

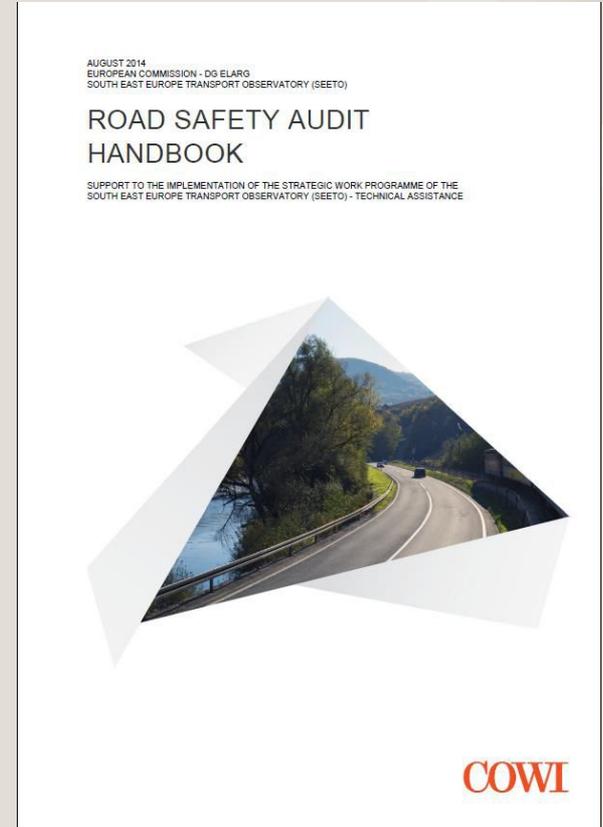
# Road Safety Audit training course

## Introduction to Road Safety Audit

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# Agenda

1. Introduction and history
2. EU Directive 2008/96 on road safety audit
3. What is road safety audit, what is road safety inspection?
4. Why conduct road safety audit?
5. What should be audited?
6. Who is involved in road safety audits?



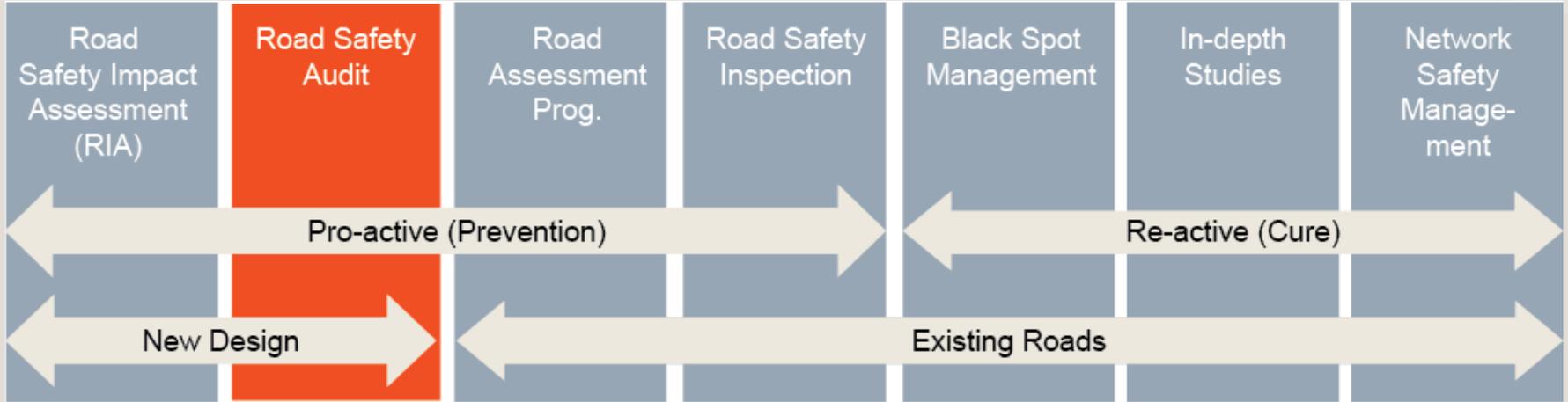
## Little historic background

- > Safety Audits were developed by the British railways (as a form of Quality Assurance)
- > Development:
  - > Investigating the frequent accidents
- > Recommendation:
  - > Safety Audits before any scheme will be implemented
- > Result:
  - > Rail is one of the safest transport modes

