



RSS 2022

8th Road Safety & Simulation International Conference

*Road Safety and
Digitalization*

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Road Safety Audit Implementation – an International Inquiry

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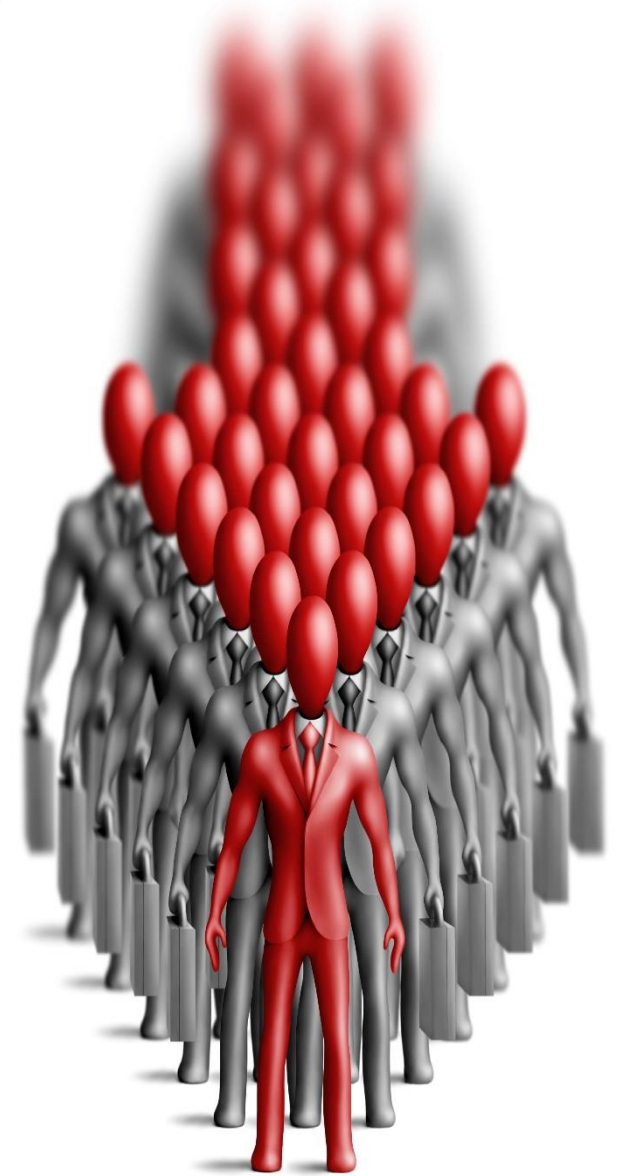
Introduction

- The identification and treatment of road infrastructure elements which may contribute to crash occurrence or crash severity is a key component of the **Safe System** approach
- **Road Safety Audit (RSA)** has great potential to improve transport safety
- RSA has long been systematically and effectively applied in **several countries worldwide** (e.g. UK, Australia and some European countries)



Scope

- A comprehensive review of international RSA implementation procedures
- **Questionnaire survey** in 11 countries: Australia, Austria, Belgium, Germany, Greece, Italy, Portugal, Qatar, Slovenia, Spain and USA



Projects & Auditing

- Overview of **international practice** in the examined countries regarding the type of road projects that are **mandatorily audited**
- RSAs are mostly implemented on the design of motorways and major interurban road projects
- The road significance is applied as a criterion, as well as the project cost

Road types	UK	AU	US	AT	BE	DE	GR	IT	PT	QA	SI	ES	Abu Dhabi
Motorways	X	X (2)	(3)	X	X	X	X	X	X	X	X	X (4)	X (6)
Primary rural road network	X (1)	(2)	(3)			X	(4)	X	X	X			X (6)
Secondary rural road network		(2)	(3)						X	X			
Primary urban arterials	X (1)	(2)	(3)				(4)		X	X			X (6)
Urban roads and streets		(2)	(3)						(5)	X			

