

Appendix 31 Stage 1 Road Safety Audit Response Report



BWB

CONSULTANCY | ENVIRONMENT
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TRANSPORT & INFRASTRUCTURE

Roxhill
Northampton Gateway
Rail Freight Interchange

ROAD SAFETY AUDIT STAGE 1
ROAD SAFETY AUDIT RESPONSE REPORT

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1.0 INTRODUCTION

Instruction

- 1.1 BWB Consulting Ltd have been commissioned by Roxhill to undertake the infrastructure design for the Northampton Gateway Strategic Rail Freight Interchange (SRFI) and associated highway works, collectively known as “the Scheme”. **Figure 1** below shows the SRFI location and locations of the proposed highway works.

Objectives

- 1.2 This Report responds to the Stage 1 Road Safety Audit for the scheme carried out independently of the design team by BWB Consulting in March 2018.
- 1.3 The text of the Audit report has been copied into this report for ease of reference. The report uses the same nomenclature as the Audit. Locations of the items raised are as given in the Audit.

Site Location

- 1.4 See **Figure 1** below.

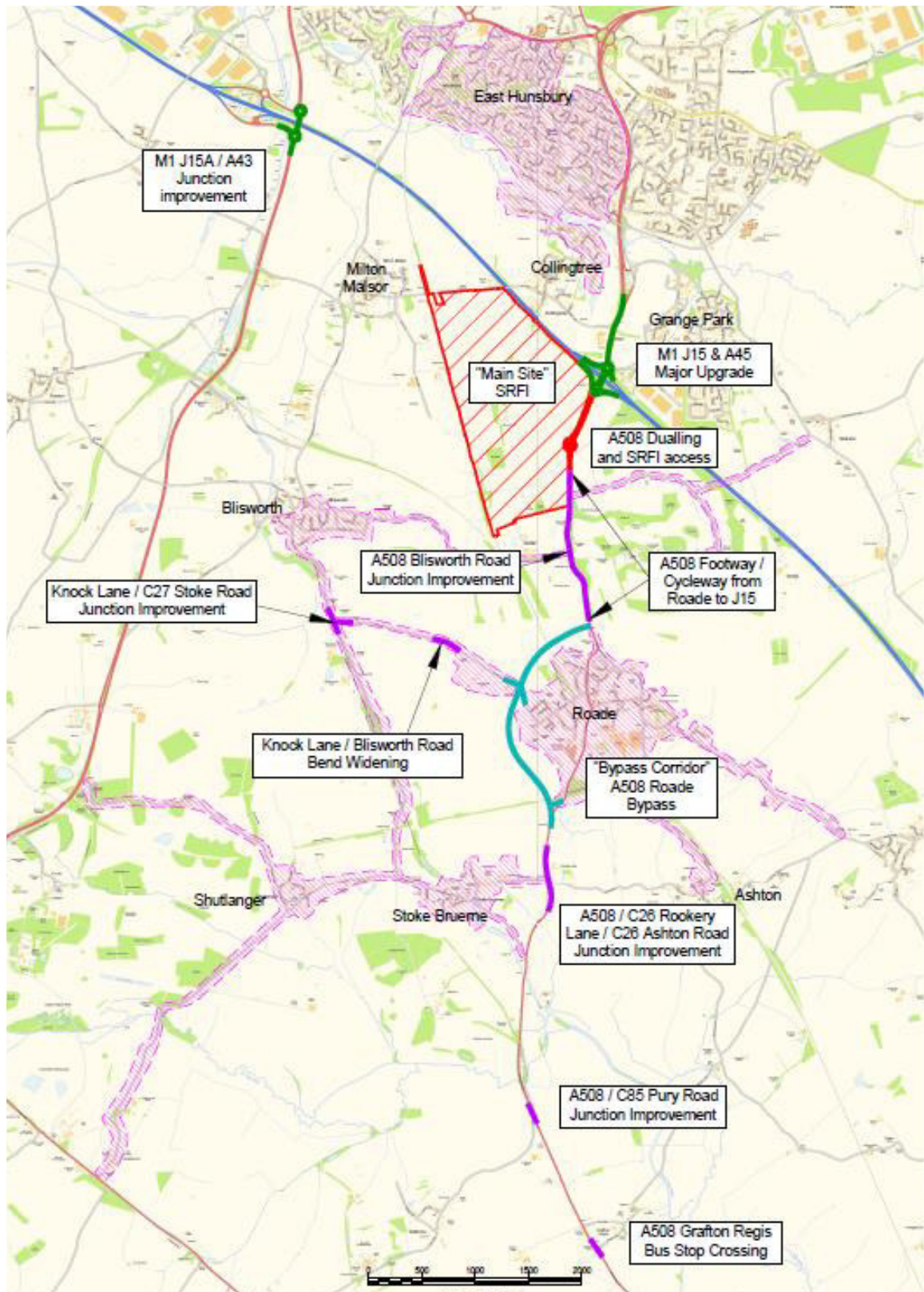


Figure 1: Site Location Plan

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2.0 ITEMS RAISED AT THE STAGE 1 AUDIT – M1 JUNCTION 15A (TRUNK ROAD)

2.1 Location: Northwestern corner of the northern A43/M1 southbound roundabout.

Summary: Widening works bring the nearside kerb closer to the watercourse/drain.

The proposed widening on the western side of the A43 brings the carriageway and watercourse/drain closer together. There is currently no VRS present in this location which may be because of the distance between the two features. As a result of the distance being reduced, there is greater potential for vehicles that may exit the carriageway to enter the watercourse.

Recommendation

A RRRAP assessment is undertaken at the appropriate stage to ensure that sufficient distance is provided between the features or that space remains for any VRS that may be required as a result of bringing the carriageway and watercourse closer together.

DESIGN TEAM RESPONSE

Agree with Audit Recommendation: Yes / ~~No~~ / ~~In Part~~

We agree that safety fencing and/or alterations to the drainage may be required and this will be considered during the detailed design and this will include a RRRAP assessment.

HIGHWAYS ENGLAND RESPONSE

Agree with Audit Recommendation: Yes / No / In Part

