Addendum

Project:	M3 Junction 12 Improvements		
Subject:	Model Forecasting and Option Report - Addendum		
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Date:	03/12/2018	Icepac No.:	
		Project No.:	
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Introduction

Project Background

In March 2018, Atkins was appointed by Eastleigh Borough Council (EBC) to test options to improve M3 Junction 12 using the traffic microsimulation modelling software Vissim. A validated Vissim model was developed for the junction and adjacent roundabouts as detailed in the Local Model Validation Report (LMVR) (Document Ref. 5163169-GDC-003). Traffic forecast to 2036 was undertaken using a combination of flows from the SRTM (Solent Regional Transport Model) and TEMPro. A Preferred Option for highways improvements was identified as detailed in the Model Forecasting and Options Report (Document Reference 5163196-GDC-002), dated August 2018.

Subsequent to identification of the Preferred Option it was agreed that the traffic forecast assumptions should be revised to take account of the double counting of a major housing development in the growth methodology and the Preferred Option be revised accordingly.

This addendum outlines the revised growth methodology adopted and summarises the impact of the revised forecast on the 2036 'Do Nothing' (DN) scenario and the Preferred Option (DS 2036). A Revised Preferred Option has been developed (DS RO 2036) which benefits from the reduced demand and the results of Vissim modelling for this scenario are presented.

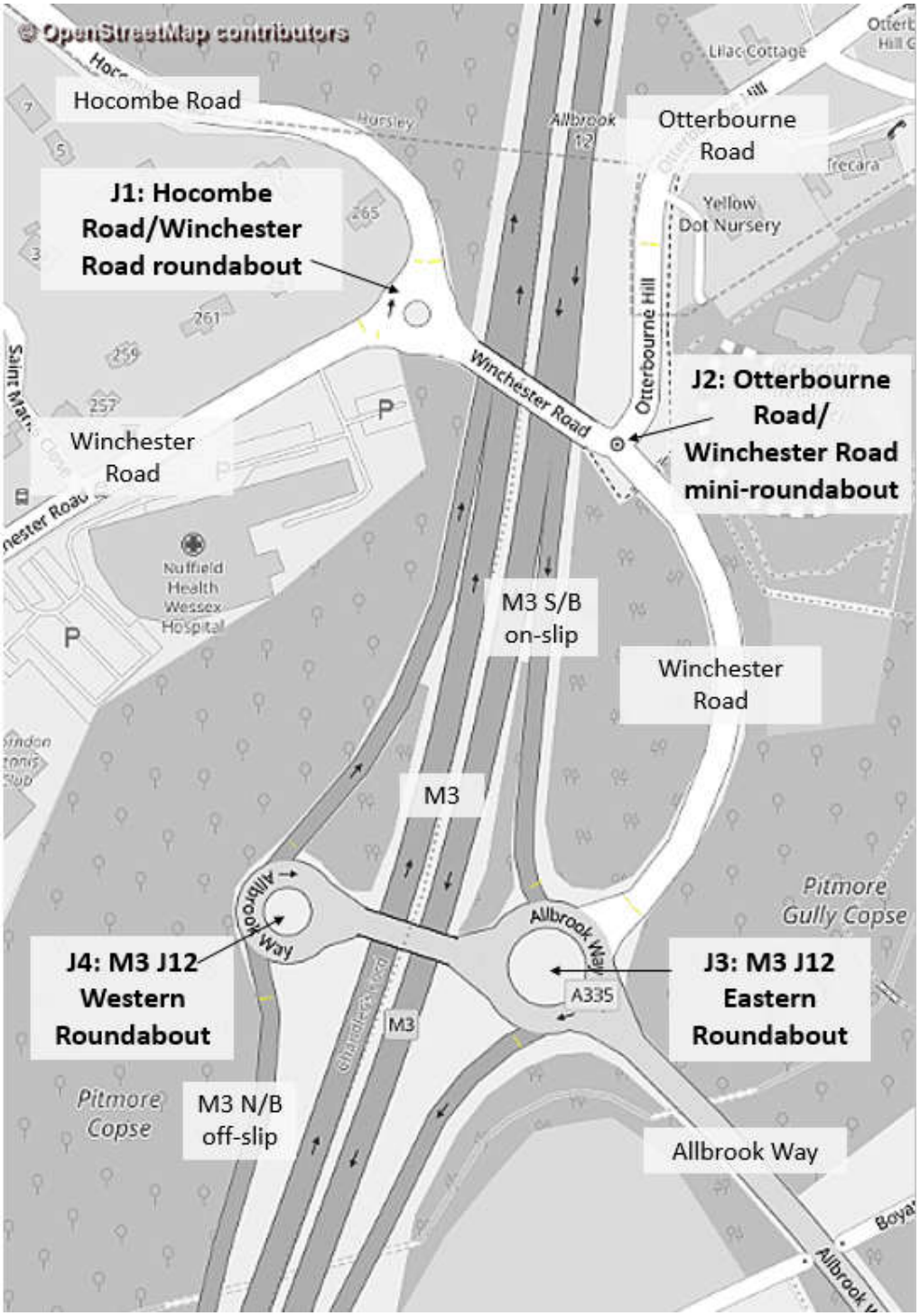
Junction Layout

M3 Junction 12 comprises two linked roundabouts providing entry and exit to either carriageway of the M3, as shown in Figure 1, overleaf.

Modelling Approach and Assumptions

The M3 Junction 12 Vissim model described in the LMVR has been updated with 2036 flows forecasted using the revised growth assumptions. All other parameters and assumptions remain the same.

Figure 1 - M3 Junction 12 and associated junctions



Revised Traffic Forecasting

There is significant development proposed in the vicinity of M3 Junction 12 which is captured in the SRTM. In particular, the Eastleigh Borough Council Local Plan identifies the following Strategic Growth Opportunities (SGO):

- 1,000 dwellings north of Bishopstoke; and
- 4,200 dwellings north and east of Fair Oak

As agreed with EBC, Atkins obtained growth factors from TEMPro (version 7.2) to apply to 2018 traffic survey data to obtain 2036 DN flows for the M3 Junction 12 Improvements study. This growth equated to an uplift of 18% and 19% in the AM and PM peak hour periods respectively. To develop final forecast flows it was also agreed that the difference between the SRTM 2036 Do-More (DPP) DS3 and 2036 Baseline (DOP) would be added to the TEMPro growth.

It is understood that the 2036 Do-More (DPP) DS3 includes the 5,200 units in the two SGO sites (Bishopstoke and Fair Oak).

Table 1 below, shows the housing and job growth assumptions used in the M3 Junction 12 TEMPro analysis. Note residential and job growth in Eastleigh appears to have been applied uniformly to all Middle Super Output Areas (MSOAs)in TEMPro. Full TEMPro details are in contained in Appendix A.

Table 1 TEMPro Housing and Job Growth Assumptions for identified MSOAs

Middle Super Output Area include in Options Report TEMPro Analysis		Base HH	Base Jobs	Future HH	Future Jobs	HH%	Jobs %	HH	Jobs
E02004712	Eastleigh 001	3813	3077	4566	3255	20%	6%	753	178
E02004713	Eastleigh 002	3516	3286	4210	3479	20%	6%	694	193
E02004714	Eastleigh 003	3697	9522	4427	10080	20%	6%	730	558
E02004715	Eastleigh 004	3760	4390	4503	4642	20%	6%	743	252
E02004716	Eastleigh 005	3900	1570	4670	1667	20%	6%	770	97
E02004717	Eastleigh 006	4381	10514	5246	11114	20%	6%	865	600
E02004718	Eastleigh 007	4165	10675	4988	11301	20%	6%	823	626
E02004719	Eastleigh 008	4350	2923	5209	3091	20%	6%	859	168
E02004827	Test Valley 014	3144	1325	3765	1405	20%	6%	621	80
E02004837	Winchester 009	3470	5554	4396	5872	27%	6%	926	318
E02004838	Winchester 010	4142	5119	5625	5425	36%	6%	1483	306

It is also assumed that TEMPro includes the SGO. On this basis, Table 2 shows alternative assumptions with 5,200 units removed from the growth. Note that whilst not all the Eastleigh MSOAs were included in the assessment (some are geographically remote from M3 Junction 12), the SGO appears to be largely in Eastleigh 005 and 008 which have been included. In line with the uniform approach adopted by TEMPro, the SGO housing has been removed from TEMPro Eastleigh MSOAs pro-rata (cells coloured red). Full TEMPro details are in contained in Appendix A.

Table 2 TEMPro Housing and Job Growth Alternative Assumptions for identified MSOAs

Middle Super Output Area include in Options Report TEMPro Analysis		Base HH	Base Jobs	Future HH	Future Jobs	HH%	Jobs %	HH	Jobs
E02004712	Eastleigh 001	3813	3077	3916	3255	3%	6%	103	178
E02004713	Eastleigh 002	3516	3286	3560	3479	1%	6%	44	193
E02004714	Eastleigh 003	3697	9522	3777	10080	2%	6%	80	558
E02004715	Eastleigh 004	3760	4390	3853	4642	2%	6%	93	252
E02004716	Eastleigh 005	3900	1570	4020	1667	3%	6%	120	97
E02004717	Eastleigh 006	4381	10514	4596	11114	5%	6%	215	600
E02004718	Eastleigh 007	4165	10675	4338	11301	4%	6%	173	626
E02004719	Eastleigh 008	4350	2923	4559	3091	5%	6%	209	168
E02004827	Test Valley 014	3144	1325	3765	1405	20%	6%	621	80
E02004837	Winchester 009	3470	5554	4396	5872	27%	6%	926	318
E02004838	Winchester 010	4142	5119	5625	5425	36%	6%	1483	306

Applying the alternative assumptions results in a reduction in the AM peak growth from 1.18 to 1.13 as shown in Table 3 below and from 1.19 to 1.12 in the PM peak.

