



Theoretical principles and practical application in the framework of the European Directive 2008/96/CE Catania 24-28 September 2012

# **ROAD SAFETY INSPECTION**

in the context of the

EU ROAD INFRASTRUCTURE SAFETY MANAGEMENT DIRECTIVE

Harry Cullen Chairman CEDR Technical Group Road Safety. Senior Project Manager Road Safety, National Roads Authority, Ireland

hcullen@nra.ie



## SUMMER SCHOOL SIIV 2012 - ROAD SAFETY MANAGEMENT

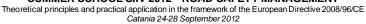


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# Road Safety Inspection

- Different interpretations of RSI.
- The benefits of RSI
- The development of RSI standards and guidelines in Ireland in response to EU RISM directive







# Different interpretations of RSI.

The directive definition leaves a lot of room for manoeuvre:

An ordinary periodical verification of the characteristics and defects of an operational road that require maintenance work for reasons of road safety.

UK – based on maintenance checks.

Italy – extremely thorough.

Norway – since 2004 plus video

Germany – two types, Periodic & Dedicated

Austria – standards since 2008

Ireland – never done it before, standards (2012)





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#### DIRECTIVES

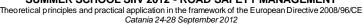
DIRECTIVE 2008/96/EC OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL of 19 November 2008

on road infrastructure safety management

### Directive preamble (6)

(6) Several Member States already possess well functioning road infrastructure safety management systems. These countries should be permitted to continue using their existing methods, in so far as they are consistent with the aims of this Directive.







# Using preamble 6

- A number of countries looked at the definition of RSI in the directive and focused on the words 'defects that maintenance work',
- Immediately jump to the conclusion that RSI could be interpreted as just a maintenance check.

Will Member States use Preamble 6 as an excuse to "Do Nothing"?



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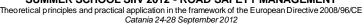
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# Article 6 of the directive.

- Member States shall ensure that safety inspections are undertaken in respect of the roads in operation in order to identify the road safety related features and prevent accidents.
- Safety inspections shall comprise periodic inspections of the road network and surveys on the possible impact of roadworks on the safety of the traffic flow.







# Article 6 of the directive

- 3. Member States shall ensure that periodic inspections are undertaken by the competent entity. Such inspections shall be sufficiently frequent to safeguard adequate safety levels for the road infrastructure in question.
- 4. Without prejudice to the guidelines adopted pursuant to Article 8, Member States shall adopt guidelines on temporary safety measures applying to roadworks. They shall also implement an appropriate inspection scheme to ensure that those guidelines are properly applied.

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New Schemes

Existing Road Network

Road Safety Audit

Road Safety Inspection

Data Gathering and Review

Data feeds into RSA





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# Road Safety Inspection is NOT

- a check against design standards
- a Road Safety Audit
- an analysis to find collision clusters



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# Road Safety Inspection is

- Proactive not Reactive
- Fresh Eyes looking at the road
- From the Drivers Perspective
- Consistency
  - Is the road sending a consistent message to the driver?





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Road Safety Inspection can be

SELF EXPLAINING ROADS

FORGIVING ROADSIDES

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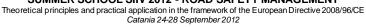
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In Ireland, like most of Europe, the TERN network consists of our motorway network plus some single carriageway roads.

By focusing RSI on the TERN network will this Directive take funding away from other non-TERN single carriageway roads?

Ireland have tried to avoid this by agreeing to carry out RSI on all national roads.







How do you stop "Over The Top" report recommendations from RSI inspectors wanting a "Rolls-Royce" solution to every problem?

To solve this issue Ireland have split the report and the recommendations –

NRA Road Safety Engineers will make the recommendations based on report provided by consultants or regional road design offices.



