OXFORDSHIRE
STRATEGIC RAIL FREIGHT INTERCHANGE

DCO Submission

Environmental Statement

Chapter 3: Transport
Transport Assessment Addendum

Document 6.3A.12
Rev v1

On behalf of
Oxfordshire Railfreight Limited

Prepared by ADC Infrastructure Ltd
October 2026

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Date	October 2026
Revision	V1

TRANSPORT ASSESSMENT ADDENDUM

OXFORDSHIRE SRFI

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1.0 INTRODUCTION

1.1 ADC Infrastructure Limited are commissioned by Oxfordshire Railfreight Limited (the Applicant) to assess the transport and infrastructure requirements of a proposed Strategic Rail Freight Interchange (SRFI) in Oxfordshire; the subject of a Development Consent Order (DCO) application for a Nationally Significant Infrastructure Project (NSIP), to be known as OxSRFI.

1.2 An application for the DCO was submitted and accepted for examination in March 2026. The application included the Transport Assessment for the Proposed Development, which is Appendix 3.1 of the submitted Environmental Statement (ES).

1.3 Since submission of the DCO application in March 2026, discussions with the local highways authority, Oxfordshire County Council (OCC), have continued with regards to a small number of outstanding matters related to traffic and transport issues. These discussions have led to the proposal to make a small number of changes to the highway design and speed limits on the local road network and the provision of routes for pedestrians and cyclists within the Main Site. These changes are set out within the 'Speed Limit and Highway Design Changes' included with the change report (Document 11.2). As indicated within the change report most of the changes relate to amendments to DCO plans, the draft DCO, and documents submitted with the application in March 2026. Those changes are referenced in the change report and have been made directly to the relevant document submitted as part of the March 2026 application. However, there are a small number of changes that resulted in the preparation of additional documents or drawings and hence these are captured within this TA Addendum.

1.4 In addition, since submission of the DCO application in March 2026, the formal Stage 1 Road Safety Audit (RSA) has been completed. A Response Report and any actions arising from the Stage 1 RSA findings are being discussed with OCC and National Highways (NH) and it is anticipated that the Response Report will be submitted at Deadline 3. The Stage 1 RSA is appended to this TA Addendum at **Appendix 4**.

2.0 A4095/B4030 ROUNDABOUT (WORKS NO. 39)

2.1 Since submission of the application, three discrete amendments to the Order Limits are proposed. The reasons for these changes are set out in change report. The second of these changes (Change 2) relates to the A4095/B4030 roundabout (Works No. 39) and a change to the Order Limits to remove land following an amended request from OCC to alter the approach to mitigation at the roundabout. When the DCO application was submitted ongoing discussions with OCC were that Works No. 39 would be secured by a S106 agreement and delivered by OCC. The expectation is now that it is more likely they will be delivered directly by the Applicant.

2.2 The same highway works are to be undertaken, but land will not be needed to allow those works to tie in with third party works. Change 2 is therefore about how the works are secured. This means that two plots of land, over which compulsory acquisition might have been required, can be removed from the Order limits. The Order limits are therefore to be reduced, but the same scheme of additional mitigation will be provided at the A4095/B4030 roundabout.

2.3 However, because of the commitment for the Applicant to undertake the works (except for specific circumstances when the works would still be secured via a financial contribution by the Applicant and delivered by OCC), there is a need to provide further design information for Works No. 39. This does not change the design proposals but provides a greater level of detail than previously submitted. That additional design work, which comprises the drawings listed below, is appended to this TA Addendum at **Appendix 1**.

- Drawing OxSRFI-BWB-HGN-29-DR-CH-0105 A4095/B4030 geometrical layout Sheet 29 Revision P01
- Drawing OxSRFI-BWB-GEN-XX-DR-CH-0011 A4095/B4030 swept paths Revision P01

3.0 B430 ACTIVE TRAVEL ROUTE & UPPER HEYFORD ROAD JUNCITON (WORKS NO. 25A & 25B)

3.1 Since submission of the application in March 2026, the departures for standard for the Highway Works have been prepared. As part of that work the drawings listed below have been prepared and submitted to OCC and they are appended to this TA Addendum at **Appendix 1**.

- Drawing OxSRFI-BWB-HGN-30-DR-CH-0105 Geometrical layout Sheet 30 Revision P01
- Drawing OxSRFI-BWB-HGN-31-DR-CH-0105 Geometrical layout Sheet 31 Revision P01

4.0 ADDITIONAL TECHNICAL NOTES

4.1 In responding to OCC's comments on the submitted DCO application, the Applicant prepared the two additional technical notes listed in the table below.

Document	Document Reference	Description
Technical Note: 'OxSRFI - OCC Comments on Highways and Transport Matters'	ADC1794-RP-AX-v1	Sets out the Applicant's proposed response to the list of Highway and Transports matters raised by OCC following their review of the DCO application.
Technical Note: 'OxSRFI – OCC Comments on Highways and Transport Matters Modelling Queries in Bicester and Wendlebury'	ADC1794-RP-AY-v1	Provides clarification with regards to traffic rerouting associated with the performance of the Middleton Stoney Road/Kings End/Oxford Road mini-roundabout in Bicester, and the Opening Year traffic effects on the A41 and Wendlebury

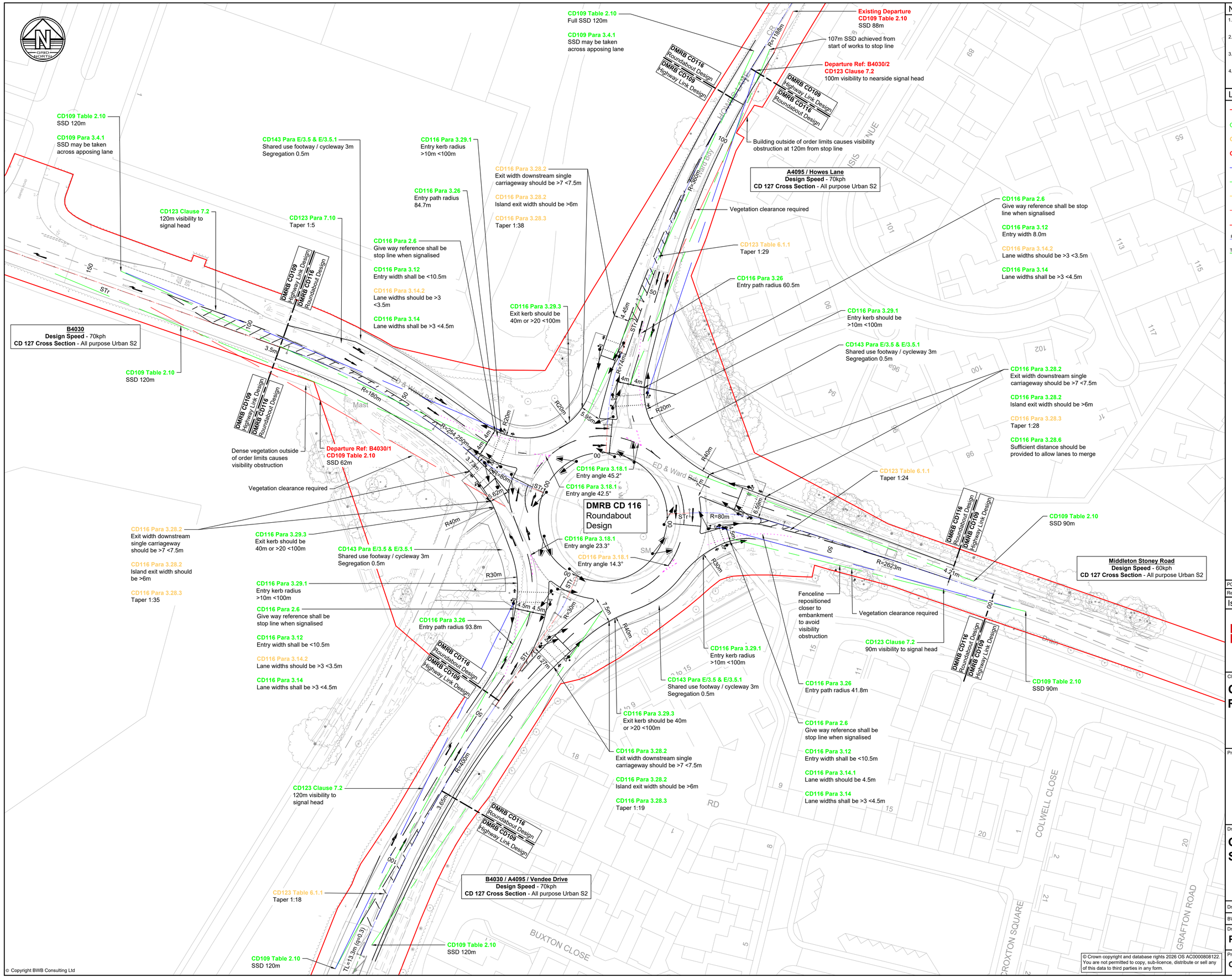
4.2 The above technical notes are provided at **Appendix 2** and **Appendix 3** of this TA Addendum, respectively.

5.0 STAGE 1 ROAD SAFTEY AUDIT

5.1 The Stage 1 RSA of the Highways Works carried out in accordance with DMRB GG 119 is appended to the TA Addendum at **Appendix 4**. This has been agreed with both NH and OCC.

APPENDIX 1

Additional highway design drawings



Notes

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2. This drawing is to be read in conjunction with all relevant architects, engineers and specialists drawings and specifications.
3. All dimensions in metres unless noted otherwise. All levels in metres unless noted otherwise.
4. Any discrepancies noted on site are to be reported to the engineer immediately.

Legend

- Order Limits
- CDxxx — Adheres to standard
- CDxxx — Relaxation or acceptable deviation from standard
- CDxxx — Deviation that requires a departure from standard
- Junction visibility
- Forward visibility
- Visibility Splay with Relaxation
- Visibility Splay with Departure
- STr — Alignment - Straight
- R=xxxm — Alignment - Radius
- TL=xx.xm (q=0.x) — Alignment - Transition
- Traffic signal equipment

Rev	Date	Details of issue / revision	Drw	Rev
P01	08.07.26	First Issue	SB	SRH

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OXFORDSHIRE RAILFREIGHT LTD.

Project Title

OxSRFI
OXFORDSHIRE
STRATEGIC RAIL FREIGHT INTERCHANGE

Drawing Title

GEOMETRICAL LAYOUT SHEET 29

Drawn:	S.Birchall	Reviewed:	S.Hilditch
BWB Ref:	NTH2479	Date: 08.07.26	Scale@A1: 1:500

Drawing Status

PRELIMINARY

Project - Originator - Zone - Level - Type - Role - Number	Status	Rev
OxSFI-BWB-HGN-29-DR-CH-0105	S2	P01

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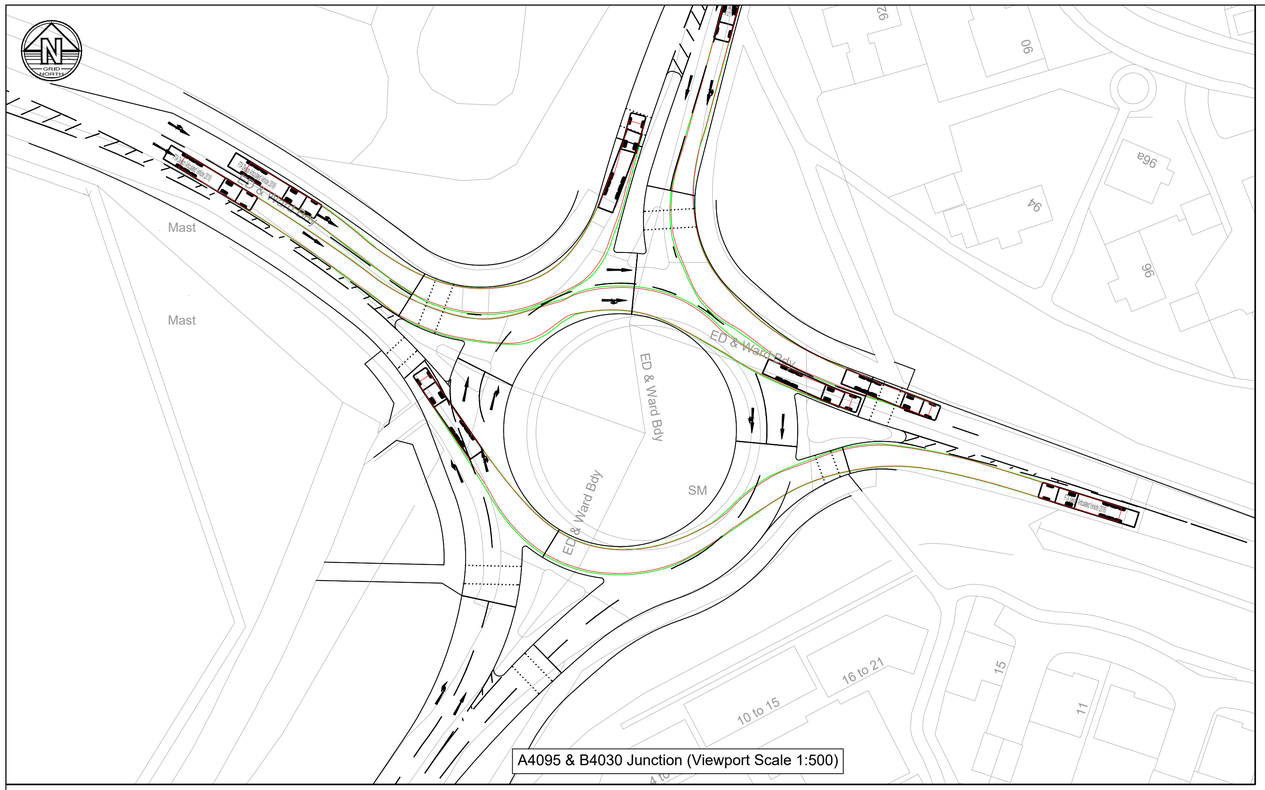
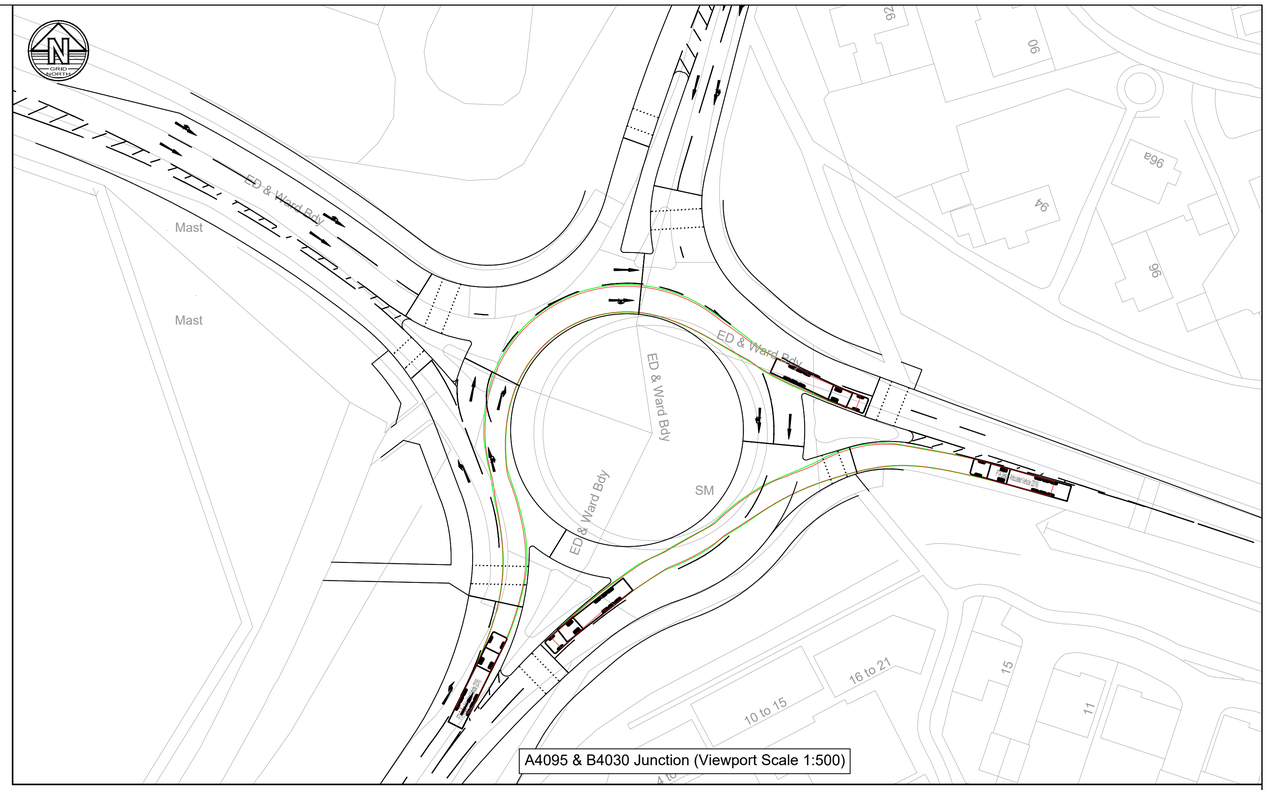
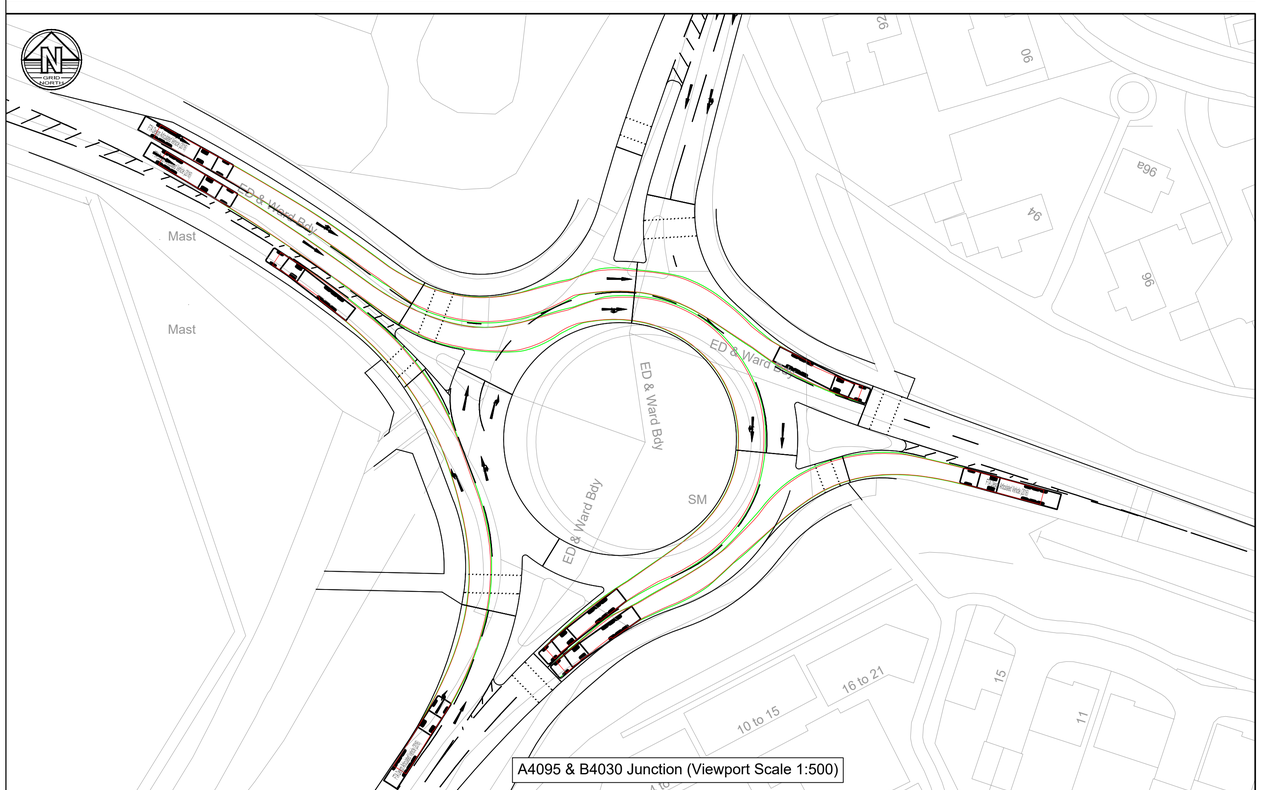


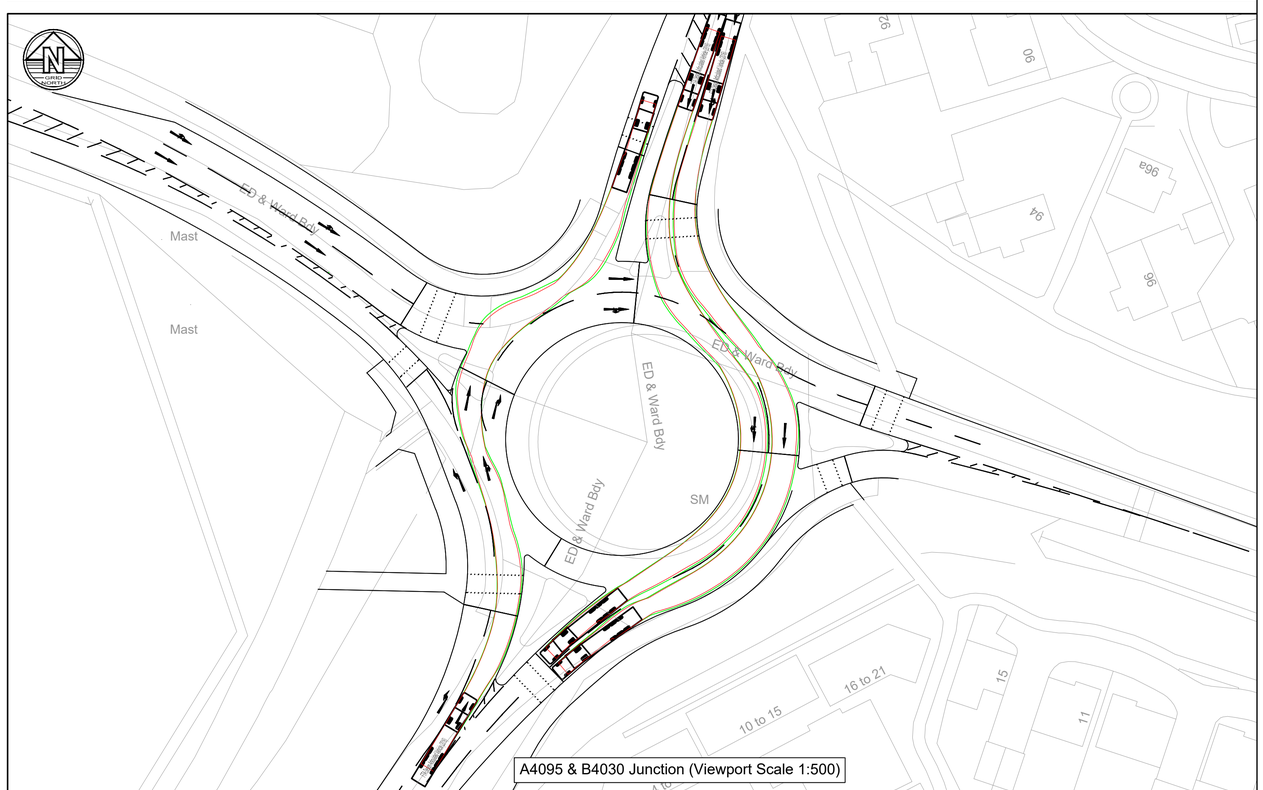
A4095 & B4030 Junction (Viewport Scale 1:500)



A4095 & B4030 Junction (Viewport Scale 1:500)



A4095 & B4030 Junction (Viewport Scale 1:500)



A4095 & B4030 Junction (Viewport Scale 1:500)

NOTES

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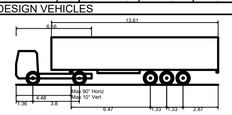
DESIGN VEHICLES



FTA Design Articulated Vehicle (2016)	
Overall Length	16.480m
Overall Width	2.550m
Overall Body Height	3.870m
Min Body Ground Clearance	0.510m
Max Track Width	2.470m
Lock to lock time	3.00s
Kerb to Kerb Turning Radius	6.600m

ISSUES & REVISIONS

Rev	Date	Details of issue / revision	Drw	Rev
P01	08.07.26	Issued for information	SB	SRH

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Project Title
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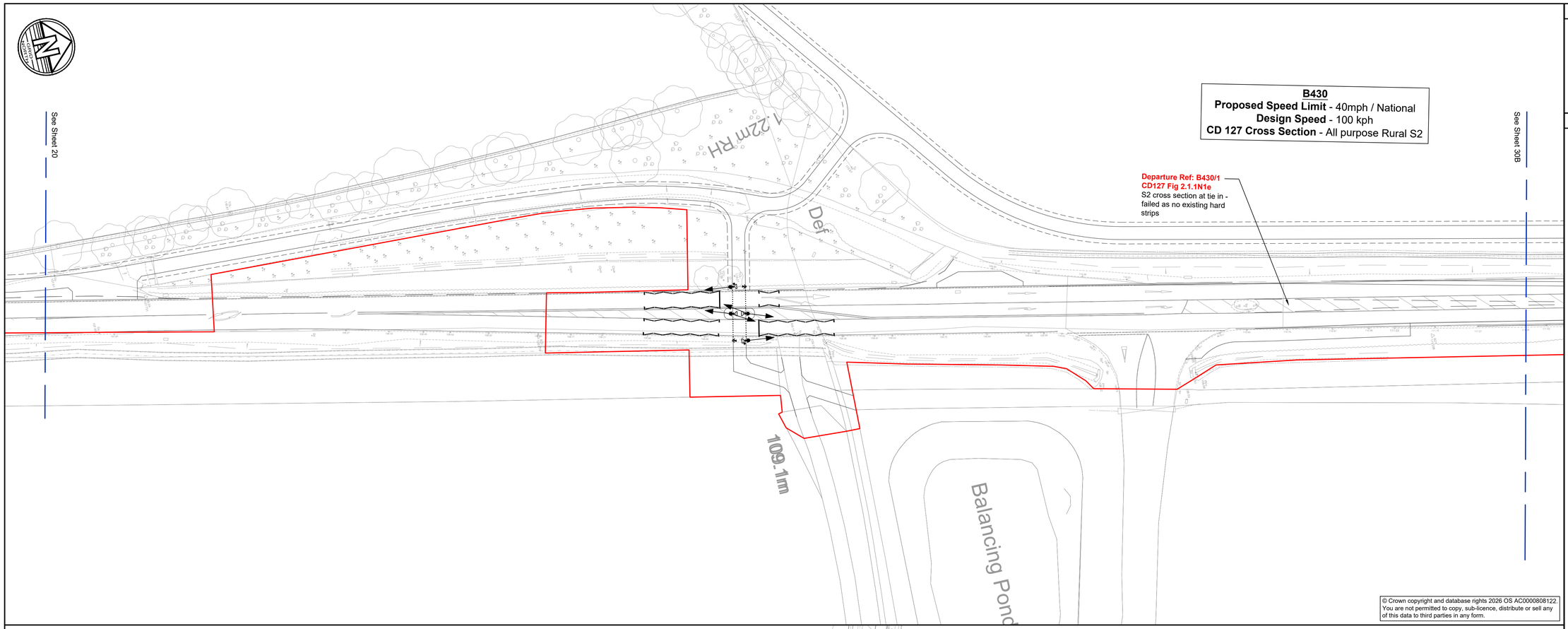
Drawing Title
HIGHWAY PLANS SWEPT PATHS

Drawn:	S. Birchall	Reviewed:	S. Hilditch		
BWB Ref:	NTH2479	Date:	08.07.26	Scale@A1:	As shown

Drawing Status
FOR INFORMATION

Project - Originator - Zone - Level - Type - Role - Number	Status	Rev
OxSRFI-BWB-GEN-XX-DR-CH-0011	S2	P01

Y:\NTH\NTH2479_Oxfordshire RFI\02. Project Delivery\01. WIP\Drawings\OxSRFI-BWB-GEN-XX-DR-CH-0005_Highway Plans Swept Paths.dwg



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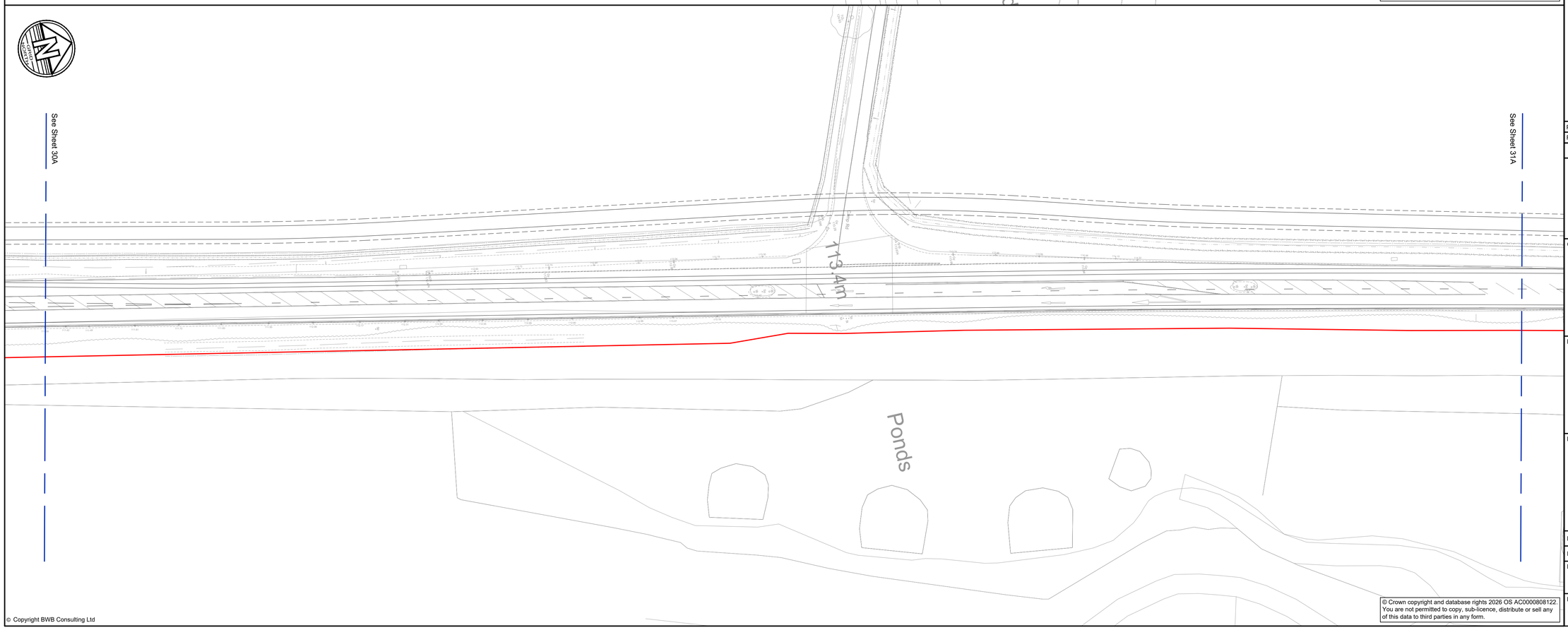

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- **CDxxx** — Deviation that requires a departure from standard
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- Visibility Splay with Relaxation
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- STr — Alignment - Straight
- R=xxxm — Alignment - Radius
- TL=xx.xm (q=0.x) — Alignment - Transition
- Traffic signal equipment

Rev	Date	Details of issue / revision	Drw	Rev
P01	24.07.26	Preliminary issue	RP	SRH

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Project Title

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Drawing Title

GEOMETRICAL LAYOUT SHEET 30

Drawn:	R.Picknell		Reviewed:	S.Hilditch	
BWB Ref:	NTH2479	Date:	24.07.26	Scale@A1:	1:500

Drawing Status

PRELIMINARY

Project - Originator - Zone - Level - Type - Role - Number	Status	Rev
OxSRFI-BWB-HGN-30-DR-CH-0105	**S2**	**P01**

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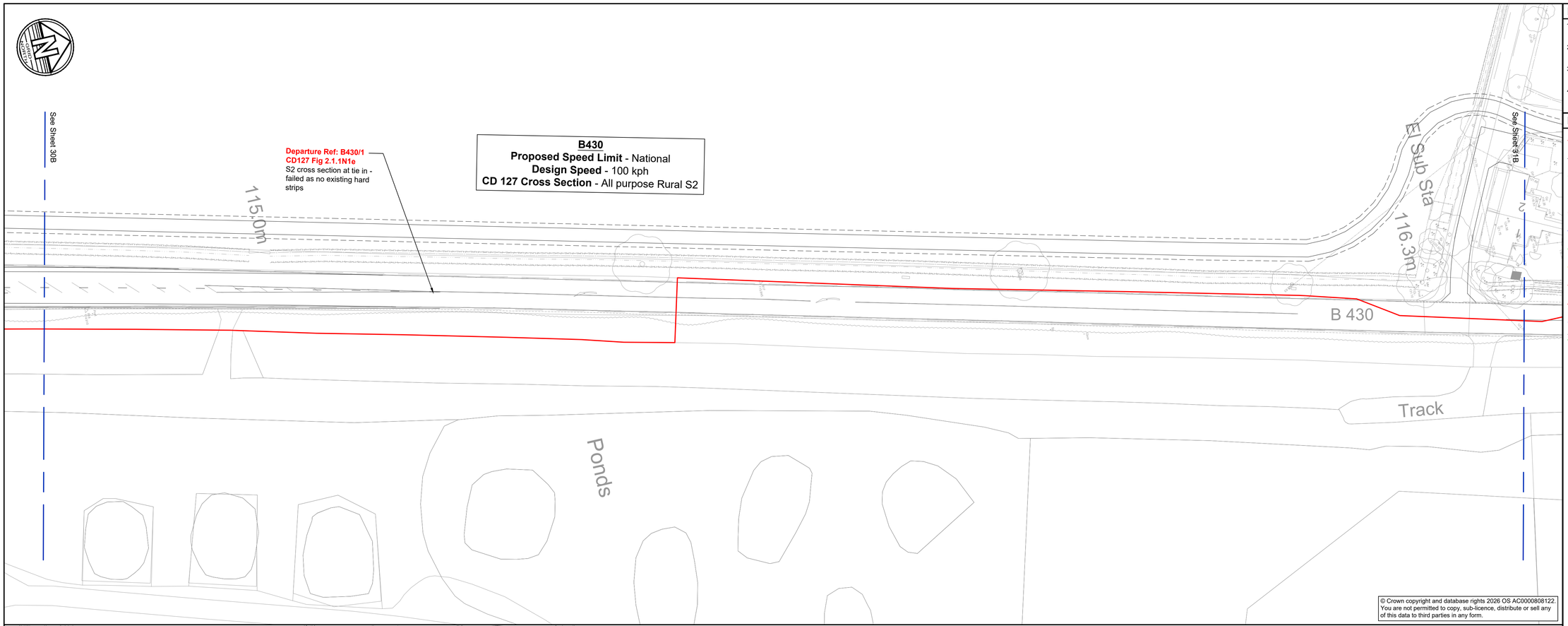

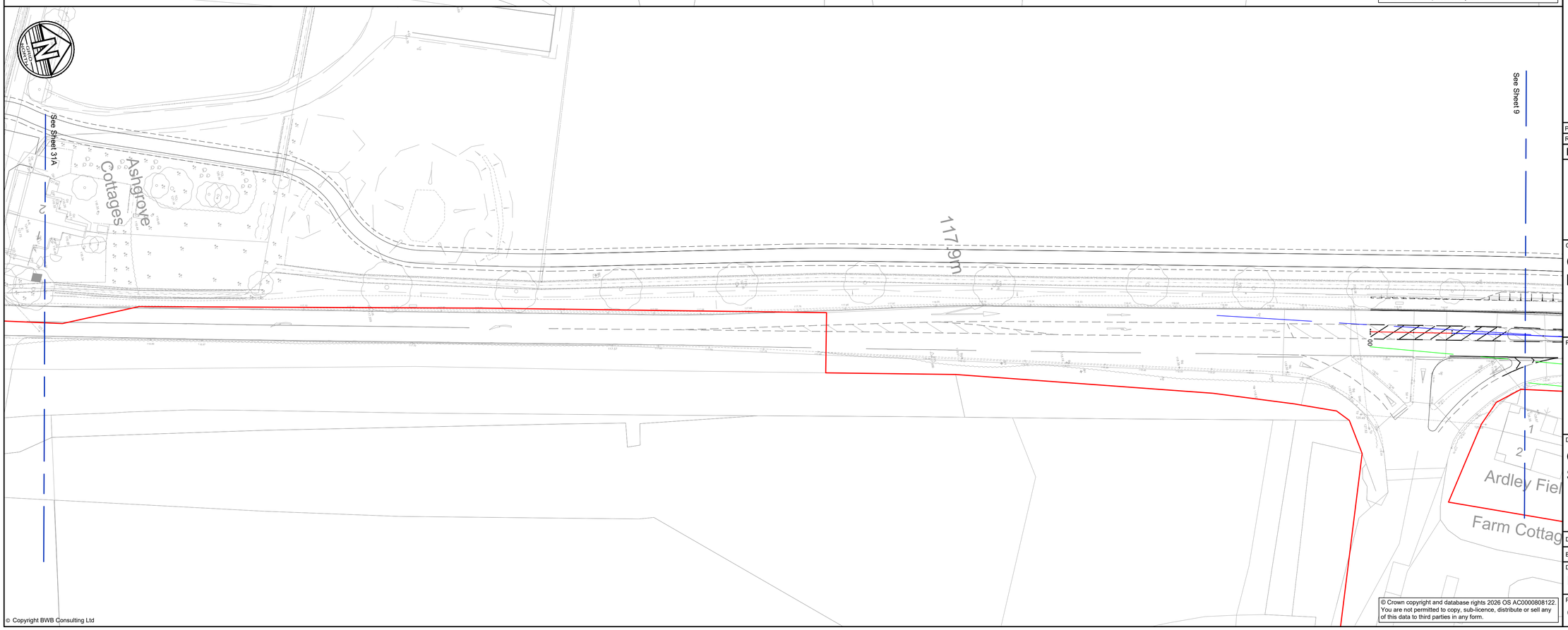

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P01	24.07.26	Preliminary issue	RP	SRH

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Drawing Title

GEOMETRICAL LAYOUT SHEET 31

Drawn:	R.Picknell	Reviewed:	S.Hilditch
BWB Ref:	NTH2479	Date: 24.07.26	Scale@A1: 1:500

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Project - Originator - Zone - Level - Type - Role - Number	Status	Rev
OxSRFI-BWB-HGN-31-DR-CH-0105	S2	P01

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APPENDIX 2

Technical Note ADC1794-RP-AX-v1

OxSRFI OCC COMMENTS ON HIGHWAYS AND TRANSPORT MATTERS

Introduction

1. OCC provided via email on 3 June 2026 a list of highways and transport related matters for further consideration and discussion with the Applicant (**Appendix A**). The purpose of this note is to set out the Applicant's response on these points.

Impact on Bucknell

2. The relatively recent changes implemented by OCC to reduce the speed limit within Bucknell to 20mph are not represented in the BTM. The speed limit changes are shown in **Figure 1** and include a 20mph speed limit on Bainton Road and include gateway traffic calming features on Ardley Road and Bicester Road on the approaches to Bucknell, which are also not modelled in the BTM.

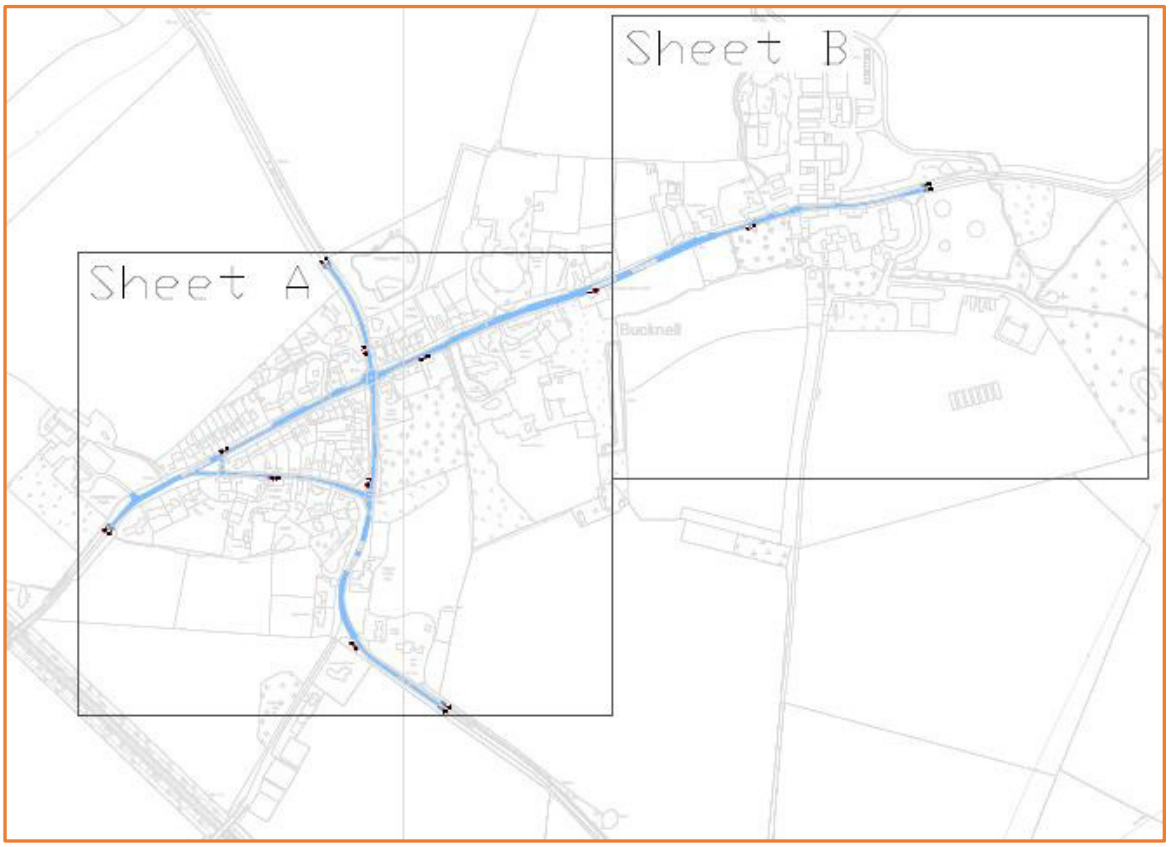

Figure 1: 20mph speed limit within Bucknell (20 mph speed limit shown in blue)

3. In addition, the proposed speed limit reductions on these roads associated with the OxSRFI scheme are not represented within the BTM. The OxSRFI proposals include: a reduction in the speed limit on Ardley Road from derestricted to 40mph, a reduction in the speed limit within Ardley to 20mph (including a short section of Ardley Road), and a speed limit reduction from derestricted to 40mph on the B430 between Ardley and Ardley Roundabout. Once these and the above 20mph speed limit through Bucknell is considered, journeys on this route would take longer than represented in the BTM.

4. To further discourage drivers from using Ardley Road it is proposed to extend the extent of the proposed section of 20mph speed limit on Ardley Road by 150m and provide a gateway traffic

calming feature. This is shown on drawing OxSRFI-BWB-GEN-XX-SK-CH-SK145 at **Appendix B** (extract shown in **Figure 2**).

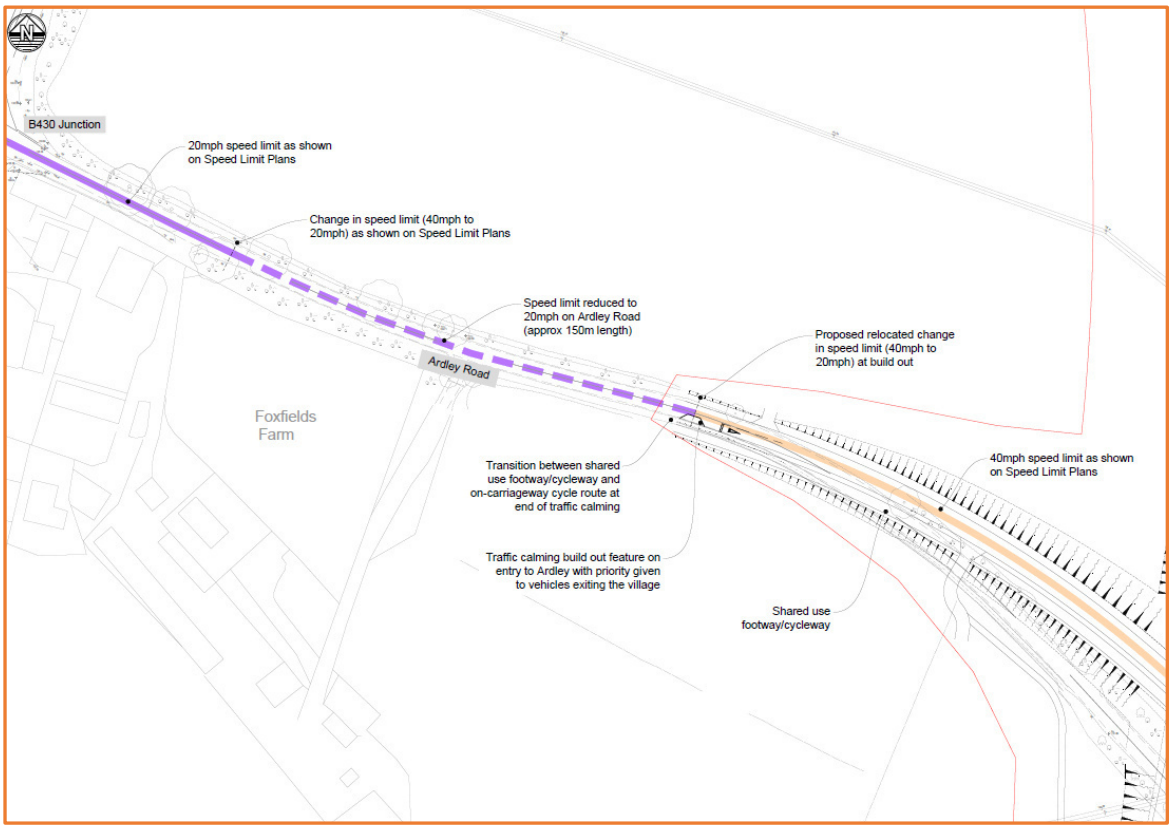

Figure 2: Proposed amendment to extend proposed 20mph speed limit on Ardley Road and provide gateway traffic calming feature.

5. Once the existing and proposed speed limit reductions are considered along with the existing and proposed gateway traffic calming features, the journey time between the B4100 and Ardley Roundabout (via Bucknell) would increase by at least 80 seconds, which would make the journey time via Bucknell greater than travelling via the B4100 and Baynard's Green (which was found to be only 60 seconds shorter in the BTM – see DS2A Set 2 at Table 9.18 of the Transport Assessment). Therefore, drivers would not be directed via Bucknell, as it would not be the quickest route.

6. With regards to the Bucknell Road/Bicester Road route, the BTM modelling does not indicate any issues with traffic choosing to use this route as an alternative. The inclusion of the Strategic Link Road (SLR) in the 2031 Opening Year is in accordance with the agreed Uncertainty Log and therefore its inclusion in the modelling is appropriate. Nevertheless, in a scenario where the SLR was not in place and OxSRFI was, then the speed limit changes described above, along with the additional measures shown in **Figure 2**, and the OxSRFI proposals to amend the speed limit on Bucknell Road/Bicester Road from derestricted to 40mph and the proposed works to Bucknell Road/Bicester Road to provide sections of single track carriageway (see paragraph 8 below), would deterred drivers from using this route.

Mitigation at the A4095/B4030 junction

7. The Applicant is prepared to accept the proposed switch so that the default position is an obligation to deliver the works along with the Phase 2 mitigation, unless notified by the local highway authority in advance by an agreed trigger that they require a contribution instead. This is on the understanding that the Order Limits will be amended to remove the land that sits

outside the highway. The Order Limits will be reduced to exclude the third-party land that is currently included. This is because the scheme would either tie into the existing Howes Lane or, should OCC have constructed the SLR by the time the works are required, it would tie into the SLR. Therefore, no land outside highway is required to deliver the scheme.

Bicester Road cycle scheme

8. The detail of the scheme is pending a topographical survey which the Applicant expects to receive on 15 July 2026. An initial concept scheme has been discussed with OCC. This would involve narrowing the carriageway at selected areas along Bicester Road, combined with the proposed reduction in speed limit from derestricted to 40mph. This will be further developed and discussed with OCC. The Applicant agrees that the scheme should be implemented along with the Phase 1 mitigation, but the Applicant would still seek for this to be delivered by S106, as otherwise it requires an amendment to the Order Limits which the Applicant would wish to avoid. OCC has suggested that it may be possible for these works to form part of the S278 side agreement. The Applicant would welcome further clarification from OCC regarding this.

Indexation of S106 contributions

9. The Applicant has instructed Eversheds Sutherland to ensure that all the S106 contributions have appropriate indexation.

Trigger for phase 2 mitigation being required

10. The Applicant agrees that the current wording in the DCO (Schedule 2 Requirements 7 / 8) is ambiguous. Eversheds Sutherland has reviewed the wording and propose that this is amended from:

"To be completed prior to the occupation of more than 185,806 square metres of warehousing plus up to 61,967 square metres of mezzanine floor space to be occupied."

To become:

"To be completed prior to the occupation of more than 185,806 square metres of warehousing plus [or and] no more than 61,967 square metres of additional mezzanine floorspace to be occupied."

Parking

11. This is a matter for detailed design approval (requirement 9(2) DCO page 68).

Construction traffic routing

12. It is proposed that the HGV construction traffic plans in the CTMP are updated to include the additional figure shown at **Figure 3** to set out the routeing requirements around Bicester. Note that with regards to HGV construction traffic access to the M40, this will be via M40 junction 10 and hence drivers would not need to travel via the B4100 (south-east) to reach the M40.



Figure 3: HGV construction traffic routeing requirement around Bicester

Environmental impact on Ardley

13. The narrow footways and adjacent facilities are considered within the ES as part of determining the sensitivity of the B430 links through Ardley. The B430 is already a busy road that carries HGV traffic and hence it is considered that it has 'moderate capacity' to absorb changes without altering its present character. Accordingly, it has been classified as 'medium' sensitivity. However, the table below presents a comparison between effect significance as assessed in the ES ('medium' sensitivity), and the resulting effect significance if the link sensitivity was considered 'high'.

Effect	Medium Sensitivity (as assessed in ES)	High Sensitivity
Severance	Neutral (No Effect)	Temporary Slight Adverse (Not Significant)
Driver Delay	Temporary Slight Adverse (Not Significant)	Temporary Slight Adverse (Not Significant)
NMU Delay	Neutral (No Effect)	Temporary Slight Adverse (Not Significant)
NUM Amenity	Temporary Slight Adverse (Not Significant)	Temporary Slight Adverse (Not Significant)
Fear and Intimidation	Temporary Slight Adverse (Not Significant)	Temporary Slight Adverse (Not Significant)
Road User and Pedestrian Safety	Neutral (No Effect)	Temporary Slight Adverse (Not Significant)

14. As shown, there would be no change in the effect significance for Driver Delay, NMU Amenity, and Fear and Intimidation. There would be a change in the effect significance for Severance, NMU Delay, and Road User and Pedestrian Safety, from Neutral to Temporary Slight Adverse. However, none of the effects would be significant in EIA terms (significant effects are classified as Very Large, Large and some Moderate effects) and hence there would be no change to the overall conclusion of the ES - that the residual effects during the construction phase of the Proposed Development are not significant in EIA terms.

15. Notwithstanding the above, it has been suggested by OCC that the implementation of a temporary 20mph speed limit along the B430 within Ardley during the construction phase would be beneficial in reducing the impact of the additional construction traffic on the village prior to the opening of the Ardley Bypass. This is agreed by the Applicant, and the DCO and CTMP will be updated to include for this temporary speed reduction.

Public Transport Strategy

16. This document has been updated to include for the minor comments raised by OCC via their email dated 19 May 2026, as set out in the table below. A tracked changes and clean copy of the updated document (ADC1794-RP-L2-v6) have been provided to OCC.

OCC comment (number is the paragraph reference)	**Action**
4.4 it would be more accurate to state that service 81 operates one journey in the AM and PM peaks.	This has been amended to refer to one journey.
4.5 this service no longer operates and so the paragraph should be deleted.	Paragraph deleted.
4.14 this paragraph is an unnecessary level of detail and should be deleted.	Paragraph deleted.
5.21 needs to be stronger to state that OCC do not support the provision of corporate bus services which are not open to the general public.	This paragraph has been amended to state that *"…OCC do not support provision of corporate bus services which are note open to the general public."*

WCHAR (full response to follow)

17. The WCHAR Review is in the process of being updated to include the following:

- That the A4095/B4030 roundabout works are likely to be constructed as part of OxSRFI and hence specific opportunities associated with this junction are to be included.
- OCC have provided a detailed review of the OxSRFI rail proposals and have raised queries regarding pedestrian and cyclist connectivity between Heyford Park and a possible future reopened Ardley passenger railway station, which the OxSRFI can positively address.

18. As discussed during the meeting on 1 June 2026, the Applicant will also include additional information to highlight the forecast traffic flow reductions and the proposed speed limit change on the roads adjacent to footpath 148/3.

19. A copy of the updated WCHAR Review will be provided to OCC in due course.

Barleymow Roundabout

20. Eversheds Sutherland have advised that they can prepare a DCO requirement with NH as the discharging authority for the monitoring/managing relating to its highway. The Planning Act and guidance from PINS provide the flexibility to do this. This will be subject to agreement with NH. The provision for payment and its release to NH will still need to go in the S106, with OCC receiving the financial contribution.

ADC Infrastructure Ltd
15/06/2026

APPENDX A
OCC email dated 3 June 2026

[redacted]

From: [redacted] - Oxfordshire County Council [redacted]
Sent: 03 June 2026 15:32
To: [redacted]
Cc: [redacted]
County Council; [redacted] Oxfordshire County Council; Steve Harley [redacted]
Subject: OxSRFI: Update on highways and transport matters (excluding rail)

Hi [redacted]

We haven't yet completed our review of all the supporting documentation and annexes but I thought it would be helpful to summarise the main points so far. Hopefully much of the below can be resolved before we have to submit our relevant reps

1. **Impact on Bucknell village:** In Chapter 9 of the TA, the opening year assessment includes a sensitivity test to show that there will not be a severe congestion impact on the Middleton Stoney crossroads junction. This sensitivity test includes comparison of alternative routes between Bicester and M40 J10, (as set out in table 9.18) acknowledging that the Ardley Bypass will make it easier for drivers to turn out of Ardley Road onto the B430 to access the M40. Routing via Ardley Road is likely to show up as the fastest route on SatNav systems in the evening peak. The introduction of 40mph speed limits on Bicester, Middleton and Ardley Road, and the traffic signals on the Middleton Rd bridge over the M40, are likely to discourage drivers from choosing the Middleton Rd route, but the traffic signals would not impact those who choose the B4100/Bainton Rd/Ardley Rd/B430 route over the B4100/Baynards Green/A43 route. What difference would the speed limit change make to the journey time comparison, and would this be sufficient to deter traffic from using the Bainton Road route? How have Ardley and Bainton Road been coded in the BTM? The time advantage at Ardley Rd/B430 junction would apply in the Completion Year and be ongoing: Bainton Road is showing what is a significant uplift in traffic for such a small rural road, in the flow difference plot in figure 9.8. Additional deterrent measures may be necessary.

