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Road Safety Audit – Good Practice Review for implementation





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Recommendations for Road Safety Impact Assessment

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Abstract:

Implementation-tailored review of Road Safety Audit has been made. Best practices in procedures, elements, essential documents and training content of interest for the Baltic countries are presented.

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Introduction

Road Safety Audit (RSA), well implemented and well-functioning saves life and money. The European Council issued the Directive 2008/96/EC on road infrastructure safety management, which anticipates a systematic safety checks – road safety audit – as well as training and certification of road safety auditors. The Directive must be applied on the TEN-T road network, covering only a part of road network of EU. However the Directive does not provide for a unique method, but due to the long experience of a few countries in Europe – there is a “commonly and largely” accepted and roughly followed technique.

This technique based partly on practice of countries with long years experience of implementing Road Safety Audit (e.g. Denmark, Germany, The Netherlands and United Kingdom) and partly on widely published guidelines and “best practice” descriptions.

The purpose of the BALTRIS project is to develop tools and build capacity to better manage safety of road infrastructure in the Baltic Sea Region. This by exchange of experience and joint development of road infrastructure safety management procedures, road safety impact assessment, road safety inspections and road safety audits and evaluation of high accident concentration sections. The purpose of this document is to give an implementation-tailored review for European countries who wants to introduce a RSA in order to provide best practices in procedures, elements, essential documents and training content of interest for the Baltic countries.

There are several guidelines outside from the EU (FHWA, 2006, AUSTROADS, 2002) that intend to clarify, help and promote the implementation of RSA, as well as training materials (EURO AUDIT, 2007) and “best practice” descriptions (RiPCORD-iSEREST, 2008; PILOT4SAFETY, 2011) presenting vital information about RSA implementation and process.

In the frame of the EURO-AUDIT project (2007), a European Road Safety Auditing Training Syllabus of training modules was proposed, which auditors must be exposed to in order to be able to carry out their assignment effectively. On the basis of its generic modules, national training courses tailored to specific legislation and engineering practices can then be developed at the discretion and under the supervision of national road authorities.





1. RSA – in keywords

Based on several decades of experience, the manuals describe the main issues:

- WHAT is Road Safety Audit?
- WHY Road Safety Audit?
- WHO should perform a RSA?
- WHEN carry out RSA?

1.1 What is Road Safety Audit?

Road Safety Audit is a formal safety performance examination of an existing or future road or intersection by an independent audit team. It qualitatively estimates and reports on potential road safety issues and identifies opportunities for improvements in safety for all road users (FHWA-SA-06-06).

The aims of RSA are:

- To identify potential road safety problems
- To eliminate/mitigate those safety problems
- To minimise accident numbers and severity
- To create a safety conscious planning process

Road Safety Audits only consider road safety matters. They are not a check on design standards or a technical check. RSA represent an additional tool within the suite of tools that currently make up a multidisciplinary safety management system aimed at improving safety. As such, RSA is not design quality control or standard compliance checks also known as “safety reviews of design”, traffic impact or safety impact study, safety conscious planning, road safety inventory program or traffic safety modeling efforts (FHWA-SA-06-06).





1.2 Why Road safety Audit?

The purpose of the safety audit is to ensure that all new roads operate as safely as possible. More specific aims are (ETSC, 1997):

- To minimise the number and severity of accidents that will occur on the new or modified road
- To avoid the possibility of the scheme giving rise to accidents elsewhere in the road network, and
- To enable all kinds of users of the new or modified road to perceive clearly how to use it safely.

Road safety audits are applicable to all types of road projects, on all types of roads. The question has to be regulated and described clearly in the road safety manual or the legal regulation of RSA.

1.3 Who should perform RSA?

The Road Safety Auditor should have experience in road safety engineering. This should be linked to an understanding of:

- traffic engineering and traffic management,
- road design and road construction techniques, and
- road user behaviour.

The Road Safety Auditor should use his/her skills to see the road project from the point of view of the different types of road users, think and perceive like each user. An audit team leader should have adequate road safety engineering experience for the stage of audit and should be a Senior Road Safety Auditor, who has:

- successfully completed a recognized audit training course,
- at least five years experience in the field of road design, road construction or traffic engineering, and
- kept his/her professional experience current by undertaking at least one audit per year. Audits can import those skills for specific projects and use these opportunities to train its own staff.





The road safety auditor must be independent, so that the design is viewed with ‘fresh eyes’. Nonetheless, good communication between the parties must be established and maintained if the audit is to be done effectively and without wasted time and effort. However, the sensitivity associated with having design work ‘judged’ should be recognized. Auditors need to be objective in their assessments, yet sensitive to the fact that no one likes criticism. Designers and clients need to consider audit recommendations objectively and gain from the experience.

Road Safety Audits should be conducted in teams of at least two persons. The benefits of having a multi-member audit team, rather than a single person, include:

- the diverse backgrounds and different approaches of different people,
- the cross-fertilisation of ideas which can result from discussions, and
- having more pairs of eyes.

The question of independence and the required skills and experience of auditor has to be regulated and described clearly in the road safety manual or/and in the legal regulation of RSA.

1.4 When should RSA be done?

During the planning process, according to present practice, there are 5 stages to carry out a Road Safety Audit. The stages and purposes of audits in these stages are Feasibility stage, Preliminary design stage, Detailed design stage, Before opening stage and After opening stage (AUSTROADS, 2002). Note, that the feasibility stage is not included in the EC Directive 2008/96/EC. However, the first two stages (Feasibility and Preliminary design stages) are of great importance as it is easier to avoid road safety problems built-in the early phase of the project.

Feasibility stage

The purpose of RSA at the feasibility stage is:

- To see to that safety engineering is in consideration of options,
- To bring in safety considerations when there is the greatest scope for change,
- To avoid “locking-in” obvious safety problems once design commences or land use is decided,





- To ensure that all likely road user groups have been considered in the design,
- To check that the concept is compatible with the type of road planned,
- To check that the design standards are compatible with the type of road and road user expectations,
- To look beyond the project and consider effects in transition areas and away from the project.

Preliminary design stage

The purpose of RSA at the preliminary design stage is:

- To identify anything missed in a previous audit
- To avoid wasting costly design time if only a detailed design stage audit is done
- To check what standards have been used and what departures there have been from standards
- To check that all likely users have been considered, for example:
 - can vehicles turn safely?
 - can road users see each other?
 - can road users see devices?
 - is alignment and cross section appropriate?
 - is property access catered for?
- To check the adequacy of the road reservation width and its effect on batters
- To check intersection layouts and other conflict points
- To alert designers to areas where attention will be needed at a detailed design stage
- To check details at the connections to the existing road.

Detailed design stage

The purpose of RSA at the detailed design stage is:





- To identify anything missed in previous stages
- It's the last chance to alter the design 'on paper'
- To check what standards have been used and what departures there have been from standards (if this has not been done during an earlier audit)
- To check the signing, line marking and landscape plans
- To check that all likely users have been considered, for example:
 - can vehicles turn safely?
 - can road users see each other?
 - can road users see devices?
 - is alignment and cross section appropriate?
 - are fixed hazards present?
- To check the interaction of the detailed elements
- To check details at the connections to the existing road (especially consistency).