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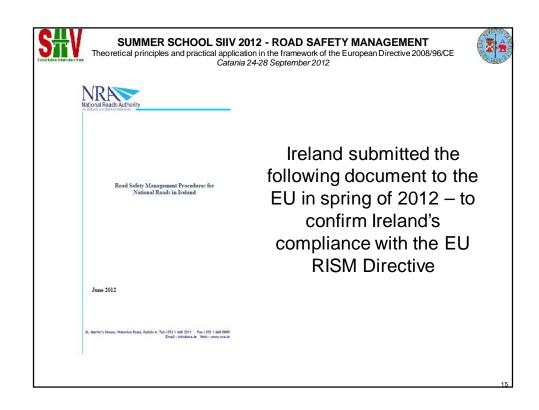
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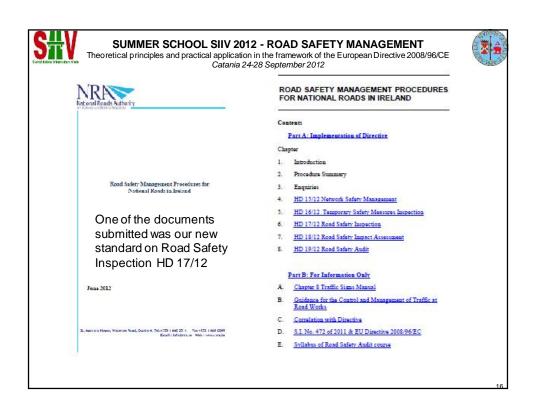


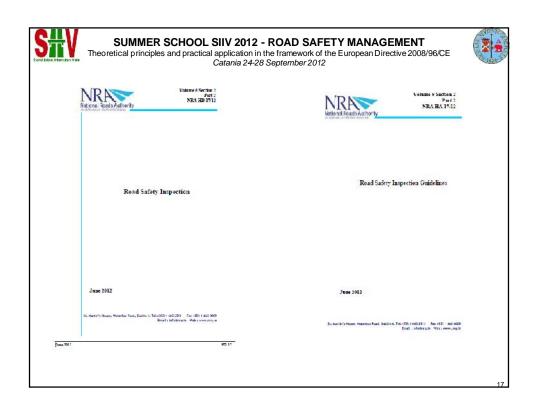
# Road Safety Inspection:

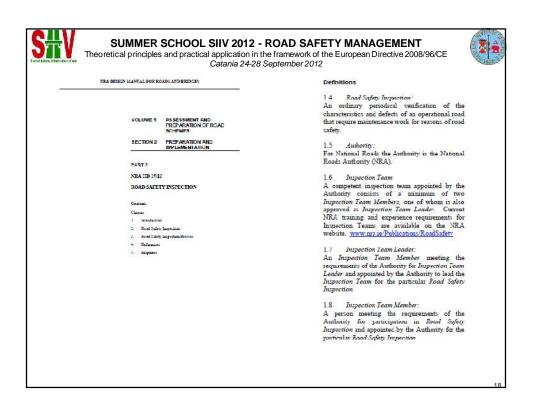
An ordinary periodical verification of the characteristics and defects of an operational road that require maintenance work for reasons of road safety.

- The primary purpose of a Road Safety Inspection is to identify issues relating to road safety;
- it is not a check of compliance with design standards.
- The RSI shall only consider those matters that have an adverse bearing on road safety under all operating conditions.









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HD 17 Road Safety Inspections Inspection Team Qualifications

July 2011

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- 1.2 Road Safety Inspection.
- An ordinary periodical verification of the characteristics and defects of an operational road that require maintenance work for reasons of road safety.
- 1.3 Inspection Team.
- A competent impechen team appointed by the Authority commists of a minimum of two Impection Isam Members, one of whom is also approved a: Impection Team Leader.

### 2 Qualifications

- 2.1 Inspection Team Leader (ITL)
- An Impection Team Leader will have ten years pool graduate experience with a maximum of Road Project and for Road Safety Schames and missing the respective press in the design and construction of Road Project and for Road Safety Schames and with two or more years experience of collision investigation and remedial measures.

They will have taken part in ten sood safety suchts as team member, and will have attended an accredited three to five day course in road safety audit theory and practice.