   Additionally, the modelling assumes that by 2031 the NW Bicester Strategic Link Road (realigned A4095) will be in place. This is currently not certain, and until it is in place, traffic from Bicester will continue to be able to access freely along Bucknell Road to Ardley, without diversion. This means there will be another alternative route between Bicester and M40 J10, putting more pressure on Bucknell.

2. **Mitigation at A4095/B4030 junction:** I have discussed with Simon the fact that there is as yet no OCC scheme for this junction, it is not within scope of the A4095 realignment scheme, and other applications are insufficiently advanced to have certainty of securing mitigation from them for this junction. When we previously discussed accepting a contribution instead of works here, we were anticipating that by now there would be more certainty. Given that the OxSRFI modelling demonstrates a clear impact at this junction, and a need for mitigation, we would like the default position to be an obligation to deliver the scheme (subject to technical review) along with the Phase 2 mitigation, unless notified by the LHA in advance by an agreed trigger point that we require the contribution instead. The hope is that by the trigger point there would be more certainty about other schemes in the area. Further discussion would be needed on that trigger point, and the

proposed contribution will need to be agreed. We are currently reviewing the estimate and the GA drawing provided.

3. **Bicester Road cycle scheme:** OCC raised safety concerns with the proposed scheme, as set out in Richard's email of 7 May. It was agreed that revisions would be made by ADC and we await further information. Thus far the proposal has been to make a financial contribution that would allow OCC to do the works. In that case, because this is a key link in the cycle route to the development, it must be demonstrated that there is a deliverable scheme that would make this route suitable for cyclists, taking into account the speed and volume of traffic. However, part of the rationale for making a financial contribution instead of the works, was that it was likely that changes to Bicester Rd, including traffic calming and off carriageway cycle facilities for part of the route, would be provided by development at NW Bicester. It remains uncertain when these changes would take place and the indications are that this part of the development would come late in the phasing of the Hawkwell Farm development. Therefore our position is that the scheme should be delivered along with the Phase 1 Mitigation for OxSRFI.

4. **Indexation of S106 contributions:** we have noted that indexation is not applied to all contributions in the S106. I raised this at the last TWG meeting, and understand it is being addressed – we await confirmation.

5. **Trigger for phase 2 mitigation being required:** At the last TWG I mentioned that the inclusion of the mezzanine as a separate item could be problematic, and I understand the wording it is being reviewed – we await confirmation.

6. **Parking:** We will be looking for some commitment around levels of parking provision being in line with current LHA standards.

7. **Construction traffic routing:** The map should be zoomed out to ensure traffic distributing onto the B4100 takes appropriate routes all the way to the M40 – we would want it to route around Bicester to the east. I understand you are looking into this.

8. **Environmental impact on Ardley:** I am concerned that the assessment of sensitivity of the B430 links through Ardley has not fully taken into account the narrow footways and the adjacent facilities. Despite a 46% increase in HGV traffic through the village as a result of the development over 2 years of the programme, this has resulted in no mitigation being provided over and above the CTMP itself. This requires further consideration and discussion.

9. **Public Transport Strategy:** Some minor points raised by Dave Harrison and forwarded to you in an email from Richard Jefferies on 19 May. We await confirmation that these are resolved.

10. **WCHAR:** Further to a meeting on 1 June with Paul Harris, we await a detailed explanation and justification of the extent and proportionality of the proposed mitigation, addressing Paul's queries.

11. **Barley Mow Roundabout:** Subject to the agreement of National Highways, OCC has said it can receive the financial contribution and pass it to National Highways. However, OCC does not want to be responsible for enforcing and reviewing the monitoring. Therefore these provisions should not be part of the S106 agreement. We would like consideration to be given to having a side agreement with National Highways, or an obligation secured within the body of the DCO, which could include the financial contribution and the 'monitor and manage' provisions.

Happy to discuss any of the above.

Kind regards

[redacted]

[redacted]
Team Leader, Transport Development Management (North)
Planning Regulation and Enforcement
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New Road
Oxford
OX1 1ND
[redacted]
(Internal – call me on Teams)

A Lane Rental Scheme is being implemented in Oxfordshire: see Lane Rental Scheme | Oxfordshire County Council

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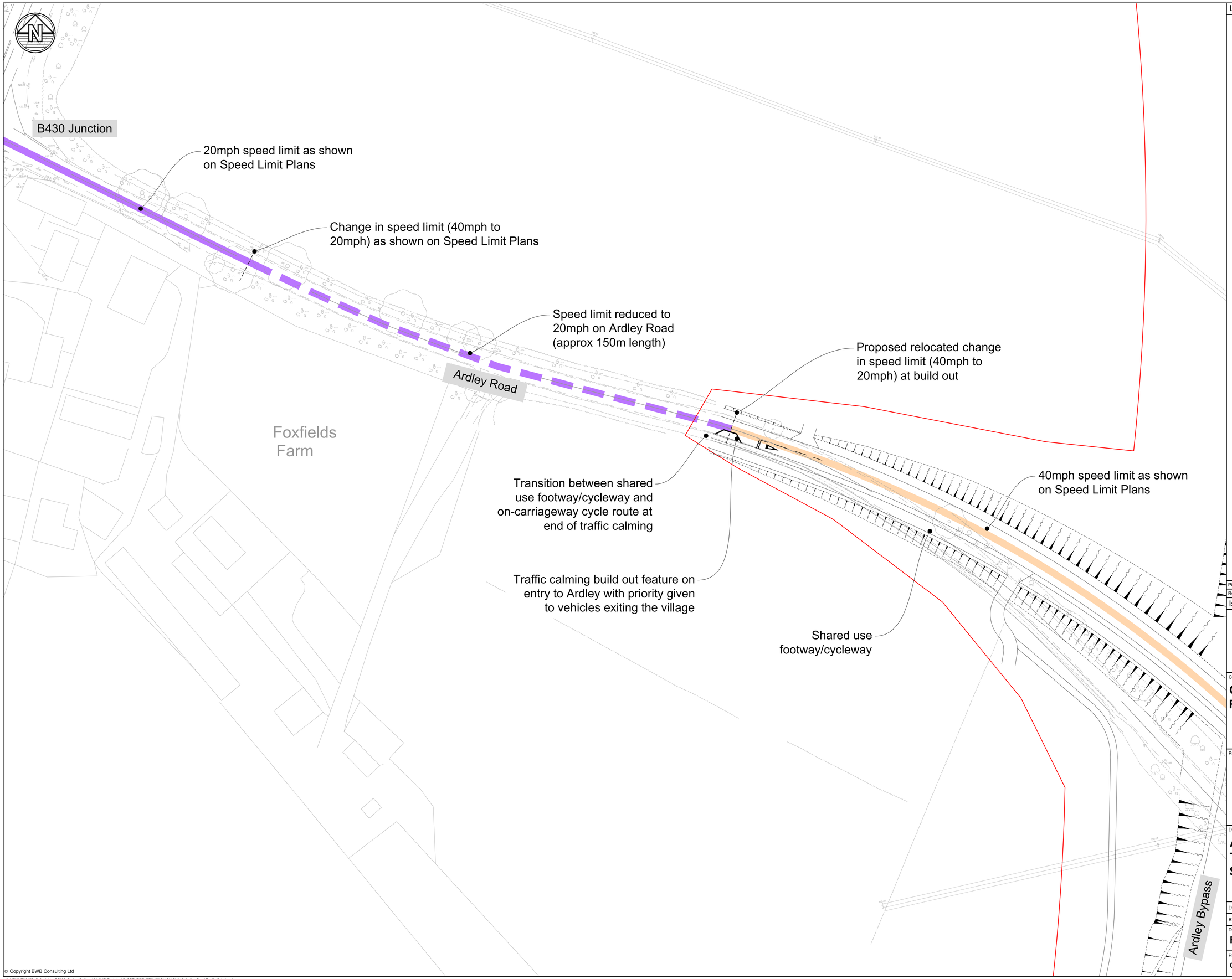
APPENDX B
Drawing OxSRFI-BWB-GEN-XX-SK-CH-SK145



Legend

- Order Limits
- 20mph speed limit on speed limit plans
- 40mph speed limit on speed limit plans
- Proposed speed limit reduction from 40mph to 20mph

Rev	Date	Details of issue / revision	Drw	Rev
P01	09.06.26	Issue for Information	SRH	RP

Issues & Revisions

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Client

OXFORDSHIRE RAILFREIGHT LTD.

Project Title

OxSRFI OXFORDSHIRE STRATEGIC RAIL FREIGHT INTERCHANGE

Drawing Title

ARDLEY ROAD, ARDLEY TRAFFIC CALMING AND SPEED LIMIT CHANGE

Drawn:	S.Hilditch	Reviewed:	R.Picknell	
BWB Ref:	NTH 2479	Date:	09.06.26	Scale@A1: 1:500

Drawing Status

FOR COMMENT

Project - Originator - Zone - Level - Type - Role - Number	Status	Rev
OxSRFI-BWB-GEN-XX-SK-CH-SK145	S3	P01

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Y:\NTH\NTH2479_Oxfordshire RFI\02. Project Delivery\01. WIP\Sketches\OxSRFI-BWB-GEN-XX-SK-CH-SK146_Ardley Road Traffic Calming.dwg

APPENDIX 3

Technical Note ADC1794-RP-AY-v1

OxSRFI - OCC COMMENTS ON HIGHWAYS AND TRANSPORT MATTERS MODELLING QUERIES IN BICESTER AND WENDLEBURY

Introduction

1. OCC provided via email on 3 June 2026 a list of highways and transport related matters for further consideration and discussion with the Applicant. These issues have been addressed as set out in Technical Note ADC1794-RP-AX-v1.

2. Additionally, OCC have requested further clarification with regards to traffic rerouting associated with the performance of the Middleton Stoney Road/Kings End/Oxford Road mini-roundabout in Bicester, and the Opening Year traffic effects on the A41 and Wendlebury Road. Hence, this note sets out the Applicant's response on these specific points.

Middleton Stoney Road/Kings End/Oxford Road roundabout (Junction 13)

3. Appendix 45 of the Transport Assessment (TA) present the modelling of the wider study area junctions. This includes the above roundabout, the assessment of which is discussed at paragraphs 3.26 to 3.34 of TA Appendix 45.

4. The modelling of the consented improvement scheme at the Middleton Stoney Road/Kings End/Oxford Road roundabout shows that with the Proposed Development in place queuing and delay could increase on approaches to the junction that are already forecast to be congested. However, the junction has been purposely redesigned to maximise the provision of facilities for active travel modes, and therefore it was agreed with OCC that it would counter to this objective to propose highway mitigation at this location to accommodate more traffic. Further, the identified OxSRFI mitigation at the B4030 Middleton Stoney/Howes Lane/Vendee roundabout has been designed to maximise capacity on the Vendee Drive approach, with the Middleton Stoney Road westbound approach restricted to a single lane. These measures would encourage traffic heading to OxSRFI, Heyford Park, or further north to M40 Junction 10, to travel via the A41/Vendee Drive/B4030 Middleton Stoney Road/MSRR route, rather than through the centre of Bicester. The Proposed Development will also provide enhanced bus service connection between Bicester, OxSRFI, and Heyford Park, and improved cycle connectivity to the west of Bicester, that will all contribute to mode shift away from the car.

5. It is also noted that the assessment discussed at paragraph 3.33 of TA Appendix 45 demonstrates that if OCC's policy LTCP5 target of a 25% reduction in vehicular trips by 2030 is achieved, then there would be a marked reduction in congestion at the Middleton Stoney Road/Kings End/Oxford Road roundabout.

6. Nevertheless, and given the forecast levels of congestion at the Middelton Stoney Road/Kings End/Oxford Road roundabout, OCC agree that traffic would likely reroute via the A41/Vendee Drive/B4030 Middleton Stoney Road/MSRR route, rather than travel through the centre of Bicester. However, they note that the effect of this traffic rerouting has not been tested. This was discussed during a Teams call with OCC on 8 June 2026 and it was agreed that ADC would undertake some sensitivity test modelling of the improved B4030 Middleton Stoney/Howes Lane/Vendee roundabout, and at the A41 Oxford Road/Vendee Drive roundabout to confirm that these junctions could accommodate the rerouted traffic.

7. To determine the amount of traffic that would likely reroute, an assessment of the traffic flows at the Middelton Stoney Road/Kings End/Oxford Road roundabout has been undertaken. This is

presented in the tables below, which show the entry flows (pcus) at the roundabout in the 2034 Reference Case (RC3A) and Do Something Case scenarios (DS3A).

2034 Completion Year - AM peak hour	RC3A		DS3A		Flow Difference
	Flow	RFC	Flow	RFC	
Kings End	1,013	182%	1,012	187%	-1
Oxford Road	1,055	62%	1,202	72%	147
Middleton Stoney Road	920	98%	969	105%	49

2034 Completion Year - PM peak hour	RC3A		DS3A		Flow Difference
	Flow	RFC	Flow	RFC	
Kings End	1,013	157%	1,008	169%	-5
Oxford Road	1,566	95%	1,646	145%	80
Middleton Stoney Road	590	70%	669	93%	79

Oxford Road	AM Peak Hour			PM Peak Hour		
	RC3A	DS3A	Difference	RC3A	DS3A	Difference
Left	200	326	126	561	645	84
Ahead	855	876	21	1005	1001	-4

Middleton Stoney Road	AM Peak Hour			PM Peak Hour		
	RC3A	DS3A	Difference	RC3A	DS3A	Difference
Left	298	276	-22	130	132	2
Right	622	693	71	460	537	77

8. As shown in the first table, in the 2034 Do Something morning peak hour the largest traffic increase is on the Oxford Road approach (147 pcus) as traffic routes between the A41 and M40 Junction 10 via the proposed Middleton Stoney Relief Road and Ardley Bypass improvements. Of this traffic increase, 85% turns left onto Middleton Stoney Road. There is also a more modest increase of 49 pcus on Middleton Stoney Road approach.

9. The first table also summaries how the ratio of flow to capacity (RFC) changes in the morning peak hour on each approach to the roundabout due to the traffic flow changes. The table shows that the largest flow change occurs on the best performing arm, with Oxford Road shown to operate with a worst-case RFC of 72%. Whilst the relatively modest changes to the turning movements at the Kings End and Middleton Stoney Road approaches have an impact on the RFC, respectively, the ARCADY results shown at Table 10 of TA Appendix 45 indicate that changes in queueing and delay would be modest.

10. The ARCADY results at Table 10 of TA Appendix 45 show that the most material impact occurs in the evening peak hour. However, the flow increases in the 2034 Do Something scenario shown in the table above are relatively modest, with the flow increasing on Oxford Road by 80 pcus and the flow increasing on Middleton Stoney Road by 79 pcus. In the 2034 Do Something evening peak hour the ARCADY results indicate increases in queuing and delay on Oxford Road and Middleton Stoney Road, and hence these modest traffic increases are shown to have a disproportionate impact on the junction performance.

11. As discussed in the TA, the Vendee Drive approach to the B4030 Middleton Stoney/Howes Lane/Vendee roundabout is shown to be congested in both the Bicester Transport Model (BTM) and detailed junction modelling. Hence, background traffic routes via Oxford Road in the BTM, rather than use the A41 and Vendee Drive. The Applicant has identified a mitigation scheme at the B4030 Middleton Stoney/Howes Lane/Vendee roundabout which has been designed to maximise capacity on the Vendee Drive approach, with the Middleton Stoney Road westbound

approach restricted to a single lane to encourage traffic heading to OxSRFI, Heyford Park or further north to M40 Junction 10 to route via the A41/Vendee Drive/B4030 Middleton Stoney Road/MSRR route, rather than through the centre of Bicester.

12. Therefore, with the proposed B4030 Middleton Stoney/Howes Lane/Vendee roundabout mitigation in place, and given the forecast capacity constraint at the Middleton Stoney Road/Kings End/Oxford Road mini-roundabout, it would not be logical for traffic routing between the A41 and Middleton Stoney Road to route through the centre of Bicester, and would instead route via Vendee Drive.

13. To consider this in more detail, sensitivity tests have been undertaken at the B4030 Middleton Stoney/Howes Lane/Vendee roundabout and the A41 Oxford Road/Vendee Drive roundabout to demonstrate that the traffic identified in the tables above would not adversely impact these junctions.

Sensitivity test traffic flows

14. The sensitivity test considers the 2034 Do Something scenario (DS3A), but the conclusions would apply across all modelled scenarios. The sensitivity traffic flows have been calculated as follows:
    - In the morning peak hour, the additional 126 pcus that turn left from Oxford Road to Middleton Stoney Road (third table above) have been reassigned to the A41/Vendee Drive route. Hence, the right-turn flow between the A41 and Vendee Drive increases by 126 pcus in the DS3A scenario. Further, this 126 pcu increase is added to the left-turn between Vendee Drive and the B4030 at the B4030 Middleton Stoney/Howes Lane/Vendee roundabout, with the movement between Middleton Stoney Road and the B4030 reduced by 126 pcus.
    - Also in the morning peak hour, the additional 71 pcus that turn right from Middleton Stoney Road to Oxford Road (fourth table above) have been reassigned to the Vendee Drive/A41 route. Hence, the right-turn flow between the B4030 and Vendee Drive at the B4030 Middleton Stoney/Howes Lane/Vendee roundabout increases by 71 pcus in the DS3A scenario, with the movement between the B4030 and Middleton Stoney Road reduced by 71 pcus. Further, this 71 pcu increase is added to the left-turn from Vendee Drive to the A41 at the A41 Oxford Road/Vendee Drive roundabout.
    - The same methodology is applied to the traffic increases in the evening peak hour.

B4030 Middleton Stoney/Howes Lane/Vendee Drive roundabout

15. The development of the LinSig model of the proposed B4030 Middleton Stoney/Howes Lane/Vendee Drive roundabout mitigation scheme is discussed in detail in the TA. This model has been used to run the sensitivity test traffic flows, and the results are provided in **Appendix A** and summarised below.

Scenarios View

Automatically recalculate results for: All Scenarios | When optimising optimise for: All Scenarios

When assigning, assign for: Current Scenario

Number	Scenario Name	Flow Group	Time	Cycle Time (s)	PRC (%)	Delay (pcuHr)
1	2034 DS3A - AM Peak	2034 DS3A - AM	08:00 - 09:00	60	2.1	29.24
2	2034 DS3A - PM Peak	2034 DS3A - PM	17:00 - 18:00	60	-5.2	34.75
3	2034 DS3A SENSITIVITY - AM Peak	2034 DS3A SENSITIVITY - AM	08:00 - 09:00	60	2.1	28.21
4	2034 DS3A SENSITIVITY - PM Peak	2034 DS3A SENSITIVITY - PM	17:00 - 18:00	60	-3.2	30.60

16. The results show that with the traffic reassignments described above, the proposed junction would operate as previously reported in the morning peak hour, and with a slight improvement in PRC in the evening peak hour, when compared to the DS3A scenario.

17. Hence, if the increased traffic flows forecast to route through the Middleton Stoney Road/Kings End/Oxford Road mini-roundabout instead routed via Vendee Drive, the proposed junction would continue to provide a better than nil-detriment benefit compared to the existing junction in the 2034 Reference Case, as concluded in the TA.

A41 Oxford Road/Vendee roundabout

18. The development of the Junction 11 ARCADY model of the existing A41/Vendee Drive roundabout is discussed in detail in the Appendix 45 of the TA. This model has been used to run the sensitivity test traffic flows, and the results are provided in **Appendix B** and summarised below.

	AM					PM				
	Set ID	Queue (Veh)	Delay (s)	RFC	LOS	Set ID	Queue (Veh)	Delay (s)	RFC	LOS
	2034 - RC3A									
1 - A41 Northeast	D1	2.0	4.23	0.67	A	D2	2.2	4.31	0.68	A
2 - Charles Shouler Way		0.9	8.85	0.49	A		1.9	12.91	0.66	B
3 - A41 Southwest		3.5	6.43	0.78	A		6.4	11.51	0.87	B
4 - Park and Ride		0.0	5.70	0.02	A		0.0	8.80	0.02	A
5 - Vendee Drive		3.5	20.80	0.79	C		2.6	14.04	0.73	B
	2034 - DS3A									
1 - A41 Northeast	D3	1.7	3.77	0.63	A	D4	2.6	4.94	0.72	A
2 - Charles Shouler Way		1.2	9.41	0.55	A		2.2	15.57	0.70	C
3 - A41 Southwest		4.2	8.25	0.81	A		4.7	9.80	0.83	A
4 - Park and Ride		0.0	7.07	0.03	A		0.0	9.03	0.02	A
5 - Vendee Drive		11.7	58.69	0.95	F		3.5	17.74	0.79	C

19. The results show that with the traffic reassignments described above, all approaches to the roundabout would operate comfortably with capacity in the 2034 Do Something sensitivity test scenarios, with the exception of the Vendee Drive approach in the morning peak hour. This approach would have a RFC of 95%, and so whilst it operates within capacity, there would be some relatively modest queueing and delay.

20. However, the modelling results presented at Table 10 of TA Appendix 45 show that in in the 2034 Do Something morning peak hour scenario the delay on the Middleton Stoney Road approach to the Middleton Stoney Road/Kings End/Oxford Road roundabout would be c.120 seconds, twice that of the delay on the Vendee Drive approach to the A41 roundabout in the sensitivity test scenario. Hence, the Vendee Drive route would be the more attractive route for drivers.

21. Therefore, with the proposed improvements at the B4030/Vendee Drive/Howes Lane roundabout in place, traffic routing between the A41 and the B4030 (and vice versa) would route via Vendee Drive and Oxford Road.

Opening Year traffic effects in Wendlebury

22. Section 9 of the TA presents the modelling of the effects of the Proposed Development and embedded Highway Works on the highway network using OCC's BTM. As detailed in the TA, in all scenarios background traffic was shown to reduce on the A41 between Bicester and M40 Junction 9, as background traffic reassigns to use the new infrastructure provided by the Proposed

Development, including the Ardley Bypass, the Middleton Stoney Relief Road and the upgraded M40 Junction 10.

23. At the Transport Working Group meeting of the 19 May 2026, OCC requested further explanation for the identified increase in background traffic routing through Wendlebury village in the 2031 Opening Year (DS2A) scenario morning peak hour. At the meeting it was explained that this background traffic reassignment was a modelling effect that was not expected to occur in practice and related to the modelling of the M40 Junction 9 in the BTM. This effect is explained in detailed at paragraph 9.111 of the TA. However, it was agreed that ADC would provide further information. This is set out below.

24. The tables below detail how traffic flows (total flow in pcus) are forecast to change on the A41 southbound towards M40 Junction 9 and on Wendlebury Road southbound towards the A34 in the 2031 Opening Year (DS2A vs RC2A) scenarios.

AM Peak Hour	2031 Opening Year		
	RC2A	DS2A	Difference
A41 SB	1,511	1,200	-311
Wendleberry Rd SB	74	239	165

PM Peak Hour	2031 Opening Year		
	RC2A	DS2A	Difference
A41 SB	1,071	1,000	-71
Wendleberry Rd SB	291	269	-22

25. As shown, the traffic flow on the A41 southbound (south of the junction with Wendlebury) reduces in the Do Something scenario when compared to the Reference Case scenario, with the most significant reduction occurring during the morning peak hour. Traffic flows are also shown to reduce on Wendlebury Road southbound in the evening peak hour Do Something scenario.

26. However, in the DS2A morning peak hour there is a traffic increase of 165 pcus on Wendlebury Road southbound. The reassignment of traffic from the A41 to Wendlebury Road is illogical given that traffic flows on the A41 have reduced.

27. The table below compares the modelled morning peak hour signal timings at the A41 approach to M40 Junction 9 in both the BTM, and also in the detailed LinSig assessments presented in the TA (Chapter 12) for the Opening Year scenarios. The table also shows the performance of the A41 approach to the junction.

Morning peak hour	BTM Analysis			LinSig Analysis		
	Cycle time	A41 green time	A41 V/C	Cycle time	A41 green time	A41 DoS
RC2A	64	17	103%	66	20	90%
DS2A	64	14	103%	66	17	81%

28. The table shows that in the RC2A and DS2A morning peak hour scenario the BTM forecasts congestion on the A41 approach, with a V/C ratio of 103% in both the Reference Case and Do Something Case scenarios. Hence, the A41 approach is stressed in the BTM.

29. As detailed in Section 9 of the TA, in the Opening Year Do Something (DS2A) morning peak hour there are traffic increases on the M40 southbound diverge at M40 Junction 9. These traffic increases are higher than the Opening Year Proposed Development traffic flow on these links, mostly due to the interim upgrade of M40 Junction 10, which includes an interim improvement

to the southbound M40 merge which allows some of the suppressed traffic demand at this location onto this part of the network. This increase in traffic flow in the Do Something scenario is largely M40 to A34 traffic which passes the A41 approach.

30. Further, in reviewing the detailed LinSig modelling of M40 Junction 9, Aecom provided Technical Note 08 (TN08) on behalf of National Highways. Aecom TN08 raised some concerns regarding some of the BTM turning flows at the junction and recommended that a comparison of base model turning flows between the BTM and observed traffic data be provided. ADC prepared the requested analysis (presented at Appendix 60 of the TA) and discussed at paragraphs 11.86 to 11.93 of the TA, which shows that whilst the BTM link flows exhibit good correlation between the two data sources, there are multiple turning movements in both peak hours which are significantly different. Of particular concern was the right-turn movement from the A34 to the M40 south in the morning peak hour, with the BTM flow shown to be c.400 pcus higher than in the observed data. This is unrealistic and has a major impact on the performance of the junction in the BTM, as the high right-turn flow passes the M40 southbound diverge and A41 approaches, both of which are shown to be stressed in the BTM.

31. The combined effect of these elevated traffic flows on the circulating carriageway as it passes the A41 entry is that more green time is required in the BTM for the circulating traffic stage at the expense of the A41 entry. Therefore, given that the table above shows the A41 approach to be stressed in the BTM, 165 pcus reassign to Wendlebury Road from the A41 in the Opening Year Do Something scenario to maintain the V/C ratio established in the Reference Case. This is compounded as the cycle time is two seconds lower than desired in the BTM in Opening Year scenario. This effect is not present in the detailed junction modelling of M40 J9 as described below.

32. In response to National Highways concerns regarding the BTM turning movements, ADC concluded that it would be appropriate to undertake sensitivity testing at M40 Junction 9 using adjusted flow sets calculated using the same methodology agreed with National Highways for the sensitivity tests at M40 Junction 10. The methodology takes the absolute differences from the Reference Case or Do-Something BTM flows against the 2024 BTM flows, which is then applied to the 2024 observed flows. This methodology results in a more representative forecast for the right-turn movement from the A34 to the M40 south is each scenario. It is also noted that that the sensitivity test flow on the A41 approach to M40 Junction 9 is higher than the BTM flow for every modelled scenario.

33. The sensitivity test traffic flows are approved by National Highways and applied to the LinSig model, and the results for the Opening Year are presented in Chapter 12 of the TA, at paragraphs 12.20 to 12.25. The table above shows that in the morning peak hour, the A41 approach is forecast to operate with a degree of saturation (DoS) of 90% in the Opening Year Reference Case and 81% in the Opening Year Do Something Case, with the improved performance achieved due to the relative traffic reduction on the A41 approach. The results are further assisted due to the optimum cycle time being modelled. Therefore, the LinSig modelling presented in the TA shows significantly less congestion on the A41 approach than in the BTM and hence the likelihood of traffic reassigning to Wendlebury Road would be removed.

34. To demonstrate that the reassigning flow of 165 pcus could be accommodated on the A41 approach to M40 Junction 9, a further sensitivity test has been undertaken which adds 165 pcus to the A41 to A34 movement in the 2031 Opening Year Do Something morning peak hour scenario. The results are provided at **Appendix C** of this Technical Note and show that the DoS on the A41 approach would be 90.7%, which is a nil-detriment position when compared to the 2031 Opening Year Reference Case scenario.

35. Therefore, as set out in the TA, this further supports the view that in practice there would be no traffic reassignment from the A41 to Wendlebury Road in the Opening Year as the A41 approach to M40 Junction 9 will operate with more capacity than forecast in the BTM.

ADC Infrastructure Ltd
23/06/2026

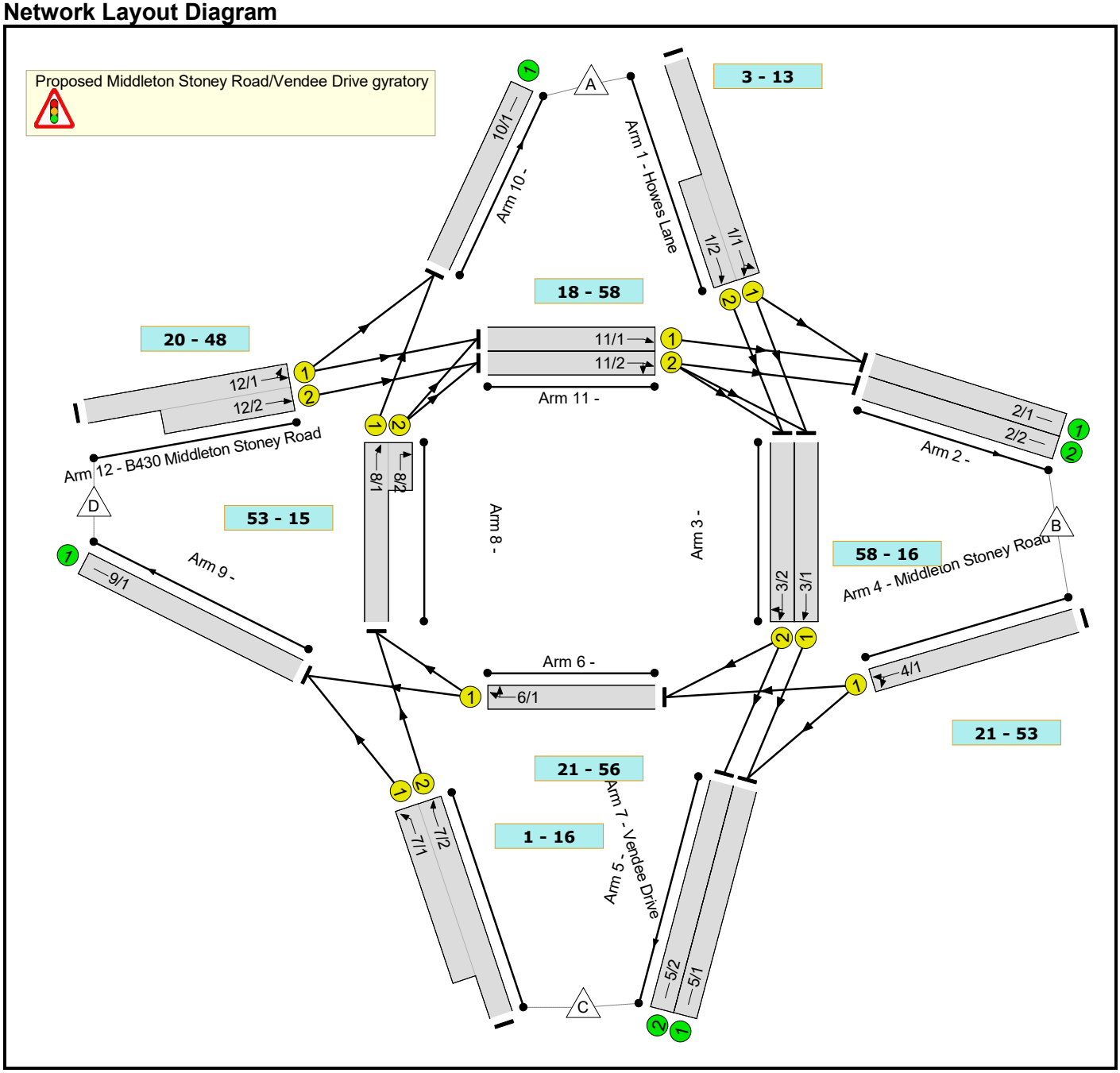
APPENDX A
A4095/B4040 ROUNDABOUT – LINSIG SENSITIVITY TEST

Detailed Input Data And Results

User and Project Details

Project:	**OxSRFI**
Title:	**Proposed B4030 MSR/Howes Lane/Vendee Drive mitigation**
Location:	
Additional detail:	Oxford Road reassignng traffic sensitivity test
File name:	260608 B4030 MSR_Vendee Dr roundabout mitigation.lsg3x
Author:	[redacted]
Company:	ADC Infrastructure
Address:	Nottingham
Linsig Version:	3, 3, 1, 0

Network Layout Diagram



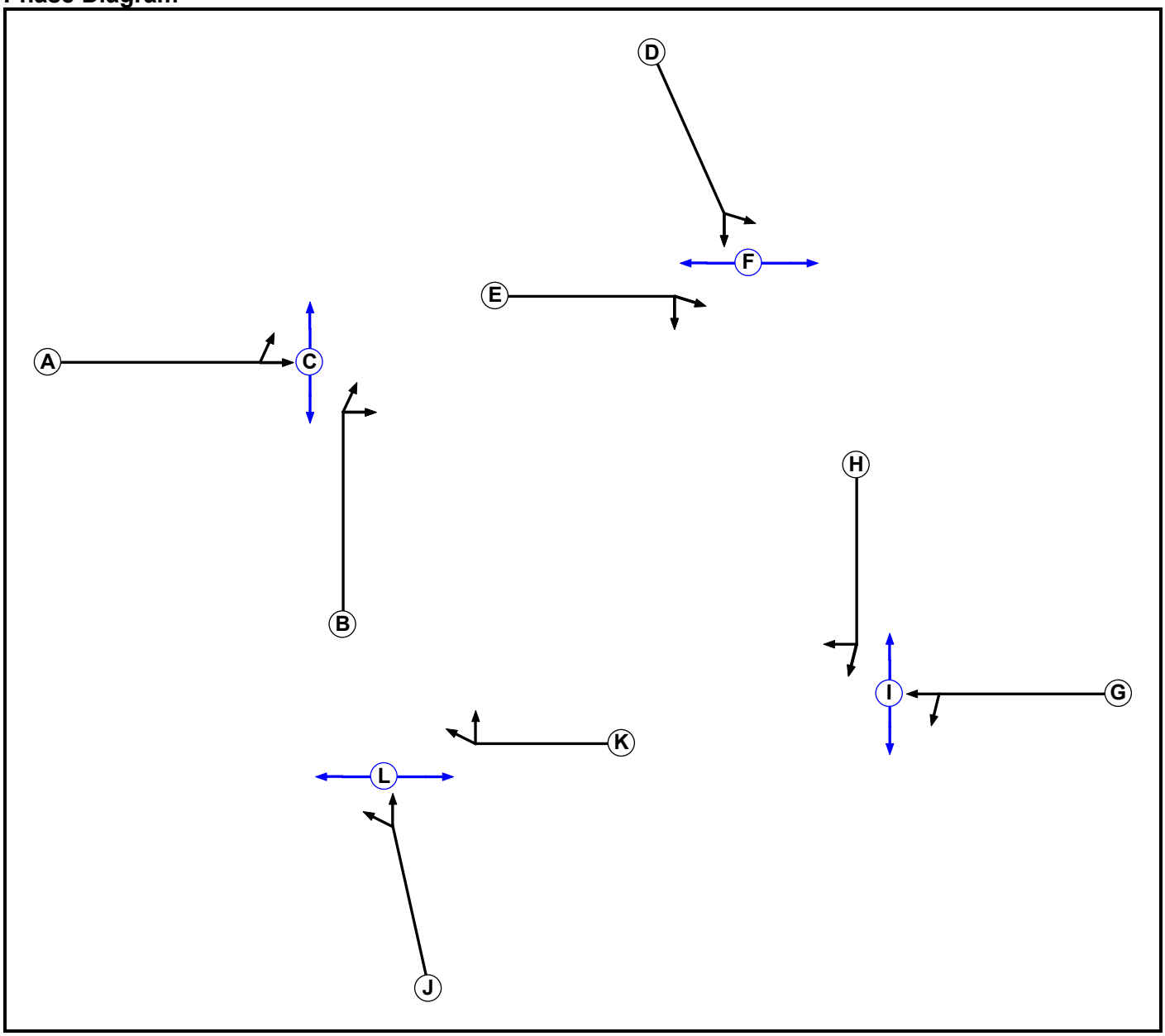
Scenarios

Number	Scenario Name	Flow Group	Network Control Plan	Time	Cycle Time (s)	PRC (%)	Delay (pcuHr)
1	2034 DS3A - AM Peak	2034 DS3A - AM	Network Control Plan 1	08:00 - 09:00	60	2.1	29.24
2	2034 DS3A - PM Peak	2034 DS3A - PM	Network Control Plan 1	17:00 - 18:00	60	-5.2	34.75
3	2034 DS3A SENSITIVITY - AM Peak	2034 DS3A SENSITIVITY - AM	Network Control Plan 1	08:00 - 09:00	60	2.1	28.21
4	2034 DS3A SENSITIVITY - PM Peak	2034 DS3A SENSITIVITY - PM	Network Control Plan 1	17:00 - 18:00	60	-3.2	30.60

Controller Summary

Controller	Type	SCN	Stage Stream	Num Phases	Num Stages	Controls Junctions	Controller Notes
C1	Gen		Stage Stream 1	3	2	Proposed Middleton Stoney Road/Vendee Drive gyratory	
			Stage Stream 2	3	2	Proposed Middleton Stoney Road/Vendee Drive gyratory	
			Stage Stream 3	3	2	Proposed Middleton Stoney Road/Vendee Drive gyratory	
			Stage Stream 4	3	2	Proposed Middleton Stoney Road/Vendee Drive gyratory	

Phase Diagram



Phase Input Data

Phase Name	Phase Type	Stage Stream	Assoc. Phase	Street Min (s)	Cont Min (s)
A	Traffic	1		7	7
B	Traffic	1		7	5
C	Pedestrian	1		5	5
D	Traffic	2		7	7
E	Traffic	2		7	5
F	Pedestrian	2		5	5
G	Traffic	3		7	7
H	Traffic	3		7	7
I	Pedestrian	3		5	5
J	Traffic	4		7	7
K	Traffic	4		7	5
L	Pedestrian	4		5	5

Phase Intergreens Matrix

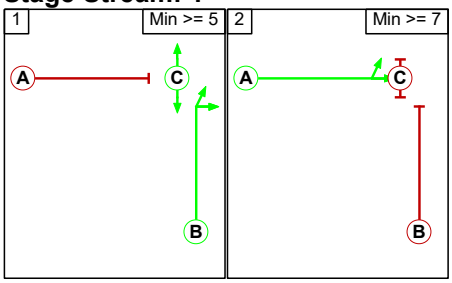
		Starting Phase											
		A	B	C	D	E	F	G	H	I	J	K	L
Terminating Phase	A		5	5	-	-	-	-	-	-	-	-	-
	B	5		-	-	-	-	-	-	-	-	-	-
	C	7	-		-	-	-	-	-	-	-	-	-
	D	-	-	-		5	5	-	-	-	-	-	-
	E	-	-	-	5		-	-	-	-	-	-	-
	F	-	-	-	7	-		-	-	-	-	-	-
	G	-	-	-	-	-	-		5	5	-	-	-
	H	-	-	-	-	-	-	5		-	-	-	-
	I	-	-	-	-	-	-	5	-		-	-	-
	J	-	-	-	-	-	-	-	-	-		5	5
	K	-	-	-	-	-	-	-	-	-	5		-
	L	-	-	-	-	-	-	-	-	-	7	-	

Phases in Stage

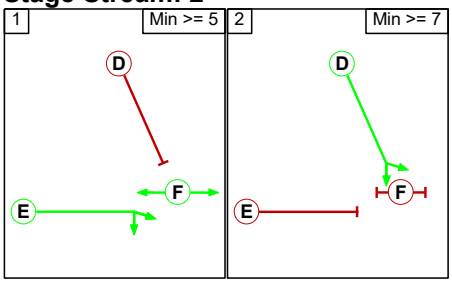
Stream	Stage No.	Phases in Stage
1	1	B C
1	2	A
2	1	E F
2	2	D
3	1	H I
3	2	G
4	1	K L
4	2	J

Stage Diagram

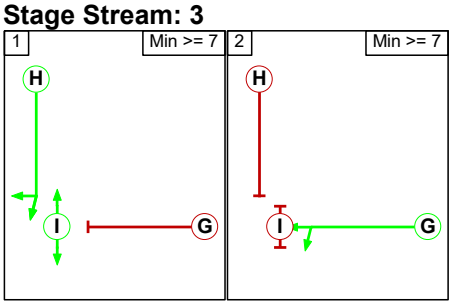
Stage Stream: 1



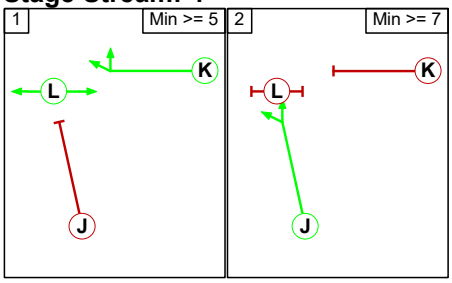
Stage Stream: 2



Stage Stream: 3



Stage Stream: 4



Phase Delays

Stage Stream: 1

Term. Stage	Start Stage	Phase	Type	Value	Cont value
1	2	B	Losing	2	2

Stage Stream: 2

Term. Stage	Start Stage	Phase	Type	Value	Cont value
1	2	E	Losing	2	2

Stage Stream: 3

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Stage Stream: 4

Term. Stage	Start Stage	Phase	Type	Value	Cont value
1	2	K	Losing	2	2

Lane Input Data

Junction: Proposed Middleton Stoney Road/Vendee Drive gyratory

Lane	Lane Type	Phases	Start Disp. (s)	End Disp. (s)	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient (%)	Nearside Lane	Turns	Turning Radius (m)
1/1 (Howes Lane)	U	D	2	3	60.0	User	1900	-	-	-	-	-
1/2 (Howes Lane)	U	D	2	3	7.0	User	1900	-	-	-	-	-
2/1	U		2	3	60.0	Inf	-	-	-	-	-	-
2/2	U		2	3	60.0	Inf	-	-	-	-	-	-
3/1	U	H	0	3	7.8	User	2000	-	-	-	-	-
3/2	U	H	0	3	7.8	User	2000	-	-	-	-	-
4/1 (Middleton Stoney Road)	U	G	2	3	60.0	User	1950	-	-	-	-	-
5/1	U		2	3	60.0	Inf	-	-	-	-	-	-
5/2	U		2	3	60.0	Inf	-	-	-	-	-	-
6/1	U	K	0	3	9.6	User	2050	-	-	-	-	-
7/1 (Vendee Drive)	U	J	2	3	14.8	User	1800	-	-	-	-	-
7/2 (Vendee Drive)	U	J	2	3	60.0	User	1950	-	-	-	-	-
8/1	U	B	0	3	7.0	User	2000	-	-	-	-	-
8/2	U	B	0	3	3.0	User	2000	-	-	-	-	-
9/1	U		2	3	60.0	Inf	-	-	-	-	-	-
10/1	U		2	3	60.0	Inf	-	-	-	-	-	-
11/1	U	E	1	3	6.6	User	2000	-	-	-	-	-
11/2	U	E	1	3	6.6	User	2000	-	-	-	-	-
12/1 (B430 Middleton Stoney Road)	U	A	2	3	60.0	User	1900	-	-	-	-	-
12/2 (B430 Middleton Stoney Road)	U	A	2	3	8.3	User	1950	-	-	-	-	-

Lane Connector Input Data

Junction: Proposed Middleton Stoney Road/Vendee Drive gyratory				
Org Lane	**Dest Lane**	**Junction**	**Modelled Mean Cruise Time (s)**	**Platoon Dispersion**
1/1	2/1	Internal	5	35
1/1	3/1	Internal	4	35
1/2	3/2	Internal	4	35
3/1	5/1	Internal	5	35
3/2	5/2	Internal	5	35
3/2	6/1	Internal	4	35
4/1	5/1	Internal	5	35
4/1	6/1	Internal	4	35
6/1	8/1	Internal	3	35
6/1	9/1	Internal	5	35
7/1	9/1	Internal	5	35
7/2	8/1	Internal	3	35
8/1	10/1	Internal	5	35
8/2	11/1	Internal	2	35
8/2	11/2	Internal	2	35
11/1	2/1	Internal	5	35
11/2	2/2	Internal	5	35
11/2	3/1	Internal	3	35
11/2	3/2	Internal	3	35
12/1	10/1	Internal	5	35
12/1	11/1	Internal	3	35
12/2	11/2	Internal	3	35

Lane Saturation Flows

Scenario 1: '2034 DS3A - AM Peak' (FG1: '2034 DS3A - AM', Plan 1: 'Network Control Plan 1')

Junction: Proposed Middleton Stoney Road/Vendee Drive gyratory

Lane	Lane Width (m)	Gradient (%)	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (Howes Lane Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900
1/2 (Howes Lane Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
2/1	Infinite Saturation Flow						Inf	Inf
2/2	Infinite Saturation Flow						Inf	Inf
3/1	This lane uses a directly entered Saturation Flow						2000	2000
3/2	This lane uses a directly entered Saturation Flow						2000	2000
4/1 (Middleton Stoney Road Lane 1)	This lane uses a directly entered Saturation Flow						1950	1950
5/1	Infinite Saturation Flow						Inf	Inf
5/2	Infinite Saturation Flow						Inf	Inf
6/1	This lane uses a directly entered Saturation Flow						2050	2050
7/1 (Vendee Drive Lane 1)	This lane uses a directly entered Saturation Flow						1800	1800
7/2 (Vendee Drive Lane 2)	This lane uses a directly entered Saturation Flow						1950	1950
8/1	This lane uses a directly entered Saturation Flow						2000	2000
8/2	This lane uses a directly entered Saturation Flow						2000	2000
9/1	Infinite Saturation Flow						Inf	Inf
10/1	Infinite Saturation Flow						Inf	Inf
11/1	This lane uses a directly entered Saturation Flow						2000	2000
11/2	This lane uses a directly entered Saturation Flow						2000	2000
12/1 (B430 Middleton Stoney Road Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900
12/2 (B430 Middleton Stoney Road Lane 2)	This lane uses a directly entered Saturation Flow						1950	1950

Scenario 2: '2034 DS3A - PM Peak' (FG2: '2034 DS3A - PM', Plan 1: 'Network Control Plan 1')

Junction: Proposed Middleton Stoney Road/Vendee Drive gyratory								
Lane	**Lane Width (m)**	**Gradient (%)**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Howes Lane Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900
1/2 (Howes Lane Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
2/1	Infinite Saturation Flow						Inf	Inf
2/2	Infinite Saturation Flow						Inf	Inf
3/1	This lane uses a directly entered Saturation Flow						2000	2000
3/2	This lane uses a directly entered Saturation Flow						2000	2000
4/1 (Middleton Stoney Road Lane 1)	This lane uses a directly entered Saturation Flow						1950	1950
5/1	Infinite Saturation Flow						Inf	Inf
5/2	Infinite Saturation Flow						Inf	Inf
6/1	This lane uses a directly entered Saturation Flow						2050	2050
7/1 (Vendee Drive Lane 1)	This lane uses a directly entered Saturation Flow						1800	1800
7/2 (Vendee Drive Lane 2)	This lane uses a directly entered Saturation Flow						1950	1950
8/1	This lane uses a directly entered Saturation Flow						2000	2000
8/2	This lane uses a directly entered Saturation Flow						2000	2000
9/1	Infinite Saturation Flow						Inf	Inf
10/1	Infinite Saturation Flow						Inf	Inf
11/1	This lane uses a directly entered Saturation Flow						2000	2000
11/2	This lane uses a directly entered Saturation Flow						2000	2000
12/1 (B430 Middleton Stoney Road Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900
12/2 (B430 Middleton Stoney Road Lane 2)	This lane uses a directly entered Saturation Flow						1950	1950

Scenario 3: '2034 DS3A SENSITIVITY - AM Peak' (FG9: '2034 DS3A SENSITIVITY - AM', Plan 1: 'Network Control Plan 1')

Junction: Proposed Middleton Stoney Road/Vendee Drive gyratory								
Lane	**Lane Width (m)**	**Gradient (%)**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Howes Lane Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900
1/2 (Howes Lane Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
2/1	Infinite Saturation Flow						Inf	Inf
2/2	Infinite Saturation Flow						Inf	Inf
3/1	This lane uses a directly entered Saturation Flow						2000	2000
3/2	This lane uses a directly entered Saturation Flow						2000	2000
4/1 (Middleton Stoney Road Lane 1)	This lane uses a directly entered Saturation Flow						1950	1950
5/1	Infinite Saturation Flow						Inf	Inf
5/2	Infinite Saturation Flow						Inf	Inf
6/1	This lane uses a directly entered Saturation Flow						2050	2050
7/1 (Vendee Drive Lane 1)	This lane uses a directly entered Saturation Flow						1800	1800
7/2 (Vendee Drive Lane 2)	This lane uses a directly entered Saturation Flow						1950	1950
8/1	This lane uses a directly entered Saturation Flow						2000	2000
8/2	This lane uses a directly entered Saturation Flow						2000	2000
9/1	Infinite Saturation Flow						Inf	Inf
10/1	Infinite Saturation Flow						Inf	Inf
11/1	This lane uses a directly entered Saturation Flow						2000	2000
11/2	This lane uses a directly entered Saturation Flow						2000	2000
12/1 (B430 Middleton Stoney Road Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900
12/2 (B430 Middleton Stoney Road Lane 2)	This lane uses a directly entered Saturation Flow						1950	1950

Scenario 4: '2034 DS3A SENSITIVITY - PM Peak' (FG10: '2034 DS3A SENSITIVITY - PM', Plan 1: 'Network Control Plan 1')

Junction: Proposed Middleton Stoney Road/Vendee Drive gyratory								
Lane	**Lane Width (m)**	**Gradient (%)**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (Howes Lane Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900
1/2 (Howes Lane Lane 2)	This lane uses a directly entered Saturation Flow						1900	1900
2/1	Infinite Saturation Flow						Inf	Inf
2/2	Infinite Saturation Flow						Inf	Inf
3/1	This lane uses a directly entered Saturation Flow						2000	2000
3/2	This lane uses a directly entered Saturation Flow						2000	2000
4/1 (Middleton Stoney Road Lane 1)	This lane uses a directly entered Saturation Flow						1950	1950
5/1	Infinite Saturation Flow						Inf	Inf
5/2	Infinite Saturation Flow						Inf	Inf
6/1	This lane uses a directly entered Saturation Flow						2050	2050
7/1 (Vendee Drive Lane 1)	This lane uses a directly entered Saturation Flow						1800	1800
7/2 (Vendee Drive Lane 2)	This lane uses a directly entered Saturation Flow						1950	1950
8/1	This lane uses a directly entered Saturation Flow						2000	2000
8/2	This lane uses a directly entered Saturation Flow						2000	2000
9/1	Infinite Saturation Flow						Inf	Inf
10/1	Infinite Saturation Flow						Inf	Inf
11/1	This lane uses a directly entered Saturation Flow						2000	2000
11/2	This lane uses a directly entered Saturation Flow						2000	2000
12/1 (B430 Middleton Stoney Road Lane 1)	This lane uses a directly entered Saturation Flow						1900	1900
12/2 (B430 Middleton Stoney Road Lane 2)	This lane uses a directly entered Saturation Flow						1950	1950

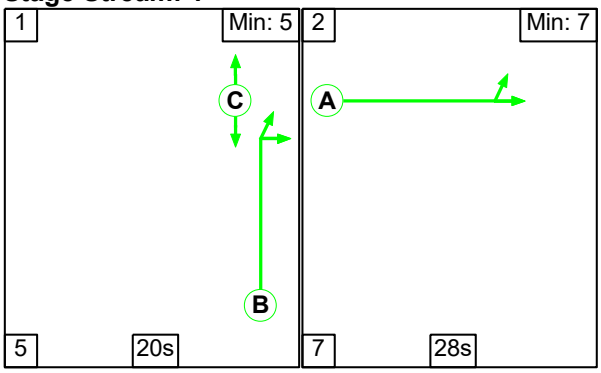
Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2034 DS3A - AM'	08:00	09:00	01:00	
2: '2034 DS3A - PM'	17:00	18:00	01:00	
3: '2034 DS3A wTP - AM'	08:00	09:00	01:00	
4: '2034 DS3A wTP - PM'	17:00	18:00	01:00	
5: '2042 DS4A - AM'	08:00	09:00	01:00	
6: '2042 DS4A - PM'	17:00	18:00	01:00	
7: '2042 DS4A wTP - AM'	08:00	09:00	01:00	
8: '2042 DS4A wTP - PM'	17:00	18:00	01:00	
9: '2034 DS3A SENSITIVITY - AM'	08:00	09:00	01:00	
10: '2034 DS3A SENSITIVITY - PM'	17:00	18:00	01:00	

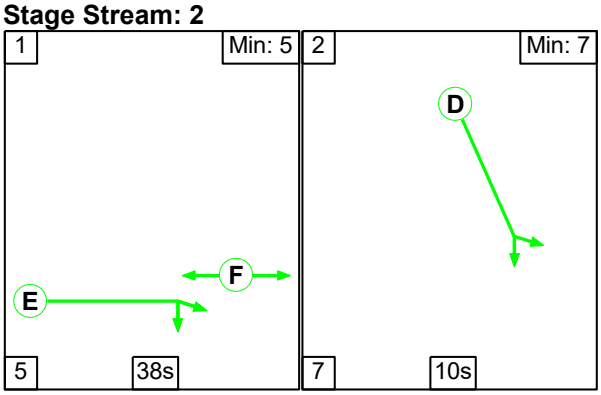
Scenario 1: '2034 DS3A - AM Peak' (FG1: '2034 DS3A - AM', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

