East Midlands Gateway
Phase 2 (EMG2)

Document DCO 6.6A/MCO 6.6A (Part 3)

ENVIRONMENTAL STATEMENT

Technical Appendices

Appendix 6A

Transport Assessment

October 2025

06

The East Midlands Gateway Phase 2
and Highway Order 202X and The East Midlands Gateway
Rail Freight and Highway (Amendment) Order 202X

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APPENDIX 26: Geometric Design Strategy Record for the local highway network (document reference EMG2-BWB-GEN-XX-RP-CH-0017_S3-P02)

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East Midlands Gateway 2
Leicestershire
Geometric Design Strategy Record
(Local Highways Network)

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1. INTRODUCTION

Instruction

1.1 The EMG2 development is located south of East Midlands Airport (EMA) and proposes substantial improvements to the strategic road network (SRN) at M1 junction 24 along with works to the A453 south of J24 on the Local road network (LRN).

1.2 BWB Consulting (BWB) has been instructed by SEGRO (the Client) to develop the highway design for the works on both the SRN and LRN. This report provides a Design Strategy Record (DSR) for the LRN.

1.3 **Figure 1.1** below shows the overall location of the works on the LRN in the context of EMG2.

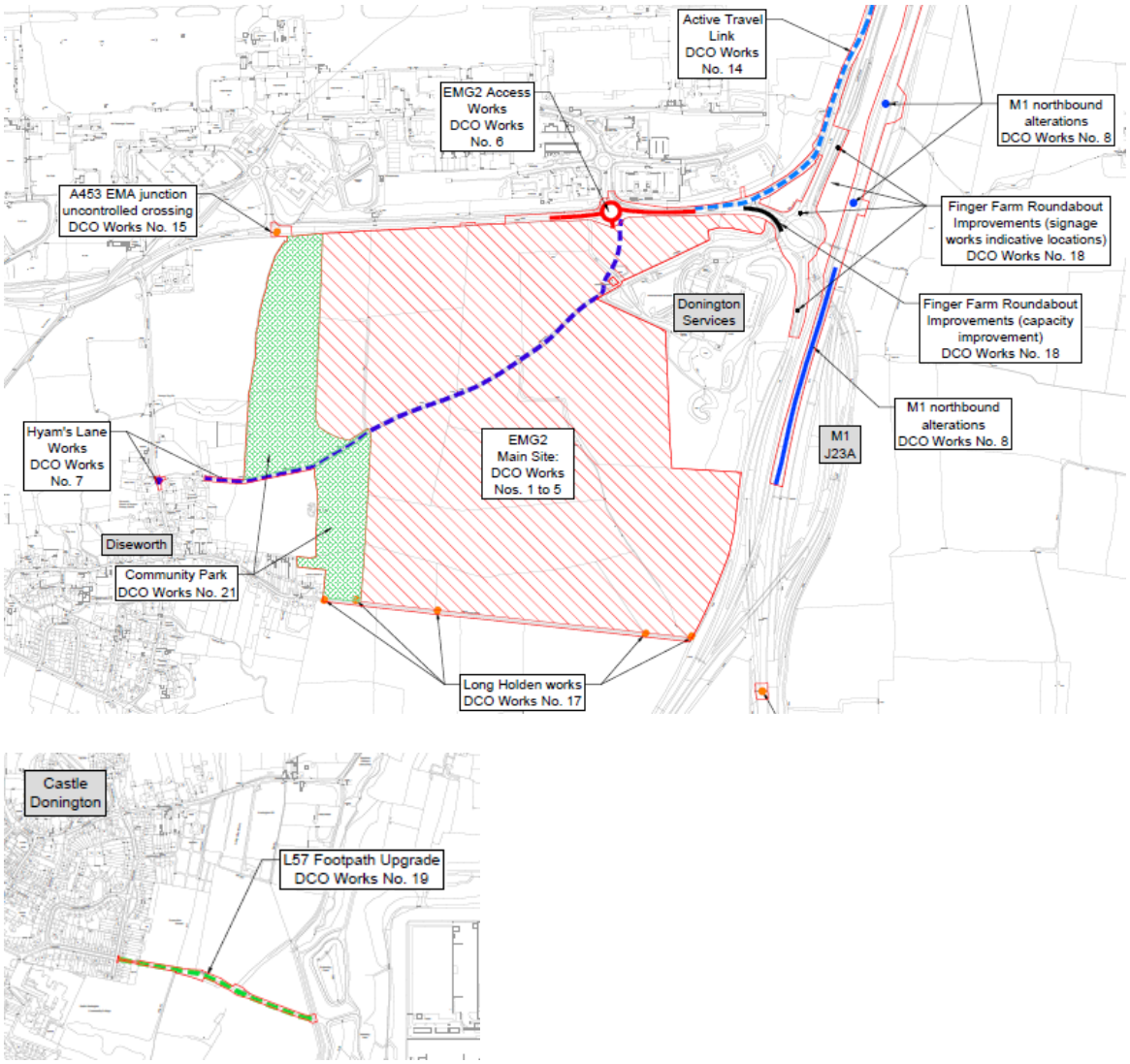


Figure 1.1 Location plan and LRN works

Acronyms and Abbreviations

DfT	Department for Transport
DMRB	Design Manual for Roads and Bridges
DSR	Design Strategy Record
EMA	East Midlands Airport
EMG1	East Midland Gateway 1
EMG2	East Midland Gateway 2
ICD	Inscribed Circle Diameter
LCC	Leicestershire County Council
LRN	Local Road Network
LTN	Local Transport Note
NH	National Highways
SRN	Strategic Road Network
SSD	Stopping Sight Distance

Objectives

1.4 The objective of this DSR is to record the key decisions made during the layout design. This DSR does not include the upgrading of footpath L57 to a cycle track (DCO Works No. 19) as the design of that has already been reviewed by LCC.

1.5 The report will record the relaxations and departures from standards contained within the highway design.

1.6 The following reports and documents are to be provided separately to this DSR:

- Transport assessment and modelling;
- Directional signage strategy;
- Lighting strategy;
- Maintenance and repair statement to GD 304;
- WCHAR assessment and review to GG 142; and
- Stage 1 road safety audit to GG 119.

List of Drawings

1.7 The table below sets out the scheme design and option drawings that are to be read in conjunction with this report. Where a drawing is a formal plan used for the DCO then the document number is given. Formal DCO plans are provided separately and are not appended to this report.

Drawing no.	Title	DCO doc no.
EMG2-BWB-HGN-XX-DR-H-0101	Highway Plans GA Sheet 1 of 4	DCO 2.8A
EMG2-BWB-HGN-XX-DR-H-0102	Highway Plans GA Sheet 2 of 4	DCO 2.8B
EMG2-BWB-HGN-A453-DR-H-0101	A453 Geometry Plans Sheet 1 of 4	n/a
EMG2-BWB-HGN-A453-DR-H-0102	A453 Geometry Plans Sheet 2 of 4	n/a
EMG2-BWB-HGN-A453-DR-H-0103	A453 Geometry Plans Sheet 3 of 4	n/a

Drawing no.	Title	DCO doc no.
EMG2-BWB-HGN-A453-DR-H-0110	A453 Vehicle Swept Paths & Visibility Sheet 1 of 4	n/a
EMG2-BWB-HGN-A453-DR-H-0111	A453 Vehicle Swept Paths & Visibility Sheet 2 of 4	n/a
EMG2-BWB-HGN-A453-DR-H-0112	A453 Vehicle Swept Paths & Visibility Sheet 3 of 4	n/a
EMG2-BWB-HGN-HYAM-DR-H-0101	Hyam's Geometry Plans Sheet 1 of 2	n/a
EMG2-BWB-HGN-HYAM-DR-H-0102	Hyam's Geometry Plans Sheet 2 of 2	n/a
EMG2-BWB-HGN-HYAM-DR-H-0110	Hyam's Vehicle Swept Paths & Visibility Sheet 1 of 2	n/a
EMG2-BWB-HGN-HYAM-DR-H-0111	Hyam's Vehicle Swept Paths & Visibility Sheet 2 of 2	n/a
EMG2-BWB-HGN-04-DR-H-0100	L57 Footpath General Arrangement Layout	n/a
EMG2-BWB-HGT-A453-DR-H-0651	Highway Plans Long Sections Sheet 3 (A453 & L57)	DCO 2.10C
EMG2-BWB-HGT-HYAM-DR-H-0651	Highway Plans Long Sections Sheet 4 (Hyam's)	DCO 2.10D
EMG2-BWB-HGN-XX-DR-H-0131	Highway Plans Cross Sections Sheet 1 of 3	DCO 2.9A
EMG2-BWB-HGN-XX-DR-H-0132	Highway Plans Cross Sections Sheet 2 of 3	DCO 2.9B

2. SCHEME OVERVIEW AND DESIGN STANDARDS

Scheme overview

2.1 The proposed works on the LRN are listed below, collectively referred to within this report as the LRN works.

- New arm (to serve the EMG2 Main Site) and improvements to the A453 Hunter Road roundabout (DCO Works No. 6) comprising:
  - New southern arm to the roundabout to serve as primary access to the EMG2 development;
  - Carriageway widening to lengthen the existing 2 lane approach and exits on both A453 arms;
  - Provision of new Toucan signalised crossing of A453 between Finger Farm and Hunter Road roundabouts. Includes a new length of shared cycle/footway to the south from the crossing to Hunter Road roundabout and into the EMG2 development;
- Improvement to Finger Farm roundabout A453 westbound exit (DCO Works No. 18):
  - Carriageway widening to lengthen the existing 2 lane exit to increase capacity reducing the risk of merging traffic queuing back towards the roundabout;
- Provision of new and improvements to the existing shared unsegregated cycle/footway adjacent to the A453 between EMG1 and the EMG2 (up to the boundary with the SRN, north of this point this becomes part of the works on the SRN) (DCO Works No. 14);
- Conversion of Hyam's lane into a shared use cycle track (DCO Works No. 7); and
- Upgrade of public footpath L57 (connecting Castle Donington to EMG1 and thence onto EMG2) to a shared use cycle track (DCO Works No. 19).

2.2 The works to the EMA junction (DCO Works No. 15) and Long Holden (DCO Works No. 17) are minor and are therefore not covered by this report.

Overview of Standards

2.3 The scheme spans across two highway authority boundaries, NH and LCC. This report provides design commentary on the LCC's LRN works. The NH design commentary is covered by a separate report.

2.4 The LRN works will be designed in accordance with the following DMRB standards and DfT guidance:

Doc. Ref.	Document Title	Version / Revision
CD 109	Highway link design	Revision 1
CD 116	Geometric design of roundabouts	Version 2.1.0
CD 127	Cross-sections and headrooms	Version 1.0.1
CD 143	Designing for walking, cycling and horse-riding	Version 2.0.1

Doc. Ref.	Document Title	Version / Revision
LTN1/20	Cycle Infrastructure Design	July 2020

Highway Authority, Road Class, Design Speed and Speed Limit

2.5 The road class for the A453 west/east section between Finger Farm roundabout and the signalised junction access to the airport has been categorised as an urban all-purpose road following the proposed developed. This is due to the road having development both sides and a cross section with carriageway, footways and road lighting in line with the typical sections for urban single carriageway shown in CD 127 'Cross-sections and headrooms',

Section of scheme	Road class	Design speed	Existing or proposed signed speed limit (mph)
A453 between Finger Farm roundabout and the signalised junction access to EMA.	All-purpose	85kph	Existing 50mph signed speed limit to be retained.
Shared use cycle/footway or cycle track	N/A	30/40mph	Assessed based on longitudinal gradient in accordance with LTN1/20

3. A453 FINGER FARM ROUNDABOUT

Layout

3.1 The proposed works to the existing A453 Finger Farm roundabout is to extend the length of two-lane merge on the A453 westbound exit. The extension is to reduce the risk of merging traffic queuing back onto the roundabout.

Design Speed and Geometry

3.2 The proposed geometric changes to the roundabout are not influenced by design speed except for forward visibility exiting the roundabout. CD 116, para. 3.56 states that exit visibility from the ICD shall be in accordance with CD 109.

3.3 As detailed above, the A453 has been categorised as an urban all-purpose road and therefore the design speed based on the existing 50mph signed speed limit at 85kph (CD 109, para. 2.5 and Table 2.5).

3.4 The extension maintains the compliant horizontal and vertical geometry of the existing exit and provides minimum lane widths of 3.0m and a merge taper greater than 1 in 15 (CD 116, para. 3.28.3).

Visibility

3.5 The existing forward visibility (SSD) from the exit of the roundabout onto the A453 eastbound is currently sub-standard and constitutes a departure from standard. Drawing EMG2-BWB-HGN-A453-DR-H-0102 shows the achieved SSD of the proposals with minimal vegetation clearance which will remain an **existing departure from standard**. The drawing also shows the point at which desirable minimum SSD is achieved.

4. A453 HUNTER ROAD / EMG2 PRIMARY ROUNDABOUT ACCESS JUNCTION

Layout

4.1 The works to the existing A453 Hunter Road roundabout proposes a new arm off the south of the roundabout to serve the development.

4.2 Additionally, the works include widening of the approach and exits to both A453 arms of the roundabout to increase capacity and road safety.

Traffic Flows

4.3 **Figure 4.1 and 4.2** below set out the peak hour future assessment year traffic data for the development through the roundabout. Note the figures are orientated north.

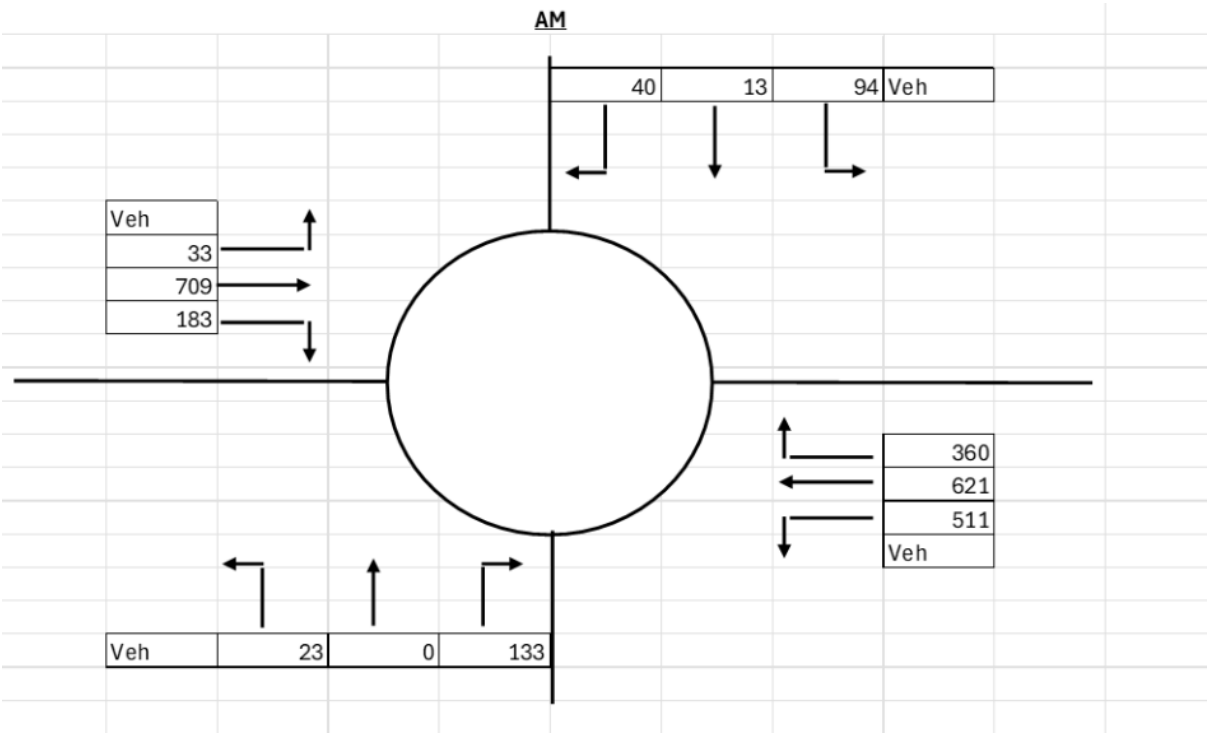


Figure 4.1 A453 Hunter Road roundabout forecast traffic flows AM peak hour

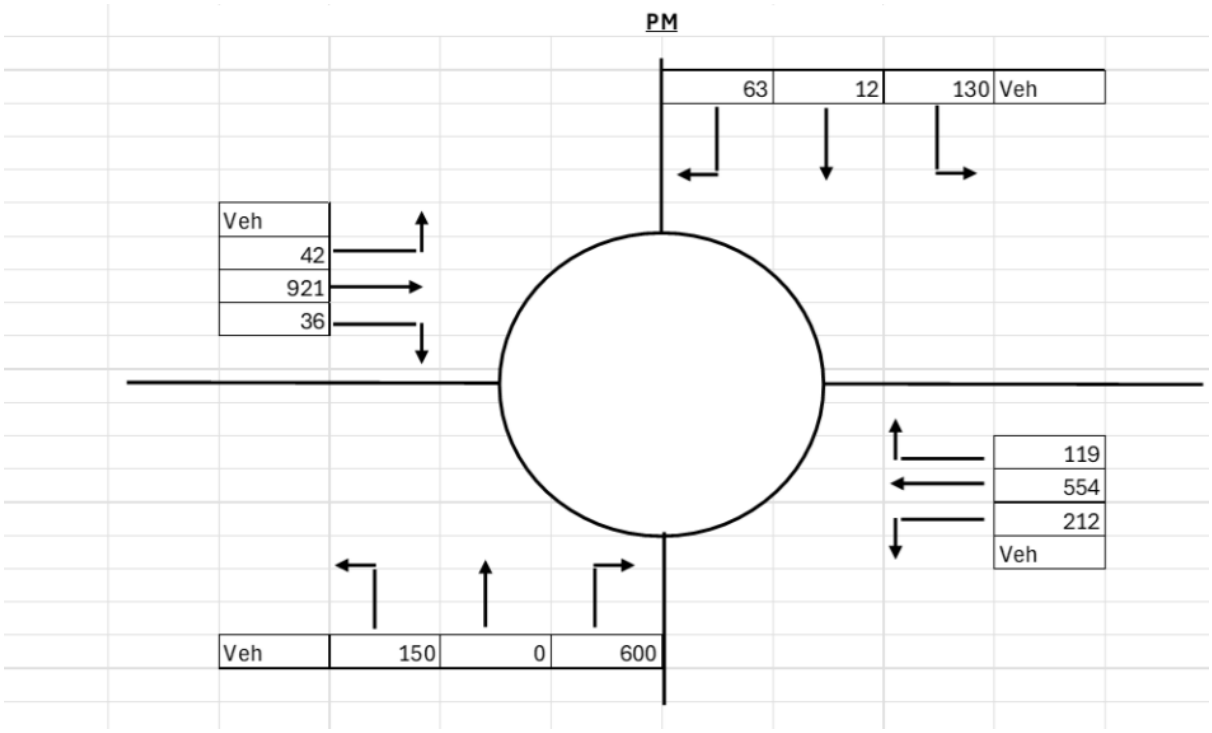


Figure 4.2 A453 Hunter Road roundabout forecast traffic flows PM peak hour

Design Speed and Geometry

4.4 The proposed works for the widening and increased length of the 2-lane approach and exits of the A453 arms, have been assessed in accordance with CD 116. Design speed does not influence the geometric design criteria for the proposals except for forward visibility. CD 116, para. 3.56 states that exit visibility from the ICD shall be in accordance with CD 109.

4.5 As detailed within paragraph 2.5 of this report, The A453 in this location has been categorised as an urban all-purpose road and therefore the design speed based on the existing 50mph signed speed limit at 85kph (CD 109, para. 2.5 and Table 2.5).

4.6 Drawing EMG2-BWB-HGN-A453-DR-H-0101 shows the detailed geometry proposals and assesses compliance with DMRB, notably CD 116 for the roundabout.

4.7 The proposed horizonal and vertical geometry changes to the A453 and proposed development arms have been designed to accommodate the swept path requirements for an HGV in the nearside lane and large car in the outside lane, and in accordance with the geometric requirements of CD 116. A check using the longer 18.5m articulated vehicle, introduced in 2023, has also been caried out.

4.8 On the EMG2 exit the width of lane 1 at the exit is widened to allow for the swept path manoeuvres of the design vehicle. However, as the lane width exceeds 4.5m, this is a **departure from standard**.

Visibility

4.9 Visibility on the approach, circulatory and exit of the roundabout arms comply with the requirements of CD 116, para. 3.42 to 3.56.

Departures From Standard

4.10 There is one **departure from standard** for the proposed changes to Hunter Road roundabout. The nearside approach lane width on the new southern arm is 4.99m to accommodate the design vehicle swept path. CD 116, para 3.14 states the maximum lane width shall be no greater than 4.5m.

5. A453 SHARED USE CYCLEWAY/FOOTWAY

Layout

5.1 The works propose a new shared use unsegregated cycle/footway (shared facility) along the A453 between the existing A453 / A6 Kegworth Bypass / EMG1 (Wilders Way) access junction and the A453 Hunter Road / EMG2 access roundabout. The route is unlit except for where it runs adjacent to existing lit roads.

5.2 The shared use facility will connect to the existing shared unsegregated cycle/footway facility to the north for EMG1, Kegworth village and A6 Kegworth Bypass. To the south, connect into the existing shared facility along the A453 to the existing Beverley Road roundabout and will connect into the new facility that is proposed to run along Hyam's Lane to Diseworth.

5.3 This report provides design information for the section of shared facility from the National highways boundary adjacent to the airport (approximately 500m north of the existing Finger Farm roundabout) to the A453 Hunter Road / EMG2 access roundabout.

5.4 Consideration has been given to maintaining the existing access to the pumping station off A453 between Hunter Road and Finger Farm roundabouts. The pumping station is located to the east of the airport, adjacent to the dual carriageway section of the A453.

Traffic Flows

5.5 Based on the existing usage of the cycle networks in the vicinity of EMG1 and the proposed EMG2 site the envisaged usage is predicted to be well below 200 users per hour.

Design Speed and Geometry

5.6 The design of the shared facility has been based on LCCs highways design guide and LTN1/20 with particular reference to Chapter 5 'Geometric Requirements'. Where appropriate, DMRB CD 195 has been used to further determine design requirements.

5.7 In accordance with LTN1/20, para 5.6.1 and Table 5-4, the design speed for the shared facility is 30kph, increased to 40kph on downhill gradients greater than 3%.

5.8 A desirable minimum width of 3.0m is proposed for the shared facility (LTN1/20, para 5.5.1 and Table 5-2).

5.9 A 1.0m verge farthest from the carriageway for the length of the shared facility is proposed adjacent to the dual carriageway section of the A453. The existing verge width is to be retained on the single carriageway section of A453.

5.10 A wider than desirable minimum offset of 3.5m is provided along the derestricted dual carriageway section of the A453. An absolute minimum 1.5m adjacent to the 50mph restricted single carriageway section between the Hunter Road and Finger Farm roundabouts in accordance with LTN1/20. Para. 6.2.11 and Table 6-1 is proposed except

for a pinch point 1.31m as indicated on drawing EMG2-BWB-HGN-A453-DR-H-0101. This constitutes a **departure from standard**.

5.11 Proposed horizontal curves on the shared facility generally exceed the minimum criteria of 25m and 40m radii for the appropriate design speed as stated within LTN1/20, para. 5.9.1 and Table 5-7 with the exception of the tie in to the existing facility at Hunter Road which has a 20m radius. This constitutes a **relaxation** as LTN 1/20 clause 5.9.3 is not a mandatory requirement.

5.12 The section of shared facility from the Finger Farm roundabout heading north for approximately 450m proposes a series of 5% longitudinal gradients for 30m with minimum 5m of flat section (maximum 2%) between each gradient. This is in compliance with LTN1/20, para's. 5.9.7 to 5.9.10 and Table 5-8.

5.13 Minimum K Value requirements for sag and crest curves are achieved in accordance with LTN1/20, para. 5.9.5.

5.14 The crossfall of the shared facility does not exceed 2.5% in accordance with LTN1/20, para 5.10.1.

5.15 It is proposed to maintain the existing vehicular access to the pumping station, a section of which will be shared with the new shared cycle facility. Over this section the existing surfaced access will be retained subject to confirming its current condition. The access track close to the pumping station is proposed to be realigned and include the provision of a new culvert crossing the existing watercourse. The realignment is primarily to provide smooth alignment at the interface with the shared facility and adequate visibility. A new lockable gate close to the pumping station is proposed at the extent of the new adoptable highway boundary. Bollards are proposed at the interfaces both ends of the access track to prevent motorised vehicles entering onto the cycle / pedestrian shared facility. Additional security bollards are proposed at the access of A453 to replace the existing security gate.

Visibility

5.16 Stopping sight distance (SSD) along the route is achieved in accordance with LTN1/20, para. 5.7.1 and Table 5-5 (31m for 30kph and 47m for 40kph) with the inclusion of a short section of verge widening on one of the bends within the 40kph section.

5.17 A small degree of vegetation clearance may be required at the shared facility junction where the existing and new facilities intersect and at the intersections between the shared facility and the existing access track.

Departures From Standard

5.18 There is one **departure from standard** along this section of shared facility as highlighted above.

5.19 It is recommended that LCC are consulted regarding the proposals for the 5% longitudinal gradient section of the facility.

6. HYAM'S LANE CYCLE TRACK

Layout

6.1 Hyam's Lane is a cul-de-sac road that serves as highway access for the Old Mill Farm as well as access to fields along the length of Hyam's Lane.

6.2 For the first approximately 120m of Hyam's Lane from the junction with Grimes Gate, there is a bituminous surface. From this point travelling east Hyam's Lane becomes a travel track up to the end of the lane near the boundary with the Moto Donington services.

6.3 The proposal is to utilise Hyam's Lane as a cycle track through the EMG2 Main Site including a new section between Hyam's Lane and Hunter Road roundabout to link the A453 and Diseworth.

6.4 It is proposed to provide a bituminous surface for the entire length of Hyam's Lane to be used as a cycle track, improving the existing gravel surface.

Design Speed and Geometry

6.5 The design of the cycle track has been based on LCCs highways design guide and LTN1/20 with particular reference to Chapter 5 'Geometric Requirements'. Where appropriate DMRB CD 195 has been used to further determine design requirements.

6.6 In accordance with LTN1/20, para 5.6.1 and Table 5-4, the design speed for the facility is 30kph and 40kph on downhill gradients greater than 3%.

6.7 A desirable minimum width of 3.0m is proposed for the section of cycle track currently unsurfaced and to retain the existing minimum 3.7m carriageway width having a bituminous surface.

6.8 Proposed horizontal curves for the cycle track generally exceed the minimum criteria of 25m and 40m radii for the appropriate design speed as stated within LTN1/20, para. 5.9.1 and Table 5-7. There are three locations where the minimum radius is not achieved due to the alignment of the adjacent EMG2 Main Site estate road. This constitutes a **relaxation** as LTN 1/20 clause 5.9.3 is not a mandatory requirement.

6.9 Minimum K Value requirements for sag and crest curves are achieved in accordance with LTN1/20, para. 5.9.5.

6.10 Longitudinal gradients generally conform to LTN1/20, para. 5.9.7 and Table 5-8. However, there are longitudinal gradients between chainages 750 and 1050 that exceed the length stated on Table 5-8 (**relaxations from standard**). It should be noted that this section is within the existing Hyam's Lane and is due to the need to retain existing hedgerows and trees along the lane and hence substantial vertical realignment is not possible.

7. L57 FOOTPATH UPGRADE TO CYCLE TRACK

Layout

7.1 Footpath L57 connects Moira Dale in Castle Donington to Diseworth Lane on the western boundary of EMG1. It is a typical unbound footpath running initially along the edge of the playing fields and then through agricultural land.

7.2 The proposal is to upgrade this footpath to a cycle track with a bituminous surface.

Design Speed and Geometry

7.3 The design of the cycle track has been based on LCCs highways design guide and LTN1/20 with particular reference to Chapter 5 'Geometric Requirements'. Where appropriate DMRB CD 195 has been used to further determine design requirements.

7.4 In accordance with LTN1/20, para 5.6.1 and Table 5-4, the design speed for the facility is 30kph and 40kph on downhill gradients greater than 3%.

7.5 A desirable minimum width of 3.0m is proposed for the section cycle track except for the constrained cross-section between the housing at Moira Dale which is to be 2.0m wide.

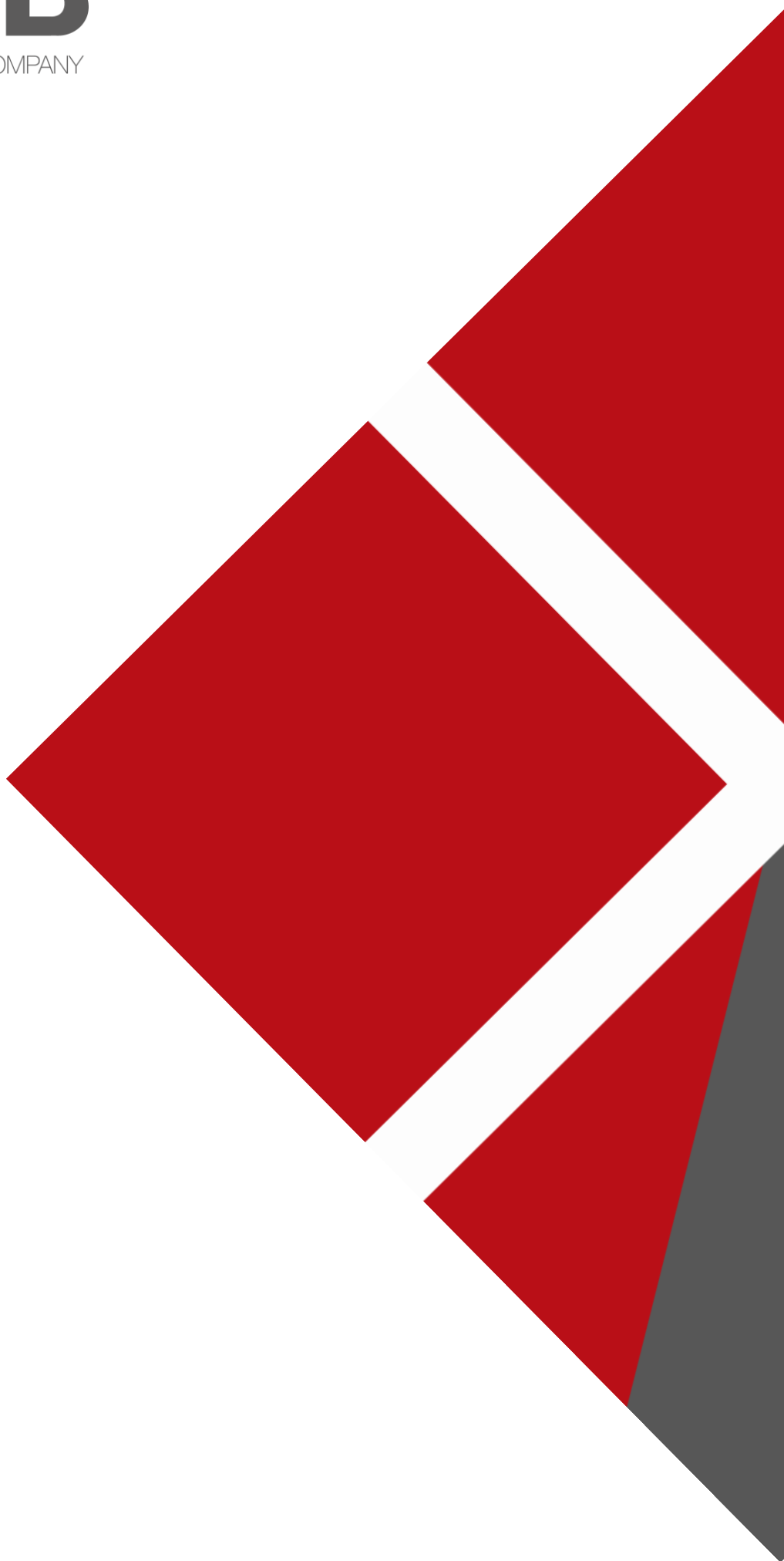
7.6 Proposed horizontal curves for the cycle track generally exceed the minimum criteria of 25m and 40m radii for the appropriate design speed as stated within LTN1/20, para. 5.9.1 and Table 5-7.

7.7 Minimum K Value requirements for sag and crest curves are achieved in accordance with LTN1/20, para. 5.9.5.

7.8 Longitudinal gradients generally conform to LTN1/20, para. 5.9.7 and Table 5-8. However, there are longitudinal gradients between chainages 200 and 400 that exceed the gradients and length stated on Table 5-8 (**relaxations from standard**). It should be noted that this section is where the footpath crosses and existing watercourse and whilst the levels of the path will be raised by approximately 1m at the lowest point, it would be a substantial piece of engineering to provide an alignment that meets LTN1/20 which would be visually intrusive and out of keeping with the rest of the route.

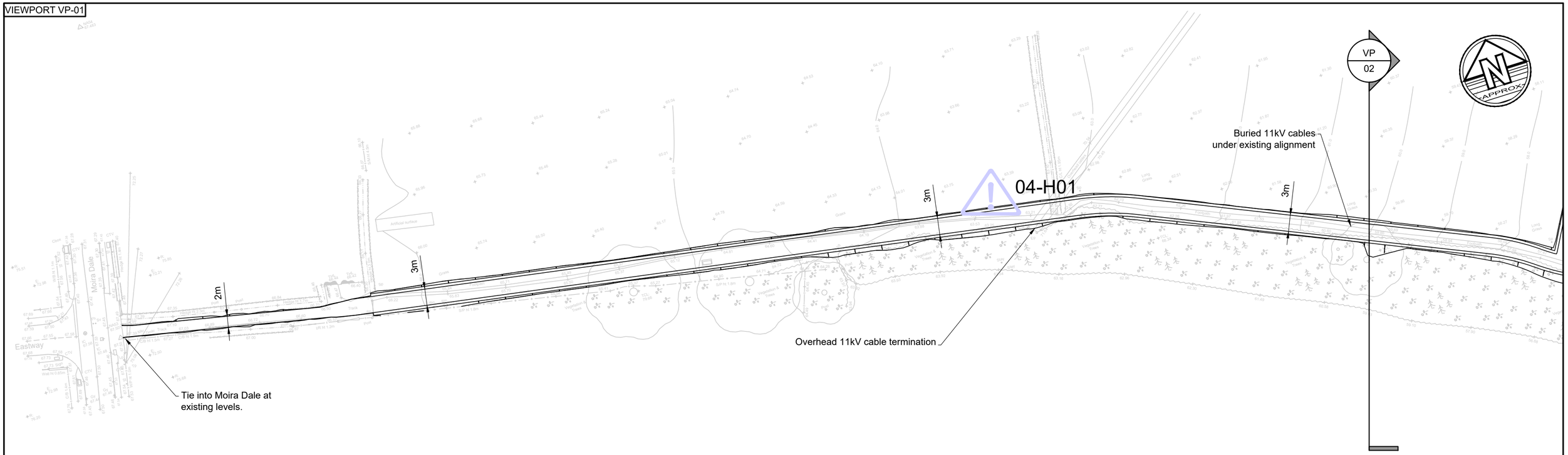
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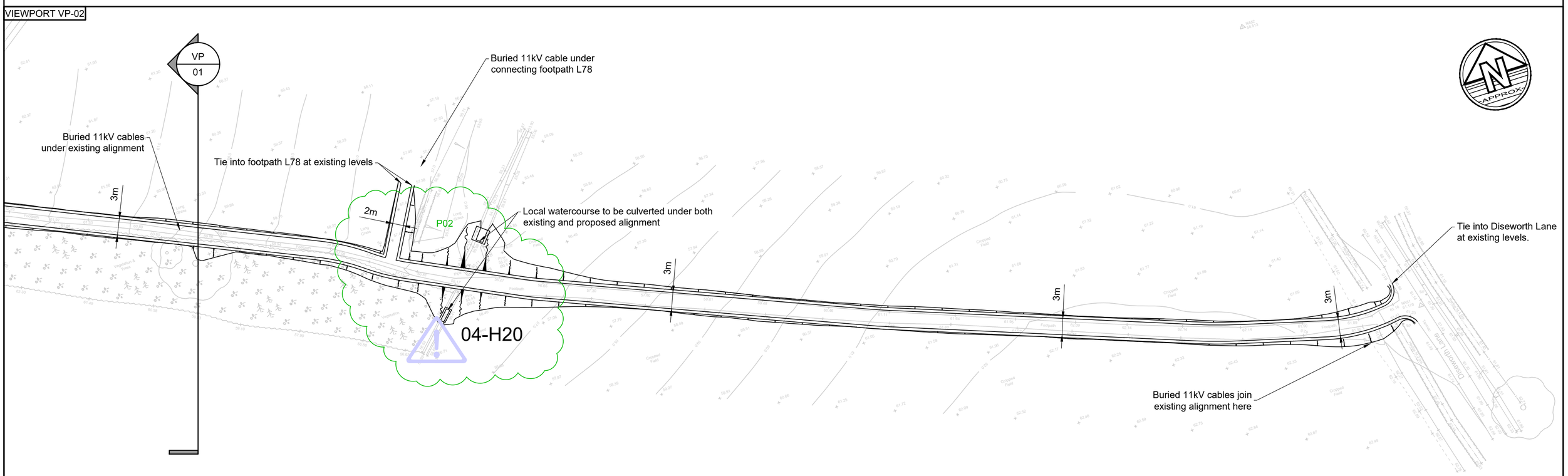


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VIEWPORT VP-01



VIEWPORT VP-02

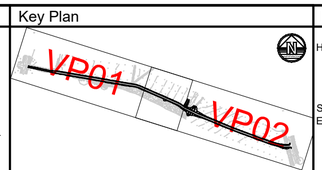


Notes

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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.
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Key Plan



Legend

Hazards

04-HXX

Significant Construction Hazard. To be read in conjunction with; EMG-BWB-HGN-04-SH-H-0100_L57 Footpath DRA

Issues & Revisions

Rev	Date	Details of issue / revision	Drw	Rev
P01	14.01.25	Preliminary Issue	JB	RAL
P02	12.02.25	L78 Link modified, Earthworks modified, Headwalls now shown.	JB	RAL

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Client: SEGRO

Project Title: **EAST MIDLANDS GATEWAY 2 L57 FOOTPATH**

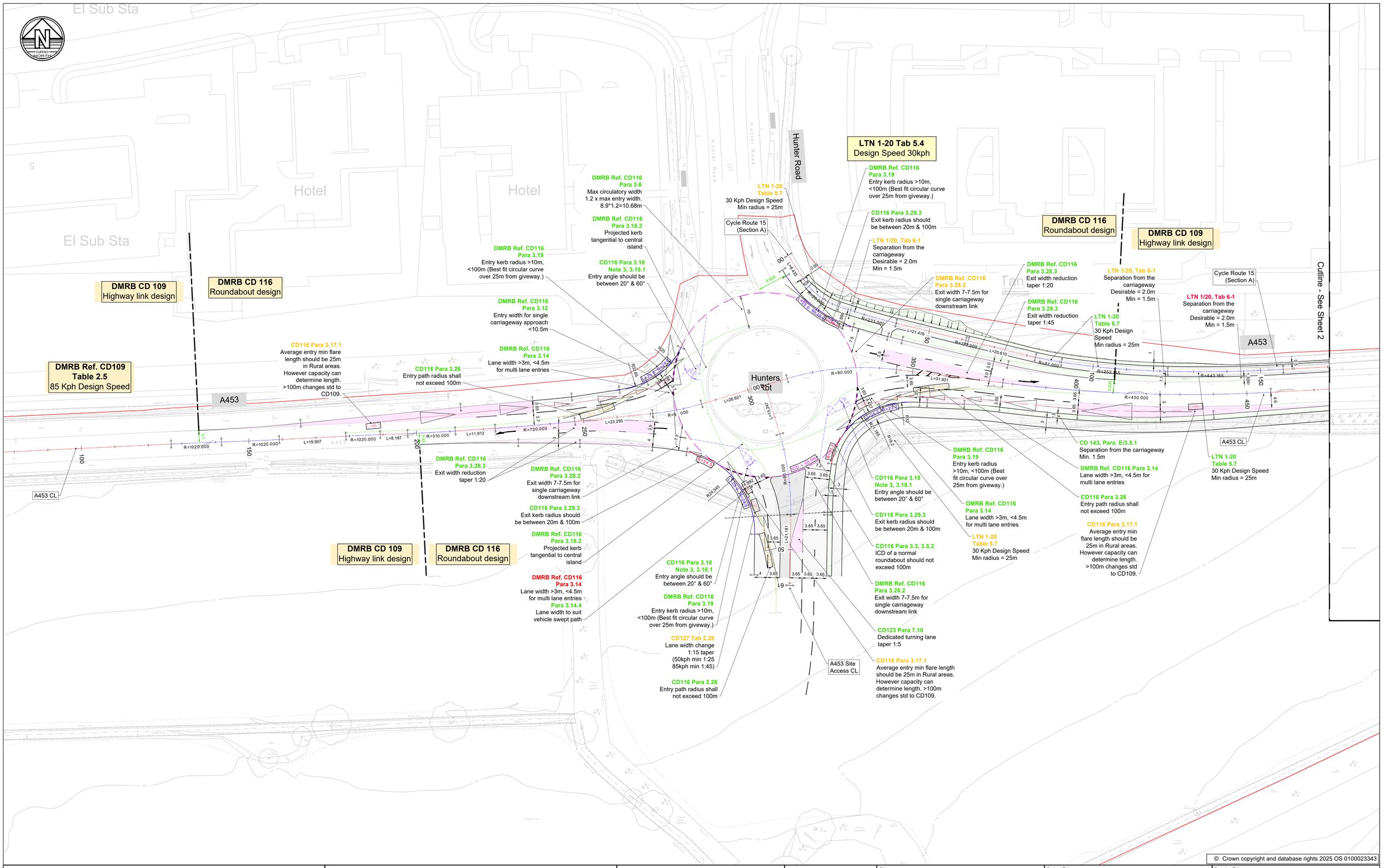
Drawing Title: **GENERAL ARRANGEMENT LAYOUT**

Drawn:	J. Bethell	Reviewed:	R. Leyland		
BWB Ref:	233445	Date:	14.01.25	Scale@A2:	1:500

Drawing Status: **PRELIMINARY**

Project - Originator - Zone - Level - Type - Role - Number	Status	Rev
EMG2-BWB-HGN-04-DR-H-0100	S3	P02

J:\2023\233445-EMG\ProjectDelivery\01-WIP\Drawings\EMG2-BWB-HGN-04-DR-H-0100_L57 Footpath General Arrangement Layout.dwg



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4. Any discrepancies noted on site are to be reported to the engineer immediately.
5. Annotation shown coloured green achieves design standards
6. Annotation shown coloured amber is a relaxation from design standards
7. Annotation shown coloured red is a departure from design standards

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Legend

- Draft Order Limits
- Alignment - Straights
- Alignment - Curves
- Alignment - Transitions
- Carriageway area
- Taper for cross section width change

ISSUES & REVISIONS

Rev	Date	Details of issue / revision	Drw	Rev
P01	14.05.25	Issue for information	MS	SRH
P02	11.07.25	Updated following LCC comments	SRH	SRH

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Client: SEGRO

Project Title: **East Midlands Gateway 2**

Drawing Title: **A453 Geometry Plans Sheet 1 of 4**

Drawn:	M.S		Reviewed:	S.H	
BWB Ref:	220500	Date:	10.12.24	Scale@A1:	1:500

Drawing Status: **FOR INFORMATION**

Project - Originator - Zone - Level - Type - Role - Number: **EMG2-BWB-HGN-A453-DR-H-0101**

Status: **S2**

Rev: **P02**

GRID NORTH

Cutline - See Sheet 3

Cutline - See Sheet 1

Gas Gov

Hotel

ED & Ward Bdy

Def

A453

A453 CL

Cycle Route 15 (Section A)

Cycle Route 15 (Section B)

LTN 1-20 Tab 5.4
Design Speed 40kph
(Downward gradient >3%)

LTN 1-20 Tab 5.4
Design Speed 30kph

LTN 1-20 Tab 5.4
Design Speed 40kph
(Downward gradient >3%)

LTN 1-20 Tab 5.4
Design Speed 30kph

LTN 1-20
Table 5.7
40 Kph Design Speed
Min radius = 40m

LTN 1-20
Table 5.7
30 Kph Design Speed
Min radius = 25m

LTN 1-20
Table 5.7
30 Kph Design Speed
Min radius = 25m

LTN 1-20
Table 5.7
30 Kph Design Speed
Min radius = 25m

LTN 1/20, Tab 6-1
Separation from the carriageway
Desirable = 2.0m
Min = 1.5m

LTN 1/20, Tab 6-1
Separation from the carriageway
Desirable = 2.0m
Min = 1.5m

Existing island & widening for ADS signage to remain.

Note: Existing pumping station access to be reviewed during detailed design

DMRB Ref. CD116
Para 3.28.3
Exit width reduction taper 1:20 min

CD116 Para 3.29.3
Exit kerb radius should be between 20m & 100m

DMRB CD 116
Roundabout design

DMRB CD 109
Highway link design

DMRB Ref. CD109
Table 2.5
85 Kph Design Speed

DMRB CD 109
Highway link design

DMRB CD 116
Roundabout design

Finger Farm Rbt

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Legend

- Draft Order Limits
- Alignment - Straights
- Alignment - Curves
- Alignment - Transitions
- Carriageway area
- Taper for cross section width change

ISSUES & REVISIONS

Rev	Date	Details of issue / revision	Drw	Rev
P01	14.05.25	Issue for information	MS	SRH
P02	11.07.25	Updated following LCC comments	SRH	SRH

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Client: SEGRO

Project Title: **East Midlands Gateway 2**

Drawing Title: **A453 Geometry Plans Sheet 2 of 4**

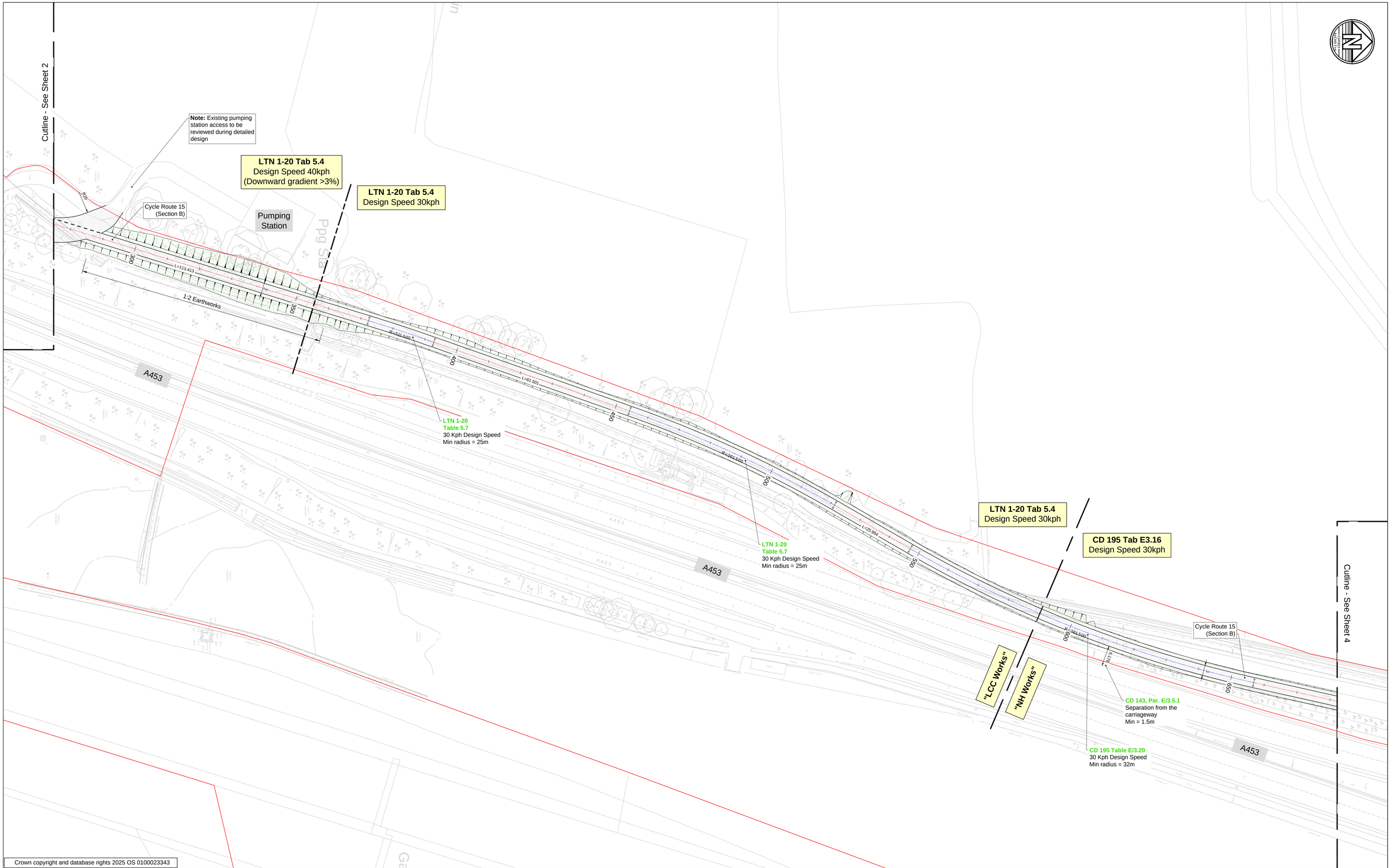
Drawn:	M.S	Reviewed:	S.H
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Scale@A1:	1:500		

Drawing Status: **FOR INFORMATION**

Project - Originator - Zone - Level - Type - Role - Number: **EMG2-BWB-HGN-A453-DR-H-0102**

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Rev: **P02**



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Legend

- Draft Order Limits
- Alignment - Straights
- Alignment - Curves
- Alignment - Transitions
- Carriageway area
- Taper for cross section width change

ISSUES & REVISIONS

Rev	Date	Details of issue / revision	Drw	Rev
P01	04.03.25	Issue for information	MS	SH
P02	15.05.25	Minor annotation changes	MS	SH

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Project Title: **East Midlands Gateway 2**

Drawing Title: **A453 Geometry Plans Sheet 3 of 4**

Drawn:	M.S		Reviewed:	S.H	
BWB Ref:	220500	Date:	04.03.25	Scale@A1:	1:500

Drawing Status: **FOR INFORMATION**

Project - Originator - Zone - Level - Type - Role - Number: **EMG2-BWB-HGN-A453-DR-H-0103**

Status: **S2**

Rev: **P02**

Main plan shows the 16.5m CD 116 design vehicle and large car

LTN 1-20
Design Speed 30kph

DMRB CD 116
Roundabout design

DMRB CD 109
Highway link design

Swept Path Speeds
10mph with "Limit Turning for Dynamic Effects" variable on as per software recommendation.

DMRB Ref. CD109
Table 2.5
85 Kph Design Speed

DMRB CD 109
Highway link design

DMRB CD 116
Roundabout design

DMRB CD 109
Highway link design

DMRB CD 116
Roundabout design

DMRB Ref. CD116
Fig 3.45
Approach visibility
SSD 85kph = 160m

DMRB Ref. CD116
Fig 3.49n
Entry visibility

LTN 1-20
Tab 5.5
SSD = 31m (30kph)

DMRB Ref. CD109
Tab 2.10
Exit visibility
SSD 85kph = 160m

DMRB Ref. CD109
Tab 2.10
Exit visibility
SSD 85kph = 160m

DMRB Ref. CD116
Fig 3.45
Approach visibility
SSD 85kph = 160m

DMRB Ref. CD116
Fig 3.49n
Entry visibility

LTN 1-20
Tab 5.5
SSD = 31m (30kph)

DMRB Ref. CD116
Fig 3.49n
Entry visibility

Hunter Road

Hunters Rbt

A453

Hotel

Hotel

El Sub Sta

El Sub Sta

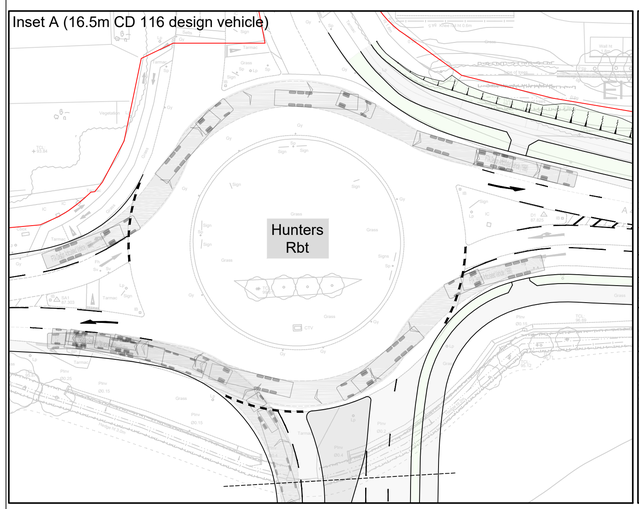
Tank

El Sub Sta

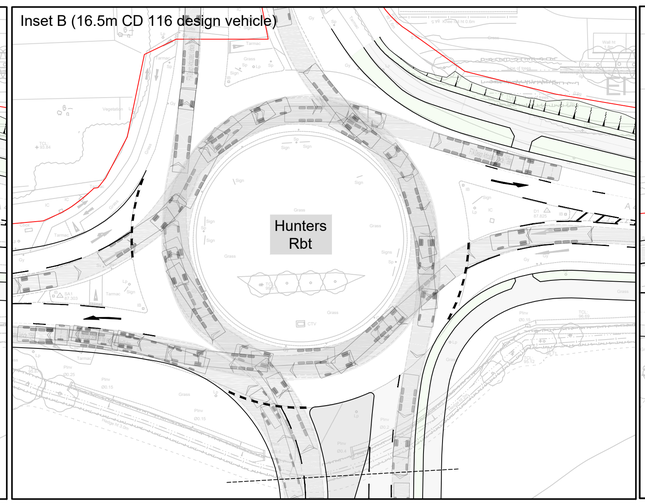
Cutline - See Sheet 2

DMRB C
Roundabou

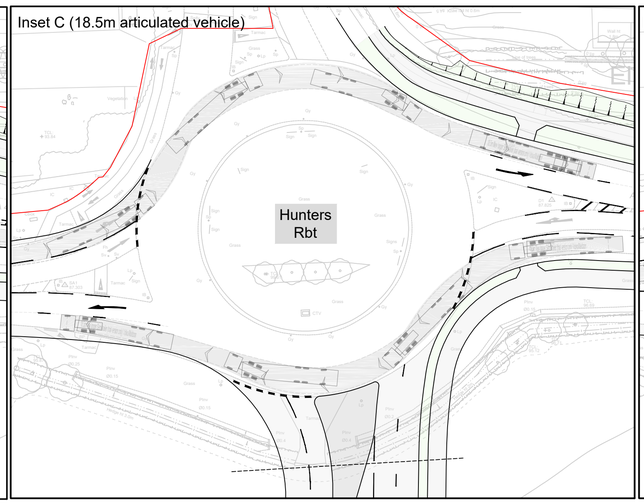
Inset A (16.5m CD 116 design vehicle)



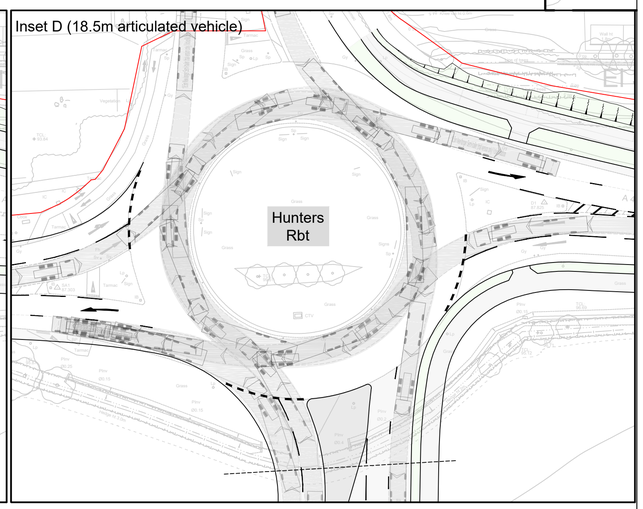
Inset B (16.5m CD 116 design vehicle)



Inset C (18.5m articulated vehicle)



Inset D (18.5m articulated vehicle)

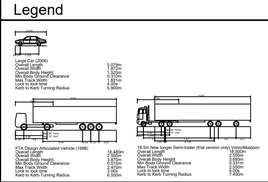


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ISSUES & REVISIONS

Rev	Date	Details of issue / revision	Drw	Rev
P01	14.05.25	Issue for information	MS	SH
P02	11.07.25	Insets A and B added for additional tracks	MS	SH
P03	21/08/25	Insets C and D added for additional tracks	JD	SH

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Client: SEGRO

Project Title: **East Midlands Gateway 2**

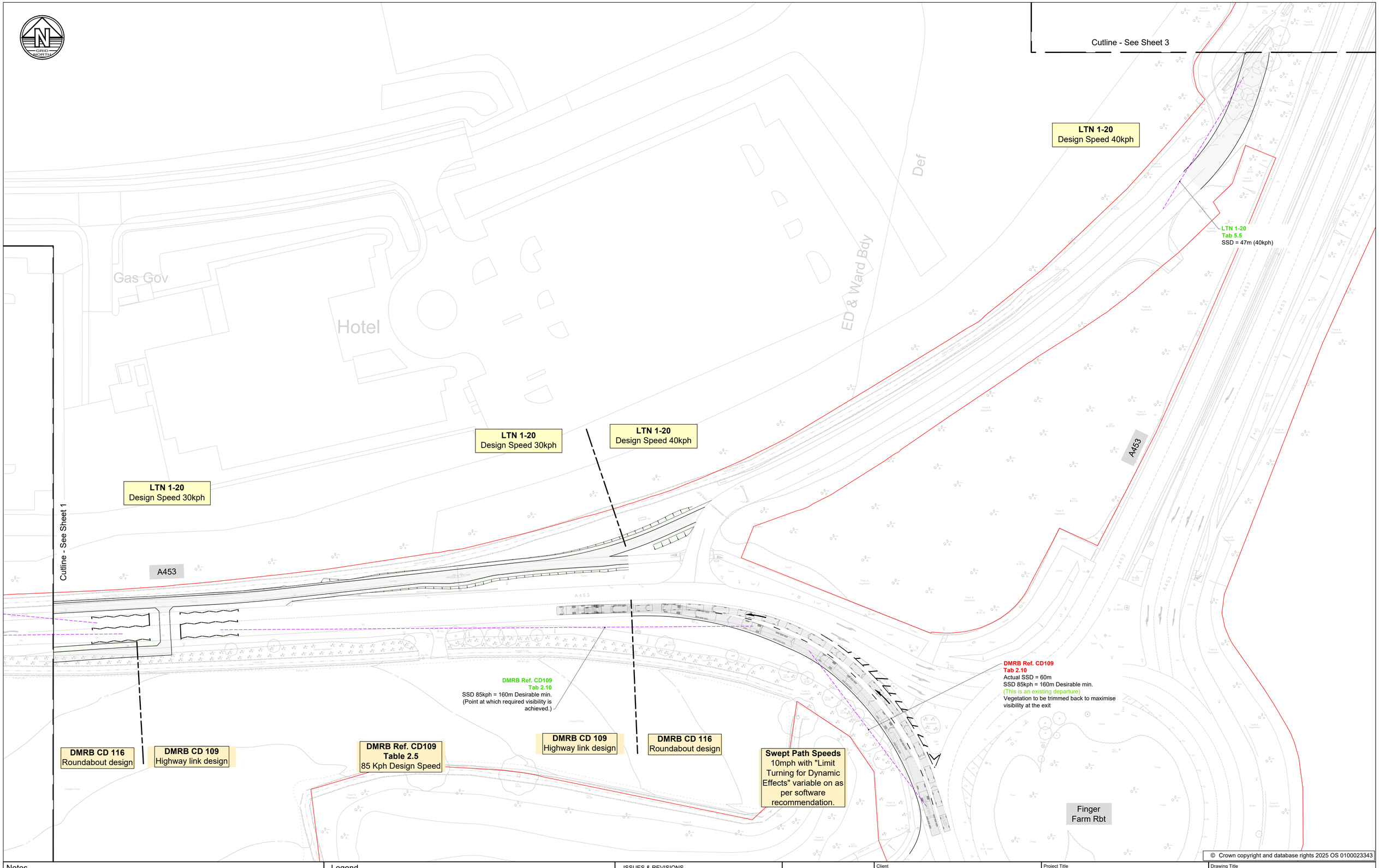
Drawing Title: **A453 Vehicle Swept Paths & Visibility Sheet 1 of 4**

Drawn:	M.S	Reviewed:	S.H		
BWB Ref:	220500	Date:	05.06.25	Scale@A1:	1:500

Drawing Status: **FOR INFORMATION**

Project - Originator - Zone - Level - Type - Role - Number: **EMG2-BWB-HGN-A453-DR-H-0110**

Status: **S2** Rev: **P03**



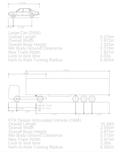
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ISSUES & REVISIONS

Rev	Date	Details of issue / revision	Drw	Rev
P01	14.05.25	Issue for information	MS	SH
P02	11.07.25	Insets A and B added for additional tracks	MS	SH

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Project Title: **East Midlands Gateway 2**

Drawing Title: **A453 Vehicle Swept Paths & Visibility Sheet 2 of 4**

Drawn:	M.S	Reviewed:	S.H
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Drawing Status: **FOR INFORMATION**

Project - Originator - Zone - Level - Type - Role - Number: **EMG2-BWB-HGN-A453-DR-H-0111**

Status: **S2**

Rev: **P02**

Cutline - See Sheet 2

LTN 1-20
Design Speed 40kph

LTN 1-20
Design Speed 30kph

LTN 1-20
Design Speed 30kph

CD 195
Design Speed 30kph

"LCC Works"

"NH Works"

A453

A453

A453

Cutline - See Sheet 4

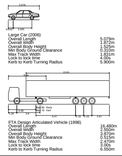
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Project Title: **East Midlands Gateway 2**

Drawing Title: **A453 Vehicle Swept Paths & Visibility Sheet 3 of 4**

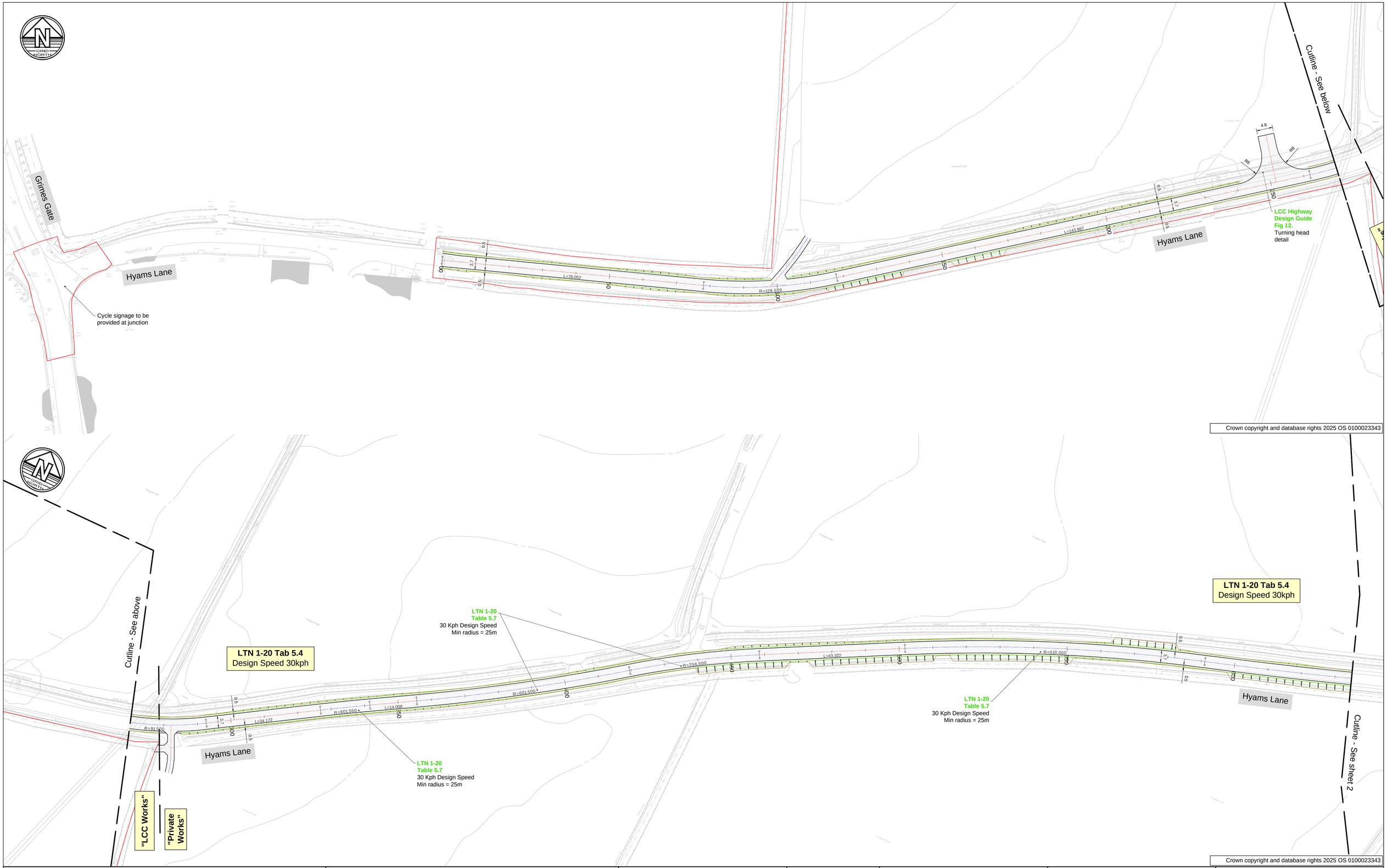
Drawn:	M.S		Reviewed:	S.H		
BWB Ref:	220500	Date:	05.06.25	Scale@A1:	1:500	

Drawing Status: **FOR INFORMATION**

Project - Originator - Zone - Level - Type - Role - Number: **EMG2-BWB-HGN-A453-DR-H-0112**

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Legend

- Draft Order Limits
- Alignment - Straights
- Alignment - Curves
- Alignment - Transitions
- Carriageway area
- Taper for cross section width change

ISSUES & REVISIONS

Rev	Date	Details of issue / revision	Drw	Rev
P01	14.05.25	Issue for information	MS	SH

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Client: SEGRO

Project Title: **East Midlands Gateway 2**

Drawing Title: **Hyam Lane Geometry Plans Sheet 1 of 2**

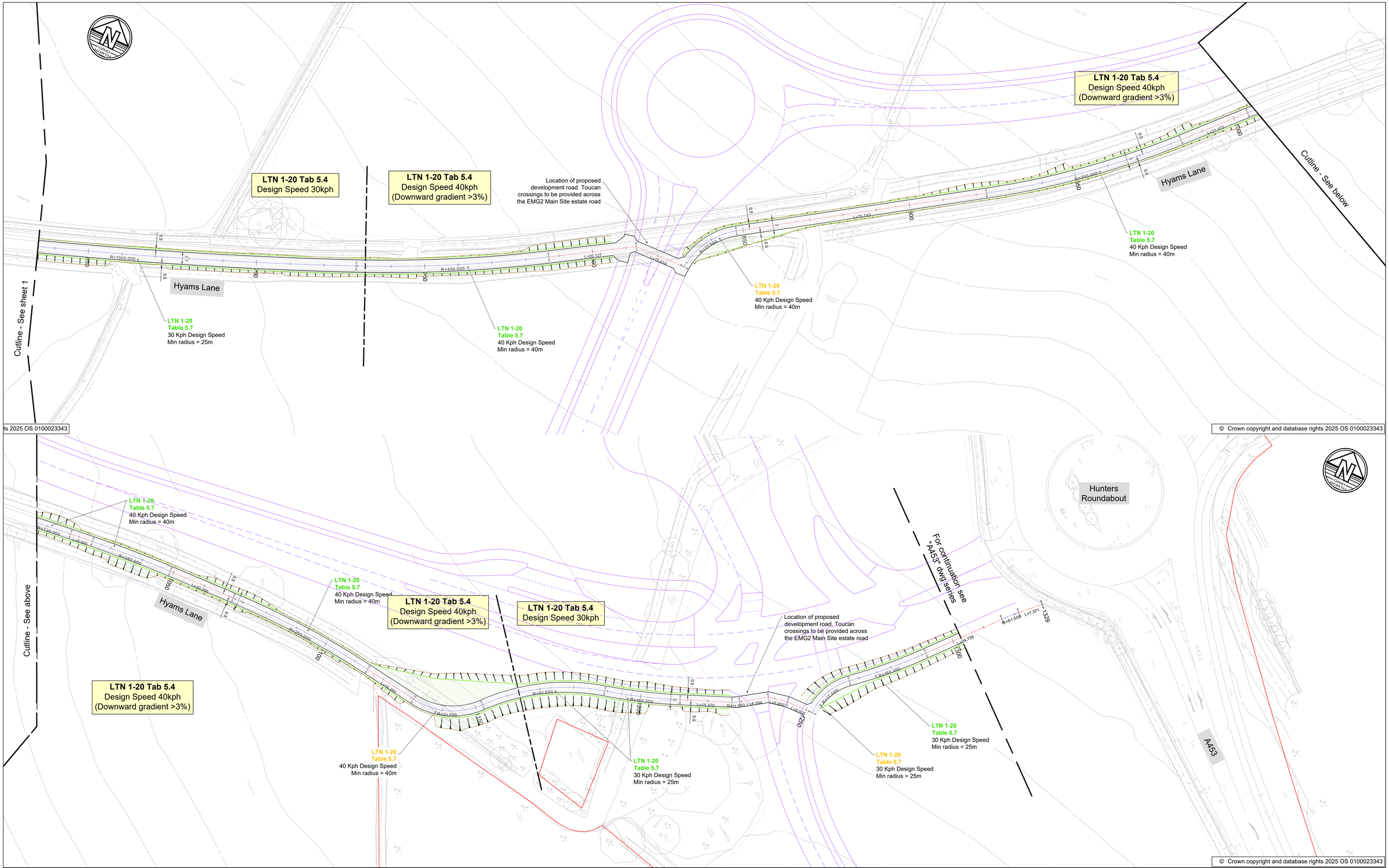
Drawn:	M.S	Reviewed:	S.H		
BWB Ref:	220500	Date:	14.05.25	Scale@A1:	1:500

Drawing Status: **FOR INFORMATION**

Project - Originator - Zone - Level - Type - Role - Number: **EMG2-BWB-HGN-HYAM-DR-H-0101**

Status: **S2**

Rev: **P01**



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Legend

- Draft Order Limits
- Alignment - Straights
- Alignment - Curves
- Alignment - Transitions
- Carriageway area
- Taper for cross section width change
- Main site estate road (illustrative)

ISSUES & REVISIONS

Rev	Date	Details of issue / revision	Drw	Rev
P01	14.05.25	Issue for information	MS	SRH
P02	11.07.25	Main site estate road added	MS	SRH

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Client: SEGRO

Project Title: **East Midlands Gateway 2**

Drawing Title: **Hyam Lane Geometry Plans Sheet 2 of 2**

Drawn:	M.S	Reviewed:	S.H
BWB Ref:	220500	Date:	14.05.25

Scale@A1: 1:500

Drawing Status: **FOR INFORMATION**

Project - Originator - Zone - Level - Type - Role - Number: **EMG2-BWB-HGN-HYAM-DR-H-0102**

Status: **S2**

Rev: **P02**

Grimes Gate

Hyams Lane

Cutline - See below

Hyams Lane

Swept Path Speeds
10mph with "Limit Turning for Dynamic Effects" variable on as per software recommendation.

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Cutline - See above

LTN 1-20 Tab 5.4
Design Speed 30kph

Hyams Lane

"LCC Works"

"Private Works"

LTN 1-20 Tab 5.4
Design Speed 30kph

Hyams Lane

Cutline - See sheet 2

LTN 1-20
Tab 5.5
SSD = 31m (30kph)

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Legend

Large Car (2006)	5.075m
Overall Length	1.972m
Overall Width	2.025m
Overall Body Height	1.625m
Min Body Ground Clearance	0.151m
Max Track Width	1.221m
Lock to lock time	4.0s
Kerb to Kerb Turning Radius	5.900m

ISSUES & REVISIONS

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Project Title: **East Midlands Gateway 2**

Drawing Title: **Hyam Lane Vehicle Swept Paths & Visibility Sheet 1 of 2**

Drawn:	M.S	Reviewed:	S.H		
BWB Ref:	220500	Date:	14.05.25	Scale@A1:	1:500

Drawing Status: **FOR INFORMATION**

Project - Originator - Zone - Level - Type - Role - Number: **EMG2-BWB-HGN-HYAM-DR-H-0110**

Status: **S2**

Rev: **P01**

LTN 1-20 Tab 5.4
Design Speed 30kph

LTN 1-20 Tab 5.4
Design Speed 40kph
(Downward gradient >3%)

LTN 1-20 Tab 5.4
Design Speed 40kph
(Downward gradient >3%)

Hyams Lane

LTN 1-20
Tab 5.5
SSD = 31m (30kph)

LTN 1-20
Tab 5.5
SSD = 47m (40kph)

Cutline - See sheet 1

Cutline - See below

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Hunters
Roundabout

Cutline - See above

Hyams Lane

LTN 1-20 Tab 5.4
Design Speed 40kph
(Downward gradient >3%)

LTN 1-20 Tab 5.4
Design Speed 40kph
(Downward gradient >3%)

LTN 1-20 Tab 5.4
Design Speed 30kph

LTN 1-20
Tab 5.5
SSD = 47m (40kph)

LTN 1-20
Tab 5.5
SSD = 31m (30kph)

For continuation see
"A453" dwg series

A453

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Legend

Large Car (2004)
Overall Length 5.073m
Overall Width 2.012m
Overall Body Height 1.525m
Min Body Ground Clearance 0.165m
Max Track Width 2.012m
Lock to Lock Time 4.0s
Kerb to Kerb Turning Radius 5.900m

ISSUES & REVISIONS

Rev	Date	Details of issue / revision	Drw	Rev
P01	14.05.25	Issue for information	MS	SH

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Project Title: **East Midlands Gateway 2**

Drawing Title: **Hyam Lane Vehicle Swept Paths & Visibility Sheet 2 of 2**

Drawn:	M.S	Reviewed:	S.H
BWB Ref:	220500	Date:	14.05.25
Scale@A1:	1:500		

Drawing Status: **FOR INFORMATION**

Project - Originator - Zone - Level - Type - Role - Number: **EMG2-BWB-HGN-HYAM-DR-H-0111**

Status: **S2**

Rev: **P01**

APPENDIX 27: Geometric Design Strategy Record for the Strategic Road Network (document reference EMG2-BWB-GEN-XX-RP-CH-0013_S3-P04)

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SEGRO
East Midlands Gateway 2
Leicestershire
Geometric Design Strategy Record
(National Highways Network)

INFRASTRUCTURE

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Geometric Design Strategy Record
(National Highways Network)

Nottingham
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Nottingham, NG2 3DQ
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August 2025

DOCUMENT ISSUE RECORD

Document Number:	EMG2-BWB-GEN-XX-RP-CH-0013
BWB Reference:	220500

Revision	Date of Issue	Status	Author:	Checked:	Approved:
1	04.03.2025	For comment	Simon Hilditch MEng (Hons) CEng MICE MCIHT	Darren Ball IEng MICE	Simon Hilditch MEng (Hons) CEng MICE MCIHT
2	10.03.2025	For comment	Simon Hilditch MEng (Hons) CEng MICE MCIHT	Darren Ball IEng MICE	Simon Hilditch MEng (Hons) CEng MICE MCIHT
3	27.06.2025	For comment	Simon Hilditch MEng (Hons) CEng MICE MCIHT	Darren Ball IEng MICE	Simon Hilditch MEng (Hons) CEng MICE MCIHT
4	26.08.2025	For DCO submission	Simon Hilditch MEng (Hons) CEng MICE MCIHT	Peter Goodyear MEng (Hons)	Simon Hilditch MEng (Hons) CEng MICE MCIHT

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Traffic data 3
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Overview of Standards 5
Safety Risk Assessment 6
Highway Authority, Road Class, Design Speed and Speed Limit 6
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Layout 8
Design Speed and Geometry 10
Stopping Sight Distance / Visibility 11
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APPENDICES

APPENDIX 1: Safety Risk Assessment for M1 NB diverge and weaving length
APPENDIX 2: Safety Risk Assessment for M1 NB to A50 WB interchange link
APPENDIX 3: List of Road Layout departures from standard for proposed scheme

1. INTRODUCTION

Instruction

1.1 The EMG2 development, which although located south of East Midlands Airport (EMA), proposes substantial improvements to the strategic road network (SRN) at M1 junction 24 along with works to the A453 south of J24.

1.2 BWB Consulting (BWB) has been instructed by SEGRO (the Client) to develop the highway design for the works on the SRN which includes the preparation of this Design Strategy Record (DSR).

1.3 **Figure 1.1** below shows the overall location of the works in the context of EMG2 and the existing road network.

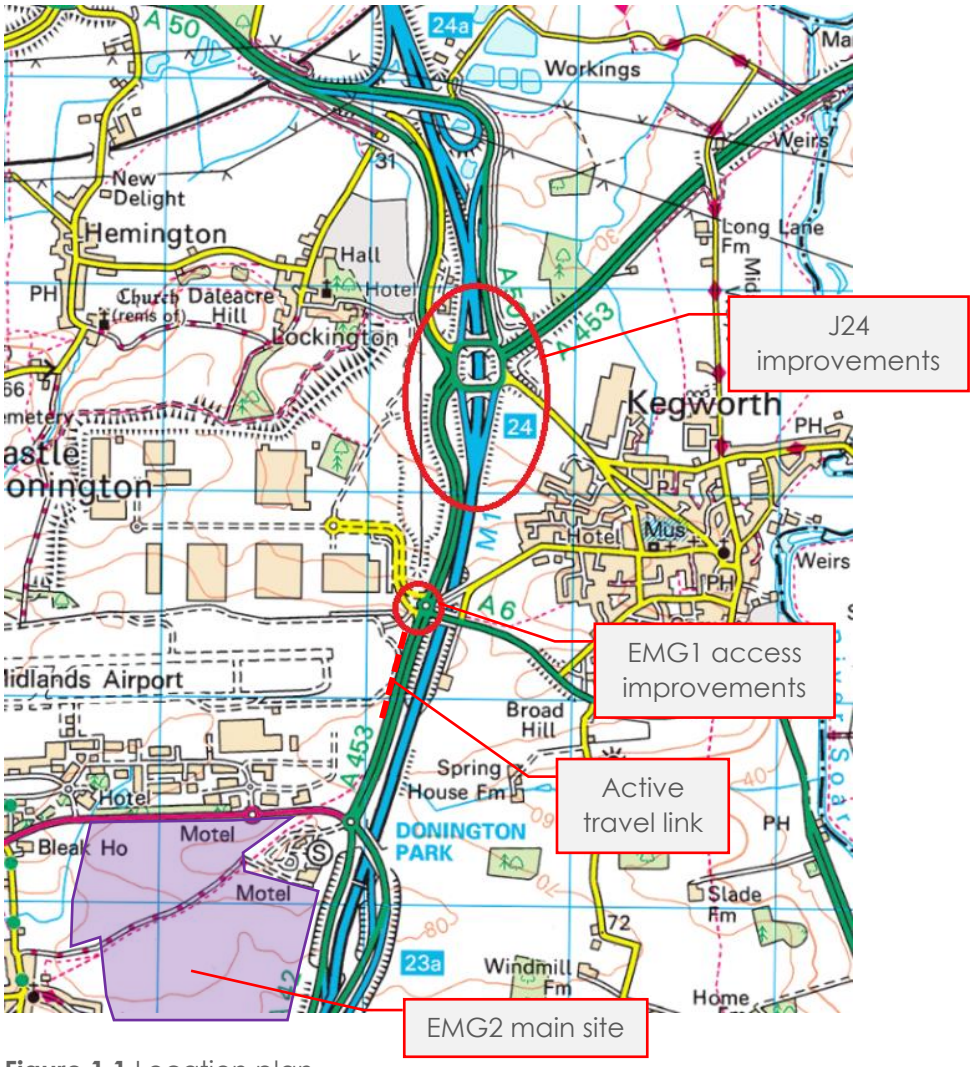


Figure 1.1 Location plan

1.4 This report contains consideration of several options relating to specific elements of the scheme (namely the M1 northbound diverge and A453 bridge). These have been discussed with National Highways and feedback received. Formal submissions for departures from standard will be made separately to this report

Acronyms and Abbreviations

ALR	All-lane running
ALS	Above-lane signals
DMRB	Design Manual for Roads and Bridges
DfT	Department for Transport
DSR	Design Strategy Record
EMA	East Midlands Airport
EMG1	East Midlands Gateway 1
EMG2	East Midlands Gateway 2
LCC	Leicestershire County Council
NH	National Highways
SLTL	Segregated left-turn lane
SMP	Smart Motorway Project
SRN	Strategic Road Network
VMSL	Variable mandatory speed limits
VMS	Variable message sign
VRS	Vehicle Restraint System

Objectives

1.5 The objective of this DSR report, is to record the key decisions made during the layout design.

1.6 The report will record the relaxations and departures from standards contained within the highway design. A detailed narrative for the justification, including a safety risk assessment, is to be submitted separately for approval for each departure.

1.7 The DSR is also used to record how the scheme complies with the principles of good road design set out in GG 103.

1.8 The following reports and documents are to be provided separately to this DSR:

- Transport assessment and modelling;
- Geotechnical reporting to CD 622;
- Directional signage strategy;
- Lighting strategy;
- Structures options reports and AIPs to CG 300;
- Maintenance and repair statement to GD 304;
- WCHAR assessment and review to GG 142; and
- Stage 1 road safety audit to GG 119.

Traffic data

1.9 Traffic data has been obtained from the LCC 2019 pan regional transport model (PRTM 2019). The modelling is detailed within the EMG2 project Transport Assessment.

1.10 For the purposes of the highway design two sets of data have been provided as follows:

- Model '2A' for 2038 which includes draft local plan allocations but does not include associated highway mitigation in all cases; and
- Model '2B' for 2038 which excludes draft local plan allocations.

1.11 Both of the above are reviewed in this report.

List of Drawings

1.12 The table below sets out the scheme design and option drawings that are to be read in conjunction with this report. They are provided at the end of this report.