Table 3 Modelled and Alternative Assumptions TEMPro Growth

Peak Period	2018-2036	
	Modelled TEMPro Growth (M3 Junction 12 Improvements Study)	Alternative Assumptions Growth
AM Peak	1.1833	1.1264
PM peak	1.1915	1.1170

Revised Option - Proposed Changes

In discussions with Atkins SNC Lavalin design colleagues, the Revised Option includes a number changes as detailed below, and shown in Drawing 5163169-ATK-HML-0000-M2-CH-000002_Option_6, attached in Appendix B.

J1 – Hocombe Road/Winchester Road

The junction has been left unchanged with four lanes retained on the motorway overbridge. Testing was undertaken with the aim of reducing the number of lanes to three by converting the two long lanes on the J1 approach to one long lane and one short lane. Design constraints (particularly the bridge structure itself) meant that the proposed right-turn flare was of insufficient length to accommodate the demand in the PM peak and that queues backed up from J1 through J2 to J3.

J2 – Otterbourne Road/Winchester Road

The number of lanes for the ahead movement from Winchester Road to the motorway overbridge has been reduced from two lanes to one lane. Testing was also undertaken to determine whether the length of the two-lane section southbound on Otterbourne Road on the approach to the signal at the hospital access could be reduced. Queueing on Otterbourne Road is sensitive to capacity for right-turners at J2 however and it was not possible to reduce the length of the two-lane section without long queues forming.

J3 – M3 Junction 12 Eastern Roundabout

The number of lanes on the M3 Junction 12 motorway overbridge has been reduced to from four lanes to three lanes. This has meant that the western part of the J3 roundabout circulatory has been reduced from four to three lanes and the southern part from three to two lanes. The by-pass proposed from the Winchester Road to Allbrook Way arms has been removed and the flare on the Allbrook Way approach has also been removed, reducing the number of lanes on the approach from three to two.

Initial modelling with LinSig revealed Allbrook Way require a full two lanes southbound as previously proposed.

J4 – M3 Junction 12 Western Roundabout

The westbound entry into the roundabout has been reduced from two to one lane with the reduction of the number of lanes on the bridge from four to three.

Revised Option Performance

Option Performance – Network Wide

Table 4 below illustrates the overall performance of the modelled network for the following scenarios:

- DN 2036 – Existing network with growth assumptions developed in the M3 Junction 12 Improvements Study and reported in the Model Forecasting and Options Report
- DN Alt TEMPro – Existing network with revised growth based on the alternative TEMPro assumptions outlined in the Traffic Forecasting section of this Technical Note
- DS 2036 – Preferred Option and growth assumptions developed in the M3 Junction 12 Improvements Study and reported in the Model Forecasting and Options Report
- DS PO Alt TEMPro 2036 – Preferred Option developed in the M3 Junction 12 Improvements Study and reported in the Model Forecasting and Options Report
- DS RO Alt TEMPro 2036 – Revised Option developed with the revised growth based on the alternative TEMPro assumptions outlined in the Traffic Forecasting section of this Technical Note

The above scenarios allow the impact on performance of the revised growth methodology, and Revised Option to be demonstrated.

Table 4 Network Performance Results (Revised Option v Preferred Option)

	Performance Indicator	DN 2036 AM	DN Alt Tempro 2036	DS 2036 AM	DS PO Alt Tempro 2036 AM		DS RO Alt Tempro 2036 AM	
AM	Average Network Journey Time (mins)	7.04	7.00	3.31	3.22	-3%	3.50	6%
	Average Delay Time (mins)	4.44	4.41	1.07	0.98	-8%	1.24	16%
	Average Network Speed (mph)	10.25	10.32	22.54	23.20	3%	21.37	-5%

	Performance Indicator	DN 2036 PM	DN Alt Tempro 2036	DS 2036 PM	DS PO Alt Tempro 2036 PM		DS RO Alt Tempro 2036 PM	
PM	Average Network Journey Time (mins)	7.35	7.22	3.37	3.23	-4%	3.24	-4%
	Average Delay Time (mins)	4.69	4.59	1.14	1.01	-11%	1.02	-10%
	Average Network Speed (mph)	10.01	10.20	22.18	23.16	4%	23.07	4%

**Coloured cells show the percentage improvement/deterioration of each indicator against the DS 2036 (Preferred Option) scenario*

The table allows comparison between the forecast performance of the existing network with the previous growth assumptions (DN 2036) and revised growth assumptions (DN Alt Tempro 2036). As can be seen. there is relatively little difference in performance in comparison with the Do-Nothing scenario when the revised growth assumptions are applied because the network remains severely over-saturated.

The table also shows that the revised demand allows the Preferred Option to perform to a higher standard, with the 'DS PO Alt Tempro 2036' column showing a reduction in journey times of 3% in the AM peak and 4% in the PM peak. Average delay reduces by 8% in the AM peak and 11% in the PM peak. Average network speeds increase by 3% and 4% in the AM and PM peaks respectively.

The Revised Option works less well in the AM peak with an increase in journey time and average delay and a reduction in speed in comparison with the Preferred Option. In the PM peak there are significant improvements in all indicators in comparison with the Preferred Option due to the

reduced demand. It is important to note that there are still very significant network improvements brought by the Revised Option in comparison with the Do-Nothing scenario, as shown in Table 5.

Table 5 Network Performance Results (Revised Option v Do Nothing)

	Performance Indicator	DN Alt Tempro 2036	DS RO Alt Tempro 2036 AM	
AM	Average Network Journey Time (mins)	7.00	3.50	-50%
	Average Delay Time (mins)	4.41	1.24	-72%
	Average Network Speed (mph)	10.32	21.37	107%

	Performance Indicator	DN Alt Tempro 2036	DS RO Alt Tempro 2036 PM	
PM	Average Network Journey Time (mins)	7.22	3.24	-55%
	Average Delay Time (mins)	4.59	1.02	-78%
	Average Network Speed (mph)	10.20	23.07	126%

**Coloured cells show the percentage improvement/deterioration of each indicator against the DN Alt TEMPro 2036 (Do-Nothing) scenario*

Figure 2 shows the relative delay (delay as a percentage of total journey time) across 10m segments of the network over the AM peak hour. The figure shows for example that under the Do-Nothing scenario, at least 80% of journey time on Hocombe Road is made up of vehicles being delayed (i.e. in a queue). This is significantly improved under the Revised Option where vehicles only experience delay on the approach to the J1 signal. It can be seen that there is a significant reduction of delay time as proportion of total journey time across almost all of the network under the Revised Option.

Figure 2 – Relative Network Delay by Scenario (AM Peak)

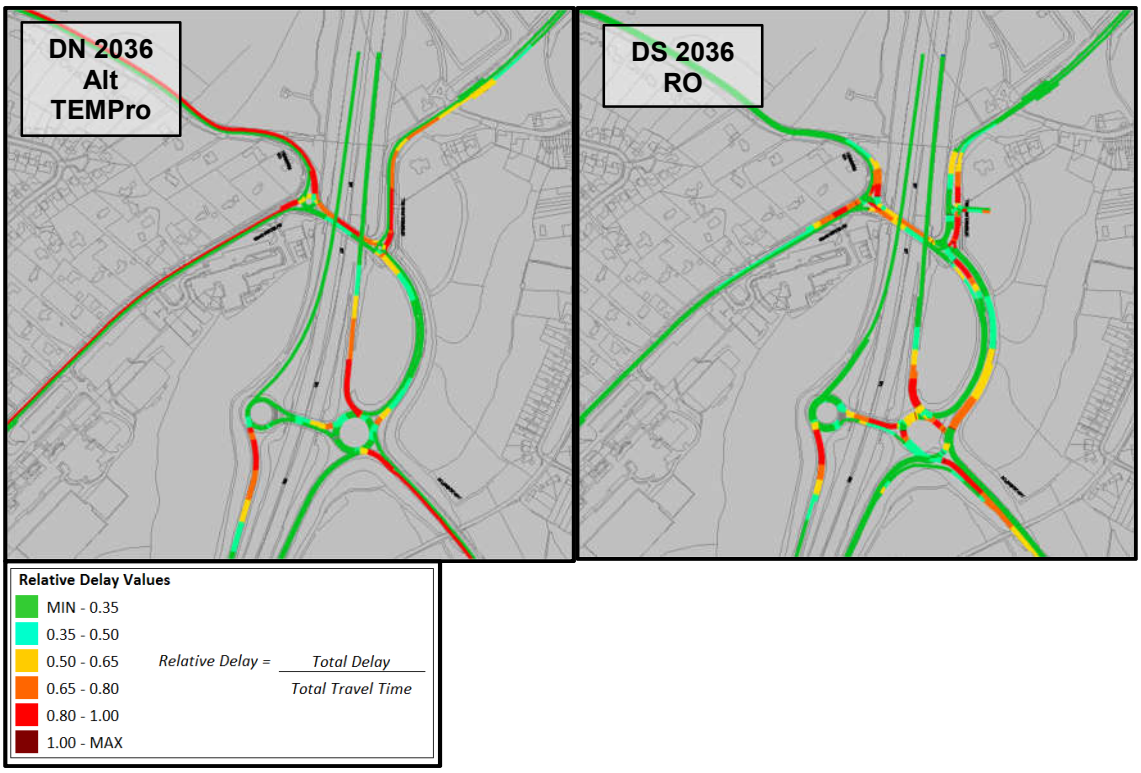
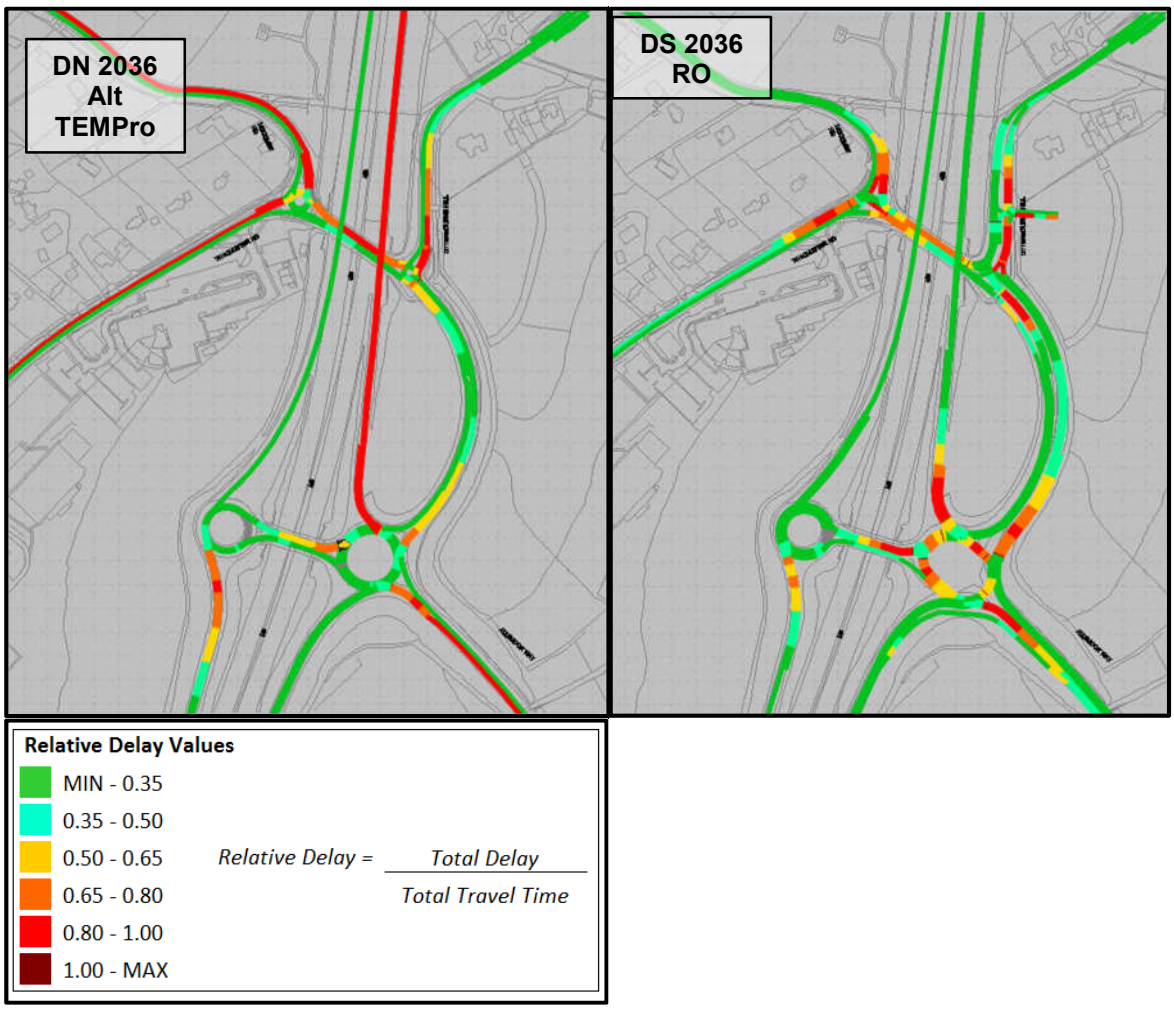


