

Road Safety Audit Stage 2 (Supplementary)

Botley Bypass

January 2025

Document reference: 09/246

Client reference: C.J008882.01

Road User Audit Team

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1 Introduction

- 1.1 This report results from a supplementary Stage 2 Road Safety Audit carried out on the revised A334/A3051 roundabout junction layout associated with the Botley Bypass. The revisions primarily consist of the removal of the proposed segregated left turn lane forming a standard roundabout junction configuration and extension of the shared cycle facility on the eastern side of Station Hill all at the southern extent of the bypass.
- 1.2 The Road Safety Audit Team membership was as follows: -
- | | |
|--------------------|---|
| Audit Team Leader: | Ross Rawlings MCIHT MSoRSA
Hampshire Engineering Services |
| Audit Team Member: | Steve Willoughby MCIHT MSoRSA
Hampshire Engineering Services |
- 1.3 The Road Safety Audit comprised an examination of the documents provided, as listed in the attached Road Safety Audit Brief. The Audit Team visited the site together, in November 2023 for the initial Stage 2 Road Safety Audit, so a desktop only study was carried out for this supplementary Stage 2 Road Safety Audit.
- 1.4 The audit has been carried out in accordance with the requirements specified in Hampshire County Council's Technical Guidance Note 18. The Road Safety Audit Team has examined and reported only on the road safety implications of the scheme as presented and has not examined or verified the compliance of the design to any other criteria.
- 1.5 All problems described in this report are considered by the Audit Team to require action in order to improve the safety of the scheme.
- 1.6 All references to diagram numbers refer to the Traffic Signs Regulations and General Directions 2016 (TSRGD).

2 Departures from Standards

- 2.1 All Departures from Standard are listed in the attached Road Safety Audit Brief.

3 Items raised at previous stage audits

- 3.1 A Stage 2 Road Safety Audit was carried out in November 2023. Items raised at this stage that remain a problem are referred to again in this report.

4 Items raised at this supplementary Stage 2 Audit

4.1 Problem

Location: All crossing points on Pinkmead roundabout.

Summary: Inadequate pedestrian crossing provision.

Pedestrians and cyclists may struggle to find suitable gaps in traffic, especially in peak times, when attempting to cross at the roundabout. Although crossing movements are likely to be low, there is still an increased risk of vehicle/pedestrian collisions at this location.

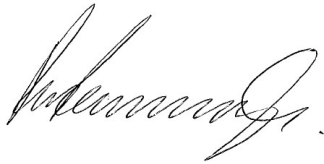
Recommendation: Assess forecasted traffic flow data on all arms of the roundabout to determine if uncontrolled crossings are acceptable or if a greater crossing provision is required.

5 Audit team statement

We certify that the terms of reference of the audit are as described Hampshire County Council's Technical Guidance Note 18.

Audit Team Leader

Ross Rawlings MCIHT, MSoRSA, HE RSA Cert. Comp.
Principal Engineer,
Road User Audit Team
Hampshire County Council

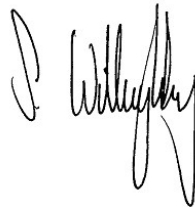


Signed:

Date: 27/01/2025

Audit Team Member

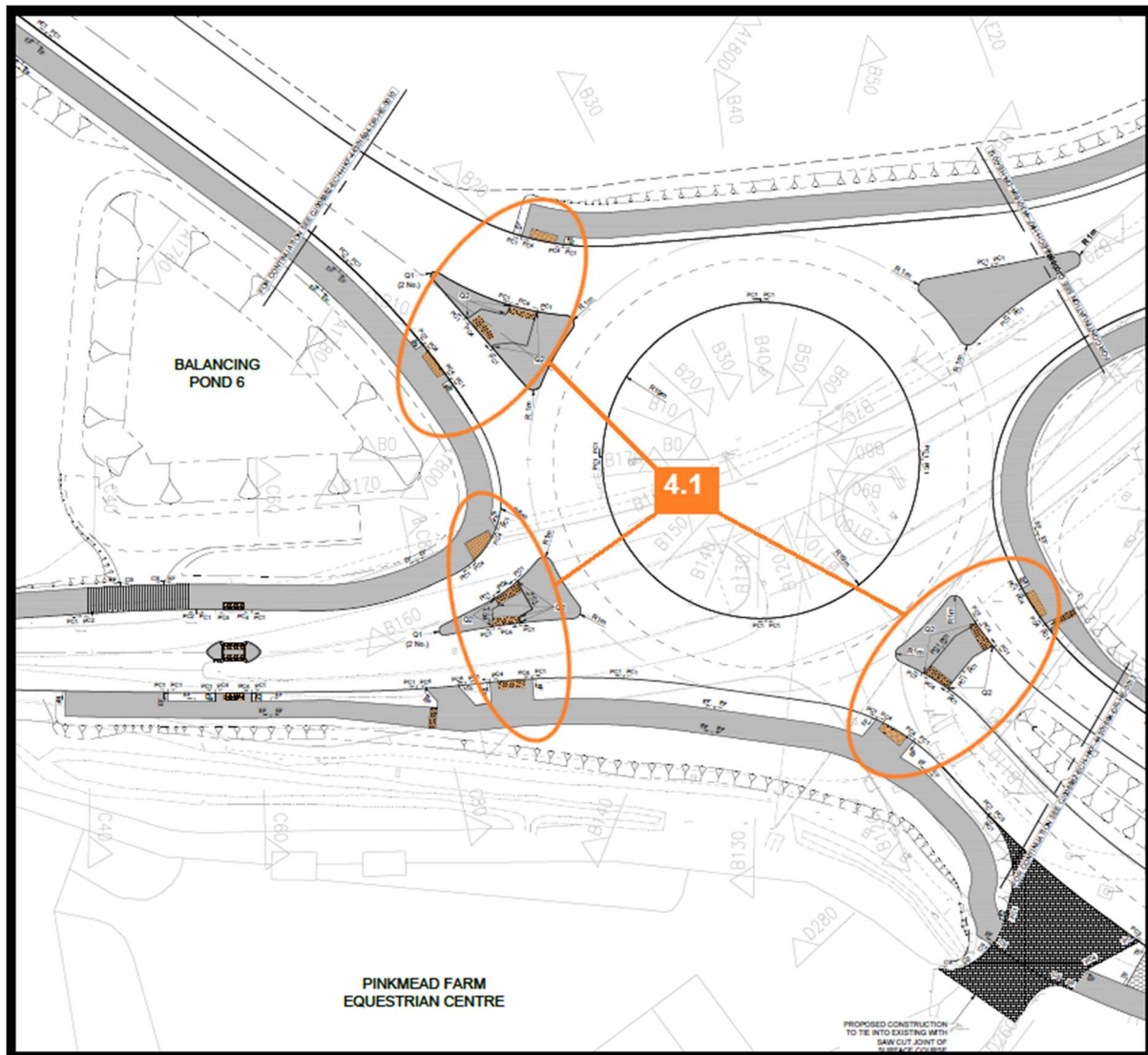
Steve Willoughby MCIHT, MSoRSA, HE RSA Cert. Comp.
Group Engineer,
Road User Audit Team
Hampshire County Council



Signed:

Date: 29/01/2025

Annotated Plan





Road Safety Audit Brief

Scheme Name:	Botley Bypass				
Job Number:	C.J008882.01				
Road Safety Audit Stage: (X as appropriate)	Feasibility (F)	Preliminary (1)	Detailed (2) (Supplementary) X	Combined (1/2)	As Built (3)

Site & Scheme Description

1. Introduction & Background

1.1. This is a supplementary RSA2 request following the redesign to the proposed roundabout to remove the segregated left turn lane (SLTL) and other items identified as 'problems' in the original RSA2 report. In addition, items identified within initial comments provided by the RSA team for consideration.