Drawing no.	Title	Report section
EMG2-BWB-GEN-XX-SK-CH-SK037	Overview of works on the strategic road network	All
EMG2-BWB-GEN-XX-SK-CH-SK032	M1 Northbound diverge options Sheet 1	3 & 4
EMG2-BWB-GEN-XX-SK-CH-SK033	M1 Northbound diverge options Sheet 2	3 & 4
EMG2-BWB-GEN-XX-SK-CH-SK034	M1 J24 and J24A NB Diverge Layout Option A	3 & 4
EMG2-BWB-GEN-XX-SK-CH-SK035	M1 J24 and J24A NB Diverge Layout Option C	3 & 4
EMG2-BWB-GEN-XX-SK-CH-SK036	M1 J24 and J24A NB Diverge Layout Option D	3 & 4
EMG2-BWB-HGN-M1NBS-DR-H-0101	M1 Northbound Slip Road Geometry Plans Sheet 1 of 4	4 & 5
EMG2-BWB-HGN-M1NBS-DR-H-0102	M1 Northbound Slip Road Geometry Plans Sheet 2 of 4	4 & 5
EMG2-BWB-HGN-M1NBS-DR-H-0103	M1 Northbound Slip Road Geometry Plans Sheet 3 of 4	4 & 5
EMG2-BWB-HGN-M1NBS-DR-H-0104	M1 Northbound Slip Road Geometry Plans Sheet 4 of 4	4 & 5
EMG2-BWB-HGN-M1NBS-DR-H-0110	M1 Northbound Offslip Vehicle Swept Paths & Visibility Sheet 1 of 4	4 & 5
EMG2-BWB-HGN-M1NBS-DR-H-0111	M1 Northbound Offslip Vehicle Swept Paths & Visibility Sheet 2 of 4	4 & 5
EMG2-BWB-HGN-M1NBS-DR-H-0112	M1 Northbound Offslip Vehicle Swept Paths & Visibility Sheet 3 of 4	4 & 5
EMG2-BWB-HGN-M1NBS-DR-H-0113	M1 Northbound Offslip Vehicle Swept Paths & Visibility Sheet 4 of 4	4 & 5
EMG2-BWB-GEN-XX-SK-CH-SK030	M1 Northbound to A50 Westbound Interchange Link Option 1	5
EMG2-BWB-GEN-XX-SK-CH-SK018	M1 Northbound to A50 Westbound Interchange Link Option 2A K17	5
EMG2-BWB-GEN-XX-SK-CH-SK031	M1 Northbound to A50 Westbound Interchange Link Option 2B K30	5
EMG2-BWB-HGN-A50WB-DR-H-0101	A50 Westbound Geometry Plans Sheet 1 of 2	6
EMG2-BWB-HGN-A50WB-DR-H-0102	A50 Westbound Geometry Plans Sheet 2 of 2	6
EMG2-BWB-GEN-XX-SK-CH-SK046	A50 westbound link schematic	6
EMG2-BWB-HGN-A50EB-DR-H-0101	A50 Eastbound Geometry Plans Sheet 1 of 2	7
EMG2-BWB-HGN-A50EB-DR-H-0102	A50 Eastbound Geometry Plans Sheet 2 of 2	7

Drawing no.	Title	Report section
EMG2-BWB-HGN-A453-DR-H-0103	A453 Geometry Plans Sheet 3 of 4	8
EMG2-BWB-HGN-A453-DR-H-0104	A453 Geometry Plans Sheet 4 of 4	8
EMG2-BWB-HGN-EMG1-DR-H-0101	Existing EMG1 Junction Geometry Plan	9
EMG2-BWB-GEN-XX-SK-CH-SK038	Existing EMG1 Junction Vehicle Tracking	9

1.13 Based on the findings of this report, the highway design for the highway works on the SRN is shown on the following formal DCO Documents. These are not appended to this report.

Drawing no.	Title	DCO document no.
EMG2-BWB-HGN-XX-DR-H-0100	Highways Plans General Arrangement Key Plan	DCO 2.8
EMG2-BWB-HGN-XX-DR-H-0101	Highways Plans General Arrangement Sheet 1	DCO 2.8A
EMG2-BWB-HGN-XX-DR-H-0102	Highways Plans General Arrangement Sheet 2	DCO 2.8B
EMG2-BWB-HGN-XX-DR-H-0103	Highways Plans General Arrangement Sheet 3	DCO 2.8C
EMG2-BWB-HGN-XX-DR-H-0104	Highways Plans General Arrangement Sheet 4	DCO 2.8D
EMG2-BWB-HGN-XX-DR-H-0132	Highway Plans Cross Sections Sheet 2 of 3	DCO 2.9B
EMG2-BWB-HGN-XX-DR-H-0133	Highway Plans Cross Sections Sheet 3 of 3	DCO 2.9C
EMG2-BWB-HGT-M1NBS-DR-H-0651	EMG2 M1 Northbound to A50 Westbound Interchange Link Geometry Profiles	DCO 2.10A
EMG2-BWB-HGT-A50EB-DR-H-0651	EMG2 A50 Eastbound Geometry Profiles	DCO 2.10B
EMG2-BWB-HGT-A453-DR-H-0651	EMG2 A453 Geometry Profiles-S2-P02	DCO 2.10C
EMG2-CH-SBR-BR-DR-CB-00024	A453 Bridge Plan	DCO 2.11

2. SCHEME OVERVIEW AND DESIGN STANDARDS

Scheme overview

2.1 The proposed works on the SRN are listed below, collectively referred to within this report as the SRN works.

- J24 Improvements comprising:
  - M1 northbound to A50 westbound link – providing a new free-flow link road from the M1 northbound at J24 to provide a direct link to the A50 westbound, which will cross over the A453, and will include the A50 westbound merge alterations;
  - M1 southbound and A50 eastbound link to J24 widening – providing widening of the A50 eastbound link at J24 and other related works and traffic management measures in this location;
  - Works to the west side of the M1 Junction 24 roundabout and A453 northbound approach;
  - Works to the east side of the M1 Junction 24 roundabout and A453 southbound approach; and
  - M1 northbound alterations – providing the new M1 northbound exit and associated gantry/signage improvements on the M1.
- EMG1 Access Improvements and pedestrian crossing comprising:
  - widening at the EMG1 signalised junction to increase capacity; and
  - A controlled pedestrian crossing and footway link between the proposed EMG1 Wilders Way drop-off lay-by and EMG1 Bus Interchange.
- Active Travel works (so far as they fall within the SRN) comprising an Active Travel Link – providing a dedicated shared unsegregated cycle/footway adjacent to the A453 between EMG1 and the EMG2 Main Site; and
- Directional signage works at the Finger Farm roundabout and on the M1 Northbound approach to J23A (this is not covered by this report but will be provided in the directional signage strategy).

2.2 **Drawing EMG2-BWB-GEN-XX-SK-CH-SK037** shows the locations of the above works and **Figure 1.1** above shows the overall location of the SRN works in the context of EMG2 and the existing road network.

Overview of Standards

2.3 The scheme spans across two highway authority boundaries, NH and LCC. This report provides design commentary on the NH areas of responsibility only i.e. the SRN works. The LCC design commentary is covered by a separate report.

2.4 The SRN works will be designed in accordance with the following DMRB standards:

Doc. Ref.	Document Title	Version / Revision
CD 109	Highway link design	Revision 1
CD 116	Geometric design of roundabouts	Version 2.1.0
CD 122	Geometric design of grade separated junctions	Version 1.1.1
CD 123	Geometric design of at-grade priority and signal-controlled junctions	Version 2.1.0
CD 127	Cross-sections and headrooms	Version 1.0.1
CD 143	Designing for walking, cycling and horse-riding	Version 2.0.1
CD 146	Positioning of signalling and advance direction signs	Version 2.0.0
CD 195	Designing for cycle traffic	Version 1.0.1

Safety Risk Assessment

2.5 A safety risk assessment to GG 104 has been completed to inform the decision making process for the M1 Northbound diverge and weaving section and can be found at **Appendix 1**.

2.6 A safety risk assessment to GG 104 has been completed to inform the decision making process for the M1 Northbound to A50 westbound interchange link and can be found at **Appendix 2**.

2.7 Other safety risk assessments to GG 104 will be provided in support of formal applications for departures from standard which will be submitted in due course.

Highway Authority, Road Class, Design Speed and Speed Limit

2.8 The road classes and design speeds for each section of the scheme are listed below. Design speeds have been determined in accordance with CD 109, table 2.5 and CD 122, table 5.4.

Section of scheme	Road class	Design speed (kph)	Existing or proposed signed speed limit (mph)
M1 northbound mainline J23A-J24	Motorway	120	Existing national with VMSL
M1 J24 northbound diverge slip road	Motorway	70	Existing national with VMSL
M1 northbound to A50 westbound interchange link	Motorway	85	Proposed national with VMSL followed by mandatory 50
M1 J24 to A50 westbound interchange link	All-purpose	85	50 followed by national (change in speed limit to be relocated to end of proposed merge)
A50 eastbound to M1 J24 interchange link	All-purpose	85	Existing 50

Section of scheme	Road class	Design speed (kph)	Existing or proposed signed speed limit (mph)
A50 eastbound & M1 southbound to M1 J24 interchange link	All-purpose	85	Existing 50

3. M1 JCT 24 NORTHBOUND DIVERGE

Layout

3.1 The proposal is to amend the existing M1 J24 diverge by introducing a separate interchange link between the M1 northbound and A50 westbound, and reuse the existing slip road connector between the M1 northbound and J24 roundabout. The spacing between the two diverges is considered in the review of the proposed new diverge to the A50 found at section 4 below.

3.2 The following table sets out the 2038 design year traffic data for the diverge using the 2A model data:

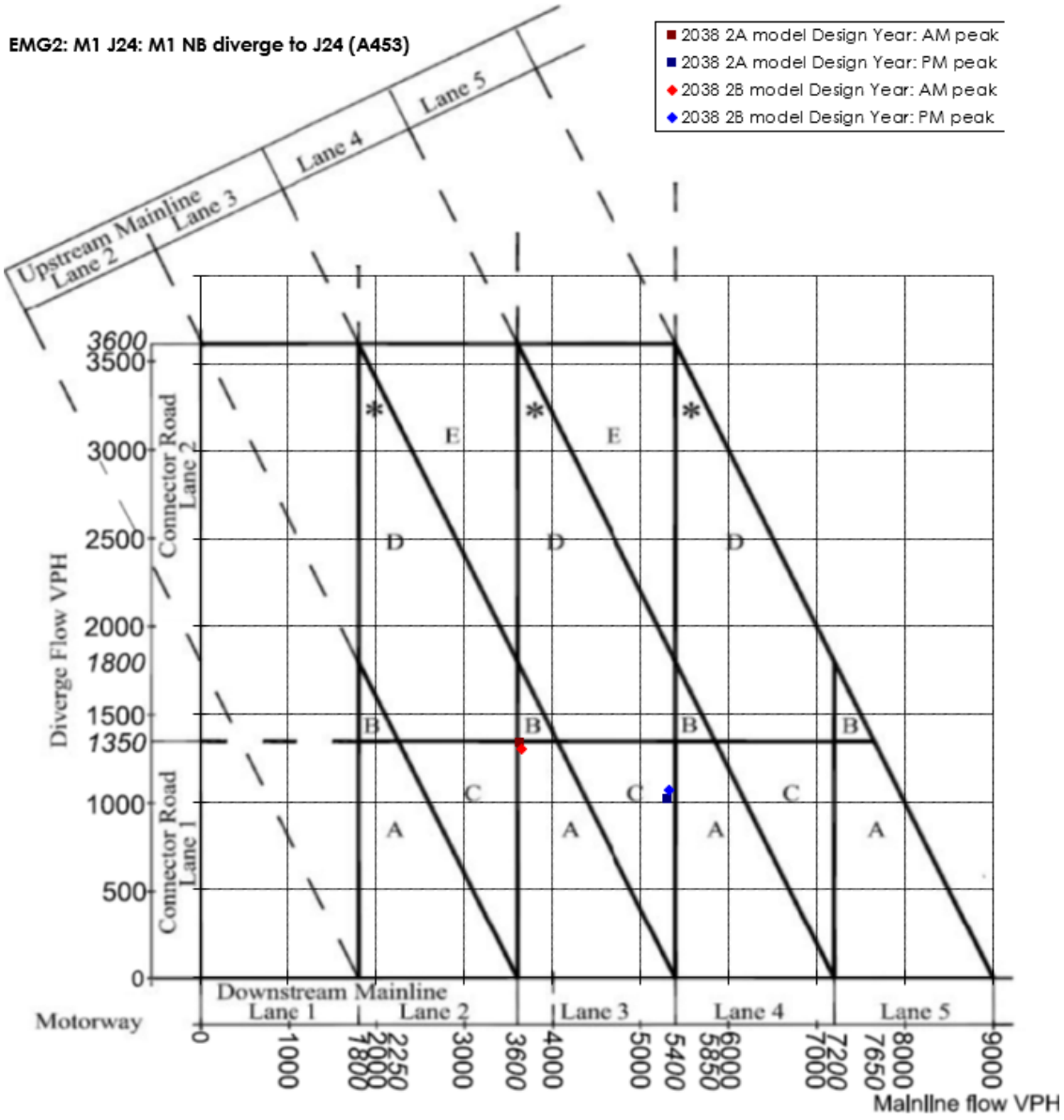
Location	AM Peak		PM Peak	
	Vehicles	HGVs	Vehicles	HGVs
M1 upstream of J24 diverge	4972	712	6326	802
M1 downstream of J24 diverge	3636	525	5308	650
J24 diverge slip road	1336	187	1018	152

3.3 The following table sets out the 2038 design year traffic data for the diverge using the 2B model data:

Location	AM Peak		PM Peak	
	Vehicles	HGVs	Vehicles	HGVs
M1 upstream of J24 diverge	4956	546	6396	959
M1 downstream of J24 diverge	3658	351	5327	799
J24 diverge slip road	1298	195	1069	160

3.4 Based on CD 122, para 3.9, an adjustment factor for the presence of HGVs is not required on downhill gradients or diverge flows.

3.5 Using the traffic data above, and in accordance with CD 122 para 3.26 and Figure 3.26b the data has been plotted on



3.6 Figure 3.1 below. Based on this it is proposed to amend the diverge from the existing Layout B, option 1 'ghost island diverge' to a Layout A option 1, 'taper diverge' as shown in CD122 Figure 3.30a. Whilst in the PM peak a layout C diverge is suggested, if the main line flows increase then a layout A diverge would be required and therefore the layout A diverge has sufficient capacity.

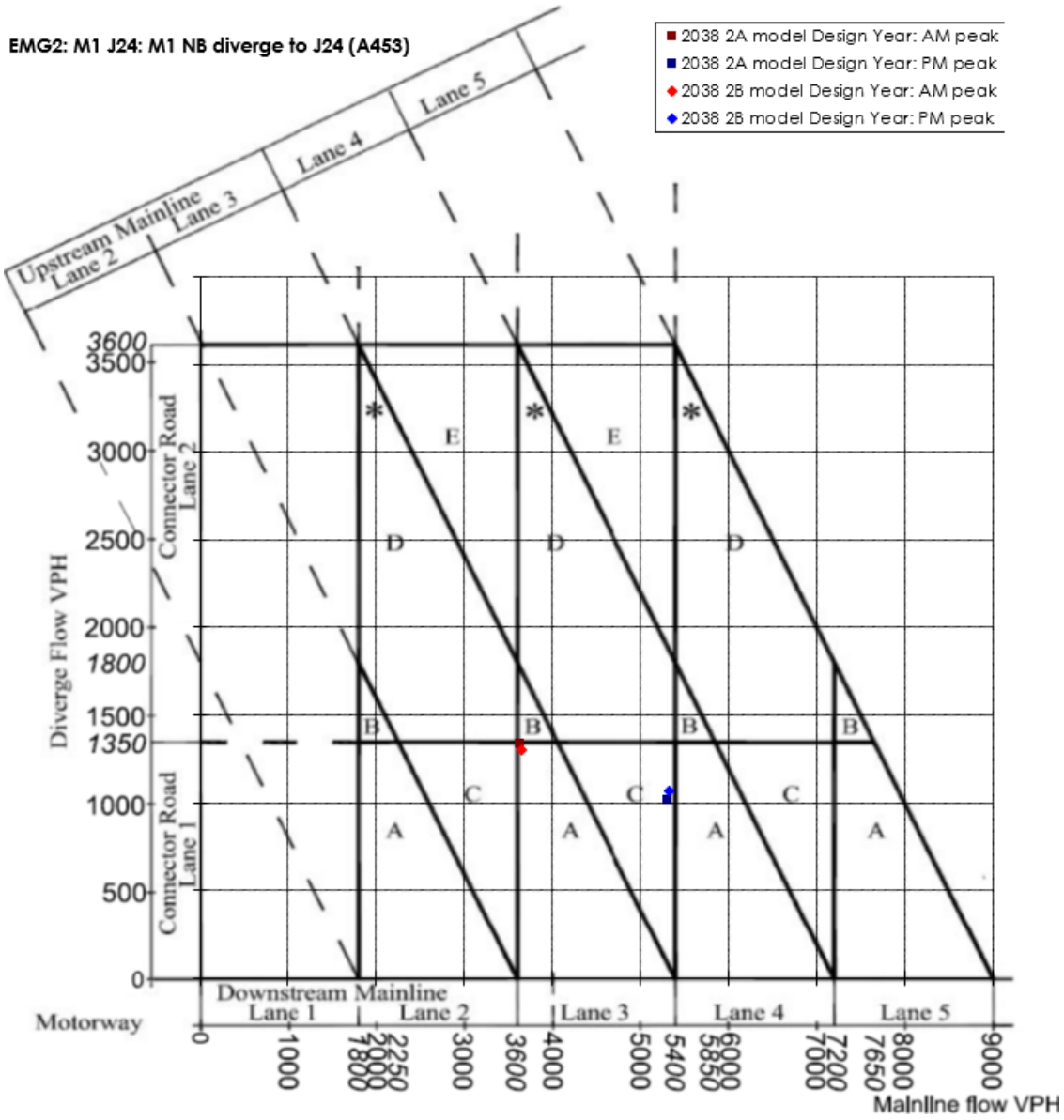


Figure 3.1 M1 J24 northbound diverge layout requirement using traffic data

Design Speed and Geometry

3.7 In accordance with CD 122, para 5.4 and Table 5.4, the minimum design speed for a slip road connector shall be 70kph where the mainline design speed is 120kph.

3.8 As the mainline alignment is on a left-handed horizontal curve and is not at an up/downhill gradient of 3% or steeper for longer than 1.5km on approach, the use of a Layout A option 1 is not excluded in accordance with CD 122, para 3.28 (further analysis of this is found within section 4).

3.9 The geometry of the J24 diverge is shown on **Document DCO 2.8C**.

3.10 The required geometry stated is in accordance with CD 122, para 3.32 and Table 3.32 and is assessed as follows.

- Length of exit taper is 185m and in accordance with the required standard for a two-lane slip road;
- Nose ratio is 1:15 and nose length is 70m. The standard length is 80m. This is an **existing relaxation** from standards based on CD 122, para E/3.7 as 70m is compliant for a 'rural all-purpose 120kph' road class; and
- The maximum width of the hatch marking forming the nose is 4.6m and therefore within the 8m maximum width stated within the Traffic Signs Regulations and General Directions.

3.11 A radius of 1000m is proposed at the edge of the start of the diverge in accordance with CD 122, para 3.32.1.

3.12 Beyond the back of the nose the existing slip road is retained and is therefore not assessed further.

Stopping Sight Distance / Visibility

3.13 As stated within CD 122, para 3.34 mainline SSD shall be provided along the diverge and into the connector road up to the back of the nose.

3.14 CD 109, Table 2.10, states that the desirable SSD for a 120kph design speed is 295m.

3.15 The existing confirmatory gantry (reference GA-01) and the VRS in front restricts visibility into the existing diverge to around 180m minimum SSD. With the revised diverge layout (i.e. amending the diverge to a taper) this will slightly improve the visibility into the diverge but it won't be fully compliant. However, this is an **existing relaxation** from standards based on CD 122, para E/3.9.

Cross Section (Connector Road – Slip Road)

3.16 In accordance with CD 127, para 2.1, Figure 2.1.1N1b provides the required cross-sectional dimensions for a rural motorway connector road.

3.17 Based on predicted vehicle per hour traffic flows for the slip road highlighted above, and in accordance with CD 122, para 5.17 and Table 5.17b, the minimum connector road type is DG1A. However, due to the downstream split of lanes (into four lanes at the traffic signal stop line) the existing cross-section of the slip road is DG2A and it is not proposed to amend this. The two-lanes are marked to the tip of the nose in accordance with CD 127, para 2.19.

Lane Widths

3.18 The cross section of the proposed length of revised slip road at the nose remains as existing with two 3.65m wide traffic lanes.

3.19 CD 127, para 2.1 and Figure 2.1.1N1b states for a rural connector road, as well as having a horizontal curvature of greater than 400 metres radius (CD 127, para 2.2 and 5.18), the lanes widths shall be 3.65m wide and accords with the existing connector road lane widths.

Hard Shoulders / Hard Strips / Verges

3.20 Connector road type DG2A states that a 1.0m hard strip and 2.5m verge shall be provided on the nearside, and a 1.0m hard strip and 2.0m verge on the offside. These widths are provided at the start of the existing slip road at the back of the nose where the proposed works will tie-in to the existing layout.

3.21 From the upstream extent of the nosing for the proposed M1 northbound to A50 westbound interchange link diverge, a 3.3m hard shoulder is proposed on the M1 mainline. It should be noted this improves the existing sub-standard hard shoulder on the M1 nearside.

3.22 The mainline hard shoulder tapers into the nearside hard strip on the slip road in accordance with CD 127, para 2.30.

3.23 A 1.5m minimum verge width is provided but will be widened as necessary to accommodate relevant assets e.g. motorway communications ducting, lighting, signage, VRS and the like.

4. M1 JCT 24A NORTHBOUND DIVERGE TO A50

Diverge Layout

4.1 As noted within section 3 of this report, the scheme proposes a new exit from the M1 to the A50 which would be a direct free-flow link. The new exit would be provided upstream of the existing J24 diverge and downstream of the A42 merge at J23A. This is a weaving section and as such detailed consideration has been given to weaving and the spacing of the two diverges.

4.2 The existing J24 diverge is a 2-lane layout B option 1 ghost island diverge, but with the first exit having the form of an auxiliary lane rather than a taper. The diverge layout incorporates the permitted relaxation in the road class to "rural all-purpose 120kph" in accordance with CD 122, para E/3.7, but has a substandard auxiliary lane length.

4.3 At present the first exit is signed for the A50 westbound and the second for the A453 northbound, but both exits come back together on the exit slip road where there is in effect a short weaving section before the stop line, but if drivers take the appropriately signed exit from the M1 then there would be no weaving on the slip road.

4.4 Various options have been developed for the layout of the two successive diverges and these are shown diagrammatically, alongside the existing layout, on **drawings EMG2-BWB-GEN-XX-SK-CH-SK032 and 033.**

Single diverge option (Option B)

4.5 Based on CD 122, para 3.36.2, the starting point is to consider a single diverge from the mainline into a connector road, followed by a split into the different destinations. This is shown as Option B on drawing SK032.

4.6 Option B would provide a layout B option 1 ghost island diverge and then provide a fork diverge on the exit slip road to separate the A50 westbound traffic and traffic wishing to use the J24 roundabout. However, to create an adequate length for the fork diverge and appropriate geometry leading to the two separate destinations, the diverge would need to move farther south, closer to J23A creating several significant issues with this layout:

- The existing weaving length would be reduced by around 370m (which would be a departure from standard);
- It would create a new weaving length on the link between the end of the diverge ghost island and the start of the fork, which would be very short at approximately 189m;
- There is insufficient space under the Ashby Road overbridge to provide the additional carriageway width needed for the taper (note that even if the diverge layout was amended to the rural all-purpose 120kph road class this would still be the case); and
- Visibility into the diverge would be compromised due to the VRS for the existing A6 Kegworth Bypass and Ashby Road overbridges and would require a departure from standard.

4.7 For the above reasons Option B is not considered feasible and is not considered further.

Two diverges (Options A, C and D)

4.8 For these options the proposed scheme will in effect utilise the existing first exit and provide a direct free-flow link from the M1 northbound to the A50 westbound, with the second exit for A453 northbound (and any local) traffic using the J24 roundabout, and could also be used for A50 traffic if required. Hence the two exit points would operate in much the same way as currently, albeit with formal separate diverges.

4.9 For the purposes of this report it is assumed that, in line with the other free-flow links to and from the A50, this exit would be signed as M1 J24A.

4.10 The following table sets out the 2038 design year traffic data for the diverge using the 2A model data:

Location	AM Peak		PM Peak	
	Vehicles	HGVs	Vehicles	HGVs
M1 upstream of J24A diverge	6235	901	7648	1000
M1 downstream of J24A diverge	4972	712	6326	802
Diverge (link to A50)	1263	189	1322	198

4.11 The following table sets out the 2038 design year traffic data for the diverge using the 2B model data:

Location	AM Peak		PM Peak	
	Vehicles	HGVs	Vehicles	HGVs
M1 upstream of J24A diverge	6301	749	7714	1165
M1 downstream of J24A diverge	4956	546	6396	959
Diverge (link to A50)	1345	203	1318	206

4.12 Based on CD 122, para 3.9, an adjustment factor for the presence of HGVs is not required on downhill gradients or diverge flows.

4.13 Using the traffic data above, and in accordance with CD 122 para 3.26 and Figure 3.26b, the data has been plotted on **Figure 4.1** below. This suggests a Layout C lane drop is required from four to three lanes in the AM peak, and five to four lanes in the PM peak.

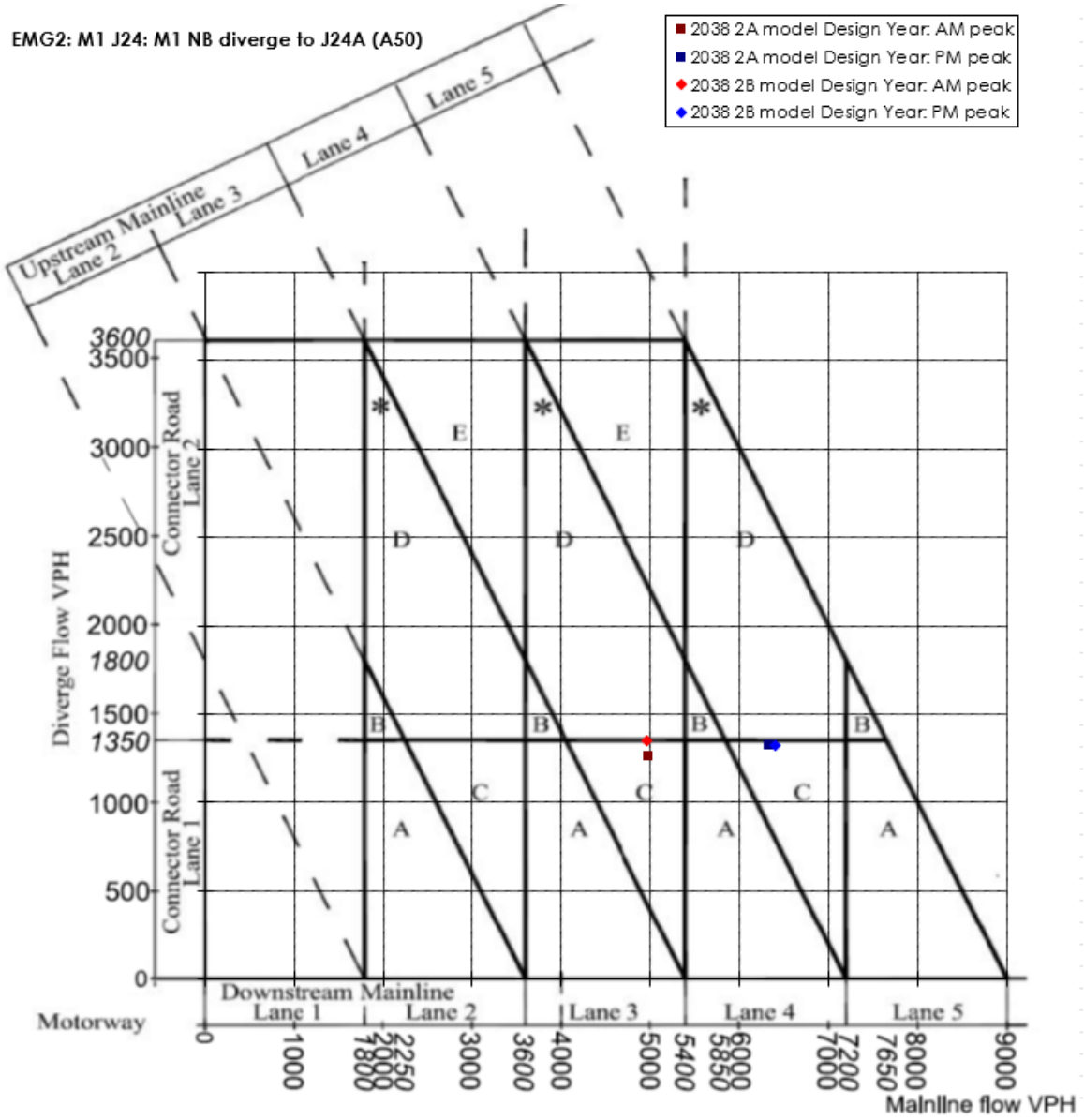


Figure 4.1 M1 J24A northbound diverge layout requirement using traffic data

4.14 The M1 northbound at this location is a four-lane Smart Motorway, and the current J24 diverge is the transition point from a four-lane controlled motorway (i.e. with hard shoulder) to four-lane all-lane running (ALR), i.e. without hard shoulder. The smart motorway (constructed around 2018) provides four lanes through J24.

4.15 This scheme does not propose to reduce the number of lanes through J24 to achieve the 'layout C lane drop', as would reduce the capacity of the mainline. CD 122, Figure 3.26b demonstrates that as mainline traffic increases and the diverge flow is constant then a layout A would be appropriate regardless. However, the flows are indicating that five lanes are required prior to the diverge and this is discussed below in the weaving analysis.

4.16 As discussed in detail below, there is a balance to be achieved between the weaving length and spacing of successive diverges. Three options for the J24A diverge have therefore been developed and are shown on the detailed drawings as follows:

Option	Layout type	Spacing to J24 diverge (m)	Detailed layout shown on drawing EMG2-BWB-GEN-XX-SK-CH-
A	A option 1 (taper)	450	SK034
C	A option 2 (auxiliary lane)	345 (i.e. with Exit Datum Point as Option A)	SK035
D	A option 2 (auxiliary lane)	450	SK036

4.17 The following factors require consideration when assessing the preferred layout:

- Weaving and spacing of successive diverges;
- Visibility (SSD) into the J24A diverge;
- M1 mainline cross-section;
- Provision of directional signs and signalling;
- Visibility of the J24 diverge and associated signing;
- Gradient of the M1 northbound on the approach to the two diverges; and
- Length of the downstream interchange link to the A50.

4.18 It is noted that options A, C or D can provide the geometrical layout requirements of CD 122, table 3.32 as shown on the drawings listed and therefore the diverge geometry is not a deciding factor.

Weaving and spacing of successive diverges

4.19 The M1 northbound between the J23A merge and J24 diverge is an existing weaving section. Using the relevant measuring points in CD 122, the weaving length is 1.8km. This is shorter than the minimum required for a rural motorway, which is 2km (CD 122, para 4.5).

4.20 The following table sets out the spacing of the diverges and weaving lengths for the three options and compares them to the existing layout.

Option	Layout type	Spacing to J24 diverge (m)	Weaving length to J24A diverge from J23A merge (m)	Weaving length to J24 diverge from J23A merge (m)
Existing	B option 1 with auxiliary lane	n/a	n/a	1830
A	A option 1 (taper)	450	1547	1982
C	A option 2 (auxiliary lane)	345	1652	1982
D	A option 2 (auxiliary lane)	450	1547	1982

4.21 As note above the existing J24 diverge is a 'layout B option 1' diverge but with an auxiliary lane for the first (A50) exit. The weaving length is measured to the mid-point of the first exit and ghost island head, as per CD 122. Figure 4.4g, but as discussed above

the two exits are signed for different routes which is how the proposed layout with separate diverges would also operate. As such a comparison between the J23A entry datum point and both J24A and J24 exit datum points is also useful when considering the operation of this section of the M1.

Option	Distance from J23A entry datum point to J24A exit datum point (m)	Distance from J23A entry datum point to J24 exit datum point (m)	Distance from J23A entry datum point to J24 (2nd exit) taper (m)	Change from existing J23A-J24 to proposed J23A-J24A (m)	Change from existing to proposed J23A-J24 exit datum (m)	Change from existing to proposed J23A-J24 exit taper (m)
Existing	n/a	1437	1812	n/a	n/a	n/a
A	1342	1777	n/a	-95	+340	-35
C	1342	1777	n/a	-95	+340	-35
D	1237	1777	n/a	-200	+340	-35

4.22 As can be seen from the above the provision of the new J24A diverge would be closer to the J23A merge but only by 95m for options A and C. In all options the distance between the J23A entry datum point and J24 exit datum point increases by 340m in absolute terms, but reduces by 35m in terms of the exit taper and this is due to the proposed J24 taper being to motorway road class whereas the existing is relaxed to the 'rural all-purpose 120kph' road class.

4.23 CD 122 para 3.36 requires a minimum distance of 3.75Vm between the tips of successive noses, where V is the design speed of 120kph, giving a minimum distance of 450m. The table below shows the spacing of the diverges for each option and gives the corresponding distance between the exit datum points.

Option	Distance between tips of noses J24A to J24 (m)	Distance between successive exit datum points J24A to J24 (m)
A	450	435
C	345	435
D	450	540

Summary

4.24 In summary the proposed layout providing two separate diverges will operate in a similar way to the existing diverge, given that at present the first exit is signed for the A50 and the second exit for the A453.

4.25 Option C is preferable in terms of maximising the weaving length. As the existing weaving length is reduced in all options then as CD 122, para E/3.11 does not apply and this is a **departure**, reference **G1**.

4.26 Options A and D are preferable over option C in terms of providing the standard distance between two successive exits. Option C would be a **departure**, reference **G2**.

Weaving section number of lanes

4.27 CD 122, equation 4.7 applies to smart motorways as well as standard motorways. As the weaving length is reduced below the existing, and is below the 2km minimum, the actual weaving and minimum lengths are set in the calculation to be the same value, thus meaning the weaving length doesn't impact the calculation (as per CD 122, para 4.7 note 2).

4.28 CD 122 does not however specifically state how to assess the numbers of lanes within a weaving length where there are two downstream exits. Therefore, two calculations have been undertaken:

- Weaving lane calculation to the first (J24A) exit with traffic to the downstream (J24) assumed to be on the mainline; and
- Weaving lane calculation using the total of J24A and J24 exits as exiting traffic.

4.29 The results of the above are shown below. The number of lanes have been calculated for the two scenarios as follows:

Scenario	Traffic model	No. lanes AM	No. lanes PM
To first (J24A) exit only	2038 2A	4.52	5.24
To both exits	2038 2A	4.75	6.01
To first (J24A) exit only	2038 2B	4.56	5.33
To both exits	2038 2B	4.84	6.14

4.30 The results above highlight that the scenario for 'both exits' is more onerous than for 'J24A only' with the PM peak hour being more onerous still. There is little difference between the 2A and 2B scenarios.

4.31 It is not proposed as part of the scheme to provide five lanes from the J23A merge to J24A (or J24) diverge and this is a **departure,** reference **G3** applying to all options. We note that provision of five lanes is in itself a departure from CD 127, para 2.15.

4.32 CD 122 para E/1.8.2 states that where the weaving length on an existing motorway is less than the length derived from CD 122 Figure 4.6b, options for reducing or eliminating weaving should be assessed and implemented where practicable. The minimum weaving lengths derived from CD 122 Figure 4.6b are as follows:

Scenario	Traffic model	CD 122 Figure 4.6b minimum weaving length (m)	
		AM	PM
To first (J24A) exit only	2038 2A	510	640
To both exits	2038 2A	640	770
To first (J24A) exit only	2038 2B	510	650
To both exits	2038 2B	660	780

4.33 As can be seen the proposed weaving length in all options is higher than the minimum required by this figure and therefore options to reduce or eliminate weaving do not need to be considered further.

4.34 VISSIM modelling has been undertaken to fully assess the impact of the weaving on the traffic flow and the VISSIM modelling does not identify any significant flow breakdown over the weaving length.

Visibility (SSD) into the J24A diverge

4.35 In accordance with CD122, para 3.34, the visibility into the diverge to mainline SSD (i.e. 295m based on 120kph design speed) up to the back of the nose shall be achieved.

4.36 For the proposed J24A (A50) diverge the SSD into the diverge is restricted by the Ashby Road overbridge and the VRS in front of the bridge. For the three options the SSD into the diverge reduces as set out in the table below. This is based on the driver and object heights stated (note the 1.05m eye height is considered to be the most onerous case).

Eye height (m)	Object height (m)	Option A min SSD (m)	Option C min SSD (m)	Option D min SSD (m)
1.05	0.26	261	251	171
1.05	1.05	292	287	254

4.37 From the above, whilst none of the options are fully compliant, it can be seen that options A and C are substantially more compliant than option D. The reduction below desirable minimum SSD into the diverge is **departure,** reference **G4**.

M1 mainline cross-section

4.38 At present between M1 J23A and Ashby Road overbridge (just before the start of the J24 diverge), the M1 northbound is a D4M cross-section with above-lane signals, making it a controlled motorway. From Ashby Road overbridge the hard shoulder is discontinued as this initially is used to form the J24 diverge. Then downstream of the diverge becomes lane 1 of the D4-ALR motorway leading north to J25.

4.39 For the new J24A diverge layout for the A50, and amended J24 diverge, and with land available for the scheme, a hard shoulder can be re-instated from a point north of the Ashby Road overbridge up to the J24 diverge (where the hard shoulder tapers over the length of the diverge nose, as a hard shoulder is not required on the J24 slip road).

4.40 The re-instated hard shoulder would provide an improvement, significantly reducing the potential for a stopped vehicle to be present within the live lanes of the diverge as vehicles would be able to pull off to the side onto the hard shoulder.

4.41 The re-instatement of the hard shoulder can be achieved by all three options A, C and D.

Provision of directional signs and signalling

Directional signs

4.42 CD 146 sets out the requirements for directional signing. The locations of directional signs are based on the exit datum point for the diverge. With the change to the diverge layout i.e. providing two separate diverges, there will be two different exit datum points (ExDP) and both need to be checked for compliance against CD 146.

4.43 The table below reviews the signing sequence for each option and compares this to the existing layout and identifies any departures from standard that may be required.

Sign type	CD 146 requirement	Option	J24A exit	J24 exit
Confirmatory sign	30-50m downstream of tip of nose	Existing	n/a	**Gantry GA-01** 90m beyond tip of nose **Existing departure**
		A, C or D	30 downstream of tip of nose **Compliant**	As existing (sign changed on existing gantry GA-01) **Existing departure**
Final direction sign	0-50m upstream of ExDP	Existing	n/a	**Gantry GA-02** 105m downstream of the ExDP **Existing departure**
		A and C	**Gantry GA-03*** 377m upstream of ExDP **Departure S1**	**New Gantry GA-01A** At ExDP **Compliant**
		D	**Gantry GA-03*** 272m upstream of ExDP **Departure S1**	
Secondary direction sign	⅓ mile or ½ mile or ⅔ mile with tolerance +10% -20m	Existing	n/a	**Gantry GA-03** ⅓ mile, 472m upstream of the ExDP, 44m out of tolerance **Existing departure**
		A and C	**Gantry GA-04** ½ mile, 907m upstream of ExDP, 22m out of tolerance **Departure S2**	**Gantry GA-03** ½ mile, 812m upstream of ExDP **Compliant** **see below regarding gantry GA-04
		D	**Gantry GA-04** ½ mile, 802m upstream of ExDP **Compliant**	
Primary direction sign	⅔ mile, 1 mile or 1⅓ mile with tolerance +10% -20m or 1¼ mile with	Existing	n/a	**Gantry GA-04** ⅔ mile, 1002m upstream of the ExDP, 51m out of tolerance **Existing departure**
		A and C	**New Gantry GA-04A** ⅔ mile, 1174m upstream of ExDP	**New Gantry GA-04A**

Sign type	CD 146 requirement	Option	J24A exit	J24 exit
	tolerance +115m -20m		**Compliant**	1 mile, 1609m upstream of ExDP **Compliant**
		D	**New Gantry GA-04A** ⅔ mile, 1609m upstream of ExDP **Compliant**	

* Gantry GA-03 is upstream of the A6 Kegworth Bypass and Ashby Road overbridges and it is not possible to locate a gantry between these bridges and the ExDP as it would be obscured by the bridges. Subject to non-prescribed sign authorisation it may be beneficial to provide a distance plate in yards to the J24A ExDP.

** Gantry GA-04 would also be used to provide signage for the J24 exit, and this would be an additional secondary direction sign. It is located 1342m upstream of the ExDP and the distance ¾ mile would be most suitable. ¾ mile is 1207m and plus 10% is 1328m so it would be 14m out of tolerance upstream. ¾ mile is not permitted in CD 146 but is permitted in the traffic signs regulations. It would therefore require a **departure**, reference **S3**.

4.44 It should be noted that none of the four existing J24 exit gantries are in compliant locations. This can be improved with any of the proposed layout options.

4.45 The most compliant option for directional signing is Option D as all of the signs for J24A would be in compliant locations except for the final direction sign. The signing to J24 would be the same in all three options.

4.46 In options A and C the spacing between the J24A confirmatory sign on gantry GA-02A and J24 final direction sign on gantry GA-01A is 236m. In option C this is reduced to 130m. Traffic Signs Manual Chapter 7 Appendix E sets out that for 70mph roads minimum clear visibility of 180m to signs is required, with a greater distance recommended. Option C does not meet this minimum standard for the J24 final direction sign on gantry GA-01A as it would be partially obscured by the upstream gantry GA-02A.

Signalling

4.47 The existing motorway signalling is above-lane signals (ALS) between the J23A merge and J24 diverge completed by VMS. These were originally provided when this section of the M1 was widened in the early 1990s for the A42 scheme. They were then upgraded during the smart motorway project (SMP) in the late 2010s to mandatory signals (VMSL) using the original gantries. This means that there are some **existing departures** for ALS as follows:

- The first ALS after the J23A merge are located 435m downstream of the entry datum point (they should be between 200 and 400m, CD 146 para 4.17); and
- The confirmatory ALS after the existing J24 diverge are located 90m downstream of the tip of the diverge nose (they should be between 30 and 50m, CD 146 para 4.19).

4.48 Options A, C and D would change the ALS provision as follows:

- The new Gantry GA-04A would provide ALS as it would become the new First ALS after the J23A merge. As it would be located 168m downstream of the J23A entry datum point it would be a **departure S4** (superseding the existing departure).
- The existing final direction sign gantry GA-02 (which has ALS) would be removed;
- A new final direction sign gantry GA-01A would be provided with ALS for the J24 diverge; and
- ALS is not proposed for new confirmatory gantry GA-02A on the basis that this is very close to the proposed GA-01A and the upstream gantry would obscure the downstream one if it was extended across the motorway to provide ALS. This would be a **departure S5**.

4.49 Overall there would be a net increase of one set of ALS for all three options.

4.50 Variable message signs (VMS) are provided in addition to the ALS. There are various existing departures for VMS as follows:

- VMS are co-located with ALS, exit directional signs and ahead directional signs on the primary signage gantry (they should be between 200 and 400m upstream, CD 146 para 4.25); and
- VMS are co-located with ALS, exit directional signs and ahead directional signs on the secondary signage gantry (they should be between 200 and 400m upstream, CD 146 para 4.26).

4.51 For Options A, C and D the provision of an additional confirmatory sign for J24A means that VMS would be provided on the confirmatory gantry in accordance with CD 146 para 4.27. The existing final direction signage gantry GA-02 for J24 would be removed but this does not provide a VMS at present. No other changes to VMS would be proposed with the above existing departures retained. Hence there would be a net increase of one VMS.

4.52 As discussed above for the directional signage, options A, C and D introduce a new primary directional signage gantry (GA-04A). This means that a VMS is required between 200 and 400m upstream of this gantry, but this is within the area of the J23A merge. An existing VMS is present 773m upstream of the proposed gantry and this would be the primary VMS. This would, however, be a **departure S6**.

Visibility of the J24 diverge

4.53 Aside from the existing relaxation associated with the existing gantry GA-01 discussed at section 3 above, the visibility into the J24 diverge is compliant with CD 122 and the proposed final gantry GA-01A does not reduce visibility into the diverge below the required 295m. Therefore visibility into the J24 diverge does not affect the choice of options.

Gradient of the M1 on the approach to the two diverges

4.54 CD 122 para 3.28 sets out requirements where a layout A option 2 (auxiliary lane) diverge is to be used in lieu of a layout A option 1 (taper) diverge. Options C and D consider auxiliary lanes and option A is a taper.

4.55 The mainline is on a gradual left-hand radius so the consideration for using an auxiliary lane is the gradient before the diverge. The following table sets out the levels in mAOD at 500m intervals prior to the ExDP for each diverge.

Level (mAOD) at Location	J24 diverge	J24A diverge
ExDP	51.3	63.9
500m prior to ExDP	65.7	73.7
1km prior to ExDP	74.5	77.5
1.5km prior to ExDP	77.5	74.7

4.56 Based on the above the average gradients are calculated:

Average gradient	J24 diverge	J24A diverge
Over 500m before ExDP	2.9% downhill	2.0% downhill
Over 1km before ExDP	2.3% downhill	1.4% downhill
Over 1.5km before ExDP	1.7% downhill	0.7% downhill

4.57 It can be seen from the above that the gradient is less than 3% on the 1.5km approach to both diverges, and does not go above 3% average on the 500m before the diverge, and there is therefore no requirement to provide an auxiliary lane.

Length of the downstream interchange link to the A50

4.58 Based on the forecast traffic flows for the M1 northbound to A50 westbound interchange link (see detail provided at section 5 below), a minimum cross-section of IL1A is required. However, CD 122 para 5.3 does not permit single-lane interchange links of greater than 1km. Depending on the options for the bridge on the interchange link over or under the A453 (see section 5 below) and the M1 northbound diverge options discussed here the link may or may not be greater than 1km. The following table gives a summary of this.

Bridge Option	Link length for Diverge option A or D (km)	Link length for Diverge option C (km)
1 or 2A/2C	1.0	0.9
2B/2D	1.05	0.95
No. lanes required on interchange link	2	1
Minimum cross-section	IL2A	IL1A

4.59 As discussed above a single lane diverge is required for the M1 northbound to A50 westbound diverge. Based on the A50 westbound merge layout a single lane gain at the merge is required and it would not be possible to provide a two-lane merge. Hence a single lane prior to the merge is required.

4.60 The first 200m or so of the interchange link in options A and D is located between the M1 mainline and the A453. This is a tight corridor and it is not considered feasible to provide a two-lane interchange link to cross section IL2A within the available space. Hence options A and D would require a **departure** from standard reference **G5** for the provision of a single-lane interchange link in excess of 1km.

Summary and preferred option

4.61 The following table sets out a summary of each aspect considered above.

Consideration	Preferred option	Summary of reasoning
Weaving	C then A then D	Option C Maximises weaving length
Spacing of successive diverges	A or D	Provides standard spacing between exits
Visibility (SSD) into the diverge	A or C	Options A and C although not fully compliant are significantly better than option D
M1 mainline cross-section	A, C or D	All options allow for re-instatement of the hard shoulder north of the Ashby Road bridge to the J24 diverge
Provision of directional signing	D then A then C	Higher level of compliance with CD 146 is achieved with option D Option C final direction sign for J24 partially obscured by the upstream gantry.
Provision of signalling	A, C or D	Net increase of one ALS and one VMS in all options, no discernible differences between the options
Visibility of the J24 diverge	A, C or D	No discernible difference
Gradient of the M1 on the approach to the two diverges	A	There is no requirement in gradient terms to us an auxiliary lane
Length of the downstream interchange link to the A50	C	Option C allows for a single-lane interchange link as the length is less than 1km

4.62 From the above it is clear that there are advantages and disadvantages with all options. However, aside from the directional signing, option D performs least well, and option D is significantly worse when considering visibility into the diverge.

4.63 A scoring system has therefore been used to assess the various issues with a score of 1 (least preferred) to 3 (most preferred). A score of 0 is used if all options are the same.

Consideration	Option A score	Option C score	Option D score
Weaving	2	3	1
Spacing of successive diverges	3	1	3
Visibility (SSD) into the diverge	3	3	1

Consideration	Option A score	Option C score	Option D score
M1 mainline cross-section	0	0	0
Provision of directional signing	2	1	3
Provision of signalling	0	0	0
Visibility of the J24 diverge	0	0	0
Gradient of the M1 on the approach to the two diverges	0	0	0
Length of the downstream interchange link to the A50	1	3	1
Total	**11**	**11**	**9**

4.64 From the above options A and C score best, followed by D. Of the above, weaving, spacing of successive diverges and visibility into the diverge are key user safety issues. As noted above option D performs notably worse for visibility into the diverge and for this reason it is discounted.

4.65 The key decision therefore is between maximising the weaving length (option C) vs the compliant spacing of successive diverges (option A).

4.66 To inform the decision-making process a safety risk assessment to GG 104 has been undertaken which is found at **Appendix 1**. This has reviewed the risks in the existing layout against those for the proposed options A and C. In particular this has reviewed risks associated with weaving and closely spaced exits. The conclusion of this work is that Option C presents the least risk, with the man differentiating factor being the risks associated with 'swooping' (i.e. drivers trying to exit at the last moment) is lower in Option C because it has an increased weaving length. The risk assessment has included for mitigation measures for improving the signage and signalling over the weaving section over and above the current layout.

4.67 Therefore **Option C** is to be progressed.

Further measures to maximise weaving length

4.68 CD 122 para E/1.8.1 states that "*The weaving length to be provided on an existing motorway should be as close as practicable to the requirements of CD 122*".

4.69 Whilst the layout of the J24 and J24A diverges have been discussed in detail above, the other reference point for weaving length is the upstream merge at J23A from the A42 which is a layout E option 1 merge.

4.70 A review of the existing merge layout has been undertaken and it has been determined that the existing merge layout nose, taper and ghost island tail, all exceed the lengths required by CD 122 which constitute **existing departures** from para 3.21. The table below summarises the existing lengths against CD 122 table 3.21.

Element	Existing merge (m)	CD 122 requirement (m)
Nose	150	115
Taper (lane 2 merge taper)	220	205
Ghost island tail	205	180

4.71 Adjusting the merge layout such that it complies with standard will reduce the footprint of the merge, thus moving the entry datum point and the point from which weaving is measured (at the end of the lane two entry taper as per CD 122 figure 4.4c) south, away from J24 and thereby increasing the weaving length. The weaving length can be increased by 50m and the distance between J23A entry datum point and J24A exit datum point increased by 75m.

4.72 As this amendment to the merge is a relatively straightforward intervention which clearly aligns with CD 122 para E/1.8.1, this has been implemented into the design. This revised option is referred to as **Option C+**.

4.73 The geometry of the J24A diverge Option C is shown on **Documents DCO 2.8B and DCO 2.8C.**

4.74 The following tables show the comparison between weaving lengths and spacing of datum points.

Option	Weaving length (m)
Existing	1830
CD 122 minimum standard	2000
C	1652
C+	1702

Option	Distance from J23A entry datum point to J24A exit datum point (m)	Distance from J23A entry datum point to J24 exit datum point (m)	Distance from J23A entry datum point to J24 (2nd exit) taper (m)	Change from existing J23A-J24 to proposed J23A-J24A (m)	Change from existing to proposed J23A-J24 exit datum (m)	Change from existing to proposed J23A-J24 exit taper (m)
Existing	n/a	1437	1812	n/a	n/a	n/a
C	1342	1777	n/a	-95	+340	-35
C+	1417	1852	n/a	-20	+415	+40

4.75 It can be seen from the above that option C+ would result in a 20m reduction in distance between the successive entry and exit datum points on the motorway.

4.76 Option C+ will also have a beneficial impact on the following aspects:

- The length of the existing M1 mainline hard shoulder discontinuity at the J23A merge can be reduced in length; and
- The distance between the J23A entry datum point and new gantry GA-04A is 243m which is **compliant** to CD 146 as a 'first' gantry and therefore the departure S4 is not required.

Departures From Standard

4.77 **Appendix 3** provides a summary of the road layout departures from standard within this section which apply to option C+.

5. M1 NORTHBOUND TO A50 WESTBOUND INTERCHANGE LINK

Layout

5.1 The scheme proposes to provide a direct (free-flow) link between the M1 northbound and the A50 westbound. At present this movement takes place using the J24 roundabout or via J23A and the A453 parallel to the M1. All the other movements between the M1 and A50 are already direct free-flow links.

5.2 The new link is termed the M1 Northbound to A50 Westbound interchange link which is a type of connector road under CD 122.

5.3 Five options are under consideration for this link which relate to how it crosses the A453, namely if it goes under or over. The three geometrical options are:

- Option 1B/1C: Underbridge;
- Option 2A/2C: Three-span overbridge with crest curve K17; and
- Option 2B/2D: Single-span overbridge with crest curve K30.

5.4 The structures options report recommends that options 2B/2D (single span overbridge) should be pursued, with the choice of option 2B or 2D depending on the outcome of the geometrical assessment contained in this report. To inform the decision-making process a safety risk assessment to GG 104 has been undertaken which is found at **Appendix 2**.

Traffic flows

5.5 The following table sets out the design year traffic data for the interchange link.

Location	AM Peak		PM Peak	
	Vehicles	HGVs	Vehicles	HGVs
M1 NB to A50 WB Interchange link	1341	214	1176	176

Design Speed and Geometry

5.6 As noted above this is considered as an interchange link. Therefore, the design speed in accordance with CD 122, para 5.4, and Table 5.4 for a rural mainline design speed of 120kph is 85kph.

Horizontal alignment

5.7 The horizontal alignment for each option is summarised as follows:

Option	1B/1C	2A/2C	2B/2D
Description	• Near straight after diverge compliant to CD 122	• Near straight after diverge compliant to CD 122	• Near straight after diverge compliant to CD 122

Option	1B/1C	2A/2C	2B/2D
	• Left hand radius 720m (minimum R with 3.5% superelevation) • Transition • Straight • Right hand radius 1440m (minimum R with adverse camber and without transitions) • Near straight before merge compliant to CD 122	• Left hand radius 720m (minimum R with 3.5% superelevation) • Transition • Straight • Transition • Left hand radius 720m (minimum R with 3.5% superelevation) • Transition • Straight • Transition • Right hand radius 720m (minimum R with 3.5% superelevation) • Near straight before merge compliant to CD 122	• Left hand radius 720m (minimum R with 3.5% superelevation) • Transition • Straight • Transition • Left hand radius 720m (minimum R with 3.5% superelevation) • Transition • Straight • Transition • Right hand radius 720m (minimum R with 3.5% superelevation) • Near straight before merge compliant to CD 122
Compliance with DMRB	**Compliant**	**Compliant**	**Compliant**

Vertical alignment

5.8 The vertical alignment for each option is summarised as follows:

Option	1B/1C	2A/2C	2B/2D
Description	• Grade 4.6% downhill • Sag K 27 • Grade 2.05% uphill • Crest K 55	• Grade 6% downhill • Sag K 20 • Grade 6% uphill • **Crest K 17 (two steps below desirable minimum)** • Grade 6% downhill • Sag K 20	• Grade 6% downhill • Sag K 20 • Grade 6% uphill • **Crest K 30 (one step below desirable minimum)** • Grade 6% downhill • Sag K 20
Compliance with DMRB	**Compliant**	The use of a crest K of 17 is a **departure** reference **G6** on the basis that CD 122 does not permit relaxations below desirable minimum (in this case K 55) on connector roads.	The use of a crest K of 30 is a **departure** reference **G6** on the basis that CD 122 does not permit relaxations below desirable minimum (in this case K 55) on connector roads.

5.9 Although Option 1B/1C has compliant vertical alignment geometry, the levels of the new link road would be over 7m below existing ground level. The level goes beyond the level of the adjacent M1 drainage and there is therefore no positive drainage outfall. A surface water pumping station would be required which imposes a long-term maintenance burden on National Highways and poses a safety risk to road users in the event of flooding.

5.10 Option 2B/2D is visually less intrusive being slightly lower in overall elevation and a longer crest meaning it is not as pronounced.

Stopping Sight Distance / Visibility

5.11 The desirable minimum SSD for 85kph, i.e. 160m, is achieved throughout for Option 1B/1C.

5.12 Options 2A and 2B the use of a crest K below desirable minimum introduces a reduction in the SSD.

5.13 The minimum SSD for each option is therefore assessed as follows:

Option	1B/1C	2A/2C	2B/2D
Description	Minimum SSD of 160m achieved throughout	Minimum SSD: • to low object height of 90m (two steps below desirable minimum) • to 1.05m object height of 120m (one step below desirable minimum) Minimum SSD of 160m achieved within the immediate approach to the downstream merge.	Minimum SSD: • to low object height of 120m (one step below desirable minimum) • to 1.05m object height of 160m Reduction below 160m SSD is within the first 13m of the immediate approach to the downstream merge. See further commentary below.
Compliance with DMRB	**Compliant**	The reduction of SSD below desirable minimum is a **departure**, and included within reference **G6** on the basis that CD 122 does not permit relaxations below desirable minimum on connector roads.	The reduction of SSD below desirable minimum is a **departure**, and included within reference **G6** on the basis that CD 122 does not permit relaxations below desirable minimum on connector roads.

5.14 It can be seen from the above that in options 2B/2D the desirable minimum SSD of 160m can be achieved to a 1.05m object which represents a vehicle on the road ahead. As the link will be under motorway regulations with a hard shoulder the likelihood of a low object on the road is reduced from an all-purpose road. As a mitigation measure a 50mph speed limit is proposed and the speed limit is shown on **Document DCO 2.14**.

5.15 CD 109 does not permit relaxations on the immediate approaches to junctions. In the case of a merge designed to CD 122, the immediate approach is defined as a distance of 1.5 times the SSD measured from the back of the nose. i.e. from a point 240m before the back of the nose there cannot be a reduction below the desirable minimum SSD of 160m. This requirement is met in options 2A/2C, but in options 2B/2D due to the longer crest curve the first 13m approximately of the immediate approach has an SSD below 160m measured to the low object height. However, as the merge is a lane gain there is a reduced potential for incidents at the merge. This is **departure** reference **G7**.

Cross-section (Connector Road – Interchange Link)

5.16 In accordance with CD 127, para 2.1, Figure 2.1.1N1b provides the required cross-sectional dimensions for a rural motorway connector road.

5.17 Based on predicted vehicle per hour traffic flows for the interchange link highlighted above, and in accordance with CD 122 para 5.17 and Table 5.17b, the minimum connector road type is IL1A.

5.18 As discussed in section 4 above the diverge layout affects the length of the interchange link. For the selected diverge option C+ the interchange link is less than 1km.

Lane width

5.19 The lane width is 3.7m as required by CD 127. The horizontal alignment of the interchange link does not have a radius of less than 400m and hence no lane widening is required.

Hard shoulder, hard strip and verge

5.20 The following are provided in accordance with CD 127 for cross-section IL1A:

- 1.5m (min) nearside verge
- 3.3m hard shoulder
- 0.7m offside hard strip
- 2.3m (min) offside verge

Headroom

5.21 For the option 1B/1C underbridge the headroom on the interchange link would be a minimum of 5.3m plus compensation for the sag curve.

5.22 For the overbridge options, the A453 northbound between M1 J23A and M1 J24, and then onto the A50, is part of High Load Route (HiR) 13a between Wansford (R26 A1/A47) **to** Stoke on Trent (A50/A520). This is an 18' route with other structures on the route having a minimum headroom of the following:

- A42 Doctors Lane bridge: 6.05m;
- A50 B5460 interchange bridge: 5.81m;
- A6 Shardlow Road bridge: 19' (5.79m); and
- A5111 Harvey Rd bridge: 5.66m.

5.23 The proposed bridge location in the context of HiR13a is shown on **Figure 5.1** below.

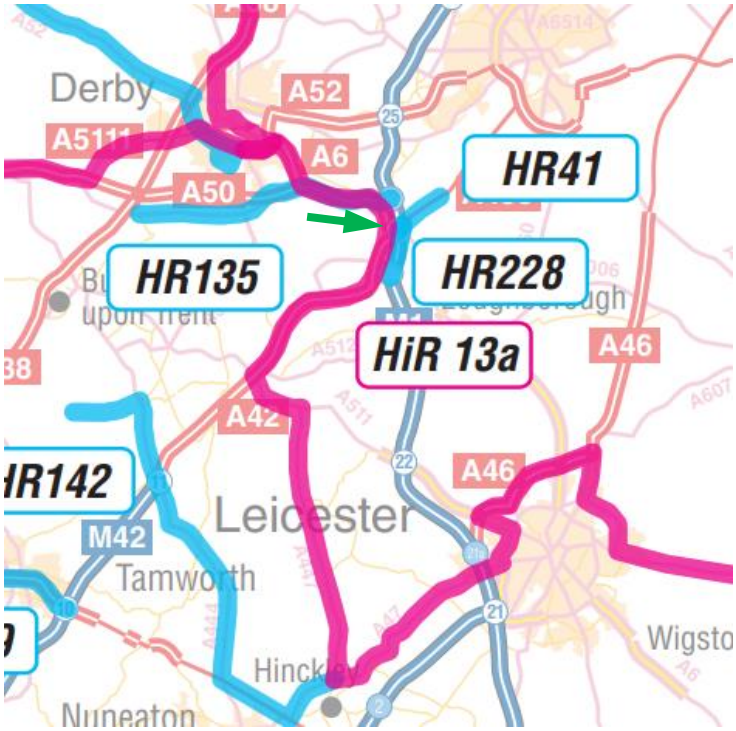


Figure 5.1 High load routes and location of proposed bridge

5.24 Options 2A & 2C provide compliant headroom of 6.45m for a high load route, in accordance with CD 127 table 4.1. High load routes are recorded by the DfT as being either 18' or 20' routes but CD 127 does not distinguish between the types of routes. As the A453 northbound is an 18' route, it is reasonable that the clearance is reduced by 2' i.e. 0.61m to 5.84m and this is the headroom proposed in Options 2B & 2D but this requires a **departure** from standard reference **G8**. As noted above the reduction in headroom allows a greater crest curve value to be provided. The reduction in head room is not considered to have any safety implications given it would be over 0.5m higher than the standard 5.3m headroom.

Safet risk assessment, summary and preferred option

5.25 As discussed above Option 1B/1C requires a surface water pumping station which introduces risks to users and maintenance workers. These risks are significant as set out in the safety risk assessment found at **Appendix 2**. They can be eliminated by the overbridge options.

5.26 Given the headroom on other structures on the 18' high load route governs the abnormal loads that can be used , it is reasonable that the clearance is reduced by 2' i.e. 0.61m to 5.84m.

5.27 In terms of the vertical crest curve although there is a short distance where the minimum SSD to a 0.26m object falls below 160m on the immediate approach to the merge, the overall SSD along the interchange link in option 2D is better than option 2B.

5.28 It can be seen in the safety risk assessment that option 2D has the lowest overall risk and on this basis it is recommended that **Option 2D** be taken forward. This is shown on the following **Documents**:

- **DCO 2.8C**: General arrangement
- **DCO 2.9C:** Cross-sections
- **DCO 2.10A:** Profile (long-section)
- **DCO 2.11**: A453 bridge plan

Departures From Standard

5.29 **Appendix 3** provides a summary of the road layout departures from standard within this section based on option 2D.

6. A50 WESTBOUND MERGE

Layout

6.1 With the proposal to introduce a separate interchange link between the M1 and A50 (see above) a new merge onto the A50 westbound is required downstream of the junction 24 roundabout.

6.2 The following table sets out the 2038 design year traffic data for the diverge using the 2A model data:

Location	AM Peak		PM Peak	
	Vehicles	HGVs	Vehicles	HGVs
A50 WB upstream of merge	1633	259	1159	173
A50 WB downstream of merge	2896	448	2481	371
Merge from M1 NB	1263	189	1322	198

6.3 The following table sets out the 2038 design year traffic data for the diverge using the 2B model data:

Location	AM Peak		PM Peak	
	Vehicles	HGVs	Vehicles	HGVs
A50 WB upstream of merge	1486	195	1018	157
A50 WB downstream of merge	2831	398	2336	363
Merge from M1 NB	1345	203	1318	206

6.4 Based on CD 122, para 3.9, an adjustment factor of 1.01 is used in the above for the mainline flows and 1.06 for the merge flows due to the percentage of HGVs.

6.5 Using the traffic data above, and in accordance with CD 122, Figure 3.12a, the data has been plotted on **Figure 6.1** below and based on this a 'layout D lane-gain' merge is required.

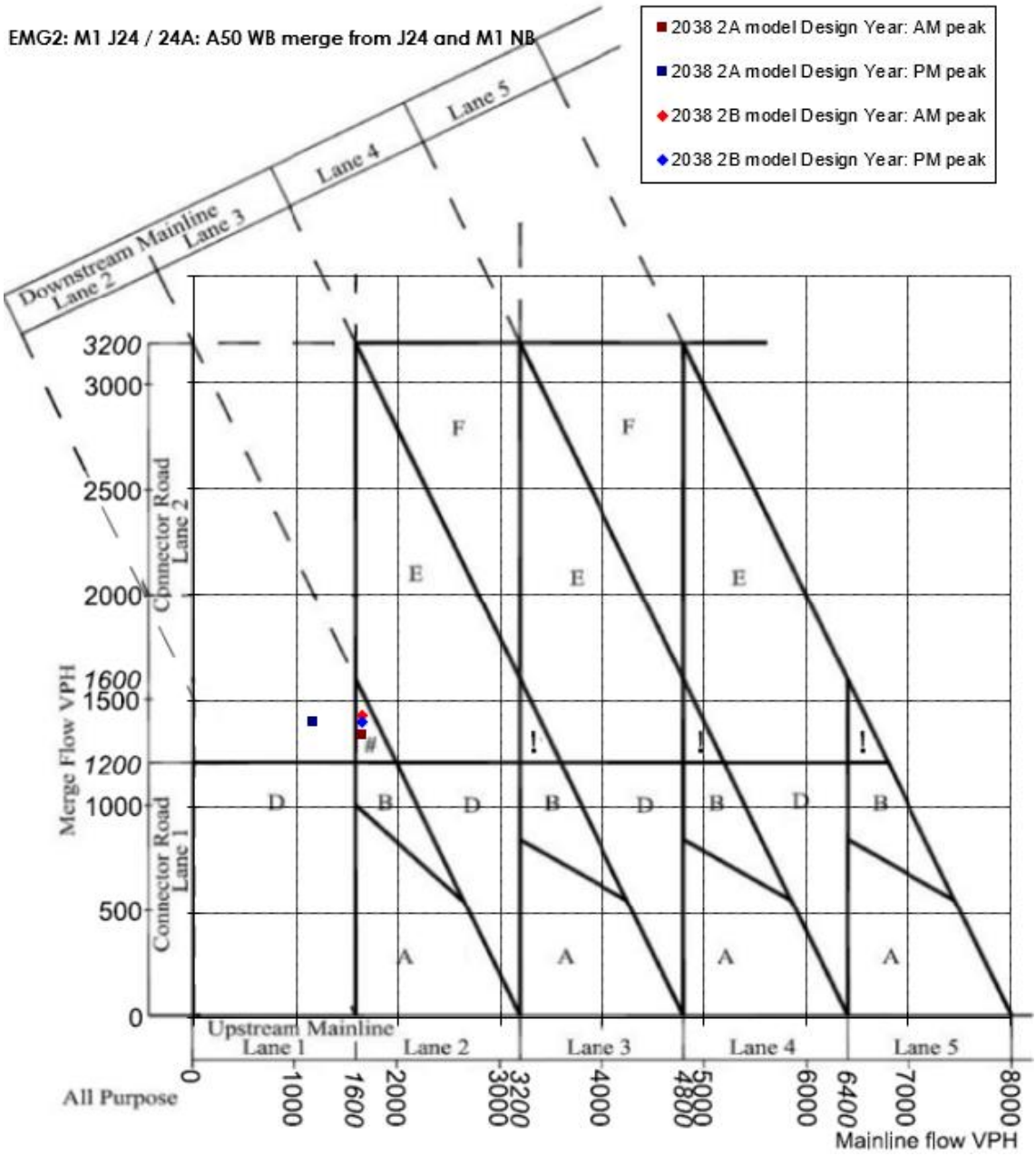


Figure 6.1 A50 westbound merge layout requirement using traffic data

6.6 The provision of the new link will divert traffic away from both the M1 J24 roundabout and the A453 to A50 SLTL and as can be seen from the data above the traffic flows are relatively well balanced.

6.7 With this in mind it is proposed that the most appropriate layout for the new merge would be to have a lane gain from 2 to 3 lanes. However, the downstream interchange link is two lanes which then merges into the A50 westbound around 1.5km downstream of the new merge. A lane drop on the interchange link is therefore required prior to the downstream merge and the most appropriate layout is therefore considered to be a form of a layout G option 2 merge with a reduction taper to two lanes prior to the downstream merge. Further information on this is set out below.

6.8 The new merge would located downstream of the roundabout exit and downstream of the end of the segregated left-turn lane (SLTL) which forms a lane-gain from the A453. In addition to the SLTL there is a lane drop on the exit from the M1 junction 24 roundabout (which is a lane reduction to roundabout standards).

6.9 The introduction of the additional M1 northbound merge would mean there would be several merges within close proximity to each other. As it is not possible to reduce the A50 westbound exit from the J24 roundabout to a single lane prior to the proposed merge, the layout of the western side of the junction 24 signalised roundabout is to be amended such that a two lanes exit from the roundabout with the SLTL removed. This removes the two existing conflict points. The roundabout geometry is assessed in more detail within section 10.

6.10 The overall alignment of the existing and proposed A50 westbound interchange link is shown schematically on **drawing EMG2-BWB-GEN-XX-SK-CH-SK046**.

Design Speed and Geometry

6.11 As discussed above the M1 northbound to A50 westbound interchange link has a design speed of 85kph.

6.12 The A50 westbound from M1 junction 24 roundabout is itself classified as an interchange link, forming a long slip road from the roundabout to the merge onto the A50 westbound (joining with the interchange link from the M1 southbound to A50 westbound). Therefore in accordance with CD 122 para 5.4 and Table 5.4 this interchange link also has a design speed of 85kph.

6.13 The layout of the merge is shown on **Document DCO 2.8C** and **drawings EMG2-BWB-HGN-A50WB-DR-H-0101 and 0102**. The required geometry stated is in accordance with CD 122 para 3.21 and Table 3.21.

- A near straight of radius 720m over a minimum of 75m is provided on the M1 northbound to A50 westbound interchange link prior to the merge;
- The nose length is 75m (based on rural all-purpose design speed of 100kph or less);
- The M1 J24 to A50 westbound interchange link has a right-hand curve with horizontal radius of 340m at the point of the merge, which is just below one step below desirable minimum for 85kph but as CD 122 does not permit relaxations below desirable minimum (in this case 510m) on connector roads this is an **existing departure** (DAS ID 72229);
- The M1 J24 to A50 westbound interchange link then has a transition into a straight and then another transition into a left-hand curve again of 360m radius which for the reasons stated above is an **existing departure**; and
- At a point 290m downstream of the lane-gain merge it is then proposed to provide a lane-drop, reducing from three lanes to two, prior to the merge onto the A50 westbound mainline. Further information is set out below.

<u>Lane reduction before the A50 westbound mainline merge</u>

6.14 Downstream of the above, the interchange link from the J24 roundabout merges with the interchange link from the M1 southbound. CD 122 para 3.13 states that for three

lane merges a layout G or H merge shall be used. The existing merge has two-lanes from the merge, and the traffic flows do not require three lanes and therefore layout G option 2 can be used.

6.15 CD 122 merge layout G option 2 requires a lane reduction with an associated taper. As stated at para 3.19 Note, the reduction taper followed by a merge are successive merges and the requirements for successive merges and diverges applies. This is dealt with at para 3.36 and the minimum spacing of successive merges is 3.75Vm, with V in this case being 85kph giving a minimum of 319m. This is measured between the end of the reduction taper and the tip of the downstream nose, as per figure 3.14j.

6.16 CD 122 provides design requirements for lane reduction tapers on connector roads and at para 3.19 cross references table 7-4 chapter 5 of the traffic signs manual. This table gives preferred and absolute minimum tapers based on the 85th %ile of vehicles. Between an 85th %ile speed of 40 and 50mph a 1:45 taper is recommended, and between 50 and 60mph a 1:50 taper is recommended.

6.17 The actual proposed distance between the successive merges is 1km. This being the case it is not proposed to provide effectively three lanes width of carriageway between the reduction taper and back of nose, with the offside lane hatched out. Instead it is only proposed to provide two lanes after the reduction taper.

6.18 It is however considered appropriate to allow for merge overrun. This layout may be considered to be an aspect not covered by standards and would be **departure** reference **G9**.

6.19 It is only CD 109 that provides a standard for a lane drop within a link, which is for ending climbing lanes and is shown on Figure 8.7N. This shows, irrespective of design speed, a 1:45 taper followed by an overrun area which then tapers at 1:45. The overall length, assuming 3.65m lanes, is 2 x 165m = 330m.

6.20 CD 127 does, however, state at table 2.28 that for an 85kph design speed mainline lanes should transition at 1:45.

6.21 As both standards use the value of 1:45 it is proposed that the transition in number of lanes on the interchange link is as follows:

- Merge taper of 1:45 for a distance of 165m to remove the third lane, but with full paved width provided to allow for merge overrun; and
- Paved width (hatched out) to then taper at 1:45 for a distance of 165m.

Stopping Sight Distance / Visibility

6.22 For an interchange link of design speed 85kph the desirable minimum SSD is 160m in accordance with CD 109 table 2.10.

6.23 There is an existing relaxation below desirable minimum to 135m SSD on the M1 J24 to A50 westbound interchange link on the right-hand bend downstream of the SLTL. This is an **existing departure** (DAS ID 72229).

6.24 This reduction in SSD will take place on the immediate approach to the proposed merge and therefore requires a further **departure**, reference **G10** as the existing layout would change with the new merge being in place. The changes to the layout of the exit from the J24 signalised roundabout will improve the SSD but it will still fall below 160m.

6.25 The SSD prior to the lane drop on the interchange link is at or greater than desirable minimum SSD of 160m. The minimum SSD of 160m is achieved over the immediate approach of 240m prior to the start of the lane reduction taper.

Speed limit

6.26 The existing speed limit changes from 50mph to national speed limit at the end of the initial right hand bend when leaving the J24 roundabout. The scheme proposes to relocate this change in speed limit to the end of the lane drop / reduction. The change in speed limit is shown on **Document DCO 2.14**.

Departures From Standard

6.27 **Appendix 3** provides a summary of the road layout departures from standard within this section.

7. M1 SOUTHBOUND / A50 EASTBOUND TO M1 JCT 24 INTERCHANGE LINKS

Layout

7.1 The SRN works propose to increase the number of lanes from one lane to two lanes through the interchange link between the A50 eastbound and merge with the M1 Jct 24 southbound diverge interchange connector road, and then to three lanes from the merge for the approach to the roundabout junction at M1 J24.

7.2 The links affected by these proposals are as follows –

- A50 eastbound to M1 J24 interchange link connector road; and
- M1 Southbound to M1 J24 interchange link connector road.

7.3 The layout is shown on **Document DCO 2.8C** and **drawings EMG2-BWB-HGN-A50EB-DR-H-0101 and 0102**.

Traffic Flows

7.4 The following table sets out the 2038 design year traffic data for the diverge for the 2A model data:

Location	AM Peak		PM Peak	
	Vehicles	HGVs	Vehicles	HGVs
A50 eastbound to M1 Jct 24 interchange link	1603	240	1541	231
A50 eastbound to M1 southbound	1392	209	534	83
M1 southbound to M1 Jct 24 interchange link	1114	167	981	147

7.5 The following table sets out the 2038 design year traffic data for the diverge for the 2B model data:

Location	AM Peak		PM Peak	
	Vehicles	HGVs	Vehicles	HGVs
A50 eastbound to M1 Jct 24 interchange link	1576	236	1504	225
A50 eastbound to M1 southbound	1365	205	545	81
M1 southbound to M1 Jct 24 interchange link	1011	152	954	142

Design Speed and Geometry

7.6 All the connector roads for this section of the proposals for the purpose of design criteria have been considered as interchange links. Therefore, the design speed in accordance with CD 122, para 5.4 and Table 5.4 for a rural mainline design speed of 120kph is 85kph.

A50 eastbound interchange link connector road

7.7 The proposal is to increase the number of lanes for the A50 interchange link from one to two lanes immediately after the fork diverge for the M1 southbound at M1 J24A. The rate of change of 1:45 is in accordance with CD 127, para 2.28, and Table 2.28.

7.8 Through the length of the merge a horizontal curve of 1440m and transition (both compliant with CD 109) ahead of tying into the existing channel geometry are provided.

7.9 The centreline of the lane gain continues along the existing channel line until it ties into the existing centreline of the third approaching the roundabout. The geometry of this centreline provides a compliant design to CD 109 with 510m (5% superelevation) and 1440m radius left hand curves with suitable transition between curves.

7.10 The vertical alignment follows the existing alignment and the crest and sag K values are at or better than the desirable minimum. **Document DCO 2.10B** shows the vertical alignment.

M1 southbound diverge connector road

7.11 The existing horizontal alignment of the connector road at the location of the merge with the A50 eastbound connector road has a 510m righthand curve. The proposals provide a tighter 360m curve to enable the lane gain introducing a one step below desirable minimum relaxation from standard with a 7% superelevation. The curve is followed by a horizontal transition with a length of 60.271m in accordance with CD 109 para 4.13 albeit with a **relaxation** in the rate of increase of centripetal acceleration of 0.6m/sec3 in accordance with CD 109 para 4.14 & 4.14.1.

7.12 No changes to the existing vertical alignment are proposed.

A50 eastbound and M1 southbound Jct 24 interchange links merge

7.13 For the purposes of designing the geometry for this merge, the A50 2 lane interchange link is considered as the mainline with the M1 southbound diverge connector being the merge.

7.14 Although CD122 para 3.1 states that offside merges and diverges shall not be provided at full grade separated junctions, the merge above is within two interchange link connector roads and therefore is not considered to be at a full grade separated junction.

7.15 The predicted traffic figures suggest a Layout D, 'lane gain' merge is required in accordance with CD122, para. 3.12, Figure 3.12a and 3.14e.

7.16 The geometry of the merge is shown on drawings EMG2-BWB-HGN-A50EB-DR-H-0101. The required geometry stated is in accordance with CD 122, para 3.12, and Table 3.21 for a rural all-purpose connector road design speed.

- The nose ratio is 1:12 for 75m and matches the existing layout. Although the length of the nose is in accordance with the design standards, the nose ratio is greater than the required 1:25 which is a **relaxation** permitted under CD 122 para 3.21 Note 1.
- The maximum width of the hatch marking forming the nose is 6.25m and therefore within the 8m maximum width.

A50 eastbound and M1 southbound Jct 24 approach

7.17 Immediately after the A50 eastbound and M1 southbound Jct 24 interchange link merge the carriageway continues as 3 lanes and ties in with the existing 3 lane approach to M1 J24 roundabout junction.

Stopping Sight Distance / Visibility

A50 eastbound & M1 southbound diverge connector roads

7.18 As stated within CD 122, para 3.23, connector road SSD shall be provided along the length of the connector road up to the back of the nosing.

7.19 CD109, Table 2.10, states that the desirable SSD for an 85kph design speed is 160m.

7.20 The A50 eastbound connector road achieves minimum SSD from the diverge with the M1 southbound at J24A to the M1 southbound merge with no obstructions to visibility for the length of the merge nose. The same is true for the M1 southbound diverge connector road.

A50 eastbound and M1 southbound Jct 24 approach

7.21 Forward visibility on the approach to the M1 J24 roundabout provides SSD as required by CD 116 paras 3.43 and 3.46 and to the chevron traffic signs to CD 116 para 3.47.

7.22 As the proposals tie into the existing 3 lane approach ahead of the junction other signalised roundabout visibility criteria has not been considered.

Weaving

7.23 There is an existing weaving section from the merge between the A50 eastbound and M1 southbound to the traffic signal stop line at the M1 J24 signalised roundabout. This weaving length is an **existing departure** (DAS ID 7222).

7.24 As the downstream end of the link is a signalised stop line the standard weaving calculation for the number of lanes is not applicable. However, traffic modelling has shown that the existing two-lane section does not provide sufficient capacity and a third lane is proposed over the weaving length.

Cross Section

7.25 The cross-sections are shown on **Document DCO 2.9C**.

Lane widths

7.26 Based on predicted vehicle per hour traffic flows for the interchange links highlighted above, and in accordance with CD 122, para 5.17, and Table 5.17a, the connector roads type is IL2C. However, an additional lane is provided due to the weaving section (see above).

7.27 CD 127 para 2.1 and Figure 2.1.1N1f states for a rural all-purpose connector road, as well as having a horizontal curvature of greater than 400 metres radius (CD 127 para 2.2 and CD122.5.18), the lanes widths shall be 3.65m wide.

Hard Shoulders / Hard Strips / Verges

7.28 Connector road type IL2C states that a 1.0m hard strip and 2.5m verge shall be provided on both the nearside and offside of the carriageway.

7.29 For the A50 eastbound connector prior to the merge with the M1 southbound diverge connector, the offside of the carriageway maintains the existing hard strip and verge while a 1.0m hard strip with 2.5m verge is proposed on the nearside of the carriageway replacing the hard shoulder.

7.30 At the above merge the offside channel provides a 1.0m hard strip and 2.5m verge for the extent of the merge and on approach to Jct 24 roundabout until the channel tie-in to the existing. At this point the hard strip tapers to nothing at a rate of 1:45 in accordance with CD 127 para 2.28 and Table 2.28.

8. A453 SHARED USE CYCLE/FOOTWAY

Layout

8.1 The SRN works propose a shared unsegregated cycle/footway ('shared facility') is proposed along the A453 between the existing A453 / A6 Kegworth Bypass / EMG1 (Wilders Way) and the EMG2 development.

8.2 The shared facility will connect to the existing shared unsegregated cycle/footway facility at the northern end (that connects to EMG1, Kegworth village and along the A6 Kegworth Bypass) and into the proposed EMG2 development to the south via a new southern arm off the existing A453 / Beverley Road (EMA access) roundabout.