Figure 3 shows that there are similarly significant improvements in relative delay in the PM peak. It is noted in particular that the delay experienced on the M3 southbound off-slip is reduced from the length of the off-slip to the approach to J3 in the Revised Option.

Figure 3 – Relative Network Delay by Scenario (PM Peak)



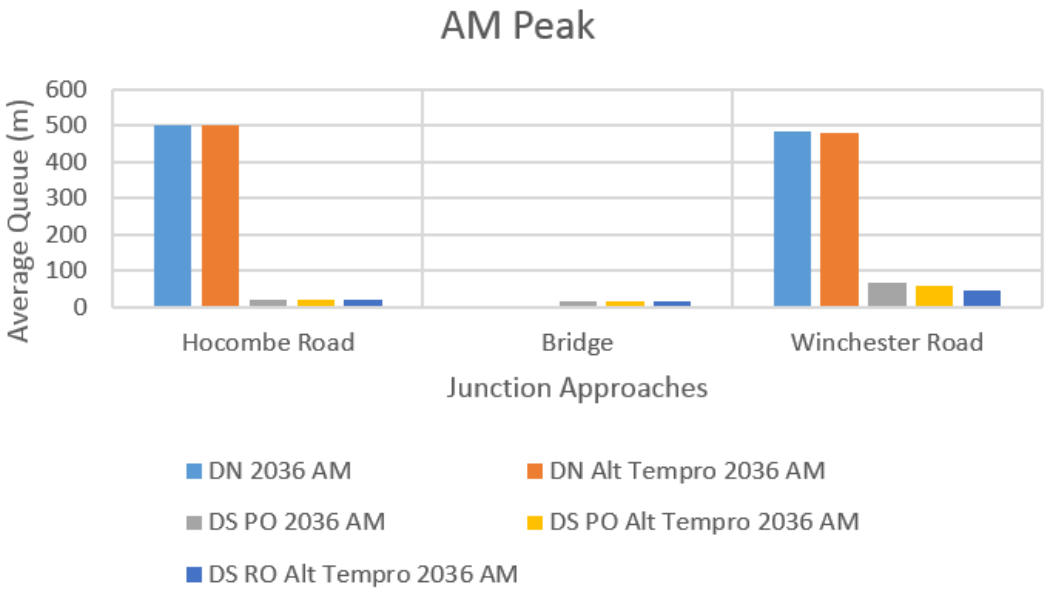
Option Performance – Junctions

Both average and maximum queues by approach are reported for each junction. The average queue is taken across the whole peak hour and it should be noted maximum queues may only reach the length reported once in the hour.

J1 – Hocombe Road/Winchester Road

Figure 4 shows that the Revised Option (DS RO Alt Tempro 2036) has comparable or shorter queues to the Preferred Option in both peaks, representing a significant improvement on the Do-Nothing scenario. Note that both the M3 Junction 12 Improvements Study Do Nothing scenario (DN 2036) and the revised growth assumptions Do Nothing scenario (DN Alt Tempro 2036) have average queues on Hocombe Road and Winchester Road beyond the standard 500m limit measured by Vissim and shown in the figure.

Figure 4 - J1 Average Queue Lengths



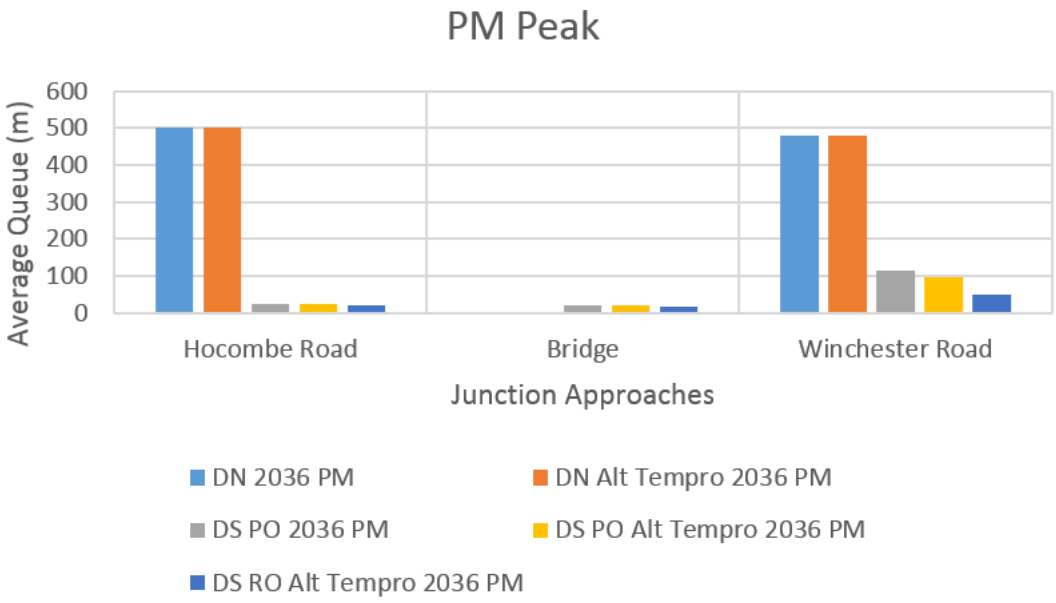
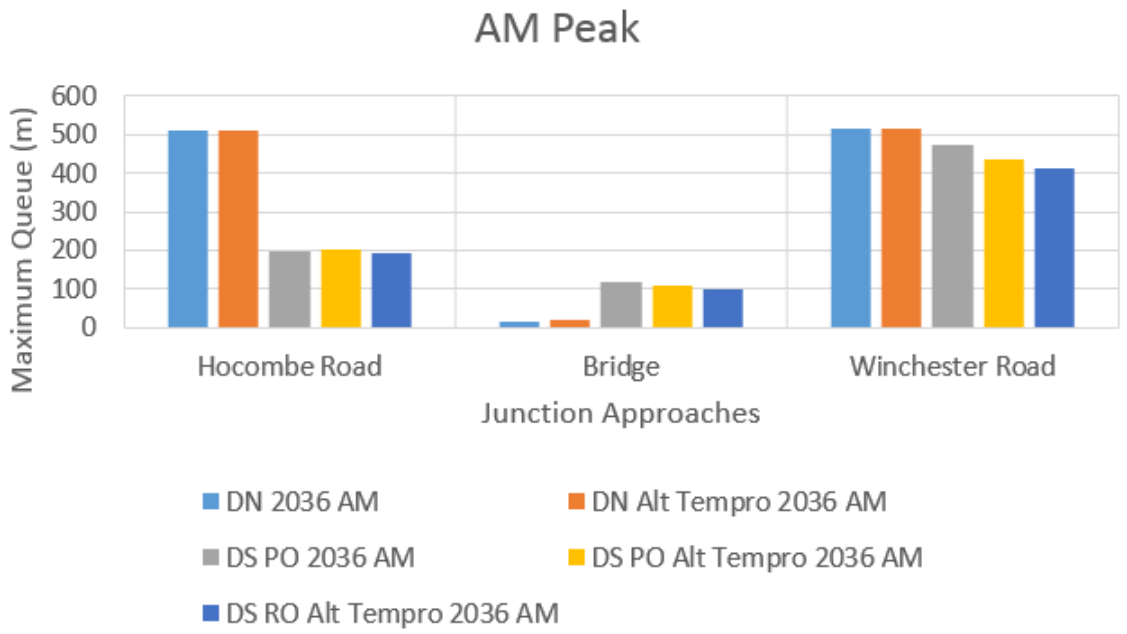
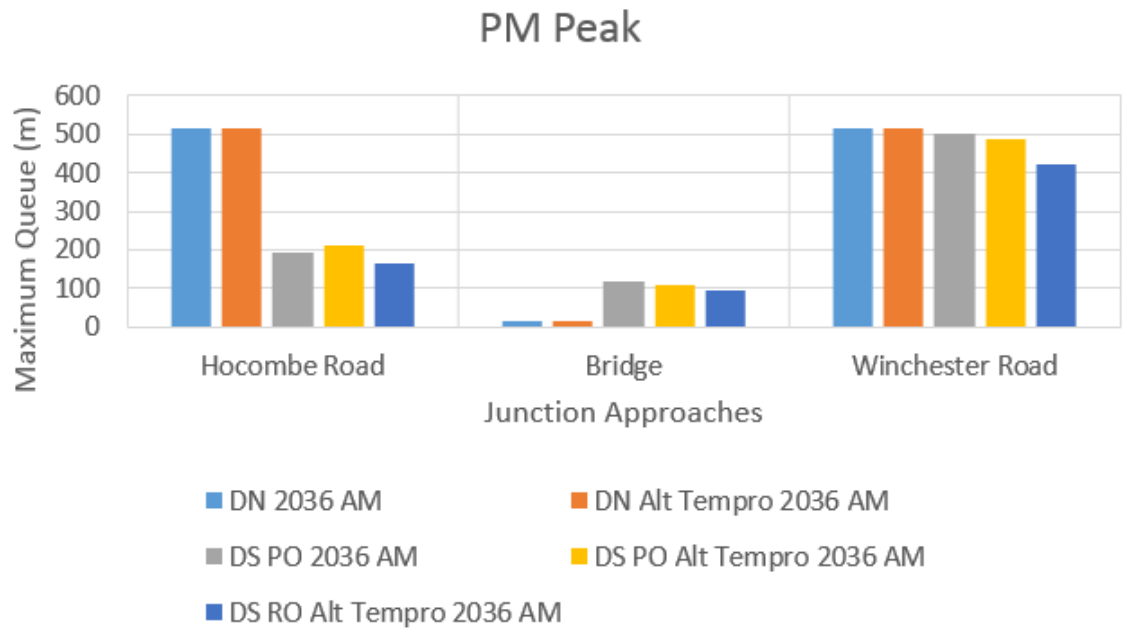


