

Cycle Enfield - Section 3

A105 Green Lanes junction with Aldermans Hill

Stage 2 Road Safety Audit

Ref: 2759.03.03/032/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 3, A105 Green Lanes junction with 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 3 (Sheets 4 & 5) of this route only, along the A105 around the junction with Aldermans Hill.
- 1.5.2 Full details of the traffic signal staging / timings have not yet been provided and therefore the Audit Team could not fully comment on this element of the proposals.

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 3) part of the proposals. Items raised in the previous Audit Report deemed relevant to this section can be summarised as follows:

Problem 3.1.2 General to the scheme – town centre / shopping street areas – Narrowed footway areas in shopping streets may bring cyclists and pedestrians closer together and lead to pedestrian to cycle collisions.

This problem remains in the detailed design proposals and is therefore raised again within this report as Problem 3.1.2.

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

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	
<p>Designer's response accepted – siting of any orcas will need to be carefully considered in view of high levels of pedestrian activity, with post implementation monitoring carried out to review impact.</p>	

3.1.2 PROBLEM

Location: General to the scheme - Town Centre / shopping street areas

Summary: Narrowed footway areas in shopping streets may bring cyclists and pedestrians closer together and lead to pedestrian to cycle collisions

Within the main shopping streets the proposed cycle lanes will reduce the effective footway widths and segregate pedestrians from crossing points, bus stops and parking / loading bays. Pedestrians not contained or comfortable on the footway area may increasing use the cycle lanes at a greater risk of collision with cyclists. Additionally, pedestrians crossing or waiting / walking immediately adjacent to the proposed cycle lanes may also be at an increased potential for collisions with cyclists.

RECOMMENDATION

It is recommended to provide a defined separation between footway / cycle lane, and cycle lane to carriageway. This may include but is not limited to providing a stepped facility at a different level for each facility. It may also be beneficial to incorporate contrasting colour and/or texture between cycle lane and footway, measures to address cycle speeds to ensure safe pedestrian to cycle interaction.

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.

3.1.3 PROBLEM

Location: General – various footway level sections of cycle track

Summary: Potential lack of delineation 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
As above (3.1.2).	
Client Organisation Comments	
Designer's response accepted	

3.1.4 PROBLEM

Location: A – Parking permitted adjacent to cycle track near 264 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 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.

3.1.5 PROBLEM

Location: B – Aldermans Hill eastbound approach to the splitter island / junction with A105 Green Lanes

Summary: Cyclists attempting to enter the right turn lane may be vulnerable to vehicles continuing ahead / entering the left turn lane

The Audit Team are concerned that eastbound motorists keeping to the nearside to use the left turn lane on to Green Lanes may cut across the path of, and collide with, a cyclist attempting to merge over to the offside to use the right turn lane on to Green Lanes. No facilities are provided to clarify the intended route or highlight this potential manoeuvre and the layout / widths on approach may make it difficult for cyclist to assert a primary riding position. As a result, an increased potential for motorists to turn left across the path of a cyclist continuing to the right turn lane may exist.

RECOMMENDATION

It is recommended to ensure that cyclists can safely transition to the right turn lane leading to Green Lanes southbound. This may require, but is not limited to altering the layout so that the left turn lane is a positive diverge and highlights the potential for cyclists to be continuing across the mouth of the junction to the right turn lane.

Design Organisation Response	Accepted / Part Accepted / Rejected
<p>The approach to the junction from the railway bridge is relatively narrow and opportunity for motorists overtaking cyclists is small. Any cyclist wishing to turn right at the junction should be in a primary position to enable themselves to make the transition to the right hand side of the island.</p> <p>Additional cycle symbols could be provided on carriageway to reinforce the presence of cyclists.</p>	
Client Organisation Comments	
<p>Designer's response accepted – operation of junction will be reviewed and additional markings added if necessary.</p>	

3.1.6 PROBLEM

Location: C – A105 Green Lanes southbound approach to Aldermans Hill

Summary: Cyclists attempting to turn right in free-flow traffic conditions may be vulnerable to being clipped by passing motorists

The Audit Team are concerned that a southbound cyclist wishing to turn right onto Aldermans Hill may find it difficult to do so when they are not held at a red signal. The segregated cycle track leads in to a full width Advanced Stop Line (ASL) which should provide adequate opportunity for cyclists to make this manoeuvre when southbound traffic is being held at a red signal. However, when they reach the junction during a green phase it is not clear how they will make the transition to the offside. If they stop in-line with the cycle lane then following cyclists would have to swerve around them and they may be vulnerable to conflict with passing vehicles, particularly as this is a left hand bend.

Furthermore, if users attempt to wait to the offside of the cycle lane to enter the ASL once southbound traffic is held then they may be susceptible to being clipped by passing southbound vehicles. Additionally, as the route is unclear, cyclists may make less predictable manoeuvres and may attempt to cross the ahead lane to enter the right turn facility. If they do not suitably sight a southbound vehicle approaching behind them, they may be susceptible to rear end shunt type collisions.

