Norfolk County Council

COLNEY: NORWICH RESEARCH PARK
NNUH ROUNDABOUT ALTERATIONS

STAGE 2 SAFETY AUDIT

REPORT REF: C183/004
March 2023

Report Prepared for: **Highway Projects**
Norfolk County Council

Report Status:

Issue	Status	Purpose	Name/Signature	Date
1	Stage 2 Safety Audit Report	Client Issue	……	05/04/23
2	Designer's Response	Designer response to Safety Issues raised		18 August 2023
3	NM Decision	Implementation of Safety Audit recommendations		22 August 2023

INTRODUCTION

This report contains the results of a Stage 2 Safety Audit carried out on the above scheme. The Audit was carried out at the request of Norfolk County Council Highway Projects .; a formal Audit Brief was not provided.

The Audit Team membership was as follows:-

EIR Reg 13 - Personal Data (Audit Team Leader)	Principal Engineer Highway Safety WSP
EIR Reg 13 - Personal Data (Audit Team Member)	Project Engineer Network Safety + Sustainability Norfolk County Council
(Audit Team Observer)	Project Technician Network Safety Norfolk County Council

The Audit took place via online conferencing on 31 March 2023. The audit comprised an examination of the supplied documentation (see Appendix A) and a site inspection by the Audit Team Leader on 29 March 2023 at 08:45 which lasted around 30 minutes. During the site visit the weather overcast and the road surface largely dry. Traffic flows were heavy but generally free flowing.

The terms of reference are as described in Community and Environmental Services Highways Service Manual Procedure SP03-07-P01. The Auditors have examined and reported only on the road safety implications of the scheme within the main report.

The audited scheme involves capacity improvement to the roundabout entries/circulatory together with provision of a Toucan crossing on the northern approach and other associated improvements to NMU facilities. The submission did not contain details of the proposed Toucan signal head/equipment layout, so this aspect of the scheme is not included within the audit.

The auditors have reviewed the three year (to end Dec 2022) collision record for the location. There has been only 1 personal injury collision (slight) recorded in this period.

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A comments section has been included in Appendix B. The issues noted are not necessarily safety issues. They relate either to wider network implications, safety issues identified outside the scope of the audited scheme or suitability of a particular design choice.

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ITEMS RAISED AT PREVIOUS AUDIT

A previous stage 2 RSA was undertaken in February 2017. In view of the elapsed time, the scheme has been completely re-audited, however the previous report has been reviewed and all issues raised at that audit have been resolved.

ITEMS RAISED AT THIS STAGE 2 AUDIT

1.0 General

1.1 No comment

2.0 Alignment

2.1 Problem – head-on collision due to misjudged overtakes

Location – Colney lane north-westbound approach to roundabout

The Audit Team observed that there is an existing bus stop on this approach approx. 60m from the roundabout, which causes temporary traffic hold-ups behind a bus. This is immediately prior to the proposed approach widening, raising concern that some drivers may attempt to overtake a stationary bus with potential for collision with oncoming traffic exiting the roundabout. The stop is also 10m beyond the end of the proposed footway posing a risk of pedestrian trips/falls on the uneven verge.

Recommendation – that the stop is moved a little further north-west such that the proposed widening will enable following vehicles to pass the stationary bus without encroaching into the opposing traffic lane.

Designer's Response:

We are aware that this bus stop was not in place when the original design work was undertaken and is therefore outside the scope of the Aecom design/Bullen's funded works. The council will undertake a review of this situation to determine the best way forward

Network Management Decision:

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Response accepted in view of the shortened left turn lane making relocation of the bus stop nearer the roundabout impractical.

3.0 Junctions

3.1 Problem – fail-to-give-way collisions due to inadequate visibility

Location – proposed maintenance access SE of roundabout

Visibility splays are indicated on the drawing which scale around 37m 'y' distance. Although 30mph compliance can be anticipated to be good so close to the roundabout, there are concerns that these splays are inadequate for the type of traffic, raising the risk of failure to give-way collisions.

Recommendation – provide 30mph visibility in both directions in accordance with *Manual for Street 2* (since Colney Lane carries frequent buses and commercial traffic).

Designer's Response:

Amendment underway to original design due to carriageway widening reduction, visibility to be reviewed during works.

Network Management Decision: Response accepted provided a 2.4m x 43m visibility splay can be delivered.

4.0 Non-motorised Users

4.1 Problem – collisions with NMUs unexpectedly entering carriageway

Location – circulatory carriageway SW and NW quadrants

The Audit Team note that the existing kerb line here comprises 45° splay kerbs, which would provide less satisfactory edge definition for the proposed footway/cycleway. This could lead to NMU misjudgement resulting in a pedestrian or cyclist unexpectedly entering the carriageway, at risk of being struck by a passing vehicle.

