

## A105 Green Lanes J/W Highfield Road

### Cycle Enfield - Section 7

#### Stage 2 Road Safety Audit

Ref: 2759.02.07/032/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 | 25/11/2016 |



## **1.0 INTRODUCTION**

### **1.1 Commission**

- 1.1.1 This report results from a Stage 2 Road Safety Audit carried out on the A105 Green Lanes junction with Highfield Road, Cycle Enfield - Section 7 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 14<sup>th</sup> November 2016. It took place at the Palestra offices of TfL on 15<sup>th</sup> November 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 15<sup>th</sup> November 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 7 (Sheet 18) of this route only, A105 Green Lanes at the staggered junction with Highfield Road and the Sainsbury's Access.

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

- Problem 3.1.3** Segregated cycle lanes terminating just before side road junctions may increase left turning collisions between vehicles and cyclists  
This problem remains and is therefore raised as 3.1.2 within this Audit Report.
- Problem 3.6.2** Zebra crossing outside Sainsbury's - Proximity of bus stops to the zebra crossing reduces forward visibility and may lead to failure to give way type collisions involving cyclists  
The zebra crossing falls outside of the area covered within this section, however as no replacement is shown within these proposals an issue relating to this is raised as 4.1 within this Audit Report.

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

- Issue 4.9** The pedestrian refuges either side of Clapton Road (one of which falls within this section) appear to be removed which may affect pedestrian desire lines.  
This is a potential problem in the detailed design and is therefore raised as part of 3.2.1 in this Audit report.
- Issue 4.10** Drivers emerging into the junction area (from Duncan Court) may not be able to adequately perceive an appropriate time to emerge.  
This is a potential problem in the detailed design and is therefore raised as part of 3.3.1 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 track. 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 – post implementation monitoring will be carried out.</p>  |                                     |

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### 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 is 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 |
|--|-------------------------------------|
| <p>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.</p> <p>Monitoring can be undertaken post-implementation to review the safe operation of the proposed design.</p> |                                     |
| Client Organisation Comments   |                                     |
| <p>Designer's response accepted – operation of the bus stop boarders will be monitored post-implementation.</p>  |                                     |

### 3.1.3 PROBLEM

**Location:** A – A105 Green Lanes j/w Highfield Road (Sheet 18/47)

**Summary:** Segregated cycle lane terminates just before side road junction which may increase left turning collisions between vehicles and cyclists

The proposed segregated southbound cycle lane is returned to the carriageway just before this side road junction. It may be difficult for both sets of road users to understand who has priority and this may lead to turning collisions involving cyclists. Cyclists may assume that they are protected and have priority and may not anticipate vehicles entering or emerging from the side road, which could lead to increased risk of merging / failure to give way type collisions.

#### RECOMMENDATION

Research from TRL (PPR703 – Trials of segregation set-back at side roads) indicates that setting back cycle lanes by at least 20m from side roads may improve cyclist safety at junctions.

| <b>Design Organisation Response</b>   | <b>Accepted / Part Accepted / Rejected</b> |
|---|--|
| Highfield Road carries relatively low volumes of traffic with speeds low whilst vehicles turn onto and off Green Lanes. This and the cycle logo and give-way markings should highlight the presence of cyclists and help reduce the risk of collisions. |  |
| <b>Client Organisation Comments</b>   |  |
| Designers response accepted   |  |

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## 3.2 CROSSING FACILITIES

### 3.2.1 PROBLEM

**Location:** General throughout this junction area (A105 Green Lanes j/w Highfield Road – Sheet 18/47)

**Summary:** Removal of zebra crossing and pedestrian refuge islands on the A105 Green Lanes may result in increased collisions with pedestrians.

The proposals include the removal of a zebra crossing and a pedestrian refuge island within this section. The Audit Team are concerned that this area appears to have pedestrian attractors on both sides of the A105 Green Lanes carriageway and therefore pedestrian desire lines are likely to be established. Pedestrians may continue to cross the A105 in this area without assistance, at undesignated locations, are more likely to attempt to cross in a single movement and may be less likely to be anticipated by motorists. The potential for collisions is considered to be exacerbated by the strong pedestrian desire lines and motorists being likely to be focused on the traffic signals and various manoeuvres being undertaken in this area. This may result in an increased potential for collisions between pedestrians attempting to cross the A105 and vehicles.

