic police patrol vehicles ratio to be 1 car per 4 traffic police by 12/15	Till 01.06.15	MIA	
2. Traffic police have adequate equipment for enforcement	20	2.1 TP have xxx speed detection devices by 12/152. 2.2 TP have yyy roadside alco testers by 12/15 2.3 TP have zzz evidential alco testers by 12/15 2.4 TP / govt explore options for extensive programme of l red light, speed and video cameras by 12/15 (1 km of a road) by 06/15	Till 01.02.15		
3. Traffic police have adequate training	20	3.1.TP trained on traffic legislation by 12/15 3.2 TP Trained in 1 st aid by 12/06 3.3 TP trained in crash investigation by 06/16 3.4 TP trained in managing ADR incidents e	Till 01.01.15		

4. Traffic police enforcement activity is based on crash data analysis	20	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 4.3 All police enforcement activity data led by 09/15			
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	0	1.1 CMU resolution requiring 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 12/15 1.3 Disciplinary action being taken on staff not complying with road safety policies (eg no use if phone when driving , wearing seatbelts etc) by 12/15	0 UAH	CMU Ministry of Infrastructure	
2. Large private sector organizations have road safety policies related to their employees, drivers and vehicles	20	2.1 Road safety charter and road safety policies promoted by 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	0 UAH	Road Safety Forum	
3. Road safety organizations supporting Government and private sector organizations with guidance and safety materials	0	3.1 NGOs promoting road safety charter and providing guidance / materials by 12/15 3.2 NGOs working with / cooperating with Govt agencies to promote road safety at local level	0 UAH		

Action Plan 5: Post Crash Care

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				To be discussed Reviewed	
1. Nationwide EMS system exists	60	1.1. Coordination of EMS service with other emergency services by 03/15 1.2. Systematic Training of professional dispatchers in all regions by 12/16 1.3.Systematical trainings of emergency services (MIA, State Emergency Service, Ministry of Defence by 03/15; 1.3. legislation on a single emergency number "112"– by 03/15; 1.4. Obligatory medical insurance by 10/16		Cabinet of Ministers MoH	1. Ministry of Interior, Ministry of Defense of Ukraine, State Emergency Service, local authorities, insurance companies.
2. Crash victims getting effective first aid treatments within 30 min	20	2.1. Technical provision (Reanimobiles of class C, gps) by 10/15 2.2. HR medical personnel by 05/16; 2.3. Triage system agreed / in use by 05/15); 2.3 Trained staff in pre hospital activities increased to international best practice levels by 05/15)	Managerial decisions on the level of central and local executive authorities	2. CMU, MoH	2. Local authorities, insurance companies, higher medical and pharmaceutical educational institutions of I-IV accreditation levels, regardless of their form of ownership and subordination, departments of centres for emergency medical care and disaster medicine, Red Cross, specialized non-governmental organizations
3. Emergency ambulance crews have first aid training	100	3.1. Systematic joint Trainings on EMS, in coordination with other emergency services (Ministry of Internal Affairs Ministry of Defence of Ukraine, State Emergency Service) by 03/15; 3.2 Technical provision (till 05.2016).	Government budget, local budget and other sources.	3.CMU, MoH	3. MIA, State Emergency Service, Ministry of Defence, Local authorities; insurance companies
4. Police and rescue services have first aid training	25	4.1. Trainings for police and rescue services on first aid, and transporting the injured by 09/15 4.2. Systematic joint training in coordination with other emergency services by 05/16 4.3 adequate first aid kits, AMO-2, guidance et available by 05/15		4.CMU	4. Local authorities, insurance companies, higher medical and pharmaceutical educational institutions of I-IV accreditation levels, regardless of their form of ownership and subordination, departments of centres for emergency medical care and disaster medicine, Red Cross, specialized non-governmental organizations
5. Commercial (bus/taxi/truck) drivers have first aid training	10	5.1.Agree with freight transport industry a systematic programme of training commercial drivers by 16/15 5.2 Improve the quality of training, retraining and advanced training of drivers of commercial vehicles by 05/16.		5.MoH, Ministry of Infrastructure, Ukrtransinspection	5. Ministry of Infrastructure; MIA, Local authorities

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	 30 40 50 100	1.1 Obligatory Medical insurance by 10/15; 1.2 Material-technical provision (till 10.2016); 2.1. Mandatory medical insurance by 10/16; 2.2. Logistical support of units by 10/16); 2.3. implement procedure calculating the cost of providing health care services by 10/16. 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	Managerial decisions on the level of central and local executive authorities Budget of central and local authorities On level of entrepreneurs and users of their services	CMU, MoH CMU, MoH MoH	Local authorities and insurance companies Insurance companies Local authorities, insurance companies, higher medical and pharmaceutical educational institutions of I-IV accreditation levels, regardless of their form of ownership and subordination, departments of centers for emergency medical care and disaster medicine, Red Cross, specialized non-governmental organizations
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	 10 10 10	1.1 International 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	Managerial decisions on the level of central and local executive authorities Government budget, local budget and other sources.	CMU, MoH	Insurance companies, higher medical and pharmaceutical educational institutions of I-IV accreditation levels, regardless of their form of ownership and subordination, departments of centres for emergency medical care and disaster medicine, Red Cross, specialized non-governmental organizations
Fair settlements and justice for injured and bereaved 1. Motor vehicle insurance system operates nationwide 2. Crashes investigated professionally by the Traffic Police 3. Crash investigations identify correct crash causes 4. Justice system provides fair settlements and justice for injured and bereaved	 2-5% 50 50 20	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 12/15 2.1 TP trainers trained in crash investigation by 12/15 2.2 TP training other TP in investigation by 06/16 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 12/15	Managerial decisions on the level of central and local executive authorities Government budget, local budget and other sources.	1. Ministry of Health 2. MIA, MoH 3. MIA, MoH	1. National commission which does a governmental regulation in the area of financial services, MIA 2. Insurance companies, line institutions 3. General Prosecutor of Ukraine, insurance companies, specialized institutions 4. General Prosecutor of Ukraine, insurance companies, specialized institutions

		4.2 Court awarded compensation payments for death or injury are fair and in line with international best practice by 12/15		4. MIA, MoH	
"one call" emergency number 1. Single emergency number established nationwide 2. Control centres trained to provide fast and efficient responses to help victims 3. Necessary equipment in place for operation of center	0 10 10	1.1. Adapt law to permit this by 09/15 2.2. In the same time with adoption of the Law: training of personnel (dispatchers- coordinators), (till 10.2016) 3.1. Explore the experience of centres' functioning in other countries (till 12.2015); 3.2 Create and equip centres in accordance with the requirements (till 10.2016).	Managerial decisions on the level of central and local executive authorities Government budget, local budget and other sources.	Cabinet of Ministers	MoH MIA State Emergency Service Ministry of Defence, insurance companies

Action Plan 6: Changing attitudes to road safety

IMPACT INDICATORS	% of ACH	Actions required within time frame	Estimated costs	Lead Stakeholder
1	2	3	4	5
Partnerships between Government and Civil Society Organizations developed				
1. Legal basis for CSO (NGO)	50	1.1 Review regulations and legal basis to regulate relations between NGOs and Government. by 03.15. 1.2 Amend where necessary to introduce best international practice by 06/15 1.3 Establish a forum of NGOs for Road Safety as a consultative body from which representatives can be on interagency working group by 09/15	10 000 UAH	1.RS Forum in State Autoinspection MIA Ukraine
2.CSOs (NGOs) active in road safety	30	2.1. NGOs active and coordinating / cooperating via the safety forum by 09/15. 2.2. TRACECA project providing technical advice / support to safety forum by 10/15		2. Forum
3. CSO (NGO) consulted or involved in decision making on road safety issues at national level	30	3.1. NGOs / safety forum represented on coordinating body by 06/15 3.2 NGOs / safety forum involved fully in decision making re safety by 07/15 3.3 NGOs involved and contributing to working groups by 09/15.	20 000 UAH	3. Forum Cabinet of Ministers
4. CSO (NGO) consulted or involved in decision making on road safety issues at local level	10	4.1NGOs / safety forum represented on municipal and oblast coordinating body by 12/15 4.2 NGOs / safety forum involved on municipal and oblast in decision making re safety by 01/16 4.3 NGOs involved and contributing to municipal and oblast working groups by 03/16.		4. Forum Cabinet of Ministers
Road safety lessons are conducted regularly in schools				
1. National program (curriculum) for traffic safety education exists	50	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 12/116	1.1. Develop/ adapt educational programmes 2 000 000 UAH.	ME
2. Age appropriate materials for education exist and are in use in schools (books, etc)	10	2.1. Age appropriate materials developed for children by 12/15 2.1 Materials in use in all schools by 12/16	2.1. Education materials 10 000 EUR	ME
3. Teachers trained in traffic safety	10	3.1. trainee teachers trained to use safety materials in final year of training by 12/16 3.2 trainee teachers give a safety pack of materials to take to their schools TeacheNo specific teachers. Courses on autoschool basis for Personal, Social and Health education teachers have to be obligatory.(till 05/2015)	2.2. Printing (500 000 books) 30 000 000 UAH.	ME

4. Reduction in child casualties in the locations were safety education has been provided	0	3.2. Training clips about crossing, safety belts and mobile usage while driving should be shown at the workshop for teachers. Ask them to tell about what they have seen to all students and friends. 4.1. Effectiveness monitoring programme. (12 months, till 12/2015) 4.2.Television lessons for children (video + youtube)	3.1. Training for teachers 3 000 000 UAH. 30 000 UAH	ME
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	0 70 0 0 0	1.1.amend administrative code(05/2016) 2.1. Database to be imrpoved and unified by for all institutions. by 10/15 3.1. Review international best practice in driver rectification schemes by 03/15 3.2 Develop a rectification scheme for Ukraine 06/15 4.1. rectification courses running by 12/115 5.1. monitoring programme implemented by 11/15 5.2 End of course tests show increase in knowledge by 03/16 5.2.Television lessons for adults (video + youtube) by 06/16	40 000 1 000 000 UAH 1 500 000 UAH 1 500 000 UAH 5.1 30 000 UAU	MIA Cabinet of ministers 3.1. MIA+ME Autoschools 5.1. MIA National television company,ME+MIA SAI, ME
Good road behaviour is recognised and promoted 1. Good driver nomination system established 2. Reward system established 3. Winners given public recognition	0 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 Common Rewards system needs to be created (certificates, discounts for insurance) and companies encouraged by 12/15 . 2.2. Companies running driver recognition schemes being offered insurance discounts as " safe companies " by 12/15 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	1. 500 000 UAH + 500 000 2. 500 000 UAH 300 000 UAH 10 000 000 UAH per year	NGO (for all) NGO + RS

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 Questions				
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

APPENDIX C: PERFORMANCE INDICATORS FOR ROAD SAFETY

Priority Action Area	Crash based measures	Intermediate Measures	Process Measures	Methods of monitoring effectiveness
Measures to establish institutional improvements (sector 1)				
1.1 Improved Coordination and Management	• Reduced deaths; • Reduced serious injures • Reduced road crashes.	• All key stakeholders have access to crash data; • Key stakeholders implementing interventions in the Road Safety Action Plan • Independent monitoring of effectiveness; • Private sector and NGOs active as members of Road Safety Council (RSC) that coordinates road safety • All key government departments represented on RSC	• Road safety committee permanent Secretariat established; • Action plan Funding and responsibilities clearly identified and established	• crash statistics; • Annual Road Safety Committee (RSC) Reports.
1.2 Improving Crash Data Management System	• Increased use by government and private sector of crash data for planning and implementing road safety measures; • Central improved crash database established providing more accurate crash statistics and increased analysis.	• Reduction of crashes which have been targeted based on available crash statistics; • Researchers able to evaluate effectiveness of interventions from crash database. • Database accessible by stakeholders for further analyses as required	• Number of initiatives implemented (based on crash statistics) by stakeholders to reduce dominant crash types; • No. of stakeholders accessing and using crash database to do further analyses for their sectors.	• Crash data statistics; • Surveys of database users.
1.3 Improving Effectiveness of Police Enforcement	• Reduction in crash types targeted via data led enforcement; • Reduction in fatal and serious injuries at locations targeted as high risk locations; • Reduction in targeted dangerous behaviours as a cause of crashes	• Number and percentage of drivers/riders over BAC limit. Percentage of: • Drivers/riders who say they exceed speed limit or travel at more than 10 km/h over limit; and	• Extent to which enforcement and advertising are coordinated • Number of hours of random police road watch patrolling activity. Percentage of: • Police total expenditure allocated to traffic enforcement activities;	• Crash and casualty statistics of target groups and locations; • Periodic surveys of speed; • Periodic attitudinal surveys; • Police statistics on contraventions and tickets issued; • Crash data statistics for target groups subjected to enforcement.

Priority Action Area	Crash based measures	Intermediate Measures	Process Measures	Methods of monitoring effectiveness
		• Percentage drivers observed wearing a seat belt; • Percentage of total vehicle occupants wearing seat belts.	• Police traffic enforcement face to face contacts/ interactions with public; • Drivers reporting that volume of speed enforcement has increased; • Drivers reporting that volume of random breath testing has increased	
1.4 Making Legislation more Effective	• Reduced deaths and injuries involving non-seatbelt wearing; • Reduced deaths and injuries where speeding is involved; • Reduced deaths and injuries where drink/driving is involved; • Reduced deaths and injuries involving aggressive driving; • Reduced deaths and injuries where vehicle defects involved; • Reduced deaths and injuries involving commercial vehicles; • Reduced deaths and injuries where novice drivers involved.	• Increased seatbelt wearing; • Reduction in average speed; • Reduction in drink/driving crashes; • Improved vehicle safety standards; • All commercial drivers to be over 21 years old and with at least 3 years driving experience.	Legislative changes made and enforced regarding the following: • Seatbelts; • Drink/driving BrAC limits; • Speeding; • Aggressive driving; • Vehicle standards; • Driver testing; • Commercial driver licenses.	• Police crash statistics • Licensing Agency Annual Report; • Traffic police enforcement statistics; • Police prosecution statistics
1.5 Improved Road Safety Research	• Local research available to guide decision makers; • Effectiveness of different countermeasures known; • Interventions being evaluated and documented; • Valuation of crashes and casualties by severity being periodically updated • Experienced local researchers available as a resource to help develop more effective road safety interventions. •	• Crash database available to Academics and Researchers; • Action Plan interventions being independently monitored and evaluated for effectiveness; • Local Academics being funded and commissioned to do research on road safety; • Research reports available on local road safety topics	• Potential universities/academics capable doing safety research identified; • Research budget established; • Research programme and priority areas for urgent research developed.	• Publication in technical journals by researchers; • Papers presented at safety conferences; • University Research Reports on road safety issues; • Student research projects on road safety; • Post graduate dissertations on road safety topics

Priority Action Area	Crash based measures	Intermediate Measures	Process Measures	Methods of monitoring effectiveness
1.6 Mobilizing the Private Sector	• Reduction in commercial vehicle fatal and serious injury crashes; • Reduction in persons killed and injured in commercial vehicle crashes; • Reduced incidence of transport operators and fleet owner vehicles involved in crashes.	• No. of fleet owners and transport operators actively promoting safety in-house; • Oil companies sharing their defensive driving programmers and trainers to raise quality of commercial drivers; • Private sector actively involved in the Road Safety Council and using its network business skills and marketing skills to promote road safety.	• No. of private sector organizations signed up to a Safety Charter; • Private sector representatives and Business leaders members of Road Safety Council (RSC); • Private sector Industry Associations (e.g., Insurance Association, trucking operator companies, etc.) brought into partnership to address road safety.	• Police crash statistics; • Company Reports
1.7 Mobilizing NGOs and Community	• Reduction in fatal and serious injury; • Reduction in deaths and serious injuries in residential areas where community had collaborated to request a “low speed residential areas”;	• NGOs and community groups actively promoting safety to their membership; • Members influencing their friends, family and co-workers on safety issues (e.g., seatbelt wearing, not to drink and driver, etc.); • Grass roots actively occurring and spreading to promote road safety.	• Key NGOs and Community Groups identified; • The most important NGOs invited to be members of the RSC; • Safety materials distributed to Community Associations;	• Police crash statistics; • NGO websites, Annual Reports, etc.

Priority Action Area	Crash based measures	Intermediate Measures	Process Measures	Methods of monitoring effectiveness
Measures to develop safer roads and road sides (sector 2)				
2.1 Improved Pedestrian Facilities and Footpaths	• Reduction in no. and percentage of crashes involving pedestrians; • No. and percentage of fatal and serious injured pedestrians on various categories of roads; • No. and percentage of pedestrian crashes at various types of junctions;	• No. of pedestrian facilities built; • Total length (Km) of footpaths constructed; • Number of at-grade pedestrian crossings implemented; • Number of area wide speed reduction schemes implemented	• Amount of money spent each year on improving pedestrian facilities; • Number of pedestrian black spot improvement schemes designed; • Number of roads directorate staff working on pedestrian safety schemes.	• Police annual crash data report • Municipal RSCs reports
2.2 Crash Prevention through Safety Audits and Road Safety Inspections	• Number of crashes on safety audited and inspected roads; • Reduction in the no. of severe injuries on safety audited roads; • Crash and injury rates on safety audited roads lower than on similar existing roads.	• Number of Road Safety Audits (RSA) and Road safety Inspections (RSI) carried out by Roads Directorate and their consultants; • Less deficiencies being found in RSAs as designers become more safety conscious in their designs.	• Amount of money spent each year to carry out RSAs and RSIs • Length of RSA roads per year • Safety audit courses implemented for consultants and Road directorate road engineering staff; • Number of engineers trained via RSA and RSI courses;	• Police annual crash data report; • Safety inspectorate Department Reports • Roads Directorate annual report
2.3 Crash Reduction at Hazardous Locations	• Reduction in no. and percentage of crashes at hazardous locations on various road types • Reduction in no. and percentage of fatal and serious injured road users at black spot treated junctions.	• Number of Black Spots identified on the road network; • No. of Black Spots improved; • No. of Route Action Plans implemented; • No. of Area wide Action Plans implemented; • No. of Mass Action Plan implemented.	• Amount of money spent each year on crash reduction programs • Crash reduction courses implemented • Number of engineers trained at crash reduction courses; • No. of roads directorate and consultant staff engaged on hazardous location improvements.	• police annual crash database statistics • Road Directorate annual report • RSC annual report
2.4 Minimizing Incidence and Consequences for Run Off the Road Crashes	• Reduction in Run Off the Road crashes on public roads • Reduction of fatal and serious injuries due to Run Off the Road crashes on public roads	• Consistent application of improved road design guide for new roads; • Retrofitting of safety features where feasible at black spots, Route Action Plans and existing roads.	• No. of road safety engineering and training courses arranged for staff from roads directorate, consultants and contactors • No. of engineers trained through courses on safe roads design principles.	• Annual crash database statistics • Road Directorate annual report • RSC annual report

2.5 Improving Road Safety at Road Works	• Reduction in no. and percentage of crashes at road work sites on various road types • Reduction in no. and percentage of fatal and serious injured persons at road work sites	• Specialist in Roads Directorate reviewing /approving all work zone schemes to ensure safety; • Road Directorate specialists intimately familiar with work zone safety issues	• No. of work zone training courses arranged for staff from roads directorate consultants and contactors • No. of engineers trained via courses	• Annual crash database statistics • Road Directorate annual report

Priority Action Area	Crash based measures	Intermediate Measures	Process Measures	Methods of monitoring effectiveness
Measures to develop safer vehicles (sector 3)				
3.1 Making Commercial Vehicle Transport Safer	• Reduction in crashes involving mini-buses, buses and other commercial vehicles; • Reduction of casualties involved in crashes with mini-buses, buses and other commercial vehicles • Crash statistics on passenger deaths/ serious injuries; •	• All commercial drivers to be over 21 years old and to have 3 years prior driving experience; • Commercial drivers undergoing more rigorous training, testing and competency assessment; • Only qualified drivers being hired as commercial drivers by Transport operators.	• Introduction of new criteria for commercial vehicle driving license • Training and testing using loaded commercial vehicles • Training on all types of roads during day and night time • Commercial drivers to have Certificate of Competency • Private sector companies to sign up to Safety Charter • Requirements for installation of Speed Governors and Tachographs in commercial vehicles	• Road safety Inspectorate Annual Reports • Annual crash database statistics • Results of failures in annual roadworthiness inspections and roadside inspections.
3.2 Improving Vehicle Standards and Safety	• Reduction in fatalities and serious of injuries caused by veh defects; • Fatality and serious injury rate per 100,000 population for vehicle occupants; • Percentage of police-reported crashes where under-running truck crashes resulted in serious injury or death. • Fatality and serious injuries occurring where seatbelt not being used; • Percentage of police-reported car crashes which result in serious injury or death.	• Improved crashworthiness of cars registered by linking standards for imported or domestically produced vehicles to European Union standards; • Percentage of trucks and buses fitted with speed governors; • Percentage of trucks/trailers fitted with side and rear under-run bars; • Percentage of vehicle fleet fitted with repeater seatbelt reminder warnings.	• Introduction of NCAP testing of vehicles sold in the country • Truck and bus companies using vehicle tracking system to monitor/ control drivers; • Truck and bus companies signing up to safety charter commitments; • Legislation implemented on vehicle standards, crash worthiness and road worthiness; • EU Whole Vehicle Type system being introduced. and enforced	• Road safety Inspectorate Annual Reports • Annual crash database statistics • Crash statistics on passenger deaths/ serious injuries; • Results of failures in annual road worthiness inspections and roadside inspections.
3.3 Harnessing New Technology to improve Road Safety	• Reduction in no. and percentage of fatalities and serious injuries as a result of using new technology.	• Local standards linked to UN-ECE or European vehicle standards; • Percentage of commercial vehicles fitted with “Black Box” crash recorders; • Percentage of commercial vehicles being tracked by Transport operators.	• Requirements for installation of Speed Governors, Tachographs and Black Boxes in commercial vehicles • Truck and bus companies using vehicle tracking system to monitor/ control drivers; • Truck and bus companies signing up to safety charter commitments.	• Road safety Inspectorate Annual Reports • Annual crash database statistics

Priority Action Area	Crash based measures	Intermediate Measures	Process Measures	Methods of monitoring effectiveness
Measures to develop safer road users (sector 4)				
4.1 Raising Safety Awareness / Knowledge to reduce Pedestrian Casualties	• Reduced number and percentage of fatal and serious injury crashes involving pedestrians ▪ Proportion of police-reported pedestrian crashes resulting in death or hospital admission; ▪ Reduced number of pedestrian deaths and injuries; ▪ Reduced health risk (Pedestrian Deaths/ 100,000 population)	▪ Reduction in drivers cited for disobeying pedestrian priorities; ▪ Reduction in pedestrians jaywalking citations	▪ Publicity campaigns implemented giving advice to target pedestrians; ▪ Publicity campaigns implemented giving advice to target drivers.	▪ Annual crash data reports; ▪ Periodic surveys to assess effectiveness of publicity in changing knowledge or attitude. ▪ Police annual report
4.2 Raising Safety Awareness / Knowledge to reduce Pedestrian Casualties	• Reduced number and percentage of fatal and serious injury crashes involving cyclists • Reduced health risk (cyclist deaths/ 100,000 population)	• Reduction in drivers cited for disobeying cyclist priorities; • Reduction in cyclists being cited for disobeying traffic laws • Increase in kms of cycle paths available	• Publicity campaigns implemented giving advice to target cyclists ; • Publicity campaigns implemented giving advice to drivers about being aware about cyclists on the road	• Annual crash data reports; • Periodic surveys to assess effectiveness of publicity in changing knowledge or attitude. • Police annual report
4.3 Increasing use of Seat Belts and Restraints	Reduced number and percentage of: • Crashes in which a person killed was not wearing a seat belt; • People killed not wearing a seat belt (separate for drivers & passengers); • Crashes in which a person seriously injured was not wearing a seat belt; • People seriously injured not wearing a seat belt (separate for drivers & passengers).	Percentage of: • Drivers observed wearing a seat belt; • Passengers observed not wearing a seat belt; • Passengers observed travelling in an open load space; • Children in restraints; • Child restraints correctly fitted.	• Volume of advertising on seat belt use; • Extent to which enforcement and advertising measures are correlated; and • Number of people detected not wearing seat belt.	• Police annual report Annual survey (urban, rural and remote regions) to measure percentage of: • Drivers and passengers wearing a seat belt, front and rear seats separately; • Passengers in open load space; • Children in child restraints.
4.4 Reducing Aggressive Driving	• Number of and percent of fatal and serious injury crashes where aggressive driving is judged to contribute; • Number of police-reported deaths and injuries where aggressive	Percentage of vehicles doing the following: • Tailgating (gap under 2 seconds. From vehicle in front) • Excessive overtaking (frequently changing lanes to overtake)	• Number of hours of video camera operations; • Number of vehicles passing through enforcement sites; • Percentage of drivers given a ticket for aggressive driving;	• RSC annual report • Police Annual crash data reports; • Police records of tickets issued;

	driving is judged to contribute to crashes	• Intimidating drivers ahead through flashing headlights or honking horn to get them to go faster or to move over.	• Volume and effect of road safety publicity targeting aggressive driving • Extent to which enforcement activity and safety campaigns are correlated and coordinated.	• Periodic police observation surveys using in-car video cameras.
Priority Action Area	**Crash based measures**	**Intermediate Measures**	**Process Measures**	**Methods of monitoring effectiveness**
4.4 Reducing Excessive Speeding	• Number and percentage of fatal and serious injury crashes where excessive speeding is judged to contribute; • Number and percentage of police reported deaths and serious injuries where excessive speeding is judge to contribute.	• Vehicles traveling over 10 Km/hr. over posted speed limit in urban and rural areas; • Drivers surveyed who say they often travel more than 10 Km/hr. over the limit.	• Number of hours of speed camera operations; • Number of vehicles passing speed cameras; • Percentage of drivers given a ticket for excessive speeding in previous 6 month period; • Volume and effect of road safety publicity advertising targeted at excessive speeding; • Extent to which enforcement and safety campaigns are correlated and coordinated.	• RSC annual report • Police crash data statistics; • Police records of tickets issued for excessive speeding; • Periodic police surveys to measure speed
4.5 Ensuring only Competent Drivers on Roads	• Reduced no. and percentage of crashes by high risk driver groups; • Number and percentage of crashes by length of driving experience; • Reduced no. of crashes with the following: categories of drivers: (i) young drivers; (ii) novice drivers (iii) mini-bus drivers (iv) bus drivers (v) truck drivers	• Graduated Driving License (GDL) system introduced with novice drivers having restrictions during probation period; • All commercial drivers meeting new criteria and if necessary retaking driving test and Certificate of Competence (CoC) within 12 months; • Commercial drivers not meeting new criteria have HGV license replaced with a light vehicle license until eligible to resit commercial driving test.	• Availability of improved driver training material for each vehicle type; • Practical driving training given on all categories of roads; • Introduction of improved theory test • Introduction of revised 20-30 min. practical test; • Establishment of new criteria for eligibility of different licenses; • Minimum age/driving experience criteria for commercial drivers; • Commercial driver trained and tested on part and fully load commercial vehicles.	• RSC annual report • Annual crash database statistics • Road safety inspectorate Annual Report
4.6 Improving Safety of Young and Inexperienced Drivers	• Reduction in no. and percentage of fatal and serious injury crashes involving young and novice drivers • Reduction in no. and percentage of fatal and serious injured persons in crashes caused by young and novice drivers	• Graduated Driving Licensing (GDL) system introduced with restrictions on novice drivers during probation period;	• Availability of improved driver training material for young and novice drivers • Practical driving training available on all categories of roads • Introduction of improved theory test • Introduction of revised practical test	• RSC annual report • Annual crash database statistics • Road safety Inspectorate Annual Report

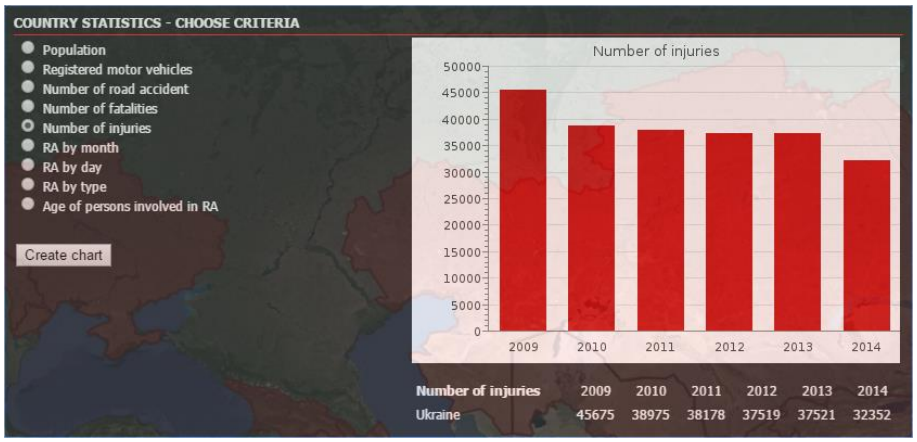
			• Establishment of new criteria for eligibility of driving licenses for young and novice drivers •	
4.7 Ensuring safer Commercial Drivers	• Reduction in number and percentage of crashes involving commercial vehicles (e.g., mini-buses, buses and trucks) • Reduction of number of fatal and serious injury crashes caused by commercial drivers.	• All commercial drivers over 21 years old and minimum 3 years' experience • All commercial drivers not meeting new criteria surrender commercial license in exchange for car license until they are eligible to resit commercial driving test.	• Availability of improved driver training material for commercial drivers • Practical driving training uses loaded vehicle on all categories of roads; • Introduction of revised practical test • Establishment of new criteria for eligibility for commercial driving licenses; • Certificate of Competency test established.	• RSC annual report • Annual crash database statistics • Road safety inspectorate annul reports • Licensing Agency Annual Report
4.8 Reducing Drink Driving on Roads	▪ Number and percentage of fatal and serious injury crashes where at least one driver had BrAC over limit; ▪ Drivers and riders killed with BrAC over limit; ▪ Persons killed and injured in crashes in which at least one driver or rider had BrAC over limit.; and • Fatal and serious injury crashes that occur during hours with high alcohol involvement.	• Percentage of drivers tested who were BrAC over limit and prosecuted; • Widespread adoption of "responsible host" and designated driver schemes initiated; • Public attitude changing to make drink/driving as socially unacceptable; • General public supportive of police enforcement on drink/driving.	• Number of RBTs during high alcohol hours; • Number of RBTs as proportion of all police contacts with motoring public; • Percent of drivers tested in previous six months; • Volume & effect of advertising; • Extent to which enforcement and advertising measures are correlated	• RSC annual report • Police crash data statistics • Police enforcement statistics; • Surveys to check effectiveness of publicity campaigns and assess attitudes. • Min of health autopsies /surveys / reports
4.9 Raising General Awareness and Knowledge about Road Safety	• Reduction in number of crashes and casualties involving children; • Reduction in crashes and casualties involving highest at risk groups; • Percentage of total killed or injured who are from the target high risk groups.	• Children traffic education programme in all schools focused on survival skills; • Appropriate safety materials being distributed; • Safety publicity campaigns based on analysis of crash data and target the highest risk groups.	• Children traffic education material made available in appropriate format to all children and all schools; • All schools being visited /supported by Safety Awareness raising staff; • Number of safety campaigns undertaken for high risk groups	• RSC annual report • Annual crash database statistics • Min of Education annual report; • Attitudinal surveys.

Priority Action Area	Crash based measures	Intermediate Measures	Process Measures	Methods of monitoring effectiveness
Measures to develop post-crash emergency services (sector 5)				
5.1 Improved EMS and Rescue Services	• Time to reach victim after call out; • Extrication time; • Time to final treatment; • Percentage of road traffic injured coming to hospitals by land or air ambulance; • Number of severely impaired receiving advanced rehabilitation care	• Constant review/revision of all agencies involved in the "chain of survival and rehabilitation"; • No. of police and commercial drivers with First Aid training; •	• Reduced time for EMS services to reach crash site • Reduced time for initial treatment at scene of crash • Reduced time for taking victims to hospital • Less no. of disabilities due improved treatment of crash victims	• RSA annual report • Annual crash database statistics • Annual Report by MOHSW • No. of "avoidable deaths", i.e., deaths after the crash that could have been avoided if optimal care has been provided in all phases; • Time to victim- time to reach final care; • Focused studies of certain aspects of pre-hospital and hospital care by researchers with suitable medical competence.