Agree with Design Team Response: Yes / No / In Part

2.2 Location: Northeastern corner of the northern A43/M1 southbound roundabout.

Summary: Introduction of an additional circulatory lane at the roundabout creates reverse curvature.

As a result of the proposed widening, an area of reverse curvature would be created. The swept path presented shows a HGV travelling along the revised eastern kerb line of the roundabout. However, this does not appear to be a natural movement due to the kink provided in the circulating carriageway which could result in the driver of the HGV having to swerve sharply to get into the correct lane, potentially losing control, striking the kerb, or side swiping a vehicle as they negotiate the roundabout.

Recommendation

This section of the highway works should be re-examined to create a more natural circulating manoeuvre, removing any reverse curvature.

DESIGN TEAM RESPONSE

Agree with Audit Recommendation: Yes / ~~No~~ / ~~In Part~~

We agree that the alignment of this section of the roundabout needs to be reviewed and this has been undertaken and the widening has been introduced to the central island instead of the outside. This has enabled a more natural circulating manoeuvre to be provided and removal of reverse curvature in so doing.

The design drawings have been updated accordingly.

HIGHWAYS ENGLAND RESPONSE

Agree with Audit Recommendation: Yes / No / In Part

Agree with Design Team Response: Yes / No / In Part

2.3 Location: Exit from the southern A43/M1 northbound roundabout onto the M1.

Summary: Two lanes of traffic merging over a short distance.

As presented, it appears that two lanes of traffic exit the southern roundabout towards the M1 northbound. There is however insufficient space available for two vehicles to safely merge at this location, which could result in side swipe collisions.

Recommendation

The merge should either be increased in length, or the off-side lane is hatched out and road markings revised accordingly, so that vehicles are not encouraged to exit the roundabout at this location side by side.

DESIGN TEAM RESPONSE

Agree with Audit Recommendation: Yes / ~~No~~ / ~~In Part~~

Following a review of the traffic modelling we can confirm that only a single lane is needed from the A43 NB approach to what is effectively the M1 NB exit and the second lane will be hatched out. The design drawings have been updated accordingly.