8.3 This report provides design information for the section from the northern tie-in point to the extent of the National Highways boundary some 520m south, adjacent to the A453.

8.4 The layout of the shared use footway/cycleway is shown on **Document DCO 2.8B** and **drawings EMG2-BWB-HGN-A453-DR-H-0103 & 0104**.

Traffic Flows

8.5 Based on the existing usage of the cycle networks in the vicinity of EMG1 and the proposed EMG2 site the envisaged usage is predicted to be well below 200 users per hour.

Design Speed and Geometry

8.6 The design of the shared facility has been based on CD 143 England National Application Annex. However, this design standard does not provide geometric parameters and criteria for the design for shared facilities. As the design requirements are more onerous for cyclists than pedestrians, CD 195 has been used where appropriate to establish the design requirements.

8.7 The design speed for the shared facility is 30kph in accordance with CD 143 Para. E/3.1 and Table E/3.1.

8.8 A desirable minimum width of 3.0m is proposed for the shared facility (CD 143, Para. E/3.5) with 1.0m verge either side and a minimum offset to the carriageway of greater than 1.5m (CD 143, Para. E/3.5.1).

8.9 The crossfall of the shared facility is 2.5% in accordance with CD 143 Para. E/3.3 and 'Inclusive Mobility, Para. 3.2.

8.10 Proposed horizontal curves on the shared facility generally exceed the minimum criteria of 32m radius as stated within CD 195, Para. E/3.20 and Table E/3.20. The exception to this is at the northern tie-in where there is a proposed reverse curve with radii of 11.5m to avoid significant earthworks and to tie into the existing facility perpendicularly. However, this constitutes a **departure** reference **G11**.

8.11 Proposed vertical curves on the shared facility are at or greater than the minimum criteria of k=5 for sag curves and k=6 for crest curves.

8.12 The vertical alignment of the shared use footway/cycleway is shown on **Document DCO 2.10C** and cross-sections are shown on **Document DCO 2.9B**.

Visibility

8.13 Junction visibility at the northern tie-in has been achieved based on the 4.5m set-back (x-distance) and the 31m sight line (y-distance) in accordance with CD195, Para. E/3.5 and Table E/3.5, Table E/3.6 and Table E/3.18. Noting however that the visibility criteria refers to cyclists needing to stop and give way which is not specifically required on a shared facility.

Departures From Standard

8.14 **Appendix 3** provides a summary of the departures from standard within this section.

9. A453 / A6 / EMG1 ACCESS JUNCTION

Layout

9.1 The proposed works at the existing A453 / A6 Kegworth Bypass / Wilders Way (EMG1 access) junction is to introduce an additional right turn lane on the eastern side of the signalised gyratory.

9.2 A new controlled pedestrian crossing is proposed at the Wilders Way eastbound junction approach with the A453. The crossing is to provide access between the proposed drop-off lay-by facility on Wilders Way and the EMG1 bus interchange. This is associated with the EMG1 Works.

9.3 **Documents DCO 2.8B, MCO 2.8** and **Drawing EMG2-BWB-HGN-EMG1-DR-H-0101** show the proposed layout.

Traffic Flows

9.4 Traffic modelling has shown that there is a requirement to provide two right turning lanes from the A453 southbound to the EMG1 access. The overall junction capacity is reviewed in the transport assessment.

Design Speed and Geometry

9.5 The existing signed speed limit is 50mph. The proposals are minor changes to an existing rural traffic signalised junction and do not affect the approaches.

A453 Southbound and Wilders Way Westbound Signalised Junction Arm

9.6 The additional right turn lane proposes a lane width of 4.65m with the second existing lane widened to 4.5m albeit the existing single lane approach includes an area of hatched markings to allow additional spaces for large turning vehicles as required by CD 123, para. 7.13. Therefore, both lanes exceed the minimum 3.0m wide lanes required by CD 123, para. 7.9. **Drawing EMG2-BWB-GEN-XX-SK-CH-SK038** shows the vehicle tracking for the design vehicle.

9.7 With the existing design speed of 85kph retained, the right turning traffic continues to be maintained by separate signals to the straight-ahead traffic with a traffic island as required by CD123, para. 7.18.

9.8 The realigned nearside kerbline reduces the existing kerbline radii to 15m and 70m. These radii accommodate the design vehicle swept paths.

A453 Northbound and EMG1 Wilders Way Eastbound Signalised Junction Arm

9.9 The purpose of amending the EMG1 Wilders Way approach is to provide a signalised crossing. This will connect a new drop-off lay-by in the EMG1 development to the existing bus interchange. This in turn requires amendments to the left-turn from Wilders

Way onto the A453 northbound to increase the size of the splitter island to accommodate the pedestrian crossing.

9.10 The proposals widen the existing eastbound EMG1 Wilders Way left turn lanes for A453 northbound to 4.7m each to improve the swept paths of the design vehicle (CD 123, para 7.13). The widths therefore are greater than the minimum required by CD 123, para. 7.9. **Drawing EMG2-BWB-GEN-XX-SK-CH-SK038** shows the vehicle tracking for the design vehicle.

9.11 A 3.0m wide crossing is proposed at both crossing points, with a 3.0m distance between the existing stop line and crossing studs. The footway either side is proposed at 3.0m at the crossing tapering down to a 2.0m footway. A minimum of 1.5m separation between the carriageway and footway is provided.

9.12 Additionally, the traffic island is proposed to be altered to provide a minimum 1.5m set-back from the A453 through lanes at the junction in accordance with CD123, para. 7.15.

Visibility

A453 Southbound and Wilders Way Westbound Signalised Junction Arm

9.13 In accordance with CD 123, para. 7.2, each traffic lane has clear visibility of at least one primary signal at desirable SSD from the A453 southbound.

9.14 A minimum of 2 signal heads can be seen from the approach arm and stop line.

9.15 Junction Intervisibility remains unaltered by the proposals and complies with CD 123, para 7.4.

A453 Northbound and Wilders Way Eastbound Signalised Junction Arm

9.16 In accordance with CD 123, para. 7.2, each traffic lane has clear visibility of at least one primary signal at desirable SSD on the approach to the junction.

9.17 A minimum of 2 signal heads can be seen from the approach arm and stop line.

9.18 Junction Intervisibility remains unaltered by the introduction of the crossing and complies with CD 123, para 7.4.

10. OTHER WORKS ON THE SRN

M1 J24 signalised roundabout traffic signing and road marking alterations

10.1 The works on the SRN include for works to the J24 signalised roundabout to reassign lanes to maximise capacity. The works are as follows:

- Traffic from the A453 southbound approach seeking the A453 southbound to EMG1, EMG2 and EMA will be signed to use lanes two and three at the A453 southbound signal stop line as opposed to lane three at present; and
- Traffic from the A453 northbound approach seeking the M1 northbound will be signed to use lanes one and two at the A453 northbound signal stop line as opposed to just lane one at present.

10.2 The works require minor alterations to lining and signing and as no significant alterations to the geometrical layout are required they are not considered further in this report. The preliminary design is provided with the directional signage strategy found at **Appendix 28** of the Transport Assessment (**Document DCO 6.6A**).

M1 J24 signalised roundabout west side

10.3 As well as the changes to lane allocations from A453 northbound to M1 northbound discussed above, two further changes are proposed to the west side of the J24 signalised roundabout:

- Removal of the A453 northbound to A50 westbound and providing two lanes from the exit onto the A50, without a merge/lane-drop, as discussed at section 6 above; and
- Widening the inside of the J24 signalised roundabout to provide an additional lane, to then allow three lanes to be provided from the M1 northbound to A453 northbound through the junction.

10.4 These works comply with CD 116 save for the M1 Northbound J24 exit slip road approach entry deflection onto the roundabout which exceeds 100m and is **departure** reference **G12**. The approach will be under fill time signal control which will reduce the risks associated with excess entry deflection.

Finger Farm directional signage

10.5 The works at Finger Farm relate solely to directional signage and are therefore not considered further in this report. The preliminary design is provided with the directional signage strategy found at **Appendix 28** of the Transport Assessment (**Document DCO 6.6A**).

M1 northbound directional signage

10.6 Signage works are proposed to the M1 northbound on the approach to M1 J23A to direct users seeking the A50 to Stoke and Derby to use the new J24A exit rather than J23A as presently signed. The preliminary design is provided with the directional signage strategy found at **Appendix 28** of the Transport Assessment (**Document DCO 6.6A**).

11. PRINCIPLES OF GOOD ROAD DESIGN

11.1 An assessment of how the scheme design performs against DMRB standard GG 103, which provides principles of good road design, is found in Appendix 1 of the Design Approach Document, **Document DCO 5.3A**.

APPENDICES

APPENDIX 1: Safety Risk Assessment for M1 NB diverge and weaving length

Safety Risk Assessment: GG104	GG 104 version 0.1.0
Document reference	EMG2-BWB-GHS-XX-RA-CH-0001

Assessor	Simon Hilditch
Contact email	[redacted]@bwbconsulting.com

Title of scheme	EMG2
BWB project number	220500
Part of scheme this applies to	M1 NB diverge layout at J24/24A
Location (map reference)	
Scope and purpose of this safety risk assessment	The purpose of this risk assessment is to assess the options for the diverge layout
Safety objective	To manage the risk to affected parties as low as reasonably practicable.

Safety baseline: general comments	PIC data: Circa 6 years of accident data has been obtained and this is for the period 1st January 2019 to 23rd October 2024 for the M1 northbound from J23A and to just beyond the J24 diverge. There is a cluster of PICs at the J24 northbound exit slip road and queuing back onto the M1 northbound mainline from the slip road is a regular occurrence at this location.
Any recent changes in last 5 years that could affect safety?	None

Activity category	**Type A**
Features that need detailed review	2 Type B and 0 Type C

Principal hazard(s)	Weaving lengths are where drivers change lanes between a merge and a diverge and the amount of lane changing that takes place over the weaving length is the principal hazard.
Project description / background / objectives / outcomes	The purpose of the J24 improvements is to increase capacity to then facilitate EMG2. The main element of the works is to provide a free-flow link road from the M1 Northbound to A50 Westbound, taking this traffic out of the signalised roundabout (it is the only movement between the M1 and A50 that goes though the roundabout).

Populations affected	**How is it affected and is there a specific safety objective?**
Workers	Risks to workers shall be as low as reasonably practicable
Users	See principal hazard and objectives above
Other parties	No other parties are identified
Sub-populations - List	

Options / part of scheme to be assessed	**Description of option / part of scheme**
Option / Part 1	Existing situation - J24 layout B option 1 diverge with aux lane
Option / Part 2	Option A: J24A taper diverge followed by J24 taper diverge
Option / Part 3	Option C: J24A auxiliary lane diverge followed by J24 taper diverge
Option / Part 4	
Option / Part 5	
Preferred option (if options are assessed)	**Option / Part 2**
	Option A: J24A taper diverge followed by J24 taper diverge
How type B or C features (if any) affect option selection	Type B feature is because it does not comply with standards
State clear and precise reasons for selection	Overall the proposed options A and C, with mitigation measures, reduce the risks below the existing. Option C provides more length for drivers who may "swoop" and therefore becomes the preferred option overall.

Appraisal	
Are all risks for preferred option or parts as low as reasonably practicable following mitigation?	Yes
How have type B or C features (if any) been addressed?	Yes
Final recommendation for approval	
Recommendation	Option C should be progressed.
Any other comments / recommendations	The assessment shows that the risks in the proposed scheme following mitigation are lower than the existing scenario.

Date	24.06.25
Revision	P01
Status	S4

Safety baseline for M1 NB mainline for extents of scheme			
Years	*2019-2023*		
Slight	10		
Serious	3		
Fatal	0		

Map of PICs for last 5 years



No. risks	Total risk score		Average risk score across all risks		No. risks eliminated
	Before mitigation	After mitigation	Before mitigation	After mitigation	
6	47	47	5.9	5.9	0
7	49	38	6.1	4.8	0
7	44	36	5.5	4.5	0
0	0	0			0
0	0	0			0

Feature (Table E/2.7)	Type	Indicator	Justification for choice of feature type	Select Type
Extent of prior experience of activity The degree of knowledge available from undertaking the activity previously or the degree to which knowledge is available from the activity being undertaken by other industries or organisations.	A	Activities for which there is significant experience within National Highways. Previous safety studies and data are available, and some activity features are codified in a standard or formal procedure.	Weaving and closely spaced diverges is a common feature	**A**
	B	Activities for which there is limited experience within National Highways but there is transferable experience elsewhere in the UK or internationally. Activities for which there is limited experience in National Highways but there is experience elsewhere in the UK or internationally, including in different industries, which is deemed sufficiently similar to the activity in question to be deemed relevant. Activities for which there is experience within National Highways but that experience is in a different application of the activity and some adaptation will be required. There might also be local and site specific issues to take into account that can affect the relevance of the available experience		
	C	Activities for which there is no previous applicable experience from either National Highways or other industries.		
Statutory and formal processes and procedures (including standards and legislation) Consideration of the applicability of current standards, formal processes or procedures, guidance and legislation.	A	The activity is substantially or entirely within the scope of existing standards, guidance, formal processes or procedures and applicable legislation. The activity requires minimal or no safety related departures from standard or safety related changes to formal processes or procedures (including any legislation).	Reduction in weaving is a departure	**B**
	B	The activity is largely within the scope of existing standards, guidance, formal processes or procedures. There can be some safety related departures from standards needed and/or safety related changes to formal processes or procedures. The activity can need minor changes to existing legislation.		
	C	Activities that are not within the scope of existing standards, formal processes or procedures and require new ones to be developed. Activities for which significant departures from standards, formal processes or procedures are required. Activities which require significant changes to existing legislation or new legislation to be written. Whilst the number of safety departures from standards, formal processes or procedures can affect the categorisation, the most important element in determining this is the nature and type of the departures. For example, a large number of safety departures that can be addressed straightforwardly will have less impact on feature type than a single safety departure that cannot and requires a detailed risk assessment to support it.		
Impact on the organisation The effect that the activity will have on current Highways England processes, procedures, structure, roles and responsibilities, competencies, policies and strategy, in addition to contractual and workforce arrangements.	A	The activity has no impact on National Highways. The activity has a minor impact on any of these for a finite period of time. Length of time National Highways is affected by decision to undertake the activity is short term.	No impact identified for National Highways	**A**
	B	The activity can lead to permanent minor changes to any of these. These minor changes can introduce new roles and responsibilities, policies, contractual and workforce arrangements. The activity can require a change to organisational arrangements. Length of time National Highways is affected by decision to undertake the activity is medium term.		
	C	The activity has significant impact on any of these. The activity can change core safety roles and responsibilities. Length of time National Highways is affected by decision to undertake the activity is long term.		
Activity scale Consideration of the size and/or scale of the activity. Does or can the activity have an impact on the motorway and all-purpose trunk roads, either directly or indirectly.	A	The impact of the activity is limited in nature or scale.	This covers a key section of the M1	**B**
	B	The impact of the activity is significant in nature or scale.		
	C	The impact of the activity is wide ranging across the network, and/or significantly impacts infrastructure, interventions or workforce.		
Technical Measure of technical and/or technological novelty and/or innovation the activity involves.	A	An activity where any processes, techniques, methodologies and/or technologies involved are currently in widespread use and re-examination is unlikely to be needed.	Such layouts are in widespread use and doesn't involve new technologies.	**A**
	B	There can be some experience of the processes, techniques, methodologies and/or technologies. The experience can be from use in either another application, or by another road authority, supplier, industry or perhaps from overseas in which case some additional work can be required to adapt them and/or to demonstrate that safety can be assured for the intended application.		
	C	Activities that use new processes, techniques, methodologies and/or technologies for which there is no previous experience in the UK or elsewhere.		
Stakeholder impact and interest The quantity and/or impact of stakeholders, their interest in and resulting ability to influence or/impact on the activity. The degree to which the safety issues, as perceived, are capable of being understood and fully addressed.	A	Activities for which the quantity and/or impact of stakeholders, their interest in and resulting ability to influence or impact the activity is low	Minimal impact to stakeholders.	**A**
	B	Activities that have only a single or a few stakeholders but their impact, in terms of their attitude towards, or ability to influence, and/or interest in the successful achievement of the activities aim can be significant. Alternatively it will represent an activity that has several stakeholders but the amount, or type, of safety issues involved are limited.		
	C	Activities for which there are a large number of stakeholders and their impact in terms of their attitude towards, or ability to influence can be significant. Stakeholders with a strong interest in the potential safety impact of the activity on themselves. Activities where there are conflicting needs arising from different stakeholders or stakeholder groups.		

Type A features	4
Type B features	2
Type C features	0

Table E/2.8.1 category type	Type A
No. other features to be reviewed in more detail	2 Type B and 0 Type C
Final category decision	**Type A**

Safety Risk Assessment

Project Name	EMG2
BWB Project Number	220500
Design Element	M1 NB diverge layout at J24/24A

Unique Ref.	Phase	Hazard description (before mitigation)	Incident type	Hazard affects	Designer comments and assumptions
1	Operation	Frequent lane changing over short distances	Side swipes	Users	
2	Operation	Flow breakdown due to weaving	Rear shunts or side swipes	Users	
3	Operation	Flow breakdown due to weaving	High speed swerves with loss of control	Users	
4	Operation	Exit slip queuing back onto mainline	Rear shunts or multi vehicle incidents	Users	
5	Operation	Swooping into diverge following last moment lane changing	Side swipes	Users	
6	Operation	Swooping into diverge following last moment lane changing	Loss of control	Users	
7	Operation	Missed first exit and driver panics or attempts reverse	Multi vehicle incident	Users	
8	Operation	Driver enters first exit by mistake and changes lane back	Side swipes	Users	

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Safety Risk Assessment

Project Name	EMG2
BWB Project Number	220500
Design Element	M1 NB diverge layout at J24/24A
Option / Part Reference	1
Option / Part Description	Existing situation - J24 layout B option 1 diverge with aux lane

Current design stage	Detailed Design
Notes	

Unique Ref.	Phase	Hazard description (before mitigation)	Incident type	Hazard affects	Is risk present in this option?	Risk without mitigation			Mitigation measures	Mitigation type	Risk with mitigation			Designer comments and assumptions
						Likelihood	Severity	Score			Likelihood	Severity	Score	
1	Operation	Frequent lane changing over short distances	Side swipes	Users	Yes	Likely: Once every 1-4 years	Moderate harm: Slight injury or illness, moderate damage or loss	8 : Low	Assessment of existing scenario hence no mitigation set out.		Likely: Once every 1-4 years	Moderate harm: Slight injury or illness, moderate damage or loss	8 : Low	
2	Operation	Flow breakdown due to weaving	Rear shunts or side swipes	Users	Yes	Likely: Once every 1-4 years	Moderate harm: Slight injury or illness, moderate damage or loss	8 : Low	Assessment of existing scenario hence no mitigation set out.		Likely: Once every 1-4 years	Moderate harm: Slight injury or illness, moderate damage or loss	8 : Low	Existing layout has technology to detect queues and reduce speed limits
3	Operation	Flow breakdown due to weaving	High speed swerves with loss of control	Users	Yes	Unlikely: Less than 1 per 10 years	Serious harm: Serious injury or illness, substantial damage or loss	6 : Low	Assessment of existing scenario hence no mitigation set out.		Unlikely: Less than 1 per 10 years	Serious harm: Serious injury or illness, substantial damage or loss	6 : Low	Existing layout has technology to detect queues and reduce speed limits
4	Operation	Exit slip queuing back onto mainline	Rear shunts or multi vehicle incidents	Users	Yes	May happen: Once every 5-10 years	Serious harm: Serious injury or illness, substantial damage or loss	9 : Low	Assessment of existing scenario hence no mitigation set out.		May happen: Once every 5-10 years	Serious harm: Serious injury or illness, substantial damage or loss	9 : Low	Existing layout has technology to detect queues and reduce speed limits
5	Operation	Swooping into diverge following last moment lane changing	Side swipes	Users	Yes	May happen: Once every 5-10 years	Moderate harm: Slight injury or illness, moderate damage or loss	6 : Low	Assessment of existing scenario hence no mitigation set out.		May happen: Once every 5-10 years	Moderate harm: Slight injury or illness, moderate damage or loss	6 : Low	
6	Operation	Swooping into diverge following last moment lane changing	Loss of control	Users	Yes	Unlikely: Less than 1 per 10 years	Serious harm: Serious injury or illness, substantial damage or loss	6 : Low	Assessment of existing scenario hence no mitigation set out.		Unlikely: Less than 1 per 10 years	Serious harm: Serious injury or illness, substantial damage or loss	6 : Low	
7	Operation	Missed first exit and driver panics or attempts reverse	Multi vehicle incident	Users	No	Risk not present	Risk not present	0 : Not present	Assessment of existing scenario hence no mitigation set out.		Risk not present	Risk not present	0 : Not present	
8	Operation	Driver enters first exit by mistake and changes lane back	Side swipes	Users	No	Unlikely: Less than 1 per 10 years	Moderate harm: Slight injury or illness, moderate damage or loss	4 : Low	Assessment of existing scenario hence no mitigation set out.		Unlikely: Less than 1 per 10 years	Moderate harm: Slight injury or illness, moderate damage or loss	4 : Low	Risk present in current layout due to having first exit signed A50 and second A453

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Safety Risk Assessment

Project Name	EMG2
BWB Project Number	220500
Design Element	M1 NB diverge layout at J24/24A
Option / Part Reference	2
Option / Part Description	Option A: J24A taper diverge followed by J24 taper diverge

Current design stage	Detailed Design
Notes	

Unique Ref.	Phase	Hazard description (before mitigation)	Incident type	Hazard affects	Is risk present in this option?	Risk without mitigation			Mitigation measures	Mitigation type	Risk with mitigation			Designer comments and assumptions
						Likelihood	Severity	Score			Likelihood	Severity	Score	
1	Operation	Frequent lane changing over short distances	Side swipes	Users	Yes	Likely: Once every 1-4 years	Moderate harm: Slight injury or illness, moderate damage or loss	8 : Low	Improved signage and signalling	Reduce	May happen: Once every 5-10 years	Moderate harm: Slight injury or illness, moderate damage or loss	6 : Low	
2	Operation	Flow breakdown due to weaving	Rear shunts or side swipes	Users	Yes	Likely: Once every 1-4 years	Moderate harm: Slight injury or illness, moderate damage or loss	8 : Low	Improved signage and signalling	Reduce	May happen: Once every 5-10 years	Moderate harm: Slight injury or illness, moderate damage or loss	6 : Low	
3	Operation	Flow breakdown due to weaving	High speed swerves with loss of control	Users	Yes	Unlikely: Less than 1 per 10 years	Serious harm: Serious injury or illness, substantial damage or loss	6 : Low	Improved signage and signalling		Unlikely: Less than 1 per 10 years	Serious harm: Serious injury or illness, substantial damage or loss	6 : Low	Mitigation does not affect the risk as likelihood is already low
4	Operation	Exit slip queuing back onto mainline	Rear shunts or multi vehicle incidents	Users	No	Risk not present	Risk not present	0 : Not present	n/a		Risk not present	Risk not present	0 : Not present	Risk not present in proposed option as scheme provides capacity on J24 diverge slip
5	Operation	Swooping into diverge following last moment lane changing	Side swipes	Users	Yes	Likely: Once every 1-4 years	Moderate harm: Slight injury or illness, moderate damage or loss	8 : Low	Improved signage and signalling	Reduce	May happen: Once every 5-10 years	Moderate harm: Slight injury or illness, moderate damage or loss	6 : Low	
6	Operation	Swooping into diverge following last moment lane changing	Loss of control	Users	Yes	May happen: Once every 5-10 years	Serious harm: Serious injury or illness, substantial damage or loss	9 : Low	Improved signage and signalling	Reduce	Unlikely: Less than 1 per 10 years	Serious harm: Serious injury or illness, substantial damage or loss	6 : Low	
7	Operation	Missed first exit and driver panics or attempts reverse	Multi vehicle incident	Users	Yes	Very unlikely: Highly improbable, not known to occur	Major harm: Fatal injury, major damage or loss	4 : Low	No mitigation considered necessary		Very unlikely: Highly improbable, not known to occur	Major harm: Fatal injury, major damage or loss	4 : Low	Risk very unlikely as next exit, with access to all routes, is immediately ahead
8	Operation	Driver enters first exit by mistake and changes lane back	Side swipes	Users	Yes	May happen: Once every 5-10 years	Moderate harm: Slight injury or illness, moderate damage or loss	6 : Low	Improved signage and signalling	Reduce	Unlikely: Less than 1 per 10 years	Moderate harm: Slight injury or illness, moderate damage or loss	4 : Low	

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Safety Risk Assessment

Project Name	EMG2
BWB Project Number	220500
Design Element	M1 NB diverge layout at J24/24A
Option / Part Reference	3
Option / Part Description	Option C: J24A auxiliary lane diverge followed by J24 taper diverge

Current design stage	Detailed Design
Notes	

Unique Ref.	Phase	Hazard description (before mitigation)	Incident type	Hazard affects	Is risk present in this option?	Risk without mitigation			Mitigation measures	Mitigation type	Risk with mitigation			Designer comments and assumptions
						Likelihood	Severity	Score			Likelihood	Severity	Score	
1	Operation	Frequent lane changing over short distances	Side swipes	Users	Yes	Likely: Once every 1-4 years	Moderate harm: Slight injury or illness, moderate damage or loss	8 : Low	Improved signage and signalling	Reduce	May happen: Once every 5-10 years	Moderate harm: Slight injury or illness, moderate damage or loss	6 : Low	
2	Operation	Flow breakdown due to weaving	Rear shunts or side swipes	Users	Yes	Likely: Once every 1-4 years	Moderate harm: Slight injury or illness, moderate damage or loss	8 : Low	Improved signage and signalling	Reduce	May happen: Once every 5-10 years	Moderate harm: Slight injury or illness, moderate damage or loss	6 : Low	
3	Operation	Flow breakdown due to weaving	High speed swerves with loss of control	Users	Yes	Unlikely: Less than 1 per 10 years	Serious harm: Serious injury or illness, substantial damage or loss	6 : Low	Improved signage and signalling		Unlikely: Less than 1 per 10 years	Serious harm: Serious injury or illness, substantial damage or loss	6 : Low	Mitigation does not affect the risk as likelihood is already low
4	Operation	Exit slip queuing back onto mainline	Rear shunts or multi vehicle incidents	Users	No	Risk not present	Risk not present	0 : Not present	n/a		Risk not present	Risk not present	0 : Not present	Risk not present in proposed option as scheme provides capacity on J24 diverge slip
5	Operation	Swooping into diverge following last moment lane changing	Side swipes	Users	Yes	May happen: Once every 5-10 years	Moderate harm: Slight injury or illness, moderate damage or loss	6 : Low	Improved signage and signalling	Reduce	Unlikely: Less than 1 per 10 years	Moderate harm: Slight injury or illness, moderate damage or loss	4 : Low	Risk lower prior to mitigation due to increase diverge length with auxiliary lane
6	Operation	Swooping into diverge following last moment lane changing	Loss of control	Users	Yes	Unlikely: Less than 1 per 10 years	Serious harm: Serious injury or illness, substantial damage or loss	6 : Low	Improved signage and signalling	Reduce	Unlikely: Less than 1 per 10 years	Serious harm: Serious injury or illness, substantial damage or loss	6 : Low	Risk lower prior to mitigation due to increase diverge length with auxiliary lane
7	Operation	Missed first exit and driver panics or attempts reverse	Multi vehicle incident	Users	Yes	Very unlikely: Highly improbable, not known to occur	Major harm: Fatal injury, major damage or loss	4 : Low	No mitigation considered necessary		Very unlikely: Highly improbable, not known to occur	Major harm: Fatal injury, major damage or loss	4 : Low	Risk very unlikely as next exit, with access to all routes, is immediately ahead
8	Operation	Driver enters first exit by mistake and changes lane back	Side swipes	Users	Yes	May happen: Once every 5-10 years	Moderate harm: Slight injury or illness, moderate damage or loss	6 : Low	Improved signage and signalling	Reduce	Unlikely: Less than 1 per 10 years	Moderate harm: Slight injury or illness, moderate damage or loss	4 : Low	

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Table D1 - Risk Value, likelihood and severity of outcomes that may be assigned to qualitative data for the purpose of assessment						
Likelihood (L) x Severity (S) = Risk value (R)		**Severity (S)**				
		Minor Harm, Minor Damage or loss no injury	Moderate harm - slight injury or illness, moderate damage or loss	Serious harm - serious injury or illness, substantial loss or damage	Major harm - Fatal injury, major damage or loss	Extreme harm - Multiple fatalities, extreme loss or damage
Likelihood (L)	Very Unlikely - Highly Improbable not known to occur	1	2	3	4	5
	Unlikely - less than 1 per 10 years	2	4	6	8	10
	May Happen - Once every 5-10 years	3	6	9	12	15
	Likely - Once every 1-4 years	4	8	12	16	20
	Almost Certain - Once a year or more	5	10	15	20	25

Risk Value (R)	**Required Action**
Low (1-9)	Ensure assumed control measures are maintained and reviewed as necessary
Medium (10-19)	Additional control measures needed to reduce risk rating to a level which is equivalent to a test of "reasonably required" for the population concerned
High (20-25)	Activity not permitted. Hazard avoided or risk to be reduced to tolerable

APPENDIX 2: Safety Risk Assessment for M1 NB to A50 WB interchange link

Safety Risk Assessment: GG104	GG 104 version 0.1.0
Document reference	EMG2-BWB-GHS-XX-RA-CH-0002

Date	26.08.25
Revision	P01
Status	S4

Assessor	Simon Hilditch
Contact email	[redacted]@bwbconsulting.com

Title of scheme	EMG2
BWB project number	220500
Part of scheme this applies to	M1 NB to A50 WB interchange link
Location (map reference)	
Scope and purpose of this safety risk assessment	The purpose of this risk assessment is to assess the options for the interchange link
Safety objective	To manage the risk to affected parties as low as reasonably practicable.

Safety baseline: general comments	Not applicable as this is a new link
Any recent changes in last 5 years that could affect safety?	n/a

Activity category	**Type A**
Features that need detailed review	2 Type B and 0 Type C

Principal hazard(s)	Option 1 (underbridge): potential for deep water if surface water pumping fails Options 2 and 3 (overbridge): reduced SSD over the bridge and before the downstream merge
Project description / background / objectives / outcomes	The purpose of the J24 improvements is to increase capacity to then facilitate EMG2. The main element of the works is to provide a free-flow link road from the M1 Northbound to A50 Westbound, taking this traffic out of the signalised roundabout (it is the only movement between the M1 and A50 that goes though the roundabout).

Populations affected	**How is it affected and is there a specific safety objective?**
Workers	Risks to workers shall be as low as reasonably practicable
Users	See principal hazard and objectives above
Other parties	No other parties are identified
Sub-populations - List	

Safety baseline for M1 NB mainline for extents of			
Years			
Slight			
Serious			
Fatal			

Map of PICs for last 5 years

Options / part of scheme to be assessed	**Description of option / part of scheme**
Option / Part 1	Option 1: Underbridge
Option / Part 2	Option 2B: Single-span overbridge with crest curve K17
Option / Part 3	Option 2D: Single-span overbridge with crest curve K30 and reduced (high load) headroom
Option / Part 4	
Option / Part 5	
Preferred option (if options are assessed)	**Option / Part 2**
	Option 2B: Single-span overbridge with crest curve K17
How type B or C features (if any) affect option selection	Type B feature for option 1 is due to the surface water pumping Type B feature for option 2 is because it does not comply with standards
State clear and precise reasons for selection	Option 2B is the overall lowest risk option

	Total risk score		**Average risk score across all risks**		
No. risks	**Before mitigation**	**After mitigation**	**Before mitigation**	**After mitigation**	**No. risks eliminated**
9	67	64	7.4	7.1	0
5	42	31	4.7	3.4	0
5	41	30	4.6	3.3	0
0	0	0			0
0	0	0			0

Appraisal	
Are all risks for preferred option or parts as low as reasonably practicable following mitigation?	Yes
How have type B or C features (if any) been addressed?	Yes
Final recommendation for approval	
Recommendation	Option 2B should be progressed.
Any other comments / recommendations	

Feature (Table E/2.7)	Type	Indicator	Justification for choice of feature type	Select Type
Extent of prior experience of activity The degree of knowledge available from undertaking the activity previously or the degree to which knowledge is available from the activity being undertaken by other industries or organisations.	A	Activities for which there is significant experience within National Highways. Previous safety studies and data are available, and some activity features are codified in a standard or formal procedure.	Weaving and closely spaced diverges is a common feature	**A**
	B	Activities for which there is limited experience within National Highways but there is transferable experience elsewhere in the UK or internationally. Activities for which there is limited experience in National Highways but there is experience elsewhere in the UK or internationally, including in different industries, which is deemed sufficiently similar to the activity in question to be deemed relevant. Activities for which there is experience within National Highways but that experience is in a different application of the activity and some adaptation will be required. There might also be local and site specific issues to take into account that can affect the relevance of the available experience		
	C	Activities for which there is no previous applicable experience from either National Highways or other industries.		
Statutory and formal processes and procedures (including standards and legislation) Consideration of the applicability of current standards, formal processes or procedures, guidance and legislation.	A	The activity is substantially or entirely within the scope of existing standards, guidance, formal processes or procedures and applicable legislation. The activity requires minimal or no safety related departures from standard or safety related changes to formal processes or procedures (including any legislation).	Reduction in weaving is a departure	**B**
	B	The activity is largely within the scope of existing standards, guidance, formal processes or procedures. There can be some safety related departures from standards needed and/or safety related changes to formal processes or procedures. The activity can need minor changes to existing legislation.		
	C	Activities that are not within the scope of existing standards, formal processes or procedures and require new ones to be developed. Activities for which significant departures from standards, formal processes or procedures are required. Activities which require significant changes to existing legislation or new legislation to be written. Whilst the number of safety departures from standards, formal processes or procedures can affect the categorisation, the most important element in determining this is the nature and type of the departures. For example, a large number of safety departures that can be addressed straightforwardly will have less impact on feature type than a single safety departure that cannot and requires a detailed risk assessment to support it.		
Impact on the organisation The effect that the activity will have on current Highways England processes, procedures, structure, roles and responsibilities, competencies, policies and strategy, in addition to contractual and workforce arrangements.	A	The activity has no impact on National Highways. The activity has a minor impact on any of these for a finite period of time. Length of time National Highways is affected by decision to undertake the activity is short term.	No impact identified for National Highways	**A**
	B	The activity can lead to permanent minor changes to any of these. These minor changes can introduce new roles and responsibilities, policies, contractual and workforce arrangements. The activity can require a change to organisational arrangements. Length of time National Highways is affected by decision to undertake the activity is medium term.		
	C	The activity has significant impact on any of these. The activity can change core safety roles and responsibilities. Length of time National Highways is affected by decision to undertake the activity is long term.		
Activity scale Consideration of the size and/or scale of the activity. Does or can the activity have an impact on the motorway and all-purpose trunk roads, either directly or indirectly.	A	The impact of the activity is limited in nature or scale.	This is a specific localised activity	**A**
	B	The impact of the activity is significant in nature or scale.		
	C	The impact of the activity is wide ranging across the network, and/or significantly impacts infrastructure, interventions or workforce.		
Technical Measure of technical and/or technological novelty and/or innovation the activity involves.	A	An activity where any processes, techniques, methodologies and/or technologies involved are currently in widespread use and re-examination is unlikely to be needed.	Such layouts are in widespread use and doesn't involve new technologies.	**B**
	B	There can be some experience of the processes, techniques, methodologies and/or technologies. The experience can be from use in either another application, or by another road authority, supplier, industry or perhaps from overseas in which case some additional work can be required to adapt them and/or to demonstrate that safety can be assured for the intended application.		
	C	Activities that use new processes, techniques, methodologies and/or technologies for which there is no previous experience in the UK or elsewhere.		
Stakeholder impact and interest The quantity and/or impact of stakeholders, their interest in and resulting ability to influence or/impact on the activity. The degree to which the safety issues, as perceived, are capable of being understood and fully addressed.	A	Activities for which the quantity and/or impact of stakeholders, their interest in and resulting ability to influence or impact the activity is low	Minimal impact to stakeholders.	**A**
	B	Activities that have only a single or a few stakeholders but their impact, in terms of their attitude towards, or ability to influence, and/or interest in the successful achievement of the activities aim can be significant. Alternatively it will represent an activity that has several stakeholders but the amount, or type, of safety issues involved are limited. Activities for which there are a large number of stakeholders and their impact in terms of their attitude towards, or ability to influence can be significant.		
	C	Stakeholders with a strong interest in the potential safety impact of the activity on themselves. Activities where there are conflicting needs arising from different stakeholders or stakeholder groups.		

Type A features	4
Type B features	2
Type C features	0

Table E/2.8.1 category type	Type A
No. other features to be reviewed in more detail	2 Type B and 0 Type C
Final category decision	**Type A**

Safety Risk Assessment

Project Name	EMG2
BWB Project Number	220500
Design Element	M1 NB to A50 WB interchange link

Unique Ref.	Phase	Hazard description (before mitigation)	Incident type	Hazard affects	Designer comments and assumptions
1	Operation	Failure of surface water pumping station leading to flooding of the underpass	Aquaplaning / loss of control: single vehicle incident	Users	Failure of pumping is unlikely but is known to happen e.g. A421
2	Operation	Failure of surface water pumping station leading to flooding of the underpass	Aquaplaning / loss of control: multi vehicle incident	Users	Failure of pumping is unlikely but is known to happen e.g. A421
3	Operation	Failure of surface water pumping station leading to flooding of the underpass	Submerged vehicle / drowning	Users	Failure of pumping is unlikely but is known to happen e.g. A421
4	Operation	Failure to see queuing traffic	Multi-vehicle rear-shunt incident	Users	
5	Operation	Object on the carriageway e.g. debris	Side swipe or loss of control due to impacting debris	Users	Link will be under motorway regulations
6	Operation	Collisions at merge	Side swipes	Users	Downstream merge has a lane gain
7	Operation	Failure of surface water pumping station leading to flooding of the underpass: congestion due to link closure	General collisions on wider network	Users	
8	Operation	Bridge strike from high abnormal load vehicle (unplanned / unauthroised)	Collision with structure	Users	
9	Construction	Diversion / congestion arising from the construction of the bridge, leading to rat running and/or driver frustration resulting in vehicle collisions	Shunt, side swipe or failure to give way incidents	Users	

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Safety Risk Assessment

Project Name	EMG2
BWB Project Number	220500
Design Element	M1 NB to A50 WB interchange link
Option / Part Reference	1
Option / Part Description	Option 1: Underbridge

Current design stage	Detailed Design
Notes	

Unique Ref.	Phase	Hazard description (before mitigation)	Incident type	Hazard affects	Is risk present in this option?	Risk without mitigation			Mitigation measures	Mitigation type	Risk with mitigation			Designer comments and assumptions
						Likelihood	Severity	Score			Likelihood	Severity	Score	
1	Operation	Failure of surface water pumping station leading to flooding of the underpass	Aquaplaning / loss of control: single vehicle incident	Users	Yes	Unlikely: Less than 1 per 10 years	Major harm: Fatal injury, major damage or loss	8 : Low	Catchment area of the pumping station to be minimised	Reduce	Unlikely: Less than 1 per 10 years	Major harm: Fatal injury, major damage or loss	8 : Low	Base assumption is that the pumping station(s) would be designed inline with good practice and with suitable redundancies in place.
2	Operation	Failure of surface water pumping station leading to flooding of the underpass	Aquaplaning / loss of control: multi vehicle incident	Users	Yes	Unlikely: Less than 1 per 10 years	Extreme harm: Multiple fatalities, extreme loss	10 : Medium	Catchment area of the pumping station to be minimised	Reduce	Unlikely: Less than 1 per 10 years	Extreme harm: Multiple fatalities, extreme loss	10 : Medium	Base assumption is that the pumping station(s) would be designed inline with good practice and with suitable redundancies in place.
3	Operation	Failure of surface water pumping station leading to flooding of the underpass	Submerged vehicle / drowning	Users	Yes	Unlikely: Less than 1 per 10 years	Extreme harm: Multiple fatalities, extreme loss	10 : Medium	Catchment area of the pumping station to be minimised	Reduce	Unlikely: Less than 1 per 10 years	Extreme harm: Multiple fatalities, extreme loss	10 : Medium	Base assumption is that the pumping station(s) would be designed inline with good practice and with suitable redundancies in place.
4	Operation	Failure to see queuing traffic	Multi-vehicle rear-shunt incident	Users	Yes	Unlikely: Less than 1 per 10 years	Serious harm: Serious injury or illness, substantial damage or loss	6 : Low	No specific mitigation as compliant SSD	Reduce	Unlikely: Less than 1 per 10 years	Serious harm: Serious injury or illness, substantial damage or loss	6 : Low	Risk is present but very unlikely due to the SSD being fully compliant
5	Operation	Object on the carriageway e.g. debris	Side swipe or loss of control due to impacting debris	Users	Yes	Very unlikely: Highly improbable, not known to occur	Moderate harm: Slight injury or illness, moderate damage or loss	2 : Low	No specific mitigation as compliant SSD	Reduce	Very unlikely: Highly improbable, not known to occur	Moderate harm: Slight injury or illness, moderate damage or loss	2 : Low	Risk is present but very unlikely due to the SSD being fully compliant
6	Operation	Collisions at merge	Side swipes	Users	Yes	May happen: Once every 5-10 years	Serious harm: Serious injury or illness, substantial damage or loss	9 : Low	The interchange link merges as a lane gain. Signage to advise drivers on the interchange link of the merge. Visibility between the interchange link and the J24 exit to be maximised although vehicles exiting J24 will be merging from 2 into one lane.	Reduce	May happen: Once every 5-10 years	Serious harm: Serious injury or illness, substantial damage or loss	9 : Low	Due to the uphill approach to the merge, visibility is restricted of the layout to approximately SSD. Whilst the layout would be compliant it gives the driver less time to anticipate merging traffic than the alternative options.
7	Operation	Failure of surface water pumping station leading to flooding of the underpass: congestion due to link closure	General collisions on wider network	Users	Yes	Unlikely: Less than 1 per 10 years	Serious harm: Serious injury or illness, substantial damage or loss	6 : Low	Catchment area of the pumping station to be minimised	Reduce	Unlikely: Less than 1 per 10 years	Serious harm: Serious injury or illness, substantial damage or loss	6 : Low	Base assumption is that the pumping station(s) would be designed inline with good practice and with suitable redundancies in place.
8	Operation	Bridge strike from high abnormal load vehicle (unplanned / unauthroised)	Collision with structure	Users	Yes	Very unlikely: Highly improbable, not known to occur	Major harm: Fatal injury, major damage or loss	4 : Low	No specific mitigation as compliant clearance and M1 is not a high load route so upstream bridges will have standard clearance		Very unlikely: Highly improbable, not known to occur	Major harm: Fatal injury, major damage or loss	4 : Low	
9	Construction	Diversion / congestion arising from the construction of the bridge, leading to rat running and/or driver frustration resulting in vehicle collisions	Shunt, side swipe or failure to give way incidents	Users	Yes	Likely: Once every 1-4 years	Serious harm: Serious injury or illness, substantial damage or loss	12 : Medium	Compliant traffic management. Form of structure to consider speed of construction to minimise delays	Reduce	May happen: Once every 5-10 years	Serious harm: Serious injury or illness, substantial damage or loss	9 : Low	Construction of the underbridge is assumed to take place in at least 2 phases, by reducing the number of lanes of traffic to give access to the work area. Likely to result in congestion in the local area.

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Safety Risk Assessment

Project Name	EMG2
BWB Project Number	220500
Design Element	M1 NB to A50 WB interchange link
Option / Part Reference	2
Option / Part Description	Option 2B: Single-span overbridge with crest curve K17

Current design stage	Detailed Design
Notes	

Unique Ref.	Phase	Hazard description (before mitigation)	Incident type	Hazard affects	Is risk present in this option?	Risk without mitigation			Mitigation measures	Mitigation type	Risk with mitigation			Designer comments and assumptions
						Likelihood	Severity	Score			Likelihood	Severity	Score	
1	Operation	Failure of surface water pumping station leading to flooding of the underpass	Aquaplaning / loss of control: single vehicle incident	Users	No	Risk not present	Risk not present	0 : Not present	N/a		Risk not present	Risk not present	0 : Not present	N/a
2	Operation	Failure of surface water pumping station leading to flooding of the underpass	Aquaplaning / loss of control: multi vehicle incident	Users	No	Risk not present	Risk not present	0 : Not present	N/a		Risk not present	Risk not present	0 : Not present	N/a
3	Operation	Failure of surface water pumping station leading to flooding of the underpass	Submerged vehicle / drowning	Users	No	Risk not present	Risk not present	0 : Not present	N/a		Risk not present	Risk not present	0 : Not present	N/a
4	Operation	Failure to see queuing traffic	Multi-vehicle rear-shunt incident	Users	Yes	Likely: Once every 1-4 years	Serious harm: Serious injury or illness, substantial damage or loss	12 : Medium	50mph speed limit to be provided on the interchange link	Reduce	May happen: Once every 5-10 years	Serious harm: Serious injury or illness, substantial damage or loss	9 : Low	
5	Operation	Object on the carriageway e.g. debris	Side swipe or loss of control due to impacting debris	Users	Yes	Likely: Once every 1-4 years	Moderate harm: Slight injury or illness, moderate damage or loss	8 : Low	50mph speed limit to be provided on the interchange link	Reduce	May happen: Once every 5-10 years	Moderate harm: Slight injury or illness, moderate damage or loss	6 : Low	
6	Operation	Collisions at merge	Side swipes	Users	Yes	May happen: Once every 5-10 years	Serious harm: Serious injury or illness, substantial damage or loss	9 : Low	50mph speed limit to be provided on the interchange link; merge warning signing provided		Unlikely: Less than 1 per 10 years	Serious harm: Serious injury or illness, substantial damage or loss	6 : Low	The elevated view from the over bridge allows drivers time to gauge speed of traffic exiting J24, despite the reduced SSD
7	Operation	Failure of surface water pumping station leading to flooding of the underpass: congestion due to link closure	General collisions on wider network	Users	No	Risk not present	Risk not present	0 : Not present	N/a		Risk not present	Risk not present	0 : Not present	
8	Operation	Bridge strike from high abnormal load vehicle (unplanned / unauthroised)	Collision with structure	Users	Yes	Very unlikely: Highly improbable, not known to occur	Major harm: Fatal injury, major damage or loss	4 : Low	No mitigation as compliant high load clearance		Very unlikely: Highly improbable, not known to occur	Major harm: Fatal injury, major damage or loss	4 : Low	Very unlikely as 6.45m clearance provided
9	Construction	Diversion / congestion arising from the construction of the bridge, leading to rat running and/or driver frustration resulting in vehicle collisions	Shunt, side swipe or failure to give way incidents	Users	Yes	May happen: Once every 5-10 years	Serious harm: Serious injury or illness, substantial damage or loss	9 : Low	Compliant traffic management. Form of structure to consider speed of construction to minimise delays		Unlikely: Less than 1 per 10 years	Serious harm: Serious injury or illness, substantial damage or loss	6 : Low	Assumed to be isolated closures for bridge beam lifts/slide

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Safety Risk Assessment

Project Name	EMG2
BWB Project Number	220500
Design Element	M1 NB to A50 WB interchange link
Option / Part Reference	3
Option / Part Description	Option 2D: Single-span overbridge with crest curve K30 and reduced (high load) headroom

Current design stage	Detailed Design
Notes	

Unique Ref.	Phase	Hazard description (before mitigation)	Incident type	Hazard affects	Is risk present in this option?	Risk without mitigation			Mitigation measures	Mitigation type	Risk with mitigation			Designer comments and assumptions
						Likelihood	Severity	Score			Likelihood	Severity	Score	
1	Operation	Failure of surface water pumping station leading to flooding of the underpass	Aquaplaning / loss of control: single vehicle incident	Users	No	Risk not present	Risk not present	0 : Not present	N/a		Risk not present	Risk not present	0 : Not present	N/a
2	Operation	Failure of surface water pumping station leading to flooding of the underpass	Aquaplaning / loss of control: multi vehicle incident	Users	No	Risk not present	Risk not present	0 : Not present	N/a		Risk not present	Risk not present	0 : Not present	N/a
3	Operation	Failure of surface water pumping station leading to flooding of the underpass	Submerged vehicle / drowning	Users	No	Risk not present	Risk not present	0 : Not present	N/a		Risk not present	Risk not present	0 : Not present	N/a
4	Operation	Failure to see queuing traffic	Multi-vehicle rear-shunt incident	Users	Yes	May happen: Once every 5-10 years	Serious harm: Serious injury or illness, substantial damage or loss	9 : Low	50mph speed limit to be provided on the interchange link	Reduce	Unlikely: Less than 1 per 10 years	Serious harm: Serious injury or illness, substantial damage or loss	6 : Low	
5	Operation	Object on the carriageway e.g. debris	Side swipe or loss of control due to impacting debris	Users	Yes	May happen: Once every 5-10 years	Moderate harm: Slight injury or illness, moderate damage or loss	6 : Low	50mph speed limit to be provided on the interchange link	Reduce	Unlikely: Less than 1 per 10 years	Moderate harm: Slight injury or illness, moderate damage or loss	4 : Low	
6	Operation	Collisions at merge	Side swipes	Users	Yes	May happen: Once every 5-10 years	Serious harm: Serious injury or illness, substantial damage or loss	9 : Low	50mph speed limit to be provided on the interchange link; merge warning signing provided		Unlikely: Less than 1 per 10 years	Serious harm: Serious injury or illness, substantial damage or loss	6 : Low	The elevated view from the over bridge allows drivers time to gauge speed of traffic exiting J24, despite the reduced SSD
7	Operation	Failure of surface water pumping station leading to flooding of the underpass: congestion due to link closure	General collisions on wider network	Users	No	Risk not present	Risk not present	0 : Not present			Risk not present	Risk not present	0 : Not present	
8	Operation	Bridge strike from high abnormal load vehicle (unplanned / unauthroised)	Collision with structure	Users	Yes	Unlikely: Less than 1 per 10 years	Major harm: Fatal injury, major damage or loss	8 : Low			Unlikely: Less than 1 per 10 years	Major harm: Fatal injury, major damage or loss	8 : Low	Unlikely as the clearance is well above the 5.3m standard minimum for a new structure and 5.03m for an existing structure and the public documentation for high-load routes refers to this as an 18' route.
9	Construction	Diversion / congestion arising from the construction of the bridge, leading to rat running and/or driver frustration resulting in vehicle collisions	Shunt, side swipe or failure to give way incidents	Users	Yes	May happen: Once every 5-10 years	Serious harm: Serious injury or illness, substantial damage or loss	9 : Low	Compliant traffic management. Form of structure to consider speed of construction to minimise delays		Unlikely: Less than 1 per 10 years	Serious harm: Serious injury or illness, substantial damage or loss	6 : Low	Assumed to be isolated closures for bridge beam lifts/slide

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Table D1 - Risk Value, likelihood and severity of outcomes that may be assigned to qualitative data for the purpose of assessment						
Likelihood (L) x Severity (S) = Risk value (R)		**Severity (S)**				
		Minor Harm, Minor Damage or loss no injury	Moderate harm - slight injury or illness, moderate damage or loss	Serious harm - serious injury or illness, substantial loss or damage	Major harm - Fatal injury, major damage or loss	Extreme harm - Multiple fatalities, extreme loss or damage
Likelihood (L)	Very Unlikely - Highly Improbable not known to occur	1	2	3	4	5
	Unlikely - less than 1 per 10 years	2	4	6	8	10
	May Happen - Once every 5-10 years	3	6	9	12	15
	Likely - Once every 1-4 years	4	8	12	16	20
	Almost Certain - Once a year or more	5	10	15	20	25

Risk Value (R)	**Required Action**
Low (1-9)	Ensure assumed control measures are maintained and reviewed as necessary
Medium (10-19)	Additional control measures needed to reduce risk rating to a level which is equivalent to a test of "reasonably required" for the population concerned
High (20-25)	Activity not permitted. Hazard avoided or risk to be reduced to tolerable

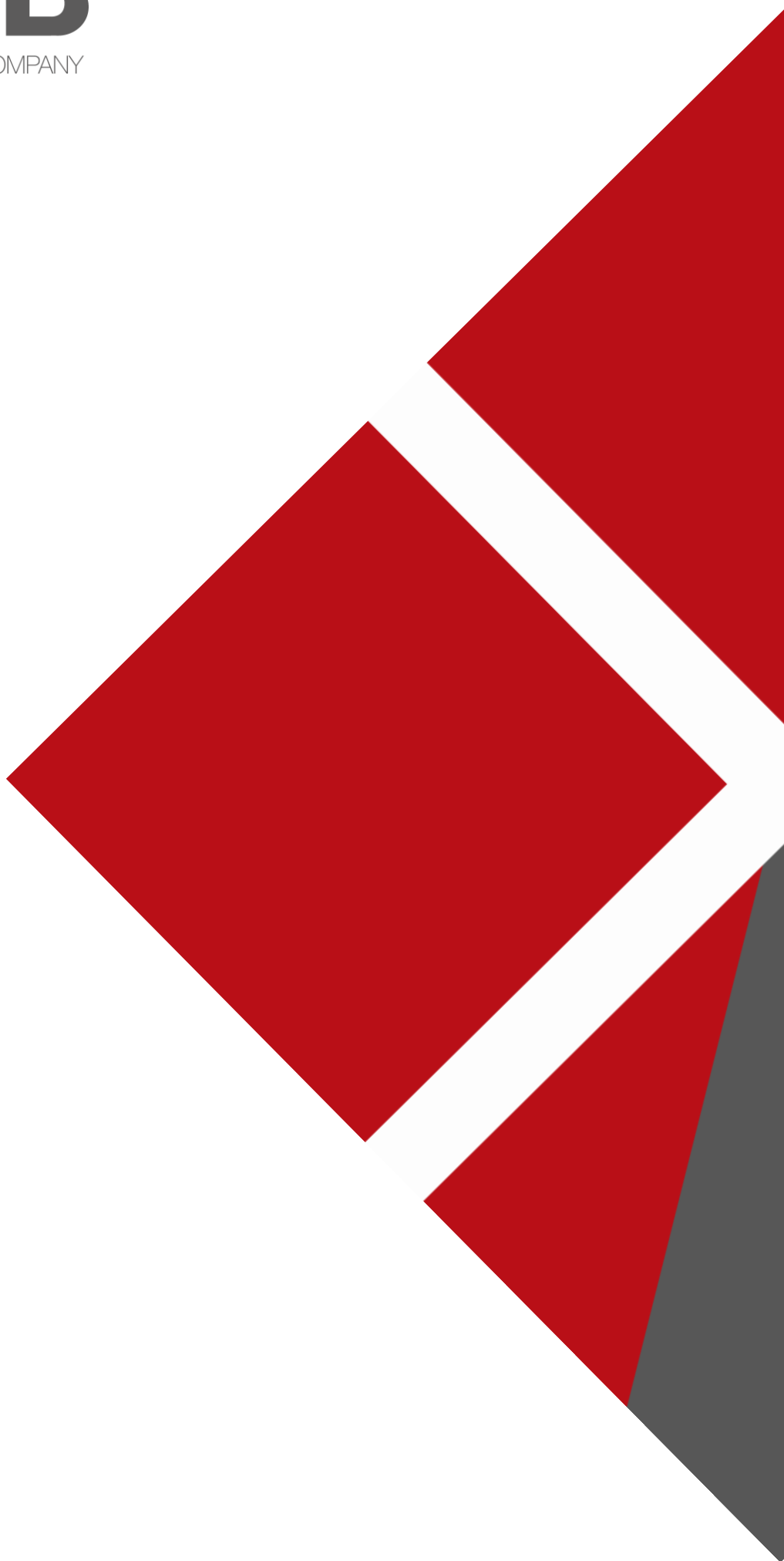
APPENDIX 3: List of Road Layout departures from standard for proposed scheme

DAS Reference	Designers Departure Reference	Likely Departure Safety Risk Category	Design Standard	Departure Location	Departure Summary
TBC	G1	A	CD 122 para 4.5	M1 northbound mainline J23A-24	Weaving length is reduced below existing; Minimum weaving length is less than 2km
TBC	G2	A	CD 122 para 3.36	M1 northbound J24A & J24 exit spacing	Spacing of successive diverges is less than 3.75m measured between tips of noses
TBC	G3	A	CD 122 para 4.7	M1 northbound mainline J23A-24	No. lanes is less than that calculated for weaving section
TBC	G4	A	CD 122 para 3.34	M1 northbound J24A exit	SSD into the diverge is below desirable minimum
TBC	G6	A	CD 122 para 1.3	M1 northbound to A50 westbound	Relaxation below desirable minimum crest K value for interchange link (value of crest K varies per option)
TBC	G7	A	CD 122 para 1.3	M1 northbound to A50 westbound	Relaxation below desirable minimum SSD value for interchange link (value of minimum SSD varies per option), for bridge options 2B and 2D it includes a reduction below desirable minimum SSD on the immediate approach to the A50 merge
TBC	G8	A	CD 127 para 4.1	M1 northbound to A50 westbound bridge at A453	Reduction in headroom from 6.45m to 5.84m over a high load route
TBC	G9	A	CD 122	A50 westbound merge	Aspect not covered, layout G option 2 merge but without three lane (width) from reduction taper to downstream merge
TBC	G10	A	CD 122 para 1.3	M1 northbound to A50 westbound	Reduction below desirable minimum SSD on an interchange link and on the immediate approach to the merge
TBC	G11	A	CD 195 para E/3.20	A453 cycle track	Horizontal radii of 11.5m
TBC	G12	A	CD 116 para 3.26	M1 northbound J24 exit: entry deflection	Entry deflection exceeds 100m
TBC	S1	A	CD 146 para 3.4	M1 northbound J24A exit	Final direction sign more than 50m upstream of ExDP

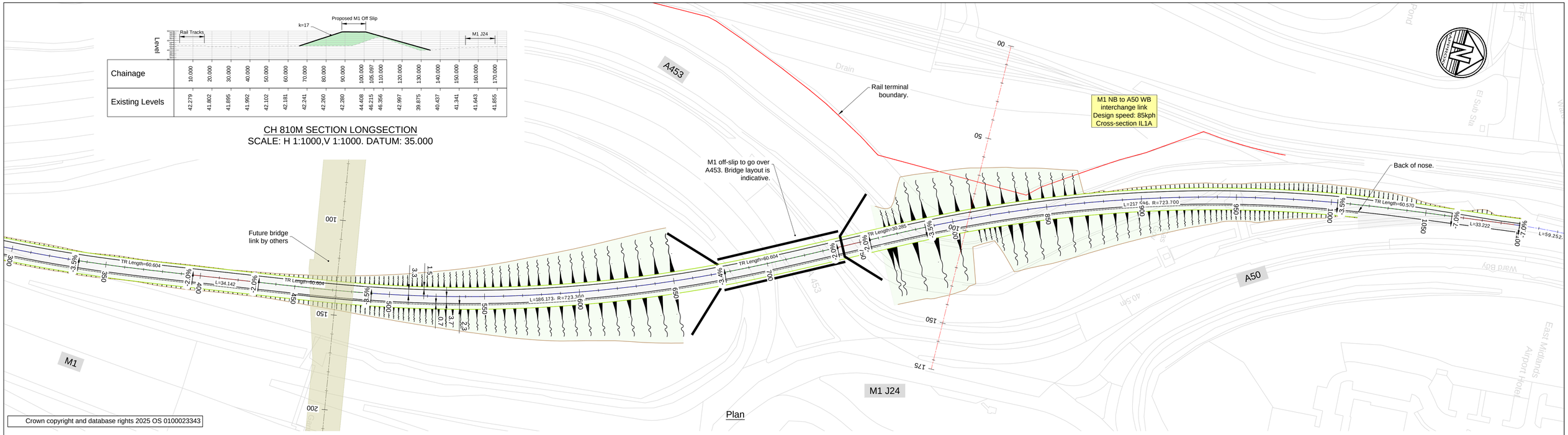
DAS Reference	Designers Departure Reference	Likely Departure Safety Risk Category	Design Standard	Departure Location	Departure Summary
TBC	S2	A	CD 146 para 3.2	M1 northbound J24A exit	½ mile secondary direction sign, 907m upstream of ExDP, 22m out of tolerance
TBC	S3	A	CD 146 para 3.2	M1 northbound J24 exit	¾ mile secondary direction sign is proposed at 14m out of tolerance upstream
TBC	S5	A	CD 146 para 4.19	M1 northbound J24A exit	Omission of confirmatory ALS
TBC	S6	A	CD 146 para 4.25	M1 northbound J24A exit	Primary VMS is located 773m upstream of the primary direction sign

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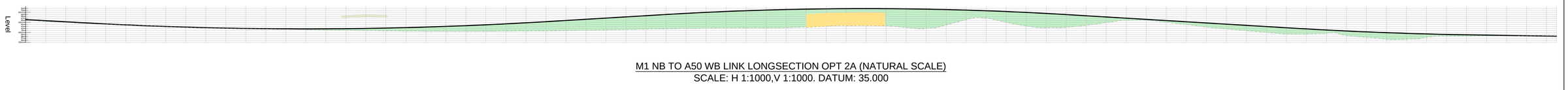


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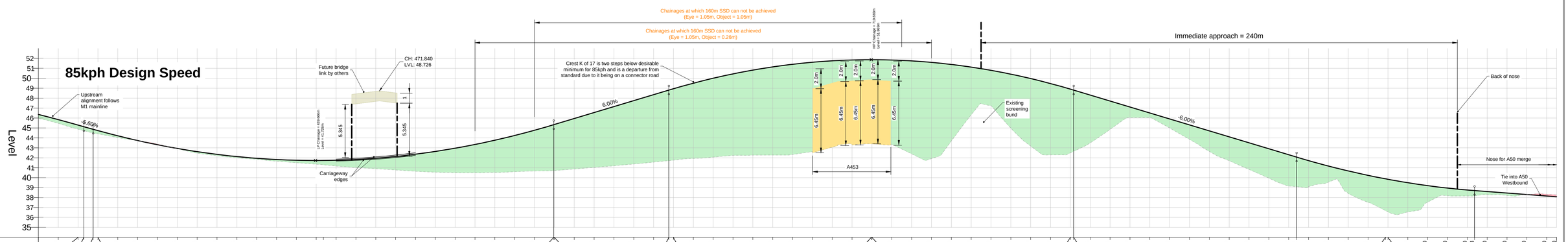


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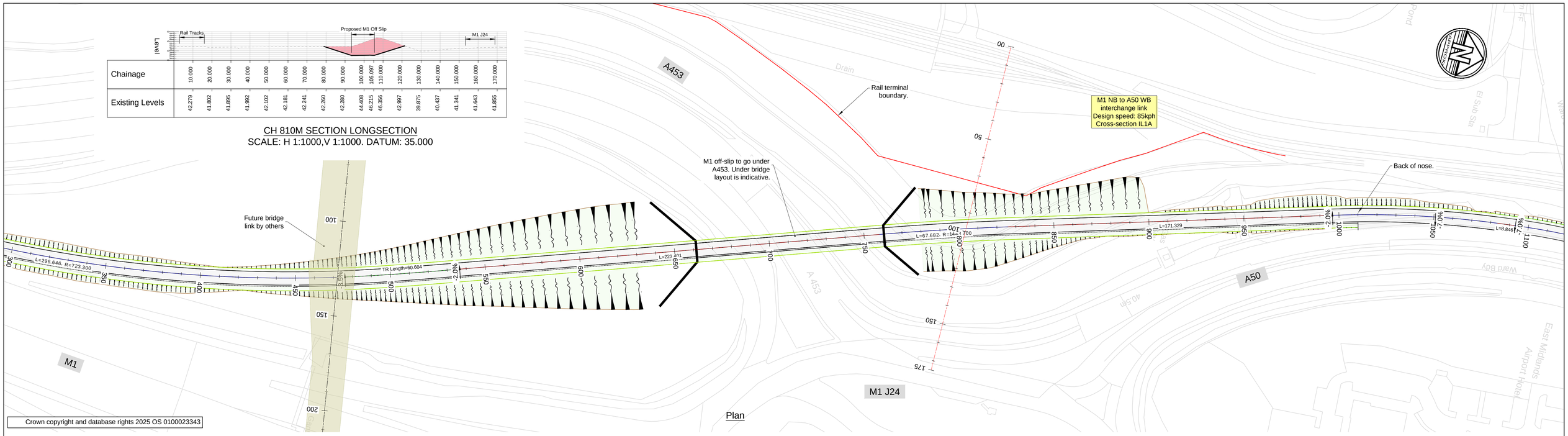
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M1 NB TO A50 WB LINK LONGSECTION OPT 2A (NATURAL SCALE)
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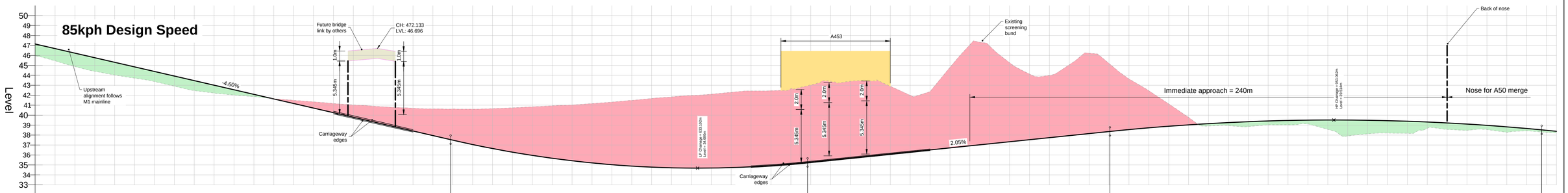
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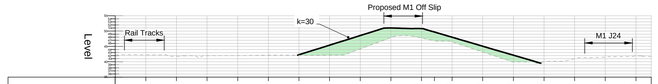
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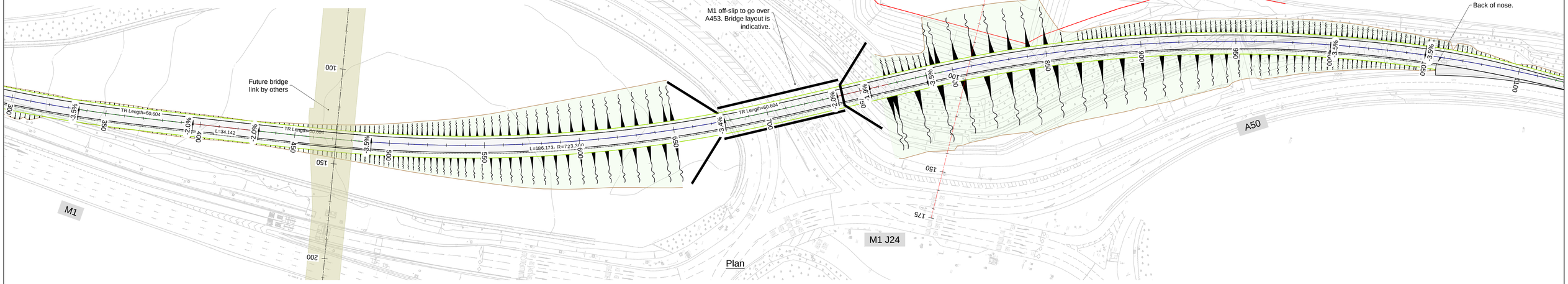


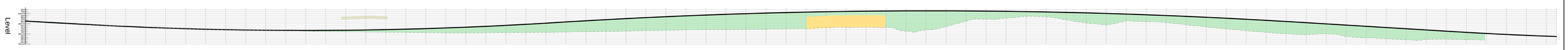
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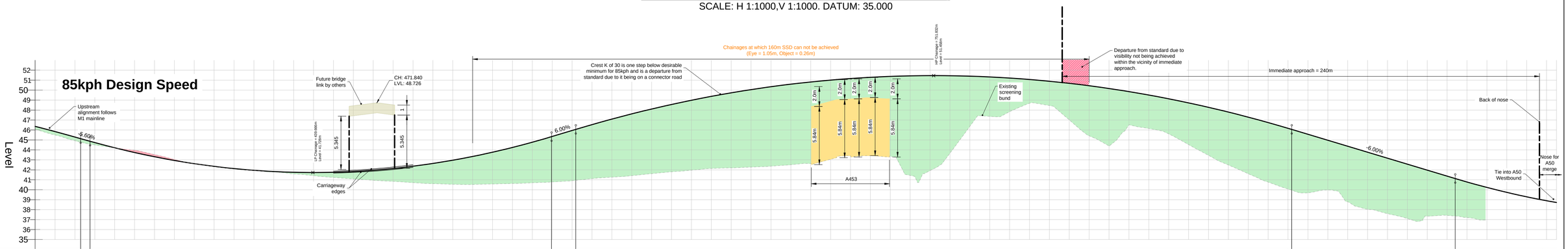
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Existing Levels				41.980	42.031	42.165	42.151	42.187	44.187	47.851	47.734	46.819	46.488	43.183	39.940	40.099	41.013	41.643	41.874

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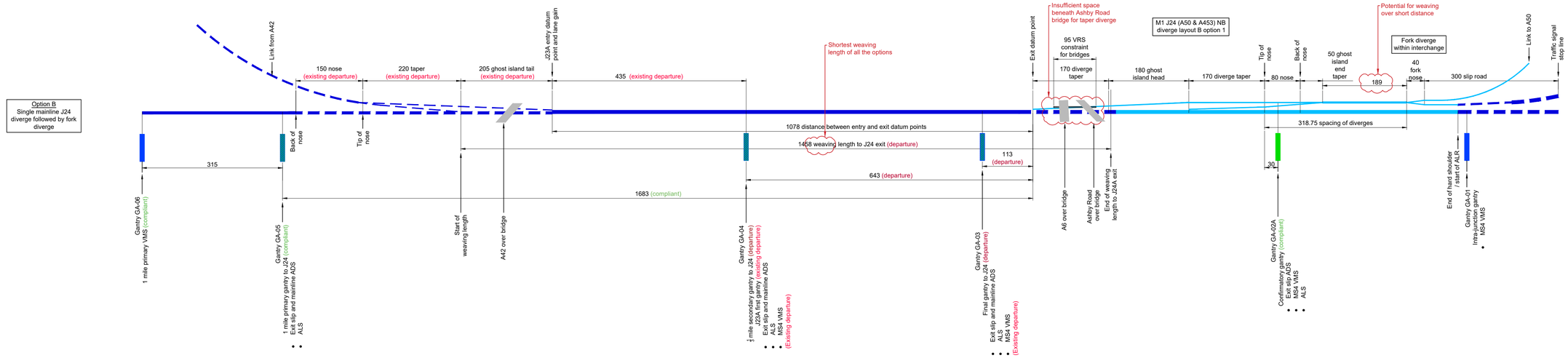


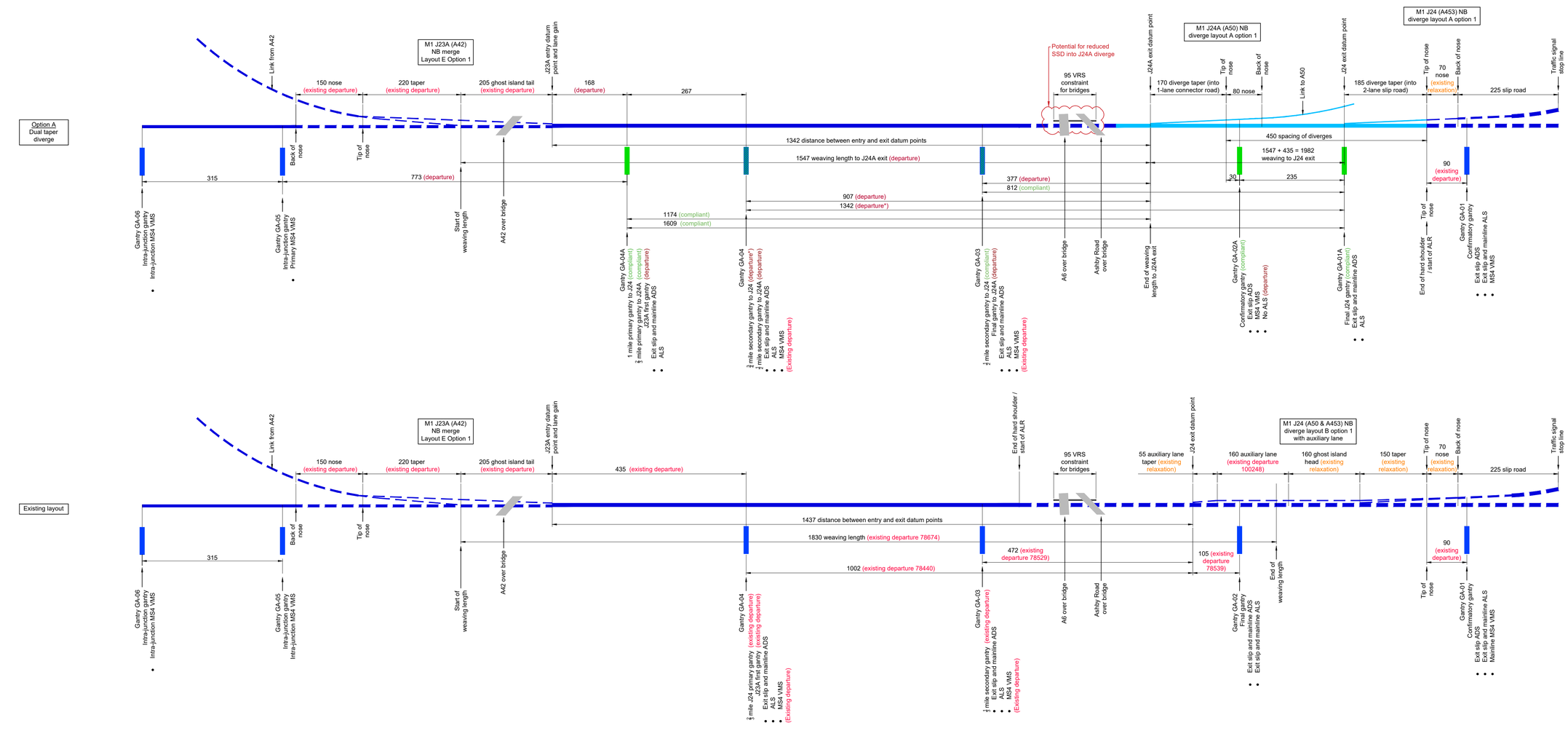


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SCALE: H 1:1000,V 1:1000. DATUM: 35.000



| Chainage | 300.000 | 310.000 | 320.000 | 322.904 | 327.598 | 330.000 | 340.000 | 350.000 | 360.000 | 370.000 | 380.000 | 390.000 | 400.000 | 410.000 | 420.000 | 430.000 | 440.000 | 443.632 | 450.000 | 460.000 | 470.000 | 480.000 | 490.000 | 500.000 | 510.000 | 520.000 | 530.000 | 540.000 | 550.000 | 559.666 | 560.000 | 570.000 | 571.832 | 580.000 | 590.000 | 600.000 | 610.000 | 620.000 | 630.000 | 640.000 | 650.000 | 660.000 | 670.000 | 680.000 | 690.000 | 700.000 | 710.000 | 720.000 | 730.000 | 740.000 | 750.000 | 751.832 | 760.000 | 770.000 | 780.000 | 790.000 | 800.000 | 810.000 | 820.000 | 830.000 | 840.000 | 850.000 | 860.000 | 870.000 | 880.000 | 890.000 | 900.000 | 910.000 | 920.000 | 930.000 | 931.832 | 940.000 | 950.000 | 960.000 | 970.000 | 980.000 | 990.000 | 1000.000 | 1010.000 | 1014.041 | 1020.000 | 1030.000 | 1040.000 | 1050.000 | 1057.882 | 1060.000 | 1065.000 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---





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Legend & CD 146 notes

Motorway links				
No. lanes	Existing with hard shoulder	Existing without hard shoulder	New / amended with hard shoulder	New / amended without hard shoulder
1				
2				
3				
4				

Existing gantry

New gantry

Existing gantry with replacement ADS

Notes from CD 146 on standard ADS locations:

- Confirmatory ADS shall be 30-50m downstream of tip of diverge nose
- Final ADS shall be 0-50m upstream of the exit datum point
- ¾ mile shall be at 536m + 10% - 20m
- ½ mile shall be at 805m + 10% - 20m
- ¼ mile shall be at 1073m + 10% - 20m
- 1 mile shall be at 1609m + 10% - 20m

* ¾ mile is not permitted in CD 146 but is prescribed in the TSRGD. ¾ mile tolerance would be 1207m + 10% - 20m.

ISSUES & REVISIONS

Rev	Date	Details of issue / revision	Drw	Rev
P01	24.02.25	Issued for information	SRH	SRH
P02	10.03.25	Weaving length for options C and D amended	SRH	SRH
P03	24.06.25	J23A merge dimensions updated	SRH	SRH
P04	26.08.25	Existing departure IDs added where known	SRH	SRH

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Client: SEGRO

Project Title: EAST MIDLANDS GATEWAY 2 (EMG2)

Drawing Title: M1 NORTHBOUND DIVERGE OPTIONS SHEET 1

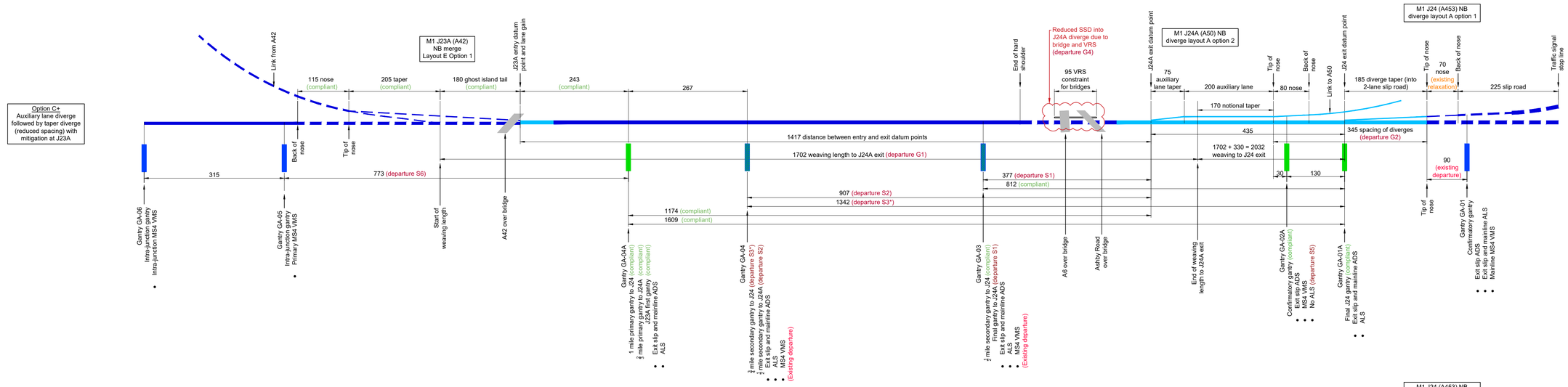
Drawn:	S. Hilditch	Reviewed:	S.Hilditch		
BWB Ref:	220500	Date:	24.02.25	Scale@A1:	1:5,000

Drawing Status: FOR INFORMATION

Project - Originator - Zone - Level - Type - Role - Number: EMG2-BWB-GEN-XX-SK-CH-SK032

Status: S2

Rev: P04



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Legend & CD 146 notes

Motorway links

No. lanes	Existing with hard shoulder	Existing without hard shoulder	New / amended with hard shoulder	New / amended without hard shoulder
1				
2				
3				
4				

Existing gantry | New gantry | Existing gantry with replacement ADS

Notes from CD 146 on standard ADS locations:

- Confirmatory ADS shall be 30-50m downstream of tip of diverge nose
- Final ADS shall be 0-50m upstream of the exit datum point
- ¼ mile shall be at 536m + 10% - 20m
- ½ mile shall be at 805m + 10% - 20m
- ¾ mile shall be at 1073m + 10% - 20m
- 1 mile shall be at 1609m + 10% - 20m

* ¾ mile is not permitted in CD 146 but is prescribed in the TSRGD. ¾ mile tolerance would be 1207m + 10% - 20m.

