

Received: 21/07/2023

N59 Oughterard Bridge Traffic Management & Signals Design

Quality Audit

Stephen Reid Consulting Traffic and Transportation

February 2023

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Notice

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Document History

JOB NUMBER: 230011			DOCUMENT REF: 210011PT003_QA_Rev_0			
0	Final Issue	MD	CP	MD	MD	14 Feb 2023
Revision	Purpose Description	Originated	Checked	Reviewed	Authorised	Date

Received: 21/07/2023

Contents

Section

Page

1.	Introduction	2
1.1	Report Context	2
1.2	Details of Site Inspection	2
1.3	The Road Safety Audit Team	2
1.4	Design Drawings Examined as Part of the Audit Process	2
1.5	Quality Audit Content and Compliance	3
2.	Walking, Cycling and Access Audit	4
2.1	Best Practice Guidance	4
2.2	Objectives of the Walking, Cycling and Access Audit	4
2.3	General Accessibility Recommendations	4
2.4	Specific Walking, Cycling and Accessibility Recommendations	5
3.	Stage 1 Road Safety Audit Problems	9
3.1	Problem: Registering the Presence of Traffic Signals	9
3.2	Problem: Crossing Length Leading to Drivers Ignoring Signals	9
3.3	Problem: Signals and Signage Restricting Footpath Width	10
4.	Audit Team Statement	11
4.1	Certification & Purpose	11
4.2	Implementation of RSA Recommendations	11
4.3	Road Safety Audit Team Sign-Off	11
5.	Responding to the Road Safety Audit	12
5.1	How the Designer Should Respond to the Road Safety Audit	12
5.2	Returning the Completed Feedback Form	12

List of Tables

Table 1.1 – Site Inspection Details	2
Table 1.2 – Audit Team Details	2
Table 1.3 – Designers Drawing List	2
Table 2.1 - Walking, Cycling and Access Audit Summary Table	5

List of Figures

Figure 3.1 – Forward Visibility to Primary Traffic Signal for Left Turners	9
Figure 3.2 – Approximate Line of Pedestrian Crossing	9
Figure 3.3 – Narrow Footpath on N59 Westbound Approach	10
Figure 5.1 – Road Safety Audit Sign-Off and Completion Process	12

Appendices

Appendix A	13
A.1 Road Safety Audit Feedback Form	13

Received: 21/07/2022

1. Introduction

1.1 Report Context

This report describes the findings of a Quality Audit associated with N59 Oughterard Bridge Traffic Management & Signals Design.

The Audit has been completed by Traffico Ltd. on behalf of Stephen Reid Consulting Traffic and Transportation.

1.2 Details of Site Inspection

Date	Daylight / Darkness	Weather & Road Conditions
Monday 19 th December 2022	Daylight	Cloudy with damp roads.

Table 1.1 – Site Inspection Details

1.3 The Road Safety Audit Team

The members of the Road Safety Audit Team have been listed following:

Status	Name / Qualifications	TII Auditor Reference No:
Audit Team Leader (ATL)	Martin Deegan BEng(Hons) MSc CEng MIEI	MD101312
Audit Team Member (ATM)	Jason Walsh BEng (Hons) PCert (RSA) CEng MIEI	JW3362499
Audit Trainee (AT)	-	-

Table 1.2 – Audit Team Details

1.4 Design Drawings Examined as Part of the Audit Process

The following drawing(s) were examined as part of the Road Safety Audit (RSA) process:

Drawing No.	Drawing Title	Revision
SRC-286-100	Existing Site Survey	A
SRC-286-101	General Arrangement and Extent of Works	G
SRC-286-102	Proposed Traffic Signals for Shuttle Working Across Bridge & New Footpath Layout	G
SRC-286-103	Autoturn Assessment for Articulated Trucks on N59 & 3 Axle Coach to / from Schools	G

Table 1.3 – Designers Drawing List

Received: 21/07/2020

1.5 Quality Audit Content and Compliance

Procedure and Scope for Quality Audit

This Quality Audit is undertaken in accordance with Section 5.4.2 of the Design Manual for Urban Roads and Streets. The UK Department for Transport Traffic Advisory Leaflet (TAL) 5/11 has also been referred to for guidance.