HIGHWAYS ENGLAND RESPONSE

Agree with Audit Recommendation: Yes / No / In Part

Agree with Design Team Response: Yes / No / In Part

2.4 Location: Northwestern corner of the southern A43/M1 northbound roundabout

Summary: Lack of guidance markings on the carriageway in front of the stop line may confuse drivers.

There is a large expanse of tarmac in front of the stop line without any guidance markings. Given the unusual lane allocation and layout from the northbound services arm of the southern roundabout, drivers may become confused as to where they can actually travel. In addition, the use of a right turn arrow at the stop line, could confuse drivers further, resulting in them turning the wrong way around the roundabout hitting oncoming vehicles head on.

Recommendation

The road markings should be revised to ensure that it is clear which direction motorists can travel, as well as guiding the through the junction. The right turn arrow should be replaced with a straight ahead arrow on this arm of the junction.

DESIGN TEAM RESPONSE

Agree with Audit Recommendation: Yes ~~/ No / In Part~~

We agree that additional guidance markings are required and these have been incorporated into the design drawings. The markings will be further reviewed (and safety audited) during the detailed design.

HIGHWAYS ENGLAND RESPONSE

Agree with Audit Recommendation: Yes / No / In Part

Agree with Design Team Response: Yes / No / In Part

3.0 ITEMS RAISED AT THE STAGE 1 AUDIT – M1 JUNCTION 15 (TRUNK ROAD)

3.1 Location: Existing lay-by on A45 (N) (Figure 2)

Summary: The lay-by is heavily used by HGVs, hence it is unknown what would happen to the displaced demand.

The lay-by, which is proposed to be removed, is heavily used by HGV drivers as witnessed during the site visit. There is no reference to the facility being replaced, hence it is unknown where displaced vehicles would attempt to park. HGV drivers could be tempted to park on Saxon Avenue on the exit from the roundabout and surrounding roads for example, which could create conflict with passing vehicles.

Recommendation

Further information is required with regards to the removal of the lay-by, to determine if any alternative solutions have been considered to prevent any inappropriate HGV parking.

DESIGN TEAM RESPONSE

Agree with Audit Recommendation: Yes ~~/ No / In Part~~

A detailed and comprehensive assessment of the lay-by removal has been undertaken and issued separately (Technical Note 9).

HIGHWAYS ENGLAND RESPONSE

Agree with Audit Recommendation: Yes / No / In Part

Agree with Design Team Response: Yes / No / In Part

3.2 Location: Slip roads off the M1 (Figure 3).

Summary: Potential weaving issues.

Early exiting drivers in the nearside lane of the southbound off-slip may want to travel south at Junction 15, towards the site. There is minimum weaving distance on the slip road for lane choice as drivers that were ready to leave the motorway early may not be able to get across to turn right at the junction, which could result in side swipe collisions. This issue is exacerbated by the fact that drivers using the later slip road lane are still able to travel north in the offside lane, which therefore results in vehicles crossing one another's path.

The same issue also arises at the northbound off-slip should drivers in the offside lane want to travel south at Junction 15, towards the site.

Recommendation

Ensure that suitable road markings and associated signage should be introduced to help drivers exit the M1 in the correct lane on the slip roads. It would also help if the two slip road lanes were allocated one direction of travel, for instance on the southbound off-slip the first slip road would provide access to the A45 and the second slip road provide access to Saxon Avenue and the A508. This would result in motorists only having to switch one lane if they found themselves on the wrong slip road.

Road markings and associated signage at the junction will have to be thoroughly examined in further detail as part of the Stage 2 RSA regardless, to ensure that the considerable changes to the junction are as clear as possible to drivers.

DESIGN TEAM RESPONSE

Agree with Audit Recommendation: Yes / ~~No~~ / ~~In Part~~

We agree that suitable signage should be provided to enable drivers to take the correct exit from the M1. Detailed liaison is taking place with the Smart Motorway Project (SMP) regarding signage as they are developing the design of the motorway signage.