ISSUES & REVISIONS

Rev	Date	Details of issue / revision	Drw	Rev
P01	24.02.25	Issued for information	SRH	SRH
P02	10.03.25	Weaving length for options C and D amended	SRH	SRH
P03	24.06.25	J23A merge updated, option C+ added	SRH	SRH

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Client: SEGRO

Project Title: EAST MIDLANDS GATEWAY 2 (EMG2)

Drawing Title: M1 NORTHBOUND DIVERGE OPTIONS SHEET 2

Drawn:	S. Hilditch	Reviewed:	S.Hilditch		
BWB Ref:	220500	Date:	24.02.25	Scale@A1:	1:5,000

Drawing Status: FOR INFORMATION

Project - Originator - Zone - Level - Type - Role - Number: EMG2-BWB-GEN-XX-SK-CH-SK033

Status: S2

Rev: P03

End of existing concrete barrier

Final direction sign gantry GA-03 for J24A exit, located upstream of bridges (departure)

300

350

400

450

500

550

Forward SSD (295m)
Object Height = 1.05m
Eye Height = 0.26m
First point SSD not achieved CH 130.000m
Worst case point CH 190.000m = 261.784m
Last point SSD not achieved CH 220.000m

Forward SSD (295m)
Object Height = 1.05m
Eye Height = 1.05m
First point SSD not achieved CH 135.000m
Worst case point CH 145.000m = 291.854m
Last point SSD not achieved CH 145.000m

DMRB CD109
120kph Design Speed

M1 Northbound

M1 Southbound

M1 J24A diverge
Layout A option 1

170m Taper Length

R1000

3.3

1.5

3.65

3.7

5.37

80 near straight
(radius 4500)

MS4

80m Nose Length with 1:15 Taper

Confirmatory direction sign gantry GA-02A for J24A exit:
- Exit ADS
- VMS (MS4)
- Above lane signals (ALS) omitted

(departure)

Cutline - See Below

Ashby Road

Drain

Gantry

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Cutline - See Above

DMRB CD109
85kph Design Speed
DMRB Ref. CD127 Fig 2.1.1N1b
Cross-section IL1A

M1 NB to A50 WB
interchange link

R1000

3.3

1.5

185

236

185m Exit Taper Length

M1 Northbound

M1 Southbound

M1 J24 diverge
Layout A option 1

3.65

3.65

4.58

Existing 70m Nose Length with 1:15 Taper

Final direction sign gantry GA-01A for J24 exit:
- Exit and mainline ADS
- Above lane signals (ALS)

Existing confirmatory direction sign gantry GA-01 for J24 exit:
- Exit ADS
- VMS (MS4)
- Above lane signals (ALS)

Located 90m downstream of tip of nose (existing departure)

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ISSUES & REVISIONS

Rev	Date	Details of issue / revision	Drw	Rev
P01	28.02.25	Issue for information	MS	SH

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Client: SEGRO

Project Title: **East Midlands Gateway 2**

Drawing Title: **M1 J24 & 24A Northbound Diverge Layout Option A**

Drawn:	M.S	Reviewed:	S.H
BWB Ref:	220500	Date:	27.02.25
Scale@A1:	1:500		

Drawing Status: **FOR INFORMATION**

Project - Originator - Zone - Level - Type - Role - Number: **EMG2-BWB-GEN-XX-SK-CH-034**

Status: **S2**

Rev: **P01**

End of existing concrete barrier

Final direction sign gantry GA-03 for J24A exit, located upstream of bridges (departure)

300

350

400

Forward SSD (295m)
Object Height = 1.05m
Eye Height = 0.26m
First point SSD not achieved CH 130.000m
Worst case point CH 205.000m = 251.061m
Last point SSD not achieved CH 225.000m

DMRB CD109
120kph Design Speed

M1 Northbound

M1 Southbound

75m Taper Length

450

1.5

3.3

3.65

500

M1 J24A diverge
Layout A option 2

Forward SSD (295m)
Object Height = 1.05m
Eye Height = 1.05m
First point SSD not achieved CH 130.000m
Worst case point CH 145.000m = 286.480m
Last point SSD not achieved CH 145.000m

550

200m Auxiliary Lane

600

650

700

Cutline - See Below

Ashby Road

Gantry

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Cutline - See Above

MS4

250

1.5

3.3

3.65

3.7

5.333

80m Nose Length with 1:15 Taper

80 near straight (radius 10000)

2.3

0.7

R1000

80

130

Confirmatory direction sign gantry GA-02A for J24A exit:
- Exit ADS
- VMS (MS4)
- Above lane signals (ALS) omitted

(departure)

Final direction sign gantry GA-01A for J24 exit:
- Exit and mainline ADS
- Above lane signals (ALS)

185m Exit Taper Length

M1 Northbound

M1 Southbound

M1 NB to A50 WB
interchange link

DMRB CD109
85kph Design Speed
DMRB Ref. CD127 Fig 2.1.1N1b
Cross-section IL1A

M1 J24 diverge
Layout A option 1

Existing 70m Nose Length with 1:15 Taper

Existing confirmatory direction sign gantry GA-01 for J24 exit:
- Exit ADS
- VMS (MS4)
- Above lane signals (ALS)

Located 90m downstream of tip of nose (existing departure)

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P01	28.02.25	Issue for information	MS	SH

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Client: SEGRO

Project Title: **East Midlands Gateway 2**

Drawing Title: **M1 J24 & 24A Northbound Diverge Layout Option C**

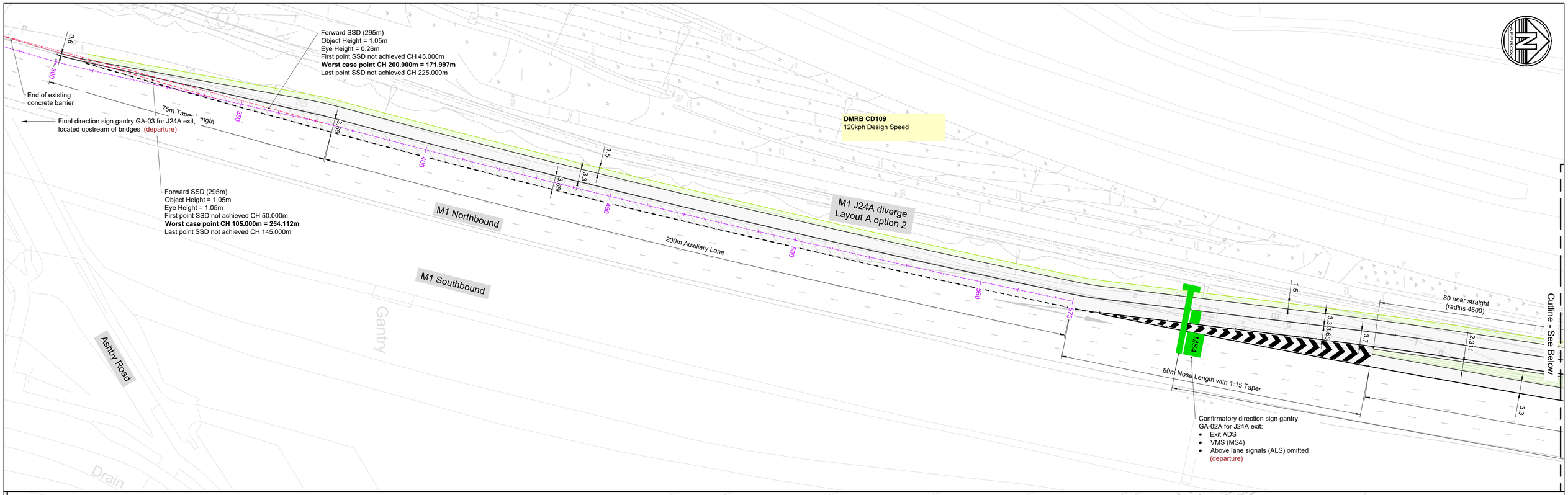
Drawn:	M.S	Reviewed:	S.H
BWB Ref:	220500	Date:	27.02.25
Scale@A1:	1:500		

Drawing Status: **FOR INFORMATION**

Project - Originator - Zone - Level - Type - Role - Number: **EMG2-BWB-GEN-XX-SK-CH-035**

Status: **S2**

Rev: **P01**



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Rev	Date	Details of issue / revision	Drw	Rev
P01	28.02.25	Issue for information	MS	SH

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Client: SEGRO

Project Title: **East Midlands Gateway 2**

Drawing Title: **M1 J24 & 24A Northbound Diverge Layout Option D**

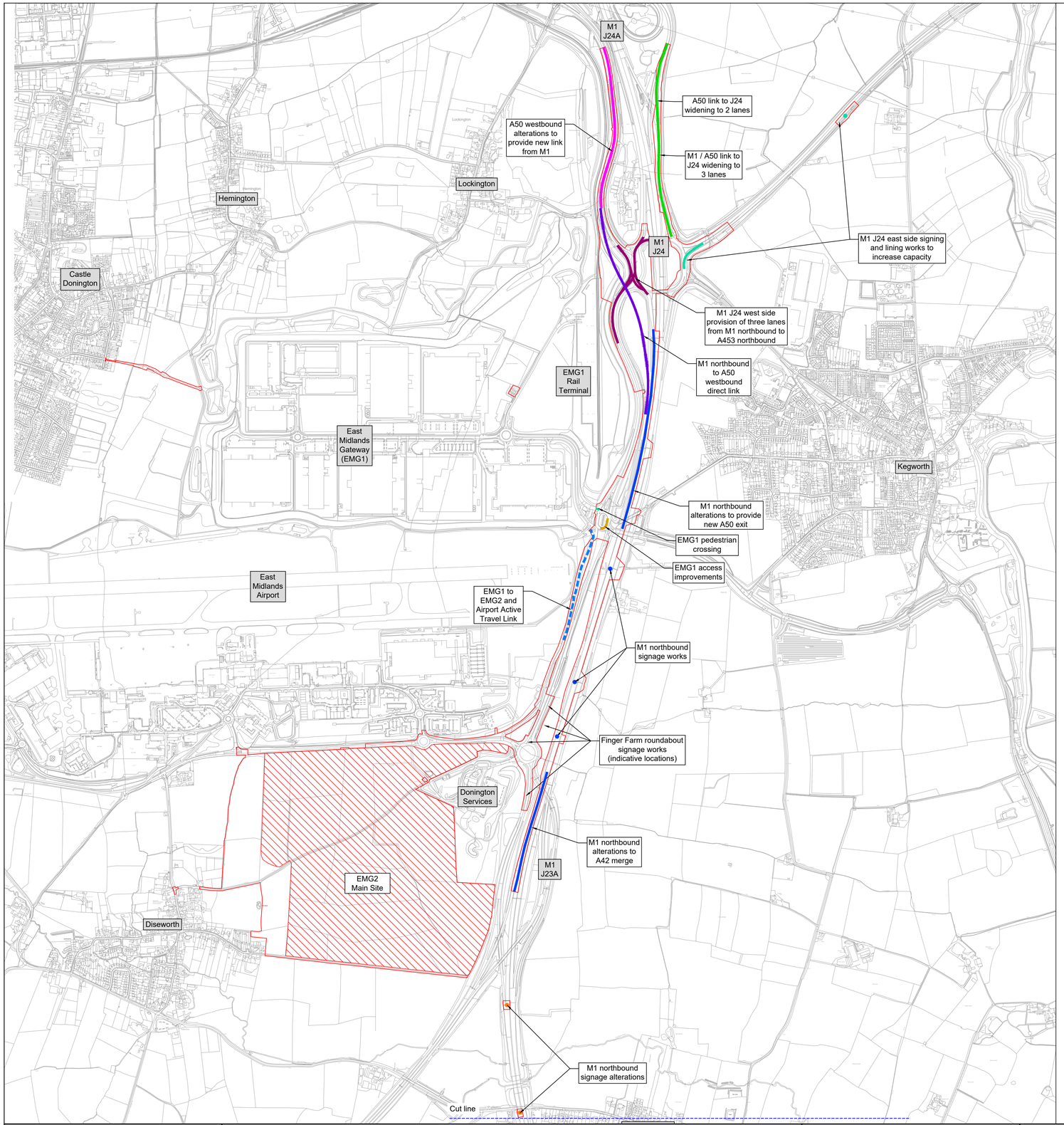
Drawn:	M.S	Reviewed:	S.H
BWB Ref:	220500	Date:	27.02.25
Scale@A1:	1:500		

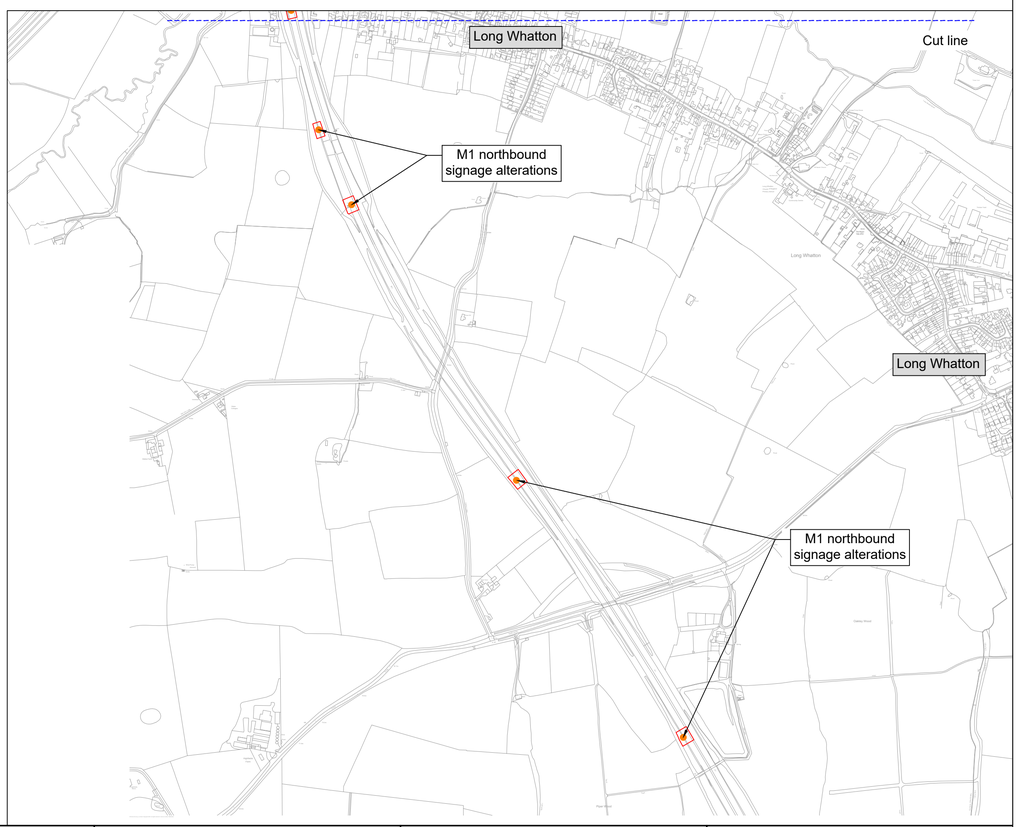
Drawing Status: **FOR INFORMATION**

Project - Originator - Zone - Level - Type - Role - Number: **EMG2-BWB-GEN-XX-SK-CH-036**

Status: **S2**

Rev: **P01**





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ISSUES & REVISIONS

Rev	Date	Details of issue / revision	Drw	Rev
P01	04.03.25	Issued for information	SRH	SRH
P02	24.06.25	Scheme updated	SRH	SRH
P03	26.08.25	Updated to latest order limits	SRH	SRH

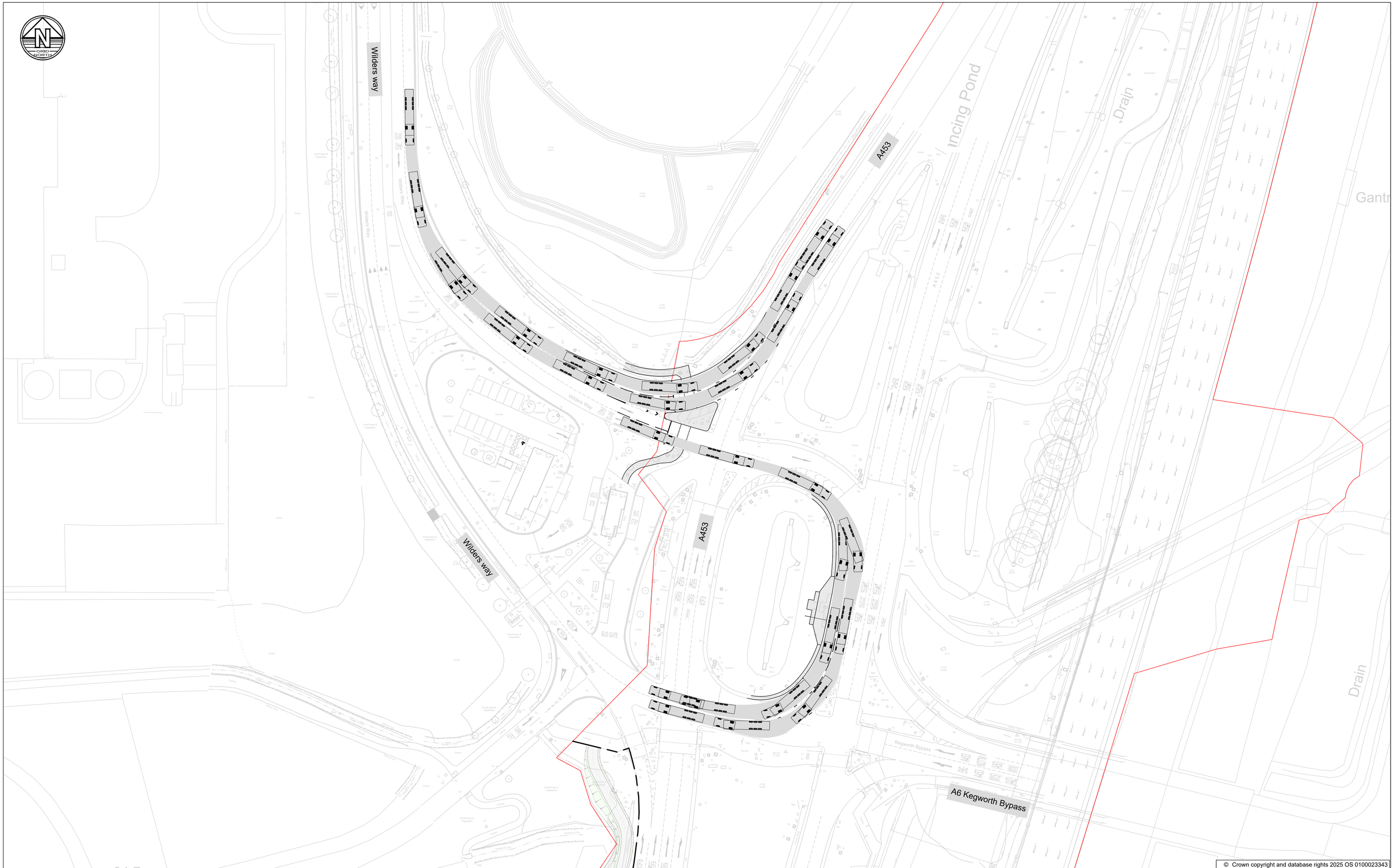
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Client: SEGRO

Project Title: **EAST MIDLANDS GATEWAY 2 (EMG2)**

Drawing Title: **OVERVIEW OF WORKS ON THE STRATEGIC ROAD NETWORK**

Drawn:	S. Hilditch	Reviewed:	S.Hilditch	Drawing Status	Project - Originator - Zone - Level - Type - Role - Number	Status	Rev
BWB Ref:	220500	Date:	04.03.25	Scale@A1: 1:10,000	FOR INFORMATION	EMG2-BWB-GEN-XX-SK-CH-SK037	S2	P03



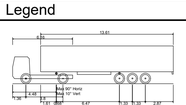
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Legend



FTA Design Articulated Vehicle (1998)

Overall Length	16.480m
Overall Width	2.550m
Overall Body Height	3.870m
Min Body Ground Clearance	0.410m
Track Width	2.500m
Lock to lock time	4.00s
Kerb to Kerb Turning Radius	6.550m

ISSUES & REVISIONS

Rev	Date	Details of issue / revision	Drw	Rev
P01	04.03.25	Issue for information	MS	SH

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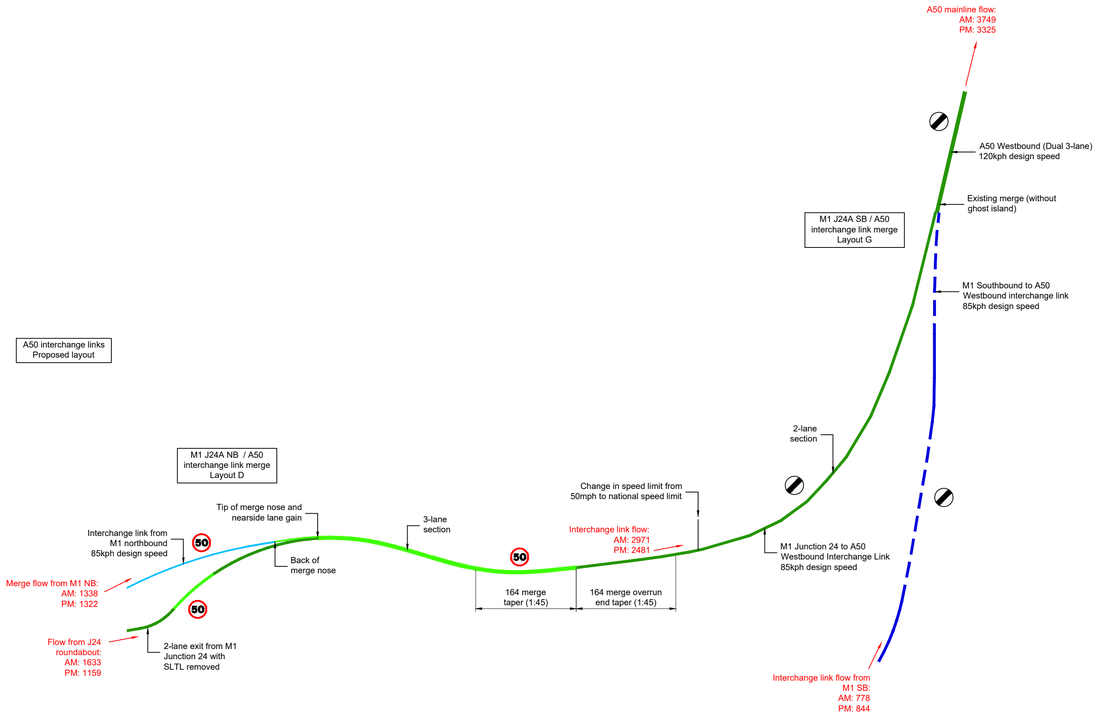
Project Title: **East Midlands Gateway 2**

Drawing Title: **Existing EMG1 Junction Vehicle Tracking**

Drawn:	M.S		Reviewed:	S.H			
BWB Ref:	220500	Date:	04.03.25	Scale@A1:	1:500	Drawing Status: **FOR INFORMATION**	

Project - Originator - Zone - Level - Type - Role - Number: **EMG2-BWB-GEN-XX-SK-CH-SK038**

Status: **S2** Rev: **P01**



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Legend

Links					
No. lanes	Existing motorway with hard shoulder	Existing motorway no hard shoulder	Existing all-purpose	New motorway with hard shoulder	New / amended all-purpose
1					
2					
3					

ISSUES & REVISIONS

Rev	Date	Details of issue / revision	Drw	Rev
P01	20.06.25	Issued for information	SRH	SRH

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Client: SEGRO

Project Title: **EAST MIDLANDS GATEWAY 2 (EMG2)**

Drawing Title: **A50 WESTBOUND LINK SCHEMATIC**

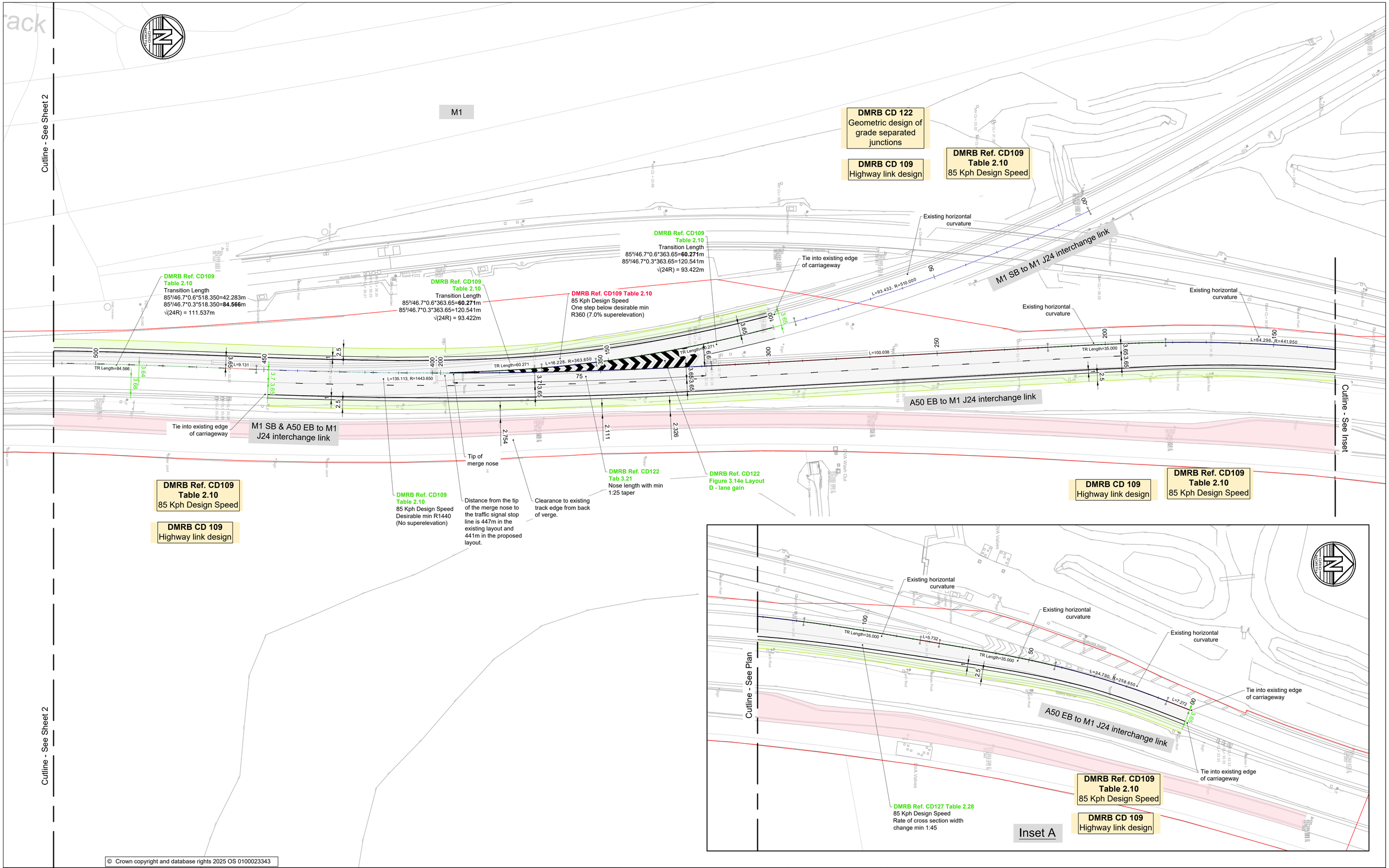
Drawn:	S. Hilditch	Reviewed:	S.Hilditch		
BWB Ref:	220500	Date:	20.06.25	Scale@A1:	1:5,000

Drawing Status: **FOR INFORMATION**

Project - Originator - Zone - Level - Type - Role - Number: **EMG2-BWB-GEN-XX-SK-CH-SK046**

Status: **S2**

Rev: **P01**



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5. Annotation shown coloured green achieves design standards
6. Annotation shown coloured amber is a relaxation from design standards
7. Annotation shown coloured red is a departure from design standards

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Legend

- Draft Order Limits
- Alignment - Straights
- Alignment - Curves
- Alignment - Transitions
- Carriageway area
- Taper for cross section width change

ISSUES & REVISIONS

Rev	Date	Details of issue / revision	Drw	Rev
P01	04.03.25	Issue for information	MS	SH

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Client: SEGRO

Project Title: **East Midlands Gateway 2**

Drawing Title: **A50 Eastbound Geometry Plans Sheet 1 of 2**

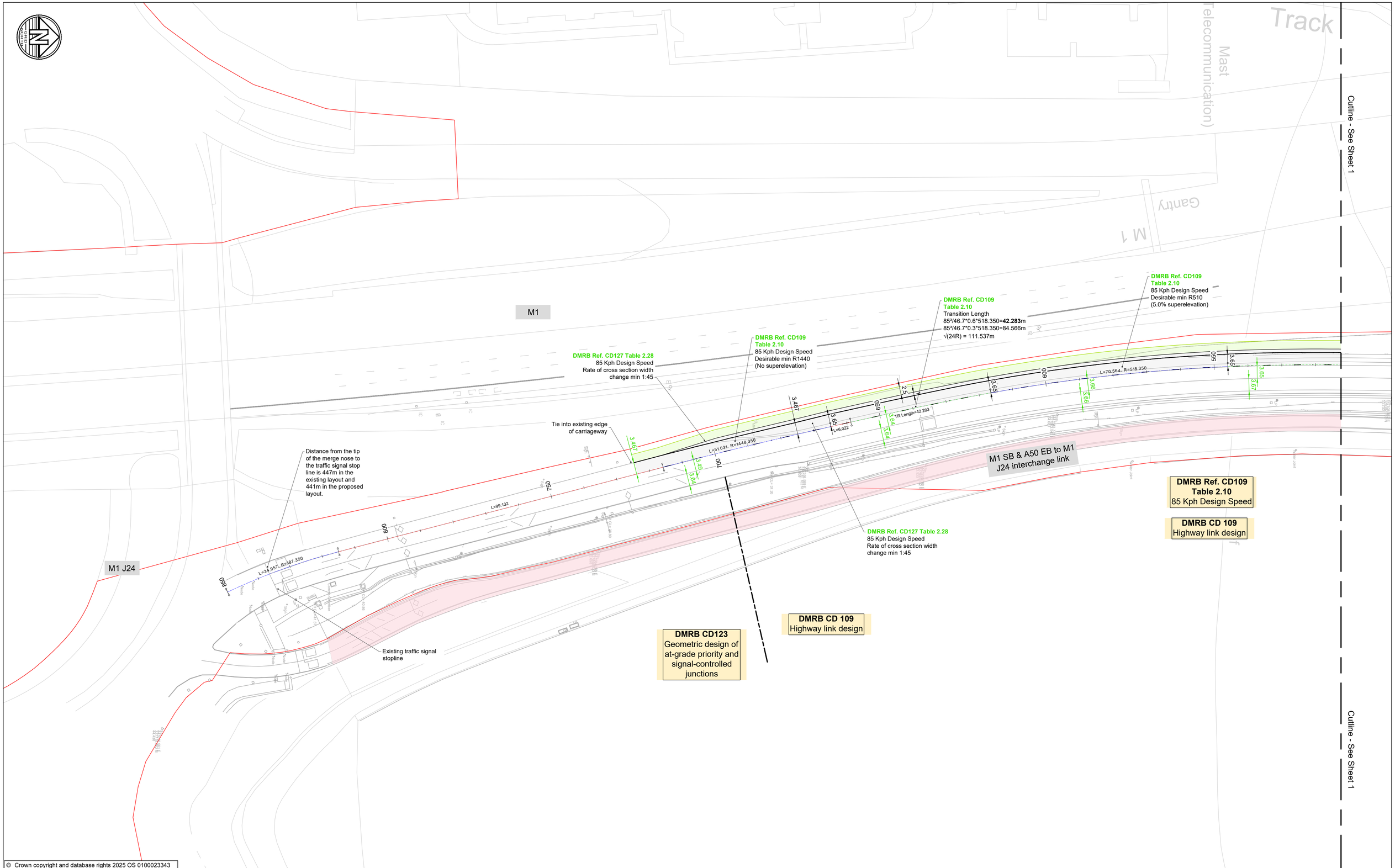
Drawn:	M.S	Reviewed:	S.H
BWB Ref:	220500	Date:	04.03.25
Scale@A1:	1:500		

Drawing Status: **FOR INFORMATION**

Project - Originator - Zone - Level - Type - Role - Number: **EMG2-BWB-HGN-A50EB-DR-H-0101**

Status: **S2**

Rev: **P01**



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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.
5. Annotation shown coloured green achieves design standards
6. Annotation shown coloured amber is a relaxation from design standards
7. Annotation shown coloured red is a departure from design standards

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Legend

- Draft Order Limits
- Alignment - Straights
- Alignment - Curves
- Alignment - Transitions
- Carriageway area
- Taper for cross section width change

ISSUES & REVISIONS

Rev	Date	Details of issue / revision	Drw	Rev
P01	04.03.25	Issue for information	MS	SH

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☐ Nottingham | 0115 924 1100
[redacted]

Client: SEGRO

Project Title: **East Midlands Gateway 2**

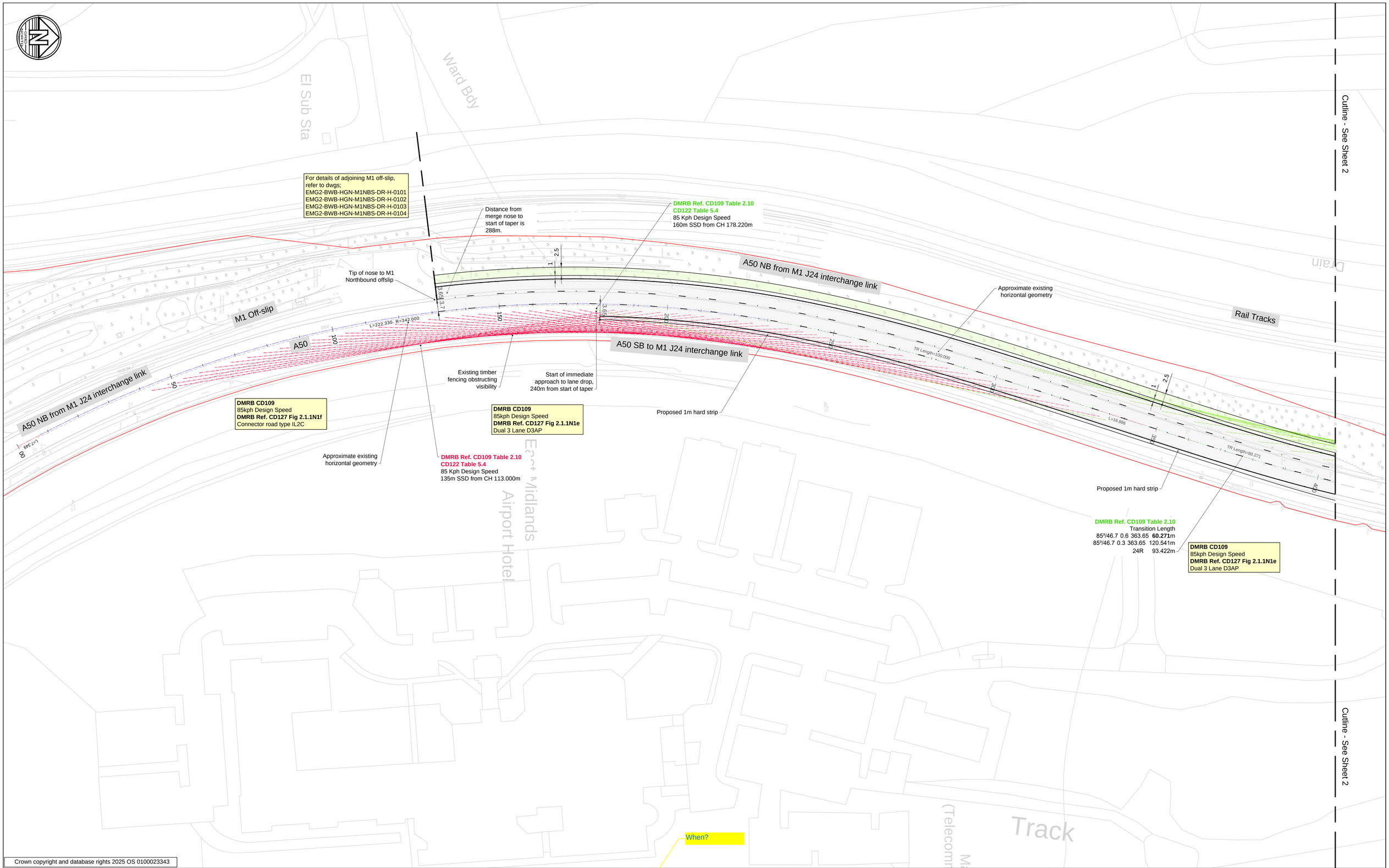
Drawing Title: **A50 Eastbound Geometry Plans Sheet 2 of 2**

Drawn:	M.S		Reviewed:	S.H		
BWB Ref:	220500	Date:	04.03.25	Scale@A1:	1:500	

Drawing Status: **FOR INFORMATION**

Project - Originator - Zone - Level - Type - Role - Number: **EMG2-BWB-HGN-A50EB-DR-H-0102**

Status: **S2** Rev: **P01**



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Notes

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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.
5. Annotation shown coloured green achieves design standards
6. Annotation shown coloured amber is a relaxation from design standards
7. Annotation shown coloured red is a departure from design standards

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Legend

- Draft Order Limits
- Alignment - Straights
- Alignment - Curves
- Alignment - Transitions
- Carriageway area
- Taper for cross section width change

ISSUES & REVISIONS

Rev	Date	Details of issue / revision	Drw	Rev
P01	tbc	Issue for information	MS	SH

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Client: SEGRO

Project Title: **East Midlands Gateway 2**

Drawing Title: **A50 Westbound Geometry Plans Sheet 1 of 2**

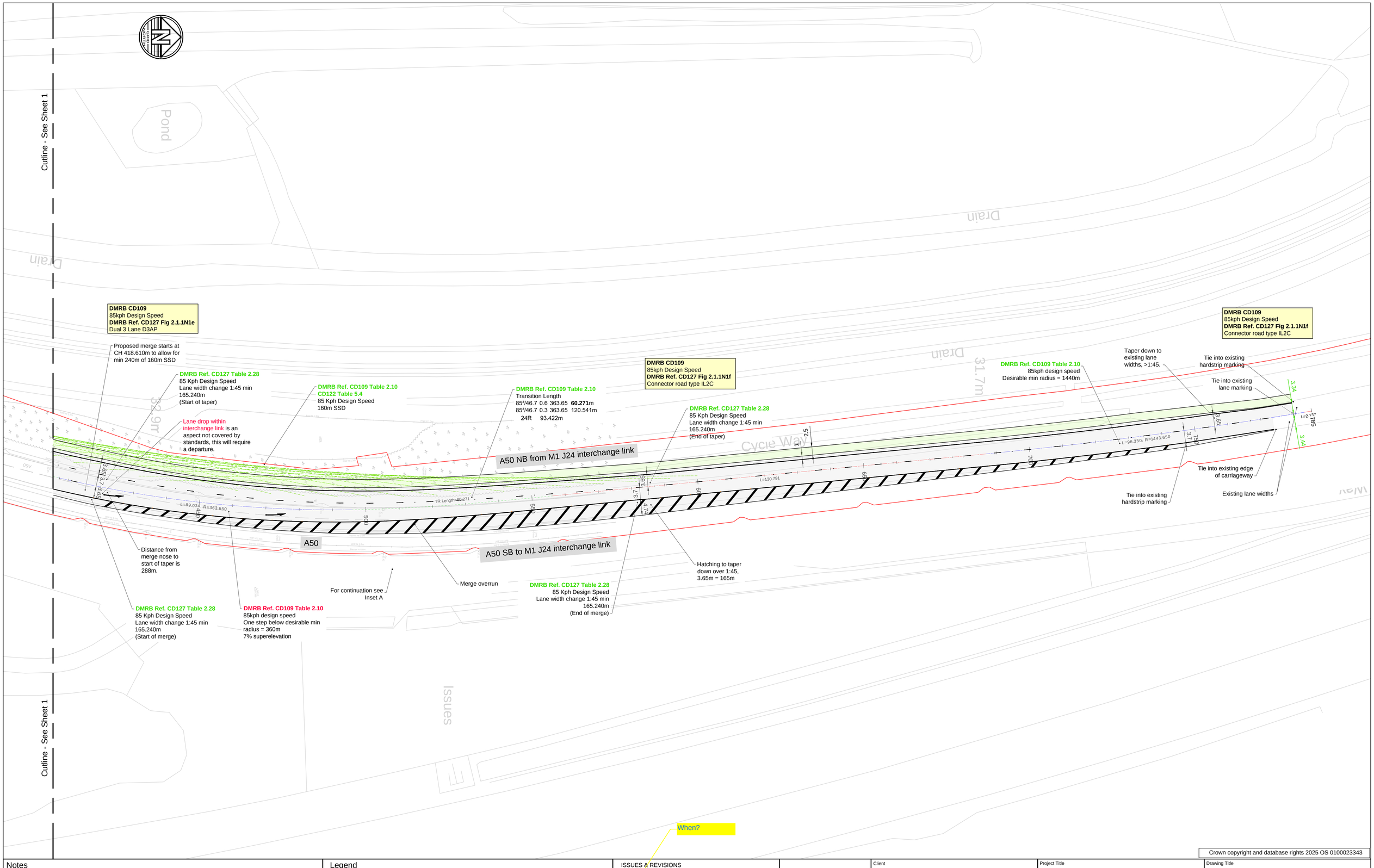
Drawn:	M.S	Reviewed:	S.H
BWB Ref:	220500	Date:	08.01.25
Scale@A1:	1:500		

Drawing Status: **FOR INFORMATION**

Project - Originator - Zone - Level - Type - Role - Number: **EMG2-BWB-HGN-A50WB-DR-H-0101**

Status: **S2**

Rev: **P01**



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Legend

- Draft Order Limits
- Alignment - Straights
- Alignment - Curves
- Alignment - Transitions
- Carriageway area
- Taper for cross section width change

ISSUES & REVISIONS

Rev	Date	Details of issue / revision	Drw	Rev
P01	tbc	Issue for information	MS	SH

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Nottingham | 0115 924 1100

Client: SEGRO

Project Title: **East Midlands Gateway 2**

Drawing Title: **A50 Westbound Geometry Plans Sheet 2 of 2**

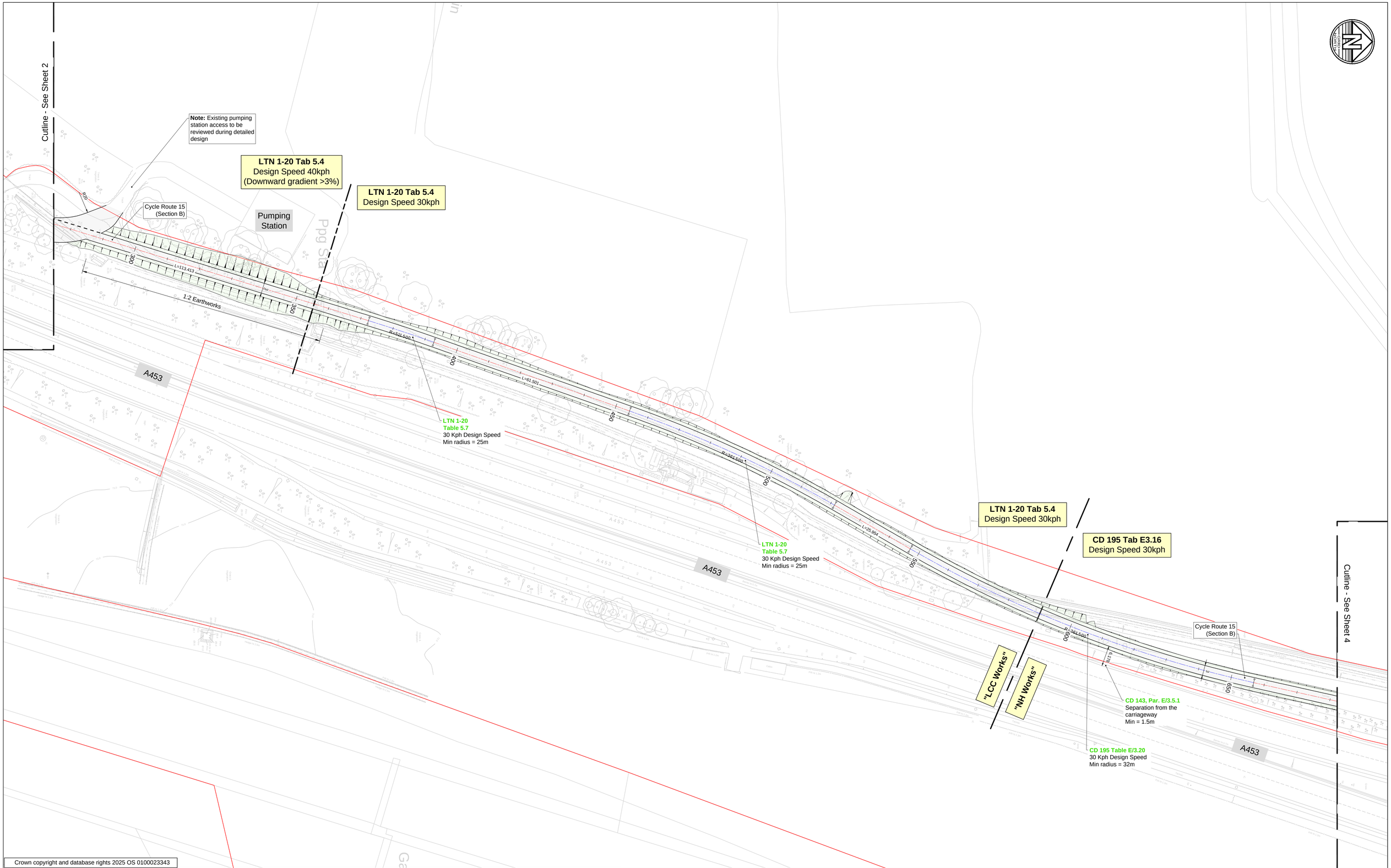
Drawn:	M.S	Reviewed:	S.H
BWB Ref:	220500	Date:	08.01.25
Scale@A1:	1:500		

Drawing Status: **FOR INFORMATION**

Project - Originator - Zone - Level - Type - Role - Number: **EMG2-BWB-HGN-A50WB-DR-H-0102**

Status: **S2**

Rev: **P01**



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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.
5. Annotation shown coloured green achieves design standards
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Legend

- Draft Order Limits
- Alignment - Straights
- Alignment - Curves
- Alignment - Transitions
- Carriageway area
- Taper for cross section width change

ISSUES & REVISIONS

Rev	Date	Details of issue / revision	Drw	Rev
P01	04.03.25	Issue for information	MS	SH
P02	15.05.25	Minor annotation changes	MS	SH

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Client: SEGRO

Project Title: **East Midlands Gateway 2**

Drawing Title: **A453 Geometry Plans Sheet 3 of 4**

Drawn:	M.S		Reviewed:	S.H	
BWB Ref:	220500	Date:	04.03.25	Scale@A1:	1:500

Drawing Status: **FOR INFORMATION**

Project - Originator - Zone - Level - Type - Role - Number: **EMG2-BWB-HGN-A453-DR-H-0103**

Status: **S2**

Rev: **P02**

Cutline - See Sheet 3

CD 195 Tab E3.16
Design Speed 30kph

Cycle Route 15
(Section B)

L=111.416

R=41.500

L=93.891

CD 195 Tab E3.16
Design Speed 30kph

CD 195 Tab E3.16
Design Speed 40kph
(Downward gradient >3%)

CD 195 Table E/3.20
30 Kph Design Speed
Min radius = 32m

CD 195 Table E/3.20
30 Kph Design Speed
Min radius = 32m

CD 195 Table E/3.20
40 Kph Design Speed
Min radius = 57m

CD 195 Table E/3.20
40 Kph Design Speed
Min radius = 57m

1:2 Earthworks

1:2 Earthworks

R=161.500

L=32.214

L=23.921

L=37.241

Cycle Route 15
(Section B)

CD 195 Tab E3.16
Design Speed 40kph
(Downward gradient >3%)

Cutline - See Inset

A453

Runway Approach Lights

Gantry

Wilders way

Cutline - See Plan

CD 195 Table E/3.20
30 Kph Design Speed
Min radius = 32m

CD 195 Table E/3.20
30 Kph Design Speed
Min radius = 32m

R=11.500

L=3.312

L=8.499

R=41.500

L=6.500

For details of junction works, refer to dwgs;
EMG2-BWB-HGN-EMG1-DR-H-0101

CD 195 Tab E3.16
Design Speed 30kph

Cycle Route 15
(Section B)

CD 195 Table E/3.20
30 Kph Design Speed
Min radius = 32m

CD 143, Par. E/3.5.1
Separation from the carriageway
Min = 1.5m

Inset A

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Legend

- Draft Order Limits
- Alignment - Straights
- Alignment - Curves
- Alignment - Transitions
- Carriageway area
- Taper for cross section width change

ISSUES & REVISIONS

Rev	Date	Details of issue / revision	Drw	Rev
P01	04.03.25	Issue for information	MS	SH
P02	15.05.25	Minor annotation changes	MS	SH

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Client: SEGRO

Project Title: **East Midlands Gateway 2**

Drawing Title: **A453 Geometry Plans Sheet 4 of 4**

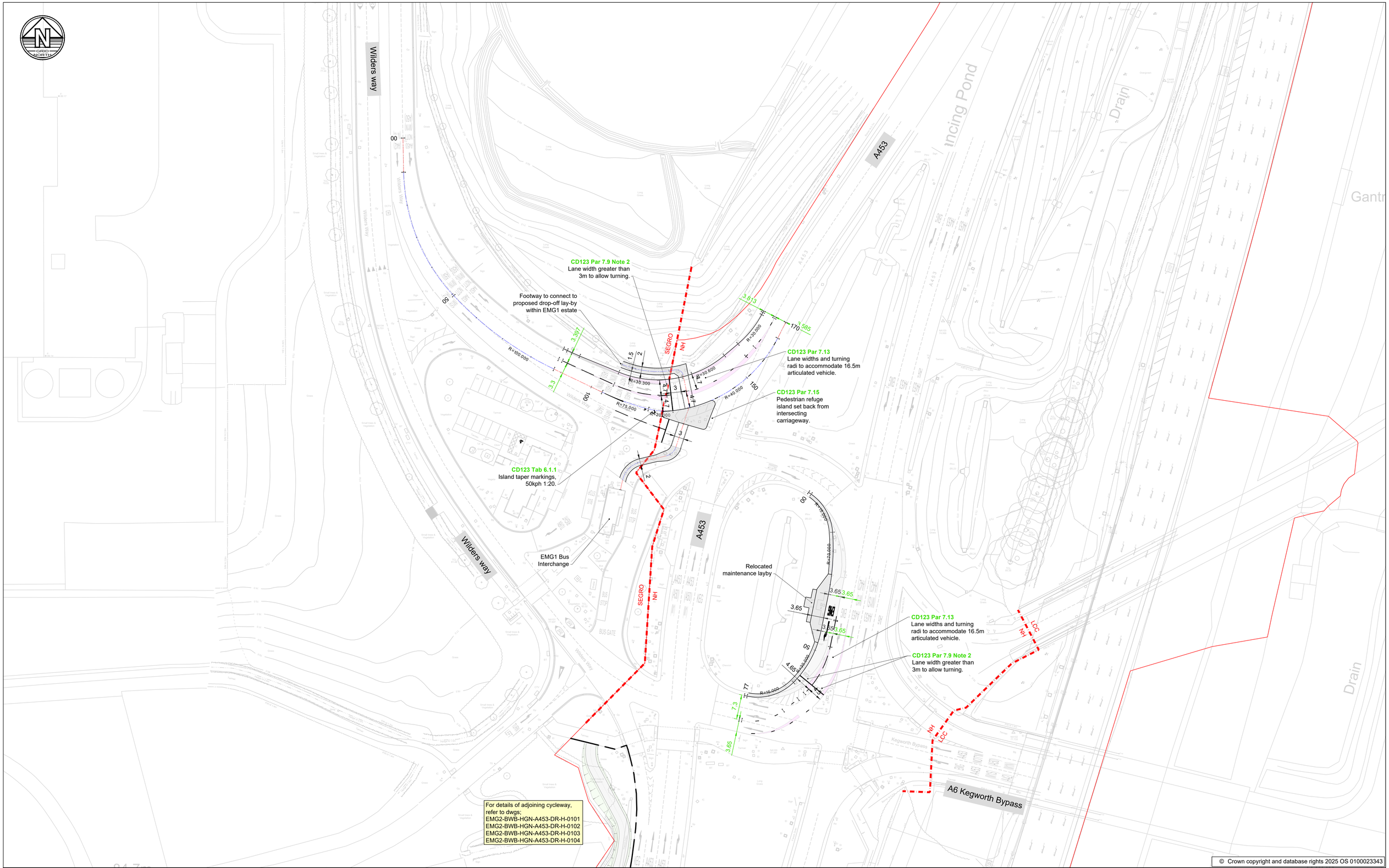
Drawn:	M.S	Reviewed:	S.H
BWB Ref:	220500	Date:	04.03.25
Scale@A1:	1:500		

Drawing Status: **FOR INFORMATION**

Project - Originator - Zone - Level - Type - Role - Number: **EMG2-BWB-HGN-A453-DR-H-0104**

Status: **S2**

Rev: **P02**



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Legend

- Draft Order Limits
- Alignment - Straights
- Alignment - Curves
- Alignment - Transitions
- Carriageway area
- Taper for cross section width change

ISSUES & REVISIONS

Rev	Date	Details of issue / revision	Drw	Rev
P01	27.02.25	Issue for information	MS	SH

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Client: SEGRO

Project Title: **East Midlands Gateway 2**

Drawing Title: **Existing EMG1 Junction Geometry Plan**

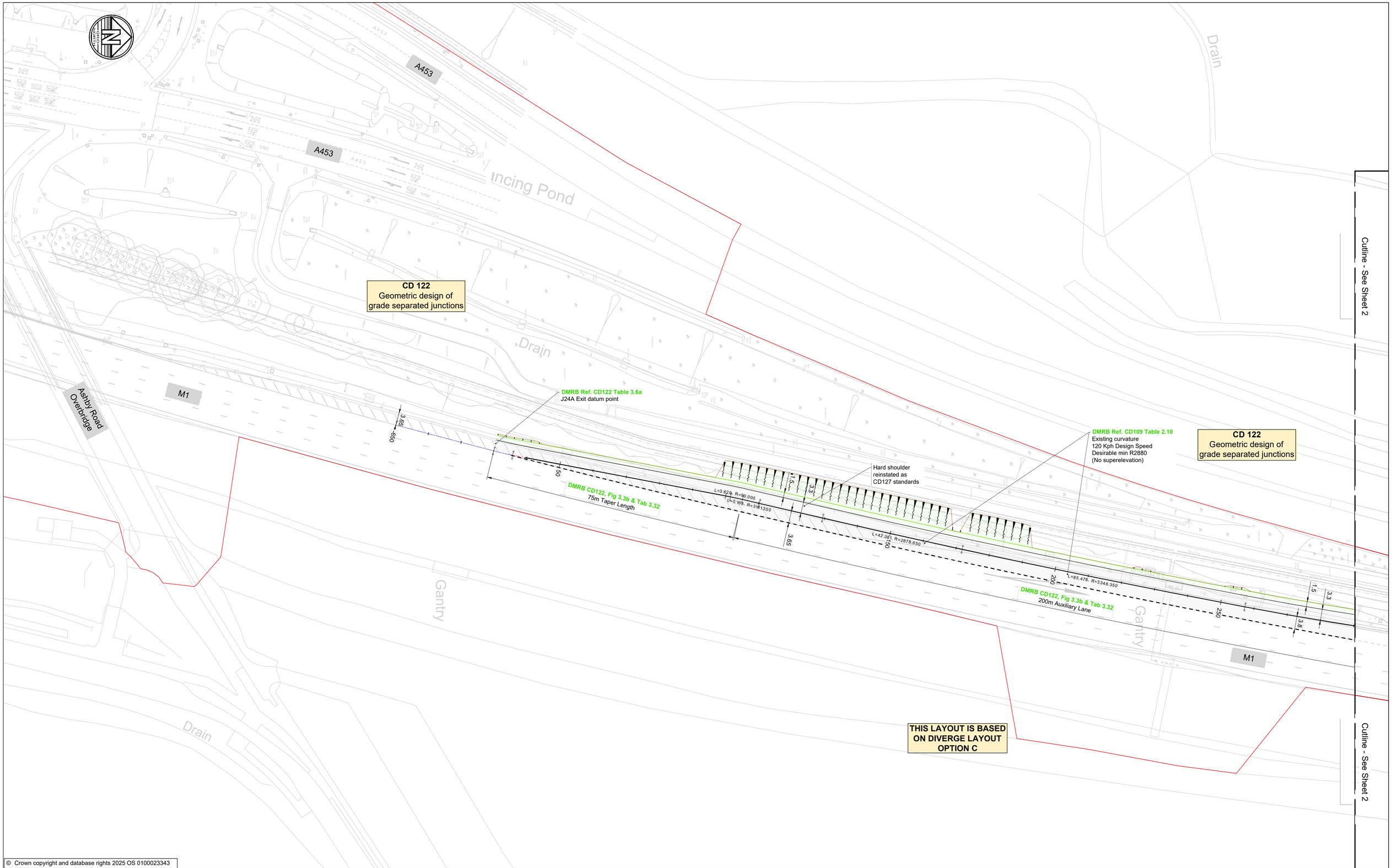
Drawn:	M.S	Reviewed:	S.H
BWB Ref:	220500	Date:	20.02.25
Scale@A1:	1:500		

Drawing Status: **FOR INFORMATION**

Project - Originator - Zone - Level - Type - Role - Number: **EMG2-BWB-HGN-A453-DR-H-0101**

Status: **S2**

Rev: **P01**



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Legend

- Draft Order Limits
- Alignment - Straights
- Alignment - Curves
- Alignment - Transitions
- Carriageway area
- Taper for cross section width change

ISSUES & REVISIONS

Rev	Date	Details of issue / revision	Drw	Rev
P01	04.07.25	Issue for information	MS	SH

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Client: SEGRO

Project Title: **East Midlands Gateway 2**

Drawing Title: **M1 Northbound Off-slip Geometry Plans Sheet 1 of 4**

Drawn:	M.S	Reviewed:	S.H
BWB Ref:	220500	Date:	08.01.25
Scale@A1:	1:500		

Drawing Status: **FOR INFORMATION**

Project - Originator - Zone - Level - Type - Role - Number: **EMG2-BWB-HGN-M1NBS-DR-H-0101**

Status: **S2** Rev: **P01**

Cutline - See Sheet 1

Cutline - See Sheet 3

Drain

CD 127
Cross-sections and headrooms - Figure 2.1.1N1b, Interchange Link IL1A

CD 127
Cross-sections and headrooms - Figure 2.1.1N1b, Interchange Link IL1A

DMRB Ref. CD109
Table 2.10
85 Kph Design Speed
Desirable min R1440
(No superelevation)

DMRB Ref. CD109
Table 2.10
Transition Length
85³/46.7*0.6*723.3=30.302m
85³/46.7*0.3*723.3=**60.604**m
√(24R) = 131.754m

DMRB Ref. CD109
Table 2.10
85 Kph Design Speed
Desirable min R720
(3.5% superelevation)

DMRB Ref. CD109
Table 2.10
Transition Length
85³/46.7*0.6*723.3=30.302m
85³/46.7*0.3*723.3=**60.604**m
√(24R) = 131.754m

L=93.186, R=1003.300

L=81.017

L=117.515, R=723.300

TR Length=60.604

TR Length=60.604

DMRB CD122, Fig 3.3b & Tab 3.32
80m Nose Length with 1:15 Taper

Tip of nose

Back of nose

DMRB Ref. CD122
Table 3.6a
J24 Exit datum point

DMRB CD122, Fig 3.3a & Tab 3.32
Exit taper = 185m

M1

THIS LAYOUT IS BASED ON DIVERGE LAYOUT OPTION C

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Legend

- Draft Order Limits
- Alignment - Straights
- Alignment - Curves
- Alignment - Transitions
- Carriageway area
- Taper for cross section width change

ISSUES & REVISIONS

Rev	Date	Details of issue / revision	Drw	Rev
P01	04.07.25	Issue for information	MS	SH

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Client: SEGRO

Project Title: **East Midlands Gateway 2**

Drawing Title: **M1 Northbound Off-slip Geometry Plans Sheet 2 of 4**

Drawn:	M.S	Reviewed:	S.H
BWB Ref:	220500	Date:	08.01.25
Scale@A1:	1:500		

Drawing Status: **FOR INFORMATION**

Project - Originator - Zone - Level - Type - Role - Number: **EMG2-BWB-HGN-M1NBS-DR-H-0102**

Status: **S2**

Rev: **P01**

Cutline - See Sheet 2

Cutline - See Sheet 4

CD 127
Cross-sections and headrooms - Figure 2.1.1N1b, Interchange Link IL1A

Cutline - See Sheet 2

A453

M1

M1 J24

DMRB Ref. CD109
Table 2.10
Transition Length
85²/46.7*0.6*723.3=30.302m
85²/46.7*0.3*723.3=**60.604**m
√(24R) = 131.754m

DMRB Ref. CD109
Table 2.10
Transition Length
85²/46.7*0.6*723.3=**30.285**m
85²/46.7*0.3*723.7=60.570m
√(24R) = 131.791m

DMRB Ref. CD109
Table 2.10
85 Kph Design Speed
Desirable min R720
(3.5% superelevation)

CD116 Para 3.26
Entry path radius shall not exceed 100m

CD116 Para 3.26
Entry path radius shall not exceed 100m

DMRB Ref. CD116
Para 3.14
Lane width >3m, <4.5m for multi lane entries

Illustrative bridge

Existing gantry to remain with signs replaced.

Tip of nose

Back of nose

DMRB CD122, Fig 3.3a & Tab 3.32
Nose = 70m (80m requirement)

Gantry

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Legend

- Draft Order Limits
- Alignment - Straights
- Alignment - Curves
- Alignment - Transitions
- Carriageway area
- Taper for cross section width change

ISSUES & REVISIONS

Rev	Date	Details of issue / revision	Drw	Rev
P01	04.07.25	Issue for information	MS	SH

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Client: SEGRO

Project Title: **East Midlands Gateway 2**

Drawing Title: **M1 Northbound Off-slip Geometry Plans Sheet 3 of 4**

Drawn:	M.S	Reviewed:	S.H
BWB Ref:	220500	Date:	08.01.25
Scale@A1:	1:500		

Drawing Status: **FOR INFORMATION**

Project - Originator - Zone - Level - Type - Role - Number: **EMG2-BWB-HGN-M1NBS-DR-H-0103**

Status: **S2**

Rev: **P01**

CD 127
Cross-sections and headrooms - Figure 2.1.1N1b, Interchange Link IL1A

THIS LAYOUT IS BASED ON BRIDGE LAYOUT OPTION 1 & 2A/2C

CD 127
Cross-sections and headrooms - Figure 2.1.1N1b, Interchange Link IL1A

CD 127
Cross-sections and headrooms - Figure 2.1.1N1b, Interchange Link IL2C

For details of adjoining A50 Merge, refer to dwgs;
EMG2-BWB-HGN-A50WB-DR-H-0101
EMG2-BWB-HGN-A50WB-DR-H-0102

TR Length=20.000

L=1.728 L=12.258. R=350.900

Tip of nose

Back of nose

DMRB CD122, Fig 3.14e & Tab 3.21
75m Nose Length with 1:25 Taper

L=319.994 R=723.700

DMRB Ref. CD109
Table 2.10
85 Kph Design Speed
Desirable min R720
(3.5% superelevation)

CD116 Para 3.26
Entry path radius shall not exceed 100m

DMRB Ref. CD116 Para 3.19
Entry kerb radius >10m, <100m (Best fit circular curve over 25m from giveway.)

CD116 Para 3.18 Note 3, 3.18.1
Entry angle should be between 20° & 60°

CD116 Para 3.29.3
Exit kerb radius should be between 20m & 100m

DMRB Ref... CD116 Para 3.14
Lane width >3m, <4.5m for multi lane entries

CD 116
Geometric design of roundabouts

Cutline - See Sheet 3

A50

East Midlands Airport Hotel

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4. Any discrepancies noted on site are to be reported to the engineer immediately.
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Legend

- Draft Order Limits
- Alignment - Straights
- Alignment - Curves
- Alignment - Transitions
- Carriageway area
- Taper for cross section width change

ISSUES & REVISIONS

Rev	Date	Details of issue / revision	Drw	Rev
P01	04.07.25	Issue for information	MS	SH

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Client: SEGRO

Project Title: **East Midlands Gateway 2**

Drawing Title: **M1 Northbound Off-slip Geometry Plans Sheet 4 of 4**

Drawn:	M.S	Reviewed:	S.H
BWB Ref:	220500	Date:	08.01.25
Scale@A1:	1:500		

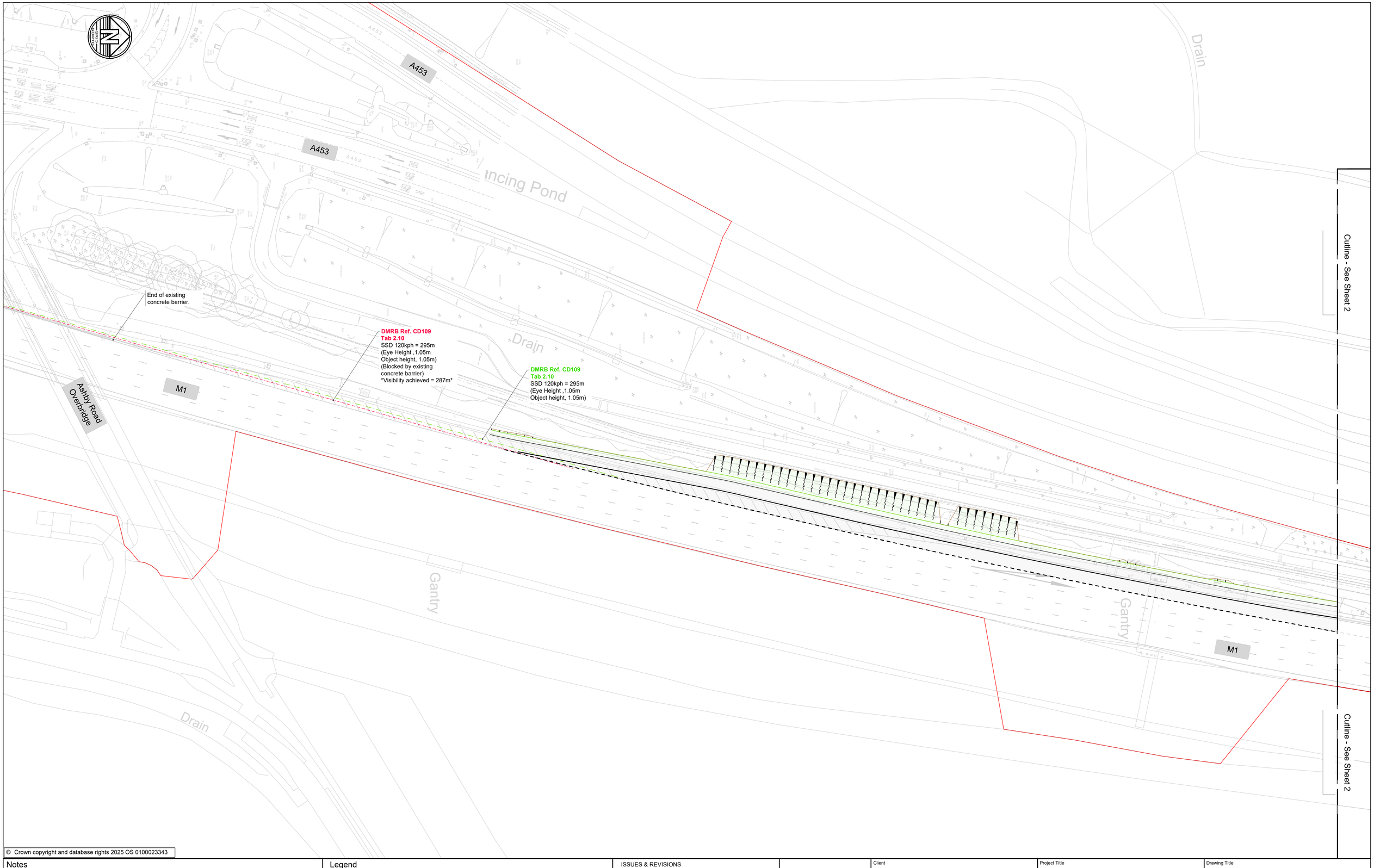
Drawing Status: **FOR INFORMATION**

Project - Originator - Zone - Level - Type - Role - Number: **EMG2-BWB-HGN-M1NBS-DR-H-0104**

Status: **S2**

Rev: **P01**

APPENDIX 28: Directional Signage Strategy



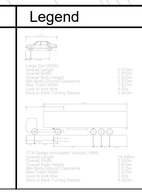
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5. Visibility sight lines shown are in plan view only. These are to be checked vertically against the design / existing surfaces at detailed design stage.

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ISSUES & REVISIONS

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Client: SEGRO

Project Title: **East Midlands Gateway 2**

Drawing Title: **M1 Northbound Off-slip Vehicle Swept Paths & Visibility Sheet 1 of 4**

Drawn:	M.S	Reviewed:	S.H
BWB Ref:	220500	Date:	08.01.25

Scale@A1: 1:500

Drawing Status: **FOR INFORMATION**

Project - Originator - Zone - Level - Type - Role - Number: **EMG2-BWB-HGN-M1NBS-DR-H-0110**

Status: **S2**

Rev: **P01**

Cutline - See Sheet 1

Cutline - See Sheet 3

Drain

DMRB Ref. CD109
Tab 2.10
Visibility upto back of diverge nose
SSD 120kph = 295m

DMRB Ref. CD109
Tab 2.10
Visibility upto back of diverge nose
SSD 120kph = 295m

A 453

Lay-by

M1

M1

M1

Cutline - See Sheet 1

Cutline - See Sheet 3

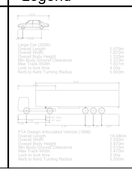
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ISSUES & REVISIONS

Rev	Date	Details of issue / revision	Drw	Rev
P01	04.07.25	Issue for information	MS	SH

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Client: SEGRO

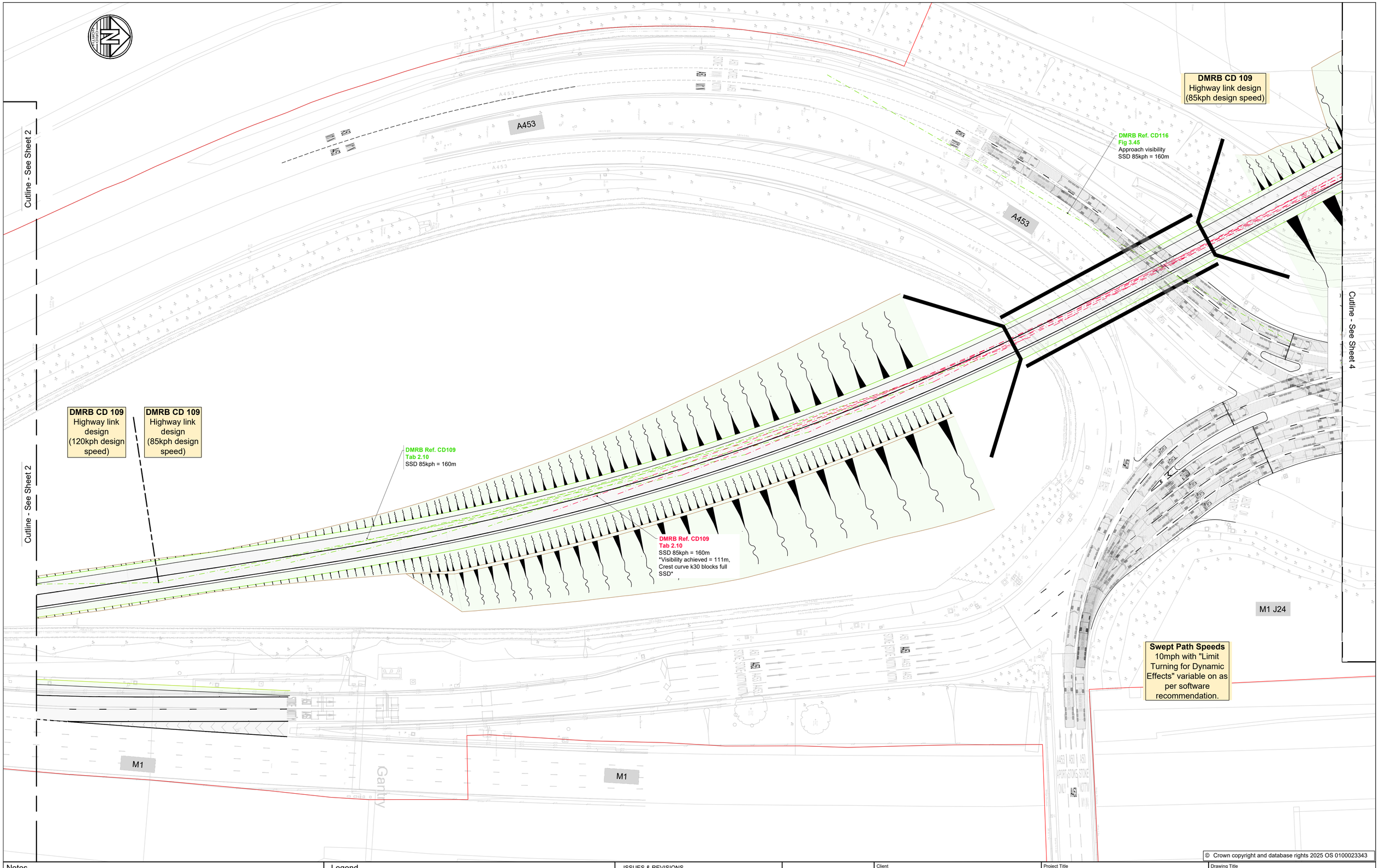
Project Title: **East Midlands Gateway 2**

Drawing Title: **M1 Northbound Off-slip Vehicle Swept Paths & Visibility Sheet 2 of 4**

Drawn:	M.S	Reviewed:	S.H		
BWB Ref:	220500	Date:	08.01.25	Scale@A1:	1:500

Drawing Status: **FOR INFORMATION**

Project - Originator - Zone - Level - Type - Role - Number	Status	Rev
EMG2-BWB-HGN-M1NBS-DR-H-0111	S2	P01


Cutline - See Sheet 2
Cutline - See Sheet 2
Cutline - See Sheet 4
DMRB CD 109
Highway link design
(120kph design speed)
DMRB CD 109
Highway link design
(85kph design speed)
DMRB CD 109
Highway link design
(85kph design speed)
DMRB Ref. CD116
Fig 3.45
Approach visibility
SSD 85kph = 160m
DMRB Ref. CD109
Tab 2.10
SSD 85kph = 160m
DMRB Ref. CD109
Tab 2.10
SSD 85kph = 160m
*Visibility achieved = 111m,
Crest curve k30 blocks full
SSD*
Swept Path Speeds
10mph with "Limit Turning for Dynamic Effects" variable on as per software recommendation.
A453
M1
M1
M1 J24
Gantry
A453
A453
A453

DMRB CD 109
Highway link design
(85kph design speed)

DMRB CD 109
Highway link design
(85kph design speed)

DMRB CD 109
Highway link design
(85kph design speed)

DMRB CD 109
Highway link design
(85kph design speed)

DMRB Ref. CD109
Tab 2.10
SSD 85kph = 160m

DMRB Ref. CD109
Tab 2.10
*Visibility achieved =
111m, Crest curve k30
blocks full SSD*

DMRB Ref. CD109
Tab 2.10
Exit visibility
SSD 85kph = 160m

DMRB Ref. CD109
Tab 2.10
Exit visibility
SSD 85kph = 160m
*Visibility achieved = 135m,
Blocked by timber noise
fence*

Existing timber noise fence

Existing timber noise fence

Existing
timber
noise fence

Swept Path Speeds
10mph with "Limit Turning for Dynamic Effects" variable on as per software recommendation.

DMRB CD 116
Roundabout design

A50

A50

East Midlands
Airport Hotel

Gas

Cutline - See Sheet 3

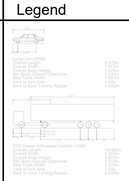
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Notes

1. Do not scale this drawing. All dimensions must be checked/ verified on site. If in doubt ask.
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.
5. Visibility sight lines shown are in plan view only. These are to be checked vertically against the design / existing surfaces at detailed design stage.

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Legend



ISSUES & REVISIONS

Rev	Date	Details of issue / revision	Drw	Rev
P01	04.07.25	Issue for information	MS	SH

BWB
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- Birmingham | 0121 233 3322
- Leeds | 0113 233 8000
- London | 020 7234 9122
- Manchester | 0161 233 4260
- Nottingham | 0115 924 1100

Client: SEGRO

Project Title: **East Midlands Gateway 2**

Drawing Title: **M1 Northbound Off-slip Vehicle Swept Paths & Visibility Sheet 4 of 4**

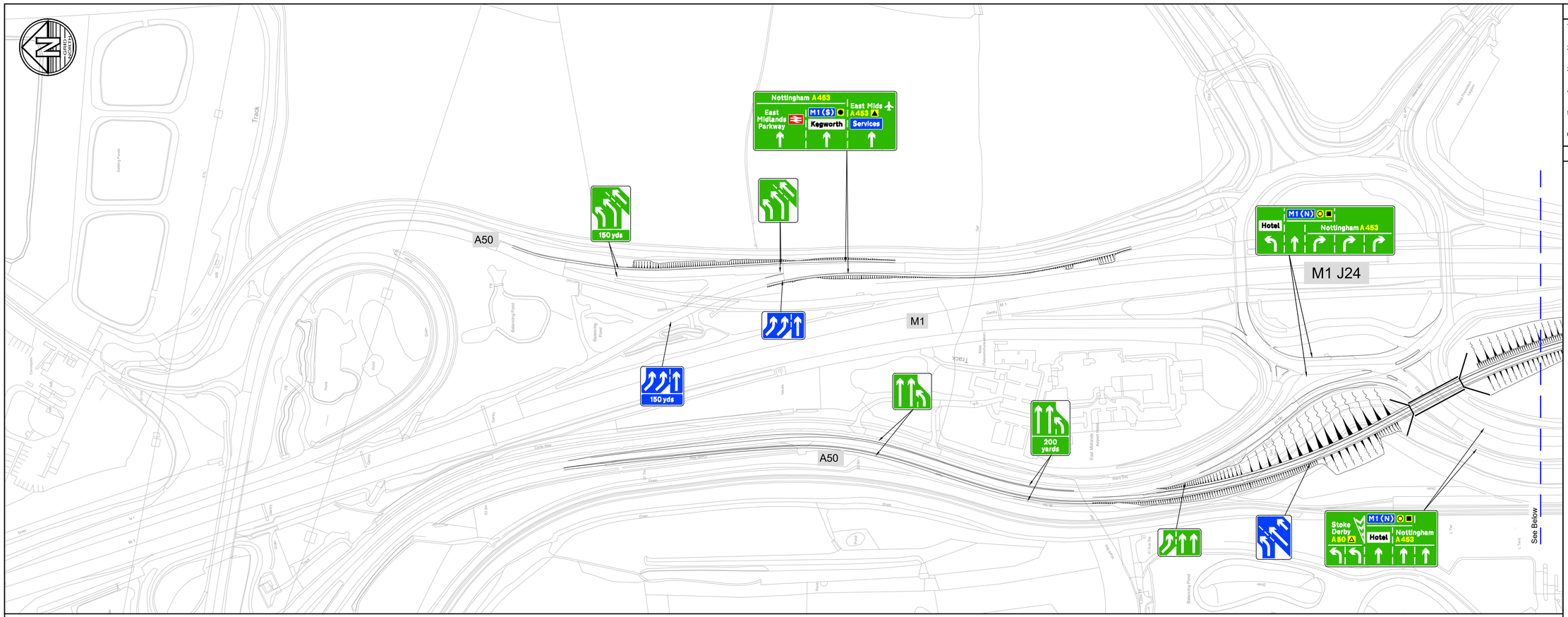
Drawn:	M.S	Reviewed:	S.H	
BWB Ref:	220500	Date:	08.01.25	Scale@A1: 1:500

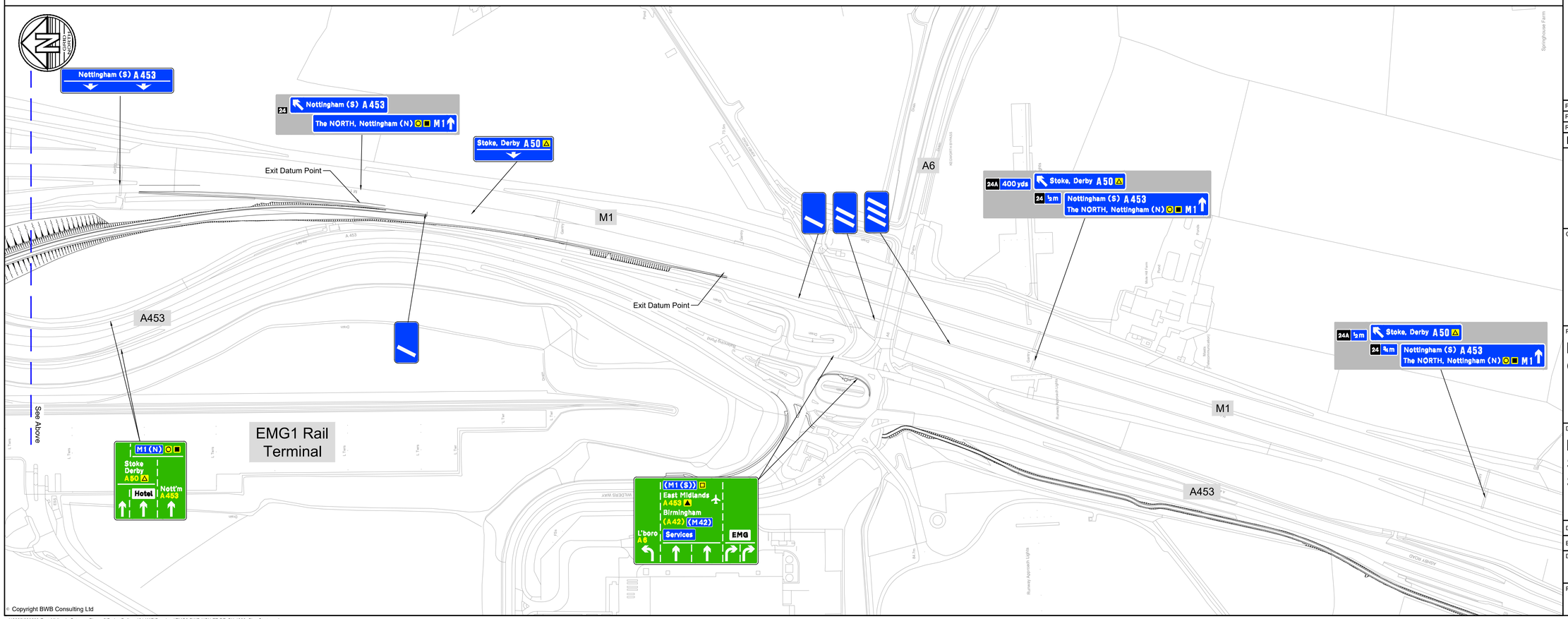
Drawing Status: **FOR INFORMATION**

Project - Originator - Zone - Level - Type - Role - Number: **EMG2-BWB-HGN-M1NBS-DR-H-0113**

Status: **S2**

Rev: **P01**





Notes

1. Do not scale this drawing. All dimensions must be checked/ verified on site. If in doubt ask.
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.
5. The purpose of this drawing is to show the strategy for directional signage. It is subject to detailed design and road safety audit.
6. Existing retained directional signage is not shown on this drawing.