1.2. The Botley Bypass design includes: -

- Construction of a new 1.8km long, 7.3m wide single carriageway bypass through a greenfield site.
- 3m wide shared use footway also runs adjacent to the carriageway on the southern side, with footway along part of the northern side at the western end.
- A new bridge over the river Hamble.
- A roundabout junction to replace the existing A334/A3051 priority junction.
- Realignment of the A3051 to tie into the proposed roundabout.
- Acoustic bunding to the west of the river Hamble.
- A drainage network for the bypass including SuDs drainage features with alterations existing drainage on the other approaches to the proposed roundabout.
- Existing utilities to be diverted to enable the construction works.
- Street lighting at the western end of the route and for the new roundabout.
- Preparatory works required for the proposed landscaping for delivery by others.

1.3. Botley Bypass – planning permission was granted by HCC as the planning authority on the 15th of November 2017 by HCC as the determining planning authority.

2. Design Standards

2.1. Where the design has required modification after its initial design new DMRB standards and HCC TGs have been adopted.

2.2. The calculations show that over the full length of the bypass, the Design Speed could equate to 100kph, however 70kph has been chosen. To mitigate against this and encourage traffic to travel at reduced speeds, a 0.9m wide central hatched area is to be provided along the length of the bypass between the traffic island hatch tapers.

2.3. Most of the geometry was developed and fixed during the preliminary design stage, i.e. in accordance with Volume 6 of the DMRB prior to the updates of March 2020. The following main standards were used during that time: -

Section 1 Links: -

- TD 9/93 – Highway Link Design
- TD 27/05 – Cross-Sections and Headroom

Section 2 Junctions: -

- TD 17/07 Geometric Design of Roundabouts and TD 51/17 Segregated Left Turn Lanes and Subsidiary Deflection Islands at Roundabouts
- TA 78/97 Design of Road Markings at Roundabouts
- TD 42/95 Geometric Design of Major/Minor Priority Junctions
- TA 90/05 The Geometric Design of Pedestrian, Cycle and Equestrian Routes

Manual for Streets 2: -

- Used for the design of sections with a 30mph posted speed limit.

2.4. There are no Departures from Standard associated with the horizontal or vertical alignment of the mainline.

2.5. There are Relaxations of Standard within the alignment, i.e. there are horizontal curves which are one and two steps below the desirable minimum. These are located approximately at: -

- Radius of 255m from Ch 380 to Ch 650 approx. (including transition curves) – One Step Below Desirable Minimum R
- Back-to-Back Radii of 180m from Ch 1260 to 1700 approx. (including transition curves) – Two Steps Below Desirable Minimum R

2.6. Notwithstanding the above, the necessary Stopping Sight Distance (SSD) has been achieved at these radii and along the full length of the bypass.

3. Redesign

3.1. For the redesigned elements, the following main standards were used: -

Section 1 Links

- CD109 - Highway link design
- CD116 - Geometric design of roundabouts

Manual for Streets 2: -

- Used for the design of sections with a 30mph posted speed limit.

3.2. The primary redesigned element relates to the roundabout, with the removal of the SLTL.

3.3. The shared use crossing of the western, bypass arm has been retained but is now a two-stage instead of a three-stage crossing with the removal of the SLTL. However, instead of replicating this arrangement at the eastern, Station Hill arm, the proposed SUF has been extended along the southern side of Station Hill to an unsegregated crossing via a refuge approx. 65m northeast of the roundabout.

3.4. The proposal to encourage traffic to travel at reduced speeds has been amended, with the 3.65m wide lanes have reduced to 3.2m by providing 0.45m margin strips, instead of a 0.9m wide centre hatch, within which are to be located the gullies.

3.5. In addition, a refuge has been added within Mill Hill to aid crossing to and from the bus stops.

4. Existing Situation

- 4.1. The existing speed limit at the A334 / A3051 junction and on the A3051 Botley Road are 40mph.
- 4.2. A334 Mill Hill from Botley Village up to a distance of approximately 285m from the centre of the A334 / A3051 junction has a 30mph speed limit. East, up to the junction the speed limit is 40pmh.
- 4.3. At the western end of the proposed bypass, there is a temporary junction arrangement between Uplands Way and Winchester Street.
- 4.4. Botley railway station is located approximately 300m to the northeast of the proposed junction.
- 4.5. There are bus stops either side of the carriageway in Mill Hill.