Figure 5 shows maximum queues at J1 in the AM and PM peaks. Note that the DS scenarios bring smaller improvements to maximum queues in comparison with average queues. For example, queues of 200m and 400m are still likely to occur at last once in the AM peak hour on Hocombe Road and Winchester Road respectively. Notwithstanding this, it can be seen that maximum queues in the Revised Option are comparable with, or shorter than, the Preferred Option in both peaks.

Figure 5 - J1 Maximum Queue Lengths





J2 – Otterbourne Hill/Winchester Road

Figure 6 shows that the Revised Option provides similarly significant reductions in average queues on the motorway bridge and Winchester Road at Junction 2 in both peaks.

Figure 6 – J2 Average Queue Lengths

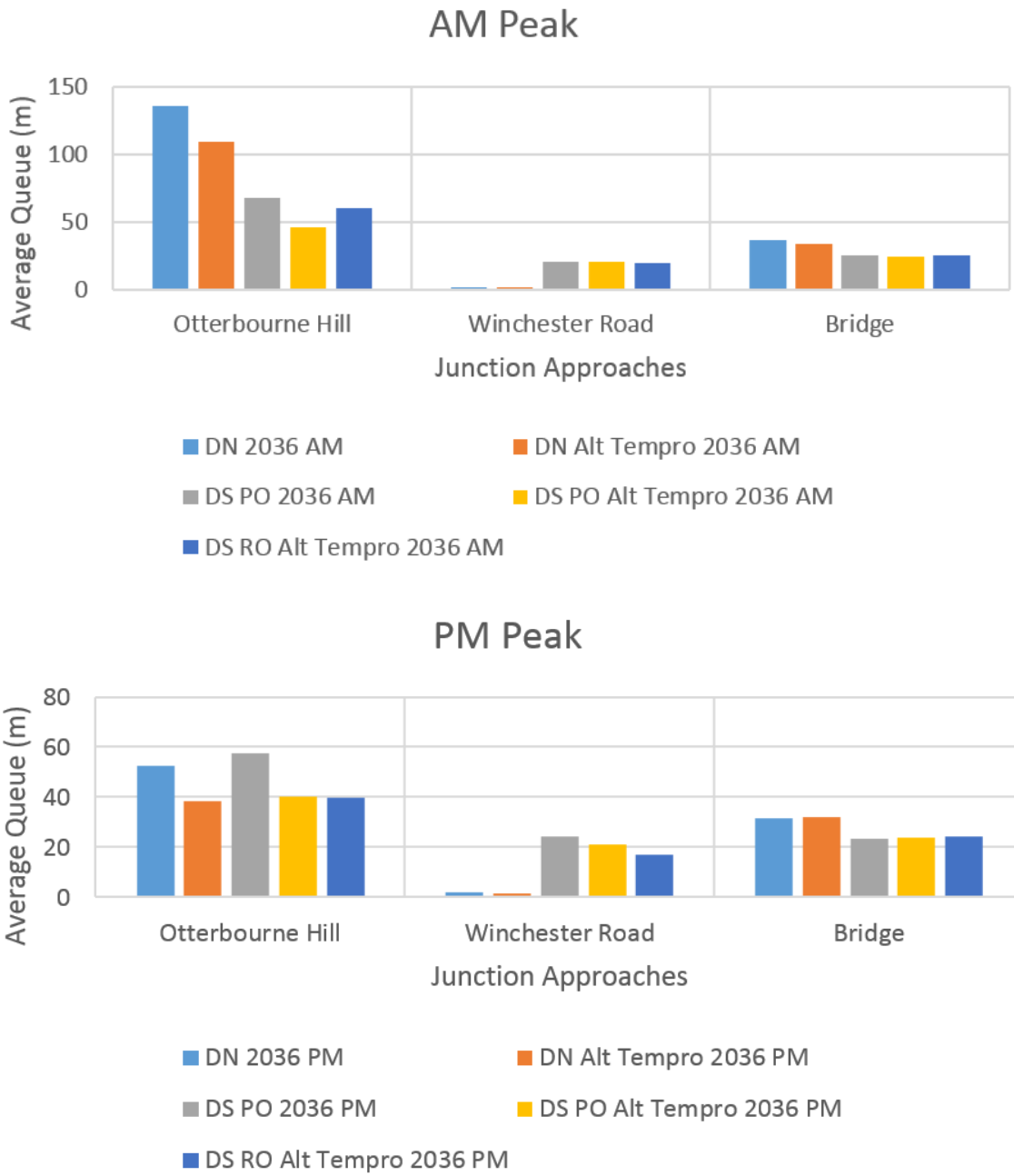
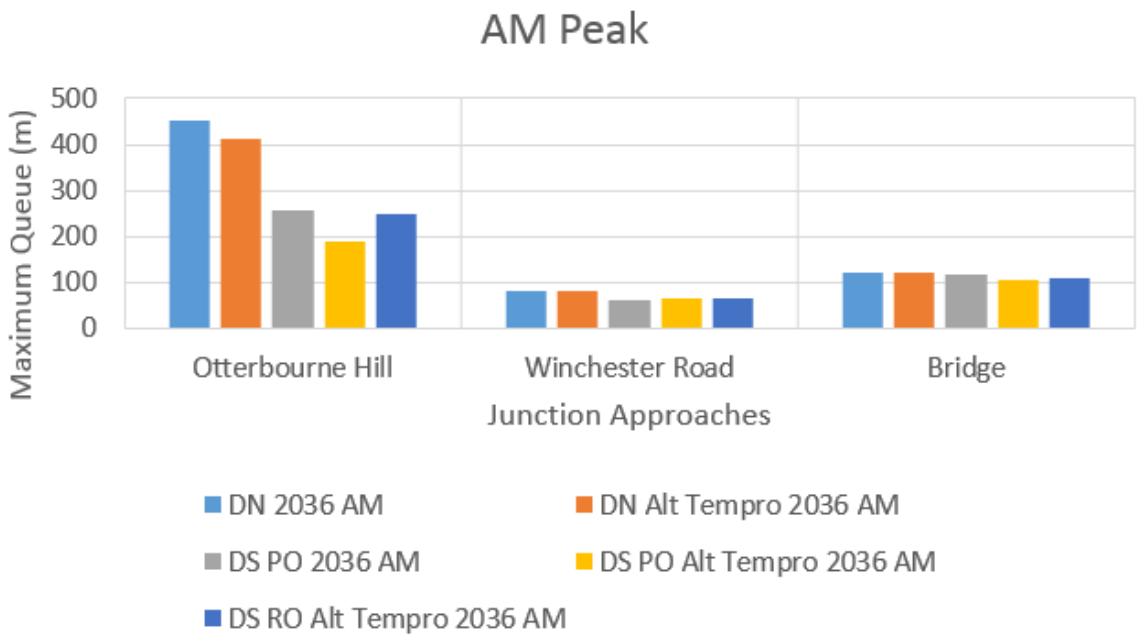
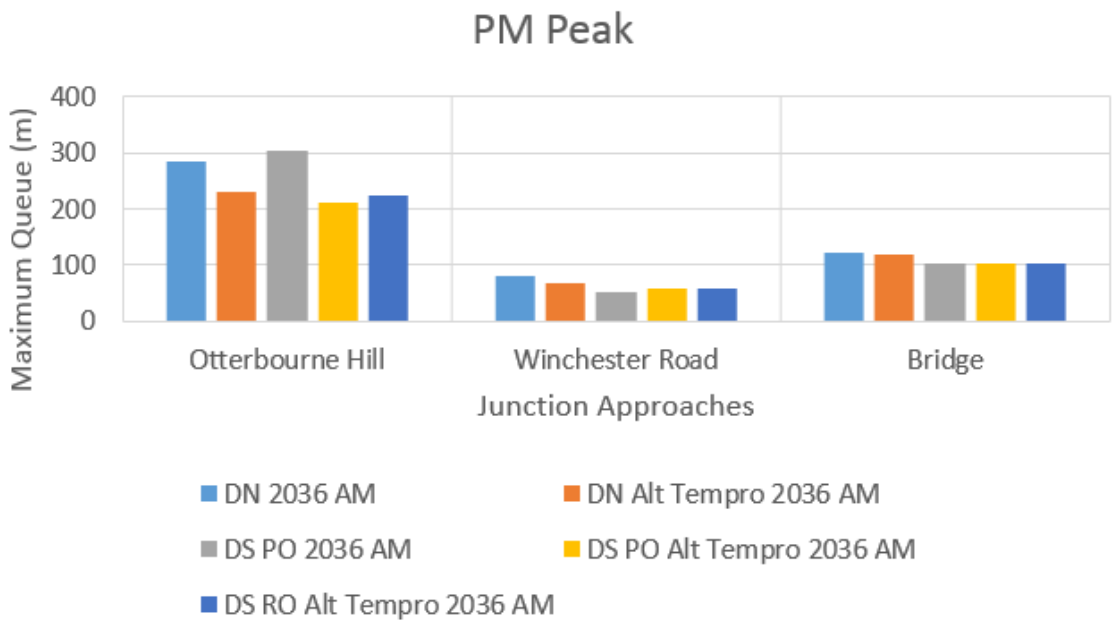