Recommendation – that kerbs adjacent to the footway/cycleway should be replaced with a half-battered profile.

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Designer's Response:

It is noted that the originally approved and audited design also details 45-degree splay kerbs. Whilst we would not expect Bullen's to replace all lengths of kerbing, we would request the installation of ½ battered kerbing where kerb lines are being amended with a transition back to the existing kerbing at either end.

Network Management Decision:

Response accepted.

4.2 Problem – cycle/pedestrian collisions

Location – proposed footway SE quadrant

The proposed 2m wide footway on the southern side of the roundabout is likely to be attractive to some cyclists, particularly any approaching NW bound on Colney Lane on carriageway, wishing to take a direct route to the hospital. This may already be an established use and the proposed reduced 2m width could lead to conflict between cycles and pedestrians at busy times.

Recommendation – provide a 3m shared-use path here with a drop kerb at the Colney Lane end to enable cyclists to slip off the carriageway.

Designer's Response:

2m width proposed due to third party land constraint.

Network Management Decision:

Response accepted.

5.0 Signs, Lighting and Markings

5.1 Problem – late braking overshoot collisions

Location – central island opposite SE entry

The relocated chevron and turn left signs are shown directly opposite the widened entry. However due to the curving approach, they will be well to the left of a NW-

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bound driver's line of sight when at the SSD position. This could result in late awareness, leading to harsh braking and potential junction overshoot.

Recommendation – relocate or extend the signing northwards on the island to improve its conspicuity at the SSD position.

Designer's Response:

Signs to be relocated as required

Network Management Decision:

Response accepted.

5.2 Problem – side swipe collisions

Location – circulatory carriageway

The proposed circulatory marking layout has a number of minor irregularities not conducive to smooth circulatory flow. In particular, lane widths on the southern side of the circulatory appear to narrow unnecessarily and on the western side the development of 2 lanes seems rather abrupt. This raises the risk of side swipe and other circulatory collisions.

Recommendation – Amend the circulatory marking layout to avoid abrupt changes in angle and encourage smooth flow. A minimum circulatory lane width of 4m is suggested, as is extending the hatched nose at the western splitter island.

Designer's Response:

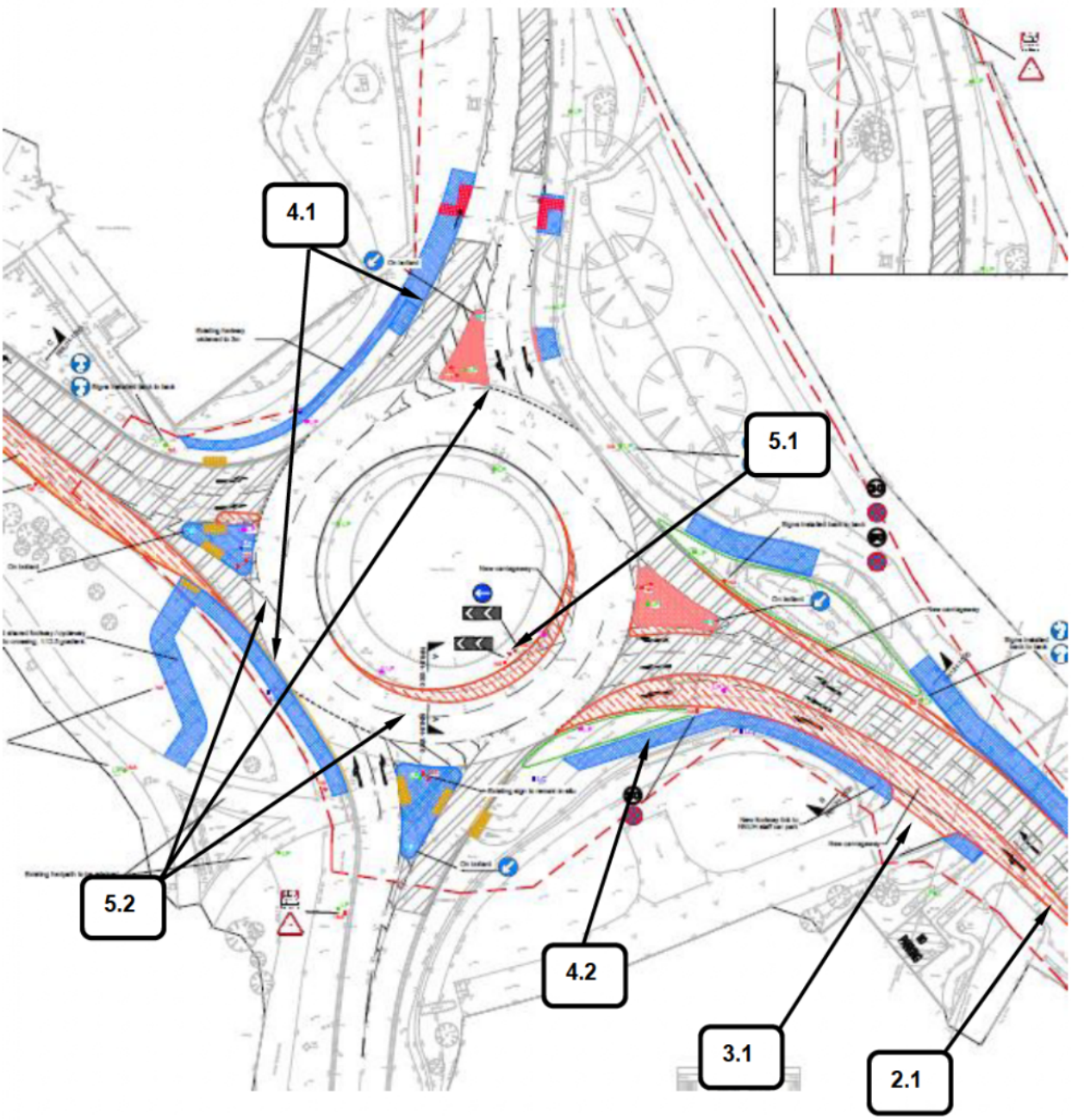
Circulatory marking layout to be reviewed during redesign works.