### RECOMMENDATION

It is recommended to ensure that suitable crossing facilities are provided as close as possible to pedestrian desire lines. This may include, but is not limited to, incorporating controlled pedestrian crossing facilities across the A105 Green Lanes as part of the signalisation of this junction.

| Design Organisation Response   | Accepted / Part Accepted / Rejected |
|--|-------------------------------------|
| One zebra has been removed but relocated opposite Sainsburys entrance (dwg 17). This provides formal crossing at a better location and desire line for pedestrians as opposed to the vehicular access which provides no footway. |                                     |
| Client Organisation Comments   |                                     |
| Designer's response accepted – post implementation review will be carried out when scheme has bedded in to assess whether pedestrian facilities at the junction can be improved.   |                                     |

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### 3.3 TRAFFIC SIGNALS

#### 3.3.1 PROBLEM

**Location:** B – A105 Green Lanes southbound approach to junction with Sainsbury's access (Sheet 18/47)

**Summary:** Proposed traffic signal layout may not be conspicuous and may lead to shunt or overshoot type collisions.

The Audit Team are concerned that the nearside primary and closely associated secondary traffic signals may be obscured by a large vehicle, particularly given that vehicles may queue to access the adjacent petrol station. Furthermore, the secondary signal within the traffic island between opposing traffic flows on the southern side of the junction may be obscured by a northbound vehicle turning right into the petrol station. Therefore this may result in an increased potential for motorists to not suitably sight a traffic signal and either brake late with an increased potential for shunt type collisions or fail to adhere to a red traffic signal with an increased potential for collisions with opposing flows within the junction.

#### RECOMMENDATION

It is recommended to ensure that at least a single offside primary traffic signal is clearly visible from each approach lane to the junction. This may include but is not limited to providing a traffic island to house an offside primary traffic signal or an extended height traffic signal pole or mast arm.

| Design Organisation Response  | Accepted / Part Accepted / Rejected |
|---|-------------------------------------|
| <p>An offside traffic signal has been provided for vehicles travelling southbound located at chainage 2075. Due to narrow lane widths and tracking movements it is not possible to provide a traffic island closer to where vehicles are stopped. However, the signal we have provided will be clearly visible to vehicles.</p> <p>The possibility of a right turning vehicle and a southbound vehicle blocking signals simultaneously, is low.</p> |                                     |
| Client Organisation Comments  |                                     |
| Designer's response accepted.   |                                     |

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### 3.3.2 PROBLEM

**Location:** C – A105 Green Lanes northbound approach to junction with Sainsbury's access (Sheet 18/47)

**Summary:** Proposed traffic signal layout may not be conspicuous and may lead to shunt or overshoot type collisions.

The nearside signals are cycle specific and the offside signals are those intended for vehicular traffic. The Audit Team are concerned that the lack of nearside traffic signals for general traffic may result in motorists incorrectly following the nearside cycle specific traffic signals. This may lead to them entering the junction out of phase and at an increased potential for collisions with opposing traffic flows. This could be exacerbated if the offside primary traffic signal is obscured, for example if a large vehicle occupied the right turn lane for Highfield Road. This may exacerbate the potential for motorists to not comply with the correct traffic signal and may result in an increased potential for late braking and shunt type collisions or side impact type collisions with an opposing traffic flow.

#### RECOMMENDATION

It is recommended to ensure that at least a single nearside primary traffic signal is clearly visible from each approach lane to the junction. This may include but is not limited to providing a traffic island to house an nearside primary traffic signal or an extended height traffic signal pole or mast arm.

| Design Organisation Response  | Accepted / Part Accepted / Rejected |
|---|-------------------------------------|
| <p>Due to lane widths and tracking movements it was not possible to provide a traffic island wide enough to accommodate a traffic signal on the nearside. As there is only one lane in the northbound direction, it will not be an issue for a vehicle stopped at the stop line being unable to see the traffic signals.</p> <p>The high level cycle signal head could be removed to reduce any opportunity for confusion. However, this means forward visibility of the signals for cyclists on the approach will be reduced.</p> <p>In addition, the nearside cycle lane is clearly defined by an island which should emphasise to motorists that the nearside is a cycle lane signal only.</p> |                                     |
| Client Organisation Comments  |                                     |
| Designer's response accepted.   |                                     |

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### **3.3.3 PROBLEM**

**Location:** D – A105 Green Lanes exit from Duncan Court (Sheet 18/47)

**Summary:** Proposed traffic signal layout may not be conspicuous and may lead to shunt or overshoot type collisions.

The Audit Team are concerned that users turning left out of Duncan Court do so in close proximity to the southbound Advanced Stop Line (ASL). Their orientation and the lack of an offside primary traffic signal may result in them not suitably sighting a traffic signal and either braking late with an increased potential for shunt type collisions or failing to adhere to a red traffic signal with an increased potential for collisions with opposing flows within the junction.