Priority Action Area	Crash based measures	Intermediate Measures	Process Measures	Methods of monitoring effectiveness
Measures to change attitudes (sector 6)				
6.1 Changing attitudes of the General public and road users	• Reduced number and percentage of fatal and serious injury crashes • Proportion of police-reported crashes resulting in death or hospital admission; • Reduced number of deaths and injuries; • Reduced health risk of population (Deaths/ 100,000 population)	• Responsible host programmes encouraged for private citizens • Drivers made legally responsible for ensuring all occupants of their vehicle are wearing seatbelts • Regular and repeated strong awareness raising campaigns to inform public about the risks and consequences of risky behaviours using emotive themes e.g. " if you love then , don't let them die ..... -Make them wear a seat belt - Don't let them drink and drive - Don't let them drive too fast -Don't let then phone / text while driving • Children taught in schools to tell parents same message " we love you so please don't die .... Wear seat belts , don't drink and drive , don't drive too fast , don't phone or text when driving	• Publicity and awareness campaigns implemented • Road safety community groups formed to promote road safety • Column inches of press articles encouraging more responsible attitudes to road safety • Media radio and TV minutes of discussion about road safety and it being everyone's responsibility	• RSC annual report • Annual crash database statistics • Periodic attitudinal surveys of general public •
6.2 Changing attitudes of the Government	• Reduced number and percentage of fatal and serious injury crashes • Reduced number of deaths and injuries;	• Government aware of the human and economic losses being incurred annually due road crashes	• legislation implemented to designate a lead agency for road safety and to give it sufficient authority and powers to manage	• RSC report • Annual crash data base statistics • Government statements • Legislation

	• Reduced health risk of population (Deaths/ 100,000 population) • Productivity savings to economy due to less persons killed and injured • Savings in Health care through reduction in costs of treating road crash victims	• Government beginning to see expenditure on road safety as an investment and not as a cost • Government establishing and funding effective structures and mechanisms to manage and coordinate road safety issues • Government providing adequate funding to implement the road safety action plan	and coordinate road safety effectively • Legislation implemented to establish a road safety funding mechanism to provide sustainable funding	
6.3 Changing attitudes of Private Sector	• Reduced number and percentage of fatal and serious injury crashes in company owned fleets • Proportion of crashes in company owned fleets resulting in death or hospital admission; • Reduced number of deaths and injuries amongst company employees and involving company vehicles ; • Savings to company from reduction of road crashes	• Companies signing up to road safety charter • Companies with a road safety policy on company employees and company vehicles requiring seat belt wearing and prohibiting at risk behaviours , drink drive , speeding , using mobile while driving etc. • Companies as part of corporate social responsibility(CSR) promoting and supporting road safety initiatives in their local communities	• A safety charter available on line for companies to use to make a commitment to road safety • Some international companies with established corporate safety policies and systems encouraging other organisations to do more on road safety • Private sector companies signing up to the safety charter and giving commitment to do more on safety	• RSC annual reports • periodic attitudinal surveys • Police crash data statistics • Company annual reports •
6.4 Changing attitudes of Non-Government Organisations (NGOs) and community groups	• Reduced number and percentage of fatal and serious injury crashes occurring in their community • Proportion of police-reported crashes in their community resulting in death or hospital admission • Reduced number of deaths and injuries in their community • Reduced health risk of population in their community (Deaths/ 100,000 population)	• NGOs and community groups active on road safety issues in every community • Community groups encouraging every adult and family to take personal responsibility for safety of own family and friends under theme " if you love them don't let them die " …. • Make them wear a seatbelt • Do not let them drink and drive, • Do not let them speed • Do not let them phone / text while driving	• Increased numbers of NGO s active in road safety • Amount of coverage road safety NGOs generate in press and media • Numbers of persons with who NGOs have interacted each year • Numbers of events and initiatives launched by NGOs each year	• RSC annual reports • Police crash data statistics • NGO annual reports

3. CRASH DATA SYSTEM



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

3.1

COUNTRY: UKRAINE

TEAM: CRASH DATABASE TEAM

TOPIC: CRASH DATA SYSTEM ANALYSIS

DATE: 01 – 03 JUNE 2015

Prepared by
Crash Database Team:

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2) **Marko Jovanovic, JTE 19-11**

June 3rd, 2015

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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 held a three-day visit to Ukraine on 01-03 June 2015. The Team had a task to ascertain the current situation in terms of road accidents database, as well as the available data and analysis of available data. In addition to this task, the Team has made a review of the existing crash data systems in Ukraine. The task was also to facilitate a better understanding of the importance of collection, storage and publishing data on traffic safety and importance of such procedures for traffic safety system in its entirety. In addition, there is a possibility in Ukraine to store the existing data in a single road accidents database for all TRACECA countries.

During the visit, the Team had several meetings with the representatives of the most important institutions and organizations responsible for individual segments of road safety, especially organizations responsible for establishment of the road accidents database, definition of the structure of the collected accident data, analyses based on the available data and publishing the results. In this context, the Team had a meeting with the representatives of the Ministry of Internal Affairs, state enterprise of automobile roads "Ukravtodor", National Institute of Roads SE “Derhzdor NDI”, representatives of the health sector and representatives of other institutions and organizations who attended certain meetings.

2. Activities undertaken

1 June, Kiev, TRACECA office: Review of the preparation of the Questionnaire checklist and the Database questionnaire on collection and structure of road accident data in Ukraine and existing database storage system. The questionnaires has been filled by Ukraine traffic police (State Traffic Inspectorate Department of the MIA).

1 June, Kiev, TRACECA office: Meeting with representatives from the State Road Agency of Ukraine “Ukravtodor”. The meeting was about identification of black spots on Ukrainian state roads and existing data or road accident database that helps in process of identification of black spots.

1 June, Kiev, TRACECA office: Preparation of the presentation on Black Spot Database and importance of good and quality road accident data for meeting in Ukrainian Parliament. Presentation contain:

- Black spot identification and establishment of the black spot database.

- Importance of good and quality data of road accidents.
- Importance of sharing the data and importance of an open and available database.
- Presentation of a new road safety database established in Road Traffic Safety Agency in Republic of Serbia.

2 June, Kiev, Meeting in the "Rada" Parliament building: The meeting was held in the Ukrainian Parliament building. Main topics on the meeting were RSA and BSM. Crash database team was obliging black spots database (importance, appropriate and quality road accident data, sharing the data and presenting the existing road safety database in Road Traffic Safety Agency in Serbia).

2 June, Kiev, TRACECA office: Meeting with the representative from the State Traffic Inspectorate Department of MIA, Mr. Aleksey Baldin. On this meeting, the existing road accident database was discussed, as well as availability of road accident data, obligation on defining the structure of road accident data, role and tasks of TRACECA project especially crash data system and crash data analysis mission of TRACECA.

3 June, Kiev, Meeting in the State Traffic Inspectorate Department of the MIA: The Meeting started at 10 am and was finished at 3,45pm. The representatives which attended the meeting are from Traffic Inspectorate Department of the MIA and Mr. Michael Schrage, strategic traffic police and road safety adviser from European Union Advisory Mission. Other representatives which attended the meeting are: Julia Lysak from SE Ukraniprodor, Jury Olegovich from Ministry of Health from Ukraine, Oleksandr Golotsvan from Ukravtodor, Pyna Oleksander and Bondar Tetyana from SE Derhzdor NDI. At this meeting, they discussed the following topics:

- Importance and significance of the good and quality data in road safety;
- Importance of improvement of the crash database and establishment of the unique road safety database with road accident data, risk analysis data, black spots and dangerous sections data, safety performance indicators data, etc.
- Importance of availability of the database and all road safety data (except personal data of road users involved in road accidents)
- Structure of existing road accident data in Ukraine
- Importance of harmonization of the structure of the national road accident data in accordance with recommendations from European Commission – CADaS (Common Accident Data Set).
- Best practice in open and unique road safety database.

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

3.1. Current situation

State Traffic Inspectorate Department of MIA is responsible for crash database and for defining the structure of road accident data. The First centralized database was established in 2005, and the last changes of the structure of crash accident data were done in 2014. During the whole period between 2005 and 2014, they worked on improving their existing database. In 2012, they started to collect data on vehicles in a centralized way, as well as driver's license and data on driver training. Now they are working on moving all statistical data into the new structure of crash data. The methods of collection of this data provide full traceability.

State Traffic Inspectorate Department of MIA (they are currently in the reform phase) produced statistical reports on a monthly basis. These reports are available on their website http://www.sai.mia.gov.ua/. If some stakeholder is interested in more details, he should write a formal request. After a few approvals, the report will be created and delivered. The new System does not provide transparent data for other stakeholders and public.

Structure of the crash accident database contains: (1) general information about the road accident, (2) Site of road traffic accident, (3) Road Conditions, (4) Information on persons involved in the accident and (5) Information on Vehicles and their affiliation.

***State Traffic Inspectorate Department of MIA of Ukraine are sending the road accident data with kilometres of roads to the "SE Ukraniprodor" which is the part of the State Road Agency "Ukravtodor". SE Ukraniprodor produces methodology for identification of black spots and makes their own analysis. They use road accident data for the period of the previous three years. They published black spot data on the Ukravtodor website www.old.ukravtodor.gov.ua. Ukravtodor provides data about black spots or dangerous sections in .xls format. This table has basic information about place, name and number of road, length of section, kilometres of road (start/end), year and coefficient of level of danger. Traffic police is responsible for identification of black spots in the cities. Existing methodology which has been promoted by SE Ukrdniprodor defines black spots as 150 m sections in settlements and as 300m sections out of settlements. The conclusion made by the traffic police is that more attention must be paid to settlements in solving the problems on black spots. There are few problems on the side of State Road Agency. There are no unified methods for data collection. They have a few databases (bridges, road surfaces...), but these are local and should be centralized. There is also a problem related to coordinates of the spatial data. **They understand what should be done, but they do not have money for these projects.** The second problem is unclear responsibility for collection and management of data on roads.

For every new traffic accident, the data filled in a paper form using Traffic Accident Card (accident report) – which is approved by the Ministry of Internal Affairs. For this activity, responsibility for the quality of data is under police. Even when the new System recognizes GPS coordinates, these are not entered into the database.

According to the crash database protocol, traffic police officers collect data for judiciary and for the database on the place of road accident. Data for judiciary is printed and sent to them as a hard copy. In addition, insurance companies can receive a hard copy on request.
The personal data from traffic accidents is available just for internal analyses and for request from Law enforcement authorities. The new System provides availability of personal data to other police departments, i.e. Department of Criminal.

Data integrity is ensured in the new System. Each data entry into the system, as well as editing the existing data is electronically signed for internal use and internal check. All information about type of injury is collected with paper forms and entered manually.

3.2. Deficiencies requiring attention

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

Collection of road accident data		
1	No separate data about number of serious and slight injuries (they have just a total number of injuries).	VHI
2	No geographical coordinates but they have a place in the database to put these data in database.	HI
3	No system of state roads (reference system) divided into road sections with name of the nodes and name of the road sections.	I
4	No data about width of the road, number of traffic lanes and speed limit on the place of accident.	HI
5	No separate data about on the type of roads – did an accident happen on highway or motorway?	I

6	No data about spatial places of road accidents such as: Un-adopted roads, Airports, Hospital areas, Military areas, Industrial areas, etc.	I
7	No data about damage of road equipment and estimated damage of vehicles.	I
8	No data about whacked object on the road, for example: bridge, bridge-side, parked vehicle, previous accident, open door of vehicle, etc.	HI
9	No data about whacked objects out of the road, for example: road sign, tree, electricity, crash barrier, petrol stations, submerged in water, etc.	HI
10	No data about vehicle manoeuvres.	HI
11	No data about other psychological condition of person involved in accident except for alcohol, for example: fatigue, illness, sudden death…etc.	HI
12	No data about purpose of the journey.	I
13	No separate data if pedestrian is the worker in the work zones or in the road environment.	I
14	No data regarding presence of a child seat in the vehicle involved in an accident if a child was inside.	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).	VHI

Exchange of road accident data – Road accident data policy		
1	No accessible and available road accident data (open database without personal data).	VHI
2	According to the Law, there is mandatory sharing and exchange of road accident data and other road safety data between stakeholders in the field of road safety in Ukraine, but it is not defined which data could be shared.	HI
3	They can't recognized which institutions in Ukraine may be the best solution for establishment of an open road safety database which will contain road accident data, risk analysis data, black spots and dangerous sections data, safety performance indicators data, etc.	HI
4	All persons who are less than 18 years are in the category of children. This is is not in the line with the recommendation from the European Commission and recommendation from WHO.	HI
5	There is no electronic connection between the Road accident database and Health sector in Ukraine.	HI
6	There is no electronic connection between Road accident database and Road Institution.	HI

Usage of road accident data for black spot analysis and other road safety analysis		
1	Black spot cannot be longer than 1 km according to the best European practice.	I
2	They do not recognize the difference between the terms "black spot" and "black section".	VHI
3	They do not collect geographical coordinates of road accident.	HI
4	No black spots database - just tables mentioning the place of concentration of road accidents according to the methodology provided by SE Ukrdiprodor.	HI
5	No division of the number of injuries into slight and serious injuries, which can be important for usage of the methodology of black spot identification.	VHI
6	The significant changes of the structure of the road accident data was made in 2014. After this, there is a problem with getting the statistical data from police.	HI
7	SE Ukrdniprodor or any other institution have problems with financing of eventual black spot database or any road safety database.	HI

3.3. Recommendations (suggested way forward)

- Law on traffic safety could be a very good solution to improve obligation and current situation in development of a road safety database, which will be available for all stakeholders in the field of road safety in Ukraine.
- It could be very important and useful for them to make a step forward and start collection of a set of data recommended by CADaS protocol from the European Commission[9]. CADaS structure provides many differences of high importance (and very high importance) which require attention and which are highlighted in the table "Road accident data".
- Main activities in the implemented CADaS structure should be directed to collection of the following set of data: (1) Types of road accident, (2) Vehicle manoeuvres and (3) Pedestrian manoeuvres. It is also important to make improvements in collection of the contributory factors according to the best European practice (e.g. British model of Contributory factors). Training of the traffic police obliges to collect data on the place of road accident, and it will be very useful.
- Establishment of an available and open road safety database is an important recommendation for improvement of road safety policy and road safety in general. For the beginning, it is necessary to recognize institutions that can be responsible for this job. In case of Ukraine, these could be SE «Derzhdor NDI» which is the part of State Road Agency "Ukravtodor".

4. Conclusions

Having good data on road accidents is a very important step in establishment of a road safety system in one country. The European Commission Decision 93/704 EC defined the obligation for exchange of data on road accidents between the EU countries and the unique European road accident database. In addition, the working group of the European Commission was formed. This working group will make recommendations regarding data collection and data exchange. Adjusting to the recommendations of the European Commission is a good basis for high quality monitoring data on characteristics of traffic safety, reliable identification of problems and proposition of measures to resolve the problems.

At this moment, the Ukrainian crash data system is still in the process of development and implementation. The current crash data system has been established on the modern web oriented application, developed in Java programming language. For database management system Oracle has been used, which is good basis for upgrading with recommended CADaS structure. Ukrainian crash data system is now in the developing phase and can be improved by best European practice and by recommendation from European Commission. Parallel to this process it is important to work on the establishment of an open database which will provide access to all institutions and organizations in Ukraine that are included in the system of data exchange and system of traffic safety in general.

According to all available Ukrainian road accident data to Crash database team, it will be possible include Ukraine into centralised crash database of all TRACECA countries. **Scope of available data based on Ukrainian road accident data could be a target for other TRACECA countries.**

[9] The differences between current structures of Ukrainian road accident data and CADaS recommendation from the European Commission will be prepared by Crash database team till end August, 2015, as additional report from Crash Database Team.

Annex A
PERSONS MEET OR CONSULTED

No.	Name and Surname	Institution (Organization) and Position	Contact telephone E-mail
1.	Mr. Oleksiy Baldin	Deputy of Head of Traffic Inspectorate Department of the MIA	
2.	Mr. Jury Olegovič	Ministry of Health, Department for Information Technology, Director	044 254-05-98 director@umcbdr.com.ua
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5.	Ms. Julia Lysak	SE «Ukrdniprodor»	063 867 46 99 Lusak.julia@mail.ru
6.	Mr. Igor Kotul	SE «Ukrderzhbudexpertise»	067 997 98 60 ikotul@i.ua
7.	Mr. Olexandr Kryzhanovsky	SE «Ukrgiprodor»	099 244 35 58 Kauead@gmail.com
8.	Mr. Olexandr Dogadaylo	Kharkiv Road-Transport University	050 303 92 67 prus@khadi.kharkov.ua
9.	Mr. Olexandr Zalyvan	Association of Traffic Users, Adviser to head of Kharkiv Administration	068 954 21 06 azalivan@meta.ua
10.	Mr. Ivan Nagliuk	Head of the Chair of organisation of traffic safety, Kharkiv Road-Transport University	067 298 50 99 golkiper@list.ru keat@khadi.khar.ua
11.	Mr. Oleksiy Zaritsky	Chief specialist of Department of strategic development of road traffic and automobile transport, Ministry of Infrastructure	096 81 87 699 alekseygia@gmail.com

12.	Mr. Oleksiy Tyshenko	Chief specialist of Transport Safety Department, Ministry of Infrastructure	068 355 04 43 alex@mtu.gov.ua
13.	Mr. Andriy Paratsa	SE « Ukrdorinvest », Head of Unit of project implementation	066 201 10 62 paratsa@ukrdorinvest.com.ua
14.	Mr. Vasyl Bryantsev	State Autoinspection Department Ministry of Interior, Head of department of regulatory and methodological support	067 232 25 81 272 56 77 vvb@sai.mia.gov.ua
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16.	Mr. Andriy Yushenko	State Autoinspection Department Ministry of Interior, Head of unit of ODR and ISD	067 441 54 64 Am_dai@bigmir.net
17.	Ms. Inna Olifirenko	« Ukrainian medical centre of Road Safety »	067 657 27 25 medbdr@list.ru
18.	Ms. Natalya Storozhyk	State Autoinspection Department Ministry of Interior, Head of press service	067 274 33 13 N_storojik@mail.ru
19.	Mr. Oleksandr Pyna	SE « Derzhdor NDI », Research fellow	097 224 30 59 bdrndi@ukr.net
20.	Ms. Tetyana Bondar	SE « Derzhdor NDI »	050 334 72 30 bdrndi@ukr.net
21.	Mr. Jury Olegovič	Ministry of Health, Department for Information Technology, Director	044 254-05-98 director@umcbdr.com.ua
22.	Mr. Oleksandr Golotsvan	Ukravtodor	
23.	Mr. Michael Schrage	Strategic Traffic Police and Road Safety Adviser	+380 977 554 208 Michael.scharage@euam-ukraine.eu

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.

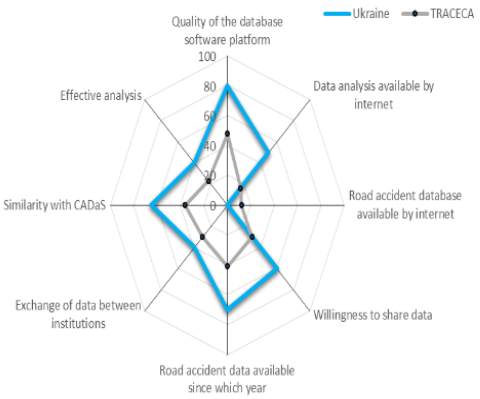
7 Similarity with CADaS

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



Institution responsible for road accident database is Ministry of Interior – State Traffic Police (Patrol police). Electronic road accident database is established. Type of software platform is Oracle. 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 2010. The systematic exchange of road safety data exist between Ministry of Interior, Ministry of Transport and state road institutions (few of them). Definition of road death is up to 30 days.

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[10]. 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.

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

-	The variable is not recorded in the crash data form in the observed country.

UKRAINE

I – ROAD ACCIDENT DATA

CADaS „A“ Accident	ROAD ACCIDENT DATA	
	CADaS variable	**Comparison CADaS vs UKR**
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 UKR**
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 UKR**
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 UKR
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**	-

List of participants

No.	Name and Surname	Institution (Organization) and Position	Contact telephone E-mail
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1	Mr. Andriy Yushenko	State Autoinspection Department Ministry of Interior, Head of unit of ODR and ISD	067 441 54 64 Am_dai@bigmir.net
1	Ms. Inna Olifirenko	« Ukrainian medical centre of Road Safety »	067 657 27 25 medbdr@list.ru
1	Ms. Natalya Storozhyk	State Autoinspection Department Ministry of Interior, Head of press service	067 274 33 13 N_storojik@mail.ru
1	Mr. Oleksandr Pyna	SE « Derzhdor NDI », Research fellow	097 224 30 59 bdrndi@ukr.net
2	Ms. Tetyana Bondar	SE « Derzhdor NDI »	050 334 72 30 bdrndi@ukr.net
2	Mr. Jury Olegovič	Ministry of Health, Department for Information Technology, Director	044 254-05-98 director@umcbdr.com.ua
2	Mr. Oleksandr Golotsvan	Ukravtodor	
2	Mr. Michael Schrage	Strategic Traffic Police and Road Safety Adviser	+380 977 554 208 Michael.scharage@euam-ukraine.eu

REGIONAL ROAD SAFETY PROJECT

CRASH DATA SYSTEM v.1

(User manual for TRACECA countries)

Prepared by Crash Data Team

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- Marko Jovanovic JTE 19-11

Compiled by

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Ms Mariya Ivchenko, Regional Project Coordinator (e-mail mariya.ivchenko@gmail.com)

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.

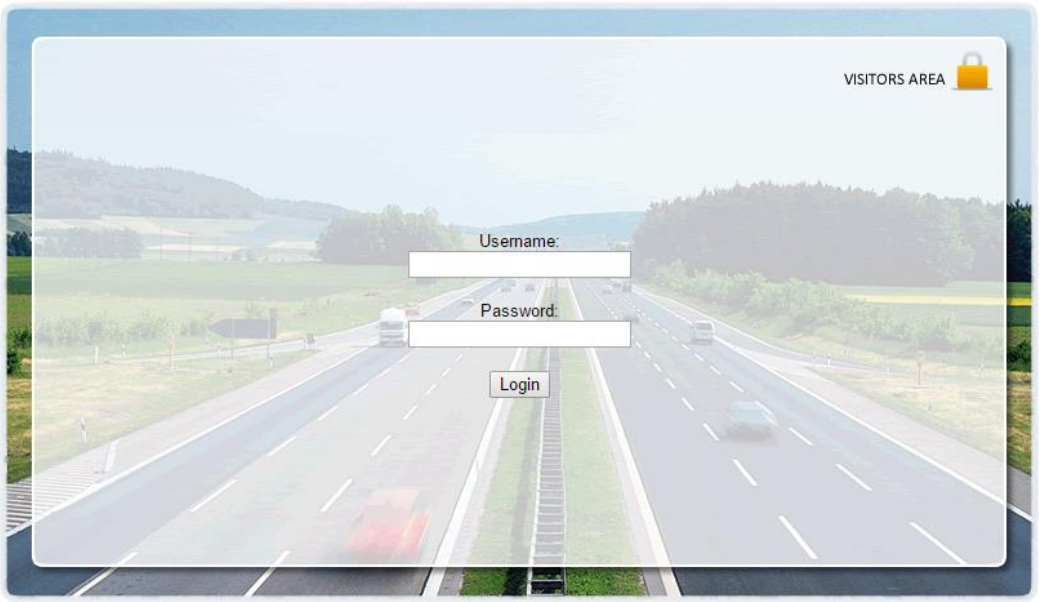

Figure 2. Login page for TRACECA countries

3. CDS Home page

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

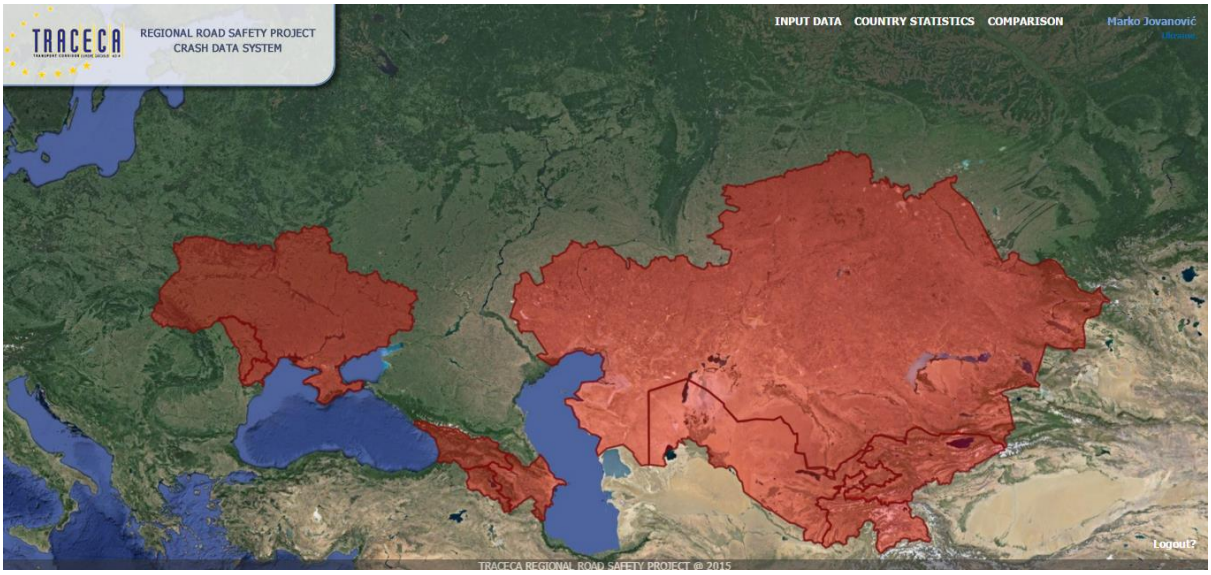

Figure 3. CDS Home page

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.

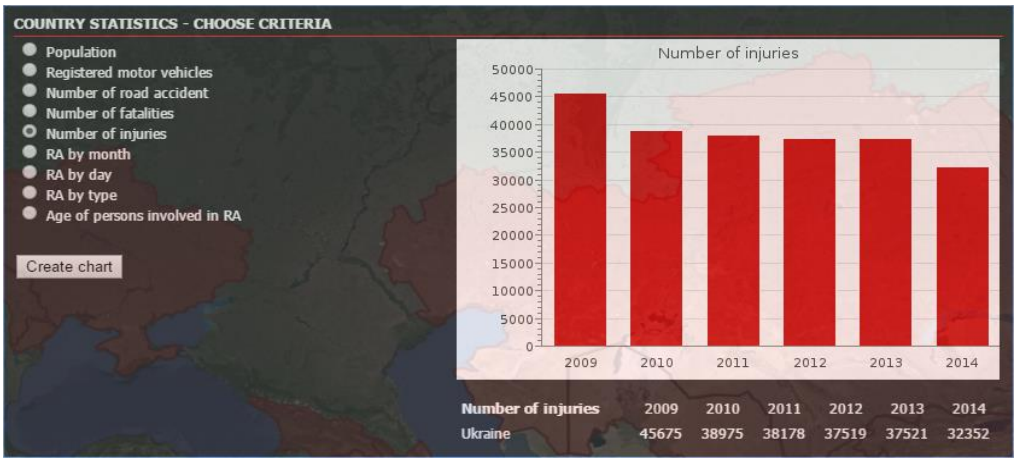

Figure 5. CDS country statistics

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.

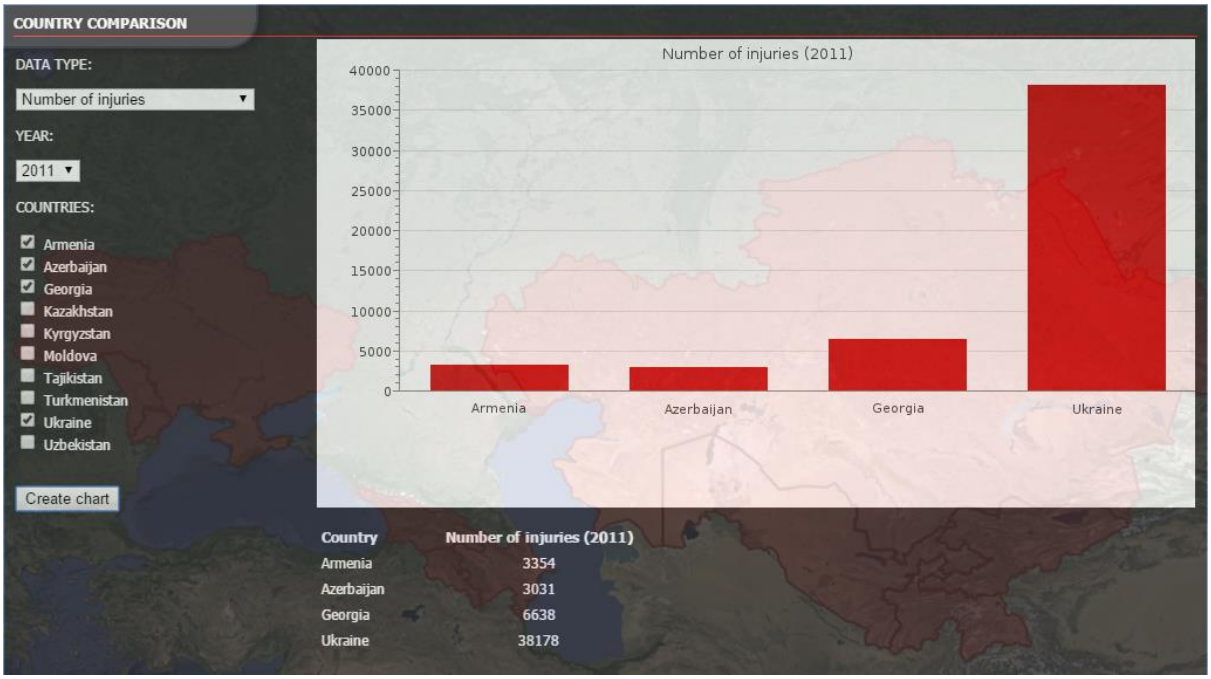

Figure 6. CDS comparison

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.

Prepared by Crash Data Team

- Dragoslav Kukic STE 6-1

- Marko Jovanovic JTE 19-11

Compiled by

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Administrative Support

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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 all stakeholders.

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.

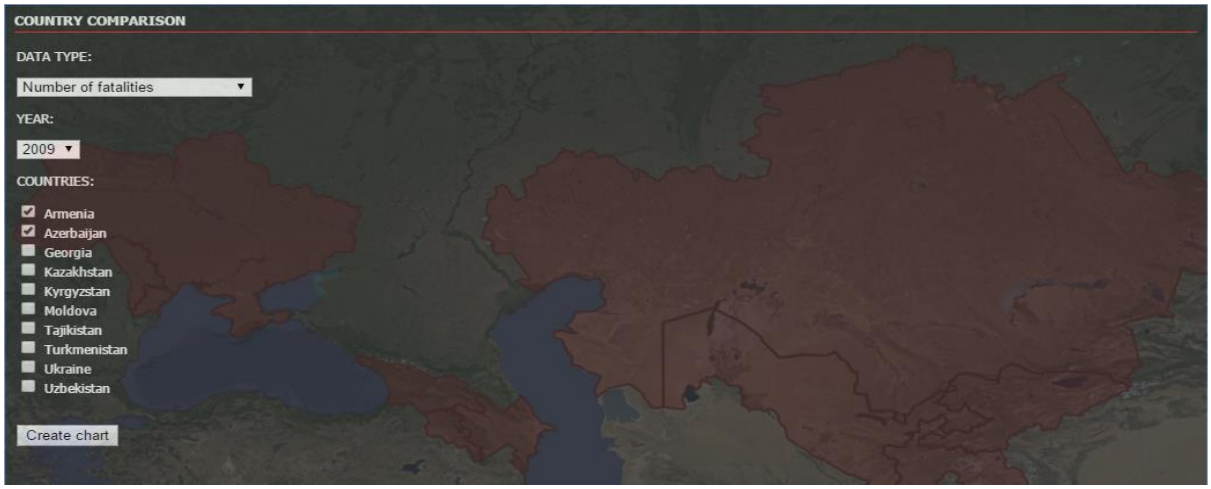

Figure 2. CDS Countries comparison and statistics menu

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.

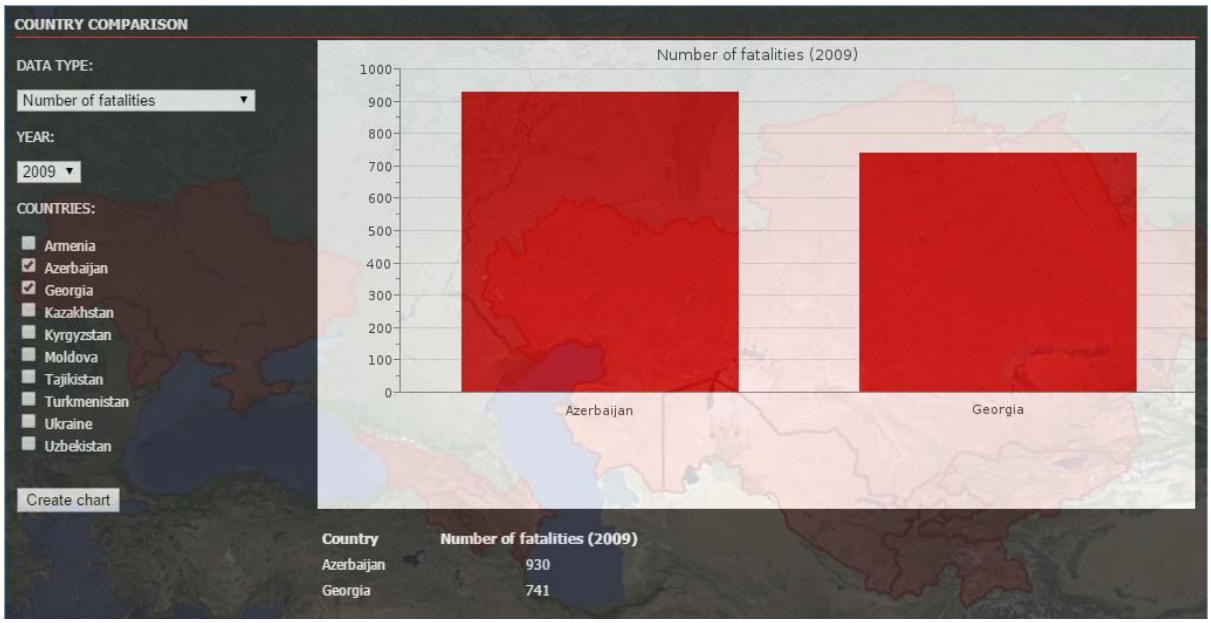

Figure 3. CDS Countries comparison and statistics

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 Ukraine and the tasks remaining to be done.