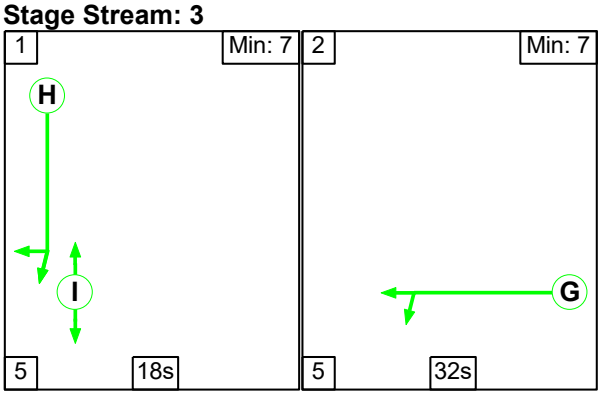
Stage Stream: 1



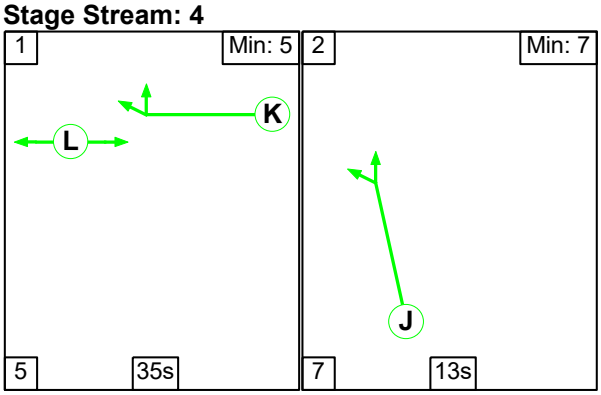
Stage Stream: 2



Stage Stream: 3



Stage Stream: 4



Stage Timings

Stage Stream: 1

Stage	1	2
Duration	20	28
Change Point	48	13

Stage Stream: 2

Stage	1	2
Duration	38	10
Change Point	13	56

Stage Stream: 3

Stage	1	2
Duration	18	32
Change Point	53	16

Stage Stream: 4

Stage	1	2
Duration	35	13
Change Point	14	54

Phase Timings

Phase Name	Description	Phase	Stage Stream	Green Period 1		
				Total Green	Start Time	End Time
A	B430 Middleton Stoney Road Left Ahead	Traffic	1	28	20	48
B	Ahead Right	Traffic	1	22	53	15
C	Pedestrians across	Pedestrian	1	20	53	13
D	Howes Lane Left Ahead	Traffic	2	10	3	13
E	Ahead Right	Traffic	2	40	18	58
F	Pedestrians across	Pedestrian	2	38	18	56
G	Middleton Stoney Road Left Ahead	Traffic	3	32	21	53
H	Ahead Right	Traffic	3	18	58	16
I	Pedestrians across	Pedestrian	3	18	58	16
J	Vendee Drive Ahead Left	Traffic	4	13	1	14
K	Right Ahead	Traffic	4	37	19	56
L	Pedestrians across	Pedestrian	4	35	19	54

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Bonus Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Proposed B4030 MSR/Howes Lane/Vendee Drive mitigation	-	-	**N/A**	-	-		-	-	-	-	-	-	-	**88.1%**
Proposed Middleton Stoney Road/Vendee Drive gyratory	-	-	**N/A**	-	-		-	-	-	-	-	-	-	**88.1%**
1/1+1/2	Howes Lane Left Ahead	U	2	N/A	D		1	10	-	-	614	1900:1900	348+348	88.1 : 88.1%
3/1	Ahead	U	3	N/A	H		1	18	-	-	422	2000	700	60.3%
3/2	Ahead Right	U	3	N/A	H		1	18	-	-	462	2000	700	66.0%
4/1	Middleton Stoney Road Left Ahead	U	3	N/A	G		1	32	-	-	945	1950	1073	88.1%
6/1	Right Ahead	U	4	N/A	K		1	37	-	-	904	2050	1367	66.1%
7/2+7/1	Vendee Drive Ahead Left	U	4	N/A	J		1	13	-	-	675	1950:1800	455+420	86.2 : 67.4%
8/1+8/2	Ahead Right	U	1	N/A	B		1	22	-	-	417	2000:2000	652+269	45.3 : 45.3%
11/1	Ahead	U	2	N/A	E		1	40	-	-	559	2000	1400	39.9%
11/2	Ahead Right	U	2	N/A	E		1	40	-	-	662	2000	1400	47.3%
12/1+12/2	B430 Middleton Stoney Road Left Ahead	U	1	N/A	A		1	28	-	-	1201	1900:1950	717+718	83.7 : 83.7%

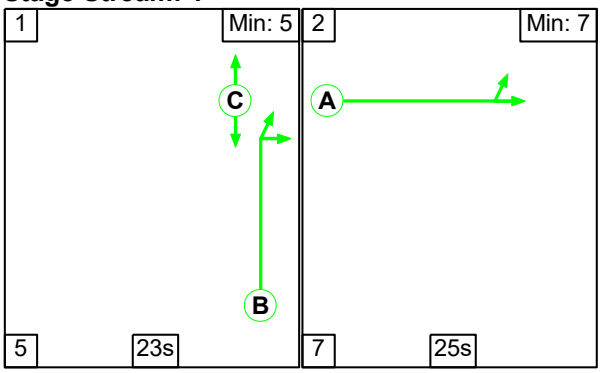
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)	
Network: Proposed B4030 MSR/Howes Lane/Vendee Drive mitigation	**-**	**-**	**0**	**0**	**0**	**18.1**	**11.1**	**0.0**	**29.2**	**-**	**-**	**-**	**-**	
Proposed Middleton Stoney Road/Vendee Drive gyratory	**-**	**-**	**0**	**0**	**0**	**18.1**	**11.1**	**0.0**	**29.2**	**-**	**-**	**-**	**-**	
1/1+1/2	614	614	-	-	-	4.1	3.4	-	7.5	44.0	4.9	3.4	8.4	
3/1	422	422	-	-	-	1.1	0.0	-	1.1	9.7	2.9	0.0	2.9	
3/2	462	462	-	-	-	1.1	0.0	-	1.1	8.9	2.8	0.0	2.8	
4/1	945	945	-	-	-	3.1	3.5	-	6.6	25.2	13.7	3.5	17.2	
6/1	904	904	-	-	-	0.3	0.0	-	0.3	1.2	2.9	0.0	2.9	
7/2+7/1	675	675	-	-	-	4.0	1.7	-	5.7	30.5	6.2	1.7	7.9	
8/1+8/2	417	417	-	-	-	0.3	0.0	-	0.3	2.4	0.6	0.0	0.6	
11/1	559	559	-	-	-	0.1	0.0	-	0.1	0.5	0.9	0.0	0.9	
11/2	662	662	-	-	-	0.1	0.0	-	0.1	0.5	0.9	0.0	0.9	
12/1+12/2	1201	1201	-	-	-	3.9	2.5	-	6.4	19.2	7.5	2.5	10.0	

C1	Stream: 1 PRC for Signalled Lanes (%):	7.6	Total Delay for Signalled Lanes (pcuHr):	6.67	Cycle Time (s):	60	
C1	Stream: 2 PRC for Signalled Lanes (%):	2.1	Total Delay for Signalled Lanes (pcuHr):	7.67	Cycle Time (s):	60	
C1	Stream: 3 PRC for Signalled Lanes (%):	2.1	Total Delay for Signalled Lanes (pcuHr):	8.90	Cycle Time (s):	60	
C1	Stream: 4 PRC for Signalled Lanes (%):	4.5	Total Delay for Signalled Lanes (pcuHr):	6.01	Cycle Time (s):	60	
	PRC Over All Lanes (%):	2.1	Total Delay Over All Lanes(pcuHr):	29.24			

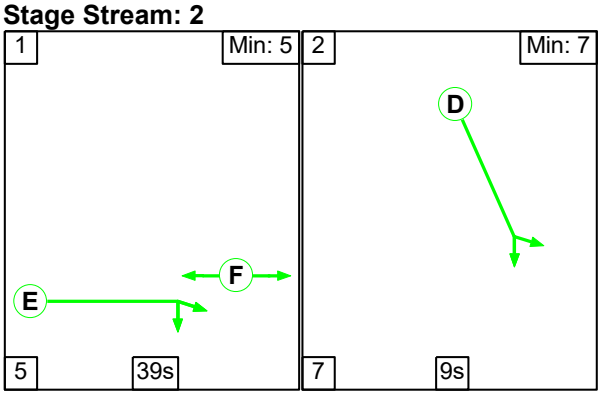
Scenario 2: '2034 DS3A - PM Peak' (FG2: '2034 DS3A - PM', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

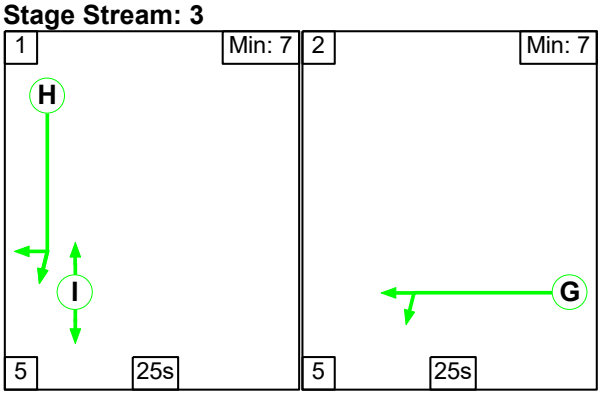
Stage Stream: 1



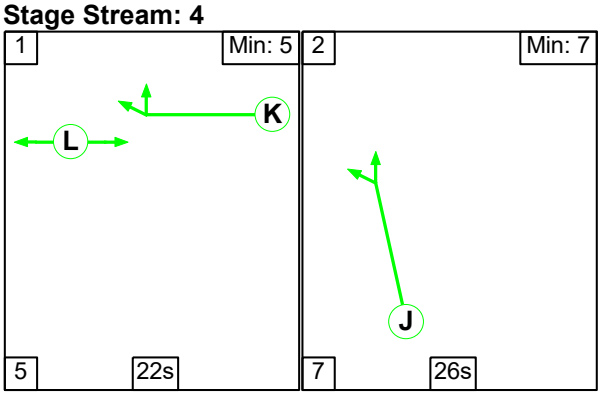
Stage Stream: 2



Stage Stream: 3



Stage Stream: 4



Stage Timings

Stage Stream: 1

Stage	1	2
Duration	23	25
Change Point	26	54

Stage Stream: 2

Stage	1	2
Duration	39	9
Change Point	40	24

Stage Stream: 3

Stage	1	2
Duration	25	25
Change Point	23	53

Stage Stream: 4

Stage	1	2
Duration	22	26
Change Point	55	22

Phase Timings

Phase Name	Description	Phase	Stage Stream	Green Period 1		
				Total Green	Start Time	End Time
A	B430 Middleton Stoney Road Left Ahead	Traffic	1	25	1	26
B	Ahead Right	Traffic	1	25	31	56
C	Pedestrians across	Pedestrian	1	23	31	54
D	Howes Lane Left Ahead	Traffic	2	9	31	40
E	Ahead Right	Traffic	2	41	45	26
F	Pedestrians across	Pedestrian	2	39	45	24
G	Middleton Stoney Road Left Ahead	Traffic	3	25	58	23
H	Ahead Right	Traffic	3	25	28	53
I	Pedestrians across	Pedestrian	3	25	28	53
J	Vendee Drive Ahead Left	Traffic	4	26	29	55
K	Right Ahead	Traffic	4	24	0	24
L	Pedestrians across	Pedestrian	4	22	0	22

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Bonus Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Proposed B4030 MSR/Howes Lane/Vendee Drive mitigation	-	-	**N/A**	-	-		-	-	-	-	-	-	-	**94.7%**
Proposed Middleton Stoney Road/Vendee Drive gyratory	-	-	**N/A**	-	-		-	-	-	-	-	-	-	**94.7%**
1/1+1/2	Howes Lane Left Ahead	U	2	N/A	D		1	9	-	-	394	1900:1900	317+317	62.2 : 62.2%
3/1	Ahead	U	3	N/A	H		1	25	-	-	309	2000	933	33.1%
3/2	Ahead Right	U	3	N/A	H		1	25	-	-	350	2000	933	37.5%
4/1	Middleton Stoney Road Left Ahead	U	3	N/A	G		1	25	-	-	800	1950	845	94.7%
6/1	Right Ahead	U	4	N/A	K		1	24	-	-	782	2050	922	84.8%
7/2+7/1	Vendee Drive Ahead Left	U	4	N/A	J		1	26	-	-	1308	1950:1800	878+531	92.9 : 92.9%
8/1+8/2	Ahead Right	U	1	N/A	B		1	25	-	-	854	2000:2000	648+414	80.4 : 80.4%
11/1	Ahead	U	2	N/A	E		1	41	-	-	585	2000	1433	40.8%
11/2	Ahead Right	U	2	N/A	E		1	41	-	-	717	2000	1433	50.0%
12/1+12/2	B430 Middleton Stoney Road Left Ahead	U	1	N/A	A		1	25	-	-	1128	1900:1950	670+670	84.2 : 84.2%

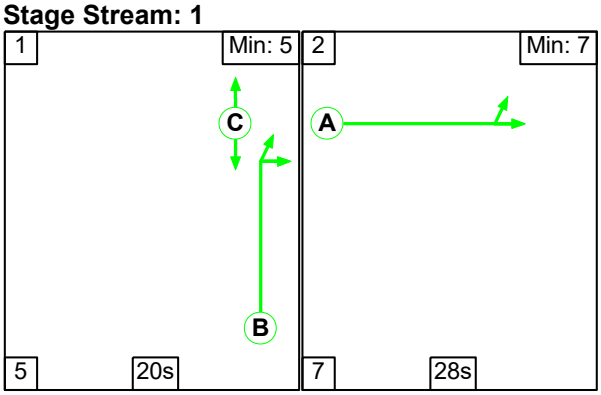
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)	
Network: Proposed B4030 MSR/Howes Lane/Vendee Drive mitigation	**-**	**-**	**0**	**0**	**0**	**18.7**	**16.1**	**0.0**	**34.7**	**-**	**-**	**-**	**-**	
Proposed Middleton Stoney Road/Vendee Drive gyratory	**-**	**-**	**0**	**0**	**0**	**18.7**	**16.1**	**0.0**	**34.7**	**-**	**-**	**-**	**-**	
1/1+1/2	394	394	-	-	-	2.5	0.8	-	3.4	30.7	3.0	0.8	3.8	
3/1	309	309	-	-	-	0.5	0.0	-	0.5	6.2	2.4	0.0	2.4	
3/2	350	350	-	-	-	0.5	0.0	-	0.5	5.4	2.4	0.0	2.4	
4/1	800	800	-	-	-	3.6	6.8	-	10.5	47.0	12.7	6.8	19.5	
6/1	782	782	-	-	-	1.0	0.0	-	1.0	4.6	4.0	0.0	4.0	
7/2+7/1	1308	1308	-	-	-	5.2	5.8	-	11.1	30.5	12.7	5.8	18.5	
8/1+8/2	854	854	-	-	-	0.4	0.0	-	0.4	1.9	1.0	0.0	1.0	
11/1	585	585	-	-	-	0.2	0.0	-	0.2	1.4	1.9	0.0	1.9	
11/2	717	717	-	-	-	0.2	0.0	-	0.2	1.2	1.7	0.0	1.7	
12/1+12/2	1128	1128	-	-	-	4.3	2.6	-	6.9	21.9	7.5	2.6	10.1	

C1	Stream: 1 PRC for Signalled Lanes (%):	6.9	Total Delay for Signalled Lanes (pcuHr):	7.32	Cycle Time (s):	60
C1	Stream: 2 PRC for Signalled Lanes (%):	44.7	Total Delay for Signalled Lanes (pcuHr):	3.83	Cycle Time (s):	60
C1	Stream: 3 PRC for Signalled Lanes (%):	-5.2	Total Delay for Signalled Lanes (pcuHr):	11.51	Cycle Time (s):	60
C1	Stream: 4 PRC for Signalled Lanes (%):	-3.2	Total Delay for Signalled Lanes (pcuHr):	12.09	Cycle Time (s):	60
	PRC Over All Lanes (%):	-5.2	Total Delay Over All Lanes(pcuHr):	34.75		

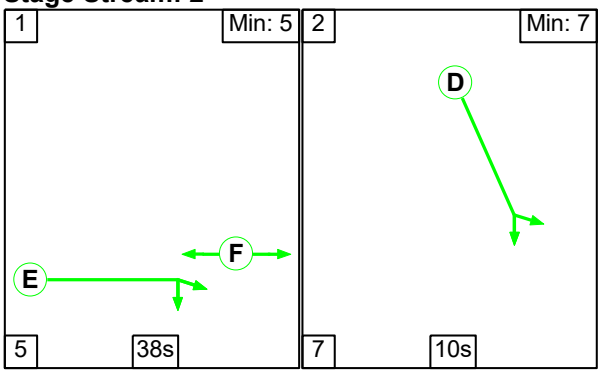
Scenario 3: '2034 DS3A SENSITIVITY - AM Peak' (FG9: '2034 DS3A SENSITIVITY - AM', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

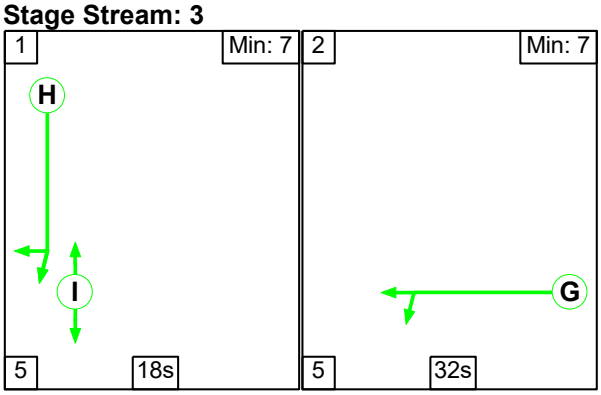
Stage Stream: 1



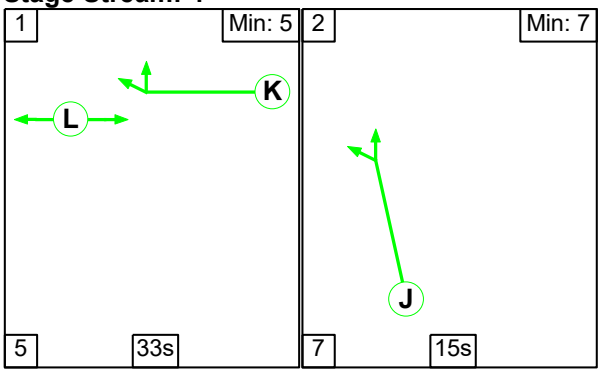
Stage Stream: 2



Stage Stream: 3



Stage Stream: 4



Stage Timings

Stage Stream: 1

Stage	1	2
Duration	20	28
Change Point	48	13

Stage Stream: 2

Stage	1	2
Duration	38	10
Change Point	13	56

Stage Stream: 3

Stage	1	2
Duration	18	32
Change Point	53	16

Stage Stream: 4

Stage	1	2
Duration	33	15
Change Point	16	54

Phase Timings

Phase Name	Description	Phase	Stage Stream	Green Period 1		
				Total Green	Start Time	End Time
A	B430 Middleton Stoney Road Left Ahead	Traffic	1	28	20	48
B	Ahead Right	Traffic	1	22	53	15
C	Pedestrians across	Pedestrian	1	20	53	13
D	Howes Lane Left Ahead	Traffic	2	10	3	13
E	Ahead Right	Traffic	2	40	18	58
F	Pedestrians across	Pedestrian	2	38	18	56
G	Middleton Stoney Road Left Ahead	Traffic	3	32	21	53
H	Ahead Right	Traffic	3	18	58	16
I	Pedestrians across	Pedestrian	3	18	58	16
J	Vendee Drive Ahead Left	Traffic	4	15	1	16
K	Right Ahead	Traffic	4	35	21	56
L	Pedestrians across	Pedestrian	4	33	21	54

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Bonus Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Proposed B4030 MSR/Howes Lane/Vendee Drive mitigation	-	-	**N/A**	-	-		-	-	-	-	-	-	-	**88.1%**
Proposed Middleton Stoney Road/Vendee Drive gyratory	-	-	**N/A**	-	-		-	-	-	-	-	-	-	**88.1%**
1/1+1/2	Howes Lane Left Ahead	U	2	N/A	D		1	10	-	-	614	1900:1900	348+348	88.1 : 88.1%
3/1	Ahead	U	3	N/A	H		1	18	-	-	458	2000	700	65.4%
3/2	Ahead Right	U	3	N/A	H		1	18	-	-	497	2000	700	71.0%
4/1	Middleton Stoney Road Left Ahead	U	3	N/A	G		1	32	-	-	819	1950	1073	76.4%
6/1	Right Ahead	U	4	N/A	K		1	35	-	-	778	2050	1298	59.9%
7/2+7/1	Vendee Drive Ahead Left	U	4	N/A	J		1	15	-	-	801	1950:1800	520+480	75.4 : 85.2%
8/1+8/2	Ahead Right	U	1	N/A	B		1	22	-	-	417	2000:2000	652+269	45.3 : 45.3%
11/1	Ahead	U	2	N/A	E		1	40	-	-	553	2000	1400	39.5%
11/2	Ahead Right	U	2	N/A	E		1	40	-	-	668	2000	1400	47.7%
12/1+12/2	B430 Middleton Stoney Road Left Ahead	U	1	N/A	A		1	28	-	-	1201	1900:1950	705+723	84.1 : 84.1%

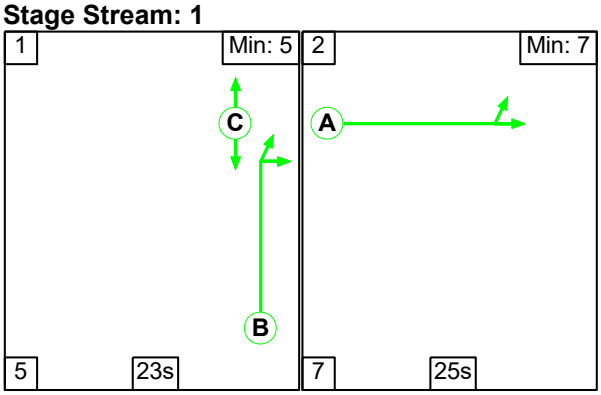
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)	
Network: Proposed B4030 MSR/Howes Lane/Vendee Drive mitigation	**-**	**-**	**0**	**0**	**0**	**18.6**	**9.6**	**0.0**	**28.2**	**-**	**-**	**-**	**-**	
Proposed Middleton Stoney Road/Vendee Drive gyratory	**-**	**-**	**0**	**0**	**0**	**18.6**	**9.6**	**0.0**	**28.2**	**-**	**-**	**-**	**-**	
1/1+1/2	614	614	-	-	-	4.1	3.4	-	7.5	44.0	4.9	3.4	8.4	
3/1	458	458	-	-	-	1.4	0.0	-	1.4	11.0	3.5	0.0	3.5	
3/2	497	497	-	-	-	1.4	0.0	-	1.4	10.1	3.4	0.0	3.4	
4/1	819	819	-	-	-	2.4	1.6	-	4.0	17.5	10.5	1.6	12.1	
6/1	778	778	-	-	-	0.4	0.0	-	0.4	1.8	2.9	0.0	2.9	
7/2+7/1	801	801	-	-	-	4.6	2.0	-	6.5	29.4	6.4	2.0	8.3	
8/1+8/2	417	417	-	-	-	0.4	0.0	-	0.4	3.2	0.7	0.0	0.7	
11/1	553	553	-	-	-	0.1	0.0	-	0.1	0.6	0.9	0.0	0.9	
11/2	668	668	-	-	-	0.1	0.0	-	0.1	0.4	0.9	0.0	0.9	
12/1+12/2	1201	1201	-	-	-	3.9	2.6	-	6.5	19.4	7.6	2.6	10.2	

C1	Stream: 1 PRC for Signalled Lanes (%):	7.0	Total Delay for Signalled Lanes (pcuHr):	6.85	Cycle Time (s):	60
C1	Stream: 2 PRC for Signalled Lanes (%):	2.1	Total Delay for Signalled Lanes (pcuHr):	7.67	Cycle Time (s):	60
C1	Stream: 3 PRC for Signalled Lanes (%):	17.9	Total Delay for Signalled Lanes (pcuHr):	6.77	Cycle Time (s):	60
C1	Stream: 4 PRC for Signalled Lanes (%):	5.6	Total Delay for Signalled Lanes (pcuHr):	6.92	Cycle Time (s):	60
	PRC Over All Lanes (%):	2.1	Total Delay Over All Lanes(pcuHr):	28.21		

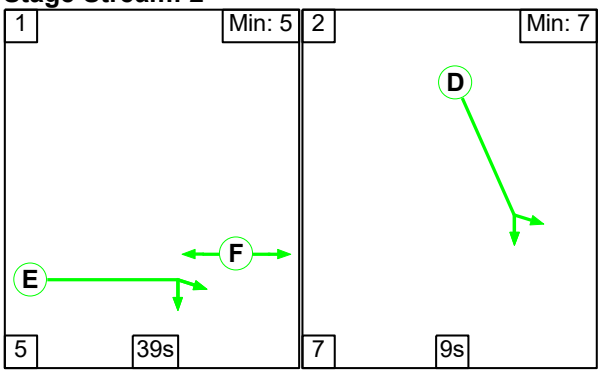
Scenario 4: '2034 DS3A SENSITIVITY - PM Peak' (FG10: '2034 DS3A SENSITIVITY - PM', Plan 1: 'Network Control Plan 1')

Stage Sequence Diagram

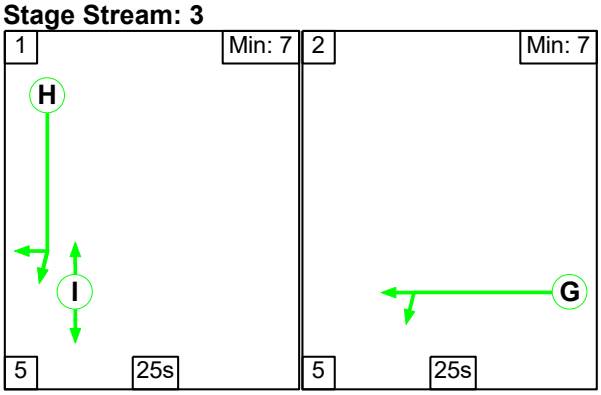
Stage Stream: 1



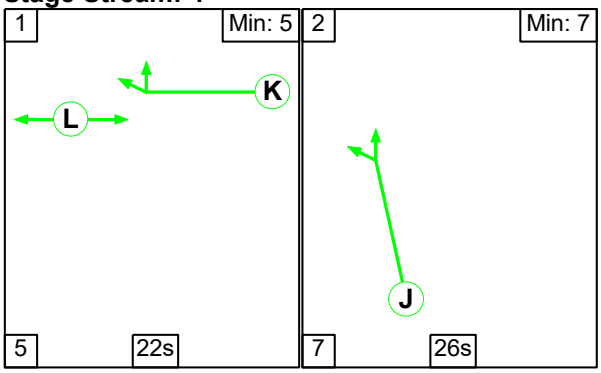
Stage Stream: 2



Stage Stream: 3



Stage Stream: 4



Stage Timings

Stage Stream: 1

Stage	1	2
Duration	23	25
Change Point	26	54

Stage Stream: 2

Stage	1	2
Duration	39	9
Change Point	40	24

Stage Stream: 3

Stage	1	2
Duration	25	25
Change Point	23	53

Stage Stream: 4

Stage	1	2
Duration	22	26
Change Point	55	22

Phase Timings

Phase Name	Description	Phase	Stage Stream	Green Period 1		
				Total Green	Start Time	End Time
A	B430 Middleton Stoney Road Left Ahead	Traffic	1	25	1	26
B	Ahead Right	Traffic	1	25	31	56
C	Pedestrians across	Pedestrian	1	23	31	54
D	Howes Lane Left Ahead	Traffic	2	9	31	40
E	Ahead Right	Traffic	2	41	45	26
F	Pedestrians across	Pedestrian	2	39	45	24
G	Middleton Stoney Road Left Ahead	Traffic	3	25	58	23
H	Ahead Right	Traffic	3	25	28	53
I	Pedestrians across	Pedestrian	3	25	28	53
J	Vendee Drive Ahead Left	Traffic	4	26	29	55
K	Right Ahead	Traffic	4	24	0	24
L	Pedestrians across	Pedestrian	4	22	0	22

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Bonus Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network: Proposed B4030 MSR/Howes Lane/Vendee Drive mitigation	-	-	**N/A**	-	-		-	-	-	-	-	-	-	**92.9%**
Proposed Middleton Stoney Road/Vendee Drive gyratory	-	-	**N/A**	-	-		-	-	-	-	-	-	-	**92.9%**
1/1+1/2	Howes Lane Left Ahead	U	2	N/A	D		1	9	-	-	394	1900:1900	317+317	62.2 : 62.2%
3/1	Ahead	U	3	N/A	H		1	25	-	-	347	2000	933	37.2%
3/2	Ahead Right	U	3	N/A	H		1	25	-	-	389	2000	933	41.7%
4/1	Middleton Stoney Road Left Ahead	U	3	N/A	G		1	25	-	-	713	1950	845	84.4%
6/1	Right Ahead	U	4	N/A	K		1	24	-	-	695	2050	922	75.3%
7/2+7/1	Vendee Drive Ahead Left	U	4	N/A	J		1	26	-	-	1392	1950:1800	878+621	92.9 : 92.9%
8/1+8/2	Ahead Right	U	1	N/A	B		1	25	-	-	854	2000:2000	648+414	80.4 : 80.4%
11/1	Ahead	U	2	N/A	E		1	41	-	-	579	2000	1433	40.4%
11/2	Ahead Right	U	2	N/A	E		1	41	-	-	723	2000	1433	50.4%
12/1+12/2	B430 Middleton Stoney Road Left Ahead	U	1	N/A	A		1	25	-	-	1128	1900:1950	657+674	84.7 : 84.7%

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)	
Network: Proposed B4030 MSR/Howes Lane/Vendee Drive mitigation	**-**	**-**	**0**	**0**	**0**	**18.6**	**12.0**	**0.0**	**30.6**	**-**	**-**	**-**	**-**	
Proposed Middleton Stoney Road/Vendee Drive gyratory	**-**	**-**	**0**	**0**	**0**	**18.6**	**12.0**	**0.0**	**30.6**	**-**	**-**	**-**	**-**	
1/1+1/2	394	394	-	-	-	2.5	0.8	-	3.4	30.7	3.0	0.8	3.8	
3/1	347	347	-	-	-	0.7	0.0	-	0.7	7.1	3.0	0.0	3.0	
3/2	389	389	-	-	-	0.7	0.0	-	0.7	6.4	3.0	0.0	3.0	
4/1	713	713	-	-	-	3.0	2.6	-	5.6	28.3	10.5	2.6	13.1	
6/1	695	695	-	-	-	0.8	0.0	-	0.8	4.3	2.9	0.0	2.9	
7/2+7/1	1392	1392	-	-	-	5.7	5.9	-	11.5	29.9	12.7	5.9	18.6	
8/1+8/2	854	854	-	-	-	0.5	0.0	-	0.5	1.9	1.0	0.0	1.0	
11/1	579	579	-	-	-	0.2	0.0	-	0.2	1.4	1.9	0.0	1.9	
11/2	723	723	-	-	-	0.2	0.0	-	0.2	1.2	1.7	0.0	1.7	
12/1+12/2	1128	1128	-	-	-	4.3	2.7	-	7.0	22.3	7.6	2.7	10.3	

C1	Stream: 1 PRC for Signalled Lanes (%):	6.2	Total Delay for Signalled Lanes (pcuHr):	7.43	Cycle Time (s):	60
C1	Stream: 2 PRC for Signalled Lanes (%):	44.7	Total Delay for Signalled Lanes (pcuHr):	3.83	Cycle Time (s):	60
C1	Stream: 3 PRC for Signalled Lanes (%):	6.7	Total Delay for Signalled Lanes (pcuHr):	6.98	Cycle Time (s):	60
C1	Stream: 4 PRC for Signalled Lanes (%):	-3.2	Total Delay for Signalled Lanes (pcuHr):	12.37	Cycle Time (s):	60
	PRC Over All Lanes (%):	-3.2	Total Delay Over All Lanes(pcuHr):	30.60		

APPENDX B
A41 OXFORD ROAD/VENDEE DRIVE - ARCADY SENSITIVITY TEST

Junctions 11

ARCADY 11 - Roundabout Module

Version: 11.1.0.2307
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Filename: 260106 A41_Vendee Drive Roundabout - sensitivity test.j11
Path: C:\Users\ADC\OneDrive - ADC Infrastructure Limited\ADC Projects\ADC1794 OxSRFI\Calculations\Junction Models\14. A41_Vendee Dr roundabout
Report generation date: 22/06/2026 14:56:22

»D1 - 2034 | RC3A | AM
»D2 - 2034 | RC3A | PM
»D3 - 2034 | DS3A | AM
»D4 - 2034 | DS3A | PM

Summary of junction performance

	AM					PM				
	Set ID	Queue (Veh)	Delay (s)	RFC	LOS	Set ID	Queue (Veh)	Delay (s)	RFC	LOS
	2034 - RC3A									
1 - A41 Northeast	D1	2.0	4.23	0.67	A	D2	2.2	4.31	0.68	A
2 - Charles Shouler Way		0.9	8.85	0.49	A		1.9	12.91	0.66	B
3 - A41 Southwest		3.5	6.43	0.78	A		6.4	11.51	0.87	B
4 - Park and Ride		0.0	5.70	0.02	A		0.0	8.80	0.02	A
5 - Vendee Drive		3.5	20.80	0.79	C		2.6	14.04	0.73	B
	2034 - DS3A									
1 - A41 Northeast	D3	1.7	3.77	0.63	A	D4	2.6	4.94	0.72	A
2 - Charles Shouler Way		1.2	9.41	0.55	A		2.2	15.57	0.70	C
3 - A41 Southwest		4.2	8.25	0.81	A		4.7	9.80	0.83	A
4 - Park and Ride		0.0	7.07	0.03	A		0.0	9.03	0.02	A
5 - Vendee Drive		11.7	58.69	0.95	F		3.5	17.74	0.79	C

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

File summary

File Description

Title	OxSRFI
Location	A41/Vendee Drive Roundabout
Site number	
Date	06/01/2026
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	ADC1794
Enumerator	ADC-AAD-PC1\ADC
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	Veh	Veh	perHour	s	-Min	perMin

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
		1.00	36.00	20.00

Demand Set Summary

ID	Year	Scenario	Time period	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2034	RC3A	AM	ONE HOUR	07:45	09:15	15
D2	2034	RC3A	PM	ONE HOUR	16:45	18:15	15
D3	2034	DS3A	AM	ONE HOUR	07:45	09:15	15
D4	2034	DS3A	PM	ONE HOUR	16:45	18:15	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

D1 - 2034 | RC3A | AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4, 5	7.68	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	7.68	A

Arms

Arms

Arm	Name	Description	No give-way line
1	A41 Northeast		
2	Charles Shouler Way		
3	A41 Southwest		
4	Park and Ride		
5	Vendee Drive		

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Entry only	Exit only
1 - A41 Northeast	7.30	11.10	26.6	30.2	70.0	21.0		
2 - Charles Shouler Way	3.60	10.20	18.6	19.0	70.0	27.0		
3 - A41 Southwest	7.30	11.60	23.1	20.0	70.0	30.0		
4 - Park and Ride	4.90	8.40	12.1	15.0	70.0	28.0		
5 - Vendee Drive	6.50	6.50	0.0	18.0	70.0	19.0		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - A41 Northeast	0.744	3145
2 - Charles Shouler Way	0.561	2043
3 - A41 Southwest	0.714	3028
4 - Park and Ride	0.553	2016
5 - Vendee Drive	0.566	2034

The slope and intercept shown above include any corrections and adjustments.

Traffic Demand

Demand Set Details

ID	Year	Scenario	Time period	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2034	RC3A	AM	ONE HOUR	07:45	09:15	15

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A41 Northeast		✓	1569	100.000
2 - Charles Shouler Way		✓	350	100.000
3 - A41 Southwest		✓	1825	100.000
4 - Park and Ride		✓	12	100.000
5 - Vendee Drive		✓	569	100.000

Origin-Destination Data

Demand (Veh/hr)

		To				
		1 - A41 Northeast	2 - Charles Shouler Way	3 - A41 Southwest	4 - Park and Ride	5 - Vendee Drive
From	1 - A41 Northeast	7	40	1453	0	69
	2 - Charles Shouler Way	250	0	48	8	44
	3 - A41 Southwest	1429	132	3	60	201
	4 - Park and Ride	0	1	9	0	2
	5 - Vendee Drive	249	8	312	0	0

Vehicle Mix

Heavy Vehicle %

		To				
		1 - A41 Northeast	2 - Charles Shouler Way	3 - A41 Southwest	4 - Park and Ride	5 - Vendee Drive
From	1 - A41 Northeast	0	0	7	0	1
	2 - Charles Shouler Way	1	0	22	0	0
	3 - A41 Southwest	7	0	0	0	7
	4 - Park and Ride	0	0	0	0	0
	5 - Vendee Drive	0	17	7	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
1 - A41 Northeast	0.67	4.23	2.0	A
2 - Charles Shouler Way	0.49	8.85	0.9	A
3 - A41 Southwest	0.78	6.43	3.5	A
4 - Park and Ride	0.02	5.70	0.0	A
5 - Vendee Drive	0.79	20.80	3.5	C

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A41 Northeast	1181	348	2697	0.438	1178	0.8	2.365	A
2 - Charles Shouler Way	263	1391	1167	0.226	262	0.3	3.976	A
3 - A41 Southwest	1374	283	2658	0.517	1370	1.1	2.785	A
4 - Park and Ride	9	1602	1082	0.008	9	0.0	3.355	A
5 - Vendee Drive	428	1374	1165	0.368	426	0.6	4.855	A

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A41 Northeast	1411	417	2647	0.533	1409	1.1	2.906	A
2 - Charles Shouler Way	315	1663	1009	0.312	314	0.4	5.175	A
3 - A41 Southwest	1641	339	2620	0.626	1638	1.7	3.656	A
4 - Park and Ride	11	1916	898	0.012	11	0.0	4.056	A
5 - Vendee Drive	512	1644	1011	0.506	510	1.0	7.163	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A41 Northeast	1728	506	2581	0.669	1724	2.0	4.182	A
2 - Charles Shouler Way	385	2032	796	0.484	383	0.9	8.681	A
3 - A41 Southwest	2009	414	2569	0.782	2002	3.5	6.268	A
4 - Park and Ride	13	2342	650	0.020	13	0.0	5.653	A
5 - Vendee Drive	626	2008	801	0.782	617	3.3	18.750	C

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A41 Northeast	1728	512	2578	0.670	1727	2.0	4.234	A
2 - Charles Shouler Way	385	2040	792	0.487	385	0.9	8.854	A
3 - A41 Southwest	2009	416	2568	0.782	2009	3.5	6.432	A
4 - Park and Ride	13	2350	645	0.020	13	0.0	5.697	A
5 - Vendee Drive	626	2016	797	0.786	626	3.5	20.796	C

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A41 Northeast	1411	424	2642	0.534	1414	1.2	2.942	A
2 - Charles Shouler Way	315	1675	1003	0.314	317	0.5	5.261	A
3 - A41 Southwest	1641	342	2619	0.627	1648	1.7	3.738	A
4 - Park and Ride	11	1928	891	0.012	11	0.0	4.088	A
5 - Vendee Drive	512	1654	1005	0.509	521	1.1	7.590	A

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A41 Northeast	1181	351	2695	0.438	1183	0.8	2.382	A
2 - Charles Shouler Way	263	1398	1163	0.227	264	0.3	4.009	A
3 - A41 Southwest	1374	285	2657	0.517	1376	1.1	2.818	A
4 - Park and Ride	9	1610	1077	0.008	9	0.0	3.373	A
5 - Vendee Drive	428	1381	1161	0.369	430	0.6	4.936	A

D2 - 2034 | RC3A | PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4, 5	9.42	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	9.42	A

Traffic Demand

Demand Set Details

ID	Year	Scenario	Time period	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	2034	RC3A	PM	ONE HOUR	16:45	18:15	15

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A41 Northeast		✓	1649	100.000
2 - Charles Shouler Way		✓	488	100.000
3 - A41 Southwest		✓	1896	100.000
4 - Park and Ride		✓	9	100.000
5 - Vendee Drive		✓	615	100.000

Origin-Destination Data

Demand (Veh/hr)

		To				
		1 - A41 Northeast	2 - Charles Shouler Way	3 - A41 Southwest	4 - Park and Ride	5 - Vendee Drive
From	1 - A41 Northeast	99	91	1211	1	247
	2 - Charles Shouler Way	232	0	114	7	135
	3 - A41 Southwest	1300	56	3	25	512
	4 - Park and Ride	1	1	4	0	3
	5 - Vendee Drive	188	106	295	24	2

Vehicle Mix

Heavy Vehicle %

		To				
		1 - A41 Northeast	2 - Charles Shouler Way	3 - A41 Southwest	4 - Park and Ride	5 - Vendee Drive
From	1 - A41 Northeast	2	0	4	0	0
	2 - Charles Shouler Way	1	0	8	0	2
	3 - A41 Southwest	2	0	0	0	1
	4 - Park and Ride	0	0	0	0	0
	5 - Vendee Drive	2	2	4	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
1 - A41 Northeast	0.68	4.31	2.2	A
2 - Charles Shouler Way	0.66	12.91	1.9	B
3 - A41 Southwest	0.87	11.51	6.4	B
4 - Park and Ride	0.02	8.80	0.0	A
5 - Vendee Drive	0.73	14.04	2.6	B

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A41 Northeast	1241	368	2779	0.447	1238	0.8	2.332	A
2 - Charles Shouler Way	367	1416	1188	0.309	366	0.4	4.370	A
3 - A41 Southwest	1427	560	2582	0.553	1423	1.2	3.092	A
4 - Park and Ride	7	1940	928	0.007	7	0.0	3.909	A
5 - Vendee Drive	463	1272	1265	0.366	461	0.6	4.465	A

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A41 Northeast	1482	440	2725	0.544	1481	1.2	2.889	A
2 - Charles Shouler Way	439	1693	1031	0.425	438	0.7	6.052	A
3 - A41 Southwest	1704	670	2504	0.681	1701	2.1	4.463	A
4 - Park and Ride	8	2320	714	0.011	8	0.0	5.097	A
5 - Vendee Drive	553	1522	1125	0.491	551	1.0	6.257	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A41 Northeast	1816	536	2654	0.684	1812	2.1	4.254	A
2 - Charles Shouler Way	537	2070	819	0.656	533	1.8	12.391	B
3 - A41 Southwest	2088	818	2399	0.870	2071	6.1	10.504	B
4 - Park and Ride	10	2827	430	0.023	10	0.0	8.574	A
5 - Vendee Drive	677	1853	939	0.721	671	2.5	13.134	B

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A41 Northeast	1816	540	2651	0.685	1815	2.2	4.309	A
2 - Charles Shouler Way	537	2076	815	0.659	537	1.9	12.907	B
3 - A41 Southwest	2088	822	2396	0.871	2086	6.4	11.513	B
4 - Park and Ride	10	2846	419	0.024	10	0.0	8.796	A
5 - Vendee Drive	677	1866	932	0.726	677	2.6	14.038	B

17:45 - 18:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A41 Northeast	1482	446	2721	0.545	1486	1.2	2.924	A
2 - Charles Shouler Way	439	1702	1026	0.428	443	0.8	6.221	A
3 - A41 Southwest	1704	676	2500	0.682	1722	2.2	4.725	A
4 - Park and Ride	8	2346	700	0.012	8	0.0	5.204	A
5 - Vendee Drive	553	1539	1115	0.496	559	1.0	6.543	A

18:00 - 18:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A41 Northeast	1241	371	2777	0.447	1243	0.8	2.349	A
2 - Charles Shouler Way	367	1422	1184	0.310	369	0.5	4.420	A
3 - A41 Southwest	1427	564	2580	0.553	1431	1.2	3.146	A
4 - Park and Ride	7	1952	921	0.007	7	0.0	3.939	A
5 - Vendee Drive	463	1280	1260	0.367	465	0.6	4.533	A

D3 - 2034 | DS3A | AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4, 5	14.98	B

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	14.98	B

Traffic Demand

Demand Set Details

ID	Year	Scenario	Time period	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	2034	DS3A	AM	ONE HOUR	07:45	09:15	15

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A41 Northeast		✓	1489	100.000
2 - Charles Shouler Way		✓	421	100.000
3 - A41 Southwest		✓	1720	100.000
4 - Park and Ride		✓	12	100.000
5 - Vendee Drive		✓	687	100.000

Origin-Destination Data

Demand (Veh/hr)

		To				
		1 - A41 Northeast	2 - Charles Shouler Way	3 - A41 Southwest	4 - Park and Ride	5 - Vendee Drive
From	1 - A41 Northeast	5	1	1226	0	257
	2 - Charles Shouler Way	281	0	48	8	84
	3 - A41 Southwest	1312	150	5	51	202
	4 - Park and Ride	0	1	9	0	2
	5 - Vendee Drive	372	43	272	0	0

Vehicle Mix

Heavy Vehicle %

		To				
		1 - A41 Northeast	2 - Charles Shouler Way	3 - A41 Southwest	4 - Park and Ride	5 - Vendee Drive
From	1 - A41 Northeast	0	0	4	0	7
	2 - Charles Shouler Way	2	0	23	0	0
	3 - A41 Southwest	9	0	1	0	8
	4 - Park and Ride	0	0	0	0	0
	5 - Vendee Drive	0	22	17	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
1 - A41 Northeast	0.63	3.77	1.7	A
2 - Charles Shouler Way	0.55	9.41	1.2	A
3 - A41 Southwest	0.81	8.25	4.2	A
4 - Park and Ride	0.03	7.07	0.0	A
5 - Vendee Drive	0.95	58.69	11.7	F

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A41 Northeast	1121	359	2724	0.411	1118	0.7	2.238	A
2 - Charles Shouler Way	317	1331	1200	0.264	316	0.4	4.061	A
3 - A41 Southwest	1295	476	2482	0.522	1291	1.1	3.011	A
4 - Park and Ride	9	1723	998	0.009	9	0.0	3.638	A
5 - Vendee Drive	517	1323	1141	0.453	514	0.8	5.716	A

08:00 - 08:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A41 Northeast	1339	430	2668	0.502	1337	1.0	2.702	A
2 - Charles Shouler Way	378	1592	1051	0.360	378	0.6	5.343	A
3 - A41 Southwest	1546	570	2417	0.640	1544	1.8	4.108	A
4 - Park and Ride	11	2061	798	0.014	11	0.0	4.570	A
5 - Vendee Drive	618	1582	995	0.621	615	1.6	9.381	A

08:15 - 08:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A41 Northeast	1639	514	2602	0.630	1637	1.7	3.718	A
2 - Charles Shouler Way	464	1938	852	0.544	461	1.2	9.144	A
3 - A41 Southwest	1894	697	2330	0.813	1884	4.1	7.904	A
4 - Park and Ride	13	2516	529	0.025	13	0.0	6.977	A
5 - Vendee Drive	756	1931	800	0.946	726	9.1	39.145	E

08:30 - 08:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A41 Northeast	1639	524	2594	0.632	1639	1.7	3.771	A
2 - Charles Shouler Way	464	1949	846	0.548	463	1.2	9.409	A
3 - A41 Southwest	1894	699	2329	0.813	1893	4.2	8.250	A
4 - Park and Ride	13	2527	522	0.025	13	0.0	7.069	A
5 - Vendee Drive	756	1941	794	0.952	746	11.7	58.690	F

08:45 - 09:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A41 Northeast	1339	451	2651	0.505	1341	1.0	2.756	A
2 - Charles Shouler Way	378	1613	1038	0.365	381	0.6	5.504	A
3 - A41 Southwest	1546	574	2415	0.640	1556	1.8	4.237	A
4 - Park and Ride	11	2076	789	0.014	11	0.0	4.625	A
5 - Vendee Drive	618	1595	988	0.625	658	1.7	12.185	B

09:00 - 09:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A41 Northeast	1121	363	2721	0.412	1122	0.7	2.253	A
2 - Charles Shouler Way	317	1338	1196	0.265	318	0.4	4.101	A
3 - A41 Southwest	1295	479	2480	0.522	1298	1.1	3.051	A
4 - Park and Ride	9	1732	992	0.009	9	0.0	3.660	A
5 - Vendee Drive	517	1330	1136	0.455	521	0.8	5.880	A

D4 - 2034 | DS3A | PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4, 5	9.75	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	9.75	A

Traffic Demand

Demand Set Details

ID	Year	Scenario	Time period	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D4	2034	DS3A	PM	ONE HOUR	16:45	18:15	15

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
1 - A41 Northeast		✓	1728	100.000
2 - Charles Shouler Way		✓	479	100.000
3 - A41 Southwest		✓	1619	100.000
4 - Park and Ride		✓	8	100.000
5 - Vendee Drive		✓	675	100.000

Origin-Destination Data

Demand (Veh/hr)

		To				
		1 - A41 Northeast	2 - Charles Shouler Way	3 - A41 Southwest	4 - Park and Ride	5 - Vendee Drive
From	1 - A41 Northeast	120	82	1072	1	453
	2 - Charles Shouler Way	216	0	107	6	150
	3 - A41 Southwest	1203	41	3	21	351
	4 - Park and Ride	0	1	4	0	3
	5 - Vendee Drive	276	115	260	22	2

Vehicle Mix

Heavy Vehicle %

		To				
		1 - A41 Northeast	2 - Charles Shouler Way	3 - A41 Southwest	4 - Park and Ride	5 - Vendee Drive
From	1 - A41 Northeast	1	0	4	0	7
	2 - Charles Shouler Way	1	0	8	0	1
	3 - A41 Southwest	5	0	2	0	2
	4 - Park and Ride	0	0	0	0	0
	5 - Vendee Drive	2	2	14	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
1 - A41 Northeast	0.72	4.94	2.6	A
2 - Charles Shouler Way	0.70	15.57	2.2	C
3 - A41 Southwest	0.83	9.80	4.7	A
4 - Park and Ride	0.02	9.03	0.0	A
5 - Vendee Drive	0.79	17.74	3.5	C

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A41 Northeast	1301	336	2753	0.472	1297	0.9	2.466	A
2 - Charles Shouler Way	361	1454	1150	0.313	359	0.5	4.538	A
3 - A41 Southwest	1219	728	2390	0.510	1215	1.0	3.054	A
4 - Park and Ride	6	1905	920	0.007	6	0.0	3.939	A
5 - Vendee Drive	508	1191	1251	0.406	505	0.7	4.812	A

17:00 - 17:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A41 Northeast	1553	402	2702	0.575	1552	1.3	3.123	A
2 - Charles Shouler Way	431	1739	985	0.437	429	0.8	6.461	A
3 - A41 Southwest	1455	870	2288	0.636	1453	1.7	4.294	A
4 - Park and Ride	7	2278	705	0.010	7	0.0	5.160	A
5 - Vendee Drive	607	1425	1122	0.541	605	1.2	6.935	A

17:15 - 17:30

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A41 Northeast	1903	488	2635	0.722	1898	2.5	4.848	A
2 - Charles Shouler Way	527	2124	762	0.692	522	2.1	14.670	B
3 - A41 Southwest	1783	1062	2152	0.828	1771	4.6	9.198	A
4 - Park and Ride	9	2779	417	0.021	9	0.0	8.822	A
5 - Vendee Drive	743	1737	950	0.783	735	3.3	16.135	C

17:30 - 17:45

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A41 Northeast	1903	493	2632	0.723	1902	2.6	4.936	A
2 - Charles Shouler Way	527	2132	757	0.696	527	2.2	15.571	C
3 - A41 Southwest	1783	1068	2148	0.830	1782	4.7	9.797	A
4 - Park and Ride	9	2795	408	0.022	9	0.0	9.027	A
5 - Vendee Drive	743	1748	944	0.788	742	3.5	17.742	C

17:45 - 18:00

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A41 Northeast	1553	409	2697	0.576	1558	1.4	3.177	A
2 - Charles Shouler Way	431	1750	979	0.440	436	0.8	6.703	A
3 - A41 Southwest	1455	878	2282	0.638	1467	1.8	4.479	A
4 - Park and Ride	7	2300	692	0.010	7	0.0	5.255	A
5 - Vendee Drive	607	1440	1114	0.545	616	1.2	7.361	A

18:00 - 18:15

Arm	Total Demand (Veh/hr)	Circulating flow (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
1 - A41 Northeast	1301	339	2751	0.473	1303	0.9	2.488	A
2 - Charles Shouler Way	361	1461	1146	0.315	362	0.5	4.599	A
3 - A41 Southwest	1219	732	2387	0.511	1222	1.1	3.100	A
4 - Park and Ride	6	1916	913	0.007	6	0.0	3.969	A
5 - Vendee Drive	508	1199	1247	0.408	510	0.7	4.902	A

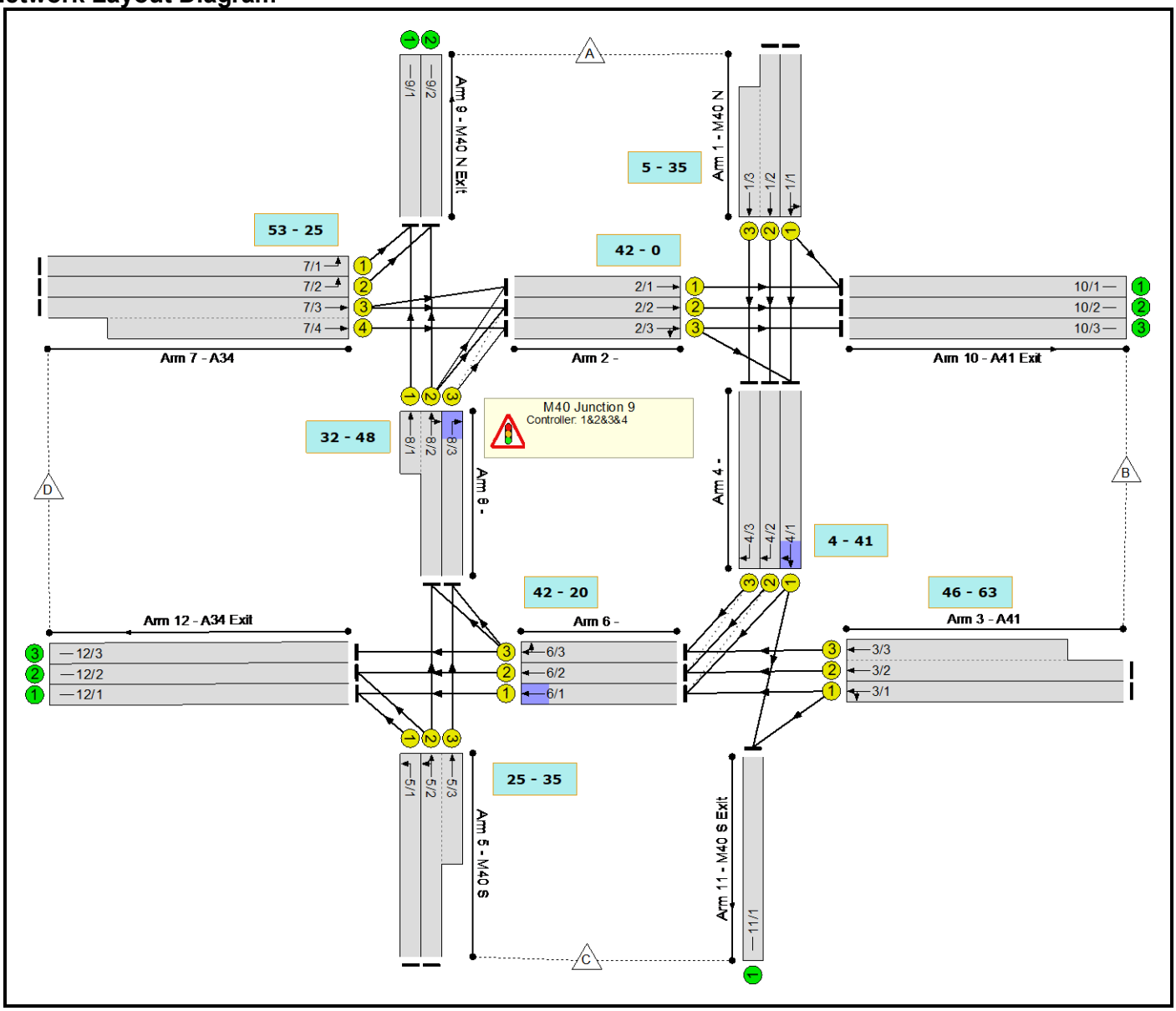
APPENDX C
M40 JUNCTION 9 - LINSIG SENSITIVITY TEST