Legend

Rev	Date	Details of issue / revision	Drw	Rev
P02	25.06.25	Scheme updated	SRH	SRH
P01	26.03.25	Preliminary Issue	JFP	SRH

Issues & Revisions

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□ Leeds | 0113 233 8000
□ London | 020 7407 3879
□ Manchester | 0161 233 4260
□ Nottingham | 0115 924 1100
www.bwbconsulting.com

Client

SEGRO

Project Title

EAST MIDLANDS GATEWAY 2 (EMG2)

Drawing Title

DIRECTIONAL SIGN STRATEGY SHEET 1 OF 2

Drawn:	J. Palmer	Reviewed:	S. Hilditch
BWB Ref:	220500	Date: 26.03.25	Scale@A1: 1:2500

Drawing Status

FOR INFORMATION

Project - Originator - Zone - Level - Type - Role - Number	Status	Rev
EMG2-BWB-HSN-ZZ-DR-CH-1200	S2	P02

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J:\2022\220500-East Midlands Gateway Phase 2\ProjectDelivery\01-WIP\Drawings\EMG2-BWB-HSN-ZZ-DR-CH-1200_Sign Strategy.dwg

East Midlands Airport

Pegasus Business Park

A453

Finger Farm Roundabout

Donington Services

M1 J23A

A42

M1

Hyam's Lane

All routes
(M1)
(M42)
(A50)
Pegasus Business Park
EMG2

Birmingham
A42 (M42)
London
Leicester
Loughborough
(M1 South)
(M1 North)
Nottingham A453
Stoke Derby (A50)
EMG Rail Freight Terminal
Services

(M1 North)
Nottingham A453
Stoke Derby (A50)
East Midlands Parkway
EMG Rail Freight Terminal
Kegworth (A6)

Ashby
A42
Services
Diseworth
Castile Donington
Breedon
EMG2
A453
Donington Park

EMG2

Castle Donington A453
East Midlands
EMG2
Pegasus Business Park

East Midlands A453
EMG2 ½
Diseworth 1½
Castile Donington 4
Donington Park 4
Breedon 5

EMG Rail Freight Terminal
Kegworth
A453
Alton Towers
Castle Donington
Castle Donington
EMG2
Donington Park

24A 3m
Stoke, Derby A50
24 1m
Nottingham (S) A453
The NORTH, Nottingham (N) M1

INSET A

East Midlands A453

THE NORTH, Nottingham M1
Stoke, Derby (A50)

Scale 1:2500

INSET B

23A
A453 East Mids
Stoke, Derby (A50)
The NORTH, Nottingham (N) M1

For East Midlands Parkway
Leave at J24

23A 1m
A453 East Mids
Stoke, Derby (A50)
The NORTH, Nottingham (N) M1

Scale 1:2500

INSET C

East Midlands A453
23A 1m

Scale 1:2500

INSET D

For Alton Towers
Use junction 24A

Scale 1:2500

Notes

1. Do not scale this drawing. All dimensions must be checked/ verified on site. If in doubt ask.
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.
5. The purpose of this drawing is to show the strategy for directional signage. It is subject to detailed design and road safety audit.
6. Existing retained directional signage is not shown on this drawing.

Legend

Rev	Date	Details of issue / revision	Drw	Rev
P02	13.06.25	Background mapping update	SRH	SRH
P01	26.03.25	Preliminary Issue	JFP	SRH

Issues & Revisions

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Client

SEGRO

Project Title

EAST MIDLANDS GATEWAY 2 (EMG2)

Drawing Title

DIRECTIONAL SIGN STRATEGY SHEET 2 OF 2

Drawn:	J. Palmer	Reviewed:	S. Hilditch
BWB Ref:	220500	Date: 26.03.25	Scale@A1: 1:2500

Drawing Status

FOR INFORMATION

Project - Originator - Zone - Level - Type - Role - Number	Status	Rev
EMG2-BWB-HSN-ZZ-DR-CH-1201	S2	P02

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J:\2022\220500-East Midlands Gateway Phase 2\ProjectDelivery\01-WIP\Drawings\EMG2-BWB-HSN-ZZ-DR-CH-1200_Sign Strategy.dwg

APPENDIX 29: Stage 1B Modelling sign off sheet

TECHNICAL APPROVAL
East Midlands Gateway 2

Document Name	Stage 1B Modelling Documents	**Project reference**	220500
Document reference / revision	Trip Generation: Core Assessment Note (EMG2-BWB-GEN-XX-RP-TR-0012 Revision P1) EMG1 Rail Freight Terminal (EMG2-BWB-GEN-XX-RP-CH-0011)	**Date**	12.02.25

Approver 1	**Name**	Jeremy Bloom
	Organisation	National Highways
	Position	Interim Spatial Planner
	Date	18/02/2025
	Signature	[redacted]
	Comments ***(if applicable)***	**Trip Generation: Core Assessment Note (EMG2-BWB-GEN-XX-RP-TR-0012 Revision P1)** JSJV (on behalf of National Highways) have undertaken a review of the supplied note. The notes states that development proposals comprise 430,000sqm of industrial development across the following sites: • 400,000sqm of B2/B8 industrial development on EMG2, including 100,000sqm of B8 mezzanine floorspace; and, • 30,000sqm of B8 industrial development on Plot 16 of EMG1. National Highways does not agree that the EMG1 sample data provided shows "that the actual recorded trip rates are a lot lower" as stated in the Note at paragraph 3.2. The data shows variance and we note that the observed 2022 data for the 0700 – 0800 peak hour actually generates higher demand than the sample data for the 0800 – 0900 (which is being used for the current modelling assessment). We are therefore cautious in terms of how much weight we can give the observed data given the variation demonstrated within the data set.

		Paragraph 3.4 notes discussions taking place regarding a reduced trip rate being applied to the mezzanine floorspace. National Highways still do not feel that there is sufficient justification to accept the assumption of a reduced rate based upon the sample provided. However, the trip rates presented in Table 1 and trip generation information presented in Table 2 are agreed with National Highways and are considered to accurately reflect the current development proposals. Should there be any proposals to change the total floorspace (430,000sqm,) National Highways will require the full quantum of development, utilising the agreed trip rates presented in Table 1 and the trip generation information in Table 2, to be accounted for in any strategic, standalone and microsimulation modelling. It is noted that HGV movements to EMG1 Rail Freight Terminal will be assessed as part of the Microsimulation modelling assessment. This is agreed with National Highways. **EMG1 Rail Freight Terminal (EMG2-BWB-GEN-XX-RP-CH-0011)** • JSJV (on behalf of National Highways) undertook a review of the supporting changes to the Rail Freight Interchange. The note set out the change in maximum crane height to 24m and the increased stacking of containers to 15m. • National Highways confirmed on 23/10/24 that they agreed that the Rail Freight Interchange changes in maximum crane height would not affect traffic on the SRN.
Approver 2	**Name**	
	Organisation	
	Position	
	Date	
	Signature	

	Comments *(if applicable)*	

TECHNICAL APPROVAL
East Midlands Gateway 2

Document Name	Stage 1B Modelling Documents	**Project reference**	220500
Document reference / revision	Trip Generation: Core Assessment Note (EMG2-BWB-GEN-XX-RP-TR-0012 Revision P1) EMG1 Rail Freight Terminal (EMG2-BWB-GEN-XX-RP-CH-0011)	**Date**	12.02.25

Approver 1	**Name**	
	Organisation	
	Position	
	Date	
	Signature	
	Comments ***(if applicable)***	

Approver 2	**Name**	
	Organisation	
	Position	
	Date	
	Signature	
	Comments ***(if applicable)***	

Approver 3	**Name**	Tom Boylan
	Organisation	Nottinghamshire County Council
	Position	Principal Officer Transport Planning
	Date	06/03/2025

	Signature	[redacted]
	Comments ***(if applicable)***	Nottinghamshire County Council (NCC) are happy to accept the proposed trip rates as outlined within the **Trip Generation: Core Assessment document** (18/10/24). The note is based on a development comprising of 430,000sqm industrial development and NCC consider the Trip Rates as shown in Table 1 to be robust. NCC accept that the proposed crane height amendments for EMG2 will not impact on the road traffic generated by the rail terminal and consequently are willing to sign off formally on the **EMG1 Rail Freight Terminal document.**

APPENDIX 30: Leicestershire County Council email dated 11 December 2024

TECHNICAL APPROVAL
East Midlands Gateway 2

Document Name	**Stage 1A Modelling Documents**	**Project reference**	220500
Document reference / revision	VISSIM Scoping Note (EMG2-BWB-GEN-XX-RP-TR-0003 Revision P3) Modelling Furnessing Methodology (EMG2-BWB-GEN-XX-RP-TR-0004 Revision P3) VISSIM LMVR (EMG2-BWB-GEN-XX-RP-TR-0006 Revision P2) PRTM proforma v14 (10/10/2024) PRTM uncertainty log v7 PRTM LMVR Addendum (19/08/2024)	**Date**	10.10.2024

Approver 1	**Name**	Catherine Townend
	Organisation	National Highways
	Position	Spatial Planner
	Date	04/12/2024
	Signature	[redacted]
	Comments *(if applicable)*	National Highways has undertaken a review of the referenced documents and notes the following: - **VISSIM Scoping Note (EMG2-BWB-GEN-XX-RP-TR-0003 Revision P3)** • JSJV (on behalf of National Highways) undertook a review of the supporting VISSIM Scoping Note. • Subject to a number of revisions to the scoping Note and Journey Time routes, as set out in email 14/03/2023, National Highways were content with the scope of the VISSIM model to analyse impacts on the SRN. **Modelling Furnessing Methodology (EMG2-BWB-GEN-XX-RP-TR-0004 Revision P3)** • JSJV have undertaken a detailed review of the Furnessing Methodology note and the supporting excel spreadsheets.

Commented [AW1]: LCC defers to NH's review and approval.

Commented [AW2]: Whilst LCC note NH's comments, LCC have not reviewed this yet and therefore if this is to be included in this sign-off group for this sheet, we cannot sign the sheet off.

		• Corrective actions were undertaken as outlined in emailed correspondence dated 07/02/2024. • A second audit was undertaken which identified a number of issues with the supplied spreadsheets as outlined in email correspondence dated 27/02/2024. As outlined in an email dated 25/03/2024 National Highways advised: - • There is a significant element of re-routing at some junctions such as M1 J25 which sees a sizable increase in traffic flow on the A50 West to M1 North movement; and, • It is possible there is also some model noise from the SATURN model. National Highways are content with the proposed methodology subject to the continued critical review of the above matters as part of the forecasting testing. In addition, National Highways require the Promoter to work in consultation with us through the development of the forecasting testing on the Strategic Road Network. **VISSIM LMVR (EMG2-BWB-GEN-XX-RP-TR-0006 Revision P2)** • National Highways requested JSJV review the supporting LMVR and modelling files in May 2023. • JSJV outlined the findings of the first audit review and produced a supporting Tech Note [B2448400 Midlands Freeport VISSIM Base Model Final Review April 2023]. This audit identified 10 Substantive issues, 11 Comments and 3 Observations which required corrective action. • JSJV undertook a second audit for the supporting LMVR and revised modelling. The findings of this audit are contained in a second Tech Note [B2448400 Midlands Freeport VISSIM Base Model Final Review Sept 2023]. • National Highways approved the use of the Base Model for analysing impacts on the SRN in September 2023. **PRTM proforma v14 (10/10/2024)** • JSJV (on behalf of National Highways) advised that we were content with the 13th version off the proforma as outlined in email correspondence dated 08/10/24.

Commented [AW3]: LCC defers to NH's review and approval.

Commented [AW4]: Matters detailed on this proforma are agreed by LCC, but not anything arising from references to further work such with regard to vision & validate, Mezzanines etc. We also note that further information with regard to construction stage modelling is to be provided and we agree that this is required.

		• The 14th version of the PRTIM proforma is also now agreed by National Highways. **PRTM uncertainty log v7** • National Highways are content with the 7th version of the uncertainty log received on 14/10/24. **PRTM LMVR Addendum (19/08/2024)** • As outlined in email correspondence 18/09/2024, National Highways are content with the use of EMFM (PRTM) to analyse impacts on the SRN noting that Journey Times may need to be considered again as part of the forecasting analysis. It was noted that Calibration is generally very high (94.2% in AM, 92.2% in PM) across the modelled area. Where the model does not achieve link calibration, as shown in Figures 3.4 and 3.5, these locations are far from the development site and do not appear to be on the SRN. There is one exception to this, on the M1 between J23a and 24 in the PM peak, which has a reported GEH of 6.8 (460 vehicles modelled above observed). There is a risk of over-fitting the model to calibration counts which will need to be kept in mind when considering the forecasting. **Local Junction Base Model review [240514 EMG2_Base Jct Model Comments and Responses_150524]** • National Highways requested JSJV review the supporting Local Junction Modelling. • The findings of the audit are presented in a Tech Note dated 12th February 2024 [B2428400 Midlands EMG_BWB Junction Models Review 2024]. The audit identified 26 Substantive issues, 7 Comments and 23 Observations. • Two further re-submissions were made and further audit comments captured in the Audit Tracker [240514 EMG2_Base Jct Model Comments and Responses_150524] • A final audit was undertaken by JSJV and the base models were approved for use to analyse impacts on the SRN in June 2024. The findings of the audit are presented in a Tech Note [B2428400 Midlands EMG_BWB Junction Models Review June 2024].

Commented [AW5]: Agreed by LCC.

Commented [AW6]: We are content with this subject to NH's comments, but only if the 2019 model is still to be used. We seek clarity over whether it is now the intention to use PRTM 2023, in which case fresh validation may be required.

Commented [AW7]: We note NH's comments, however LCC have not reviewed the local network models yet and therefore if this is to be included in this sign-off group for this sheet, we cannot sign the sheet off.

TECHNICAL APPROVAL
East Midlands Gateway 2

		Trip Generation; Core Assessment Note (EMG2-BWB-GEN-X-RP-TR-0012 Revision P1) • JSJV (on behalf of National Highways) undertook a review of the supporting Trip Generation Note. This note covers a series of agreements for the trip rate and quantum for the EMGP2 development modelling. • Included within this are the treatment of mezzanine floorspace as ground floorspace for the purposes of trip rate generation within the core scenario, using the higher shoulder peak, inclusive of 30,000 sqm of B8 at EMG1. • The agreed trip generation as contained within this note has formed the basis of the proforma with the 13th and 14th version, agreed (as detailed under PRTM proforma v14 (10/10/2024)) **EMG1 Rail Freight Terminal (EMG2-BWB-GEN-XX-RP-CH-0011)** • JSJV (on behalf of National Highways) undertook a review of the supporting changes to the Rail Freight Interchange. This note set out the change in maximum crane height to 24m and the increased stacking of containers to 15m. • National Highways agreed on 23/10/24 that they agreed that the Rail Freight Interchange changes in maximum crane height would not affect traffic on the SRN.
Approver 2	**Name**	
	Organisation	Leicestershire County Council
	Position	
	Date	
	Signature	
	Comments *(if applicable)*	
Approver 3	**Name**	
	Organisation	Nottinghamshire County Council

Commented [AW8]: The note is agreed, however we would refer back to our earlier comments that the whole trip generation methodology is based on assessments undertaken a significant time ago, including rail demand.

Commented [AW9]: The note is agreed, notwithstanding out comments on the trip generation note above. Whilst the rail freight trips associated with EMGP2 do not need to be added to the PRTM assessment, they will need to be taken account of as part of the VISSIM modelling.

TECHNICAL APPROVAL

East Midlands Gateway 2

	Position	
	Date	
	Signature	
	Comments *(if applicable)*	

APPENDIX 31: BREAAM Accessibility Index Calculator (proposed development)

BREEAM 2018 Tra01/02 Accessibility Index calculator

BREEAM® UK delivered by bre

Using the drop down boxes make the relevant selections and press the 'Select' button

Building type: Offices/Industrial

No. nodes required: 2

Select

NODE 1

Public transport type	Bus									
Distance to node (m)	300									
	Service 1	Service 2	Service 3	Service 4	Service 5	Service 6	Service 7	Service 8	Service 9	Service 10
Average frequency per hour	4	2	3	1	2	4				

NODE 2

Public transport type	Bus									
Distance to node (m)										
	Service 1	Service 2	Service 3	Service 4	Service 5	Service 6	Service 7	Service 8	Service 9	Service 10
Average frequency per hour										

Accessibility Index	6.21

APPENDIX 32: Transport Reporting 5 Sign Off Sheet

TECHNICAL APPROVAL
East Midlands Gateway 2

Document Name	Transport Reporting 5	**Project reference**	220500
Document reference / revision	*Construction Traffic Management Plan (PC24-004 EMG 2 Revision P05.4)*	**Date**	01.08.25

Approver 1	**Name**	Jeremy Bloom
	Organisation	National Highways
	Position	Interim Spatial Planner
	Date	4 August 2025
	Signature	[redacted]
	Comments ***(if applicable)***	

Approver 2	**Name**	
	Organisation	
	Position	
	Date	
	Signature	
	Comments ***(if applicable)***	

APPENDIX 33: Stage 1A Modelling sign off sheet

TECHNICAL APPROVAL
East Midlands Gateway 2

Document Name	**Stage 1A Modelling Documents**	**Project reference**	220500
Document reference / revision	VISSIM Scoping Note (EMG2-BWB-GEN-XX-RP-TR-0003 Revision P3) Modelling Furnessing Methodology (EMG2-BWB-GEN-XX-RP-TR-0004 Revision P3) VISSIM LMVR (EMG2-BWB-GEN-XX-RP-TR-0006 Revision P2) PRTM proforma v14 (10/10/2024) PRTM uncertainty log v7 PRTM LMVR Addendum (19/08/2024)	**Date**	10.10.2024

Approver 1	**Name**	Catherine Townend
	Organisation	National Highways
	Position	Spatial Planner
	Date	04/12/2024
	Signature	[redacted]
	Comments *(if applicable)*	National Highways has undertaken a review of the referenced documents and notes the following: - **VISSIM Scoping Note (EMG2-BWB-GEN-XX-RP-TR-0003 Revision P3)** • JSJV (on behalf of National Highways) undertook a review of the supporting VISSIM Scoping Note. • Subject to a number of revisions to the scoping Note and Journey Time routes, as set out in email 14/03/2023, National Highways were content with the scope of the VISSIM model to analyse impacts on the SRN. **Modelling Furnessing Methodology (EMG2-BWB-GEN-XX-RP-TR-0004 Revision P3)** • JSJV have undertaken a detailed review of the Furnessing Methodology note and the supporting excel spreadsheets.

		• Corrective actions were undertaken as outlined in emailed correspondence dated 07/02/2024. • A second audit was undertaken which identified a number of issues with the supplied spreadsheets as outlined in email correspondence dated 27/02/2024. As outlined in an email dated 25/03/2024 National Highways advised: - • There is a significant element of re-routing at some junctions such as M1 J25 which sees a sizable increase in traffic flow on the A50 West to M1 North movement; and, • It is possible there is also some model noise from the SATURN model. National Highways are content with the proposed methodology subject to the continued critical review of the above matters as part of the forecasting testing. In addition, National Highways require the Promoter to work in consultation with us through the development of the forecasting testing on the Strategic Road Network. **VISSIM LMVR (EMG2-BWB-GEN-XX-RP-TR-0006 Revision P2)** • National Highways requested JSJV review the supporting LMVR and modelling files in May 2023. • JSJV outlined the findings of the first audit review and produced a supporting Tech Note [B2448400 Midlands Freeport VISSIM Base Model Final Review April 2023]. This audit identified 10 Substantive issues, 11 Comments and 3 Observations which required corrective action. • JSJV undertook a second audit for the supporting LMVR and revised modelling. The findings of this audit are contained in a second Tech Note [B2448400 Midlands Freeport VISSIM Base Model Final Review Sept 2023]. • National Highways approved the use of the Base Model for analysing impacts on the SRN in September 2023. **PRTM proforma v14 (10/10/2024)** • JSJV (on behalf of National Highways) advised that we were content with the 13th version off the proforma as outlined in email correspondence dated 08/10/24.

		• The 14th version of the PRTIM proforma is also now agreed by National Highways. **PRTM uncertainty log v7** • National Highways are content with the 7th version of the uncertainty log received on 14/10/24. **PRTM LMVR Addendum (19/08/2024)** • As outlined in email correspondence 18/09/2024, National Highways are content with the use of EMFM (PRTM) to analyse impacts on the SRN noting that Journey Times may need to be considered again as part of the forecasting analysis. It was noted that Calibration is generally very high (94.2% in AM, 92.2% in PM) across the modelled area. Where the model does not achieve link calibration, as shown in Figures 3.4 and 3.5, these locations are far from the development site and do not appear to be on the SRN. There is one exception to this, on the M1 between J23a and 24 in the PM peak, which has a reported GEH of 6.8 (460 vehicles modelled above observed). There is a risk of over-fitting the model to calibration counts which will need to be kept in mind when considering the forecasting. **Local Junction Base Model review [240514 EMG2_Base Jct Model Comments and Responses_150524]** • National Highways requested JSJV review the supporting Local Junction Modelling. • The findings of the audit are presented in a Tech Note dated 12th February 2024 [B2428400 Midlands EMG_BWB Junction Models Review 2024]. The audit identified 26 Substantive issues, 7 Comments and 23 Observations. • Two further re-submissions were made and further audit comments captured in the Audit Tracker [240514 EMG2_Base Jct Model Comments and Responses_150524] • A final audit was undertaken by JSJV and the base models were approved for use to analyse impacts on the SRN in June 2024. The findings of the audit are presented in a Tech Note [B2428400 Midlands EMG_BWB Junction Models Review June 2024].

		Trip Generation; Core Assessment Note (EMG2-BWB-GEN-X-RP-TR-0012 Revision P1) • JSJV (on behalf of National Highways) undertook a review of the supporting Trip Generation Note. This note covers a series of agreements for the trip rate and quantum for the EMGP2 development modelling. • Included within this are the treatment of mezzanine floorspace as ground floorspace for the purposes of trip rate generation within the core scenario, using the higher shoulder peak, inclusive of 30,000 sqm of B8 at EMG1. • The agreed trip generation as contained within this note has formed the basis of the proforma with the 13th and 14th version, agreed (as detailed under PRTM proforma v14 (10/10/2024)) **EMG1 Rail Freight Terminal (EMG2-BWB-GEN-XX-RP-CH-0011)** • JSJV (on behalf of National Highways) undertook a review of the supporting changes to the Rail Freight Interchange. This note set out the change in maximum crane height to 24m and the increased stacking of containers to 15m. • National Highways agreed on 23/10/24 that they agreed that the Rail Freight Interchange changes in maximum crane height would not affect traffic on the SRN.
Approver 2	**Name**	
	Organisation	Leicestershire County Council
	Position	
	Date	
	Signature	
	Comments ***(if applicable)***	
Approver 3	**Name**	Tom Boylan
	Organisation	Nottinghamshire County Council

TECHNICAL APPROVAL
East Midlands Gateway 2

	Position	Principal Officer Transport Planning
	Date	07/03/2025
	Signature	[redacted]
	Comments *(if applicable)*	**VISSIM Scoping Note and VISSIM LMVR** NCC do not intend to review the VISSIM modelling documents in any detail and are happy to defer to National Highways (NH) and Leicestershire County Council colleagues. **Modelling Furnessing Methodology Revision P3** NCC are satisfied with the approach to use 'Actual' flows when trying to derive future forecast traffic flow matrices and are happy to grant technical approval for this document. **PRTM Proforma v14** Proforma v14 is acceptable to NCC **PRTM Uncertainty Log v7** NCC requested the inclusion of the A52 Gamston, Nottingham Knight and Wheatcroft junction upgrades (National Highways promoted schemes) to the Uncertainty Log. NCC confirmed on 8/7/2024 that the highway network tab within the Uncertainty Log (v7) now included all three junctions and as a result the Uncertainty Log (v7) is accepted by NCC. **PRTM LMVR Addendum** NCC note that the performance of the PM peak hour for the Nottingham Cordon now marginally fails with the latest May 2024 TAG data book (2022 – previously passed) but the Council is willing to accept this because of the overall performance of the model.

APPENDIX 34: EMG1 Vehicle Trip Rate Comparison Report (document reference PC6796)

REPORT

EMG1 Vehicle Trip Rate Comparison 2024

SEGRO Logistics Park

Client: SEGRO

Reference: PC6796
Status: Final
Date: 7 February 2025

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1 Introduction

1.1 Purpose

Integrated Transport Planning (ITP) has been commissioned by SEGRO Plc (SEGRO) to conduct a comparative assessment of vehicle trip rates at East Midlands Gateway Phase 1 (EMG1) to determine:

- If the trip rates assessed at the planning stage in the site's Transport Assessment (TA) (2014) have been realised.
- If the surveyed vehicle trip rates have changed between the years that the traffic counts were conducted.
- The impact (if any) of mezzanine levels on trip rates.

The outcome of this assessment will be used to inform discussions about the appropriate vehicle trip rates for future developments.

For reference, throughout this report:

- "Assessed vehicle trip rates" refers to trip rates derived from the TRICS trip rate database, agreed with the Local Highway Authority and used within the site TA
- "Calculated vehicle trips" refers to application of the assessed vehicle trip rates from the TA to the 2024 Gross Floor Area (GFA) of operational units to calculate vehicle trip generation.
- "Surveyed vehicle trip rates" refers to trip rates derived from traffic survey data collected at EMG1 in 2022, 2023 and 2024.

1.2 Report Structure

This report is organised into the following sections:

- Section 2 provides background to EMG1, including the status of each unit in 2024 and the GFA.
- Section 3 details the methodology used to obtain the 2024 data and undertake the analysis.
- Section 4 presents a comparative analysis of the surveyed vehicle trip volumes in 2022, 2023 and 2024.
- Section 5 compares the vehicle trip rates.
- Section 6 provides a summary of the findings.

2 Background

As highlighted in the Introduction, this section presents an assessment of the vehicle trip rates used in the EMG1 TA (2014) and the trip rates recorded by vehicle surveys at EMG1 in 2024, this will help determine if the number of vehicle movements generated at EMG1 in 2024 is comparable to those assessed in 2014. A similar trip rate comparison exercise was carried out at EMG1 in 2022 and 2023. Where appropriate, this has been referenced within the report alongside the 2024 data.

The vehicle trip rates used within the EMG1 Transport Assessment (2014) were derived from the TRICS trip rate database and agreed with the Local Highway Authority during the planning process. As construction at the EMG1 is now complete, it provides a reasonable benchmark to re-assess the trip rates to understand if those assessed at the planning stage have been realised now the site is occupied. It will also help determine if there are subtle differences in vehicle trip rates depending on the occupier, size of each unit and whether that unit has mezzanine areas.

2.1 Site Overview

EMG1 is a 700-acre (2.8 km^2) warehousing and logistics park adjacent to East Midlands Airport. It is 13 miles south-west of Nottingham, 14 miles south-east of Derby and 20 miles north-west of Leicester. Alongside warehousing and logistics accommodation, the site also includes a 50-acre (0.2km^2) Strategic Rail Freight Interchange (SRFI) and because of this was defined as a Nationally Significant Infrastructure Project with planning granted via the means of a Development Consent Order.

Outline planning permission for 557,414 sqm of development was granted in 2016 and over the subsequent eight years, reserved matters applications for individual units have been determined via Northwest Leicestershire District Council. The first tenants occupied the site in 2019 and in 2024, all plots are now operational. Table 2-1 provides an overview of the businesses located at the site and their operational status in 2024. Figure 2-1 is the site masterplan and shows the spatial positioning of each plot within the red line boundary of EMG1.

2.2 Developable Area

Construction of individual plots has been led by market demand and built to tenant's operational requirements and in accordance with the consented planning permission. While mezzanine floor area was not included in the outline planning application, it has been approved for some units via the reserved matters process. The use of mezzanines varies by unit and is often led by the tenant's commercial operations. For some units, mezzanines are used as additional floorspace, but for others it forms goods storage. The total GFA for all units built is 590,182 sqm compared to the 557,414 sqm originally consented for the site. The units with mezzanine installed have been set out in Table 2-1.

It has been assumed that any unit that was surveyed in 2024 was fully operational at the time the traffic surveys were carried out. Considering this, the total GFA used for the 2024 trip rate analysis when including mezzanines is 590,182 sqm and for any calculations excluding mezzanines, it is 434,501 sqm. Plot 13 has been excluded from this assessment herein as the site does not have a building and is used as container storage for the SRFI.

Table 2-1: EMG1 2024 plot status and GFA

Plot	Business	Included in assessment?			Status in 2024	2024 GFA (sqm)		
		2022	2023	2024		Floor Area	Mezz.	Total
1	Amazon	Yes	Yes	Yes	Fully Operational	48,106	83,724	131,830
2	GXO	Yes	Yes	Yes	Fully Operational	59,298	5,000	64,298
3	The Very Group	Yes	Yes	Yes	Fully Operational	50,306	32,123	82,429
4	Kuehne + Nagel	Yes	Yes	Yes	Fully Operational	18,264	-	18,264
5	Maersk	No	No	Yes	Fully Operational	63,830	13,200	77,030
6	Games Workshop	Yes	Yes	Yes	Fully Operational	16,498	-	16,498
7	DHL	Yes	Yes	Yes	Fully Operational	17,833	7,214	25,047
8	Amazon	Yes	Yes	Yes	Fully Operational	13,611	-	13,611
9	Arvato	No	Yes	Yes	Fully Operational	20,589	4,175	24,764
11	Ceva Logistics	No	Yes	Yes	Fully Operational	60,259	-	60,259
12	DHL	Yes	Yes	Yes	Fully Operational	64,563	10,245	74,808
13	Maersk	No	No	No	Container Storage	-	-	-
SRFI	Maritime	No	No	Yes	Fully Operational	1,344	-	1,344
Total GFA included in 2024 analysis, excl. Plot 13						**434,501**	**155,681**	**590,182**

Figure 2-1: EMG1 Development Area Plan



3 Methodology

To obtain accurate vehicle data for the comparative assessment, traffic surveys were undertaken for seven days from Tuesday 12th November to Monday 18th November 2024 (outside of school half term holidays in all relevant local authority areas). November represents a seasonal peak period for freight operations at EMG1 as many tenants scale up their workforce and operations ahead of Amazon Prime Day, Black Friday and Christmas. Carrying out the traffic surveys during this month means it likely captured vehicle movements at their peak for 2024.

This year traffic surveys were carried out using video footage rather than Automatic Traffic Count (ATC) surveys to increase the accuracy of the data. This change in methodology was adopted as the specialist road traffic survey suppliers advised there is higher risk of false readings or misclassification of vehicles if ATCs are used at unit entrances/exits due to the slow-moving speed of vehicles. Whilst more costly to implement, video footage has been adopted to ensure the data collected is robust. The traffic surveys were completed by Road Data Services, an independent third-party traffic survey specialist.

In total, there were 24 traffic survey locations at EMG1 to cover all vehicular access points at operational plots with fixed units. A summary of the count locations is shown in Table 3-1. The raw data obtained from each survey site has been consolidated by ITP to obtain an overall number of vehicle trips per plot. For this assessment vehicle classes have been summarised into either light vehicle (LGV) or heavy goods vehicle (HGV), as per Table 3-2.

To streamline the analysis process, a mid-week average has been calculated for data gathered from Tuesday to Thursday, during the seven-day survey period. This has been deemed appropriate to provide a typical weekday representation of vehicle movements and allows for a direct comparison with the assessments carried out in 2022 and 2023.

For each plot, three time periods have then been assessed using the survey data:

- AM Peak - 08:00 – 09:00
- PM Peak - 17:00 – 18:00
- Daily - 00:00 – 00:00 (24-hour period)

Table 3-1: EMG1 traffic survey locations

Plot	Tenant	Traffic Survey Locations	Camera Reference
Plot 1	Amazon EMA1	Employee Car Park Entrance 1 (Inbound Only) Employee Car Park Entrance 2 (Inbound/Outbound) HGV Inbound/Outbound Entrance HGV Outbound Entrance 2 (Seasonal Access)	17 16 18 14
Plot 2	GXO	Employee Car Park (Inbound/Outbound) HGV (Inbound) HGV (Outbound)	12 10 11
Plot 3	The Very Group	Employee Car Park (Inbound/Outbound) HGV (Inbound) HGV (Outbound)	7 9 4

Plot	Tenant	Traffic Survey Locations	Camera Reference
Plot 4	K+N	Employee Car Park (Inbound/Outbound) HGV (Inbound/Outbound)	2 3
Plot 5	Maersk	HGV and Employee Inbound/Outbound Entrance	1
Plot 6	Games Workshop	Employee Car Park (Inbound/Outbound) HGV Inbound/Outbound Entrance	20 21
Plot 7	DHL Caterpillar	HGV & Employee Inbound/Outbound Entrance	22
Plot 8	Amazon DNG2	HGV & Employee Inbound/Outbound Entrance	23
Plot 9	Arvato	HGV & Employee Inbound/Outbound Entrance	5
Plot 11	CEVA Logistics	Employee Car Park (Inbound/Outbound) HGV Car Park (Inbound/Outbound)	8 6
Plot 12	DHL Mars	Employee Inbound/Outbound Entrance HGV Inbound/Outbound Entrance	13 15
SRFI	Maritime	HGV and Employee Inbound/Outbound Entrance	24

Table 3-2: Vehicle classification

Light Vehicles					
Axles	**Description**	**Class**		**Parameters**	**Dominant Vehicle**
2	Very Short - Bicycle or Motorcycle	MC	1	d(1)<1.7m & axles=2	
2	Short - Sedan, Wagon, 4WD, Utility, Light Van	SV	2	d(1)>=1.7m, d(1)<=3.2m & axles=2	
3, 4 or 5	Short Towing - Trailer, Caravan, Boat, etc.	SVT	3	groups=3, d(1)>=2.1m, d(1)<=3.2m, d(2)>=2.1m & axles=3,4,5	
Heavy Good Vehicles					
Axles	**Description**	**Class**		**Parameters**	**Dominant Vehicle**
2	Two axle truck or Bus	TB2	4	d(1)>3.2m & axles=2	
3	Three axle truck or Bus	TB3	5	axles=3 & groups=2	
>3	Four axle truck	T4	6	axles>3 & groups=2	
3	Three axle articulated vehicle or Rigid vehicle and trailer	ART3	7	d(1)>3.2m, axles=3 & groups=3	
4	Four axle articulated vehicle or Rigid vehicle and trailer	ART4	8	d(2)<2.1m or d(1)<2.1m or d(1)>3.2m axles = 4 & groups>2	
5	Five axle articulated vehicle or Rigid vehicle and trailer	ART5	9	d(2)<2.1m or d(1)<2.1m or d(1)>3.2m axles=5 & groups>2	
>=6	Six (or more) axle articulated vehicle or Rigid vehicle and trailer	ART6	10	axles=6 & groups>2 or axles>6 & groups=3	
>6	B-Double or Heavy truck and trailer	BD	11	groups=4 & axles>6	
>6	Double or triple road train or Heavy truck and two (or more) trailers	DRT	12	groups>=5 & axles>6	

4 Vehicle Volume Comparison

4.1 2024 Surveyed Vehicle Volumes by Plot

Table 4-1 sets out the daily total two-way surveyed vehicle trips for each plot in 2024, taking the mid-week average (Tuesday to Thursday). This shows that Plot 1 (Amazon EMA1), Plot 3 (The Very Group), Plot 8 (Amazon DNG2) and Plot 12 (DHL Mars) generated the most vehicle movements, with each producing over 1,000 trips per day. Plot 1, Plot 3 and Plot 12 are three of the largest plots on-site in terms of GFA. In comparison, Plot 8 has the smallest GFA but generates a high number of vehicle trips due to the type of commercial operations at the unit, as a local distribution facility, rather than long-term warehouse storage.

Table 4-1: EMG1 2024 survey trips (per plot)

Plot	GFA incl. mezzanine (sqm)	Surveyed Vehicles (2024)		
		Light Vehicles	HGVs	Total Vehicles
Plot 1	131,830	1,896	506	2,402
Plot 2	64,298	450	448	898
Plot 3	82,429	656	387	1,043
Plot 4	18,264	500	250	750
Plot 5	77,030	643	284	926
Plot 6	16,498	292	71	362
Plot 7	25,047	192	42	235
Plot 8	13,611	1,813	123	1,935
Plot 9	24,764	336	67	403
Plot 10	60,259	408	257	665
Plot 12	74,808	787	653	1,440
SRFI	1,344	189	424	613
Total	**590,182**	**8,161**	**3,511**	**11,672**

*As an average of vehicle trips has been calculated covering the three days of data, some total vehicle trips may not appear to add up between light vehicles and HGV due to rounding. However, vehicle trip rates are calculated from the true, non-rounded value

4.2 2024 Calculated vs Surveyed Vehicle Volumes

At the planning stage for EMG1, the assessed vehicle trip rates and total anticipated GFA for the development (557,414 sqm) were used to calculate the total number of two-way vehicle trips. These trip rates have been outlined in Table 4-2.

Table 4-2: EMG1 total anticipated GFA and assessed vehicle trip rates

Year	Vehicle Type	AM Peak			PM Peak			Daily		
		0800 – 0900			1700 – 1800			24hrs		
		Arrival	Departure	Two-Way	Arrival	Departure	Two-Way	Arrival	Departure	Two-Way
2014 assessed trip rates per 100sqm (557,414sqm)	Light	0.121	0.013	0.135	0.029	0.108	0.137	1.06	1.043	2.103
	HGV	0.019	0.023	0.041	0.020	0.024	0.044	0.459	0.475	0.934
	Total	**0.140**	**0.036**	**0.176**	**0.049**	**0.132**	**0.181**	**1.519**	**1.517**	**3.036**

To enable a fair vehicle volume comparison in 2024, the 2014 assessed trip rates (Table 4-2) have been applied to the total GFA delivered at EMG1 in 2024 (590,182 sqm) in Table 5-1, presented later in the report.

Figure 4-1 shows a comparison of the daily (24hr) mid-week average EMG1 2024 surveyed data against the 2014 calculated vehicle trip generation (applying the 2014 assessed trip rates to the 2024 GFA). The data shows there are 6,246 fewer daily movements (35% less) in the 2024 surveyed data.

Building on this, Figure 4-2 disaggregates the vehicle data by morning (0800-0900) and evening (1700-1800) peak periods. The 2024 surveyed data show 48% fewer vehicle trips in the morning peak and 34% fewer in the evening peak when compared to the 2024 calculated vehicle volumes.

Figure 4-1: EMG1 comparison of daily two-way vehicle volumes

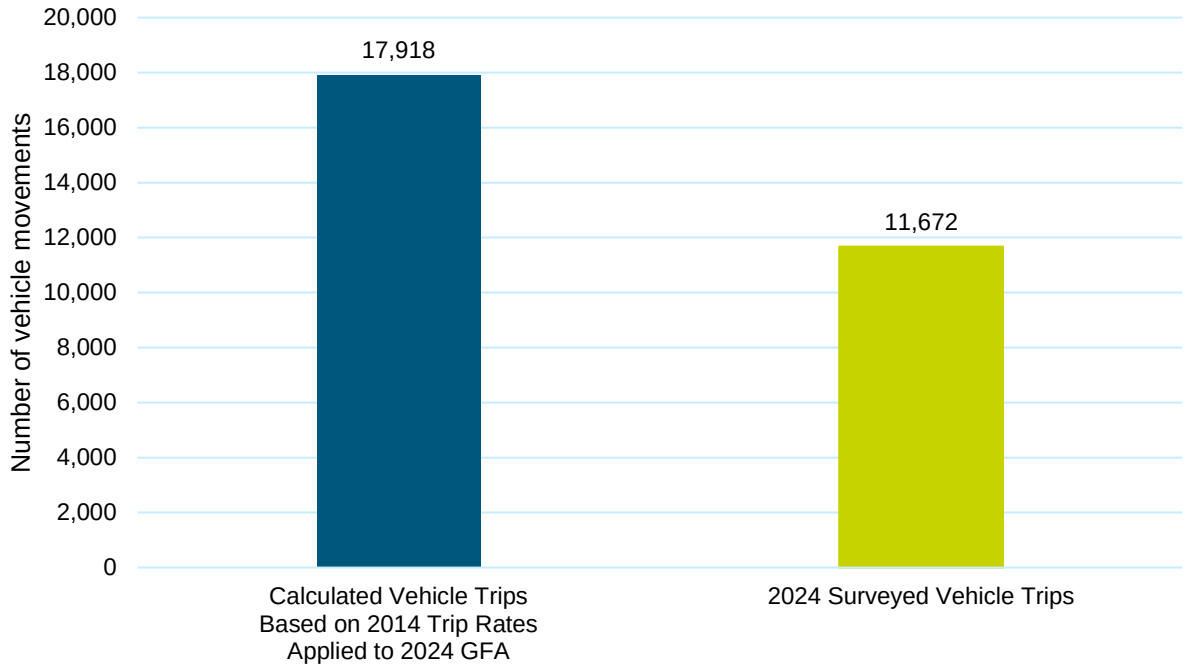
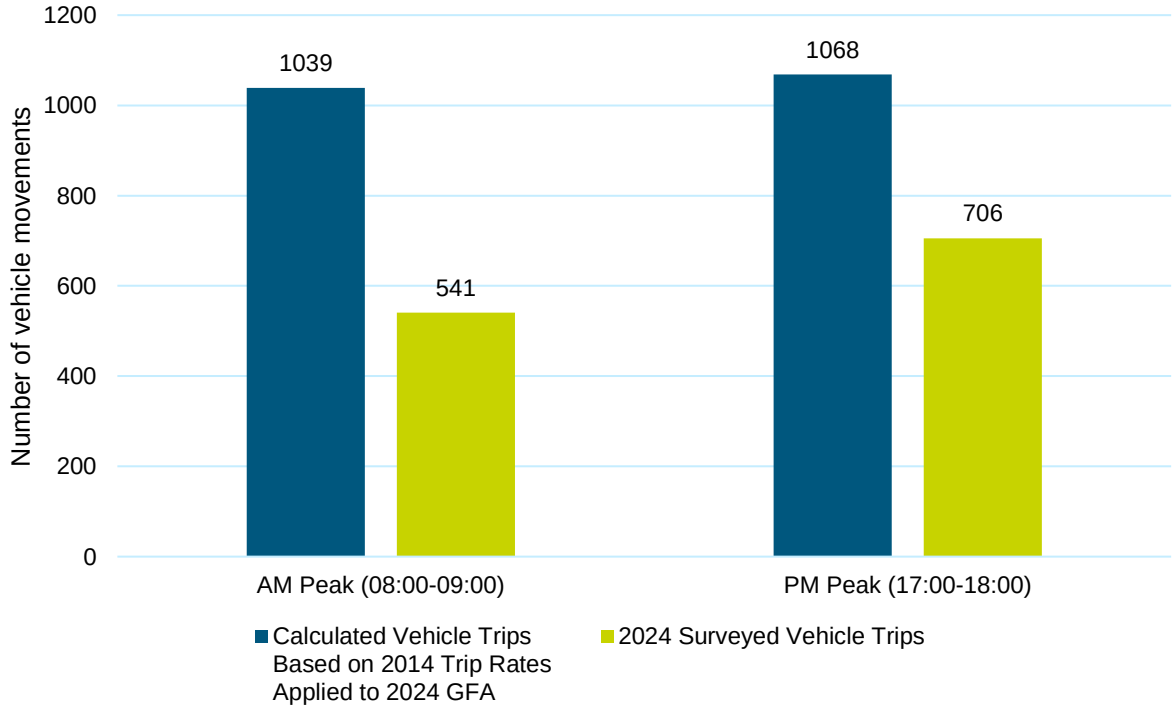


Figure 4-2: EMG1 comparison of AM and PM peak two-way vehicle volumes



4.3 Surveyed Vehicle Volume Comparison

When comparing the traffic survey data collected from surveyed units in 2023 and 2024, the daily vehicle volumes are greater in 2024 than in 2023. The increase in daily two-way trips is approximately 2,022 vehicles (21% increase). This is made up of an increase of 1,901 light vehicles and 121 HGVs. This is likely to reflect the reflect two businesses (Maersk and Maritime) commencing operations since the 2023 assessment, which added an additional daily 1,539 two-way trips. Aside from these two businesses there were also 483 additional two-way trips recorded in 2024 compared to 2023.

Table 4-3 provides a detailed breakdown of the 2022 and 2023 surveyed trips, the 2024 calculated trips and the 2024 surveyed trips in the morning peak (0800-0900), evening peak (1700-1800) and 24hr period. The data has also been disaggregated by vehicle type and by direction.

Table 4-3: EMG1 surveyed vehicle trips in 2022, 2023 and 2024

Year	Vehicle Type	AM Peak (0800 – 0900)			PM Peak (1700 – 1800)			Daily (24hrs)		
		Arrival	Departure	Two-Way	Arrival	Departure	Two-Way	Arrival	Departure	Two-Way
2022 surveyed trips	Light	286	89	375	189	217	406	3,977	4,066	8,042
	HGV	34	21	56	21	31	52	619	698	1,317
	Total	**320**	**110**	**431**	**211**	**247**	**458**	**4,596**	**4,763**	**9,359**
2023 surveyed trips	Light	269	104	373	146	226	372	3,064	3,196	6,260
	HGV	85	83	168	67	81	148	1,564	1,826	3,390
	Total	**354**	**187**	**541**	**214**	**307**	**521**	**4,628**	**5,022**	**9,650**
2024 calculated trips (including mezzanine)[1]	Light	714	77	797	171	637	809	6,256	6,156	12,412
	HGV	112	136	242	118	142	260	2,709	2,803	5,512
	Total	**826**	**212**	**1,039**	**289**	**779**	**1,068**	**8,965**	**8,953**	**17,918**
2024 calculated trips (excluding mezzanine)[2]	Light	526	56	587	126	469	595	4,606	4,532	9,138
	HGV	83	100	178	87	104	191	1,994	2,064	4,058
	Total	**608**	**156**	**765**	**213**	**574**	**786**	**6,600**	**6,591**	**13,191**
2024 surveyed trips	Light	327	51	378	205	351	556	4,075	4,086	8,161
	HGV	91	72	163	74	75	149	1,755	1,756	3,511
	Total	**418**	**123**	**541**	**279**	**426**	**706**	**5,830**	**5,842**	**11,672**
Difference between 2024 calculated (including mezzanine) and surveyed trips	Light	-387	-26	-419	34	-286	-252	-2,181	-2,070	-4,250
	HGV	-21	-63	-79	-44	-67	-110	-954	-1,047	-2,001
	Total	**-409**	**-89**	**-498**	**-10**	**-353**	**-363**	**-3,135**	**-3,111**	**-6,246**
Difference between 2024 calculated (excluding mezzanine) and surveyed trips	Light	-199	-5	-209	79	-118	-39	-530	-446	-976
	HGV	8	-28	-15	-13	-29	-42	-240	-308	-547
	Total	**-191**	**-33**	**-224**	**66**	**-147**	**-81**	**-770**	**-749**	**-1,519**
Difference between 2022 and 2024 surveyed trips	Light	41	-38	3	16	134	150	98	20	119
	HGV	57	51	107	53	44	97	1,136	1,058	2,194
	Total	**98**	**13**	**110**	**68**	**179**	**248**	**1,234**	**1,079**	**2,313**
Difference between 2023 and 2024 surveyed trips	Light	58	-53	5	59	125	184	1,011	890	1,901
	HGV	6	-11	-5	7	-6	1	191	-70	121
	Total	**64**	**-64**	**0**	**65**	**119**	**185**	**1,202**	**820**	**2,022**

[1] *Applies the 2014 assessed vehicle trip rate to the 2024 GFA (including mezzanine) to provide a forecast of the number of trips.*
[2] *Applies the 2014 assessed vehicle trip rate to the 2024 GFA (excluding mezzanine) to provide a forecast of the number of trips.*

5 Vehicle Trip Rate Comparison

At the planning stage of EMG1, vehicle trip rates were agreed with the Local Highway Authority based on the type of development proposed for the site, primarily Use Class B8. These assessed vehicle trip rates were used in the EMG1 TA (2014) and are referenced in
Table 5-1.

The surveyed vehicle volumes collected through the traffic surveys in 2024 have been applied to the GFAs for the surveyed plots in 2024 to calculate a trip rate per 100sqm of GFA. A similar calculation was carried out in 2022 and 2023 using ATC data and GFAs of occupied plots at that point.

Figure 5-1 compares the daily vehicle trip rate per 100sqm as assessed in the EMG1 TA (2014) alongside the surveyed vehicle trip rates based on the ATC data in 2022 and 2023, and the traffic survey data in 2024. This shows that while daily vehicle trip rates are slightly higher in 2024 than 2023, they are lower than 2022 and those assessed in 2014.

Figure 5-1: EMG1 daily (24hr) vehicle trip rates per 100sqm GFA for 2014 (assessed), 2022, 2023 and 2024 (surveyed) by direction.

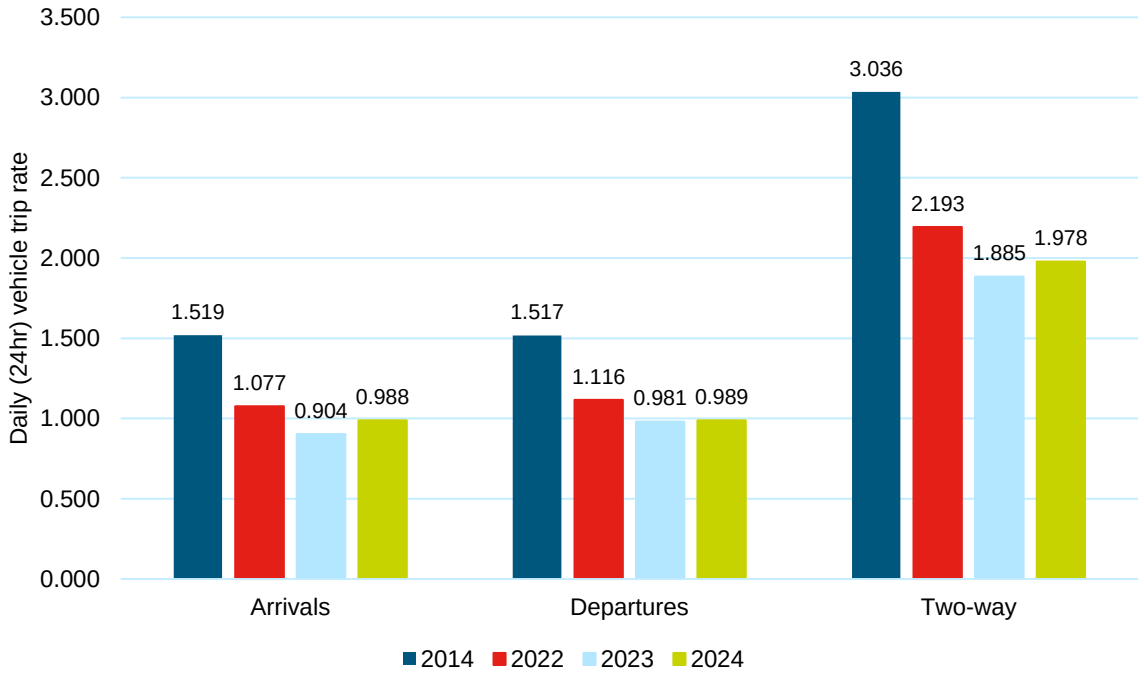
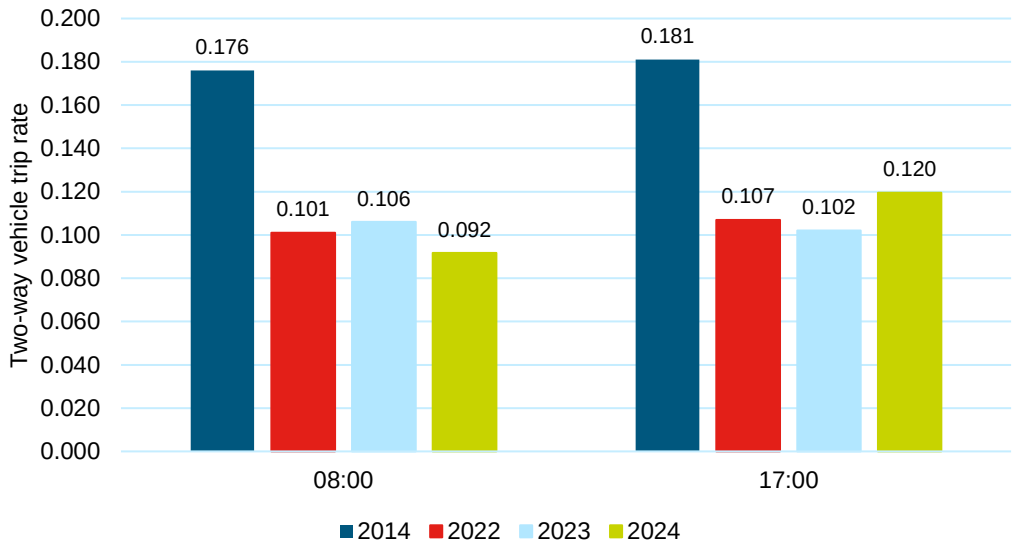


Figure 5-2 builds on this and compares the two-way vehicle trip rate in the morning and evening peak periods. This demonstrates that two-way vehicle trip rates are lower in the AM peak in 2024 than in all the previous years (assessed and surveyed), but the trip rates are greater in the PM peak period in 2024 than 2022 and 2023. This indicates that trip rates in the PM peak period have increased slightly compared to previous survey years, but do not exceed the vehicle trip rates assessed in 2014.

Figure 5-2: EMG1 two-way vehicle trip rates per 100sqm GFA for 2014 (assessed), 2022, 2023 and 2024 (surveyed) for peak hours.



5.1 Mezzanine Impact

The assessed vehicle trip rates (2014) and the surveyed vehicle trip rates in 2022, 2023 and 2024 are based on the GFA which, for applicable units, also accounts for mezzanines.

Figure 5-3 outlines the daily (24hr) vehicle trip rates per 100sqm based on the 2014 assessed trip rates from the EMG1 TA and the 2024 surveyed trip rates excluding and including mezzanines. This shows that the daily surveyed trip rates in 2024 are lower than those assessed in 2014 regardless of mezzanines.

Figure 5-3: EMG1 daily (24hr) vehicle trip rates per 100sqm excluding and including mezzanines.

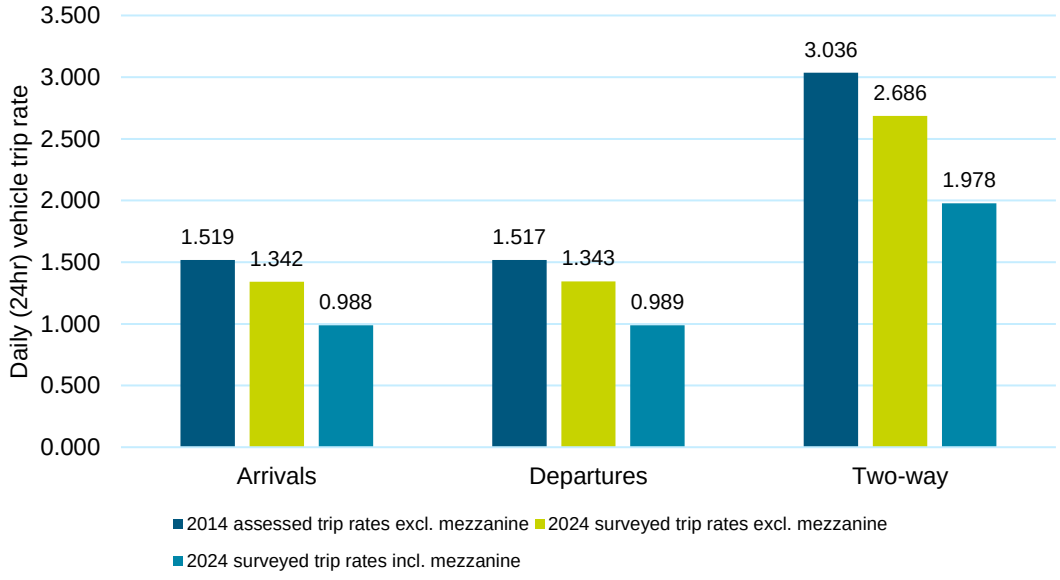


Table 5-1 builds on this and provides a detailed breakdown of the trip rates including mezzanines by peak hour and direction. As detailed in the preceding section, 2024 two-way vehicle trip rates, when accounting for mezzanines, are lower than the 2014 vehicle trip rates for all the analysed time periods.

At the planning stage of EMG1, there was no allocation for mezzanines in the GFA and the vehicle trip rates considered plan floor area only. To provide a more comparable trip rate assessment to 2014, 2024 vehicle trip rates have also been calculated based on the floor area of operational units excluding mezzanines. Figure 5-3 shows that, when excluding mezzanines, the daily vehicle trip rates for 2024 are lower than 2014. Table 5-2 provides a detailed breakdown of vehicle trip rates excluding mezzanines by peak hour and direction as well as daily totals. This shows that the 2024 vehicle trip rates are lower than those assessed in 2014, for all scenarios except for arrivals in the evening peak hour and arrival and two-way between 7:00 and 8:00.

Table 5-1: EMG1 surveyed vehicle trip rates per 100sqm GFA (incl. mezzanine) in 2022, 2023 and 2024

Year	Vehicle Type	AM Peak 0700 - 0800			AM Peak 0800 – 0900			PM Peak 1600 - 1700			PM Peak 1700 – 1800			Daily 24hrs		
		Arrival	Departure	Two-Way	Arrival	Departure	Two-Way	Arrival	Departure	Two-Way	Arrival	Departure	Two-Way	Arrival	Departure	Two-Way
2014 assessed trip rates per 100sqm (557,414sqm)	Light	0.089	0.028	0.118	0.121	0.013	0.135	0.040	0.140	0.180	0.029	0.108	0.137	1.060	1.043	2.103
	HGV	0.023	0.031	0.053	0.019	0.023	0.041	0.025	0.015	0.035	0.020	0.024	0.044	0.459	0.475	0.934
	Total	**0.112**	**0.059**	**0.171**	**0.140**	**0.036**	**0.176**	**0.065**	**0.155**	**0.220**	**0.049**	**0.132**	**0.181**	**1.519**	**1.517**	**3.036**
2022 surveyed trip rates per 100sqm (426,785sqm)	Light				0.067	0.021	0.088				0.044	0.051	0.095	0.932	0.953	1.884
	HGV				0.008	0.005	0.013				0.005	0.007	0.012	0.145	0.163	0.309
	Total				**0.075**	**0.026**	**0.101**				**0.049**	**0.058**	**0.107**	**1.077**	**1.116**	**2.193**
2023 surveyed trip rates per 100sqm (511,808 sqm)	Light	0.107	0.024	0.131	0.053	0.020	0.073	0.007	0.042	0.049	0.029	0.044	0.073	0.599	0.624	1.223
	HGV	0.015	0.015	0.031	0.017	0.016	0.033	0.013	0.016	0.028	0.013	0.016	0.029	0.306	0.357	0.662
	Total	**0.123**	**0.039**	**0.162**	**0.069**	**0.036**	**0.106**	**0.019**	**0.058**	**0.077**	**0.042**	**0.060**	**0.102**	**0.904**	**0.981**	**1.885**
2024 surveyed trip rates per 100sqm (590,182sqm)	Light	0.093	0.021	0.113	0.055	0.009	0.064	0.011	0.046	0.060	0.035	0.057	0.094	0.691	0.691	1.383
	HGV	0.011	0.014	0.026	0.015	0.012	0.028	0.015	0.015	0.029	0.013	0.014	0.025	0.297	0.297	0.595
	Total	**0.104**	**0.035**	**0.139**	**0.071**	**0.022**	**0.092**	**0.026**	**0.062**	**0.089**	**0.047**	**0.071**	**0.120**	**0.988**	**0.989**	**1.978**
Difference between 2014 and 2024 vehicle trip rates per 100sqm GFA	Light	0.004	-0.007	-0.005	-0.066	-0.004	-0.071	-0.029	-0.094	-0.120	0.006	-0.051	-0.043	-0.369	-0.352	-0.720
	HGV	-0.012	-0.017	-0.027	-0.004	-0.011	-0.013	-0.010	0.000	-0.006	-0.007	-0.010	-0.019	-0.162	-0.178	-0.339
	Total	**-0.008**	**-0.024**	**-0.032**	**-0.069**	**-0.014**	**-0.084**	**-0.039**	**-0.093**	**-0.131**	**-0.002**	**-0.061**	**-0.061**	**-0.531**	**-0.528**	**-1.058**

Table 5-2: EMG1 surveyed vehicle trip rates per 100sqm GFA (excl. mezzanine) in 2022, 2023 and 2024

Year	Vehicle Type	AM Peak 0700 - 0800			AM Peak 0800 – 0900			PM Peak 1600 - 1700			PM Peak 1700 – 1800			Daily 24hrs		
		Arrival	Departure	Two-way	Arrival	Departure	Two-way	Arrival	Departure	Two-way	Arrival	Departure	Two-way	Arrival	Departure	Two-way
2014 assessed trip rates per 100sqm (557,414 sqm)	Light	0.089	0.028	0.118	0.121	0.013	0.135	0.040	0.140	0.180	0.029	0.108	0.137	1.06	1.043	2.103
	HGV	0.023	0.031	0.053	0.019	0.023	0.041	0.025	0.015	0.035	0.020	0.024	0.044	0.459	0.475	0.934
	Total	**0.112**	**0.059**	**0.171**	**0.140**	**0.036**	**0.176**	**0.065**	**0.155**	**0.220**	**0.049**	**0.132**	**0.181**	**1.519**	**1.517**	**3.036**
2022 surveyed trip rates per 100sqm (288,479 sqm)	Light				0.097	0.033	0.130				0.069	0.072	0.141	1.374	1.413	2.788
	HGV				0.013	0.007	0.019				0.007	0.011	0.018	0.221	0.235	0.457
	Total				**0.110**	**0.040**	**0.149**				**0.075**	**0.084**	**0.159**	**1.596**	**1.649**	**3.244**
2023 surveyed trip rates per 100sqm (369,327 sqm)	Light	0.149	0.033	0.182	0.073	0.028	0.101	0.010	0.058	0.068	0.040	0.061	0.101	0.830	0.865	1.695
	HGV	0.021	0.021	0.043	0.023	0.022	0.045	0.017	0.022	0.039	0.018	0.022	0.040	0.423	0.494	0.918
	Total	**0.170**	**0.054**	**0.224**	**0.096**	**0.051**	**0.146**	**0.027**	**0.080**	**0.107**	**0.058**	**0.083**	**0.141**	**1.253**	**1.360**	**2.613**
2024 surveyed trip rates per 100sqm (434,501 sqm)	Light	0.127	0.029	0.153	0.075	0.013	0.087	0.015	0.063	0.081	0.047	0.077	0.128	0.938	0.939	1.878
	HGV	0.015	0.018	0.035	0.021	0.017	0.038	0.020	0.021	0.040	0.017	0.019	0.034	0.404	0.404	0.808
	Total	**0.142**	**0.047**	**0.188**	**0.096**	**0.030**	**0.125**	**0.036**	**0.084**	**0.121**	**0.064**	**0.096**	**0.162**	**1.342**	**1.343**	**2.686**
Difference between 2014 and 2024 vehicle trip rates per 100sqm GFA	Light	0.038	0.001	0.035	-0.046	0.000	-0.048	-0.025	-0.077	-0.099	0.018	-0.031	-0.009	-0.122	-0.104	-0.225
	HGV	-0.008	-0.013	-0.018	0.002	-0.006	-0.003	-0.005	0.006	0.000	-0.003	-0.005	-0.010	-0.055	-0.071	-0.126
	Total	**0.030**	**-0.012**	**0.017**	**-0.044**	**-0.006**	**-0.051**	**-0.029**	**-0.071**	**-0.099**	**0.015**	**-0.036**	**-0.019**	**-0.177**	**-0.174**	**-0.350**

6 Summary

This review of EMG1 outlines that the total number of daily vehicles arriving and departing the site has increased between 2023 to 2024 (21% increase in daily two-way vehicles). This also follows an increase from 2022 to 2023. Like in the previous assessment, the 2023 to 2024 increase is most likely due to increased commercial operations of tenants on site. Whilst the vehicle volume has increased, it remains lower than the number of trips that would have been expected based on the 2014 TA assessed trip rates and GFA built out.

Over half of the plots included within this assessment have mezzanine space included within their GFA. Despite this additional GFA, the 2024 daily vehicle trips rates per 100 sqm when including and excluding mezzanine levels are still lower than those assessed at the planning stage which is the same as in the 2023 assessment.

APPENDIX 35: BWB email dated 5 March 2025

Matt Corner

Subject: FW: 250305 EMGP2 - mezzanine floor space - updated 2024 EMG1 survey information
Attachments: EMG1_2024VehicleTripRateComparisonReport _070225_v1.pdf; EMG2: mezzanines and parameters plan; EMG-UMC-SI-01-DR-A-0100-A - Racking Analysis.pdf

From: Paul Wilson [redacted]@bwbconsulting.com>
Sent: 05 March 2025 13:31
To: Ahmed, Fiona [redacted]@jacobs.com>
Cc: Catherine Townend [redacted]@nationalhighways.co.uk>; Jeremy Bloom [redacted]; Adrian Whiteman [redacted]@leics.gov.uk>; Harry Horsley [redacted]@leics.gov.uk>; Daniel Sullivan [redacted]@nottscc.gov.uk>; Tom Boylan [redacted]@nottscc.gov.uk>; Ian Rigby [redacted]@segro.com>; [redacted]@oxalisplanning.co.uk; Matt Corner [redacted]@bwbconsulting.com>; Simon Hilditch [redacted]@bwbconsulting.com>; [redacted]@nationalhighways.co.uk; Nock, George [redacted]@jacobs.com>; Chandler-Hurst, Alain [redacted]@jacobs.com>
Subject: 250305 EMGP2 - mezzanine floor space - updated 2024 EMG1 survey information

Hi Fiona

I refer to your email below and subsequent conversations.

To confirm, we are ***considering*** doubling the amount of mezzanine space from 100,000sqm to 200,000sqm GFA, therefore resulting in a total of 440,000sqm of B8 use at EMG2 (plus 60,000sqm of B2 use at EMG2 & 30,000sqm B8 use at EMG1). That is subject to you being content that such an increase will not prejudice the transport modelling work undertaken thus far.

With that in mind this email sets out the following which we trust is of use, and are happy to weave into a more formal note, similar to the Rail Freight Terminal one, assuming you are more comfortable with what is set out:

i) 2024 traffic survey results for EMG1

ii) a refresh with re. to how mezzanines operate

iii) review of the racking analysis plan attached

iv) ditto how it would be dealt with from a DCO perspective if you were content that we could increase said figure.

1. 2024 traffic survey results for EMG1

We have since received the 2024 traffic survey results for EMG1, based on what is now a fully built out development, which are attached. I have therefore updated the calcs previously provided on 6/1/25 to reflect this below. In summary, the recorded trip rates have reduced versus the 2022 ones assessed earlier in the year, so much so that based on this methodology 650,000sqm GFA of B8 use could be built out at EMG2 if the trip rates ultimately mirrored that recorded in 2024 at EMG1, versus the 340,000sqm currently proposed in traffic generation terms – i.e. nearly double.

Scenario	Trip Rate Approach Adopted	AM Peak (8-9am)						PM Peak (4-5pm)					
		Total Vehicle Trip Rates			Total Vehicle Traffic Generation			Total Vehicle Trip Rates			Total Vehicle Traffic Generation		
		arrival	departure	2-way	arrival	departure	2-way	arrival	departure	2-way	arrival	departure	2-way
1. As currently proposed (V14 Proforma)	Currently agreed EMGP1 rates v devel as per latest proposal; 340,000sqm B8 only (inc 100,000sqm mezzanine at 100% trip rate)	0.140	0.036	0.176	476	122	598	0.065	0.155	0.220	221	527	748
2. As currently proposed - 2024 trip rates	Surveyed flows, inc mezz (340,000sqm B8)	0.071	0.022	0.092	241	75	313	0.026	0.062	0.089	88	211	303
3. With 200,000sqm GFA mezzanine space - V14 proforma trip rates	Currently agreed EMGP1 rates v 200,000sqm GFA of mezzanine space at 50% = 440,000sqm B8 in total (with 240,000sqm GFA assessed at 100% of trip rates set out in	0.070	0.018	0.088	140 + 336 = 476	36 + 86 =122	176 +422 =598	0.0325	0.0775	0.110	65 + 156 = 221	155 +372 = 527	220 + 528 = 748

for ground and 50% for mezzanine	scenario 1 and 200,000sqm GFA assessed at 50%)												
4. Total 440,000sqm GFA - agreed v14 trip rates	Currently agreed EMGP1 rates v 440,000sqm GFA (inc additional mezzanine space)	0.140	0.036	0.176	616	158	774	0.065	0.155	0.220	286	682	968
5. Total 440,000sqm GFA - 2024 trip rates	Surveyed trip rates, inc mezz (440,000sqm B8; ie 200,000sqm GFA of mezzanine space)	0.071	0.022	0.092	312	97	405 (= a 33% reduction v 1)	0.026	0.062	0.089	114	273	391 (= a 48% reduction v 1)
6. Total space based on 2024 trip rates to match V14 traffic flows	Surveyed trip rates maximised to mirror agreed trip generation = a GFA of 650,000sqm; i.e. 91% uplift versus that currently being assessed)	0.075	0.026	0.101	444	154	598	0.031	0.077	0.108	184	456	639

In your last email, we note that you picked up that the recorded shoulder peak trip rates were higher than what we're assessing, hence the nervousness in accepting lower trip rates as the timing of arrivals/departures may fluctuate.

Looking at Table 5-1 of ITP's report, the data shows that again shoulder peak trip rates are higher between 7-8am at 0.139 (albeit reduced from 0.162 from the 2023 information). Whilst we have adopted the 4-5pm trip rates in the table above for consistency, the 5-6pm recorded rates are higher (0.120 vs 0.089). However, both 'alternative' peak hour trip rates remain significantly lower than those which we have assessed to date.

The daily trip rates further support our case as shown in Figure 5-1, which show that 2024 rates are much lower than 2014 rates; 3.036 vs 1.978 (two-way).

2. How mezzanines operate

By way of a refresher, I set out the information contained in point iii) of my email dated 17/12/24, which Ian discussed once more with Jeremy in a recent catch up:

Over recent years there has been a trend, driven by increased automation and hand picking, for traditional storage racking to be replaced by mezzanine floors to facilitate the varying automation solutions. These mezzanine floors enhance the efficiency of the internal organisation and management of the logistics space but clearly as there are no loading doors at mezzanine level all goods still need to be transferred via loading doors at ground floor level to HGVs. We have seen no substantial increase in the number of loading doors per sqft of ground warehouse floor area. With the loading doors only being able to accommodate a given through put of goods, this corroborates the data we have collated at EMG that shows that the introduction of trips has no significant effect on HGV trip generation.

In simplistic terms traffic flows generated by B8 developments are driven by the number of loading doors and HGV parking spaces, not mezzanine levels, which in effect provide more sophisticated, automated racking systems, rather than an intensified operation from a traffic generation perspective. Hence why mezzanine floor spaces generate far less rips per 100sqm GFA than ground floor space.

3. Racking analysis plan

Building on the above point, please find attached the above plan, which should hopefully be self explanatory. In summary:

i) Diagrams 1 and 2, Section B-B, and image 3 present a standard racking system

ii) Section A-A, and images 1 and 2 present the alternative mezzanine option

What it does not say (possibly because nobody has ever carried out the exercise) is how the volumes compare. The main difference is that in the traditional racking system, products are stacked vertically and on the mezz floor they are stacked horizontally.

4. How any increase in mezzanine floor space would be dealt with from a DCO perspective

I attach an email Simon sent to Harry which sets out the above.

Does the above, more recent information, based on the bult out EMG1 site, provide sufficient comfort and justification to now accept the assumption of a reduced rate based upon the expanded sample now provided, based upon its own merits and the elaborated information supplied above/attached?

We trust the above/attached are of use and look forward to hearing from you at your earliest opportunity. Thanks in advance

Kind regards

Kind regards

Paul Wilson BA(Hons) MCIHT MSoRSA CMILT MInstILM
Director | Head of Transport & Accessibility Planning | BWB Consulting Limited

5th Floor, Waterfront House, Station Street, Nottingham, NG2 3DQ
M: [redacted] | **W:** bwbconsulting.com

From: Ahmed, Fiona [redacted]@jacobs.com>
Sent: 29 January 2025 16:11
To: Paul Wilson [redacted]@bwbconsulting.com>; Nock, George [redacted]@jacobs.com>
Cc: Catherine Townend [redacted]@nationalhighways.co.uk>; Jeremy Bloom [redacted]; Adrian Whiteman [redacted]@leics.gov.uk>; Harry Horsley [redacted]@leics.gov.uk>; Daniel Sullivan [redacted]@nottscc.gov.uk>; Tom Boylan [redacted]@nottscc.gov.uk>; Ian Rigby [redacted]@segro.com>; [redacted]@oxalisplanning.co.uk; Matt Corner [redacted]@bwbconsulting.com>; Simon Hilditch [redacted]@bwbconsulting.com>; [redacted]@nationalhighways.co.uk
Subject: RE: 250109 EMGP2 - mezzanine floor space - summary of current and desired position

This email originated from outside of our organisation. Please exercise caution with content, links and attachments.

Paul,

Further to your email below confirming the proposed quantum of development. You are now proposing an additional 100,000sqm of B8 floor space beyond that which was previously presented and included within the agreed modelling (430,000sqm).

We have reviewed your email of 9th January, and the data supplied in your email of 18th December 2024.

Using the data supplied in December [East Midlands Gateway Vehicle Trip Rate Comparison 2023 Table 5-1], we note that the observed 2022 data for the 0700 – 0800 peak hour actually generates higher demand than the 2014 data for the 0800 – 0900 (which is being used for the current modelling assessment). If this data was to be used with regards to the AM Peak modelling for scenarios 5 & 6, then this would result in a higher trip rate than in scenario 1.

We are therefore cautious in terms of how much weight we can give the observed data given the variation demonstrated within the data set.

Turning to the B8 mezzanine floor reductions, we still do not feel that there is sufficient justification to accept the assumption of a reduced rate based upon the sample provided. Such assumptions may well have been accepted in the cases presented, however each development proposal must be assessed based upon its own merits and the information supplied.

Your aspirational vision is underpinned by the principal that the development will generate less trips than predicted thereby justifying an increase in the floor space without accounting for this within the strategic modelling. Comparing the assumptions of the aspirational Vision against evidentiary sources, analysis demonstrates there is significant variation in potential externalised trip making. In the case of the AM peak, the proposal for 530,0000sqm would generate approximately some 176 more trips than is currently being assessed. In the PM peak, this would be some 220 trips as identified in your email.

National Highways' principal concern would be unmitigated impacts upon congestion or unacceptable impacts upon highway safety if the vision is not fully realised in the way it is envisaged. To mitigate against this risk, National Highways seeks two core traffic modelling scenarios to be run, the first one should reflect the full quantum (530,000 sqm) of floor space using the agreed trip rates and the second scenario should apply the lower floor area (430,000 sqm) which assumes that the mezzanine floor area does not generate any additional trip generation. National Highways will then be able to review whether the mitigation proposed can accommodate both core scenarios.

With thanks

Fiona Ahmed

APPENDIX 36: National Highways email dated 1 May 2025

Matt Corner

From: Ahmed, Fiona [redacted]@jacobs.com>
Sent: 01 May 2025 15:28
To: Paul Wilson
Cc: Catherine Townend; Jeremy Bloom; Adrian Whiteman; Harry Horsley; Daniel Sullivan; Tom Boylan; Ian Rigby; [redacted]@oxalisplanning.co.uk; Matt Corner; Simon Hilditch; Kate Stephen; Nock, George; Chandler-Hurst, Alain
Subject: RE: 250305 EMGP2 - mezzanine floor space - updated 2024 EMG1 survey information

Follow Up Flag: Follow up
Flag Status: Completed

This email originated from outside of our organisation. Please exercise caution with content, links and attachments.

Paul,

Thank you for your email regarding the proposed additional 100,000 sqm of B8 mezzanine floor space you are considering, and apologies for the delay in responding. We have considered this carefully in consultation with National Highways Legal team and relevant technical experts.

National Highways' primary concern is the risk of unmitigated impacts on the Strategic Road Network (SRN) in terms of safety and capacity if the proposed operational vision for this additional 100,000 sqm is not achieved as envisioned. We believe these risks can be effectively managed through suitable provisions.

We acknowledge Segro's shift towards mezzanine floors, automation, and vertical stacking/storage. We can accept the additional 100,000 sqm of mezzanine floor space without additional modelling, provided it is used for the intended vertical stacking/storage purpose as stated. National Highways require a provision within the Order stipulating that the additional 100,000 sqm floor space for storage/racking must be used for its intended purpose in perpetuity, ancillary to B8 ground floor space.

Furthermore, as you've utilised the observed data set for EMG1 in your technical evaluation, National Highways expect the sustainable transport objectives achieved for Phase 1 to be applied to Phase 2 (current DCO). Please can you update the sustainable transport strategy to align modal shift targets of Phase 1 with Phase 2.

Subject to the above provisions, National Highways agrees to the increased mezzanine floorspace without any further modelling exercises carried out. Subject to the above provisions, National Highways agrees to the increased mezzanine floorspace without any further modelling exercises carried out. We continue to require you to test the development's impacts against the demand as set out within Proforma 14.

We would be pleased to discuss any element of the above if required.

Regards

Fiona

Fiona Ahmed, BSc, MSc, CTPP | **Jacobs** | Associate Director Transport Planner | Cities and Places
[redacted]@jacobs.com | [redacted] | Cottons Centre | Cottons Lane | London, SE1 2QG | UK

APPENDIX 37: Stage 1F Modelling Sign Off Sheet

TECHNICAL APPROVAL
East Midlands Gateway 2

Document Name	Stage 1F Modelling Documents	**Project reference**	220500
Document reference / revision	Construction Traffic Calculations (EMG2-BWB-GEN-XX-RP-TR-0013 Revision P3)	**Date**	02.05.25

Approver 1	**Name**	Jeremy Bloom
	Organisation	National Highways
	Position	Interim Spatial Planner
	Date	4 August 2025
	Signature	[redacted]
	Comments ***(if applicable)***	
Approver 2	**Name**	
	Organisation	
	Position	
	Date	
	Signature	
	Comments ***(if applicable)***	
Approver 3	**Name**	
	Organisation	
	Position	
	Date	

	Signature	
	Comments ***(if applicable)***	

APPENDIX 38: PRTM Proforma v14a & Uncertainty Log v7a

Pan Regional Transport Model (PRTM) Development Testing Proforma

Foreword:

Before completing this form for development management purposes, it is recommended that you contact Leicestershire County Council (LCC) and seek advice from the Highway Development Management (HDM) team on the proposed use of PRTM. The HDM team can be contacted at hdc@leics.gov.uk.

Although not a requirement it is strongly recommended that potential stakeholders, e.g. LCC HDM, National Highways, sign-off on your brief and trip generation before submitting this proforma to Environment and Transport Modelling Services Contract (E&T MSC). This should ensure that any subsequent work proposal through E&T MSC is as accurate as possible in terms of scope, timescales and cost.

Please note that E&T MSC and wider Network Data and Intelligence (NDI) Team work independently from all other teams within LCC, including HDM. Please ensure any correspondence intended for the HDM team is sent to the case officer for your (pre)application; or, if unknown, to HDM's generic inbox: hdc@leics.gov.uk.

On the following page is an indicative flowchart summarising the general transport modelling process for using the PRTM to inform client Transport Assessments; this is a typical approach and has been simplified to a generic process – each individual application may differ from the below and as above advice should be sought from the HDM team.


Pre-meeting between client and HDM/stakeholders to discuss brief and suitability of PRTM
HDM/stakeholder approved brief and PRTM proforma submitted to E&T MSC framework by client
E&T MSC to send brief and proforma to Framework consultants and commission as applicable.
Commissioned consultant produces model validation report and extracts relevant network scheme and planning data assumptions
Client circulates local model validation report and model assumptions to stakeholders for sign-off
Inception meeting is arranged once sign-off is complete to discuss the modelling methodology
Commissioned consultant undertakes forecasting of all scenarios bar mitigation runs, creates report for client
Client interprets model forecast results and suggests and agrees junctions, with relevant stakeholders, for further assessment
Client undertakes further assessment and formalises mitigation packages
Commissioned consultant undertakes forecasting of mitigation scenario and creates addendum to forecasting report
E&T MSC commission complete

Section 1: Client Details

Name:	Paul Wilson
Company:	BWB Consulting Ltd (on behalf of Segro)
Telephone:	[redacted]
E-mail:	[redacted]@bwbconsulting.com
Date:	28/10/2024

Section 2: Project Details

Title:	East Midlands Gateway Phase 2
District / Location:	Land to the southeast of EMA, and southwest of M1J23a in North West Leicestershire DC's jurisdiction
Background:	This version of the PRTM proforma (v14a) outlines additional scenarios that require testing as part of the EMG2 Development Consent Order over and above the scenarios already set out within PRTM proforma v14 (dated 10/10/24). The additional scenarios cover requirements for transport planning, air quality and noise quality purposes. The majority of the other details in this proforma remain unchanged from v14 (trip rates, traffic generation, development details etc. all remain the same) and the only changes relate to additional modelling scenarios set out in Section 4. This proforma is accompanied by a revised uncertainty log (v7a).

Section 3: Development Details

Please input your development phasing into the provided table on the right; if it is a mixed-use site, please separate dwellings and employment floorspace with a comma. This table will act as an overview to the detail provided further in this proforma as well as the supporting brief (if available).

There are two main forms of assessment that the E&T MSC offers, a highway-only model run and a full-PRTM model run. Your HDM Case Officer will confirm which type of assessment is needed for your development.

For highway-only model runs please provide details in section 3a, for full model runs please provide details in section 3b.

Please provide a brief description of the access arrangements in the box below; if there are preliminary scheme drawings available please provide these alongside submission of this proforma via email attachment.

Brief description of access arrangements:

The access proposals to EMG2 involve a single main access via a fourth arm of the existing A453/Hunter Road roundabout to serve 100% of the development plus the bus interchange, which can then connect directly into the site.

A separate emergency access would also be provided, but that won't affect the revised modelling work.

Development on Plot 16 of EMG1 would be served by the existing access via Wilder's Way.

.

Year	No.
2021	Figure
2022	Figure
2023	Figure
2024	Figure
2025	Figure
2026	Figure
2027	Figure
2028	*130,000sqm*
2029	*100,000sqm*
2030	*100,000sqm*
2031	*100,000sqm*
2032	Figure
2033	Figure
2034	Figure
2035	Figure
2036	Figure
2037	Figure
2038	Figure
2039	Figure
2040	Figure
2041	Figure
2042	Figure
2043	Figure
2044	Figure
2045	Figure
2046	Figure
2047	Figure
2048	Figure
2049	Figure
2050	Figure
2051	Figure
Total	*430,000sqm*

Section 3a: Highway Model Only Development Details

Please provide either the agreed trip rates and/or trip generation for your development in the relevant tables below. Depending on your land use and agreed approach with LCC HDM, values may not be required for all three time periods.