2.2 Inspection Team Member (ITM)

An Impection Team members will have seven years post graduate experience with a minimum of five years in the dealer and construction of Project and for Road Sufery Scheme, and with two or more years experience of collision greening and semedial measures.

They will have taken part as a haince in five road safety audits and will have attended an accredited time to five day course in road safety audit theory and practice.

#### 3 Qualifications Post 19th December 2013

3.1 Inspection Team Leader (IIL)

An Inspection Team Leader will be a Chartered Engineer or equivalent.

They will have ten years post graduate experience with a minimum of soven years in the design and countraction of Road Fuerests and /or Road Safety Schazote and will have two or more years experience of collision investigation and remodular measures:

They will have taken part in ten road safety audits as team member, and will have a Certificate of Competence in Road Safety Audit.

3.2 Inspection Team Member (TTM)

An Impection Team Memor will have seven years post good actuate experience with a minimum of five years in the design and construction of Rose Poincets and or Road Sofety Schemes, and will have two or more years experience of collicion investigation and remedial measures.

They will have taken part as a trainee in five road safety audits, and will have attended an accredited three to five day course in road safety audit theory



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- 2.3 The primary purpose of a Road Safety Impection is to identify issues relating to road safety; it is not a check of compliance with design standards. The Road Safety Impection shall only consider those matters that have an adverse bearing on road safety under all operating conditions.
- 2.5 The Authority shall ensure that Road Safety Inspections are undertaken on National Roads and shall give direction to the Inspection Team on the inspection requirements within the Inspection Brief.
- 2.6 The complete road and all its elements and junctions are to be inspected between the start and end points provided in the Inspected to the Intersecting roads shall be inspected to the position of the advance direction sign (ADS), or, in its absence, to 200m from the principal route, unless otherwise directed.

#### Safety Health and Welfare at Work Act

2.7 It is important to ensure that the Inspection Team complies with current legalization and best practice in relation to safety and health while undertaking Road Safety Inspections.

#### Occurrence of Safety Inspection

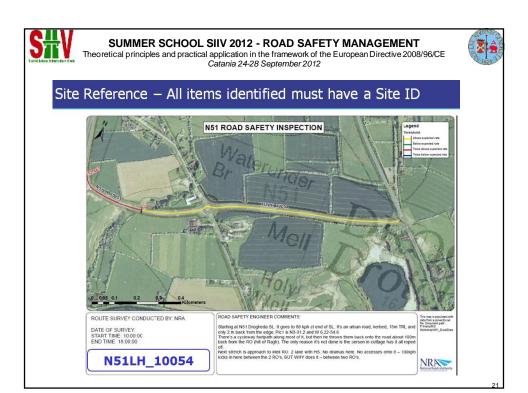
- 2.9 Road Safety Inspections shall be carried out on National roads at regular intervals of 5 years for Motorways, Type 1 & 2 Dual Carriageways, and 3 years for all other roads.
- 2.11 The Road Safety Inspection shall identify the road safety issues which require engineering works to remediate.

3.7 The Authority shall prepare an Inspection Brief.

### Desk Study

- 3.8 The list below describes the items that should be provided, where available, to the road safety inspection team for review prior to undertaking the site visit:
- Inspection Brief;
  Route mapping at appropriate scale;
  Video information collected as part of
- annual surveys;
- Collision data:
- Road Collision Factors compiled by NRA from statistics from national collision data; from statistics from nat
  Traffic flows;
  Road Speeds;
  Road Surface Analysis

- Road Surface Analysis;
   Previous Road Safety Inspections including any remedial measures implemented in response to these inspections.
- 3.9 The Inspection Team should assemble and study the available route data prior to undertaking the site visit to ensure that they have sufficient knowledge of the route to make informed judgements during the visit.
- 3.10 Initial identification of possible road safety issues may be made from this information subject to verification during the site visit.