Network Management Decision:

Response accepted.

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6.0 Problem Location Plan



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AUDIT TEAM STATEMENT

We certify that this audit has been carried out in accordance with Norfolk County Council Community and Environmental Procedure SP03-07-P01

Signed (ATL) .....

Dated 5 April 2023

Signed .....

Dated 5 April 2023

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APPENDIX A: Audit Brief

The following documents were submitted for this Road Safety Audit:

Document Ref.	Scale (if applicable)	Title
60432496-SHT-NNUH-0001-E	1:200	General Arrangement
60432496-SHT-NNUH-0002-E	1:2500	Location Plan
60432496-SHT-NNUH-0011-B	1:200	Vehicle Swept Paths
60432496-SHT-NNUH-0012-B	1:200	Vehicle Swept Paths
60432496-SHT-NNUH-0013-B	1:050	Vehicle Swept Paths
60432496-SHT-NNUH-0014-B	1:200	Vehicle Swept Paths
60432496-SHT-NNUH-0015-B	1:200	Vehicle Swept Paths
60432496-SHT-NNUH-0016-B	1:200	Vehicle Swept Paths
60432496-SHT-NNUH-001-C	1:200	Horizontal Alignment
60432496-SHT-NNUH-0200-F	1:200	Site Clearance
60432496-SHT-NNUH-1200-E	1:200	Traffic Signs & Road Markings
60432496-SHT-NNUH-1201-D		Traffic Sign Details
60432496-SHT-NNUH-1500-C	Var	Standard Details
60432496-SHT-NNUH-1501-B	1:20	Typical Sections
60432496-SKE-C-0045-A	1:100	Maintenance Access Visibility
C183-004		Previous RSA2 Report
3 yr road accident details		

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APPENDIX B: Comments

C.1 An existing sign to be relocated (sign face NF04) is shown incorrectly as a diag 544.1 pedestrians in road. On site the existing sign is actually a diag 670 20mph roundel.

Designer's Response:

Design to be amended to correct error

C.2 The Audit Team noted that existing map type ADS's on the Colney Lane approaches do not accord with proposed direction signs at roundabout exits. Furthermore, the ADS's contain too many destinations for driver comprehension and the south-eastern one shows a roundabout with only 3 arms. In order to avoid confusion, it is recommended that updating/replacement of these signs should be included in the scheme.

Designer's Response:

The ADS signage on Colney Lane is outside of the scope of the works.

C.3 It is proposed to remove the NMU crossing point at the eastern arm splitter island (to deter crossing of the multi-lane approach). The closure might be more effective if the northern verge were shrub planted and the adjacent fencing extended across the existing crossing point.



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Designer's Response:

Design is to extend fencing along verge line to deter use.

C.4 There is an existing low chain link fence on the southern verge (see photo below) which is non-standard and might present a tripping hazard. It should be removed from the extent of the public highway.



Designer's Response:

Chain link fence was installed by the hospital so will be removed and returned for their disposal.

C.5 Shrubbery on the central island of the roundabout is currently restricting entry and circulatory visibility in some areas (CD116 parags 3.44-3.49 refer). This should be brought to the attention of the appropriate maintenance office.

Designer's Response:

Will advise local engineer of visibility issue.

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