Trip Rates:

Housing: N/A

Vehicle Type	AM			IP			PM		
	Arr.	Dep.	Total	Arr.	Dep.	Total	Arr.	Dep.	Total
Light Vehicles									
HGV's									
Total									

Employment: B2

Vehicle Type	AM			IP			PM		
	Arr.	Dep.	Total	Arr.	Dep.	Total	Arr.	Dep.	Total
Light Vehicles	0.376	0.057	0.433	-	-	-	0.046	0.363	0.408
HGV's	0.016	0.014	0.030	-	-	-	0.003	0.006	0.009
Total	0.392	0.071	0.463	-	-	-	0.049	0.369	0.417

Employment: B8

Vehicle Type	AM			IP			PM		
	Arr.	Dep.	Total	Arr.	Dep.	Total	Arr.	Dep.	Total
Light Vehicles	0.121	0.013	0.135	-	-	-	0.040	0.140	0.180
HGV's	0.019	0.023	0.041	-	-	-	0.025	0.015	0.040
Total	0.140	0.036	0.176	-	-	-	0.065	0.155	0.220

The B8 trip rates for the PM peak now mirror the 1600 to 1700 hour shoulder peak trip rates adopted for EMG1

Trip Generation:

Housing: N/A

Vehicle Type	AM			IP			PM		
	Arr.	Dep.	Total	Arr.	Dep.	Total	Arr.	Dep.	Total
Light Vehicles									
HGV's									
Total									

EMG2 (400,000sqm)

Employment: B2; 60,000sqm GFA

Vehicle Type	AM			IP			PM		
	Arr.	Dep.	Total	Arr.	Dep.	Total	Arr.	Dep.	Total
Light Vehicles	226	34	260	-	-	-	28	218	246
HGV's	10	8	18	-	-	-	2	4	6
Total	235	43	278	-	-	-	30	222	252

Employment: B8 340,000sqm GFA

Vehicle Type	AM			IP			PM		
	Arr.	Dep.	Total	Arr.	Dep.	Total	Arr.	Dep.	Total
Light Vehicles	411	44	455	-	-	-	136	476	612
HGV's	65	78	143	-	-	-	85	51	136
Total	476	122	598	-	-	-	221	527	748

Employment: TOTAL EMG2 DEVELOPMENT

Vehicle Type	AM			IP			PM		
	Arr.	Dep.	Total	Arr.	Dep.	Total	Arr.	Dep.	Total
Light Vehicles	637	78	715	-	-	-	164	694	858
HGV's	75	86	161	-	-	-	87	55	142
Total	711	165	876	-	-	-	250	748	998

Plot 16 EMG1 (30,000sqm)

Employment: B8 30,000sqm GFA

Vehicle Type	AM			IP			PM		
	Arr.	Dep.	Total	Arr.	Dep.	Total	Arr.	Dep.	Total
Light Vehicles	36	4	40	-	-	-	12	42	54
HGV's	6	7	13	-	-	-	8	5	13
Total	42	11	53	-	-	-	20	47	67

Section 3b: Full Model Run Development Details

Please provide the number of dwellings and/or employment floorspace, or preferably if known, jobs for each of the sub-categories below.

Employment Development Land Use:

Land Use	Class	Unit	Quantum	Jobs
Shops	A1	m^2		
Business	B1a	m^2		
General Industrial	B2	m^2	*60,000*	*TBC*
Storage or Distribution	B8	m^2	*370,000**	*TBC*
Research & Development	B1b	m^2		
Leisure	D2	m^2		
Hotels	C1	Beds		
Education	D1	Jobs		

** includes 340,000sqm of B8 floorspace on EMG2 and 30,000sqm of B8 floorspace on Plot 16 of EMG1*

Housing Development Land Use:

Land Use	Class	Dwellings
Dwellings	C3	

Section 4: Modelling Required

Assessment Years:

Please select your assessment years from the options below. Please note that if you need PRTM forecast years to infer model flows to correspond with data collection, you will need to select the 'shoulder' forecast years (i.e. inferring the 2018 model forecast year will require 2016 and 2021 PRTM forecast years). Bespoke individual forecast years may be requested with the "Other, please specify" option, but this does not guarantee inclusion in any provided proposal.

2014 (base) ☐	2016 ☐	2021 ☐
2026 ☐	2031 ☐	2036 ☐
2041 ☐	2046 ☐	2051 ☐
Other, please specify:	2028 and 2038 forecast years are required that remove the Local Plan allocated sites. The Local Plan sites are highlighted in yellow in uncertainty log 7a and include: 1. Isley Woodhouse (W1). 2. Land North and South of Park Lane, Castle Donington (CD10). 3. Land West of Hilltop Farm, Castle Donington (EMP89). 4. Land North of J11A/M42 (EMP82). 5. Land North of Remembrance Way, Kegworth (EMP73). 6. Land North of Derby Road, Kegworth (EMP73). All Freeport designations are to remain included in all modelling scenarios.	

If required, please provide proposed phasing in each forecast year selected above, in the box below. An example has been included in green, please delete and populate with your data.

2023: 0% development (do minimum) 2024: 0% development (do minimum) 2028: 100% occupancy (excluding Local Plan sites) 2038: 100% occupancy (excluding Local Plan sites)

Assessment Options:

Please select which scenarios you will want testing, as well as defining which model year each scenario corresponds to as this can potentially be multiple forecast years for one scenario; this will depend on your discussions with HDM and their requirements.

Scenario	Choice	Model Year(s)
Core	Assumed	2023/2024/2028/2038
Core + no development + access strategy	☐	
Core + development + no mitigation	Assumed	2028/2038
Core + development + mitigation	☒	2028/2038
Other, please specify:	The following additional scenarios will need testing as part of the Stage 1 modelling: i) 2023/2024 forecast base year (for air and noise quality purposes) ii) 2028/2038 forecast year without development (excluding the Local Plan related schemes) iii) 2028/2038 forecast year with development (excluding the Local Plan related schemes)	

Time Period Selection:

Please select the time periods you would like your development assessed in.

AM (0800-0900)	☒
IP (average hour for 1000-1600)	☐
PM (1700-1800)	☒

Indicative list of Junctions for Further Assessment:

If known, please provide an indicative list of expected junctions that may be required for further assessment in the box below. This, in turn, will facilitate the delivery of strategic model outputs to inform any further detailed junction assessments. Failing that, a rough estimation of the number of junctions that **may** require further assessment will aid consultants in producing robust quotations within their proposals.

Strategic modelling outputs are expected to be required at the following 7 junctions.

Junction 2) A453/Hunter Road/proposed site access Roundabout (Leicestershire)

Junction 3) Finger Farm Roundabout (National Highways)

Junction 4) A453/EMGP1 Signal Gyratory (National Highways)

Junction 5) M1 Junction 24 (National Highways)

Junction 6) A453/East Midlands Airport Signal Junction (Leicestershire)

Junction 7) A453/Grimes Gate Priority Junction (Leicestershire)

Junction 8) A453/The Green Priority Junction (Leicestershire)

Section 5: Pre-Modelling Outputs

This section details the options available to the client pre-modelling; typically, in aid of model assurance for project stakeholders to ensure no abortive work is undertaken. Please de-select which pre-modelling outputs you do not require, as these are usually standard documents provided to HDM.

Project Specific Study Area Model Validation Report	☐
Local Planning Data Assumptions	☐
Network Scheme Uncertainty Log	☐

Section 6: Post-Modelling Outputs

Highway Model Outputs:

The following highway model output options are available post-transport-model assignment. Some metrics below will need to be specified by the client after analysis of the forecasting report; for instance, “individual junction plots” which would tie in with the relevant sub-section in Section 4.

Area of Influence (AoI) (criteria defined as 5% and 30 PCU change)	Assumed
Highway Flow Changes within AoI	Assumed
Highway Delay Changes within AoI	☒
Individual Junction Plots – Turning Flows	☒
Individual Junction Plots – Volume/Capacity Ratio	☒
Maximum Volume/Capacity Ratio Plots	☒
Select Link Analysis of Development Traffic (link based)	☒
Provision of flow data for junction design/assessment	☒
AADT/AAWT	☒
The following model outputs would be required in shape file format for the purposes of our subsequent analysis (which may overlap with above). - AM/PM Peak flows classified into Lights/Heavies/Total - AM/PM/AADT Development only flows classified into Lights/Heavies/Total - Maximum Junction VoC - Link Delay - Link Queue - AADT classified into Lights/Heavies/Total - AAWT (24hr, 18hr, 8hr) classified into Lights/Heavies/Total Further to the above extraction of cordon matrices (actual flows) for the VISSIM modelling extent is required which includes the following junctions: - M1 J24; - M1 J24a southbound merge onto the M1 and M1 junction 24; - A453/EMG Phase 1/Kegworth Bypass signal controlled gyratory; - M1 J23a Finger Farm roundabout (including M1/A42 on and off slip roads); - A453/Hunter Road/minor EMG Phase 2 access roundabout; The outputs from the cordon matrices should include: - Cordon matrices (in vehicle) for o Cars / LGVs / HGVs o AM Peak hour / PM Peak hour - The cordon matrices to be provided in spreadsheet format. The above outputs are required for the 2028/2038 forecast year scenarios only and only shapefiles are needed for the 2023/2024 baseline year scenarios.	

Variable Demand Model Outputs (full PRTM run required):

The following demand model output options are available post-transport-model assignment.

Mode Share reporting; PT, Car, Active	☐
Trip Distance, 24-hour trip making & sustainability	☐

Public Transport Model Outputs (full PRTM run required):

The following highway model output options are available post-transport-model assignment.

Change in travel time, distances & speeds	☐
Distribution Analysis/Diagrams of Development Traffic	☐
Travel Time Changes along Key Routes	☐
Public Transport Passenger Changes	☐

Environmental Model Outputs:

Environmental model outputs are available post-transport-model assignment. Please note that environmental outputs will require a separate commission via the E&T MSC Manager, please contact ETCF@leics.gov.uk if you require emission or dispersion modelling to support your application.

Section 7: Supporting Documents

Supporting Documents:

Please provide any supporting documents that have been selected below to the E&T MSC Manager upon delivery of your proforma.

Location Plan Access Scheme Drawings Development Masterplan (to be updated in the coming weeks)	☐ ☐ ☐
Other, please specify:	Click here to enter text

Client's Expected Timescales:

Please provide an approximation for your client's timescales for this modelling commission in the box below; please take into consideration HDM's and National Highways' standard response times and sign-off procedures to avoid unrealistic timescales being provided and slippage to your project.

It is understood that these additional scenarios will have a small impact on the timescales for the Stage 1 modelling work, extending timescales by 1-2 weeks. We request a revised programme from AECOM formally setting out timescales for the modelling.

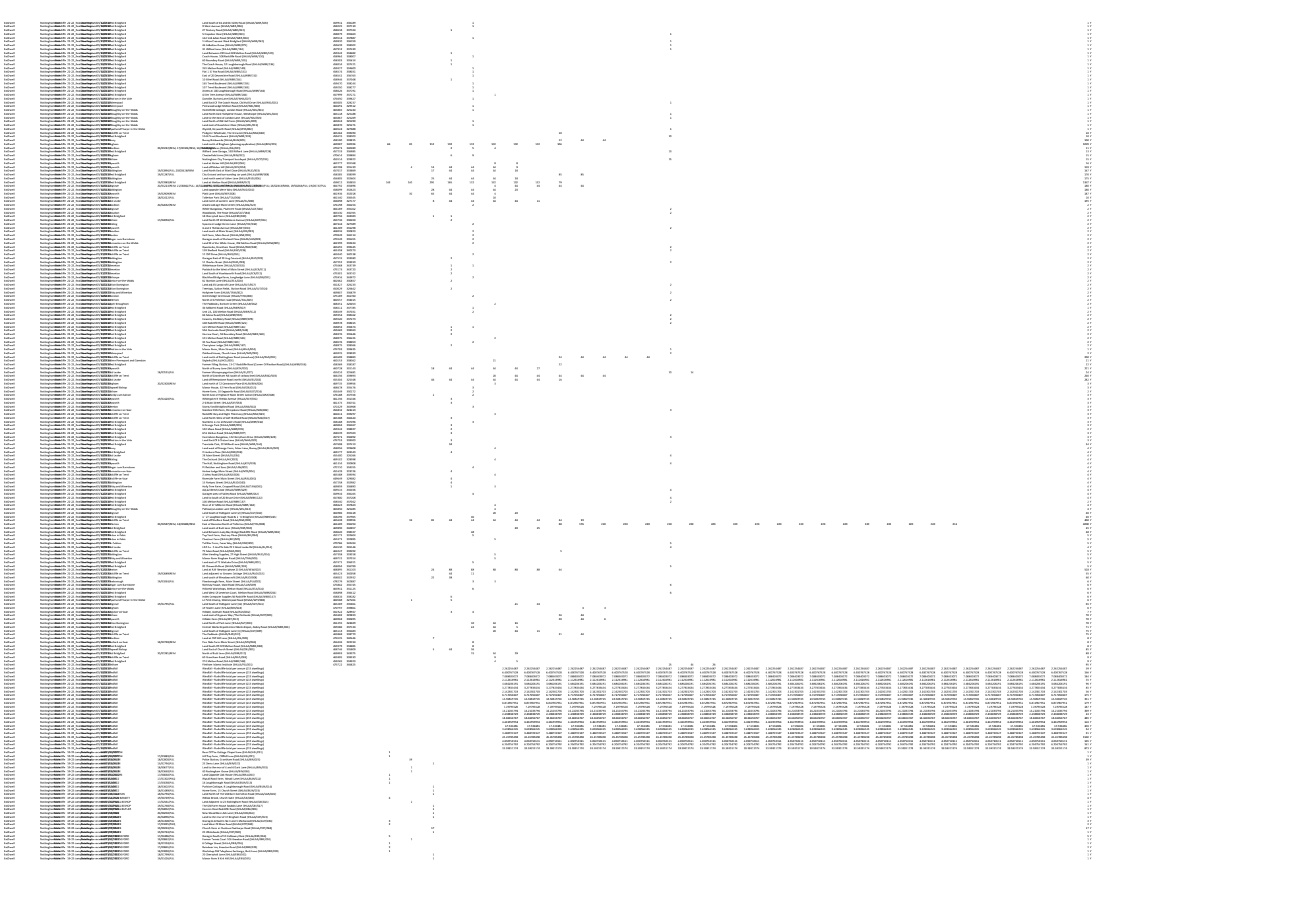
Section 8: Contact Details

Email the completed form, along with supporting documents to ETCF@leics.gov.uk

For queries regarding the modelling process please contact:

Laura Good – ETCF & E&T MSC Manager
Email: ETCF@leics.gov.uk

| HOUSING DATA | | |



Highway Network Scheme Assumptions

Scheme No.	Location	Scheme Name	Included from...	Included
16	Earl Shilton	Access arrangements for SUE / Highway improvements for SUE	2026	Y
17	Barwell	Access arrangements for SUE / Highway improvements for SUE	2026	Y
18	Lubbesthorpe	Access arrangements for SUE including strategic traffic link to the A563 Lubbesthorpe Way	2021	Y
20	Loughborough	A512 widening B591 to M1 J23, improvements to J23 and completion of dualling thereafter to either Snell's Nook Lane or Epinal Way junction	2021	Y
23	Coalville	4. Bardon Road Link: Southern section only	2026	Y
24	Castle Donington	Western Link Road from Back Lane to Tops Hill, NWLDC package of measures to help mitigate growth planned	2021	Y
25	Lubbesthorpe	Link across M69 to join North and South of the Lubbesthorpe development.	2031	Y
26	Earl Shilton & Barwell	Highway improvements for SUE	2026	Y
27	Lubbesthorpe	Highway improvements for SUE	2026	Y
30	Loughborough	West of Loughborough SUE (access from the north via the A6 roundabout)	2022	Y
36	Blaby	Desford Crossroads	2026	N
37	Harborough	Harborough Strategic Development Area	2021	Y
38	Charnwood	North of Birstall SUE	2026	Y
39	Charnwood	Mountsorrel Lane, Rothley Link Road	2021	Y
40	Charnwood	A512 junction improvements	2021	Y
46	North of East Leicester	North of East Leicester Development Network - Thorpebury (previously Thurmaston) SUE.	2026	Y
53	Leicester City	Traffic Calming Schemes (Phase 2)	2021	Y
60	Leicester City	Welford Road	2021	Y
63	Leicester City	Waterside Development	2026	Y
66	Leicester City	Belgrave Gate South	2020	Y
70	Leicester City	Lancaster Road	2020	Y
71	Leicester City	Mansfield Street & Church Gate	2021	Y
72	Leicester City	SMBS Access to Burleys Way	2021	Y
73	Leicester City	Vaughan Way	2020	Y
74	Leicester City	Ashton Green	2021	Y
108	Leicester City	LNW2 Ravensbridge Drive / Blackbird Road	2020	Y
104	Melton	MMDR Northern Section	2026	Y
105	Melton	MMDR Eastern Section	2026	Y
106	Melton	MMDR Southern Section	2026	Y
109	Melton	Gladman's Site (Leicester Rd and Kirby Lane Access)	2021	Y
114	Leicester City	Beaumont Leys Anstey Lane Improvements	2021	Y
115	Hinckley	Hinckley Rugby Road Corridor Improvements - Phase 4	2023	Y
116	Leicester City	Putney Road West Improvement	2022	Y
117	Lutterworth	Frank Whittle Roundabout approaches	2021	Y
601	Lutterworth	Lutterworth East Development (Development Access (A4304, Gilmorton Road and A426))	2026	Y
602	Lutterworth	Lutterworth East Development associated mitigations	2031	Y
603	Lutterworth	Lutterworth East Development (Link Road between A4304 and A426)	2031	Y
604	Lutterworth	Lutterworth East Development (Gilmorton Road bridge bus restriction)	2026	Y
119	Bardon Hill	Bardon Hill Link Road North Section	2026	Y
120	Coalville	Hoo Ash Roundabout	2025	Y
121	Coalville	Thornborough Road Roundabout	2025	Y
122	Coalville	Dual Carriageway from Thornborough Rd to Whitwick Road	2025	Y
123	Coalville	Whitwick Road Roundabout	2025	Y
124	Coalville	Broom Leys Road Junction	2025	Y
125	Coalville	Bardon Link Road Junction	2025	Y
126	Coalville	Birch Tree Roundabout	2025	Y
128	Coalville	Flying Horse Roundabout	2025	Y
129	Coalville	Fieldhead Roundabout	2025	Y
134	Hinckley	DPD A5 Access	2021	Y
137	Padge Hall	Padge Hall Development Access	2024	Y
140	Leicester City	Abbey Park Road Cycle Provision	2021	Y
142	Blaby	A47/Kirby Lane Tesco Express	2021	Y
143	Leicester City	Abbey Street	2021	Y
144	Leicester City	A50 Groby Road Bus Lane	2022	Y
150	Harborough	Magna Park Extension Access - Mere Lane, Lutterworth	2021	Y
151	Harborough	Magna Park Extension Access - A5, Lutterworth	2026	Y
152	Blaby	Highway improvements for Lubbesthorpe SUE	2021	Y
153	Blaby	Foxhunter Roundabout Eastbound Approach	2021	Y
154	Loughborough	West of Loughborough SUE (connection to the northern arm of the A512 roundabout)	2036	Y

155	Harborough	B4114/B581 Signalisation Improvement, Broughton Astley	2026	Y
157	Blaby	Blaby DPD Site Access	2026	Y
158	Blaby	West of St Johns (Blaby DPD) Site Access	2026	Y
159	Harborough	Wigston Direction for Growth Site Access	2026	Y
160	Blaby	Everard Way Closure, Fosse Park	2020	Y
161	Loughborough	Access connection for the Science Park via the A512 roundabout	2031	Y
163	NWL	Money Hill Site Access A511	2026	Y
164	Derbyshire	Wragley Way (South Derbyshire) SUE Access A50	2031	Y
166	Derbyshire	Clifton (Rushcliffe) SUE Access	2022	Y
167	Derbyshire	EMIP A50 (Freeport)	2030	Y
169	Derbyshire	Toton Innovation Hub (HS2)	2026	Y
170	Nottinghamshire	Ratcliffe Power Station A453 (Freeport)	2030	Y
171	Rugby	Rugby Radio Station - A5 Access	2022	Y
174	North West Leicestershire	Mercia Park	2020	Y
175	Leicester City	Western Park Golf Course	2029	Y
176	Harborough	Kettering Road Signalisation	2021	Y
177	Charnwood	Shuttle signals on Tickow Lane (over bridge)	2022	Y
178	Charnwood	Buttercup Lane in Shepshed	2022	Y
179	Blaby	Dans Lane (A47)	2023	Y
180	Hinckley	B582 / B585 signalisation	2023	Y
181	Hinckley	A47 roundabout between Wykin Rd and Outlands Dr	2021	Y
502	M6 J10-13	M54-Stafford ALR	2021	Y
504	M54-M6 Toll	New Link Road min 2 lane motorway	2024	Y
507	M6 J13-J16	Stafford South to Stoke ALR	2022	Y
510	M1 J13-16	MK South - J16 ALR	2022	Y
513	M40 M42	M40 J16-M42 J3 ALR	2026	Y
516	A46 Coventry	Remove Binley and Walsgrove roundabouts M40-M6 as 'expressway standard'(ie all grade separated junctions)	2026	Y
520	A46 Toll Bar End	Grade separated jcn at TBE & Stonebridge Hwy to 3 lanes	2021	Y
526	Newark N	Dualling Newark N bypass first stages now in RIS 2	2031	Y
527	Newark S	A1-A46 link S of Newark; part constructed. Not in MRTM list	2031	Y
528	Lincoln E	A15-A158; under construction	2021	Y
529	Lincoln S	A158-A46; *sketchy details*; envisaged as dual carriageway… Assumed costing will be similar to Lincoln E bypass and will be 60mph single	2031	Y
530	Grantham S	A1-A52 link bypassing Grantham; under construction	2023	Y
9	Warwickshire	M6 J2 - J4 SMART motorway	2021	Y
201	Nuneaton and Bedworth Borough	Coton Arches	2021	Y
202	Nuneaton and Bedworth Borough	A4254b Eastboro Way P1	2024	Y
203	Nuneaton and Bedworth Borough	College Street / A444	2026	Y
204	Nuneaton and Bedworth Borough	Transforming Nuneaton	2026	Y
205	Nuneaton and Bedworth Borough	Croft Road/Greenmoor Road Priority	2031	Y
206	Nuneaton and Bedworth Borough	A47 Old Hinckley Road	2024	Y
207	Nuneaton and Bedworth Borough	Coventry Road / Gipsy Lane	2026	Y
208	Nuneaton and Bedworth Borough	A4254 / B4114 / Eastboro Way	2026	Y
209	Nuneaton and Bedworth Borough	Nuneaton Northern Sites Link Road	2026	Y
210	North Warwickshire	B5000 Market Street/Bridge St Signals	2026	Y
211	North Warwickshire	A5 Dualling between Grendon and Dordon Junction	2033	Y
213	Rugby Borough	A426/A4071 Avon Mill Roundabout/Newbold Road/Hunters Lane Priority Junction	2026	Y
214	Rugby Borough	Ashlawn Road/Hillmorton Road	2021	Y
215	Rugby Borough	A5 Northern Access to DIRFT III	2021	Y
216	Rugby Borough	A5/A428 Halfway House Roundabout	2026	Y
217	Rugby Borough	M1 Junction 18	2031	Y
218	Rugby Borough	M6 to Coton House	2021	Y
219	Rugby Borough	A5 Southern Access to DIRFT III	2021	Y
221	North Warwickshire	A5 dualling Grendon to Atherstone	2031	Y
223	Rugby Borough	M6 J2 Signalisation	2024	Y
250	Nuneaton and Bedworth Borough	Callendar Farm Phase 2	2031	Y
251	Nuneaton and Bedworth Borough	Bermuda Triangle Project	2026	Y
252	Rugby Borough	Ansty Park Access (Combe Fields Road)	2020	Y
182	Castle Donington	Land South of A50 J1 Development Access	2024	Y
183	Hinckley	B4114 Coventry Rd / Broughton Rd widening	2021	Y
184	Shepshed	A512 Ashby Rd Quarry access/signalised jnc	2021	Y
185	Bardon	Tungsten Park, Bardon A511	2021	Y
186	NWL	EMAGIC Segro EMG Phase 2 Development Access	2028	N

306	Leicester City	St George Street (Queen St to Southampton St)	2022	Y
307	Leicester City	Dover Street (Granby Street Jct)	2024	Y
305	Leicester City	Granby St (Bishop St to Halford St)	2024	Y
304	Leicester City	Granby St (N'hampton St to St George's Way)	2022	Y
303	Leicester City	Pocklingtons Walk	2022	Y
302	Leicester City	Aylestone Road, Saffron Lane to Oxford Street (A426)	2023	Y
301	Leicester City	Saffron Lane (B5366)	2023	Y
149	Leicester City	Duns Lane/Braunstone Gate	2023	Y
148	Leicester City	Abbey Park Road (Eastern section and bridge)	2023	Y
147	Leicester City	Anstey Lane (A5630)	2022	Y
146	Leicester City	St. Margaret's to Birstall (A6)	2024	Y
145	Leicester City	Melton Road (A607)	2023	Y
77	Leicester City	Belgrave Gate/Haymarket/Church Gate Pedestrianisation	2020	Y
187	NWL	A50 J1 signalisation of two additional arms (Tamworth Road and Trent Lane)	2025	Y
188	Blaby	Desford Road/Ratby Lane signalisation	2022	Y
189	Nottinghamshire	A52 Gamston roundabout	2023	Y
190	Nottinghamshire	A52 Wheatcroft junction	2028	Y
191	Nottinghamshire	A52 Nottingham Knight junction	2028	Y
n/a	Derbyshire	A38 grade-separated junctions (Kingsway Roundabout, Markeaton Island and Little Eaton Roundabout)	2024	Y
n/a	Broxtowe	Toton Link Road	2026	N

APPENDIX 39: A52 Signal Junctions Green Time Calculations email dated 23 August 2024

Matt Corner

From: Matt Corner
Sent: 23 August 2024 14:21
To: Morrow, Jonathan; [redacted]@aecom.com
Cc: Chandler-Hurst, Alain; Jeremy Bloom; Ian Rigby; Freek, Steve; Vibeeshan Devaharan; Laura Good; ETD - Commissioning Framework; [redacted]@deltaplanning.co.uk; [redacted]@deltaplanning.co.uk; Stephanie Meyers; [redacted]@oxalisplanning.co.uk; Anthea Anderson; Paul Wilson; [redacted]@nottscc.gov.uk; Harry Horsley; daniel.sullivan; Adrian Whiteman; Ahmed, Fiona; [redacted]@nationalhighways.co.uk; Nock, George
Subject: RE: EMG2 - A52 Signal Timing Information
Attachments: 240819_Furnessing_Traffic_Flow_Matrices.xlsx

Hi Jonathan/Aled,

As you know we have been trying to obtain signal timing information for the three A52 improvement schemes but unfortunately to no avail. We have therefore taken it upon ourselves to calculate assumed signal timing information using PRTM flow data and the scheme drawings provided to us. This has incurred quite a lengthy exercise but should provide reasonable signal timing information to be coded into PRTM. I understand that you will sense check the timings when undertaking the modelling and optimise timings where necessary. Attached is a copy of the spreadsheet presenting the calculations for records more than anything, whilst a summary of the methodology is provided below.

Methodology for Calculating Green Times

1. As PRTM data provides entry/exit flows for each arm but not turning counts, a furnessing exercise was undertaken to determine turning proportions, using the previously agreed methodology.

2. Each junction was split into individual streams, typically including an approach arm and the opposing lanes on the circulatory. All streams are shown in the images in the attached spreadsheet.

3. Traffic was assigned to each lane using the turning proportions determined through the furnessing exercise (point 1). Where multiple lanes allow for the same direction of travel, flows were split equally across each lane.

4. A percentage of the maximum lane flow for each arm in the same stream was calculated. For example, if the heaviest flow is 100 vehicles on an entry arm lane and 150 vehicles on a circulatory lane, then the percentage split would be 40% (entry arm) and 60% (circulatory).

5. A base cycle time of 60 seconds was adopted for streams with two stages and streams with more than two stages adopted a cycle time of 90 seconds.

6. Intergreens were calculated based on geometries using the drawings supplied to us.

7. The total green times were calculated by subtracting the intergreen time from the total cycle time.

8. The remaining green time was then allocated to each stage stream in line with the percentage split calculated at point 4.

By adopting the above methodology, the green times for each stream for the three junctions are summarised in the tables below, whilst intergreen times can be found in the spreadsheet. These should provide a reasonable estimation of green times in the absence of any further information, which we recommend AECOM take on board within the PRTM modelling, noting that you will carry out your own sense checks during the process.

Green Times

Junction 1 A52/A60 (Nottingham Knight)

Stream	Cycle Time Sec	Arm	AM GT Sec	PM GT Sec
1	90	Arm A - A52 E Approach	22	23
		Arm B - A52 W Approach	15	18
		Arm C - Circulatory	10	6
2	60	Arm A - A60	16	16
		Arm B - Circulatory	33	33
3	60	Arm A - A52 W Approach	32	34
		Arm B - Circulatory	16	14

Junction 2 A52/A606 (Wheatcroft Island)

Stream	Cycle Time Sec	Arm	AM GT Sec	PM GT Sec
1	60	Arm A - Melton Road N	17	16
		Arm B - Circulatory	30	31
2	60	Arm A - A52 E Approach	23	23
		Arm B - Circulatory	24	24
3	60	Arm A - Melton Road E	11	14
		Arm B - A52 W Approach	7	7
		Arm C - Circulatory	18	15
4	60	Arm A - Flawforth Lane	8	7
		Arm B - Circulatory	39	40
5	60	Arm A - A52 W Approach	30	31
		Arm B - Circulatory	17	16

Junction 3 A52/A6011 (Gamston Roundabout)

Stream	Cycle Time Sec	Arm	AM GT Sec	PM GT Sec
1	60	Arm A - A52 E Approach	31	28
		Arm B - Circulatory	19	22
2	60	Arm A - A52 S Approach	20	29
		Arm B - Circulatory	29	20
2	60	Arm A - Radcliffe Road	34	31
		Arm B - Circulatory	16	19

On a separate note, we have reviewed the other three junction improvements on the A52 raised by Catherine at the TWG meeting (Silverdale, Stragglethorpe and Bingham Road). Whilst they are currently excluded from the uncertainty log, they comprise more minor changes such as introducing part time signals/changes to signal timings etc, with the latter two junctions located more remote from the site within Radcliffe on Trent. Therefore, we are of the opinion that they do not including for in the PRTM modelling work.

This should now give AECOM everything you need to continue the PRTM modelling work and running the forecast year scenarios. However, please let us know if you have any questions or require any further information. We have copied in the TWG seeing as this was included for as a key action, but trust that they will be accepting of the approach adopted, seeing as we were hoping that said information would have been provided directly to us, rather than us having to had gone to such lengths to determine it. Thanks

Kind regards

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Subject: EMGP2 - August Meeting Minutes/Actions

Hi all,

Thank you for your time again on Thursday last week.

Please see attached minutes from the meeting, along with Steph's slides on the sustainable transport update and a revised programme. The programme has been cropped to include the tasks leading up to December 2024, which is when the core modelling tasks should be complete as this should keep it more focused as appreciate the main version is fairly comprehensive.

Key actions from the meeting are summarised below:

1. BWB/NH to follow up with Jeremy on the A52 signal timing information. [redacted]@nationalhighways.co.uk I'll be following up with Jeremy this week but if you are able to assist that would be greatly appreciated as this is critical for the modelling.

2. BWB to review the other three NH junction improvement schemes and whether these are included in PRTM.

3. AECOM to check EMG1 flows, which from the original modelling look very high.

4. AECOM to confirm the methodology for covid sensitivity assessment and how factors are applied to increase base flows.

5. BWB to arrange a meeting with Jeremy to run through NH's note and the mitigation points in particular.

6. BWB to finalise and circulate a link to the SharePoint page.
7. AECOM to issue the PRTM base model validation addendum note.
8. Matt to schedule a modelling meeting following responses on the survey poll schedule poll.

I trust the above covers all the points and actions discussed at the meeting but if anyone has any comments then please feel free to get in touch.

Kind regards

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Cc: Chandler-Hurst, Alain [redacted]@jacobs.com>; Jeremy Bloom [redacted]; Ian Rigby [redacted]@segro.com>; Freek, Steve [redacted]@nationalhighways.co.uk>; [redacted]@nationalhighways.co.uk; Vibeeshan Devaharan [redacted]@bwbconsulting.com>; Laura Good [redacted]@leics.gov.uk>; ETD - Commissioning Framework <etcf@leics.gov.uk>; Morrow, Jonathan [redacted]@aecom.com>; Tim Bellenger [redacted]@nottinghamcity.gov.uk>; [redacted]@deltaplanning.co.uk; [redacted]@deltaplanning.co.uk; Stephanie Meyers [redacted]@itp.rhdhv.com>; [redacted]@oxalisplanning.co.uk; Anthea Anderson [redacted]@leicester.gov.uk>; Tang, Kit [redacted]@aecom.com>; Paul Wilson [redacted]@bwbconsulting.com>
Subject: RE: 240710 EMGP2 - July TWG agenda

Dear all,

We look forward to catching up Thursday at 10am. The proposed agenda is set out below.

a. Review of July 24 meeting minutes/actions (re-attached for ease of reference)
b. Client update; IR
c. Sustainable transport strategy update; SM
d. EMFM modelling update, post inception meeting (minutes re-attached for ease)
e. Wider strategic modelling update
f. Covid sensitivity testing; KT thoughts post AECOM presentation?
g. Jeremy Blooms note 23/7

h. Vision & Validate Assessment

i. Statement of Common Ground

j. Next steps

k. AOB

We trust the above/attached is of use; however, should anyone have any queries prior to the meeting please ask. Thanks

Kind regards

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APPENDIX 40: Stage 1C Modelling sign off sheet

TECHNICAL APPROVAL
East Midlands Gateway 2

Document Name	Stage 1C Modelling Documents	**Project reference**	220500
Document reference / revision	Covid-19 Assessment (EMG2-BWB-GEN-XX-RP-TR-0014 Revision P1)	**Date**	19.02.25

Approver 1	**Name**	Jeremy Bloom
	Organisation	National Highways
	Position	Interim Spatial Planner
	Date	30/04/2025
	Signature	[redacted]
	Comments ***(if applicable)***	**Covid-19 Assessment (EMG2-BWB-GEN-XX-RP-TR-0014 Revision P1)** To inform the Applicant's assessment of the impact of Covid on the traffic data used to unpin the assessment of development impacts, assessment work was undertaken by AECOM and is presented in East Midlands Gateway Phase 2 – proposed approaches to COVID-19 strategic model forecast sensitivity tests [July 2024]. Data gaps were identified by JSJV within this assessment. This absence of data affected the Strategic Road Network particularly the M1, A50, A42 and the A453 close to the development site. To account for this, JSJV undertook a supplementary exercise comparing 2019 and 2024 Webtris data in the area around M1 J24 and the A453 towards Nottingham. This information and data assessment was provided to the Applicant in email on 25th July 2024. Further assessment was then undertaken by BWB and AECOM and is presented in Technical Note East Midlands Gateway Phase 2 – Covid-19 Assessment (The Note). The JSJV assessment work and data analysis indicate increases greater than the overall relatively low level of change presented in the Note and information provided by BWB in email on 10th December 2024 (approximately 7% increase on the M1 in the PM peak

		and 8% increase on the A42 using the WEBTRIS dataset to gauge an understanding of Covid neutrality). JSJV would expect a degree of recovery of post-Covid traffic volumes between 2019 - 2023. Whilst JSJV have noted higher levels of growth on the SRN when comparing 2019 and 2024 data, JSJV would expect any further post Covid increases on the SRN to be contained with the expected growth rate applied to the modelling and any differences are likely to be marginal or in fact a small decrease between 2019 and 2023.
Approver 2	**Name**	
	Organisation	
	Position	
	Date	
	Signature	
	Comments ***(if applicable)***	

TECHNICAL APPROVAL
East Midlands Gateway 2

Document Name	Stage 1C Modelling Documents	**Project reference**	220500
Document reference / revision	Covid-19 Assessment (EMG2-BWB-GEN-XX-RP-TR-0014 Revision P1)	**Date**	19.02.25

Approver 1	**Name**	
	Organisation	
	Position	
	Date	
	Signature	
	Comments *(if applicable)*	
Approver 2	**Name**	
	Organisation	
	Position	
	Date	
	Signature	
	Comments *(if applicable)*	
Approver 3	**Name**	Tom Boylan
	Organisation	Nottinghamshire County Council
	Position	Principal Officer Transport Planning
	Date	06/03/2025
	Signature	

	Comments ***(if applicable)***	Nottinghamshire County Council (NCC) accept the findings of the **Covid 19 Technical Note** that was produced by BWB (07/01/25). NCC are aware through ongoing attendance of the Transport Working Group (TWG) that that an updated PRTM model (2023 version) is now available and there has been ongoing dialogue with Leicestershire County Council (LCC) officers on this matter. NCC do not feel it appropriate to offer an opinion on the PRTM model version and feel this matter needs to be agreed with LCC as custodians of the PRTM model and National Highways.

APPENDIX 41: EMFM Stage 1A Modelling Forecasting Report (document reference East Midlands Gateway Phase 2: Forecasting Report v1.0)



EMFM 2019

East Midlands Gateway Phase 2: Forecasting Report

Delivering a better world

Quality Information

Prepared by	Checked by	Approved by
Billy Wong	Jonathan Morrow	Mark Dazeley
Principal Consultant	Associate Director	Regional Director

Revision History

Revision	Revision date	Details	Authorised	Name	Position
v1.0	2025-02-04	For Issue	Yes	Mark Dazeley	Regional Director

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Section 1 – Overview

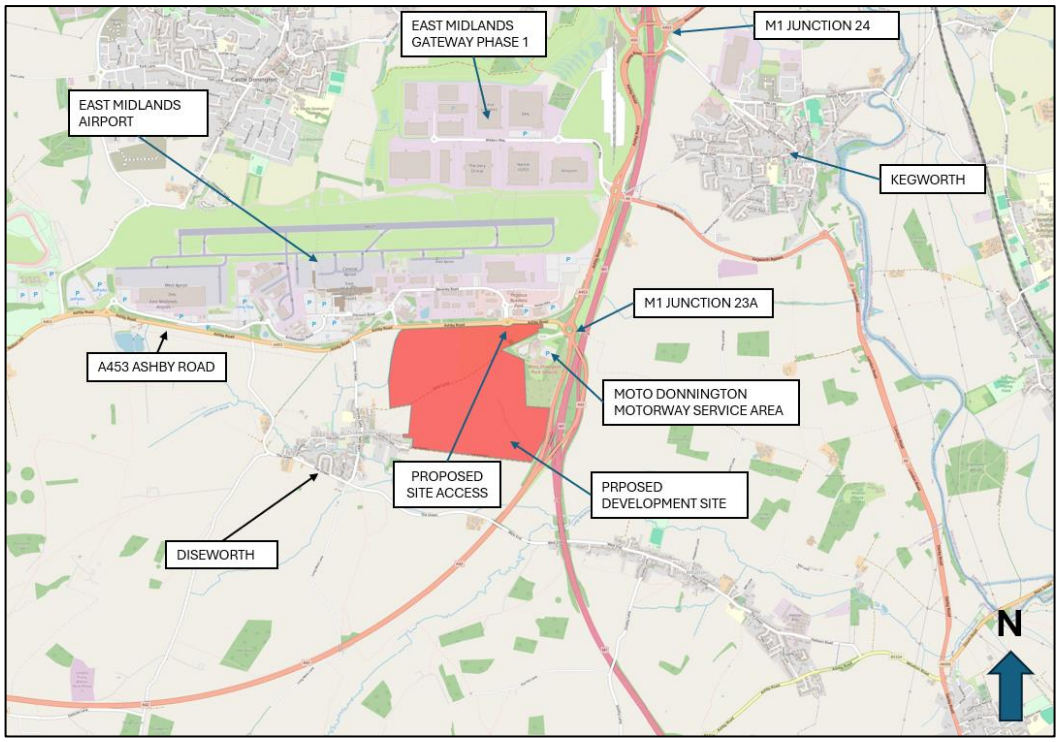
1.1 Introduction

1.1.1 The East Midlands Gateway (EMG) Phase 2 development is a proposed employment development of mixed B2 (general industrial) and B8 (storage or distribution) use, with capacity for 400,000sqm floorspace (300,000sqm ground floorspace and 100,000sqm of B8 mezzanine floorspace) of industrial use, comprising 340,000sqm B8 and 60,000sqm B2. In addition to this, 30,000sqm of B8 floorspace is proposed on EMG Phase 1 (Plot 16).

1.1.2 The development site is located to the south of East Midlands Airport in Leicestershire and west of the A42 and is expected to build out by 2031.

1.1.3 Figure 1.1 shows an indication of the location of the proposed EMG Phase 2 development, denoted by the area shaded in red. The proposed development has a total area of circa 250 acres located to the south of the A453 and East Midlands Airport itself, to the east of Diseworth village. M1 Junction 23a lies to the east of the site with the Moto Donnington Motorway Service Area (MSA) directly abutting to the north-east.

Figure 1.1: Location of Proposed Development[1]



© OpenStreetMap Contributors

1.1.4 The proposed EMG Phase 2 development will access the highway network via a single point of access:

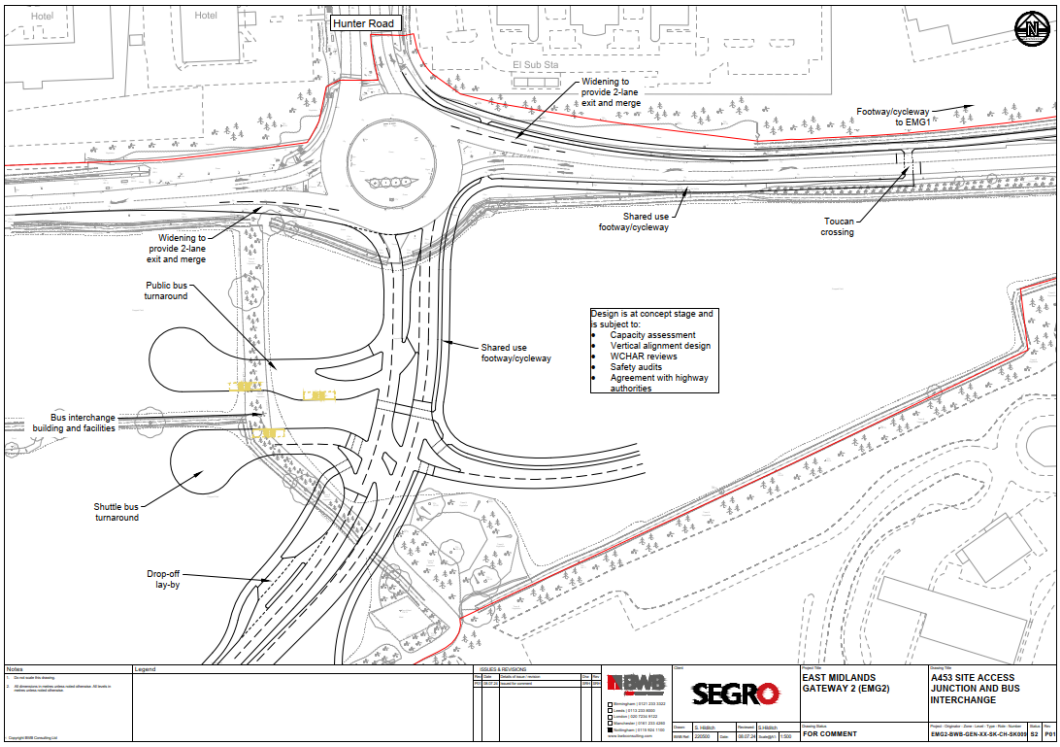
- a fourth arm off the existing A453 / Hunter Road roundabout, as shown in Figure 1.2.

1.1.5 The proposed EMG Phase 1 (Plot 16) development will access the highway network via:

- the existing access via Wilder's Way.

[1] Location of Proposed Development adapted from Technical Note 1 – Transport Scoping Note, East Midlands Gateway Phase 2 (EMG-BWB-GEN-XX-RP-TR-0001_TN1 Transport Scoping Note-S1-P3.pdf). Provided as part of the information pack with the PRTM Development Form for East Midlands Gateway Phase 2.

Figure 1.2: Site Access Junction[2]



1.1.6 The following development sites have been proposed at the nearby Isley Woodhouse site, on land west of Castle Donington, on land to the north of Kegworth, near Junction 11 of A/M42 and East Midlands Freeport sites. The forecast assumptions for the assessment of the East Midlands Gateway Phase 2 development will include these development sites:

- Isley Woodhouse (Site IW1), which comprises:
  - approximately 4,500 new homes and some 23,000sqm of employment floorspace (industry and warehousing)[3].
- Land North and South of Park Lane, Castle Donington (Site CD10), which comprises:
  - around 1,076 homes[4].
- Land West of Hilltop Farm, Castle Donington (Site EMP89), which comprises:
  - around 6,000sqm of offices and 11,850sqm of industry / smaller scale warehousing (use classes B2/B8)[4].
- Land North of Remembrance Way (A453) and Land North of Derby Road (A6), Kegworth (Site EMP73)[4], which comprises:
  - around 30,000sqm of industry / small scale warehousing (use classes B2/B8) on Land North of Derby Road (A6) site; and
  - around 40,000sqm of industry / small scale warehousing (use classes B2/B8) on Land North of A543 Remembrance Way site.
- Land to the North of J11 A/M42 (Site EMP82)[4], which comprises:
  - 28ha of employment land for strategic distribution purposes.

[2] EMG2-BWB-GEN-XX-SK-CH-SK009 S2 P01
[3] Draft North West Leicestershire Local Plan 2020-2024 – Proposed Houring and Employment Allocation for Consultation (www.nwleics.gov.uk/files/documents/proposed_housing_and_employment_allocations/Reg%2018%20%28Site%20Allocations%29%20Consultation_final.pdf)
[4] EMGP2 Uncertainty Log v7.0 (Jul 2024).xlsx

- East Midlands Freeport sites, which include the Uniper site (Ratcliffe), East Midlands Intermodal Park (EMIP) site, and the East Midlands Airport Aviation Expansion site.

1.1.7 AECOM has been commissioned to undertake strategic modelling to assess the potential traffic impacts of the proposed development using the East Midlands Freeport Model (EMFM) for the AM Peak (08:00 to 09:00) and PM Peak (17:00 to 18:00) hours.

1.1.8 The strategic modelling assessment for the proposed EMG Phase 2 development will be undertaken in three stages, as follows:

Stage 1a modelling (Proforma 14)

- 2022/2023/2024 'Without Development';
- 2028/2038 'Without Development (1a)' without EMG Phase 2 development (with all Freeport and Local Plan sites (as listed in Paragraph 1.1.6)); and
- 2028/2038 'With Development (1a)' with EMG2 development (with all Freeport and Local Plan sites (as listed in Paragraph 1.1.6)).

Stage 1b modelling (Proforma 14a)

- 2028/2038 'Without Development (1b)' without EMG Phase 2 development (without Local Plan sites (as listed in Paragraph 1.1.6)); and
- 2028/2038 'With Development (1b)' with EMG Phase 2 development (without Local Plan sites (as listed in Paragraph 1.1.6)).

Stage 2 modelling (details to be confirmed)

- 2028/2038 with EMG Phase 2 and with mitigation measures; and
- 2028/2038 with EMG Phase 2 construction.

1.1.9 This version of the report presents the forecast model results for Stage 1a only with Stage 1b and Stage 2 to follow.

1.1.10 This report is the Forecasting Report which documents the forecast model results for the EMFM strategic modelling assessment of the proposed development. This report follows the East Midlands Gateway Phase 2 Base Year Model Review Addendum report[5] which details the calibrated 2019 base year model review and performance in the vicinity of the proposed development site.

1.2 Report Structure

1.2.1 Following the introduction, this report contains the following sections:

- Section 2 – Forecast Approach and Assumptions: this section details the forecast assumptions applied within this assessment of the proposed development, including the assumed development trip generation and trip distribution.
- Section 3 – Forecast Model Results: the section details the forecast results requested as part of the brief.
- Section 4– Summary of the EMFM Assessment: this section provides a summary of the assessment of the proposed development.

[5] EMFM 2019 – East Midlands Gateway Phase 2: Base Year Model Review Addendum v1.0 (2024-08-19)

Section 2 – Forecast Approach and Assumptions

2.1 Introduction

2.1.1 This section sets out the forecast assumptions applied for this application of the EMFM, and the methodology adopted to create the required model forecasts.

2.1.2 The following forecast model scenarios have been produced for this version of the report:

Stage 1a modelling (Proforma 14)

- 2022/2023/2024 'Without Development';
- 2028/2038 'Without Development (1a)' without EMG Phase 2 development (with all Freeport and Local Plan sites (as listed in Paragraph 1.1.6)); and
- 2028/2038 'With Development (1a)' with EMG2 development (with all Freeport and Local Plan sites (as listed in Paragraph 1.1.6)).

2.1.3 The EMFM is a highway assignment model, linked to and derived from the PRTM (Pan-Regional Transport Model). For the development of the 2022, 2023, 2024 2028 and 2038 'Without Development' scenarios, an existing process to take the highway demand growth from the wider PRTM has been applied. Section 2.2 provides the 'Without Development' assumptions applied.

2.1.4 To produce the 'With Development (1a)' forecasts, the highway demand for the proposed development has been added to the EMFM 2028 'Without Development (1a)' and 2038 'Without Development (1a)' highway demand matrices and assigned in the EMFM. To estimate the development trip distribution, the gravity model within the PRTM has been used. Sections 2.3 to 2.5 provide the highway network and demand assumptions for the proposed development.

2.1.5 For information, both the EMFM and PRTM use the May 2024 TAG data book. This was the latest available TAG data book at the time of calibrating the PRTM. The EMFM was calibrated using the draft November 2022 TAG data book, again the latest TAG data book available during calibration. However, EMFM was updated to use the May 2024 TAG data book for this application. The impact on the 2019 base year modelled flows due to the update of the TAG data book was not considered material with most links having an absolute difference of fewer than 25 PCUs (Passenger Car Unit). The EMFM 2019, East Midlands Gateway Phase 2: Base Year Model Review Addendum (update to May 2024 TAG data book) (19/08/24) provides more detail.

2.2 'Without Development' Assumptions

2.2.1 The forecast planning and infrastructure schemes, in the format of an uncertainty log, were reviewed by the client and stakeholders.

2.2.2 Appendix A presents the planning data assumptions (residential and employment) within North West Leicestershire that have been incorporated in the forecast modelling. Given the number of developments in the uncertainty log, the reporting of the planning data are limited to residential sites with more than 500 dwellings and employment sites with more than 750 jobs. All available data that should be used in the modelling, irrespective of size, have been used in the model forecasts. The complete list of the planning assumptions, including data for neighbouring districts such as Rushcliffe, is included in the East Midlands Gateway Phase 2 Uncertainty Log v7.0[6].

2.2.3 Appendix B presents the forecast assumptions for the highway network for this application.

2.2.4 As discussed in Paragraph 2.1.3, the EMFM is a highway assignment model, and a process to take the highway demand growth from the wider PRTM has been applied. Planning data assumptions (housing and employment) have been input into the PRTM and the full PRTM has been run for 2022, 2023, 2024, 2028 and 2038. Planning forecasts were unconstrained (NTEM minimum[7]) for this application as noted in the proposal[8].

[6] EMGP2 Uncertainty Log v7.0 (Jul 2024).xlsx
[7] In the event that the planning data lead to below NTEM / TEMPro growth, the model reverts to NTEM / TEMPro as minimum.
[8] EMFM 2019 Fee Proposal – East Midlands Gateway Phase 2 v2.0 (2024-07-18)

2.3 Proposed Development Access Assumptions

2.3.1 To produce the 'With Development' network for 2028 and 2038, the assumed site accesses for the proposed development, as discussed in Paragraph 1.1.4, were added in the relevant 'Without Development' networks.

2.3.2 A development zone has been used to represent the proposed East Midlands Gateway Phase 2 development.

2.4 Proposed Development Trip Generation Assumptions

2.4.1 Development trip generation data for the proposed development were provided by the client which have been reproduced in Table 2.1.

Table 2.1: Development Trip Generation (2028 and 2038)[9]

	Light Vehicle Trips (in veh)			HGV Trips (in veh)			All (in veh)		
	Departing (Out)	Arriving (In)	Total	Departing (Out)	Arriving (In)	Total	Departing (Out)	Arriving (In)	Total
East Midlands Gateway Phase 2 Development - Employment B2 (60,000sqm)									
AM Peak hour (08:00 to 09:00)	34	226	**260**	8	10	**18**	43	235	**278**
PM Peak hour (17:00 to 18:00)	218	28	**246**	4	2	**6**	222	30	**252**
East Midlands Gateway Phase 2 Development - Employment B8 (340,000sqm)									
AM Peak hour (08:00 to 09:00)	44	411	**455**	78	65	**143**	122	476	**598**
PM Peak hour (17:00 to 18:00)	476	136	**612**	51	85	**136**	527	221	**748**
East Midlands Gateway Phase 2 Development Total									
AM Peak hour (08:00 to 09:00)	78	637	**715**	86	75	**161**	165	711	**876**
PM Peak hour (17:00 to 18:00)	694	164	**858**	55	87	**142**	748	250	**998**
East Midlands Gateway Phase 1 (Plot 16) Development Total									
AM Peak hour (08:00 to 09:00)	4	36	**40**	7	6	**13**	11	42	**53**
PM Peak hour (17:00 to 18:00)	42	12	**54**	5	8	**13**	47	20	**67**

2.4.2 We assume that the proposed development will be fully build out (i.e. 100% occupancy) in the 2028 and 2038 'With Development (1a)" scenarios.

2.5 Proposed Development Trip Distribution Assumptions

2.5.1 It was agreed that the development trip distributions are to be based on the PRTM 'gravity model' approach.

2.5.2 Figure 2.1 to Figure 2.8 show the forecast development trip distribution separately for HGVs and light vehicles on the highway network for the 2028 and 2038 'With Development (1a)' scenarios in PCUs. For information, the PCU factor for HGV is 2.0 and the PCU factor for the other assignment vehicle types (i.e. cars and LGVs) is 1.0.

2.5.3 These figures show that the forecast HGV development traffic has a broadly similar distribution to and from the proposed development in both the AM Peak and PM Peak hours, and both forecast years (i.e. 2028 and 2038). HGVs are forecast to use the M1, A50 and the

[9] 241010 EMGP2 PRTM Development Form rev 14.docx

A453 Remembrance Way to and from Derby and the north, and the M1 and A42 to and from Leicester, Birmingham and the south.

2.5.4 For light vehicle traffic, the majority of development-related trips during the AM Peak hour in 2028 are forecast to use the M1 southbound and the A42 towards Birmingham. In the northbound direction development trips are forecast to route via the M1 and Castle Donnington Relief Road towards Derby. By 2038 AM Peak hour, a higher proportion of trips is forecast to route south from the A453 towards Diseworth to access Gelscoe Lane and the A42.

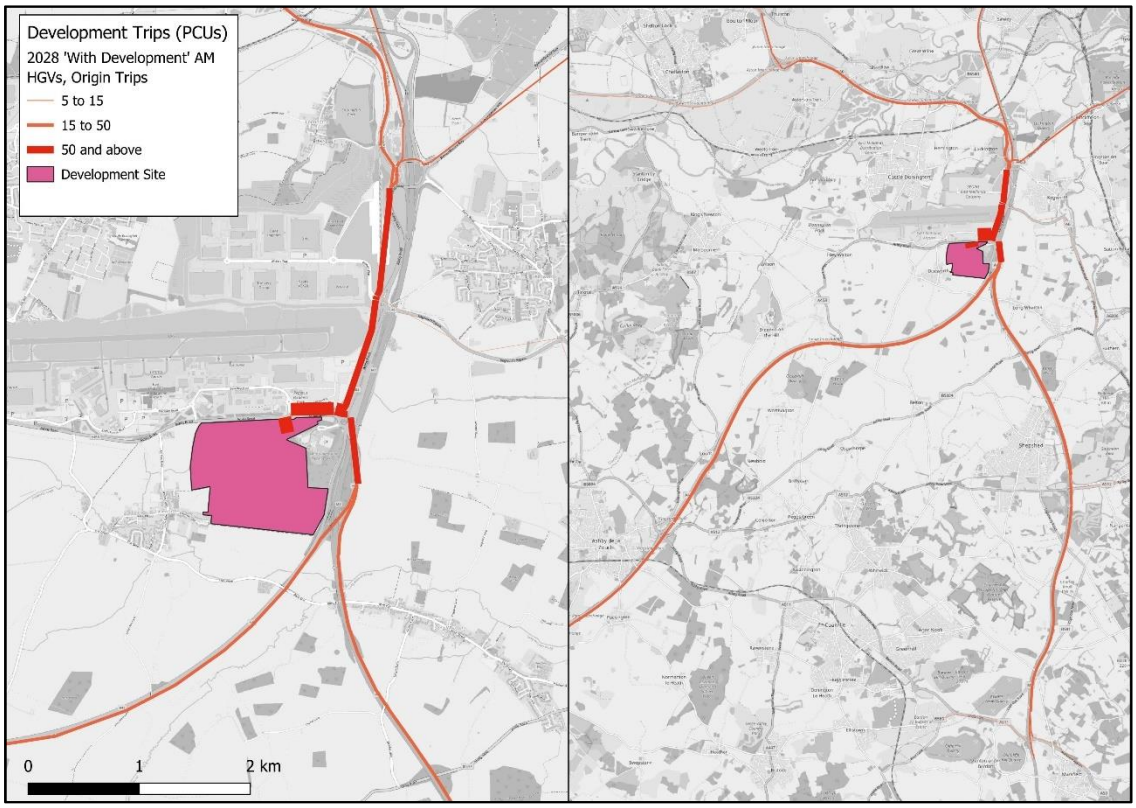
2.5.5 Light vehicle development trips from the development in the PM Peak hour in 2028 are forecast to route north via the M1, the A50, A453 Remembrance Way and south via the M1 and towards Diseworth to access the A42. This pattern is forecast in the reverse for the AM Peak hour development trips to the proposed development but with fewer trips on the M1 northbound and more trips on Castle Donnington Relief Road to avoid the congested M1 Junction 24.

2.5.6 The routeing patterns for the development trips for 2038 forecast scenarios are similar to their respective patterns in 2028, although 2038 has a slightly higher proportion of development trips on local roads and fewer on the SRN, due to the higher congestion around the M1 Junction 24 area in the later forecast year (i.e. 2038).

2.5.7 It should be noted that the local networks through Diseworth, Castle Donington and Kegworth have HGV restrictions applied. These restrictions are represented in the EMFM, and the HGV development trips are therefore forecast to route to and from the proposed development site via mainly the SRN.

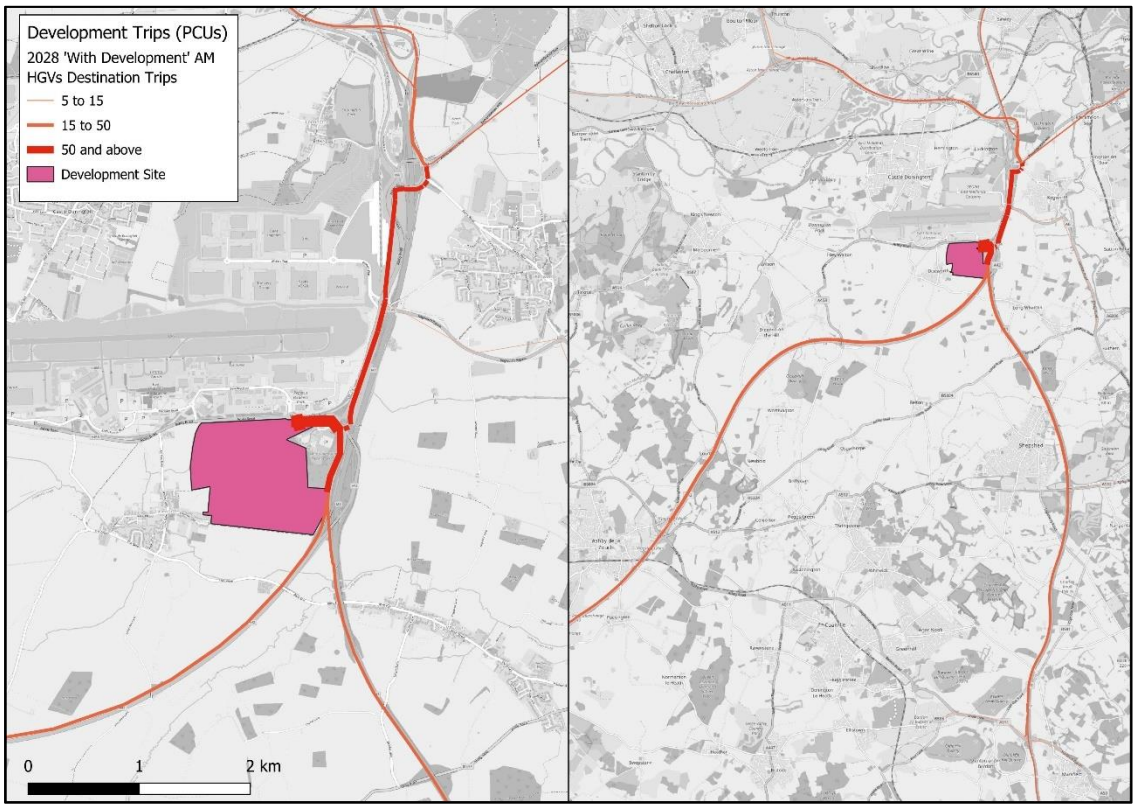
Figure 2.1: HGV Trip Distribution to and from the Proposed Development for 2028 (AM)

2028 'With Development (1a)' (AM), HGVs – From the Development



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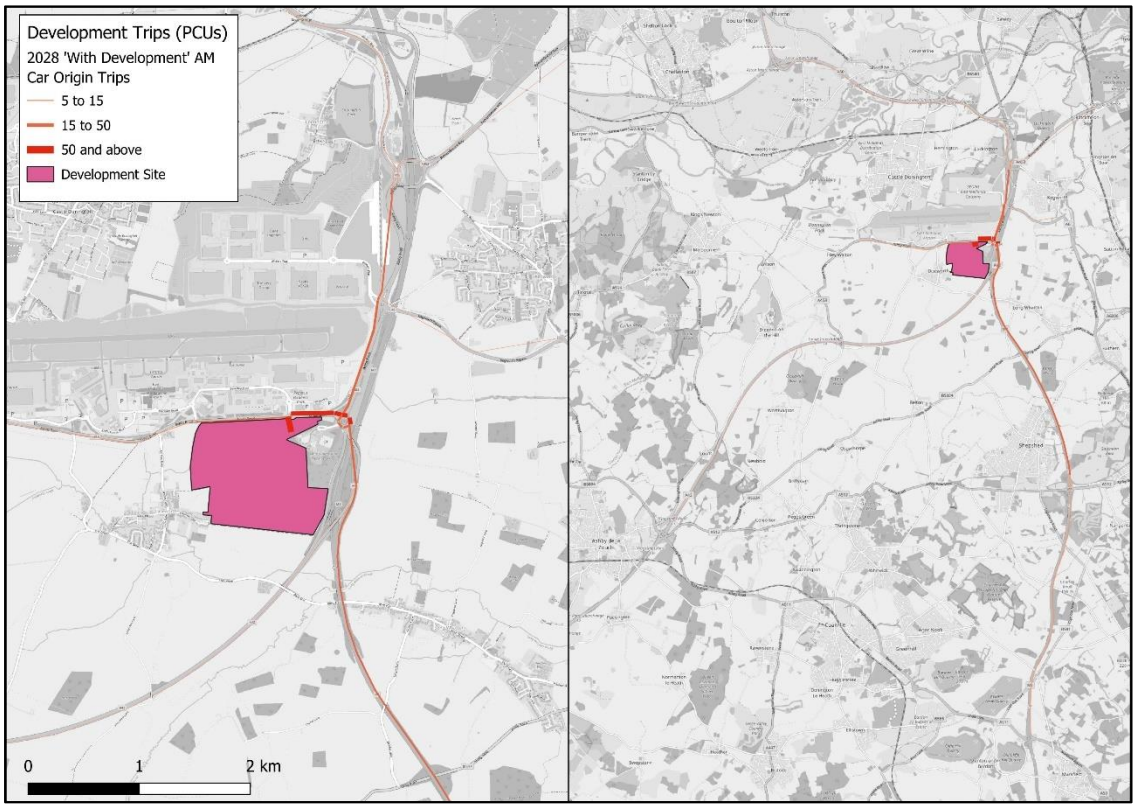
2028 'With Development (1a)' (AM), HGVs – To the Development



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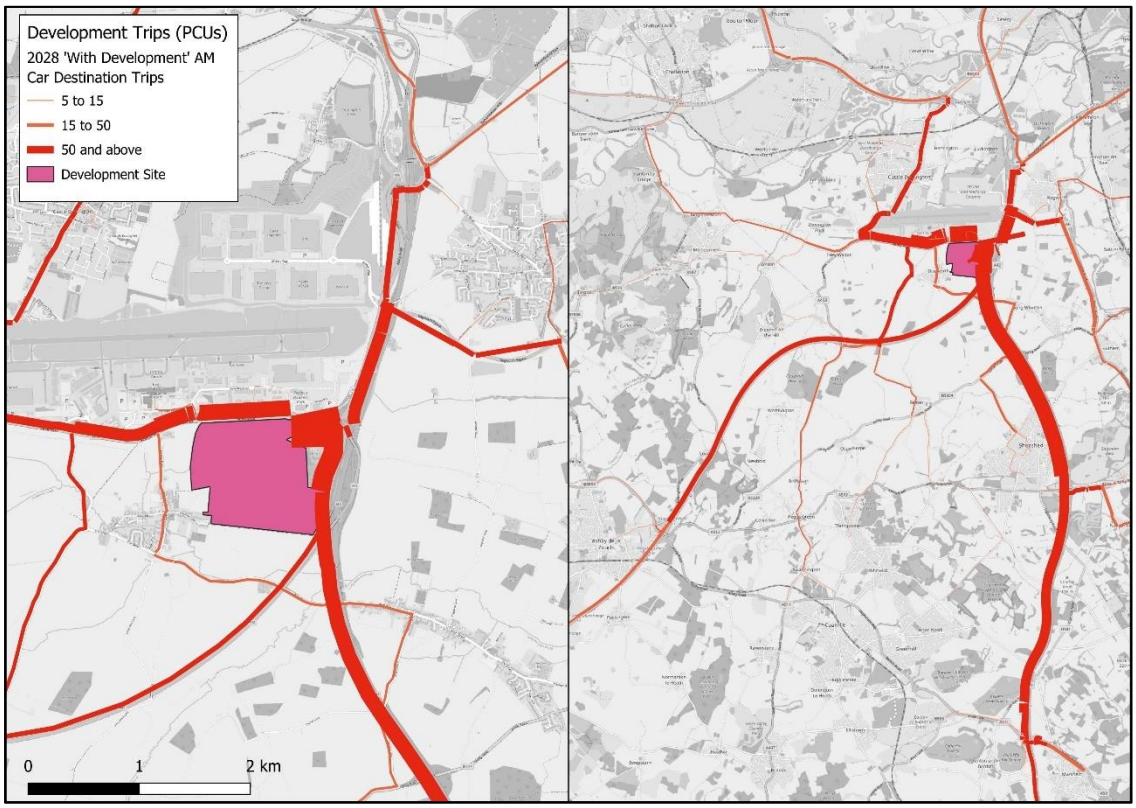
Figure 2.2: Light Vehicle Trip Distribution to and from the Proposed Development for 2028 (AM)

2028 'With Development (1a)' (AM), Light Vehicles – From the Development



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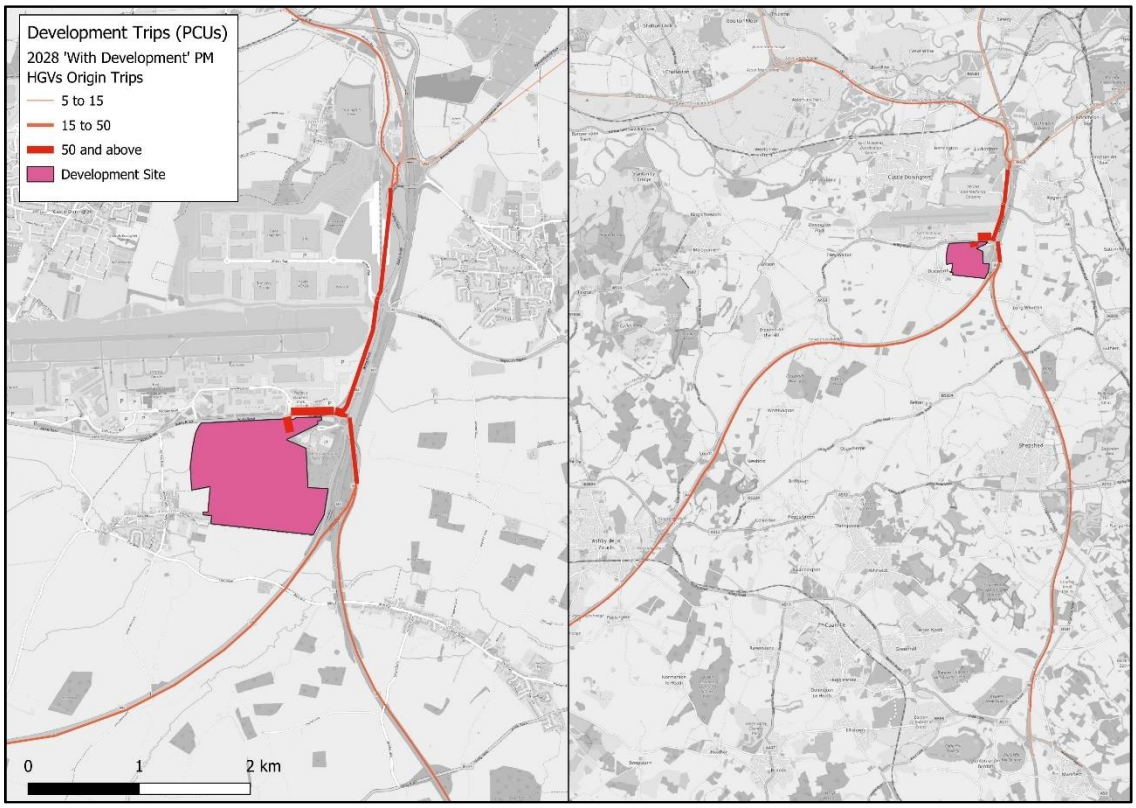
2028 'With Development (1a)' (AM), Light Vehicles – To the Development



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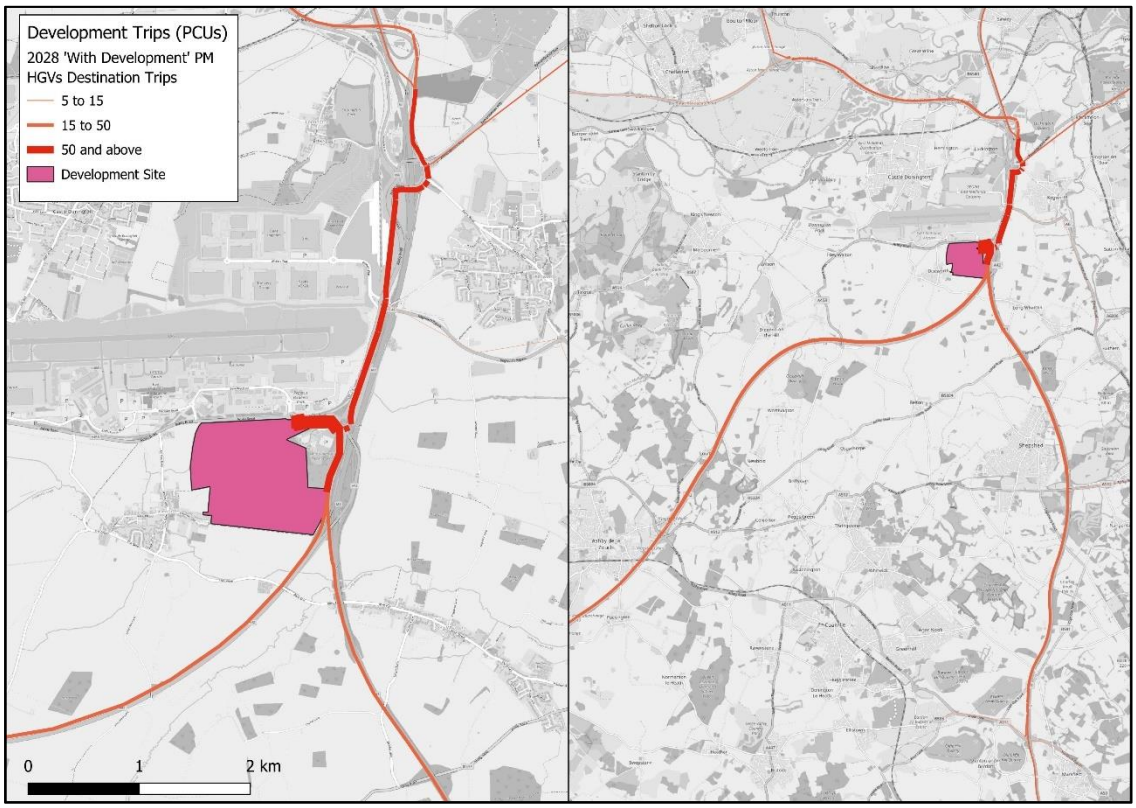
Figure 2.3: HGV Trip Distribution to and from the Proposed Development for 2028 (PM)

2028 'With Development (1a)' (PM), HGVs – From the Development



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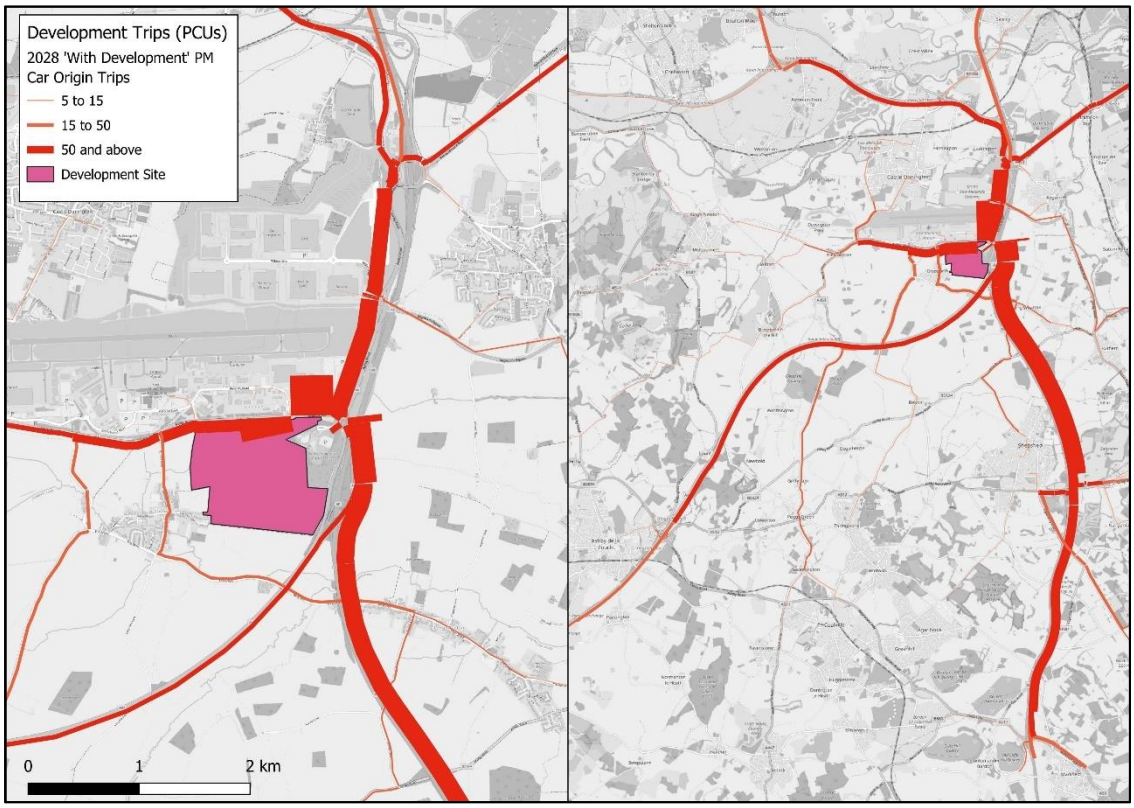
2028 'With Development (1a)' (PM), HGVs – To the Development



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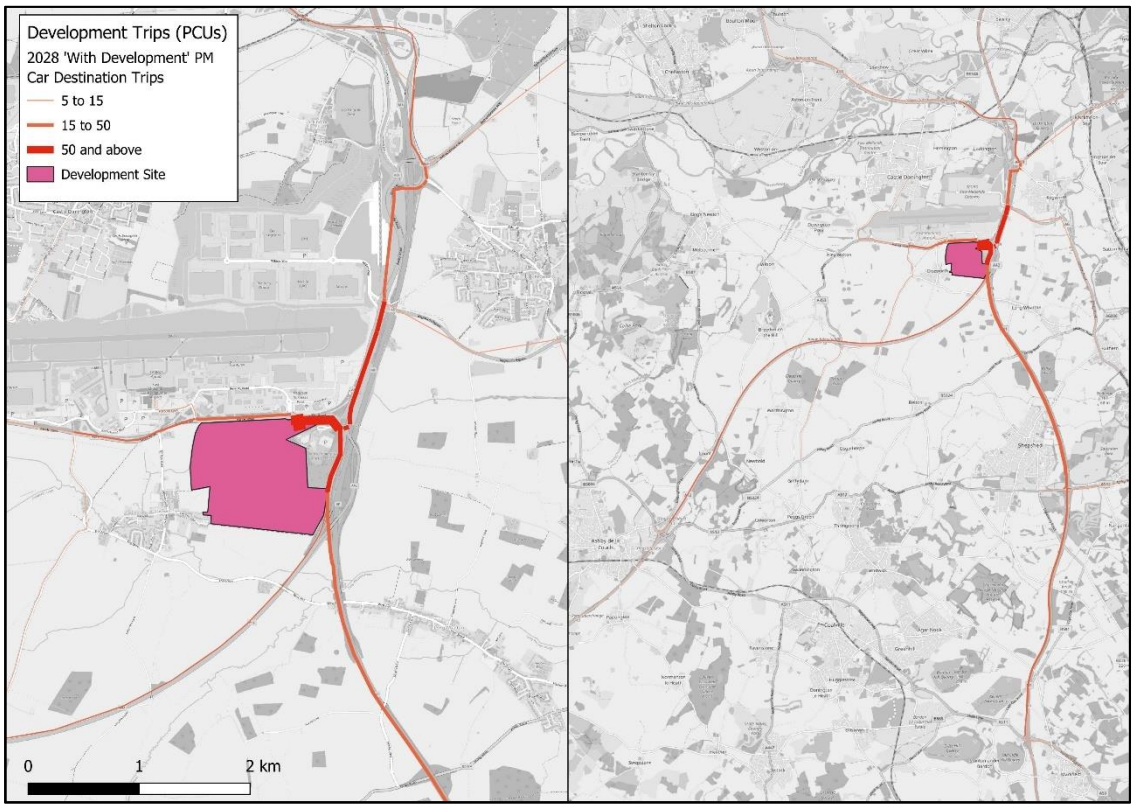
Figure 2.4: Light Vehicle Trip Distribution to and from the Proposed Development for 2028 (PM)

2028 'With Development (1a)' (PM), Light Vehicles – From the Development



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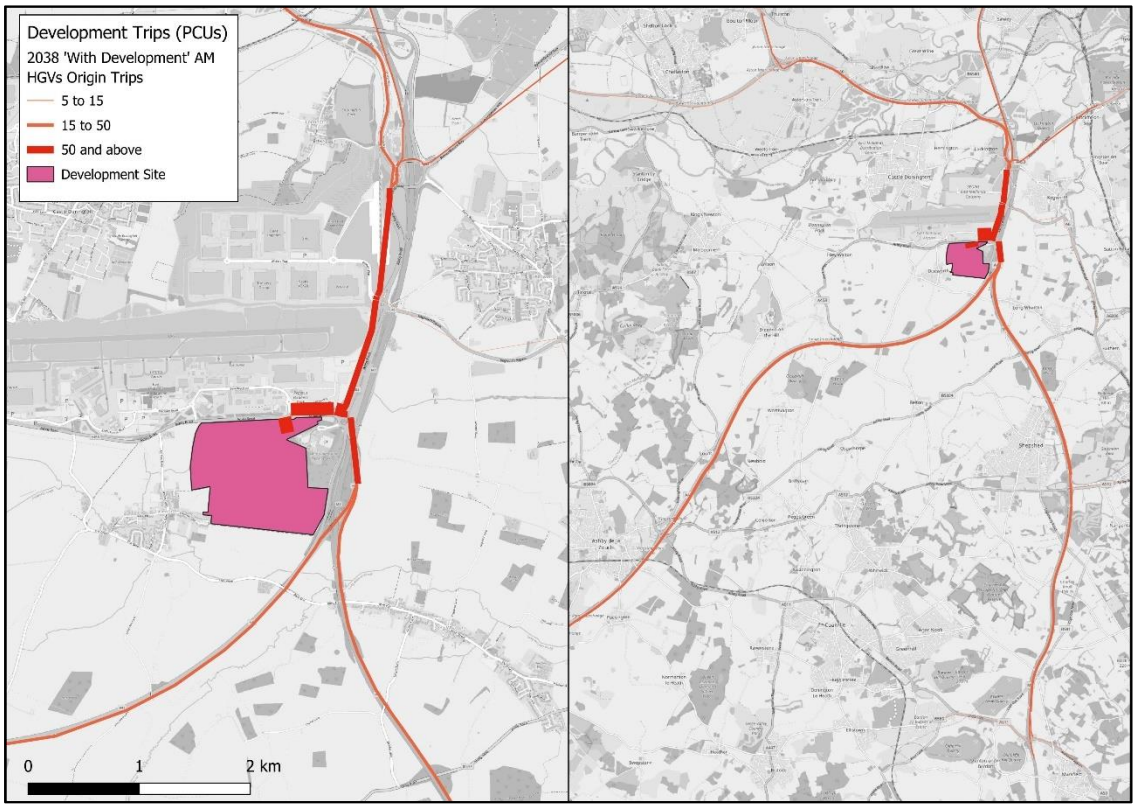
2028 'With Development (1a)' (PM), Light Vehicles – To the Development