It is considered necessary for both M1 exits both NB and SB to be used for the A45. This is because:

- The predominant traffic movement will be to the A45 from both M1 NB and M1 SB and hence both exits are needed for A45 traffic
- Ghost island diverges are proposed to minimise the risks associated with last moment exiting (swooping) and in the case of the SB diverge, it is considered that drivers are likely to seek to use the second exit to turn left onto the A45
- HGV drivers turning right from the M1 NB to the A45 are likely to use the first exit and hence need to be able to make this manoeuvre.

On the basis of the above it is considered that the lane allocations as proposed form the best balance to the overall proposals and, furthermore, a detailed microsimulation model has been produced and one of the purposes of this was to examine this very issue.

We agree that all signage and markings need to be developed in detail and taken through the Stage 2 RSA process. This will need to be done in conjunction with the SMP design.

HIGHWAYS ENGLAND RESPONSE

Agree with Audit Recommendation: Yes / No / In Part

Agree with Design Team Response: Yes / No / In Part

4.0 ITEMS RAISED AT THE STAGE 1 AUDIT – SITE ACCESS (LOCAL ROAD)

4.1 Location: General to the Junction.

Summary: The road markings are not clear.

The road markings as currently proposed are not clear. For example, on the site access the centreline is not central. In addition, directional road markings as well as arrows will be required at the roundabout to make it clear as to what movement is permitted in each of the entry lanes. As a result, this could result in vehicles not taking the correct line of travel if they were guided by the road markings as currently proposed.

Recommendation

Ensure that the road markings and signage strategy at the site access junction is completely clear for all users.

DESIGN TEAM RESPONSE

Agree with Audit Recommendation: Yes / ~~No~~ / ~~In Part~~

We agree that the markings should be made clearer and they have been amended accordingly.

NORTHAMPTONSHIRE COUNTY COUNCIL RESPONSE

Agree with Audit Recommendation: Yes / No / In Part

Agree with Design Team Response: Yes / No / In Part

4.2 Location: Site Access Arm.

Summary: Uncontrolled crossings provided on potentially busy exit from roundabout.

The crossing facility provided over the site access arm is proposed as an uncontrolled crossing. However, the access will potentially be busy during peak times, and the exit from the roundabout is provided with two lanes merging to one within the site. This could make it difficult for pedestrians to cross the carriageway and predict vehicle movements exiting the roundabout. This is exacerbated by the provision of two lanes allowing access to the site around the roundabout.

Recommendation

Assuming pedestrian movements across the site access arm would be low, it could be beneficial to provide a signal controlled facility on the basis that it should not prejudice the capacity of said junction.

DESIGN TEAM RESPONSE

Agree with Audit Recommendation: ~~Yes~~ / No / ~~In Part~~

The number of vehicles per day using the site (i.e. a 1-way flow) is forecast to be approximately 8300, which reduces to approximately 7100 if all the travel plan measures are successful. Using Table 6/1 of DMRB TA91/05 an uncontrolled crossing is therefore considered to be 'normally appropriate'.

Furthermore, the exit from the site onto the roundabout is forecast to see very low use with the majority of vehicles using the segregated left turn lane to M1 J15 – which does have a controlled crossing which is linked to the controlled crossing over the A508.

Hence for the above reasons, together with the envisaged low number of pedestrians and cyclists, it is proposed to retain an uncontrolled crossing over the site access arm within the design.

NORTHAMPTONSHIRE COUNTY COUNCIL RESPONSE

Agree with Audit Recommendation: Yes / No / In Part

Agree with Design Team Response: Yes / No / In Part

4.3 Location: A508 Northbound bus stop.

Summary: Provision of bus stop close to the roundabout could create confusion.

The proposals include bus stops provided on both the northbound and the southbound A508 approaches to the roundabout. The northbound bus stop in particular is provided close to the roundabout and is also provided in addition to a flare from one lane to two lanes. This results in a potentially confusing layout, as a bus pulling into the bus stop, could be followed by a car, expecting it to turn into the site, for it to suddenly stop. This could potentially lead to shunt type collisions.

