

ROAD SAFETY AUDIT FEEDBACK and the CLOSEOUT PROCESS

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What's the point of Road Safety Audit?

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

The real objective

..... to suggest measures to
eliminate or mitigate those problems

And to get those measures implemented

A happy TII road safety team



Problems and Recommendations

2 ITEMS ARISING FROM THE AUDIT

2.1 **Problem: Gully at ch 8000 approximately**

For the length from ch 7800 to 8100 there is a significant difference in the levels between the two carriageways and thus the macadam surface slopes from the barrier to a drainage channel alongside the median edge line on the eastbound carriageway. The sloped area is not for use as a running lane and is hatched out with road markings to denote this.

At the eastern end of the drainage channel is a gully which is laid approximately 50mm below the level of the surrounding surface.

It is possible that, because the concrete median barrier is so far away, drivers may stray momentarily from the right hand lane and find their vehicle's right hand wheel guided into the drainage channel. If a vehicle's wheel travels in the drainage channel to its end it will hit the dropped gully, which may cause loss of control for the driver.

Recommendation:

Raise the gully grating so that its level is flush with the surrounding surface.

2.2 **Problem: Westbound off-slip at junction 9 for Garrycastle, ch 7500**

At this chainage the mainline N6 has a small radius, giving a tight left hand bend for drivers travelling westbound; on this bend there is an exit slip road for junction 9. The tight radius and the presence of dense vegetation close to the road edge combine to give very little forward visibility of the off-slip and the junction at the top of it.

Observation shows that there is a tendency for drivers in the left hand lane to drive this tight bend by following the edge line on their left hand side. As there is no obvious change in alignment as this edge line leaves the mainline and starts tapering into the off-slip some drivers are mistakenly straying into the off slip at this point, thinking it is a continuation of the mainline. When the drivers realise their mistake they pull sharply out again into the mainline; this manoeuvre can result in collisions when traffic flow is high.

Recommendation:

Make the layout of the exit slip more easily visible on approach by doing the following.

- a) Extend the diverge lane line marking back to meet the point at which the edge line starts on the off-slip taper. It is usual to leave a gap of up to 100m at the start of the taper, but in this case the gap is misleading and should be reduced to almost zero length.
- b) Remove the trees from the verge to provide visibility of the slip road from the mainline.

Feedback

Designer responds to the Audit Report in one of three ways

- Yes I'll do that
- Yes I see the problem, but I'll solve it my way
- No, there's no problem, and this is why.

For instance

Sight distance for pedestrians crossing minor road



The pedestrians' view



Problem and Recommendation

- **Problem:** Pedestrians walking along footpath on main road will need to cross minor road, and the sight distance at this crossing point is poor
- **Recommendation:** Improve visibility by removing or lowering the wall

Designer Response

- Yes, it's a problem
- No I don't want to demolish the wall
- The problem can be solved by moving the pedestrian crossing point 30m down the side road, where there is sufficient visibility

Designer's solution



Feedback

Audit Team responds to the Response

Designer's Response	Auditor's Response
Yes	OK
Yes, but I'll solve it my way	Yes, your way is fine
	No, that won't work
There's no problem, and this is why	Yes, I see it's not a problem after all
	No, it's a problem and needs sorting out

Discuss the audit report. And the feedback

- HD 19 process flowchart includes specific stage for discussion between audit team, designer and client – before report submission
- Discussion should also occur after designer's response – if necessary.
- A great help in explaining the responses
- Talk to each other

The wall example

Audit team can respond Yes or No

- **NO**, this will not solve the problem, as pedestrians will be reluctant to walk the extra 30m and will still be likely to attempt to cross at the junction mouth, where visibility is poor
- **YES**, that will solve it.

Typical feedback form

SAFETY AUDIT FORM – FEEDBACK ON AUDIT REPORTS

Scheme: N52 Carrick Bridge To Clonfad Road Improvement Scheme

Stage: 1 - Preliminary Design

Date Audit Completed: Tuesday 15th July 2008

Section No. In Safety Audit Report	Problem accepted (yes/no)	Recommended measure accepted (yes/no)	Alternative measures (describe)	Alternative measure accepted by Safety Auditor (yes/no)
2.1	Yes	Yes		—
2.2	Yes	Yes		—
2.3	Yes	Yes		—
2.4	Yes	Yes		—
2.5	No	No	The existing N52 (south side) will be closed to traffic. A farm access gate will be located at this point.	Yes
2.6	Yes	Yes		—

Signed... *Killian Lee* Project Team Leader

Date *18/03/2009*

Please complete and return to safety auditor.