Before opening stage

The purpose of RSA at the pre-opening stage is:

- To identify anything missed in previous stages
- To check the inter-relationship of elements
 - vertical and horizontal alignment
 - things can look alright on plans, but not on site (in 3-D)
- To check that it's built as designed
- Designs and 'incidentals' can get changed on site
- To check it at night time for confusion, visibility





- Unplanned hazards can eventuate, like poles and pits not meant to be there
- Signs can get lost in their background.

The more often the better – The types of the typical deficits differ between audit stages due to different levels of detail and the topics which are relevant in the planning stages.

After opening stage

The purpose of RSA at the pre-opening stage is (FHWA, 2006):

- To evaluate all roadway and roadside features, design elements and local conditions (glare, night visibility, adjacent land uses, etc.) that would increase the likelihood and severity of a crash.
- To review the interaction of the various design elements with each other and the surrounding road network.
- To observe how road users are interacting with the road facility.
- To determine if the needs of all road users have been adequately and safely met.
- To explore emerging operational trends or safety issues at that location.

Which stages to submerge for auditing is the client's responsibility (but should be in line with the EC regulations).





1.5 The general procedure of RSA

Road Safety Audit is relatively a straightforward process. There are a number of prescribed activities to do in the frame of RSA:

- Step 1. Identify project or road in-service to be audited
- Step 2. Order and finance the audit
- Step 3. Select the RSA team
- Step 4. Provide all documents and background information
- Step 5. Conduct a pre-audit meeting to review project information
- Step 6. Review all document and perform field observation under various conditions
- Step 7. Conduct audit analysis and prepare report of findings
- Step 8. Present audit findings
- Step 9. Prepare formal response
- Step 10. Implement the changes

1.6 Stake holders in RSA

There are three parties involved in RSA who share the responsibility for the whole process

The client: The organisation responsible for the project which is sometimes also called the project manager, or project sponsor. Often the road authority or local stakeholders are the clients but also private investors can be responsible for road projects.

The designer: a person or team commissioned by the client to develop the road schemes. The designer team can be part of the client's organisation.

The auditor: A person or team commissioned (or approved) by the client to carry out the audit. In order to ensure an unbiased judgement, the auditor ought not to be involved in the design process or in the operation of the road. It is recommended that the auditors are independent from the designer's organisation. Irrespective of the qualification of the auditors, apart from small process,





all audits should be conducted in teams of at least two persons. These auditors should at best provide experience from different fields of work, e.g. design and road safety engineering in order to complete each other with their expertise.

The involvement of these stake holders is indicated in Table 1.

Table 1. Involvement of stake holders in RSA.

Step	Client	Designer	Auditor
Identify project or road in-service to be audited	✓		
Order and finances the audit	✓		
Select RSA team	✓		
Provide all documents and background information	✓	✓	
Conduct a pre-audit meeting to review project information	✓	✓	
Review all document and perform field observation under various conditions			✓
Conduct audit analysis and prepare report of findings			✓
Present audit findings			✓
Prepare formal response		✓	
Implement the changes	✓	✓	

1.7 Costs and benefits of RSA

The cost of a road safety audit is around 4% of the road design costs (AUSTROADS, 2002). As design costs can be in the order of 5% to 6% of total implementation costs for larger projects, the increase in total project cost is usually quite small. The earlier inadequacies are identified in the design process, the lower the cost and redundant design time will be for rectifying these inadequacies. The earlier the better – It is easier to make changes in the schemes in early phase of the road design process when the deficits only exist on paper. Deficits which are not rectified in the first phases are less likely to be rectified later.

The cost of RSAs may vary greatly based upon project size, scope and complexity; the composition of the RSA team; and the level of detail of the audit. The cost of human resources to conduct RSAs may range from a one-day field review by in-house audit team members to maintaining full-time auditors working on a state-wide basis. Costs may also be higher if



consultants are retained to conduct the audit or to supplement staff expertise on audit teams. Overall, the cost of RSA programs are dependent on an agency's creativity in integrating audit activities within existing project tasks, practices and resources, and on the decision-making methodology used to evaluate and implement audit suggestions.

Overall, the benefits of the road safety audit process should be considered as the combination of the direct reductions in road trauma from design and site specific treatments and the qualitative improvements to the road safety performance of a road agency and associated organisations. Benefits of RSA are of the following kind:

- Throwaway costs and reconstruction cost to correct safety deficiencies identified once roads are in-service are either avoided or substantially reduced
- Lifecycle costs are reduced since safer designs often carry lower maintenance costs (e.g., flattened slope versus guardrail)
- Societal costs collisions are reduced by safer roads and fewer, less-severe crashes.
- Liability claims, a component of both agency and societal costs, are reduced.
- safer road network,
- a better understanding and documentation of road safety engineering,
- eventual safety improvements to standards and procedures,
- more explicit consideration of the safety needs of vulnerable road users, and
- the encouragement of other personnel in road safety.





2. Essential elements of RSA

2.1 Auditors

The required qualifications of auditors do not only mean that they have to be able to read plans but also to detect their deficiencies and the safety implications emanating from those deficits. For that reason auditors need to be experienced in road design as well as in road safety engineering and road users 'behaviour. Apart from a university degree or comparable education, the auditors' participation in basic training courses and further training programmes and regular seminars and workshops is required in order to keep their knowledge up to date. The continuous further training of auditors is necessary in order to assure that the auditors keep up their knowledge.

Regarding the requested experience almost all countries where RSA is practiced defined the same requirements. Applicants should have worked for a number of years (minimum 2-5 years) in the field of road design and road safety engineering before applying for audit training. Although there are working aids in form of checklists, they can not replace knowledge and experience of an auditor.

Qualification is essential – The education of auditors and designers largely affects the quality of the schemes. Training courses have to ensure the high quality of auditors.

Keep knowledge up to date – Regular meetings and courses for auditors and for designers help to disseminate the latest knowledge on safety research and to increase the quality of road design and road safety audits. Such meetings should be an integral part of the further education of road safety auditors.

Evaluation increases the quality – Regular evaluations of audit results help identifying frequently occurring deficits. Training courses, audit checklists and guidelines should be adapted according to these findings. These evaluations should be integrated into the RSA process.

One can generally distinguish two different philosophies concerning the training courses: the first comprises a rather short training course of 3-5 days which mainly deals with the audit procedures and therefore requires that the candidates must be very experienced in road safety matters before entering the course.

The second comprises of a longer training which includes general road safety issues, road safety audit procedures as well as practical training and therefore consists of at least 10 days training and separate self-study phases and test audits.





The length and the contents of the training courses influence whether an auditor is allowed to responsibly audit schemes directly after passing the course or whether he has to participate as audit team observer in a certain number of audits.

A model for the training process is presented in figure 1.

