

Cycle Enfield - Section 2

A105 Between Oakthorpe Road and Aldermans Hill

Stage 2 Road Safety Audit

Ref: 2759.03.02/032/A105/BOR/2016

Prepared for:

London Borough of Enfield

By:

Road Safety Audit, TfL Asset Management Directorate

Prepared by: Shane Martin, Audit Team Leader

Checked by: Kevin Seymour, Audit Team Member

Approved by: Andrew Coventry

Version	Status	Date
A	Audit report issued to Client	23/12/2016



1.0 INTRODUCTION

1.1 Commission

- 1.1.1 This report results from a Stage 2 Road Safety Audit carried out on the Cycle Enfield - Section 2, A105 Between Oakthorpe Road and Aldermans Hill proposals.
- 1.1.2 The Audit was undertaken by TfL Road Safety Audit in accordance with the Audit Brief issued by the Client Organisation on 25th November 2016. It took place at the Palestra offices of TfL on 16th December 2016 and comprised an examination of the documents provided as listed in Appendix A, plus a visit to the site of the proposed scheme.
- 1.1.3 The visit to the site of the proposed scheme was made on 16th December 2016. During the site visit the weather was sunny and the existing road surface was dry.

1.2 Terms of Reference

- 1.2.1 The Terms of Reference of this Audit are as described in TfL Procedure SQA-0170 dated May 2014. The Audit Team has examined and reported only on the road safety implications of the scheme as presented and how it impacts on all road users and has not examined or verified the compliance of the designs to any other criteria. However, to clearly explain a safety problem or the recommendation to resolve a problem the Audit Team may, on occasion, have referred to a design standard without touching on technical audit. An absence of comment relating to specific road users / modes in Section 3 of this report does not imply that they have not been considered; instead the Audit Team feels they are not adversely affected by the proposed changes.
- 1.2.2 This Safety Audit is not intended to identify pre-existing hazards which remain unchanged due to the proposals; hence they will not be raised in Section 3 of this report as they fall outside the remit of Road Safety Audit in general as specified in the procedure SQA-0170 dated May 2014. Safety issues identified during the Audit and site visit that are considered to be outside the Terms of Reference, but which the Audit Team wishes to draw to the attention of the Client Organisation, are set out in Section 4 of this report.
- 1.2.3 Nothing in this Audit should be regarded as a direct instruction to include or remove a measure from within the scheme. Responsibility for designing the scheme lies with the Designer and as such the Audit Team accepts no design responsibility for any changes made to the scheme as a result of this Audit.
- 1.2.4 In accordance with TfL Procedure SQA-0170 dated May 2014, this Audit has a maximum shelf life of 2 years. If the scheme does not progress to the next stage in its development within this period, then the scheme should be re-audited.
- 1.2.5 Unless general to the scheme, all comments and recommendations are referenced to the detailed design drawings and the locations have been indicated on the plan located in Appendix B.

- 1.2.6 It is the responsibility of the Design Organisation to complete the Designer's response section of this Audit report. Where applicable and necessary it is the responsibility of the Client Organisation to complete the Client comment section of this Audit report. Signatures from both the Design Organisation and Client Organisation must be added within Section 5 of this Audit report. A copy of which must be returned to the Audit Team.

1.3 Main Parties to the Audit

1.3.1 Client Organisation

Client contact details: Paul Rogers – London Borough of Enfield

1.3.2 Design Organisation

Design contact details: Deepak Sharma - Jacobs

1.3.3 Audit Team

Audit Team Leader: Shane Martin – TfL Road Safety Audit

Audit Team Member: Kevin Seymour – TfL Road Safety Audit

Audit Team Observer: None present

1.3.4 Other Specialist Advisors

Specialist Advisor Details: None present

1.4 Purpose of the Scheme

The purpose of the scheme is to provide 5.5km of two-way segregated cycle route with public realm improvements at town centres*.

*Taken directly from the Audit Brief.

