

Griffith Avenue – Phase 1 Protected Cycle Lanes

Stage 3 Road Safety Audit

October 2020

Quality information

Prepared by



Zachary Cave
Traffic Planner / Engineer

Checked by



Brian McMahon
Associate Director

Approved by



Brian McMahon
Associate Director

Revision History

Revision	Revision date	Details	Authorized	Name	Position
1	19/10/2020	Draft	BMcM	Brian McMahon	Associate Director

Prepared for:

Dublin City council

Prepared by:

AECOM Ireland Limited
4th Floor
Adelphi Plaza
Georges Street Upper
Dun Laoghaire
Co. Dublin A96 T927
Ireland

T: +353 1 238 3100
aecom.com

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1. Introduction

1.1 Overview Introduction

AECOM has been commissioned by the Dublin City Council to undertake a Stage 3 Road Safety Audit of a recently constructed protected cycle track scheme on Griffith Avenue, Whitehall in Co. Dublin.

This Stage 3 Audit will assess the safety implications of the scheme for all road users.

The Safety Audit Report indicates each of the problems identified, provides outline recommendations for solving the problems, presents the Audit Team Statement, and describes a schedule of documents reviewed. The members of the Audit Team were:

Audit Team Leader:

Brian McMahon, BE MSc CEng MIEI

Associate Director, AECOM

Audit Team Member:

Zachary Cave, BE MIEI

Traffic Planner / Engineer, AECOM

The audit comprises of an examination of the built scheme only, as no scheme drawings were presented to the audit team. The site visit took place on the 16th September 2020. On the day of the visit the weather was bright with a dry road surface. During the time of the site visit, there did not appear to be any circumstances that would suggest a deviation from normal traffic conditions. The daytime site visit was undertaken between 14.00hrs and 15.00hrs, with the night-time site visit being undertaken between 20:45hrs and 21:30hrs.

1.2 Scheme Description

The scheme consists of the provision of a new protected cycle lane on the northside of Griffith Avenue. The cycle lane was facilitated with the removal of one of two eastbound traffic lanes. A protected cycle lane is one which is segregated from traffic with the provision of a concrete kerb. The height of the concrete kerb is 125mm. Bollards are provided at regular intervals to provide demarcation of the new kerb, with a keep right bollard placed at the start of each cycle link. These bollards have been provided on the top of the protection kerbs. Gaps in the kerbs are provided to allow drainage and where utility covers are present. Figure 1.1 demonstrates a section of the constructed scheme.



Figure 1.1 – Section of the Constructed Scheme

1.3 Road Safety Audit

This Safety Audit represents the response of an independent Audit Team to various aspects of the scheme. The recommendations contained therein are the opinions of the Audit Team and are intended as a guide to the designers on how the scheme as proposed can be improved to address issues of road safety.

The terms of reference of the Audit are as described in TII guidelines GE-STY-01024. The team has examined and reported only on the road safety implications of the scheme as presented and they have not examined or verified the compliance of the design to any other criteria.

The Safety Audit guidelines do not provide a facility for the Audit Team to classify individual problems according to their severity, and hence the level of priority to be attached to each. It is instead the task of the design team and/or their representative to take a view on the validity of each of the recommendations and decide on an appropriate course of action.

The response of the Design Team to the Safety Audit should be prepared in the form of a Safety Audit Feedback Form, accepting the changes proposed by the Audit Team or providing an alternative solution to the problem. The Feedback Form is then returned to the Audit Team for review and verification. A template for a Safety Audit Feedback Form is included as Appendix B.

2. Site Location

2.1 Overview

The scheme consists of the construction of a protected cycle scheme along Griffith Avenue, Dublin. The road is bound by residential houses to the north with residential dwellings, Tolka Rovers Football Club, an industrial estate and Glasnevin Educate Together National School located to the south. The scheme is bound with two signal-controlled junctions, at the eastern and western extents of the scheme.

The location of the scheme is illustrated in Figure 2.1.



Figure 2.1 – Site Location and Surrounding Road Network

Table 2.1 provides a summary of the scheme location and context.

Table 2.1: Summary of Scheme Location

Location	Griffith Avenue
Classification	Regional Road (R102)
Speed Limit	60 km/h
Local Authority Area	Dublin City Council
Type of Roads	Single Carriageway Roads, Urban Environment

2.2 Site Observations

The site visit was undertaken during daytime and night-time on Wednesday 16 September 2020; the weather was clear and dry. A number of site observations were noted. These observations are discussed below under a number of key headings.