Similarly, the southbound bus stop could restrict visibility to and from pedestrians using the pedestrian crossing.

Recommendation

The bus stops should be located at a suitable distance away from the roundabout to prevent any confusion for motorists at the roundabout.

DESIGN TEAM RESPONSE

Agree with Audit Recommendation: ~~Yes~~ / ~~No~~ / In Part

We agree that the bus stops should be located at a suitable distance from the roundabout to avoid confusion. However, the bus stops also have to be within a suitable distance of the development else they would see little use and it is not possible

to provide a bus stop between the site access roundabout and M1 J15 due to the proposed layout and the amount of lane changing required.

In the case of the northbound stop, it is considered that the risk of a vehicle following the bus into the lay-by is considered to be very low as drivers will be able to see the road layout ahead of them and see that it is a bus lay-by. Furthermore, drivers are used to buses stopping on the carriageway and pulling into lay-bys (this is of course how buses operate).

During detailed design measures to highlight the presence of the bus lay-by will be considered to minimise the risk of vehicles following a bus into the lay-by.

In the case of the southbound stop it is confirmed that a bus stopped in the lay-by would not obstruct visibility to the signals nor pedestrians using the crossing.

NORTHAMPTONSHIRE COUNTY COUNCIL RESPONSE

Agree with Audit Recommendation: Yes / No / In Part

Agree with Design Team Response: Yes / No / In Part

5.0 ITEMS RAISED AT THE STAGE 1 AUDIT – A508 BLISWORTH ROAD JUNCTION (LOCAL ROAD)

(Note that this was incorrectly termed the A508 Courteenhall Road junction in the RSA)

5.1 Location: Courteenhall Road, directly to the west of the A508 (Figure 5).

Summary: It is unclear how pedestrians and cyclists would cross Courteenhall Road.

A shared surface pedestrian/cycle route routes along the western side of the A508. A refuge is proposed in the centre of Courteenhall Road to enforce the left-in/left-out arrangement. However, it is unclear at this stage how pedestrians and cyclists would cross Courteenhall Road, because it does not appear that they would be able to make use of the refuge. This could result in such users being put in conflict with vehicles travelling along Courteenhall Road.

Recommendation

It is recommended that pedestrians and cyclists are provided with the opportunity to use the refuge to break their crossing of Courteenhall Road.

DESIGN TEAM RESPONSE

Agree with Audit Recommendation: Yes / ~~No~~ / ~~In Part~~

We agree that pedestrians and cyclists should use the refuge to cross and the design has been updated accordingly.

NORTHAMPTONSHIRE COUNTY COUNCIL RESPONSE

Agree with Audit Recommendation: Yes / No / In Part

Agree with Design Team Response: Yes / No / In Part

5.2 Location: A508, directly opposite Courteenhall Road (Figure 5).

Summary: Central island could cause conflict.

The junction of the A508/Courteenhall Road is proposed to be revised to a left-in/left-out junction which is forced by the introduction of a narrow central kerbed central island. If the central island was not provided with bollards or signage, it could be inconspicuous to drivers resulting in them colliding with it.

Recommendation

Whilst more of a detailed design issue, it should be ensured that suitable signage, and bollards are provided to make the central island as visible as possible.

DESIGN TEAM RESPONSE

Agree with Audit Recommendation: Yes / ~~No~~ / ~~In Part~~

This will be addressed at the detailed design stage.

NORTHAMPTONSHIRE COUNTY COUNCIL RESPONSE

Agree with Audit Recommendation: Yes / No / In Part

Agree with Design Team Response: Yes / No / In Part

6.0 ITEMS RAISED AT THE STAGE 1 AUDIT – ROADE BYPASS (LOCAL ROAD)

6.1 Location: Blisworth Road, to the southeast of Hyde Farm (Figure 6)

Summary: It is unclear how cyclists would connect onto the off-road cycle facility.