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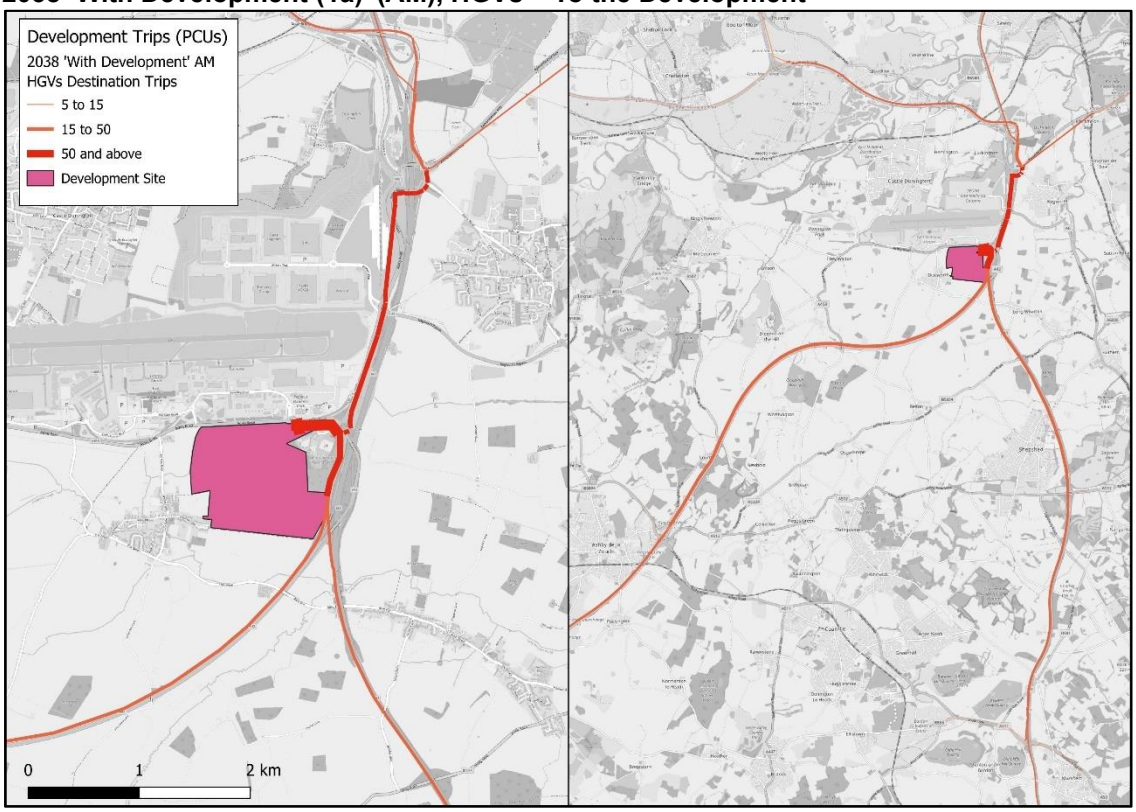
Figure 2.5: HGV Trip Distribution to and from the Proposed Development for 2038 (AM)

2038 'With Development (1a)' (AM), HGVs – From the Development



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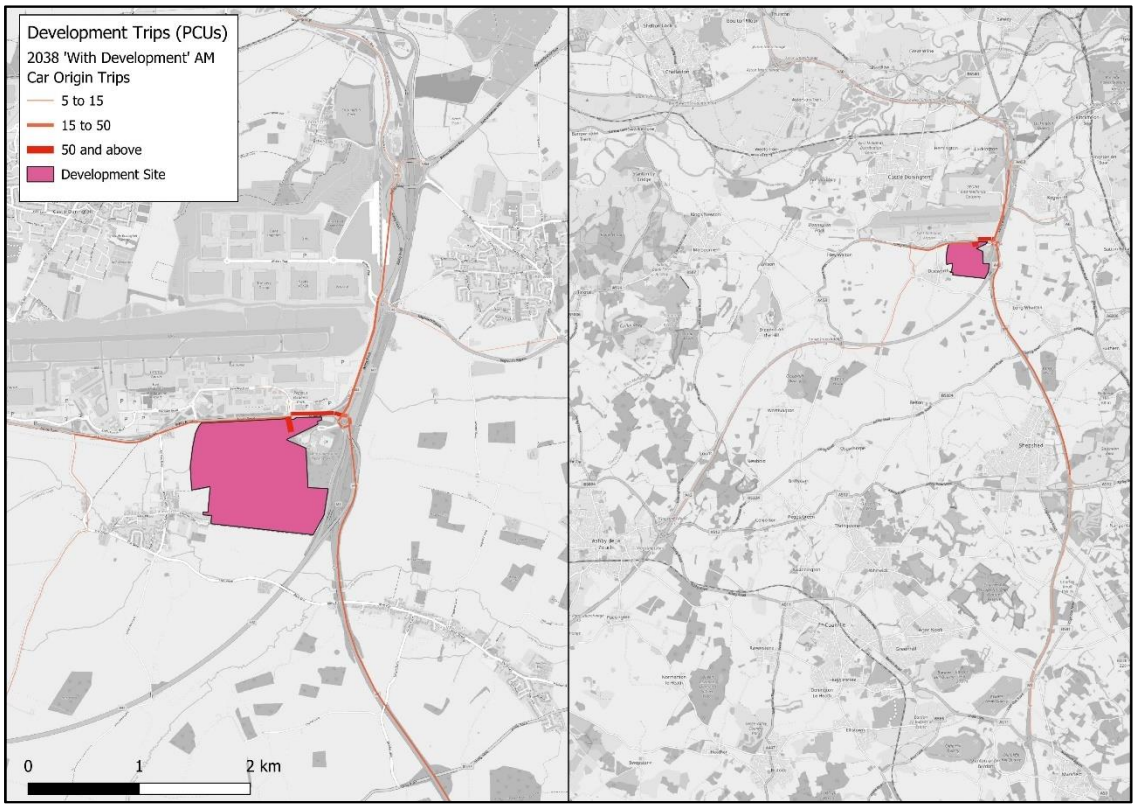
2038 'With Development (1a)' (AM), HGVs – To the Development



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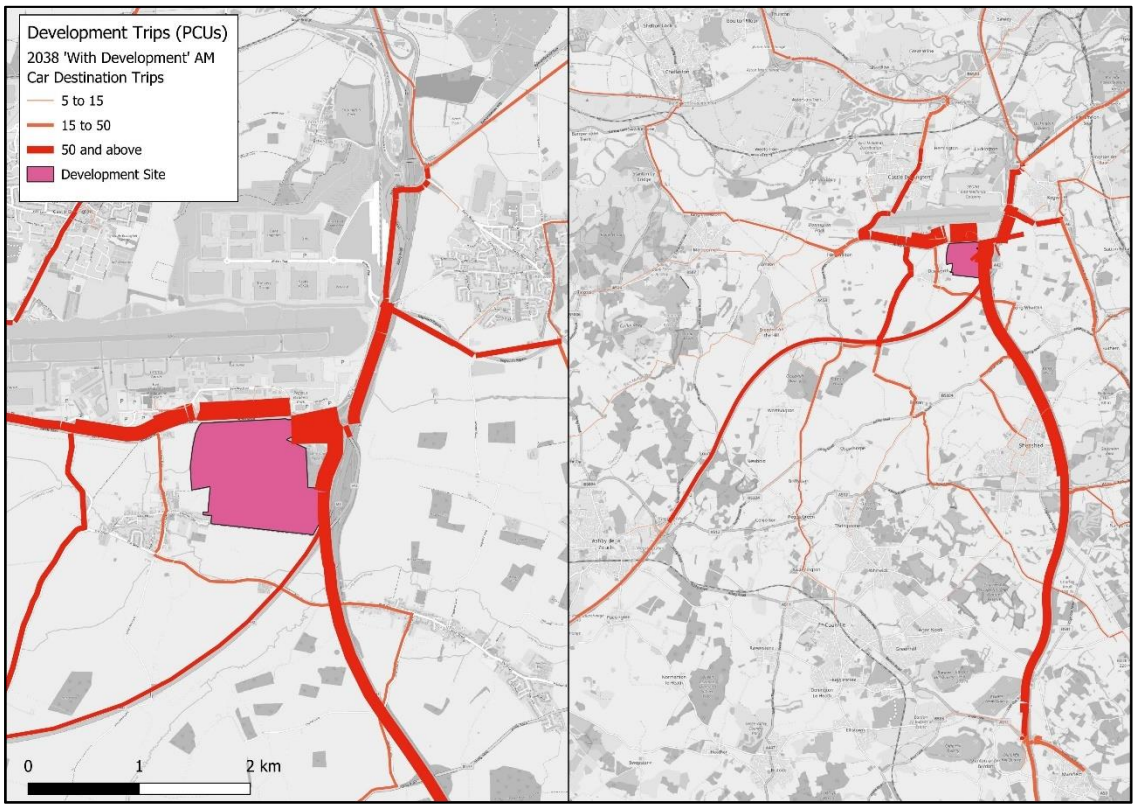
Figure 2.6: Light Vehicle Trip Distribution to and from the Proposed Development for 2038 (AM)

2038 'With Development (1a)' (AM), Light Vehicles – From the Development



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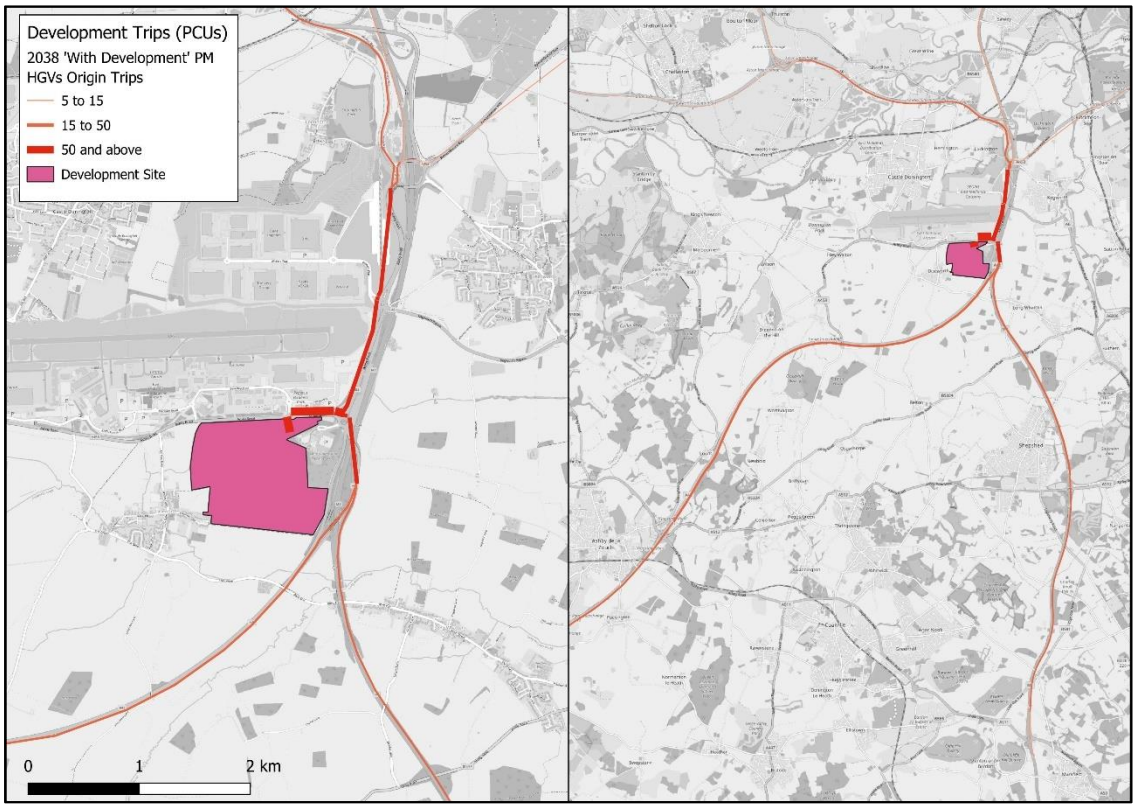
2038 'With Development (1a)' (AM), Light Vehicles – To the Development



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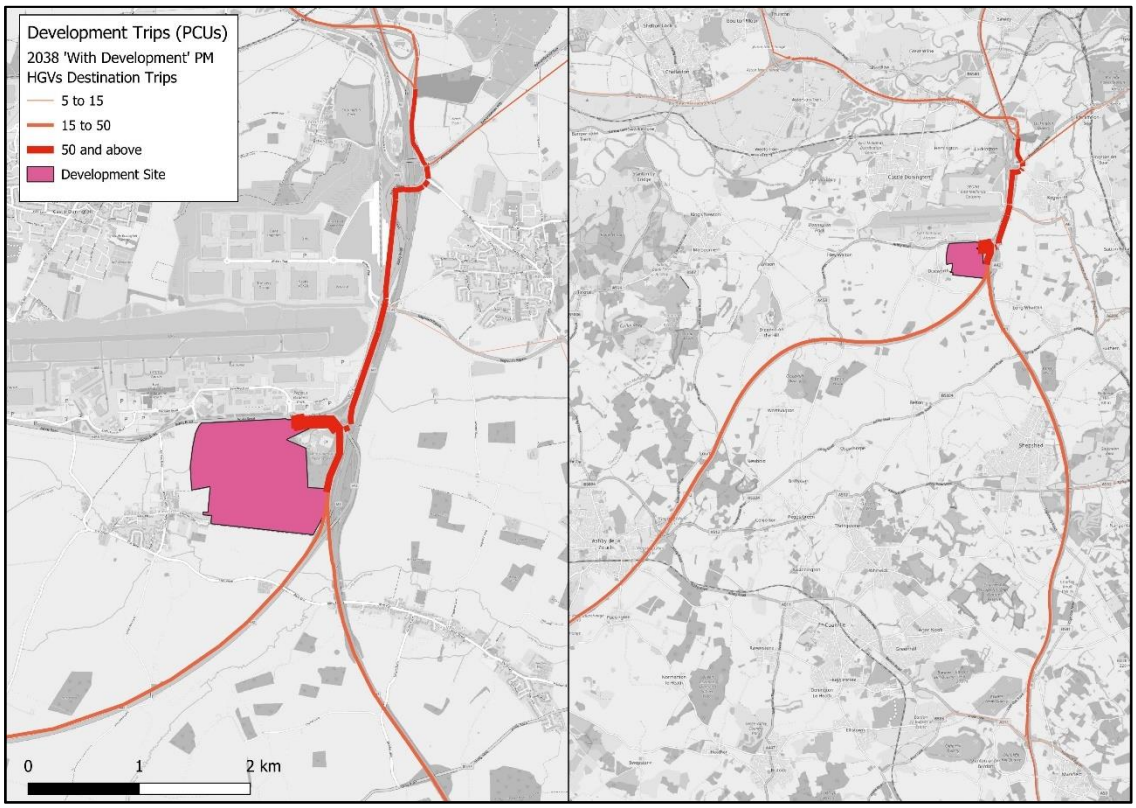
Figure 2.7: HGV Trip Distribution to and from the Proposed Development for 2038 (PM)

2038 'With Development (1a)' (PM), HGVs – From the Development



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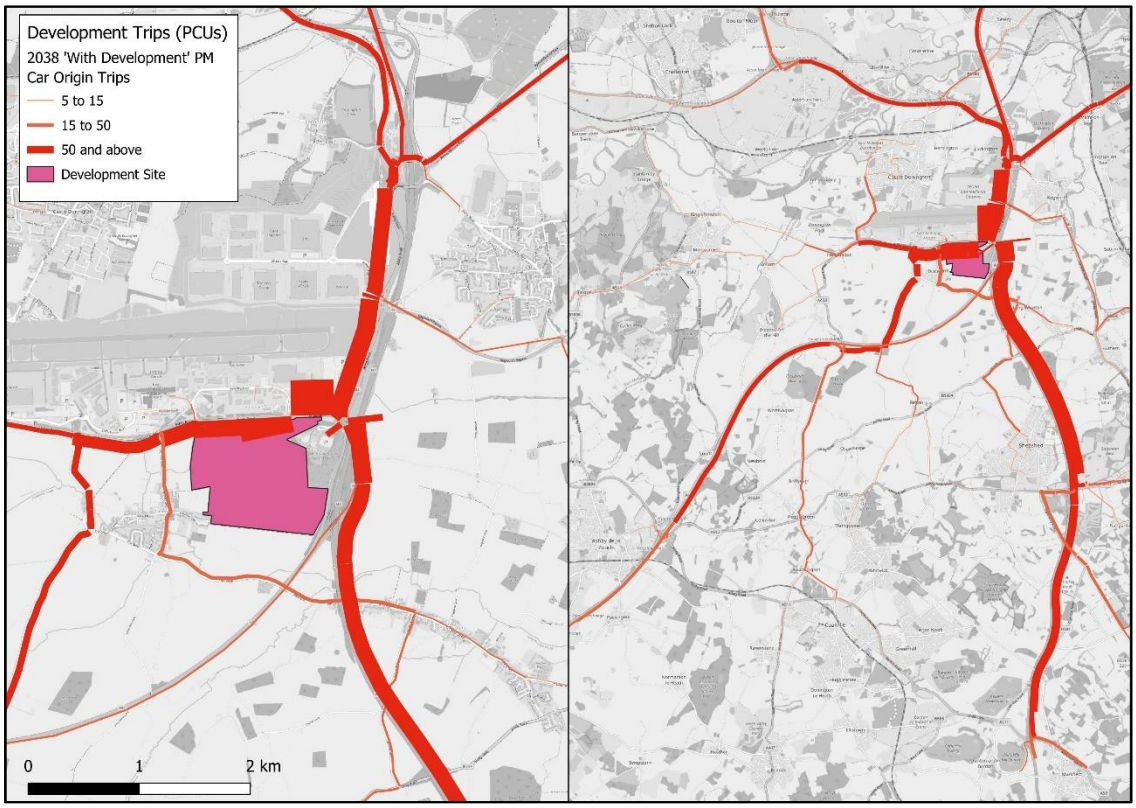
2038 'With Development (1a)' (PM), HGVs – To the Development



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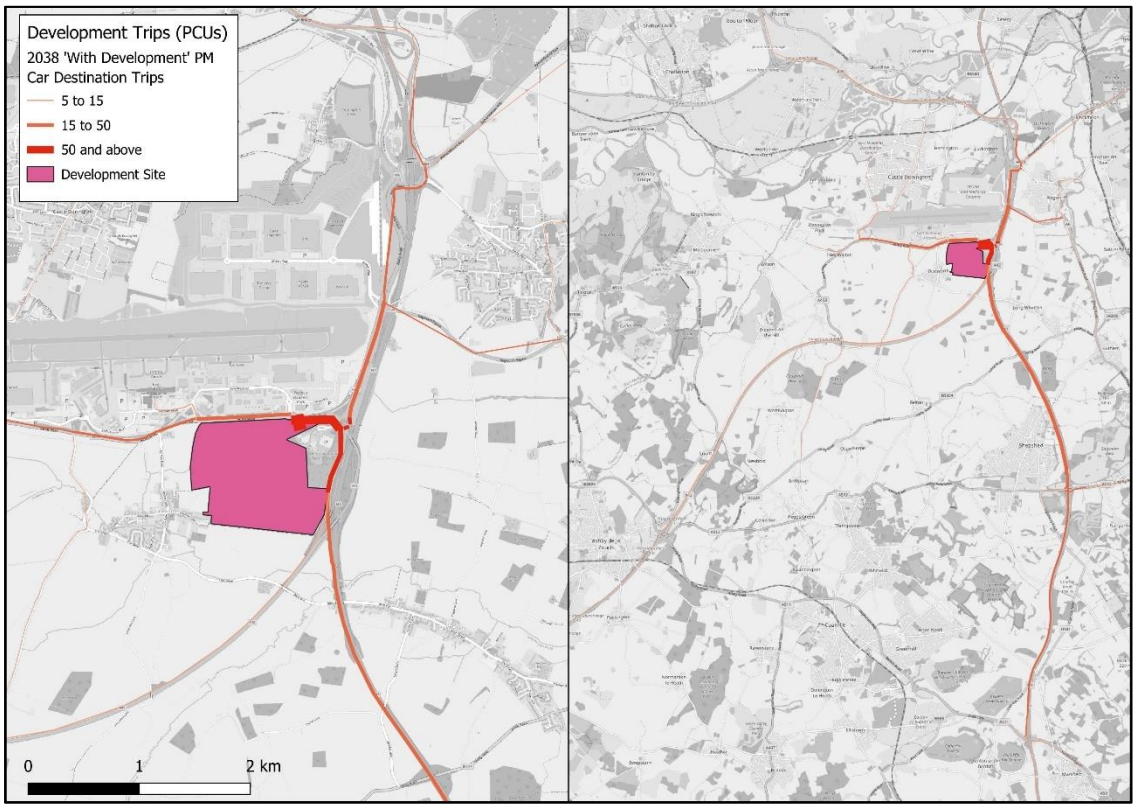
Figure 2.8: Light Vehicle Trip Distribution to and from the Proposed Development for 2038 (PM)

2038 'With Development (1a)' (PM), Light Vehicles – From the Development



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2038 'With Development (1a)' (PM), Light Vehicles – To the Development



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Section 3 – Forecast Model Results

3.1 Introduction

3.1.1 This section details the forecast model results for the proposed East Midlands Gateway Phase 2 development assessment for the AM Peak (08:00 to 09:00) and PM Peak (17:00 to 18:00) hours. The analysis includes:

- routeing of the forecast development traffic in the 2028 and 2038 'With Development (1a)' scenarios (Section 2.5 and Section 3.2);
- forecast flow changes in 2028 and 2038 between the 'With Development (1a)' and 'Without Development (1a)' scenarios (Section 3.3);
- an assessment of the Area of Influence (AoI) (Section 3.4);
- forecast delay changes in 2028 and 2038 between the 'With Development (1a)' and 'Without Development (1a)' scenarios (Section 3.5);
- forecast maximum node volume-capacity ratios in the 2028 and 2038 'With Development (1a)' scenarios (Section 3.6); and
- forecast turning flows (and volume-capacity ratios for turns) at selected junctions (Section 3.7).

3.2 Forecast Development Traffic

3.2.1 Figure 2.1 to Figure 2.8 in Section 2.5 illustrate the assigned forecast trip distribution to and from the proposed development in 2028 and 2038 for both AM Peak and PM Peak hours. These figures show that the HGV development traffic mainly routes via the SRN including the M1, A42, A50 and the A453 Remembrance Way.

3.2.2 For light vehicle development traffic, the M1 Junction 24 area is congested and has high delays, particularly in the AM Peak hour. As such, a proportion of the light vehicle trips to the development is forecast to route via Castle Donnington Relief Road and the A6 Kegworth Bypass to avoid the M1 Junction 24 and Junction 24a area.

3.2.3 The modelling shows that the light vehicle development traffic is forecast to:

- route to and from the north via the M1 and Castle Donnington Relief Road;
- route to and from the south via the M1 and M1 Junction 23a;
- route to and from the south-west using the A42 via both Diseworth and the M1 Junction 23a;
- route to and from the west via the A50, M1 Junction 24 and through Castle Donington Relief Road; and
- route to and from the east via the A453 Remembrance Way, A6 Kegworth Bypass and through the local network of Kegworth and Diseworth.

3.3 Forecast Flow Change

3.3.1 Figure 3.1 and Figure 3.2 show the forecast flow changes in 2028 and 2038 between the 'With Development (1a)' and 'Without Development (1a)' scenarios for the AM Peak and PM Peak hours. Red bandwidth represents an increase in traffic flow in the 'With Development (1a)' scenario and green bandwidth represents a decrease.

3.3.2 As expected, the largest increases in flows are forecast along the A453 in the immediate vicinity of the proposed development. The M1 and the A42 are also forecast to experience increases in flow across all modelled forecast scenarios. There is a decrease in traffic forecast on the east side of Beverley Road, particularly for the AM Peak hour. This decrease has been caused by traffic diverting off the Beverly Road / A453 / EMG Phase 2 access roundabout in the 'With Development (1a)' scenario and on to the A453 / East Midlands Airport signal-controlled junction. A high proportion of these trips are from the south routeing via Gelscoe Lane and the A42.

3.3.3 For the local network of Castle Donington, Kegworth and Diseworth, higher flows are forecast for ‘With Development (1a)’ scenarios when compared with the ‘Without Development (1a)’ scenarios. This is particularly notable for the AM Peak hour, as a proportion of the development trips is forecast to route via the local network to access / egress from the proposed development site to avoid the congested M1 Junction 24 area.

3.3.4 As discussed in Section 3.5.4, the Derby Road / Bostocks Lane signalised junction (to the north of the M1 Junction 25) is overcapacity in the ‘Without Development (1a)’ scenarios and sensitive to additional demand. This sensitivity has led to large localised delay fluctuations causing some traffic to reroute in the vicinity of the Derby Road / Bostocks Lane junction. This is most notable in the 2038 AM Peak hour (as shown in Figure 3.2).

Figure 3.1: Forecast Flow Change for 2028 'With Development (1a)' minus 'Without Development (1a)'

AM Peak hour



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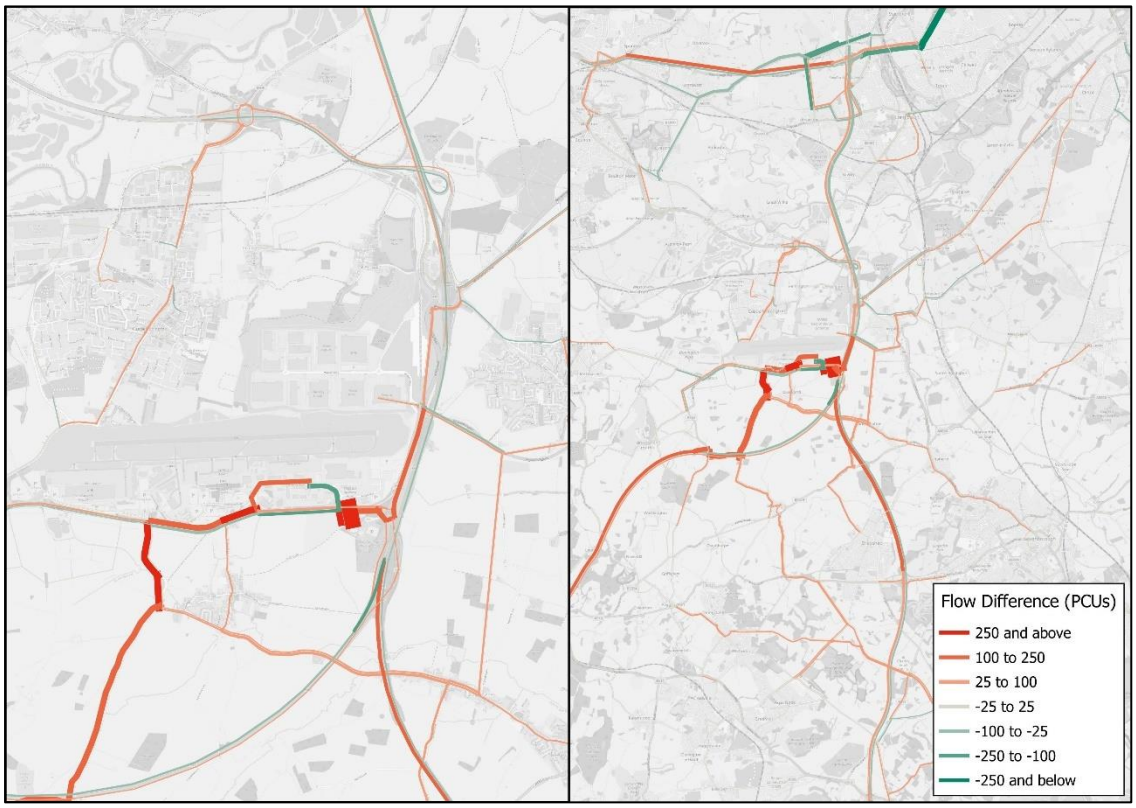
PM Peak hour



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Figure 3.2: Forecast Flow Change for 2038 'With Development (1a)' minus 'Without Development (1a)'

AM Peak hour



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PM Peak hour



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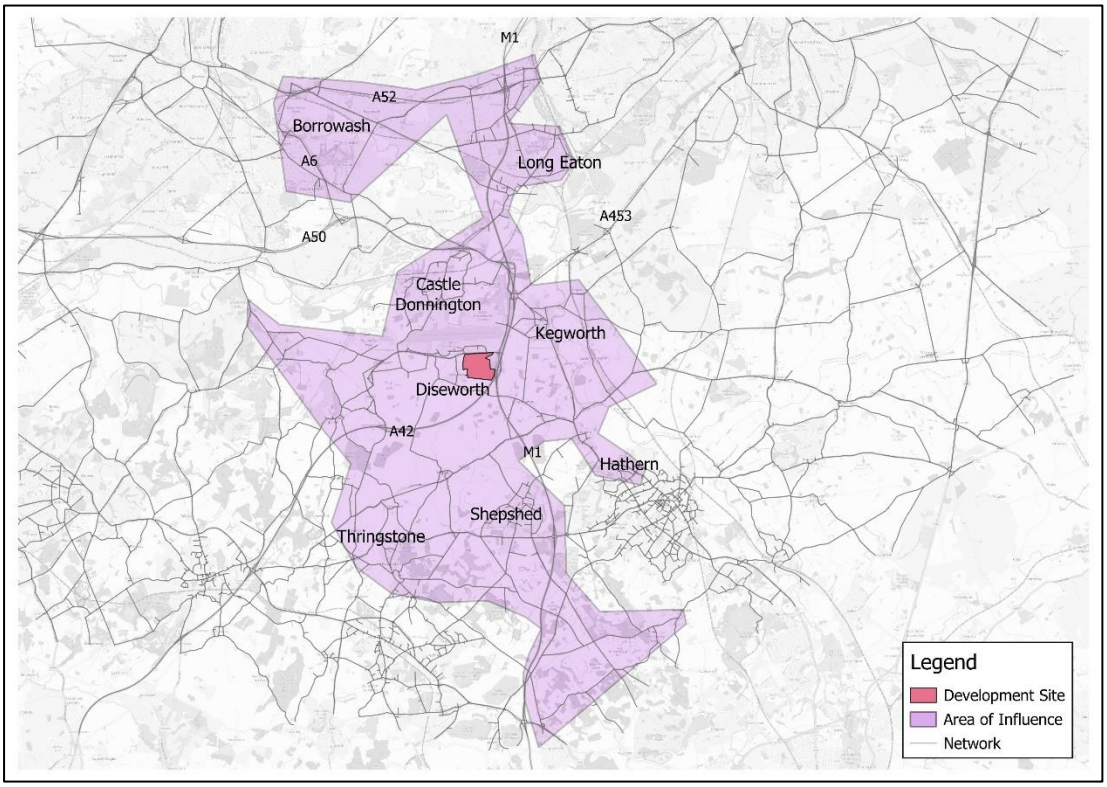
3.4 Area of Influence

3.4.1 Using the forecast flow changes between the 'With Development (1a)' and 'Without Development (1a)' scenarios, an indication of the Area of Influence (AoI) has been defined. Figure 3.3 shows the Area of Influence for the proposed development.

3.4.2 For the proposed development, the AoI has been defined by considering the links which are forecast to change flow by more than ±5% and ±30 PCUs between the 2028 and 2038 'With Development (1a)' and 'Without Development (1a)' scenarios in either the AM Peak or the PM Peak hours. The links which are forecast to meet these criteria are included in the AoI, as shown in Figure 3.3, and contains the following areas / links:

- the A453 including Finger Farm roundabout;
- the M1 between Junction 23 and Junction 24a;
- the M1 Junction 25;
- the A42 Junction 14;
- the A52 Brian Clough Way between the M1 Junction 25 and Raynesway Interchange;
- the A6 Alvaston Bypass between Raynesway Park Interchange and Thulston Roundabout; and
- local roads in and around Borrowash, Long Eaton; Castle Donnington; Kegworth; Diseworth; Hathern; Thringston and Shepshed.

Figure 3.3: Area of Influence



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3.5 Forecast Delay Change

3.5.1 As a result of forecast flow changes in the 'With development (1a)' scenario, there are also changes to the forecast delays on the highway network. These changes in delay can be generated from two sources: link delay based on the speed-flow curve applied to the link; and the junction delay due to capacity constraints for individual turning movements. The analysis in this section combines the link and junction delays (taking a flow-weighted average of junction delays) to assess the changes in forecast delays with the proposed development traffic.

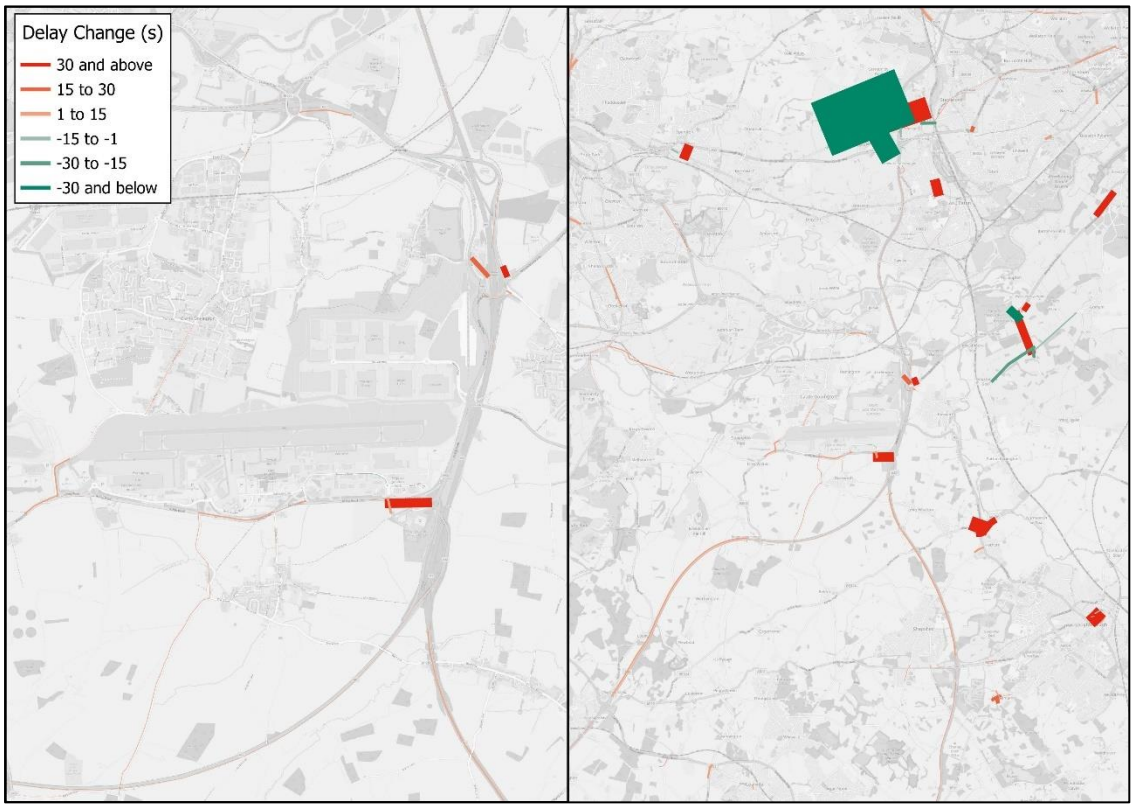
3.5.2 Figure 3.4 and Figure 3.5 show the forecast delay changes (in seconds) in 2028 and 2038 between the 'With Development (1a)' and 'Without Development (1a)' scenarios for the AM Peak and PM Peak hours. For the A453 in the immediate vicinity of the proposed development; delays are forecast to increase by up 66 seconds to due to increases in flow from the development site.

3.5.3 Increases in delay are forecast on the approaches and circulatory lanes of M1 Junction 24 for both AM Peak and PM Peak hours for the 2038 'With Development (1a)' scenario when compared with the 2038 'Without Development (1a)' scenario. Forecast delays are also higher on the approach to Finger Farm Roundabout from the A453 and southbound from Castle Donnington towards the A453 / Walton Hill signalised junction.

3.5.4 As noted in Paragraph 3.3.4, the Derby Road / Bostocks Lane signalised junction (to the north of M1 Junction 25) is forecast to be overcapacity in the 'Without Development (1a)' scenarios. This junction is therefore sensitive to additional demand leading to large delay fluctuations in the vicinity of the junction. As shown in Figure 3.4 and Figure 3.5, this is most notable in the 2028 and 2038 AM Peak hours. These fluctuations in delay are attributed to the sensitivity of this junction in and around the Derby Road / Bostocks Lane junction.

Figure 3.4: Forecast Delay Change for 2028 'With Development (1a)' minus 'Without Development (1a)'

AM Peak hour



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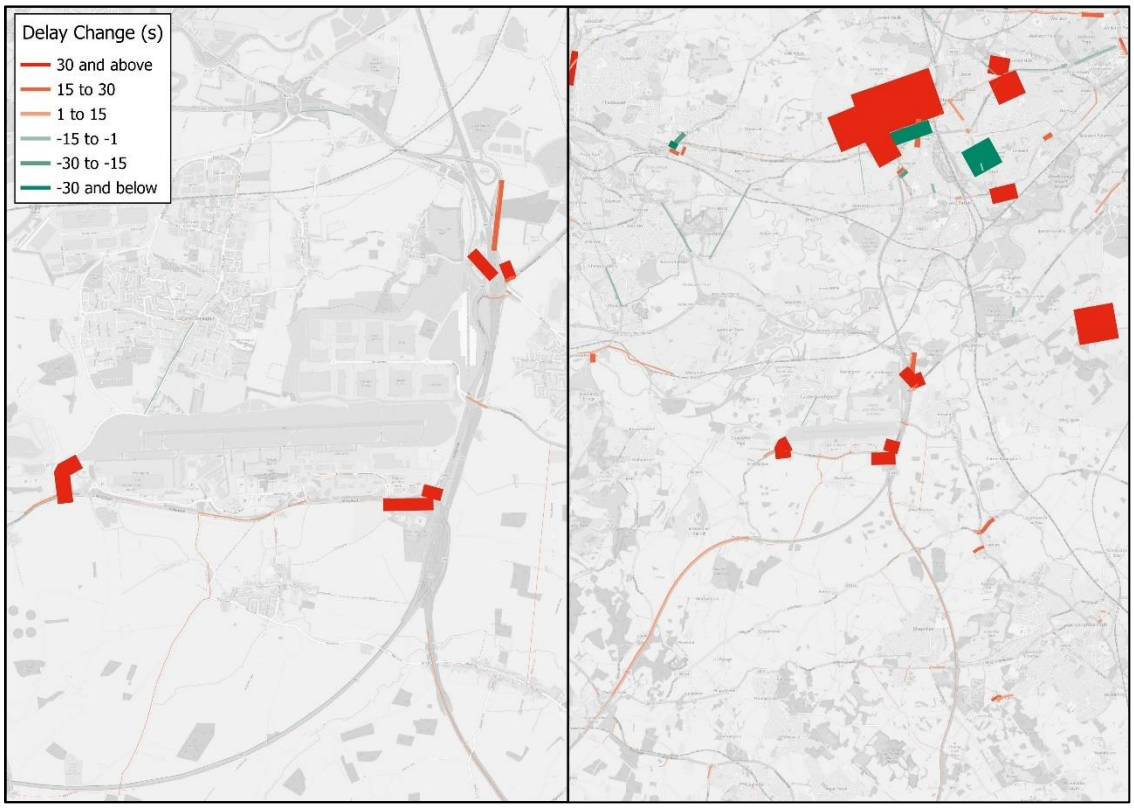
PM Peak hour



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Figure 3.5: Forecast Delay Change for 2038 'With Development (1a)' minus 'Without Development (1a)'

AM Peak hour



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PM Peak hour



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3.6 Forecast Node Volume-Capacity Ratios

3.6.1 As a part of the forecast modelling, node / junction capacities are estimated for individual turning movements based on a number of factors including priority of the turn (for example, give-way or merge), the level of green-time at signalised junctions, and the amount of opposing traffic at the junction. Using these calculated capacities and the forecast traffic volumes, node volume-capacity ratios are estimated to identify locations where the forecast flows are approaching or exceeding the forecast capacity.

3.6.2 To summarise the forecast-capacity ratios for the individual turning movements at a node, there are two approaches. These are to calculate the flow-weighted average volume-capacity of the node, or to calculate the maximum volume-capacity ratio for all turns within a node. The average volume-capacity ratio provides an overview of how the individual node is performing but may not highlight locations where a limited number of movements at a node are approaching or exceeding capacity. To highlight these locations, the maximum volume-capacity ratio at each node has been used. Node volume-capacity ratios exceeding 85% indicate that the highway network is under stress, and there is likely to be a reduction in speed and increase in delay.

3.6.3 Figure 3.6 and Figure 3.7 show the forecast maximum junction volume-capacity ratios for 2028 and 2038, 'With Development (1a)' and 'Without Development (1a)' scenarios. For ease of comparison, the symbology has been designed to show the data for 'Without Development (1a)' and 'With Development (1a)' scenarios on the same plot.

3.6.4 The reader should note that Figure 3.6 and Figure 3.7 show a subset of all nodes within the EMFM to reduce the number of data points within the plots. Nodes which do not fall within the AoI, as defined in Figure 3.3, are not shown. Nodes with maximum volume-capacity ratios below 85% in all forecast scenarios are not shown, except for the node which is located at the proposed site access on the A453.

3.6.5 The forecast maximum node volume-capacity ratio plots show that the A453 / Beverly Road / EMG Phase 2 access roundabout junction, the signalised junction with the A453 / East Midlands Airport signalised junction and M1 Junction 24 are most affected by the proposed development. For 2028 and 2038, the proposed development increased the node volume-capacity ratios at these junctions.

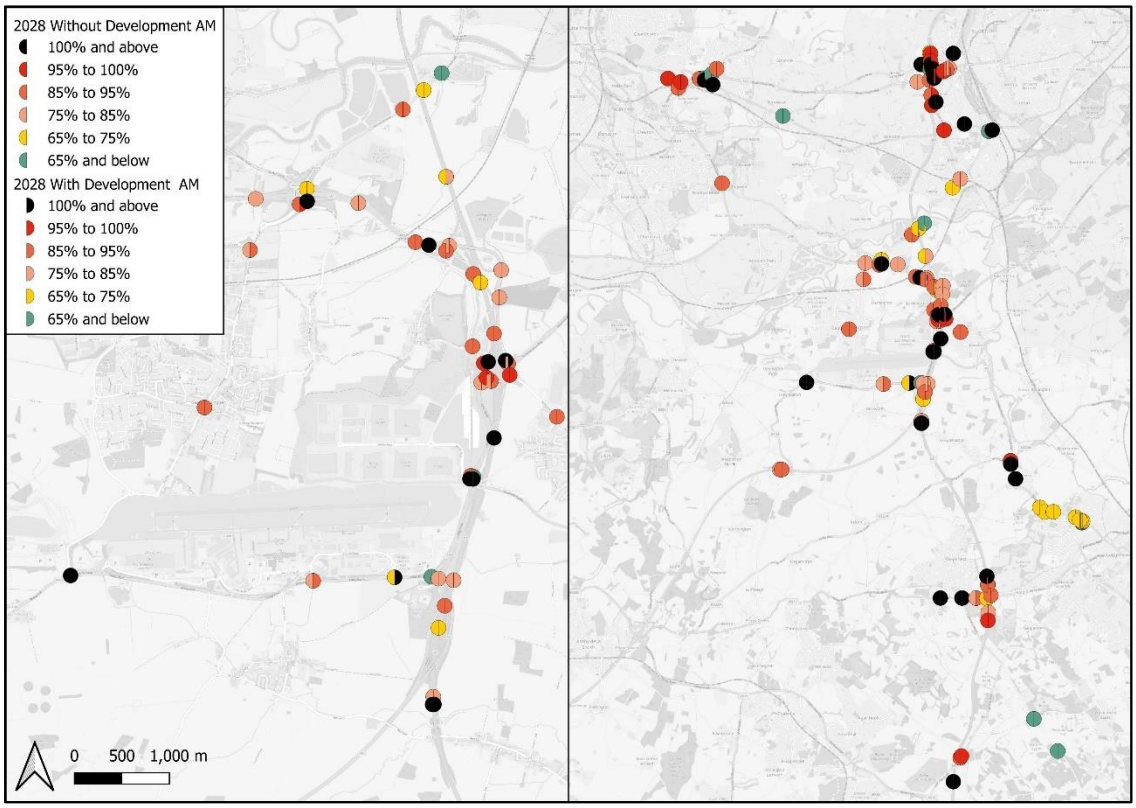
3.6.6 For M1 Junction 24, the node volume-capacity ratios are high for the 'Without Development (1a)' scenarios, with multiple nodes at this junction exceeding 85%. For the 'With Development (1a)' scenarios, the node volume-capacity ratios remain high, exceeding 85%, showing that the M1 Junction 24 is forecast to have high delays.

3.6.7 In the AM Peak hour, the node volume-capacity ratios for the A453 / Beverly Road / EMG Phase 2 access roundabout junction is forecast to be greater than the PM Peak hour in both the 2028 and 2038 forecast year scenarios, consistent with the forecast delay shown in Figure 3.4 and Figure 3.5.

3.6.8 Comparing the forecast results between 2028 and 2038, the node volume-capacity ratios are forecast to be greater for the later forecast year (i.e. 2038) as forecast flows increase (when compared with 2028).

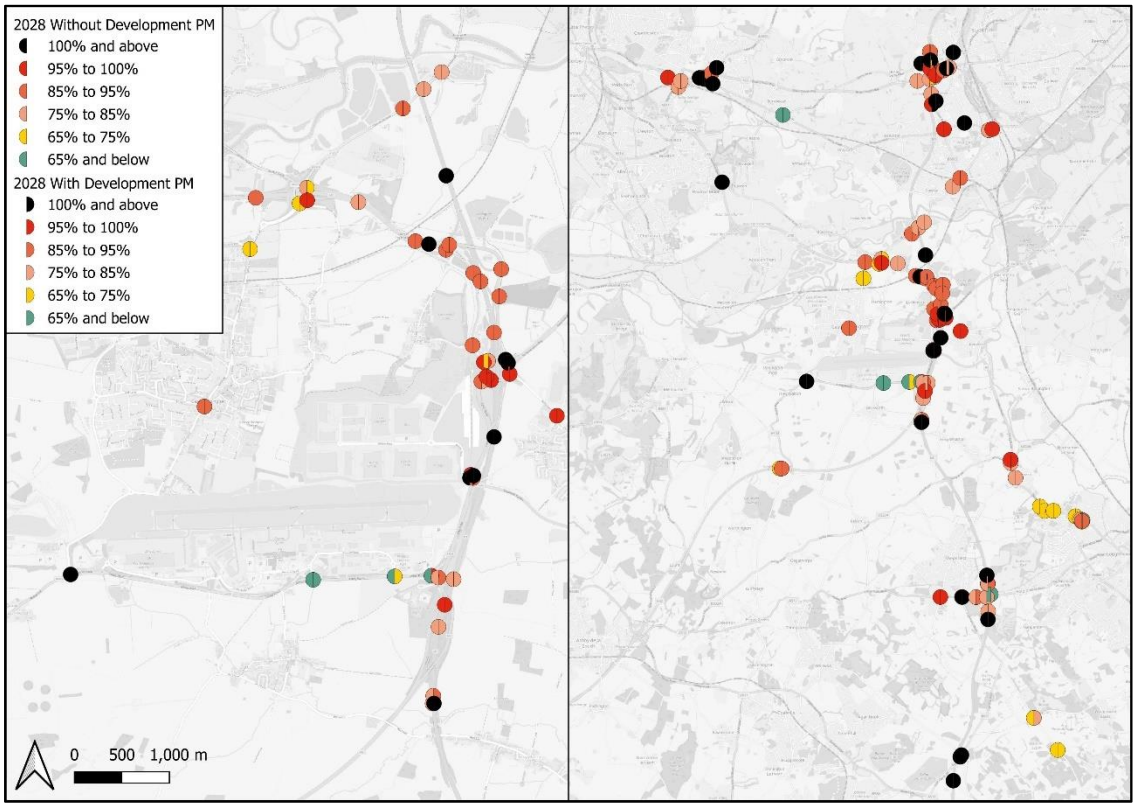
Figure 3.6: Forecast Node Volume-Capacity Ratio for 2028 'Without Development (1a)' and the 2028 'With Development (1a)' Scenarios

AM Peak hour



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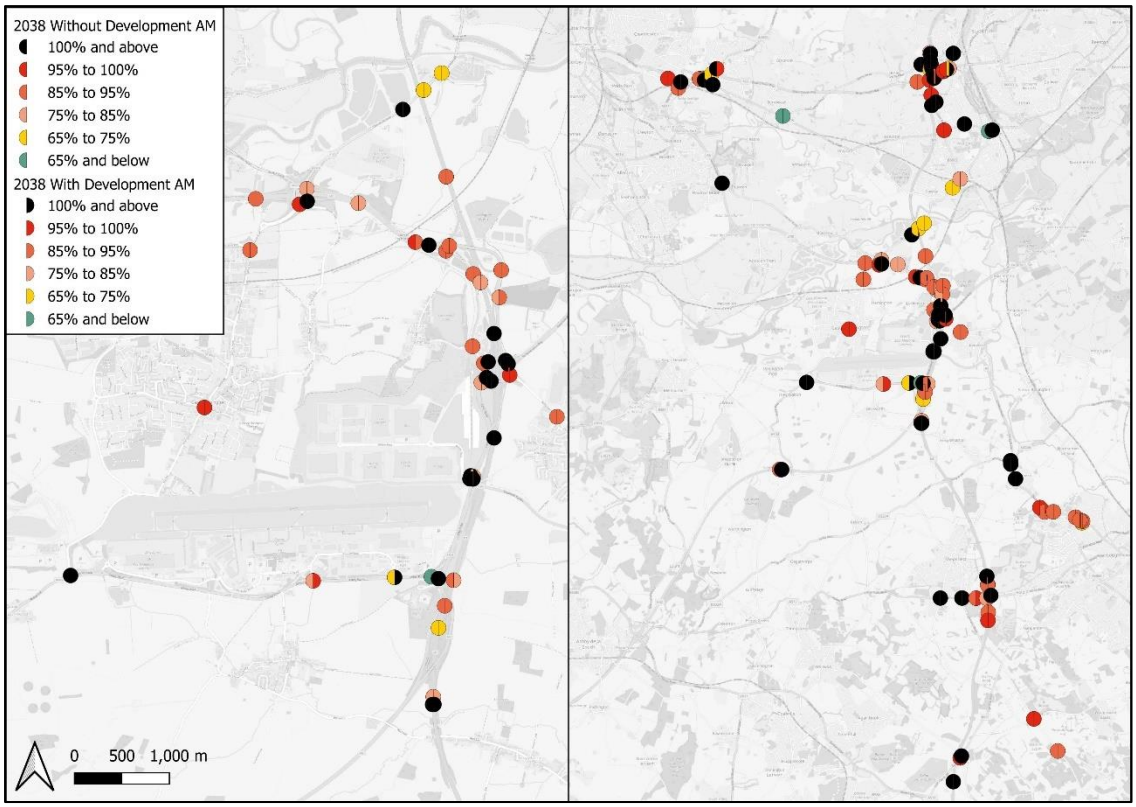
PM Peak hour



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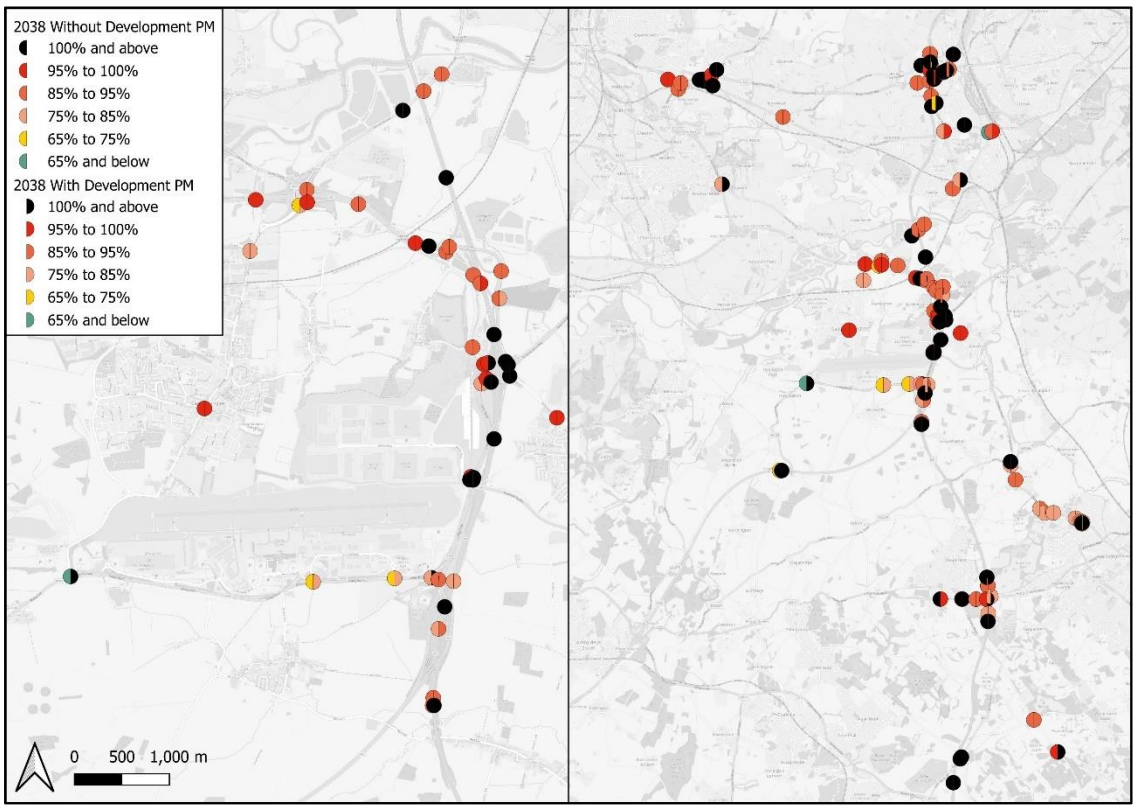
Figure 3.7: Forecast Node Volume-Capacity Ratio for 2038 'Without Development (1a)' and the 2038 'With Development (1a)' Scenarios

AM Peak hour



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PM Peak hour



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3.7 Forecast Junction Turning Flows

3.7.1 Forecast turning flows have been extracted for the following 16 junctions (also shown in Figure 3.8) in the vicinity of the proposed development:

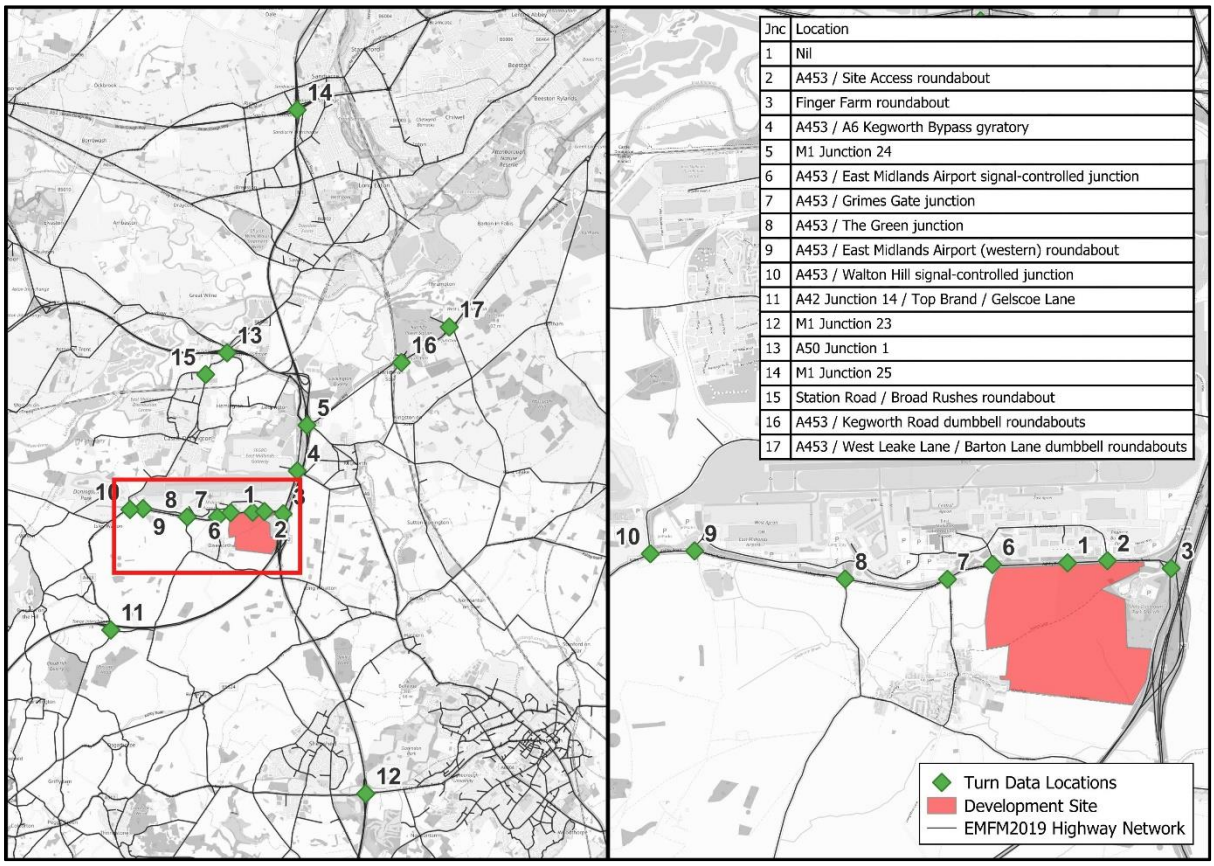
- A453 /Site access Roundabout (Junction 2);
- Finger Farm roundabout (Junction 3);
- A453 / A6 Kegworth Bypass gyratory (Junction 4);
- M1 Junction 24 (Junction 5);
- A453 / East Midlands Airport signal-controlled junction (Junction 6);
- A453 / Grimes Gate junction (Junction 7);
- A453 / The Green junction (Junction 8);
- A453 / East Midlands Airport (western) roundabout (Junction 9);
- A453 / Walton Hill signal-controlled junction (Junction 10);
- A42 Junction 14 / Top Brand / Gelscoe Lane (Junction 11);
- M1 Junction 23 (Junction 12);
- A50 Junction 1 (Junction 13);
- M1 Junction 25 (Junction 14);
- Station Road / Broad Rushes roundabout (Junction 15);
- A453 / Kegworth Road dumbbell roundabouts (Junction 16); and
- A453 / West Leake Lane / Barton Lane dumbbell roundabouts (Junction 17).

3.7.2 The data have been provided separately in MS Excel spreadsheet format[10] which contains the forecast turning flows for the AM Peak and PM Peak hours for light and heavy vehicles. Data are provided for the 2022, 2023, 2024, 2028 and 2038 'Without Development (1a)' and the 2028 and 2038 'With Development (1a)' scenarios. In addition to the turning flows, turn volume-capacity ratios have also been provided where available.

3.7.3 By design the EMFM highway model has not been calibrated or validated for individual turning movements, so care should be taken when using forecasts of flows and volume-capacity ratios at this level.

[10] EMGP2 - Junction Turning Flows_v1.0 - For Issue.xlsx (provided via email on 23rd Jan 2025)

Figure 3.8: Location of Forecast Turning Flow Data



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Section 4 – Summary of the EMFM Assessment

4.1 Summary of Assessment

4.1.1 Using the East Midlands Freeport Model (EMFM), forecasts have been undertaken to produce the 2028 and 2038 'Without Development (1a)' and 'With Development (1a)' scenarios for both the AM Peak and PM Peak hours for the strategic assessment of the proposed East Midlands Gateway Phase 2 development.

4.1.2 Based on these model forecasts, the following is a summary of the key findings for the assessment of the proposed development.

- Development trips (HGVs) have been forecast to route via the following roads:
  - the M1 to and from the south and north;
  - the A42 to and from the south-west;
  - the A50 to and from the west; and
  - the A453 Remembrance Way to and from the east.
- Development trips (light vehicles) have been forecast to route via the following roads:
  - the M1 to and from the south and north;
  - the A42, the A42 Junction 14, A453 and Gelscoe Lane from the south-west;
  - the A50 and through the local network of Castle Donington to and from the west; and
  - the A453 Remembrance Way, A6 Kegworth Bypass and through the local network of Kegworth and Diseworth to and from the east.
- The forecast flow changes in 2028 and 2038 between the 'With Development (1a)' and 'Without Development (1a)' scenarios show that the largest increases in flows are, as expected, forecast along the A453. The M1 and A42 are also forecast to experience increases in flows as well as the local network of Castle Donington, Kegworth and Diseworth.
- An Area of Influence (AoI) for the proposed development has been defined by identifying links which are forecast to change by more than ±5% and ±30 PCUs between the 'With Development (1a)' and 'Without Development (1a)' scenarios for 2028 and 2038 in either the AM Peak or PM Peak hours. The forecast AoI includes:
  - the A453 including Finger Farm roundabout;
  - the M1 between Junction 23 and Junction 24a;
  - the M1 Junction 25;
  - the A42 Junction 14;
  - the A52 Brian Clough Way between M1 Junction 25 and Raynesway Interchange;
  - the A6 Alvaston Bypass between Raynesway Park Interchange and Thulston Roundabout; and
  - local roads in /around Borrowash, Long Eaton, Castle Donnington, Kegworth, Diseworth, Hathern, Thringston and Shepshed.
- The forecast delay changes in 2028 and 2038 between the 'With Development (1a)' and 'Without Development (1a)' scenarios show the proposed development is forecast to increase the delays on the A453 and the approaches of the M1 Junction 24.
- The forecast maximum node volume-capacity ratios show that the proposed development is forecast to increase pressure for the junctions along the A453 including the Finger Farm roundabout. For the M1 Junction 24, the node volume-capacity ratios are high for both the 'Without Development (1a)' and 'With Development (1a)' scenarios with multiple nodes at this junction exceeding 85% which shows high delays and congestion at this location.

4.1.3 The forecasts undertaken reflect the forecast impact of the proposed development at East Midlands Gateway Phase 2. It should be noted that the results provided in this report are at a high level. Due to the strategic nature of the EMFM, not all roads are modelled, and the results should be interpreted with that in mind.

4.1.4 Although the EMFM modelling provides the strategic impact and form part of the proposed East Midlands Gateway Phase 2 assessment evidence packs, the overall assessment should be complemented by local operational assessment and analysis.

Appendix A Planning Data Assumptions

Table A.1: Residential Development Assumptions (sites with more than 500 dwellings) (North West Leicestershire)

District	Location	Quantum	Timescale	Include
North West Leicestershire	Money Hill North of Nottingham Road	1,953	2021-2037	Y
North West Leicestershire	Land North and South of Park Lane	657	2021-2027	Y
North West Leicestershire	Land off Grange Road (South East Coalville)	3,433	2021-2035	Y
North West Leicestershire	Land at Measham Waterside Burton Road	585	2027-2041	Y
North West Leicestershire	Land North and South of Park Lane, Castle Donington (CD10)	1,076	2027-2036	N
North West Leicestershire	Isley Woodhouse (IW1)	4,500	2029-2050	N

Table A.2: Employment Development Assumptions (sites with more than 750 jobs) (North West Leicestershire and East Midlands Freeport sites)

For information, the following table shows the employment sites with more than 750 jobs within North West Leicestershire as well as the sites associated with the East Midlands Freeport development in South Derbyshire.

District	Location	Quantum	Timescale	Include
North West Leicestershire	Mercia Park	393,100 sqm (floorspace)	2023-2027	Y
North West Leicestershire	Strategic Rail Freight Interchange on Land North of East Midlands Airport/West of M1 Junction 24	499,630 sqm (floorspace)	2020-2025	Y
North West Leicestershire	Money Hill	15.9 ha (Site Area)	2027-2031	Y
North West Leicestershire	Segro East Midlands Gateway Phase 2	400,000 sqm (floorspace)	2028-2031	N
North West Leicestershire	Land South of Junction 1 of the A50 Castle Donington Leicestershire	92,500 sqm (floorspace)	2026-2029	Y
North West Leicestershire*	East Midlands Airport Aviation Expansion	940 Jobs	2026-2028	Y
North West Leicestershire	Land West of Hilltop Farm, Castle Donington (Emp89)	17,850 sqm (floorspace)	2025-2034	N
North West Leicestershire	Land North of Remembrance Way (A453), Kegworth (Emp73 (Part))	40,000 sqm (floorspace)	2025-2034	N
South Derbyshire*	EMIP Masterplan 1	4,440 Jobs	2026-2030	Y
South Derbyshire*	EMIP Masterplan 2	3,540 Jobs	2026-2030	Y
South Derbyshire*	EMIP Masterplan 3	1,620 Jobs	2026-2030	Y

* East Midlands Freeport development sites

Appendix B Network Assumptions

Table B.1: Highway Network Assumptions

Location	Scheme Name	Forecast Year	Include
Earl Shilton	Access arrangements for SUE / Highway improvements for SUE	2026	Y
Barwell	Access arrangements for SUE / Highway improvements for SUE	2026	Y
Lubbesthorpe	Access arrangements for SUE including strategic traffic link to the A563 Lubbesthorpe Way	2021	Y
Loughborough	A512 widening B591 to M1 J23, improvements to J23 and completion of dualling thereafter to either Snell's Nook Lane or Epinal Way junction	2021	Y
Coalville	4. Bardon Road Link: Southern section only	2026	Y
Castle Donington	Western Link Road from Back Lane to Tops Hill, NWLDC package of measures to help mitigate growth planned	2021	Y
Lubbesthorpe	Link across M69 to join North and South of the Lubbesthorpe development.	2031	Y
Earl Shilton & Barwell	Highway improvements for SUE	2026	Y
Lubbesthorpe	Highway improvements for SUE	2026	Y
Loughborough	West of Loughborough SUE (access from the north via the A6 roundabout)	2022	Y
Blaby	Desford Crossroads	2026	N
Harborough	Harborough Strategic Development Area	2021	Y
Charnwood	North of Birstall SUE	2026	Y
Charnwood	Mountsorrel Lane, Rothley Link Road	2021	Y
Charnwood	A512 junction improvements	2021	Y
North of East Leicester	North of East Leicester Development Network - Thorpebury (previously Thurmaston) SUE.	2026	Y
Leicester City	Traffic Calming Schemes (Phase 2)	2021	Y
Leicester City	Welford Road	2021	Y
Leicester City	Waterside Development	2026	Y
Leicester City	Belgrave Gate South	2020	Y
Leicester City	Lancaster Road	2020	Y
Leicester City	Mansfield Street & Church Gate	2021	Y
Leicester City	SMBS Access to Burleys Way	2021	Y
Leicester City	Vaughan Way	2020	Y
Leicester City	Ashton Green	2021	Y
Leicester City	LNW2 Ravensbridge Drive / Blackbird Road	2020	Y
Melton	MMDR Northern Section	2026	Y
Melton	MMDR Eastern Section	2026	Y
Melton	MMDR Southern Section	2026	Y
Melton	Gladman's Site (Leicester Road and Kirby Lane Access)	2021	Y

Location	Scheme Name	Forecast Year	Include
Leicester City	Beaumont Leys Anstey Lane Improvements	2021	Y
Hinckley	Hinckley Rugby Road Corridor Improvements - Phase 4	2023	Y
Leicester City	Putney Road West Improvement	2022	Y
Lutterworth	Frank Whittle Roundabout approaches	2021	Y
Lutterworth	Lutterworth East Development (Development Access (A4304, Gilmorton Road and A426))	2026	Y
Lutterworth	Lutterworth East Development associated mitigations	2031	Y
Lutterworth	Lutterworth East Development (Link Road between A4304 and A426)	2031	Y
Lutterworth	Lutterworth East Development (Gilmorton Road bridge bus restriction)	2026	Y
Bardon Hill	Bardon Hill Link Road North Section	2026	Y
Coalville	Hoo Ash Roundabout	2025	Y
Coalville	Thornborough Road Roundabout	2025	Y
Coalville	Dual Carriageway from Thornborough Rd to Whitwick Road	2025	Y
Coalville	Whitwick Road Roundabout	2025	Y
Coalville	Broom Leys Road Junction	2025	Y
Coalville	Bardon Link Road Junction	2025	Y
Coalville	Birch Tree Roundabout	2025	Y
Coalville	Flying Horse Roundabout	2025	Y
Coalville	Fieldhead Roundabout	2025	Y
Hinckley	DPD A5 Access	2021	Y
Padge Hall	Padge Hall Development Access	2024	Y
Leicester City	Abbey Park Road Cycle Provision	2021	Y
Blaby	A47 / Kirby Lane Tesco Express	2021	Y
Leicester City	Abbey Street	2021	Y
Leicester City	A50 Groby Road Bus Lane	2022	Y
Harborough	Magna Park Extension Access - Mere Lane, Lutterworth	2021	Y
Harborough	Magna Park Extension Access - A5, Lutterworth	2026	Y
Blaby	Highway improvements for Lubbesthorpe SUE	2021	Y
Blaby	Foxhunter Roundabout Eastbound Approach	2021	Y
Loughborough	West of Loughborough SUE (connection to the northern arm of the A512 roundabout)	2036	Y
Harborough	B4114 / B581 Signalisation Improvement, Broughton Astley	2026	Y
Blaby	Blaby DPD Site Access	2026	Y
Blaby	West of St Johns (Blaby DPD) Site Access	2026	Y
Harborough	Wigston Direction for Growth Site Access	2026	Y
Blaby	Everard Way Closure, Fosse Park	2020	Y
Loughborough	Access connection for the Science Park via the A512 roundabout	2031	Y

Location	Scheme Name	Forecast Year	Include
North West Leicestershire	Money Hill Site Access A511	2026	Y
Derbyshire	Wragley Way (South Derbyshire) SUE Access A50	2031	Y
Derbyshire	Clifton (Rushcliffe) SUE Access	2022	Y
Derbyshire	EMIP A50 (Freeport)	2030	Y
Derbyshire	Toton Innovation Hub (HS2)	2026	Y
Nottinghamshire	Ratcliffe Power Station A453 (Freeport)	2030	Y
Rugby	Rugby Radio Station - A5 Access	2022	Y
North West Leicestershire	Mercia Park	2020	Y
Leicester City	Western Park Golf Course	2029	Y
Harborough	Kettering Road Signalisation	2021	Y
Charnwood	Shuttle signals on Tickow Lane (over bridge)	2022	Y
Charnwood	Buttercup Lane in Shepshed	2022	Y
Blaby	Dans Lane (A47)	2023	Y
Hinckley	B582 / B585 signalisation	2023	Y
Hinckley	A47 roundabout between Wykin Road and Outlands Drive	2021	Y
M6 Junction 10-13	M54-Stafford ALR	2021	Y
M54-M6 Toll	New Link Road min 2 lane motorway	2024	Y
M6 J13-J16	Stafford South to Stoke ALR	2022	Y
M1 J13-16	MK South - J16 ALR	2022	Y
M40 M42	M40 J16-M42 J3 ALR	2026	Y
A46 Coventry	Remove Binley and Walsgrove roundabouts M40-M6 as 'expressway standard' (i.e. all grade separated junctions)	2026	Y
A46 Toll Bar End	Grade separated junction at TBE & Stonebridge Highway to 3 lanes	2021	Y
Newark North	Dualling Newark N bypass first stages now in RIS 2	2031	Y
Newark South	A1-A46 link S of Newark; part constructed. Not in MRTM list	2031	Y
Lincoln East	A15-A158; under construction	2021	Y
Lincoln South	A158-A46; *sketchy details*; envisaged as dual carriageway… Assumed costing will be similar to Lincoln E bypass and will be 60mph single	2031	Y
Grantham South	A1-A52 link bypassing Grantham; under construction	2023	Y
Warwickshire	M6 J2 - J4 SMART motorway	2021	Y
Nuneaton and Bedworth Borough	Coton Arches	2021	Y
Nuneaton and Bedworth Borough	A4254b Eastboro Way Phase 1	2024	Y
Nuneaton and Bedworth Borough	College Street / A444	2026	Y

Location	Scheme Name	Forecast Year	Include
Nuneaton and Bedworth Borough	Transforming Nuneaton	2026	Y
Nuneaton and Bedworth Borough	Croft Road / Greenmoor Road Priority	2031	Y
Nuneaton and Bedworth Borough	A47 Old Hinckley Road	2024	Y
Nuneaton and Bedworth Borough	Coventry Road / Gipsy Lane	2026	Y
Nuneaton and Bedworth Borough	A4254 / B4114 / Eastboro Way	2026	Y
Nuneaton and Bedworth Borough	Nuneaton Northern Sites Link Road	2026	Y
North Warwickshire	B5000 Market Street/Bridge Street Signals	2026	Y
North Warwickshire	A5 Dualling between Grendon and Dordon Junction	2033	Y
Rugby Borough	A426/A4071 Avon Mill Roundabout/Newbold Road/Hunters Lane Priority Junction	2026	Y
Rugby Borough	Ashlawn Road/Hillmorton Road	2021	Y
Rugby Borough	A5 Northern Access to DIRFT III	2021	Y
Rugby Borough	A5/A428 Halfway House Roundabout	2026	Y
Rugby Borough	M1 Junction 18	2031	Y
Rugby Borough	M6 to Coton House	2021	Y
Rugby Borough	A5 Southern Access to DIRFT III	2021	Y
North Warwickshire	A5 dualling Grendon to Atherstone	2031	Y
Rugby Borough	M6 J2 Signalisation	2024	Y
Nuneaton and Bedworth Borough	Callendar Farm Phase 2	2031	Y
Nuneaton and Bedworth Borough	Bermuda Triangle Project	2026	Y
Rugby Borough	Ansty Park Access (Combe Fields Road)	2020	Y
Castle Donington	Land South of A50 J1 Development Access	2024	Y
Hinckley	B4114 Coventry Rd / Broughton Rd widening	2021	Y
Shepshed	A512 Ashby Rd Quarry access/signalised junction	2021	Y
Bardon	Tungsten Park, Bardon A511	2021	Y
North West Leicestershire	Segro EMG Phase 2 Development Access	2028	N
Leicester City	St George Street (Queen Street to Southampton Street)	2022	Y
Leicester City	Dover Street (Granby Street Junction)	2024	Y
Leicester City	Granby Street (Bishop Street to Halford Street)	2024	Y
Leicester City	Granby Street (Northampton Street to Street George's Way)	2022	Y
Leicester City	Pocklingtons Walk	2022	Y

Location	Scheme Name	Forecast Year	Include
Leicester City	Aylestone Road, Saffron Lane to Oxford Street (A426)	2023	Y
Leicester City	Saffron Lane (B5366)	2023	Y
Leicester City	Duns Lane/Braunstone Gate	2023	Y
Leicester City	Abbey Park Road (Eastern section and bridge)	2023	Y
Leicester City	Anstey Lane (A5630)	2022	Y
Leicester City	St. Margaret's to Birstall (A6)	2024	Y
Leicester City	Melton Road (A607)	2023	Y
Leicester City	Belgrave Gate/Haymarket/Church Gate Pedestrianisation	2020	Y
North West Leicestershire	A50 Junction 1 signalisation of two additional arms (Tamworth Road and Trent Lane)	2025	Y
Blaby	Desford Road/Ratby Lane signalisation	2022	Y
Nottinghamshire	A52 Gamston roundabout	2023	Y
Nottinghamshire	A52 Wheatcroft junction	2028	Y
Nottinghamshire	A52 Nottingham Knight junction	2028	Y
Derbyshire	A38 grade-separated junctions (Kingsway Roundabout, Markeaton Island and Little Eaton Roundabout)	2024	Y
Broxtowe	Toton Link Road	2026	N

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APPENDIX 42: NH Tech Note response to Stage 1A Modelling Forecasting Report

Tech Note

Spatial Planning Framework Commission

Prepared by Jacobs-SYSTRA Joint Venture (JSJV) for the National Highways National Spatial Planning Contract 2022 in relation to the South East Region

Job number:	B2418400		
Job title:	EMG2 DCO		
To:	Paul Wilson, Matt Corner and Vibi Devaharan (BWB)	**cc:**	Kate Stephen (National Highways), Fiona Ahmed and Jeremy Bloom (JSJV)
Topic:	EMGP2 Forecasting Modelling Review		

	Prepared:	**Checked**	**Approved**
Name:	George Nock/ Alain Chandler-Hurst	Simon Doyle	Jeremy Bloom
Date:	13/02/2025	18/02/2025	21/02/2025

Introduction

AECOM have been commissioned by SEGRO to undertake strategic transport modelling to assess the proposed development at the SEGRO Logistics Park East Midlands Gateway 2. This is linked to the Development Consent Order which is currently at public consultation stage.

Strategic transport modelling is required to provide an evidence base for assessing the impacts and identifying the mitigation needed to support the proposed development.

The Strategic Road Network (SRN) is a critical national asset and as such National Highways work to ensure that it operates safely and is managed in the public interest, both in respect of current activities and needs as well as in providing effective stewardship of its long-term operation and integrity.

In the case of this development proposal, National Highways' primary interest is in the M1 motorway and the A453, A50 and A42 Trunk Roads.

JSJV has been commissioned by National Highways to audit the supporting traffic modelling documents prepared by AECOM and appraise the impact of development on the SRN.

Review Categorisations

Issues are categorised according to the categories in Table 1 below:-

Table 1: Review Categorisations

Classification	Description
Observations	are points for consideration on an issue that would not significantly affect model operation or output.
Comments	The main function is to highlight such issues for attention in subsequent project stages.
Substantive Issues	which require corrective action. The audit will suggest the detailed action required to address the issue, although there should be freedom for the development team to use alternative approaches in order to achieve the required level of analysis.

Items Reviewed

The following reporting has been provided: -

- EMFM 2019, East Midlands Gateway Phase 2, Forecasting Report, AECOM, 04/02/2025 (The report).

JSJV have undertaken an audit of the received information to appraise the soundness of the conclusions provided within the report and identify areas and next steps for further assessment by the Applicant.

For ease of reference, the detail of the audit presented below follows the chapter sequencing of the report provided.

Section 1 Overview

Paragraph 1.1.8 identifies the modelling assessment and the three proposed stages of the assessment procedure: -

<u>Stage 1a modelling (Proforma 14)</u>

- 2022/2023/2024 'Without Development';
- 2028/2038 'Without Development (1a)' without EMG Phase 2 development (with all Freeport and Local Plan sites (as listed in Paragraph 1.1.6); and
- 2028/2038 'With Development (1a)' with EMG2 development (with all Freeport and Local Plan sites (as listed in Paragraph 1.1.6).

<u>Stage 1b modelling (Proforma 14a)</u>

- 28/2038 'Without Development (1b)' without EMG Phase 2 development (without Local Plan sites (as listed in Paragraph 1.1.6); and
- 2028/2038 'With Development (1b)' with EMG Phase 2 development (without Local Plan sites (as listed in Paragraph 1.1.6).

<u>Stage 2 modelling (details to be confirmed)</u>

- 2028/2038 with EMG Phase 2 and with mitigation measures; and 2028/2038 with EMG Phase 2 construction.

As noted in paragraph 1.1.9, the reporting presented in this version of the report relates to the forecast model results for Stage 1a only with Stage 1b and Stage 2 to follow.

Comment 1:- Proforma 14 includes a construction traffic scenario within the modelling assessment. It is noted above that the overall modelling assessment will be undertaken in three separate stages. The Applicant will be required to agree the inputs for the construction traffic modelling scenario with National Highways prior to the undertaking of assessment on the SRN.
Comment 2:- The Applicant has confirmed that the purpose of the modelling assessment associated with Proforma 14a is for the environmental assessments only; namely, air quality and noise assessment. The scenario used to test and appraise the impacts of development on the SRN are those provided within this current Forecasting Report (using the agreed Proforma 14) and not Proforma 14a. This has been confirmed by BWB in writing on 21st November 2024 acting on behalf of SEGRO.

Paragraph 1.1.10 indicates that the base model validation assessment was presented in a separate report: East Midlands Gateway Phase 2 Base Year Model Review Addendum.

Observation 1:- JSJV are content with the base year model performance in the vicinity of the proposed development as presented in the East Midlands Gateway Phase 2 Base Year Model Review Addendum report.

2.2 'Without Development' Assumptions

The complete list of planning and network assumptions is provided in East Midlands Gateway Phase 2 Uncertainty Log v7.

Observation 2:- JSJV are content with the details provided in the Uncertainty Log v7.

2.4 Proposed Development Trip Generation Assumptions

The proposed development trip generation assumptions are provided in Table 2.1.

Observation 3:- JSJV are content with the proposed trip generation.

Paragraph 2.4.2 notes that both the 2028 and 2038 With Development scenarios are "fully built out (i.e. 100% occupancy)".

Observation 4:- JSJV are content the scenario assumptions satisfy the requirements of the Department for Transport Circular 01/ 2022 paragraph 50.

2.5 Proposed Development Trip Distribution Assumptions

The following PCU conversion factors have been used for the forecasting assessment: -

- Lights = 1 PCU; and,
- Heavies = 2 PCU.

Observation 5:- JSJV are content with the PCU assumptions.

Figures 2.1 - 2.8 shows the distribution of development traffic by different modes, for the AM and PM time periods for both the 2028 and 2038 assessment.

Comment 3:- JSJV are broadly content with the anticipated trip distribution and routing for each mode. The Applicant should note during the AM peak (Figures 2.4 and 2.6) a number of light vehicle arrivals are anticipated to route via Castle Donington. During the PM peak, routes via Castle Donington are used to a significantly lesser extent with the M1 seeming to be the primary route. The Applicant should be cognisant of any capacity constraints on the A453, M1 and through Castle Donington during the AM and PM peaks in light of the asymmetry identified. This should be further analysed and investigated as part of the next stage of assessment, taking into account journey times along the modelled routes.

Section 3 – Forecast Model Results

Figure 3.1 shows the forecast traffic flow changes during the 2028 AM peak. There are reductions of flows on the A42 where there are reciprocated increases in flows on the A453 routing away from the SRN at A42 Junction 14. For ease of understanding, the Figure is replicated below:-

Figure 3.1: Forecast Flow Change for 2028 'With Development (1a)' minus 'Without Development (1a)'

AM Peak hour



Contains Ordnance Survey data © Crown copyright and database right 2025

Comment 4:- The traffic flow changes noted above occur during both the 2028 and 2038 AM scenarios. As part of the next stage of assessment, the Applicant should review the capacity constraints on the SRN as a result of development which contributes to traffic rerouting away from the SRN onto the A453. This appears to be traffic associated with the airport. The Applicant should also undertake an analysis of the changes to the background traffic routing in light of the above.

Substantive Issue 1:- Forecast flows on Finger Farm roundabout are anticipated to increase significantly as a direct result of the development. The Applicant should be cognisant of the capacity constraints (noted below under heading 3.6) and consider the requirement for suitable mitigation at Finger Farm roundabout to mitigate the residual cumulative impacts of development.

3.4 Area of Influence

The identified Area of Influence (AOI) is shown in Figure 3.3.