Full Input Data And Results

User and Project Details

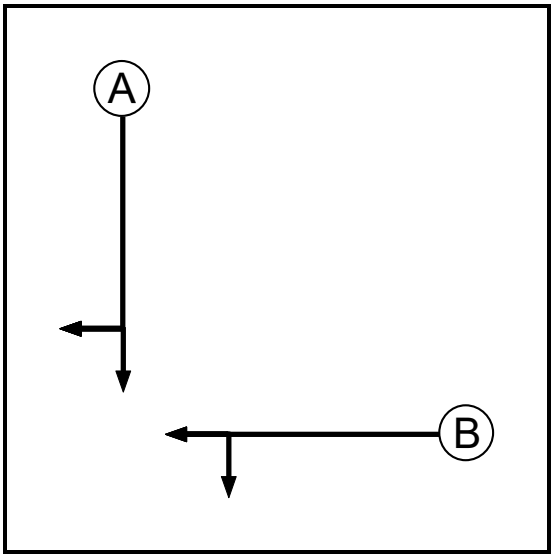
Project:	**OxSRFI**
Title:	**M40 Junction 9**
Location:	M40 Junction 9, Wendlebury
Additional detail:	2031 adjRC1A, adjRC2A and adjDS2A - existing layout with adjusted flow sets
File name:	260619 M40 Junction 9 - RC1A.lsg3x
Author:	[redacted]
Company:	ADC Infrastructure
Address:	Nottingham

Network Layout Diagram



Controller :C1

Phase Diagram



Phase Input Data

Phase Name	Phase Type	Stage Stream	Assoc. Phase	Street Min (s)	Cont Min (s)
A	Traffic	1		7	7
B	Traffic	1		7	7

Phase Intergreens Matrix

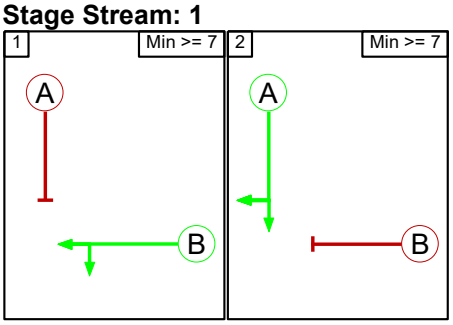
	Starting Phase		
Terminating Phase		A	B
	A		5
	B	7	

Phases in Stage

Stream	Stage No.	Phases in Stage
1	1	B
1	2	A

Stage Diagram

Stage Stream: 1



Phase Delays

Stage Stream: 1

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

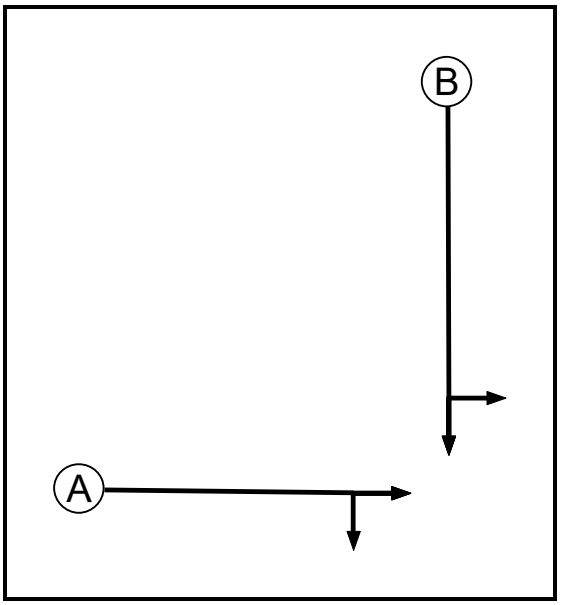
Prohibited Stage Change

Stage Stream: 1

From Stage	To Stage 1	To Stage 2
1		7
2	5	

Controller :C2

Phase Diagram



Phase Input Data

Phase Name	Phase Type	Stage Stream	Assoc. Phase	Street Min (s)	Cont Min (s)
A	Traffic	1		7	7
B	Traffic	1		7	7

Phase Intergreens Matrix

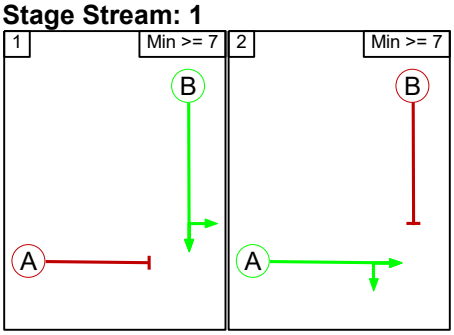
Terminating Phase	Starting Phase A	Starting Phase B
A		5
B	7	

Phases in Stage

Stream	Stage No.	Phases in Stage
1	1	B
1	2	A

Stage Diagram

Stage Stream: 1



Phase Delays

Stage Stream: 1

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

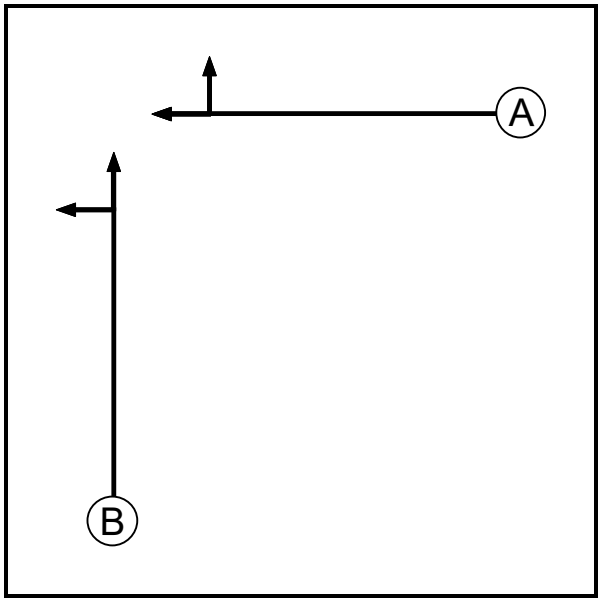
Prohibited Stage Change

Stage Stream: 1

From Stage	To Stage 1	To Stage 2
1		7
2	5	

Controller :C3

Phase Diagram



Phase Input Data

Phase Name	Phase Type	Stage Stream	Assoc. Phase	Street Min (s)	Cont Min (s)
A	Traffic	1		7	7
B	Traffic	1		7	7

Phase Intergreens Matrix

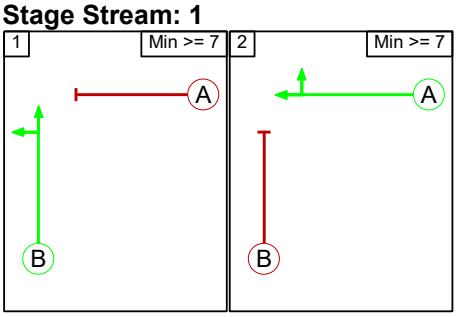
Terminating Phase	Starting Phase A	Starting Phase B
A		5
B	7	

Phases in Stage

Stream	Stage No.	Phases in Stage
1	1	B
1	2	A

Stage Diagram

Stage Stream: 1



Phase Delays

Stage Stream: 1

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

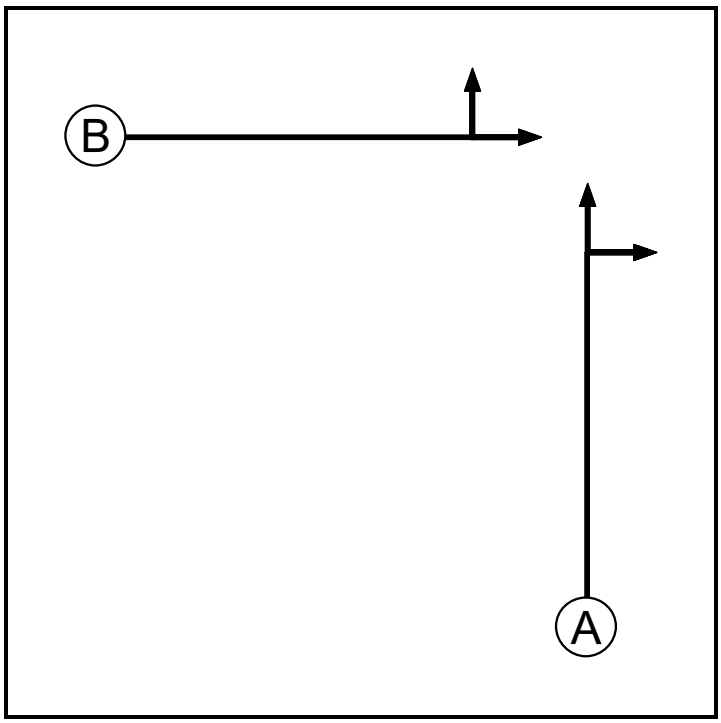
Prohibited Stage Change

Stage Stream: 1

	To Stage		
		1	2
From Stage	1		7
	2	5	

Controller :C4

Phase Diagram



Phase Input Data

Phase Name	Phase Type	Stage Stream	Assoc. Phase	Street Min (s)	Cont Min (s)
A	Traffic	1		7	7
B	Traffic	1		7	7

Phase Intergreens Matrix

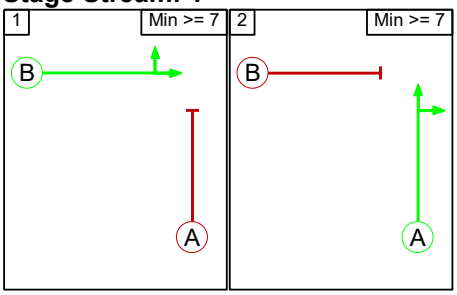
	Starting Phase		
Terminating Phase		A	B
	A		5
	B	7	

Phases in Stage

Stream	Stage No.	Phases in Stage
1	1	B
1	2	A

Stage Diagram

Stage Stream: 1



Phase Delays

Stage Stream: 1

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Prohibited Stage Change

Stage Stream: 1

	To Stage		
From Stage		1	2
	1		7
	2	5	

Lane Input Data

Junction: M40 Junction 9												
Lane	Lane Type	Phases	Start Disp. (s)	End Disp. (s)	Physical Length (PCU)	Sat Flow Type	Def User Saturation Flow (PCU/Hr)	Lane Width (m)	Gradient (%)	Nearside Lane	Turns	Turning Radius (m)
1/1 (M40 N)	U	B	2	3	54.8	User	1906	-	-	-	-	-
1/2 (M40 N)	U	B	2	3	54.8	User	1825	-	-	-	-	-
1/3 (M40 N)	U	B	2	3	28.0	User	1845	-	-	-	-	-
2/1	U	A	2	3	20.0	User	1945	-	-	-	-	-
2/2	U	A	2	3	26.0	User	1977	-	-	-	-	-
2/3	U	A	2	3	26.0	User	1869	-	-	-	-	-
3/1 (A41)	U	B	2	3	60.0	User	1905	-	-	-	-	-
3/2 (A41)	U	B	2	3	60.0	User	1965	-	-	-	-	-
3/3 (A41)	U	B	2	3	34.8	User	1960	-	-	-	-	-
4/1	U	A	2	3	5.0	User	1906	-	-	-	-	-
4/2	U	A	2	3	5.0	User	1825	-	-	-	-	-
4/3	U	A	2	3	6.0	User	1845	-	-	-	-	-
5/1 (M40 S)	U	B	2	3	43.5	Geom	-	3.65	0.00	Y	Arm 12 Left	60.00
5/2 (M40 S)	U	B	2	3	43.5	Geom	-	3.20	0.00	Y	Arm 8 Ahead	60.00
											Arm 12 Left	60.00
5/3 (M40 S)	U	B	2	3	8.0	Geom	-	3.20	0.00	Y	Arm 8 Ahead	60.00
6/1	U	A	2	3	20.0	User	1906	-	-	-	-	-
6/2	U	A	2	3	31.0	User	1981	-	-	-	-	-
6/3	U	A	2	3	31.0	User	1960	-	-	-	-	-
7/1 (A34)	U	B	2	3	60.0	User	1851	-	-	-	-	-
7/2 (A34)	U	B	2	3	60.0	User	2025	-	-	-	-	-
7/3 (A34)	U	B	2	3	60.0	User	1973	-	-	-	-	-
7/4 (A34)	U	B	2	3	28.0	User	1869	-	-	-	-	-
8/1	U	A	2	3	4.5	Geom	-	3.80	0.00	Y	Arm 9 Ahead	55.00
8/2	U	A	2	3	6.0	Geom	-	3.80	0.00	Y	Arm 2 Right	55.00
											Arm 9 Ahead	55.00
8/3	U	A	2	3	6.0	Geom	-	3.80	0.00	N	Arm 2 Right	55.00
9/1 (M40 N Exit)	U		2	3	8.7	Inf	-	-	-	-	-	-

9/2 (M40 N Exit)	U		2	3	8.7	Inf	-	-	-	-	-	-
10/1 (A41 Exit)	U		2	3	8.7	Inf	-	-	-	-	-	-
10/2 (A41 Exit)	U		2	3	8.7	Inf	-	-	-	-	-	-
10/3 (A41 Exit)	U		2	3	8.7	Inf	-	-	-	-	-	-
11/1 (M40 S Exit)	U		2	3	8.7	Inf	-	-	-	-	-	-
12/1 (A34 Exit)	U		2	3	8.7	User	2100	-	-	-	-	-
12/2 (A34 Exit)	U		2	3	8.7	User	2100	-	-	-	-	-
12/3 (A34 Exit)	U		2	3	8.7	User	2100	-	-	-	-	-

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2031 adjRC1A - AM'	08:00	09:00	01:00	
2: '2031 adjRC1A - PM'	17:00	18:00	01:00	
3: '2031 adjRC2A - AM'	08:00	09:00	01:00	
4: '2031 adjRC2A - PM'	17:00	18:00	01:00	
5: '2031 adjDS2A - AM'	08:00	09:00	01:00	
6: '2031 adjDS2A - PM'	17:00	18:00	01:00	
7: '2031 adjDS2A no Wendlebury - AM'	08:00	09:00	01:00	

Scenario 1: '2031 adjRC1A - AM' (FG1: '2031 adjRC1A - AM', Plan 1: 'Staging Plan No. 1')

Traffic Flows, Desired

Desired Flow :

Origin	Destination					
		A	B	C	D	Tot.
	A	0	369	0	1928	2297
	B	340	4	435	807	1586
	C	0	396	0	240	636
	D	2084	1278	219	0	3581
	Tot.	2424	2047	654	2975	8100

Traffic Lane Flows

Lane	Scenario 1: 2031 adjRC1A - AM
Junction: M40 Junction 9	
1/1	750
1/2 (with short)	1547(In) 769(Out)
1/3 (short)	778
2/1	612
2/2	669
2/3	616
3/1	476
3/2 (with short)	1110(In) 547(Out)
3/3 (short)	563
4/1	600
4/2	769
4/3	778
5/1	240
5/2 (with short)	396(In) 122(Out)
5/3 (short)	274
6/1	725
6/2	1161
6/3	1193
7/1	990
7/2	1094
7/3 (with short)	1497(In) 1011(Out)
7/4 (short)	486
8/1 (short)	170
8/2 (with short)	462(In) 292(Out)
8/3	278
9/1	1160
9/2	1264
10/1	981
10/2	669
10/3	397
11/1	654
12/1	965
12/2	1161
12/3	849

Lane Saturation Flows

Junction: M40 Junction 9								
Lane	**Lane Width (m)**	**Gradient (%)**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (M40 N Lane 1)	This lane uses a directly entered Saturation Flow						1906	1906
1/2 (M40 N Lane 2)	This lane uses a directly entered Saturation Flow						1825	1825
1/3 (M40 N Lane 3)	This lane uses a directly entered Saturation Flow						1845	1845
2/1	This lane uses a directly entered Saturation Flow						1945	1945
2/2	This lane uses a directly entered Saturation Flow						1977	1977
2/3	This lane uses a directly entered Saturation Flow						1869	1869
3/1 (A41 Lane 1)	This lane uses a directly entered Saturation Flow						1905	1905
3/2 (A41 Lane 2)	This lane uses a directly entered Saturation Flow						1965	1965
3/3 (A41 Lane 3)	This lane uses a directly entered Saturation Flow						1960	1960
4/1	This lane uses a directly entered Saturation Flow						1906	1906
4/2	This lane uses a directly entered Saturation Flow						1825	1825
4/3	This lane uses a directly entered Saturation Flow						1845	1845
5/1 (M40 S)	3.65	0.00	Y	Arm 12 Left	60.00	100.0 %	1932	1932
5/2 (M40 S)	3.20	0.00	Y	Arm 8 Ahead	60.00	100.0 %	1888	1888
				Arm 12 Left	60.00	0.0 %		
5/3 (M40 S)	3.20	0.00	Y	Arm 8 Ahead	60.00	100.0 %	1888	1888
6/1	This lane uses a directly entered Saturation Flow						1906	1906
6/2	This lane uses a directly entered Saturation Flow						1981	1981
6/3	This lane uses a directly entered Saturation Flow						1960	1960
7/1 (A34 Lane 1)	This lane uses a directly entered Saturation Flow						1851	1851
7/2 (A34 Lane 2)	This lane uses a directly entered Saturation Flow						2025	2025
7/3 (A34 Lane 3)	This lane uses a directly entered Saturation Flow						1973	1973
7/4 (A34 Lane 4)	This lane uses a directly entered Saturation Flow						1869	1869
8/1	3.80	0.00	Y	Arm 9 Ahead	55.00	100.0 %	1942	1942
8/2	3.80	0.00	Y	Arm 2 Right	55.00	41.8 %	1942	1942
				Arm 9 Ahead	55.00	58.2 %		
8/3	3.80	0.00	N	Arm 2 Right	55.00	100.0 %	2078	2078
9/1 (M40 N Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
9/2 (M40 N Exit Lane 2)	Infinite Saturation Flow						Inf	Inf
10/1 (A41 Exit Lane 1)	Infinite Saturation Flow						Inf	Inf

10/2 (A41 Exit Lane 2)	Infinite Saturation Flow	Inf	Inf
10/3 (A41 Exit Lane 3)	Infinite Saturation Flow	Inf	Inf
11/1 (M40 S Exit Lane 1)	Infinite Saturation Flow	Inf	Inf
12/1 (A34 Exit Lane 1)	This lane uses a directly entered Saturation Flow	2100	2100
12/2 (A34 Exit Lane 2)	This lane uses a directly entered Saturation Flow	2100	2100
12/3 (A34 Exit Lane 3)	This lane uses a directly entered Saturation Flow	2100	2100

Scenario 2: '2031 adjRC1A - PM' (FG2: '2031 adjRC1A - PM', Plan 1: 'Staging Plan No. 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	235	0	2305	2540
	B	578	0	466	557	1601
	C	0	437	0	379	816
	D	2301	1109	87	0	3497
	Tot.	2879	1781	553	3241	8454

Traffic Lane Flows

Lane	Scenario 2: 2031 adjRC1A - PM
Junction: M40 Junction 9	
1/1	844
1/2 (with short)	1696(In) 832(Out)
1/3 (short)	864
2/1	492
2/2	605
2/3	536
3/1	492
3/2 (with short)	1109(In) 521(Out)
3/3 (short)	588
4/1	696
4/2	832
4/3	864
5/1	265
5/2 (with short)	551(In) 273(Out)
5/3 (short)	278
6/1	1204
6/2	1156
6/3	1080
7/1	1099
7/2	1202
7/3 (with short)	1196(In) 704(Out)
7/4 (short)	492
8/1 (short)	289
8/2 (with short)	737(In) 448(Out)
8/3	278
9/1	1388
9/2	1491
10/1	727
10/2	605
10/3	449
11/1	553
12/1	1469
12/2	1270
12/3	502

Lane Saturation Flows

Junction: M40 Junction 9								
Lane	**Lane Width (m)**	**Gradient (%)**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (M40 N Lane 1)	This lane uses a directly entered Saturation Flow						1906	1906
1/2 (M40 N Lane 2)	This lane uses a directly entered Saturation Flow						1825	1825
1/3 (M40 N Lane 3)	This lane uses a directly entered Saturation Flow						1845	1845
2/1	This lane uses a directly entered Saturation Flow						1945	1945
2/2	This lane uses a directly entered Saturation Flow						1977	1977
2/3	This lane uses a directly entered Saturation Flow						1869	1869
3/1 (A41 Lane 1)	This lane uses a directly entered Saturation Flow						1905	1905
3/2 (A41 Lane 2)	This lane uses a directly entered Saturation Flow						1965	1965
3/3 (A41 Lane 3)	This lane uses a directly entered Saturation Flow						1960	1960
4/1	This lane uses a directly entered Saturation Flow						1906	1906
4/2	This lane uses a directly entered Saturation Flow						1825	1825
4/3	This lane uses a directly entered Saturation Flow						1845	1845
5/1 (M40 S)	3.65	0.00	Y	Arm 12 Left	60.00	100.0 %	1932	1932
5/2 (M40 S)	3.20	0.00	Y	Arm 8 Ahead	60.00	58.2 %	1888	1888
				Arm 12 Left	60.00	41.8 %		
5/3 (M40 S)	3.20	0.00	Y	Arm 8 Ahead	60.00	100.0 %	1888	1888
6/1	This lane uses a directly entered Saturation Flow						1906	1906
6/2	This lane uses a directly entered Saturation Flow						1981	1981
6/3	This lane uses a directly entered Saturation Flow						1960	1960
7/1 (A34 Lane 1)	This lane uses a directly entered Saturation Flow						1851	1851
7/2 (A34 Lane 2)	This lane uses a directly entered Saturation Flow						2025	2025
7/3 (A34 Lane 3)	This lane uses a directly entered Saturation Flow						1973	1973
7/4 (A34 Lane 4)	This lane uses a directly entered Saturation Flow						1869	1869
8/1	3.80	0.00	Y	Arm 9 Ahead	55.00	100.0 %	1942	1942
8/2	3.80	0.00	Y	Arm 2 Right	55.00	35.5 %	1942	1942
				Arm 9 Ahead	55.00	64.5 %		
8/3	3.80	0.00	N	Arm 2 Right	55.00	100.0 %	2078	2078
9/1 (M40 N Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
9/2 (M40 N Exit Lane 2)	Infinite Saturation Flow						Inf	Inf
10/1 (A41 Exit Lane 1)	Infinite Saturation Flow						Inf	Inf

10/2 (A41 Exit Lane 2)	Infinite Saturation Flow	Inf	Inf
10/3 (A41 Exit Lane 3)	Infinite Saturation Flow	Inf	Inf
11/1 (M40 S Exit Lane 1)	Infinite Saturation Flow	Inf	Inf
12/1 (A34 Exit Lane 1)	This lane uses a directly entered Saturation Flow	2100	2100
12/2 (A34 Exit Lane 2)	This lane uses a directly entered Saturation Flow	2100	2100
12/3 (A34 Exit Lane 3)	This lane uses a directly entered Saturation Flow	2100	2100

Scenario 3: '2031 adjRC2A - AM' (FG3: '2031 adjRC2A - AM', Plan 1: 'Staging Plan No. 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	368	0	1914	2282
	B	340	4	435	807	1586
	C	0	394	0	240	634
	D	2084	1276	213	0	3573
	Tot.	2424	2042	648	2961	8075

Traffic Lane Flows

Lane	Scenario 3: 2031 adjRC2A - AM
Junction: M40 Junction 9	
1/1	743
1/2 (with short)	1539(In) 766(Out)
1/3 (short)	773
2/1	606
2/2	668
2/3	613
3/1	476
3/2 (with short)	1110(In) 546(Out)
3/3 (short)	564
4/1	588
4/2	766
4/3	773
5/1	240
5/2 (with short)	394(In) 120(Out)
5/3 (short)	274
6/1	719
6/2	1156
6/3	1190
7/1	990
7/2	1094
7/3 (with short)	1489(In) 1006(Out)
7/4 (short)	483
8/1 (short)	170
8/2 (with short)	460(In) 290(Out)
8/3	278
9/1	1160
9/2	1264
10/1	974
10/2	668
10/3	400
11/1	648
12/1	959
12/2	1156
12/3	846

Lane Saturation Flows

Junction: M40 Junction 9								
Lane	**Lane Width (m)**	**Gradient (%)**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (M40 N Lane 1)	This lane uses a directly entered Saturation Flow						1906	1906
1/2 (M40 N Lane 2)	This lane uses a directly entered Saturation Flow						1825	1825
1/3 (M40 N Lane 3)	This lane uses a directly entered Saturation Flow						1845	1845
2/1	This lane uses a directly entered Saturation Flow						1945	1945
2/2	This lane uses a directly entered Saturation Flow						1977	1977
2/3	This lane uses a directly entered Saturation Flow						1869	1869
3/1 (A41 Lane 1)	This lane uses a directly entered Saturation Flow						1905	1905
3/2 (A41 Lane 2)	This lane uses a directly entered Saturation Flow						1965	1965
3/3 (A41 Lane 3)	This lane uses a directly entered Saturation Flow						1960	1960
4/1	This lane uses a directly entered Saturation Flow						1906	1906
4/2	This lane uses a directly entered Saturation Flow						1825	1825
4/3	This lane uses a directly entered Saturation Flow						1845	1845
5/1 (M40 S)	3.65	0.00	Y	Arm 12 Left	60.00	100.0 %	1932	1932
5/2 (M40 S)	3.20	0.00	Y	Arm 8 Ahead	60.00	100.0 %	1888	1888
				Arm 12 Left	60.00	0.0 %		
5/3 (M40 S)	3.20	0.00	Y	Arm 8 Ahead	60.00	100.0 %	1888	1888
6/1	This lane uses a directly entered Saturation Flow						1906	1906
6/2	This lane uses a directly entered Saturation Flow						1981	1981
6/3	This lane uses a directly entered Saturation Flow						1960	1960
7/1 (A34 Lane 1)	This lane uses a directly entered Saturation Flow						1851	1851
7/2 (A34 Lane 2)	This lane uses a directly entered Saturation Flow						2025	2025
7/3 (A34 Lane 3)	This lane uses a directly entered Saturation Flow						1973	1973
7/4 (A34 Lane 4)	This lane uses a directly entered Saturation Flow						1869	1869
8/1	3.80	0.00	Y	Arm 9 Ahead	55.00	100.0 %	1942	1942
8/2	3.80	0.00	Y	Arm 2 Right	55.00	41.4 %	1942	1942
				Arm 9 Ahead	55.00	58.6 %		
8/3	3.80	0.00	N	Arm 2 Right	55.00	100.0 %	2078	2078
9/1 (M40 N Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
9/2 (M40 N Exit Lane 2)	Infinite Saturation Flow						Inf	Inf
10/1 (A41 Exit Lane 1)	Infinite Saturation Flow						Inf	Inf

10/2 (A41 Exit Lane 2)	Infinite Saturation Flow	Inf	Inf
10/3 (A41 Exit Lane 3)	Infinite Saturation Flow	Inf	Inf
11/1 (M40 S Exit Lane 1)	Infinite Saturation Flow	Inf	Inf
12/1 (A34 Exit Lane 1)	This lane uses a directly entered Saturation Flow	2100	2100
12/2 (A34 Exit Lane 2)	This lane uses a directly entered Saturation Flow	2100	2100
12/3 (A34 Exit Lane 3)	This lane uses a directly entered Saturation Flow	2100	2100

Scenario 4: '2031 adjRC2A - PM' (FG4: '2031 adjRC2A - PM', Plan 1: 'Staging Plan No. 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	235	0	2303	2538
	B	410	0	466	567	1443
	C	0	437	0	378	815
	D	2284	1113	87	0	3484
	Tot.	2694	1785	553	3248	8280

Traffic Lane Flows

Lane	Scenario 4: 2031 adjRC2A - PM
Junction: M40 Junction 9	
1/1	844
1/2 (with short)	1694(In) 841(Out)
1/3 (short)	853
2/1	513
2/2	605
2/3	519
3/1	467
3/2 (with short)	976(In) 478(Out)
3/3 (short)	498
4/1	696
4/2	841
4/3	853
5/1	265
5/2 (with short)	550(In) 282(Out)
5/3 (short)	268
6/1	1100
6/2	1068
6/3	1112
7/1	1090
7/2	1194
7/3 (with short)	1200(In) 722(Out)
7/4 (short)	478
8/1 (short)	205
8/2 (with short)	579(In) 374(Out)
8/3	268
9/1	1295
9/2	1399
10/1	748
10/2	605
10/3	432
11/1	553
12/1	1365
12/2	1181
12/3	702

Lane Saturation Flows

Junction: M40 Junction 9								
Lane	**Lane Width (m)**	**Gradient (%)**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (M40 N Lane 1)	This lane uses a directly entered Saturation Flow						1906	1906
1/2 (M40 N Lane 2)	This lane uses a directly entered Saturation Flow						1825	1825
1/3 (M40 N Lane 3)	This lane uses a directly entered Saturation Flow						1845	1845
2/1	This lane uses a directly entered Saturation Flow						1945	1945
2/2	This lane uses a directly entered Saturation Flow						1977	1977
2/3	This lane uses a directly entered Saturation Flow						1869	1869
3/1 (A41 Lane 1)	This lane uses a directly entered Saturation Flow						1905	1905
3/2 (A41 Lane 2)	This lane uses a directly entered Saturation Flow						1965	1965
3/3 (A41 Lane 3)	This lane uses a directly entered Saturation Flow						1960	1960
4/1	This lane uses a directly entered Saturation Flow						1906	1906
4/2	This lane uses a directly entered Saturation Flow						1825	1825
4/3	This lane uses a directly entered Saturation Flow						1845	1845
5/1 (M40 S)	3.65	0.00	Y	Arm 12 Left	60.00	100.0 %	1932	1932
5/2 (M40 S)	3.20	0.00	Y	Arm 8 Ahead	60.00	59.9 %	1888	1888
				Arm 12 Left	60.00	40.1 %		
5/3 (M40 S)	3.20	0.00	Y	Arm 8 Ahead	60.00	100.0 %	1888	1888
6/1	This lane uses a directly entered Saturation Flow						1906	1906
6/2	This lane uses a directly entered Saturation Flow						1981	1981
6/3	This lane uses a directly entered Saturation Flow						1960	1960
7/1 (A34 Lane 1)	This lane uses a directly entered Saturation Flow						1851	1851
7/2 (A34 Lane 2)	This lane uses a directly entered Saturation Flow						2025	2025
7/3 (A34 Lane 3)	This lane uses a directly entered Saturation Flow						1973	1973
7/4 (A34 Lane 4)	This lane uses a directly entered Saturation Flow						1869	1869
8/1	3.80	0.00	Y	Arm 9 Ahead	55.00	100.0 %	1942	1942
8/2	3.80	0.00	Y	Arm 2 Right	55.00	45.2 %	1942	1942
				Arm 9 Ahead	55.00	54.8 %		
8/3	3.80	0.00	N	Arm 2 Right	55.00	100.0 %	2078	2078
9/1 (M40 N Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
9/2 (M40 N Exit Lane 2)	Infinite Saturation Flow						Inf	Inf
10/1 (A41 Exit Lane 1)	Infinite Saturation Flow						Inf	Inf

10/2 (A41 Exit Lane 2)	Infinite Saturation Flow	Inf	Inf
10/3 (A41 Exit Lane 3)	Infinite Saturation Flow	Inf	Inf
11/1 (M40 S Exit Lane 1)	Infinite Saturation Flow	Inf	Inf
12/1 (A34 Exit Lane 1)	This lane uses a directly entered Saturation Flow	2100	2100
12/2 (A34 Exit Lane 2)	This lane uses a directly entered Saturation Flow	2100	2100
12/3 (A34 Exit Lane 3)	This lane uses a directly entered Saturation Flow	2100	2100

Scenario 5: '2031 adjDS2A - AM' (FG5: '2031 adjDS2A - AM', Plan 1: 'Staging Plan No. 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	380	0	2019	2399
	B	320	4	432	510	1266
	C	0	390	0	240	630
	D	2091	1270	225	0	3586
	Tot.	2411	2044	657	2769	7881

Traffic Lane Flows

Lane	Scenario 5: 2031 adjDS2A - AM
Junction: M40 Junction 9	
1/1	787
1/2 (with short)	1612(In) 798(Out)
1/3 (short)	814
2/1	612
2/2	666
2/3	611
3/1	432
3/2 (with short)	834(In) 399(Out)
3/3 (short)	435
4/1	632
4/2	798
4/3	814
5/1	234
5/2 (with short)	396(In) 134(Out)
5/3 (short)	262
6/1	702
6/2	1062
6/3	1089
7/1	994
7/2	1097
7/3 (with short)	1495(In) 1009(Out)
7/4 (short)	486
8/1 (short)	160
8/2 (with short)	448(In) 288(Out)
8/3	266
9/1	1154
9/2	1257
10/1	992
10/2	666
10/3	386
11/1	657
12/1	936
12/2	1068
12/3	765

Lane Saturation Flows

Junction: M40 Junction 9								
Lane	**Lane Width (m)**	**Gradient (%)**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (M40 N Lane 1)	This lane uses a directly entered Saturation Flow						1906	1906
1/2 (M40 N Lane 2)	This lane uses a directly entered Saturation Flow						1825	1825
1/3 (M40 N Lane 3)	This lane uses a directly entered Saturation Flow						1845	1845
2/1	This lane uses a directly entered Saturation Flow						1945	1945
2/2	This lane uses a directly entered Saturation Flow						1977	1977
2/3	This lane uses a directly entered Saturation Flow						1869	1869
3/1 (A41 Lane 1)	This lane uses a directly entered Saturation Flow						1905	1905
3/2 (A41 Lane 2)	This lane uses a directly entered Saturation Flow						1965	1965
3/3 (A41 Lane 3)	This lane uses a directly entered Saturation Flow						1960	1960
4/1	This lane uses a directly entered Saturation Flow						1906	1906
4/2	This lane uses a directly entered Saturation Flow						1825	1825
4/3	This lane uses a directly entered Saturation Flow						1845	1845
5/1 (M40 S)	3.65	0.00	Y	Arm 12 Left	60.00	100.0 %	1932	1932
5/2 (M40 S)	3.20	0.00	Y	Arm 8 Ahead	60.00	95.5 %	1888	1888
				Arm 12 Left	60.00	4.5 %		
5/3 (M40 S)	3.20	0.00	Y	Arm 8 Ahead	60.00	100.0 %	1888	1888
6/1	This lane uses a directly entered Saturation Flow						1906	1906
6/2	This lane uses a directly entered Saturation Flow						1981	1981
6/3	This lane uses a directly entered Saturation Flow						1960	1960
7/1 (A34 Lane 1)	This lane uses a directly entered Saturation Flow						1851	1851
7/2 (A34 Lane 2)	This lane uses a directly entered Saturation Flow						2025	2025
7/3 (A34 Lane 3)	This lane uses a directly entered Saturation Flow						1973	1973
7/4 (A34 Lane 4)	This lane uses a directly entered Saturation Flow						1869	1869
8/1	3.80	0.00	Y	Arm 9 Ahead	55.00	100.0 %	1942	1942
8/2	3.80	0.00	Y	Arm 2 Right	55.00	44.4 %	1942	1942
				Arm 9 Ahead	55.00	55.6 %		
8/3	3.80	0.00	N	Arm 2 Right	55.00	100.0 %	2078	2078
9/1 (M40 N Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
9/2 (M40 N Exit Lane 2)	Infinite Saturation Flow						Inf	Inf
10/1 (A41 Exit Lane 1)	Infinite Saturation Flow						Inf	Inf

10/2 (A41 Exit Lane 2)	Infinite Saturation Flow	Inf	Inf
10/3 (A41 Exit Lane 3)	Infinite Saturation Flow	Inf	Inf
11/1 (M40 S Exit Lane 1)	Infinite Saturation Flow	Inf	Inf
12/1 (A34 Exit Lane 1)	This lane uses a directly entered Saturation Flow	2100	2100
12/2 (A34 Exit Lane 2)	This lane uses a directly entered Saturation Flow	2100	2100
12/3 (A34 Exit Lane 3)	This lane uses a directly entered Saturation Flow	2100	2100

Scenario 6: '2031 adjDS2A - PM' (FG6: '2031 adjDS2A - PM', Plan 1: 'Staging Plan No. 1')

Traffic Flows, Desired

Desired Flow :

Origin	Destination					
		A	B	C	D	Tot.
	A	0	256	0	2360	2616
	B	333	0	463	579	1375
	C	0	437	0	377	814
	D	2429	1029	87	0	3545
	Tot.	2762	1722	550	3316	8350

Traffic Lane Flows

Lane	Scenario 6: 2031 adjDS2A - PM
Junction: M40 Junction 9	
1/1	879
1/2 (with short)	1737(In) 864(Out)
1/3 (short)	873
2/1	487
2/2	576
2/3	490
3/1	463
3/2 (with short)	912(In) 449(Out)
3/3 (short)	463
4/1	710
4/2	864
4/3	873
5/1	265
5/2 (with short)	549(In) 280(Out)
5/3 (short)	269
6/1	1081
6/2	1061
6/3	1130
7/1	1160
7/2	1269
7/3 (with short)	1116(In) 664(Out)
7/4 (short)	452
8/1 (short)	167
8/2 (with short)	501(In) 334(Out)
8/3	269
9/1	1327
9/2	1435
10/1	743
10/2	576
10/3	403
11/1	550
12/1	1346
12/2	1173
12/3	797

Lane Saturation Flows

Junction: M40 Junction 9								
Lane	**Lane Width (m)**	**Gradient (%)**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (M40 N Lane 1)	This lane uses a directly entered Saturation Flow						1906	1906
1/2 (M40 N Lane 2)	This lane uses a directly entered Saturation Flow						1825	1825
1/3 (M40 N Lane 3)	This lane uses a directly entered Saturation Flow						1845	1845
2/1	This lane uses a directly entered Saturation Flow						1945	1945
2/2	This lane uses a directly entered Saturation Flow						1977	1977
2/3	This lane uses a directly entered Saturation Flow						1869	1869
3/1 (A41 Lane 1)	This lane uses a directly entered Saturation Flow						1905	1905
3/2 (A41 Lane 2)	This lane uses a directly entered Saturation Flow						1965	1965
3/3 (A41 Lane 3)	This lane uses a directly entered Saturation Flow						1960	1960
4/1	This lane uses a directly entered Saturation Flow						1906	1906
4/2	This lane uses a directly entered Saturation Flow						1825	1825
4/3	This lane uses a directly entered Saturation Flow						1845	1845
5/1 (M40 S)	3.65	0.00	Y	Arm 12 Left	60.00	100.0 %	1932	1932
5/2 (M40 S)	3.20	0.00	Y	Arm 8 Ahead	60.00	60.0 %	1888	1888
				Arm 12 Left	60.00	40.0 %		
5/3 (M40 S)	3.20	0.00	Y	Arm 8 Ahead	60.00	100.0 %	1888	1888
6/1	This lane uses a directly entered Saturation Flow						1906	1906
6/2	This lane uses a directly entered Saturation Flow						1981	1981
6/3	This lane uses a directly entered Saturation Flow						1960	1960
7/1 (A34 Lane 1)	This lane uses a directly entered Saturation Flow						1851	1851
7/2 (A34 Lane 2)	This lane uses a directly entered Saturation Flow						2025	2025
7/3 (A34 Lane 3)	This lane uses a directly entered Saturation Flow						1973	1973
7/4 (A34 Lane 4)	This lane uses a directly entered Saturation Flow						1869	1869
8/1	3.80	0.00	Y	Arm 9 Ahead	55.00	100.0 %	1942	1942
8/2	3.80	0.00	Y	Arm 2 Right	55.00	50.3 %	1942	1942
				Arm 9 Ahead	55.00	49.7 %		
8/3	3.80	0.00	N	Arm 2 Right	55.00	100.0 %	2078	2078
9/1 (M40 N Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
9/2 (M40 N Exit Lane 2)	Infinite Saturation Flow						Inf	Inf
10/1 (A41 Exit Lane 1)	Infinite Saturation Flow						Inf	Inf

10/2 (A41 Exit Lane 2)	Infinite Saturation Flow	Inf	Inf
10/3 (A41 Exit Lane 3)	Infinite Saturation Flow	Inf	Inf
11/1 (M40 S Exit Lane 1)	Infinite Saturation Flow	Inf	Inf
12/1 (A34 Exit Lane 1)	This lane uses a directly entered Saturation Flow	2100	2100
12/2 (A34 Exit Lane 2)	This lane uses a directly entered Saturation Flow	2100	2100
12/3 (A34 Exit Lane 3)	This lane uses a directly entered Saturation Flow	2100	2100

Scenario 7: '2031 adjDS2A no Wendlebury- AM' (FG7: '2031 adjDS2A no Wendlebury - AM', Plan 1: 'Staging Plan No. 1')

Traffic Flows, Desired

Desired Flow :

		Destination				
		A	B	C	D	Tot.
Origin	A	0	380	0	2019	2399
	B	320	4	432	675	1431
	C	0	390	0	240	630
	D	2091	1270	225	0	3586
	Tot.	2411	2044	657	2934	8046

Traffic Lane Flows

Lane	Scenario 7: 2031 adjDS2A no Wendlebury-AM
Junction: M40 Junction 9	
1/1	785
1/2 (with short)	1614(In) 801(Out)
1/3 (short)	813
2/1	615
2/2	664
2/3	610
3/1	460
3/2 (with short)	971(In) 486(Out)
3/3 (short)	485
4/1	630
4/2	801
4/3	813
5/1	228
5/2 (with short)	402(In) 143(Out)
5/3 (short)	259
6/1	757
6/2	1121
6/3	1140
7/1	994
7/2	1097
7/3 (with short)	1495(In) 1010(Out)
7/4 (short)	485
8/1 (short)	160
8/2 (with short)	451(In) 291(Out)
8/3	263
9/1	1154
9/2	1257
10/1	995
10/2	664
10/3	385
11/1	657
12/1	985
12/2	1133
12/3	816

Lane Saturation Flows

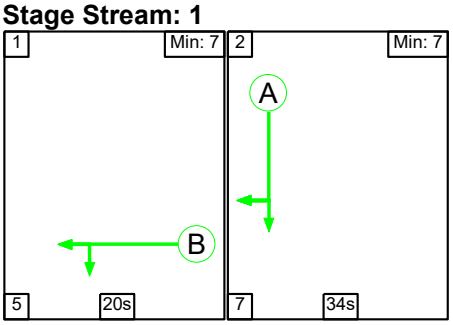
Junction: M40 Junction 9								
Lane	**Lane Width (m)**	**Gradient (%)**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
1/1 (M40 N Lane 1)	This lane uses a directly entered Saturation Flow						1906	1906
1/2 (M40 N Lane 2)	This lane uses a directly entered Saturation Flow						1825	1825
1/3 (M40 N Lane 3)	This lane uses a directly entered Saturation Flow						1845	1845
2/1	This lane uses a directly entered Saturation Flow						1945	1945
2/2	This lane uses a directly entered Saturation Flow						1977	1977
2/3	This lane uses a directly entered Saturation Flow						1869	1869
3/1 (A41 Lane 1)	This lane uses a directly entered Saturation Flow						1905	1905
3/2 (A41 Lane 2)	This lane uses a directly entered Saturation Flow						1965	1965
3/3 (A41 Lane 3)	This lane uses a directly entered Saturation Flow						1960	1960
4/1	This lane uses a directly entered Saturation Flow						1906	1906
4/2	This lane uses a directly entered Saturation Flow						1825	1825
4/3	This lane uses a directly entered Saturation Flow						1845	1845
5/1 (M40 S)	3.65	0.00	Y	Arm 12 Left	60.00	100.0 %	1932	1932
5/2 (M40 S)	3.20	0.00	Y	Arm 8 Ahead	60.00	91.6 %	1888	1888
				Arm 12 Left	60.00	8.4 %		
5/3 (M40 S)	3.20	0.00	Y	Arm 8 Ahead	60.00	100.0 %	1888	1888
6/1	This lane uses a directly entered Saturation Flow						1906	1906
6/2	This lane uses a directly entered Saturation Flow						1981	1981
6/3	This lane uses a directly entered Saturation Flow						1960	1960
7/1 (A34 Lane 1)	This lane uses a directly entered Saturation Flow						1851	1851
7/2 (A34 Lane 2)	This lane uses a directly entered Saturation Flow						2025	2025
7/3 (A34 Lane 3)	This lane uses a directly entered Saturation Flow						1973	1973
7/4 (A34 Lane 4)	This lane uses a directly entered Saturation Flow						1869	1869
8/1	3.80	0.00	Y	Arm 9 Ahead	55.00	100.0 %	1942	1942
8/2	3.80	0.00	Y	Arm 2 Right	55.00	45.0 %	1942	1942
				Arm 9 Ahead	55.00	55.0 %		
8/3	3.80	0.00	N	Arm 2 Right	55.00	100.0 %	2078	2078
9/1 (M40 N Exit Lane 1)	Infinite Saturation Flow						Inf	Inf
9/2 (M40 N Exit Lane 2)	Infinite Saturation Flow						Inf	Inf
10/1 (A41 Exit Lane 1)	Infinite Saturation Flow						Inf	Inf

10/2 (A41 Exit Lane 2)	Infinite Saturation Flow	Inf	Inf
10/3 (A41 Exit Lane 3)	Infinite Saturation Flow	Inf	Inf
11/1 (M40 S Exit Lane 1)	Infinite Saturation Flow	Inf	Inf
12/1 (A34 Exit Lane 1)	This lane uses a directly entered Saturation Flow	2100	2100
12/2 (A34 Exit Lane 2)	This lane uses a directly entered Saturation Flow	2100	2100
12/3 (A34 Exit Lane 3)	This lane uses a directly entered Saturation Flow	2100	2100

Scenario 1: '2031 adjRC1A - AM' (FG1: '2031 adjRC1A - AM', Plan 1: 'Staging Plan No. 1')
Controller :C1

Stage Sequence Diagram

Stage Stream: 1

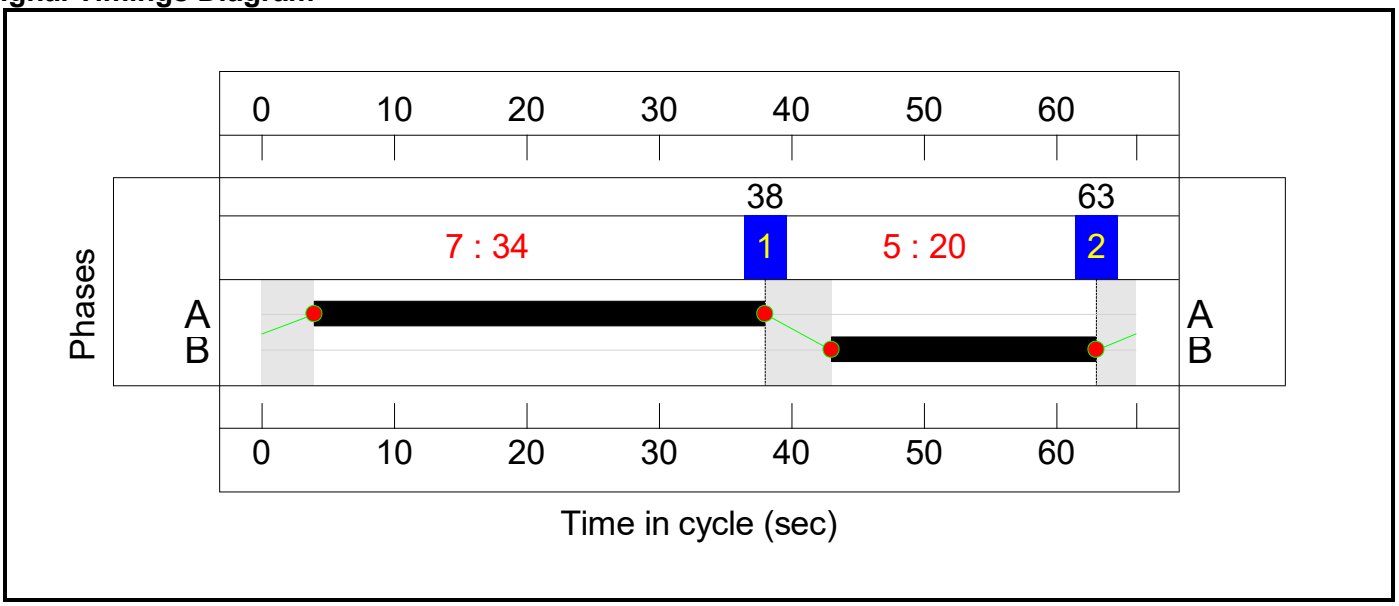


Stage Timings

Stage Stream: 1

Stage	1	2
Duration	20	34
Change Point	38	63

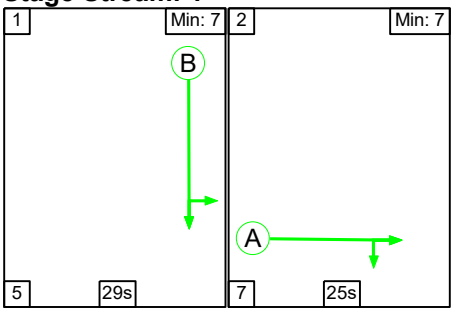
Signal Timings Diagram



Controller :C2

Stage Sequence Diagram

Stage Stream: 1

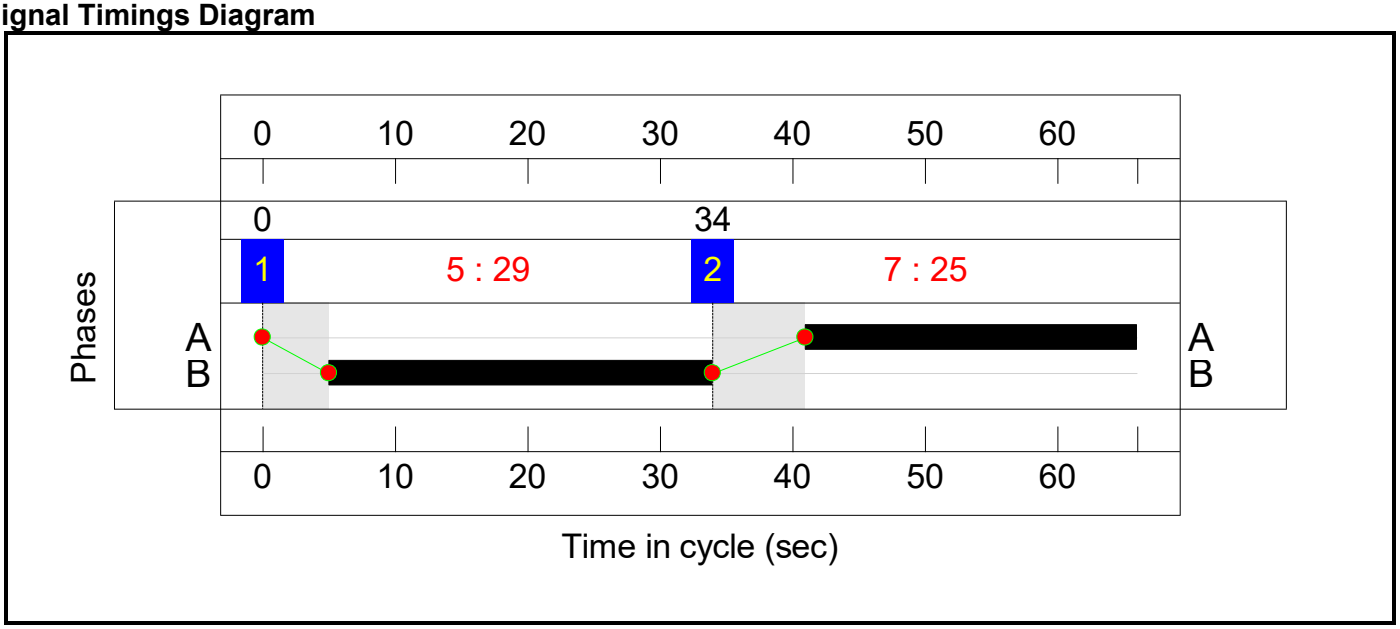


Stage Timings

Stage Stream: 1

Stage	1	2
Duration	29	25
Change Point	0	34

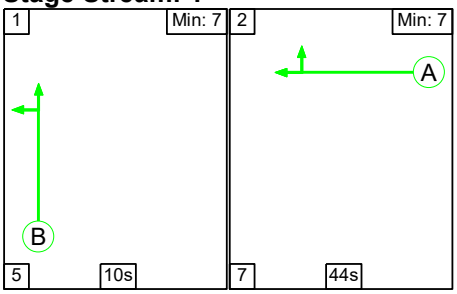
Signal Timings Diagram



Controller :C3

Stage Sequence Diagram

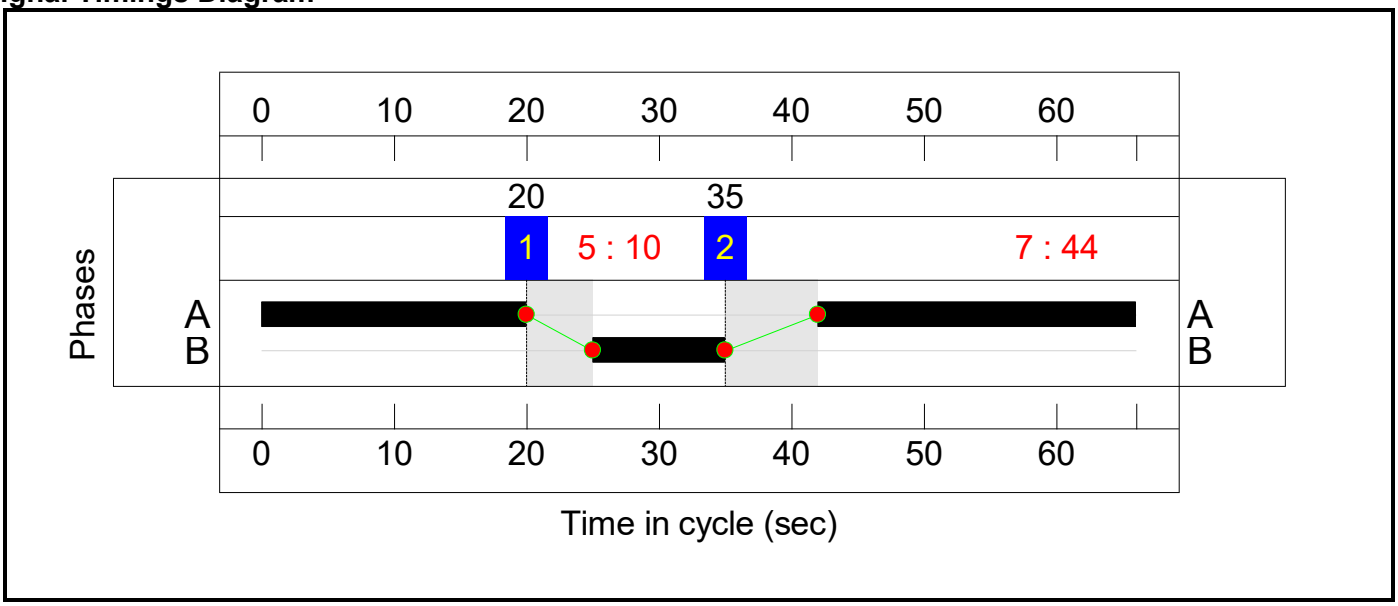
Stage Stream: 1



Stage Timings
Stage Stream: 1

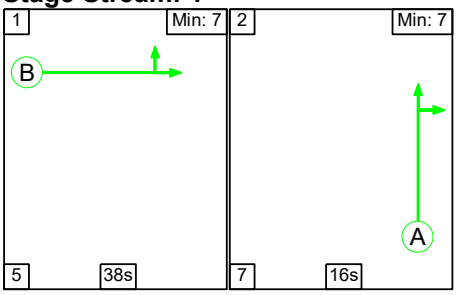
Stage	1	2
Duration	10	44
Change Point	20	35