Road Geometry

- Griffith Avenue is two-way road carriageway. Prior to the construction of the protected cycle lane, there were two traffic lanes in both directions. The construction of the protected cycle lane was facilitated with the removal of one of the east bound traffic lanes. The kerb to kerb width of the road carriageway is approximately 12m.
- Either end of the scheme has a traffic signal-controlled junction. The scheme connects in with the Ballymun Road on the eastern end of the scheme and the Ballygall Road East junction on the western end of the scheme.
- A single priority junction provides access to the residential houses on the northern side of Griffith Avenue, thus reducing the number of conflicts with the cycle lane.

Vehicular Traffic

- Within the scheme extents, the speed limit is 60km/h.
- From the observations during the site visit the majority of motorists appeared to obey the speed limits.

Pedestrians and Cyclists

- A pedestrian footpath is provided north of the Griffith Avenue located behind a grass verge. A shared pedestrian / cycle lane is provided on the southern side of the road carriageway behind a grass verge. Pedestrians and cyclists are segregated by the use of a white line.
- A controlled pedestrian crossing is provided on Griffith Avenue adjacent to the Educate Together National School, as shown in Figure 2.2. There was a large number of pick-ups during the site visit, with parents collecting their children from school. Motorists seemed in general to park their cars on the residential road, which runs north of the main Griffith Avenue road carriageway.



Figure 2.2 – Existing Pedestrian Crossing on Griffith Avenue adjacent to the National School

- The newly constructed protected cycle lane is provided on the northern side of the road carriageway only, for eastbound cyclists. The cycle lane, from kerb to protected kerb is approximately 2.0m wide. A white line is provided on the inside of the kerb to increase the visibility of the kerb to cyclists, and potentially to pedestrians who may cross the road away from dedicated crossing points. A wide hatch is provided on the outside of the kerb, to highlight the kerb to motorists and to maintain a wide gap between the kerb and vehicles.
- A drainage channel is maintained on the inside of the cycle lane, with existing gullies maintained, as shown in Figure 2.3. The cycle lane is highlighted further with a beige anti-skid surfacing provided.



Figure 2.3 – Existing Drainage Channel and Gullies

- The protected segregation kerbs feature gaps in the kerblines to facilitate drainage.

Street Lighting

- Street lighting is provided along the Griffith Avenue in the vicinity of the proposed scheme, alternating between the north and south side of the road.
- The site visit was carried out during both daylight and night time hours; lighting levels at the time of the site visit adequately lit the scheme.

Collisions

- The RSA database of road collisions was examined to establish if there are any existing safety issues within the site that were not evident from the site visit.
- The database provides collision records for the period 2005 to 2016, with Figure 2.4 below outlining the recorded collisions over the 12 year period.
- 3 collisions occurred on the Griffith Avenue along the proposed scheme, of which all were minor and occurred at the junctions at either ends of the scheme. One collision involved a motorcycle with the other two involving cars.