Figure 7 shows that maximum queues are relatively short under all scenarios on Winchester Road and the bridge in both peaks. Note relatively long queues remain on Otterbourne Hill in the Revised Option in both peaks.

Figure 7 – J2 Maximum Queue Lengths





J3 – M3 Junction 12 East

Figure 8 shows that whilst they are slightly longer on some arms, average queues in the Revised Option brings significant improvements comparable with the Preferred Option.

Figure 8 – J3 Average Queue Lengths

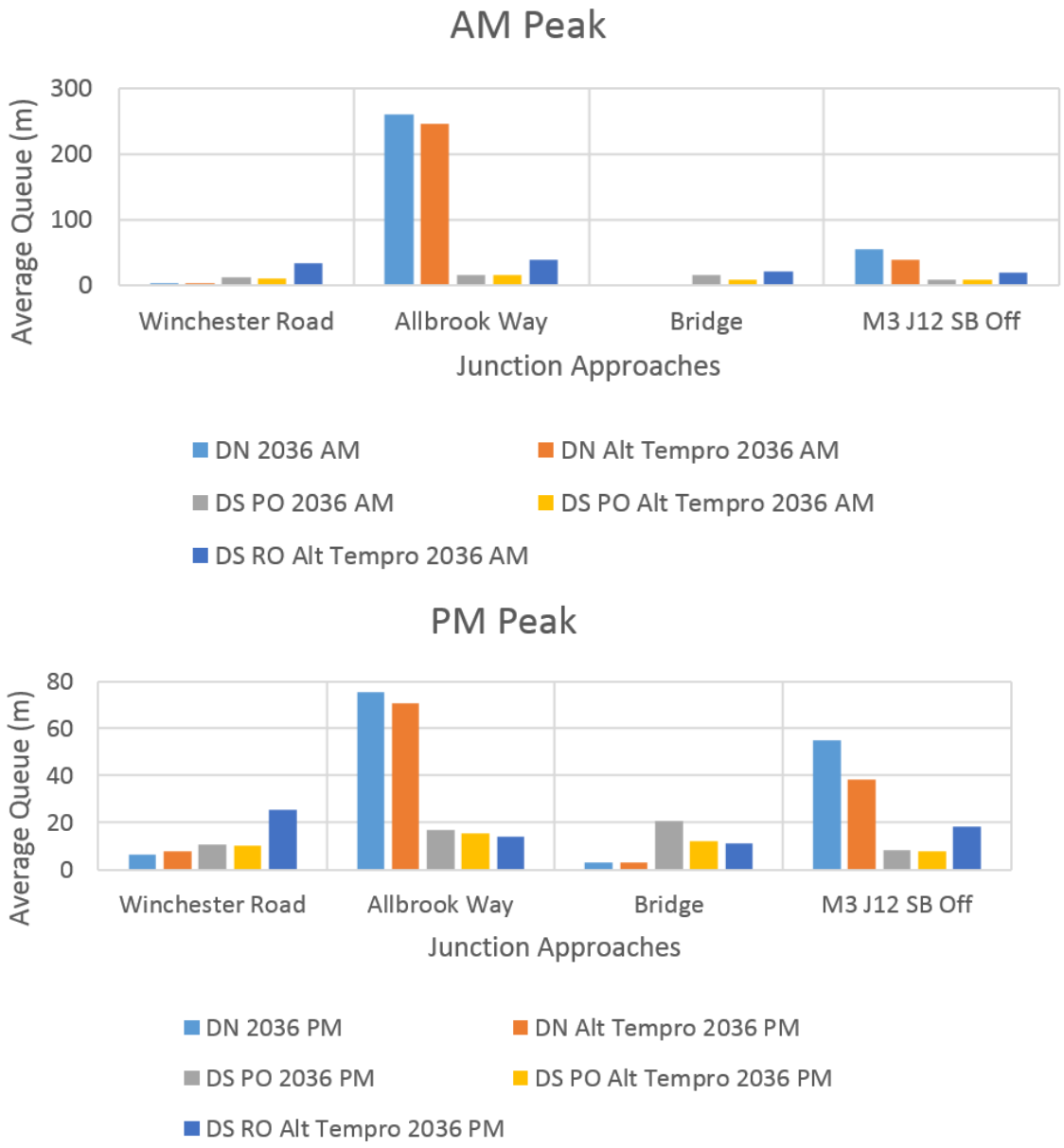
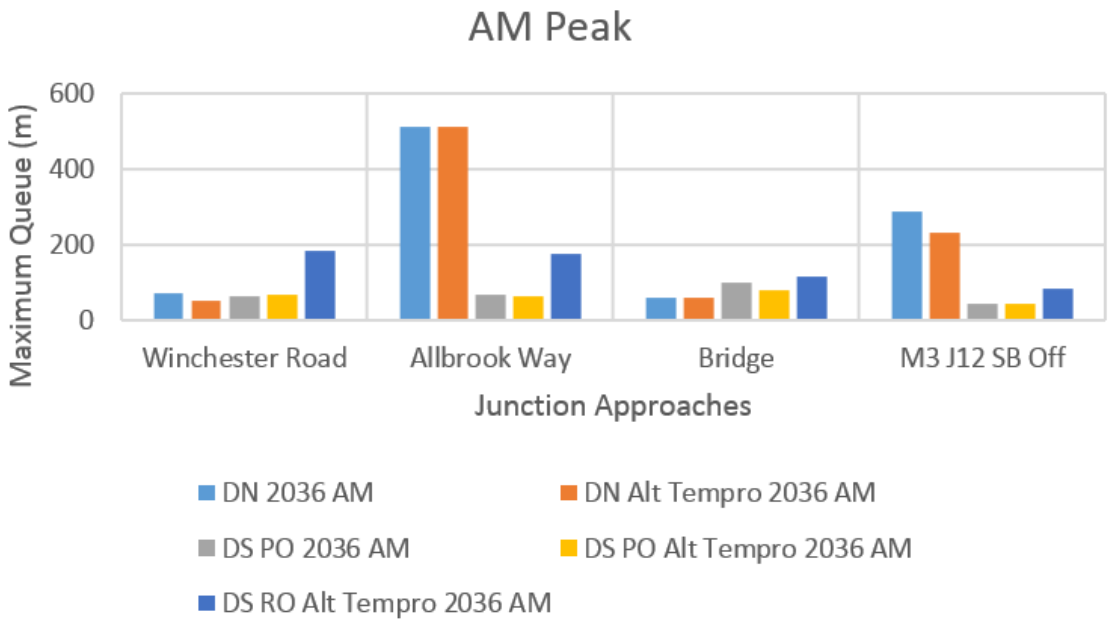
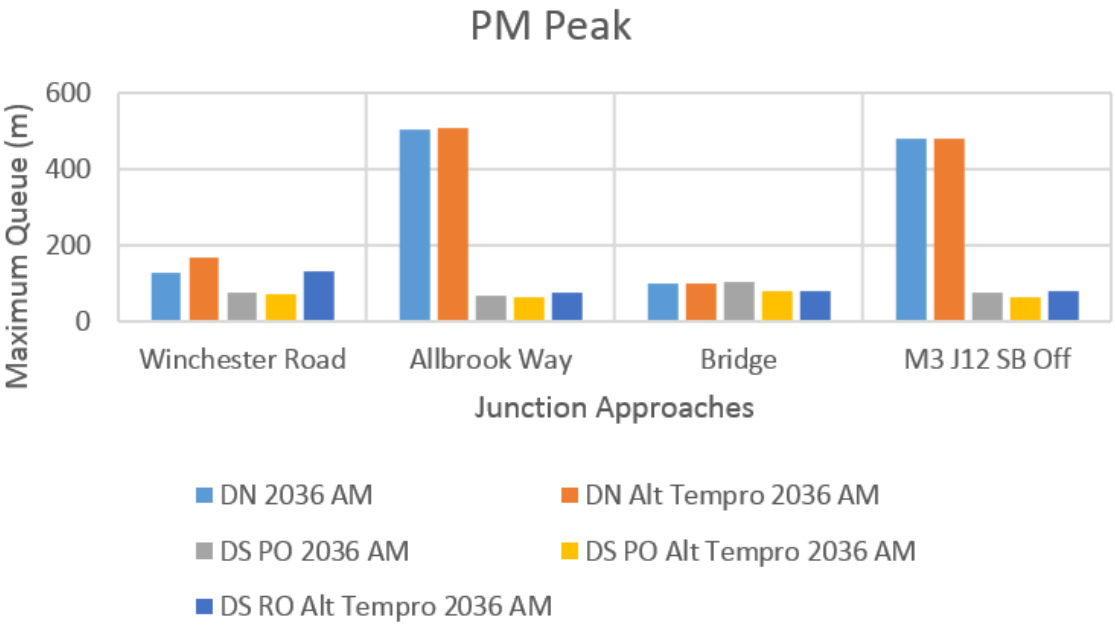


Figure 9 shows that maximum queues at J3 are relatively low in the Do Something scenarios, and whilst the Revised Option maximum queues are longer than the Preferred Option, they are generally shorter than the Do-Nothing scenario.

