

HD19 - 2016

Forbes Vigors
Senior Engineer Road and Tunnel Safety
5th April 2016

Topics to discuss

- Road Safety Audits
 - Changes to Standard Last Road Safety Audit Seminar
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Road Safety Audits – HD 19 and HA 19



Volume 5 Section 2
Part 2
NRA HD 19/15

Road Safety Audit

March 2015

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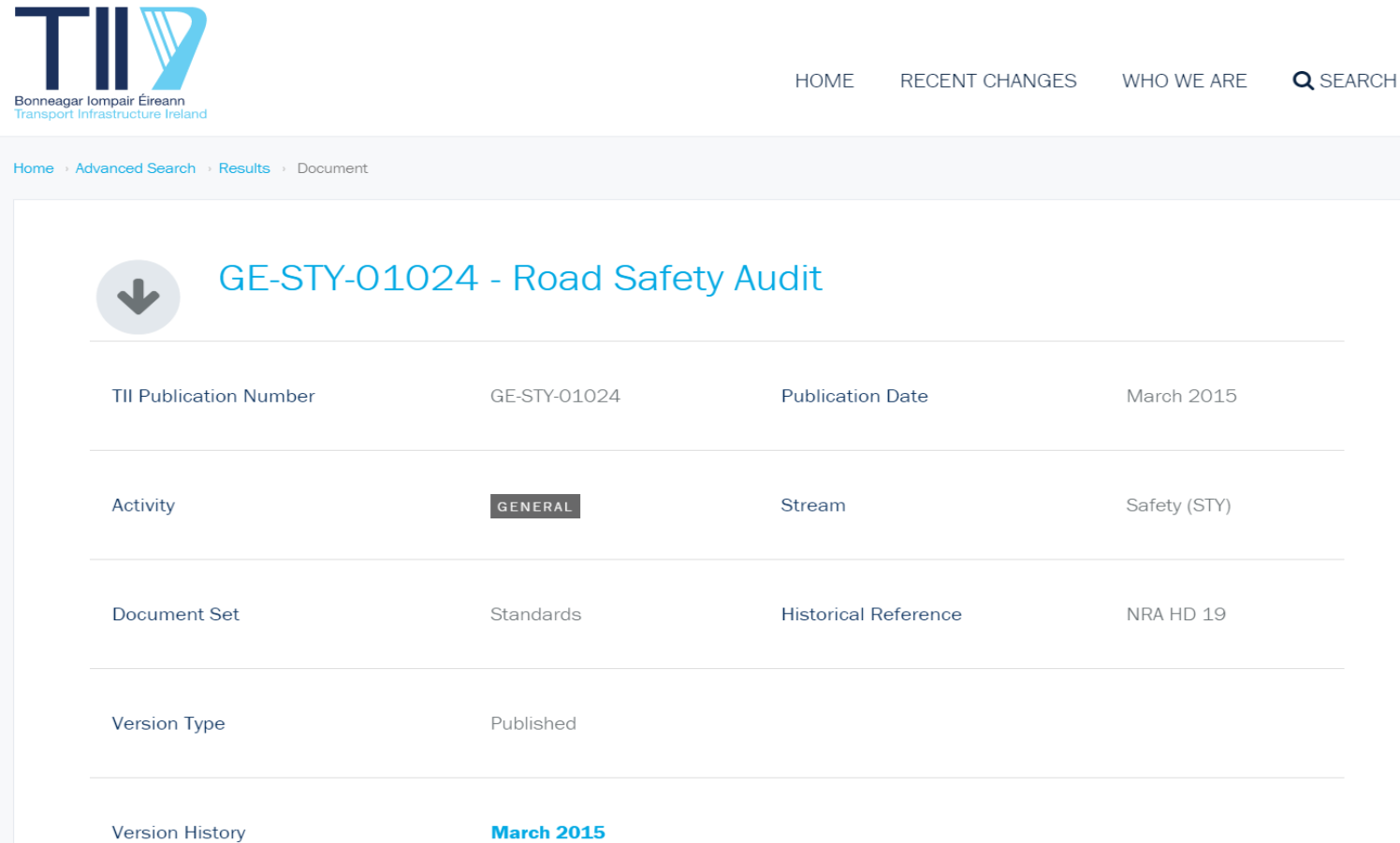
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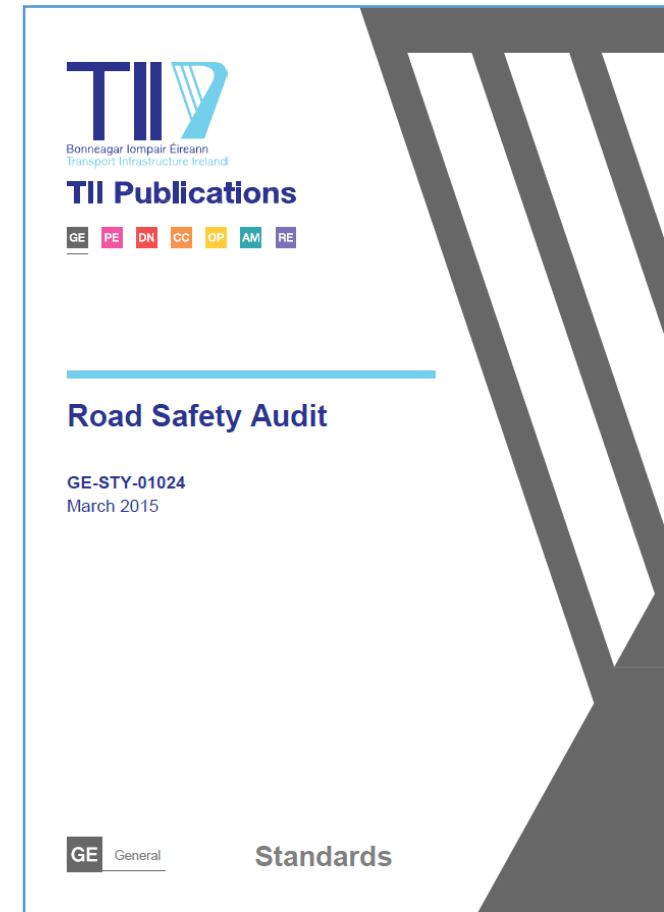
DMRB Part	5.2.2
UK DMRB Reference Document:	N/A
NRA Addendum or Standard Dated	March 2015
Download Earlier Versions:	December 2000 June 2001 July 2004 December 2007 January 2009 June 2012