1.5 Special Considerations

- 1.5.1 This Audit Report covers Section 2 (Sheet 3) of this route only, along the A105 between Oakthorpe Road and Aldermans Hill.

2.0 ITEMS RAISED IN PREVIOUS ROAD SAFETY AUDITS

The proposals were subject to a Stage 1 Road Safety Audit carried out in March 2016 by TfL Road Safety Audit, Asset Management Directorate (Ref 2524/032/A105/BOR/2016). This report covered the whole route and therefore many of the issues raised are not specific to this (Section 2) part of the proposals. Items raised in the previous Audit Report deemed relevant to this section can be summarised as follows:

There are no issues raised in the main body of the previous stage 1 Road Safety Audit which are relevant to this specific section of the scheme.

Items raised in the Stage 1 Road Safety Audit report that are outside the Terms of Reference:

Issue 4.2 Bus borders separated from the footways by cycle lanes may result in difficulties for some users to access the bus stop and may lead to low level cycle / pedestrian conflicts.

This issue is considered to remain in part and will therefore be raised again as part of 3.1.2 in this Audit report.

3.0 ITEMS RAISED AT THIS STAGE 2 ROAD SAFETY AUDIT

This section should be read in conjunction with Paragraphs 1.2.1, 1.2.2 and 1.2.3 of this report.

3.1 CYCLING FACILITIES

3.1.1 PROBLEM

Location: General to scheme, multiple locations

Summary: The use of 'Orcas' as a segregation measure may lead to trips / falls for cyclists and pedestrians.

The proposals include 'Orcas' as a semi / soft segregation measure alongside the cycle tracks. The Audit Team are concerned that the 'Orcas' may not be adequately visible to road users, particularly pedestrians, cyclists and powered-two-wheelers.

Pedestrians crossing the carriageway may fail to appreciate the raised nature of the 'Orcas', with a potential for trips and falls within the carriageway.

Riders of two wheeled vehicles may fail to appreciate that the 'Orcas' are raised, particularly in inclement weather. Riders may become destabilised as they over-run the features, leading to an increased potential to become unseated, with a resultant potential for personal injury.

The potential for injury is exacerbated as the features are situated in positions where they are encouraged to be traversed, such as outside residential accesses.

RECOMMENDATION

It is recommended that any potential trip hazards are removed; this may require the use of an alternative type of segregation measure.

Design Organisation Response	Accepted / Part Accepted / Rejected
<p>The use of light segregation Orcas has been a proposed element of the scheme since initial development. The Orcas will be set inside the mandatory cycle lane marking (diag 1049B) and are white/black marked to stand out. In addition, the start and finish of an Orca line will be marked by a wand to further highlight the Orca line as it is approached. Orcas placed alongside vehicular access will be of a lower profile to allow vehicular over run. Orcas will be sited away from pedestrian crossing points to minimise the risk of trips</p> <p>Post construction monitoring is recommended at a number of agreed locations to determine if there are any issues and to allow for modifications if necessary.</p>	
Client Organisation Comments	
[Leave blank for Client Organisation's Comments]	

3.1.2 PROBLEM

Location: General to scheme, multiple locations

Summary: Bus passengers boarding or alighting may result in collisions with cyclists on the track.

The Audit Team are concerned that proposed cycle tracks run immediately adjacent to proposed bus stop boarders. Therefore bus passengers would board / alight a bus from / onto the cycle tracks. This may result in cyclists diverting away from the cycle track whilst their path is obscured, which may result in increased collisions with pedestrians or vehicles who may not expect cyclists diverting from the track. In addition, bus passengers alighting may not anticipate or be able to see approaching cyclists immediately adjacent to the bus, which may result in cycle to pedestrian type collisions. Visually impaired pedestrians, particularly those alighting from a bus may follow the kerb line and inadvertently enter the carriageway. Visually impaired pedestrian unknowingly within the carriageway are at an increased potential for collisions with motorists.