COUNTRY: UKRAINE

TEAM: RSA/BSM TEAM

TOPIC: INSTITUTIONALIZATION OF RSA/BSM IN UKRAINE

DATE: JUNE 1-3 2015

Prepared By

Road Safety Audit and Black Spot Management Team

Team members:
Dejan Jovanov (KE2)
Sasa Jasnic, (STE 12-1/10)

June 3rd, 2015

Table of contents

* * *

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 Ukraine 01-03 June 2015.

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

2. Activities undertaken

The Project Team made a 2-day visit to Kiev and invited number of relevant participants to be present at two separate meetings. The first meeting was held at TRACECA office and the second one in Verkhovna Rada building (in the safety subcommittee room).

On the first day (01.06.2015), three previously trained local experts presented their RSA Reports in detail and answered various RSA/BSM team member questions. Presentation of RSA Reports was successful and all trainees will get certificates. Discussion about institutionalization of RSA was initiated and some proposals of how to do that were formulated for wider discussion on the next day.

On the second day (02.06.2015) a group of 18 participants was present on the meeting in Verkhovna Rada building (see Annex 1. List of participants).

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 Ukraine 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 Ukraine.

Improvements of existing situation in accordance with best international practice

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

Project deliverables were presented (Regional RSA Manual, Proposal of Road Safety Audit policy, legislation changes an Training Courses and Regional BSM Guidelines). They will help Ukraine 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 about 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 does not recognize RSA procedure. - Road design standards missing some of road safety solutions.	- Current law does not recognize RSA procedure, and therefore it cannot be implemented. - 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).	- 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 provide guidance on legal (law) amendments that will introduce RSA as obligatory tool.
2	**Is there an adequate manual (with RSA Methodology) in use?** - There is no developed methodology for RSA in country.	- RSA methodology is not known and not use. - Resistance to RSA exists, because of lack of knowledge. Some of stakeholder's wrongly think that they already perform road safety checking	- Implementation of project Deliverable "Regional Road Safety Audit Manual". This will explain systematic procedure for RSA and introduce unique RSA methodology in auditors work.

		by so called "state revision commission" or by the Traffic Police.	
3	**Are trained road safety auditors available?** - No officially certified auditors, - There are some, recently established, training courses for RSA (Kharkiv University). - Three trained and certified auditors (by TRACECA project)	- No established unified system (RSA training curriculum) for education and licensing of auditors in Ukraine.	- 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, 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 auditors 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).
5	**All new, reconstructed and rehabilitated roads being safety audited** - RSA is not mandatory, therefore no obligation for RSA of reconstructed and rehabilitated roads, even on core road network, except on those financed by International Financial Institutions (IFI). Note. One RSA report was prepared for road M6.	- No legal basis for undertaking RSA	- Making of RSA mandatory (explained in row No. 1)
6	**RSA Recommendations being implemented by Roads Authority** - RSA not established and no implementation of proposed measures (no monitoring).	- No obligation for RSA, 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 does not recognize specifically BSM procedure, but can be used as framework without changes.	- Current law does not recognize specifically BSM procedure, but it is foreseen in general provision (... roads should be build and maintain to enable road safety...).	- Even that there is no need for changing law, it should be checked if some, BSM related articles can be improved.
2	**Is there an adequate manual (with BSM Methodology) in use**? - There is developed methodology for BSM in country. Not updated in last 3 years, but exists with created database of black spots.	- There is a definition of Black Spot used by Road Research institute "DerzhDor NDI". - Existing Black Section definition is not consistent with the EC/96/2008 and foreseen Network Safety Management. - Data base of black spots exists, within Road Research institute but not updated in last 3 years (no money). - No cost benefit analysis for black spots.	- Implementation of project deliverable "Regional Black Spot Management Guidelines ". This will explain BSM and introduce improved methodology for black spot identification, analysis, treatment and monitoring. - Database of black spots needs to be updated - Cost benefit analysis should be introduced in future ranking of black spots.
3	**Are trained black spot investigators available?** - No officially certified inspectors, - There are some, recently established, training courses for BSM (Kharkov University). - One trained and certified inspector (by TRACECA project).	- No established unified system (BSM training curriculum) for education of black spot inspectors. - No knowledge about cost benefit analysis needed for ranking of black spots.	- Foreseen black spot inspectors should get similar training as auditors plus safe design training. - Both training courses will be given to the responsible Universities. - Cost benefit procedure should be spread among black spot inspectors / designers.
4	**Annual hazardous improvement program in place?** - Some activities exists, but not based on best International BSM practice.	- There is a program of black spot removal prepared by Road Research Institute, by their methodology. Number of improved sites each year on National roads is 25-50.	- Annual black spot removal program should be updated and based on proposed methodology (explained in row No. 2)
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 State, Oblast and Municipal level has specified dedicated money for black spot remedy programs in their annual budget.
6	**Are BSM Recommendations being implemented by Roads Authority?** - BSM remedy measures partly been implemented by Road Administration (under maintenance and rehabilitation and reconstruction work).	- Partial implementation of BSM proposals - No monitoring tools established	- Establish permanent monitoring of BSM improvements. This can be done by Road Administration at State, Oblast and Municipal level annual reports to the responsible Ministry (or even Government).

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 Ukraine in the process of harmonisation with EU. Since the Road Safety Act in Ukraine is in the process of changes (it is currently in Ukrainian Parliament), here 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. 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. The Board for Road Safety could be responsible institution for developing this activity. Nevertheless, the existing databases should be user friendly and open for use, except the data that could breach privacy rights.

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 Kiev 2nd June 2015 as part of the
European Union financed Project "TRACECA ROAD SAFETY II"

LIST OF PARTICIPANTS

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4.2

COUNTRY: UKRAINE

TEAM: SAFETY DESIGN

TOPIC: INSTITUTIONALIZATION OF RSA/BSM IN UKRAINE VIA IMPORTED DESIGN STANDARDS

DATE: OCTOBER 12-13 2015

Prepared By

Safety Design Team

Team members:
Dejan Jovanov (KE2)
Rajko Brankovic (STE 9-1)

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Annexes:

*** * ***

1. 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 Ukraine on 12-13 October 2015.
The main Safety 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 the "compliance checking" with SNiP and GOST and these obviously much safer solutions (based on best International practice), will be rejected and not implemented. Secondly, the team's task was to support the implementation of "in country" road safety audit training courses by improving the knowledge of previously trained staff who will become the future local in country RSA trainers. The third task was to support development of National road safety audit and black spot programs. The second and third activities are also supported and supplemented with missions of the Academics (e.g. introducing RSA/BSM and safe design curriculum into regular student education or as separate courses at University).

2. Activities undertaken

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

The first day meeting (12.10.2015) was held at Verkhovna Rada building (see Annex A. Persons met or consulted) in the Parliamentary safety subcommittee room. The following discussion took place:

1. Assessing the current situation about usage of SNiP construction norms and GOST 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 road safety gap analysis standards/norms (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, lively discussion was generated among participants about the main problems concerning road safety in design and how the situation could be improved.

Pictures from first day in Verkhovna Rada building

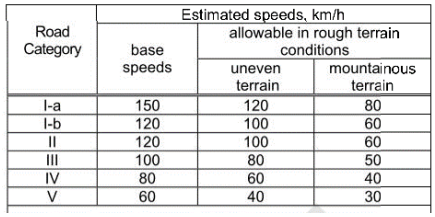
First part of the second day (13.10.2015) was spent on field trip to the Road N01 Dnipropetrovske Hwy (Kyiv – Romankiv – Tastenky) where group undertook a part of brief RSA (RSI) of existing road. After identification of actual road safety deficiencies at selected locations, the team discussed risk assessment and proposed measures for road safety improvement (even some real design solutions were discussed). Proposed measures were checked for compliance with the existing standard. After field trip, discussions were continued at Verkhovna Rada building. The following topics were discussed:

1. Discussion of actual problems of road safety observed and how they might be overcome in future (based on auditor's 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.

3. 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).

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

	Analysed topic of SNiP (current situation)	International best practice	Recommendations (suggested way forward)
1	**Speed**  Estimated speeds, km/h Road Category | base speeds | allowable in rough terrain conditions: uneven terrain | mountainous terrain I-a 150 120 80 I-b 120 100 60 II 120 100 60 III 100 80 50 IV 80 60 40 V 60 40 30	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.	- reduction of speed for the highest road category - Speed limits in road categories II – IV should be 70 km/h in front of intersections **PROPOSAL: *None*** Already implemented in new design standard
2	**Speed difference of highway sections** 4.2.4 The estimated speeds for adjacent highway sections shall not differ by more than 20 %.	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.	- description of measures in the case of required speed reduction **PROPOSAL: *None*** Already implemented in new design standard
3	**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.	Most countries reduce speed for roads without median to 90 km/h and less.	- reduction of speed for the category II-roads **PROPOSAL: *None*** Already implemented in new design standard
1	**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)	Wider lanes lead to higher severity of accidents but reduce the number of accidents. The width of lanes complies with the international experiences.	- reduction of overpass lanes of category I roads to 3.50 m is possible **PROPOSAL: *YES,*** to be implemented in next revision of design standards
2	**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	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.	- 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*** Already implemented in new design standard
3	**Median without barriers** >6 m for Ia-category-roads >5 m for Ib-category-roads	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.	- obligation of barriers in medians **PROPOSAL: *None*** Already implemented in new design standard

<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>- extension 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>5</td><td>Safety stripes at median

1 m for Ia- and Ib-category-roads</td><td>Width of safety stripes is determined with 0.50 m or 0.75 m in German standards.</td><td>no recommendation

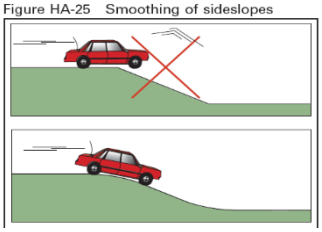
PROPOSAL: None
Already implemented in new design standard</td></tr>
<tr><td></td><td></td><td></td><td></td></tr>
<tr><td>1</td><td>Cross fall in straight lines

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>- no recommendation

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
in bottom portion (0-6)</th><th>in top portion (6-12)</th></tr>
<tr><td>Blocks of slightly slacking rocks</td><td>1:1 - 1:1.3</td><td colspan="2">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 colspan="2">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 colspan="2">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>

	Analysed topic of SNiP (current situation)	International best practice	Recommendations (suggested way forward)
4	**Cuts** Soils / Slope height, m / Maximum steepness of slopes Rocky grounds: - slightly slacking: up to 16: 1:0.2 - readily slacking: - non-softening: up to 16: 1.05-1:1.5 - softening: up to 6: 1:1; 6 to 12: 1:1.5 Macrofragmental: up to 12: 1:1-1:1.5 Sandy, clayey, homogeneous hard, half-hard and low-plastic: up to 12: 1:1.5 Fine barchan sands: over 2: 1:4; 2 to 12: 1:2	Standard steepness in Germany is 1:1.5. Often flatter steepness is used.	- no recommendation
1	**Horizontal curves** Design speed [km/h] / Min. radius Basic[m] / Min. radius Mt. ar. [m] 150: 1.200: 1.000 120: 800: 600 110: 700: 500 100: 600: 400 80: 300: 250 60: 150: 125 50: 100: 100 40: 60: 60 30: 30: 30	The international experiences comply with the regulation of Kazakh SNiP. But the min. radius does not depend on the kind of area.	- 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
2	**Vertical curves** Design speed [km/h] / convex [m] / concave [m] 150: 30.000: 7.000 120: 15.000: 5.000 110: 13.000: 4.000 100: 10.000: 3.000 80: 5.000: 2.000 60: 2.500: 1.500 50: 1.500: 1.200 40: 1.000: 1.000 30: 600: 600	The international experiences comply with the regulation of Kazakh SNiP.	- no recommendation **PROPOSAL: *None*** Already implemented in new design standard
1	**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	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.	- defining conditions for the implementation of barriers from traffic volume and one additional feature **PROPOSAL: *None*** Already implemented in new design standard
2	**Barriers at medians** Implementation of barriers depends on median width and traffic volume	Barriers are implemented in medians always.	- obligation of barriers in medians **PROPOSAL: *None*** Already implemented in new design standard
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 in last phase of official adoption.

4. Additional topics discussed during mission

During the meeting some other topics were discussed:

- **Traffic Accident Price**. Price of traffic accident with fatal outcome in Ukraine is not officially published. The price of the 900.000 UAH is usually used in traffic studies. Implemented measures in design solutions directly depend on the price of traffic accident with fatalities. It is good to have officially published price so that implemented measures could be well evaluated and observed.
- **Pedestrian crossing**. Putting pedestrian crossings on roads with several traffic lanes in one direction and on high-speed road is allowed regardless of whether traffic signals exist or not. Accidents with pedestrians in such conditions often result in death. Construction of grade separated pedestrian crossings should be obligatory on high-speed road. If it is not possible to construct grade separated pedestrian crossings, it should be obligatory to use traffic signals when the pedestrian crossing is on the road with more than 1 traffic lane per direction and to apply traffic calming measures.
- **Bus stops**. Bus stop on high-speed roads is allowed in Ukraine. Existence of bus stops on emergency lanes as well as enabling vulnerable road users to access are problems to be solved in the case of BUS stop on the high-speed road. Safe solutions imply relocation of BUS stop outside the high-speed road. Pedestrian paths to and from Bus stop should be constructed as physically separated and grade separated crossing with high speed traffic.
- **Billboards**. Billboards are frequently placed on roads, especially on roads with high traffic intensity. Billboards are frequently right next to the pavement edge with massive base foundation and poles construction, and not protected with safety barriers. In addition to distracting the attention of drivers, in case of an accident billboards are hard obstacles and cause serious risk of injuring. Billboards should be placed sufficiently far from the pavement so that in case of running off the vehicle can safely stop before hitting the billboards.
- **U turn.** U turn on high-speed roads is allowed. When making U turn, drivers go onto the left lane reserved for the high speed. Traffic accidents in that case are with fatal outcomes. U turn on the high-speed road should be grade separated if it is possible. Special focus should be given to the design of U turn.

Within institutional capacity building, the following deficiencies were noticed:

- Road rehabilitation works are accompanied by certain problems regarding traffic safety:
    - Design is not in accordance with existing road safety standards. Often pavement widening is done because of insufficient capacity, but all accompanying elements remain the same. As before, this leads to the future more accidents in future on that road.
    - Work Zones – insufficiently protected (unprotected deep excavations, concrete barriers which do not work in a system, no lateral safety barrier between the works and ongoing traffic, parking for the construction vehicles in the vicinity of the ongoing traffic, etc.)
    - Execution of works which are not in accordance with the existing standards. Control of all processes regarding road rehabilitation should be on higher level.

Control of entire rehabilitation process should be performed by Road authorities. Road authority is obliged for all road safety issues on the state road network. Road authorities should have active role in road rehabilitation process. Supervision should be focused on contributing better road safety situation during works execution.

Conclusions

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

The main conclusion concerning road safety part of interurban road design standards (safe design approach) is that the situation in Ukraine has significantly improved recently. This means that the latest revision of standards (ongoing and in final phase of official adoption) have already implemented most of discussed and agreed recommendations from the TRACECA project team. Some of unimplemented recommendations is the one concerning the width of traffic lanes (reduction of overpass lanes of category I roads to 3.50 m is possible). Proposal is to implement this in the next revision of design standards.

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

Important Note:
Apart from discussion of road design standards, the Design team noticed a huge road safety problem with through traffic in cities/villages. This topic is more related to road or urban planning, but if not treated well, it will cause many road safety problems. The design of interurban roads is not adjusted to urban road surroundings when roads pass through communities. Frequently interurban design maintained through roads without transition and modifications allow for the urban surrounding. This represents one of the most dangerous situations at Ukrainian roads which should be stopped as soon as possible.

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: Kyiv 12-13 October 2015
"TRACECA ROAD SAFETY II" SAFEGE Consortium

LIST OF PARTICIPANTS

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COUNTRY: UKRAINE

TEAM: FREIGHT ROUTE / PARKING TEAM

TOPIC: FREIGHT SAFE ROUTE AND FREIGHT PARKING IN UKRAINE

DATE: JUNE 21 TO 24 JUNE 2015

REPORT PREPARED BY:

FREIGHT ROUTE / PARKING TEAM

TEAM MEMBER:

1. Walter A. Viti (STE 13)

June 25th, 2015

Table of contents

1. Introduction

In accordance with the terms of reference, Component 3: "Freight Routes and Parking", a mission was mobilised to Kiev, Ukraine arriving 21 June to 24 June 2015.

The main tasks were to identify current issues associated with freight route safety and parking provision. In addition, list any institutional problems, barriers or gaps associated with implementing the national freight programme, and highlighting options for a way forward in Ukraine. This involved input from government representatives and the freight industry association agency.

Their feedback is described below.

2. Overall Mission Objectives

Terms of Reference 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 examples.

3. Activities Undertaken

The Team (individual TRACECA specialist) conducted a workshop over two days with various attendees for a broad scope of freight transport situation. A site visit was also conducted so to see a recent example of freight facilities, such as for parking.

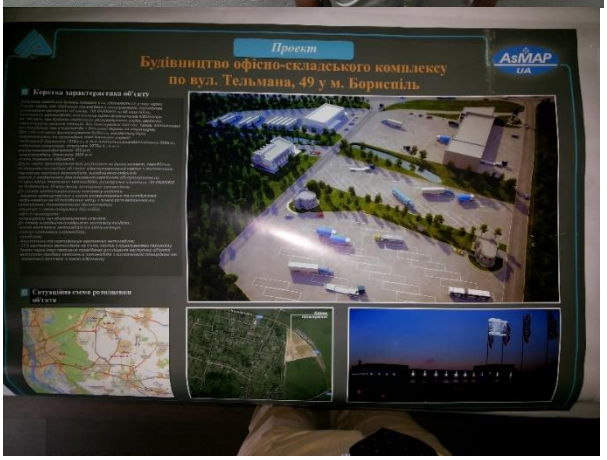
Figure 1; Freight Parking asMAP (48 spaces stage 1)

Figure 2; Road reserve parking (8 spaces)

Two separate meetings were arranged, one with the ministry for planning on the second day, and then with the freight industry association, AsMAP, and IRU member representative, on the third day regarding their freight facility development project and planning for future.

Figure 3; AsMAP Strategic Plan and Director

Figure 4; Parking Design showing stages 1, 2 & 3



Events;

22 June 2015;

- Workshop with stakeholder representatives discussing freight best practices, EU objectives and issues to consider for freight route and freight parking development
- Site meeting to freight route and parking facilities (AsMAP 48 bays, and road side 8 bays)

23 June 2015;

- (10:00 to 11:00) Meeting Ministry of Planning to discuss freight route planning programmes
- (14:15 to 17:15) Round table discussion on planning, design standards and process, and barriers and improvement suggestions for the way forward

24 June 2015 (10:00 to 11:30);

Meeting Director AsMAP UA (and IRU) and discussing facility planning, design options and budget details of the recent parking facility, and the association's future vision.

Discussions were enthusiastic and interactive. There were are broad spectrum of representatives there. Topics included, institutional impediments for improving freight route facilities in accordance to EU directives, international best practice for parking design options, regulation and control, and the barriers for implementing the national freight planning objectives.

Specific topics discussed:

1. International best practices; EU objectives and issues to consider for freight route efficiency and parking facilities;
2. Current situation in Ukraine
3. Barriers and impediments for planning and implementation for meeting EU standards
4. Improvement options;
    a. Accordance with best international practice planning and design for parking facilities
    b. Regulation for enforcement and control of freight traffic
    c. Government policy and legislation focused on freight and decision making according to a long term plan (regardless of governing power)
    d. Case studies access for funding and implementation framework (PPP>Private>Public)
    e. Achieved standards for parking services in other countries
    f. Resolving land utilisation, and justification studies to convince local bodies
    g. Suitable financial models for funding parking facilities development such as PPP or private only or public only project initiatives
    h. Monitoring freight traffic statistics, and collection of data
    i. Training including Regional levels for feasibility assessment for determining priority locations and facilities designing and justifying funding using up to statistics
    j. Resolving political decision making with legislation and re-establishing a committee of representative agencies for the collective progress and monitoring output of freight programme according to long-term plan.
5. Necessary improvement options for efficient planning and implementation, and meeting EU standards and improving national freight situation and implementation expectations.

4. Current situation and barriers, and the way forward

Current situation – round table feedback	
1	**General:** - Winter is a factor for freight traffic (roads & parking) - Ministry created targets; need 80-90% more parking facilities, and 60-80kms from settlements. - A current estimation is to expand by 26 places by end of 2015 - Land for parking is an issue (along with political decision). Using forest areas is restricted. Land issues can be resolved but there seems to be a lack of interest - Private funding is the way forward for achieving quicker and affordable results - Options for finance are sort (for PPP), but land availability is an issue along with progress with regional authorities or chamber of commerce. Land can be rented. There may need to for rent agreement >50 years to ensure investments are attractive. It is not working or stable (similar to the problem with speed cameras). Problems with government decision and action - Lacking freight monitoring and control of heavy vehicles ad cargo (Freedom of Business) - Need coordination and leadership of freight focused action - AsMAP stated parking does not meeting driver rest & relaxation rules. These are the reasons for accidents and fines. Remote parking experience crime and violation to drivers and damage to vehicles and cargo, and harbours migrants - 700 sites have been allocated and 20% belong to private sector (hotel properties). There is a need to decide a proposal list for where to place these, and need sample sites with services provided and dimensions for parking - There appears to be a lack of coordination for planning and implementation. The freight industry must advise where to place parking facilities - There is contradiction with state laws compared to regional law for freight - There are gaps with policy for road safety and freight regarding education and resettlement for residential areas or freight routes - There is no inspection of vehicles or policy for checking driver logbooks. There needs to be coordination with other agencies for checking cargo. There is a requirement for dedicated leadership specifically for freight coordination. - There are few signs placed on freight routes for directions and distances to rest area, especially signs for load limits and height restrictions - There are no ring roads (bypasses) around towns and trucks are passing residential areas, and there is risk of road injuries and damage to roads assets and emissions (noise and CO2). There needs to be zoning for certain trucks. There was planning started for ring roads but this was stopped along with freight control (in favour of 'freedom of business'). Land was allocated but then it was stopped and then re-allocated to other priorities. - Need guidance or training for what a freight route and facilities look like from other countries - Modelling (VISSUM) freight traffic conditions existing and forecasting would be greatly beneficial regarding infrastructure development planning pending up to date traffic counts - Road funding could be restricted by too ambitious scope of planning and projects. Need to develop facility level options, at key locations, with budgets that are suitable for achievement. Often budgets are not enough and projects struggle to complete or are not sustainable - Key stakeholders are the freight companies and regional areas can benefit
2	**State of freight infrastructure:** - Freight industry is critical for Ukraine; >3,000 companies (30,000 vehicles) and >20,000 more are international vehicles - there are security problems associated, but these are not well defined - There are no statistics collected specific to freight drivers, vehicles (international) or cargo loads or dimensions. It is suspected road infrastructure is under pressure from heavy freight - Government has made decision in 2014 for improving freight transport systems but no funds
3	**Technical issues:** - Parking bay examples and best practices guidance is needed to build technical capability - Location selection based on vehicle counts and demand for rest locations

	- Funding options and who will build and how? Who will be responsible for leadership coordination? How will this be monitored including key information?
	Meeting - Ministry of Planning
	- There is 1-2 years planning required to develop Euro-Asia corridor in Ukraine - Project budgets must consider; 80 new sites (parking); 23 redeveloped sites; include level 5 (LABEL criteria) parking service facilities, with 20 to 80 truck places - Budget; 10-12 million (UAH) or 5-600,000 Euro; Encourage regional land proprietor operated - Barriers; (i) land availability and prices, (ii) planning locations and avoiding forests (requires capability development for parking proposal). - The problem now is the condition of the road (M06 & M07). Other roads (M3), World Bank may be funding redevelopment but more funding is required. Need new road through to Russia (North-South corridor) as delays are being experienced - We are seeking private investment, and suitable framework arrangements such as PPP but the guidance is required for suitable frameworks and setting up quality levels and responsibilities
	Assistance for achieving freight standards
	General comments: - Vehicle counts and modelling for forecasting freight traffic is needed to scope development - Project budgets must consider; specialist consultants' advice to assist and guide planning, and feasibility study on key freight circumstances, standards, and budget requirement - Monitoring methods to know how many international vehicles and freight cargo type circulate - Cross border agreements need consolidation specifically toxic goods - Traffic and freight penalties must be supported by a fines system and on-road inspection **TRACECA:** 1. Write a report to EC, and in turn use it to convince Ukraine government to implement freight programme and make quicker decisions and to allocation of land and funds 2. Revise implementation strategies and policies so to progress regardless of changing governments or politicians 3. Assist with collection systems for freight data and statistics and planning existing and proposed parking. Assist with technical planning of the route corridors such as inventory of existing and needed infrastructure, road furniture (signs & detectors) and chainage markers for assisting asset monitoring and maintenance and driver advisory guidance and route hierarchy planning. 4. Working in the direction of ITS development and best practices (as Ukraine behind) 5. Freight load limits not related to road and bridge capability so to control asset damage, and restrict certain vehicles (need to protect and save costs on maintaining road infrastructure) 6. Assist with cross border agreements and processing arrangements, especially with Russia (Serbia does not pay to cross borders) 7. Need to save damage repair and maintenance costs to tax payers and redirect this to freight traffic (including internationals) 8. Fees and fines for heavy load permissions and breaches of restrictions, and not solely using taxes to collect funds for necessary works or to recover road costs (from national rate payers) 9. Policy and revision advice for redistributing and targeting funds for freight improvement 10. Toll road best practices and achievements in other countries are needed for reference 11. Weigh in motion devices and stations (fixed and mobile) are needed on key routes
	Way Forward
1	Weight restriction controls to be re-establish for existing road, especially during hot weather so to avoid further damage to road infrastructure. Regulations and policies must support the Police with resources.
2	Revise freight policy for weight of cargo and road access limits of trucks
3	International guidelines for overweight vehicle permission and restriction is needed (EU standards)
4	Partnership encouragement with freight industry association such as AsMAP, so to encourage self-control at the companies (with loading practices) and education of best practice vehicle maintenance
5	Collection of key data for statistical profiling; traffic counts; freight type; vehicle type; accidents;

	demand	
6	Fine and inspection system for overloaded trucks, such as for 40-90 tonnes	
7	Requirement for driver culture change for meeting EU road safety objectives	
8	Revision of policy and laws so to use target revenue for roads and bridge maintenance funding	
9	Establishment of a freight committee	
10	Develop design guidelines using EU standards and references (current one are outdated)	
11	Need to form a road hierarchy and category specific for freight movement, for heavy and light freight access, and monitoring national and international vehicles such as for recommending rest/parking areas.	
12	Priority funding is required, as well as revising the traffic fines and permission revenue in comparison with EU practices to discourage bad practice. This could be an action for the proposed committee	
13	Road safety data needs to be collected specifically, for improving freight traffic efficiency and safety, and development of freight route improvement projects. Agencies involved in accident response (State Auto Inspectors, Road Maintenance investigators in reference to Cabinet Ministry n. 538) must be involved.	
14	Collection and dissemination of accident records for recent 3 years is required, and as well as analysis studies on freight traffic statistics; routes, vehicles, freight type, and forecast issues for planning purpose	
15	Control of commercial transport via enforcement systems at the border, and on the corridors and towns	
16	Guidance required for new facilities feasibility studies, using accident history, freight counts, and traffic statistics for justifying solution and priority funding recommendations.	
17	Guidance for vehicle safety (EU standards) and speed management	
18	Encourage better leadership and coordination cohesion with Ukraine administration, for achieving better and quicker government decision and implementation action, and reporting issues and achievement.	
Freight Industry Suggestions - IRU and AsMAP UA		
1.	Continue training of drivers (50,000 current on the road, with 300,000 vehicles in Ukraine), issue accreditation certificates, and meet international best practices.	**Actions;** 1. Create a lobby group, with industry associations and government ministries
2.	Continue relationship with university of transport and improve discussions and collaboration with government for partnership the planning parking facilities. Using the experiences from industry to advise the ministry.	2. Write a letter to President for establishing a freight focused committee, headed by AsMAP. Establish set objectives, and record actions and progress, and forming priority agenda items for action by ministry administration.
3.	Develop financial options for attracting future investment for parking, involving various business models, including duplicating the current AsMAP parking facility costing 30 million UAH (taking 1.5 years for planning, and 1 year construction for stage 1).	3. Identify key freight routes and parking developments, for region mayors to support. Gain regional support, as some populations are 50% dependent on freight industry.
4.	Meet EU design standards and regulations as they develop.	4. Seek joint funding, such as from aerodrome and government, and source revenue from new possibilities such as toll roads and gaining advice on freight control systems – ITS 5. Re allocating funding for infrastructure.

5. Conclusion

Availability of land for parking development is an issue. This is suspected to be associated corruption or long bureaucratic processes involved. Governments are not overcoming these barriers with quick decisions to achieve progress.

There is a desire to form partnerships between the freight industry associations and ministries for forming a specific committee. This should involve freight associations such as, IRU and AsMAP for feedback and collaborative advice to assist government problem solving and decisions.

All national road are currently being used for heavy freight, with no monitoring, or, statistics to quantify the issue. There are no freight vehicle and load controls currently in Ukraine. There is a government initiative of 'Freedom of Business' and international and domestic vehicles are taking advantage at the cost of the nation's road maintenance budget. Road and infrastructure is becoming damaged, and no budget is targeted specifically for maintenance or development. Control is needed from freight related revenue such as permission, certificates and fines.

There is a need for specific enforcement. Policies are not currently sufficient although some did exist. There needs to be resurrection of fines for lawbreakers and fees for heavy loads, which are re-invested into the road network.

Guidelines for design options for freight routes infrastructure and parking services facilities. This should be in association with local restrictions, and, management and control (enforcement) systems of freight drivers, vehicles and cargo, including monitoring of freight traffic including all international traffic. There is a need to meet international best practices so that Ukraine can capitalise on lessons learnt including regulations and design standards for freight facilities.

There must be a national focus on specific planning such as targeting freight roads, control non-freight roads, and monitoring border traffic and domestic traffic including light vehicles. There is a need for data collection and analysis reporting for scoping the characteristics of the current freight traffic and preparing designs and planning accordingly.

Truck safety and driver culture change are also needed including road safety best practice and speed and cargo management for secure loads and safe freight routes, especially through residential areas or towns. Specific statistics on freight safety history is required.

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
Kiev, Ukraine, 22-24 June 2015
European Union financed Project "TRACECA ROAD SAFETY II"

LIST OF PARTICIPANTS

No.	Name and Surname	Institution (Organization) and Position	Contact details
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	Klymchuk Oleksiy	Chief specialist of department of project implementation number 3 SE "Ukrdiprodor"	
	Fedorenko Oleg	Head of operational road maintenance and traffic safety department Ukravtodor	
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	Antolyk Yaroslav	SE "Ukrdiprodor," Deputy Head of Department of project implementation number 3 SE "Ukrdiprodor."	
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	Yushchenko Andriy	Head of Department STI traffic management unit USTI MIA Ukraine	
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Separate Meeting Attendees

1. AsMAP Association of International Road Carriers of Ukraine
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2. (IRU) International Road Transport Union:
Larysa Dobrukha, Chairperson – IRU Academy Accreditation Centre
3. European Union Advisory Mission (Road Safety Policy)
Michael Schrage - Road Safety Advisor
Iryna Reformator – Traffic Policing Senior Assistant

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? 4. How are freight through routing and safe and secure parking regulated? (What are the resources, skills and equipment and specification used?)	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.

		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 organization 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 recognized 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.

Regional
Road Safety Audit
Guidelines

TRACECA Regional Road Safety Project

Safety Engineering Team

Compiled by

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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.

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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Contributing Safety Engineering Team Members:

1. Hans-Joachim Vollpracht
2. Saša Jasnić
3. Walter Viti
4. Rajko Branković

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
MoI	Ministry 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)
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

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[11]. 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).

[11] 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 Figure 1-1.

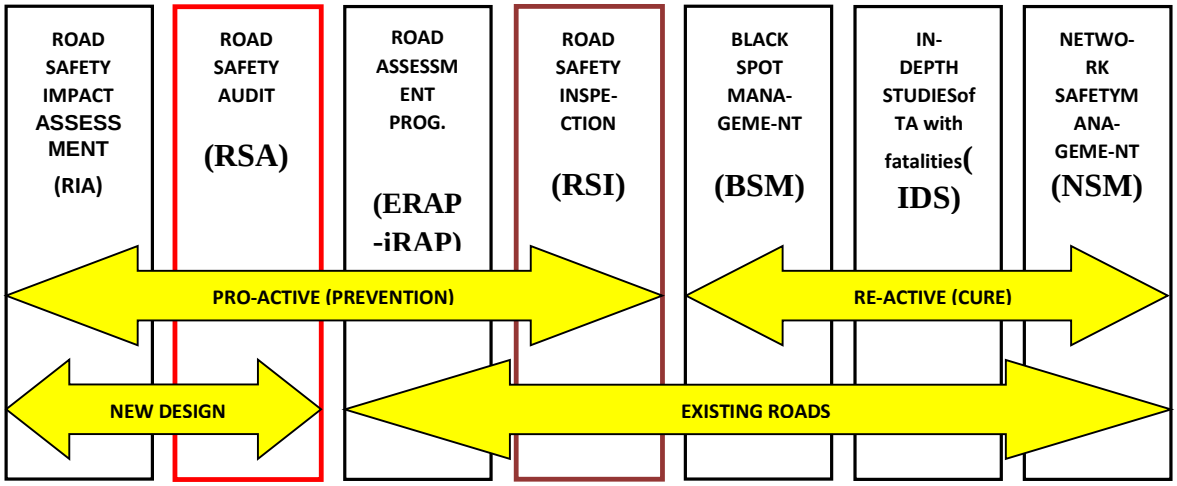

Figure 1-1 RSA as part of the Road Safety Management (Source: SEETO Road Safety Audit Manual, 2009)

It can be seen from Figure 1-1 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[12] 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**.