- 3.18 The following items should be included in the Inspection Report:
- Brief description of the route;
- The date of the site visit and the weather at the time;
- A list of the Inspection Team members and any other personnel present as observers:
- Identification of road safety issues and associated risks;
- Plans showing the locations of the road safety issues, with thumbnail photographs appended;
- A statement signed by the Team Members certifying that they have inspected the route;
- A list of information used in the inspection.

It should contain supporting information in respect of the findings and should include an informal risk assessment of each issue, comprising of an assessment of the probability of collision occurrence and a prediction of the likely severity of the collision.





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# NRA HA 17/12 RSI Guidelines

# APPENDIX E: ROAD SAFETY INSPECTION RISK ASSESSMENT FORM

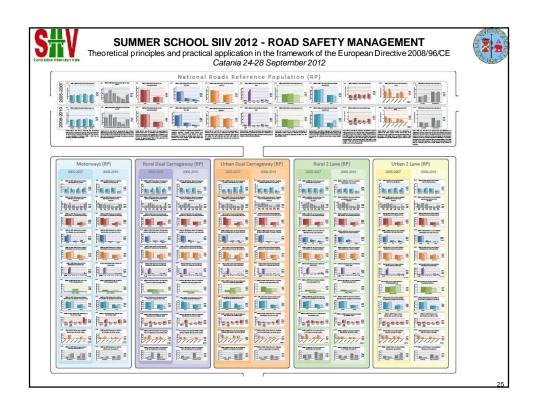
Risk is the <u>likelihood</u> of harm multiplied by the <u>severity</u> of harm

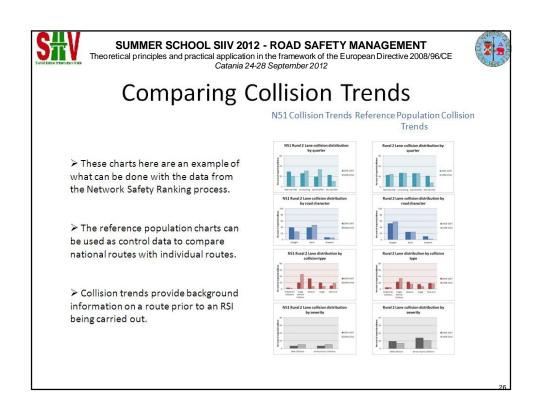
		LIKELIHOOD OF OCCURRENCE					
R	ISK RATING	LIKELY High probability of occurrence	POSSIBLE Medium probability of occurrence	UNLIKELY Probability of collision is close to random			
COME	Severe Potential fatality Major injury/illness Long term disability	н	н	М			
SEVERITY OF OUTCOME	Medium Injury/illness Causing short term disability	Н	м	L			
SEVER	Minor Minor injury/illness	М	L	L			