RECOMMENDATION

It is recommended that the layout of the bus stop boarders / cycle tracks are altered to mitigate the potential interactions with bus passengers. This may include, but is not limited to, providing tramline tactile paving prior to the ramps down to carriageway level and an increased separation between the boarding / alighting area and the cycle track.

Design Organisation Response	Accepted / Part Accepted / Rejected
Bus boarders have been introduced with a 0.5m buffer at locations where there is not scope to introduce a bus stop by-pass, to deliver an acceptable level of route continuity particularly at conflict points such as bus stops, where buses will be pulling into the kerb, through the desire line of a cyclist. The proposed bus stop boarders will use different material/tones to clearly show a change in environment from a segregated facility to a shared space. This is not dissimilar to a shared space environment adjacent to a toucan crossing, where pedestrian and cycles mix.	
Monitoring can be undertaken post-implementation to review the safe operation of the proposed design.	

Client Organisation Comments

Designer's response accepted – operation of the bus stop boarders will be monitored post-implementation.

3.1.3 PROBLEM

Location: General – various footway level sections of cycle track

Summary: Potential lack of delineator may lead to collisions with visually impaired pedestrians.

The Audit Team are concerned that the proposed measures do not appear to indicate a delineator between the footway and cycle tracks provided at footway level. This could lead to visually impaired pedestrians inadvertently entering these sections of cycle lanes or potentially entering the carriageway via the ramp between the two facilities. Cyclists on the cycle track or motorists on the carriageway are unlikely to anticipate a visually impaired pedestrian and this may therefore result in increased collisions between these users.

RECOMMENDATION

It is recommended that as well as a good visual differentiation between the footway and cycle tracks a detectable delineator should be provided to ensure that all users are aware of the edge of footway.

Design Organisation Response	Accepted / Part Accepted / Rejected
The cycle lane edging will comprise of 3 x 100x100mm cropped silver grey setts. The texture and differing contrast will indicate to visually impaired pedestrians that they should not enter the cycle lane.	
In addition, the cycle track will be surfaced in a suitable colour, to provide tonal difference with the surrounding footway.	
Client Organisation Comments	
Designer's response accepted.	

3.1.4 PROBLEM

Location: A – Parking restrictions on southbound carriageway near 196 Green Lanes

Summary: Parking permitted across the semi segregated cycle track may result in side swipe or shunt type collisions as cyclists divert into the general traffic lane.

The proposals include various small sections of the semi segregated cycle track which are advisory rather than mandatory and utilise mini orcas and double yellow lines which permit loading only outside of peak hours. The Audit Team are concerned that vehicles parked within the cycle track may result in cyclists diverting out of the track and into the adjacent carriageway running lane. Such manoeuvres may not be anticipated by drivers and an increased potential for collisions between motorists and cyclists may result.

RECOMMENDATION

It is recommended that parking is not permitted across any section of the segregated cycle track.

Design Organisation Response	Accepted / Part Accepted / Rejected
Post implementation parking provision has been a contentious aspect of the project.	

A decision was made to allow some loading provision along residential sections of the route, to accommodate public need.

Loading times are restricted to loading outside peak hours which should minimise inconvenience to the larger volumes of cyclists. Visibility is good, approaching the loading areas, allowing cyclists to access the carriageway in good time and safely, should a vehicle be parked. The loading bays, generally, are in residential areas where loading is expected to be low. Monitoring can, however, take place post completion to determine usage.

Client Organisation Comments

Designer's response accepted

3.1.5 PROBLEM

Location: B – Parking permitted adjacent to cycle track near 230 Green Lanes

Summary: Parking / loading permitted adjacent to the cycle track may result in users exiting or unloading within the cycle track.

The proposals include retention of existing parking bays in this area. There appears to be a buffer of approximately 0.5m between the parking bays and the proposed cycle track. The Audit Team are concerned that pedestrians, users unloading and disabled users entering / exiting these vehicles, may do so within the cycle track which may result in an increased potential for collisions between southbound cyclists and people using / loading to / from the parking bays.