5. Proposed Situation

- 5.1. The purpose of Botley bypass is to provide relief from traffic with the village of Botley. The bypass is to be classified as the A334 and is to connect to the section of Uplands Way and Woodhouse Lane to complete the bypass route.
- 5.2. The route through Botley Village is to be downgraded to a 'C' classification, with measures introduced to make the current route less attractive for through traffic.
- 5.3. The speed limit for the bypass is to be posed as 40mph.
- 5.4. A334 Station Hill and A3051 Botley Road will remain unchanged. However, the existing 40mph section of Mill Hill will be reduced to 30mph up to the immediate approach to the roundabout.
- 5.5. The existing bus stops within Mill Hill are to be repositioned to suit the proposed arrangement, with, as mentioned above, a refuge provided to aid crossing between them.
- 5.6. There are no schools within the proposed works area, with the nearest being Deer Park senior school, located just under 600m northwest of the western end of the bypass, and Botley CofE primary school 775m west of the proposed roundabout junction in Botley High Street.
- 5.7. The A334 provides a link through Botley between M27 Jctn. 7 and Wickham. As such, it is a busy route at all times, but especially during peak traffic periods with an AADT of around 19,000 vehicles.
- 5.8. The A3051 provides a link from A334 to the A27 at Park Gate and provides access to the rapidly expanding residential area at North Whitley en route. The AADT is around 7,500 vehicles.

Collision Data

The latest 5-year accident data (01-May-201 and 30-Apr-2024 shows a small cluster of personal injury accidents (PIA) at the A334 / A3051 junction. 3 No. involved vehicles turning right from A3051 (2 No.), with 1 No. involving a vehicle turning right in. Other accidents include 3 No. in the vicinity of Bottings Industrial Estate, where no changes are proposed.

No PIAs have been recorded in the vicinity of the temporary junction between Winchester Street and Uplands Way.

Departures & Relaxations

- 1.1. The original design of the Botley Bypass complied with HCC guidance, other relevant national guidance and the DMRB except for the pre-agreed Departures from Standard (DfS). Following the redesign of the roundabout to remove the SLTL, there are no Departures from Standard associated with the revised roundabout design. The DfS previously agreed for the roundabout SLTL pedestrian crossings and reduced lane width are therefore no longer required.
- 1.2. A review of the current design against the current HCC guidance and DMRB guidance, has identified that the original Botley Bypass design didn't comply with some of HCC's current TGs. As it has been subsequently determined that the PRoW's crossing the bypass are footpaths

and not in fact cycle routes, the previously identified DfS's; DfS 07 and 08 are no longer required.

- 1.3. In association with the amendments to the bridge over the river Hamble, the relaxation in forward visibility caused by the parapet has been addressed. Therefore, DfS 09 raised to cover the reduced northbound SSD from Balancing Pond 5 due to the bridge parapet is no longer required.
- 1.4. There is an existing vehicle crossover at a field access on the A3051 (opposite Pink Mead Farm). The existing SSD from the upstream is approx. 48.0m with 2.4m setback (X distance) and cannot be improved to the required 96m (Y distance) (TG3) due to the proximity of the access from the junction. The existing access is to remain in the proposed scheme, and the SSD from the roundabout circulatory carriageway exit will increase to 59.5m with 2.4m setback. Unlike the current situation, whereby vehicles can turn into and out of the access from either direction, in the proposed layout, this will be restricted to left in and left out. A Departure from Standard has been submitted for the reduced 'Y' distance on the basis that it is an improvement over the existing situation.
- 1.5. Details of the Departure can be accessed via this link: - [Request-for-a-Departure-from-Standard - BB - Field Access SSD.docx](#)