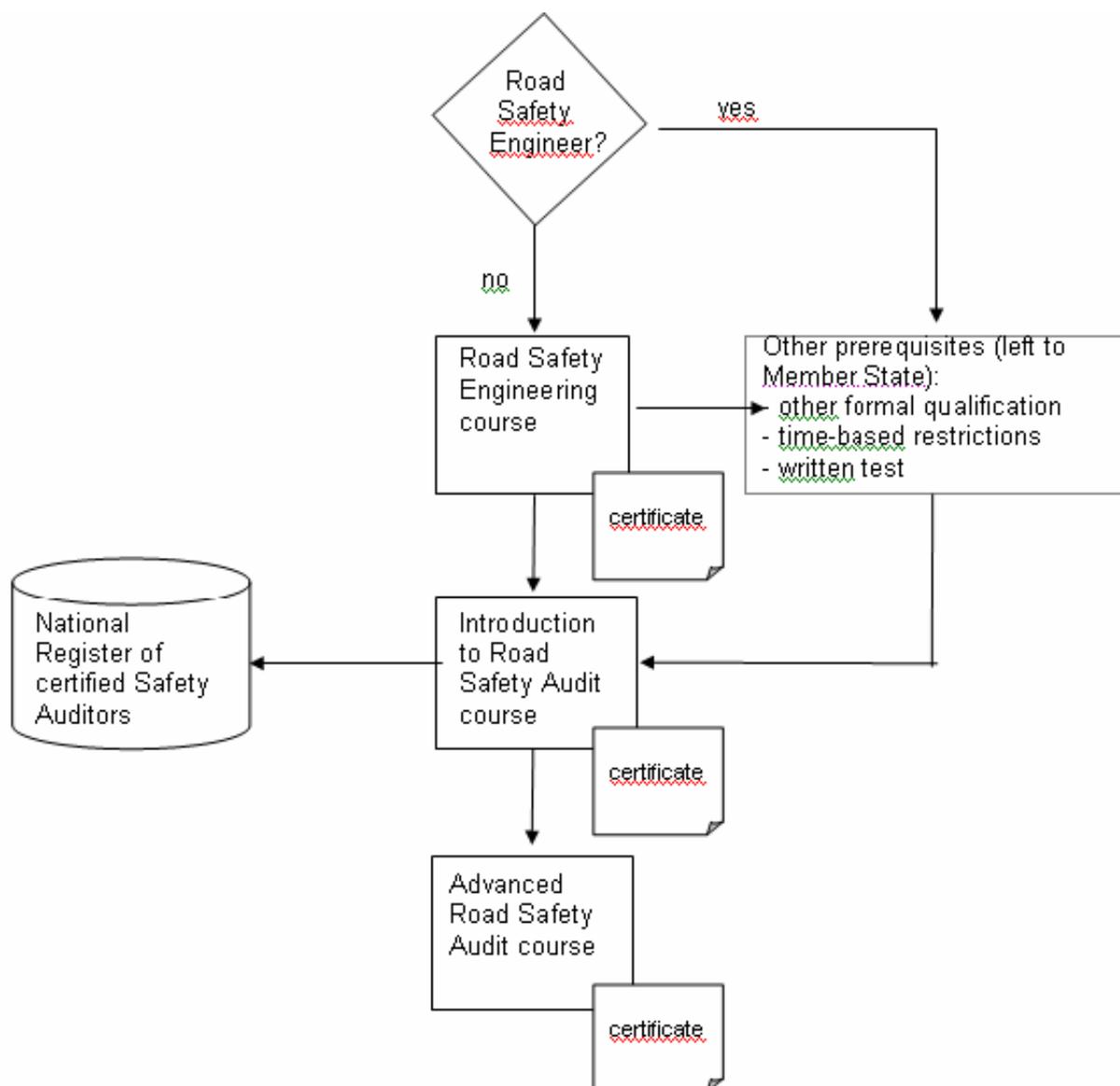


Figure 1. A model for the training process (Falco, F., Proctor, S., Gonzáles, E. P., 2007).





The precondition for participating in the training course is:

- Technical degree or comparable education, and
- Experience in road design, road safety engineering and road user behaviour.

There are several ways to make sure the compliance with the preconditions and the applied practice by the country. Some recommended form of EURO AUDIT project (Falco, F., Proctor, S., Gonzáles, E. P., 2007), it is free:

- to add pre-requisite formal qualifications in subjects such as civil engineering or transportation or to ask delegates to undertake simple tests prior to attending the course,
- to impose time-based restrictions on Safety Engineering experience, to ensure that this experience has been gained in recent years,
- to impose minimum time periods for both roads and road safety engineering experience requirements.

Regarding the structure of audit education and training courses it is important that

- all prospective Safety Auditors should attend an Road Safety Audit training,
- experienced Auditors should attend an Advanced RSA course within a period of time specified by the training curricula of country,
- all courses should be modular in their approach, to allow maximum flexibility for delegates to attend courses,
- courses should include key core elements and optional elements to allow the county to select a course programme suitable for local needs.

Regarding training plans the following recommendation is given:

- Phase 1 – preparatory training (if not acquired and proved in advance): general infrastructural road safety, length 5 – 10 days
 - E.e. Accident analysis and statistic
 - Accident causation





- Road Safety Impact assessment
- Road Safety Engineering measures
- Phase 2 – Basic RSA training RSA-procedures, length 3-5 days

Theoretical part

- RSA procedure
- Participants and responsibilities in an audit
- Audit process
- Data requirements and tools
- Legal aspects

Practical part

- Characteristics of different audit stages and road types
- Exercises on different audit stages including site visits
- Reporting
- Evaluation and discussion of the exercises

Final test and certification of candidates

- Phase 3 – Advanced RSA course, length 1-2 days.

Elaboration both theoretical and practical part.

Find a detailed course program of RSA in *Annex I* – suggested by EURO AUDIT project (Falco, F., Proctor, S., Gonzáles, E. P., 2007).

Course evaluation should be made and with participant feedback in a consistent manner and evaluation results should be used to improve future courses.

Regarding assessment and certification there is no common practice of formal qualification in Road Safety Audit. It may be appropriate to require auditors to undergo an assessment of their





competence at the conclusion of the training course. The first element of this formal assessment would be a test or examination on the final day of the introductory course. The second element of this formal assessment of a delegate's competence to carry out a Road Safety Audit should be an independent evaluation of the quality of his/her audit reports in respect of actual schemes audited during the period following audit training. Road Safety Audit reports would be submitted for evaluation, together with supporting drawings and photographs, to an independent examining body, selected and approved by the country.

A central register of auditors who have achieved certificates of competence
Should be set up and made available within the country.

To assure a continued professional development it is suggested that a Certificate of Competence should be valid for a limited period of time and that an auditor should be required to demonstrate a continued commitment to professional development in the field in order to renew his/her authorisation to carry out Road Safety Audits. Continuing professional development could be evidenced by attendance on further related training courses, including the Advanced Road Safety Audit Course, as well as by carrying out a minimum number of Road Safety Audits within a given time period.