[12] 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 Figure 2-1.

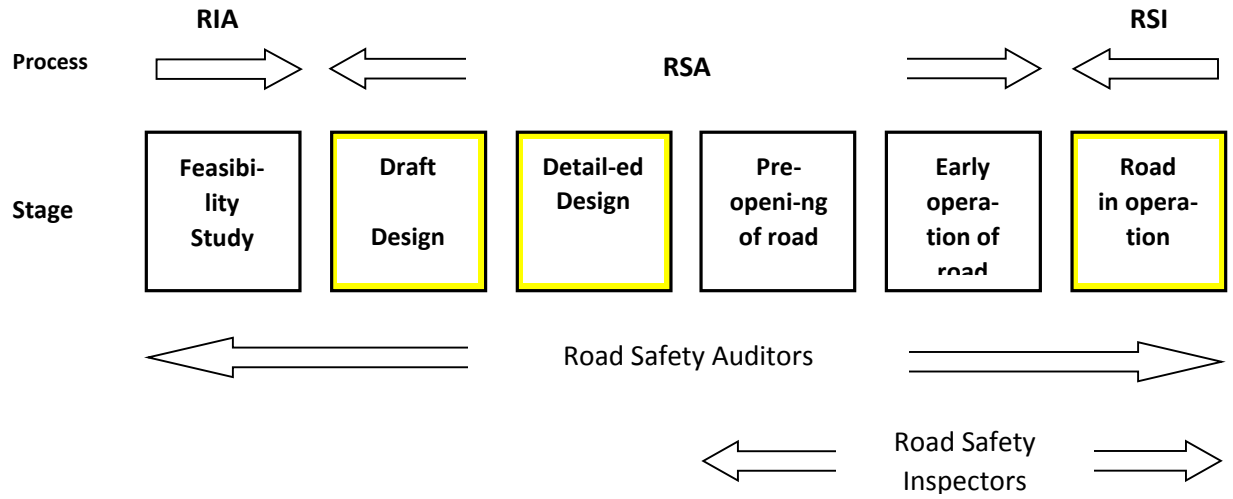

Figure 2-1 Process and phases of RSI and RSA

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

Figure 2-2 explains the interaction between RSA and RSI procedures.

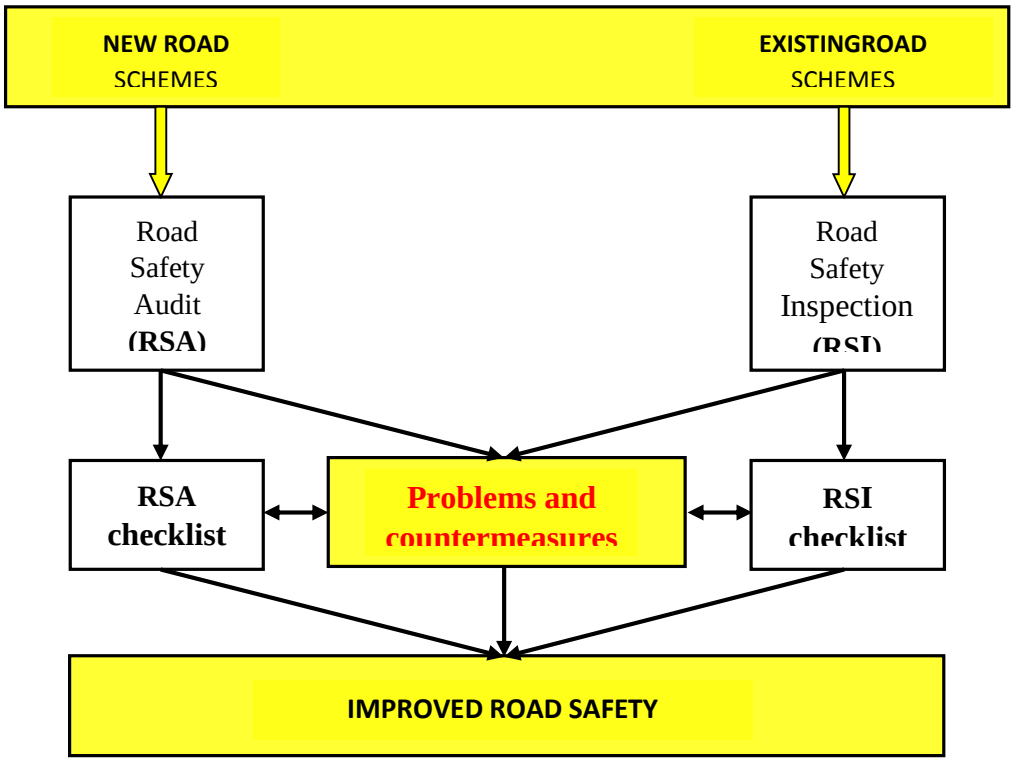

Figure 2-2 Interaction between the RSA and RSI procedures

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[13] 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,
- 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.

[13] 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.

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.

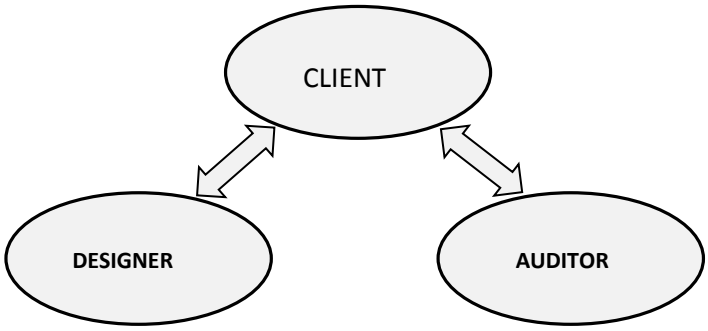

Figure 4-1 The participants in the audit process

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**.

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Figure 4-2 describes the typical audit process.

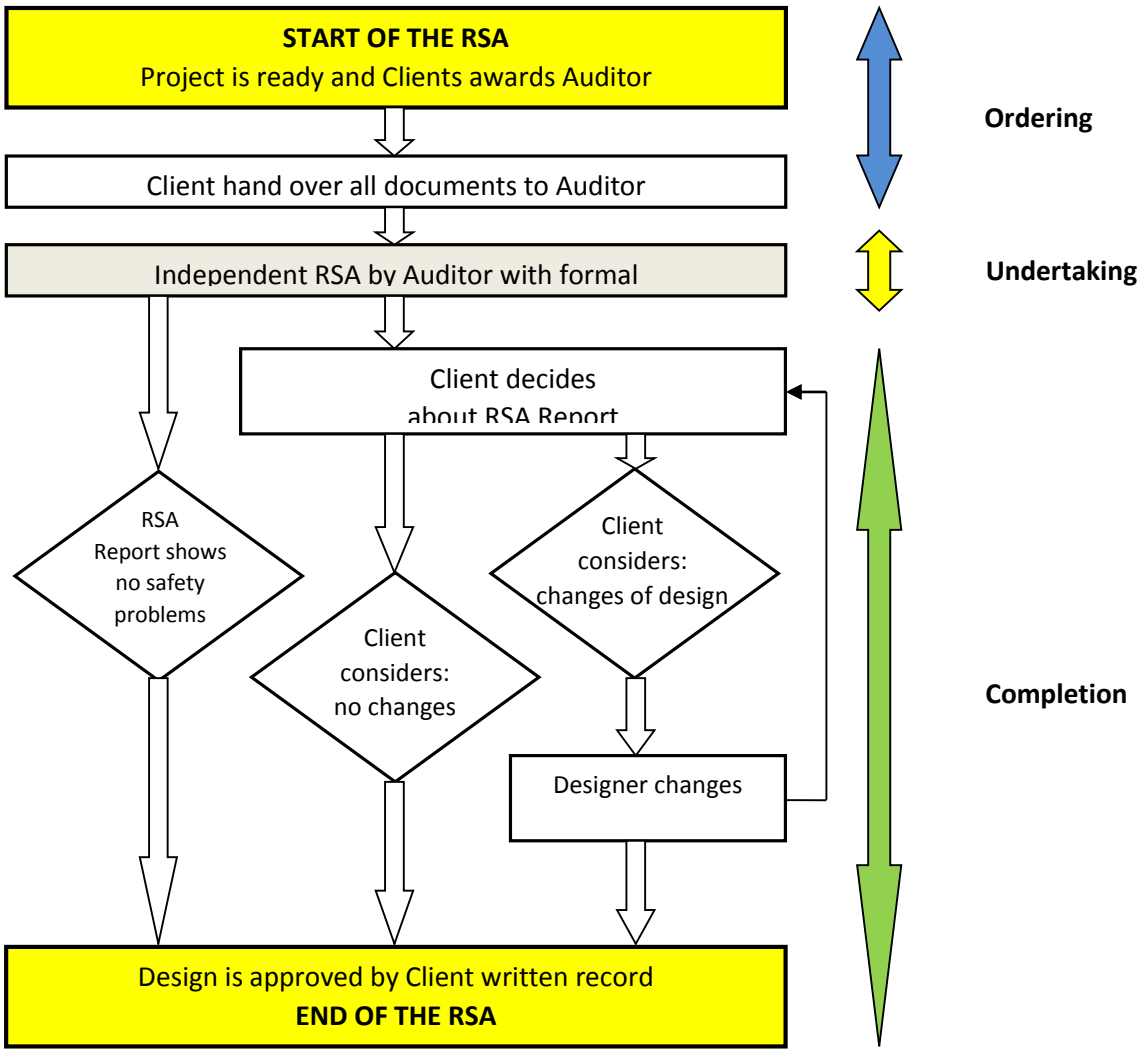

Figure 4-2 The RSA workflow (main steps)

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 Table 4.3.1.1.

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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SIMPLE TEMPLATE ON ROAD SAFETY AUDIT POLICY AND PROPOSAL OF LEGAL CHANGES TO MAKE RSA MANDATORY AT NATIONAL LEVEL

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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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Table of Contents:

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.

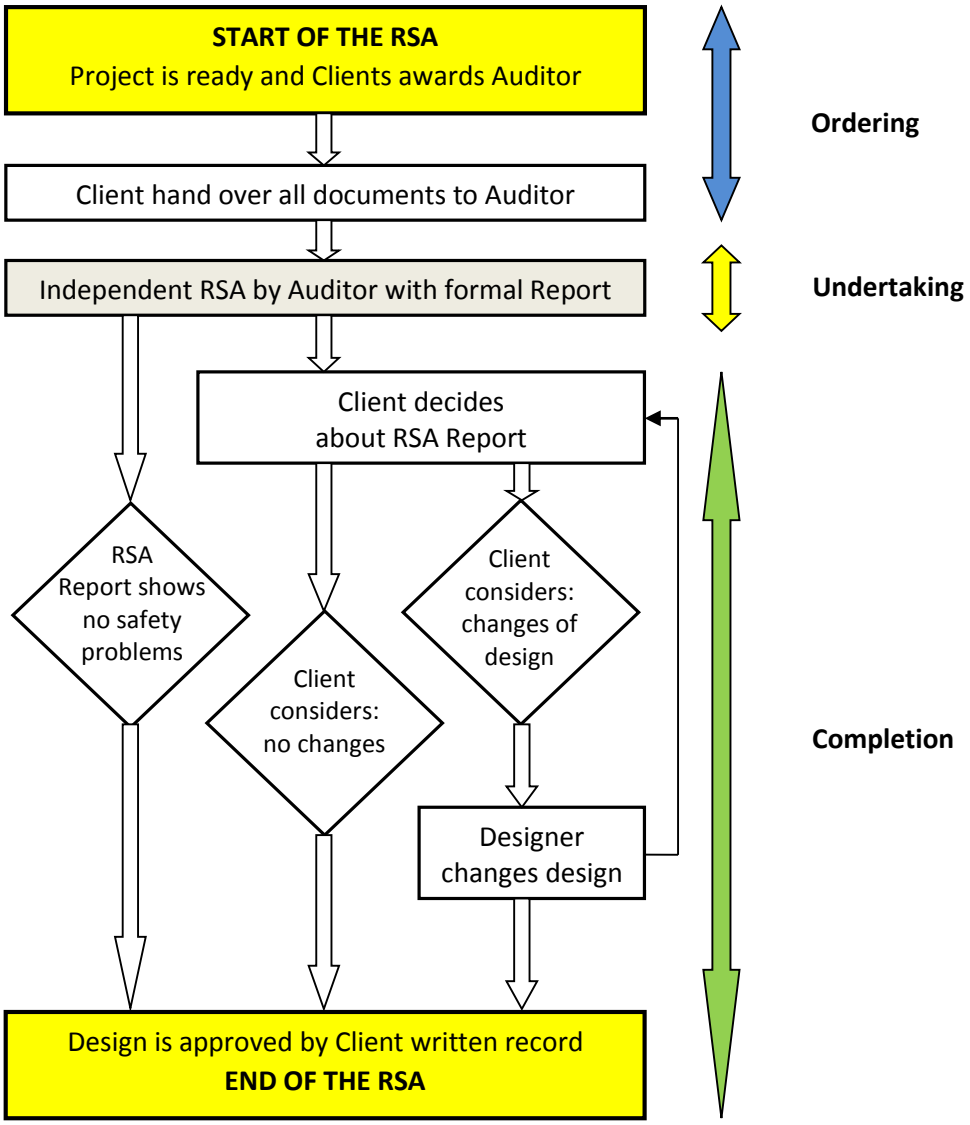
5. ROAD SAFETY AUDIT PROCESS

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

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

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.

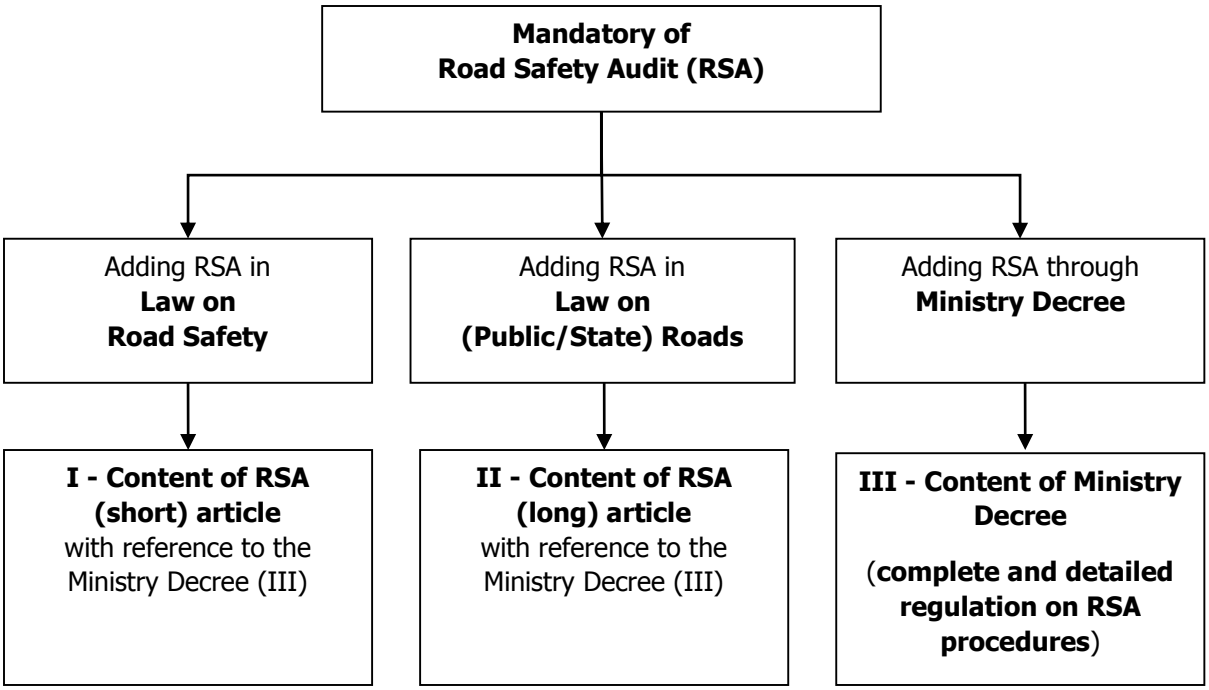


Figure B.1.1. Possible approach for implementing mandatory RSA

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.

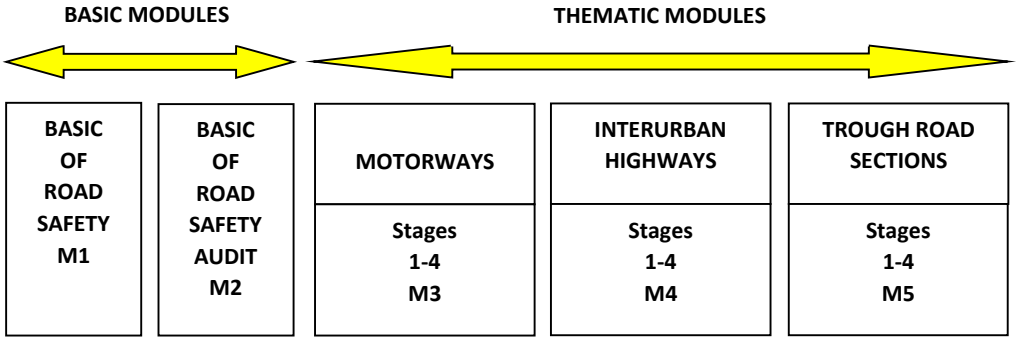


Figure A2-B.1. Modular training procedure for RSA

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.

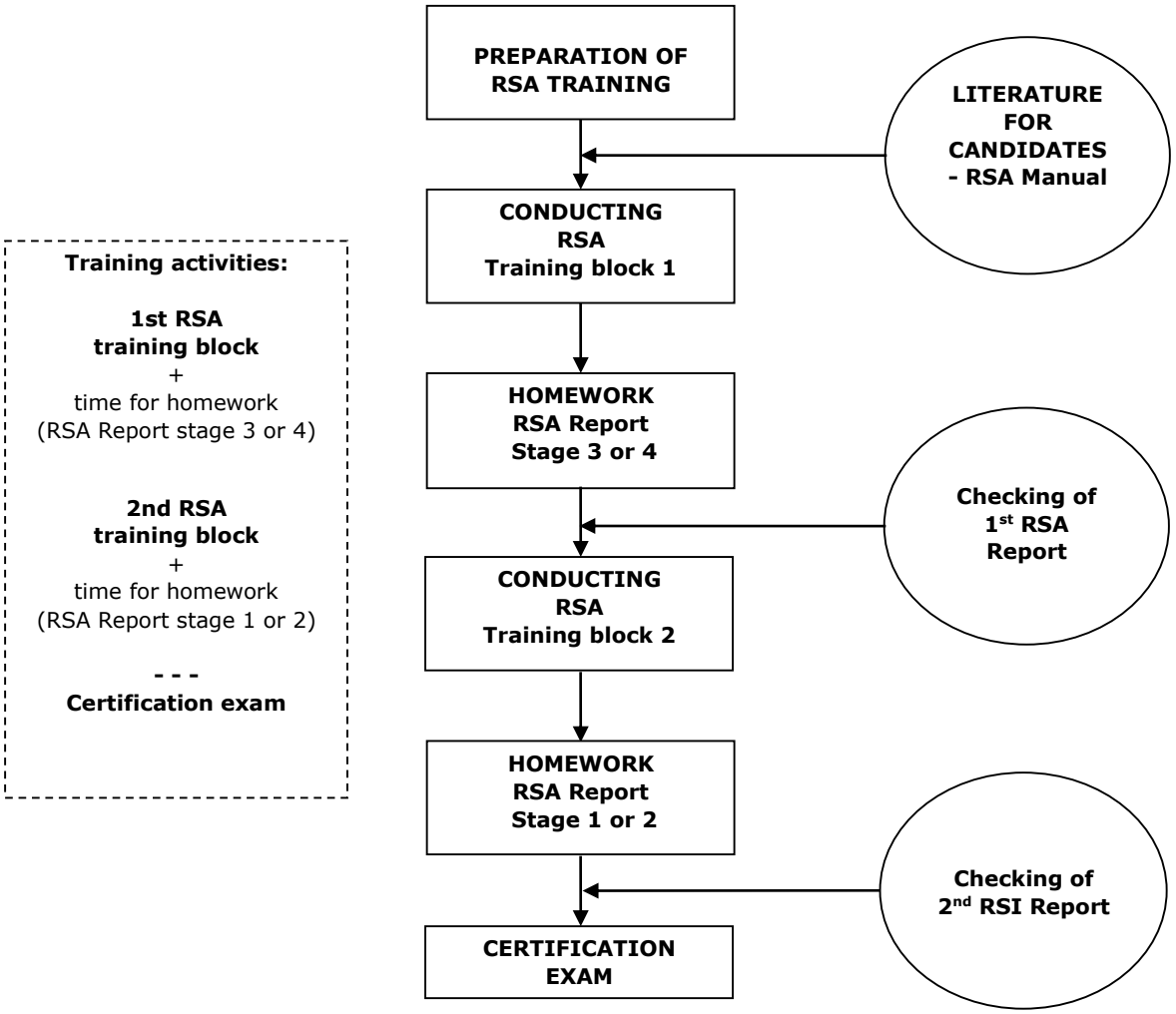


Figure A2-B.2. General workflow of the proposed training curriculum

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

4.4.3

REGIONAL BLACK SPOT MANAGEMENT GUIDELINES

TRACECA Regional Road Safety Project

Safety Engineering Team

Compiled by

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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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Table of Contents:

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[14]. 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.

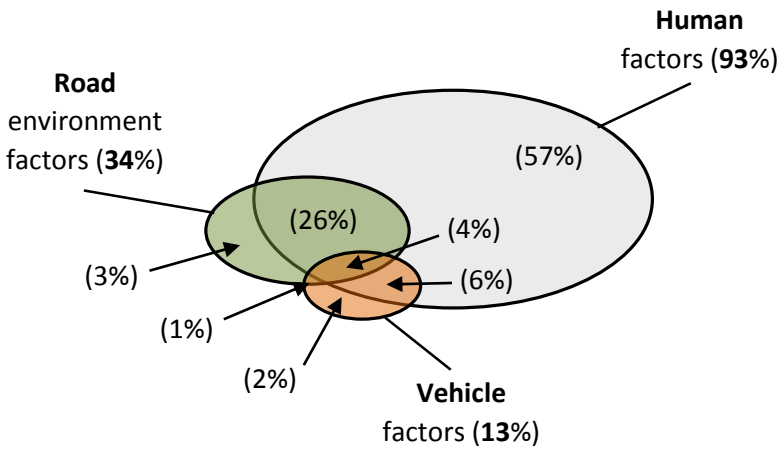


Figure 1.1. The contribution of crash factors
(Source: Road Safety Manual, PIARC, 2003)

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 the number and severity of crashes on the road network. High effective and low cost remedial

[14] 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.)

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.

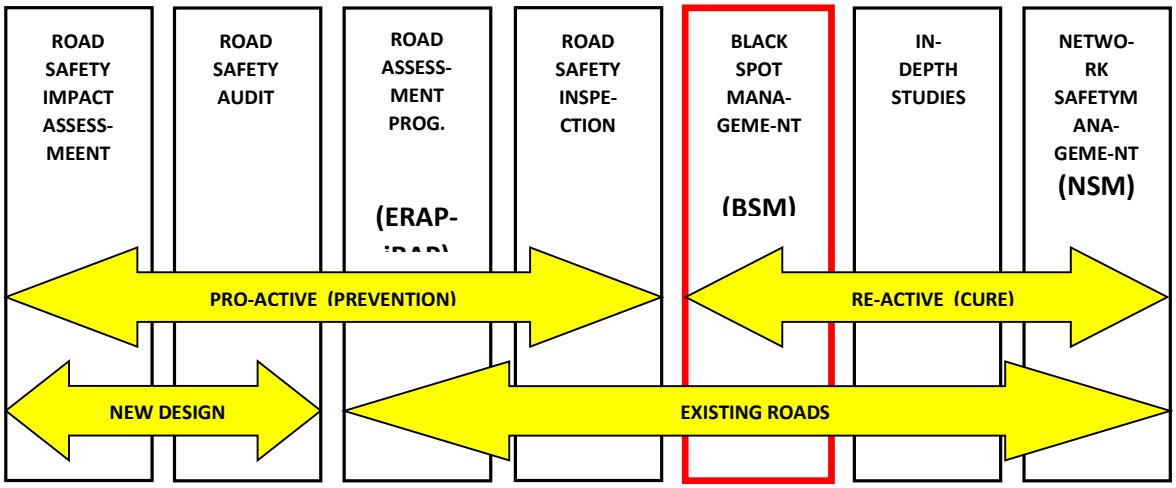


Figure 1.2. The BSM as part of the Road Safety Management (Source: Road Safety Audit Manual, SEETO, 2009)

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 exampl*e: ***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.

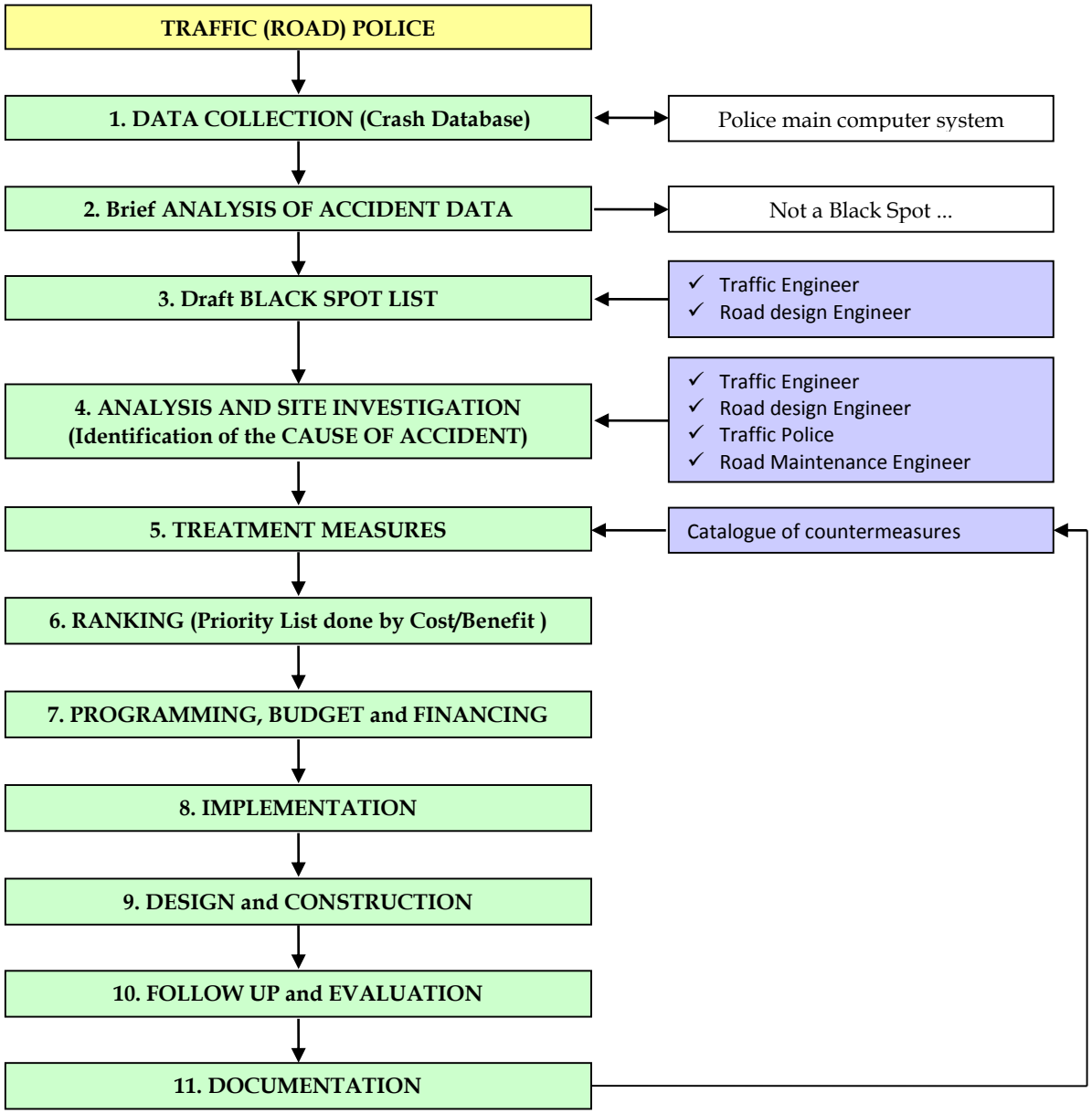


Figure 2.1.1. Flowchart for the proposed Black Spot process (Source: EU funded Project RIPCORD-ISEREST, 2007)

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.

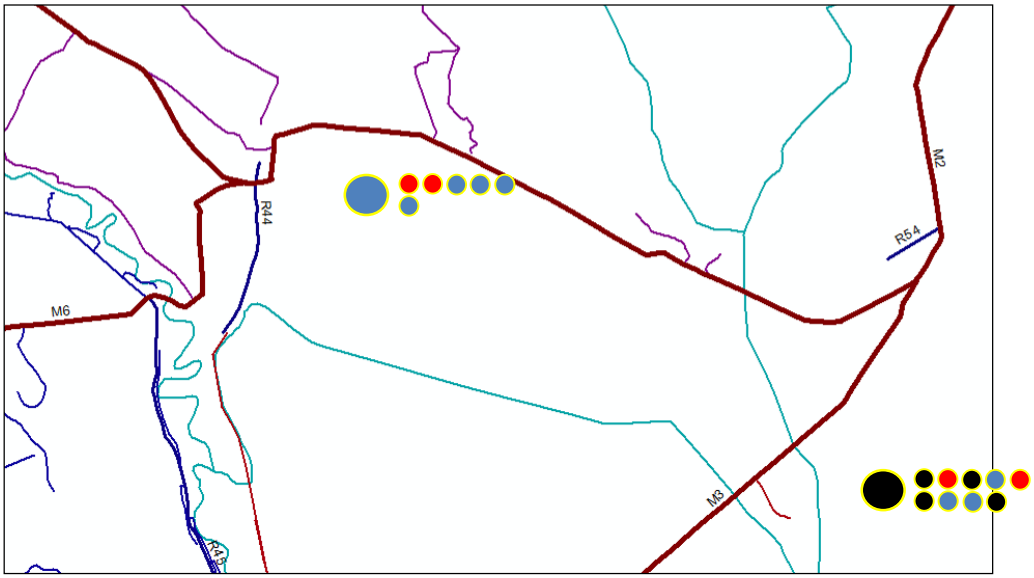


Figure 3.2.1. Example of typical Black Spot Pin Map

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.).

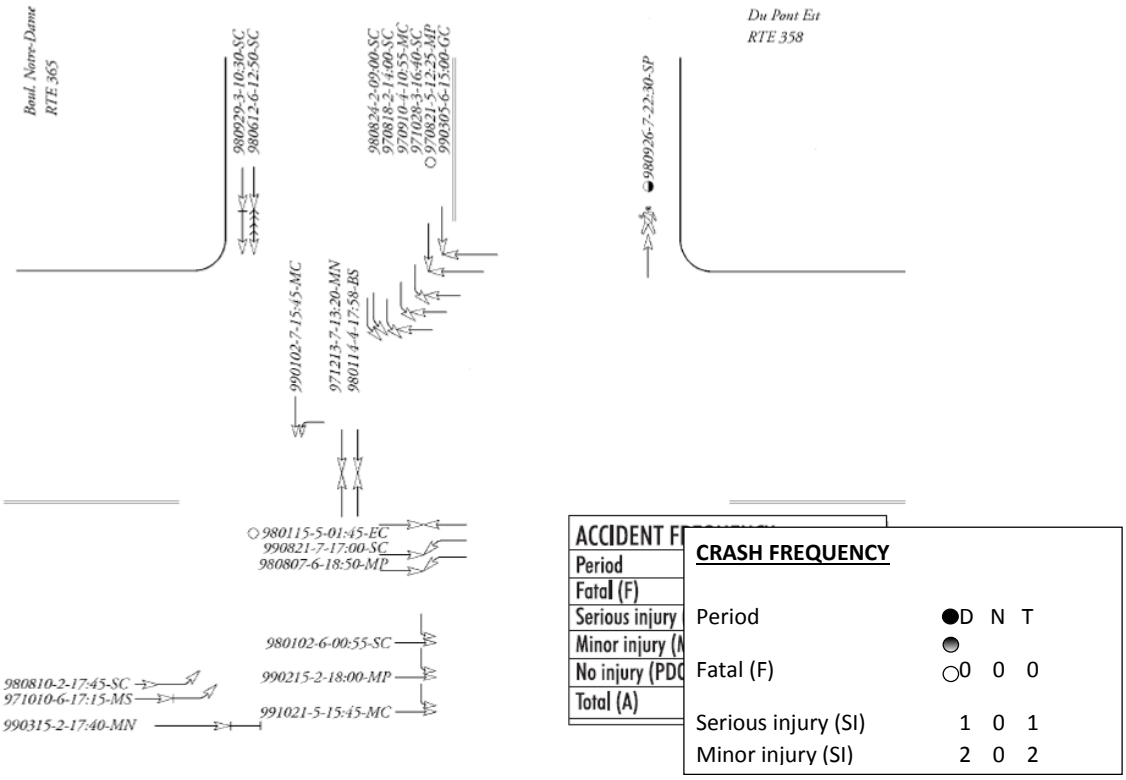


Figure 3.4.1.1. Example of a typical collision diagram

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.