Signal Timings Diagram



Controller :C4

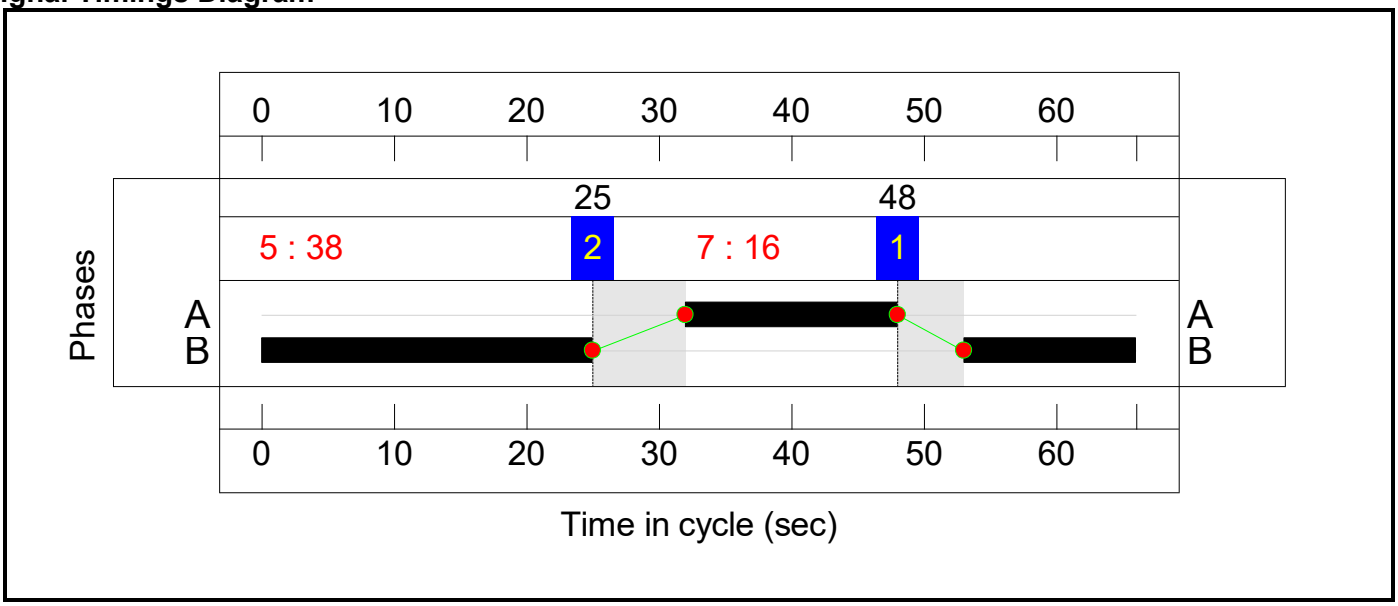
Stage Sequence Diagram
Stage Stream: 1



Stage Timings
Stage Stream: 1

Stage	1	2
Duration	38	16
Change Point	48	25

Signal Timings Diagram



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
M40 Junction 9	-	-	**N/A**	-	-		-	-	-	-	-	-	**92.8%**
1/1	M40 N Ahead Left	U	2:1	N/A	C2:B		1	29	-	750	1906	866	86.6%
1/2+1/3	M40 N Ahead	U	2:1	N/A	C2:B		1	29	-	1547	1825:1845	830+839	92.7 : 92.8%
2/1	Ahead	U	2:1	N/A	C2:A		1	25	-	612	1945	766	79.9%
2/2	Ahead	U	2:1	N/A	C2:A		1	25	-	669	1977	779	85.9%
2/3	Right Ahead	U	2:1	N/A	C2:A		1	25	-	616	1869	736	83.7%
3/1	A41 Ahead Left	U	1:1	N/A	C1:B		1	20	-	476	1905	606	78.5%
3/2+3/3	A41 Ahead	U	1:1	N/A	C1:B		1	20	-	1110	1965:1960	625+624	87.5 : 90.3%
4/1	Right Ahead	U	1:1	N/A	C1:A		1	34	-	600	1906	1011	59.4%
4/2	Right	U	1:1	N/A	C1:A		1	34	-	769	1825	968	79.5%
4/3	Right	U	1:1	N/A	C1:A		1	34	-	778	1845	978	79.5%
5/1	M40 S Left	U	3:1	N/A	C3:B		1	10	-	240	1932	322	74.5%
5/2+5/3	M40 S Ahead Left	U	3:1	N/A	C3:B		1	10	-	396	1888:1888	140+315	87.1 : 87.1%
6/1	Ahead	U	3:1	N/A	C3:A		1	44	-	725	1906	1300	55.8%
6/2	Ahead	U	3:1	N/A	C3:A		1	44	-	1161	1981	1351	86.0%
6/3	Right Ahead	U	3:1	N/A	C3:A		1	44	-	1193	1960	1336	89.3%
7/1	A34 Left	U	4:1	N/A	C4:B		1	38	-	990	1851	1094	90.5%
7/2	A34 Left	U	4:1	N/A	C4:B		1	38	-	1094	2025	1197	91.4%
7/3+7/4	A34 Ahead	U	4:1	N/A	C4:B		1	38	-	1497	1973:1869	1166+602	86.7 : 80.8%
8/2+8/1	Right Ahead	U	4:1	N/A	C4:A		1	16	-	462	1942:1942	424+247	68.8 : 68.8%
8/3	Right	U	4:1	N/A	C4:A		1	16	-	278	2078	535	51.9%
12/1	A34 Exit	U	N/A	N/A	-		-	-	-	965	2100	2100	46.0%
12/2	A34 Exit	U	N/A	N/A	-		-	-	-	1161	2100	2100	55.3%
12/3	A34 Exit	U	N/A	N/A	-		-	-	-	849	2100	2100	40.4%

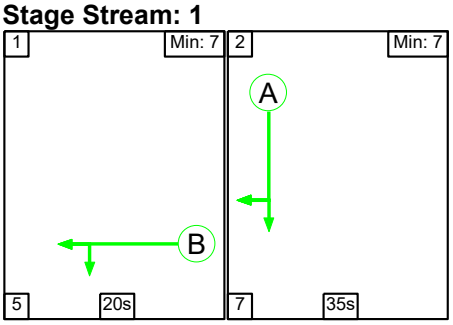
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
M40 J9	**-**	**-**	**0**	**0**	**0**	**56.0**	**32.3**	**0.0**	**88.3**	**-**	**-**	**-**	**-**
1/1	750	750	-	-	-	3.4	3.1	-	6.4	30.9	12.3	3.1	15.4
1/2+1/3	1547	1547	-	-	-	7.3	5.8	-	13.1 (6.5+6.6)	30.5 (30.5:30.5)	13.4	5.8	19.2
2/1	612	612	-	-	-	3.6	0.0	-	3.6	21.0	10.6	0.0	10.6
2/2	669	669	-	-	-	3.7	0.0	-	3.7	20.0	11.9	0.0	11.9
2/3	616	616	-	-	-	4.0	0.0	-	4.0	23.7	11.0	0.0	11.0
3/1	476	476	-	-	-	2.7	1.8	-	4.5	33.9	7.8	1.8	9.6
3/2+3/3	1110	1110	-	-	-	6.6	3.8	-	10.4 (5.1+5.3)	33.7 (33.6:33.8)	9.9	3.8	13.6
4/1	600	600	-	-	-	1.2	0.0	-	1.2	7.4	4.6	0.0	4.6
4/2	769	769	-	-	-	0.5	0.0	-	0.5	2.5	1.2	0.0	1.2
4/3	778	778	-	-	-	0.5	0.0	-	0.5	2.5	1.2	0.0	1.2
5/1	240	240	-	-	-	1.7	1.4	-	3.2	47.4	4.1	1.4	5.5
5/2+5/3	396	396	-	-	-	2.9	3.1	-	5.9 (1.8+4.2)	53.9 (52.3:54.6)	4.9	3.1	7.9
6/1	725	725	-	-	-	1.4	0.0	-	1.4	7.2	12.0	0.0	12.0
6/2	1161	1161	-	-	-	1.4	0.0	-	1.4	4.5	12.1	0.0	12.1
6/3	1193	1193	-	-	-	1.6	0.0	-	1.6	4.8	14.2	0.0	14.2
7/1	990	990	-	-	-	3.3	4.4	-	7.7	27.9	16.0	4.4	20.3
7/2	1094	1094	-	-	-	3.7	4.9	-	8.5	28.0	17.6	4.9	22.5
7/3+7/4	1497	1497	-	-	-	4.2	2.7	-	6.9 (5.0+1.9)	16.6 (17.8:14.0)	15.4	2.7	18.2
8/2+8/1	462	462	-	-	-	2.1	0.0	-	2.1 (1.1+1.0)	16.7 (14.0:21.2)	5.5	0.0	5.5
8/3	278	278	-	-	-	0.1	0.0	-	0.1	0.7	0.3	0.0	0.3
12/1	965	965	-	-	-	0.0	0.4	-	0.4	1.6	0.0	0.4	0.4
12/2	1161	1161	-	-	-	0.0	0.6	-	0.6	1.9	0.0	0.6	0.6
12/3	849	849	-	-	-	0.0	0.3	-	0.3	1.4	0.0	0.3	0.3

C1	Stream: 1	PRC for Signalled Lanes (%):	-0.3	Total Delay for Signalled Lanes (pcuHr):	17.17	Cycle Time (s):	66
C2	Stream: 1	PRC for Signalled Lanes (%):	-3.1	Total Delay for Signalled Lanes (pcuHr):	30.89	Cycle Time (s):	66
C3	Stream: 1	PRC for Signalled Lanes (%):	0.8	Total Delay for Signalled Lanes (pcuHr):	13.56	Cycle Time (s):	66
C4	Stream: 1	PRC for Signalled Lanes (%):	-1.6	Total Delay for Signalled Lanes (pcuHr):	25.27	Cycle Time (s):	66
		PRC Over All Lanes (%):	-3.1	Total Delay Over All Lanes(pcuHr):	88.28		

Scenario 2: '2031 adjRC1A - PM' (FG2: '2031 adjRC1A - PM', Plan 1: 'Staging Plan No. 1')
Controller :C1

Stage Sequence Diagram

Stage Stream: 1

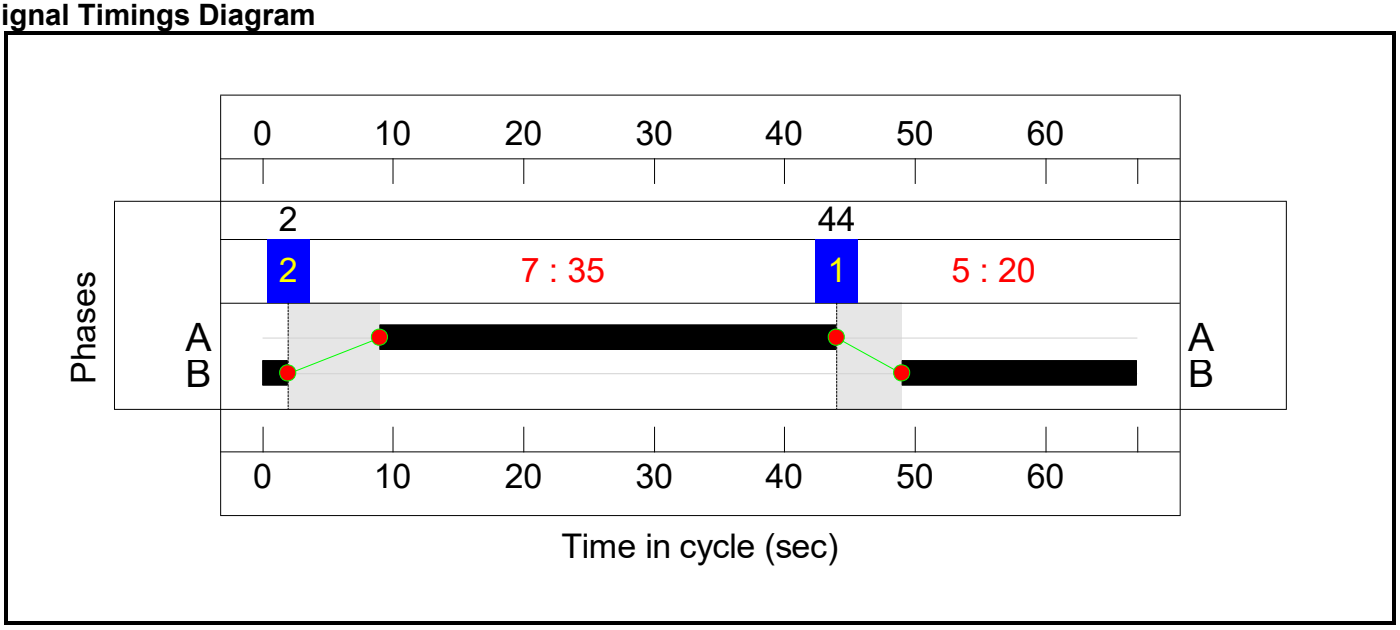


Stage Timings

Stage Stream: 1

Stage	1	2
Duration	20	35
Change Point	44	2

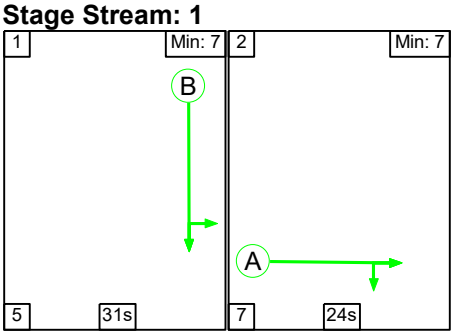
Signal Timings Diagram



Controller :C2

Stage Sequence Diagram

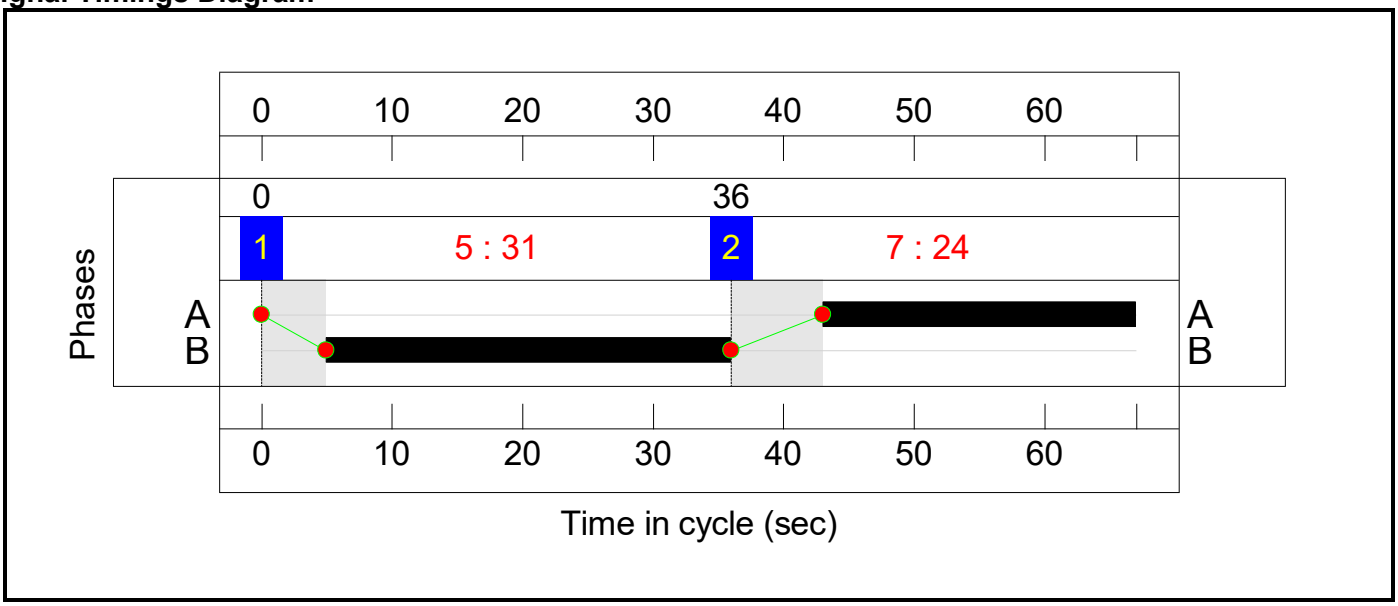
Stage Stream: 1



Stage Timings
Stage Stream: 1

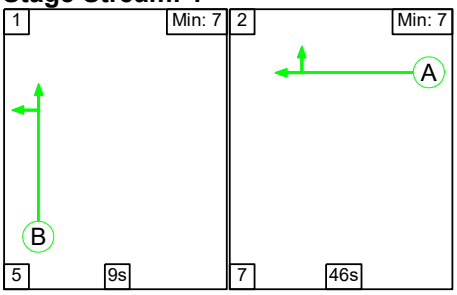
Stage	1	2
Duration	31	24
Change Point	0	36

Signal Timings Diagram



Controller :C3

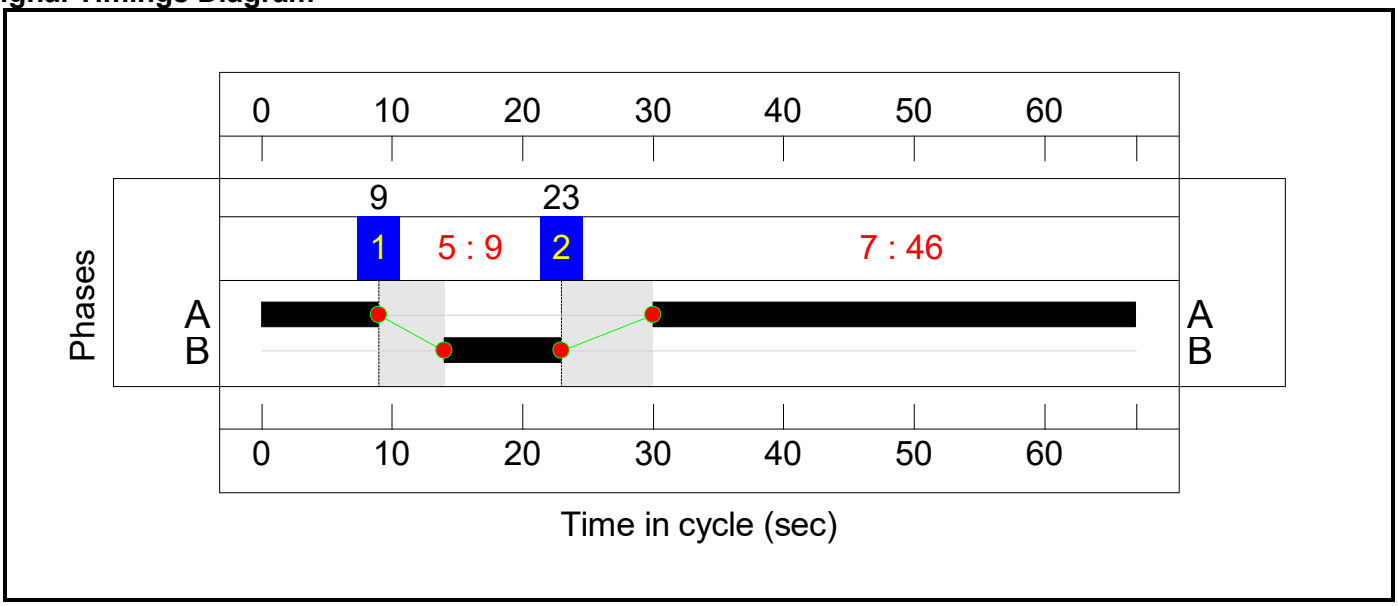
Stage Sequence Diagram
Stage Stream: 1



Stage Timings
Stage Stream: 1

Stage	1	2
Duration	9	46
Change Point	9	23

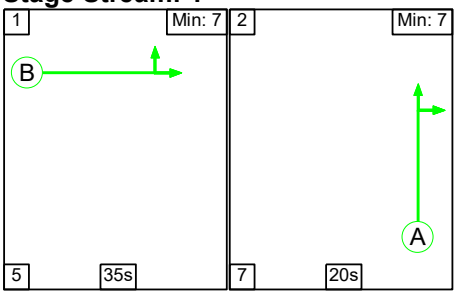
Signal Timings Diagram



Controller :C4

Stage Sequence Diagram

Stage Stream: 1

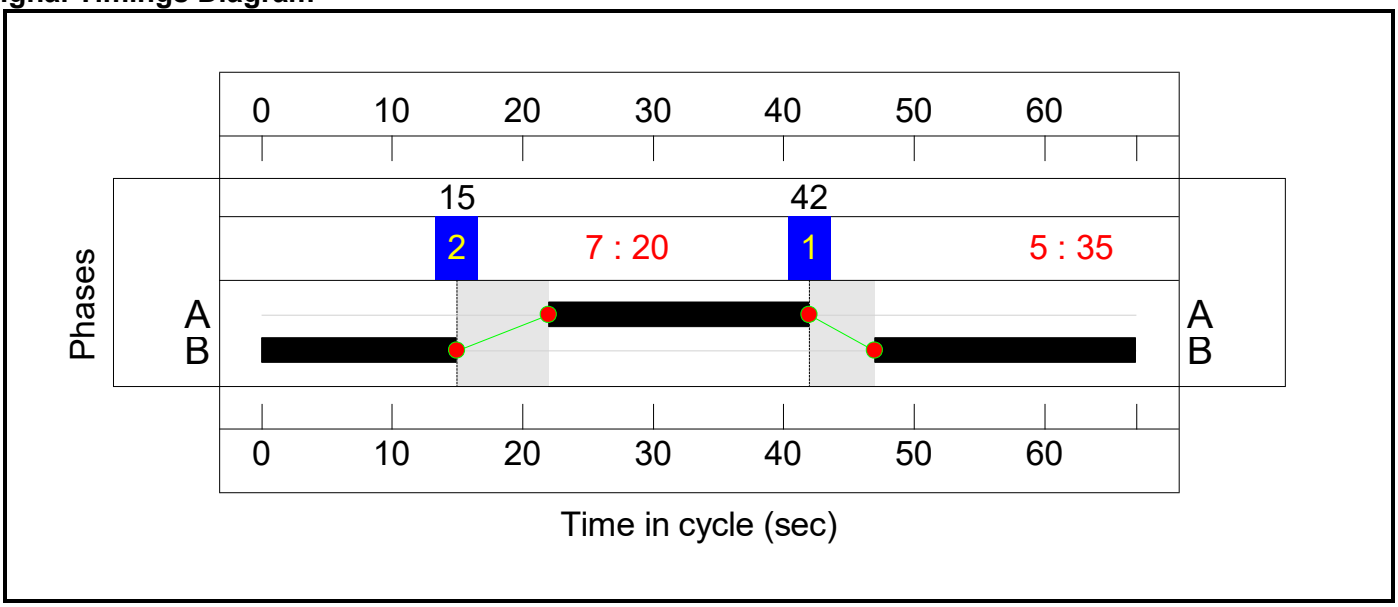


Stage Timings

Stage Stream: 1

Stage	1	2
Duration	35	20
Change Point	42	15

Signal Timings Diagram



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
M40 Junction 9	-	-	**N/A**	-	-		-	-	-	-	-	-	**110.5%**
1/1	M40 N Ahead Left	U	2:1	N/A	C2:B		1	31	-	844	1906	910	92.7%
1/2+1/3	M40 N Ahead	U	2:1	N/A	C2:B		1	31	-	1696	1825:1845	872+881	95.5 : 98.0%
2/1	Ahead	U	2:1	N/A	C2:A		1	24	-	492	1945	726	67.8%
2/2	Ahead	U	2:1	N/A	C2:A		1	24	-	605	1977	738	82.0%
2/3	Right Ahead	U	2:1	N/A	C2:A		1	24	-	536	1869	697	76.9%
3/1	A41 Ahead Left	U	1:1	N/A	C1:B		1	20	-	492	1905	597	82.4%
3/2+3/3	A41 Ahead	U	1:1	N/A	C1:B		1	20	-	1109	1965:1960	616+614	84.6 : 95.7%
4/1	Right Ahead	U	1:1	N/A	C1:A		1	35	-	696	1906	1024	68.0%
4/2	Right	U	1:1	N/A	C1:A		1	35	-	832	1825	981	84.8%
4/3	Right	U	1:1	N/A	C1:A		1	35	-	864	1845	991	87.2%
5/1	M40 S Left	U	3:1	N/A	C3:B		1	9	-	265	1932	288	91.9%
5/2+5/3	M40 S Ahead Left	U	3:1	N/A	C3:B		1	9	-	551	1888:1888	282+282	96.9 : 98.7%
6/1	Ahead	U	3:1	N/A	C3:A		1	46	-	1204	1906	1337	90.0%
6/2	Ahead	U	3:1	N/A	C3:A		1	46	-	1156	1981	1390	83.2%
6/3	Right Ahead	U	3:1	N/A	C3:A		1	46	-	1080	1960	1375	78.5%
7/1	A34 Left	U	4:1	N/A	C4:B		1	35	-	1099	1851	995	110.5%
7/2	A34 Left	U	4:1	N/A	C4:B		1	35	-	1202	2025	1088	110.5%
7/3+7/4	A34 Ahead	U	4:1	N/A	C4:B		1	35	-	1196	1973:1869	1060+793	66.4 : 62.0%
8/2+8/1	Right Ahead	U	4:1	N/A	C4:A		1	20	-	737	1942:1942	482+311	93.0 : 93.0%
8/3	Right	U	4:1	N/A	C4:A		1	20	-	278	2078	651	42.7%
12/1	A34 Exit	U	N/A	N/A	-		-	-	-	1469	2100	2100	70.0%
12/2	A34 Exit	U	N/A	N/A	-		-	-	-	1270	2100	2100	60.5%
12/3	A34 Exit	U	N/A	N/A	-		-	-	-	502	2100	2100	23.9%

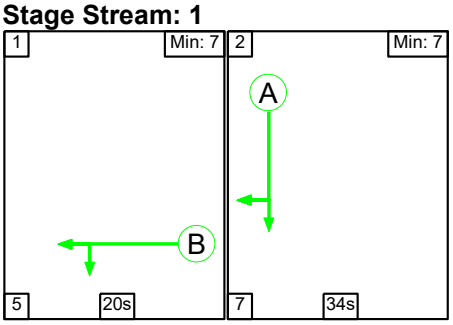
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
M40 Junction 9	**-**	**-**	**0**	**0**	**0**	**71.6**	**157.8**	**0.0**	**229.4**	**-**	**-**	**-**	**-**
1/1	844	844	-	-	-	3.8	5.5	-	9.3	39.7	14.5	5.5	20.0
1/2+1/3	1696	1696	-	-	-	8.0	10.8	-	18.8 (9.2+9.6)	39.9 (39.7:40.1)	15.6	10.8	26.4
2/1	492	492	-	-	-	3.1	0.0	-	3.1	22.8	8.3	0.0	8.3
2/2	605	605	-	-	-	3.7	0.0	-	3.7	21.9	10.6	0.0	10.6
2/3	536	536	-	-	-	4.5	0.0	-	4.5	30.1	9.0	0.0	9.0
3/1	492	492	-	-	-	2.9	2.2	-	5.2	37.7	8.5	2.2	10.7
3/2+3/3	1109	1109	-	-	-	6.8	4.3	-	11.1 (5.1+6.0)	35.9 (35.4:36.4)	10.6	4.3	14.9
4/1	696	696	-	-	-	0.5	0.0	-	0.5	2.6	1.9	0.0	1.9
4/2	832	832	-	-	-	0.1	0.0	-	0.1	0.6	0.3	0.0	0.3
4/3	864	864	-	-	-	0.2	0.0	-	0.2	0.7	0.4	0.0	0.4
5/1	265	265	-	-	-	2.1	4.2	-	6.2	84.9	4.9	4.2	9.0
5/2+5/3	551	551	-	-	-	4.3	9.0	-	13.4 (6.6+6.7)	87.2 (87.2:87.3)	5.1	9.0	14.1
6/1	1204	1204	-	-	-	0.9	0.0	-	0.9	2.7	15.0	0.0	15.0
6/2	1156	1156	-	-	-	2.3	0.0	-	2.3	7.0	14.4	0.0	14.4
6/3	1080	1080	-	-	-	2.6	0.0	-	2.6	8.6	13.2	0.0	13.2
7/1	1099	995	-	-	-	8.6	57.0	-	65.7	215.1	22.4	57.0	79.4
7/2	1202	1088	-	-	-	9.4	61.8	-	71.3	213.4	24.5	61.8	86.3
7/3+7/4	1196	1196	-	-	-	3.5	0.9	-	4.4 (2.7+1.7)	13.3 (13.9:12.5)	9.4	0.9	10.3
8/2+8/1	737	737	-	-	-	4.2	0.0	-	4.2 (2.2+2.0)	20.4 (17.7:24.6)	7.1	0.0	7.1
8/3	278	278	-	-	-	0.0	0.0	-	0.0	0.2	0.5	0.0	0.5
12/1	1469	1469	-	-	-	0.0	1.2	-	1.2	2.8	0.0	1.2	1.2
12/2	1270	1270	-	-	-	0.0	0.8	-	0.8	2.2	0.0	0.8	0.8
12/3	502	502	-	-	-	0.0	0.2	-	0.2	1.1	0.0	0.2	0.2

C1	Stream: 1	PRC for Signalled Lanes (%):	-6.3	Total Delay for Signalled Lanes (pcuHr):	17.04	Cycle Time (s):	67
C2	Stream: 1	PRC for Signalled Lanes (%):	-8.9	Total Delay for Signalled Lanes (pcuHr):	39.41	Cycle Time (s):	67
C3	Stream: 1	PRC for Signalled Lanes (%):	-9.6	Total Delay for Signalled Lanes (pcuHr):	25.35	Cycle Time (s):	67
C4	Stream: 1	PRC for Signalled Lanes (%):	-22.8	Total Delay for Signalled Lanes (pcuHr):	145.54	Cycle Time (s):	67
		PRC Over All Lanes (%):	-22.8	Total Delay Over All Lanes(pcuHr):	229.42		

Scenario 3: '2031 adjRC2A - AM' (FG3: '2031 adjRC2A - AM', Plan 1: 'Staging Plan No. 1')
Controller :C1

Stage Sequence Diagram

Stage Stream: 1

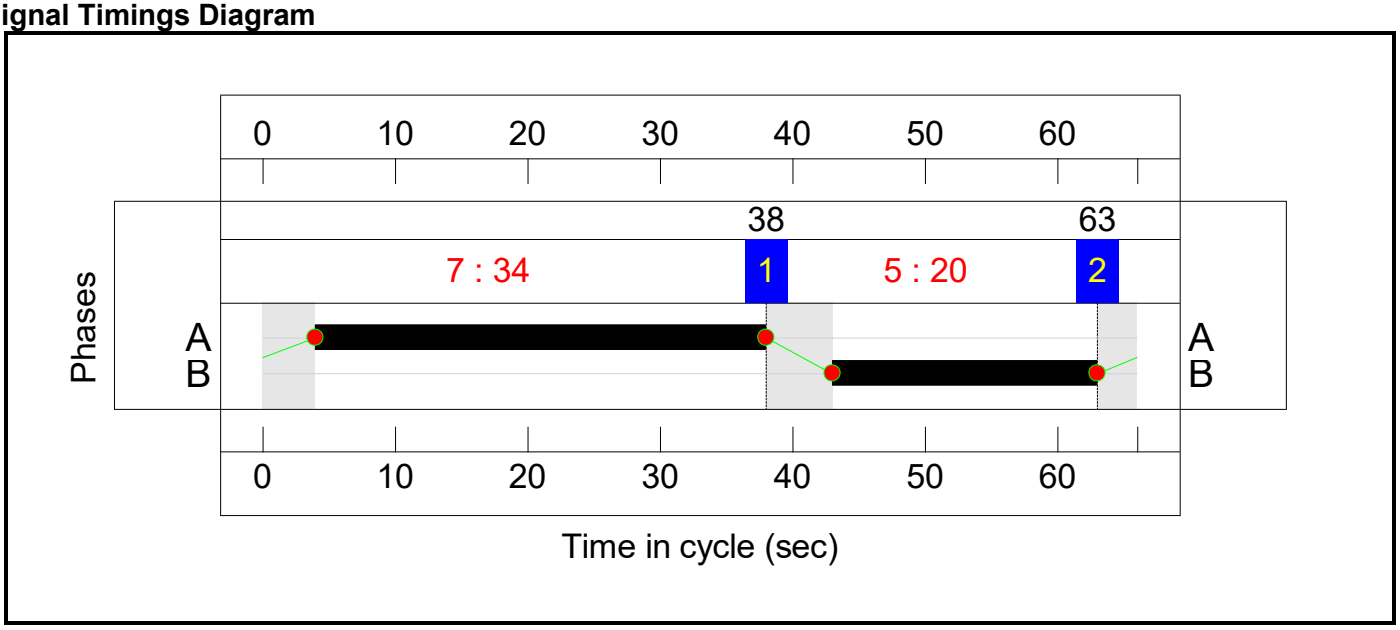


Stage Timings

Stage Stream: 1

Stage	1	2
Duration	20	34
Change Point	38	63

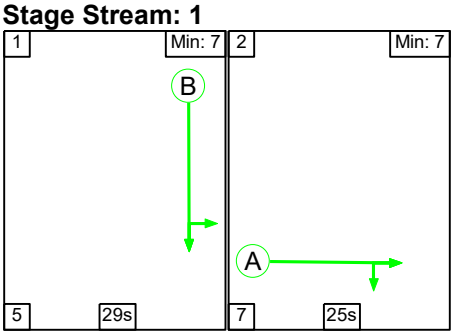
Signal Timings Diagram



Controller :C2

Stage Sequence Diagram

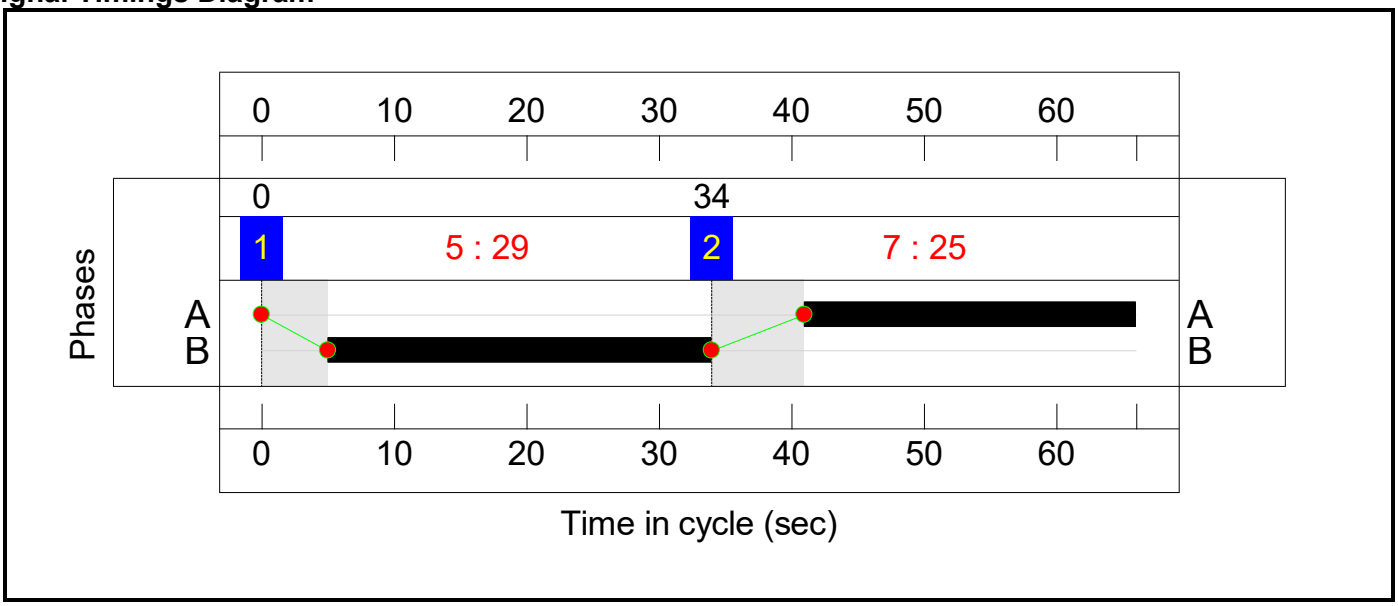
Stage Stream: 1



Stage Timings
Stage Stream: 1

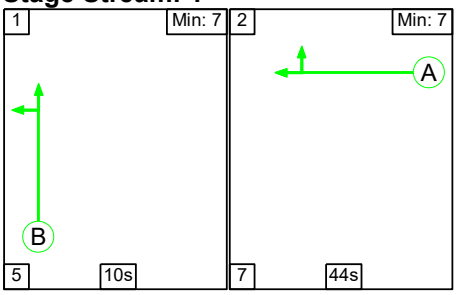
Stage	1	2
Duration	29	25
Change Point	0	34

Signal Timings Diagram



Controller :C3

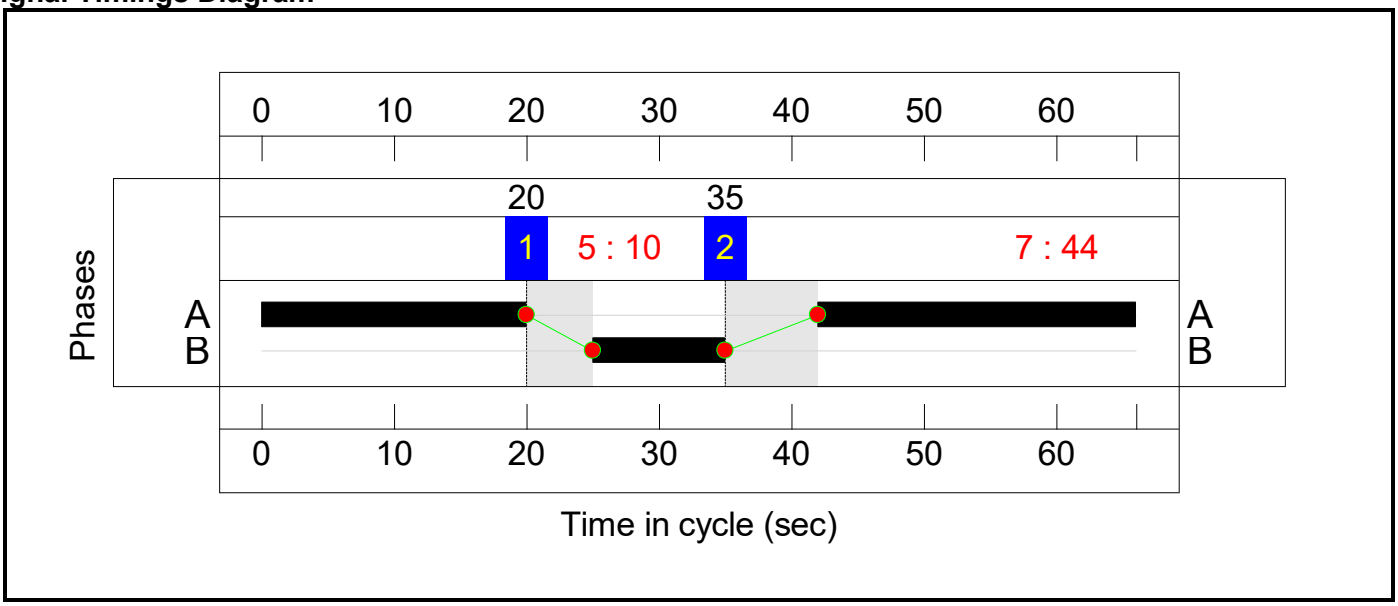
Stage Sequence Diagram
Stage Stream: 1



Stage Timings
Stage Stream: 1

Stage	1	2
Duration	10	44
Change Point	20	35

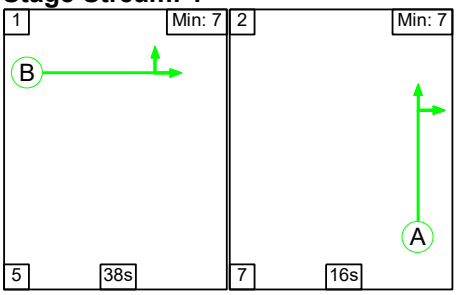
Signal Timings Diagram



Controller :C4

Stage Sequence Diagram

Stage Stream: 1

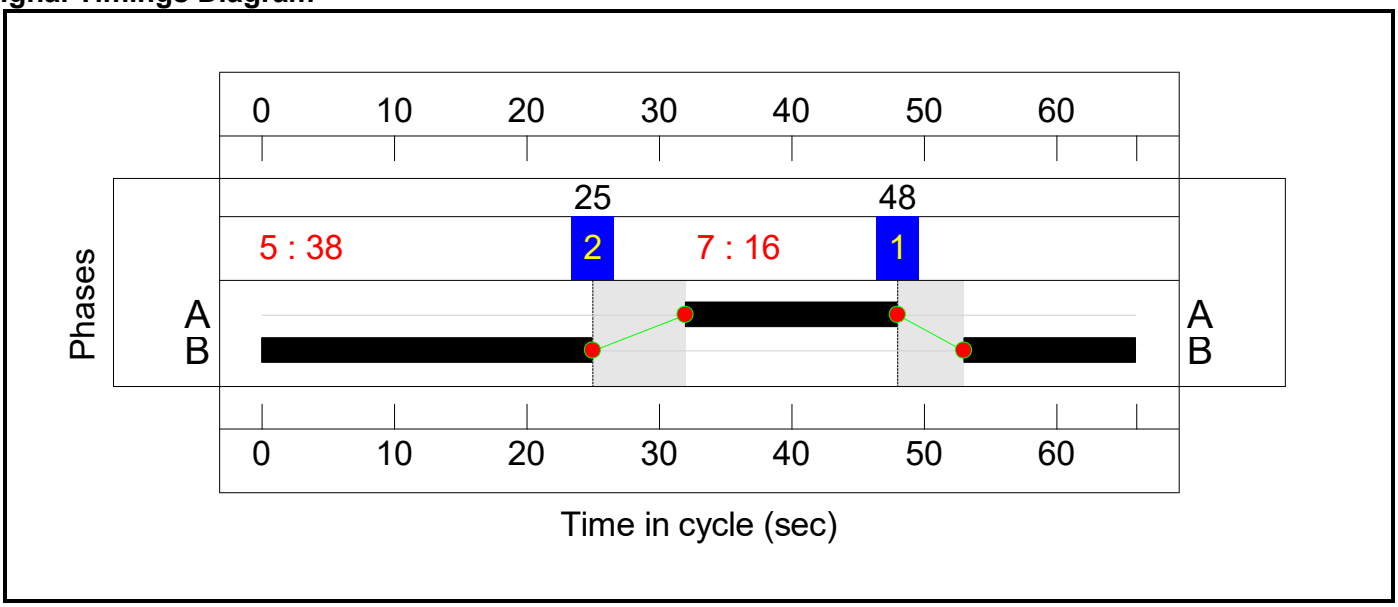


Stage Timings

Stage Stream: 1

Stage	1	2
Duration	38	16
Change Point	48	25

Signal Timings Diagram



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
M40 Junction 9	-	-	**N/A**	-	-		-	-	-	-	-	-	**92.3%**
1/1	M40 N Ahead Left	U	2:1	N/A	C2:B		1	29	-	743	1906	866	85.8%
1/2+1/3	M40 N Ahead	U	2:1	N/A	C2:B		1	29	-	1539	1825:1845	830+839	92.3 : 92.2%
2/1	Ahead	U	2:1	N/A	C2:A		1	25	-	606	1945	766	79.1%
2/2	Ahead	U	2:1	N/A	C2:A		1	25	-	668	1977	779	85.8%
2/3	Right Ahead	U	2:1	N/A	C2:A		1	25	-	613	1869	736	83.3%
3/1	A41 Ahead Left	U	1:1	N/A	C1:B		1	20	-	476	1905	606	78.5%
3/2+3/3	A41 Ahead	U	1:1	N/A	C1:B		1	20	-	1110	1965:1960	625+624	87.3 : 90.4%
4/1	Right Ahead	U	1:1	N/A	C1:A		1	34	-	588	1906	1011	58.2%
4/2	Right	U	1:1	N/A	C1:A		1	34	-	766	1825	968	79.1%
4/3	Right	U	1:1	N/A	C1:A		1	34	-	773	1845	978	79.0%
5/1	M40 S Left	U	3:1	N/A	C3:B		1	10	-	240	1932	322	74.5%
5/2+5/3	M40 S Ahead Left	U	3:1	N/A	C3:B		1	10	-	394	1888:1888	138+315	87.1 : 87.1%
6/1	Ahead	U	3:1	N/A	C3:A		1	44	-	719	1906	1300	55.3%
6/2	Ahead	U	3:1	N/A	C3:A		1	44	-	1156	1981	1351	85.6%
6/3	Right Ahead	U	3:1	N/A	C3:A		1	44	-	1190	1960	1336	89.0%
7/1	A34 Left	U	4:1	N/A	C4:B		1	38	-	990	1851	1094	90.5%
7/2	A34 Left	U	4:1	N/A	C4:B		1	38	-	1094	2025	1197	91.4%
7/3+7/4	A34 Ahead	U	4:1	N/A	C4:B		1	38	-	1489	1973:1869	1166+601	86.3 : 80.4%
8/2+8/1	Right Ahead	U	4:1	N/A	C4:A		1	16	-	460	1942:1942	424+248	68.4 : 68.4%
8/3	Right	U	4:1	N/A	C4:A		1	16	-	278	2078	535	51.9%
12/1	A34 Exit	U	N/A	N/A	-		-	-	-	959	2100	2100	45.7%
12/2	A34 Exit	U	N/A	N/A	-		-	-	-	1156	2100	2100	55.0%
12/3	A34 Exit	U	N/A	N/A	-		-	-	-	846	2100	2100	40.3%

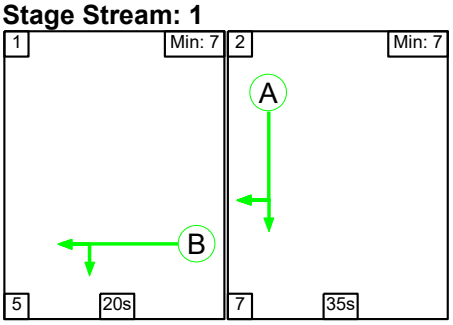
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
M40 Junction 9	**-**	**-**	**0**	**0**	**0**	**55.6**	**31.7**	**0.0**	**87.3**	**-**	**-**	**-**	**-**
1/1	743	743	-	-	-	3.3	2.9	-	6.2	30.0	12.0	2.9	14.8
1/2+1/3	1539	1539	-	-	-	7.2	5.5	-	12.7 (6.3+6.4)	29.8 (29.8:29.7)	13.2	5.5	18.7
2/1	606	606	-	-	-	3.5	0.0	-	3.5	21.1	10.6	0.0	10.6
2/2	668	668	-	-	-	3.7	0.0	-	3.7	20.0	11.8	0.0	11.8
2/3	613	613	-	-	-	4.0	0.0	-	4.0	23.6	10.9	0.0	10.9
3/1	476	476	-	-	-	2.7	1.8	-	4.5	33.9	7.8	1.8	9.6
3/2+3/3	1110	1110	-	-	-	6.6	3.8	-	10.4 (5.1+5.3)	33.7 (33.5:33.8)	9.9	3.8	13.7
4/1	588	588	-	-	-	1.2	0.0	-	1.2	7.3	4.5	0.0	4.5
4/2	766	766	-	-	-	0.5	0.0	-	0.5	2.4	1.2	0.0	1.2
4/3	773	773	-	-	-	0.5	0.0	-	0.5	2.4	1.2	0.0	1.2
5/1	240	240	-	-	-	1.7	1.4	-	3.2	47.4	4.1	1.4	5.5
5/2+5/3	394	394	-	-	-	2.9	3.1	-	5.9 (1.7+4.2)	54.0 (52.4:54.7)	4.9	3.1	7.9
6/1	719	719	-	-	-	1.4	0.0	-	1.4	7.1	11.9	0.0	11.9
6/2	1156	1156	-	-	-	1.4	0.0	-	1.4	4.4	11.7	0.0	11.7
6/3	1190	1190	-	-	-	1.6	0.0	-	1.6	4.8	13.7	0.0	13.7
7/1	990	990	-	-	-	3.3	4.4	-	7.7	27.9	16.0	4.4	20.3
7/2	1094	1094	-	-	-	3.7	4.9	-	8.5	28.0	17.6	4.9	22.5
7/3+7/4	1489	1489	-	-	-	4.1	2.6	-	6.8 (4.9+1.9)	16.4 (17.6:13.8)	15.4	2.6	18.0
8/2+8/1	460	460	-	-	-	2.1	0.0	-	2.1 (1.1+1.0)	16.7 (14.1:21.2)	5.5	0.0	5.5
8/3	278	278	-	-	-	0.1	0.0	-	0.1	0.7	0.3	0.0	0.3
12/1	959	959	-	-	-	0.0	0.4	-	0.4	1.6	0.0	0.4	0.4
12/2	1156	1156	-	-	-	0.0	0.6	-	0.6	1.9	0.0	0.6	0.6
12/3	846	846	-	-	-	0.0	0.3	-	0.3	1.4	0.0	0.3	0.3

C1	Stream: 1	PRC for Signalled Lanes (%):	-0.5	Total Delay for Signalled Lanes (pcuHr):	17.09	Cycle Time (s):	66
C2	Stream: 1	PRC for Signalled Lanes (%):	-2.6	Total Delay for Signalled Lanes (pcuHr):	30.19	Cycle Time (s):	66
C3	Stream: 1	PRC for Signalled Lanes (%):	1.1	Total Delay for Signalled Lanes (pcuHr):	13.48	Cycle Time (s):	66
C4	Stream: 1	PRC for Signalled Lanes (%):	-1.6	Total Delay for Signalled Lanes (pcuHr):	25.16	Cycle Time (s):	66
		PRC Over All Lanes (%):	-2.6	Total Delay Over All Lanes(pcuHr):	87.28		

Scenario 4: '2031 adjRC2A - PM' (FG4: '2031 adjRC2A - PM', Plan 1: 'Staging Plan No. 1')
Controller :C1

Stage Sequence Diagram

Stage Stream: 1

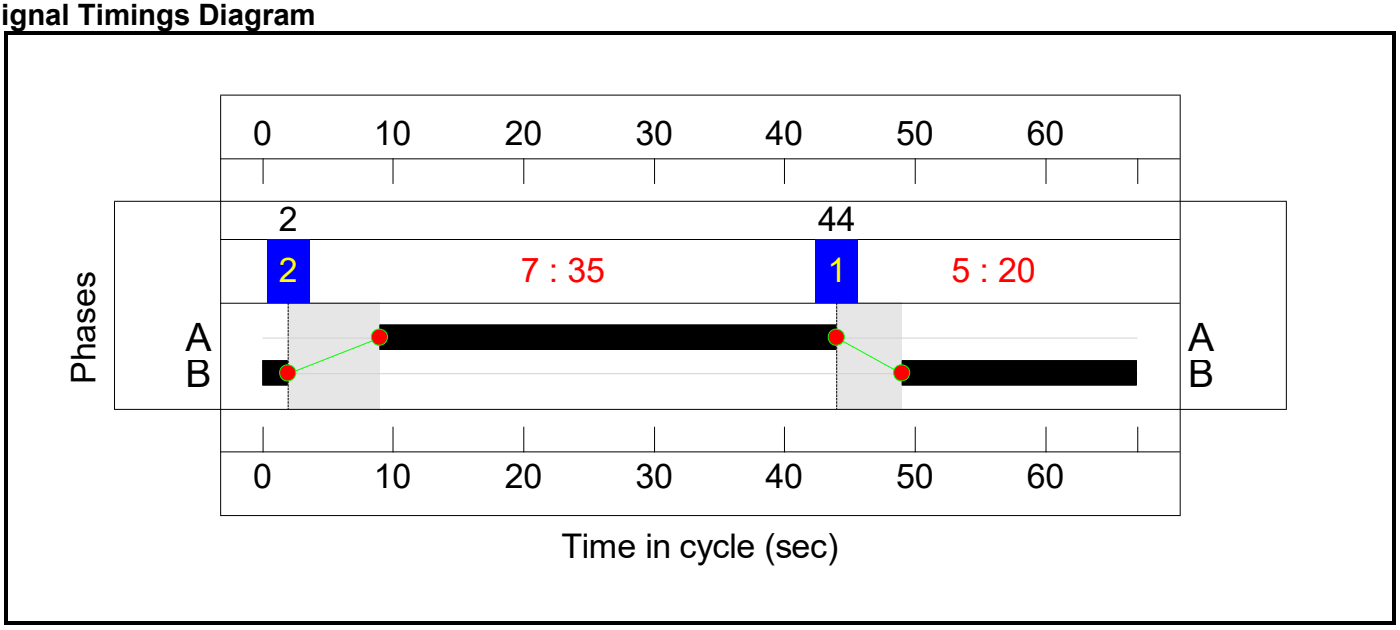


Stage Timings

Stage Stream: 1

Stage	1	2
Duration	20	35
Change Point	44	2

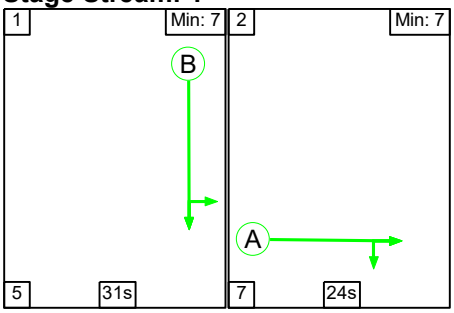
Signal Timings Diagram



Controller :C2

Stage Sequence Diagram

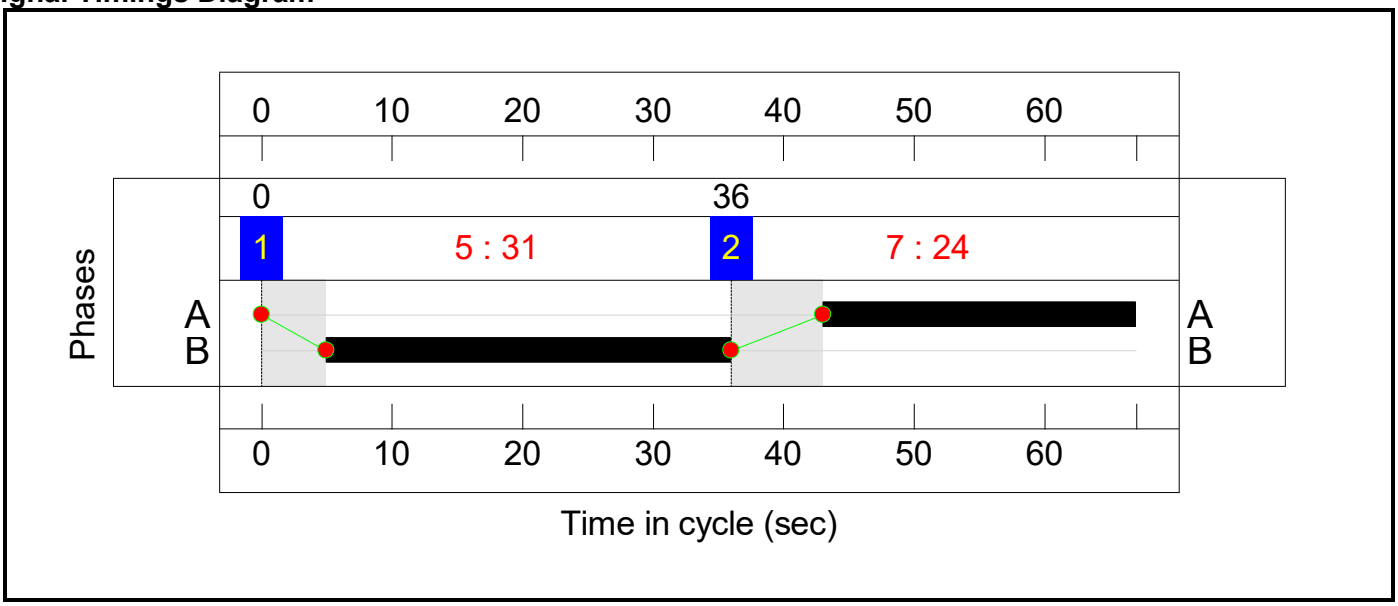
Stage Stream: 1



Stage Timings
Stage Stream: 1

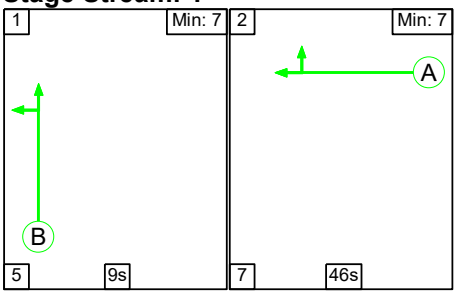
Stage	1	2
Duration	31	24
Change Point	0	36