Recommendations from EURO AUDIT (Falco, F., Proctor, S., Gonzáles, E. P., 2007):

- A pre-training course test for those delegates who wish to gain a certificate of competence should be provided.
- Road Safety Audit competence should be assessed through an examination following the course and/or independent assessment of Audits carried out following the course.
- Certificates of competence should be awarded by appropriate academic or professional bodies within each Member State.
- Each Member State should maintain a central register of competent Road Safety Auditors.
- Auditors should be required to maintain their professional standing by undertaking additional (Advanced) Road Safety Audit courses.

An overview of the training process suggested by EURO AUDIT is shown in *Annex 2*.

2.2 RSA manual

The purpose of this document is to prescribe the procedure for carrying out Road safety Audits.





As a basic document, has to be clear and give a definite answer of all RSA related question and give sample to the main output documents. A proposed content is as follows:

- purpose and scope of the manual
- definitions
- description of RSA procedure
 - process inputs and outputs
 - scope of the audit / legal implication
 - when to audit
 - appointing the audit team
 - independence of audit team
 - initiating the audit
 - audit process in brief
 - performing the road safety audit
 - safety audit report
 - responding to the safety audit report
- record management
- document history
- Appendix:
 - Road Safety Audit team statement (see example in Annex 2)
 - Checklist (see example recommended by RiPCORD-iSEREST in Annex 3)
 - Model Safety Audit report (see as example the Irish manual in Annex 4)
 - Safety audit feedback form (see as example the Irish manual in Annex 5)





2.3 Organizational issues

Some organizational issues started or considered parallel with the implementation of Audit process can be very helpful. These issues are:

- Database of auditors - Name list, experience, availability (A central register of auditors who have achieved certificates of competence should be made available within each country);
- Database of cases – to use and publish the considerable experience has been gained with road safety audit in practice, covering stages of RSA;
- Regular meeting to change experience, discuss cases.





3. Setting up RSA procedure

3.1 Getting Road Safety Audit started

To implement RSA, two main approaches have emerged: the “bottom up” approach and the “top down” approach.

In the “top down” approach mostly authorities, state or semi-state institutions (many times in cooperation with road safety organization, universities, etc.) develop the audit procedures, the necessary tools, guidelines, etc., and formally implement auditing into the process of planning and approval.

The “bottom up” approach deals mainly with raising awareness and convincing people of the benefits of RSA at a local level. People working in road safety related jobs (local road authorities, road designers, police, maintenance bodies...) which are daily affected by road accidents can start auditing on a local level.

As the number of affected people is much higher than the number of key players regarding national road safety policies, it would take a long time until all relevant bodies have implemented audits on their own. Nevertheless, if the key players are not interested in establishing road safety audits on a national or state basis, to start auditing on a local level and the attempt to convince other local institutions can be another successful way of introducing RSA.

Ideally, there should be top-down and bottom-up commitment regarding the idea of RSA, so cooperation between the persons or bodies involved should be aspired.

While developing the audit procedures in a country, conducting pilot projects helps to check if the procedure and the tools suit the needs or if further improvements are necessary.

The quality of a Road Safety Audit largely depends on the quality of the auditors, so a specific education of the auditors is of great importance. For that reason it is also very important to thoroughly develop and evaluate training programmes for road safety auditors already in the process of implementing Road Safety Audit procedure.

The following steps facilitate government authorities introduce road safety audit (AUSTROROADS, 2002).

1. Get commitment from the governing body (council) and senior executive officer for improving road safety. Their support and empowerment is critical.





2. Have road safety included in the Corporate Plan, with a commitment to developing a municipal road safety plan.
3. Develop a Road Safety Plan. This will cover the whole range of policy activities and not just the engineering activities. Base the plan on the relevant road safety strategy.
4. Nominate someone to champion the cause of road safety. Nominate someone to champion the cause of Road Safety Audit.
5. Tackle the important Road Safety Audit issues and develop policies and practices that meet the particular needs.
6. Do some pilot projects, including training workshop sessions with a couple of experienced Road Safety Auditors. Include managers, designers and potential auditors in this.
7. Attend sessions and routinely use Road Safety Audit to improve designs before they are built. Get feedback from auditors, designers and managers and modify the process with experience.
8. Once having experience with design stage audits, consider safety reviews of the existing road network, in conjunction with a program of treating crash locations.
9. Let the governing body and senior executive staff know how it is progressing. Give them some examples of where the community has benefited because safety improvements were made. Let them know how the staff is learning new skills as a result of the process.

3.2 Implementing strategies

Generally, before introducing Road Safety Auditing in a country there should be an agreement on some basic issues among the decision makers concerning the audit process. The most frequent questions are:

- Which project should be audited - All projects, only the major road network, trunk roads, projects exceeding a certain investment?
- When / at what stage a RSA should be done - Preliminary design stage, detailed design stage?
- Which procedure has to be followed when carrying out a RSA - Internal, external, cross-over.





- Who shall be / is allowed to carry out the audits - Experience, qualification, teams?
- Formalities of the audit - Is a certain form of the report needed or wished?
- How can the results of an audit be considered (responding system), how does the audit end?
- How to archive the completed Audit Reports? Who should take care of them and how long?
- Question of publicity – How “public” can be the content and audit report itself?

Concerning the way how audits can be organised there are various possible solutions. Audit can be conducted as (Ripcord Iserest, 2008):

- External audit: In an external audit the client assigns the inspection of the schemes to an independent organisation. In order to find suitable candidates, a public list of certified auditors has proven to be helpful. If there are no certificates, the auditor has prove his personal qualification and experience by other means, e.g. a CV.
- Internal audit: The auditor or the audit team are members of the client’s organisation. In this case it has to be ensured that the auditors are not involved in the planning process. To avoid that auditors are biased the audit should be carried out by a team composed of members of different departments. For example, the team could be composed of an auditor who himself is a designer, responsible for the designs of e.g. another area, and member of the department responsible for road safety (e.g. for black spot management).
- Cross-over audit: In case of audits by external auditors being not desired and the client’s organisation being too small to guarantee the independence of internal auditors, auditors from different road authorities can audit scheme from each other. A supervisor road authority or audit organisation should moderate the process of cross-over audits.

All three types have proven to be successful in different countries. All approaches have their assets and drawbacks regarding e.g. financing, disposability of trained experts, timing. The choice of the most suitable type of audit organisation therefore depends on the given structure in the client’s organisation and the basic conditions. However, in any case it has to be ensured that auditors are unbiased and highly trained.





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Annex 1 – EURO AUDIT Proposed Course Program

Road Safety Engineering Course Program

It is suggested that this course fulfils the equivalent of 10 days or 60-80 hours training. This can be achieved in one of the following ways:

- 10 days residential/in-house
- two sets of 5 days residential/in-house
- modular – sets of 1, 2 and 3-day modules
- distance learning/evening classes

One way of presenting is the course is for the first 5 days to be teaching (supplemented by workshop activity), and the second 5 days to be case study preparation from pre-prepared workshop materials, either to be carried out as individual work, or within a small group of delegates.