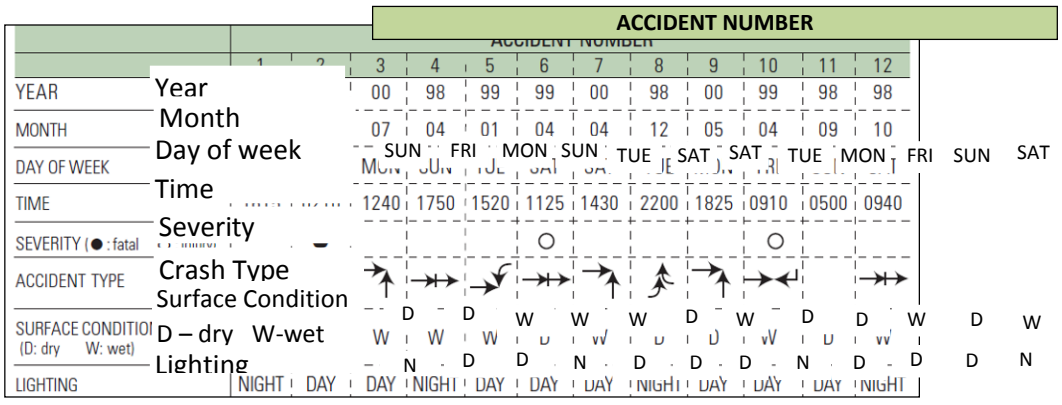


Figure 3.4.1.2. Example of a typical crash summary table

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.

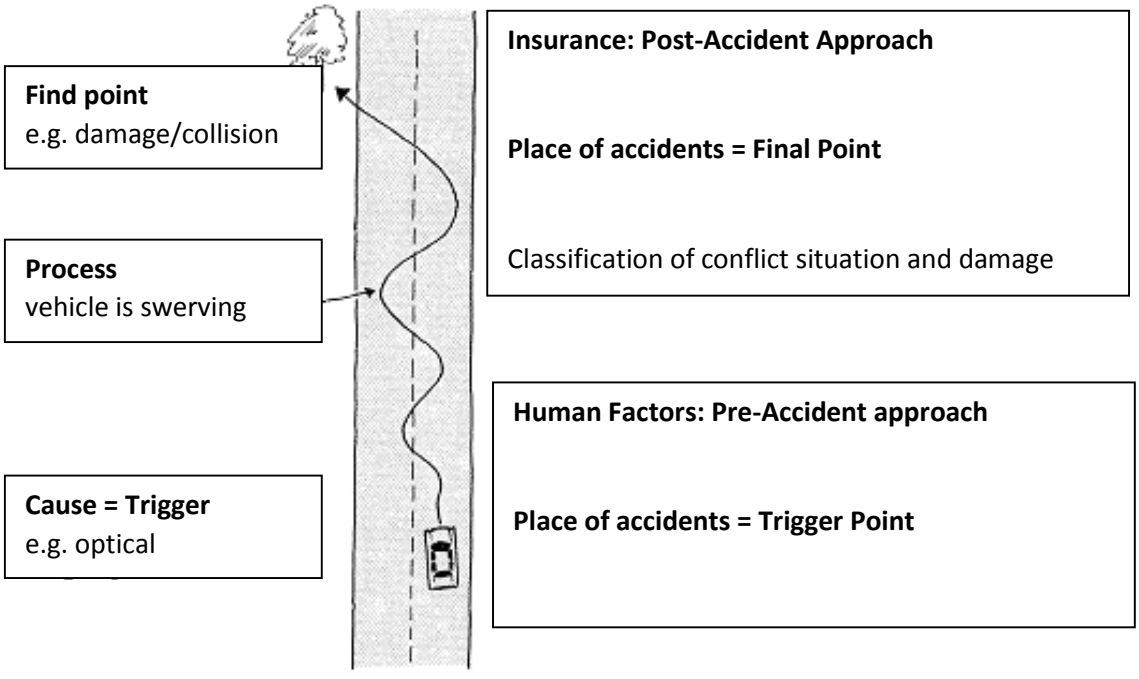


Fig. 1: Post-Crash and Pre-Crash approach [15]

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.

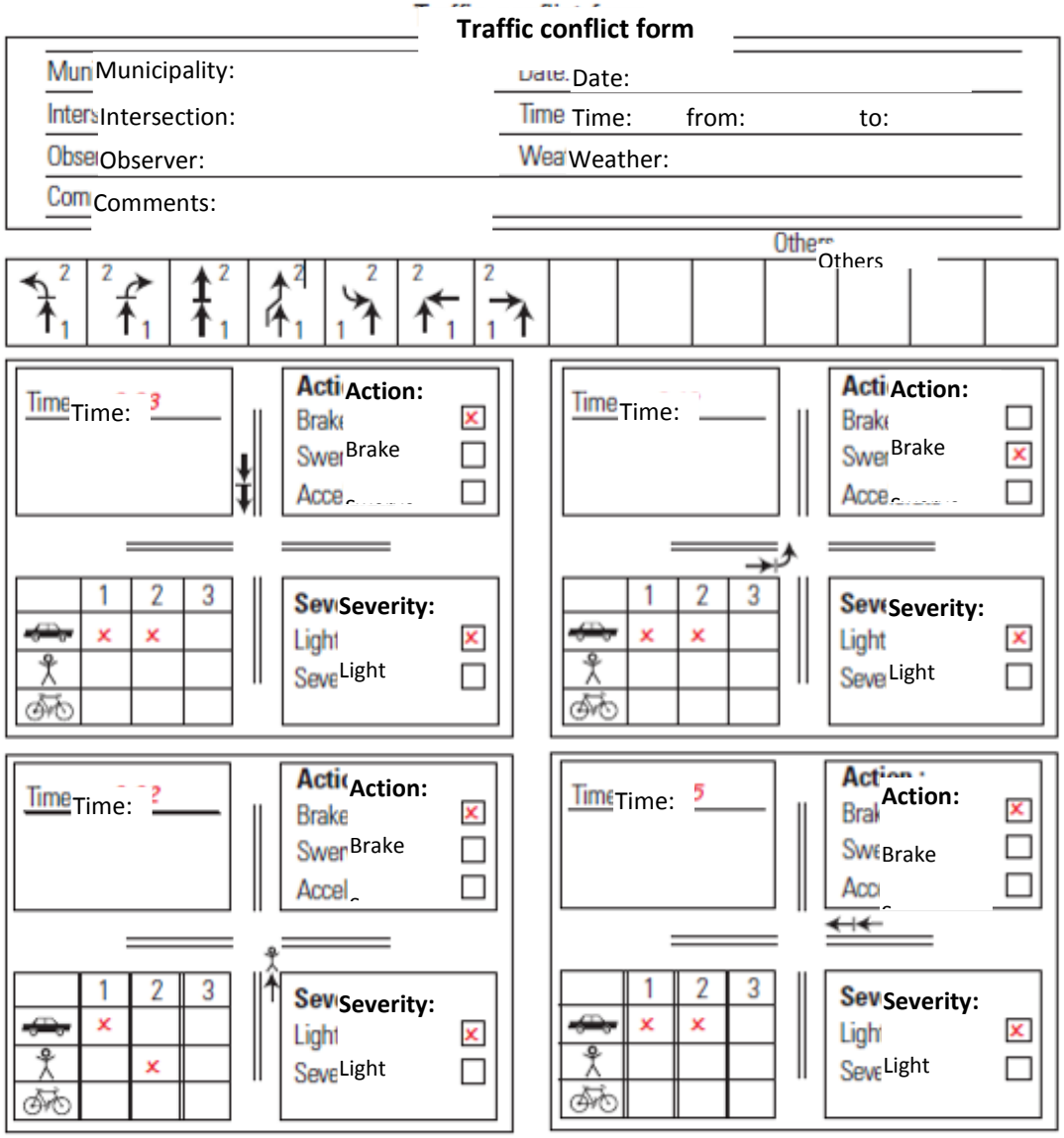


Figure 3.4.4.1. Possible look of Traffic conflict form

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

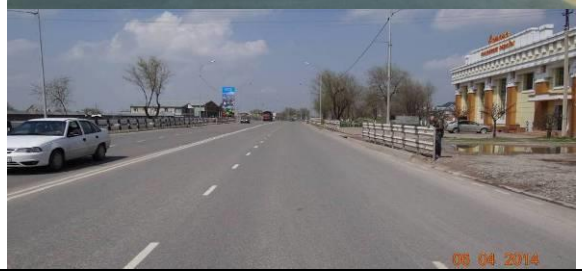
According to international best practice, there are some types of typical dangerous places on roads in TRACECA region.

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.

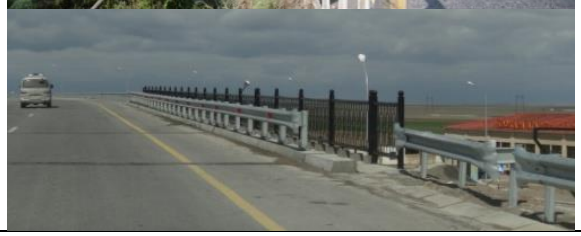
After detailed analysis of investigated locations (Black Spots or Black Sections), as well as survey

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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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

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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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Table of Contents:

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	Statutory boundary and independent responsible jurisdiction (States of Australia or USA)
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.

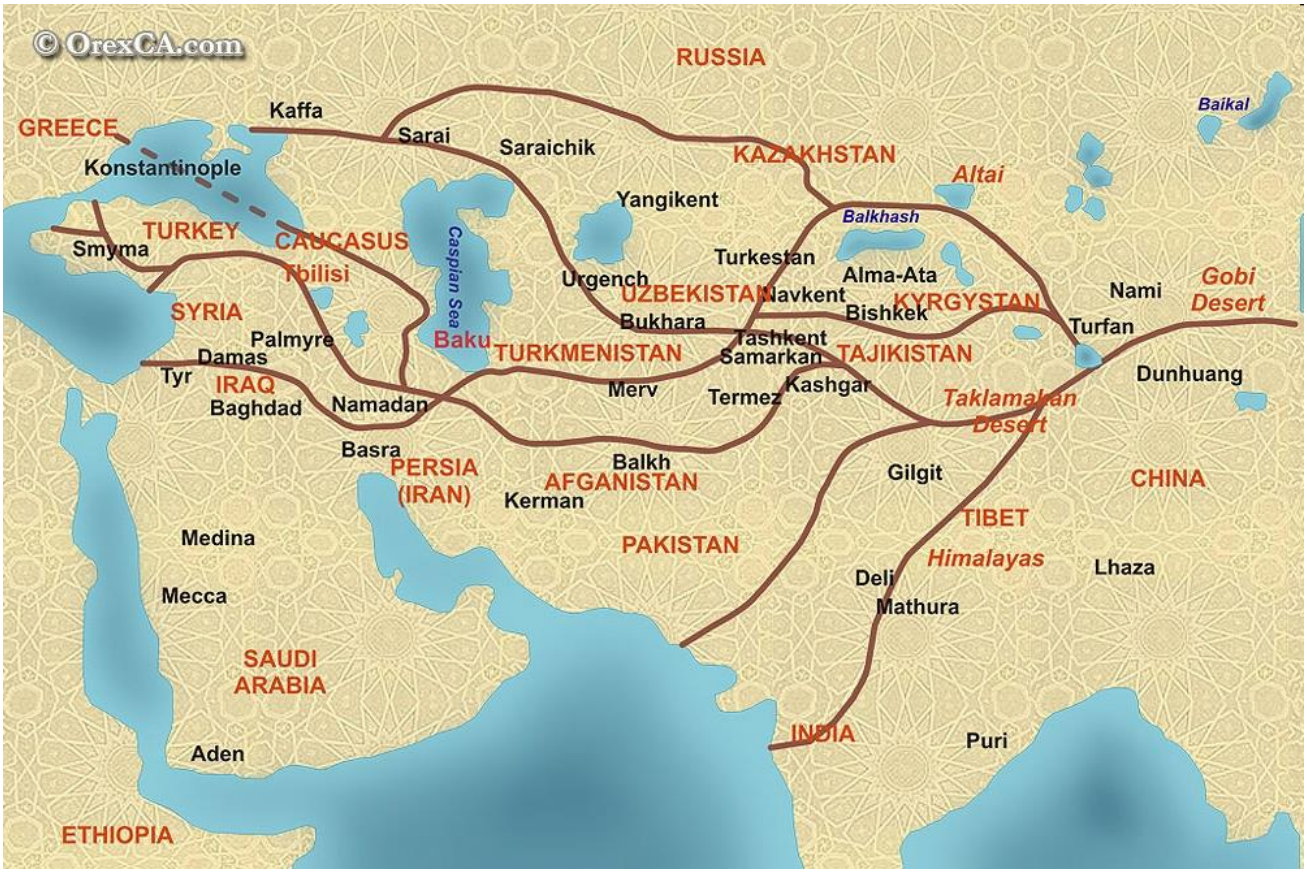
While this guideline provides special guidance about freight routes in urban and rural areas, it should be part of a comprehensive national package of guidelines and standards as well as policies. It must work together with other ministries to assist the State road stakeholders to grow regional economies 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;

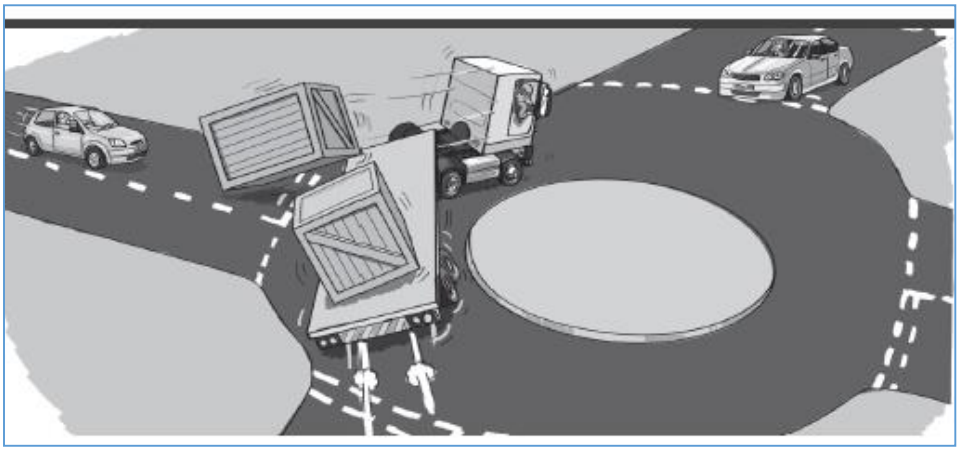


2. UNDERSTANDING THE TASK

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

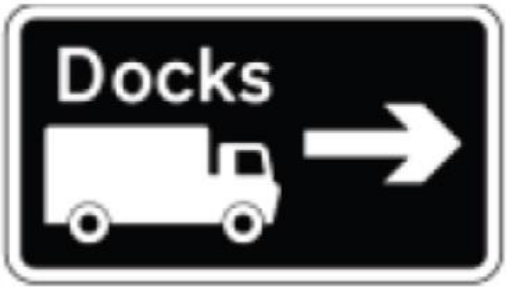
Framework

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*

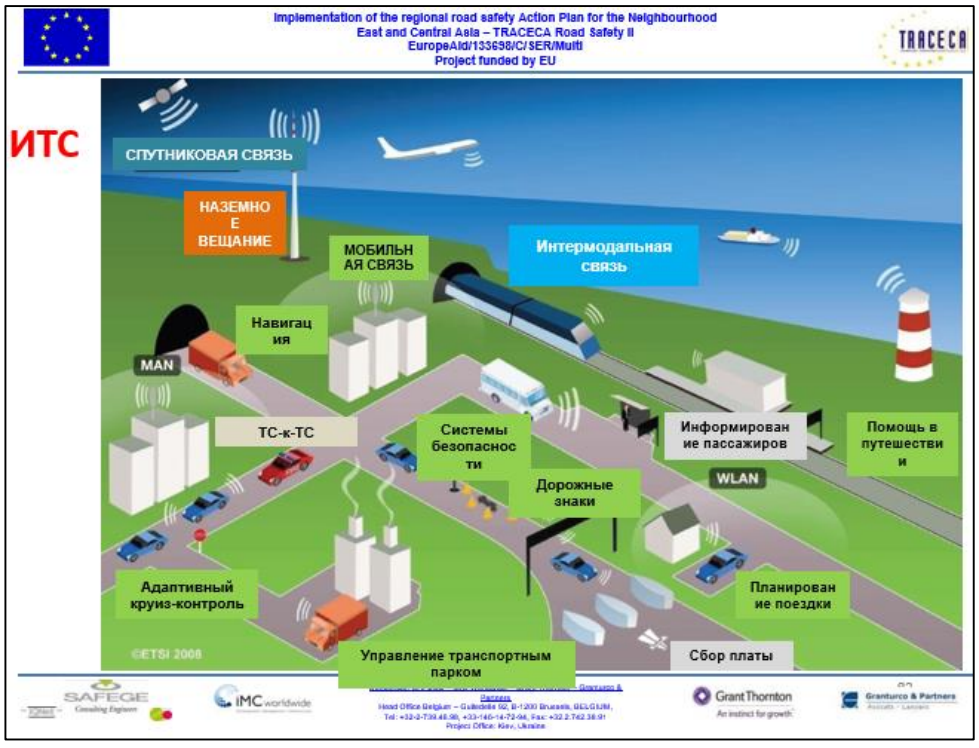
Local area traffic management

- *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

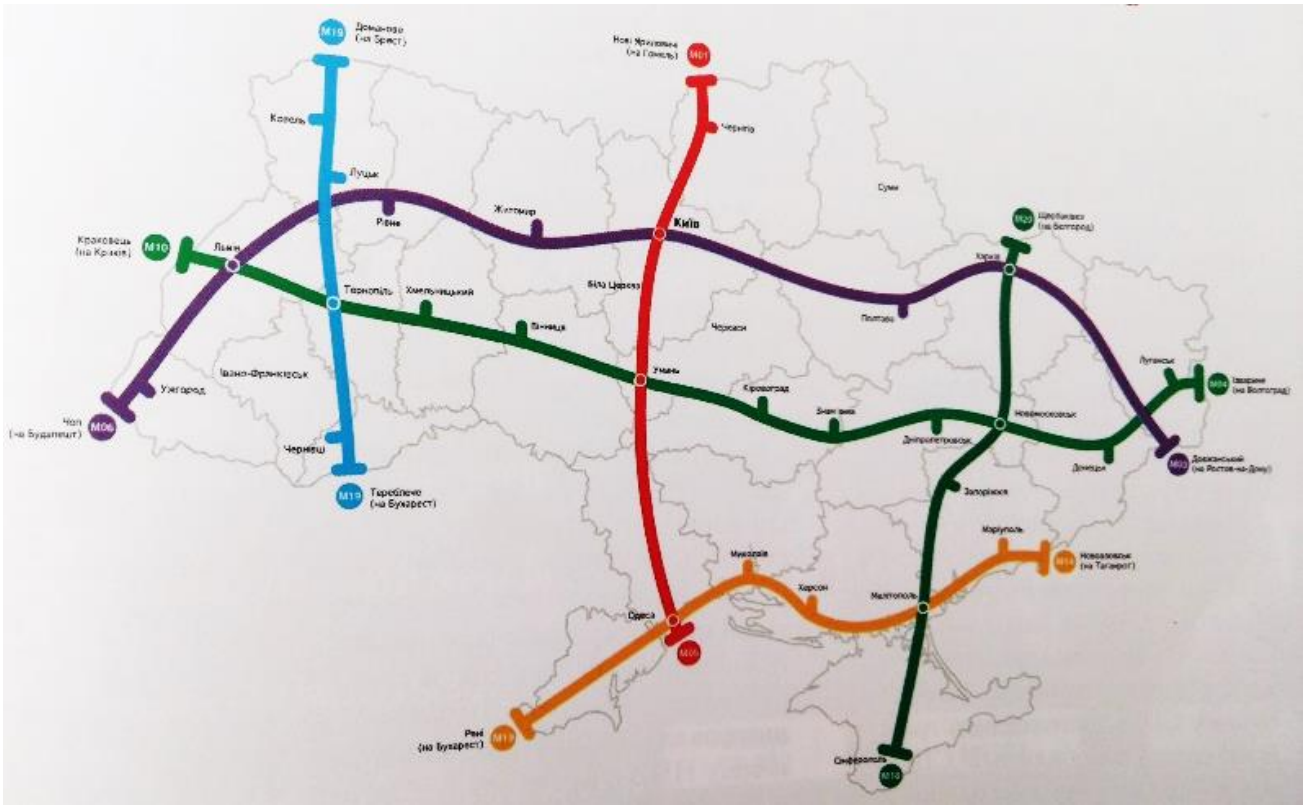
I. Routes;

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.

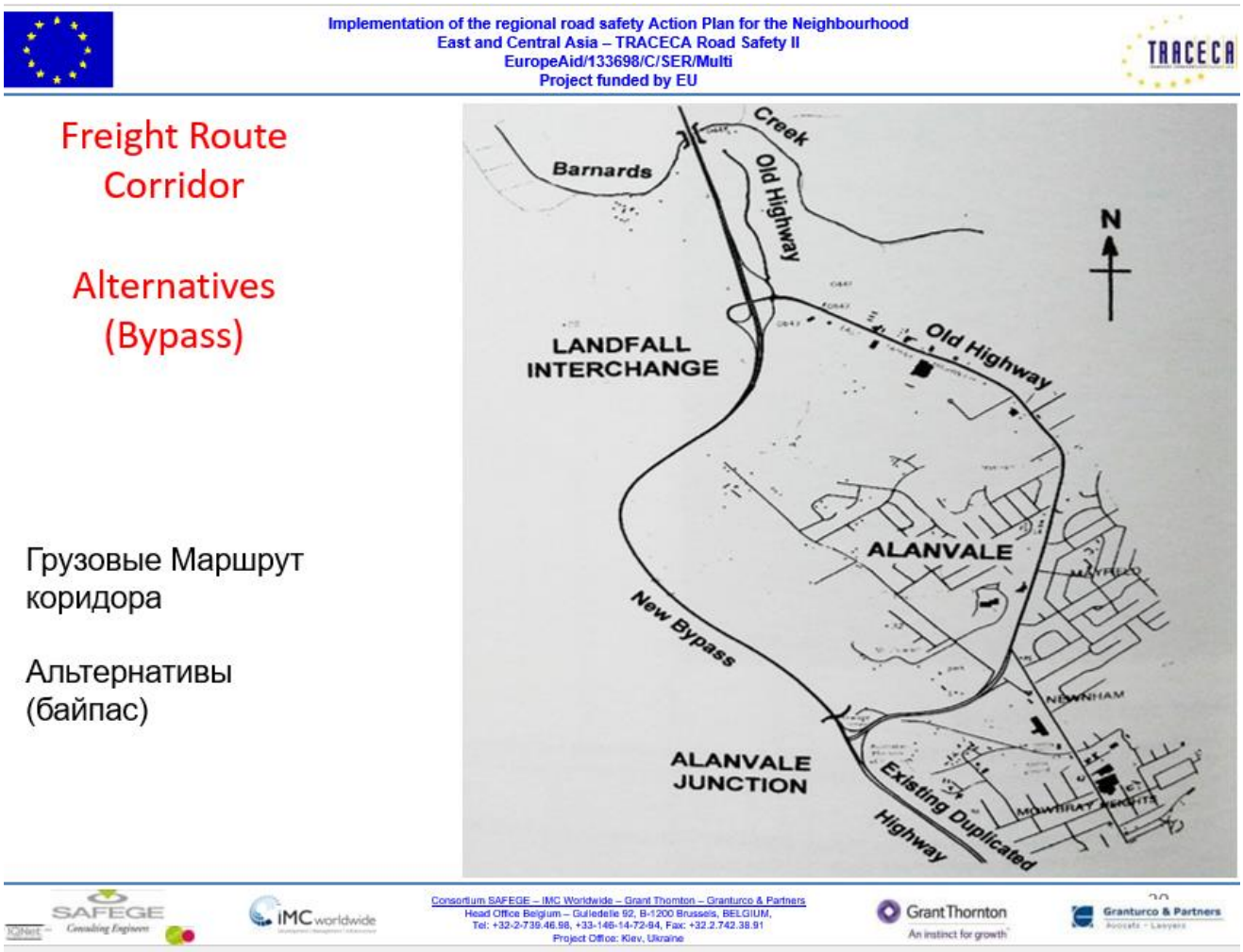
Route planning at the macro level;



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.

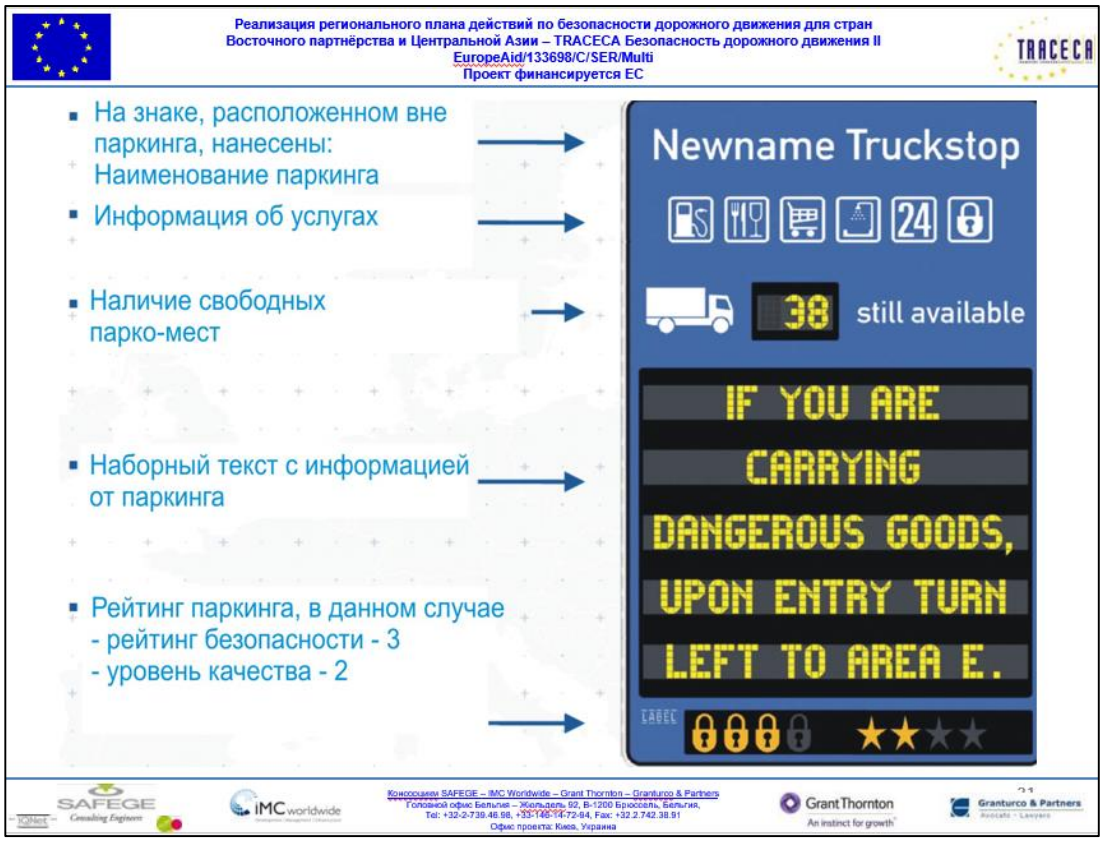
The potential conflicts between freight and other road users is always present, especially in rural areas. Slow moving short journey traffic is in conflict with long haul faster traffic, and most countermeasures involve either separation or traffic calming, or both. Examples of slow movers are agricultural 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.

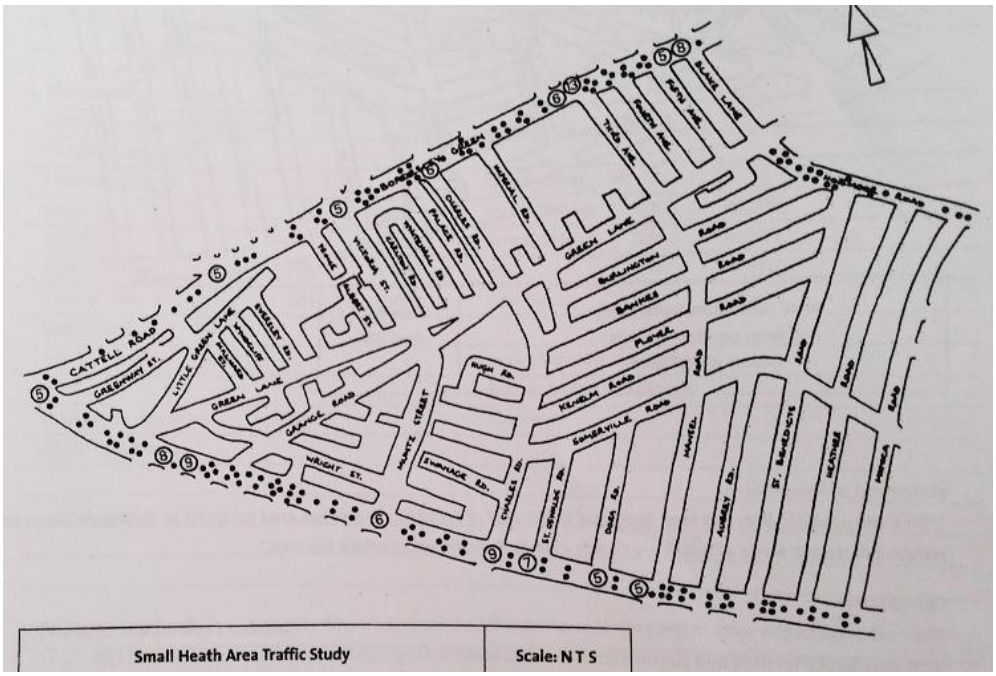
These issues require specific regulations and monitoring facilities for enforcers to proactivity control potential problems, at locations best suited for capturing law offenders and impound, if needed.

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.

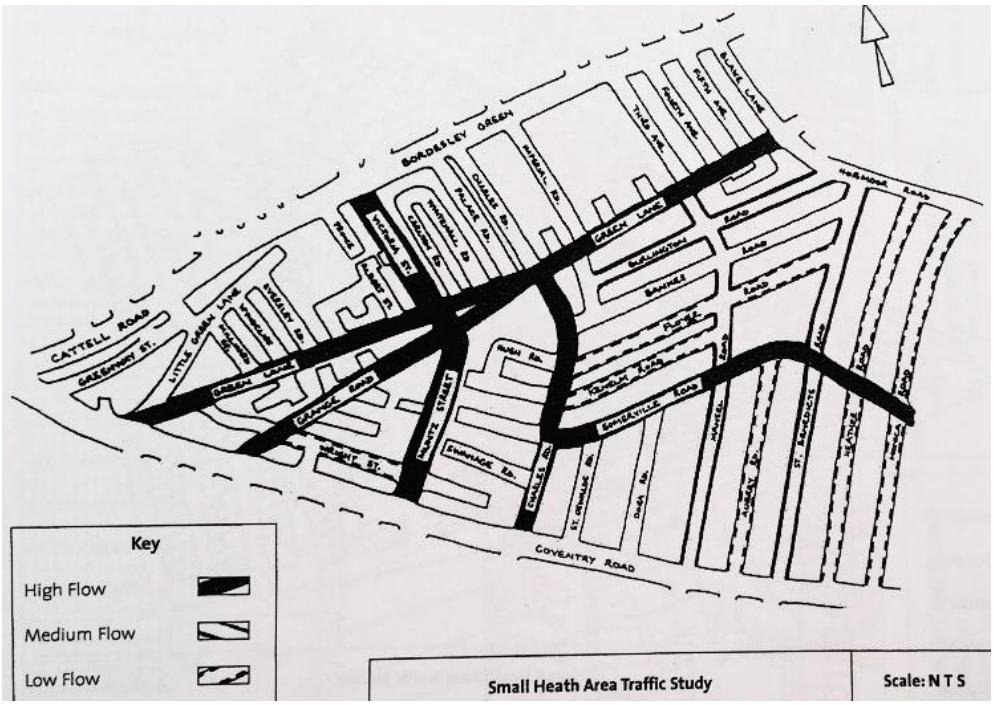
3. FREIGHT ROUTE NETWORK

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.