RECOMMENDATION

It is recommended to clarify the intended route for cyclists to turn right from the segregated track on to Aldermans Hill. This may require but is not limited to separately signalling the right turn for cyclists..

Design Organisation Response	Accepted / Part Accepted / Rejected
Due to capacity it is not possible to provide a separate right turn signalling for cyclists at this location.	
Provision could be made to bring cyclists off onto the footway to use the Toucan crossing to make the right turn. Alternatively, experienced cyclists can join the carriageway at Lodge Drive to position themselves in the offside lane at the junction.	
Client Organisation Comments	
The provision for cyclists to turn right into Alderman's Hill reflects the limited junction capacity. The operation of the junction will be reviewed post-implementation to determine whether further improvements can be made.	

3.2 TRAFFIC SIGNALS

3.2.1 PROBLEM

Location: D – A105 Green Lanes northbound approach to Aldermans Hill

Summary: Traffic signals maybe confusing and could lead to left hook type collisions

The proposals on this approach include a segregated cycle track and full signalisation of the junction. The Audit Team are concerned that motorists in lane one (left turn on to Aldermans Hill) may misinterpret a signal and inadvertently set off in stage one. As this stage releases vehicles in lane two (ahead only) and cyclists within the segregated track, if motorists in lane one inadvertently set off in this stage, it may result in left hook type collisions with cyclists continuing ahead.

RECOMMENDATION

It is recommended to ensure that the traffic signal layout (full details of which have not yet been provided) clarifies that users in lane one are held on a red signal until stage 2. This may include but is not limited to adding extended traffic signal hoods / louvres to minimise the visibility of green signals which are not relevant to lane 1. Additionally it may also be beneficial to relocate the far sided secondary signal so that it is less obvious to motorists in lane one, an option for this may be to make this an offside closely associated secondary.

Design Organisation Response	Accepted / Part Accepted / Rejected
<p>The far-sided secondary could not be closely associated as the infrastructure would not support the required 30 degree arc from the drivers position as per TD50/04. Cut away hoods have been employed to prevent the left turning traffic from seeing the segregated cycle signals and vice versa. The use of an ahead only filter arrow is common practice and does not typically require additional hoods. However, should there be any local problems specifically with this site and users are not adhering to the signals then alterations to the signal arrangement could be made. This design has been through TfL Signals stage 2 safety audits and TfL Signals team are therefore, happy with the design.</p>	
Client Organisation Comments	
<p>Designer's response accepted.</p>	

3.3 ROAD LAYOUT

3.3.1 PROBLEM

Location: E – Aldermans Hill near junction with A105 Green Lanes

Summary: Available width for westbound vehicles past the bus stop may lead to head on type collisions.

The Audit Team are concerned that westbound motorists passing a bus waiting at this stop may encroach into the opposing traffic lane. It may look as though there is sufficient space to pass a waiting bus but oncoming vehicles may be effectively moving over to the offside to enter the right turn lane for A105 Green Lanes. Additionally, as opposing users meet at the rear of the occupied bus stop they would be abutted by a bus on one side and a kerb line on the other, the lack of space for evasive manoeuvres may add to the potential for head on type collisions at this location.

If westbound users do wait behind a bus at this stop, resultant queues may extend back across the controlled crossing facility and potentially back to the main junction. This could result in an increased potential for collisions with opposing traffic flows or pedestrians as these queueing vehicles may end up 'out of phase'.

RECOMMENDATION

It is recommended to ensure sufficient width is available for westbound motorists to pass a waiting bus without encroaching into the opposing traffic lane. This may require shortening the eastern extent of the bus stop and / or moving the centre line which may also require alterations to the proposed southern side of the splitter island kerb-line.

Design Organisation Response	Accepted / Part Accepted / Rejected
It is unlikely that 2 buses will be stopped at this bus stop at any one time, therefore the bus will be towards the front of the bus cage and vehicles will have no problems in passing without encroaching onto the oncoming lane. In the occasion that 2 buses will be stopped there is sufficient space for normal sized cars to pass without encroaching onto the oncoming lane; however larger sized vehicles will have to wait until one of the buses pulls off to continue travelling along Alderman's Hill.	
Client Organisation Comments	
Designer's response accepted	

3.3.2 PROBLEM

Location: F – A105 Green Lanes junction with Aldermans Hill

Summary: The alignment for the ahead movements in either direction appears to be inconsistent which may lead to encroachment in to the cycle lane or kerb strikes

The Audit Team are concerned that the radius kinks or tightens as motorists travel through this bend. As a result northbound users may encroach into the cycle lane with a potential for cyclists to be squeezed. The southbound alignment appears to tighten around the traffic island on the southern side of the junction and as a result this may be more vulnerable to kerb strikes. Both conflicts may result in an increased potential for injury to vehicle occupants or cyclists.

RECOMMENDATION

It is recommended to ensure that the alignment is suitably gradual and consistent. This may require alterations to the road markings and / or proposed kerb lines.