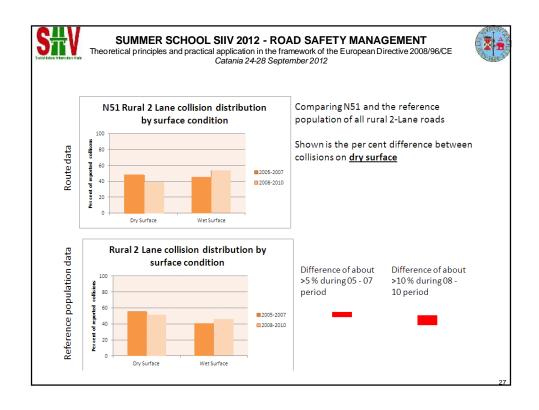
Risk Rating

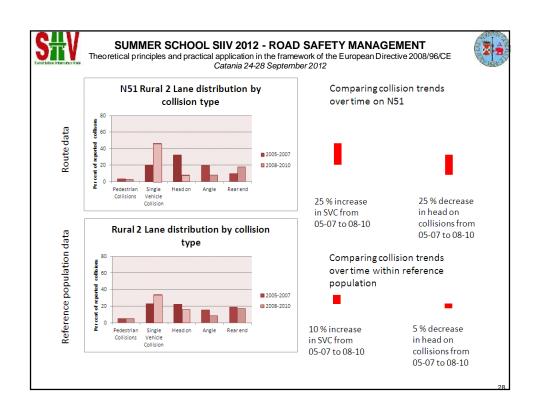
H = High Risk
M = Medium Risk

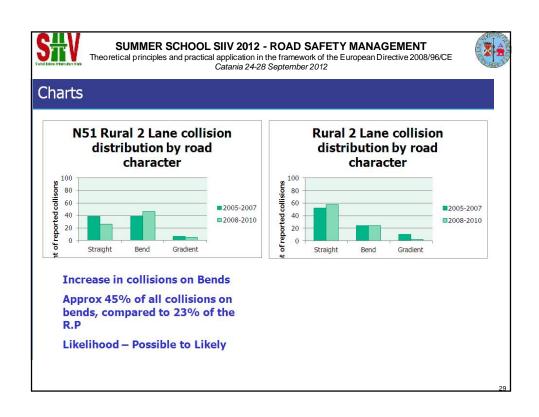


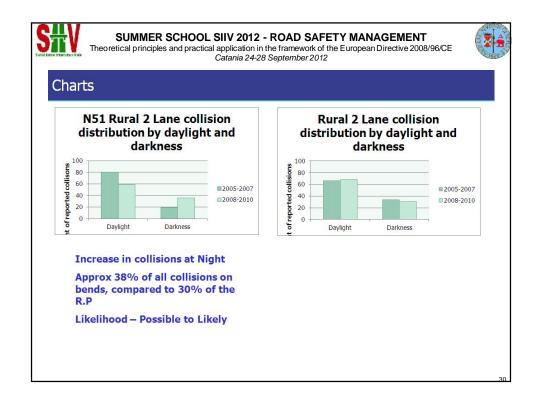


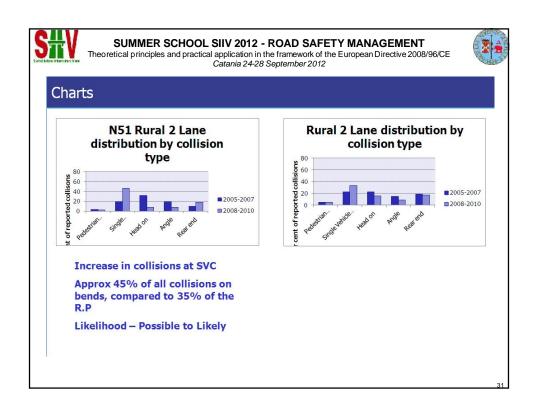


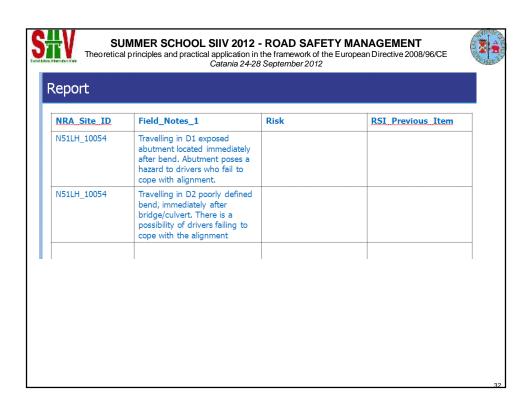


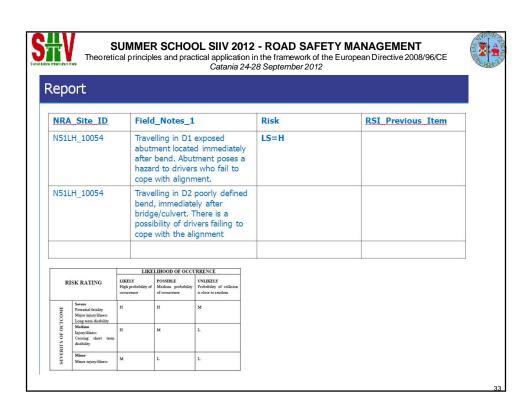








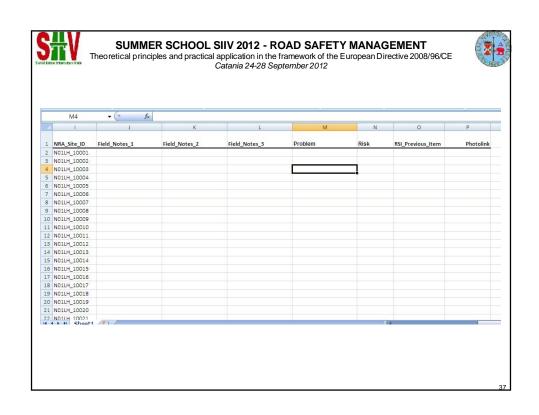




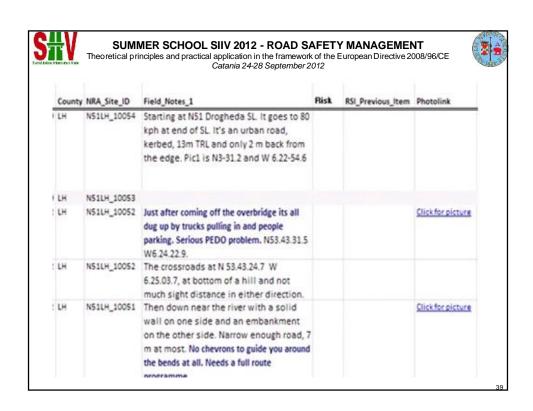
					September 2012	
epo	ort					
NRA	Site ID	Field	_Notes_1		Risk	RSI_Previous_Item
N51LH_10054		abutr after hazar	bend. Abut	d immediately ment poses a s who fail to	LS=H	
N51LH_10054		bend bridg possi	, immediate e/culvert. T	here is a vers failing to	LM=H	
RI	ISK RATING	LIKELY High probability of occurrence	POSSIBLE  Medium probability of occurrence	UNLIKELY Probability of collision is close to random		
Severe Potential fatality Major injuryillness Long term disability		н	н	м		
SEVERITY OF OUTCOME	Medium Injuryillness Causing short term disability  Minor Minor injuryillness	н	M L	L		

		Date_of_survey	Start time	End time	Start Chainage	Approx_AADT_2007	County	NRA Site ID	Field Notes 1	Risk	RSI_Previous_Item	Photolink
	RA	20/08/2012		18:00	53	6829		N51LH_10054				
1 NR	IRA .	20/08/2012	10:00	18:00	52.447	6829	EH	N51LH_10053				
1 NR	RA	20/08/2012	10:00	18:00	52	4262	LH		Just after coming off the overbridge its all dug up by trucks pulling in and people parking. Serious PEDO problem. N53.43.31.5 W6.24.22.9.			<u>Click for picture</u>
1 NR	RA	20/08/2012	10:00	18:00	51	4262	LH	N51LH_10052	The crossroads at N 53.43.24.7 W 6.25.03.7, at bottom of a hill and not much sight distance in either direction.			
1 NR	RA	20/08/2012	10:00	18:00	50	4262	LH	N51LH_10051	Then down near the river with a solid wall on one side and an embankment on the other side. Narrow enough road, 7 m at most. No chevrons to guide you around the bends at all. Needs a full route programme.			Click for picture