RECOMMENDATION

It is recommended that the buffer is increased to ensure that the cycle path is kept as clear as possible and suitable pedestrian and disabled user access to the parking bays is provided over the cycle track.

Design Organisation Response

Accepted / Part Accepted / Rejected

A minimum of 0.5m buffer has been provided throughout the scheme between the edge of cycle lane and the carriageway/parking or loading bays. This is considered wide enough to allow for opening doors and people to disembark from vehicles without causing an obstruction to the cycle lane.

Should there be occasion when users unload onto the cycle track, rather than within the parking bay, then forward visibility on the approach to the parking area is sufficient for cyclists to slow down and warn of their approach to the person unloading.

Client Organisation Comments

Designer's response accepted

3.1.6 PROBLEM

Location: C – commencements of full height kerbs south of Aldermans Hill

Summary: Motorists may not notice and collide with the commencement of full height kerbs.

The Audit Team are concerned that motorists may not appreciate that the edge of the cycle track includes a full height kerb at this location. This kerbed physical segregation commences within the carriageway running lane and it may not provide suitable advance forward notification to highlight this physical feature or guide users alongside it. It may therefore, not be clear or conspicuous. Motorists may collide with the kerb or swerve to avoid the features if they are noticed within close proximity, which may result in loss of control type collisions / injury to those on or within the vehicle.

RECOMMENDATION

It is recommended to alter the layout to suitably guide vehicles alongside the kerbs. This may include but is not limited to providing a vertical illuminated feature such as an Illuminated Guide Post (IGP) to provide suitable guidance alongside the feature.

Design Organisation Response	Accepted / Part Accepted / Rejected
On the approach to the location the cycle lane is marked with line of Orcas, so motorists should already be in the correct alignment. Line marking to diagram no. 1010 has been used to delineate the edge of carriageway. This line marking will also be offset 150mm from the edge of the kerb to ensure vehicles don't travel too closely to the kerb.	
Client Organisation Comments	
Designer's response accepted.	

End of list of problems identified and recommendations offered in this Stage 2 Road Safety Audit

4.0 ISSUES IDENTIFIED DURING THE STAGE 2 ROAD SAFETY AUDIT THAT ARE OUTSIDE THE TERMS OF REFERENCE

Safety issues identified during the audit and site inspection that are considered to be outside the Terms of Reference, but which the Audit Team wishes to draw to the attention of the Client Organisation, are set out in this section. It is to be understood that, in raising these issues, the Audit Team in no way warrants that a full review of the highway environment has been undertaken beyond that necessary to undertake the Audit as commissioned.

4.1 ISSUE

Location: 1 – Near building number 210 Green Lanes (Sheet 3/47)

Reason considered to be outside the Terms of Reference: Issue for consideration rather than a defined road safety concern.

The proposed down ramp at the head of the southbound bus stop does not appear to be shown with a road marking to highlight the change in elevation.

It is recommended to amend the drawings to include the ramp road marking to ensure that all ramps are suitably conspicuous.

Design Organisation Response	Accepted / Part Accepted / Rejected
It is not standard practice to provide road markings to highlight a down ramp. Reference: Sustrans hand book for cycle friendly design.	
Client Organisation Comments	
Designer's response accepted.	

4.2 ISSUE

Location: 2 – Near building number 212 Green Lanes (Sheet 3/47)

Reason considered to be outside the Terms of Reference: Issue for consideration rather than a defined road safety concern.

The proposals include a bus shelter relocated to facilitate the cycle track.

It is not clear if the proposed shelter maintains an effective footway width. If this is not the case then alterations may be required to either remove the side panels from the shelter and / or relocate it.