List of included documents and drawings

[CJ008882-ECH-HGN-44301694-DR-HE-0001 GENERAL ARRANGEMENT - D1-P06.pdf](#)
[CJ008882-ECH-HGN-44301694-DR-HE-0002 GENERAL ARRANGEMENT - D1-P07.pdf](#)
[CJ008882-ECH-HGN-44301694-DR-HE-0003 GENERAL ARRANGEMENT - D1-P06.pdf](#)
[CJ008882-ECH-HGN-44301694-DR-HE-0004 GENERAL ARRANGEMENT - D1-P06.pdf](#)
[CJ008882-ECH-HGN-44301694-DR-HE-0005 GENERAL ARRANGEMENT - D1-P07.pdf](#)
[CJ008882-ECH-HGN-44301694-DR-HE-0006 GENERAL ARRANGEMENT - D1-P07.pdf](#)
[CJ008882-ECH-HGN-44301694-DR-HE-0007 GENERAL ARRANGEMENT - D1-P06.pdf](#)
[CJ008882-ECH-HGN-44301694-DR-HE-0008 GENERAL ARRANGEMENT - D1-P01.pdf](#)
[CJ008882-ECH-HGN-44301694-DR-HE-0009 GENERAL ARRANGEMENT - D1-P01.pdf](#)
[CJ008882-ECH-HRR-44301694-DR-HE-0003 - ROAD RESTRAINT SYSTEMS - D1-P03.pdf](#)
[CJ008882-ECH-HRR-44301694-DR-HE-0004 - ROAD RESTRAINT SYSTEMS - D1-P03.pdf](#)
[CJ008882-ECH-HRR-44301694-DR-HE-0005 - ROAD RESTRAINT SYSTEMS - D1-P03.pdf](#)
[CJ008882-ECH-HKF-44301694-DR-HE-0001 - KERBS FOOTWAYS CYCLEWAYS AND PAVED AREAS - D1-P04.pdf](#)
[CJ008882-ECH-HKF-44301694-DR-HE-0002 - KERBS FOOTWAYS CYCLEWAYS AND PAVED AREAS - D1-P04.pdf](#)
[CJ008882-ECH-HKF-44301694-DR-HE-0003 - KERBS FOOTWAYS CYCLEWAYS AND PAVED AREAS - D1-P04.pdf](#)
[CJ008882-ECH-HKF-44301694-DR-HE-0004 - KERBS FOOTWAYS CYCLEWAYS AND PAVED AREAS - D1-P04.pdf](#)

List of included documents and drawings

[CJ008882-ECH-HKF-44301694-DR-HE-0005 - KERBS FOOTWAYS CYCLEWAYS AND PAVED AREAS - D1-P04.pdf](#)

[CJ008882-ECH-HKF-44301694-DR-HE-0006 - KERBS FOOTWAYS CYCLEWAYS AND PAVED AREAS - D1-P04.pdf](#)

[CJ008882-ECH-HKF-44301694-DR-HE-0007 - KERBS FOOTWAYS CYCLEWAYS AND PAVED AREAS - D1-P04.pdf](#)

[CJ008882-ECH-HKF-44301694-DR-HE-0008 - KERBS FOOTWAYS CYCLEWAYS AND PAVED AREAS - D1-P04.pdf](#)

[CJ008882-ECH-HKF-44301694-DR-HE-0009 - KERBS FOOTWAYS CYCLEWAYS AND PAVED AREAS - D1-P04.pdf](#)

[CJ008882-ECH-HKF-44301694-DR-HE-0010 - KERBS FOOTWAYS CYCLEWAYS AND PAVED AREAS - D1-P04.pdf](#)

[CJ008882-ECH-HKF-44301694-DR-HE-0011 - KERBS FOOTWAYS CYCLEWAYS AND PAVED AREAS - D1-P04.pdf](#)

[CJ008882-ECH-HKF-44301694-DR-HE-0012 - KERBS FOOTWAYS CYCLEWAYS AND PAVED AREAS - D1-P04.pdf](#)

[CJ008882-ECH-HKF-44301694-DR-HE-0013 - KERBS FOOTWAYS CYCLEWAYS AND PAVED AREAS - D1-P04.pdf](#)

[CJ008882-ECH-HKF-44301694-DR-HE-0014 - KERBS FOOTWAYS CYCLEWAYS AND PAVED AREAS - D1-P04.pdf](#)

[CJ008882-ECH-HSN-44301694-DR-HE-0001 - PROPOSED TRAFFIC SIGNS, LINES AND ROAD STUDS - D1-P04.pdf](#)