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	M	4	- ()	fx					
Z	А	В	C	D	E	F	G	Н	- 1
1	Route	Conducted _by	Date_of_ survey	Start_time	End_time	Start_Chainage	Approx_AADT_2007	County	NRA_Site_ID
2	N01					0	21268	LH	N01LH_10001
3	N01					1	21268	LH	N01LH_10002
4	N01					2	21268	LH	N01LH_10003
5	N01					3	21268	LH	N01LH_10004
6	N01					4	21268	LH	N01LH_10005
7	N01					5	21268	LH	N01LH_10006
8	N01					6	21268	LH	N01LH_10007
9	N01					7	21268	LH	N01LH_10008
10	NO1					8	21268	LH	N01LH_10009
11	N01					9	21268	LH	N01LH_10010
12	NO1					10	18562	LH	N01LH_10011
13	NO1					11	18562	LH	N01LH_10012
14	NO1					12	18562	LH	N01LH_10013
15	NO1					13	18562	LH	N01LH_10014
16	N01					14	18562	LH	N01LH_10015
17	N01					15	18562	LH	N01LH_10016
18	N01					16	18562	LH	N01LH_10017
19	N01					17	18562	LH	N01LH_10018
20	N01					18	18562	LH	N01LH_10019
21	N01					19	18562	LH	N01LH_10020
2	NO1	Sheet1				20	21894	TH	N011H 10021



Route	Conducted_by	Date_of_survey	Start_time	End_time	Start_Chainage	Approx_AADT_2007
N51	NRA	20/08/2012	10:00	18:00	53	6829
N51	NRA	20/08/2012	10:00	18:00	52.447	6829
N51	NRA	20/08/2012	10:00	18:00	52	4262
N51	NRA	20/08/2012	10:00	18:00	51	4262
N51	NRA	20/08/2012	10:00	18:00	50	4262







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# Proposed 50km Sections for Pilot Assessment

# Route Ranking

All national routes, have been ranked using the following criteria.

Each route was ranked under each of the following individual headings

Sum of (Collision Rate, Fatal Rate, % of Route >RP,CR, % of Route <RP, CR.)

Route	Rte Length (km)	Consultant
N21	71	
N15	89	
N05	110	
N24	87	
N14 & N69	15+69	
N17	90	
N16 & N22	30+82	





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A site visit, in both directions of travel, 3.11 A site visit, in both directions of travel, shall be carried out by all members of the assessment team together, during both the hours of daylight and darkness.

#### Road User Role Play

3.12 The Inspection Team shall assess the safety of the route from the perspective of all road

#### Methodology for Safety Inspection

- 3.13 The section below describes a working methodology for carrying out Road Safety Inspections.
- epections.

   The Inspection Team looks through route data, in particular the collision factors, provided by the Authority to get an overall appreciation of the route and to get an indication of potential safety issues and potential locations of concern in advance of
- The Inspection Team visits the site during daylight and at night. Photographs or video images should be taken, which can be used for later reference;
  • Each road section should be driven more
- than once, and assessed from the point of view of all road users;

  One team member takes notes and images of all the possible road safety issues;

- The team members discuss their findings;
   A team meeting should be held as soon as reasonably practicable or ideally on site if considered safe to do so to ensure that the
- considered safe to do so to ensure that the note-taker has covered all safety points;

  The Inspection Team then consults with the relevant local authorities to obtain local information on any road safety issues which may have been brought to the local authority's attention;
- authority's attention;

  Having consulted with the relevant local
  authorities and examined the issues raised,
  one team member produces a draft Road
  Safety Inspection Report; the second team
  member checks the report and edits if necessary.
- 3.14 Where there are road works on the route, the inspection should consider the road as it normally operates without the road works. Inspection of road works is not covered by this standard but is covered by NRA HD 16/12
  Temporary Safety Measures Inspection.



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#### Inspection Report

- 3.15 The Inspection Team shall prepare a written report, which shall be forwarded directly to the Authority.
- 3.16 The report must clearly identify the route and the Inspection Team membership.
- 3.17 The body of the report shall be kept brief and shall contain descriptions of the specific road safety issues identified by the Impection team together with their associated risk rating comprising of an assessment of the probability of collision occurrence and a prediction of the likely severity of the collision.
- 3.18 The following items should be included in
- the Inspection Report:

  Brief description of the route
- The date of the site visit and the weather at
- A list of the Inspection Team members and
- any other personnel present as observers;
   Identification of road safety issues and associated risks:
- Plans showing the locations of the road safety issues, with thumbnail photographs appended;

- A statement signed by the Team Members certifying that they have inspected the
- A list of information used in the inspection.
- 3.19 The main element of the report is the identification of the road safety issues and associated risks. The following points should be borne in mind when writing this section:

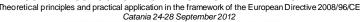
   Issues raised in the Inspection report shall relate only to road safety issues within the scope of the Inspection, as outlined in the Brief. Non-safety items should not be included.