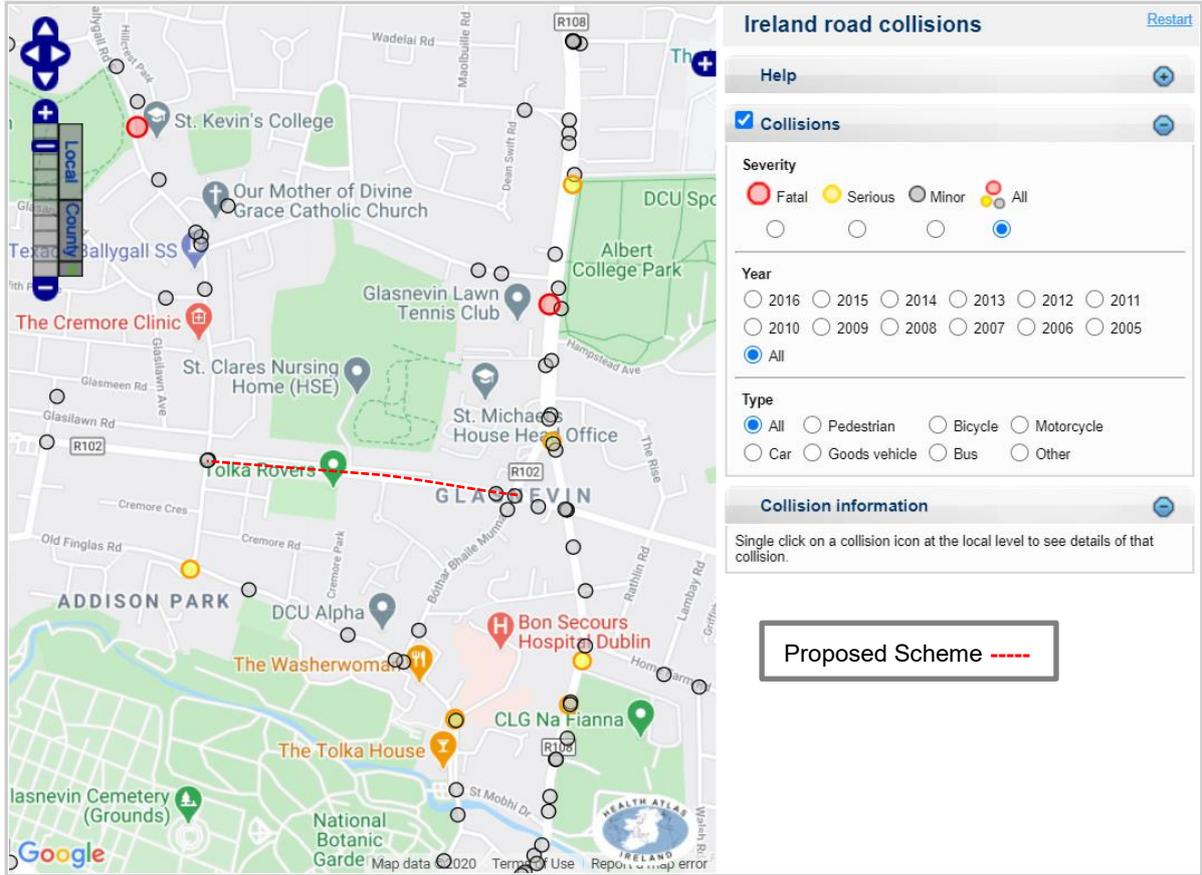


Figure 2.4 – RSA Collisions Records (2005-2016) in vicinity of the proposed scheme (www.RSA.ie)

3. Departures from Standards

3.1 General

No departures from standards have been notified to the audit team.

4. Items Resulting from this Stage 3 Road Safety Audit

4.1 Overview

This Safety Audit has reported on issues relating to the built cycle scheme along Griffith Avenue. This is classified as a Stage 3 Road Safety Audit, as defined within the TII Road Safety Audit Guidelines.

4.2 Road Geometry

No issues with the road geometry were not noted on site.

4.3 Signing & Lining

<p>4.3.1 Problem</p>		
<p><i>Location:</i></p>	<p>Approach to the pedestrian crossing</p>	
<p><i>Drawing:</i></p>	<p>NA</p>	
<p><i>Summary:</i></p>	<p>Visibility of the pedestrian crossing to cyclists</p>	
<p>Description:</p> <p>The approach to the signalised pedestrian crossing along Griffith Avenue is slightly downhill. This could result in cyclists travelling at excessive speeds along the cycle lane with some cyclists failing to observe pedestrians, particularly school children, using the pedestrian crossing. Cyclists failing to observe pedestrians using the crossing could result in a pedestrian-cyclist collision with the potential for severe injuries to occur.</p>		<p>Figure 4.1 – Approach to Existing Signal Controlled Junction</p>
<p>Recommendation:</p> <p>Additional measures should be provided along the cycle track to increase the conspicuousness of the existing pedestrian crossing. At a minimum, a cycle signal head should be provided at a lower level.</p>		

4.3.2 Problem		
<i>Location:</i>	At gaps in the concrete protection kerb	
<i>Drawing:</i>	NA	
<i>Summary:</i>	Potential Trip Hazard	
Description:		<p>The bollards are currently provided on the top of the protection kerbs. The audit team were informed that initially these bollards were to be provided in between the kerbs but were moved to the top of the protection kerbs. It was noted during the site visit that some of the screws that were used to install these bollards were sticking up from the carriageway. These screws present a trip hazard to pedestrians as they may trip and fall into the vehicle carriageway or cycle lane.</p>
Recommendation:		<p>All old bollard screws should be removed.</p>

Figure 4.2 – Old Screw Lodged in Road Carriageway

4.4 Pedestrians & Cyclists

No Issues noted.