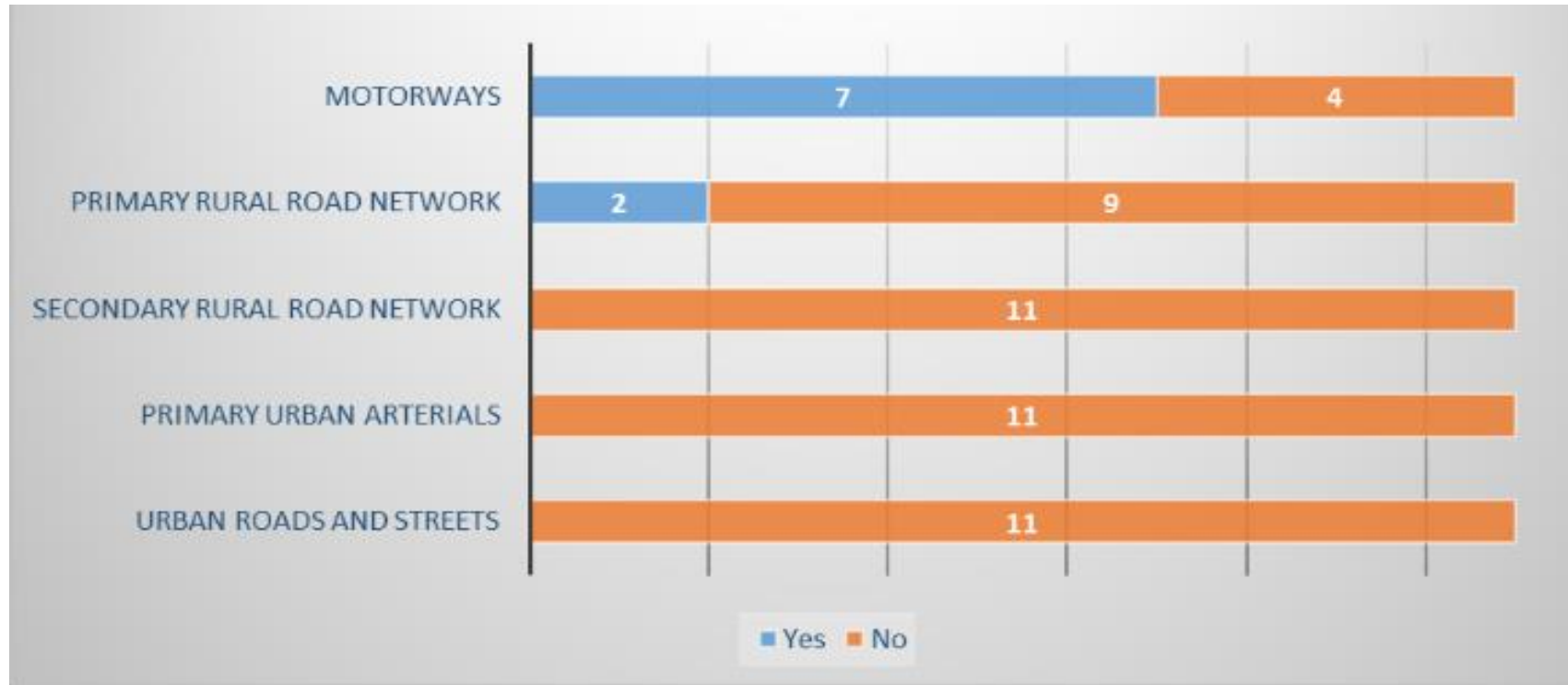
Notes:

1. RSA is mandatorily performed on all trunk Highway Improvement Schemes.
2. The decision is made by jurisdictions.
3. RSA implementation is a State DOT's decision.
4. EU Directive 2008/96/EC defines as mandatory the implementation of RSAs on roads of the trans-European road network.
5. Only for interurban roads crossing small villages.
6. All "new major road projects" are audited.