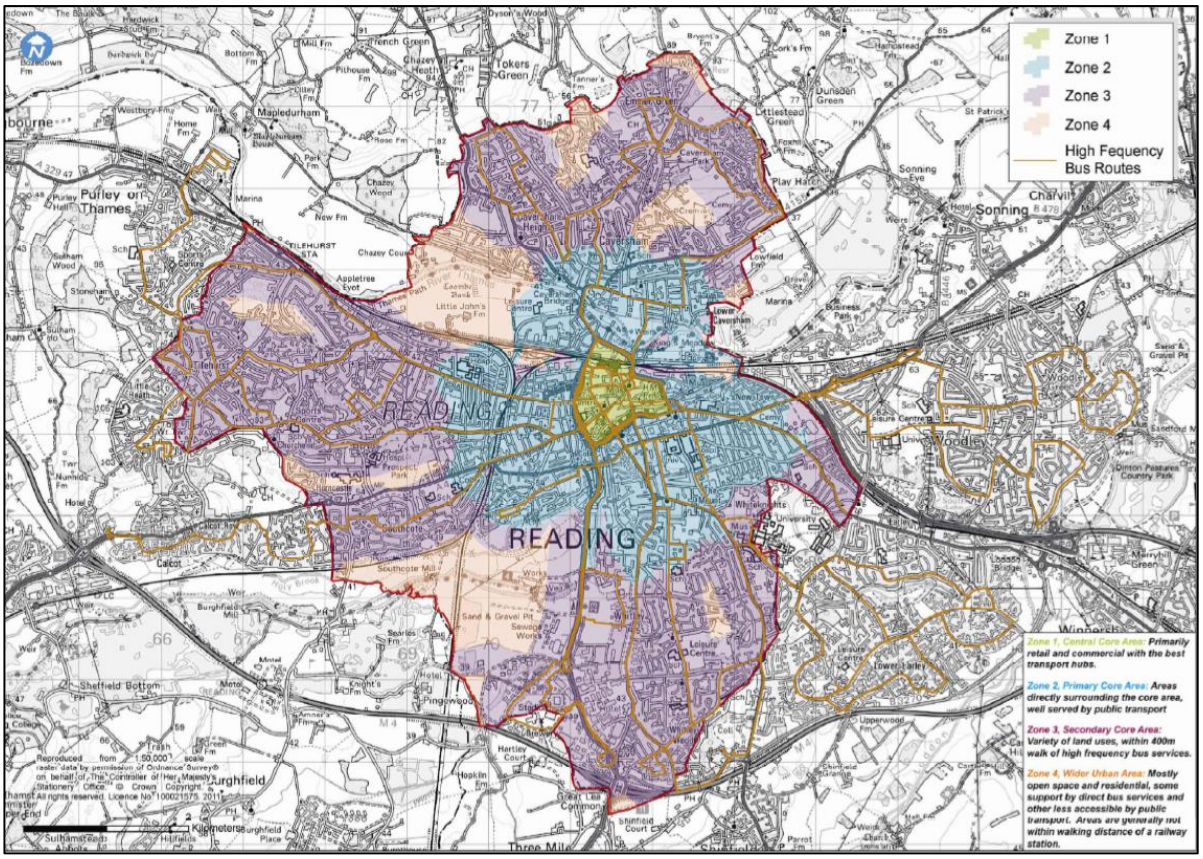
These locations vary for motorways, highways, arterials roads and townships. Distances for long haul routes are commonly spaced evenly for extraordinary road lengths, such as 20-30 kilometres spacing, in addition to placement of fuelling and convenience stations.

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;

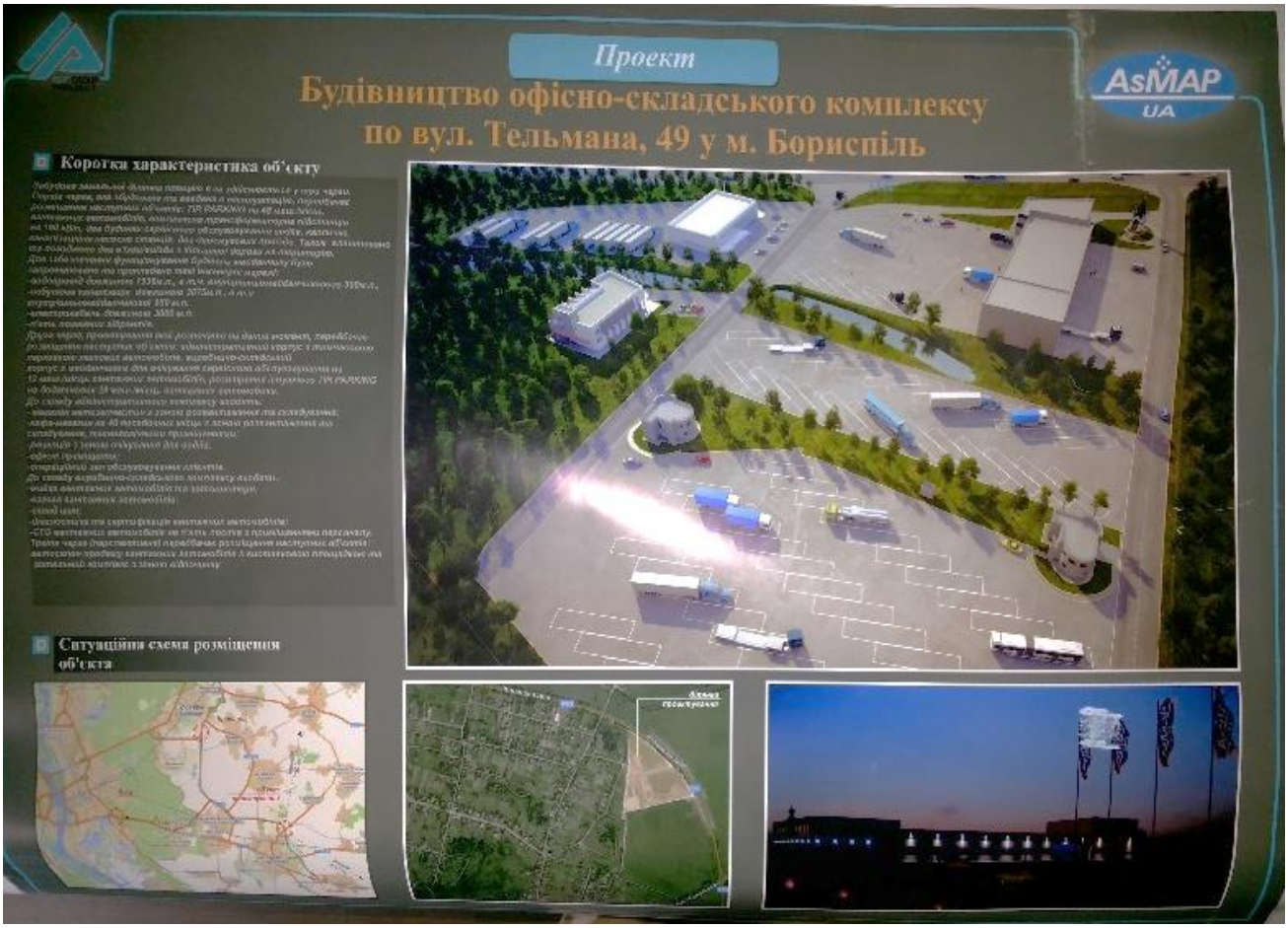
Other more complex facilities usually funded by the freight industry, or local commercial investors, are

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.

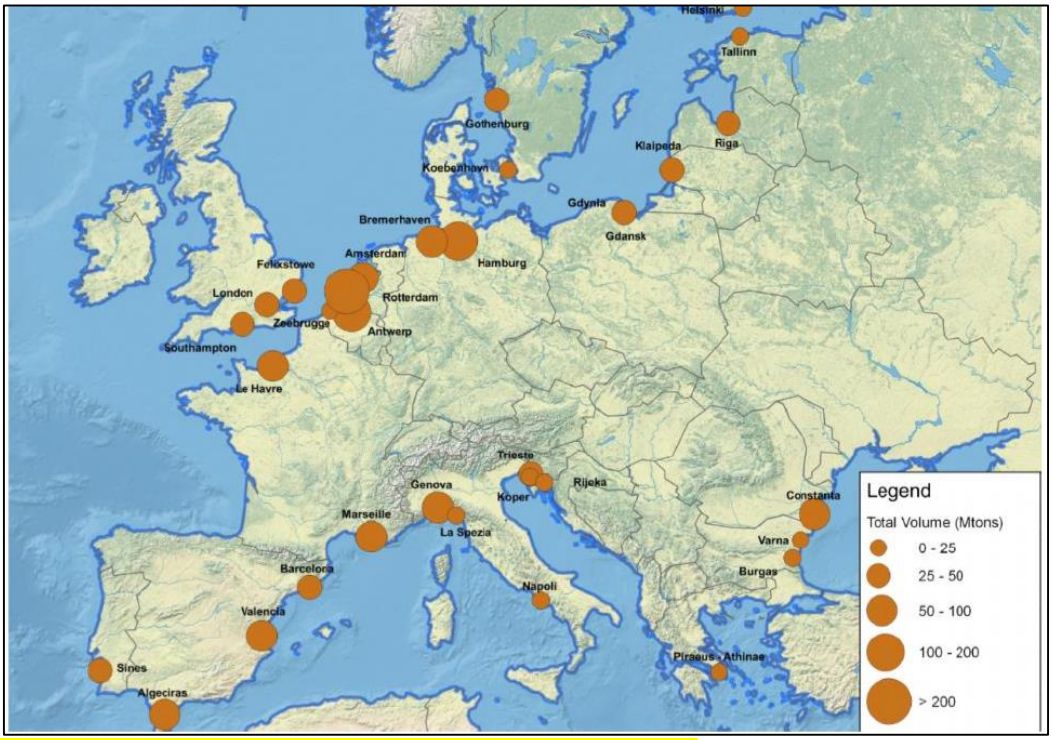
Long freight;

(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.

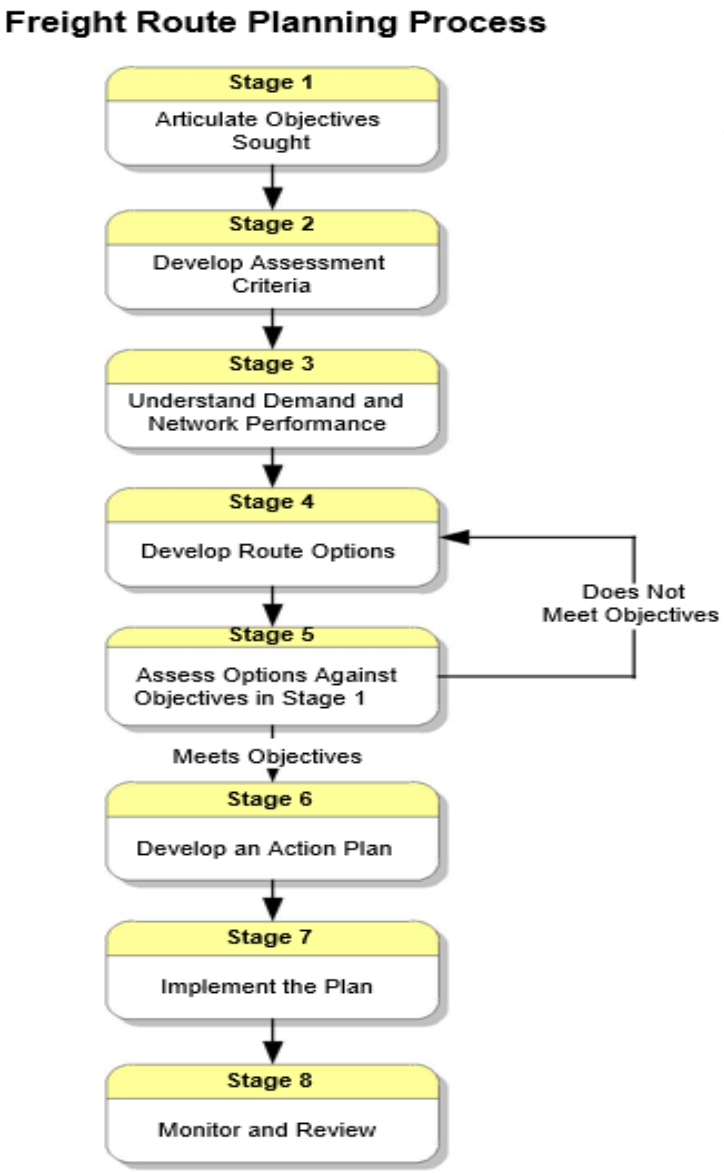
Freight facilities including safety and secure parking are often an afterthought in land use planning rather than an integral part of land use planning. Public authorities, such as Councils and planning authorities may be more focussed on regulating and restricting freight based land uses rather than 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

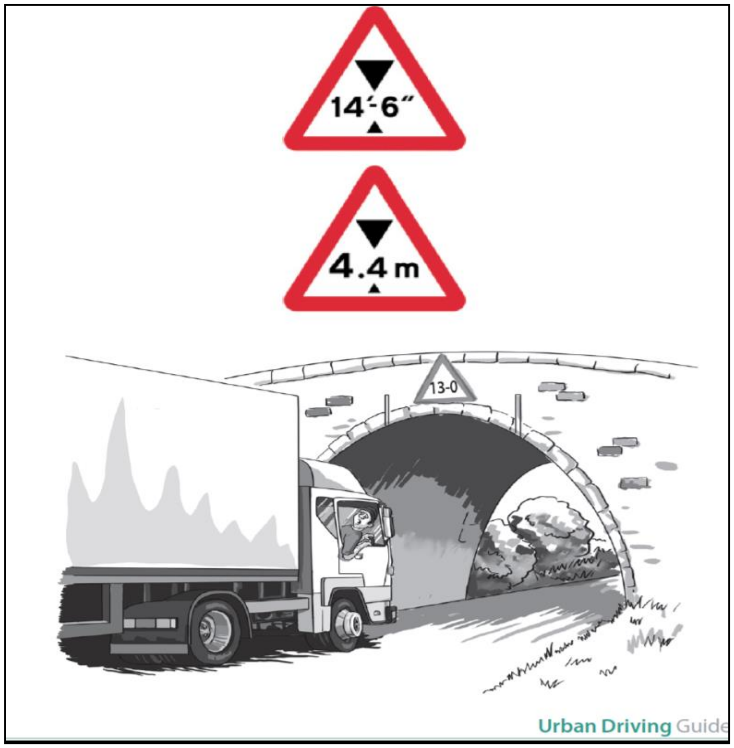
focus of the study. For example, freight may be able to use alternative routes between capital cities or regions, such as a coastal and inland route, and actions in one corridor may influence freight demands in the other.

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.

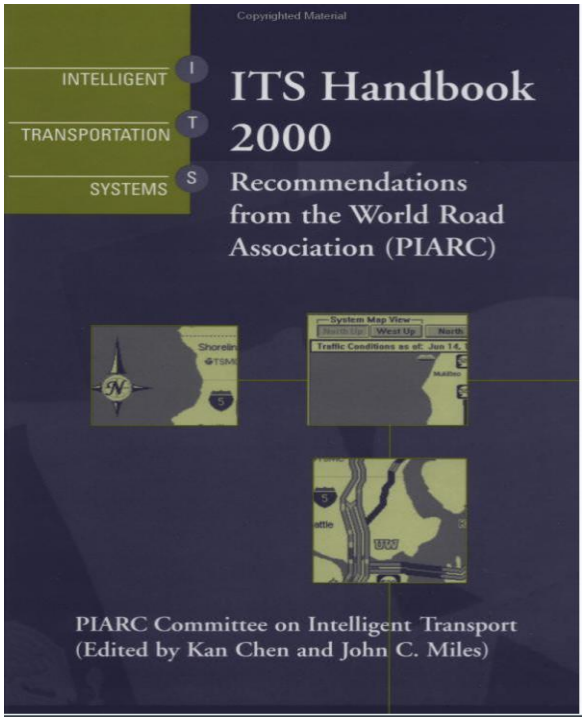
R. Monitor and Review

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

ДЕРЖАВНИЙ НАУК.-МЕТОД. КОМІТЕТ НКО УСРР ПОСТАНОВОЮ ВІД. 20/VI 1927 Р. ПО СЕКЦІЇ ПРОФЕСІЙН. ОСВІТИ ТА ПОВІДОМЛЕННЯ ДОЗВОЛИВ ДО ВЖИТКУ ДЛЯ НЕПЕРЕПОВ ВІЗ. ВЧИТЕЛІВ ТРУДОВИХ ШКІЛ ТА ВИКЛАДАЧІВ НА КУРСАХ РІЗНОГО ТИПУ, ЯК ПОСІБНИК — У ПЕДТЕХНІКУМАХ І НА ФАКУЛЬТЕТУ ТА ЯК ПОРАДНИК УЧИТЕЛЯМ ПО ШКОЛАХ ПРОФОСВІТИ.

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.

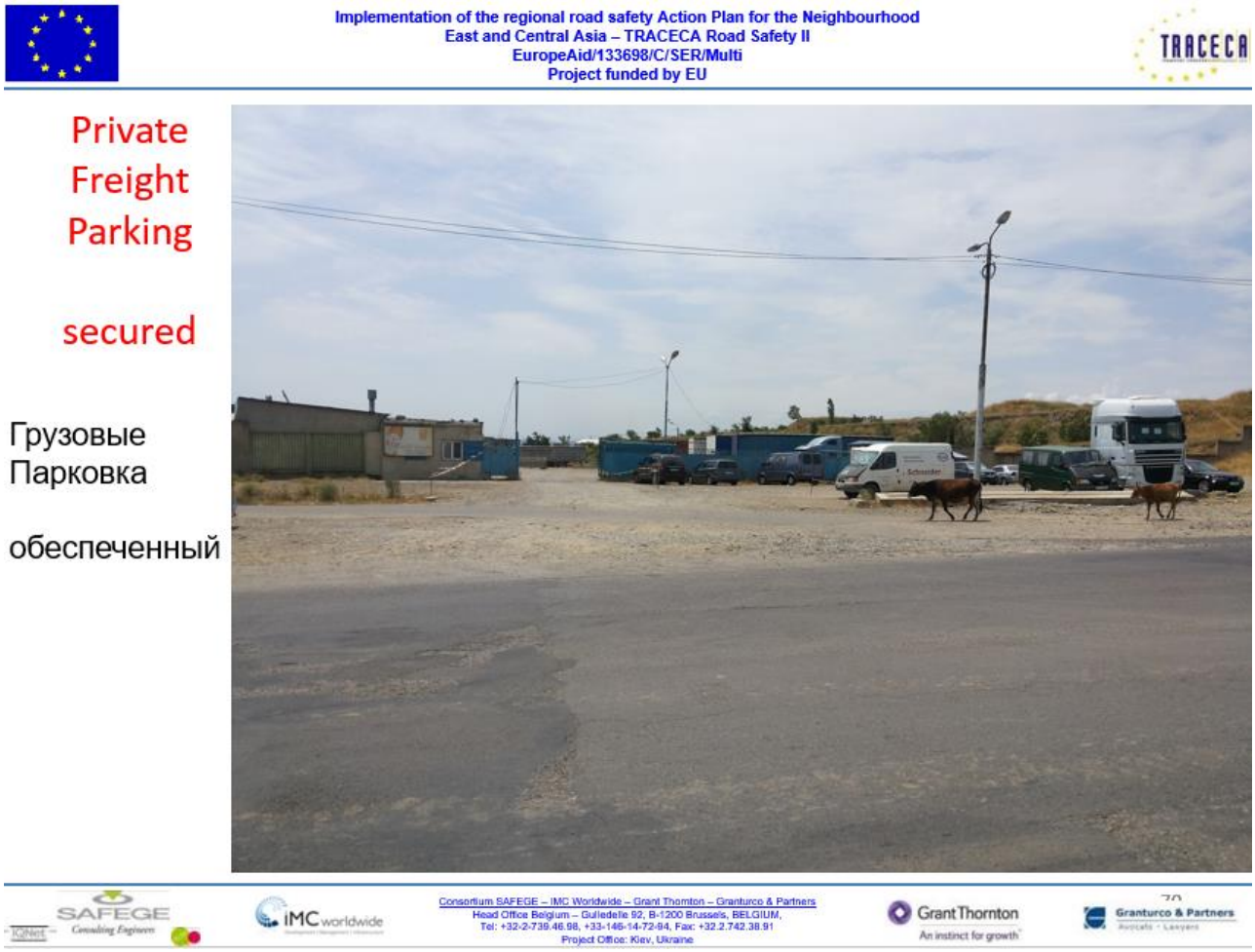
Ambience;

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)

Table of contents

* * *

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
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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
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UZBEKISTAN

No.	Name and Surname	Institution (Organization) and Position	Contact telephone	E-mail
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2	SHOKOSIMOV SADRIDDIN	Head of Tashkent city-territorial department, Uzbek Automobile and River Transport Agency	+99898 363 25 90	s.shoqosimov@aart.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/133688/C/SER/Multi
Project funded by EU

TRACECA ROAD SAFETY PROJECT

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 · IQNet

Consortium SAFEGE – IMC Worldwide – Grant Thornton – Grantureo & 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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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 · IQNet

Consortium SAFEGE – IMC Worldwide – Grant Thornton – Grantureo & 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)

Table of contents

* * *

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 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.

1.2. 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.

1.3. 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.

1.4. 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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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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4	Rauf Mustafayev	State Administration for Traffic Police MIA of Azerbaijan, Chief engineer of "Traffic Organization" department	050 210 81 01 012 590 81 40	Raufmustafayev2012@yandex.ru
5	Vakil Hajiyev	State Administration for Traffic Police MIA of Azerbaijan, Engineer of "Traffic Organization" department	050 222 28 14 070 222 00 17	-
6	Faig Ismayilov	State Road Transport Service of Azerbaijan, Head of "Road Safety" sector	050 323 07 22 055 323 07 22	Faiq1974@mail.ru

GEORGIA

No.	Name and Surname	Institution (Organization) and Position	Contact telephone	E-mail
1	Ms. Ketevan Takaishvili	Ministry of Economy and Sustainable Development of Georgia		
2	Mr. Koba Metreveli	Ministry of Economy and Sustainable Development of Georgia		
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

No.	Name and Surname	Institution (Organization) and Position	Contact telephone	E-mail
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KYRGYZSTAN

No.	Name and Surname	Institution (Organization) and Position	Contact telephone	E-mail
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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
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5	Eraliyev Nurlan	Lead specialist, Department of production preparation and acceptance of work, Ministry of Communications, Kyrgyz Republic	031 266 18 32 055 442 75 44	Mr.nurlan.ddx@mail.ru
6	Toktomushev Bolotbek	Chief specialist, Service of organisation of traffic, State Directorate of road "Bishkek-Osh"	031 231 42 72 077 318 25 70	gdadpto@mail.ru

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4	Ziyoyev B.	Lead specialist of road transportation and safety department, Land transport administration, MoT	+992 93 524 31 29	begijon@mail.ru
5	Azizov F.	Head of Supervision and control of road facilities department, State Service on supervision and regulation of road facilities, MoT	+992 93 888 10 25	Azizov_1979@inbox.ru
6	Saydakhmadov M.I	Specialist of road transportation Administration, State Service on supervision and regulation of road facilities, MoT	+992 93 808 05 02	mukhriddin@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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3	Abidov Bobir Ziyaviddinovich	Head specialist of automobile transport safety department, Uzbek Automobile and River Transport Agency	+99871 241 56 29; +99893 534 55 50	b.abidov@uzaart.uz

Certificate of attendance at two day (16 hours of lecturers) WS/TC were presented to participants at the end of the training.

1.5. Results Achieved

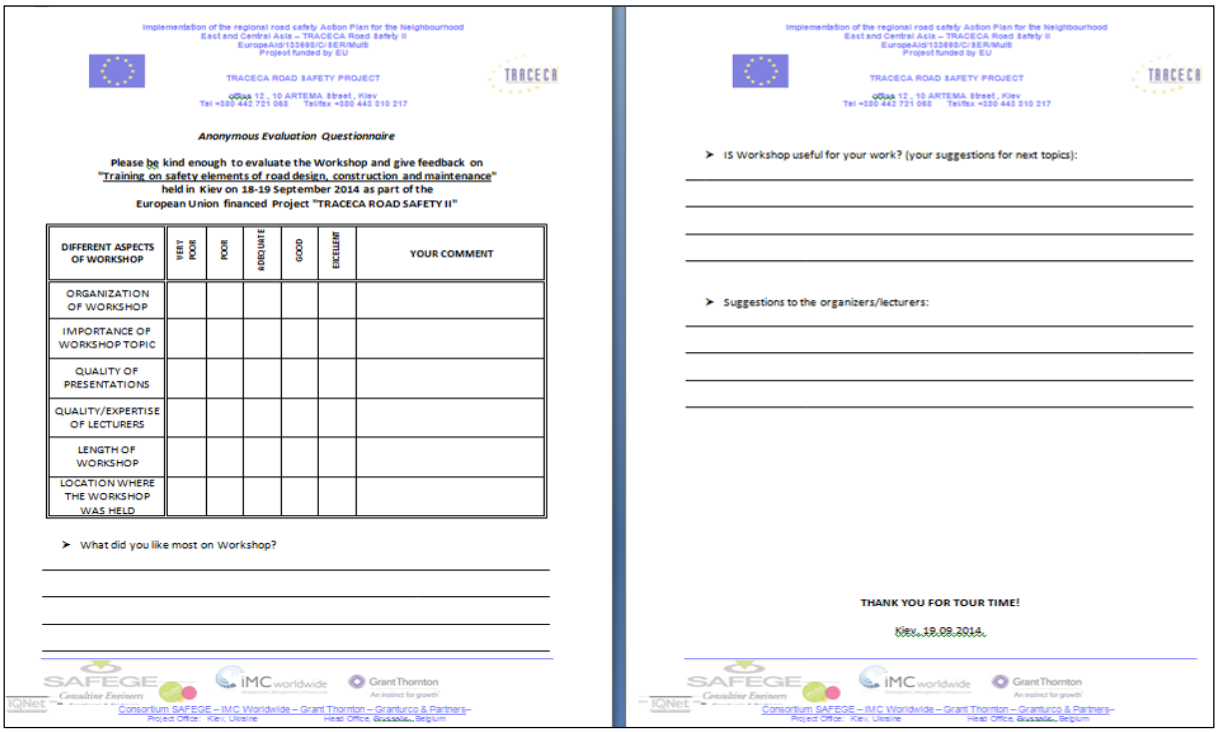
Results Achieved from the three WS/TC are shown in the following table.

Expected and achieved objectives and outcomes

	Expected objectives and outcomes	Objectives and outcomes Achieved	Comments
Objectives			
1	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

1.6. 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
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Project funded by EU

TRACECA ROAD SAFETY PROJECT

12 , 10 ARTEMA Street , Kiev
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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
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Consortium SAFEGE – IMC Worldwide – Grant Thornton – Grantcorp & 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
EuropeAid/133693/C/SER/Multi
Project funded by EU

TRACECA ROAD SAFETY PROJECT

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.

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Consortium SAFEGE – IMC Worldwide – Grant Thornton – Grantcorp & 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:

4. 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.
5. 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

1.7. 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

(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
1	Karen Badalyan	Transport programs implementation Office, Ministry of Transport and Communications of the Republic of Armenia	37491-41-73-89 (mob) 37460-54-05-27 (work)	kbadalyan@transportpiu.am
2	Vardan Astvatsatryan	Head of Development Programs Department, "Directorate of highways of Armenia", Ministry of Transport and Communications of the Republic of Armenia	37491-40-33-88 37410-56-25-01	vardan.ast@mail.ru

Azerbaijan

No.	Name and Surname	Institution (Organization) and Position	Contact telephone	E-mail
1	Anvar Karimov	Ministry of Infrastructure of Azerbaijan, Head of sector of road infrastructure safety	012 430 99 43 050 240 31 77	e.kerimov@mintrans.az envernn@gmail.com
2	Mammadov Safa			

Georgia

No.	Name and Surname	Institution (Organization) and Position	Contact telephone	E-mail
1	David Kortava	LELP "Land Transport Agency", Advisor of the Director		dkortava@lta.gov.ge
2	Zurab Lebanidze	Georgian Road Department of Ministry of regional Development and Infrastructure	+995595225886	zlebanidze@mail.ru

Kyrgyzstan

No.	Name and Surname	Institution (Organization) and Position	Contact telephone	E-mail
1	Zamir Aydarov	Deputy Director General State "Bishkek-Osh" Road Administration	0 312 31 42 93 0 777 90 90 24	Gdadpto@mail.ru
2	Nurlan Eraliyev	Lead specialist of the Department of production and acceptance of work preparation, Department of Road Management, Ministry of Transport and Communications, Kyrgyz Republic	0 312 66 18 32 0 554 42 75 44	Mr.nurlan.ddx@mail.ru

Moldova

No.	Name and Surname	Institution (Organization) and Position	Contact telephone	E-mail
1	Sergiu Bejan	Engineer, Technical University of Moldova, Roads, Bridges - Head of Chair \ BCPC Ltd "ASTRAL-PROIECT" – Chair of Railways, Director	(+373) 22 76 85 87, (+373) 69611873	serbej@gmail.com
2	Andrei Buraga			

Tajikistan

No.	Name and Surname	Institution (Organization) and Position	Contact telephone	E-mail
1	Azizov Fatkhiddin Fatokhovich	Head of Department of Supervision and Regulation of road facilities	992 938 881 025	azizov_1979@inbox.ru
2	Saidasanov Hurshedsho Avzalshoevich	Chief specialist of Department of Supervision and Regulation of road facilities	992 934 686 803	khursh.89@mail.ru

Ukraine

No.	Name and Surname	Institution (Organization) and Position	Contact telephone	E-mail
1	Bondar Tetiana	SE "DerzhdorNDI", Head of Road Safety Department	+38 050 334 72 30 +38 044 201 08 55	bdrndi@ukr.net
2	Levchuk Mykola	Ukravtodor, Head of Artificial constructions Division, Road development Department	+38 044 287 33 57	Levchukn@i.ua

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
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Ukraine 12 , 10 ARTEMA Street, Kiev
Tel +380 442 721 068 Telefax +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?

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Tel +380 442 721 068 Telefax +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.

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Consortium SAFEGE – IMC Worldwide – Grant Thornton – Granturco & Partners–
Project Office: Kiev, Ukraine Head Office: Brussels, Belgium

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.

COUNTRY: UKRAINE

TEAM: VTI TEAM

TOPIC: INSTITUTIONALIZATION OF TECHNICAL INSPECTION OF VEHICLES & MOTOR VEHICLE SAFETY REGULATIONS/STANDARDS IN UKRAINE

DATE: JUNE 03-05, 08-09; 03-04 AUGUST 2015;

REPORT PREPARED BY

TECHNICAL INSPECTION OF VEHICLES & MOTOR VEHICLE SAFETY REGULATIONS/STANDARDS TEAM

Team member/s:

1. Dušan Mladenović (STE 14&STE15)

August 15th, 2015

Table of contents

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 (Dr. Dušan Mladenović) made a visit to Ukraine from 03-05th and 08-09th June 2015. The main task of VTI (Vehicle Inspection Team) was to analyze the legal framework of periodic vehicle inspections in Ukraine, as well as the reasons for the abolishment of the obligatory technical inspections (PVTI/periodical vehicle technical inspection) for M1 category and vehicles up to 3500 kg curb weight, entire class L. In addition, it was necessary to understand the level of control in real conditions (on the technical inspection stations), as well as the quality of equipment and scope of testing.

2. Activities undertaken

On 4th of June 2015, a meeting was held at the State Road Transport Research Institute which is established under the Ministry of Infrastructure of Ukraine. The meeting was attended by the First Deputy Director for Scientific Activities Mr. Volodymyr Ageyev, Head of Section SAS, Technical inspection and roadworthiness testing for wheeled vehicles and AETR enforcement Mr. Roman Symonenko, Deputy Head of laboratory for tests and diagnostics of road vehicles Mr. Sergey Logvin and Senior Research Fellow Mr. Valentin Merzheevskiy.

Conversation concerned mainly the level and method of administration of two agreements concerning vehicles which is a signatory Ukraine Agreement concerning the adoption of a uniform condition of wheeled vehicles and reciprocal recognition of such inspections (Vienna `97) and the Agreement concerning Adaption of uniform Technical Prescriptions for Wheeled vehicles and the Conditions for reciprocal Recognition of Approvals granted on the basis of these Prescriptions, of 1958.

All participants from State Road Transport Institute were explicit in attitudes that Ukraine fully implements the provisions of two Agreements mentioned above. Institute is a holder and initiates almost all activities concerning two Agreements (‘97 and ‘58), but also and other agreements e.g. ADR and AETR.

Organization defined within the Institute enables implementation of both agreements (‘97 and ‘58).

Next meeting was held at the Association of International road carriers of Ukraine, AsMAP attended Director of Training Consulting Centre (TCC – IRU Academy accredited) Mr. Sergiy Kokot and Deputy Director Ms. Larisa Dobrukha. Main questions were concerning the method of testing and periodical technical inspection of commercial vehicles and the way of implementation of Directive 2014/47 EC.

The participants emphasized the importance of application of standards, which are used by UNECE countries in control of goods vehicles, especially regarding the high level of share of Ukrainian carriers in international transport, mostly in UNECE countries. Participants highlighted willingness of the Association and the Institute to participate in preparation of training of controllers for technical vehicle inspection, they already have experience at ADR and AETR trainings.

On June 5th 2015, a meeting with the representatives of the Ministry of Internal Affairs was held at the TRACECA office. Conversation concerned the jurisdictions of the Ministry in terms of the vehicle roadworthiness. Police is not controlling the vehicles at all, even visually.

Later, the team made a visit to Transport company "Vast Trans" and had an interview with the Director Mr. Valery Chernenko. They discussed the Company's experiences holding over 100 heavy goods vehicles, emphasizing the need of control of vehicle roadworthiness. At the premises of "ViaLand" a subsidiary company authorized for periodic vehicle technical inspection, is analyzed the prescribed process of control as well as required equipment. Within the visit, the training of employees was conducted on implementation of Directive 2010/48 and best practice in European Union.