Road Safety Audits – GE-STY-01024 and 01027



The screenshot shows the TII Publications website interface. At the top left is the TII logo with the text 'Bonneagar Iompair Éireann Transport Infrastructure Ireland'. To the right are navigation links: HOME, RECENT CHANGES, WHO WE ARE, and a SEARCH button. Below the navigation is a breadcrumb trail: Home > Advanced Search > Results > Document. The main content area features a download icon and the title 'GE-STY-01024 - Road Safety Audit'. Below this is a table with the following data:

TII Publication Number	GE-STY-01024	Publication Date	March 2015
Activity	GENERAL	Stream	Safety (STY)
Document Set	Standards	Historical Reference	NRA HD 19
Version Type	Published		
Version History	March 2015		



Road Safety Audit - Definition

- 2000
 - The evaluation of road schemes during design and construction to identify potential safety hazards which may affect any type of road user before the scheme is opened to traffic and to suggest measures to eliminate or mitigate those problems.
 - 2009
 - The evaluation of road schemes during design and construction, before the scheme is opened to traffic, to identify potential safety hazards which may affect any type of road user and to suggest measures to eliminate or mitigate those problems.
 - 2012
 - This is an independent detailed systematic and technical safety check relating to the design characteristics of a road infrastructure project and covering all stages from planning to early operation.
 - 2015
 - The evaluation of a road scheme during design, construction and early operation, to identify potential safety hazards which may affect any type of road user, and to suggest measures to eliminate or mitigate those problems.
-

