

Association
mondiale
de la Route



World Road
Association

Catalogue of 'Good' and 'Bad' examples

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Format of talk

- **Highway Factors – Road Design**
- **What is Road Safety Audit?**
- **What is Road Safety Inspection?**
- **Purpose of Catalogue**
- **Structure of the Catalogue**
- **How to use the Catalogue**
- **Examples**



Highway Factors – Road Design

- **Geometric design**
- **Visual Messages**
- **Misleading Information**
- **Lack of Provision**



What is Road Safety Audit?

Systematic process for checking road safety implications of new schemes and highway improvements

- New motorways to
- Small local improvements eg ped crossings

Carried out at formal design and post-construction stages

Requires independent staff with experience of road safety engineering to undertake Safety Audit



What is Road Safety Audit?

Safety Audit report is a formal document, describing a problem...

- *“who can be hurt and in what way?”*

...and a recommendation

- *How the risk can be removed or reduced*

Report is produced for the scheme client

Client decides how to respond to the recommendations

Important to document the Safety Audit process



What is Road Safety Inspection?

A Road Safety Inspection (RSI) is an on-site systematic review of an existing road or section of road to identify hazardous conditions, faults, deficiencies that may lead to serious accidents



Purpose of Catalogue

- **To give a readily understood presentation of problems**
- **To suggest a range of potential solutions**
- **To give an indication of comparative solution costs**
- **To facilitate prioritisation of work**



Structure of Catalogue

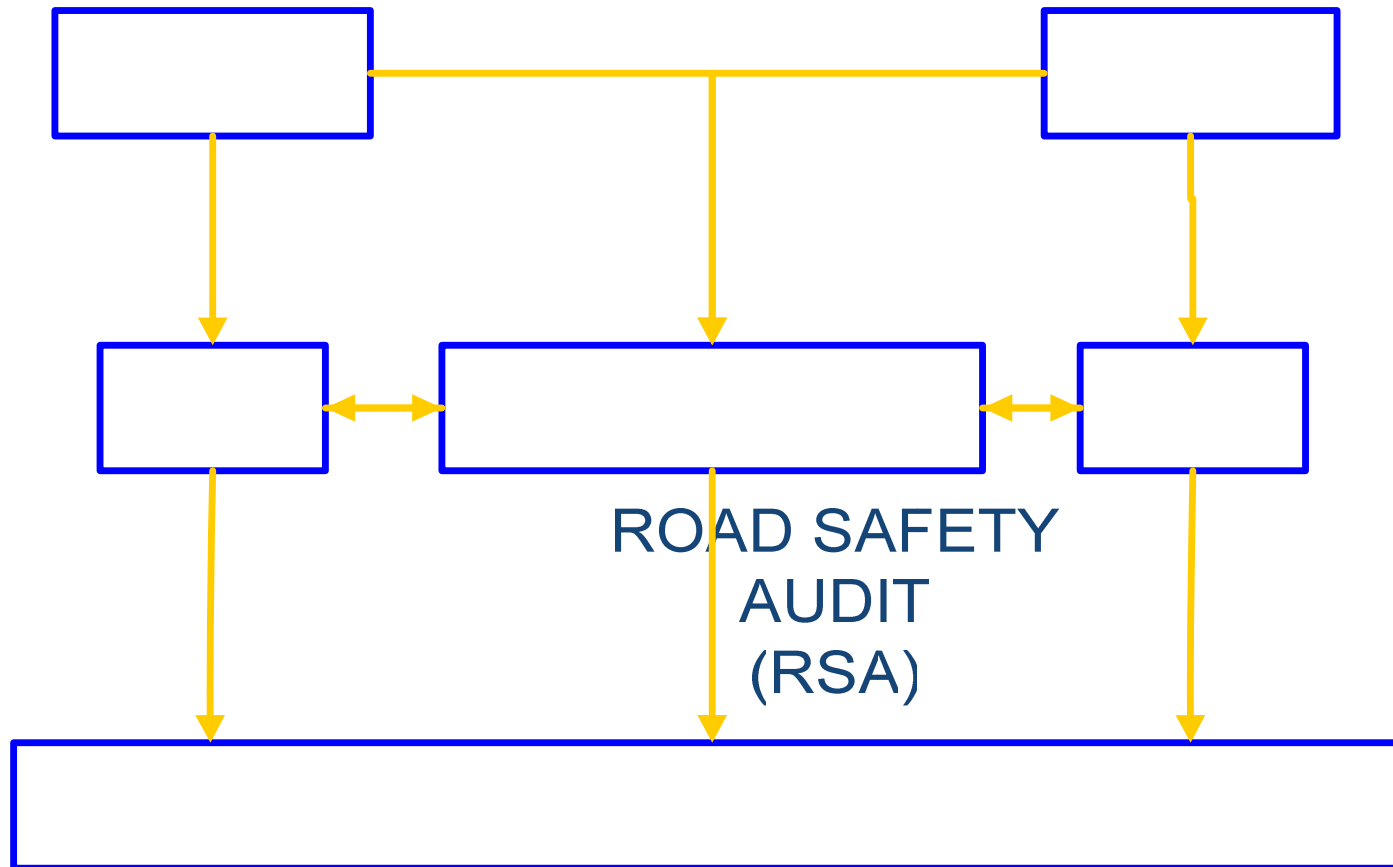
Headings taken from RSA and RSI Checklists