Picture U1. VIS VIA Land, Kiev, Equipment BOSH

On June 8th 2015 a meeting with the President of Association of accredited laboratories MAOOV, Mr. Chekalin Vladimir was held at the TRACECA office. The necessity of compliance with 17020 standard in VITS accreditation process as well as consistent implementation of Directive 2009/40 and 2010/48 and EU best practice was highlighted.

Thereafter, a meeting with the Chairman on Subcommittee on Road traffic Safety, Mr. Igor Didenko was held to prepare the next meeting with a large number of participants for June 9th 2015.

The Project VTI Team supported by the Team Leader, held a workshop and training, which was attended by 21 representatives of government institutions, Ministries, private sector, accreditation bodies and NGOs. The workshop and training was held on June 9th 2015 at the Parliament building in the Transport safety Subcommittee workshop room.

Picture U2 The meeting on June 9th 2015 at the Parliament building

The following topics were discussed at the workshop and training:

International Legal framework of Periodic technical vehicle inspection – Significance of UNECE WP29 and organization in processes of decision making, overview of two agreements (’97 and ’58 on vehicle construction) and development of regulations in the EU (from 96/96/EC to 2014/45/EC).

Periodical Technical Inspection System in Transition Countries (examples of Serbia) – Legal framework of PVTIS in transition countries, testing centers, scope and methods of tests, results of roadworthiness testing.

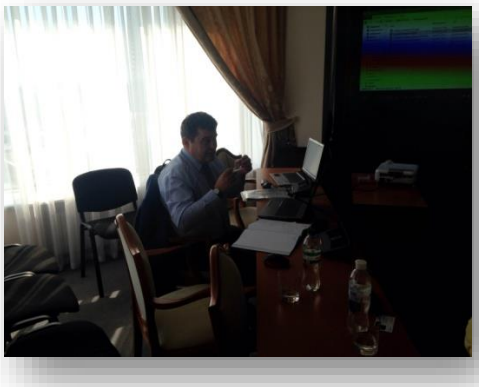
International Best Practices in PTI (Statistics, main goals and best practices) - External cost of transport, road accident fatalities in TRACECA region and Europe, development of 1997 ECE Conventions, relation between vehicle defects and accidents, braking system defects, steering system defects, lighting, axles, age of vehicles.

The main discussion was on significance and needs of re-entering into the force of obligatory periodic technical vehicle inspection, as well as on risks in case of unclear solutions implemented. There were different opinions regarding jurisdictions of government institutions concerning vehicle inspections and control, as well as standard implementation. Attendees were unclear in defining responsibilities for vehicle roadworthiness. Division of responsibilities between state and vehicle owners has remained undefined. Vehicle owner is responsible for bringing his vehicle to certified test station where the technical condition and exhaust will be tested.

One part of the attendees were insisting on introduction of road side roadworthiness vehicle control by implementation of Directive 2040/47 which relates to a certain categories of commercial vehicles, into the national legislation.

During the second visit to Ukraine, a seminar was held at “Verhovna rada” building on August 3rd. It was attended by 22 representatives. Procedures of VTI (passenger cars and commercial vehicles-bus and truck) were discussed in detail. All representatives insisted on improvement of roadworthiness Directives.

The participants highlighted the importance of consideration of improvement of road safety by reducing the number and severity of road traffic accidents caused by vehicle malfunction. Main opportunities to improve roadworthiness enforcement like time of first inspection, frequency of inspections, inspection failure criteria, inspection technical database, extension of PTI to other items (ABS,ESC and airbags) and roadside inspections. A part of the discussion was related to additional inspections such as change of ownership, after accidents and after modifications (non-periodical inspections) the participants pointed out improve awareness of the importance of roadworthiness and proper maintenance through educations and information.



Picture U3 The meeting on August 3rd 2015 at the Parliament building

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

Management of System of periodic vehicle control and regulations related to vehicle type approval is under the Ministry of infrastructure of Ukraine and its State Road Transport Research Institute.

There are about 12 million of registered vehicles. Compulsory technical inspection for vehicles less than 3500 kg of curb weight and less than 8 seats including driver's has been terminated since 2011.

Technical vehicle inspection is mandatory only for commercial vehicles, taxi, goods vehicles over 3500 kg of curb weight, dangerous goods vehicles and vehicles for transport of special cargo.

All controlling stations are private owned. Before termination of compulsory technical inspection, there were 2500 accredited technical inspection stations in Ukraine. From 2011, most of stations are not reaccredited, so now there are only 616 vehicle inspection stations (VIS) working for commercial vehicles. There are about 450.000 commercial vehicles registered (buses, freight and special vehicles) in Ukraine. Main reason for termination of obligatory technical inspection for passenger cars (M1) and light freight vehicles (N1): low economic standard, high level of corruption as well as some political reasons (increase of number of voters for elections). in respect that average age of vehicles is over 14 years and that technical condition of large number of vehicles is poor, it is unacceptable to keep noncompulsory vehicle technical inspection and control. On the other hand, Ukraine belongs to the group of countries with the lowest road safety parameters in the UNECE region and further prolongation of re-entering into the force of obligatory periodic technical vehicle inspection and roadworthiness tests is unsustainable. Until this happens, Ukraine is not able to issue any International technical inspection certificate for M1 and N1 vehicle categories.

System of licensing (accreditation) of technical inspection stations is a little bit confused. Request for performing activities of vehicle technical inspection is to be submitted to the Road Transport Research Institute. Control of the fulfillment of conditions is performed by accreditation body according to the level of compliance with the standard ISO 17020.

There is also another way for accreditation – to get an approval for work issued by Metrology laboratories, which are under the jurisdiction of regional authorities. Promotion of type approval requirements that take into account in-services enforcement.

All of attendees of the meeting were against this dual way of accreditations and approvals for work. Specifically, metrology laboratories should be authorized for issuance of calibration certificates of devices and equipment in stations, but not authorized for approving the VIS opening and work.

there is no control of VIS, except for control of necessary documentation and metrology conditions for equipment in Ukraine. We assume that mandatory control of commercial and special vehicles is at the very low level and at minimum standards compliance or, what is more likely, control is conducted without the presence of an actual vehicle, but by measuring the parameters of other well-maintained vehicle.

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

	Selected Impact indicator (current situation)	Deficiencies requiring attention	Recommendations (suggested way forward)
1	Doeslegal basis for VTI exist? Vienna Agreement 1997 is ratified -Control procedures is at the level of Directive 2009/40 EC	Periodical technical inspection for M1 and N1 vehicles, complete L category, as well as O1, O2 and O3 is not mandatory. Voluntariness does not give results.	-All registered vehicles must be periodically tested for safety on the road and adherence to road safety regulations -Prepare for Directive 2014/45 in PVTI -Prepare for the introduction of RSI (Directive 2014/47)
2	Is an Adequate manual for VTI Methodology in use? -They have developed methodology to control VTI	Too many institutions are involved in processes definition The Principe of dual competence is unsustainable	To determine only one institution in charge for the PVTI system and RSI for all of Ukraine as well as the system of control of VTIS – state supervisory body
3	Equipment on PVTI available	Equipment required by standard is in compliance with EU standards and directives	Include
4	Information system? There is no information system at any level	Only administrative reporting software exists, which is not unique	-recordings of vehicles testing activities in testing center -recording information system in testing center (VTI) -define unified state register of vehicles
5	Agreement 58 and EU directive Int. convention ratified (Agreement 58). Imported vehicles meet International standards	Regarding the vehicle type approval and implementation of Agreement ’58 – SRT Institute has all professional capacities and well defined organization. Ukraine has implemented Directive 2002/24 EC into national legislative.	
6	Regulatory agency adequately funded -State Road Transport Institute	SRT Institute hasn’t clearly defined field of authorizations	SRT Institute should be in charge for re-entering into the force of mandatory PVTIS and roadworthiness tests
7	1.Imported vehicles meet International (UNECE) standards -Legal basis exists to prevent import of unsuitable/unsafe vehicles and controls to prevent import of fake spare parts is under the Ministry of Development	Ukraine has adopted about 20 of 136 ECE regulations. Ukraine have basic requirements for production and trade of vehicle and their components	Adopted other ECE Regulations (up 136)

4. Conclusions

Although Ukraine is signatory of Agreements ’58 and ’97 and has huge experience, the country terminated obligatory periodic vehicle inspections since 2011 for certain categories of vehicles (M1, N1). For multiple reasons : the method of issuance of approval to VIS, way of control of VIS, level of bribery and corruption, low national income, absence of unique database and information platform for VIS, etc, but at the end it was a political decision.

That decision determined the voluntariness of vehicle technical inspection for certain vehicle categories, which yields no results. More than 11 million of vehicles are without any control of technical condition. Expert's opinions and European statistics show that vehicle defects are the cause of more than 30 % of traffic accidents , especially concerning the average age of the total fleet (more than 14 years).
Not more than 200 vehicle inspection stations are actually active in Ukraine today in terms of capacities concerning the condition of buildings, condition of equipment, level of training of controllers, etc.
According to information from the Ministry of infrastructure, there is a draft of new regulation waiting to be put on public hearing. The new draft regulation proposes the basic requirements for production and trade of vehicles and their components.
Basic conclusion is that VIS should be defined in framework of unique legal document and that the system of approving the opening and starting of activities of technical inspection has to be "in the same house".
Introducing or actually re-entering into force mandatory vehicle technical inspection for all vehicle categories, together with unique information platform, actualized without control is still insufficient for better results.
There are two possible solutions foreseen for change and total implementation of periodical vehicle inspection system with full effect of increasing of vehicle safety. It is possible to organize an international tender and concessions granting, or in other words, giving of jurisdictions to dedicated company. This model does not require any budgetary funds. Establishment of a national information system for management of periodical vehicle inspection with clearly defined institutional duties and jurisdiction could be another option. Ukraine has a strong need to establish and implement the unique and clear legal solution covering the universal system of licensing of private companies who complies with conditions given by standards and law, and strongly controlled.

A: Persons met or consulted

ANNEX:

A: Persons meet or consulted

Vehicle technical inspections team working visit on 9 June 2015, Kiev, Ukraine, as part of the European Union financed Project "TRACECA ROAD SAFETY II"

LIST OF PARTICIPANTS

No.	Name and Surname	Institution (Organization) and Position	Contact telephone E-mail	Signature
1.	Vasilyuta V.S	Traffic police department, Department of Automobile and technical inspection.	066 764 06 05	vvs@sai.mia.gov.ua
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3.	Tishchenko Alexey Valerievich	Chief Specialist of safety and transport of dangerous goods unit, transport safety Department	068 355 04 43	alex@mtu.gov.ua
4.	Nilov Rostislav Yukhymovych	Lead Engineer, State enterprise "State Road Transport Research Institute"	044 201 08 19	rnilov@insat.org.ua
5.	Merzheyevskyy Valentyn	Senior Researcher	044 455 69 38 063 332 82 72	vmerzhievskiy@insat.org.ua

6.	Burlaenko Sergey Vyacheslavovich	Advisor to the Director General, Motor (Transport) Insurance Bureau of Ukraine (MTIBU)	050 310 38 13	Sbars63@mail.ru
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10.	Cherniy V.D	CE "Kyyivdorservis"		kievdorservice@bigmir.net
11.	Kozlovsky Oleksandr Volodymyrovych	Acting Director of Department of transport infrastructure Kyiv City Administration		
12.	Zhuravlyov Yuriy Mykolayovych	Department of transport infrastructure Kyiv City Administration		
13.	Savtyr Sergey Vladimirovich	The Head of transport service Department of transport infrastructure Kyiv City Administration	067 444 97 39	Sergey.savtyr@gmail.com
14.	Krylov Oleksiy Sergiyovych	Head of Unit of accreditation of certification and inspection bodies, National Accreditation Agency of Ukraine	096 603 77 66	
15.	Yesypok Olena Volodymyrivna	Director General, International Association of conformity assessment bodies	067 502 44 45	
16.	Dobrukha Larysa Grygorivna	Deputy Director of Educational and Counselling Centre, Association of International Automobile Carriers of Ukraine	067 538 92 69	
17.	Kuzmin Sergiy Volodymyrovych	Head of Laboratory, SE "Vialand"	097 952 83 64	
18.	Didyk Stanislav	SE "Vialand"	067 540 80 04	
19.	Zaichenko Vasyl Ivanovych	SE "Vialand"	050 462 48 60	
20.	Reformator Iryna	European Advisory Mission to Ukraine	067 405 44 70	Iryna.reformator@eu am-ukraine.eu
21.	Prudov Volodymyr	Head of Transportation Service of Kyiv City State Administration	067 749 32 01	

Vehicle technical inspections meeting 03 August 2015

As part of TRACECA Road Safety II EU funded project

List of Participants

№	Name	Position and organization	Contact number	E-mail
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11.	Krylov Oleksiy	Head of Unit of accreditation of certification and inspection bodies, National Accreditation Agency of Ukraine	**096 603 77 66**	
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18.	Prudov Volodymyr	Head of Transportation Service of Kyiv City State Administration	**067 749 32 01**	
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24.	Tarnavskyi Sergiy	Parliament Subcommittee on Road Safety	**044 206 56 12**	**s.tarnavskyy@gmail.com**
25.	Chekalin Volodymyr	President, International Association of conformity assessment bodies	**050 356 71 43**	**maoov@bk.ru**

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.

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				
24.	Sahakyan Sargis	Lead specialist “Roads Directorate of Republic of Armenia”	+374 077 35 389	Sargis.sahakyan52@rambler.ru
Azerbaijan				
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Georgia				
27.	Mr. Koba Metreveli	Chief Specialist of Land Transport Division		kmetreveli@economy.ge
28.	Mr. Shalva Uriadmkopeli	Head of Land Transport Safety Department		shuriadmkopeli@lta.gov.ge
Kazakhstan				
29.	Aitbayev Bulatbek	Head of the Department of Science and the quality of work of the Committee of highways Ministry of Investment and Development of the Republic of Kazakhstan	8 7172 243065 8 7172 299065	aitbaev@mid.gov.kz

30.	Abdenov Moldabek	Chief Expert of the Department of Road Transport, Transport Committee, Ministry of Investment and Development of the Republic of Kazakhstan	8 7172 242413	m.abdenov@mid.gov.kz
Kyrgyzstan				
31.	Beishenova Salima	Leading specialist of road and rail transport department	0312314288 0555906200	sbeishenova@mtk.gov.kg
32.	Kasymaly uulu Arslanbek	Head of International transportations department of the State Agency for Road and Water Transport under the Ministry Transport and Communications of the Kyrgyz Republic	0312314070 0554770880	k.u.arslan@mail.ru
Moldova				
33.	Olec Bicu	Head of the Systematization of Road Traffic at Surveillance of Transport and Road Traffic Department of National Patrolling Inspectorate, at the General Police Inspectorate of Ministry of Internal Affairs	+3736916 1316	oleg.bicu@igp.gov.md
34.	Mr Radu Rogovei	Deputy Head, Road Development Department, Ministry of Transport and Roads Infrastructure		radu.rogovei@mtid.gov.md
Tajikistan				
35.	Makhmudov Firuz	Deputy Head of the International Cooperation Ministry of Transport	919 22 55 57	Mahmudov.firuz@mail.ru
36.	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		mgorbakha@mtu.gov.ua
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		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	093 944 39 40	
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	066 517 24 20	ciiv@uti.gov.ua
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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	095 273 9330	
23.	Dobrukha Larisa	Deputy Director, education centre AsMAP	067 538 92 69	

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:

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

COUNTRY: UKRAINE

TEAM: **G.BARANGER**

TOPIC: INSTITUTIONALIZATION OF UNECE AGREEMENTS - AETR

DATE: JULY 22-24 JULY 2015

REPORT PREPARED BY

G.BARANGER

July 25th, 2015

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* * *

1. Introduction

Ukraine has acceded to AETR in 2006 and the security policy was approved in 2010 when they can issue cards for workshops. But according to JRC records Ukraine is able to issue tachograph cards for drivers since May 2014 only.
For the country, it was agreed:
1. to make a presentation on the aim of the AETR Agreement, mainly based on the road safety target.
2. to discuss on the level of the implementation of the AETR Agreement in Ukraine: either for international transport or for international and domestic transport.
3. to evaluate the consequences for Ukraine: does the country is ready to check vehicles engaged in international transport?
How Ukraine is able to check the national Transport companies engaged in international transport (AETR requirement)?
4. to assess existing approved tachograph workshops network (How many, where are they located, are they enough for a good service to transport undertakings?...)
5. Finally, to consider secured car parks: as AETR imposes vehicle to regularly stop for a while, are enough secured car parks for commercial vehicles? Vehicles are carrying valuable goods which may be jeopardized by thieves, endangering driver's life.

2. Activities undertaken

The experts make a 3 day visit to Kiev.

2.1. Meeting in ASMAP

A first visit was in the ASMAP association of Transport companies, where field problems and difficulties were laid down.
ASMAP has 3000-3500 members, representing 33 000 vehicles and 50 000 drivers about.
ASMAP is the local branch of the IRU and provides drivers with trainings according to IRU Academy standards.
ASMAP pointed out three main difficulties:
- card issuing which does not meet their needs, in term of cost and time to be delivered
- checks in the country and mainly abroad where the level of fines may be quite different from one Contracting Party to another one.
- Car parks for commercial vehicles which are not sufficient and hinder drivers complying the AETR requirements.

2.2. Meeting in the MoT

The second meeting was held in the Ministry of Transport where the expert presented the main aspects of the AETR Agreement before opening discussion to pending issues and field problems.

The presentation explained the articles of the main body of the AETR Agreement, insisting of its three aims: road safety, fair competition between transport companies and drivers' social protection. Then three pillars of the system are necessary for its success: on-board recording unit (tachograph), legislation and enforcement.

The main issues raised by participants were related to control and enforcement, international agreement versus national laws, workshops, cards issuing and car parks for commercial vehicles.

Control and enforcement needs to be accurately specified and experience or comparison with other countries should be helpful for Ukraine.
Questions came on the roadside check: who is allowed to stop a vehicle? How to proceed if MoT inspectors have to check vehicles and drivers? Which tools and training shall be granted to inspectors?
Questions on company check were raised as well: specifying the aim of company check versus roadside check. These questions have to be linked to the definitions of the undertakings responsibilities as specified in article 11 of the AETR Agreement.

Workshops role and responsibilities were discussed, namely to tackle attempts to tampering the system, e.g. if a driver prefers exchanging the DT, because of many recorded infringements, then workshop shall download the content of the replaced unit and give the files to the driver. In case the DT is out of order and downloading is not possible, workshop shall issue a certificate of impossibility of downloading.
Workshops monitoring by the Accreditation authority is not clearly defined. The expert proposed to send an example of requirements for workshop accreditation and for periodic audit.

Card issuing was discussed and common process in the EU countries was mentioned. Complaining against the cost of cards, the expert gave an average cost of 60 € per card in the EU MS. Time to get a card was also discussed and according to the administration, it mainly depends on the correctness of information given by applicants which have to be crossed checked, even at the international level through TachoNet.
Cards for workshops were discussed because validity should be 6 months instead on one year, but the Administration answered validity is one year.
Facilities to get a card were mentioned: in most of EU countries application may be done via internet or downloading an application form to do it manually. Then a central point is usually enough: when application is successfully processed, card is forwarded to applicant via mail.
Nevertheless other organization is possible, such as in Spain where the central CIA, Casa de la Moneda, has a distributed organization in the main towns of the country.

At last, car parks for commercial vehicles were discussed: in order to comply with the AETR Agreement, drivers shall be able to stop their vehicles in secured places. Today the road network in Ukraine does not offer enough facilities. Some difficulties appear on land acquisition, but it should be possible to solve the problem by law because land usually belongs to the local public community.
The car park issue has to be discussed separately in another forum on roads.

2.3. Meeting with inspectors

Meeting with inspectors was held in the Administration premises.
A short presentation of the AETR Agreement allowed a fast introduction into the subject and many questions were raised, mainly on how do foreign enforcers check the vehicles and drivers and which means are used against infringements.

Cases where drivers refuse to extract their card from the Digital tachograph were mentioned, in order to prevent the real check of their activities.
In general it appears that Ukrainian law does not allow enforcers to work with the necessary freedom for any action against infringements.
Replacing DT by a new one when too many infringements are recorded (it is cheaper in case of control!) was also discussed. Workshop should download data from the old DT, but driver has previously removed the external battery (on VDO DT) ensuring the DT not working any more.
In such a case, Workshop should mention it and warn its supervisory authority.
It is a key point, because if the law hinders enforcers to properly work, the AETR system is completely useless! Legislation is one of the three pillars of the system.
The expert gave to the enforcers the reference of the EU Directive N0. 2009/5/EC, in which infringements to the system are classified. It indicates the seriousness of each infringement (low, serious, very serious).
The Directive has no legal impact on AETR agreement because it is a EU statement, but categorisation of infringements may help non-EU CPs to adapt their law accordingly and in an harmonized way.

2.4. Visist of a tachograph workshop
A visit a tachograph approved workshop located out of Kiev (more than 30 km).
The workshop belongs to Scania.
Tachograph activity is one of the following activities of the company:
Servicing vehicles, mainly Scania, other brands as well
National warehouse for spare parts
Scania Assistance
Training centre
Tachograph approved workshop

The tachograph approved workshop has been approved for analogue tachographs for a long time, and recently for digital tachograph.
It was approved by the State Automobil Research Institute, then two technicians the workshop could apply for workshop cards.
Annual audit is performed.

As the company has changed its name, technicians had to apply for new cards and their boss was quite upset on the fact new cards were issued with a validity of 6 months instead of 12!
The control body in charge of auditing the workshop also complains against such a measure whicj is not understandable, because it hinders a normal process of annual audit.

The DT workshop has adopted EU standards. Seriousness of technicians, awareness of risks were considered such as the installation and tools.
The tachograph workshop is working according to Scania standards which provide
The same quality level as it is currently found in Western Europe.
It seems to the expert that this workshop has been visited, because it is likely the best one in Ukraine.

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

Implementation (institutionalization) of different impact indicators for AETR:

	Selected Impact indicator (current situation)	Deficiencies requiring attention	Recommendations (suggested way forward)

1	**Legal basis :**	Laws are not adapted to controlling DT, hindering a full implementation of the AETR Agreement	Legal actions have to be driven at higher level and amend laws accordingly. Accurate legal statements will allow the application of AETR to domestic transports.
2	**Tachograph cards**	Cost of cards, time to get a card, reduced validity of workshop cards, cost of cards	The Card Issuing Authority should be completely reviewed. Cooperation with an EU MS should help in implementing an efficient organization
3	**Compliance with drivers hours (AETR requirements)**	Lack of car parks where drivers may securely stop their vehicle for the minimum required period of time. Infringements cannot be sued due to weak controls	To be discussed with relevant authorities See next item
4	**Roadside check and company check**	Training for enforcers according to EU standards is requested	Possible and useful when laws are modified!
5	**Tachograph workshops network**	Specifications for workshops are not available	To publish tachograph workshop specification and audit scheme.

4. Conclusions

Ukraine has technically implemented the AETR Agreement: workshops are approved, cards are available (with difficulties!), but the AETR system aiming at road safety, fair competition and drivers' social protection will not work as long as enforcers have very limited actions due to existing laws. The new policy should allow more transparency, as requested and needed by private operators.
The priority seems to review the existing laws with regards to AETR, and give the necessary power to enforcers.
Then it will be possible to consider AETR Agreement extension to the domestic transport, because the country is a large one: harmonized drivers hours will make sense.

ANNEX:

A1: meeting in ASMAP Premises

- Larisa Dobrukha, Deputy Director Director Training Consulting Centre, IRU Academy Accreditation Committee Chairperson
- Sergiy Kokot , Director Training Consulting Centre
- Sergiy Kusmin, VIALAND DP, Ukrainian vehicle laboratory
- Konstantin Savchenko, Adviser to the President of Association of International Road Carriers of Ukraine (AsMAP UA)

A2. Meeting in the Ministry of Transport

Working meeting "UNECE Conventions and Agreements. European Agreement concerning the work of crews of vehicles engaged in international road transport (AETR) »

As part of the EU-funded project "TRACECA Road Safety II»

List of participants

No.	Name	Organisation and position	Contact details
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13.	Kotula Roman	Senior Inspector for Special Assignments Department of STI of MIA	098 78 44 444 kotula@sai.mia.gov.ua
14.	Kryvosheeva Tetyana	Chief Specialist of the International Cooperation Unit, Department of State Control in road transport Ukrtransinspection	067 420 20 95 krivosheeva.tatka@gmail.com
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16.	Novokhatskyy Ivan	Chairman of the Executive Committee of the All-Ukrainian public organization "Public transport security committee"	ktb.kyiv@gmail.com

17.	Osipov Yury	Deputy Head of Department of Zhytomyr Oblast Ukrtransinspection	067 226 64 14 osepov@meta.ua
18.	Paramuda Oleksiy	Head of Unit of linear control Ukrtransinspection of Zhytomyr region	paramuda@meta.ua
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21.	Svirin Mykola	State Research Institute of Ministry of Internal Affairs, Head of Laboratory	097 571 62 62 mos15@ukr.net
22.	Symonenko Roman	SE "DerzhvatotransNDIproekt"	050 352 47 04
23.	Tarnavsky Sergiy	Subcommittee on Road Safety Verkhovna Rada, assistant to head	067 466 09 16 s.tarnavskyy@gmail.com
24.	Tyshchenko Oleksiy	Chief Specialist of traffic safety and transport of dangerous goods, Transport safety department	068 355 04 43 alex@mtu.gov.ua
25.	Cherniy Viktor	CE "Kyyivdorservis"	kievdorservice@bigmir.net
26.	Chorny Yuriy	MC "Road Safety and Information Technologies" MoH Ukraine	067 411 99 99 director@umcdde.com.ua
27.	Shevchenko Maksym	Head of state control in road transport unit, Ukrtransinspection	mintransukr@gmail.com

A3. meeting with inspectors

The listing was not communicated to the expert

A4. Meeting in the SCANIA Tachograph workshop in Kalynivka

Mr. Alexandr Tytskyi, Service Director

Mr. Polischuk Sergey, Head of Service Department

B:

UKRAINE - TRACECA

QUESTIONNAIRE ON AETR AGREEMENT IMPLEMENTATION

1. VEHICLES

1.1 How many vehicles are registered in the country :

1.1.1 Transport of people (more than 9 seats, incl. driver)? ____

1.1.2 Transport of goods/haulage (more than 3,5 tons)? ____

2. TACHOGRAPH

2.1 Was analogue tachograph already in use? ____

2.1.1 If yes, what is the percentage of equipped vehicles:

2.1.1.1 Transport of people (more than 9 seats, incl. driver)? ____

2.1.1.2 Transport of goods/haulage (more than 3,5 tons)? ____

2.2 Are any vehicles already equipped with Digital Tachograph? ____

2.3 If yes, are cards available for drivers? ____

3. AETR

3.1 Will AETR applied for domestic transport as well? ____

4. WORKSHOPS

4.1 Is there already a network of approved workshops? ____

4.1.1 If yes, how many? 140-160 (30% for DT)

4.2 Which Authority approves workshops? ____

5. LAWS

5.1 Is there any issue concerning AETR application versus National laws? ____

5.1.1 Type approval recognition (if granted in a foreign country)? ____

5.1.2 To allow workshops acting both as technician (installation, maintenance,…) and controllers (checking compliance)? ____

5.1.3 Enforcers to get full power to check vehicles and companies according to AETR requirements? ____

5.1.4 Data protections: use of individual data in line with national laws? ____

Information from JRC Website:

AETR Accession : 2006

Policy approved : 26/03/2010

Tachograph cards certificate : 07/05/2014

Km_{WC} : 25/08/2010

ANNEX G

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.

COUNTRY: UKRAINE

TEAM: Vehicle Regulations Team

TOPIC: ACCESSION TO AND IMPLEMENTATION OF THE UN 1958 AGREEMENT AND ITS UN REGULATIONS ANNEXED TO IT IN UKRAINE

DATE: SEPTEMBER, 7 & 8 SEPTEMBER 2015

REPORT PREPARED BY

Juan RAMOS-GARCÍA,
TRACECA Senior Non-Key Expert
Expert on Vehicle Regulations

September, 2015

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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 Ukraine on 07 and 08 September 2015.

The main tasks were:

- To explain the provisions of both current 1958 UN Agreement and of its draft Revision 3;

- To identify and suggest amendments to the national legislation for the type approval of vehicles as a condition for their registration, defining which UN Regulations shall be made mandatory for each category of vehicles;

- To implement an easy system to update the references to the latest versions of the UN Regulations in the national legislation.

Ukraine is a Contracting Party to the UN 1958 Agreement since 2000, having the E46 symbol. Ukraine currently applies 118 UN Regulations of the 136 that are annexed to the Agreement, the last one will entry into force in January 2016.

2. Activities undertaken

The Senior NKE made a 2 day visit to Kiev and invited a number of relevant stakeholders to be present at two separate meetings. The meetings were held in the premises of the State Enterprise 'State Road Transport Research Institute' (hereinafter - Institute). The Institute is both the Type Approval Authority (TAA) of Ukraine and one of the designated Technical Services (TS) for conducting the mandatory tests of the UN Regulations annexed to the 1958 Agreement. A total of 18 people from the Ministry of Infrastructure, State Enterprise State Road Transport, as TAA and TS, participated at the meeting (see Annex A, List of participants).

On the first day (07.09.2015) a revision of the existing legal framework on vehicle regulations was made to verify if the national legislation makes mandatory or alternative the last version of the UN Regulations annexed to the 1958 Agreement as a prerequisite for the registration of vehicles in

Ukraine. It was also identified which of the UN Regulations were not yet applied by Ukraine and consideration was made for their application in Ukraine. It was noted that at the moment that Ukraine becomes an EU Member State, Ukraine shall apply all the UN Regulations that the EU will apply at that time.

On the second day (08.09.2015) practical Technical Assistance regarding the applications of the Type Approval of Vehicles was provided analysing several practical questions relating to the type approval of vehicles (TAV). A total of 4 people participated at the meeting (see Annex A, list of participants).

The following topics were discussed at day one meeting:

2.1 Presentation of the 1958 Agreement and its draft Revision 3

2.2 Verification, for each category of vehicles, if the national legislation makes mandatory or alternative the last version of the UN Regulations annexed to the 1958 Agreement;

2.3 Verification which UN Regulations are not applied by Ukraine and establish a priority list for their application;

2.4 Consideration of a system to easily update the references to the latest versions of the UN Regulations in the national legislation;

A detailed consideration of the Agreement and its draft Revision 3 was made. Ukraine identified some minor errors in the draft Revision 3 of the Agreement. These errors were immediately communicated to the responsible person in the secretariat of the World Forum for Harmonization of Vehicle Regulations (WP.29) for action. Ukraine also proposed more substantial amendments to the text. Those were also transmitted to the WP.29 secretariat for consideration by WP.29 at its November 2015 session.

The participants from Ukraine were aware that if Ukraine becomes an EU Member State, it shall apply the same UN Regulations applied by the EU. Meantime, the primary target for Ukraine is to continue consequential approach to EU practice and to implement EU legal acts (acquis communitaire) into national legislation. This include step-by-step elimination from Ukrainian vehicle approval legislation those UN Regulations which are not covered by respective EU legislation, from one hand, and, from another hand, introduction into mandatory national legal acts the UN Regulations that EU legislation refers to.

It was noted that Ukraine makes mandatory, through its national legislation, the UN Regulations and their amendments, following their entry into force. In addition, Ukraine participants noted the system used in Spain to easily updated the national legislation with references to both the EU Directives and UN Regulations.

The second day of the workshop was dedicated to a much more practical questions related to the application of UN Regulations in the country, including the process for granting the VTA in the framework of the UN 1958 Agreement.

The following topics were discussed at day two meeting:

2.5 Verification of the documentation presented by the manufacturer or its representative

2.6 Conducting the mandatory test required by the UN Regulations;

a) Issues in the tests,

b) Interpretation of the provisions of the tests,

c) Use of facilities of other TS or those of the manufacturers,

2.7 Issuance of the Test Reports;

2.8 Granting the VTA;

2.9 Acceptance of the TAV granted by other Contracting Parties to the Agreement applying any UN Regulation;

2.10 Cooperation with other CPs to the 1958 Agreement

It was noted that Ukraine in general and the Institute had the technical knowledge and the facilities for conducting the tests of certain UN Regulations. The Institute has conducted adequate tests and granted national type approvals. Nevertheless, Ukraine has not neither conducted the tests of UN Regulations nor granted VTA in the framework of the 1958 Agreement.

The participants noted the existence of a working group of Type Approval Authorities (TAA) that meets periodically, where the TAA discuss about possible interpretations of the provisions of the UN Regulations. Following these discussions proposals to amend the UN Regulations were submitted, if necessary. It was clarified that the TS can use the test facilities of other TSs and even those of the manufacturers. Nevertheless, in all cases the TS using such facilities shall conduct the tests and are responsible for the results and for the report to be submitted to the TAA. The participants noted that, in addition to the provisions of the Agreement and the UN Regulations, cooperation with other TAA and TS of other Contracting Parties to the Agreement were essential. To create this net of contacts it was highly recommended that Ukraine participates in the meeting of the World Forum WP.29 and on those of its Subsidiary Working Parties. It was noted the financial difficulties of Ukraine to have a budget for a continuous participation in the meetings of WP.29 in Geneva.