## Little historic background

- › Road Safety Audits were introduced in UK with The Road Traffic Act 1988:
  - › *"... in constructing new roads, (local authorities) must take such measures as appear to the authority to be appropriate to reduce the possibilities of such accidents when the road come into use."*
- › In 1991 Safety Audits were mandatory on trunk roads and motorway schemes in UK
- › RSA were introduced in DK in 1997 on voluntary basis for trunk roads and motorways (freeways)
- › In 1999 a declaration of intent stated that all road schemes within the authority of The Danish Road Directorate should obtain a "clean bill"
- › In 2008 EU Directive states that the directive should be implemented in member states by December 2010

# Context



# Main road safety principles

- > Road Safety work is based on 2 basic strategies:
  - > Casualty/Accident reduction (e.g. "Black-spots", "Safety Program")
  - > Casualty/Accident prevention (e.g. "Road safety audits", "Road safety inspections")
- > Road Safety Audit is prevention and based on:
  - > Systematic and independent process for checking the safety of new schemes
- > And should therefore be a:
  - > Part of road authorities quality management system
  
- > Aware of the difference between Road safety audits and Road safety inspections

# Road Safety Audit

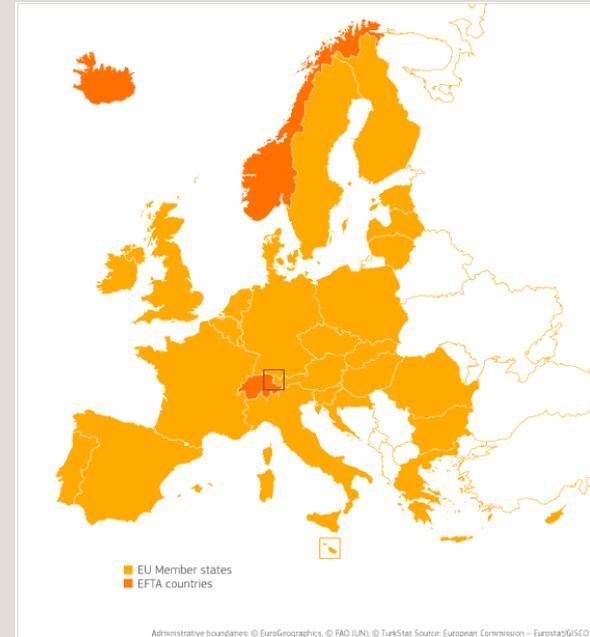
- > Is a formal systematic road safety assessment of road schemes
- > Carried out by an independent, qualified auditor or team lead by a auditor
- > Report on the projects accident problems for all type of road users and suggest improvements

# Road Safety Inspection

- > Is a formal systematic road safety assessment of existing roads
- > Carried out by qualified inspectors/road safety experts or a team
- > Reports on road safety problems on the existing road and suggest improvements. May be thematic and may be prioritized

# EU Directive 2008/96 on road safety

- > Road safety impact assessment for infrastructure projects
- > **Road safety audits for infrastructure projects**
- > Safety ranking and management of the network in operation
- > Road safety inspections
- > Data management



# Road Safety Auditing - Purpose

- > Make new and reconstructed roads as safe as possible – before construction is started and before accidents occur
- > Ensure that all road infrastructure projects (including major operation and maintenance activities on existing roads) are assessed from the standpoint of road safety
- > **How?** – through examination with “road safety glasses”.
- > **Who?** – is carried out by road safety auditors – independent of the project.
- > **Why?** – because prevention is better than cure!