This Quality Audit consists of the following audit sections:

- Walking, Cycling and Access Audit – focusing on accessibility requirements of vulnerable road users (and in particular, those with visual or mobility impairments), and on the movement and place function requirements of pedestrians and cyclists
- Road Safety Audit – focusing on issues relating directly to road safety

Procedure and Scope Specific to the Road Safety Audit

The Road Safety Audit has been carried out in accordance with the procedures and scope set out in TII publication number GE-STY-01024 - Road Safety Audit.

As part of the road safety audit process, the Audit Team have examined only those issues within the design which relate directly to road safety.

Compliance with Design Standards

The road safety audit process is not a design check, therefore verification or compliance with design standards has not formed part of the audit process.

Minimizing Risk of Collision Occurrence

All problems described in this report are considered by the Audit Team to require action in order to improve the safety of the scheme and minimise the risk of collision occurrence.

Received: 21/07/2023



2. Walking, Cycling and Access Audit

2.1 Best Practice Guidance

This Quality Audit has been carried out in accordance with general best practice guidance set out within the following documents:

- The Disability Act 2005
- Building Regulations 2000, Technical Guidance Document M – Access for People with Disabilities (Department of the Environment, Heritage and Local Government)
- Buildings for Everyone Access and use for all citizens (National Disability Authority)
- Access Auditing of the Built Environment Guidelines (National Disability Authority)
- Traffic Management Guidelines (Irish Government Publications 2003)
- Guidance on the use of Tactile Paving Surfaces: UK Department for Transport

2.2 Objectives of the Walking, Cycling and Access Audit

The objectives of this Walking, Cycling and Access Audit are as follows:

- To ensure a high level of accessibility to the development site for all vulnerable road users and, for visually and mobility impaired users
- To ensure that the current and future access needs within the scheme are recognised and developed
- To ensure that advantage is afforded to walkers and cyclists at every opportunity

2.3 General Accessibility Recommendations

Following delivery of the Walking, Cycling and Access Audit, the design team should consider all issues raised herein for inclusion into the final design. It is less costly to make the changes now, pre-construction, than later after the scheme has been commissioned.

The client should consider setting up a dedicated access team for the project, responsible for the long-term management of universal access throughout the scheme.

This process should be facilitated by an Access Plan, which is a strategy for improving accessibility developed from the Audit and can ensure that access is an on-going concern and help identify opportunities for change.

The access plan should incorporate planned maintenance programmes, a schedule of works that has been devised to take into account the information in the Audit, processes to allow regular updating of the Audit information and links to maintenance and management procedures.


It should also set out procedures to ensure that when opportunities for access improvement arise, they are recognised.

Received: 21/07/2023



2.4 Specific Walking, Cycling and Accessibility Recommendations

A summary of the design features, together with recommended actions to be taken during the relevant stage of the design or operation of the scheme have been detailed in the following table.

Table 2.1 - Walking, Cycling and Access Audit Summary Table

I.D.	Location	Feature	Action	When
 Recommendations to Encourage Walking				
W1	Footpaths within N59 Oughterard Bridge Traffic Management & Signals Design	Pedestrian provision & universal access	Ensure pedestrian environments are logical, continuous, easy to understand and consistent throughout the scheme.	Design Stage
W2	Pedestrian linkage to local roads	Pedestrian provision – connections to Bus Stops & schools	Provide seamless connections onto the roads to connect with schools and Bus Stops and to encourage uptake for bus travel.	Design Stage
W3	Footpaths serving N59 Oughterard Bridge Traffic Management & Signals Design	Street furniture positioning	Ensure street furniture is carefully positioned to avoid obstruction in footways and to maximise the effective width.	Design & Operational Stages
W4	Footpaths serving N59 Oughterard Bridge Traffic Management & Signals Design	Footpaths and crossing points	Ensure footpaths and crossing points are located on all significant desire lines, where they are safe and convenient to use for all vulnerable road users.	Design Stage
W5	Pedestrian linkage to local roads	Linkage to public roads and footpaths	Access points which cross the works boundary and connect with public thoroughfares should link seamlessly with to accommodate universal access and pedestrian progression to schools and places of worship.	Design & Operational Stages
W6	Pedestrian Route Across Bridge	Pedestrian crossing facilities	The traffic signal phasing should allow sufficient time for pedestrians (including school children and the elderly) to cross the bridge between the segregated footpaths on each side.	Design & Operational Stages