Signal Timings Diagram



Controller :C3

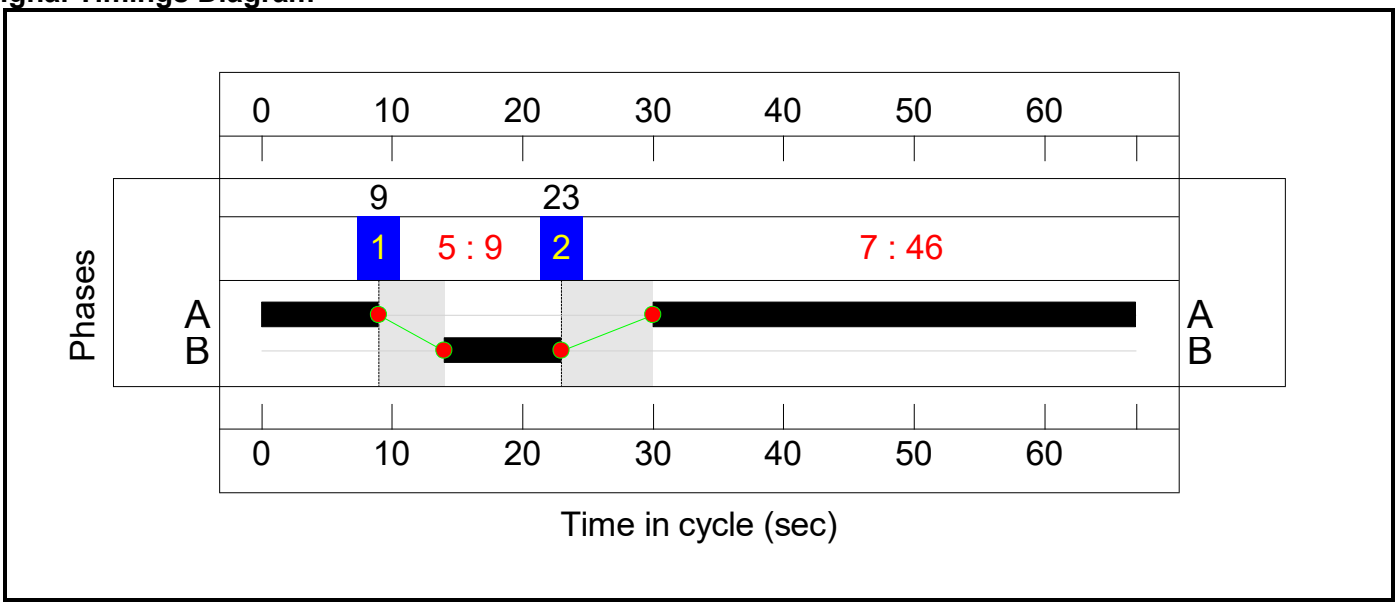
Stage Sequence Diagram
Stage Stream: 1



Stage Timings
Stage Stream: 1

Stage	1	2
Duration	9	46
Change Point	9	23

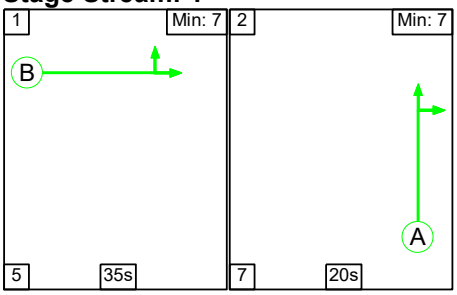
Signal Timings Diagram



Controller :C4

Stage Sequence Diagram

Stage Stream: 1

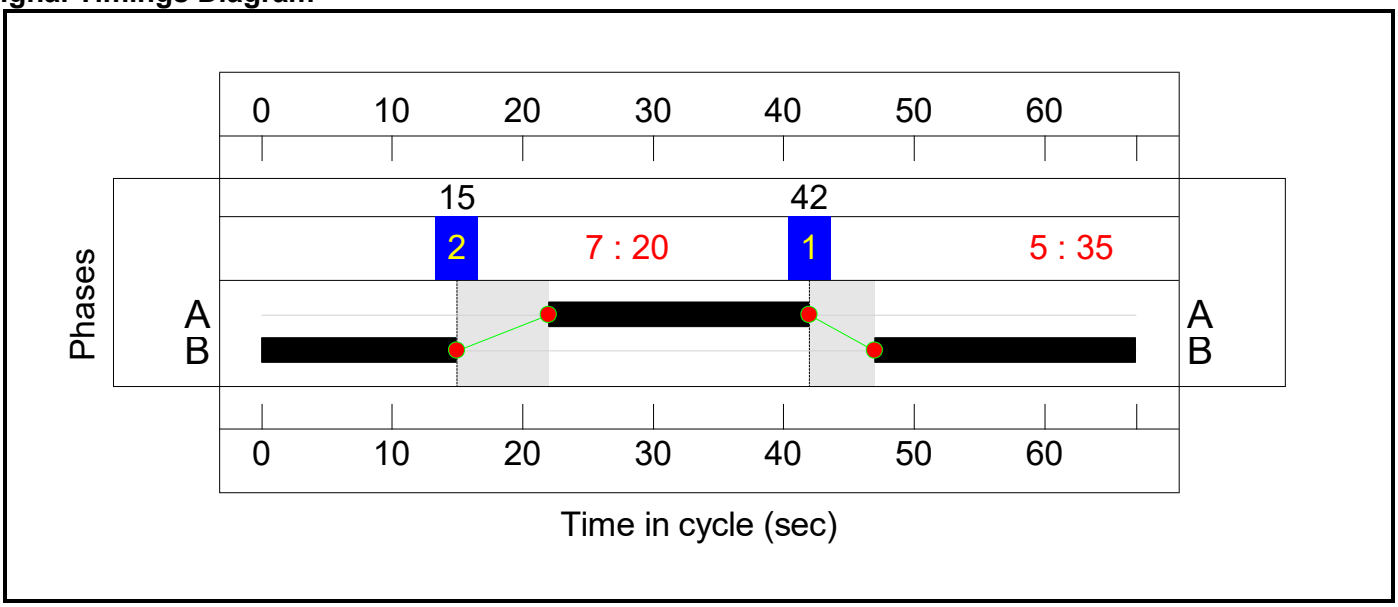


Stage Timings

Stage Stream: 1

Stage	1	2
Duration	35	20
Change Point	42	15

Signal Timings Diagram



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
M40 Junction 9	-	-	**N/A**	-	-		-	-	-	-	-	-	**109.7%**
1/1	M40 N Ahead Left	U	2:1	N/A	C2:B		1	31	-	844	1906	910	92.7%
1/2+1/3	M40 N Ahead	U	2:1	N/A	C2:B		1	31	-	1694	1825:1845	872+881	96.5 : 96.8%
2/1	Ahead	U	2:1	N/A	C2:A		1	24	-	513	1945	726	70.7%
2/2	Ahead	U	2:1	N/A	C2:A		1	24	-	605	1977	738	82.0%
2/3	Right Ahead	U	2:1	N/A	C2:A		1	24	-	519	1869	697	74.4%
3/1	A41 Ahead Left	U	1:1	N/A	C1:B		1	20	-	467	1905	597	78.2%
3/2+3/3	A41 Ahead	U	1:1	N/A	C1:B		1	20	-	976	1965:1960	616+614	77.6 : 81.1%
4/1	Right Ahead	U	1:1	N/A	C1:A		1	35	-	696	1906	1024	68.0%
4/2	Right	U	1:1	N/A	C1:A		1	35	-	841	1825	981	85.8%
4/3	Right	U	1:1	N/A	C1:A		1	35	-	853	1845	991	86.0%
5/1	M40 S Left	U	3:1	N/A	C3:B		1	9	-	265	1932	288	91.9%
5/2+5/3	M40 S Ahead Left	U	3:1	N/A	C3:B		1	9	-	550	1888:1888	282+282	100.1 : 95.1%
6/1	Ahead	U	3:1	N/A	C3:A		1	46	-	1100	1906	1337	82.3%
6/2	Ahead	U	3:1	N/A	C3:A		1	46	-	1068	1981	1390	76.9%
6/3	Right Ahead	U	3:1	N/A	C3:A		1	46	-	1112	1960	1375	80.9%
7/1	A34 Left	U	4:1	N/A	C4:B		1	35	-	1090	1851	995	109.6%
7/2	A34 Left	U	4:1	N/A	C4:B		1	35	-	1194	2025	1088	109.7%
7/3+7/4	A34 Ahead	U	4:1	N/A	C4:B		1	35	-	1200	1973:1869	1060+769	68.1 : 62.2%
8/2+8/1	Right Ahead	U	4:1	N/A	C4:A		1	20	-	579	1942:1942	497+272	75.3 : 75.3%
8/3	Right	U	4:1	N/A	C4:A		1	20	-	268	2078	651	41.1%
12/1	A34 Exit	U	N/A	N/A	-		-	-	-	1365	2100	2100	65.0%
12/2	A34 Exit	U	N/A	N/A	-		-	-	-	1181	2100	2100	56.2%
12/3	A34 Exit	U	N/A	N/A	-		-	-	-	702	2100	2100	33.4%

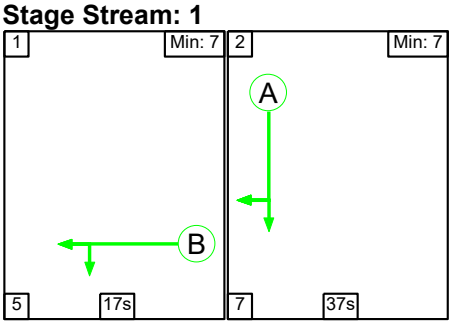
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
M40 Junction 9	**-**	**-**	**0**	**0**	**0**	**66.6**	**146.5**	**0.0**	**213.1**	**-**	**-**	**-**	**-**
1/1	844	844	-	-	-	3.8	5.5	-	9.3	39.7	14.5	5.5	20.0
1/2+1/3	1694	1694	-	-	-	8.0	10.6	-	18.6 (9.2+9.4)	39.5 (39.5:39.5)	15.4	10.6	26.0
2/1	513	513	-	-	-	3.3	0.0	-	3.3	23.2	8.8	0.0	8.8
2/2	605	605	-	-	-	3.8	0.0	-	3.8	22.4	10.6	0.0	10.6
2/3	519	519	-	-	-	4.3	0.0	-	4.3	29.8	8.6	0.0	8.6
3/1	467	467	-	-	-	2.7	1.7	-	4.5	34.4	7.8	1.7	9.5
3/2+3/3	976	976	-	-	-	5.7	1.9	-	7.6 (3.7+3.9)	28.0 (27.8:28.2)	8.4	1.9	10.3
4/1	696	696	-	-	-	0.5	0.0	-	0.5	2.7	1.9	0.0	1.9
4/2	841	841	-	-	-	0.1	0.0	-	0.1	0.6	0.3	0.0	0.3
4/3	853	853	-	-	-	0.2	0.0	-	0.2	0.6	0.4	0.0	0.4
5/1	265	265	-	-	-	2.1	4.2	-	6.2	84.9	4.9	4.2	9.0
5/2+5/3	550	550	-	-	-	4.3	8.9	-	13.3 (6.9+6.4)	86.8 (87.6:85.9)	5.3	8.9	14.2
6/1	1100	1100	-	-	-	0.5	0.0	-	0.5	1.7	11.8	0.0	11.8
6/2	1068	1068	-	-	-	1.8	0.0	-	1.8	6.0	10.7	0.0	10.7
6/3	1112	1112	-	-	-	2.0	0.0	-	2.0	6.6	12.7	0.0	12.7
7/1	1090	995	-	-	-	8.3	52.9	-	61.1	201.9	22.1	52.9	74.9
7/2	1194	1088	-	-	-	9.1	58.1	-	67.2	202.6	24.2	58.1	82.3
7/3+7/4	1200	1200	-	-	-	3.5	1.0	-	4.5 (2.8+1.7)	13.5 (14.2:12.5)	9.6	1.0	10.6
8/2+8/1	579	579	-	-	-	2.5	0.0	-	2.5 (1.3+1.2)	15.4 (12.6:20.6)	5.7	0.0	5.7
8/3	268	268	-	-	-	0.0	0.0	-	0.0	0.2	0.5	0.0	0.5
12/1	1365	1365	-	-	-	0.0	0.9	-	0.9	2.4	0.0	0.9	0.9
12/2	1181	1181	-	-	-	0.0	0.6	-	0.6	2.0	0.0	0.6	0.6
12/3	702	702	-	-	-	0.0	0.3	-	0.3	1.3	0.0	0.3	0.3

C1	Stream: 1	PRC for Signalled Lanes (%):	4.6	Total Delay for Signalled Lanes (pcuHr):	12.87	Cycle Time (s):	67
C2	Stream: 1	PRC for Signalled Lanes (%):	-7.6	Total Delay for Signalled Lanes (pcuHr):	39.26	Cycle Time (s):	67
C3	Stream: 1	PRC for Signalled Lanes (%):	-11.2	Total Delay for Signalled Lanes (pcuHr):	23.84	Cycle Time (s):	67
C4	Stream: 1	PRC for Signalled Lanes (%):	-21.9	Total Delay for Signalled Lanes (pcuHr):	135.33	Cycle Time (s):	67
		PRC Over All Lanes (%):	-21.9	Total Delay Over All Lanes(pcuHr):	213.11		

Scenario 5: '2031 adjDS2A - AM' (FG5: '2031 adjDS2A - AM', Plan 1: 'Staging Plan No. 1')
Controller :C1

Stage Sequence Diagram

Stage Stream: 1

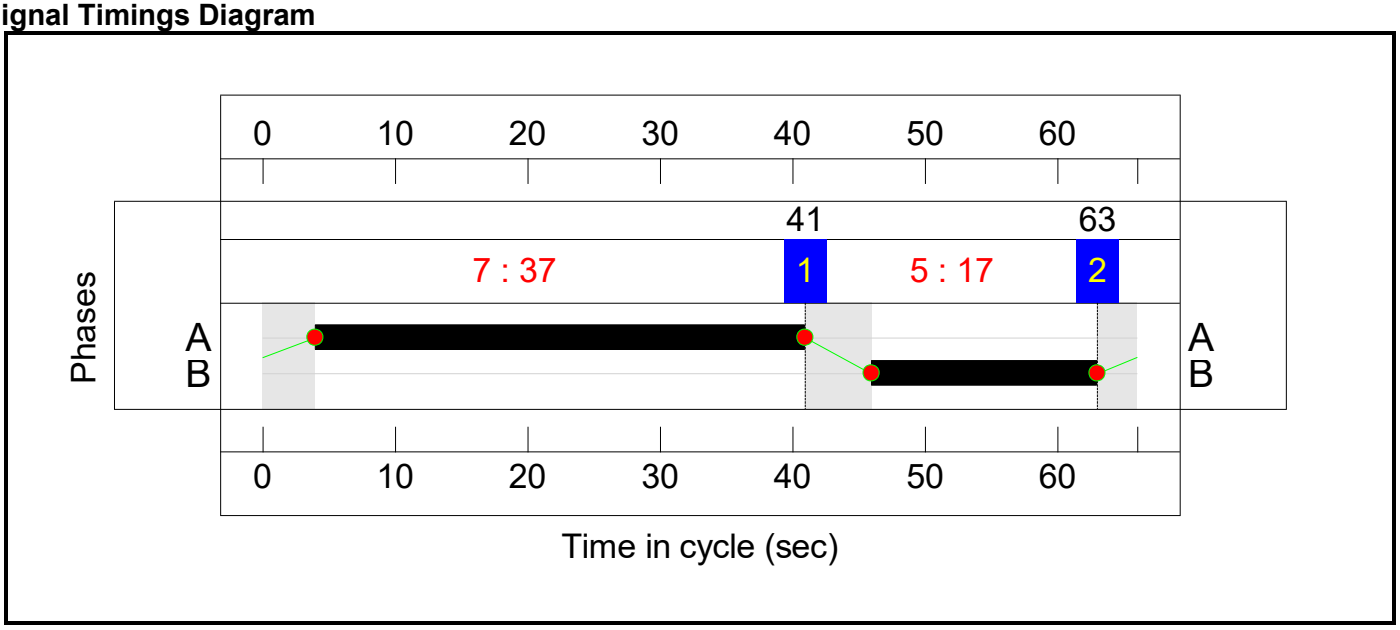


Stage Timings

Stage Stream: 1

Stage	1	2
Duration	17	37
Change Point	41	63

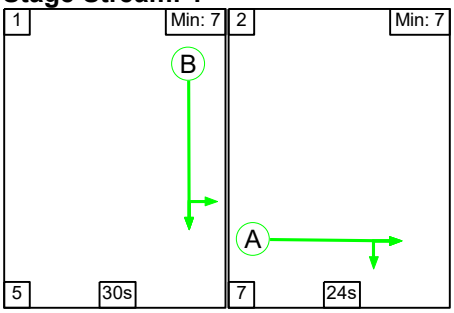
Signal Timings Diagram



Controller :C2

Stage Sequence Diagram

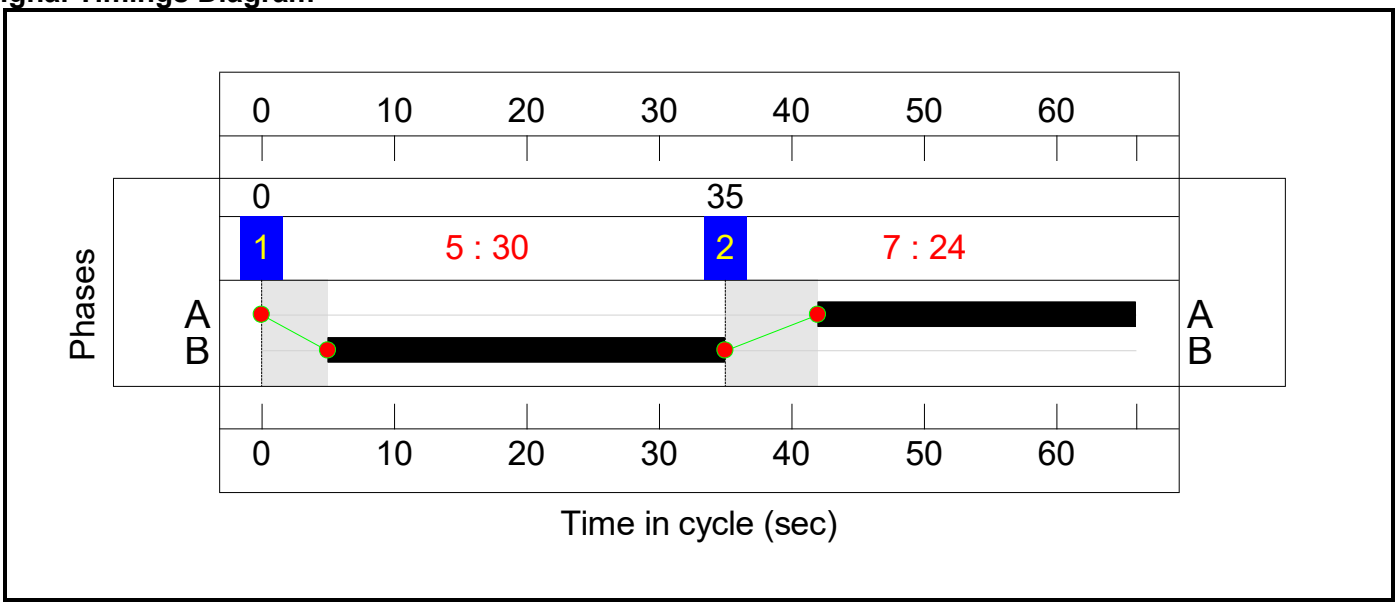
Stage Stream: 1



Stage Timings
Stage Stream: 1

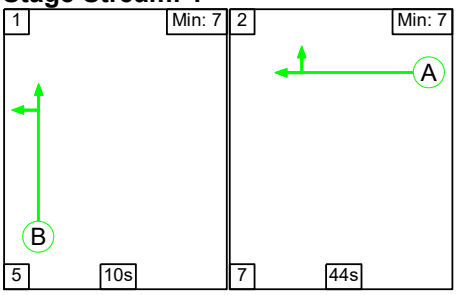
Stage	1	2
Duration	30	24
Change Point	0	35

Signal Timings Diagram



Controller :C3

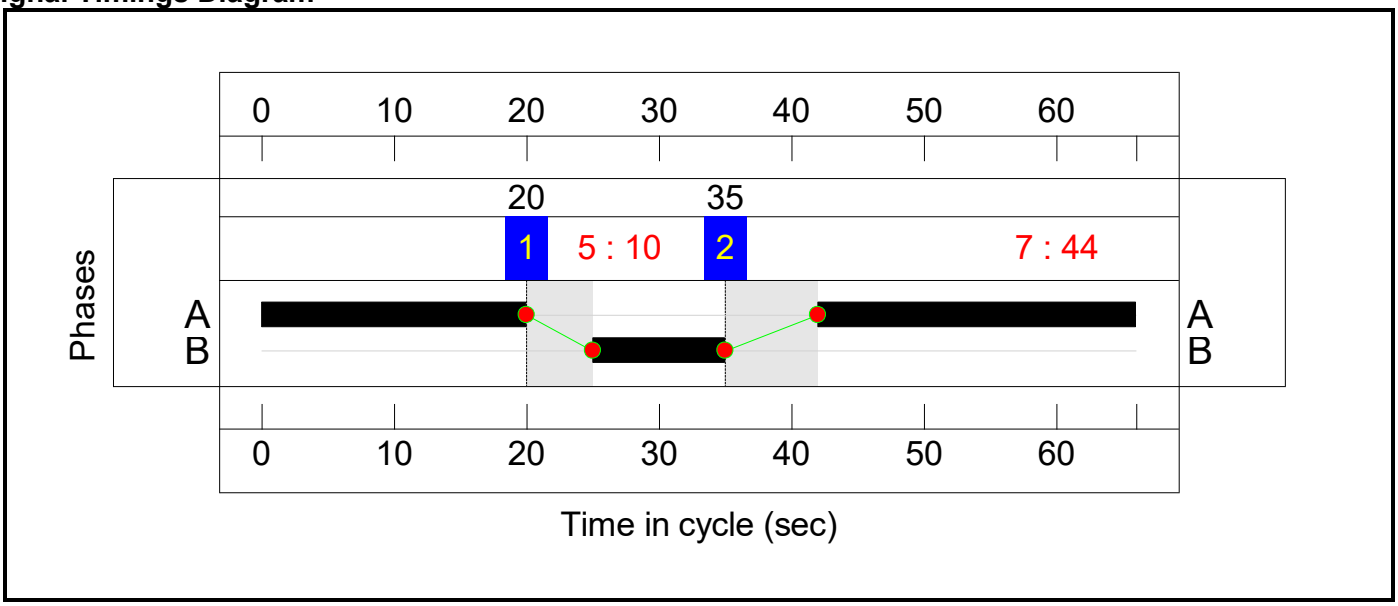
Stage Sequence Diagram
Stage Stream: 1



Stage Timings
Stage Stream: 1

Stage	1	2
Duration	10	44
Change Point	20	35

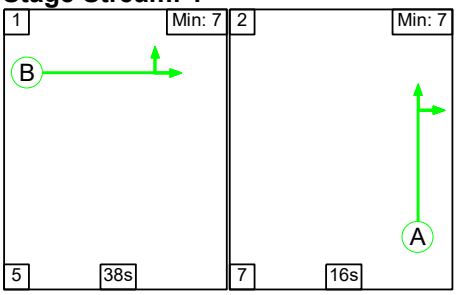
Signal Timings Diagram



Controller :C4

Stage Sequence Diagram

Stage Stream: 1

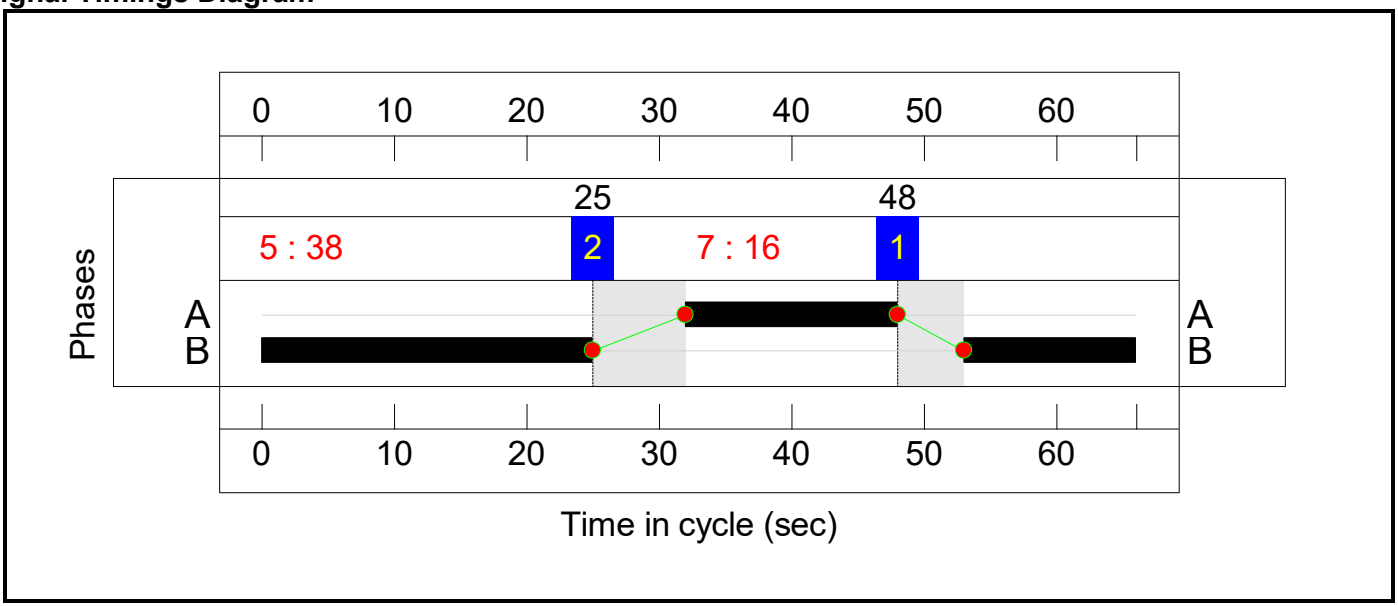


Stage Timings

Stage Stream: 1

Stage	1	2
Duration	38	16
Change Point	48	25

Signal Timings Diagram



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
M40 Junction 9	-	-	**N/A**	-	-		-	-	-	-	-	-	**93.9%**
1/1	M40 N Ahead Left	U	2:1	N/A	C2:B		1	30	-	787	1906	895	87.9%
1/2+1/3	M40 N Ahead	U	2:1	N/A	C2:B		1	30	-	1612	1825:1845	857+867	93.1 : 93.9%
2/1	Ahead	U	2:1	N/A	C2:A		1	24	-	612	1945	737	83.1%
2/2	Ahead	U	2:1	N/A	C2:A		1	24	-	666	1977	749	88.9%
2/3	Right Ahead	U	2:1	N/A	C2:A		1	24	-	611	1869	708	86.3%
3/1	A41 Ahead Left	U	1:1	N/A	C1:B		1	17	-	432	1905	520	83.1%
3/2+3/3	A41 Ahead	U	1:1	N/A	C1:B		1	17	-	834	1965:1960	536+535	74.5 : 81.4%
4/1	Right Ahead	U	1:1	N/A	C1:A		1	37	-	632	1906	1097	57.6%
4/2	Right	U	1:1	N/A	C1:A		1	37	-	798	1825	1051	75.9%
4/3	Right	U	1:1	N/A	C1:A		1	37	-	814	1845	1062	76.6%
5/1	M40 S Left	U	3:1	N/A	C3:B		1	10	-	234	1932	322	72.7%
5/2+5/3	M40 S Ahead Left	U	3:1	N/A	C3:B		1	10	-	396	1888:1888	161+315	83.3 : 83.3%
6/1	Ahead	U	3:1	N/A	C3:A		1	44	-	702	1906	1300	54.0%
6/2	Ahead	U	3:1	N/A	C3:A		1	44	-	1062	1981	1351	78.6%
6/3	Right Ahead	U	3:1	N/A	C3:A		1	44	-	1089	1960	1336	81.5%
7/1	A34 Left	U	4:1	N/A	C4:B		1	38	-	994	1851	1094	90.9%
7/2	A34 Left	U	4:1	N/A	C4:B		1	38	-	1097	2025	1197	91.7%
7/3+7/4	A34 Ahead	U	4:1	N/A	C4:B		1	38	-	1495	1973:1869	1166+604	86.5 : 80.5%
8/2+8/1	Right Ahead	U	4:1	N/A	C4:A		1	16	-	448	1942:1942	427+237	67.4 : 67.4%
8/3	Right	U	4:1	N/A	C4:A		1	16	-	266	2078	535	49.7%
12/1	A34 Exit	U	N/A	N/A	-		-	-	-	936	2100	2100	44.6%
12/2	A34 Exit	U	N/A	N/A	-		-	-	-	1068	2100	2100	50.9%
12/3	A34 Exit	U	N/A	N/A	-		-	-	-	765	2100	2100	36.4%

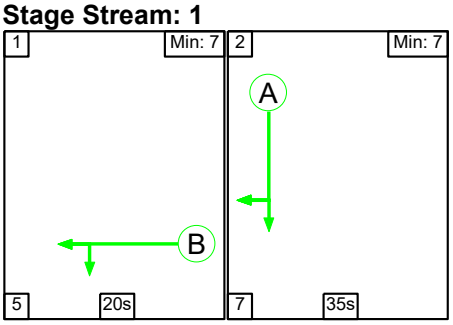
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
M40 Junction 9	**-**	**-**	**0**	**0**	**0**	**53.4**	**31.0**	**0.0**	**84.4**	**-**	**-**	**-**	**-**
1/1	787	787	-	-	-	3.5	3.4	-	6.9	31.5	12.9	3.4	16.3
1/2+1/3	1612	1612	-	-	-	7.4	6.5	-	13.9 (6.9+7.0)	31.0 (30.9:31.0)	14.0	6.5	20.5
2/1	612	612	-	-	-	3.7	0.0	-	3.7	21.9	10.9	0.0	10.9
2/2	666	666	-	-	-	3.9	0.0	-	3.9	21.0	11.9	0.0	11.9
2/3	611	611	-	-	-	4.2	0.0	-	4.2	24.7	11.0	0.0	11.0
3/1	432	432	-	-	-	2.7	2.3	-	5.1	42.1	7.4	2.3	9.8
3/2+3/3	834	834	-	-	-	5.1	1.7	-	6.9 (3.3+3.6)	29.7 (29.4:29.9)	7.4	1.7	9.1
4/1	632	632	-	-	-	1.1	0.0	-	1.1	6.1	4.5	0.0	4.5
4/2	798	798	-	-	-	0.2	0.0	-	0.2	1.1	0.6	0.0	0.6
4/3	814	814	-	-	-	0.3	0.0	-	0.3	1.1	0.6	0.0	0.6
5/1	234	234	-	-	-	1.7	1.3	-	3.0	46.0	4.0	1.3	5.3
5/2+5/3	396	396	-	-	-	2.9	2.3	-	5.2 (1.7+3.5)	47.3 (46.0:48.0)	4.6	2.3	6.9
6/1	702	702	-	-	-	1.2	0.0	-	1.2	6.0	11.9	0.0	11.9
6/2	1062	1062	-	-	-	1.2	0.0	-	1.2	4.1	11.6	0.0	11.6
6/3	1089	1089	-	-	-	1.2	0.0	-	1.2	4.1	11.6	0.0	11.6
7/1	994	994	-	-	-	3.3	4.6	-	7.9	28.5	16.0	4.6	20.6
7/2	1097	1097	-	-	-	3.7	5.0	-	8.7	28.5	17.7	5.0	22.7
7/3+7/4	1495	1495	-	-	-	4.2	2.7	-	6.8 (5.0+1.9)	16.5 (17.7:13.9)	15.4	2.7	18.1
8/2+8/1	448	448	-	-	-	1.9	0.0	-	1.9 (1.0+0.9)	15.6 (13.0:20.4)	5.2	0.0	5.2
8/3	266	266	-	-	-	0.0	0.0	-	0.0	0.7	0.3	0.0	0.3
12/1	936	936	-	-	-	0.0	0.4	-	0.4	1.5	0.0	0.4	0.4
12/2	1068	1068	-	-	-	0.0	0.5	-	0.5	1.7	0.0	0.5	0.5
12/3	765	765	-	-	-	0.0	0.3	-	0.3	1.3	0.0	0.3	0.3

C1	Stream: 1	PRC for Signalled Lanes (%):	8.2	Total Delay for Signalled Lanes (pcuHr):	13.48	Cycle Time (s):	66
C2	Stream: 1	PRC for Signalled Lanes (%):	-4.4	Total Delay for Signalled Lanes (pcuHr):	32.56	Cycle Time (s):	66
C3	Stream: 1	PRC for Signalled Lanes (%):	8.1	Total Delay for Signalled Lanes (pcuHr):	11.81	Cycle Time (s):	66
C4	Stream: 1	PRC for Signalled Lanes (%):	-1.9	Total Delay for Signalled Lanes (pcuHr):	25.37	Cycle Time (s):	66
		PRC Over All Lanes (%):	-4.4	Total Delay Over All Lanes(pcuHr):	84.43		

Scenario 6: '2031 adjDS2A - PM' (FG6: '2031 adjDS2A - PM', Plan 1: 'Staging Plan No. 1')
Controller :C1

Stage Sequence Diagram

Stage Stream: 1

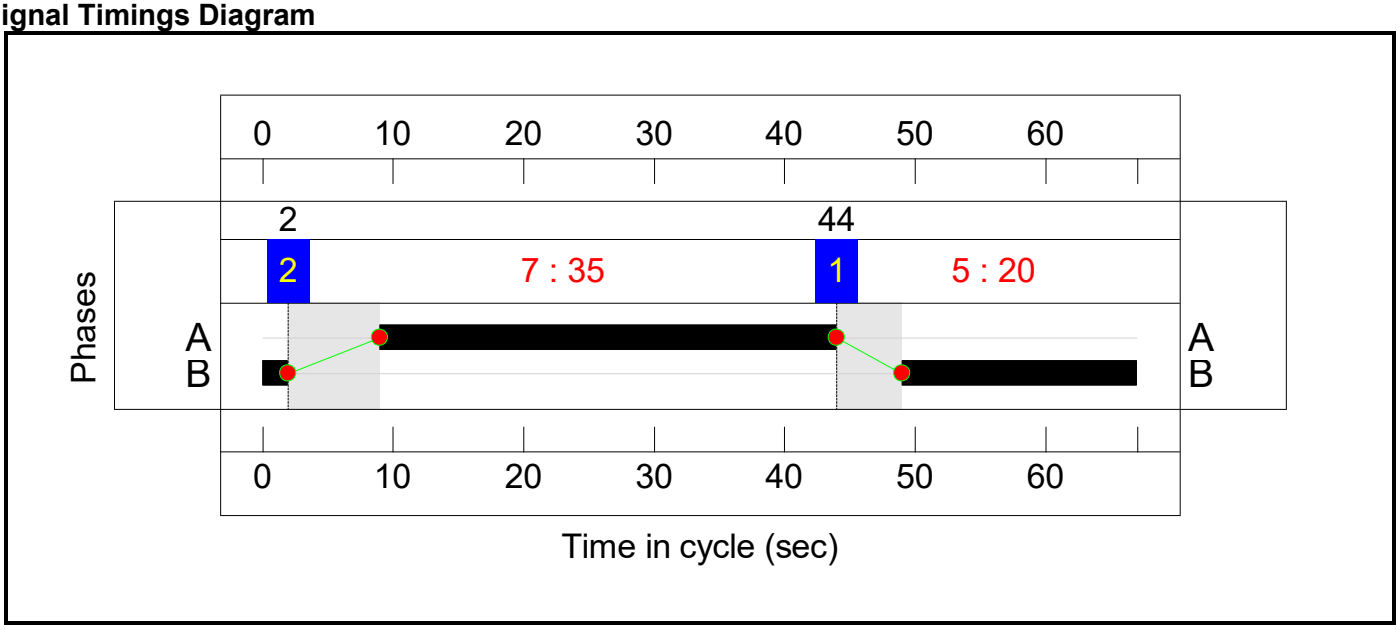


Stage Timings

Stage Stream: 1

Stage	1	2
Duration	20	35
Change Point	44	2

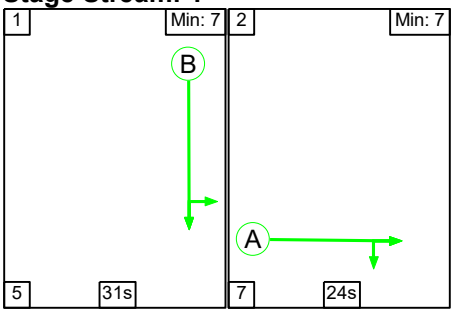
Signal Timings Diagram



Controller :C2

Stage Sequence Diagram

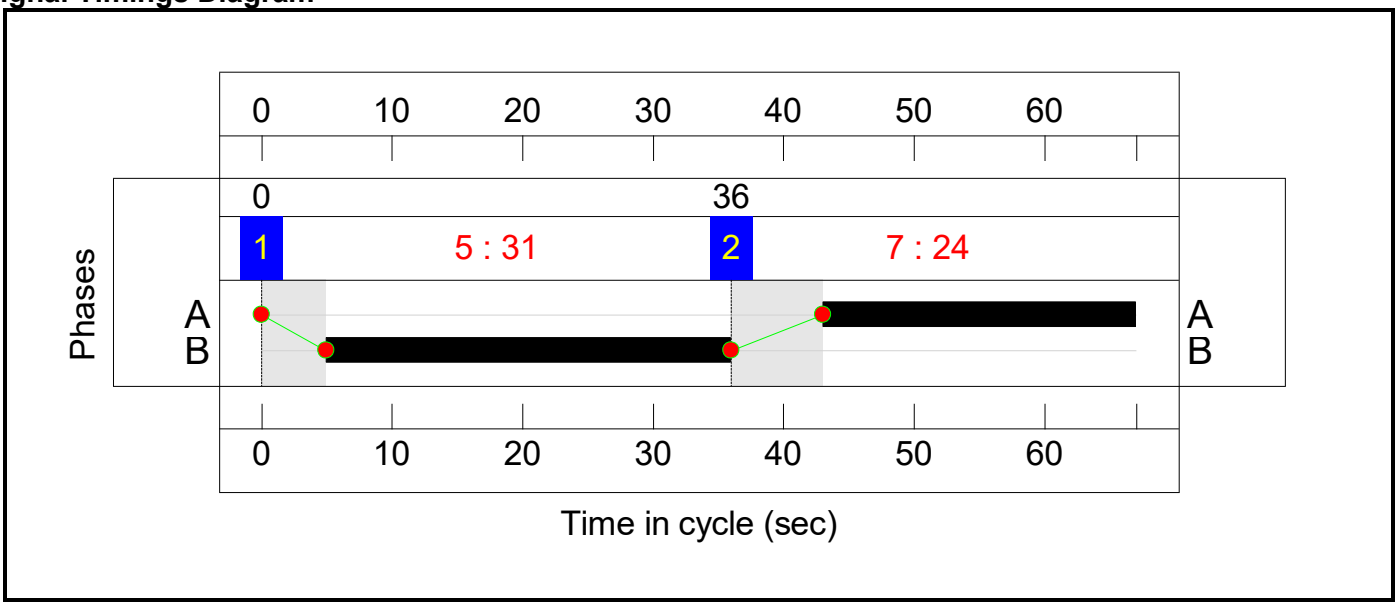
Stage Stream: 1



Stage Timings
Stage Stream: 1

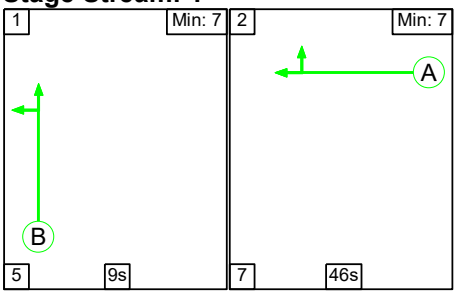
Stage	1	2
Duration	31	24
Change Point	0	36

Signal Timings Diagram



Controller :C3

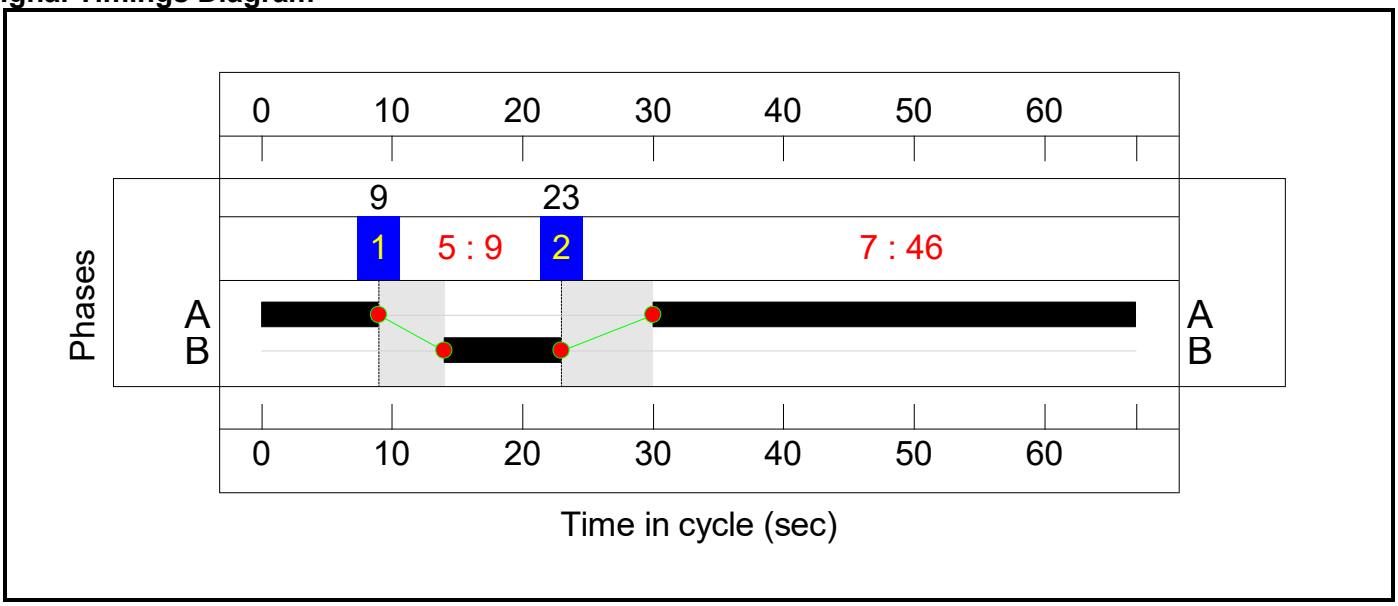
Stage Sequence Diagram
Stage Stream: 1



Stage Timings
Stage Stream: 1

Stage	1	2
Duration	9	46
Change Point	9	23

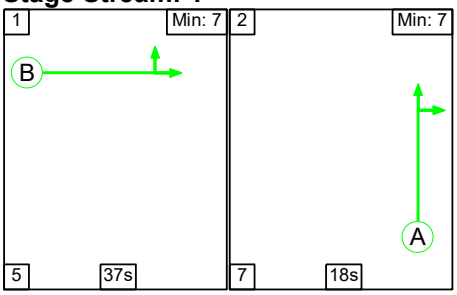
Signal Timings Diagram



Controller :C4

Stage Sequence Diagram

Stage Stream: 1

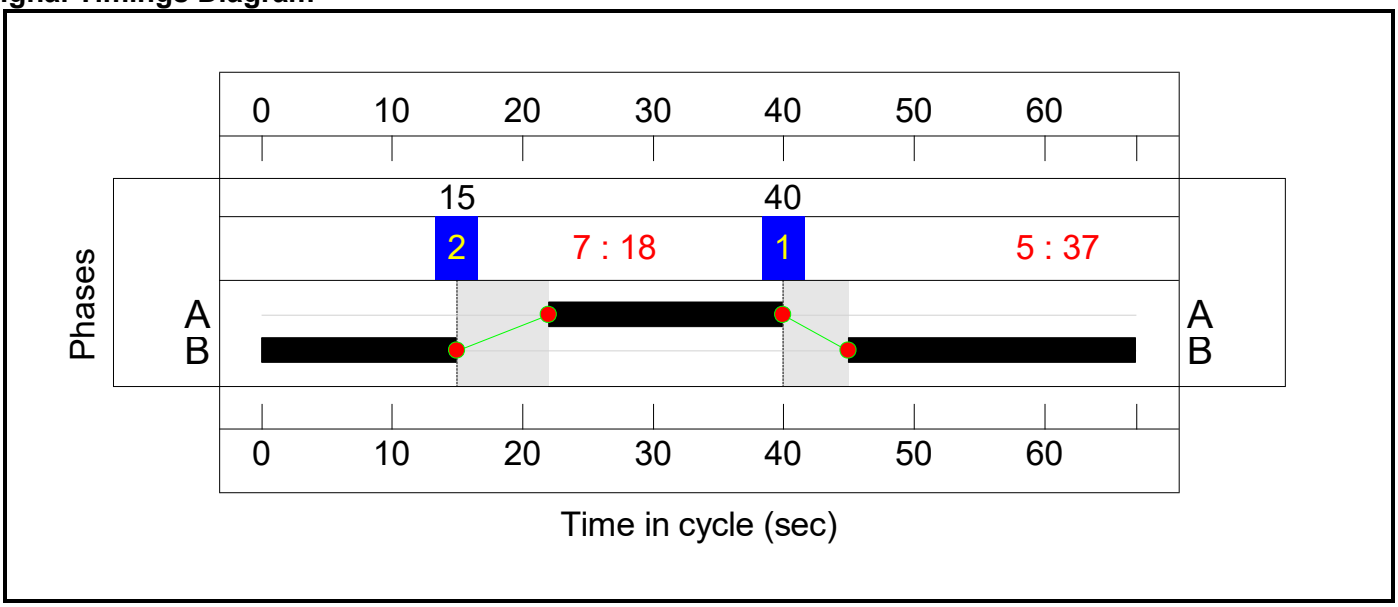


Stage Timings

Stage Stream: 1

Stage	1	2
Duration	37	18
Change Point	40	15

Signal Timings Diagram



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
M40 Junction 9	-	-	**N/A**	-	-		-	-	-	-	-	-	**110.5%**
1/1	M40 N Ahead Left	U	2:1	N/A	C2:B		1	31	-	879	1906	910	96.6%
1/2+1/3	M40 N Ahead	U	2:1	N/A	C2:B		1	31	-	1737	1825:1845	872+881	99.1 : 99.1%
2/1	Ahead	U	2:1	N/A	C2:A		1	24	-	487	1945	726	67.1%
2/2	Ahead	U	2:1	N/A	C2:A		1	24	-	576	1977	738	78.1%
2/3	Right Ahead	U	2:1	N/A	C2:A		1	24	-	490	1869	697	70.3%
3/1	A41 Ahead Left	U	1:1	N/A	C1:B		1	20	-	463	1905	597	77.5%
3/2+3/3	A41 Ahead	U	1:1	N/A	C1:B		1	20	-	912	1965:1960	616+614	72.9 : 75.4%
4/1	Right Ahead	U	1:1	N/A	C1:A		1	35	-	710	1906	1024	69.3%
4/2	Right	U	1:1	N/A	C1:A		1	35	-	864	1825	981	88.1%
4/3	Right	U	1:1	N/A	C1:A		1	35	-	873	1845	991	88.1%
5/1	M40 S Left	U	3:1	N/A	C3:B		1	9	-	265	1932	288	91.9%
5/2+5/3	M40 S Ahead Left	U	3:1	N/A	C3:B		1	9	-	549	1888:1888	282+282	99.4 : 95.5%
6/1	Ahead	U	3:1	N/A	C3:A		1	46	-	1081	1906	1337	80.8%
6/2	Ahead	U	3:1	N/A	C3:A		1	46	-	1061	1981	1390	76.3%
6/3	Right Ahead	U	3:1	N/A	C3:A		1	46	-	1130	1960	1375	82.2%
7/1	A34 Left	U	4:1	N/A	C4:B		1	37	-	1160	1851	1050	110.5%
7/2	A34 Left	U	4:1	N/A	C4:B		1	37	-	1269	2025	1149	110.5%
7/3+7/4	A34 Ahead	U	4:1	N/A	C4:B		1	37	-	1116	1973:1869	1119+781	59.3 : 57.8%
8/2+8/1	Right Ahead	U	4:1	N/A	C4:A		1	18	-	501	1942:1942	466+233	71.7 : 71.7%
8/3	Right	U	4:1	N/A	C4:A		1	18	-	269	2078	589	45.6%
12/1	A34 Exit	U	N/A	N/A	-		-	-	-	1346	2100	2100	64.1%
12/2	A34 Exit	U	N/A	N/A	-		-	-	-	1173	2100	2100	55.9%
12/3	A34 Exit	U	N/A	N/A	-		-	-	-	797	2100	2100	38.0%

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
M40 Junction 9	**-**	**-**	**0**	**0**	**0**	**64.7**	**169.7**	**0.0**	**234.4**	**-**	**-**	**-**	**-**
1/1	879	879	-	-	-	4.1	8.9	-	13.1	53.6	15.6	8.9	24.6
1/2+1/3	1737	1737	-	-	-	8.4	17.3	-	25.6 (12.7+12.9)	53.1 (53.1:53.1)	16.0	17.3	33.3
2/1	487	487	-	-	-	2.8	0.0	-	2.8	20.8	7.9	0.0	7.9
2/2	576	576	-	-	-	3.2	0.0	-	3.2	20.2	9.7	0.0	9.7
2/3	490	490	-	-	-	3.5	0.0	-	3.5	25.8	7.4	0.0	7.4
3/1	463	463	-	-	-	2.7	1.7	-	4.4	34.0	7.7	1.7	9.4
3/2+3/3	912	912	-	-	-	5.2	1.4	-	6.6 (3.3+3.4)	26.2 (26.1:26.3)	7.7	1.4	9.1
4/1	710	710	-	-	-	0.5	0.0	-	0.5	2.7	2.0	0.0	2.0
4/2	864	864	-	-	-	0.2	0.0	-	0.2	0.8	0.4	0.0	0.4
4/3	873	873	-	-	-	0.2	0.0	-	0.2	0.8	0.4	0.0	0.4
5/1	265	265	-	-	-	2.1	4.2	-	6.2	84.9	4.9	4.2	9.0
5/2+5/3	549	549	-	-	-	4.3	8.6	-	13.0 (6.6+6.3)	84.9 (85.0:84.8)	5.1	8.6	13.8
6/1	1081	1081	-	-	-	0.4	0.0	-	0.4	1.3	9.7	0.0	9.7
6/2	1061	1061	-	-	-	1.6	0.0	-	1.6	5.4	9.9	0.0	9.9
6/3	1130	1130	-	-	-	1.8	0.0	-	1.8	5.8	12.1	0.0	12.1
7/1	1160	1050	-	-	-	8.8	59.9	-	68.7	213.4	23.6	59.9	83.6
7/2	1269	1149	-	-	-	9.6	65.1	-	74.8	212.1	25.9	65.1	91.0
7/3+7/4	1116	1116	-	-	-	2.8	0.7	-	3.5 (2.2+1.3)	11.3 (11.8:10.6)	7.9	0.7	8.6
8/2+8/1	501	501	-	-	-	2.4	0.0	-	2.4 (1.2+1.1)	17.2 (13.5:24.6)	5.5	0.0	5.5
8/3	269	269	-	-	-	0.0	0.0	-	0.0	0.3	0.5	0.0	0.5
12/1	1346	1346	-	-	-	0.0	0.9	-	0.9	2.4	0.0	0.9	0.9
12/2	1173	1173	-	-	-	0.0	0.6	-	0.6	1.9	0.0	0.6	0.6
12/3	797	797	-	-	-	0.0	0.3	-	0.3	1.4	0.0	0.3	0.3

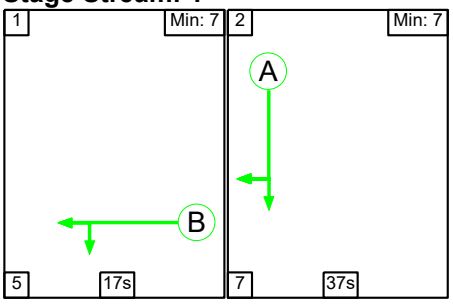
C1	Stream: 1	PRC for Signalled Lanes (%):	2.1	Total Delay for Signalled Lanes (pcuHr):	11.92	Cycle Time (s):	67
C2	Stream: 1	PRC for Signalled Lanes (%):	-10.1	Total Delay for Signalled Lanes (pcuHr):	48.26	Cycle Time (s):	67
C3	Stream: 1	PRC for Signalled Lanes (%):	-10.4	Total Delay for Signalled Lanes (pcuHr):	22.97	Cycle Time (s):	67
C4	Stream: 1	PRC for Signalled Lanes (%):	-22.8	Total Delay for Signalled Lanes (pcuHr):	149.42	Cycle Time (s):	67
		PRC Over All Lanes (%):	-22.8	Total Delay Over All Lanes(pcuHr):	234.40		