[CJ008882-ECH-HSN-44301694-DR-HE-0002 - PROPOSED TRAFFIC SIGNS, LINES AND ROAD STUDS - D1-P04.pdf](#)

[CJ008882-ECH-HSN-44301694-DR-HE-0003 - PROPOSED TRAFFIC SIGNS, LINES AND ROAD STUDS - D1-P04.pdf](#)

[CJ008882-ECH-HSN-44301694-DR-HE-0004 - PROPOSED TRAFFIC SIGNS, LINES AND ROAD STUDS - D1-P04.pdf](#)

[CJ008882-ECH-HSN-44301694-DR-HE-0005 - PROPOSED TRAFFIC SIGNS, LINES AND ROAD STUDS - D1-P04.pdf](#)

[CJ008882-ECH-HSN-44301694-DR-HE-0006 - PROPOSED TRAFFIC SIGNS, LINES AND ROAD STUDS - D1-P04.pdf](#)

[CJ008882-ECH-HSN-44301694-DR-HE-0007 - PROPOSED TRAFFIC SIGNS, LINES AND ROAD STUDS - D1-P04.pdf](#)

[CJ008882-ECH-HSN-44301694-DR-HE-0008 - PROPOSED TRAFFIC SIGNS, LINES AND ROAD STUDS - D1-P04.pdf](#)

[CJ008882-ECH-HSN-44301694-DR-HE-0009 - PROPOSED TRAFFIC SIGNS, LINES AND ROAD STUDS - D1-P04.pdf](#)

List of included documents and drawings

[CJ008882-ECH-HSN-44301694-DR-HE-0010 - PROPOSED TRAFFIC SIGNS, LINES AND ROAD STUDS - D1-P04.pdf](#)

[CJ008882-ECH-HSN-44301694-DR-HE-0011 - PROPOSED TRAFFIC SIGNS, LINES AND ROAD STUDS - D1-P04.pdf](#)

[CJ008882-ECH-HSN-44301694-DR-HE-0012 - PROPOSED TRAFFIC SIGNS, LINES AND ROAD STUDS - D1-P04.pdf](#)

[CJ008882-ECH-HSN-44301694-DR-HE-0013 - PROPOSED TRAFFIC SIGNS, LINES AND ROAD STUDS - D1-P04.pdf](#)

[CJ008882-ECH-HSN-44301694-DR-HE-0014 - PROPOSED TRAFFIC SIGNS, LINES AND ROAD STUDS - D1-P04.pdf](#)

[CJ008882-ECH-HSN-44301694-DR-HE-0015 - PROPOSED TRAFFIC SIGNS, LINES AND ROAD STUDS - D1-P03.pdf](#)

[CJ008882-ECH-HSN-44301694-DR-HE-0016 - PROPOSED TRAFFIC SIGNS, LINES AND ROAD STUDS - D1-P03.pdf](#)

[CJ008882-ECH-HSN-44301694-DE-HE-0017 - PROPOSED TRAFFIC SIGN DETAILS - D1-P02.pdf](#)

[CJ008882-ECH-HLG-44301694-DR-LE-0001 - STREET LIGHTING - D1-P2.pdf](#)

[CJ008882-ECH-HLG-44301694-DR-LE-0006 - STREET LIGHTING - D1-P2.pdf](#)

[CJ008882-ECH-HLG-44301694-DR-LE-0007 - STREET LIGHTING - D1-P2.pdf](#)

[CJ008882-ECH-HLG-44301694-DR-LE-0008 - STREET LIGHTING - D1-P2.pdf](#)

[CJ008882-ECH-HLG-44301694-DR-LE-0009 - STREET LIGHTING - D1-P2.pdf](#)

[CJ008882-ECH-HLG-44301694-DR-LE-0010 - STREET LIGHTING - D1-P2.pdf](#)

[CJ008882-ECH-HLG-44301694-DR-LE-0011 - STREET LIGHTING - D1-P2.pdf](#)

[CJ008882-ECH-HLG-44301694-DR-LE-0012 - STREET LIGHTING - D1-P2.pdf](#)

Scheme Specific Health & Safety Checklist and Risk Assessment

Attach a link or electronic copy to the Scheme Specific Health & Safety Checklist and Risk Assessment document.