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 further development of reformation in the field of road vehicle technical regulation system in the country and its consequential approach to EU road vehicle technical regulation system. 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 implementation of the UN 1958 Agreement and its UN Regulations

	Selected Impact indicator (current situation)	Deficiencies requiring attention	Recommendations (suggested way forward)
1	**Legal basis for the UN 1958 Agreement** - The country is a Contracting Party (CP) to the UN 1958 Agreement - Current national legal system requires a Vehicle Type Approval (VTA) System.	No major deficiencies: - The country is a CP to the UN 1958 Agreement, and has implemented a system for incorporating the latest UN Regulations and their amendments in the national law. - The existence of a national VTA System in place in the country facilitates the mandatory application of UN Regulations.	- Continue the application of new UN Regulations and their amendments. - Keep up to day the national VTA System applying by Ukraine the new UN Regulations and their amendments.
2	**Adequate procedure for the mandatory application of UN Regulations in use**? - There is a methodology for the mandatory application of UN Regulations in the country.	- National VTA System is in use. - For the national VTA is necessary to check the conformity of the imported vehicles to the Type Approved one.	- Develop a practical system to guarantee that the registered vehicles belong to a Type Approved one
3	**Trained technical staff or auditors are available?** - There are adequate technical staff conducting national VTA and also for conducting the tests. - The Institute has the necessary equipment to conduct some tests.	- The Institute has neither conducted UN Regulations tests nor granted VTA in the framework of the UN 1958 Agreement	- Training on conducting UN Regulations tests and on granting VTA in the framework of the UN 1958 Agreement
4	**National Authorities have budget to implement VTA proposals?** - No enough budget is available for participating in the sessions of WP.29 and for completing the equipment of the Institute	- The non-existence of an adequate budget can complicate the development and implementation of the UN 1958 Agreement VTA system	- The training of adequate technical staff will probably need some resources. These resources can be relatively small due to the fact that the technical staff of the Institute has experience in conducting national tests and on granting national type approvals. - The equipment of a Technical Service (TS) for conducting the mandatory tests of all or a considerable number of the UN Regulations will need a considerable budget for the needed equipment. It is suggested to use the facilities of manufacturers or other TSs to gain experience and to slowly proceed with the equipment of the Institute

4. Conclusions

A non-negligible number of road accidents, including fatalities and injuries, are caused by deficiencies in the technical condition of the vehicles. To reduce them, it is crucial to have a national legislation for ensuring that the new registered vehicles in the country meet 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 level of safety and environmental performance 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.

Ukraine is a Contracting Party to the Agreement and applies 118 UN Regulations annexed to the 1958 Agreement. 88 of 118 applied UN Regulations are mandatory in Ukrainian legislation.

Ukraine has experience in conducting tests for national type approval of vehicles and in granting such national type approvals. Nevertheless, the Institute has neither conducted UN Regulations tests nor granted VTA in the framework of the UN 1958 Agreement.

It is recommended that Ukraine begins to conduct the above-mentioned tests using the facilities of own TS, of other TSs or those of the manufacturers. Technical Assistance is needed on this area.

Ukraine should dedicate an adequate budget for the continuous assistance to the meetings of the World Forum WP.29 and its Subsidiary working Parties. An important budget should also be required to complete the equipment of the Institute needed for conducting the UN Regulations' tests. Due to the amount of budget required for the adequate equipment it is recommended to proceed in suitable steps.

ANNEX: A

Persons meet or consulted

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Juan Ramos	TRACECA			

Mr. Zharov and Mr Symonenko participated the two days.
Mr Logvin and Mr. Babin participated the second day.
The rest participated the first day.

No country report prepared for this topic

7. ROAD SAFETY IMPLEMENTATION TRAINING 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 Ukraine.

7.1

COUNTRY: **UKRAINE**

TEAM: **RS IMPLEMENTATION AND TRAINING TEAM (KRSTO LIPOVAC & DALIBOR PEŠIĆ)**

TOPIC: **WS WITH DESISSION MAKERS AND WS WITH ACADEMICS IN UKRAINE**

DATE: **6-7-8 JULY 2015**

REPORT PREPARED BY

ROAD SAFETY IMPLEMENTATION AND TRAINING TEAM

Team members:

1. **Krsto Lipovac** (STE 3-1)
2. **Dalibor Pešić** (STE 3-4)

July 9th, 2015

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* * *

1. Introduction

In accordance with project ToR for Component 2 and Inception Report, tasks No.: 2.1. TA and training activities, 2.1.2. National Workshops to develop national road safety action plans, Road Safety Implementation and training team make a two-day visit to Ukraine 06-07 July 2015.

The Road Safety Implementation and training team realise meeting**/round table discussions about next issues:**

1. Practical national level implementation experience of experts presented to participants;

2. Presentation of safe system approach - concept and principles;

3. Best practices for road safety plan implementation - importance of politicians, professionals and media (harmonization of attitudes and melding/ orchestrating to a common cause);

4. How to improve safety activity in key road safety stakeholders: MoT, MoI-Traffic Police, Road Administrations and Leading Road Safety Agency;

5. The regulations / legislations on road traffic safety - the foundation for successful National safety programs, the process of preparing the law on road traffic safety for effective management coordination and funding of road safety - best practices and example of successful implementation.

2. Activities undertaken

The Project Team made a 3-day visit to Kiev and invited number of relevant participants to be present at two separate meetings: with representatives of different stakeholders and with academics. The first meeting was held in "Rada" Parliament building (in the safety subcommittee room). Next 2 meetings (with rector and his secretary responsible for road safety) was held at National Transport University.

On the first day (06.06.2015) the team leader, Alan Ross and two road safety experts (Krsto Lipovac

and Dalibor Pesić) presented planned topics in detail and answered various questions. Presentation was successful and the participants from different stakeholders were satisfied. Serbian experience: changes in last 15 years, process of preparing RS law, content of RS law and sub-laws, method and achievement of the RS system improvement, improving capacity and integrity of different institutions and individuals were presented.

On the second day (07.07.2015) team leader and two experts had a meeting with Rector of the National Transport University and his secretary responsible for road safety. After the first meeting in the Rector's cabinet, the 2 experts had a separate meeting with a professor on subjects in the field of road safety and reviewed the University capacities.

Figure 1, Meeting with professor at University of transport in Kiev and discussing about organisation of University, curriculums and other topics

On the third day (08.07.2015) the team leader and 2 experts discuss about capacities in Ukraine, possibilities for the first RS survey of some RS performance indicators (seat belt use and over speeding), discussing and planning activities in other countries.

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

There were a lot of very important stakeholders and individuals who were very active in discussions. Separately, they have capacities but they do not use them in their work in RS. Cooperation and coordination between stakeholders exist but is not good enough. Stakeholders did not have initiatives to improve RS, but they are ready to be involved in the RS processes.

Participants from different stakeholders discussed different topics, including Serbian experience, current state in Ukraine, and how to start and improve road safety processes in Ukraine. The aim of the discussion was to highlight the role of different stakeholders and their responsibility in establishment and improvement of road safety system and opportunities to motivate other stakeholders to improve their work, cooperation and coordination. Experts from Serbia explained their good and bad experience in road safety development in last 20 years.

Present reformation of traffic police can be a good opportunity to improve traffic law enforcement and to accelerate improvement in their work and cooperation with other institutions. Good and modern training of young traffic police officers is necessary to help changing police role in society to service of citizens. This is good opportunity to design and implement modern, integrated road safety database, which have to be open to other stakeholders.

All participants of the WS agreed that there is a very important role of academics in knowledge transfer, dissemination of results of surveys, and help politicians and public to improve their attitudes and dedication to road safety.

There are two universities with good capacities for development of RS science in Ukraine. Kyiv National Transport University and Kharkiv Road-Transport University are the most important for road safety science development and promotion of road safety.

University in Kiev has good capacity, a good building, but not enough academic staff dedicated to road safety. They have curriculum with some subjects that are related to road safety: road accident in field investigation, analysis of road accidents, design of vehicles and design and construction of roads. If they establish a new RS module or change the existing curricula to study more subjects in road safety, they can do a lot and it can establish them as regional leader in RS science.

Transfer of knowledge is very poor. Academics have language barrier for comprehensive transfer of knowledge. However, very few of them speak English fluently. Good possibility is their good speaking Russian. TRACECA project can help them to initiate transfer of knowledge.

Academics do not have their actual and updated books for road safety, but only use old, Russian books from Soviet period. Academics do not have international experience, but they are ready for international cooperation. They do not have experience and not active in encouraging different clients / stakeholders (beneficial) to ask for some road safety project and to cooperate with University as executor. Therefore, universities have no experience in modern RS research and survey. Their students are not involved in different RS surveys.

Measurement of basic RSPI (road safety performance indicators) is not established and it has to start up. TRACECA can help university to develop method of survey seat belt use, speeding and other RSPI, as method for estimation of total socio-economic costs.

Attitudes and awareness of road safety should be improved in general and political public. In this process role of media is very important. It is a very important pre requirement for effective implementation road safety measures.

At the end of WS evaluation was done.

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

	Selected Impact indicator (current situation)	Deficiencies requiring attention	Recommendations (suggested way forward)
1	**Does legal basis for RSM exist?** - Road safety law and sub laws are not updated according to modern RS science	- Current legal system does not recognize RSM based on science. - Modern, open, integrated database of RA and other RS indicators is not regulated by law, - Responsibilities of preparation, adopting, implementation and monitoring of RS strategy and action plan are not regulated by the law, - Financing RS activities is not regulated by law. - Vertical and horizontal cooperation and coordination are not regulated by law	- Establish a project and a working group to prepare a draft of a modern road safety law and sub laws based on science, best international practice and experience of Ukraine. - In this process academics (as team leaders), professionals, representatives from different stakeholders and media should be involved. - Organisation of a very wide promotion of modern RS concept and to improve RS attitudes and awareness of RS is very important for effective adaptation and implementation new RS law. - RS management system has to be regulated by RS law or other law
2	**Transfer of knowledge, implementation of RS survey and dissemination results**? - Number of translated important RS papers in Ukrainian or Russian language. - Number of RS surveys made by local academics. - Number of published RS papers in the best science journals and on the conferences.	- There is no Electronic or others database of science journals and other science papers open for academics and others - A lot of very important documents and science papers are not translated and could not be used in RS practice in Ukraine. - There are no updated RS surveys made by local academics - Very few academics have international experience. - Very few updated RS surveys and results are disseminated.	- Establish Electronic database of science journals and other science papers with free access for academics - Help academics to organize comprehensive transfer of RS knowledge with a very active role of their students. - Establish very important RS research and do RS surveys by academics with support of international experts and with very active role of their students. - Organize local and regional RS conferences with good support of international experts and local stakeholders.
3	**Capacity and integrity of RS stakeholders at state and local level?** - Political willingness and dedication to road safety improvement exists - Establishment and strengthening of the leading RS agency. - Establishment and strengthening of an active coordination body at the state level and of coordination bodies at the local level. - Capacity and integrity of the most	- There is no leading RS agency - Important stakeholders do not have enough capacity and are not dedicated to road safety. - There are no coordination bodies at the state or at the local level - New traffic police is not trained for modern traffic law enforcement. - Vertical and horizontal coordination and	- Improve awareness about RS problems in general and political public. - Promote dedication to road safety among politicians - Make amendments to the RS law regarding the leading RS agency and coordination bodies at the state and at the local level. - Organize basic and advanced training for traffic police - Organize different training of RS professionals.

	important institutions to do their RS work - Number, capacity and integrity of professionals in RS.	cooperation are not very well.	
4	**Do Road Authorities have budget to purchase RSM and implement RSM proposals?** - Dedicated budget for purchase of RSM and implementation of the proposed measures	- No RS dedicated budget, this can cause a serious problem, destroying, and passivation of all stakeholders. - No stable and sustainable funding of RS activities can result in a lack of RS professionals and decelerate creation of a RSM system.	- Make amendments to the law regarding sustainable funding of the most important stakeholders. - Make amendments to the law regarding sustainable financing of the RS activities and implementation of the RS program. - More funds (sources) should be dedicated for RS, - Allocation of RS funds should be regulated and monitored.

B) Cost effective measures by local road authorities:

	Selected Impact indicator (current situation)	**Deficiencies requiring attention**	**Recommendations (suggested way forward)**
1	**Is an updated cost of crashes and casualties known?** - There is no data and methodology about crash costs.	- Lack of data about crash costs causes unavailability of measurement of any road safety measures, assessment of improvement and calculation of costs and effectiveness of road safety actions, plans, activities, ...	- Method for calculation costs of crashes and casualties should be developed and established, and harmonised with other TRACECA countries to make a possibility of measurement of effectiveness of road safety actions and programs, and comparison with other countries.

C) Building the capacity of academic and engineers:

	Selected Impact indicator (current situation)	**Deficiencies requiring attention**	**Recommendations (suggested way forward)**
1	**Selected Government, Consultants and Academic staff trained.** - There is a lack of transfer of knowledge, - There is no RS research, - There is a very high language barrier, because only few professionals use English or other European language, - No university with organized intensive students work in RS.	- Academics do not follow best practice and do not update knowledge in the field of RS, - Academics do not have access to SCI journal database, - Some very important documents and scientific papers have not been translated, - Works of students are not practical enough.	- road accident database has to be assessable, at least for Academics, - it has to be solved problem of SCI journal databases accessibility at national level, especially this is important for Academics, - language barriers has to be removed by adequate transfer of knowledge and translating the most important road safety books, manuals, directives, proposals, reports, journal papers, - Students' works has to be improved and more practical. Students can help transferring knowledge.
2	**Are curricula for University courses produced?** - There are fair teaching	- There is no department or similar unit for road safety at the university. - Academics and students do not do enough road safety research,	- At least a department for road safety should be established at the University - More road safety topics should be introduced in curricula, especially

	curricula but they should be improved by adding more road safety topics, not only for producing, design and maintenance of cars.	such as collection of data about road safety performance indicators.	topics that regarding education, driver training, road user behaviour, campaigns, road safety management. - More practical exercises and research conducted by students should be done. - Introduction of RSA/RSI/BSM training courses and other tools for road infrastructure improvement.
3	**Are students being taught about safe system approaches during their studies?** - There is a lack of particular principles in teaching curricula that should deal with safe system approach and safe design approach.	- No safe system approach and safe design approach in the teaching curriculum.	- All topics, lessons and road safety courses should content at least basic principles of safe system approach and safe system design.

4. Conclusions

There are lot of stakeholders in RS in Ukraine, but there is not enough cooperation between them. They did not establish process of RSM nor intensive work all stakeholders, based on science nor based on data. Safe system approach has not been established yet. It should be improved by changing attitudes and establishment leading RS agency and coordination bodies at state and local level.

The number and level of professionals is not enough and there are only a few activities to improve professionalism and professionals in RS. The traffic police reform can cause increasing of number of road accidents and fatalities because road users' behaviour will be worse if new staff are not trained and do not develop their capacity. It is urgent to train all the new traffic police officers, especially managers in traffic police stations.

Academics do not have strong impact on road safety. There are no updated curriculums, books, modern practical education with intensive student work. Academics should be forced and encouraged to organise very intensive transfer of knowledge and to do different RS surveys. They can help to improve awareness in road safety and to define different RS countermeasures.

Road safety national action plan implementation and training

6-7 July 2015, Kiev, Ukraine
TRACECA Road Safety II

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COUNTRY: **UKRAINE**

TEAM: **RS IMPLEMENTATION AND TRAINING TEAM (KRSTO LIPOVAC & DALIBOR PEŠIĆ)**

TOPIC: **WS WITH ACADEMICS IN KHARKOV AND KIEV, UKRAINE**

DATE: **13-24 OCTOBER 2015**

REPORT PREPARED BY

ROAD SAFETY IMPLEMENTATION AND TRAINING TEAM

Team members:

1. **Krsto Lipovac** (STE 3-1)

November 05th, 2015

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1. INTRODUCTION

In accordance with project ToR for Component 2 and Inception Report, tasks No.: 2.1.8. **Identifying of researchers for accident costing studies on national level** and 2.1.9 **Training workshop for researchers**, Road Safety Implementation and training team make a ten days visit to Ukraine 13-24 October 2015.

The Road Safety Implementation and training team realise several meetings**/seminars and workshops about next issues:**

1. Total socio-economic costs of road crashes and casualties (RC&C):

- What is the role of universities and academics in road safety system?
- What is the role of academics and universities in road safety management (RSM)?
- What are total socio-economic costs of RC&C?
- Why is it important to calculate/estimate total socio-economic costs of RC&C?
- How to calculate/estimate total socio-economic costs of RC&C?
- How to report about total socio-economic costs of RC&C?
- How to start a survey in Ukraine?
- How to prepare good submission for the best international journals?

2. Seat belt use survey:

- Traditional and modern approach in road safety management (RSM)?
- What are road safety (RS) performance indicators (RSPI)?
- Road safety management using RSPI?
- Safe system approach (SSA) – What are the basic principles of SSA?
- Seat belt use as important RSPI?
- Why is it important to use seat belts (correlation between seat belt use and number of road crashes and casualties)?

- Why is it important to survey seat belt use?
- How to report about seat belt use?
- How to start a survey in Ukraine?
- How to prepare a good submission for the best international journals?

3. Speeding survey:

- Traditional and modern approach in road safety management?
- What are the road safety performance indicators (RSPI) – Pyramid from RS problem throw RS strategy, RS action plans, RS measures, RSPI, RC&C, Total socio-economic costs of RC&C?
- Road safety management using RSPI – How can RSPI help stakeholders to improve their work?
- Safe system approach (SSA) – What are the basic principles of SSA?
- Why speed of vehicle is important for road safety?
- What is speed management?
- Why is it important to survey speed on the roads?
- How to measure and survey speed on the roads?
- How to report about speeding on the roads?
- How to start a survey in Ukraine?
- How to prepare a good submission for the best international journals?

2. ACTIVITIES UNDERTAKEN

Lipovac Krsto made a one and half-day visit to Kiev and had meetings and discussions with the team leader (Tuesday, 13th and Wednesday, 14th October 2015).

On the second day afternoon (Wednesday, 14th October 2015), the Team Leader Alan Ross and the expert Lipovac K. travelled from Kiev to Kharkov, reviewed and agreed with the plan and checked if all the materials had been prepared and harmonised. They reviewed all the presentations and other materials for meetings, seminars, workshops and other activities.

They met with Mariya Ivchenko and TRACECA coordinator in Kharkov. They discussed the full schedule and activities in Kharkov.

On third day (Thursday, 15th October 2015), they (Alan Ross and Krsto Lipovac) had meetings with the representatives of Kharkov National Automobile and Highway University (KhNAHU): Rector of KNAHU (Turenko Anatoliy), Vice-Rector for Science, Bogomolov Viktor, Dean of the Faculty for transport (FT), Ivanovich, Chief of Road safety department (RSD) Ivan Sergeyevich and several university professors. We discussed the University capacity and experience in road safety education and survey.

		
Alan R. Mariya I. and Krsto L. at the office of rector of KhNAHU Anatoliy T. (KhNAHU, 15th October 2015)		Alan's R. Introductory speech at the plenary session of the Conference at KhNAHU, (HNADU, 15th October 2015)

We were present at the international two-day conference that was held at KhNAHU, as part of 85th anniversary celebration.

At the first day of conference (Thursday, 15th October 2015), at the plenary session, the Team Leader had a presentation about TRACECA project and the expert Lipovac K. had a presentation about the importance of Universities in road safety improvement especially at the beginning of effective road safety management.

		
Krsto's Inroductionary speech at the Conference (KhNAHU, 16th October 2015)		The first day of seminar about Total socio-economic costs of RS&C (KhNAHU, 19th October 2015)

In the afternoon, they had meeting with the representative of Non-government organisation (NGO) Association of road users[15] (ARU) Aleksandr Zalivan[16]

On the second day of the conference (Friday, 16th October 2015), the expert Lipovac K. gave a presentation about the TRACECA project, schedule and contest of the next 5 days of RS seminars and workshops, met with the dean, chief of the RS department (RSD), associated prof. Aleksandr Rebusenko[17] (responsible for RS), teacher of English at NHTU (Olga Gubarevna Semenivna[18]) and several professors and discussed the Curriculum vitae (CV) at RS Department.

In the afternoon, he had meeting at the office of NGO ARU (Товариство участников руху, Громадскаја

[15] Road Users Association, (http://www.tur.org.ua/)
[16] Alexander Zalivan, tel. +380 68 95 42 106
[17] Alexander Rebushenko…., тел. +380 66 85 83 651, Email wanderer-sundy@ukr.net
[18] Olga Gubarevna, тел. +380 66 43 22 640, Email. Gubarevna76@mail.ru

организација) with the President Aleksander Nikolaevich[19] and other activists. They were discussing the importance of the NGO for RS, their work in the past and possibilities of improvement of their NGO activities.

Name of NGO at the entrance

Lipovac Krsto has visited the NGO Association of road users[20] at their office, (NGO ARU, 19th Oct 2015)

On the next day (Tuesday, 20th Oct. 2015), prof. Lipovac K. continued the seminars about RSPI – Seat belt use. In the afternoon he has visited the driving school and was listening 2 hours lesson of prof. KhNAHU.

Lipovac K has visited driving school where prof. Aleksand gives lessons (Kharkov, 20th Oct. 2015)

Vice-Rector gave special invitation to Lipovac K. for the 85th anniversary ceremony of HNADU (20th Oct. 2015)

Third day of the seminar: after the lesson about RSPI – speed management, prof. Lipovac K. went to the national TV station and had an interview about the TRACECA project and its activities in Ukraine. He had two interviews on the other TV stations over the next two days (https://www.youtube.com/watch?v=GuK4_JtpeG8).

Prof. Lipovac K. had a very good interview with

Seminar on Road safety performance indicators,

[19] Alexander Mykolayovych, тел. +380 50 42 36 721
[20] TUR, (http://www.tur.org.ua/)

the national TV station about the TRACECA project and its seminars (TV station, 20th Oct. 2015)		Speed management, Professors and students of KhNAHU are listening (KhNAHU, 21st Oct. 2015)

	Prof. Lipovac K. answering the questions of participants (KhNAHU, 21st Oct. 2015)	

On Friday, the ceremony of 85th anniversary was organised, so there were no other activities at KhNAHU. Prof. Lipovac had a few meetings with the rector, the vice-rector, the dean and the professors. The final agreement about next surveys and other activities were discussed and harmonised with professors how will coordinate all three surveys (prof. Aleksandr Rebusenko[21]).

Lipovac K. took a train from Kharkov to Kiev (afternoon, Friday 23rd Oct. 2015) and had a flight from Kiev to Almaty (early morning flight, Saturday, 23rd Oct. 2015).

3. CURRENT SITUATION

There were a lot of professors and students at KhNAHU who were very active during the seminars. The Rector and his staff are interested in cooperation with the project and doing some surveys.

The capacities of KhNAHU are very good, especially in human resources. However, their experience in these practical surveys is poor. There are many subjects in their CV, but very few of them are directly connected with RS. They are sceptic regarding the possibilities of changing CV and introducing and improving RS projects. They think it is very difficult for someone to pay for some projects of RSPI survey in the near future.

There are some practical obstacles for surveys to be done immediately. Students should have special permissions for every survey. Therefore, they are ready to carry out these surveys next year during the regular student practice. Prof. Aleksandr Rebusenko is ready to help students and review surveys and the teacher of English is ready to help in translation and Skype conversations.
On the other hand, they have a very full CV and plan of lot of student activities. Their students are not free for such surveys, but they were ready to change the schedule and allowed the students to be present at the RS seminars. Only one possibility to involve students in the field of surveys are during their regular practice and professors will do like that.

Prof. Aleksandr Rebusenko is appointed to organise student surveys and to coordinate the preparation of a scientific article about this surveys. Olga Gubareva, the teacher of English, is responsible for translation of the materials and she will help with Skype calls.

[21] Alexander Rebushenko, tel. +380 66 85 83 651, Email wanderer-sundy@ukr.net

4. INDICATORS, DEFICIENCIES AND RECOMMENDATIONS (Suggested way forward)

	Selected Impact indicator (current situation)	Deficiencies requiring attention	Recommendations (suggested way forward)
1	**Calculation of total socio-economic cost of RC&C?** - Country doesn't have data about total socio-economic costs of road crashes and casualties	- There are no calculations or estimations of these costs. - There is no adopted methodology for the calculations. - There is no adequate database in some institutions. - A lot of important data is not available (RC data and others). - Universities do not have experience in such practical surveys.	- Encourage KhNAHU to start surveys and to publish results - Help professors of KhNAHU to carry out first survey and to improve methodology. - Help professors of KhNAHU to prepare some scientific articles about the surveys and publish them in the most important scientific journals.
2	**Road safety performance indicators measurement** - No one carries out measurement of any RSPI In the country. - It is impossible to organise RSM based on RSPI. - There is no data regarding seat belt use. - There is no data regarding speed on the roads.	- There is neither methodology nor practical experience in Seat belt survey. - There is neither methodology nor practical experience in Speed measurement and speed survey - There is neither methodology nor practical experience in surveys of the other RSPI.	- Help professors of KhNAHU to establish and carry out the first survey on seat belt use. - Help professors of KhNAHU to establish and carry out the first survey on speed on the roads. - Establish a very important RS research and do RS surveys by academics with the support of international experts and with a very active role of their students. - Organize local and regional RS conferences with good support of international experts and local stakeholders.

5. CONCLUSIONS

There are very good capacities at universities, especially at Kharkov university – well educated staff, experienced in theoretical lessons. However, until now they did not have experience in practical surveys of total socio-economic costs of RC&C, nor any RSPI (seat belt use, speeding etc.). They have no established process of RSM based on RSPI.

Academics do not have strong impact on road safety. There are no updated curriculums, books, methods etc. University professors and students do not have practical surveys which are included in field surveys and measurement of different RSPI. Academics should be encouraged to organise very intensive transfer of knowledge and to do different RS practical surveys.

It is necessary to help university professors to establish their methodology and to carry out their first surveys.

ANNEX A: Persons meet or consulted

No.	Name and Surname	Institution (Organization) and Position	Contact telephone E-mail
1.	Turenko Anatolij Mikolajovic	Kharkov National Automobile & Highway University (HNADU) Rector	+380 57 700 38 66 057 707 37 01 rector@khadi.kharkov.ua
2.	Bogomolov Viktor Aleksandrovich	Kharkov National Automobile & Highway University (HNADU) Vice-rector for Science	+380 57 70737 19 +380 50 90 27 600 (mob) bv@khadi.kharkov.ua
3.	Ivan Sergejevic	Kharkov National Automobile & Highway University (HNADU) Head of RS Department	
4.	Aleksandar Rebusenko	Kharkov National Automobile & Highway University (HNADU) Professor of Road safety	+380 66 85 83 651 wanderer-sundy@ukr.net
5.	Olga Gubarevna Semenivna	Kharkov National Automobile & Highway University (HNADU) Teacher of English	+380 66 43 22 640 Gubarevna76@mail.ru
6.	Vitalij Naumov	Kharkov National Automobile & Highway University (HNADU) Professor Transport system Department	+380 67 983 30 94 naumov.vs@gmail.com
7.	Aleksandar Nikolajevic	NGO Association of Road Users President	+380 50 423 67 21
8.	Oleksandr Zalivan	NGO Association of Road Users Deputy president	+380 68 95 42 106

ANNEX B: List of participants WS

Список присутствующих на семинаре 19.10.15 (понедель

1. Чуев Юрий Федорович - доц. ХМАПО, региональный представитель УМЦБДР МОЗ Украины
2. Батракова Анжелика Геннадьевна - проф. кафедры изыскания и проектирования дорог и аэродромов
3. Курчата Ирина Николаевна - доц. кафедры экономики производства
4. Горова Ксения Александровна - доц. кафедры экономики производства
5. Лысенко Алина Александровна - доц. кафедры экономики производства
6. Поясник Георгий Владимирович - доц. кафедры экономики производства
7. Шевченко Инна Юрьевна - доц. кафедры экономики производства
8. Максимюк Анна Николаевна – ассистент кафедры экономики производства
9. Башкатова Светлана Анатольевна - ассистент кафедры экономики производства
10. Вдовиченко Владимир Алексеевич – доц. кафедры транспортных технологий
11. Наглюк Иван Сергеевич – проф. кафедры организации и безопасности дорожного движения
12. Рябушенко Александр Васильевич – доц. кафедры организации и безопасности дорожного движения
13. Абрамова Людмила Сергеевна - доц. кафедры организации и безопасности дорожного движения
14. Семченко Наталья Александровна – ст. пр. кафедры организации и безопасности дорожного движения
15. Харченко Татьяна Владимировна - ст. пр. кафедры организации и безопасности дорожного движения
16. Ширин Валерий Викторович - доц. кафедры организации и безопасности дорожного движения
17. Запорожцева Елена Владимировна - ассистент кафедры организации и безопасности дорожного движения
18. Засядько Дмитрий Владимирович - ассистент кафедры организации и безопасности дорожного движения
19. Трещукова Евгения Васильевна ГО „Товариство учасників руху"

SPISAK NASTAVNIKA I DR. STAKEHOLDERS

22.10.2015

№	Name	Group
1	Kovalenko N.S.	T-23S
2	Getman G.Y.	T-23S
3	Teslya M.N.	TD-31
4	Nechiporenko D.R.	TD-31
5	Varlamov B.I.	T-31
6	Konnyav K.S.	T-31
7	Priz A.V.	TS-31
8	Syirova K.O.	TS-31
9	Syiromyatnikova M.S.	TS-31
10	Nochnyiy V.	TS-31
11	Lyubarskiy A.	TS-31
12	Lozovoy A.	TS-31
13	Pistonenkov S.	TD-31
14	Kravchenko I.	TS-31
15	Khimenko I.	TS-31
16	Starikova H.	TS-31
17	Kovalyova O.A.	TS-31
18	Kanyuk Anton	TD-31
19	Rzoev Shamkhal	TD-31
20	Levadnaya Marina	T-23S
21	Tretyak Nastya	T-23S
22	Neshinuscha Tatyana	T-51mag
23	Podpolzon Evgeniy	TD-51
24	Kadenko Aleksandr	TD-51
25	Rizhko Maksim	TD-51
26	Ryazantsev Artem	TD-51
27	Borovik Denis	TD-51
28	Ovcharenko Aleksandr	TD-51
29	Kupshidze D.I.	TD-51
30	Horoshenkiy N.	TD-31
31	Solovyov Igor	TD-31
32	Zhovtobryuh Sergey	T-31
33	Tsokov Artem	T-31
34	Sotskiy Igor	TS-32
35	Pyataya N.V.	T-31
36	Knyashko Anna	T-31
37	Chernov E.G.	TD-31
38	Budennyiy O.V.	D-51mag
39	Nazarchuk I.A.	TD-51
40	Marchenko V.M.	
41	Kuzik G.I.	T-31
42	Ryabtseva Yu.	TS-31
43	Shvyiryova	T-31
44	Peredova	T-31
45	Razmochaeva	T-31
46	Ivanushko	T-31

47	Yutina	T-31
48	Zakharova	T-31
49	Bobyileva	T-31
50	Maksimenko	T-31
51	Shapoval Yu.	T-31
52	Bogomol Ya.	T-31
53	Oleynik S.	T-23S
54	Klimenko S.	TD-31
55	Kryachko O.	TS-31
56	Zaikina A.	TS-31
57	Lepeeva M.	TS-31
58	Pletenov R.	TS-31
59	Rodchenko V.E.	D-51mag
60	Reznitskiy S.S.	D-51mag
61	Grishina D.	D-51mag
62	Svistun D.S.	D-51mag
63	Mkrtyigyan M.S.	D-51mag
64	Prokhorenko I.V.	D-51mag
65	Radchenko Kira	D-51mag
66	Ptushko D.V.	TS-31
67	Taratushna T.A.	TS-31
68	Zhuganova T.V.	TD-51
69	Cherenovskiy O.S.	TD-31
70	Rudenko S.I.	TD-31
71	Tseretelli S.S.	TD-31
72	Puzyr V.V.	TD-31
73	Kashka E.V	TD-31
74	Dmitrieva E.S.	TS-32
75	Vasilev G.A.	TS-32
76	Kostyuk A.V.	TS-32
77	Vorona A.V.	T-31
78	Povolotskiy A.V.	TD-31
79	Goncharenko	D-51mag
80	Khromenko	TS-32mag
81	Movin R.	TS-32
82	Sanin N.	TS-32
83	Khudoley P.	
84	Babakulyiev G.	D-51mag
85	Tretyakov A.	TD-31
86	Bychkov A.	TD-31
87	Ngvi Aua Akam	D-51

9. 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, Road Safety Agency and other key organisations.

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	+373 69936881	nicolae.mindra@mtid.gov.md

		Road Infrastructure		
	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:

10. 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
11. Change order of presentations to have impact/ effect
12. 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 Ukraine.**
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)

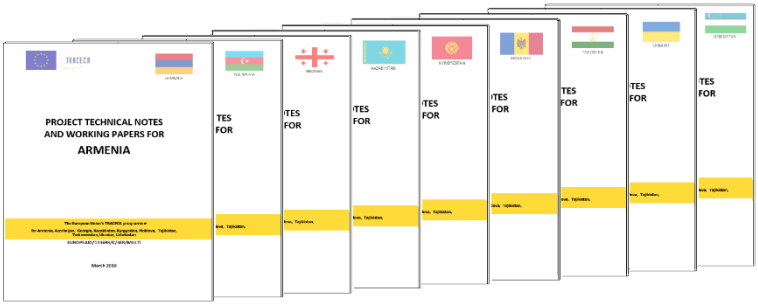
B2. Regional Guidelines

G01 G02 G03 G04 G05

G01. Road Safety Audit
G02. Blackspot Programmes
G03. Legislative Changes
G04. Safety Engineering Problems + Solutions
G05. Freight routing to avoid urban areas

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/