Note that the Revised Option maximum queue on the M3 off-slip is approximately 80m long in both peaks whilst the length of the slip road itself is approximately 400m. It can be seen therefore that whilst there is the potential for queues to back up to the mainline in the Do-Nothing scenario, the Revised Option prevents such an occurrence.

Figure 9 – J3 Maximum Queue Lengths

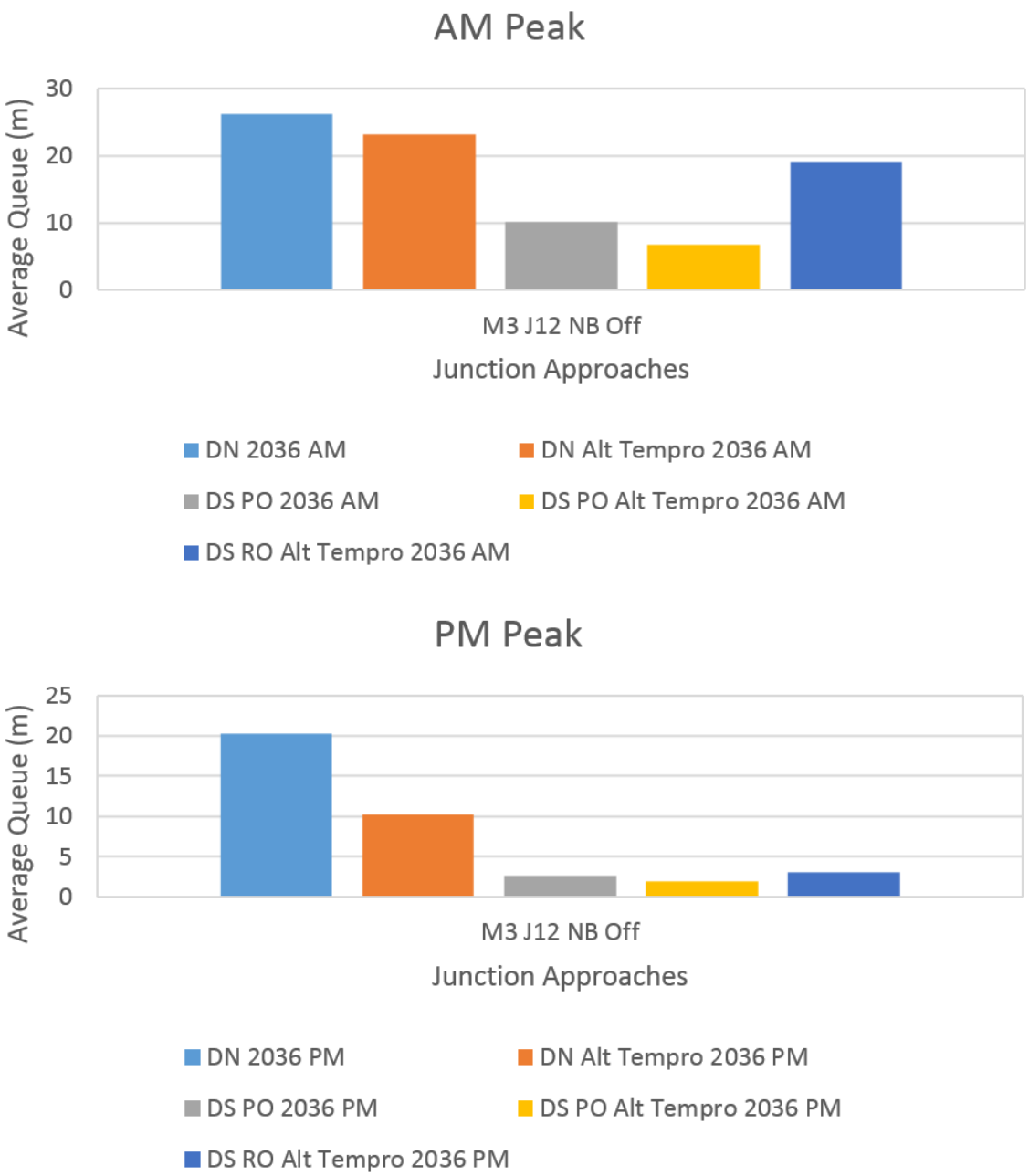

AM Peak
Maximum Queue (m)
600
400
200
0
Winchester Road
Allbrook Way
Bridge
M3 J12 SB Off
Junction Approaches
DN 2036 AM
DN Alt Tempro 2036 AM
DS PO 2036 AM
DS PO Alt Tempro 2036 AM
DS RO Alt Tempro 2036 AM


PM Peak
Maximum Queue (m)
600
400
200
0
Winchester Road
Allbrook Way
Bridge
M3 J12 SB Off
Junction Approaches
DN 2036 AM
DN Alt Tempro 2036 AM
DS PO 2036 AM
DS PO Alt Tempro 2036 AM
DS RO Alt Tempro 2036 AM

J4 – M3 Junction 12 West

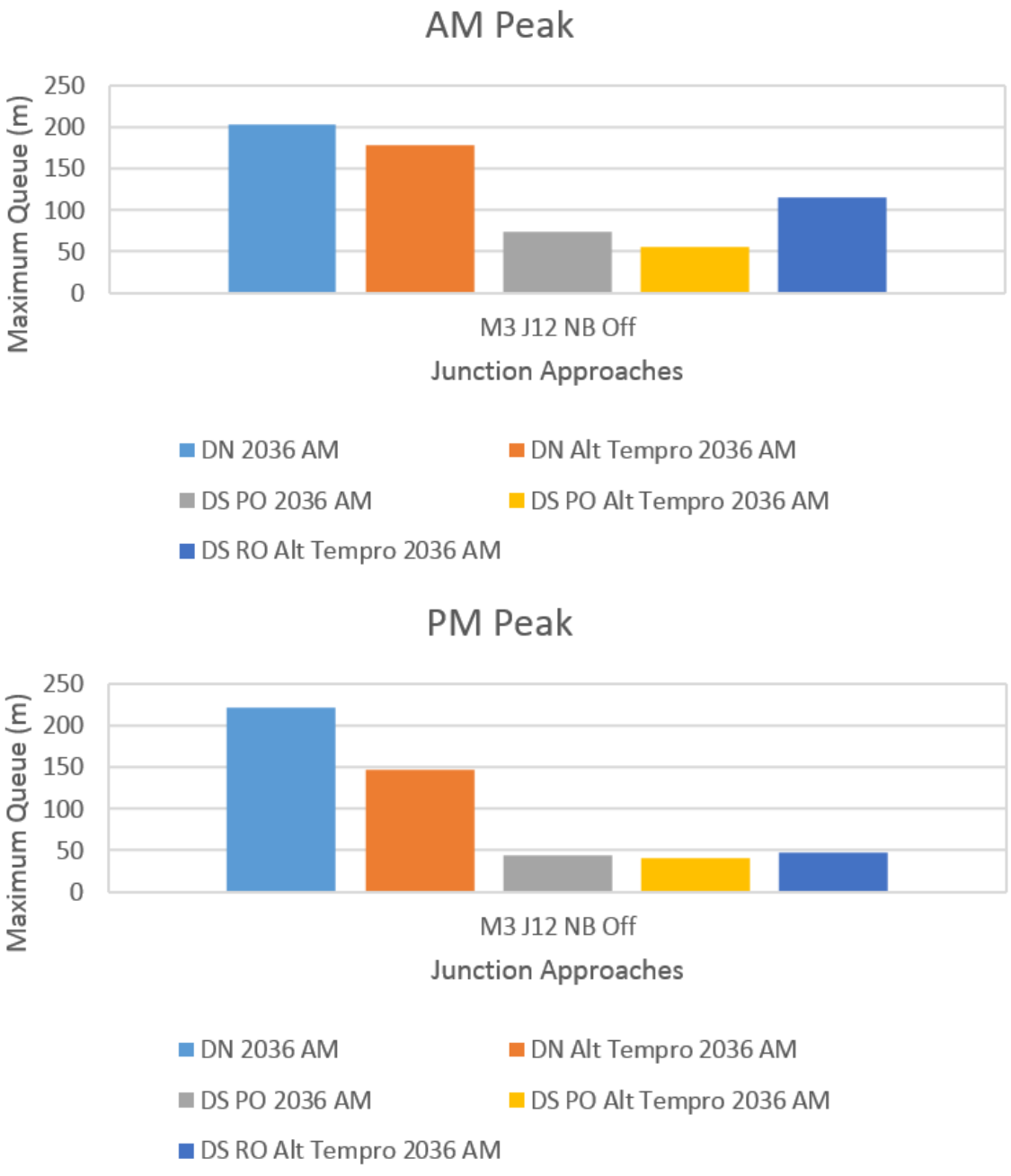
Figure 10 shows that short average queues are experienced at Junction 4 in all scenarios in both peaks.