Core subjects:	Optional subjects:
<ul style="list-style-type: none"> • scale of national accident problem • European and national legal requirements in road safety & road management • accident causation and risk assessment • accident data, use of statistical methods & monitoring • principles of road safety engineering • cost benefit analysis for remedial measures • cost effective solutions to identified problems • the role of road safety equipment • application to a site visit • introduction to road safety auditing 	<ul style="list-style-type: none"> • local initiatives in road safety • preparation of road safety plans • role of the police in road safety • accident data systems • conflict studies • traffic calming • speed management • public consultation • advanced statistics and calculus • accident reconstruction

The second part of the course involves delegates carrying out detailed accident investigations on pre-prepared data. Delegates are divided into 4 groups and supplied with accident data and plans for a series of route studies. Delegates analyse the data, visit the sites, and define accident problems using techniques learned previously. A series of recommendations are formally presented by each group at the end of the course, and a written report is handed into the course tutors.





Introduction to Road Safety Audit Course Program

It is suggested that this course fulfils the equivalent of 3 days training.

This can be achieved in one of the following ways:

- 3 days residential/ in-house
- modular – sets of 1, or 2 day modules to make up 3 days
- Distance learning/ evening classes

The course is a mixture of teaching supplemented by workshop activity.

Core subjects for course:

- The European context – how Road Safety Audit relates to European policies
- Overview of Road Safety Engineering and workshop
- What is Road Safety Audit?
- National Standards in Safety Audit (where applicable)
- How to carry out Road Safety Audits
- Safety Audit qualifications
- Common problems and solutions – case studies
- Checklists and control data
- Safety Audit Report writing
- Response to Safety Audit
- Early Operation Audit (on Site – Stage 3 Audit)
- Feedback from site visit
- Design Stage Audit workshops
- Delegate issues

Optional subjects for course. (Some of these would be used as examples for the Design Stage workshops depending on local conditions):

- Alignment issues
- Rural / urban roads
- Priority junctions
- Normal Roundabouts
- Mini-roundabouts
- Pedestrian / cycle crossings
- Traffic signals
- Road signs and markings





Advanced Road Safety Audit Course

Session Options

It is suggested that this course fulfils the equivalent of 3 days training.

This can be achieved in one of the following ways:

- 3 days residential/in-house
- modular – sets of 1, or 2-day modules to make up 3 days
- Distance learning/evening classes

The course is a mixture of teaching supplemented by workshop activity. Course providers can choose from a number of options to put together a course designed to provide continuing professional development for Safety Auditors within their Member State area.

Option 1 European Standards and Guidelines

Option 2 Accident data

Option 3 Remedial measures

Option 4 Safety Audit Procedures

Option 5 European Projects / Risk Assessment

Option 6 Safety Audit of Existing Road workshop

Option 7 Safety Assessments and Risk Assessment techniques

Option 8 Auditing unusual/specialist features

Option 9 ‘Streetscape’ and mobility issues

Option 10 Legal issues in Safety Audit

Option 11 Safety Audit in tunnels

Option 12 Design Standards and Safety Audits

Option 13 Auditing complex junctions

Option 14 Auditing major schemes

Option 15 Road Surfacing

Option 16 Street Lighting

Option 17 Road Restraint systems and Passive Safety

Option 18 Road Geometry and grade separation

Option 19 Safety Audit in work zones

Option 20 Vulnerable Road Users





Option 21 Monitoring scheme performance

Option 22 Delegate Issues





Annex 2 – Model Audit Team Statement (by UK RSA manual)

AUDIT TEAM STATEMENT

We certify that we have examined the drawings and documents listed in Appendix A to this Safety Audit Report. The Road Safety Audit has been carried out with the sole purpose of identifying any feature that could be removed or modified in order to improve the safety of the scheme. The problems identified have been noted in this report together with associated suggestions for safety improvements that we recommend should be studied for implementation.*

No one on the Audit Team has been involved with the design of the measures.

AUDIT TEAM LEADER:

Name:

Signed:

Position:

Date:

Organization:

Address:

AUDIT TEAM MEMBER:

Name:

Signed:

Position:

Date:

Organization:

Address:

* In case of RSA “before opening” stage, the text change:

“...to improve the safety of the measures. The problems and changes in collision trends identified have been noted in this report together with associated recommendations for safety improvements”.





Annex 3 – RSA checklist recommended by RiPCORD-iSEREST

Introductory remarks

The following lists of possible safety issues raised in a RSA have been compiled from several road safety audit handbooks and guidelines. The use of checklists may differ between different organizations and types of projects. Typical checklists can be concise and give only small hints what an auditor ought to deal with or be very detailed and contain several hundreds of specific questions. The following compilation can be seen as a compromise between the different philosophies. Audit checklists have to be tailor made to best suit the needs of particular regions or organizations. The following compilation can be used as a basis for creating own checklists. This source must not be seen as all-embracing. It mainly contains topics which can be found in most audit approaches. In order to avoid redundancy and to keep the listing as short as possible, the items of the list contain information for which audit stage(s) there are needed. Before own audit checklists are adopted, it is important that great emphasis has to be laid on their representation of relevant road safety problems and frequently occurring safety deficits in one particular region or country. In this respect, it is advisable to check accident analyses or to get into contact with safety experts who are familiar with the local road safety problems. As a result, it might be necessary to add some additional topics to the compilation. It might also be the case that some of the topics contained in the checklists do not concern the situation in all regions (e.g. game or snow fences might not be as important in all regions). Moreover, it is helpful to create a separate checklist for each audit stage and road type. It is important to state that performing audits is not filling in checklists. These checklists are not intended to be used as “tick” lists. They should rather be used as a reminder to look at certain potential road safety problems. No checklist can substitute the experience of an auditor. They become less important with increasing experience of the auditor.

Basic checklists

The basic checklists which are presented below contain questions related to the first four stages of the planning process:

1. Feasibility Stage
2. Preliminary Planning Stage
3. Detailed Planning Stage
4. Traffic Opening Stage

The after opening stage is dealt with in work package 5, “Best practice on Road Safety Inspections”. Generally the questions which have to be answered in after opening inspections are





if all road users make use of the road as intended, e.g. if the speed limits are kept, no one crosses the road except at crossings, vehicles are only parked where it is allowed, etc.

General Question	Stage				Type of roads
	1	2	3	4	
Have the audit results from the previous audit phase been taken into consideration?		x	x	x	AR
Have the effects of the project on the surrounding road network been considered?	x	x			AR
Have previous findings/documents on accident situations been taken into consideration?	x	x			AR
Has specific traffic composition characteristics' impact on safety been taken into consideration?	x	x	x	x	AR
Are there any possible safety problems regarding adjacent areas (airports, golf courses, railways, farms, ...)?	x	x	x	x	AR
Do the function and design of the road correspond to the expected use of the road?	x	x			AR
Is it appropriate to operate the road as road for mixed traffic?	x	x			RR
Can the number of intersections/access drives be reduced?	x	x			AR
Is access from abutting properties appropriate for road safety?	x	x			UR RR
Are the design standard of the road the transition area consistent with to those of adjacent road sections?	x	x	x		AR
Do compensatory measures provide a sufficient degree of safety when deviating from guidelines?		x	x		AR
Can climatic conditions endanger the road users (side wind, ice, fog, floods etc.)?		x	x	x	MW RR
Have measures been taken to ensure safe access for emergency vehicles/maintenance vehicles?		x	x	x	AR