Road Scheme - Definition

- 2000
 - All works that involve permanent change to the existing road layout.
 - 2009
 - All works that involve new road construction or permanent change to the existing road layout.
 - 2012
 - A project for the construction of new road infrastructure or a substantial modification to the existing network which affects the traffic flow.
 - 2015
 - Road Scheme. A scheme designed in accordance with NRA DMRB which results in new road construction or permanent change to the existing road or roadside layout.
 - Development Scheme. A scheme which results in a change to the road or roadside layout that is initiated and/or executed for commercial or private development.
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Road Scheme – Examples

APPENDIX A: SCHEME TYPE AND AUDIT STAGE

No Audit is required on like-for-like repair or replacement of existing road infrastructure

Example Scheme Description		
Pavement repair such as patching, edge strengthening which does not result in widening the carriageway, inlay works with similar materials etc.	No Audit Required	
Pavement overlay which does not change the cross section, vertical alignment, camber or superelevation	No Audit Required	
Surface rejuvenation such as mechanical abrasion etc.	No Audit Required	
Surface dressing of an existing carriageway	No Audit Required	
Replacement of a worn road sign with a new road sign of the same type	No Audit Required	
Replacement of a damaged road sign with a new road sign of the same type	No Audit Required	
Refreshment of existing worn road markings	No Audit Required	
Replacement of worn or missing road studs	No Audit Required	
Replacement of a length of damaged safety barrier with barrier of the same or similar type.	No Audit Required	

Audit is required on any piece of road infrastructure which requires a design

Example Scheme Description		Audit stages required					
		F	1	2	1/2	3	4
New Alignment	Off-line road scheme with multiple options.	X	X	X		X	X
	On-line road scheme – Minor land take required		X	X			X
	On-line road scheme – No land take required				X	X	
	New junction or access onto the road		X	X	(X)	X	
Realignment	Realignment of bend				X	X	
	Realignment of junction				X	X	
	Alteration of type of junction control, such as traffic signals, mini roundabout etc.				X	X	

Example Scheme Description	Audit stages required				
Sight line Improvements				X	X
Pavement Improvement	Change to the existing cross section, widening or narrowing the pavement			X	X
	Change to the existing vertical alignment			X	X
	Change to the existing pavement which affects the horizontal or vertical alignment of public or private entrances			X	X
	Change to existing camber or superelevation			X	X
Signing & Roadmarkings	Installation of road signs: Single installation, multiple installations, or addition or amendment to sign on existing supports			X	X
	Installation of road markings which results in a change to the existing road marking layout and/or its meaning			X	X
Safety Barrier	Installation of new safety barrier			X	X
	Upgrade to an existing safety barrier			X	X
	Upgrade of an existing terminal			X	X
	Replacement of an entire safety barrier installation			X	X
Kerbing & Footpath	Installation of kerbs in the verge and/or hard shoulder			X	X
	Installation of kerbs in the centre of the pavement	X	X	(X)	X
	Installation of kerbs and footpaths			X	X
Lighting	Installation of pedestrian crossing, both informal and formal crossing points	X	X	(X)	X
	Installation of traffic route lighting			X	X
Development	Change to the lighting level and type of existing lighting			X	X
	Major development, meeting the criteria in NRA Traffic and Transportation Assessment Guidelines Table 2.2	X	X	X	X

Any development that is not a major development				X	X
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Road Scheme – Examples

Pavement repair such as patching, edge strengthening which does not result in widening the carriageway, inlay works with similar materials etc.

Pavement overlay which does not change the cross section, vertical alignment, camber or superelevation

Surface rejuvenation such as mechanical abrasion etc.