Figure 10 – J4 Average Queue Lengths



As can be seen from Figure 11, there are long maximum queues on the M3 Junction 12 off-slip at J4 under both Do Nothing scenarios. The Revised Option reduces significantly reduces queueing the both peaks, with maximum queues in all scenarios well below the approximately 400m length of the off-slip.

Figure 11 – J4 Maximum Queue Lengths



Summary and Conclusion

In agreement with EBC and Highways England, SNC Lavalin Atkins has developed a revised methodology for the growth assumptions set out in the M3 Junction 12 Improvements Study Model Forecasting and Options report. Alternative assumptions have been applied using TEMPro to avoid double counting of the Strategic Growth Opportunity in Eastleigh. The alternative assumptions adopted resulted in a reduction in projected traffic growth between 2018 and 2036 from the 18% and 19% applied for the AM and PM peak hours in the M3 Junction 12 Improvements Study to 13% and 12% in the AM and PM peak hours respectively. A revised demand at 2036 has been developed using the revised assumptions and loaded on to the M3 Junction 12 Vissim model.

The reduction in demand resulting from the revised growth methodology has allowed the M3 Junction 12 Improvements Study Preferred Option to be revised. This Revised Option includes:

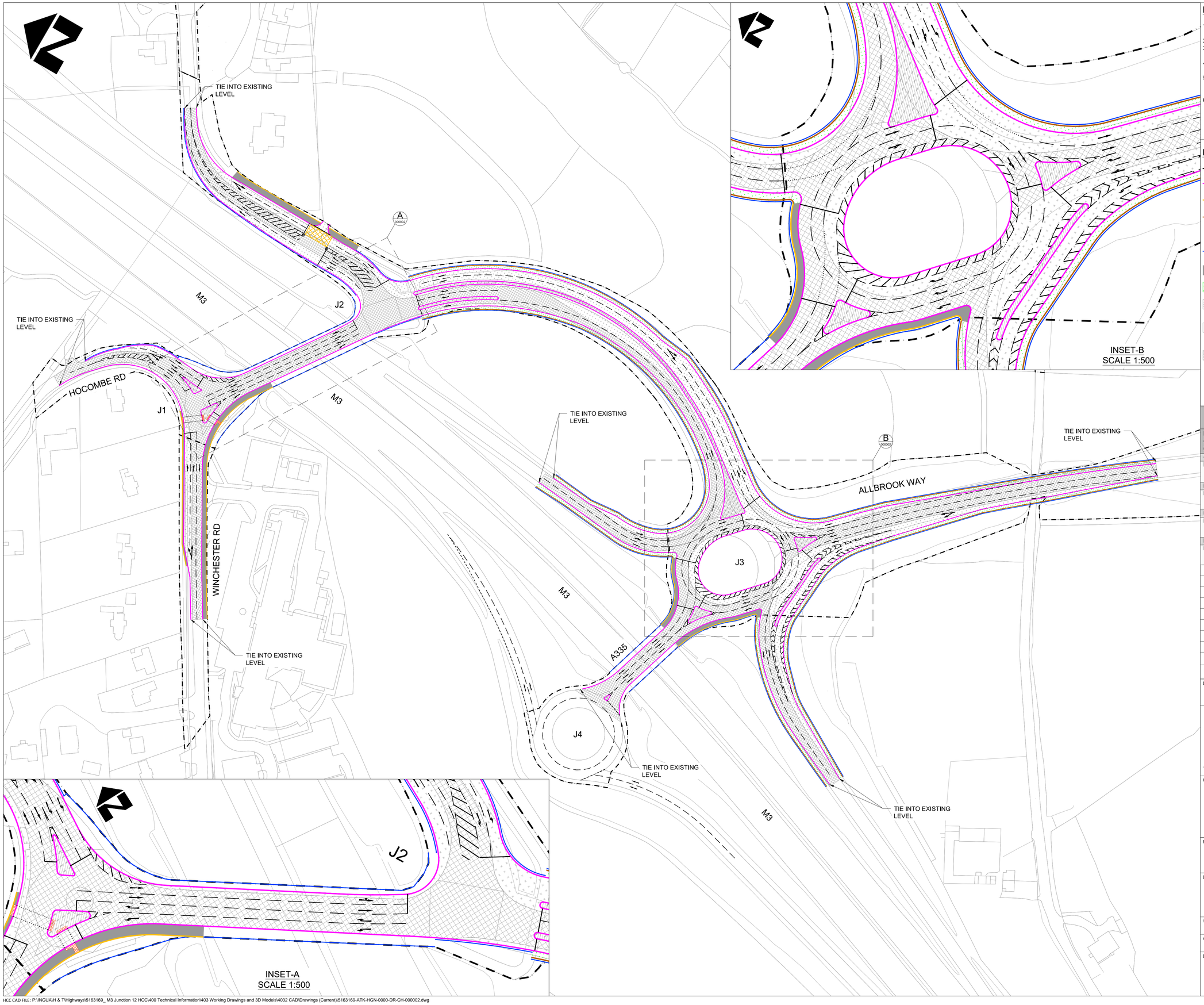
- A reduction in the number of lanes proposed on the M3 Junction 12 junction motorway overbridge from four to three;
- A reduction in the number of lanes proposed on the M3 Junction 12 eastern roundabout from four to three on the western part of the circulatory carriageway and from three to two on the southern part;
- Removal of the proposed free flow by-pass from Winchester Road to Allbrook Way;
- Reduction in the number of lanes proposed at the Allbrook Way entry on to the eastern roundabout from three to two, and;
- Reduction in the number of lanes proposed westbound towards the motorway overbridge from two to one on the Winchester Road approach at the Otterbourne Road/Winchester Road junction.

Proposals for the Hocombe Road/Winchester Road junction remain unchanged, with four lanes retained on the adjacent motorway overbridge. Testing was undertaken with the aim of reducing the number of lanes to three by converting the two long lanes on the Hocombe Road/Winchester Road approach to one long lane and one short lane. Design constraints (particularly the bridge structure itself) meant that the proposed flare for right-turning vehicles was of insufficient length to accommodate the demand in the PM peak and that the queues backed up through the Otterbourne Road/Winchester Road junction as far as the M3 Junction 12 eastern roundabout.

Results from the Vissim modelling show that the Revised Option brings significant benefits in terms of queueing and delay when compared with the Do-Nothing scenario, comparable with the benefits brought by the M3 Junction 12 Improvements Study Preferred Option.

Appendix A – TEMPro Assumptions

Appendix B – Revised Preferred Option Drawing



NOTES

1. THIS SKETCH IS INTENDED AS A PRELIMINARY OPTION DESIGN AND IS NOT FOR CONSTRUCTION PURPOSES.
2. ALL DIMENSIONS ARE IN METRES.
3. PROPOSED SIGNAGE AND MARKINGS ARE SHOWN INDICATIVELY.
4. STREET LIGHTING AND DRAINAGE DESIGN TO BE UNDERTAKEN AT THE DETAILED DESIGN STAGE.
5. HIGHWAY BOUNDARY SHOWN IN THE SKETCH IS EXTRACTED FROM THE AVAILABLE INFORMATION & SAME SHOULD BE VERIFIED AT SITE.
6. ANY PROPOSED IMPROVEMENT BEYOND HIGHWAY LAND BOUNDARY IS SUBJECTED TO THE CONSENT OF LAND OWNER AND APPROVAL OF OVERSEEING ORGANIZATION.

KEY

- HIGHWAY BOUNDARY
- PROPOSED KERB EDGE
- PROPOSED EDGING
- PROPOSED VERGE EDGE
- PROPOSED TACTILE FLAG PAVING
- PROPOSED VRS (INDICATIVE)
- PROPOSED FOOTWAY
- PROPOSED VERGE
- EXISTING PAVED AREA TO BE OVERLAID/ INLAID / PLANED OUT / RECONSTRUCTED
- PROPOSED CARRIAGEWAY WIDENING
- PROPOSED SPLITTER ISLAND / CENTRAL RESERVE CONSTRUCTION BY PERFORATING EXISTING PAVEMENT / SOFT LANDSCAPE / FOOTWAY

0 5 10 20 30 40 50 100

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

In addition to the hazards/risks normally associated with the types of work detailed on this drawing, note the following significant residual risks (Reference shall also be made to the design hazard log).

Construction
None

Maintenance / Cleaning
None

Use
None

Decommissioning / Demolition
None

Rev	Drawn / Des	Checked	Approved	Date
P01	SA / SG	RJ	AC	04.12.2018

First Issue

Description

Drawing Status: Work in Progress
Suitability: S0

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Client: EASTLEIGH BOROUGH COUNCIL

Project Title: M3 J12 Concept Design

Drawing Title: GENERAL ARRANGEMENT (REVISED OPTION)

Scale	Designed / Drawn	Checked	Approved	Authorised
1:1000	SG / SA	RJ	AC	--
Original Size: A1	Date: 04.12.2018	Date: 04.12.2018	Date: 04.12.2018	Date: --

Drawing Number: 5163169-ATK-HGN-0000-DR-CH-000002 (Project | Originator | Volume | Location | Type | Role | Number)
Job No.: 5163169
Revision: P01

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M3 J12
(Revised Option)

DMRB Compliance/Non-Compliance Report

JOB NUMBER: 5163169			DOCUMENT REF: 5163169-ATK-HGN-0000-DR-CH-000003			
P01	1st submission	SG	RJ	AC	12/04/2018	Compliance/ Non-Compliance Check
Revision	**Purpose Description**	**Originated**	**Checked**	**Reviewed**	**Date**	**Description**