Received: 21/07/2023

I.D.	Location	Feature	Action	When
 Recommendations to Encourage Cycling				
C1	N59 Oughterard Bridge Traffic Management & Signals Design & Monaloe Crescent	Traffic lanes where car and cycling use will be integrated	Appropriate measures should be prescribed which might make it abundantly clear to drivers that the movement of cyclists takes precedence over vehicles. This might be achieved with a gateway treatment, in lane cycle logos or street furniture etc.	Design Stage
C2	Traffic signal control - N59 Oughterard Bridge Traffic Management & Signals Design	Accommodation of cyclists at traffic signal stop lines	Measures which might assist cyclists to make their way to the front of a traffic queue and accumulate in front of vehicles at a red light should be investigated by the Designer. Encouraging cyclists to gather in front of vehicles (and take ownership of the lane) may assist traffic calming for vehicles shuttling across the structure.	Design Stage
C3	Cycle Parking - N59 Oughterard Bridge Traffic Management & Signals Design	Cycle Parking & security	To encourage use and safeguard security, position cycle parking away from isolated areas and close to building entrances which have natural passive surveillance. Consider providing cover over the cycle parking to protect cyclists from the elements where possible.	Design Stage
 Recommendations to Provide for Universal Access & Accessibility				
A1	Footpaths serving N59 Oughterard Bridge Traffic Management & Signals Design	Dropped kerbs & tactile paving	Ensure appropriate dropped kerbs and tactile paving are provided at key crossing points.	Design Stage
A2	Footpaths serving N59 Oughterard Bridge Traffic Management & Signals Design	Universal Access – footpath types and finishes	Ensure consistency in the types of footpath surface utilised and ensure that the surface provides appropriate contrast with the adjacent road pavement.	Design Stage
A3	Footpaths serving N59 Oughterard Bridge Traffic Management & Signals Design	Universal Access – material contrast	Ensure contrasting colours/materials are used to define areas which are meant for sole use by vulnerable road users.	Design Stage

Received: 21/09/2023

I.D.	Location	Feature	Action	When
A4	Footpaths serving N59 Oughterard Bridge Traffic Management & Signals Design	Universal Access – footpaths	Ensure that measures are taken to actively maintain and police errant car parking on footpaths which might impact negatively upon pedestrian progression.	Design Stage & Operational Stage
A5	Footpaths serving N59 Oughterard Bridge Traffic Management & Signals Design	Definition of footpath edges & terminations	Ensure footpath edges are clearly defined and ensure that appropriate termination details are provided when footpaths end.	Design Stage
A6	Footpaths serving N59 Oughterard Bridge Traffic Management & Signals Design	Street Lighting	Ensure public lighting is located where pedestrian movement decisions are required i.e., at crossing points.	Design Stage
A7	External areas - N59 Oughterard Bridge Traffic Management & Signals Design	Drainage gaps	Ensure any break in surface or gap (such as a drainage gully) is no greater than 10mm and is perpendicular to line of travel. Locate drainage features both away from (and up gradient from) crossing points.	Design Stage
A8	External areas - N59 Oughterard Bridge Traffic Management & Signals Design	Drainage / pavement gradients	Ensure access routes are constructed with even and gentle falls to allow proper drainage and prevent the formation of puddles. The cross-fall gradient to any access route should not exceed 1 in 50, except when associated with a dropped-kerb.	Design Stage
A9	External areas - N59 Oughterard Bridge Traffic Management & Signals Design	Obstructions from Street Furniture or landscaping	Ensure street furniture / landscaping do not encroach on the clear width of pathways.	Design Stage
A10	External areas - N59 Oughterard Bridge Traffic Management & Signals Design	Street Furniture – visually impaired	Ensure street furniture contrasts in colour with the surrounding pavement surfaces.	Design Stage

Received: 21/09/2023

I.D.	Location	Feature	Action	When
A11	Car Parking Areas - N59 Oughterard Bridge Traffic Management & Signals Design	Universal access to parking	Ensure car parking is accessible, easy to use, and sufficient parking spaces are provided within a well-designed environment to meet the needs of all end users who might (reasonably) be expected to use them.	Design Stage
A12	Car Parking Areas - N59 Oughterard Bridge Traffic Management & Signals Design	Disabled parking	Ensure location of designated spaces for car users with disabilities (if appropriate) are located as close as possible to the building access points.	Design Stage
A13	Car Parking Areas -N59 Oughterard Bridge Traffic Management & Signals Design	Car park & boundary treatment	Ensure that access to/from parked vehicles is not inhibited by boundary treatments, trees, hedges, street furniture or structural features.	Design Stage