Surface dressing of an existing carriageway

Replacement of a worn road sign with a new road sign of the same type

Replacement of a damaged road sign with a new road sign of the same type

Refreshment of existing worn road markings

Replacement of worn or missing road studs

Replacement of a length of damaged safety barrier with barrier of the same or similar type.

No Audit Required

Audit Team - Definition

- 2000
 - A team of a minimum of two persons, independent of the Design Team and approved by the Overseeing Organisation.
 - 2009
 - A competent Audit team consists of a minimum of two persons, independent of the Designer and approved by the Overseeing Organisation.
 - 2012
 - A competent Audit team consists of a minimum of two persons, independent of the Designer and approved by the Overseeing Organisation.
 - 2015
 - A competent Audit team must be independent of the designer and consists of a minimum of two persons, approved by the Overseeing Organisation.
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Team Leader - Definition

- Pre 2012

- An Audit Team Leader should preferably be a road safety engineer with at least two years experience of collision investigation and remedial measures.
 - They will have taken part in ten road safety audits as team member and will have attended an accredited three to five day course in road safety audit theory and practice.
 - In some instances, a road engineer with at least two years experience in road design will qualify provided they have taken part in ten road safety audits as team member and have attended a two week accredited Road Safety Engineering course as well as the three to five day course in road safety audit theory and practice.
 - An Audit Team Leader will have completed as team member at least two audits of a similar stage and scheme type to that for which approval is being sought.
 - They will also have done at least five road safety audits within the preceding two years.
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Team Leader - Definition

- Post 2012,
 - An Audit Team Leader will be a Chartered Engineer or equivalent with at least two years experience of collision investigation and remedial measures,
 - Will have a Certificate of Competence in Road Safety Audit and will have taken part in ten road safety audits as team member,
 - An Audit Team Leader will have completed as team member at least two audits of a similar stage and scheme type to that for which approval is being sought.
 - They will also have done at least five road safety audits within the preceding three years.
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Stages of Audit - Definition

- Road safety audits and subsequent actions shall in general be completed at five specific stages in the preparation of the scheme. These stages are:
 - Stage F: Route selection, prior to route choice.
 - Stage 1: Completion of preliminary design prior to land acquisition procedures.
 - Stage 2: Completion of detailed design, prior to tender of construction contract. **In the case of Design and Build contracts, a Stage 2 audit shall be completed prior to construction taking place.**
 - Stage 3: Completion of construction (prior to opening of the scheme, **or part of the scheme to traffic wherever possible**).
 - **Stage 4: Early operation at 2 to 4 months post road opening with live traffic.**

Employers Role

- Registers the Scheme and Audit Stage on the RSAAS
 - Prepares an Audit Brief
 - Seeks Approval through the RSAAS to appoint a competent Audit Team
 - Each Audit requires closure by means of the Feedback Form and exception report, before approval can be provided for the next stage of Audit
 - Audit Team shall be independent of the scheme design
 - For D&B's Audit Team must be a completely separate organisation to the Contractor or Designer
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Auditors Role

- Written Report
 - Clearly define the problem, include reasoning in support of the findings.
 - Recommendations to eliminate or mitigate the potential hazards identified.
 - You are not the Designer, you cannot start redesigning the scheme or part of the scheme.
 - It is not your scheme, don't take ownership of the problems by not including the issues in your report
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Designers Role

- Review Report
 - Complete the Feedback Form clearly
 - Accepting recommendations
 - Reject recommendations – clearly define why you reject them, including reasoning in support of the rejection
 - Alternative recommendation proposed
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Employers Role

- Ensure Feedback form is signed by Audit Team Leader, Designer and Employer
 - If required Employer submits the Exception Report
 - Upload copies of the Final Audit Report including Feedback Form, & Exception Report to RSAAS.

 - Ensure all recommendations are implemented
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Thank you

Forbes Vigors

Senior Engineer Road and Tunnel Safety

5th April 2016