#### **RECOMMENDATION**

It is recommended to ensure that at least a single primary traffic signal is clearly visible from each approach to the junction. This may include, but is not limited to, providing a nearside primary traffic signal and adding louvres to the cycle specific signal so that it is not clearly visible for motorists.

| <b>Design Organisation Response</b>   | <b>Accepted / Part Accepted / Rejected</b> |
|---|--|
| This is a slow speed exit and it is therefore unlikely to cause issues. A traffic signal has been provided on the nearside; therefore vehicles exiting Duncan Court will have clear visibility of the traffic signal. |  |
| <b>Client Organisation Comments</b>   |  |
| Designer's response accepted.   |  |

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### 3.4 BUS STOPS

#### 3.4.1 PROBLEM

**Location:** E – A105 Green Lanes south of junction with Highfield Road (Sheet 18/47)

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

The Audit Team are concerned that the proposed cycle track runs immediately adjacent to the proposed bus stop boarder. Therefore bus passengers would board / alight a bus from / onto the cycle track. 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.

#### RECOMMENDATION

It is recommended that the layout of the bus stop boarder / cycle track is altered to mitigate the potential interactions with bus passengers. This may include, but is not limited to, providing an increased separation between the boarding / alighting area and the cycle track.

| Design Organisation Response  | Accepted / Part Accepted / Rejected |
|---|-------------------------------------|
| <p>The bus boarders in section 7 will incorporate a 540mm wide buffer strip of kerb and tegula blocks between kerb face and edge of the cycle track running lane.</p> <p>The boarder areas where they alter to footway level will be highlighted in different materials and contrasting colours to signify to all users that they are entering what is, effectively, a shared area.</p> <p>Approaching cyclists will access this area via a ramp, which together with the visual layout of the bus boarder area will indicate to slow their speed and take caution.</p> |                                     |
| Client Organisation Comments  |                                     |
| <p>Designer's response accepted – operation of the bus stop boarders will be monitored post-implementation.</p>   |                                     |

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### 3.5 CYCLING FACILITIES

#### 3.5.1 PROBLEM

**Location:** F – A105 Green Lanes junction with Highfield Road (Sheet 18/47)

**Summary:** Motorists may not notice the kerbed segregation islands.

The Audit Team are concerned that motorists may not appreciate that the segregation at this location becomes a kerbed physical feature which appears to occupy part of the carriageway running lanes in each direction. No measures to highlight this physical feature or guide users alongside it are proposed, it may therefore not be clear or conspicuous. Motorists may collide with the kerb or swerve to avoid the feature if they notice it in close proximity, which may result in loss of control and injury to those on or within the vehicle.

#### RECOMMENDATION

It is recommended to alter the layout to suitably guide vehicles alongside the kerbed islands. This may include but is not limited to providing a vertical illuminated feature such as an Illuminated Guide Post (IGP) and altering the path of the orcas / mandatory cycle lane marking so that it 'ties in' to the physical island providing suitable guidance alongside the feature.

| Design Organisation Response   | Accepted/ Part Accepted / Rejected |
|--|------------------------------------|
| The lining and Orcas will be adjusted to tie in with the offside of the kerb islands. There is a lack of space to accommodate illuminated or reflective bollards on the islands but jision poles will be included, as used elsewhere to signify orca alignments. |                                    |
| Client Organisation Comments   |                                    |
| Designer's response accepted.  |                                    |

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

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#### 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 – A105 eastern footway crossing Highfield Road (side road)

**Reason considered to be outside the Terms of Reference:** Existing issue for consideration.

The Audit Team noted that this side road does not have tactile paving.

In order to provide a more consistent message for visually impaired users along this route it may be beneficial to provide tactile paving across all side road crossings.

| Design Organisation Response  | Accepted / Part Accepted / Rejected |
|---|-------------------------------------|
| Both the topo survey and google street view show that there are existing tactiles at the Highfield Road junction. |                                     |
| Client Organisation Comments  |                                     |
| Confirmed – buff tactile paving is in place at Highfield Road junction.   |                                     |

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##### 4.2 ISSUE

**Location:** 2 – A105 Green Lanes junction with Sainsbury's Access (Sheet 18/47)

**Reason considered to be outside the Terms of Reference:** Issue for clarification / consideration.

Various kerb lines are to be amended and these appear as though they may result in difficulties for drivers of larger vehicles to negotiate the junction and / or over-running of the kerbs. No vehicle swept-path analysis has been provided to the Audit Team.

It is therefore recommended that swept path analysis is carried out and alterations made where necessary to ensure large vehicles are able to manoeuvre the proposed kerb layout without over-running the kerbs.

| Design Organisation Response             | Accepted / Part Accepted / Rejected |
|--|-------------------------------------|
| Tracking movements have been carried out |                                     |
| Client Organisation Comments             |                                     |
| Designer's response accepted.            |                                     |

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#### 4.3 ISSUE

**Location:** 3 – A105 Green Lanes junction with Sainsbury's Access (Sheet 18/47)

**Reason considered to be outside the Terms of Reference:** Issue for clarification / consideration.

The tactile paving across the access road to Sainsbury's is misaligned and may mislead a visually impaired pedestrian. It is also noted that the footway on the northern side of this access road is narrow and the proposed traffic signal may result in further effective narrowing.