Received: 21/07/2023

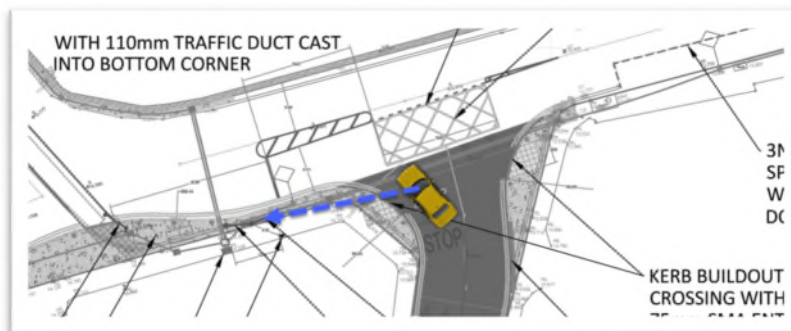
3. Stage 1 Road Safety Audit Problems

3.1 Problem: Registering the Presence of Traffic Signals

Location: Vehicles Turning Left from Station Road to N59 Westbound

The angle of approach for left-turning vehicles from Station Road could result in drivers being offered limited forward visibility to the traffic signals. This could lead to conflicts with vulnerable road users or opposing vehicles on the N59.

Figure 3.1 – Forward Visibility to Primary Traffic Signal for Left Turners



Recommendation

Drivers should be afforded with appropriate forward visibility to the traffic signal heads at this location. This could be coupled with suitable road markings and signage to inform side road drivers that they will be approaching a traffic signal controlled junction.

3.2 Problem: Crossing Length Leading to Drivers Ignoring Signals

Location: Longitudinal Pedestrian Crossing over Bridge Structure

The green time required to service the unusually long pedestrian crossing could lead to unmanageable delays for drivers on the N59 approaches. Frustrated drivers might ignore the red lights, placing pedestrians at risk of conflict with vehicles.

Figure 3.2 – Approximate Line of Pedestrian Crossing



Recommendation

Conspicuous measures which might encourage compliance with the traffic signal operation should be developed by the Designer. Such measures might include robust traffic signage and road markings, vehicle actuation, pedestrian detection, pedestrian count-down signals, enforcement cameras and an education campaign for local stakeholders.

Received: 27/07/2023

3.3 Problem: Signals and Signage Restricting Footpath Width

Location: Areas Where Street Furniture is to be Placed in Narrow Footpaths

If not carefully managed, traffic signals and road signage could further reduce the affective width of footpaths. This could lead to pedestrians stepping into the carriageway without warning.

Figure 3.3 – Narrow Footpath on N59 Westbound Approach



Recommendation

Where pinch points are likely to be created in footpaths, traffic signals and road signage should be carefully relocated to maximise the effective width of the footpath. New street furniture should be positioned away from pinch points, to the rear of the footpath where possible.

Received: 21/07/2023

4. Audit Team Statement

4.1 Certification & Purpose

We certify that we have examined the drawing listed in Chapter 1 of this Report.

Sole Purpose of the Road Safety Audit

The Road Safety Audit has been carried out with the sole purpose of identifying any features of the design which could be removed or modified to improve the road safety aspects of the scheme.

4.2 Implementation of RSA Recommendations

The problems identified herein have been noted in the Report together with their associated recommendations for road safety improvements.

We (the Audit Team) propose that these recommendations should be studied with a view to implementation.

Audit Team's Independence to the Design Process

No member of the Audit Team has been otherwise involved with the design of the measures audited.

4.3 Road Safety Audit Team Sign-Off

Martin Deegan

Audit Team Leader
Road Safety Engineering Team

traffico

Signed:



Date:

14th February 2023

Jason Walsh

Audit Team Member
Road Safety Engineering Team

traffico

Signed:



Date:

14th February 2023

Received 21/07/2023

5. Responding to the Road Safety Audit

5.1 How the Designer Should Respond to the Road Safety Audit

The Designer should prepare an Audit Response for each of the recommendations using the Road Safety Audit Feedback Form attached in Appendix A.