- Function
- Cross Section
- Alignment
- Intersections, Junctions, Traffic Signals
- Service and Rest Areas
- Parking, Loading and Deliveries
- Traffic Signs, Marking and Lighting
- Roadside Features
- Passive Safety Installations
- Public Transport Stops
- Pedestrians, Non-Motorised Users and Bus Stops



PIARC TC 3.1

Interaction between RSA and RSI





How to use the Catalogue (as part of the RSA process)

- **Consider the subject area (e.g. intersections)**
- **Use examples of what can go wrong as a guide during the design process**
- **Use indicative costs to decide on most cost-effective solution**
- **Implement design**
- **Monitor**



Alternative way to use the Catalogue (as part of the RSI process)

- **Review the area/network of concern**
- **Consider the potential accidents that could occur from the individual sections of the guidance e.g. intersections**
- **Look at potential remedial measures**
- **Estimate accident savings and economic benefits**
- **Decide on remedial measures**
- **Prioritise work**
- **Implement remedial measures**
- **Monitor**

Examples of Potential accident Reduction

Accident problem	Remedial treatment	Schemes	Average cost (£)	Reduction in accidents (%)
Wet skidding accidents	Anti skid surface	34	8620	57
Loss of control on bends	Chevron signs	14	2505	43
Darkness accidents	Lighting	14	9709	21
Accidents at existing signals	Signal improvement	16	17095	22
Right turn accidents	Right turn lane	12	11849	48
Poor visibility	Visibility improvement	12	7890	27
Vehicle accidents at junctions	Junction improvement	34	18513	44
Fail to give way at junctions	New traffic signals	15	40717	67
Junction accidents	Mini roundabout	18	14769	49
Inappropriate speed on links	Speed camera	28	18236	13
Pedestrian accidents on link	Controlled crossing	73	15916	31
Pedestrian accidents on link	Refuges	65	10387	37
Pedestrian accidents at existing crossing	Crossing improvement	35	11057	41
Pedestrian accidents	Guard rail	28	6230	30
Various	Markings	43	2020	34
Various	Markings and signs	63	2537	41
Various	Package of measures	97	22099	42
Various	Resurfacing	27	13810	46
Various	Road improvement	38	15882	62
Various	Warning signs	36	553	46

(Source – TMS Consultancy)

Examples

Description

RIGHT TURN CONFLICTS



Description:
Right turn conflicts are the most common crash-prone manoeuvres at an intersection as the right turning traffic slows down with the intending to cross the path of the straight ahead fast moving traffic. Any gap acceptance errors or misjudgement of speed can lead to severe crashes.



Treatment Types & Costs

- T 1: The replacement of a rural crossroad intersection by a staggered intersection. This has been shown to reduce accidents by some 60%. **SSS**
- T 2: The conversion of the intersection to a roundabout. This has been shown to reduce accidents by 30% or more. **SSS**
- T 3: The conversion of the intersection to traffic signal control. **SS**
- T 4: The provision and maintenance of good skid resistant surfaces **SS**

Crash Types

- Side collisions
- Rear Shunt collisions

Affected Users

All users

Treatments & Their Benefits

T 1: Staggered intersection to spread out the conflict area due to right turns



T 2: Roundabout provision to reduce on the conflicts that arise due to right turns



T 3: Traffic signals to control vehicular movements on the right turn



Potential Solution

Comparative Cost

Type

Affected?

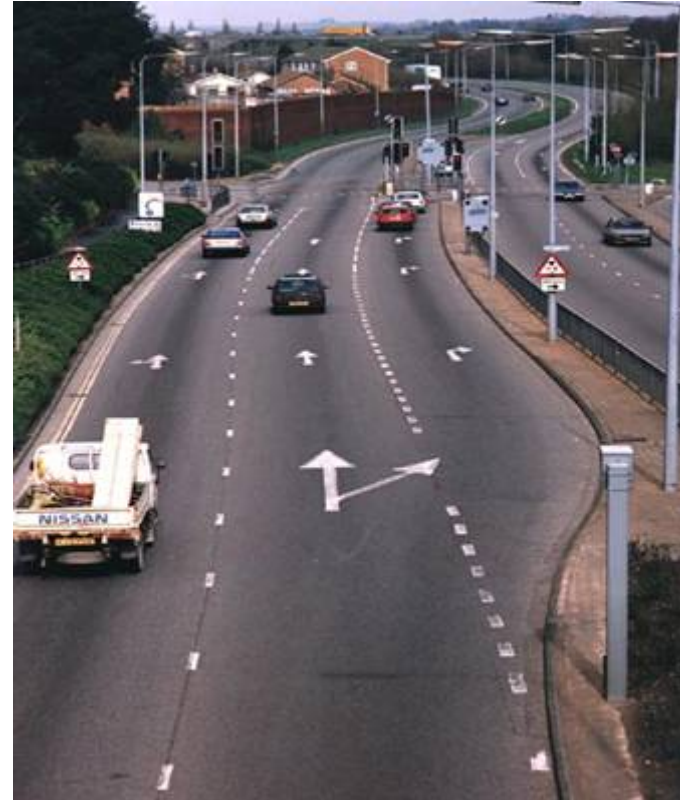
Subject: Right turns in middle of intersection

Examples



Description:

Right turn conflicts are the most common crash-prone manoeuvres at an intersection. The right turning traffic slows down with the intention of crossing the path of the on-coming fast moving traffic. Any gap acceptance errors or misjudgement of speed can lead to severe crashes



Examples

Treatments & Their Benefits

T 1: Staggered intersection to spread out the conflict area due to right turns



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Examples

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Examples



Examples





The End

Thank you all very much for your attention