  The holds of the yearst should be leave build.
- . The body of the report should be kept brief but must contain sufficient detail to fully describe the road safety issues identified by
- describe the road safety issues identified by the Inspection Team.

  It should contain supporting information in respect of the findings and should include an informal rick assessment of each issue, comprising of an assessment of the probability of collision occurrence and a prediction of the likely severity of the collision.
- Safety issues that have remained unaddressed from previous inspections should be re-recorded at subsequent inspection stages, if the current Team considers them to be items relevant to an
- considers them to be items relevant to an Inspection.

   A sample report format, which satisfies the requirements of this standard, is contained in the guidance document NRA HA 17 Road Safety Inspection Guidelines, available from NRA website.
- 3.20 The Inspection Report shall be provided by the Team Leader directly to the Authority and should be sent by the date, if any, specified in the Inspection Brief.







#### Subsequent Actions to the Inspection Report

- 3.21 The recipient of the Inspection Report will be the Authority who shall forward it to the NRA Road Safety Engineering Team.
- 3.22 The NRA Road Safety Engineering Team may, if it considers that clarification or discussion of the report would be of benefit, arrange a meeting involving the following:
  - NRA Engineering staff
  - Road Authorities, Road Operator relevant to the meeting
  - The Inspection Team Leader and other Team Members considered necessary by the Authority.
- 3.23 The Inspection Report shall be issued to the Authority by the Team Leader in final format following that meeting, or in the absence of a meeting, by a date specified by the Authority.

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# Article 6 - Health and Safety at Road Works

Article 6

Safety inspections

- Member States shall ensure that safety inspections are undertaken in respect of the roads in operation in order to identify the road safety related features and prevent accidents.
- Safety inspections shall comprise periodic inspections of the road network and surveys on
  the possible impact of roadworks on the safety of the traffic flow.



- Member States shall ensure that periodic inspections are undertaken by the competent entity. Such inspections shall be sufficiently frequent to safeguard adequate safety levels for the road infrastructure in question.
- 4. Without prejudice to the guidelines adopted pursuant to Article 8, Member States shall adopt guidelines on temporary safety measures applying to road works. They shall also implement an appropriate inspection scheme to ensure that those guidelines are properly applied.







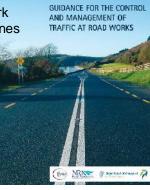
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Article 6 - Health and Safety at Road Works

- inspection regime
- who inspects what?

Inspections of roadwork sites Inspections of the procedures on roadwork sites to ensure that standards and guidelines are being applied

notification issues





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In Ireland an inspection scheme has been established:

by NRA to ensure that those guidelines are properly applied on TERN network road works sites (in Ireland, on all national roads), and

by Local Authorities to ensure that those guidelines are properly applied on:

LA TERN network road works sites (in Ireland, on all national roads),

also by LA / Statutory Undertakers any road works sites carried out by Statutory Undertakers on the TERN network (in Ireland, on all national





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#### ANNEX II

Road Safety Audits for infrastructure projects

- Criteria at the draft design stage:
  - (a) geographical location (e.g. exposure to landslides, flooding, avalanches), seasonal
  - and climatic conditions and seismic activity:

    (b) types of and distance between junctions: Shall Endeavour'-
  - (c) number and type of lanes;



(d) kinds of traffic admissible to the new realt's not mandatory, just an obligation to do your best!!!!



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# **ROAD SAFETY INSPECTION**

in the context of the

EU ROAD INFRASTRUCTURE SAFETY MANAGEMENT DIRECTIVE

Harry Cullen Chairman CEDR Technical Group Road Safety. Senior Project Manager Road Safety, National Roads Authority, Ireland

<u> hcullen@nra.ie</u>