4.5 Drainage & Maintenance

4.5.1 Problem		
<i>Location:</i>	Throughout the scheme	
<i>Drawing:</i>	NA	
<i>Summary:</i>	Risk of ponding	
Description:		<p>The raised protection kerbs will block existing run off water flows. Gaps have been provided in the concrete kerbs to facilitate water run-off. However, if additional ponding was to build up on the road carriageway there is a risk that motorists will swerve to avoid it resulting in a collision with an oncoming vehicle.</p>
Recommendation:		<p>The scheme should be monitored for ponding. If ponding is to occur at any location, a cut should be made in the protection kerbs to ensure that no additional ponding occurs on the road carriageway or cycle lane.</p>

Figure 4.3 – Gap in kerb located downhill of gully

4.5.2 Problem	
<i>Location:</i>	Throughout the scheme
<i>Drawing:</i>	NA
<i>Summary:</i>	Maintenance of the cycle lanes

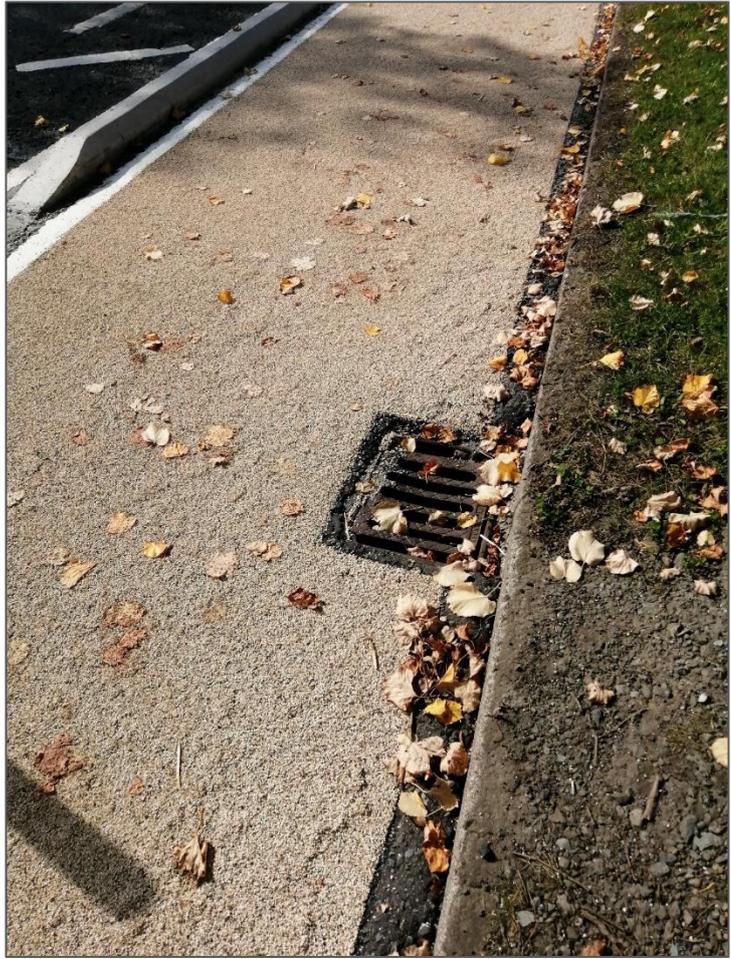


Figure 4.4 – Example of Leaves Along the Cycle Lane

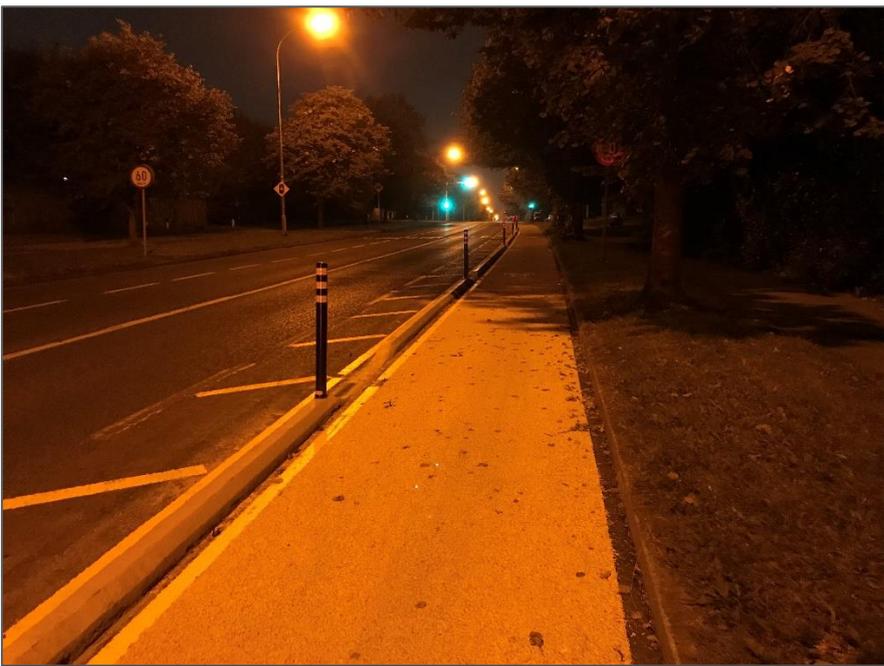
Description:

Due to trees being provided along both sides of the carriageway adjacent to the cycle lane, there is a risk that should regular maintenance not be undertaken that this would lead to a build-up of debris in the cycle lane. This would result in the cycle lane becoming slick with leaves and may lead to cyclists losing grip and falling off their bike.

Recommendation:

An appropriate maintenance strategy should be developed to keep the cycle lane clear of tree foliage and debris.

4.6 Public Lighting

4.6.1 Problem		
Location:	Throughout the scheme	
Drawing:	NA	
Summary:	Maintenance of existing trees	
<p>Description:</p> <p>Due to trees being provided along both sides of the carriageway adjacent to the cycle lane, there is a risk that should regular maintenance not be undertaken that the existing lighting levels will be reduced. This may result in poor visibility between cyclists and motorists and could result in a collision at conflict points.</p>		<p>Figure 4.5 – Night-time lighting levels</p>