AR = All roads, UR = Urban roads, RR = Rural roads, MW = Motorways,

Stage 1 = Feasibility stage, Stage 2 = Preliminary design change, Stage 3 = Detailed design stage, Stage 4 = Before opening stage





Alignment Question	Stage				Type of roads
	1	2	3	4	
Is the principle of continuity met?	x	x			AR
Are horizontal and vertical alignments co-ordinated and consistent with required visibility and road appearance in order to prevent hazardous combinations of different alignment elements?	x	x			MW RR
Are there hazardous combinations of changes in the design (e.g. junctions, cross section changes, accesses to points of interest in critical points, e.g. crest, downgrades, curves, areas with restricted sight distance or distractions)?	x	x	x		AR
Are there enough possibilities to overtake safely (overtaking sight distances / overtaking lanes)?		x	x		RR
Is overtaking prohibited/made impossible where it would be too dangerous?			x	x	AR

Cross – Section Question	Stage				Type of roads
	1	2	3	4	
Are the cross section dimensions appropriate to the needs of all road users, the function of the road and necessary separation between traffic lanes / parking strips / cycle/pedestrian paths?	x	x			AR
Has the safest cross section type been selected among all alternatives?	x	x			MW RR
Is the separation between traffic lanes / parking strips / cycle/pedestrian paths appropriate?			x	x	UR RR
Do the lanes and carriageways provide sufficient space for swept paths in curves and turning lanes?		x	x		AR
Are road verges stable enough to be temporarily used by broken-down vehicles or in case of road accidents?		x	x	x	MW RR
Is there a drop-off between pavement and verges which can cause a hazard to vehicles which run over the road edge?			x	x	RR
Can road maintenance service vehicles be parked safely?		x	x	x	AR
Is the design of changes in the width of the carriageway or lane reductions safe?		x	x	x	UR RR
Does the road surface provide the required grip in curves (e.g. also on ramps, junctions) in the long term?			x	x	MW RR
Is the transition from a built-up to a rural road or from an illuminated to an unilluminated road appropriately designed and marked?		x	x	x	UR RR
Is there sufficient drainage for the road?		x	x	x	AR
Is the cross fall/diagonal fall/gradient suitable for road safety?		x	x	x	AR

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Stage 1 = Feasibility stage, Stage 2 = Preliminary design change, Stage 3 = Detailed design stage, Stage 4 = Before opening stage

Junction - General Question	Stage				Type of roads
	1	2	3	4	
Is the distance between two junctions appropriate and have the necessary turning facilities been provided?	x	x	x		UR MW RR
Is the type and design of the selected junction suitable for a safe use and the function of the road?	x	x	x		UR MW RR
	x	x		x	RR





Are the junctions and junction elements designed in such a way that they can be clearly recognized in time?	x	x	x	x	UR MW RR
Does the speed at the junction match the visibility distances and sight triangles?	x	x			RR
Can motorists turning left see past oncoming left-turning vehicles?		x	x	x	UR RR
Are additional turning lanes required and is storage length sufficient?	x	x	x	x	UR RR
Are auxiliary lanes for deceleration, acceleration, and weaving required and consistent with safety requirements?	x	x	x		MW RR
Have the design speeds been selected correctly for the connecting ramps?	x	x			MW RR
Are traffic routings clear and easy to understand?		x	x	x	MW RR
Is continuity in pedestrian and cyclists routes maintained in the junction?		x	x	x	UR RR
Can for safety reasons turning movements be avoided by re-routings of traffic?			x	x	RR
Does the junction have sufficient drainage?		x	x	x	AR

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Junctions – Roundabouts Question	Stage				Type of roads
	1	2	3	4	
Is through visibility effectively stopped by the roundabout?		x	x	x	RR
Is the deflection of motorised vehicle approach trajectories consistent with the safe use of the roundabout (sight and speed)?					UR RR
Is the centre island of the roundabout free of fixed obstacles?					RR
Is the centre island of mini roundabouts clearly recognisable?					UR RR
Are the necessary crossing facilities for cyclists and pedestrians present and are they safely designed? Is the priority clear and safe?					UR RR

Junctions – Traffic Signals Question	Stage				Type of roads
	1	2	3	4	
Are the traffic signals clearly recognisable (at all weather and light conditions)?		x x	x x	x x	UR RR
Have the locations for the signals been selected correctly (additional signals, overhead signals)?			x x	x x	UR RR
Are advanced warnings planned for traffic signals that cannot be seen in time?			x x	x x	UR RR
Can perspectives that appear to be continuous (passage effect) be prevented/interrupted by highlighting the nearest signals?			x	x	UR
Are left-turning movements / fast driven approaches signaled separately?		x	x	x	RR
Are phase modifications required for pedestrians and cyclists (esp. handicapped persons)?			x x	x x	UR RR
Is the maximum delay reasonable for cyclists and pedestrians?			x x	x x	UR RR

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Sight, Visibility, Lighting Question	Stage				Type of roads
	1	2	3	4	
Is visibility and recognisability of all traffic facilities guaranteed? (e.g. accesses, crossings, public transport stops, traffic islands)		x	x	x	AR
Is stopping sight distance guaranteed along the entire section/on all approaches to junctions?		x	x	x	AR
Is good visibility ensured at the junctions, and are the required sight triangles free of obstruction?		x	x	x	AR
Can sight be obstructed by traffic, parked vehicles, or by fixed obstacles?		x	x	x	AR
Is lighting required/appropriately designed?		x	x	x	AR
Is the lighting of special situations (transition zones, changes in cross section, junctions, crossings) required / appropriately designed?		x	x	x	UR
Do remaining unlit areas present potential problems?			x	x	UR
Does the ambient lighting present any special requirements?			x	x	AR
Are anti-dazzle screens required?		x	x	x	MW RR

Roadside equipment, Passive Safety Installations Question	Stage				Type of roads
	1	2	3	4	
Are game fences / facilities for crossing animals required / correctly determined?		x	x	x	MW RR
Are obstacles avoidable / at a safe distance from the road / safeguarded (masts, abutments, walls, bridge railings, trees etc.)?		x	x	x	AR
Are passive safety devices correctly located and appropriately designed (beginning and end, barrier posts, distance between stanchions, stability, depth of stanchions)?		x	x	x	AR
Are special barriers for motorcyclists necessary?		x	x	x	RR
Can vegetation/roadside installations lead to unwanted optical leadings?		x	x	x	AR
Does any vegetation / roadside installation obstruct sight?		x	x	x	AR
Have sufficient measures been taken to prevent rockslides?			x	x	AR
Is visual contact motorist-pedestrian-cyclist restricted by vegetation?		x	x	x	UR
Will growth of vegetation lead to safety problems in future, (e.g. obstructed sight, trunk diameter greater than 8 cm, light and shadow effects, leaves on the road)?		x	x	x	AR

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Stage 1 = Feasibility stage, Stage 2 = Preliminary design change, Stage 3 = Detailed design stage, Stage 4 = Before opening stage

