**Transportation Research Board
95th Annual Meeting**

January 10–14, 2016 ▪ Washington, D.C.

Highway Safety Workforce Development Committee

Tuesday, January 12, 2016

DEVELOPMENT OF A TRAINING COURSE FOR ROAD SAFETY AUDITORS IN GREECE

Sophia Vardaki, Anastasios Dragomanovits, Evangelia Gaitanidou,
Stergios Mavromatis, Evangelos Bekiaris & George Kanellaidis

	NATIONAL TECHNICAL UNIVERSITY OF ATHENS		CENTER FOR RESEARCH AND TECHNOLOGY HELLAS
	Department of Transportation Planning and Engineering		Hellenic Institute of Transport

Road Safety Audit

1980s: RSAs are introduced as a process in the UK.

Reason: poor safety performance of roads that were built to what were then "modern" technical standards.

1990s: RSAs are conducted in Australia and New Zealand after several exchanges and visits of road safety engineers to the UK.

1996: FHWA sponsors a scanning tour in Australia and New Zealand to get insight into RSAs.

1998: The first Road Safety Audits are carried out in Greece.

Development of a Training Course for Road Safety Auditors In Greece

- Presidential Decree 104/2011 adapted Greek legislation to the EU Directive on road infrastructure safety management (2008), whose implementation is planned for the Trans-European Road Network (TERN) of Greece.

  ✓ Road Safety Audits on new road schemes on the TERN

  ✓ Mandatory training and certification of Road Safety Auditors

Development of a Training Course for Road Safety Auditors In Greece

- The Greek Ministry of Infrastructure, Transport and Networks assigned the Hellenic Institute of Transport (HIT) of the Center for Research and Technology Hellas (CERTH) the project: *"Development of Training Curriculum and Training Material for Candidate Road Safety Auditors"*

- The presentation concerns results from the project, which aims to adequately prepare Auditors for conducting RSAs.

Development of a Training Course for Road Safety Auditors In Greece

Presentation structure:

- Principles for the development of the training course.

- Course outlines for the initial and periodic training of auditors.

- Learning objectives of the course.

- Future steps.

Development of a Training Course for Road Safety Auditors In Greece

The proposed training course was formed on the basis of:

- the definition, principles and scope of RSAs and duties of road safety auditors;

- the area of expertise and the knowledge framework of the auditors, in accordance with international practice and research;

- provisions of an institutional framework regarding the qualifications, prerequisites, and training of road safety auditors; and

- good RSA training practices from leading countries.

Development of a Training Course for Road Safety Auditors In Greece

Questionnaire survey

Key topics covered in RSA training courses in European countries

	Germany	The Netherlands	Italy	Portugal	Slovenia	Hungary	The Czech Republic	Sweden
Road Safety Audit Process	•	•	•	•	•	•	•	•
Road Infrastructure Safety Management Institutional Framework	•	•	•	•	•	•	•	•
Human Factors in Road Design	•	•			•	•	•	•
Safe System Approach		•		•	•	•	•	•
Road Design-Design standards	•		•			•	•	
Accident Investigation Road safety measures	•		•		•	•	•	•

Road Safety Audit

- A Road Safety Audit is a formal safety performance examination of an existing or future road or intersection by an independent audit team. The RSA team considers the safety of all road users, qualitatively estimates and reports on road safety issues and identifies opportunities for safety improvement (FHWA, 2006).

- A RSA is conducted by a qualified team.

- Emphasis is placed on the proactive assessment of hazards or hazardous situations that might increase crash risk if they are left untreated.

- Road Safety Audits aim at improving safety for all road users, and in particular, vulnerable road users.

Road Safety Audits:

- Proactively apply the principles of the Safe System Approach to road traffic.

- Ensure safer road design adjusted to road user characteristics.

- Are not a check of compliance with the design guidelines nor are they a substitute for a design check.