It is recommended that the alignment of the tactile paving is altered so that it correctly guides visually impaired users and that a cranked pole is provided to maximise the available footway width.

| Design Organisation Response  | Accepted / Part Accepted / Rejected |
|---|-------------------------------------|
| Tactile will be provided within the refuge, slabs aligned correctly to signify/guide users as they cross. |                                     |
| Client Organisation Comments  |                                     |
| Designer's response accepted.   |                                     |

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#### 4.4 ISSUE

**Location:** 4 – A105 Green Lanes junction with Sainsbury's Access (Sheet 18/47)

**Reason considered to be outside the Terms of Reference:** Issue for clarification / consideration.

Existing trees at the rear of the footway on each A105 approach to the junction may obscure the clear visibility of the traffic signals, particularly when the tree is in bloom / leaves are present.

It is recommended that the trees are maintained to ensure that approaching motorists have adequate visibility of the traffic signals. Note it is appreciated that the traffic signal for northbound vehicles is located between opposing lanes but the recommendation in 3.3.3 may result in a nearside provision to which this issue may be applicable.

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

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#### 4.5 ISSUE

**Location:** 5 – A105 Green Lanes junction with Sainsbury's Access (Sheet 18/47)

**Reason considered to be outside the Terms of Reference:** Issue for clarification / consideration.

The proposed layout may result in northbound cyclists having to wait for a long period for a green signal. This may result in cyclists taking to the main carriageway to avoid being held at a red signal.

It may be beneficial to extend the segregated section on the northbound approach to the traffic signals to deter cyclists from exiting the segregated cycle lane.

| Design Organisation Response   | Accepted / Part Accepted / Rejected |
|--|-------------------------------------|
| Due to the right turn pocket, extending the island further will decrease the effective carriageway with which is already at a minimum to accommodate buses. The proposed cycle lane is to encourage nervous cyclists to make use of the facility and feel more comfortable cycling. However, more experienced cyclists may carry out this manoeuvre but extending the island will not solve the problem as they will just cycle on the carriageway for longer distances. |                                     |
| Client Organisation Comments   |                                     |
| Designer's response accepted.  |                                     |

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#### 4.6 ISSUE

**Location:** 6 – segregated on footway cycle track beside bus boarder

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

The typical cross section of the on footway cycle track indicates that 3 rows of granite setts will be provided alongside the edges of the track. It is considered that these are likely to provide a reasonable tonal contrast and a texture / tactile difference to highlight the cycle track / edge of footway.

It is assumed that these will be laid almost flush (maximum upstand of less than 6mm) so that they do not present a trip hazard for pedestrians.

| Design Organisation Response  | Accepted / Part Accepted / Rejected |
|-------------------------------|-------------------------------------|
| They will be laid flush.      |                                     |
| 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: 25/11/2016

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

Address: 4<sup>th</sup> Floor Palestra, 197 Blackfriars Road, London, SE1 8NJ

Contact: [shane.martin@tfl.gov.uk](mailto: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: 25/11/2016

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

Address: 4<sup>th</sup> Floor Palestra, 197 Blackfriars Road, London, SE1 8NJ

Contact: [kevinseymour@tfl.gov.uk](mailto: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 Organisations endorsement of my proposals.

**Name:** Colin Aarons

**Position:** Project Manager

**Organisation:** Jacobs

**Signed:** *Colin Aarons*

**Dated:** 06.02.17

## 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:** 14.03.2017

## 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-A105-0100-018 Rev - | Cycle Enfield A105 - General Arrangement Sheet<br>18 of 47   |
| B240A024-DG-A105-0200-018 Rev - | Cycle Enfield A105 - Site Clearance Sheet 18 of 47   |
| B240A024-DG-A105-0500-018 Rev A | Cycle Enfield A105- Proposed drainage plan Sheet<br>18 of 47   |
| B240A024-DG-A105-0700-018 Rev - | Cycle Enfield A105 – Road Pavements General<br>Sheet 18 of 47  |
| B240A024-DG-A105-1100-018 Rev - | Cycle Enfield A105 - Kerbs footways and paved<br>areas Sheet 18 of 47  |
| B240A024-DG-A105-1200-018 Rev - | Cycle Enfield A105 - Traffic signs and road<br>markings Sheet 18 of 47   |
| B240A024-DG-A105-1300-018 Rev A | Cycle Enfield A105 – MCHW Series 1300 Road<br>Lighting Column & Bracket Mainline Layout Plan<br>Sheet 18 of 47 |

#### DOCUMENTS

#### DETAILS (where appropriate)

- 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

2524/032/A105/BOR/2016

A105 Enfield - Proposed Road Marking Schedule  
A105 Enfield - Sign Schedule - Section 7

## **APPENDIX B**

### **Problem Locations**