Projects & Auditing

- Audits on existing roads (**Road Safety Inspections - RSIs**)
- Road types where the conduct of Road Safety Inspection is obligatory according to Questionnaire Survey



Projects & Auditing

- **Projects mandating RSA:** emphasis on the design of major road infrastructure projects (motorways, major interurban roads and major urban arterials)
- The **early auditing of a project:**
 - will affect a large number of road users
 - will prove more cost efficient (subsequent changes to the road project will require much more resources)
 - timely elimination of road safety deficiencies leads to minimisation of wasted design time at later stages



Stages of RSA

- **Compendium of RSA Stages**, as defined in international guidelines

Project Lifecycle Stage	RSA Stage	Country
Planning	Feasibility Stage or Preliminary Planning Stage	AU, DE, USA, QA, Abu Dhabi
Design	Preliminary Design	AU, UK, EU, DE, GR, USA, QA, Abu Dhabi
	Detailed Design	AU, UK, EU, DE, GR, USA, QA, Abu Dhabi
Construction	Changes in design during construction	USA
	Temporary (Work zone) traffic management schemes	AU, GR, USA, Abu Dhabi
	Pre-Opening	AU, UK, EU, DE, GR, USA, QA, Abu Dhabi
	Opening or Early Operation	AU, EU, DE, Abu Dhabi
Monitoring	Post Opening, on 12 months and 36 months (mostly crash investigation)	UK, Abu Dhabi
Existing Roads	RSI	AU, EU, DE, GR, USA, QA, Abu Dhabi
Other	Land Use Development RSAs	AU, USA

- The most commonly implemented stages of RSA during the development of a road infrastructure project are the **Preliminary Design Stage Audit**, the **Detailed Design Stage Audit**, and the **Pre-Opening Audit**



RSA Team

- Selection of RSA Team: **independence** of the RSA Team from both the design team and the team responsible for the project development
 - objective, impartial and credible judgement is provided
 - easily managed and controlled team
 - dependences between the audit team and the Client team should be recognised and avoided, particularly if the auditors are authority delegates
- At least two persons (**leader and member**). Single member audit team only for very minor projects
- Limited number of **observers** may be included



RSA Team Requirements

- Audit team characteristics, as depicted in national guidelines and questionnaire survey

	UK	AU	US	EU	DE	QA	GR	Abu Dhabi
Minimum size (no. of persons)	2	2	3	-	1	2	2	2
Certificate required	Yes, at least by one	Yes, by all	Not specified	Yes, at least by one	Yes, by all	Yes, by all	Yes, by all	No, only registration
Presence of Team Leader	Yes	Yes	Yes	No	No	Yes	Yes	Yes
Presence of Observers	Yes	Yes	No	No	No	Yes	No	Yes (2 max.)



RSA Team Requirements

- Road safety engineering knowledge and experience for **audit team members**
 - a relevant university diploma
 - 3-5 years of experience in road design, road safety engineering and/or crash analysis
 - participation in road safety training courses (with or without formal accreditation)
 - minimum level of road safety training for observers
- More extensive and robust experience for **audit team leaders** required
 - 5-8 years of experience in road design, road safety engineering and/or crash analysis
 - participation in a specified min. number of RSAs in recent years



Overseeing Organisation

- The **Overseeing Organisation** commissioning, supervising and responding to the RSA may be either
 - the **respective roads authority, road operator** a specific person, with appropriate training, skills and experience should be defined to handle the RSA process
 - or a **dedicated road safety agency** the respective road authority or road operator should participate in the preparation of the audit brief and should be responsible for formally responding to the audit report



Conclusions

- Brief overview of RSA implementation practices and experience, based on a questionnaire survey and guidelines review in eleven countries and the EU
- Obvious limitation is the extent of countries considered
- Highlighting common approaches and differences in RSA practices is useful for road safety practitioners in countries now performing their first steps in auditing road projects





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