Road Safety Audit

➢ During the evaluation of a road design or an inspection of an existing road, the Road Safety Auditor should address the following issues:

- *Who is at risk for injury in an accident in a specific section of roadway, and why? What are the possible mechanisms for crash causation?*

- *How can the likelihood of an accident be reduced or its consequences mitigated?*

Road Safety Auditor Skills

The road safety auditor applies these skills:

- ✓ Professional experience and knowledge in road safety engineering

- ✓ Professional knowledge and experience in RSAs

- ✓ Understanding road safety culture

- ✓ Training

- ✓ Other skills

Road Safety Audit

Road Safety Engineering

- Traffic engineering, road design, road safety management and road construction techniques, road user behavior and accident investigation.

- Road safety engineering aims at creating a road environment that informs, guides, warns and controls road users and is forgiving of their errors.

- There is no substitute for the application of sound engineering experience and judgment which form the basis of these principles.

Road Safety Audit

Road Safety Auditors' training

- Complements experience in road safety engineering and RSAs

- Develops knowledge of the latest developments in road safety research, road design and human factors considerations

Periodic training

Periodic training is essential in order for auditors to stay up to date with advances in road design, and recent research in road safety engineering.

Development of a Training Course for Road Safety Auditors In Greece

➢ The course includes material appropriate for professionals with an advanced level of expertise, also taking into consideration the conditions and needs in terms of road design and road safety practices, and the road safety level in Greece.

➢ The safety principles considered in the development of the training curriculum and materials are derived from modern international scientific literature, and practices in the field of road safety engineering.

➢ The proposed training course consists of two parts: theoretical and practical.

Development of a Training Course for Road Safety Auditors In Greece

Course topics	hours
Theoretical part	
Section 1: Road Safety Policy and Institutional Framework Subsection 1.1 Road Safety Policy in Greece and EU Subsection 1.2 Institutional Framework for Road Safety Management Subsection 1.3 Good European practices for Road Safety Management	2
Section 2: Road Safety Audit Issues · Road Safety Audit Process · Preparation of a Road Safety Audit report · RSA roles and responsibilities · RSA team composition · Differentiating Road Safety Audits (audit in design stages, on existing roads, on work zones, related to particular road user groups)	3
Section 3: Road Safety Engineering Subsection 3.1 Identification and Improvement of Hazardous Locations · Accident investigation methodologies · Selection of road safety improvement measures · Effectiveness of measures	4
Subsection 3.2 Safety by Design · Safe System Approach, human factors and safe road design · Road design and review of existing design and safety guidelines · Road signing · Vehicle restraint systems	11
Practical Part	
Case studies	8
Knowledge test	2
Examination in conducting RSA	

Practical Part and Examination

- Case studies at various stages of the project (preliminary design, detailed design, pre-operation) and road safety inspection on an existing road.

  - On-site visits and study of material

  - RSA findings and writing of report

  - Individual/group presentation of RSA findings

- Knowledge test

- Candidates will be examined on their technical ability to apply knowledge and skills in conducting RSAs.

Development of a Training Course for Road Safety Auditors In Greece

Learning objectives – *Human factors and safe road design*

Candidates will have an understanding of:

- the requirements for implementing the principles of the Safe System Approach and Sustainable Safety.

- the needs, capabilities, limitations and characteristics of road users that influence the way that they interact with the road environment.

- how design influences driving behavior and how design contributes to driver errors and collisions.

Development of a Training Course for Road Safety Auditors In Greece

Learning objectives – *Human factors and safe road design (con't.)*

Candidates will know how to:

- apply human factors principles in designing roadway elements.

- apply task analysis methods and positive guidance principles in road safety audits.

- consider the needs of vulnerable road users in design.

- provide consistency in design and traffic control.

Periodic Training Course

- ✓ Roundabouts

- ✓ Motorways at design stages

- ✓ Work zones

- ✓ Exchange of experience

Summary

- The initial training course and periodic training of road safety auditors, the first comprehensive attempt in Greece, is in line with the guidelines set by the European and national legal framework.

- The course leads to the certification of competency.

- The training course takes into consideration recent developments in road safety as well as the conditions and needs in terms of road safety level, road design guidelines and road safety practices in Greece.

Future Steps

➢ Evaluation of the training course by trainees and trainers is proposed after an initial period of implementation.

➢ The course is expected to be reviewed regularly in the light of recent research and developments and also on the basis of experience in road safety audit implementation.

➢ RSAs could be a catalyst for developing a safety culture among road designers and auditors.