<p>Recommendation:</p> <p>An appropriate maintenance strategy should be developed to keep the trees from obstructing the streetlights.</p>		

5. Audit Team Statement

We certify that the site was visited and that this audit has been carried out in accordance with the Transport Infrastructure Ireland Road Safety Audit Guidelines GE-STY-01027-01 and Standard GE-STY-01024-07.

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

No one on the audit team has been involved with the scheme design.

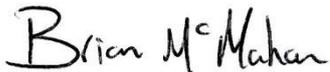
AUDIT TEAM LEADER: SENIOR ROAD SAFETY AUDITOR

Name: Brian McMahon BE MSc CEng MIEI

Position: Associate Director

Organisation: AECOM

Address: Adelphi Plaza
George's Street Upper
Dun Laoghaire

Signed 

Date 19.10.2020

AUDIT TEAM MEMBER: ROAD SAFETY AUDITOR

Name: Zachary Cave

Position: Traffic Planner / Engineer

Organisation: AECOM

Address: Adelphi Plaza
George's Street Upper
Dun Laoghaire

Signed 

Date 19.10.2020

OTHERS INVOLVED:

Members of the local authority attended the day and night-time visits, while members of the Gardai attended the night time site visit.

Appendix A Documents Submitted to the Audit Team

No documents were submitted to the Audit Team.

Appendix B Road Safety Audit Feedback Form

Scheme: Griffith Avenue– Protected Cycle Lanes					
Audit Stage: Stage 3					
Date Audit Completed: 19.10.20					
Paragraph No. in Safety Audit Report	To Be Completed by Designer				To Be Completed by Audit Team Leader
	Problem Accepted (yes/no)	Recommended measure accepted (yes/no)	Describe alternative measure(s). Give reasons for not accepting recommended measure.	Designers Comments	Alternative measures or reasons accepted by auditors (yes/no)
4.3.1	Yes	Yes			
4.3.2	Yes	Yes			
4.5.1	Yes	Yes			
4.5.2	Yes	Yes			
4.6.1	Yes	Yes			

Designer's Signature:

Date: 20/10/2020



Auditor's Signature:

Date: XX/XX/2020