Road Signs, Markings Question	Stage				Type of roads
	1	2	3	4	
Are the road markings/signs clearly recognisable and understandable and corresponding to the general road design?			x	x	AR
Do all signs and markings correspond without any contradictions?			x	x	AR
Are no-stopping zones required/appropriately designed/located (e.g. rest areas, accesses, junctions)?			x	x	AR





Does the obligation to yield right of way need to be reinforced (e.g. using repetition)?			x	x	UR
			x	x	RR
Have old markings/signs been completely removed (phantom markings)?			x	x	AR
Is prohibition of overtaking (e.g. for heavy traffic) required/ appropriately designed and located?			x	x	MW
			x	x	RR
Is direction signing logical and consistent?			x	x	MW
			x	x	RR
Are service and rest areas correctly signposted?					MW
Are dynamic direction signs or traffic control systems required/ fully functional?			x	x	MW
			x	x	RR
Have the appropriate warning signs been provided?			x	x	AR
Are signs appropriately located?			x	x	AR
Do signs obstruct the visibility?			x	x	UR
			x	x	RR
Are speed limits correctly set up and indicated?			x	x	AR
Have suitable measures been taken to ensure that speed limits are obeyed?		x	x	x	UR
		x	x	x	RR
Are the signs located out of the way of pedestrians and cyclists?			x	x	AR

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Stage 1 = Feasibility stage, Stage 2 = Preliminary design change, Stage 3 = Detailed design stage, Stage 4 = Before opening stage





Non-motorized Road User Provision, Public transport Question	Stage				Type of roads
	1	2	3	4	
Have the requirements of pedestrians and cyclists been considered?	x	x	x	x	UR
	x	x	x	x	RR
Are the pedestrian and cyclist crossings located where most required by pedestrian traffic? Have they been appointed in such a way that the road will not be crossed at other points?	x	x	x	x	UR
	x	x	x	x	RR
Are footbridges/subways sited to attract maximum use? Are suitable measures (e.g. fences) planned which help to prevent people from crossing at dangerous locations? Are they designed for an optimal social safety?		x	x	x	UR
		x	x	x	RR
Are further crossing aids required?	x	x	x	x	UR
	x	x	x	x	RR
Are public transport stops easily accessible to pedestrians?	x	x	x	x	UR
	x	x	x	x	RR
Are areas for waiting pedestrians and cyclists sufficient (junctions/crossings/public transport stops)?		x	x	x	UR
		x	x	x	RR
Is cyclist routing safely designed at public transport stops?	x	x	x	x	UR
Is the transition safely designed if cycle/footpaths end on a road or are directed across the road?	x	x	x	x	UR
	x	x	x	x	RR
Are cycle and footpaths, including subways and bridges, properly marked and signposted?		x	x	x	UR
		x	x	x	RR
Have the needs of weak road users been considered (e.g. young people, older people, sick people, physically handicapped, hearing-impaired or blind people) especially near hospitals/schools?		x	x	x	UR
		x	x	x	RR
Have the needs of horse riders been taken into consideration?	x	x			RR
Are the crossings for pedestrians and cyclists provided with low kerbs / tactile markings?			x	x	UR
			x	x	RR
Is right of way clearly defined at intersections/crossings		x	x	x	UR
		x	x	x	RR
Is it clear to the motorist whether he is crossing a oneway or two-way cycle path?			x	x	UR
			x	x	RR

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Stage 1 = Feasibility stage, Stage 2 = Preliminary design change, Stage 3 = Detailed design stage, Stage 4 = Before opening stage





Parking, Loading, Rest-areas Question	Stage				Type of roads
	1	2	3	4	
Has the right type of parking been chosen	x	x			UR
Are parking facilities easily accessible from/available for all directions. Do the facilities provide sufficient space for manoeuvring?	x	x	x	x	AR
Are sufficient parking facilities available to prevent illegal parking?	x	x	x	x	AR
Have the needs of different vehicle types been taken into consideration?	x	x	x	x	AR
Are stopping facilities planned at scenic points to prevent illegal stopping?	x	x			MW RR
Can parking facilities cause hazards to non-motorised road users?		x	x	x	MW RR
Have measures been taken to ensure safe access for rescue vehicles?		x	x	x	MW

Railway crossings Question	Stage				Type of roads
	1	2	3	4	
Can at-grade railway crossings be avoided?	x	x			UR RR
Is the road wide enough to provide sufficient manoeuvring space at the railway crossing?		x	x		UR RR
Are the clearance areas behind the railway crossing long enough to prevent vehicles from stopping on the tracks?		x	x		UR RR
Is good visibility/sight distance guaranteed?		x	x	x	UR RR
Is additional lighting required/appropriately designed?		x	x	x	UR RR
Is overtaking prohibited and are speed limits correctly set up?		x	x	x	UR RR
Are traffic control devices required and optimally set up with regard to future traffic developments?		x	x	x	UR RR
Are safety barriers for pedestrians or other barriers required/ appropriately designed?		x	x	x	UR RR

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Stage 1 = Feasibility stage, Stage 2 = Preliminary design change, Stage 3 = Detailed design stage, Stage 4 = Before opening stage





Annex 4 – Model Road Safety Audit report (based on UK RSA manual (TfL, SQA-0170, 2011) and Pilot4Safety manual (Polidori et al., 2011))

Cover page:

Project name

ROAD SAFETY AUDIT

STAGE:

Audit reference number:

Prepared for: (Clients name)

By: (Auditors)

Report date:

Version:





Page 1

1. INTRODUCTION

1.1. Commission

1.1.1. This report results from a Stage X Road Safety Audit carried out on the ...(road name)..... for the proposed(measurement).

1.1.2. The Audit was undertaken by(auditors)... in accordance with the Audit Brief issued by the Client Organisation on(date)..... It took place at the offices of on 20th December 2005 and comprised an examination of the documents provided as listed in Appendix A, plus a visit to the site of the proposed scheme.

1.1.3. The visit to the site of the proposed scheme was made on(date)..... During the site visit the weather was Traffic conditions were

1.2. Terms of Reference

1.2.1. The Terms of Reference of this Audit are as described in ...(RSA manual)... The Audit Team has examined and reported only on the road safety implications of the scheme as presented and has not examined or verified the compliance of the designs to any other criteria. However, to clearly explain a safety problem or the recommendation to resolve a problem the Audit Team may, on occasion, have referred to a design standard without touching on technical audit.

1.2.2. Issues identified during the Audit and site visit that are considered to be outside the Terms of Reference, but which the Audit Team wishes to draw to the attention of the Client Organisation, are set out in section 5 of this report.

1.2.3. Unless general to the scheme, all comments and recommendations are referenced to the detailed design drawings and the locations have been indicated on the A4 plan located in Appendix B.

1.2.4. This Audit has a maximum shelf life of 2 years. Should the scheme not progress to the next stage in its development within this period it should be re-audited.





Page 2

1.3. Main Parties to the Audit

1.3.1. Client Organisation:

Design manager: (name, organisation)

Client manager: (name, organisation)

1.3.2. Design Organisation:

Designer: (name, organisation)

1.3.3. Audit Team:

Audit Team Leader: (name, organisation)

Audit Team Member: (name, organisation)





Page 3 - ...