What is understood to be an off-road section of cycleway is proposed on the northeastern side of the Roade Bypass/Blisworth Road roundabout, to provide any cyclists from Blisworth with the opportunity to access the shared surface footway/cycleway on the eastern side of the bypass without travelling around the roundabout on the live carriageway.

However, the facility appears to begin at a newly created farm access. It is therefore unknown at this stage how cyclists would be safely directed onto said facility, avoiding any potential conflict that could be created by the farm access, including any mud on the carriageway which could cause cyclists to come off their bicycles.

Recommendation

Further thought is required as part of the detailed design process, as to how cyclists would safely access the off-road cycle facility. It may be beneficial to provide a separate dropped kerb facility closer to the roundabout, dedicated to cyclists leaving the carriageway to avoid any conflict with the farm access.

DESIGN TEAM RESPONSE

Agree with Audit Recommendation: Yes ~~/ No / In Part~~

We agree that the connections to the shared use facility need further consideration and the geometric design has been updated to clarify this taking on board the recommendation in the audit to avoid conflicts with the private accesses. The detailed treatment of these points will be addressed during the detailed design.

NORTHAMPTONSHIRE COUNTY COUNCIL RESPONSE

Agree with Audit Recommendation: Yes / No / In Part

Agree with Design Team Response: Yes / No / In Part

7.0 ITEMS RAISED AT THE STAGE 1 AUDIT – KNOCK LANE (LOCAL ROAD)

7.1 No problems identified.

8.0 ITEMS RAISED AT THE STAGE 1 AUDIT – A508 ROOKERY LANE / ASHTON ROAD (LOCAL ROAD)

8.1 Location: Eastern side of A508 (Figure 7).

Summary: Lack of crossing facility provided between footways.

There is currently a footway provided along the eastern side of the A508 in the vicinity of the cottages, north of the proposed staggered junction. The proposals include a 3.0 metres wide shared facility on the western side of the A508. However, there is no facility provided to the north of the junction to allow pedestrians to cross the carriageway. This could result in pedestrians attempting to cross where there are no provisions or, where motorists are not expecting them to cross, resulting in them being hit by passing vehicles.

Recommendation

Provide an informal crossing facility across the most northern refuge, in the form of dropped kerbs and tactile paving to allow pedestrians to cross the road, outside of the cottages.

DESIGN TEAM RESPONSE

Agree with Audit Recommendation: Yes ~~/ No / In Part~~

We agree that an additional uncontrolled crossing should be provided and the design drawings have been amended accordingly.

NORTHAMPTONSHIRE COUNTY COUNCIL RESPONSE

Agree with Audit Recommendation: Yes / No / In Part

Agree with Design Team Response: Yes / No / In Part

9.0 ITEMS RAISED AT THE STAGE 1 AUDIT – A508 PURY ROAD (LOCAL ROAD)

9.1 No problems identified.

10.0 ITEMS RAISED AT THE STAGE 1 AUDIT – A508 CHURCH LANE (LOCAL ROAD)

10.1 Location: A508 north of Church Lane (Figure 8).

Summary: Refuge could be damaged by agricultural vehicles.

There is a refuge provided on the A508 directly to the north of the Church Lane junction, to allow pedestrian access to the southbound bus stop. During the site visit, a large tractor was witnessed turning right out of Church Lane onto the A508 which used a large amount of carriageway. If the refuge is provided close to the junction this could result in the refuge being run over by these large vehicles, potentially damaging the bollards or the kerbing, which could even leave parts of the kerb in the carriageway leaving a hazard to motorists and motorcyclists.

Recommendation

Ensure that the refuge is provided far enough from the junction to allow agricultural vehicles to enter and exit Church Lane.

DESIGN TEAM RESPONSE

Agree with Audit Recommendation: Yes ~~/ No / In Part~~

Swept path analysis has been undertaken to demonstrate that agricultural and other large vehicles can make this manoeuvre without conflicting with the refuge. Wording has been added to the GDSR to confirm this.

NORTHAMPTONSHIRE COUNTY COUNCIL RESPONSE

Agree with Audit Recommendation: Yes / No / In Part

Agree with Design Team Response: Yes / No / In Part

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