Scenario 7: '2031 adjDS2A no Wendlebury- AM' (FG7: '2031 adjDS2A no Wendlebury - AM', Plan 1: 'Staging Plan No. 1')

Controller :C1

Stage Sequence Diagram

Stage Stream: 1

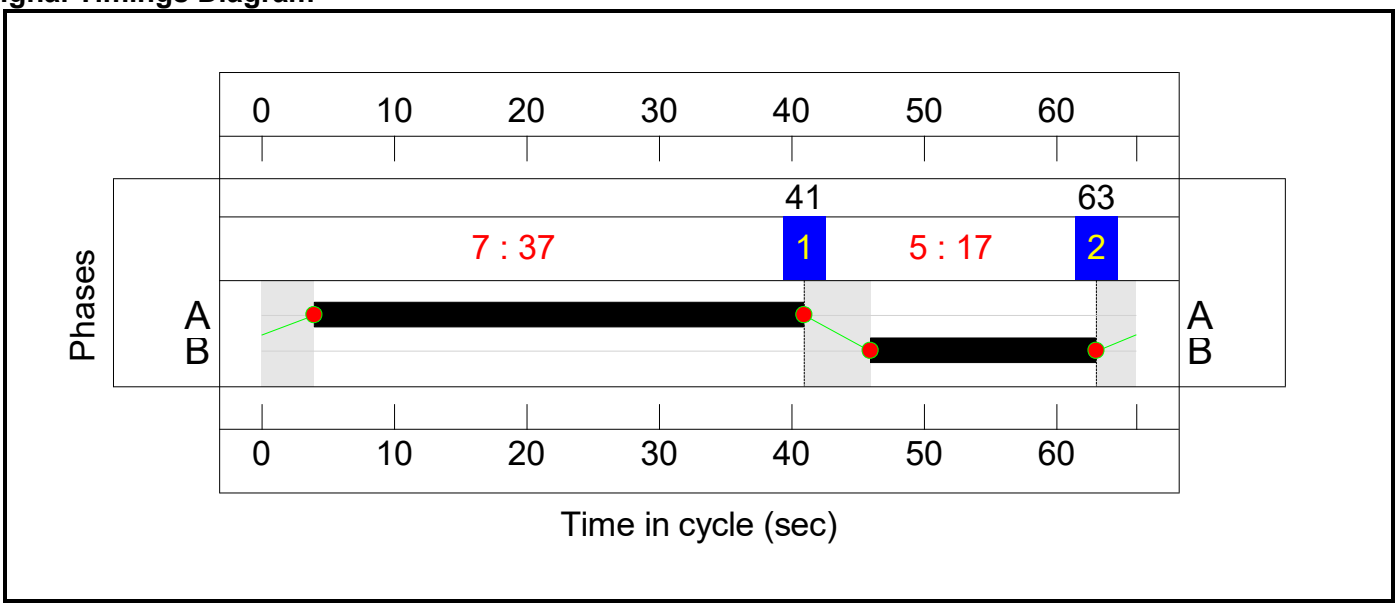


Stage Timings

Stage Stream: 1

Stage	1	2
Duration	17	37
Change Point	41	63

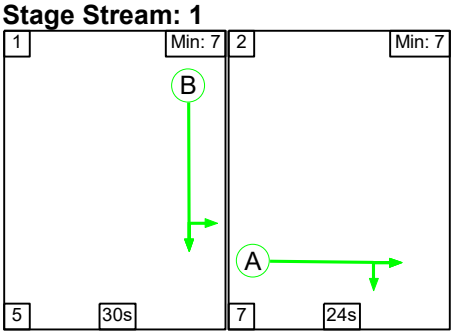
Signal Timings Diagram



Controller :C2

Stage Sequence Diagram

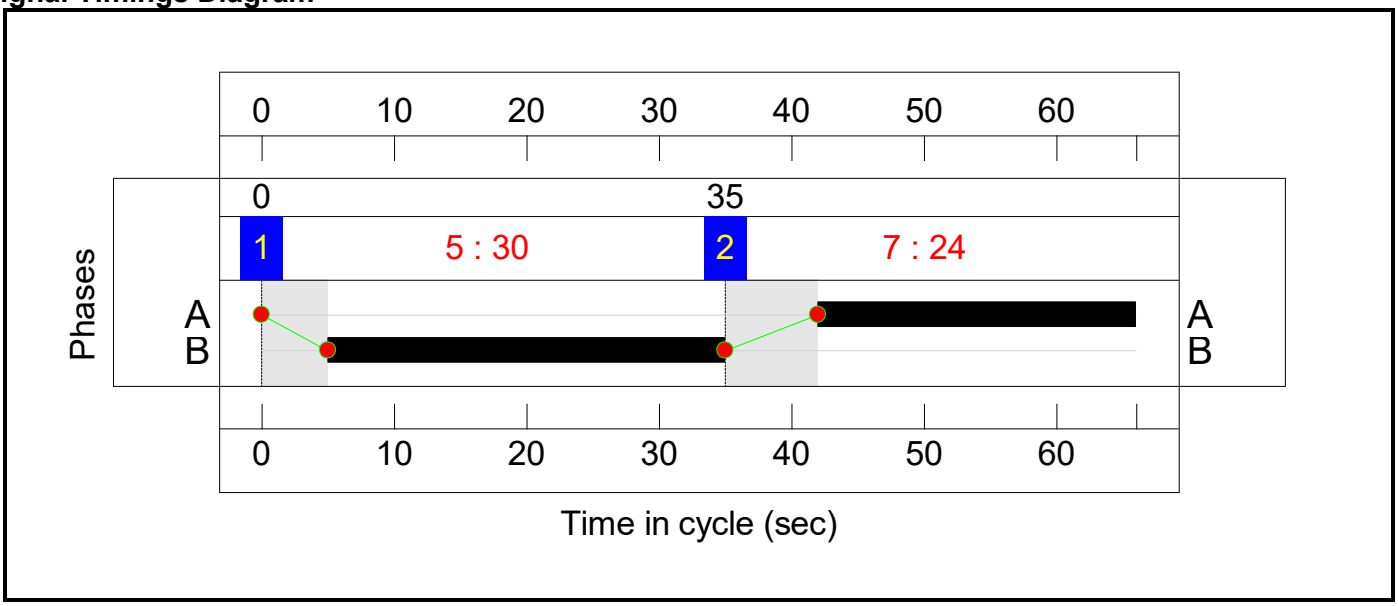
Stage Stream: 1



Stage Timings
Stage Stream: 1

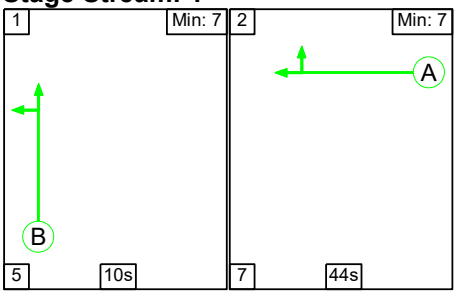
Stage	1	2
Duration	30	24
Change Point	0	35

Signal Timings Diagram



Controller :C3

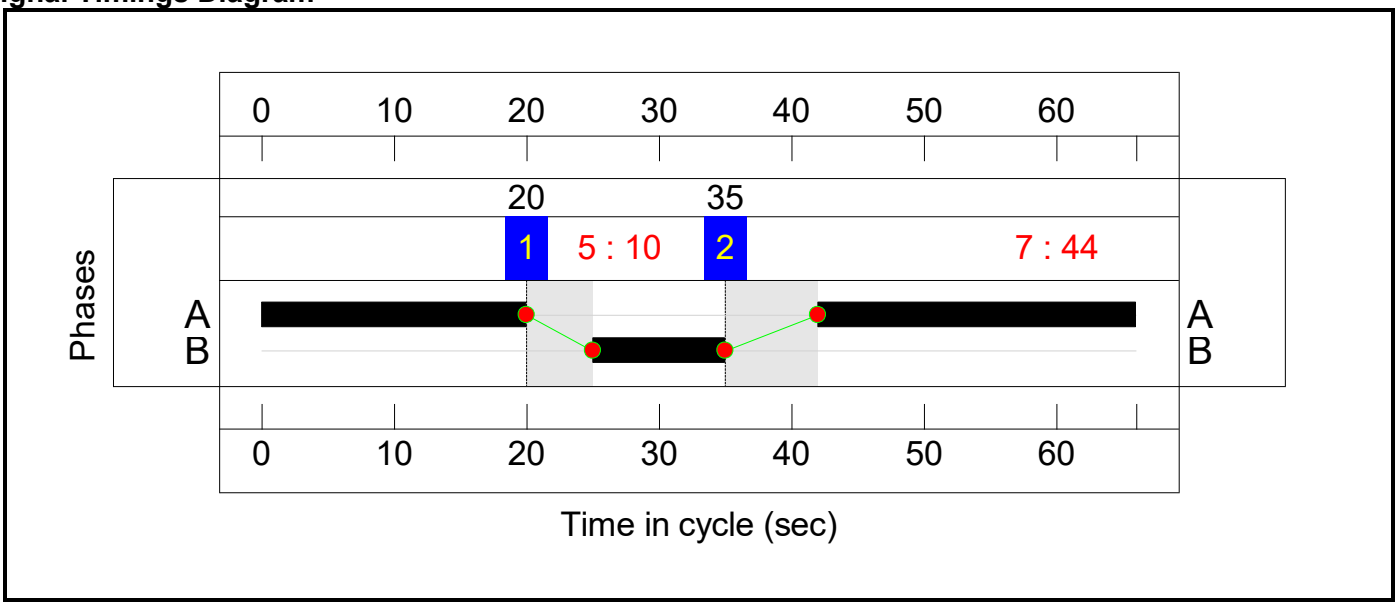
Stage Sequence Diagram
Stage Stream: 1



Stage Timings
Stage Stream: 1

Stage	1	2
Duration	10	44
Change Point	20	35

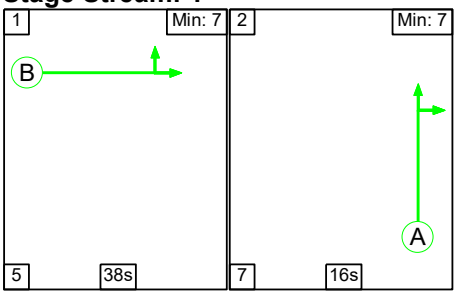
Signal Timings Diagram



Controller :C4

Stage Sequence Diagram

Stage Stream: 1

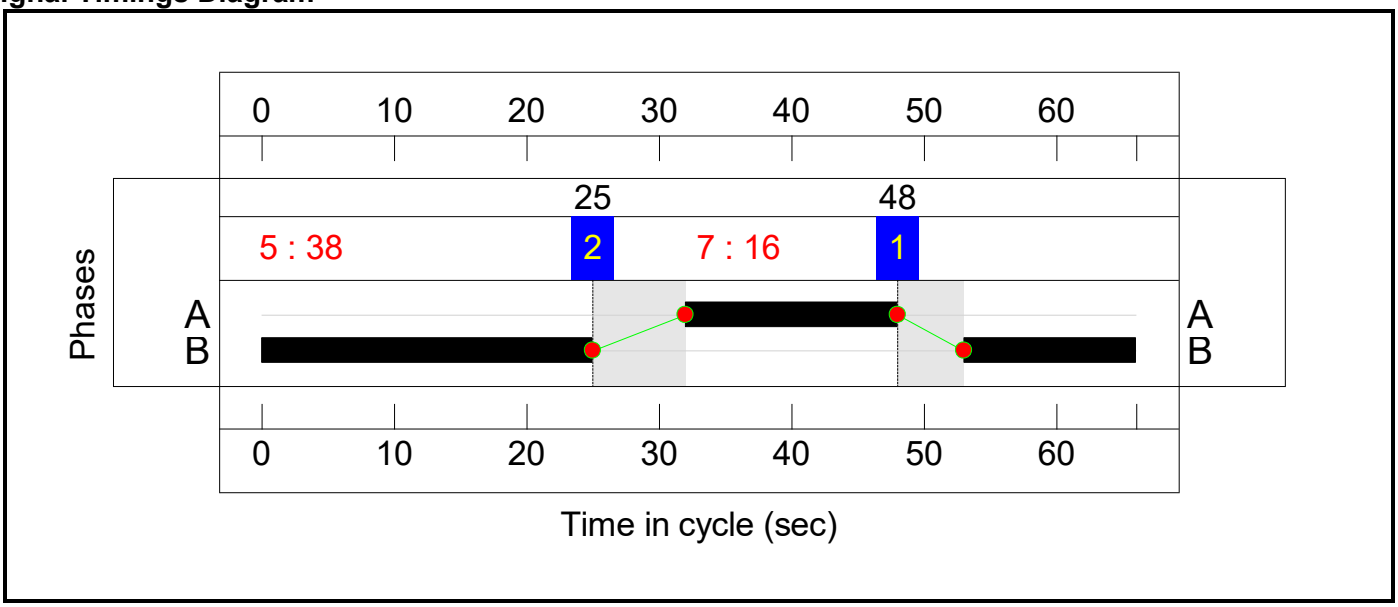


Stage Timings

Stage Stream: 1

Stage	1	2
Duration	38	16
Change Point	48	25

Signal Timings Diagram



Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
M40 Junction 9	-	-	**N/A**	-	-		-	-	-	-	-	-	**93.8%**
1/1	M40 N Ahead Left	U	2:1	N/A	C2:B		1	30	-	785	1906	895	87.7%
1/2+1/3	M40 N Ahead	U	2:1	N/A	C2:B		1	30	-	1614	1825:1845	857+867	93.4 : 93.8%
2/1	Ahead	U	2:1	N/A	C2:A		1	24	-	615	1945	737	83.5%
2/2	Ahead	U	2:1	N/A	C2:A		1	24	-	664	1977	749	88.7%
2/3	Right Ahead	U	2:1	N/A	C2:A		1	24	-	610	1869	708	86.2%
3/1	A41 Ahead Left	U	1:1	N/A	C1:B		1	17	-	460	1905	520	88.5%
3/2+3/3	A41 Ahead	U	1:1	N/A	C1:B		1	17	-	971	1965:1960	536+535	90.7 : 90.7%
4/1	Right Ahead	U	1:1	N/A	C1:A		1	37	-	630	1906	1097	57.4%
4/2	Right	U	1:1	N/A	C1:A		1	37	-	801	1825	1051	76.2%
4/3	Right	U	1:1	N/A	C1:A		1	37	-	813	1845	1062	76.5%
5/1	M40 S Left	U	3:1	N/A	C3:B		1	10	-	228	1932	322	70.8%
5/2+5/3	M40 S Ahead Left	U	3:1	N/A	C3:B		1	10	-	402	1888:1888	174+315	82.3 : 82.3%
6/1	Ahead	U	3:1	N/A	C3:A		1	44	-	757	1906	1300	58.3%
6/2	Ahead	U	3:1	N/A	C3:A		1	44	-	1121	1981	1351	83.0%
6/3	Right Ahead	U	3:1	N/A	C3:A		1	44	-	1140	1960	1336	85.3%
7/1	A34 Left	U	4:1	N/A	C4:B		1	38	-	994	1851	1094	90.9%
7/2	A34 Left	U	4:1	N/A	C4:B		1	38	-	1097	2025	1197	91.7%
7/3+7/4	A34 Ahead	U	4:1	N/A	C4:B		1	38	-	1495	1973:1869	1166+601	86.6 : 80.7%
8/2+8/1	Right Ahead	U	4:1	N/A	C4:A		1	16	-	451	1942:1942	428+235	68.0 : 68.0%
8/3	Right	U	4:1	N/A	C4:A		1	16	-	263	2078	535	49.1%
12/1	A34 Exit	U	N/A	N/A	-		-	-	-	985	2100	2100	46.9%
12/2	A34 Exit	U	N/A	N/A	-		-	-	-	1133	2100	2100	54.0%
12/3	A34 Exit	U	N/A	N/A	-		-	-	-	816	2100	2100	38.9%

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
M40 Junction 9	**-**	**-**	**0**	**0**	**0**	**55.1**	**34.9**	**0.0**	**89.9**	**-**	**-**	**-**	**-**
1/1	785	785	-	-	-	3.4	3.4	-	6.8	31.2	12.9	3.4	16.2
1/2+1/3	1614	1614	-	-	-	7.4	6.6	-	14.0 (6.9+7.1)	31.2 (31.2:31.2)	14.0	6.6	20.6
2/1	615	615	-	-	-	3.7	0.0	-	3.7	21.8	10.9	0.0	10.9
2/2	664	664	-	-	-	3.9	0.0	-	3.9	21.1	11.9	0.0	11.9
2/3	610	610	-	-	-	4.2	0.0	-	4.2	24.7	11.0	0.0	11.0
3/1	460	460	-	-	-	2.9	3.5	-	6.4	50.1	8.1	3.5	11.5
3/2+3/3	971	971	-	-	-	6.3	4.5	-	10.7 (5.4+5.4)	39.8 (39.8:39.8)	8.5	4.5	13.0
4/1	630	630	-	-	-	1.1	0.0	-	1.1	6.1	4.5	0.0	4.5
4/2	801	801	-	-	-	0.2	0.0	-	0.2	1.1	0.6	0.0	0.6
4/3	813	813	-	-	-	0.3	0.0	-	0.3	1.1	0.6	0.0	0.6
5/1	228	228	-	-	-	1.6	1.2	-	2.8	44.7	3.9	1.2	5.1
5/2+5/3	402	402	-	-	-	2.9	2.2	-	5.1 (1.8+3.3)	45.8 (44.6:46.4)	4.5	2.2	6.7
6/1	757	757	-	-	-	1.3	0.0	-	1.3	6.3	12.7	0.0	12.7
6/2	1121	1121	-	-	-	1.3	0.0	-	1.3	4.1	11.3	0.0	11.3
6/3	1140	1140	-	-	-	1.4	0.0	-	1.4	4.3	12.1	0.0	12.1
7/1	994	994	-	-	-	3.3	4.6	-	7.9	28.5	16.0	4.6	20.6
7/2	1097	1097	-	-	-	3.7	5.0	-	8.7	28.5	17.7	5.0	22.7
7/3+7/4	1495	1495	-	-	-	4.2	2.7	-	6.9 (5.0+1.9)	16.6 (17.8:14.0)	15.4	2.7	18.1
8/2+8/1	451	451	-	-	-	1.9	0.0	-	1.9 (1.0+0.9)	15.5 (12.8:20.3)	5.3	0.0	5.3
8/3	263	263	-	-	-	0.0	0.0	-	0.0	0.6	0.3	0.0	0.3
12/1	985	985	-	-	-	0.0	0.4	-	0.4	1.6	0.0	0.4	0.4
12/2	1133	1133	-	-	-	0.0	0.6	-	0.6	1.9	0.0	0.6	0.6
12/3	816	816	-	-	-	0.0	0.3	-	0.3	1.4	0.0	0.3	0.3

C1	Stream: 1	PRC for Signalled Lanes (%):	-0.8	Total Delay for Signalled Lanes (pcuHr):	18.69	Cycle Time (s):	66
C2	Stream: 1	PRC for Signalled Lanes (%):	-4.2	Total Delay for Signalled Lanes (pcuHr):	32.60	Cycle Time (s):	66
C3	Stream: 1	PRC for Signalled Lanes (%):	5.5	Total Delay for Signalled Lanes (pcuHr):	11.89	Cycle Time (s):	66
C4	Stream: 1	PRC for Signalled Lanes (%):	-1.9	Total Delay for Signalled Lanes (pcuHr):	25.40	Cycle Time (s):	66
		PRC Over All Lanes (%):	-4.2	Total Delay Over All Lanes(pcuHr):	89.92		

APPENDIX 4

Stage 1 Road Safety Audit

BWB
A CAF GROUP COMPANY

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Oxfordshire Strategic Rail Freight Interchange
Ardley, Oxfordshire
Stage 1 Road Safety Audit

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FIGURES

Figure 1: Location of problems identifed in this audit
Figure 2: Location of problems identifed in this audit
Figure 3: Location of problems identifed in this audit
Figure 4: Location of problems identifed in this audit
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Figure 7: Location of problems identifed in this audit
Figure 8: Location of problems identifed in this audit

APPENDICES

Appendix 1: List of Documents Supplied to the Audit Team

1. INTRODUCTION

1.1 This report comprises a Stage 1 Road Safety Audit (RSA) undertaken on the works associated with the proposed highway infrastructure to provide access to the proposed Oxfordshire Strategic Rail Freight Interchange (OxSRFI). There are several elements of the works, some of which are on the Strategic Road Network (SRN) covered by National Highways (NH) and some that are on the Local Highway Authority (LHA) network covered by Oxfordshire County Council (OCC). The works are broken down further in the ensuing paragraphs. This report focuses on all elements of the proposed highway works.

1.2 BWB Consulting have previously undertaken an Interim Stage 1 RSA on the full scheme in May 2025. Section 2.0 of this report summarises the problems previously raised in the Interim Stage 1 RSA.

1.3 The Audit Team members are listed in Section 4.0. The audit took place at the Nottingham office of BWB Consulting Limited between 7th August and 25th September 2026. The Audit Brief prepared by the Design Team and the Audit Team were approved by Jeremy Bloom of National Highways and Julian Richardson of Oxfordshire County Council.

1.4 The Audit comprised an examination of the drawings, documents and information provided by the Design Team, who have prepared the general arrangement drawings for this section of the project. The information received by the Audit Team is listed in **Appendix 1**.

1.5 A daylight examination of the site was undertaken by the Audit Team between 1200 and 1600 hours on 2nd September 2026. During the site visit the weather was fine and dry but there were some intermittent showers. Traffic flows on all routes were moderate. Some pedestrian and cyclist movements observed during the site visit.

1.6 The terms of reference of the audit are as described in GG 119. The 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 designs to any other criteria. All comments and recommendations refer to the highway proposal drawings and the locations have been indicated in **Figures 1 - 6**.

1.7 The proposals are detailed in **Table 1** below.

DCO Work No(s).	Location	Description of Works	Overseeing Organisation
10	Chilgrove Drive	Connection of bridleway into Chilgrove Drive	OCC
11	B430 OxSRFI principal access	Partially signalised roundabout access junction into OxSRFI Provision of walking and cycling facilities	OCC
12A, 12B	Heyford Park Link Road	Priority junction at Camp Road / Chilgrove Drive including a Pegasus crossing New link road to replace Camp Road Signalised junction with the B430	OCC

DCO Work No(s).	Location	Description of Works	Overseeing Organisation
		Secondary access into OxSRFI Provision of walking and cycling facilities	
13A	Bridleway crossing	Provision of a signalised bridleway crossing south of the Camp Road / Chilgrove Drive junction	OCC
13B	Camp Road / Chilgrove Drive junction	Alteration of the layout so that the road from Middleton Stoney gives way, with priority given to the link between Camp Road and Upper Heyford Drive Works are only required in the event that the Heyford Park scheme to realign Chilgrove Drive and improve this junction have not commenced	OCC
14A, 14B	M40 Junction 10 slip roads	SB diverge widening (to Padbury junction) SB merge widening and extension NB diverge realignment New NB diverge and direct link to Padbury junction NB merge relocation	NH
15A, 15B, 18	A43 corridor from Baynard's Green to Ardley junction	On-line widening Padbury junction reconfiguration Cherwell junction capacity improvement Ardley junction capacity improvement and signalisation Provision of walking and cycling facilities B430 realignment south of Ardley junction (M40 J10)	NH except B430 south of Ardley junction which is OCC
16, 16A, 17	A43/B4100 Baynard's Green	Capacity improvement and signalisation Provision of walking and cycling facilities (Alternative scenario (Work No. 16A) in the event a third party scheme is built first)	NH (A43 and junction) OCC (B4100)
19, 20, 21	B430 Ardley Bypass	Construction of bypass to Ardley (single 2+1 cross-section) Realignment of Ardley Road (note there is a further amendment beyond that shown on the core design drawings which is shown on drawing OxSRFI-BWB-GEN-XX-SK-CH-SK145) Provision of walking and cycling facilities	OCC
22	M40 Junction 9	Capacity increase to provide an extra lane from the A34 to M40 NB through the junction	NH
23	Middleton Stoney Relief Road	New link road around the northeastern quadrant of Middleton Stoney Signalised junction with B430 Roundabout junction with the B4030 Provision of walking and cycling facilities	OCC
24	Middleton Road	Provision of a facility for walking, cycling and horse-riding across the M40 on Middleton Road, connecting two existing bridleways	OCC NH (M40 bridge)
25A 25B	B430 corridor south of the principal access	Provision of walking and cycling facilities and bus stops Closure of Camp Road junction Toucan crossing	OCC

DCO Work No(s).	Location	Description of Works	Overseeing Organisation
26	Quarry cottages	Stopping up of the southern end of the road and provision of a turning head Provision of walking and cycling facilities	OCC
27A 27B	Middleton Stoney	Provision of pedestrian crossing facilities at the junction within Middleton Stoney Provision of bus stops on Ardley Road	OCC
33	Cycle track to Middleton Road	Construction of a cycle track linking the MSRR south of Gagle Brook to Middleton Road	OCC
36	B430 Station Road	Works to downgrade Station Road following opening of the Ardley Bypass	OCC
39	A4905 / B4030 roundabout	Capacity improvement to the roundabout including provision of signalised crossings for pedestrians and cyclists	OCC

1.8 The departures for standard that have been identified to the Audit Team are included in **Table 2** below.

Location	Type	Reason	Departure Ref	Highway Authority
M40 Mainline	Cross-section	Hard shoulder not provided under bridge at NB diverge	G1	NH
M40 Mainline	Cross-section	Hard shoulder not provided under bridge at SB merge	G2	NH
M40 J10 NB Diverge to Ardley	Cross-section	Required lane width to standard not provided at tie-in to existing	G3	NH
M40 J10A NB Diverge to Padbury	Diverge layout	Lane-drop and ghost-island layout not provided	G4	NH
M40 J10A NB Diverge to Padbury	Link geometry	Use of relaxations given in CD 109 on a connector road	G5	NH
M40 J10A NB Diverge to Padbury	Visibility / SSD	Visibility of full loop not achieved	G6	NH
M40 J10 NB Merge from Ardley	Link geometry	Use of relaxations given in CD 109 on a connector road	G7	NH
M40 J10 SB Diverge to Padbury	Cross-section	Use of single lane cross-section and connecting to narrow hard shoulder	G8	NH
Baynard's Green B4100 east	Link geometry	1 step below desirable minimum crest K on immediate approach to the junction	G9	OCC
Baynard's Green B4100 west	Cross-section	Lack of hard strips	G10	OCC
Baynard's Green B4100 east	Cross-section	Lack of hard strips	G11	OCC
Baynard's Green B4100 east	Roundabout geometry	Entry path radius >100m	G12	NH

Baynard's Green – A43 south	Roundabout geometry	Entry path radius >100m	G13	NH
Padbury – A43	Link geometry	Two step below sag K value within immediate approach to junction	G14	NH
Padbury – A43	Link geometry	Two step below crest K value within immediate approach to junction	G15	NH
Cherwell – A43	Link geometry	Three step below crest K value within immediate approach to junction	G16	NH
Cherwell – A43	Link geometry	SSD below desirable minimum within immediate approach to junction	G17	NH
Baynard's Green – A43 North	Roundabout geometry	Entry path radius >100m	G18	NH
M40 J10 NB Diverge to Ardley	Cross-section	Entry lane widths >4.5m	G19	NH
M40 J10 NB merge first VMS	VMS location	VMS at a distance of 115m beyond the J10 northbound merge entry datum point	S1	NH
M40 NB through J10	VMS visibility	Visibility J10 final VMS to J10A final VMS not achieved for ⅔ of distance	S2	NH
M40 NB through J10	VMS visibility	Visibility J10A final VMS to J10 first VMS not achieved for ⅔ of distance	S3	NH
M40 NB through J10	VMS visibility	Visibility J10 first VMS to J10-11 intermediate VMS not achieved for ⅔ of distance	S4	NH
M40 J10 SB merge first VMS	VMS location	VMS at a distance of 151m beyond the J10 southbound merge entry datum point	S5	NH
M40 J10A NB diverge	ERT location	ERT is not located between 400m and 300m upstream of exit datum point	T1	NH
M40 J10 SB merge	ERT location	ERT located before 300m upstream of hard shoulder discontinuity	T2	NH
M40 J10 SB merge	ERT location	ERT located beyond 300m downstream of hard shoulder discontinuity	T3	NH
Ardley Road	Link geometry	Vertical and horizontal geometry – relaxations in combination	ARD/1	OCC
Ardley Road	Visibility / SSD	Vertical Geometry and reduced SSD – relaxations in combination	ARD/2	OCC
B430	Visibility / SSD	Visibility – full Stopping Site Distance not achieved at roundabout exit	ARD/3	OCC

B430	Cross-section	Cross Section - Tie in to existing, no hard strips	ARD/4	OCC
B430 – HPLR	Visibility / SSD	Vertical Visibility – Northbound visibility not achieving SSD of 215m due to existing vertical crest curve of 28K Vertical Visibility – Southbound visibility not achieving required two steps below desirable minimum of 120m due to existing vertical crest curve of 28K	HPLR/1	OCC
B430	Cross-section	Cross Section - No hard strips added to existing B430 north and south of B430/HPLR/MSRR junction	HPLR/2	OCC
Middleton Road	Link geometry	Vertical Geometry - crest and gradient exceeds desirable minimums and are on approach to junction	MSRR/1	OCC
B4030	Cross-section	Cross Section - No hard strips added to design	MSRR/2	OCC
B4030	Visibility / SSD	Visibility – full Stopping Site Distance not achieved at roundabout exit	B4030/1	OCC
Howes Lane	Visibility / SSD	Visibility – full Stopping Site Distance not achieved to nearside signal head	B4030/2	OCC

2. ITEMS PREVIOUSLY RAISED AT INTERIM STAGE 1 AUDIT

2.1 The following items were previously raised in the Interim Stage 1 RSA and have been revisited as part of the Stage 1 RSA. These are summarised in **Table 1** below:

Table 1: Items Previously Raised at the Interim Stage 1 Audit

Problem referenced in Interim Stage 1 RSA	Summary	Position at Stage 1 RSA
Strategic Road Network (National Highways)		
2.1	Risk of Non-Motorised Users (NMUs) falling over the parapet.	Still an issue; see Problem 3.1
2.2	Potential for collisions between pedestrians/cyclists and vehicles due to confusion and hesitation.	Still an issue; see Problem 3.2
M40 Junction 9		
2.3	Risk of collisions resulting from inappropriate parking during maintenance operations.	Resolved
2.4	Risk of collisions resulting from lane changes and hesitation due to complexity of the junction.	Still an issue; see Problem 3.3
2.5	Risk of increased severity collisions in the event of loss of control and errant vehicles colliding with roadside furniture.	Still an issue; see Problem 3.4
M40 Junction 10		
2.6	Risk of collisions resulting from lane changes and hesitation due to complexity of the junction.	Still an issue; see Problems 3.5 – 3.9
2.7	Risk of increased severity collisions in the event of loss of control and errant vehicles colliding with roadside furniture.	Still an issue; see Problem 3.10
2.8	Potential for ongoing maintenance issues and loss of control collisions resulting from kerb overrun.	Resolved
2.9	Potential collisions between vehicles entering the roundabout and vehicles on the circulatory.	Resolved
2.10	Potential collisions resulting from loss of control or elevated speed.	Resolved
Baynard's Green Roundabout and Padbury Link Road		
2.11	Potential for ongoing maintenance issues and loss of control collisions resulting from kerb overrun.	Still an issue; see Problem 3.16
2.12	Potential for NMUs to step into the live carriageway into the path of an approaching vehicle.	Resolved
2.13	Risk of lane changes, hesitation and subsequent side swipe or shunt type collisions.	Still an issue; see Problems 3.11 – 3.18
2.14	Risk of higher exit speeds and side swipe collisions as vehicles merge.	Resolved

Problem referenced in Interim Stage 1 RSA	Summary	Position at Stage 1 RSA
2.15	Risk of vegetation encroachment affecting forward visibility resulting in conflicts on the shared use facility.	Still an issue; see Problem 3.19
2.16	Risk of lane changes, hesitation and subsequent side swipe or shunt type collisions.	Resolved
Local Highway Network (Oxfordshire County Council)		
3.1	Potential for ongoing maintenance issues and loss of control collisions resulting from kerb overrun.	Resolved
3.2	Risk of NMUs falling over the parapet.	Still an issue; see Problem 4.1
3.3	Risk of collisions resulting from inappropriate parking during maintenance operations.	Still an issue; see Problem 4.20
3.4	Potential for collision between pedestrians/cyclists and vehicles.	Still an issue; see Problem 4.2
3.5	Risk of side swipe collisions resulting from underuse of the off carriageway cycle facility.	Resolved
3.6	Collisions resulting from loss of control or overtaking due to higher vehicular speeds.	Resolved
3.7	Risk of NMUs being struck while using the crossing due to impeded visibility.	Resolved
3.8	Conflicts between users of the crossing and the farm traffic accessing or exiting from the field access.	Resolved
3.9	Risk of cyclists entering the carriageway into the path of an approaching vehicle	Resolved
3.10	Potential overshoot of the crossing point resulting in collisions with NMUs.	Resolved
3.11	Risk of shunt type or loss of control collisions due to impeded visibility.	Resolved
3.12	Risk of increased severity of collisions in the event of loss of control collisions.	Resolved
3.13	Risk of loss of control for cyclists due to elevated speeds.	Resolved
3.14	Increased risk of collisions resulting from reduced forward visibility such as shunt type collisions.	Resolved
3.15	Risk of cyclists colliding due to impeded visibility.	Resolved
3.16	Risk of shunt type or loss of control collisions due to impeded visibility.	Resolved

Problem referenced in Interim Stage 1 RSA	Summary	Position at Stage 1 RSA
3.17	Risk of equestrian users falling from their horse in the event of inappropriate provision at proposed crossing points.	Resolved
3.18	Risk of equestrian users falling from their horse in the event of inappropriate provision at proposed crossing points.	Resolved
3.19	Risk of increased severity of collisions in the event of loss of control collisions.	Still an issue; see Problem 4.14
3.20	Potential conflicts between farm machinery and NMUs on the PRoWs.	Resolved
3.21	Inadequate drainage could lead to excessive surface water and loss of control collisions.	Still an issue; see Problem 4.15
3.22	Risk of increased severity of collisions in the event of loss of control collisions.	Still an issue; see Problem 4.10
3.23	Inadequate drainage could lead to excessive surface water and loss of control collisions.	Still an issue; see Problem 4.5

3. ITEMS RAISED AT THIS STAGE 1 AUDIT – STRATEGIC ROAD NETWORK (NATIONAL HIGHWAYS)

General to the scheme

Problem

3.1 Location: General to the scheme.

Summary: Risk of Non-Motorised Users (NMUs) falling over the parapet.

There is a number of locations where over bridges are proposed with NMU facilities provided on them. It is unclear from the design as to what height the proposed parapets are. It is important that the parapet heights are suitable for intended users, to reduce the risk of users falling over the parapet.

In addition, it should be noted that the minimum effective width of the cycle tracks proposed across the bridges reduces where the parapet is provided immediately adjacent to it. If the forecast level of use is expected to be high, additional width should be provided at the facility to avoid conflicts between cyclists on the facility.

Recommendation

Ensure the design of the structures makes allowance for intended users and anticipated flows.

Problem

3.2 Location: General to the scheme.

Summary: Potential for collision between pedestrians/cyclists and vehicles due to confusion and hesitation.

The proposals include new pedestrian, cycle and equestrian routes route across the scheme. The changes to the junctions at the M40 J10 and other changes along the A43 corridor, result in complex junctions for NMUs to negotiate and some of the routes may not be clear to users particularly where existing Public Rights of Way (PRoWs) have been diverted. The complexity of the junctions could lead to confusion resulting in collisions with other users, or, in some cases, lead to NMUs continuing along the carriageway and potentially being hit by passing vehicles.

Recommendation

Wayfinding signs should be provided for pedestrians and cyclists to ensure it is clear where they need to go and which routes they should be following to reach certain destinations.

M40 Junction 9

Problem

3.3 Location: A34 approach to M40 Junction 9.

Summary: Potential for side swipe or shunt type collisions.

The proposals increase the number of lanes on the A34 approach to M40 Junction 9, with 3 lanes being dedicated to the M40 northbound and 2 lanes continuing around the junction. Whilst there are advance directional signs (ADS) proposed that make this clear, the road markings appear to be limited to just directional arrows which could result in side swipe collisions or shunt type collisions, should motorists miss the ADS or if they are obscured by high sided vehicles or vegetation, and they find themselves in the wrong lane.

Recommendation

Lane destination markings should be added to the road markings to ensure it is clear which lane motorists need to be in.

Problem

3.4 Location: Exit from roundabout to M40.

Summary: Risk of increased severity collisions in the event of loss of control and errant vehicles colliding with roadside furniture.

Highway profile drawings were not supplied for the M40 junction 9. As such the proposed levels around the junction are not clear. Additionally, any proposals for road restraint systems have not been shared with the RSA team. As such in the event of significant level differences between the proposed finished road levels and the adjacent land, there is a risk of serious injury in the event of an errant vehicle leaving the carriageway.

Recommendation

Undertake RRRAP assessments, particularly to the west the junction, to identify areas of risk and address through mitigation or redesign.

M40 Junction 10

Problem

3.5 Location: A43 Northbound approaches to Padbury Junction.

Summary: Potential for side swipe or shunt type collisions.

At the revised Padbury Junction, motorist travelling north through the junction to the A43, can either be travelling from the new Junction 10A slip roads, or from the existing Cherwell Junction. Whilst all of the lanes head northbound through the junction to the A43, there are no destination markings provided to confirm this. As a result, drivers could get confused or panic and attempt to change lanes or hesitate, potentially leading to shunt or side swipe collisions. Drivers may also attempt to turn right here to access the services if they have missed the Junction 10 exit which could also result in shunt collisions.

Recommendation

Destination markings should be added to the road markings to avoid confusion for motorists and confirm they can only travel ahead in all lanes.

Problem

3.6 Location: A43 Southbound approach to Padbury Junction.

Summary: Potential for side swipe collisions.

On the A43 southbound approach to Padbury Junction the three lanes are separated by a kerbed island at the stop line. Two lanes are provided for the M40 (S)/Services and the third lane which is separated with the kerbed island is provided for the M40 (N) and the A43/B430 etc). However, directly after the kerbed island a fourth lane is proposed centrally, which does not have a taper or flare provided for vehicles travelling south. This could lead to vehicle attempting to enter this lane from either side, potentially resulting in side swipe collisions.

Recommendation

A flare/taper and hatching should be provided to guide southbound vehicles into the fourth lane that is proposed in a southbound direction travelling through the Padbury Junction.

Problem

3.7 Location: A43 Southbound through the Cherwell Junction.

Summary: Potential for side swipe or shunt type collisions.

Vehicles travelling southbound on the A43 through the Cherwell Junction towards the B430, Ardley or the M40 northbound are provided with two lanes over the M40 overbridge. Both lanes are marked as M40(N). However, at the approach to the Ardley Junction, only one lane is provided to the M40 northbound and two are allocated to

the B430. As a result, vehicles from the middle lane will need to move over for the dedicated lane through the middle of the junction that accesses the M40 northbound, which could result in side swipe or shunt collisions.

Recommendation

The allocations of the lanes through this section of the junction should be revisited and revised to ensure vehicles are afforded with sufficient time to change lanes in advance of the junction control line.

Problem

3.8 Location: M40 Northbound on slip from Ardley Junction.

Summary: Potential for pedestrians to be struck by passing vehicles.

There is an existing footway along the northern side of the Ardley Junction and the overbridge towards the Cherwell junction. The proposals appear to retain this footway, but the new slip road from the Ardley Junction on to the M40 northbound severs this existing facility and it does not appear that any crossing facilities are provided over the slip road. This could result in pedestrians being struck by vehicles accelerating at the slip road entry.

Recommendation

Ideally a crossing facility should be installed over the M40 Northbound slip road to ensure the existing footway facility remains safe to use. Alternatively the existing facility should be closed and users diverted around the new facilities on the southern side of the junction.

Problem

3.9 Location: Old B430 approach to Ardley Junction.

Summary: Potential for side swipe or shunt type collisions.

The old B430 northbound approach to the Ardley Junction is a single lane flaring to two lanes at the junction. The proposed lane markings show for the M40(N) in the nearside and in the offside lane M40(S), A43 and Services. No markings are proposed for the new B430 Ardley Bypass. This could lead to confusion or hesitation for drivers resulting in side swipe or shunt type collisions.

Recommendation

Whilst it is appreciated that there is unlikely to be a high demand for vehicles travelling north from Ardley onto the B430 Ardley Bypass the destination markings should be added to the approach to ensure it is clear which lane drivers should be in.

Problem

3.10 Location: General to the Ardley, Padbury and M40 Junction 10 Junctions.

Summary: Risk of increased severity collisions in the event of loss of control and errant vehicles colliding with roadside furniture.

Highway profile drawings were not supplied for the M40 junction 10. As such the proposed levels around the junction are not clear. Additionally, any proposals for road restraint systems have not been shared with the RSA team. As such in the event of significant level differences between the proposed finished road levels and the adjacent land, there is a risk of serious injury in the event of an errant vehicle leaving the carriageway.

Recommendation

Undertake RRRAP assessments, particularly to the west the junction, to identify areas of risk and address through mitigation or redesign.

Baynard's Green Roundabout and Padbury Link Road

Problem

3.11 Location: Westbound B4100 exit from roundabout.

Summary: Potential for side swipe collisions on the exit from the roundabout.

The exit from the roundabout on the B4100 is provided as a single lane exit, but the carriageway itself is provided wide enough for two lanes. While it is acknowledged that only the nearside lane on the circulatory and one lane on the A43(N) marked for B4100 west, there is a risk of drivers being positioned in the offside lane of the circulatory attempting to exit the roundabout onto the B4100 adjacent to another vehicle in the nearside lane, resulting in side swipe collisions on the exit.

Recommendation

The exit should be visually narrowed to a single lane to ensure it is clear to motorists that they are not able to exit side by side.

Problem

3.12 Location: Westbound B4100 exit from roundabout.

Summary: Potential for shunt type collisions on the exit from the roundabout.

Directly after the westbound B4100 exit from the roundabout, there is a right turn lane provided into the service area on the northern side of the junction. The right turn lane commences soon after the exit and as a result could give the impression to drivers that the B4100 has widened to two ahead lanes, which could result in shunts occurring in the right turn lane between right turning vehicles and those using the offside lane to overtake vehicles in the nearside. This issue is exacerbated by **Problem 3.11**.

Recommendation

The markings for the right turn lane should be revised to include a bifurcation arrow and destination markings for the Services.

Problem

3.13 Location: A43 Southbound approach to roundabout.

Summary: Potential for side swipe or shunt type collisions.

The southbound A43 approach to the junction flares from two lanes to three lanes. There are two sets of lane destination markings proposed. The first set is located in the vicinity of the widening with Lane 1 being marked for the B4100(E) and Lane 3 being marked for the B4100. The second set shows lane 3 as being for B4100(W). This could lead to late lane changes, leading to side swipe collisions on the approach.

Recommendation

The first set of lane destination markings on the southbound A43 approach to the junction should be updated to include B4100(W) in Lane 3 to ensure drivers are in the correct lane as they approach the roundabout.

Problem

3.14 Location: Northbound and southbound approaches to the junction.

Summary: Potential for loss of control collisions.

Both the northbound and the southbound approaches to the junction are provided at 3 lanes wide. The circulatory carriageway on the eastern and western side of the roundabout is provided at 4 lanes wide. This results in both northbound and southbound movements having a wide expanse of carriageway to travel through the junction, especially during periods of low traffic like during the night or early hours of the morning. If a green signal is present on the approach, this could also increase approach speeds, due to motorists knowing they do not need to give way to approaching traffic. This could lead to loss of control collisions as vehicles attempt to travel through the junction at elevated speeds.

Recommendation

Whilst there is limited opportunity to improve this issue geometrically, the traffic signals could be programmed to "rest on red". This would mean that during the quieter periods, through the night and in the early hours of the evening, all of the traffic lights, on all of the approaches would be on red, until a vehicle activates them to turn green. This would reduce approach speeds of vehicles, as motorists think they have to stop at the signals.

Problem

3.15 Location: B4100 westbound approach to roundabout.

Summary: Potential side swipe collisions.

The westbound B4100 approach to the roundabout is provided as a single lane flaring to two and then three lanes on the approach to the junction. However, no lane destination markings are proposed at the point where the carriageway widens to two lanes. This could result in vehicles making late lane changes on the approach to or on the roundabout circulatory, resulting in side swipe collisions.

Recommendation

The lane destination markings should be provided in the vicinity of the widening where the lanes flare to ensure that drivers can be in the correct lane as early as possible.

Problem

3.16 Location: Circulatory carriageway.

Summary: Potential side swipe collisions between larger vehicles.

The proposals increase the size of the junction to provide an elongated roundabout which results in the north and south sections of the circulatory being characterised by a tighter radius than the rest of the circulatory. It is unclear as to the speed at which the tracking was undertaken, however the swept path drawings for this junction appear to show potential for larger vehicles running side by side to be positioned such that they are likely to encroach into adjacent lanes. This is most likely in quieter periods when HGVs may have been able to enter the junction maintaining some speed, which could result in side swipe collisions between larger vehicles.

Recommendation

The swept paths should be reviewed, and the lane widths should be amended/adjusted if required.

Problem

3.17 Location: Northern side of circulatory.

Summary: Potential side swipe collisions on the circulatory.

The road markings on the inside lane on the northern section of the circulatory carriageway appear to encourage motorists to stay on the inside lane which means motorists circulating the roundabout and wanting to exit on the B4100(E) may find themselves missing the exit, which could result in late braking or lane changing. This could lead to side swipes or shunt type collisions on the circulatory.

Recommendation

The circulatory markings should be adjusted to ensure that vehicles are guided correctly around the northern side of the roundabout.

Problem

3.18 Location: Eastern side of the circulatory carriageway.

Summary: Potential for blocking back at the junction to cause collisions.

At the stop line on the circulatory carriageway at the Baynard's Green roundabout there are 4 lanes provided. The inner lane is a right turn only lane which has a short stacking distance provided due to the flare and its positioning. However, this lane also provides access to the services and as a result, could have a high traffic flow. Given the short stacking space, if this lane does have high demand, it could result in vehicles blocking back into the circulatory carriageway, leading to shunt or side swipe collisions.

Recommendation

The staging of this junction should be provided in such a way that the queuing in this lanes is reduced as much as possible. The services should also be marked on the carriageway at this point to ensure motorists are using the correct lanes.

Problem

3.19 Location: Padbury Link.

Summary: Risk of vegetation encroachment affecting forward visibility resulting in conflicts on the shared use facility.

A shared use facility is proposed parallel to the east side of the Padbury Link Road. There is currently a significant amount of vegetation in this area, which if not managed correctly will reestablish and encroach into the shared use facility. This could also impede forward visibility leading to collisions between users and will also reduce the usable width of the cycleway which is likely to force cyclists towards the kerbed edge of the facility, leaving users more exposed to side winds created by passing high sided vehicles resulting in injuries as a result of cyclists losing balance falling off their bikes.

Recommendation

Ensure that extensive site clearance is undertaken and that future reestablishment is prevented.

4. ITEMS RAISED AT THIS STAGE 1 AUDIT – LOCAL HIGHWAY NETWORK (OXFORDSHIRE COUNTY COUNCIL)

General to the scheme

Problem

4.1 Location: General to the scheme.

Summary: Risk of NMUs falling over the parapet.

At several locations over bridges are proposed which incorporate NMU facilities. It is unclear from the design as to what height the proposed parapets are at structures where NMU facilities are also proposed. It is important that the parapet heights are suitable for intended users, to reduce the risk of users falling over the parapet.

In addition, it should be noted that the minimum effective width of the cycle tracks proposed across the bridges reduces where the parapet is provided immediately adjacent to it. If the forecast level of use is expected to be high, additional width should be provided at the facility to avoid conflicts between cyclists or other NMUs on the facility.

Recommendation

Ensure the design of the structures makes allowance for intended users and anticipated flows.

Problem

4.2 Location: General to the scheme.

Summary: Potential for collisions between pedestrians/cyclists and vehicles due to confusion and hesitation.

The proposals include new pedestrian, cycle and equestrian routes route across the scheme. The changes along the B430 corridor, and at junctions such as the principal OxSRFI access result in complex junctions for NMUs to negotiate and some of the routes may not be clear to users, especially where existing PRoWs have been diverted. The complexity of the junctions could lead to confusion resulting in collisions with other users, or, in some cases, lead to NMUs continuing along the carriageway and potentially being hit by passing vehicles or crossing at unsafe, undesignated locations.

Recommendation

Wayfinding signs should be provided for pedestrians and cyclists to ensure it is clear where they need to go and which routes they should be following to reach certain destinations.

Problem

4.3 Location: General to the scheme.

Summary: Potential for large vehicles to get stuck on the cul-de-sacs.

There are locations throughout the scheme where carriageways have been stopped up and turning heads have been provided (the exiting B430 and Quarry Cottages for example). Swept paths for these areas have not been provided and as a result it is unknown whether larger vehicles such as refuse vehicles or larger are able to turn around in the proposed turning heads. This could result in larger vehicles having to reverse long distances and potentially colliding with other vehicles.

Recommendation

Swept path analysis should be undertaken of the proposed turning heads to ensure that larger vehicles are able to turn around in them.

B430 Ardley Bypass

Problem

4.4 Location: General to the B430 Ardley Bypass scheme.

Summary: Risk of increased severity collisions in the event of loss of control and errant vehicles colliding with roadside furniture.

The proposals for road restraint systems along the proposed B430 Ardley Bypass have not been shared with the RSA team. As such in the event of significant level differences between the proposed finished road levels and the adjacent land, there is a risk of serious injury in the event of an errant vehicle leaving the carriageway. Especially where drainage basins are provided.

Recommendation

Undertake an assessments in line with the Local Authorities standard, to understand the requirements for any potential road restraint systems, particularly where drainage basins or ponds are provided, to identify areas of risk and address through mitigation or redesign.

Problem

4.5 Location: General to the B430 Ardley Bypass scheme.

Summary: Inadequate drainage could lead to excessive surface water and loss of control collisions.

The proposed B430 Ardley Bypass appears to be in a cutting, with embankment slope on the north side of the west side of the bypass. Drainage proposals have not been shared with the RSA team. There is likely to be surface water runoff down the embankment slope which could drain on to the carriageway. If the surface water is not

managed and it collects on the surface of the carriageway there is a risk of loss of control collisions resulting from a lack of traction.

Recommendation

Ensure that the run off is intersected at the bottom of the batter slope by appropriate drainage to prevent the carriageway being subject to significant amounts of surface water entering the wheel tracked area of the carriageway.

Site Access Roundabout

Problem

4.6 Location: B430 Ardley Bypass approach to site access roundabout.

Summary: Potential for side swipe collisions on the circulatory.

On the B430 Ardley Bypass approach to the site access roundabout, the carriageway flares from a single lane to two lanes as it approaches the roundabout. lane 1 is provided with a left turn arrow and lane 2 is provided with an ahead arrow on the approach to the roundabout, the southbound B430 exit is only provided as a single lane exit and is more of an ahead movement than a left turn. This could result in motorists entering the roundabout in lane 2 on the Ardley Bypass and then finding themselves being in the wrong lane on the circulatory, resulting in side swipe collisions on the circulatory or southbound exit.

Recommendation

Destination markings should be provided in lane 2 with the arrow marking to show that this lane is for the rail freight terminal only. Ideally these markings should also be provided as close to the flare from a single lane to two lanes as possible.

Problem

4.7 Location: Circulatory on the northern side of the site access roundabout.

Summary: Potential for side swipe collisions on the circulatory.

At the stop line on the northern side of the roundabout circulatory, the carriageway measures 6 metres wide, but is provided as a single lane. The width of the carriageway could result in drivers attempting to queue side by side at this stop line, resulting in side swipe collisions as they move off around the circulatory.

Recommendation

The lane around the northern side of the roundabout should be visually narrowed with hatching to make it clear to motorists that it is a single lane.

Problem

4.8 Location: B430 Ardley Bypass exit from the roundabout.

Summary: Potential for side swipe collisions.

The B430 Ardley Bypass exit from the site access roundabout, is provided as three lanes merging down to two lanes (with the segregated left turn lane from the site utilising the nearside lane). However, no deflection arrows have been provided on the outside lane, which could result in drivers thinking the lanes are continuous, resulting in side swipe collisions as the lanes suddenly merge.

Recommendation

Deflection arrows should be provided in the outside lane on the B430 Ardley Bypass exit so drivers know the lanes merge and are therefore prepared to move over into the middle lane.

Existing B430 Corridor

Problem

4.9 Location: Directly to the north of the Ardley Energy Recovery Facility.

Summary: Potential for pedestrians to be struck by vehicles.

The proposals show a short section of footway on the eastern side of the B430 directly to the north of the Ardley Energy Recovery Facility (ERF). It appears that this section of footway has been provided for the southbound bus stop. However, the facility does not link into any of the surrounding facilities. The central island on the B430 is also not currently provided as a pedestrian refuge, nor is it proposed to be. As a result, pedestrians wanting to access this section of footway and bus stop, will either need to cross the B430 where no crossing facilities are provided, or walk in the carriageway at the access to the ERF. This could lead to pedestrians being struck by vehicles.

Recommendation

The proposed section of footway should link into the surrounding facilities and an uncontrolled crossing point should be provided over the B430 north of the ERF junction to allow pedestrians to access the southbound bus stop from the western side of the carriageway.

Heyford Park Link Road

Problem

4.10 Location: General to the Heyford Park Link Road.

Summary: Risk of increased severity collisions in the event of loss of control and errant vehicles colliding with roadside furniture.

Proposals for road restraint systems have not been shared with the RSA team. As such in the event of an errant vehicle losing control and encountering an unprotected hazard, there is a risk of serious injury.

Recommendation

Undertake RRRAP assessments, particularly in the vicinity of the watercourse, to identify areas of risk and address through mitigation or redesign.

Problem

4.11 Location: Proposed alternative Camp Road junction.

Summary: Potential for collisions at the junction.

The drawings show an alternative layout for the Camp Road junction, should the signalised junction proposed as part of the Heyford Park highway scheme not come forward. The alternative layout would provide a simple priority T-junction in the location of the existing bend on Camp Road, changing the priority.

However, this results in a long straight section of carriageway being provided out of Upper Heyford and the junction itself if surrounded by trees that could mask visibility and create a damp slippery road surface. This could lead to vehicles accelerating away from the village and potentially increasing the severity of a collision resulting from overshoots or failure to give way, particularly if visibility is low or obscured by the trees.

Recommendation

Ensure that if the alternative layout is provided, adequate site clearance, road markings, surfacing and signage is provided to make it clear that motorists are approaching a junction.