Design Organisation Response	Accepted / Part Accepted / Rejected
Due to the complexity of the junction, the white lining has been aligned to ensure a constant cycle lane width and also to act as an edge of carriageway marking which can accommodate all vehicles. Lane widths generally narrow down to 3.25m as a minimum but around the bends this has gradually been increased to allow for the swept paths of HGVs. The line marking has been altered at the island on the southern side of the junction to highlight the edge of carriageway and help prevent kerb strikes.	
Client Organisation Comments	
Designer's response accepted.	

3.3.3 PROBLEM

Location: G – Aldermans Hill junction with Devonshire Road

Summary: The proposed alterations may increase the potential for a vehicle turning in to the side road to collide with a cyclist exiting the side road

The Audit Team are concerned that the swept path of a vehicle turning into Devonshire Road may over-run the proposed contra-flow cycle lane which may result in head-on conflicts between motorists entering this side road and cyclists attempting to exit. The potential for conflict may be exacerbated by the existing parking provision on the northern side of the junction which could restrict inter-visibility between motorists turning left into the side road and cyclists on the proposed contra-flow facility.

RECOMMENDATION

It is recommended to ensure that the contra-flow facility is not likely to be over-run by the swept paths of turning vehicles. This may include but is not limited to decreasing the extent of the existing parking so that cyclists can be taken off carriageway outside of the likely swept path of vehicles.

Design Organisation Response	Accepted / Part Accepted / Rejected
Devonshire Road is a quiet one way residential street with the advisory contra-flow facility not having a defined width. This would act more like a quietway link with	

cyclists having to give way to vehicles and therefore decreasing the extent of the existing parking would not be an appropriate measure.

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 – Proposed alterations near building number 262 Green Lanes (Sheet 4/47)

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

The proposed alterations include kerb buildouts to effectively make the parking bays inset. It is not clear what the demand for right turns on to Aldermans Hill are but if the queues extend back to the southern kerb build out, they may restrict the progression of vehicles continuing ahead.

It is recommended to check the anticipated vehicle flows / traffic signal timing to ensure that any resultant queues do not extend to the pedestrian crossing to the north.

Design Organisation Response	Accepted / Part Accepted / Rejected
Noted.	
Client Organisation Comments	
Designer's response accepted	

4.2 ISSUE

Location: Various – junctions with proposed raised tables

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

Various junctions are proposed to have raised tables implemented. The kerb details indicate that away from crossing points where transition or flush kerbs are proposed the kerbs will have an upstand of 125mm or to match existing. It is not clear therefore what the upstand will be at the raised tables.

It is assumed that these will provide an upstand which is detectable for visually impaired users but which does not present a trip hazard (maximum upstand of 6mm).

Design Organisation Response	Accepted / Part Accepted / Rejected
Kerb upstands at raised tables will be 25mm.	
Client Organisation Comments	
Designer's response accepted	

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: 03.03.17 (Rev A)

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-A105-0100-004 Rev -	Cycle Enfield A105 - General Arrangement Sheet 4 of 47
B240A024-DG-A105-0100-005 Rev -	Cycle Enfield A105 - General Arrangement Sheet 5 of 47
B240A024-DG-A105-0200-004 Rev -	Cycle Enfield A105 - Site Clearance Sheet 4 of 47
B240A024-DG-A105-0200-005 Rev -	Cycle Enfield A105 - Site Clearance Sheet 5 of 47
B240A024-DG-A105-0500-004 Rev -	Cycle Enfield A105- Proposed drainage plan Sheet 4 of 47
B240A024-DG-A105-0500-005 Rev -	Cycle Enfield A105- Proposed drainage plan Sheet 5 of 47
B240A024-DG-A105-0700-004 Rev -	Cycle Enfield A105 – Road Pavements General Sheet 4 of 47
B240A024-DG-A105-0700-005 Rev -	Cycle Enfield A105 – Road Pavements General Sheet 5 of 47
B240A024-DG-A105-1100-004 Rev -	Cycle Enfield A105 - Kerbs footways and paved areas Sheet 4 of 47
B240A024-DG-A105-1100-005 Rev -	Cycle Enfield A105 - Kerbs footways and paved areas Sheet 5 of 47
B240A024-DG-A105-1200-004 Rev B	Cycle Enfield A105 - Traffic signs and road markings Sheet 4 of 47
B240A024-DG-A105-1200-005 Rev B	Cycle Enfield A105 - Traffic signs and road markings Sheet 5 of 47
B240A024-DG-A105-1300-004 Rev A	Cycle Enfield A105 – MCHW Series 1300 Road Lighting Column & Bracket Mainline Layout Plan Sheet 4 of 47
B240A024-DG-A105-1300-005 Rev A	Cycle Enfield A105 – MCHW Series 1300 Road Lighting Column & Bracket Mainline Layout Plan Sheet 5 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 3

APPENDIX B

Problem Locations