2. PROJECT DETAILS

Project description:

Design phase / audit phase: (Preliminary design)

Date of creation: (xxxx)

from km (x+xxx)

to km (x+xxx)

Type of project: ()

Length: (X km)

Cross section: (Standard cross section RQXXX)

with a carriageway width of (X m)

Traffic volume:

Traffic volume prognosis for year XXXX:

Average daily traffic (ADT) (= XXXX veh/24h)

Road category: (XX)

Design speed: (XX km/h)

Construction costs: approx. € X million (gross)

2.1. *Site investigation sheet + site location plan

2.2. *Collision analysis (in case of a redesigned road)

Accident data

Accident types and trends

Accident locations

(*In case of Stage 4 RSA)





3. ITEMS RAISED IN PREVIOUS ROAD SAFETY AUDITS

The Stage 1/2 and Stage 3 Road Safety Audits, carried out by external consultants, were made available to the Stage 4 Audit Team. Audit Response Reports also produced indicated that the recommendations arising from the problems raised had been incorporated within the scheme.

OR

Summarize / attach the Audit Feedback form of previous audits.

OR:

The Audit Team is not aware of any audits having been carried out on the proposal





4. ITEMS RAISED AT THE STAGE.(1)...ROAD SAFETY AUDIT

4.1. Alignment

4.1.1. **Problem:** The relation alignment (balanced relation of radii) has not been adhered to (radius $R = XXXm$ connecting with a straight line).

Recommendation:

An arc with radius $R = XXXm$ should be selected in accordance with RAS-L (1995).

4.1.2. **Problem:** unbalanced relation of radii (km $x+zzz$)

Recommendation:

Checks should be made to see if the selected compound curve ($R1 = XXX m$, $R2 = XXX m$) can be exchanged for an arc.

4.1.3. **Problem:** The selected cross falls are clearly above or below the cross falls prescribed by $XXXX$; the deviations are not comprehensible.

Recommendation:

Check cross falls

4.1.4. **Problem:**At km $x+xxx$, the area of carriageway torsion is within a gradient of $s = 0.5\%$ (area with weak water drainage).

Recommendation:

Increase gradient.

4.1.5. **Problem:**At the beginning of construction, new alignments visibility can be poor (optical alignment).

Recommendation:

The line of sight to the old alignment should be obstructed, for example by an earthen wall or suitable plants so that the arc is made more visible

4.2. Junctions

4.2.1. **Problem:** Generally, the selected junctions are not fulfilling the capacity criteria .

Recommendation:

The junction types should be checked





4.2.2. **Problem:** Junction 2 has a disadvantageous geometry based on the neighbouring properties.

Recommendation:

Whether or not junction 2 is required should be checked. Connection via the neighbouring junctions should be weighed up

4.2.3. **Problem:** Due to the high volume of turning traffic, at the first junction, for example, the selected lengths of the left-turn lanes are probably too short (insufficient storage length, insufficient deceleration length).

Recommendation:

The left-turn lanes at the planned junctions should be checked with regard to the predicted traffic volume (movement volume plans).

4.2.4. **Problem:** Zebra crossings are not permitted on rural roads.

Recommendation:

At unsignaled junctions, the entrances which give way should not be designed with two lanes.

4.2.5. **Problem:** Too many connections with farm roads and houses

Recommendation:

Connection of farm roads to junction areas and the new design of the farm road network should be checked again. The goal should be to connect as few farm roads as possible to the bypass (reduction of risk of accidents).

4.3. Sight

4.3.1. **Problem:** possible visibility problems along the road.

Recommendation:

Checks should be carried out to see if sight is obstructed, for example by bridge abutments (include sight triangles in maps).

4.4. Pedestrian and cycle paths

4.4.1. **Problem:** At junction 4, the pedestrian and cycle crossing is in front of the stop line.





Recommendation:

The incomplete one-sided routing of the cycle path and the pedestrian and cycle crossings along the "road" should be revised.

5. ISSUES IDENTIFIED DURING THE STAGE 1 ROAD SAFETY AUDIT THAT ARE OUTSIDE THE TERMS OF REFERENCE

Issues identified during the audit and site inspection that are considered to be outside the Terms of Reference, but which the Audit Team wishes to draw to the attention of the Client Organisation, are set out in this section. These issues could include areas where maintenance / repair / renewal may be required, operational concerns or existing poor provision. In raising these issues, the Audit Team in no way warrant that a full review of the highway environment has been undertaken beyond that necessary to undertake the Audit as commissioned.

4.1 Issue

Location: Northern footway.

Reason considered to be outside the Terms of Reference: Existing maintenance item not affected by the proposals.

The existing footway on the northern side of the A99 in the vicinity of the proposed crossing is in a poor state of repair and could present a trip hazard to pedestrians. It should be resurfaced.





6. AUDIT TEAM STATEMENT

We certify that we have examined the drawings and documents listed in Appendix A to this Safety Audit Report. The Road Safety Audit has been carried out with the sole purpose of identifying any feature that could be removed or modified in order to improve the safety of the scheme. The problems identified have been noted in this report together with associated suggestions for safety improvements that we recommend should be studied for implementation.

No one on the Audit Team has been involved with the design of the measures.

AUDIT TEAM LEADER:

Name:

Signed:(name).....

Position:

Date:

Organization:

Address:

AUDIT TEAM MEMBER:

Name:

Signed:(name).....

Position:

Date:

Organization:

Address:





7. ROAD SAFETY AUDIT FEEDBACK FORM

Scheme:

Road No:

Audit Stage:

Audit completed(date):

	To be completed by Designer/Client			To be completed by Audit Team Leader
Paragraph No. in Safety Audit Report	Problem accepted (Yes/No)	Recommended measure accepted (Yes/No)	Describe alternative measure(s). Give reasons for not accepting recommended measure.	Alternative measures or reasons accepted by auditors (Yes/No)

Signed:(name)..... Designer Date:.....

Signed:(name)..... Audit Team Leader Date:.....

Signed:(name)..... Employer/ Client Date:.....





APPENDIX A

Audited documents:

Document 1 (Explanatory report)

Document 2 (Overview map), scale 1 : 25,000

Document 3 (Overview site plan), scale 1 :5 000

Document 4 (Horizontal alignment), scale 1 : 1000

Document 5 (Vertical alignment), scale 1 :2000/100

Document 6 (Accompanying plan for landscape conservation)





Annex 5 - Safety audit feedback form (by Irish RSA manual)

Road Safety Audit Feedback Form

Scheme:

Road No:

Audit Stage:

Audit completed (date):

	To be completed by Designer/Client			To be completed by Audit Team Leader
Paragraph No. in Safety Audit Report	Problem accepted (Yes/No)	Recommended measure accepted (Yes/No)	Describe alternative measure(s). Give reasons for not accepting recommended measure.	Alternative measures or reasons accepted by auditors (Yes/No)

Signed:..... Designer Date:.....

Signed:..... Audit Team Leader Date:.....

Signed:..... Employer/ Client Date:.....