Problem

4.12 Location: Heyford Park Link Road/Camp Road/Chilgrove Drive junction.

Summary: Potential for collisions between users on the shared footway/cycleway.

Both the proposed signal junction layout and the alternative junction layout at the Camp Road junction are provided with 3.0 metres wide shared footway/cycleway throughout. The proposed Heyford Park Link Road is provided with segregated footway/cycleway on its northern side which measures 5.2 metres wide.

However, where the two facilities tie in, it is unclear how these facilities transition between one another. The drawings appear to show a shared facility of varying width that could results in user colliding with one another.

Recommendation

The facilities should be reviewed in this area and either the narrower 3.0 metres wide shared facility upgraded to match the wider 5.2 metres segregated facility or the transition between the two made clear and suitable tactile, markings and signage provided.

Heyford Park Link Road/Middleton Stoney Relief Road/B430 Junction

Problem

4.13 Location: General to the proposed Link Road/Relief Road junction.

Summary: Potential for side swipe or shunt type collisions.

The proposals do not appear to provide any directional arrows or destination markings on the carriageway throughout the junction. This could lead to confusion for motorists leading to lane changes or hesitation, which could result in side swipe or shunt type collisions.

Recommendation

Directional arrows and destination markings should be provided throughout the proposed Link Road/Relief Road junction.

Middleton Stoney Relief Road

Problem

4.14 Location: General to the Middleton Stoney Relief Road scheme.

Summary: Risk of increased severity collisions in the event of loss of control and errant vehicles colliding with roadside furniture.

The proposals for road restraint systems along the proposed Middleton Stoney Relief Road have not been shared with the RSA team. As such in the event of significant level differences between the proposed finished road levels and the adjacent land, there is a risk of serious injury in the event of an errant vehicle leaving the carriageway. Especially where drainage basins are provided.

Recommendation

Undertake an assessments in line with the Local Authorities standard, to understand the requirements for any potential road restraint systems, particularly where drainage basins or ponds are provided, to identify areas of risk and address through mitigation or redesign.

Problem

4.15 Location: Easten section of Middleton Stoney Relief Road scheme.

Summary: Inadequate drainage could lead to excessive surface water and loss of control collisions.

There is a section of the Middleton Stoney Relief Road which seems to be in a cutting, in that the carriageway on the north side are at the bottom of an embankment slope. Drainage proposals have not been shared with the RSA team. There is likely to be surface water runoff down the embankment slope which could drain on to the carriageway. If the surface water is not managed and it collects on the surface of the carriageway there is a risk of loss of control collisions resulting from a lack of traction.

Recommendation

Ensure that the run off is intersected at the bottom of the batter slope by appropriate drainage to prevent the carriageway being subject to significant amounts of surface water entering the wheel tracked area of the carriageway.

B4030 Middleton Stoney Roundabout

Problem

4.16 Location: General to the B4030 Middleton Stoney roundabout.

Summary: Potential for side swipe or shunt type collisions.

The proposals do not appear to provide any directional arrows or destination markings on the carriageway throughout the junction. This could lead to confusion for motorists leading to lane changes or hesitation, which could result in side swipe or shunt type collisions.

Recommendation

Directional arrows and destination markings should be provided throughout the proposed B4030 Middleton Stoney Roundabout junction.

Problem

4.17 Location: Eastbound exit from the B4030 Middleton Stoney roundabout.

Summary: Potential for side swipe collisions.

The eastbound exit on the B4030 from the Middleton Stoney Roundabout, is provided as two lanes merging down to one lane. However, no deflection arrows have been provided on the outside lane, which could result in drivers thinking the B4030 is provided as two lanes in an eastbound direction, resulting in side swipe collisions as the lanes suddenly merge.

Recommendation

Provide deflection arrows so drivers are aware they need to merge as they exit the junction.

Problem

4.18 Location: Northern arm of the proposed B4030 Middleton Stoney roundabout.

Summary: Potential for pedestrians to be struck by vehicles.

There is a proposed signal controlled crossing provided over the Northern Middleton Stoney Relief Road arm of the junction. However, this crossing is not staggered between the entry and exit of the roundabout. As a result, pedestrians could mistake the crossing for a full width crossing, resulting in them not stopping on the central refuge and potentially walking out in front of vehicles and being struck.

Recommendation

The crossing should be provided as a staggered crossing, or with a suitable distance (5.0 metres) between the two crossings to ensure it is clear that they are two separate movements.

Middleton Stoney Staggered Cross Roads

Problem

4.19 Location: Heyford Road arm of the Middleton Stoney staggered cross roads.

Summary: Potential for conflict between users and street furniture.

The proposals at the Middleton Stoney staggered cross roads include providing signalised pedestrian crossings over the Heyford Road arm and the Oxford Road arm of the junction to replace the current uncontrolled crossings.

However, the footway on the northern side of the junction between Heyford Road and Ardley Road is provided very narrow, made narrower by the signal pole provided on Heyford Road. This could be further narrowed by additional signals equipment required to provide the proposed controlled crossings. As a result pedestrians my conflict with the street furniture, especially if there are any wheel chair users or push chairs.

Recommendation

The proposals should be reviewed at detailed design stage to understand what signals equipment would be required and how it would be positioned to not obstruct users on the footway.

A4095/B4030 Roundabout

Problem

4.20 Location: General throughout the junction.

Summary: Potential for collisions involving maintenance vehicles.

The A4095/B4030 Roundabout is to be signalised as part of the proposals. However, there does not appear to be a bay provided for maintenance vehicles to safely park when maintaining the signal equipment or landscaping. As a result, maintenance vehicles may end up parked in a way that obstructs other motorists, potentially resulting in collisions.

Recommendation

Maintenance bays should be provided at the junction to ensure there is suitable locations for maintenance vehicles to park.

Problem

4.21 Location: Eastbound and southbound exit from the A4095/B4030 roundabout.

Summary: Potential for side swipe collisions.

The eastbound exit from the A4095/B4030 roundabout on Middleton Stoney Road, is provided as two lanes merging down to one lane. However, no deflection arrows have been provided on the outside lane, which could result in drivers thinking Middleton Stoney Road is provided as two lanes in an eastbound direction, resulting in side swipe collisions as the lanes suddenly merge.

It should also be noted that the merge is also provided over a very short distance, with a signal controlled crossing provided over the exit from the roundabout too. This could result in 'racing' from the lights which could also lead to collisions.

The same issues are also apparent on the A4095 southbound exit from the roundabout.

Recommendation

The eastbound and southbound exits from the A4095/B4030 Roundabout should either be narrowed to one lane or be provided with merge arrows so drivers are aware they need to merge as they exit the junction, the merges should also be provided at a suitable length to discourage drivers from racing away from the crossings.

Problem

4.22 Location: Eastbound exit from the A4095/B4030 roundabout.

Summary: Potential for collisions between vehicles and active travel users.

The drawings show a proposed active travel scheme on Middleton Stoney Road to the east of the A4095/B4030 roundabout, which is separate from the proposals. This scheme utilised some of the carriageway to provide a 2-way cycle lane on the northern side of the Middleton Stoney Road.

However, the proposed amendments at the A4095/B4030 roundabout do not appear to tie into the proposed active travel scheme. This could result in collisions between cyclists and vehicles should the schemes not tie into one another.

Similarly, the crossing over the northern arm of the proposed roundabout appears to be provided as shared use as part of the active travel scheme, but the splitter island between the entry and exit does not appear wide enough to cater for shared use. This could result in users colliding with each other.

Recommendation

The proposals at the A4095/B4030 roundabout should be provided so that they tie into the proposed Middleton Stoney Road active travel scheme, should it come forward. The splitter island on the northern arm should also be provided at a suitable width to cater for both pedestrians and cyclists.

Problem

4.23 Location: Western arm of the A4095/B4030 roundabout.

Summary: Potential for pedestrians to be struck by vehicles.

There is a controlled crossing provided over the western B4030 arm of the junction. However, this crossing is not staggered between the entry and exit of the roundabout. As a result, pedestrians could mistake the crossing for a full width crossing, resulting in them not stopping on the central refuge and potentially walking out in front of vehicles and being struck.

Recommendation

The crossing should be provided as a staggered crossing, or with a suitable distance (5.0 metres) between the two crossings to ensure it is clear that they are two separate movements.

Middleton Road M40 Overbridge

Problem

4.24 Location: East of the Middleton Road M40 overbridge.

Summary: Potential for cyclists to be struck by vehicles.

The proposals amend the Middleton Road M40 overbridge to be single carriageway with signalised shuttle working. This is to reallocate carriageway space over the bridge for NMUs. This facility is then provided with a crossing point to the east of the M40 overbridge, which then links to the existing bridle way (148/4). However, there does not appear to be any provision for cyclists to be able to either rejoin or leave the carriageway from this facility on Middleton Road. This could result in cyclists being put at risk of conflict with vehicles potentially leading to collisions.

Recommendation

The facility to the east of the M40 overbridge should be provided with dropped kerbs and markings to allow cyclists travelling to and from the east on Middleton Road to enter and leave the proposed facility safely.

5. AUDIT TEAM STATEMENT

5.1 We certify that this audit has been undertaken in accordance with GG 119.

AUDIT TEAM LEADER

[redacted]

Highways England approved Certificate of Competency

Associate Director

BWB Consulting Ltd

5th Floor

Waterfront House

Station Street

Nottingham

NG2 3DQ

Signed: [redacted]

Date: 25th September 2026

AUDIT TEAM MEMBER

[redacted] **FCIHT**

Highways England approved Certificate of Competency

Associate Director

Meraki Alliance Ltd (on behalf of BWB Consulting)

Signed: [redacted]

Date: 25th September 2026

FIGURES

Problems 3.1 & 3.2 are general to the National Highways sections of the scheme

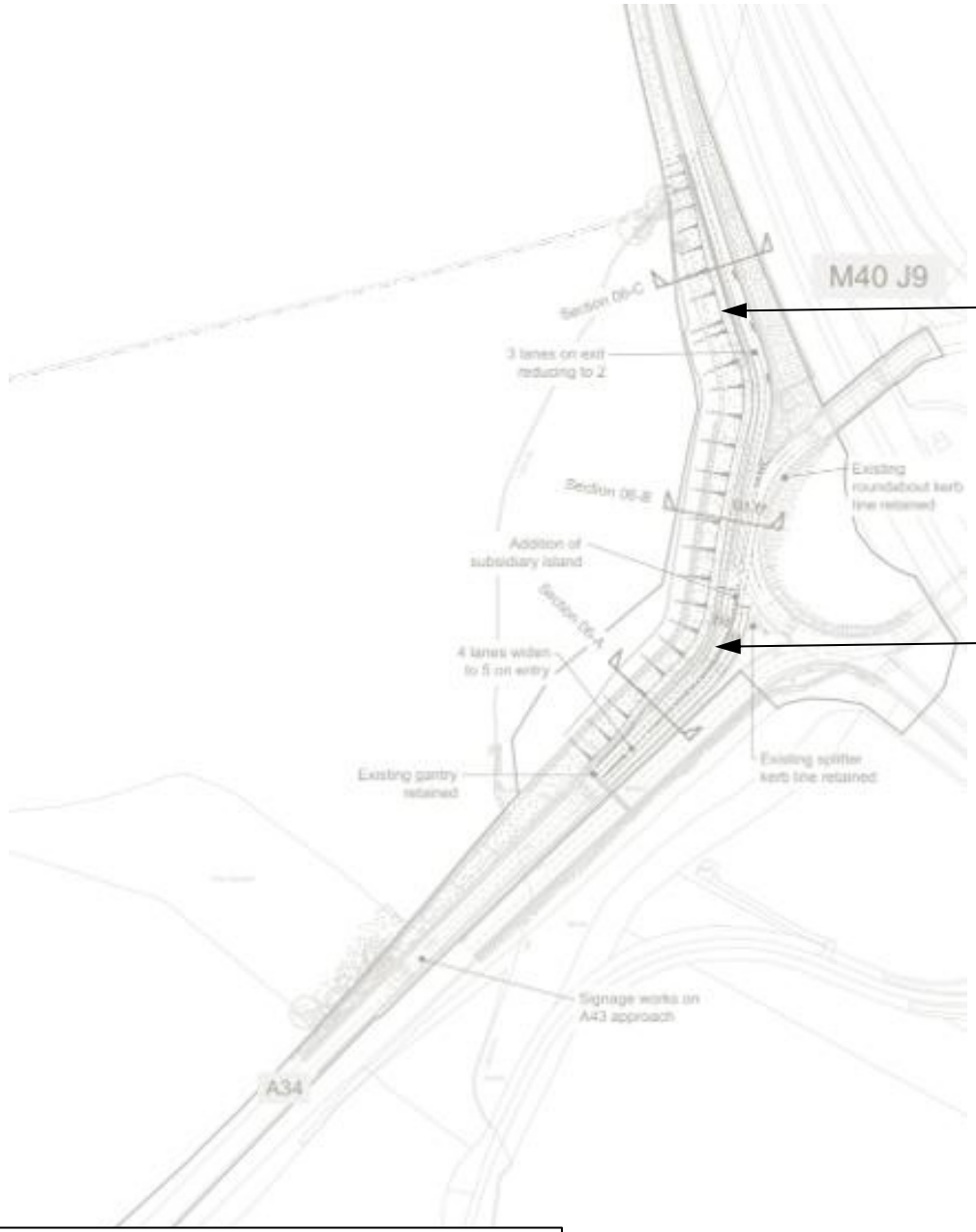


FIGURE 1 – Location of problems identified in this audit

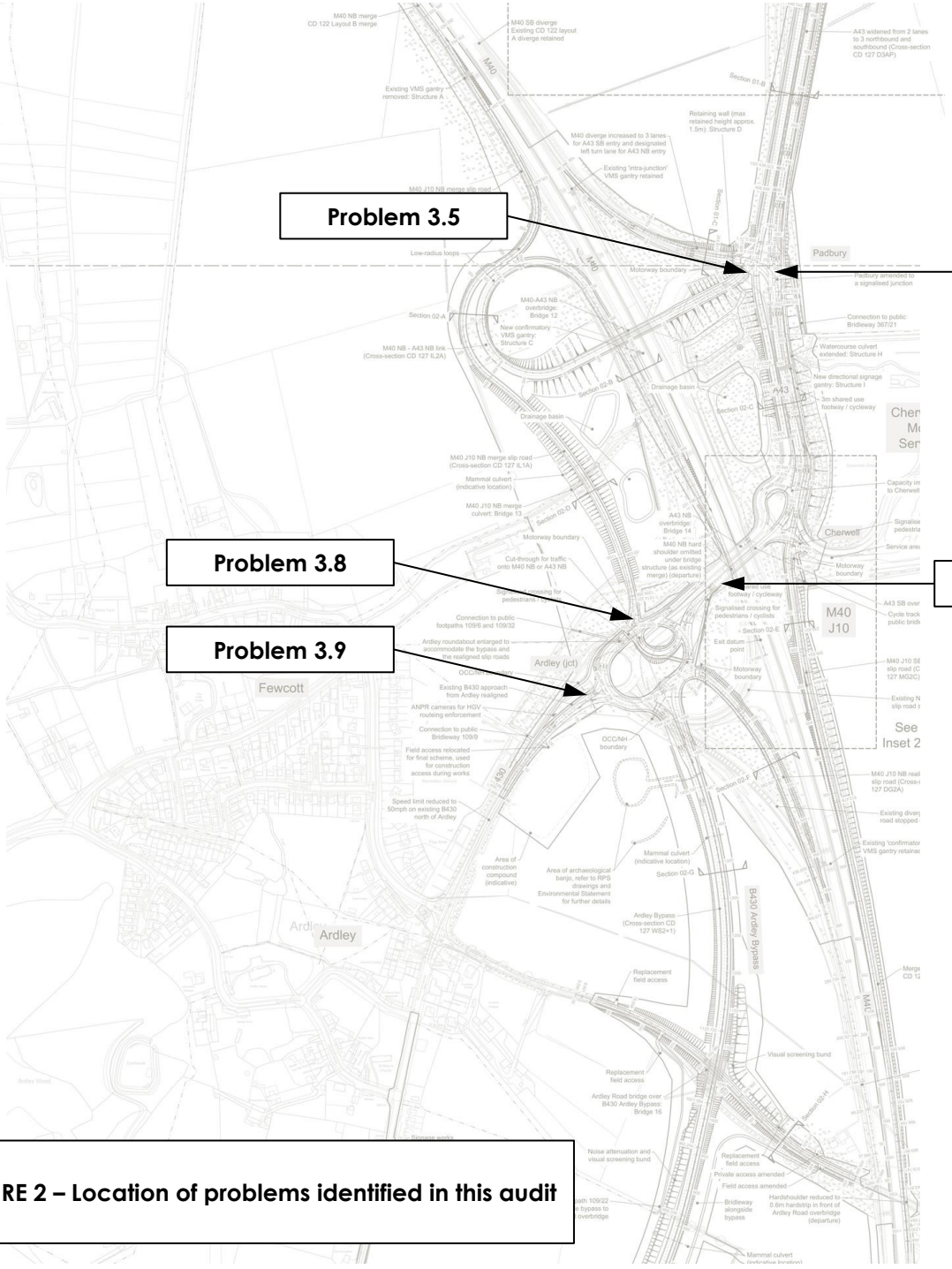


FIGURE 2 – Location of problems identified in this audit

Problem 3.10 is general to this section of the scheme

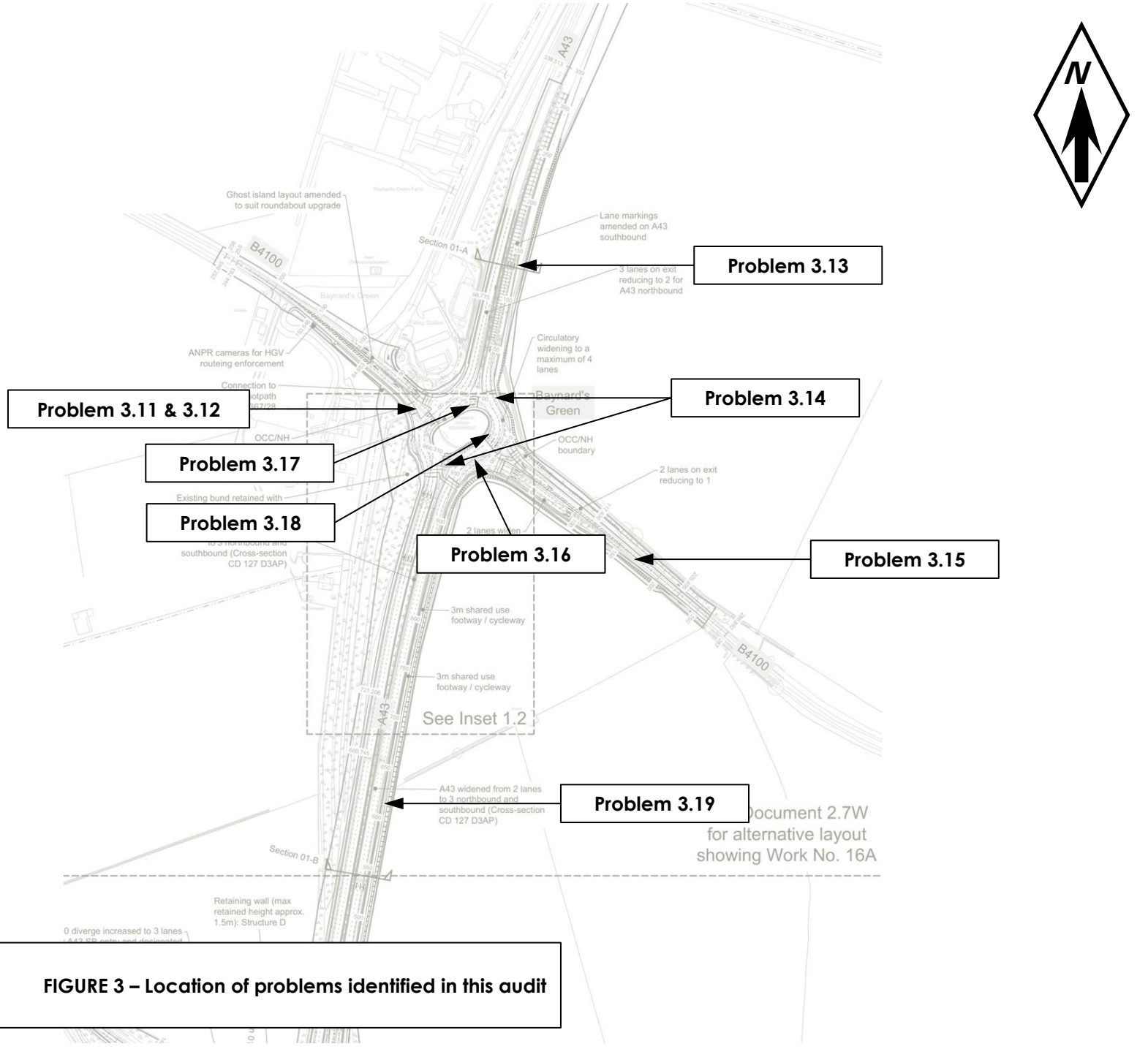


FIGURE 3 – Location of problems identified in this audit

Problems 4.1, 4.2 & 4.3 are general to the Oxfordshire County Council sections of the scheme

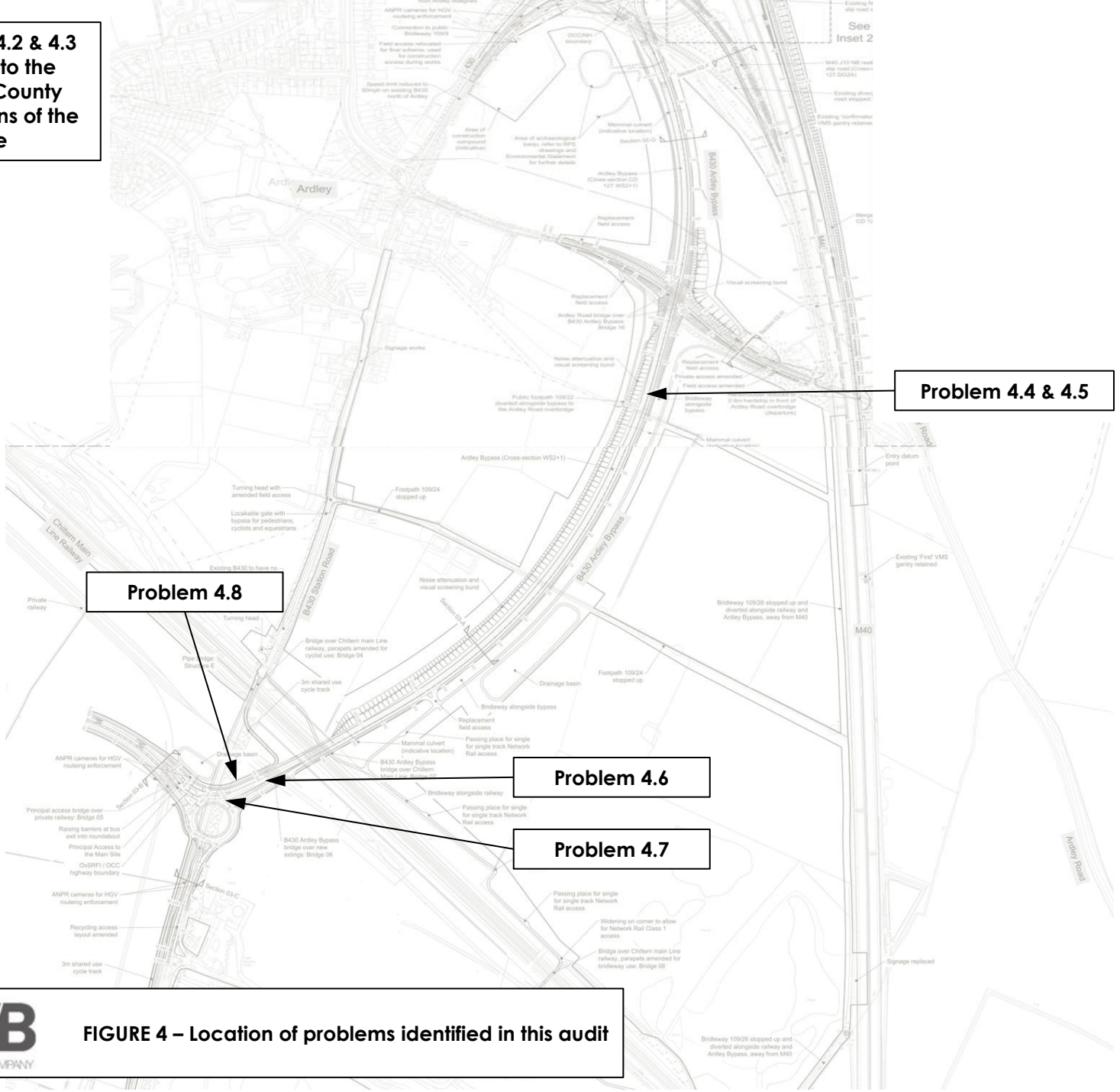


FIGURE 4 – Location of problems identified in this audit

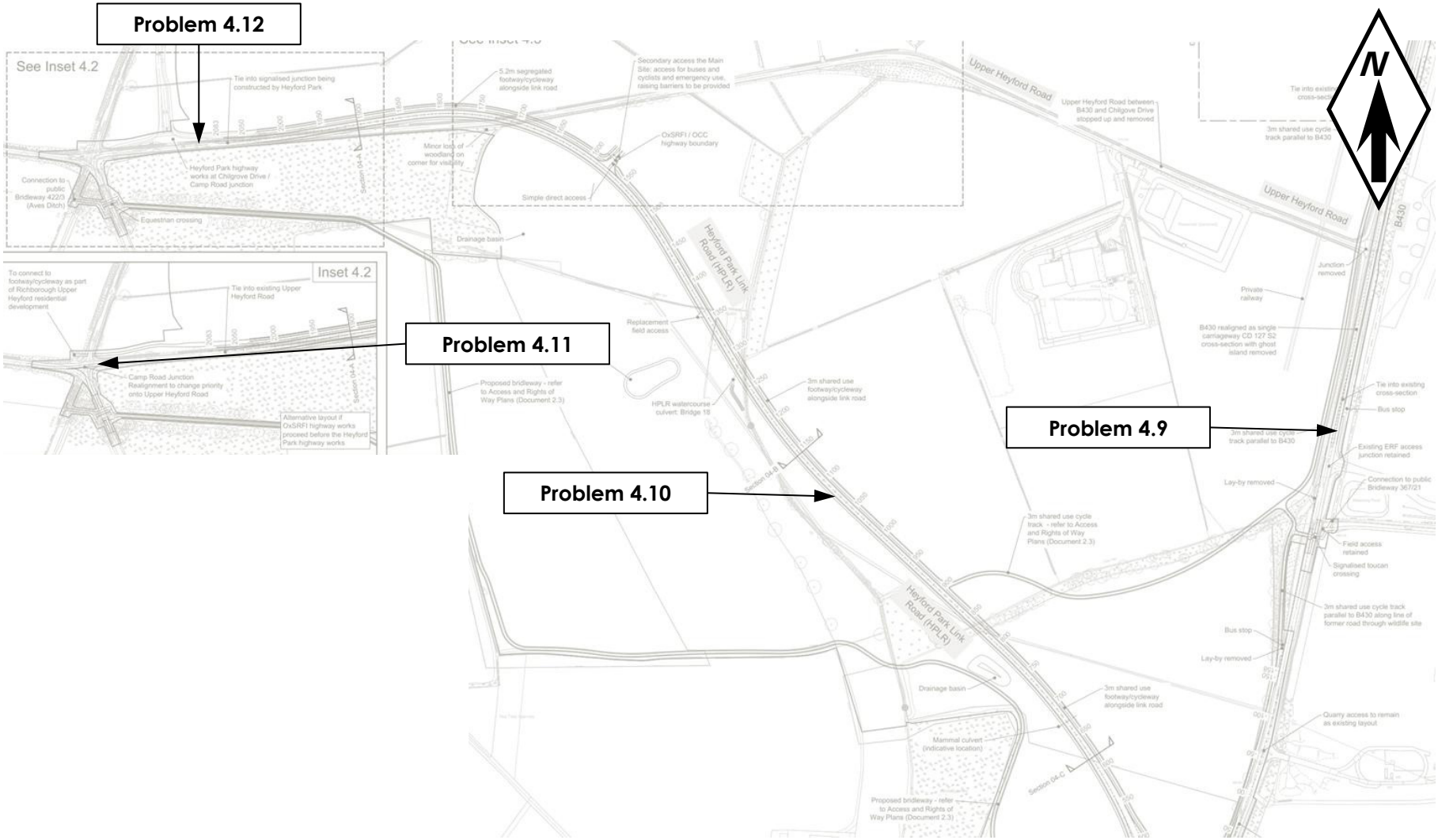


FIGURE 5 – Location of problems identified in this audit

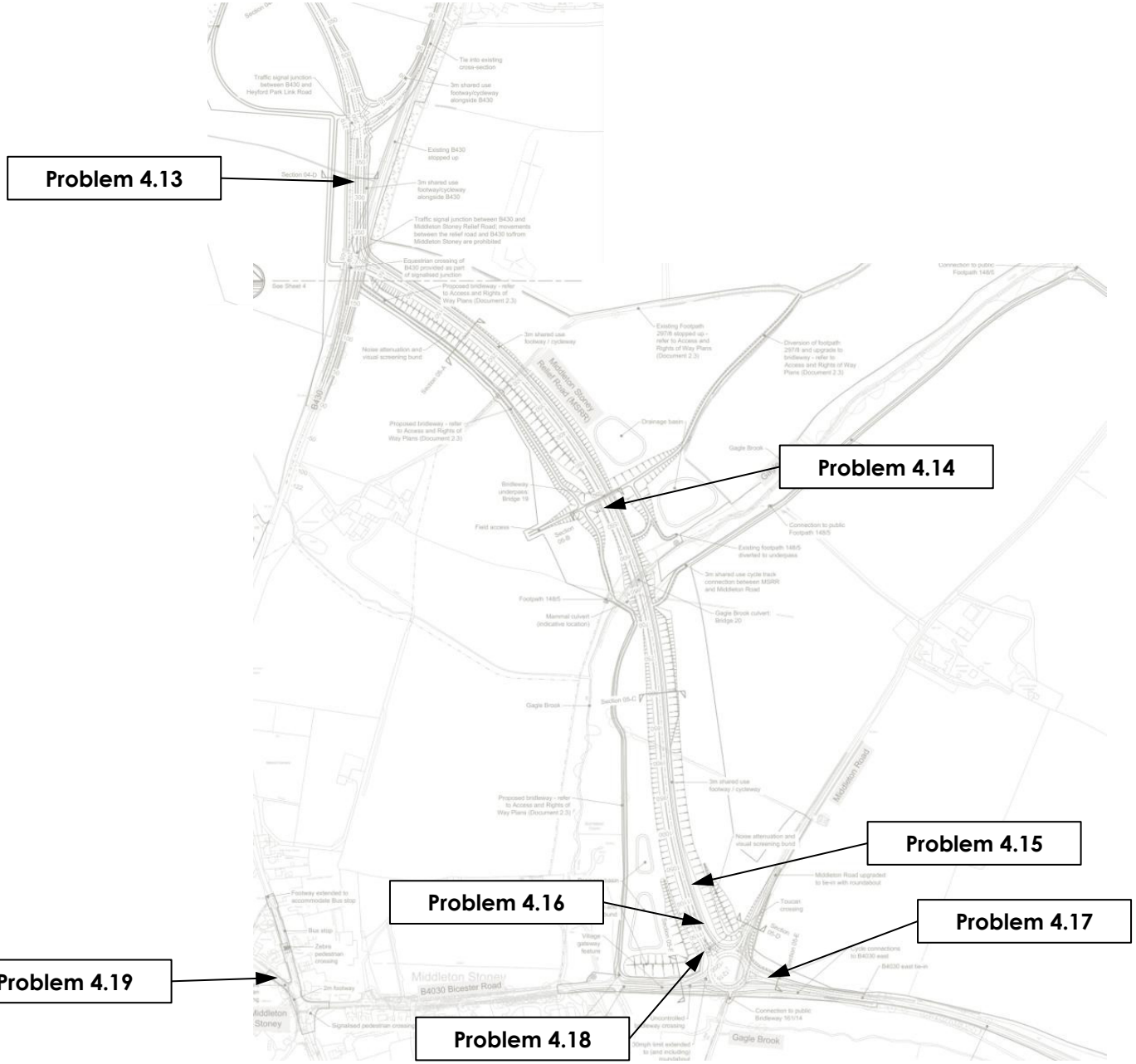


FIGURE 6 – Location of problems identified in this audit

Problem 4.20 is general to the junction

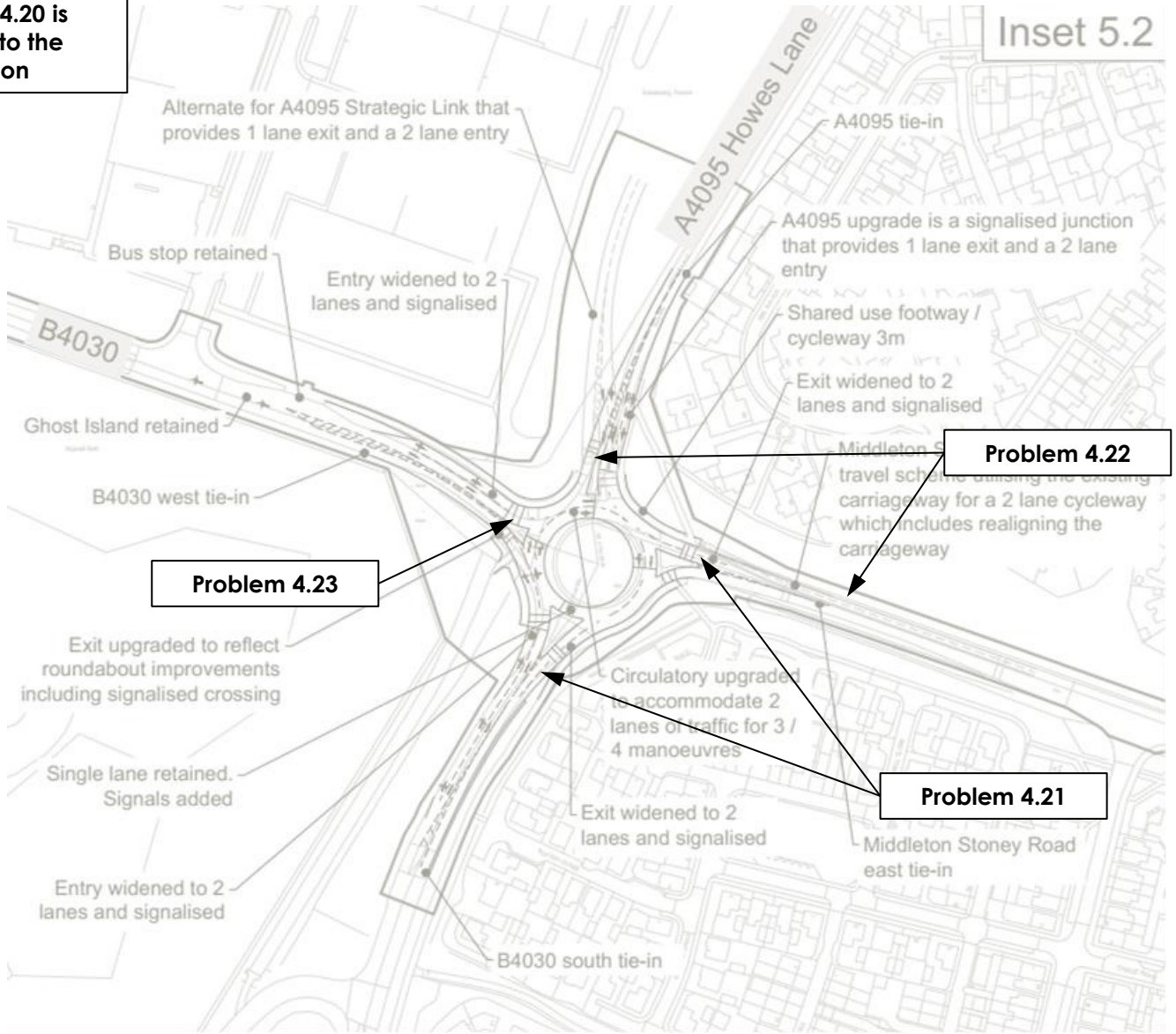
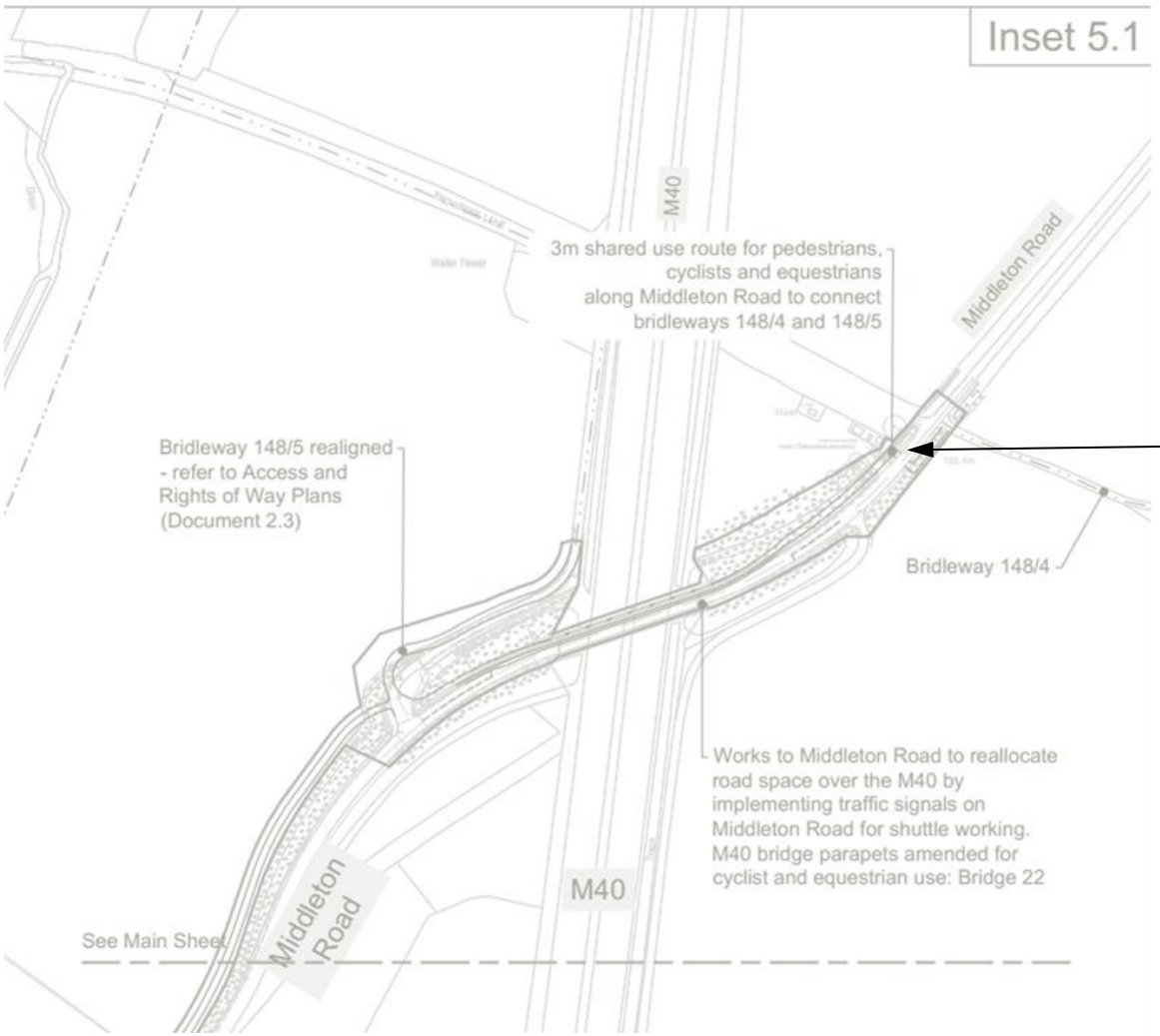


FIGURE 7 – Location of problems identified in this audit



Problem 4.24

FIGURE 8 – Location of problems identified in this audit

APPENDICES

Appendix 1: List of Documents Supplied to the Audit Team

LIST OF INFORMATION SUPPLIED TO THE AUDIT TEAM

DRAWING/DOCUMENT NUMBERS AND TITLES

Document / Drawing / Model	Title	Revision
OxSRFI-BWB-GEN-XX-SK-CH-SK102	Highway Works overview for RSA1 brief	P02
OxSRFI-BWB-GEN-XX-SK-CH-SK041	Highway Works Overview	P17
OxSRFI-BWB-GEN-XX-SK-CH-SK054	Highway Works Phase 1 Pre occupation	P12
OxSRFI-BWB-GEN-XX-SK-CH-SK055	Highway Works Phase 2 Pre occupation greater 2m sq ft	P11
DCO Document 2.7	Highway Plans GA Key Plan	P03
DCO Document 2.7A	Highway Plans GA Sheet 1	P05
DCO Document 2.7B	Highway Plans GA Sheet 2	P05
DCO Document 2.7C	Highway Plans GA Sheet 3	P05
DCO Document 2.7D	Highway Plans GA Sheet 4	P06
DCO Document 2.7E	Highway Plans GA Sheet 5	P05
DCO Document 2.7X	Highway Plans GA Sheet 01 Alternative	P04
DCO Document 2.7F	Highway Plans Cross Sections Sheet 01	P02
DCO Document 2.7G	Highway Plans Cross Sections Sheet 02	P02
DCO Document 2.7H	Highway Plans Cross Sections Sheet 03	P03
DCO Document 2.7I	Highway Plans Cross Sections Sheet 04	P04
DCO Document 2.7J	Highway Plans Cross Sections Sheet 05	P03
DCO Document 2.7K	Highway Plans Cross Sections Sheet 06	P03
DCO Document 2.7L	Highway Plans Cross Sections Sheet 07	P03
DCO Document 2.7M	Highway Plans Cross Sections Sheet 08	P02
DCO Document 2.7N	Highway Plans Longsections Sheet 01	P03
DCO Document 2.7O	Highway Plans Longsections Sheet 02	P03
DCO Document 2.7P	Highway Plans Longsections Sheet 03	P03
DCO Document 2.7Q	Highway Plans Longsections Sheet 04	P03
DCO Document 2.7R	Highway Plans Longsections Sheet 05	P04
DCO Document 2.7S	Highway Plans Longsections Sheet 06	P04
DCO Document 2.7T	Highway Plans Longsections Sheet 07	P03
DCO Document 2.7U	Highway Plans Longsections Sheet 08	P03
DCO Document 2.7V	Highway Plans Longsections Sheet 09	P03
DCO Document 2.9	Traffic Regulation Plans Key Plan	P03

Document / Drawing / Model	Title	Revision
DCO Document 2.9A	Traffic Regulation Plans Sheet 01	P03
DCO Document 2.9B	Traffic Regulation Plans Sheet 02	P03
DCO Document 2.9C	Traffic Regulation Plans Sheet 03	P04
DCO Document 2.9D	Traffic Regulation Plans Sheet 04	P03
DCO Document 2.9E	Traffic Regulation Plans Sheet 05	P03
DCO Document 2.10	Speed Limit Plans Key Plan	P04
DCO Document 2.10A	Speed Limit Plans Sheet 01	P05
DCO Document 2.10B	Speed Limit Plans Sheet 02	P05
DCO Document 2.10C	Speed Limit Plans Sheet 03	P04
DCO Document 2.10D	Speed Limit Plans Sheet 04	P06
DCO Document 2.10E	Speed Limit Plans Sheet 05	P04
DCO Document 2.10F	Speed Limit Plans Sheet 06	P03
DCO Document 2.12	Bridge Overview Plan	P04
DCO Document 2.12A	B430 Ardley Bypass Overbridge (Bridge 06)	P02
DCO Document 2.12B	B430 Ardley Bypass over Chiltern Main Line Overbridge (Bridge 07)	P02
DCO Document 2.12C	M40 J10A - A43 North Overbridge (Bridge 12)	P02
DCO Document 2.12D	Ardley Road over B430 Ardley Bypass Overbridge (Bridge 16)	P02
DCO Document 2.12E	Middleton Stoney Relief Road Underpass (Bridge 19)	P02
DCO Document 2.12F	M40 J10 Northbound Merge Slip Culvert (Bridge 13)	P02
DCO Document 2.12G	Heyford Park Link Road Culvert (Bridge 18)	P02
DCO Document 2.12H	Middleton Stoney Relief Road Culvert (Bridge 20)	P02
DCO Document 2.12I	M40 J10 NB & A43 Southbound Gantry (Structures B, C & I)	P02
OxSRFI-BWB-HGN-01-DR-CH-0105	Geometrical Layout Sheet 01	P02
OxSRFI-BWB-HGN-02-DR-CH-0105	Geometrical Layout Sheet 02	P02
OxSRFI-BWB-HGN-03-DR-CH-0105	Geometrical Layout Sheet 03	P02
OxSRFI-BWB-HGN-04-DR-CH-0105	Geometrical Layout Sheet 04	P02
OxSRFI-BWB-HGN-05-DR-CH-0105	Geometrical Layout Sheet 05	P02
OxSRFI-BWB-HGN-06-DR-CH-0105	Geometrical Layout Sheet 06	P02
OxSRFI-BWB-HGN-07-DR-CH-0105	Geometrical Layout Sheet 07	P02
OxSRFI-BWB-HGN-08-DR-CH-0105	Geometrical Layout Sheet 08	P02
OxSRFI-BWB-HGN-09-DR-CH-0105	Geometrical Layout Sheet 09	P02
OxSRFI-BWB-HGN-10-DR-CH-0105	Geometrical Layout Sheet 10	P02
OxSRFI-BWB-HGN-11-DR-CH-0105	Geometrical Layout Sheet 11	P02
OxSRFI-BWB-HGN-11-DR-CH-0105	Geometrical Layout Sheet 11A	P02

Document / Drawing / Model	Title	Revision
OxSRFI-BWB-HGN-12-DR-CH-0105	Geometrical Layout Sheet 12	P03
OxSRFI-BWB-HGN-13-DR-CH-0105	Geometrical Layout Sheet 13	P02
OxSRFI-BWB-HGN-14-DR-CH-0105	Geometrical Layout Sheet 14	P02
OxSRFI-BWB-HGN-15-DR-CH-0105	Geometrical Layout Sheet 15	P02
OxSRFI-BWB-HGN-16-DR-CH-0105	Geometrical Layout Sheet 16	P02
OxSRFI-BWB-HGN-17-DR-CH-0105	Geometrical Layout Sheet 17	P02
OxSRFI-BWB-HGN-18-DR-CH-0105	Geometrical Layout Sheet 18	P02
OxSRFI-BWB-HGN-19-DR-CH-0105	Geometrical Layout Sheet 19	P02
OxSRFI-BWB-HGN-20-DR-CH-0105	Geometrical Layout Sheet 20	P02
OxSRFI-BWB-HGN-21-DR-CH-0105	Geometrical Layout Sheet 21	P02
OxSRFI-BWB-HGN-22-DR-CH-0105	Geometrical Layout Sheet 22	P03
OxSRFI-BWB-HGN-23-DR-CH-0105	Geometrical Layout Sheet 23	P02
OxSRFI-BWB-HGN-24-DR-CH-0105	Geometrical Layout Sheet 24	P02
OxSRFI-BWB-HGN-25-DR-CH-0105	Geometrical Layout Sheet 25	P02
OxSRFI-BWB-HGN-26-DR-CH-0105	Geometrical Layout Sheet 26	P02
OxSRFI-BWB-HGN-27-DR-CH-0105	Geometrical Layout Sheet 27	P01
OxSRFI-BWB-HGN-28-DR-CH-0105	Geometrical Layout Sheet 28	P01
OxSRFI-BWB-HGN-29-DR-CH-0105	Geometrical Layout Sheet 29	P01
OxSRFI-BWB-GEN-XX-DR-CH-0005	Highway Plans Swept Paths	P02
OxSRFI-BWB-GEN-XX-DR-CH-0006	Highway Plans Swept Paths	P02
OxSRFI-BWB-GEN-XX-DR-CH-0007	Highway Plans Swept Paths	P02
OxSRFI-BWB-GEN-XX-DR-CH-0008	Highway Plans Swept Paths	P02
OxSRFI-BWB-GEN-XX-DR-CH-0009	Highway Plans Swept Paths	P01
OxSRFI-BWB-GEN-XX-DR-CH-0010	Highway Plans Swept Paths	P02
OxSRFI-BWB-GEN-XX-DR-CH-0011	Highway Plans Swept Paths	P01
OXSRFI-BWB-GEN-RSA-RP-TR-0001	Interim Stage 1 Road Safety Audit	P02
OxSRFI-BWB-GEN-XX-SH-CH-006	OxSRFI Interim RSA1 Audit log	P01
Highways DAD	Highways Design Approach Document	March 26
ADC1794-RP-F	OxSRFI WCHAR assessment	V6
OxSRFI-BWB-GEN-XX-RP-CH-0014	OxSRFI WCHAR review preliminary design	P02
OxSRFI-BWB-GEN-XX-RP-CH-0007	Design Strategy Record M40 J10	P02
OxSRFI-BWB-GEN-XX-RP-CH-0010	OxSRFI MSRR Highways Design Strategy Record-S3-P02	P02
OxSRFI-BWB-GEN-XX-RP-CH-0011	OxSRFI Ardley Bypass Highways Design Strategy Record	P02
OxSRFI-BWB-GEN-XX-RP-CH-0012	OxSRFI HPLR Highways Design Strategy Record	P02
OxSRFI-BWB-GEN-XX-RP-CH-0015	M40 J9 highway design review	P01
OxSRFI-BWB-GEN-XX-SK-CH-SK145	Ardley Road Traffic Calming	P01
OxSRFI-BWB-GEN-XX-SK-CH-SK146	Ardley to Somerton speed limit review	P01

Document / Drawing / Model	Title	Revision
OxSRFI-BWB-GEN-XX-SK-CH-SK058	Directional Signing Strategy Sheet 1 of 2	P03
OxSRFI-BWB-GEN-XX-SK-CH-SK059	Directional Signing Strategy Sheet 2 of 2	P02
OxSRFI-BWB-HLG-01-DR-CH-1300	Highway Lighting Strategy Sheet 01	P02
OxSRFI-BWB-HLG-02-DR-CH-1300	Highway Lighting Strategy Sheet 02	P03
TA Appendix 2	Personal Injury Accident Assessment Technical Notes	
TA Appendix 42	Modelling report – VISSIM M40 J10	
TA Appendix 43	Modelling report – VISSIM M40 J10	
Appendix C of TA Appendix 45	Modelling report – LinSig A4095 / B4030 roundabout	
TA Appendix 52	Modelling report – LinSig M40 J10	
TA Appendix 57	Modelling report – LinSig OxSRFI Principal Site Access	
TA Appendix 58	Modelling report – LinSig MSRR HLPR B430	
TA Appendix 59	Modelling report – ARCADY MSRR B4030	
TA Appendix 62	Modelling report – LinSig M40 J9	
TA Appendix 66	Modelling report – LinSig Middleton Stoney Crossroads	
TA Appendix 68	Modelling report – PICADY Camp Road Upper Heyford Road Interim scheme	
TA Appendix 74	Modelling report – PICADY B430 Upper Heyford Road T-junction	

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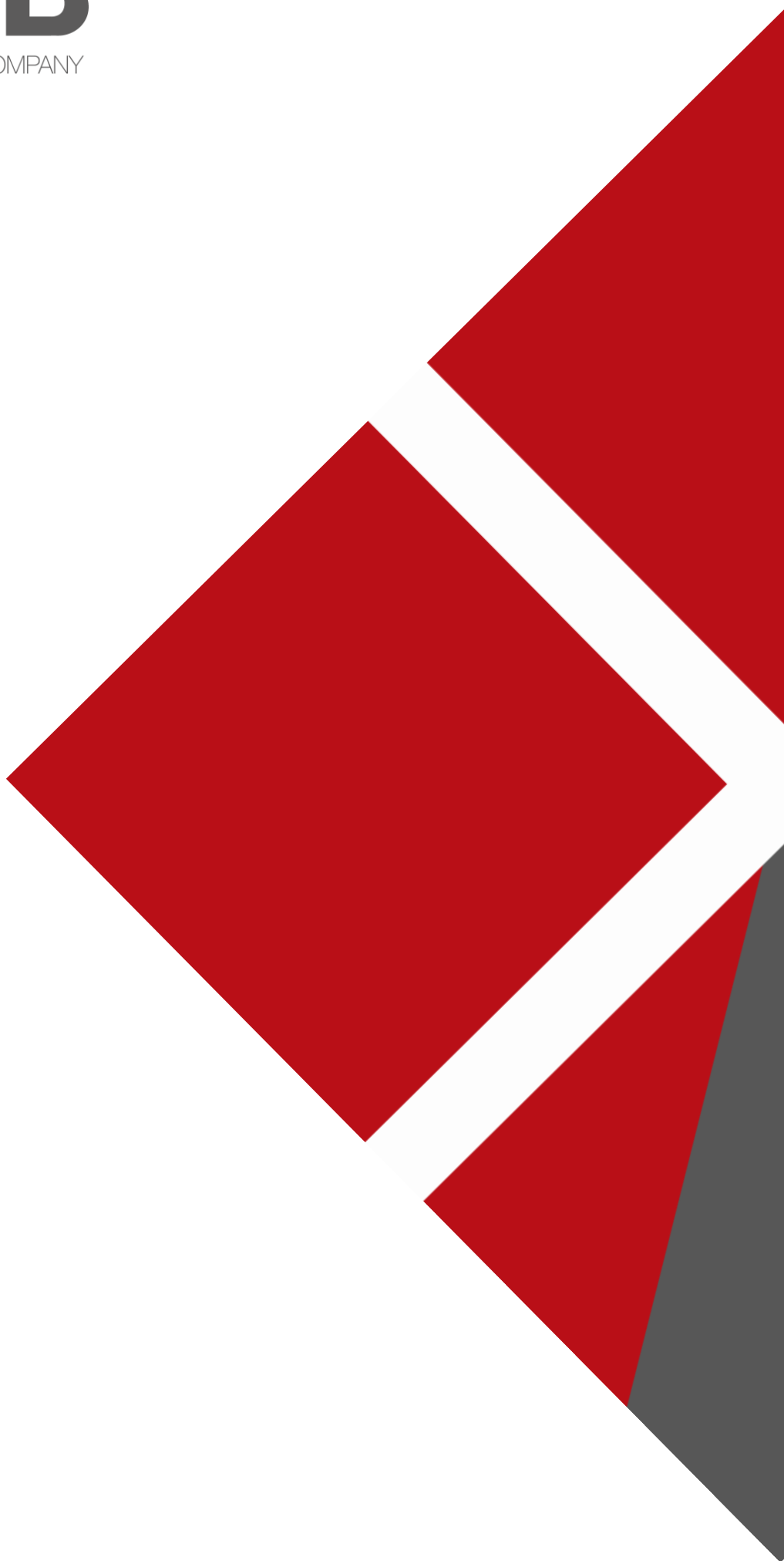

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