Design Organisation Response	Accepted / Part Accepted / Rejected
The proposed shelter locations have been agreed with TfL buses. The bus stop shelter for the new location has an advertising board on one panel. This will create a pinch point with a width of 1m. This is acceptable according to DfT – Inclusive mobility; as effective footway width can have an absolute minimum of 1m over a length of 6m.	
Client Organisation Comments	
Designer's response accepted	

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5.0 SIGNATURES AND SIGN-OFF

5.1 AUDIT TEAM STATEMENT

We certify that we have examined the drawings and documents listed in Appendix A. to this Safety Audit report. The Road Safety Audit has been carried out in accordance with TfL Procedure SQA-0170 dated May 2014, with the sole purpose of identifying any feature that could be removed or modified in order to improve the safety of the measures. The problems identified have been noted in this report together with associated suggestions for safety improvements that we recommend should be studied for implementation.

No one on the Audit Team has been involved with the design of the measures.

AUDIT TEAM LEADER:

Name: Shane Martin MCIHT, MSoRSA Signed: 

Position: Principal Road Safety Auditor Date: 23/12/2016

Organisation: Transport for London, Road Safety Audit
Asset Management Directorate

Address: 4th Floor Palestra, 197 Blackfriars Road, London, SE1 8NJ

Contact: shane.martin@tfl.gov.uk (020 3054 2590)

AUDIT TEAM MEMBER:

Name: Kevin Seymour Signed: 
B Sc, PG Dip TS, MCIHT, MSoRSA

Position: Principal Road Safety Auditor Date: 23/12/2016

Organisation: Transport for London, Road Safety Audit
Asset Management Directorate

Address: 4th Floor Palestra, 197 Blackfriars Road, London, SE1 8NJ

Contact: kevinseymour@tfl.gov.uk (020 3054 1037)

5.2 DESIGN TEAM STATEMENT

In accordance with SQA-0170 dated May 2014, I certify that I have reviewed the items raised in this Stage 2 Safety Audit report. I have given due consideration to each issue raised and have stated my proposed course of action for each in this report. I seek the Client Organisation's endorsement of my proposals.

Name: Colin Aarons

Position: Project Manager

Organisation: Jacobs

Signed: *Colin Aarons*

Dated: 03.02.17

5.3 CLIENT ORGANISATION STATEMENT

I accept these proposals by the Design Organisation.

Name: David Taylor

Position: Head of Traffic & Transportation

Organisation: LB Enfield

Signed:



Dated: 24/03/2017

5.4 SECONDARY CLIENT ORGANISATION STATEMENT (where appropriate)

I accept these proposals by the Design Organisation.

Name:

Position:

Organisation:

Signed:

Dated:

APPENDIX A

Documents Forming the Audit Brief

DRAWING NUMBER	DRAWING TITLE
B240A024-DG-A105-0100-003 Rev -	Cycle Enfield A105 - General Arrangement Sheet 3 of 47
B240A024-DG-A105-0200-003 Rev -	Cycle Enfield A105 - Site Clearance Sheet 3 of 47
B240A024-DG-A105-0500-003 Rev -	Cycle Enfield A105- Proposed drainage plan Sheet 3 of 47
B240A024-DG-A105-0700-003 Rev -	Cycle Enfield A105 – Road Pavements General Sheet 3 of 47
B240A024-DG-A105-1100-003 Rev -	Cycle Enfield A105 - Kerbs footways and paved areas Sheet 3 of 47
B240A024-DG-A105-1200-003 Rev B	Cycle Enfield A105 - Traffic signs and road markings Sheet 3 of 47
B240A024-DG-A105-1300-003 Rev A	Cycle Enfield A105 – MCHW Series 1300 Road Lighting Column & Bracket Mainline Layout Plan Sheet 3 of 47

DOCUMENTS

- Safety Audit Brief
- Site Location Plan
- Traffic signal details
- TfL signal safety checklist
- Departures from standard
- Previous Road Safety Audits
- Previous Designer Responses
- Collision data
- Collision plot
- Traffic flow / modelling data
- Pedestrian flow / modelling data
- Speed survey data
- Other documents

DETAILS (where appropriate)

2524/032/A105/BOR/2016

A105 Enfield - Proposed Road Marking Schedule
 A105 Enfield - Sign Schedule - Section 2

APPENDIX B

Problem Locations