[CJ008222.01-Mark Taylor-HSCDM-Scheme Specific Checklist and Risk Assessment.docx](#)

Prepared By:

Name:	Mark Taylor, Project Engineer
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Signed:	
Organisation:	HCC ES Highways
Date:	19 November 2024

Road Safety Audit Response Report

All the problems raised by the Road Safety Audit Team should be given due consideration.

Item No.	Problem Accepted (yes/no)	Recommendation Accepted (yes/no)	Designers Response
4.1	N	Y	See below for details.

In accordance with Technical Guidance Note 18, should any of the problems and/or recommendations not be excepted, an Exception Report will be required. If there is more than one exception, then each must be considered and approved separately.

Designers Response – further information: -

The predicted two-way traffic flow using the bypass and Station Hill arms are 23,000 AADT. The previous design for the roundabout included a SLTL to prioritise traffic flows between the bypass and Station Hill. This would have created three separate movements for pedestrians and cyclists crossing at either end of the SLTL.

The current design removes the SLTL. The exit onto the bypass has been narrowed to a single lane, thereby reducing the distance for users to cross. There will be two lanes to cross at the bypass roundabout entry instead of a two-stage crossing of a single lane and the free-flow SLTL.

The uncontrolled crossings via the Station Hill splitter island have been removed and an additional refuge introduced approximately 60m northeast of the roundabout, which improves the desire line. The remaining crossings stay as previously proposed, with the Mill Hill being redesigned to incorporate a further pedestrian refuge to aid access to and from the bus stops and the 30mph speed limit extended from Botley village up to the roundabout.

Although the posted speed limit at the roundabout will be 40mph, the need for drivers to give way to those circulating, the relatively small size of the roundabout, the deflections achieved and smaller exit radii, drivers are likely to be approaching, manoeuvring and exiting at lower speeds making it easier and safer for users to cross.

Following receipt of the RSA2 report, HCCs ITS team were requested to review crossing options at the roundabout. The assessment was undertaken before the decision to remove the SLTL was made, but it is considered that the conclusions would be the same without the SLTL. Their report can be assessed here: - [Botley Bypass - ITS Roundabout Comments.docx](#)

In summary the report advised that: -

- Uncontrolled were considered suitable for low-speed roads, and the roundabout approaches are to be 40mph.
- Zebra crossings were ruled out due to both forecast traffic volumes and their lack of provision for cyclists.

- Parallel crossings were ruled out due to the lack of space within the splitter islands in which to locate parallel crossings and their associated footways and cycleways.
- Signal-controlled crossing provisions were assessed in accordance with TG4-2, which supersedes CD116. TG4-2 (4.3.11) requires that they should be a minimum of 30m distant from the give way markings on the approach, and no closer than 40m to the exit.

Signal-controlled crossings were considered as the only form of controlled crossing that could be used at this location. However, their use is not considered feasible due to the impact on desire lines and that they cannot be provided without compromising the compliant roundabout geometry due to the lack of land available. If installed, users may seek to cross away from the designated crossing locations to avoid travelling the additional distances, which was considered hazardous.

As no predicted pedestrian and cycle flows are available, it is not possible undertake detailed assessments of crossing option types. Whilst predicted flows are unknown, flows to and from the station from Botley village and the North Whitely development are likely to be tidal, and low in numbers and are unlikely to meet the PV² assessment criteria to justify inclusion of controlled signal-controlled crossings.

Summary

Uncontrolled crossings are now only proposed across three of the four approaches, with a revised crossing provision proposed within Station Hill. Having addressed all problems raised in the RSA2, and incorporating additional suggestions from informal advice received, it is considered that the risks of including uncontrolled crossing facilities at the junction have been minimised.

As it has not been possible to accept the problem raised, an Exception Report is to be submitted.

Prepared by:

Signed:



(Design Team Leader)

Date: 08-04-2025

Approved by:

Signed:

B. Smith (Project Sponsor)

Date:

10 April 2025