DMRB Compliance/Non Compliance Report of 2D-Geometry for M3J12

Sl.No.	Geometric Design Parameters	DMRB Clause Reference Detail			Design Element	Departure/ Relaxation	Compliance/ Non-Compliance as per Proposed (Revised Composite) Layout	Remarks/ Implication/ Potential Improvements
		Desirable Value	Absolute Value	Reference No.	As per Proposed Layout	As per Proposed Layout		
JUNCTION 1 : J1								
A1-1	Design Speed at the major road	-	-	Clause 2.2 of TD 50/04	40mph	-	-	
A1-2	Design Speed at the minor road	-	-	Clause 2.2 of TD 50/04	30mph	-	-	
A1-3	Junction Intervisibility	-	-	Clause 2.10, 2.11, 6.11 of TD 50/04	-	-	Non - Compliance	Obstructed by existing Vegetation
A1-4	Entry Kerb radius (metre)(entry to major road)	Min. 10.0m	6.0m	Clause 7.17 of TD 42/95	15m	-	Compliance	
A1-5	Exit radius(entry to minor road)	Min. 10.0m	6.0m	Clause 7.17 of TD 42/95	48m	-	-	
A1-6	Through Lane Carriageway Width East Bound (Major Road)	<3.65m & >3.0m	3.0m	Clause 7.20 of TD42/95	2.75m	-	Non - Compliance	due to lane configuration on bridge
A1-7	Through Lane Carriageway Width West Bound (Major Road)	<3.65m & >3.0m	3.0m	Clause 7.20 of TD42/95	2.75m	-	Non - Compliance	due to lane configuration on bridge
A1-8	Lane width (Minor Road)	<4.5m & >3.0m	3.0m	Clause 7.20 & 7.23 (a & b) of TD42/95	3.5m - 3.95m	-	Compliance	
A1-9	Lane taper	1 in 5	-	Clause 2.25 of TD50/04	1 in 6	-	Compliance	
A1-12	Ghost island through lane width	3.65m	3.0m	Clause 7.20 of TD42/95	3.25	-	-	
A1-13	Ghost island taper	1:10	-	Clause 2.26 of TD50/04	1:10	-	Compliance	
A1-14	Direct Taper Length	7.5m	-	Clause 2.26 of TD50/04	7.5m	-	Compliance	
A1-15	Swept path	Checked with 16.48m long articulated vehicle	-	Clause 2.34, 2.35, 2.36 of TD 50/04 and Clause 7.15 of TD42/95	No encroachment	-	Compliance	
JUCNTION - 2: J2								
A1-1	Design Speed at the major road	-	-	Clause 2.2 of TD 50/04	40mph	-	-	
A1-2	Design Speed at the minor road	-	-	Clause 2.2 of TD 50/04	30mph	-	-	
A1-3	Junction Intervisibility	-	-	Clause 2.10, 2.11, 6.11 of TD 50/04	-	-	Non - Compliance	Obstructed by existing Vegetation
A1-4	Entry Kerb radius (metre)(entry to major road)	Min. 10.0m	6.0m	Clause 7.17 of TD 42/95	16m	-	Compliance	
A1-5	Exit radius(entry to minor road)	Min. 10.0m	6.0m	Clause 7.17 of TD 42/95	10m	-	-	
A1-6	Through Lane Carriageway Width East Bound (Major Road)	<3.65m & >3.0m	3.0m	Clause 7.20 of TD42/95	2.75-3.25m	-	Non - Compliance	due to lane configuration on bridge
A1-7	Through Lane Carriageway Width West Bound (Major Road)	<3.65m & >3.0m	3.0m	Clause 7.20 of TD42/95	2.75-3.25m	-	Non - Compliance	due to lane configuration on bridge
A1-8	Lane width (Minor Road)	<4.5m & >3.0m	3.0m	Clause 7.20 & 7.23 (a & b) of TD42/95	3.25m - 3.5m	-	Compliance	
A1-9	Swept path	Checked with 16.48m long articulated vehicle	-	Clause 2.34, 2.35, 2.36 of TD 50/04 and Clause 7.15 of TD42/95	No encroachment	-	Compliance	

DMRB Compliance/Non Compliance Report of 2D-Geometry for M3 J12								
Sl.No.	Geometric Design Parameters	DMRB Clause Reference Detail			Design Element	Departure/ Relaxation	Compliance/ Non-Compliance as per Proposed (Revised Composite) Layout	Remarks/ Implication/ Potential Improvements
		Desirable Value	Absolute Value	Reference No.	As per Proposed Layout	As per Proposed Layout		
Arm-1: Bridge								
A1-1	Approach Design Speed at entry	-	-	TD 50/04, Clause 2.2	40mph	-	-	-
A1-2	Junction Intervisibility	-	-	TD 50/04, Clause 2.10, 2.11, 6.11	Obstructed by vegetation and sign board	-	Non- Compliance	Vegetation Clearance is required to mitigate this departure.
A1-3	Entry Kerb radius (metre)	>20m <100m	10m	TD 16/07, Clause 7.49	28.5m	-	Compliance	-
A1-4	Entry Angle	>20º <60º	-	TD 16/07, Clause 7.47	57	-	Compliance	-
A1-5	Entry Lane width	3 to 3.65 m	Max 4.5m	(TD 50/04, Clause 2.22, 2.23), (TD 16/07, Clause 7.24)	4.5m	-	Compliance	-
A1-6	Total Entry Width (metre)	< 15m for Dual CW approach	-	TD 16/07, Clause 7.25	9m	-	Compliance	
A1-7	Swept path (1)	Checked with 16.48m long articulated vehicle	-	TD 50/04, Clause 2.34, 2.35, 2.36 and TD42/95, Clause 7.15	No encroachment	-	Compliance	
A1-8	Exit Kerb radius (metre)	>20m <100m Desirable 40m	15m	TD 16/07, Clause 7.68, 7.69	60m	-	Compliance	-
Arm-2: Allbrookway								
A2-1	Approach Design Speed at entry	-	-	TD 50/04, Clause 2.2	40mph	-	-	-
A2-2	Junction Intervisibility	-	-	TD 50/04, Clause 2.10, 2.11, 6.11	Obstructed by vegetation	-	Non- Compliance	Vegetation Clearance is required to mitigate this departure.
A2-3	Entry Kerb radius (metre)	>20m <100m	10m	TD 16/07, Clause 7.49	36	-	Compliance	-
A2-4	Entry Angle	>20º <60º	-	TD 16/07, Clause 7.47	38	-	Compliance	-
A2-5	Entry Lane width	3 to 3.65 m	Max 4.5m	(TD 50/04, Clause 2.22, 2.23), (TD 16/07, Clause 7.24)	3.6m - 4.5m	-	Compliance	-
A2-6	Total Entry Width (metre)	< 15m for Dual CW approach	-	TD 16/07, Clause 7.25	8m	-	Compliance	-
A2-7	Swept path (1)	Checked with 16.5m long articulated vehicle	-	TD 50/04, Clause 2.34, 2.35, 2.36 and TD42/95, Clause 7.15	No encroachment	-	Compliance	-
A2-8	Exit Kerb radius (metre)	>20m <100m Desirable 40m	15m	TD 16/07, Clause 7.68, 7.69	38.5m		Compliance	-
A2-9	entry/exit taper (segregated lane)	1 in 20	-	TD51/17, Clause 2.6.9 ,2.7.3 and Table 2.5	1 in 20		Compliance	-
A2-10	carriageway width at start of entry/exit taper (segregated lane)	3.5	-	TD51/17, Clause 2.7.3	3.5		Compliance	-
A2-11	segregated lane width	-	-	TD51/17, Table 2.2	5.7		Compliance	-
A2-12	physical island (segregated lane)	>1.6m	-	TD51/17, Clause 2.4.10	1.6		Compliance	-
Arm-3: Link to J2								
A3-1	Approach Design Speed at entry	-	-	-	40mph	-	-	-
A3-2	Junction Intervisibility	-	-	TD 50/04, Clause 2.10, 2.11, 6.11	Obstructed by vegetation and sign board	-	Non- Compliance	Vegetation Clearance is required to mitigate this departure.
A3-3	Entry Kerb radius (metre)	>20m <100m	10m	TD 16/07, Clause 7.49	38.5	-	Compliance	-
A3-4	Entry Angle	>20º <60º	-	TD 16/07, Clause 7.47	44	-	Compliance	

A3-5	Entry Lane width	3 to 3.65 m	Max 4.5m	(TD 50/04, Clause 2.22, 2.23), (TD 16/07, Clause 7.24)	3.8m-4.0m	-	Compliance	
A3-6	Total Entry Width (metre)	< 15m for Dual CW approach	-	TD 16/07, Clause 7.25	11.70m	-	Compliance	
A3-7	Swept path (1)	Checked with 16.5m long articulated vehicle	-	TD 50/04, Clause 2.34, 2.35, 2.36 and TD42/95, Clause 7.15	No encroachment	-	Compliance	
A3-8	Exit Kerb radius (metre)	>20m <100m Desirable 40m	15m	TD 16/07, Clause 7.68, 7.69	27m	-	Compliance	
A3-9	Entry Taper	Urban 1 in 5, Rural 1 in 10	Min. 1 in 5	TD 50/04, Table 2/1 & clause 2.25	1 in 5	-	Compliance	
Arm-4: M3 Offslip								
A4-1	Approach Design Speed at entry	-	-	TD 50/04, Clause 2.2	40mph	-	-	-
A4-2	Junction Intervisibility	-	-	TD 50/04, Clause 2.10, 2.11, 6.11	Obstructed by vegetation	-	Non- Compliance	Vegetation Clearance is required to mitigate this departure.
A4-3	Entry Kerb radius (metre)	>20m <100m	10m	TD 16/07, Clause 7.49	27m	-	Compliance	-
A4-4	Entry Angle	>20º <60º	-	TD 16/07, Clause 7.47	47	-	Compliance	
A4-5	Entry Lane width	3 to 3.65 m	max.4.5m	TD 50/04, Clause 2.22, 2.23	3.4-4.25m	-	Compliance	-
A4-6	Total Entry Width (metre)	< 15m for Dual CW approach	-	TD 16/07, Clause 7.25	11.0m	-	Compliance	
A4-7	Swept path (1)	Checked with 16.48m long articulated vehicle	-	TD 50/04, Clause 2.34, 2.35, 2.36 and TD42/95, Clause 7.15	No encroachment	-	Compliance	-
A4-8	Entry Taper	Urban 1 in 5, Rural 1 in 10	Min. 1 in 5	TD 50/04, Table 2/1 & clause 2.25	1 in 5	-	Compliance	