Road Safety Audit

Signed off: *Luís G. Costa* Audit Team Leader

Date *15/04/2009*

Note form is pre 2009

Feedback Signing Off

Signed: _____	Designer	Date _____			
Signed: _____	Audit Team Leader	Date _____			
Signed: _____	Employer	Date _____			

Feedback form is signed by all 3 parties involved:

- Designer
- Audit Team Leader
- Client - Employer's nominated person

Statistics on reports submitted to TII

Sample of 160 reports over years 2000 – 2015

- Roughly 60% have feedback form included
- In recent years 90% (since 2009)
- Roughly 50% are signed by all required parties
- In recent years 90% (since 2009, 3 signatures)

The wall..... after much consultation



When is Exception Report needed?

All possible combinations of Response in Feedback

Item	Designer			Audit Team
	Problem Accepted	Recommended measure accepted	Alternative Recommendation / Explanation	Accepted by auditors
2.1	Y	Y	-	-
2.2	Y	N	ααα ααα ααα ααα ααα ααα ααα ααα ααα ααα	Y
2.3	Y	N	ααα ααα ααα ααα ααα ααα ααα	N
2.4	N	N	ααα ααα ααα ααα ααα ααα	Y
2.5	N	N	ααα ααα ααα ααα ααα ααα ααα ααα ααα ααα ααα	N

Exception Report Needed

Wherever there is a NO in the final column

Item	Designer			Audit Team
	Problem Accepted	Recommended measure accepted	Alternative Recommendation / Explanation	Accepted by auditors
2.1				
2.2				
2.3	Y	N	αααα αααα αααα αααα αααα αααα αααα	N
2.4				
2.5	N	N	αααα αααα αααα αααα αααα αααα αααα αααα αααα αααα	N

Exception Report Procedure

- Written by Client / Employer, or their Nominated Person
- Submitted to TII through Road Safety Audit Approvals System (RSAAS)
- TII issues Director's Decision – through RSAAS
- If not National Road then Director's Decision comes from relevant Overseeing Organisation or Road Authority

Exception report

No set format for report

For each disputed item in RSA report:

- Describe problem
- Describe audit team's recommendation
- Either:
 - Provide evidence to show problem is not valid
 - Outline alternative solutions, compare pros and cons of each and expected difficulties in implementation

Typical Exception Report format

N_____ Road Improvement Scheme

Exception Report for Stage 3 Road Safety Audit, Report no. 3_4A dated 24/11/2008, Report Item 2.1.15.

Problem raised by the Road Safety Audit Team:

On side road B between approximate chainages 100 and 250 there is a combination of high embankments, streams and headwalls. There is a possibility of an errant vehicle leaving the road at this location. The combination of hazards is likely to result in injury to an occupant of the vehicle.

Recommendation of Road Safety Audit Team:

Extend the barrier to protect errant vehicles.

Designer's Response:

The only unprotected location with high embankments and an adjacent stream occurs on the inside of a bend and it is considered that an errant vehicle on the inside of a bend is unlikely. The design speed for the road is less than 85kph; the headwalls are a minimum of 6.5m from the edge of the road and thus outside the clear zone. In addition the ditch is less than 1.2m deep and has water depth of less than 0.6m. It is considered that the particular hazards at this location do not warrant the provision of a barrier.

Designer's explanation

The only unprotected location with high embankments and an adjacent stream occurs on the inside of a bend and it is considered that an errant vehicle on the inside of a bend is unlikely. The design speed for the road is less than 85kph; the headwalls are a minimum of 6.5m from the edge of the road and thus outside the clear zone. In addition the ditch is less than 1.2m deep and has water depth of less than 0.6m. It is considered that the particular hazards at this location do not warrant the provision of a barrier.

TII Response

The director has decided to REJECT the Exception Report.

The Designer's point regarding the headwalls being outside the 6.5m clear zone is noted; however it should be noted that a 1:2 embankment cannot be calculated in the clear zone and is itself also a hazard. It is therefore decided that the barrier should be extended past the location of the headwalls.