When completed, this form should be signed by the Designer and returned to the Audit Team for consideration. See flow-chart following for further description.



Figure 5.1 – Road Safety Audit Sign-Off and Completion Process

5.2 Returning the Completed Feedback Form

The Designer should return the completed Road Safety Audit Feedback Form attached in Appendix A of this report to the following email address:

- Email address: martin@traffico.ie

The Audit Team will consider the Designer’s response and reply indicating acceptance or otherwise of the Designers response to each recommendation.

Triggering the Need for an Exception Report

Where the Designer and the Audit Team cannot agree on an appropriate means of addressing an underlying safety issue identified as part of the audit process, an Exception Report must be prepared by the Designer on each disputed item listed in the audit report.

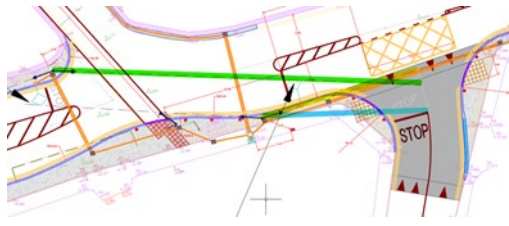
Received: 21/07/2023

Appendix A

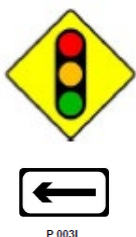
A.1 Road Safety Audit Feedback Form

Received: 21/01/2023

<h1>Road Safety Audit Feedback Form</h1>	
Scheme: N59 Oughterard Bridge Traffic Management & Signals Design.	
Audit Stage: Stage 1 Road Safety Audit	Audit Date: 31 st January 2023

Problem Reference (Section 2)	Designer Response Section			Audit Team Response Section
	Problem Accepted (yes / no)	Recommended Measure Accepted (yes / no)	Alternative Measures or Comments	Alternative Measures Accepted (yes / no)
2.1	Yes	Yes	<p>Forward visibility of the primary and secondary traffic signals has been checked in accordance with TSM Ch.9 and heads aligned so the aspects meet the requirements therein. With regards to the visibility of the traffic signals for traffic exiting from Station Road it is noted that both primary and secondary signal heads are aligned facing the N59 westbound approach, but the angles are shallow enough to afford good visibility for traffic approaching the turnout point onto the N59 from Station Road. To demonstrate this, note below the dashed lines showing TSM visibility alignment (yellow highlighted is primary and green highlighted is secondary). The green highlight line is extended through beyond the 2.5m stopline setback measurement point to the centre of the Station Road, and in addition the blue highlight line shows visibility to the primary from the centreline of the Station road at the proposed setback stopline.</p>  <p>Designer note: the TS installers should check alignment on site and ensure that no additional road signs or cowls on red or amber signal aspects are located</p>	Noted & agreed

Received: 21/8/2023

Problem Reference (Section 2)	Designer Response Section			Audit Team Response Section
	Problem Accepted (yes / no)	Recommended Measure Accepted (yes / no)	Alternative Measures or Comments	Alternative Measures Accepted (yes / no)
			<p>where these could block visibility for traffic exiting from Station Road.</p> <p>A W042 Traffic Signals Ahead sign is to be installed on each of the signalised arm approaches.</p> <p>If viewed as appropriate a sign with a supplementary left pointing arrow plate P003L could be installed on Station Road approaching the N59 junction (see below).</p> <div style="text-align: center;">  <p>P 003L</p> </div>	
2.2	Yes	Yes		
2.3	Yes	Yes	Existing footpath is 1.6m wide to west of the Station Road corner. Proposed kerb buildout increases width to 2.0m (minimum) and there is more than 2.0m clear width from proposed primary signal pole to the boundary wall. There is a redundant pole (previously a no parking sign) which can be removed during the civil works to build out the kerbline and install signal ducting.	Noted with thanks

**The Designer should complete the Designer Response Section above, then fill out the designer details below and return the completed form to the Road Safety Audit Team for consideration and signing.*

Designer's
Name: Stephen Reid

Designer's
Signature:



Date: 01.02.2023

Employer's
Name: Cathal Joyce GCC

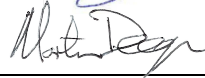
Employer's
Signature:



Date: 07/02/2023

Audit Team's
Name: Martin Deegan

Audit Team's
Signature:



Date: 14 February 2023

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e: hello@traffico.ie

w: www.traffico.ie