# Definition of road safety audit

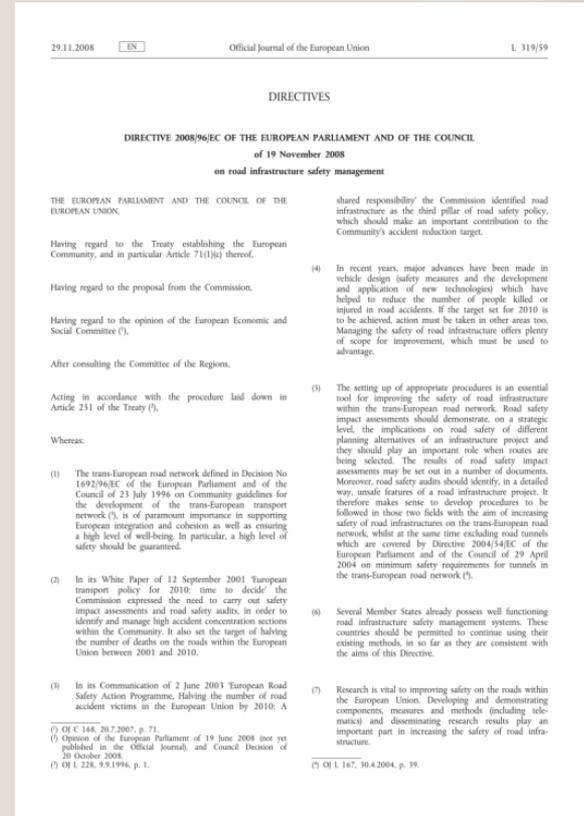
## > ROAD SAFETY AUDIT

is 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

Source: EU Directive on road safety

# EU directive on road safety audit

- Part of the design process for infrastructure projects including the stages of:
  - draft design
  - detailed design
  - pre-opening
  - early operation
- Audits should be carried out for all infrastructure projects
- An audit report could be prepared for each stage of the infrastructure project



# EU directive on road safety audit

- > At detailed design stage audit should according to EU directive include where relevant:
  - > layout
  - > coherent road signs and markings
  - > lighting of lit roads and intersections
  - > roadside equipment
  - > roadside environment including vegetation
  - > fixed obstacles at the roadside
  - > provision of safe parking areas
  - > vulnerable road users (e.g. pedestrians, cyclists, motorcyclists)
  - > user-friendly adaptation of road restraint systems (central reservations and crash barriers to prevent hazards to vulnerable users)
- > Criteria includes assessment of road safety in light of actual behaviour of users
- > There are also checklists for draft design and pre-opening

# EU directive on road safety audit

- > Highlight critical safety problems in the design and provide recommendations from a safety point of view
- > Reasons shall be stated by the competent entity when recommendations are not accepted

# EU directive on road safety audit

- > The **road owner** should ensure that a **team of auditors is appointed** to carry out the audit of the design of an infrastructure project
- > The auditor appointed should be in compliance with the following requirements:
  - > **experience or training** in road design, road safety engineering and accident analysis
  - > road safety audits shall only be undertaken by auditors or teams where road safety auditors meet the following requirements:
    - > should **undergo an initial training** resulting in the **award of a certificate** of competence, and take part in **periodic further training** courses
    - > should be **independent of the infrastructure project** thus not have been involved in the project
- > At **least one member** of the team should hold a **certificate of competence**
- > For appointing and training of auditors - **training curricula** for road safety auditors should be provided

# Danish RSA system

- > Road safety auditor education in Denmark is a **3 day course**. Includes:
  - > Going through and training in the stages of road safety audit
  - > Going through **Handbook in Road Safety Audit and Inspection** and discussion of interpretation
  - > Training in **systematic analysis of projects**
  - > **Cases** illustrating and training in the stages in RSA
  - > Training in preparation of **road safety audit report**
- > There is a **test in road safety knowledge** to be allowed to join the course and recommended **minimum 3 years experience** as road safety engineer, etc.
- > The course ends with a **written exam** in the system and procedures with certificate if passed
- > Certification every 2 year – attend **road safety auditor seminar**

# Why road safety audit

- > Cost-effective
- > Road safety audit costs (assessment) included in the Danish evaluation:
  - > Time for auditors
  - > Increased time for designers for redesign
  - > Change in construction costs.

Country	Benefit cost ratio
Jordan	1.2
Norway	1.34
Denmark 1995	1,36
Denmark 2013	1.25
Scotland	14
England	15
New Zealand	20
Austria	50
Germany	4-99
Australia	3-242

# What should be audited?

## Relevant for all road and traffic schemes

- > New roads, motorways and other major highway schemes, minor schemes, road traffic facilities, traffic management schemes
- > RRR-projects (resurfacing, restoration, rehabilitation) and other development schemes and maintenance works
- > Urban (built-up) and rural areas.

# What should be audited?

## No project is too small for Road Safety Audits

- > Major projects, i.e. motorways, expressways, bypasses etc.
- > Medium-sized projects, i.e. reconstruction and rehabilitation projects
- > Minor improvements, i.e. minor remodeling, new bicyclist facilities, minor reconstruction, minor black spot works, etc.
- > Major maintenance works, i.e. could be done for special parts like marking or guardrail works, etc.

# Who is involved in road safety audits

## Three parties are mostly involved in the audit process

- > The Client (usually the road authority, the Ministry relevant to Transport or private road operating company)
- > The designer (consultant or e.g. road authority)
- > The auditor/audit team.

# Discuss with neighbour

- > Would road safety audits be useful in your country?
  - > why/why not?
- > What are the barriers for implementation/usage? if any
- > What is the difference between road safety audits and road safety inspections?
- > Which other road safety measures do you know with similar cost benefit rates as RSA?
- > Type of projects relevant for RSA in your country?