Example of poor response

Item	2.8
Problem	The Rxxx will terminate in a cul-de-sac when the existing junction of the Rxxx / Nx is closed. Drivers, familiar with the existing layout, and failing to note the new one, could travel at excessive speed to the terminal point of the cul-de-sac.
Recommendation	Realign the Rxxx so that it forms a continuous route with the local access road at the cul-de-sac end. Retain the turning head. Erect cul-de-sac signs within both verges of the western Rxxx arm of the Rxxx / Lxxxx crossroads.
Alternative Measures	This is outside Lands Made Available for Contract. The matter will be referred to the Employer.
Accepted by Audit Team	No

Exception report will get rejected

Item	Decision by Director
2.8	<p>Reject designer's solution.</p> <p>The designer has referred to 'lands made available' as a reason for not carrying out the works, and has not made any attempt to address the safety issues involved. This is not an acceptable response.</p> <p>This is a design and build contract, the contractor was aware of the lands made available and these issues are the responsibility of the design and build consortium to address.</p>

Road Safety Audit Approvals System



TII
Bonneagar Iompair Éireann
Transport Infrastructure Ireland

ROAD SAFETY AUDIT APPROVALS SYSTEM roadsafetyaudits@nra.ie

LOGIN

User Name:

Password:

[Home](#)

[Register As User](#)

[Forgot Password?](#)

[Audits Standard Document](#)

WELCOME TO NRA ROAD SAFETY AUDIT APPROVALS SYSTEM (RSAAS)

Road Safety Audits evaluate road schemes during both design and construction to identify potential road safety hazards and recommend measures to eliminate or mitigate those hazards.

Road Safety Audit is required for any works on a national road that involve a permanent change to the existing layout of a road.

The RSAAS manages 2 primary functions:

1. Validation of Safety Auditors to undertake Audits on the National Network.
2. Approval of Audit requests to be done on National Roads by approved Safety Auditors.

In order to use this system you will need to **'Register as User'** from the menu.

A Registered User Can:

1. Register as an Auditor. For validation of status as Approved Road Safety Auditor
2. Register as a Client. For approval of a road safety audit team for an audit
3. Register as both Auditor & Client.

Client uploads Audit Report

Indicates whether Exception Report needed

AUDIT REPORTS

		<u>Date Received</u>	<u>Date of Execution</u>	<u>Auditors Positions</u>	<u>Exception Report Needed?</u>
	<input type="checkbox"/>	01/11/15	25/10/15	TL*178-Leader TM*178-Member	No
	<input type="checkbox"/>	08/03/16	01/03/16	TL*178-Leader TM*178-Member	Yes

1. Select Auditor/Position

None
 Member

Add >>

TL*178-Leader
 TM*178-Member

Remove

2. Report Received Date

3. Audit Execution Date

4. Select Report 300.pdf

5. Exception Report Needed?

6. Save Report and Associated Auditors


Exception Report Upload

New Exception Report Section will appear



EXCEPTION REPORTS

No Exception Reports Associated With Audit

1. Report Received Date 

2. Select Report No file chosen

3. Save Report

Director's Decision

Once uploaded it awaits the Director's Decision

EXCEPTION REPORTS

		<u>Date Received</u>	<u>Date of Directors Decision</u>	
		15/03/16		

1. Report Received Date

2. Select Report No file chosen

3. Save Report

Uploaded by TII

EXCEPTION REPORTS

		<u>Date Received</u>	<u>Date of Directors Decision</u>		
		15/03/16	18/03/16		

Uploaded Reports

All uploaded reports are available to download for

- Client
- Audit Team
- TII

Statistics on closeout

- 1800 audits approved since 2000
- 550 audits approved since 2009 – RSAAS

No reports uploaded	284
Reports uploaded, but not closed out	53
Completed	212

Statistics on exception reports

- No reliable record of exception report need before 2015

In sample of 99 reports from years 2001 - 2009

- 6 audits with exception report need indicated
- 4 exception reports supplied to NRA

- Since May 2015

- 3 audits uploaded with exception report need
- 3 exception reports supplied to NRA
- 3 Director's Decisions provided from TII

Exception Reports

Far fewer than expected

- Exception reports are an important and valid part of the audit process
 - Don't be ashamed of them
 - Don't try to avoid them at all costs
- Exception reports are very useful for TII as they record the areas where design and road safety audit are at odds

Feedback and Closeout



Thank you