Observation 6:- JSJV are content with the AOI presented in Figure 3.3

3.5 Forecast Delay Change

There are significant forecast increases in delay as a result of development traffic on the SRN. Most critically this includes: -

- M1 Junctions 23A, 24, 24A;
- A453 and Finger Farm Roundabout;
- A42 Junction 14; and,
- A50 Junction 1.

Substantive Issue 2:- The Applicant should be cognisant of the capacity constraints at these locations and consider the requirement for suitable mitigation to mitigate the residual cumulative impacts of development. The exact scale of these delays is also difficult to determine from the Figures. The extent of the anticipated delay changes should be quantified by the Applicant.

The scale of the supporting Figures in this section of the report, particularly Figure 3.4, makes it difficult to determine the precise increase/ reductions in delay close to M1 junction 25.

Substantive Issue 3:- The Applicant should be cognisant of the capacity constraints at and close to M1 junction 25 and consider the requirement for suitable mitigation to mitigate the residual cumulative impacts of development.

3.6 Forecast Node Volume-Capacity Ratios

Section 3.6 presents the forecast nodes Volume / Capacity ratios. Figures 3.6 – 3.7 show the performance of nodes comparing the with and without development scenarios for both 2028 and 2038.

Substantive Issue 4:- Whilst the Figures are helpful, the Applicant will need to consider the scale of the V/C change when comparing with and without development scenarios. Shapefiles and spreadsheets should be provided with outputs to help fully understand the implications of the development. Additionally, more detailed Figures at locations where there are multiple V/Cs shown in close proximity, such as M1 J24, should be provided as it is challenging to decipher the extent of the change. This should be quantified to understand the exact anticipated change in network performance.

In all AM with development scenarios, the site access is shown to be over 85% capacity. In the case of 2038, this is shown to be >100%.

Substantive Issue 5:- Given the proximity of the proposed site access to the SRN, JSJV have concerns with the ability of the proposed site access to safely and efficiently accommodate development traffic. The principal concern would be the impact this could have on the operation of SRN junctions, particularly Finger Farm roundabout (which is also shown to be under significant capacity constraint). An additional concern is that not all traffic may be reaching the network and as such the scale of the impact is not fully known; this needs to be confirmed by the Applicant. It is recommended the Applicant reviews the scale and form of the proposed access strategy in terms of capacity to ensure the access is safe and suitable for all users taking a holistic view of network performance.

There are major constraints at a large number of nodes across the modelled area. Many of these are on or close to the SRN. The following locations are shown to have a significant increase in V/C as a result of development:-

- M1 Junctions 23A, 24, 24A, 25;
- A453 and Finger Farm Roundabout;
- A42 Junction 14; and,
- A50 Junction 1.

Substantive Issue 6:- Whilst there is no information presented which quantifies the degree of V/C change provided at this stage, JSJV has concerns with the potential deterioration of network performance as a result of development traffic. This is particularly critical on the M1 given the complex and high-speed network with multiple interactions, merges and diverges associated with it. The Applicant should be cognisant of the capacity constraints at these locations and consider the requirement for suitable mitigation to mitigate the residual cumulative impacts of development.

3. 7 Forecast Junction Turning Flows

A list of junctions and areas of the network are identified where data will be extracted from the EMFM model.

Observation 7:- JSJV agree with the area identified for further analysis. The Applicant team should remain engaged with National Highways when undertaking further localised junction modelling assessment and microsimulation modelling on the SRN and employ a critical, robust and agreed methodology for extracting and applying demand from the strategic model.

Section 4 – Summary of the EMFM Assessment

Paragraphs 4.1.3 and 4.1.4 states:-

> The forecasts undertaken reflect the forecast impact of the proposed development at East Midlands Gateway Phase 2. It should be noted that the results provided in this report are at a high level. Due to the strategic nature of the EMFM, not all roads are modelled, and the results should be interpreted with that in mind.
>
> Although the EMFM modelling provides the strategic impact and forms part of the proposed East Midlands Gateway Phase 2 assessment evidence packs, the overall assessment should be complemented by local operational assessment and analysis.

Observation 8:- JSJV agrees that the outputs from the strategic modelling should be applied critically by the Applicant during the next stage of assessment. Both local junction modelling and microsimulation modelling are required, in addition to a With Mitigation scenario using EMFM 2019.

Summary and Next Steps

JSJV has been commissioned by National Highways to audit the supporting traffic modelling documents prepared by AECOM for the proposed East Midlands Gateway 2 development and appraise the impact of the development on the SRN. It is requested that the Applicant considers the findings identified in this Technical Note and undertakes appropriate actions in consultation with JSJV, National Highways and the Local Highway Authorities during the next stage of assessment.

Further assessment is required using both the strategic as well as the local and microsimulation modelling packages to further explore the more focused implications of development on the SRN and develop a suitable package of interventions to mitigate the residual cumulative impacts of development and any unacceptable impacts on highway safety.

APPENDIX 43: NH agreement to Stage 1A modelling approach email dated 16 May 2025

Matt Corner

From: Nock, George [redacted]@jacobs.com>
Sent: 16 May 2025 13:46
To: Matt Corner
Cc: Ian Rigby; Kate Stephen; Chandler-Hurst, Alain; Jeremy Bloom; [redacted]@oxalisplanning.co.uk; Ahmed, Fiona; Vibeeshan Devaharan; Paul Wilson
Subject: RE: 250416 EMG2 PRTM Forecasting Report - BWB response to NH

Follow Up Flag: Follow up
Flag Status: Completed

This email originated from outside of our organisation. Please exercise caution with content, links and attachments.

Hi Matt

Thanks for your email and your response to the Tech Note.

We are grateful for you acknowledging that further assessment work is on-going which will consider the detailed points raised by National Highways through the next stages of your evaluation work.

We are currently awaiting resubmission of the demand flows for the VISSIM modelling and haven't yet been sighted on the full impact assessments but are looking forward to receiving those soon.

With thanks
George

George Nock, MSc (Eng) | Jacobs | Associate Director, Cities & Places
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Advanced notice of annual leave: 26th May

From: Matt Corner [redacted]@bwbconsulting.com>
Sent: 16 April 2025 09:36
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Cc: Ian Rigby [redacted]@segro.com>; Kate Stephen [redacted]@nationalhighways.co.uk>; Chandler-Hurst, Alain [redacted]@jacobs.com>; Jeremy Bloom [redacted]@oxalisplanning.co.uk; Ahmed, Fiona [redacted]@jacobs.com>; Vibeeshan Devaharan [redacted]@bwbconsulting.com>; Paul Wilson [redacted]@bwbconsulting.com>
Subject: [EXTERNAL] 250416 EMG2 PRTM Forecasting Report - BWB response to NH

Dear George,

Thank you for sharing the attached Technical Note setting out National Highways position on AECOM's PRTM Forecasting Report. Further to recent meetings, BWB has reviewed the observations, comments and substantive issues and produced the attached response setting out how we propose to address each item within the forthcoming work and Transport Assessment.

Hopefully, this provides you with comfort as to how we intend to deal with each issue, a number of which have since progressed in dialogue with the TWG. We would however welcome confirmation on our proposed approach or any further suggestions that we can take on board.

Kind regards

Matt Corner
Associate – Transport & Accessibility Planning
5th Floor, Waterfront House, Station Street, Nottingham, NG2 3DQ
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Cc: Ian Rigby [redacted]@segro.com>; Kate Stephen [redacted]@nationalhighways.co.uk>; Chandler-Hurst, Alain [redacted]@jacobs.com>; Jeremy Bloom [redacted]@oxalisplanning.co.uk; Ahmed, Fiona [redacted]@jacobs.com>
Subject: RE: 250212 EMG2 Feb '25 modelling meeting minutes/actions
Importance: High

This email originated from outside of our organisation. Please exercise caution with content, links and attachments.

Morning Matt,

Thank you for providing the EMFM 2019, East Midlands Gateway Phase 2, Forecasting Report, AECOM, 04/02/2025.

Noting the timescales provided for comments by the Highway Authorities is 14th March (as per the recent Highways Programme S1.P14.1) we felt it appropriate to undertake our review and appraisal of the strategic impacts on the SRN at pace ahead of that anticipated receipt date noting the scale and significance of impacts identified on the SRN.

Please see attached our Technical Note. The Technical Note follows our procedure of reviewing and categorising findings.

Unsurprisingly, the Forecasting Report demonstrates major constraints across the modelled area. Many of these are on or close to the SRN. The following locations are shown to have a significant increase in V/C as a result of development:-

- M1 Junctions 23A, 24, 24A, 25;
- A453 and Finger Farm Roundabout;
- A42 Junction 14; and,
- A50 Junction 1.

We would be grateful if you could consider the findings of the Note when developing your next stages of analysis (specifically the microsimulation modelling and local junction modelling, and the identification of a suitable mitigation package to mitigate the residual cumulative impacts of development on the SRN).

We hope the time gained on our review is helpful and affords some more time for the team to continue your granular and focused analysis on the impacts to the benefit of the overall programme.

I would be pleased to discuss any elements of our Technical Note with you.

With thanks
George

George Nock, MSc (Eng) | Jacobs | Associate Director, Cities & Places
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Advanced notice of annual leave: 3rd – 7th March (Inclusive).

From: Matt Corner [redacted]@bwbconsulting.com>
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To: Adrian Whiteman [redacted]@leics.gov.uk>; Nock, George [redacted]@jacobs.com>; Daniel Sullivan [redacted]@nottscc.gov.uk>; Harry Horsley [redacted]@leics.gov.uk>; Morrow, Jonathan [redacted]@aecom.com>
Cc: Catherine Townend [redacted]@nationalhighways.co.uk>; Ahmed, Fiona [redacted]@jacobs.com>; Jeremy Bloom [redacted]; Chandler-Hurst, Alain [redacted]@jacobs.com>; Tom Boylan [redacted]@nottscc.gov.uk>; Simon Hilditch [redacted]@bwbconsulting.com>; Ian Rigby [redacted]@segro.com>; Davies, Aled [redacted]@aecom.com>; Templeman, Lee [redacted]@jacobs.com>; Laura Good [redacted]@leics.gov.uk>; ETD - Commissioning Framework <etcf@leics.gov.uk>; Vibeeshan Devaharan [redacted]@bwbconsulting.com>; Paul Wilson [redacted]@bwbconsulting.com>; [redacted]@nationalhighways.co.uk
Subject: [EXTERNAL] 250212 EMG2 Feb '25 modelling meeting minutes/actions

Dear all,

Please see attached minutes from last week's modelling meeting. The actions from the meeting are as follows:

1. **Adrian** to review January's modelling meeting minutes and confirm whether these are agreed.

2. **BWB** to review Stage 1 modelling outputs and provide comments to AECOM before sharing the Forecasting Report, once happy with the outputs.

3. **AECOM** to continue the modelling work for proforma v14a, with the aim of sending initial outputs w/c 10/2/25.

4. **Adrian** and **Dan** to review and comment on the Covid sensitivity note.

5. **BWB** to update and share a revised construction traffic calculations, with accompanying Explanatory Note. **All** to then review and provide further comments.

6. **AECOM** to review planning data assumptions and advise of any questions.

7. **BWB** to review 2024 data of EMG1 and share this with thoughts on the 'vision and validate' assessment.

8. **Adrian** to provide comments on the base VISSIM model. **Vibi** to take on board and share a revised version with accompanying report.

9. **BWB** to start generating forecast year flows taking on board previously agreed furnessing methodology and share with TWG.

10. **Matt** to circulate sign off sheets to get formal agreement on previous reports.

In response to Item 2, please find attached AECOM's Forecasting Report for the Stage 1 modelling work (based on proforma v14). BWB has undertaken a thorough review of the PRTM outputs and are in the throes of finalising some last minor bits of detail with AECOM although this will have no impact on the Forecasting Report itself. We can discuss this further at tomorrow's TWG meeting, for which we will circulate an agenda for shortly.

I trust the above details are of use and look forward to catching up tomorrow with those that can attend.

Kind regards

Matt Corner
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From: Matt Corner
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Cc: Catherine Townend [redacted]@nationalhighways.co.uk>; Ahmed, Fiona [redacted]@jacobs.com>; Jeremy Bloom [redacted]; Chandler-Hurst, Alain [redacted]@jacobs.com>; Tom Boylan [redacted]@nottscc.gov.uk>; Simon Hilditch [redacted]@bwbconsulting.com>; Ian Rigby [redacted]@segro.com>; Davies, Aled [redacted]@aecom.com>; Templeman, Lee [redacted]@jacobs.com>; Laura Good [redacted]@leics.gov.uk>; ETD - Commissioning Framework <etcf@leics.gov.uk>; Vibeeshan Devaharan [redacted]@bwbconsulting.com>; Paul Wilson [redacted]@bwbconsulting.com>; [redacted]@nationalhighways.co.uk
Subject: 250205 EMG2 Feb '25 modelling meeting agenda

Dear all,

Please see the below agenda for tomorrow's modelling meeting; please let us know if anyone has any amendments beforehand. Thanks

i) Review of previous meeting minutes (attached) and actions (below) for agreement

ii) Current Stage 1 EMG2 modelling work update from **AECOM** (proformas 14 and 14a; information for the latter now fully received) – a collective guided tour would be of use

iii) Stage 2 modelling:

a. LCountyC/NCountyC comments Covid sensitivity report wise, post George's agreement (subsequent note issued 6/1/25; agreement 23/1/25)
b. plan to meet the Clients programme for end of May DCO submission (numbers review, VISSIM modelling update, and undertaking of Stage 2 modelling at risk whilst we await comments)
c. construction traffic update post comments dated 31/1/25.

iv) Wider strategic modelling (this, and a EMG2 sensitivity test, to be undertaken using the 2023 version of PRTM, for the avoidance of doubt):

a. clarity re. next steps LMVR wise; LCountyC/AECOM to liaise directly with NH we assume with re. to the model itself – is it ready (Patrick?) and can we have a copy also?
b. planning data assumptions and uncertainty log update (we have provided the last remaining item from DCityC; is the rest now sorted…?)
c. proforma review; comments from George received on 31/1 (we are seeking opinion from Steve Johnstone re the items raised in point 2)
d. agreed outstanding information requirements and next steps re. this element?

v) 'Vison and Validate' related update (last email sent by Fiona on 29/1/25)

vi) Updated VISSIM base model – update (post Lee's email 23/1/25)

vii) Sign off position

viii) Next steps (the revised, detailed version of the programme will be sent post Client review, pre the TWG meeting)

ix) AOB

Kind regards

Matt Corner
Associate – Transport & Infrastructure Planning
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Sent: 03 January 2025 13:18
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Cc: Catherine Townend [redacted]@nationalhighways.co.uk>; Ahmed, Fiona [redacted]@jacobs.com>; Jeremy Bloom [redacted]; Chandler-Hurst, Alain [redacted]@jacobs.com>; Tom Boylan [redacted]@nottscc.gov.uk>; Simon Hilditch [redacted]@bwbconsulting.com>; Ian Rigby [redacted]@segro.com>; Davies, Aled [redacted]@aecom.com>; Templeman, Lee [redacted]@jacobs.com>; Laura Good [redacted]@leics.gov.uk>; ETD - Commissioning Framework <etcf@leics.gov.uk>; Matt Corner [redacted]@bwbconsulting.com>; Vibeeshan Devaharan [redacted]@bwbconsulting.com>
Subject: 250103 EMG2 Jan '25 modelling meeting minutes/actions

Good afternoon all – Happy New Year

Please see attached minutes from yesterday's modelling meeting. We were unsure as to whether anyone was able to join, so thanks to Harry, Adrian, and Fiona for doing so, as the rest hopefully enjoyed their extended break.

We set out the actions as follows:

1. **Patrick** to liaise with LCityC, alongside Anthea Anderson to get planning data updates.

2. **Pau**l to liaise with Duncan at Systra to obtain planning data updates for DCityC, and follow up with NCityC.

3. **AECOM** to issue initial PRTM outputs for the current EMG2 commission as soon as possible w/c 06/01/25

4. **All** to review previous modelling meeting minutes and confirm these are acceptable before **BWB** upload to SharePoint.

5. **BWB** to issue the revised VISSIM base model with summary of changes made.

6. **AECOM/LCountyC NDI** to set out timescale implications for potentially switching to 2023 PRTM model and comparisons of journey time and LMVR details to help inform decision making.

7. **BWB** to update the strategic modelling PRTM proforma to address the minor discrepancy in relation to the Plot 16 traffic flows, and append the information provided to NH, once comments have been received from **LCountyC** in particular.

8. **BWB** to circulate GN email regarding Covid sensitivity assessments and formalise the details into a Technical Note.

9. **BWB** to consider the impacts of any additional mezzanine floorspace and provide traffic comparisons to inform the 'vision and validate' assessment.

10. **Segro** and **BWB** to consider the concerns raised by LCountyC and NH in relation to agreeing and finalising the strategic modelling work in particular (mechanisms for securing and funding the work), regardless of the current query over which version of PRTM should be used.

We trust the above/attached is of use and look forward to discussing in further detail at next Thursday's TWG meeting (an agenda will be sent early next week). However, if anyone has any questions in the meantime, please ask. Thanks

Kind regards

Paul Wilson BA(Hons) MCIHT MSoRSA CMILT MInstILM
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APPENDIX 44: EMFM Trip Distribution Plots on the A50

EMFM

East Midlands Gateway Phase 2 Forecast Results Stage 1a (Development Traffic on the A50)

21 May 2025

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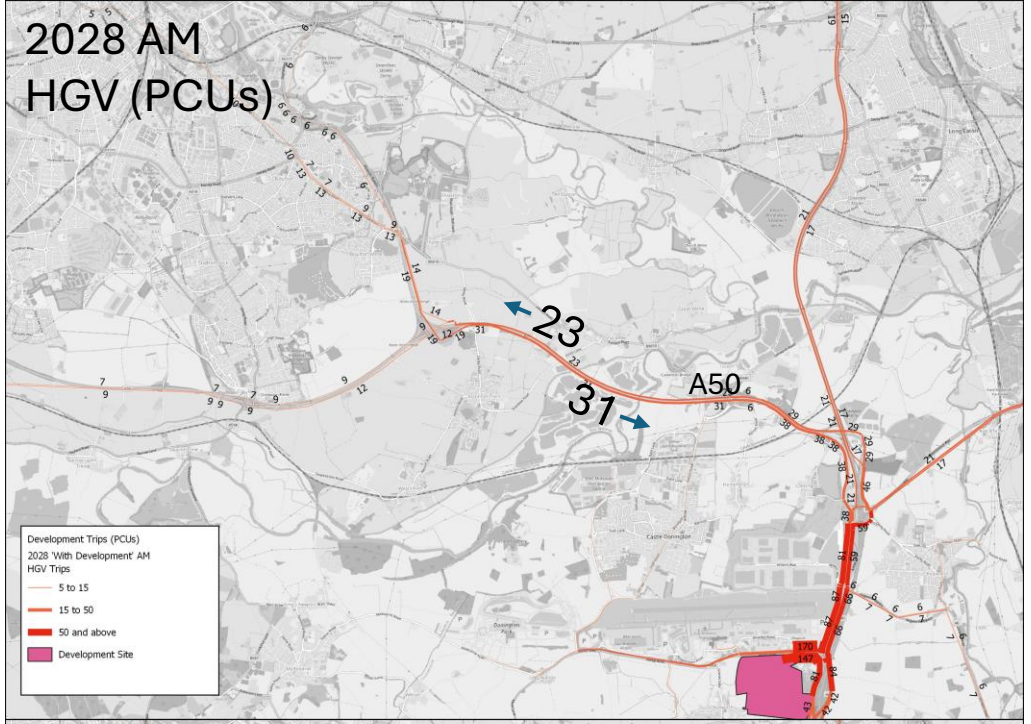
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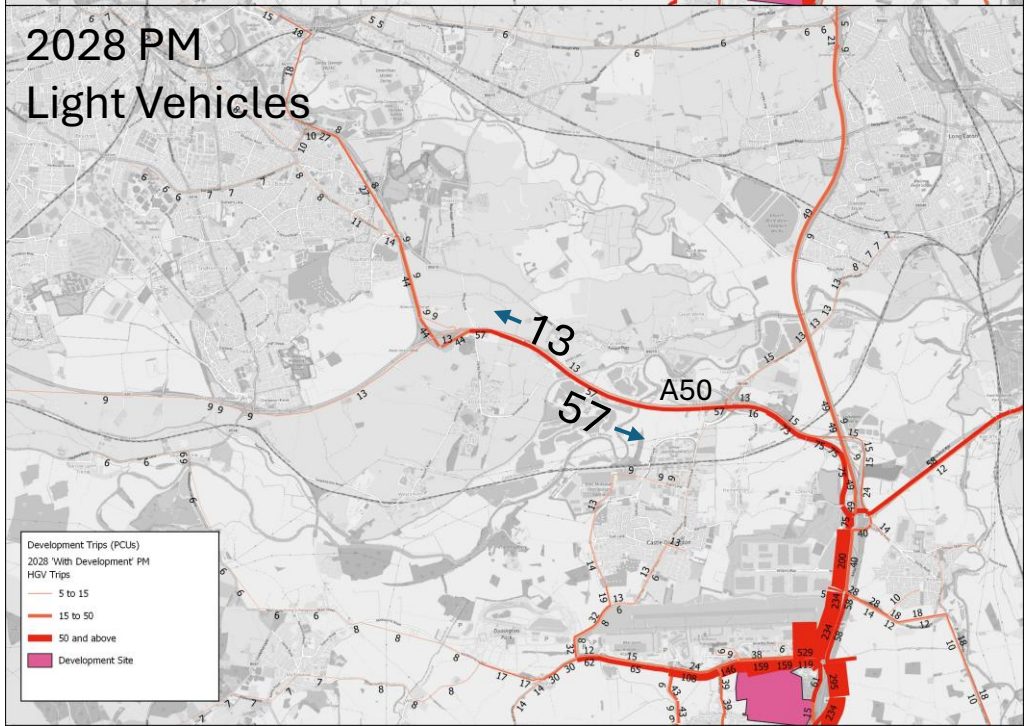
A50 Traffic Summary for Stage 1a

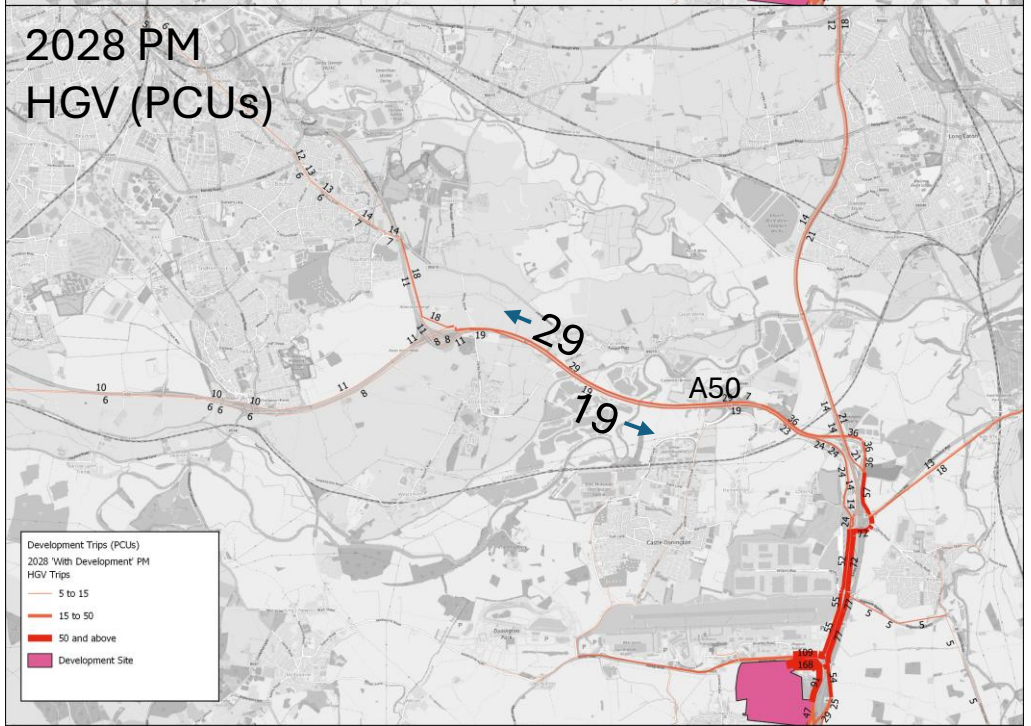
- The development trip distribution has been based on the PRTM in-built 'gravity model'.
- The figures show the forecast development trip distribution for HGVs and light vehicles on the highway network for 2028 and 2038 'With Development (1a)' scenarios in passenger car units (PCUs).
- The development traffic on the A50 is summarised in the table below. The traffic flows are similar between 2028 and 2038. These traffic volumes correspond to Figure 2-1 to 2-8 in the EMGP2 Forecasting Report.
  - The highest number of 2-way development traffic forecast on the A50 is 118 PCUs in the 2028 PM Peak scenario.

EMGP2 Development-related Trips	Light Vehicles				HGVs (in PCUs. Divide by 2 to convert to vehicles)				Total (PCUs)			
	2028		2038		2028		2038		2028		2038	
	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
A50 EB	8	57	7	54	31	19	30	18	39	76	37	72
A50 WB	33	13	28	12	23	29	23	29	56	42	51	41
2-way	41	70	35	66	54	48	53	47	95	118	88	113

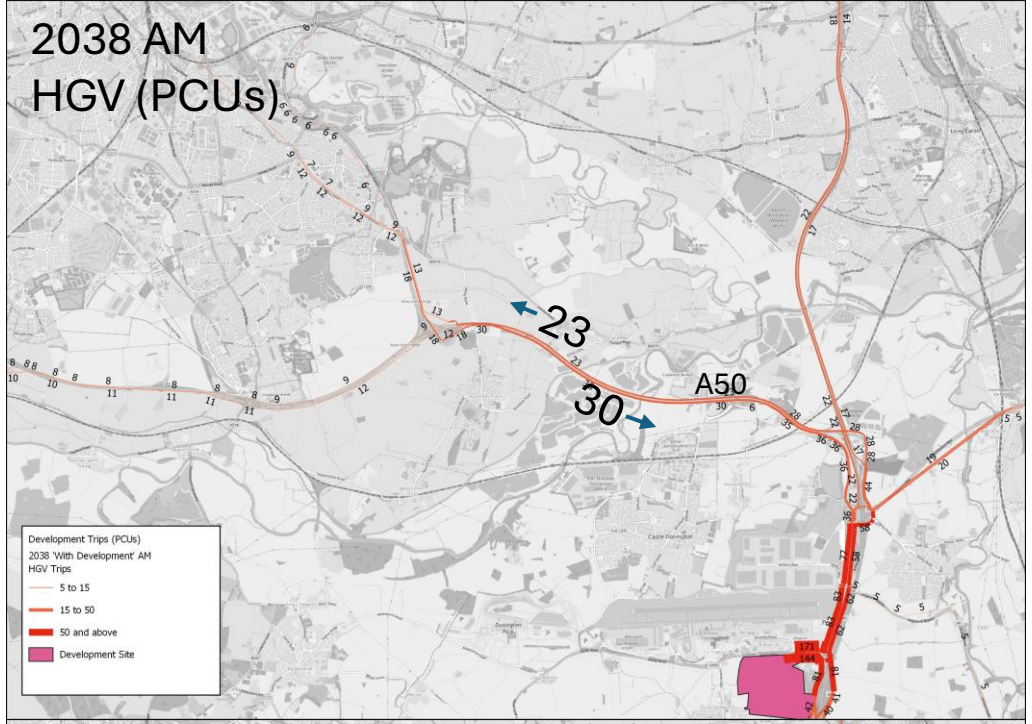

2028 AM
Light Vehicles
33
8
A50
Development Trips (PCUs)
2028 'With Development' AM
Car Trips
5 to 15
15 to 50
50 and above
Development Site

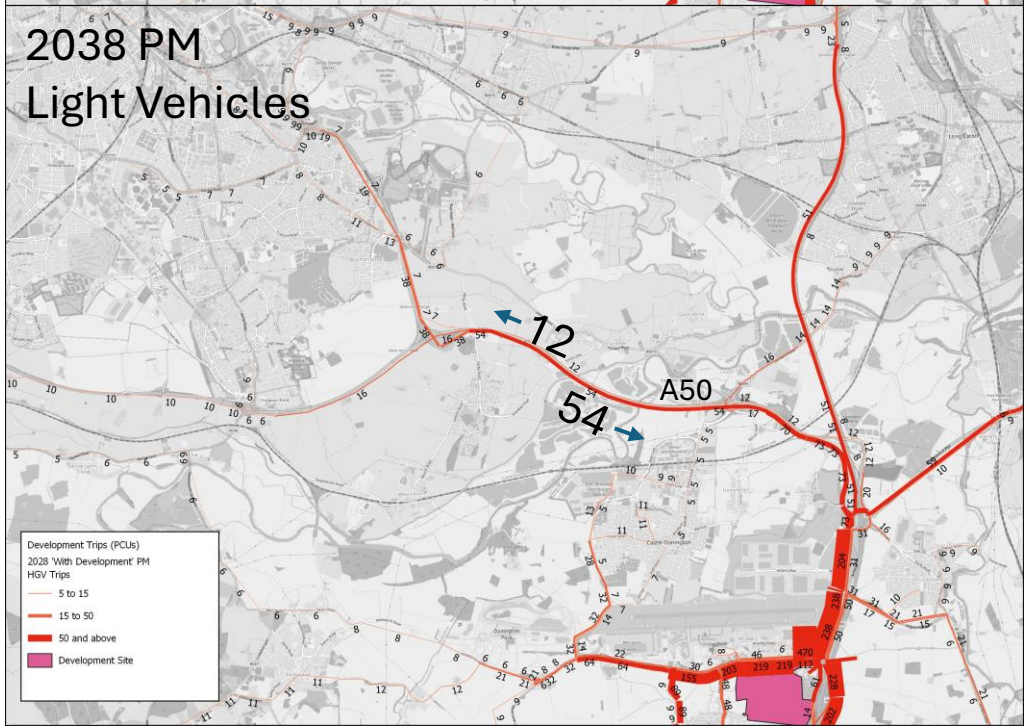

2028 AM
HGV (PCUs)
23
31
A50
Development Trips (PCUs)
2028 'With Development' AM
HGV Trips
5 to 15
15 to 50
50 and above
Development Site

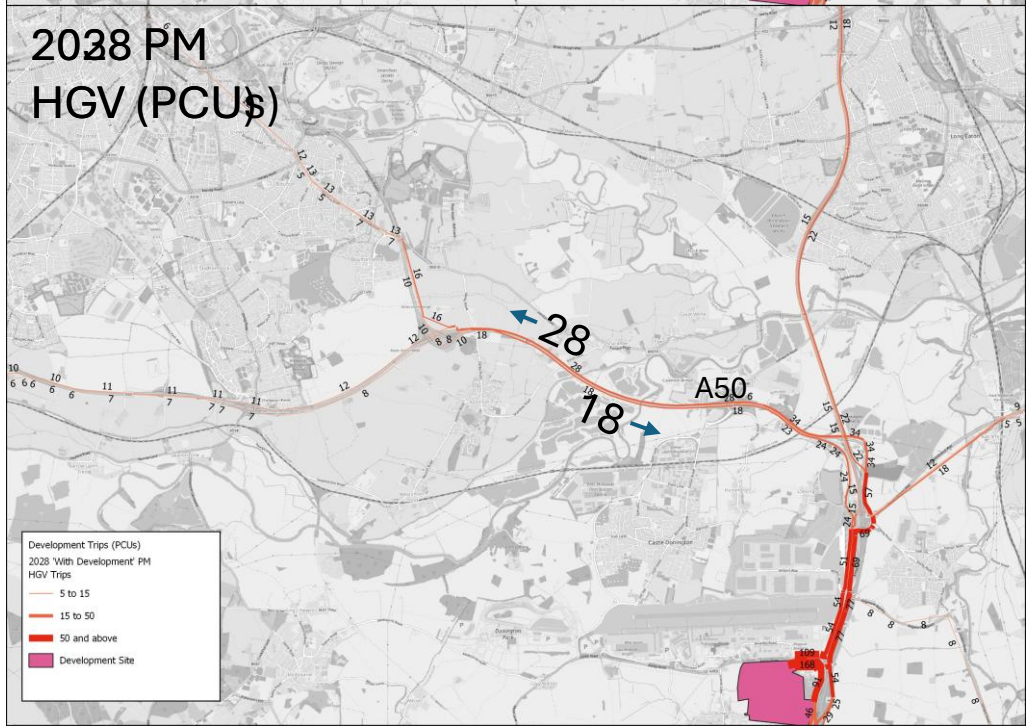

2028 PM
Light Vehicles
13
57
A50
Development Trips (PCUs)
2028 'With Development' PM
HGV Trips
5 to 15
15 to 50
50 and above
Development Site


2028 PM
HGV (PCUs)
29
19
A50
Development Trips (PCUs)
2028 'With Development' PM
HGV Trips
5 to 15
15 to 50
50 and above
Development Site


2038 AM
Light Vehicles
28
7
A50
Development Trips (PCUs)
2028 'With Development' PM
HGV Trips
5 to 15
15 to 50
50 and above
Development Site


2038 AM
HGV (PCUs)
23
30
A50
Development Trips (PCUs)
2038 'With Development' AM
HGV Trips
5 to 15
15 to 50
50 and above
Development Site


2038 PM
Light Vehicles
12
54
A50
Development Trips (PCUs)
2028 'With Development' PM
HGV Trips
5 to 15
15 to 50
50 and above
Development Site


2038 PM
HGV (PCUs)
28
18
A50
Development Trips (PCUs)
2028 'With Development' PM
HGV Trips
5 to 15
15 to 50
50 and above
Development Site

APPENDIX 45: EMFM Stage 1B Modelling Forecasting Report Addendum (document reference East Midlands Gateway Phase 2: Forecasting Report Addendum Stage 1b v1.0)



EMFM 2019

East Midlands Gateway Phase 2: Forecasting Report Addendum (Stage 1b)

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Quality Information

Prepared by	Checked by	Approved by
Billy Wong	Jonathan Morrow	Mark Dazeley
Principal Consultant	Associate Director	Regional Director

Revision History

Revision	Revision date	Details	Authorised	Name	Position
v1.0	2025-03-13	For Issue	Yes	Mark Dazeley	Regional Director

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Section 1 – Overview

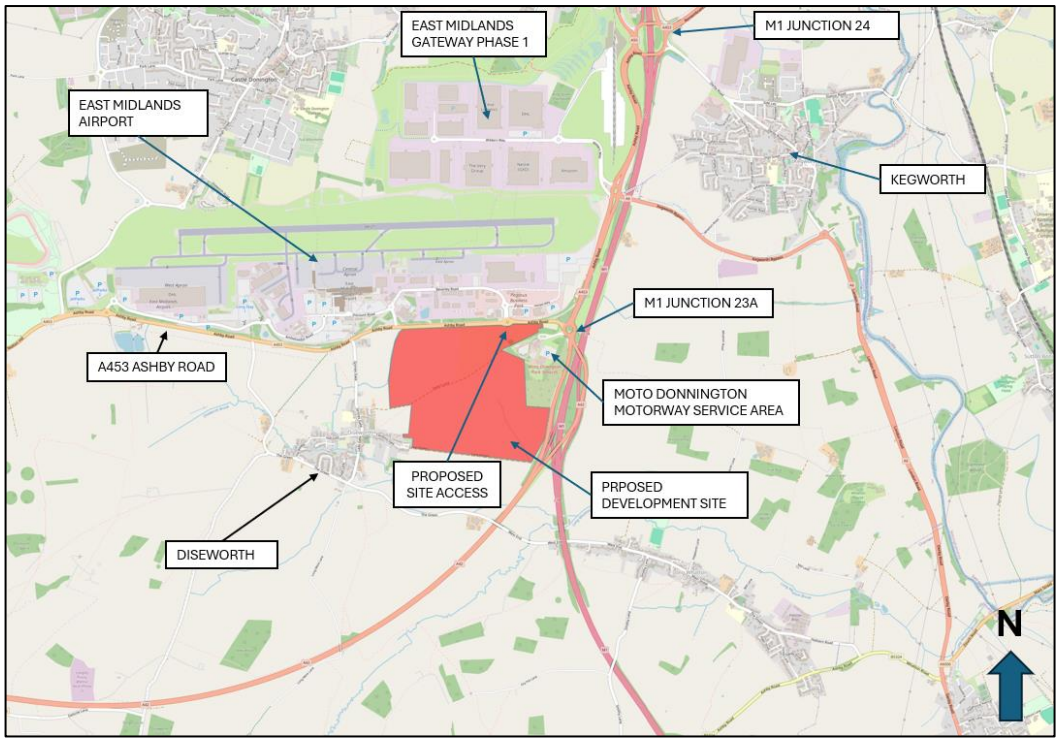
1.1 Introduction

1.1.1 The East Midlands Gateway (EMG) Phase 2 development is a proposed employment development of mixed B2 (general industrial) and B8 (storage or distribution) use, with capacity for 400,000sqm floorspace (300,000sqm ground floorspace and 100,000sqm of B8 mezzanine floorspace) of industrial use, comprising 340,000sqm B8 and 60,000sqm B2. In addition to this, 30,000sqm of B8 floorspace is proposed on EMG Phase 1 (Plot 16).

1.1.2 The development site is located to the south of East Midlands Airport in Leicestershire and west of the A42 and is expected to build out by 2031.

1.1.3 Figure 1.1 shows an indication of the location of the proposed EMG Phase 2 development, denoted by the area shaded in red. The proposed development has a total area of circa 250 acres located to the south of the A453 and East Midlands Airport itself, to the east of Diseworth village. M1 Junction 23a lies to the east of the site with the Moto Donnington Motorway Service Area (MSA) directly abutting to the north-east.

Figure 1.1: Location of Proposed Development[1]



© *OpenStreetMap Contributors*

1.1.4 The proposed EMG Phase 2 development will access the highway network via a single point of access:

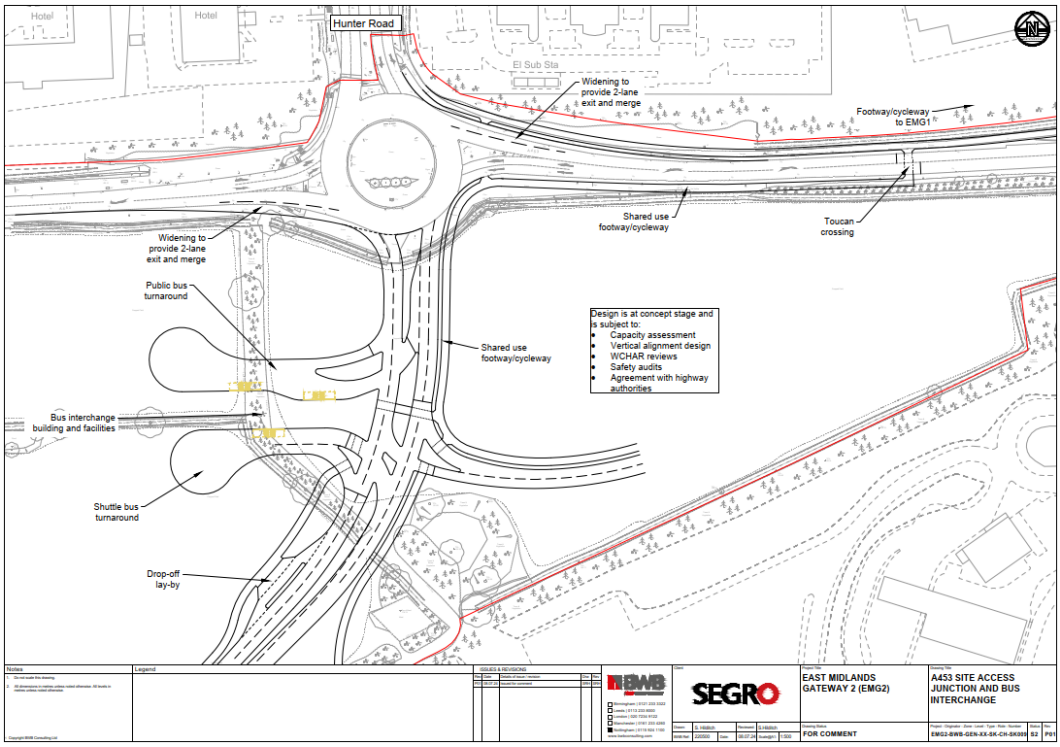
- a fourth arm off the existing A453 / Hunter Road roundabout, as shown in Figure 1.2.

1.1.5 The proposed EMG Phase 1 (Plot 16) development will access the highway network via:

- the existing access via Wilder's Way.

[1] Location of Proposed Development adapted from Technical Note 1 – Transport Scoping Note, East Midlands Gateway Phase 2 (EMG-BWB-GEN-XX-RP-TR-0001_TN1 Transport Scoping Note-S1-P3.pdf). Provided as part of the information pack with the PRTM Development Form for East Midlands Gateway Phase 2.

Figure 1.2: Site Access Junction2



1.1.6 AECOM has been commissioned to undertake strategic modelling to assess the potential traffic impacts of the proposed development using the East Midlands Freeport Model (EMFM) for the AM Peak (08:00 to 09:00) and PM Peak (17:00 to 18:00) hours.

1.1.7 The strategic modelling assessment for the proposed EMG Phase 2 development will be undertaken in three stages, as follows:

Stage 1a modelling (Proforma 14)

- 2022/2023/2024 'Without Development';
- 2028/2038 'Without Development (1a)' without EMG Phase 2 development (with all Freeport and Local Plan sites (as listed in Paragraph 1.1.8)); and
- 2028/2038 'With Development (1a)' with EMG2 development (with all Freeport and Local Plan sites (as listed in Paragraph 1.1.8)).

Stage 1b modelling (Proforma 14a)

- 2028/2038 'Without Development (1b)' without EMG Phase 2 development (without Local Plan sites (as listed in Paragraph1.1.8)); and
- 2028/2038 'With Development (1b)' with EMG Phase 2 development (without Local Plan sites (as listed in Paragraph 1.1.8)).

Stage 2 modelling (details to be confirmed)

- 2028/2038 with EMG Phase 2 and with mitigation measures; and
- 2028/2038 with EMG Phase 2 construction.

[2] EMG2-BWB-GEN-XX-SK-CH-SK009 S2 P01

1.1.8 The following development sites have been proposed at the nearby Isley Woodhouse site, on land west of Castle Donington, on land to the north of Kegworth, near Junction 11 of A/M42 and East Midlands Freeport sites. The forecast assumptions for the assessment of the East Midlands Gateway Phase 2 development have included these developments for Stage 1a, but these sites have been **excluded** in Stage 1b (as reported in this addendum):

- Isley Woodhouse (Site IW1), which comprises:
  - approximately 4,500 new homes and some 23,000sqm of employment floorspace (industry and warehousing)[3].
- Land North and South of Park Lane, Castle Donington (Site CD10), which comprises:
  - around 1,076 homes[4].
- Land West of Hilltop Farm, Castle Donington (Site EMP89), which comprises:
  - around 6,000sqm of offices and 11,850sqm of industry / smaller scale warehousing (use classes B2/B8)[4].
- Land North of Remembrance Way (A453) and Land North of Derby Road (A6), Kegworth (Site EMP73)[4], which comprises:
  - around 30,000sqm of industry / small scale warehousing (use classes B2/B8) on Land North of Derby Road (A6) site; and
  - around 40,000sqm of industry / small scale warehousing (use classes B2/B8) on Land North of A543 Remembrance Way site.
- Land to the North of J11 A/M42 (Site EMP82)[4], which comprises:
  - 28ha of employment land for strategic distribution purposes.
- East Midlands Freeport sites, which include the Uniper site (Ratcliffe), East Midlands Intermodal Park (EMIP) site, and the East Midlands Airport Aviation Expansion site.

1.1.9 This report follows the East Midlands Gateway Phase 2 Base Year Model Review Addendum report[5], which details the calibrated 2019 base year model review and performance in the vicinity of the proposed development site.

1.1.10 This report is the addendum to the Forecasting Report[6] and documents the forecast model results for Stage 1b for the EMFM strategic modelling assessment of the proposed development. Stage 2 results will be reported separately.

1.2 Report Structure

1.2.1 Following the introduction, this report contains the following sections:

- Section 2 – Forecast Approach and Assumptions: this section details the forecast assumptions applied within this assessment of the proposed development, including the assumed development trip generation and trip distribution.
- Section 3 – Forecast Model Results: the section details the forecast results requested as part of the brief.
- Section 4– Summary of the EMFM Assessment: this section provides a summary of the assessment of the proposed development.

[3] Draft North West Leicestershire Local Plan 2020-2024 – Proposed Houring and Employment Allocation for Consultation (www.nwleics.gov.uk/files/documents/proposed_housing_and_employment_allocations/Reg%2018%20%28Site%20Allocations%29%20Consultation_final.pdf)
[4] EMGP2 Uncertainty Log v7.0 (Jul 2024).xlsx
[5] EMFM 2019 – East Midlands Gateway Phase 2: Base Year Model Review Addendum v1.0 (2024-08-19)
[6] EMFM 2019 – East Midlands Gateway Phase 2: Forecasting Report v1.0 (2025-02-04)

Section 2 – Forecast Approach and Assumptions

2.1 Introduction

2.1.1 This section sets out the forecast assumptions applied for this application of the EMFM, and the methodology adopted to create the required model forecasts.

2.1.2 The following forecast model scenarios have been produced for this version of the report:

Stage 1b modelling (Proforma 14a)

- 2028/2038 'Without Development (1b)' without EMG Phase 2 development (without Local Plan sites (as listed in Paragraph 1.1.8)); and
- 2028/2038 'With Development (1b)' with EMG Phase 2 development (without Local Plan sites (as listed in Paragraph 1.1.8)).

2.1.3 The EMFM is a highway assignment model, linked to and derived from the PRTM (Pan-Regional Transport Model). For the development of the 2028 and 2038 'Without Development' scenarios, an existing process to take the highway demand growth from the wider PRTM has been applied. Section 2.2 provides the 'Without Development' assumptions applied.

2.1.4 To produce the 'With Development (1b)' forecasts, the highway demand for the proposed development has been added to the EMFM 2028 'Without Development (1b)' and 2038 'Without Development (1b)' highway demand matrices and assigned in the EMFM. To estimate the development trip distribution, the gravity model within the PRTM has been used. Sections 2.3 to 2.5 provide the highway network and demand assumptions for the proposed development.

2.1.5 For information, both the EMFM and PRTM use the May 2024 TAG data book. This was the latest available TAG data book at the time of calibrating the version of PRTM that underpins the EMFM. The EMFM was calibrated using the draft November 2022 TAG data book, again the latest TAG data book available during calibration. However, EMFM was updated to use the May 2024 TAG data book for this application. The impact on the 2019 base year modelled flows due to the update of the TAG data book was not considered material with most links having an absolute difference of fewer than 25 PCUs (Passenger Car Unit). The EMFM 2019, East Midlands Gateway Phase 2: Base Year Model Review Addendum (update to May 2024 TAG data book) (19/08/24) provides more detail.

2.2 'Without Development' Assumptions

2.2.1 The forecast planning and infrastructure schemes, in the format of an uncertainty log, were reviewed by the client and stakeholders.

2.2.2 Appendix A presents the planning data assumptions (residential and employment) within North West Leicestershire that have been incorporated in the forecast modelling. Given the number of developments in the uncertainty log, the reporting of the planning data are limited to residential sites with more than 500 dwellings and employment sites with more than 750 jobs. All available data that should be used in the modelling, irrespective of size, have been used in the model forecasts. The complete list of the planning assumptions, including data for neighbouring districts such as Rushcliffe, is included in the East Midlands Gateway Phase 2 Uncertainty Log v7.0[7].

2.2.3 Appendix B presents the forecast assumptions for the highway network for this application.

2.2.4 As discussed in Paragraph 2.1.3, the EMFM is a highway assignment model, and a process to take the highway demand growth from the wider PRTM has been applied. Planning data assumptions (housing and employment) have been input into the PRTM and the full PRTM has been run for 2028 and 2038. Planning forecasts were unconstrained (NTEM minimum[8]) for this application as noted in the proposal[9].

[7] EMGP2 Uncertainty Log v7a.0 (Oct 2024).xlsx
[8] In the event that the planning data lead to below NTEM / TEMPro growth, the model reverts to NTEM / TEMPro as minimum.
[9] EMFM 2019 Fee Proposal – East Midlands Gateway Phase 2 v2.0 (2024-07-18)

2.3 Proposed Development Access Assumptions

2.3.1 To produce the 'With Development' network for 2028 and 2038, the assumed site accesses for the proposed development, as discussed in Paragraph 1.1.4, were added in the relevant 'Without Development' networks.

2.3.2 A development zone has been used to represent the proposed East Midlands Gateway Phase 2 development.

2.4 Proposed Development Trip Generation Assumptions

2.4.1 Development trip generation data for the proposed development were provided by the client which have been reproduced in Table 2.1.

Table 2.1: Development Trip Generation (2028 and 2038)[10]

	Light Vehicle Trips (in veh)			HGV Trips (in veh)			All (in veh)		
	Departing (Out)	Arriving (In)	Total	Departing (Out)	Arriving (In)	Total	Departing (Out)	Arriving (In)	Total
East Midlands Gateway Phase 2 Development - Employment B2 (60,000sqm)									
AM Peak hour (08:00 to 09:00)	34	226	**260**	8	10	**18**	43	235	**278**
PM Peak hour (17:00 to 18:00)	218	28	**246**	4	2	**6**	222	30	**252**
East Midlands Gateway Phase 2 Development - Employment B8 (340,000sqm)									
AM Peak hour (08:00 to 09:00)	44	411	**455**	78	65	**143**	122	476	**598**
PM Peak hour (17:00 to 18:00)	476	136	**612**	51	85	**136**	527	221	**748**
East Midlands Gateway Phase 2 Development Total									
AM Peak hour (08:00 to 09:00)	78	637	**715**	86	75	**161**	165	711	**876**
PM Peak hour (17:00 to 18:00)	694	164	**858**	55	87	**142**	748	250	**998**
East Midlands Gateway Phase 1 (Plot 16) Development Total									
AM Peak hour (08:00 to 09:00)	4	36	**40**	7	6	**13**	11	42	**53**
PM Peak hour (17:00 to 18:00)	42	12	**54**	5	8	**13**	47	20	**67**

2.4.2 We assume that the proposed development will be fully build out (i.e. 100% occupancy) in the 2028 and 2038 'With Development (1b)" scenarios.

2.5 Proposed Development Trip Distribution Assumptions

2.5.1 It was agreed that the development trip distributions are to be based on the PRTM 'gravity model' approach.

2.5.2 Figure 2.1 to Figure 2.8 show the forecast development trip distribution separately for HGVs and light vehicles on the highway network for the 2028 and 2038 'With Development (1b)' scenarios in PCUs. For information, the PCU factor for HGV is 2.0 and the PCU factor for the other assignment vehicle types (i.e. cars and LGVs) is 1.0.

2.5.3 These figures show that the forecast HGV development traffic has a broadly similar distribution to and from the proposed development in both the AM Peak and PM Peak hours,

[10] 241010 EMGP2 PRTM Development Form rev 14.docx

and both forecast years (i.e. 2028 and 2038). HGVs are forecast to use the M1, A50 and the A453 Remembrance Way to and from Derby and the north, and the M1 and A42 to and from Leicester, Birmingham and the south.

2.5.4 For light vehicle traffic, the majority of development-related trips during the AM Peak hour in 2028 are forecast to use the M1 southbound and the A42 towards Birmingham. In the northbound direction development trips are forecast to route via the M1 and Castle Donnington Relief Road towards Derby. By 2038 AM Peak hour, a higher proportion of trips is forecast to route south from the A453 towards Diseworth to access Gelscoe Lane and the A42.

2.5.5 Light vehicle development trips from the development in the PM Peak hour in 2028 are forecast to route north via the M1, the A50, A453 Remembrance Way and south via the M1 and towards Diseworth to access the A42. This pattern is forecast in the reverse for the AM Peak hour development trips to the proposed development but with fewer trips on the M1 northbound and more trips on Castle Donnington Relief Road to avoid the congested M1 Junction 24.

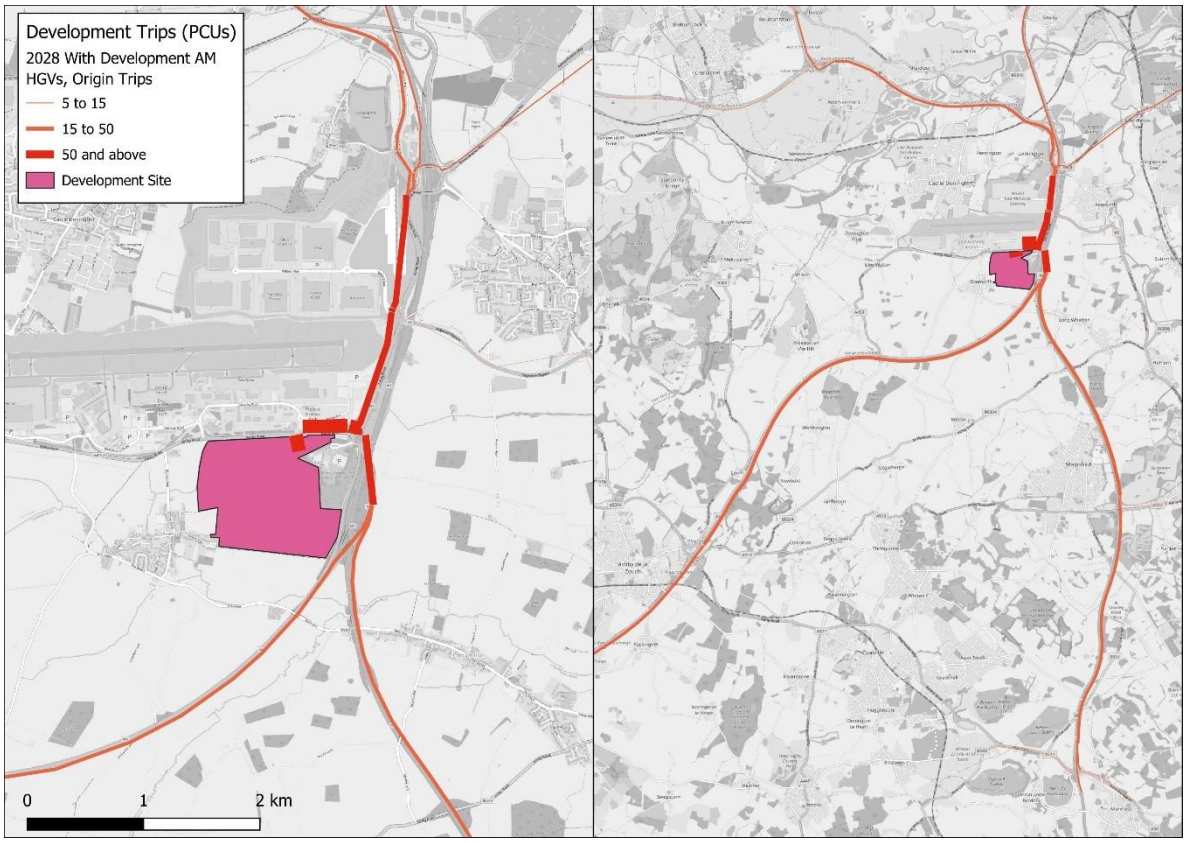
2.5.6 The routeing patterns for the development trips for 2038 forecast scenarios are similar to their respective patterns in 2028, although 2038 has a slightly higher proportion of development trips on local roads and fewer on the SRN, due to the higher congestion around the M1 Junction 24 area in the later forecast year (i.e. 2038).

2.5.7 It should be noted that the local networks through Diseworth, Castle Donington and Kegworth have HGV restrictions applied. These restrictions are represented in the EMFM, and the HGV development trips are therefore forecast to route to and from the proposed development site via mainly the SRN.

2.5.8 The majority of the development traffic distribution is largely similar to that of the ‘With Development (1a)’ scenarios documented in the Forecasting Reporting.

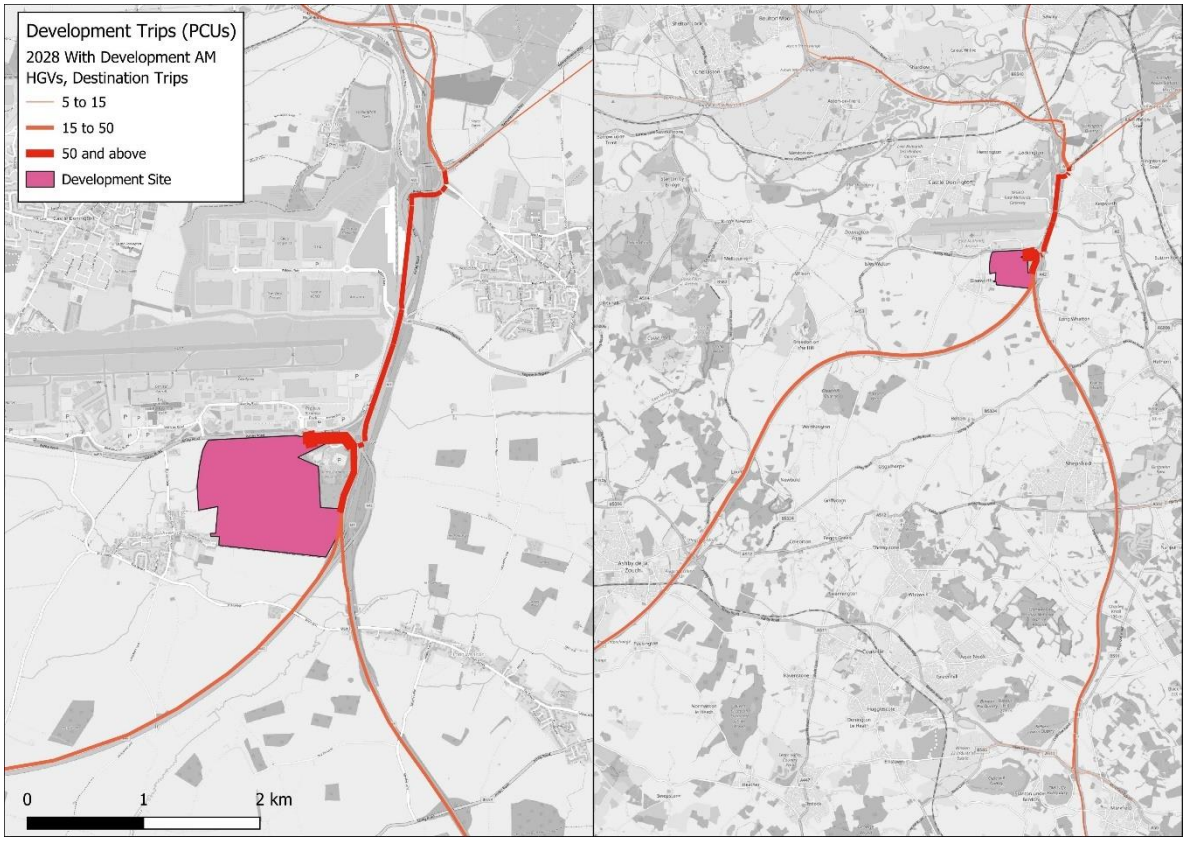
Figure 2.1: HGV Trip Distribution to and from the Proposed Development for 2028 (AM)

2028 'With Development (1b)' (AM), HGVs – From the Development



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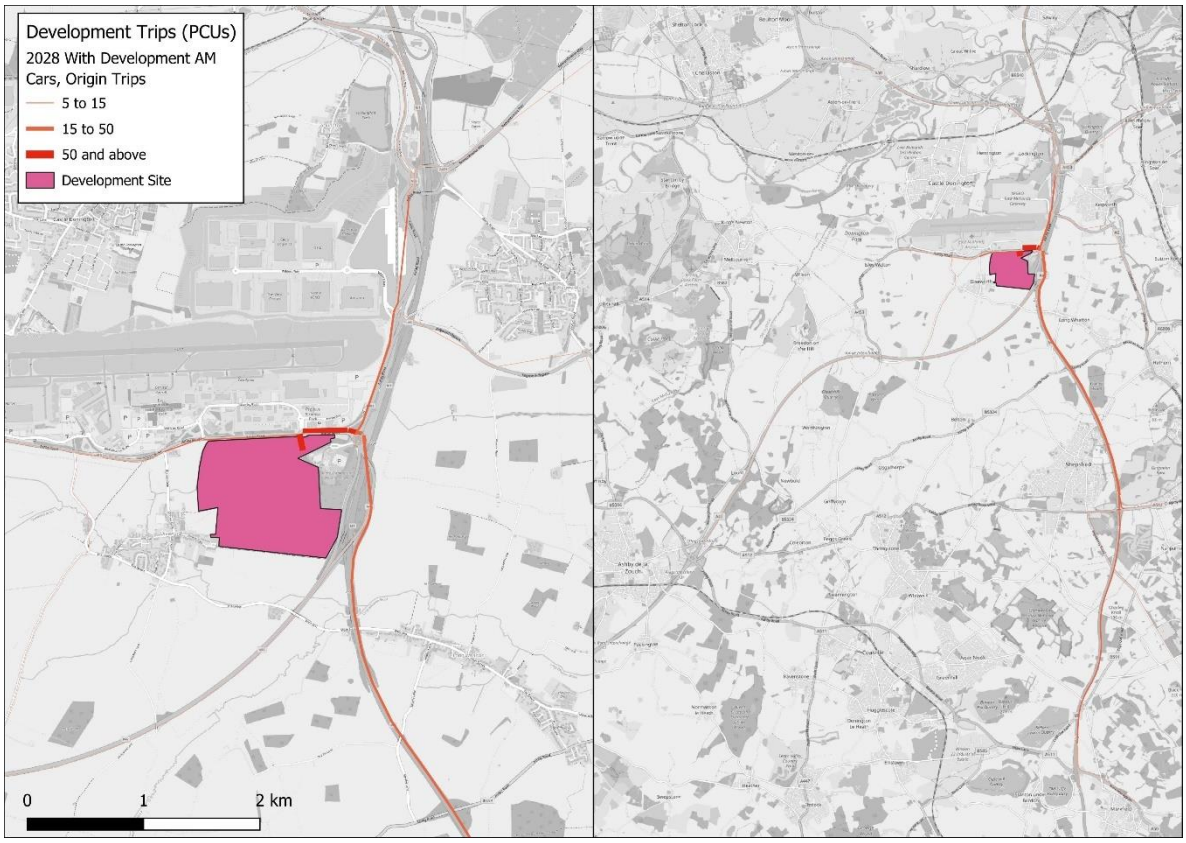
2028 'With Development (1b)' (AM), HGVs – To the Development



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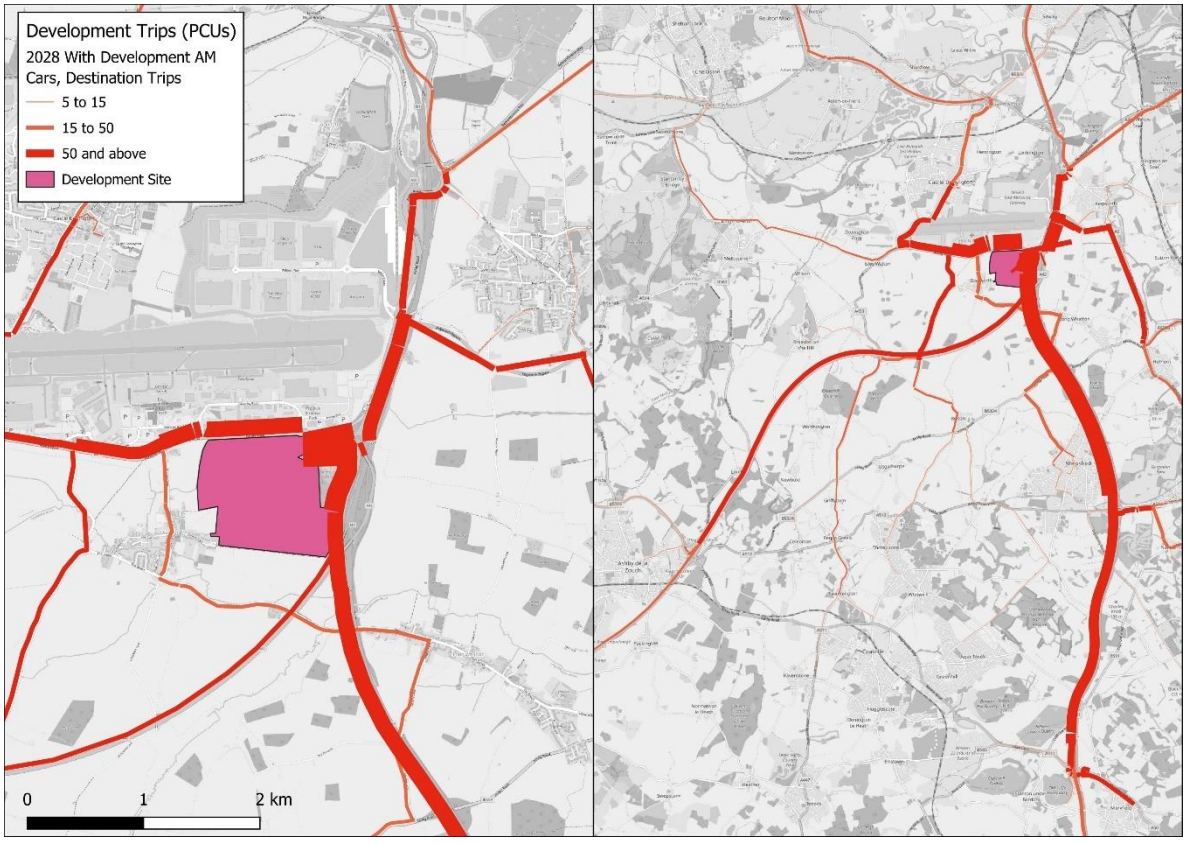
Figure 2.2: Light Vehicle Trip Distribution to and from the Proposed Development for 2028 (AM)

2028 'With Development (1b)' (AM), Light Vehicles – From the Development



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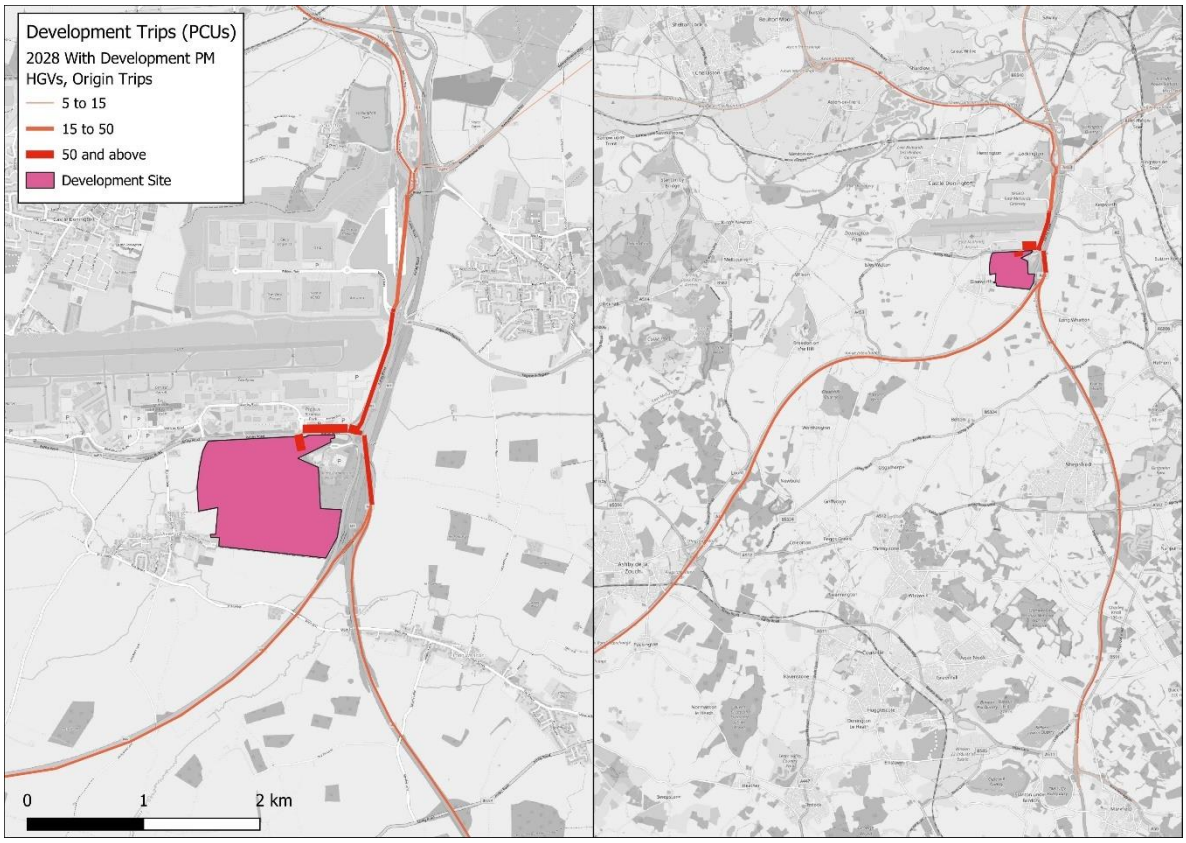
2028 'With Development (1b)' (AM), Light Vehicles – To the Development



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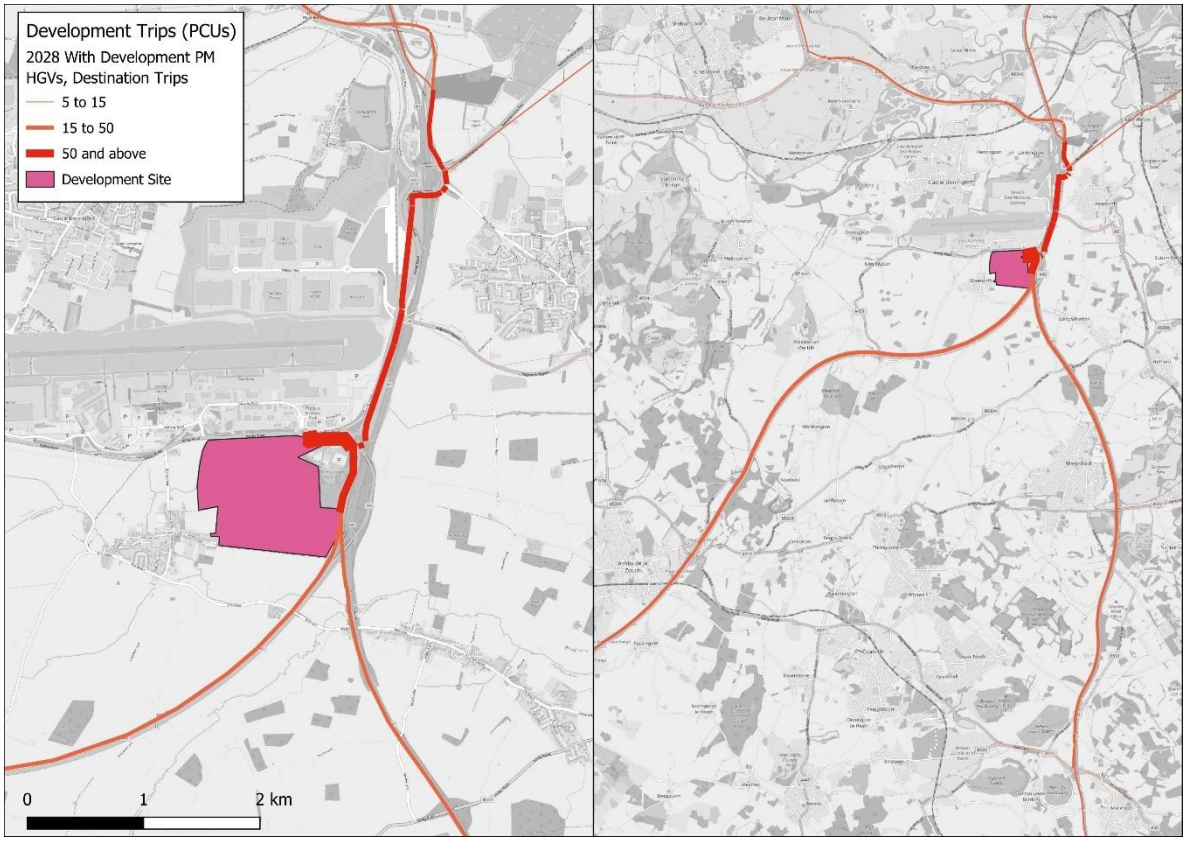
Figure 2.3: HGV Trip Distribution to and from the Proposed Development for 2028 (PM)

2028 'With Development (1b)' (PM), HGVs – From the Development



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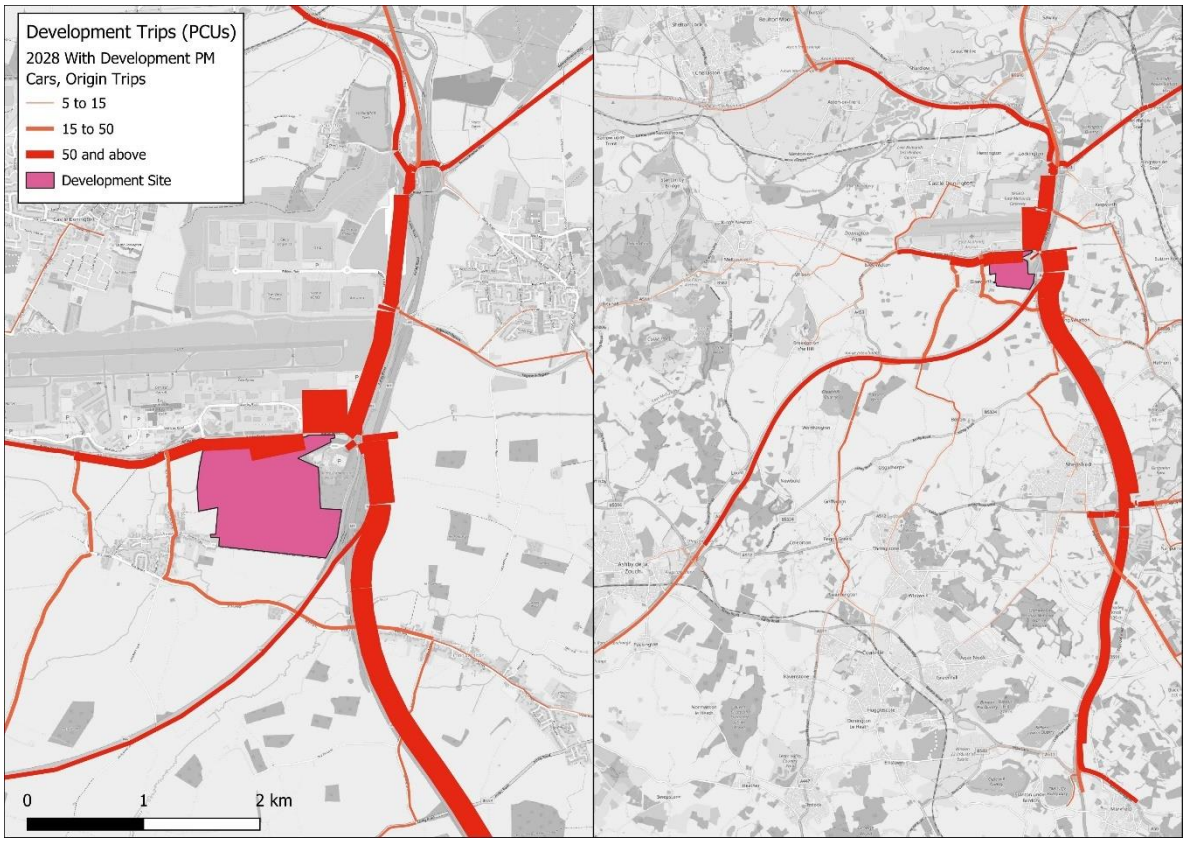
2028 'With Development (1b)' (PM), HGVs – To the Development



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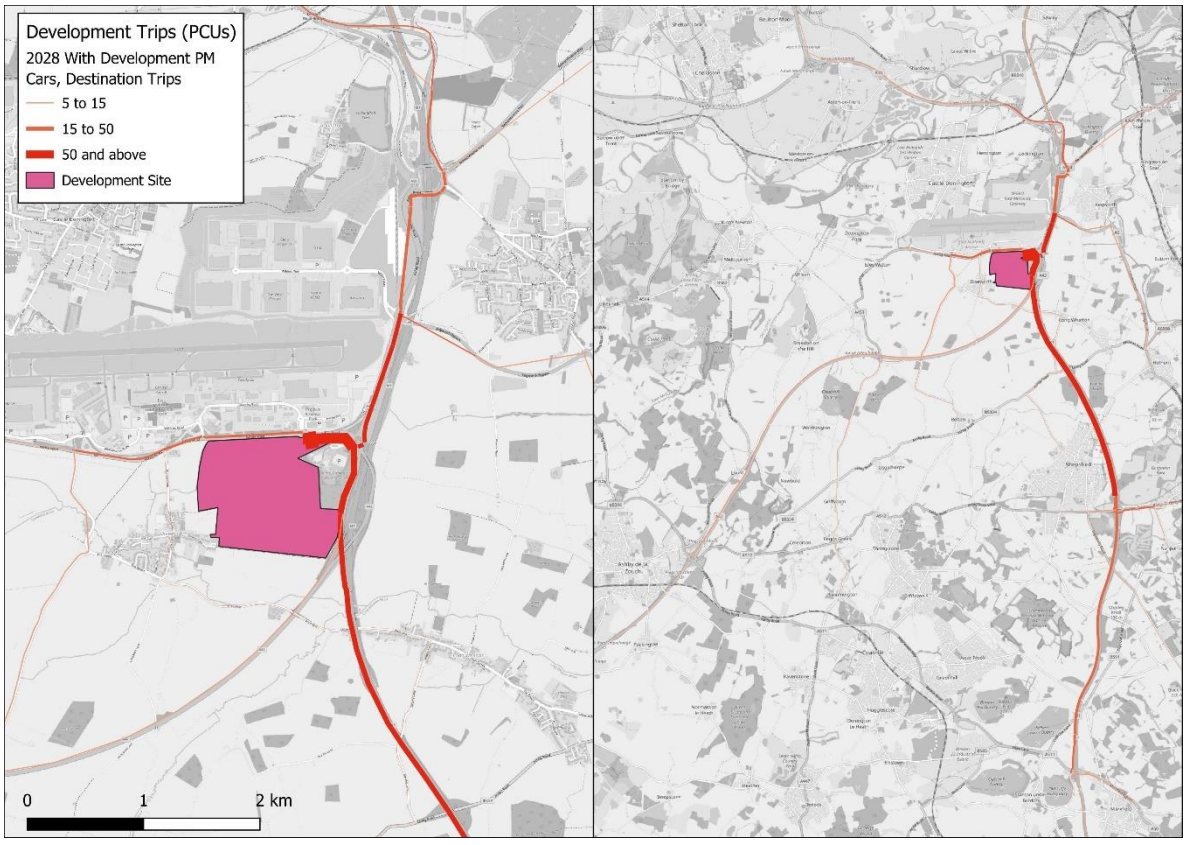
Figure 2.4: Light Vehicle Trip Distribution to and from the Proposed Development for 2028 (PM)

2028 'With Development (1b)' (PM), Light Vehicles – From the Development



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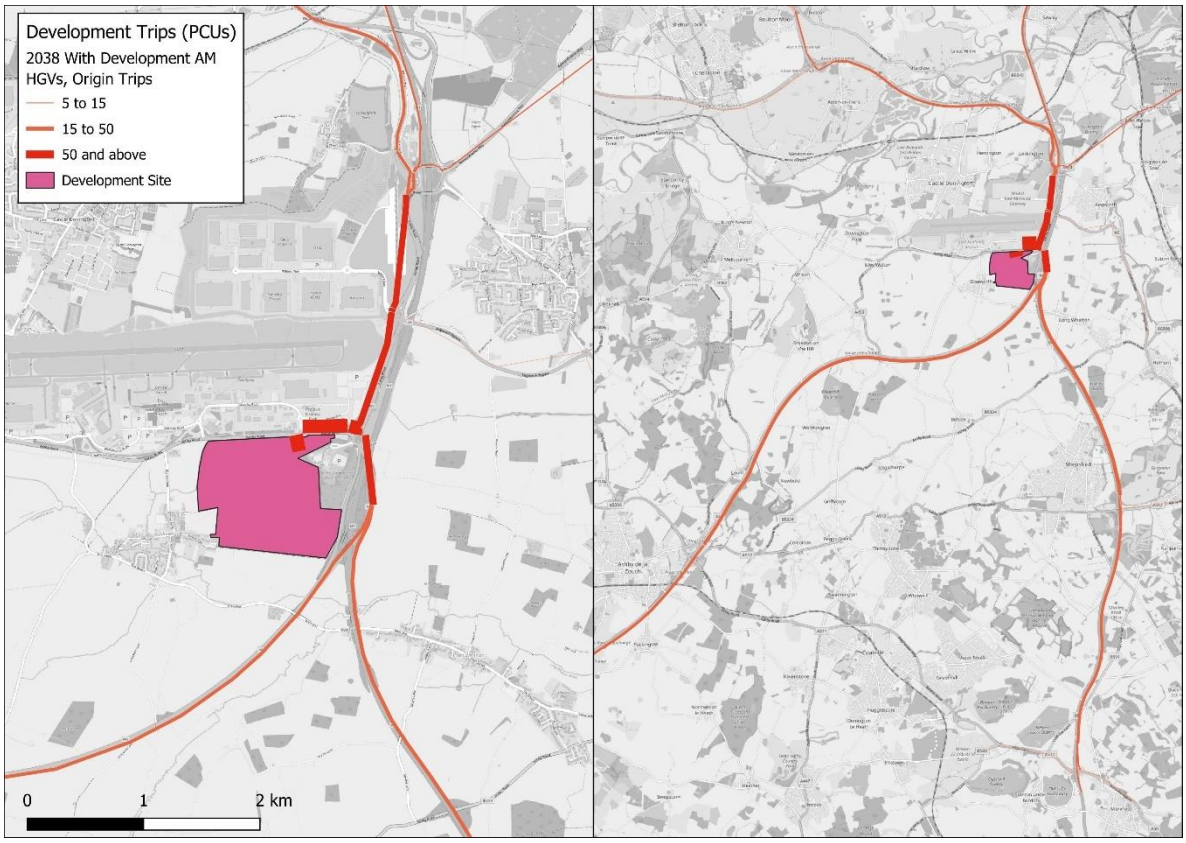
2028 'With Development (1b)' (PM), Light Vehicles – To the Development



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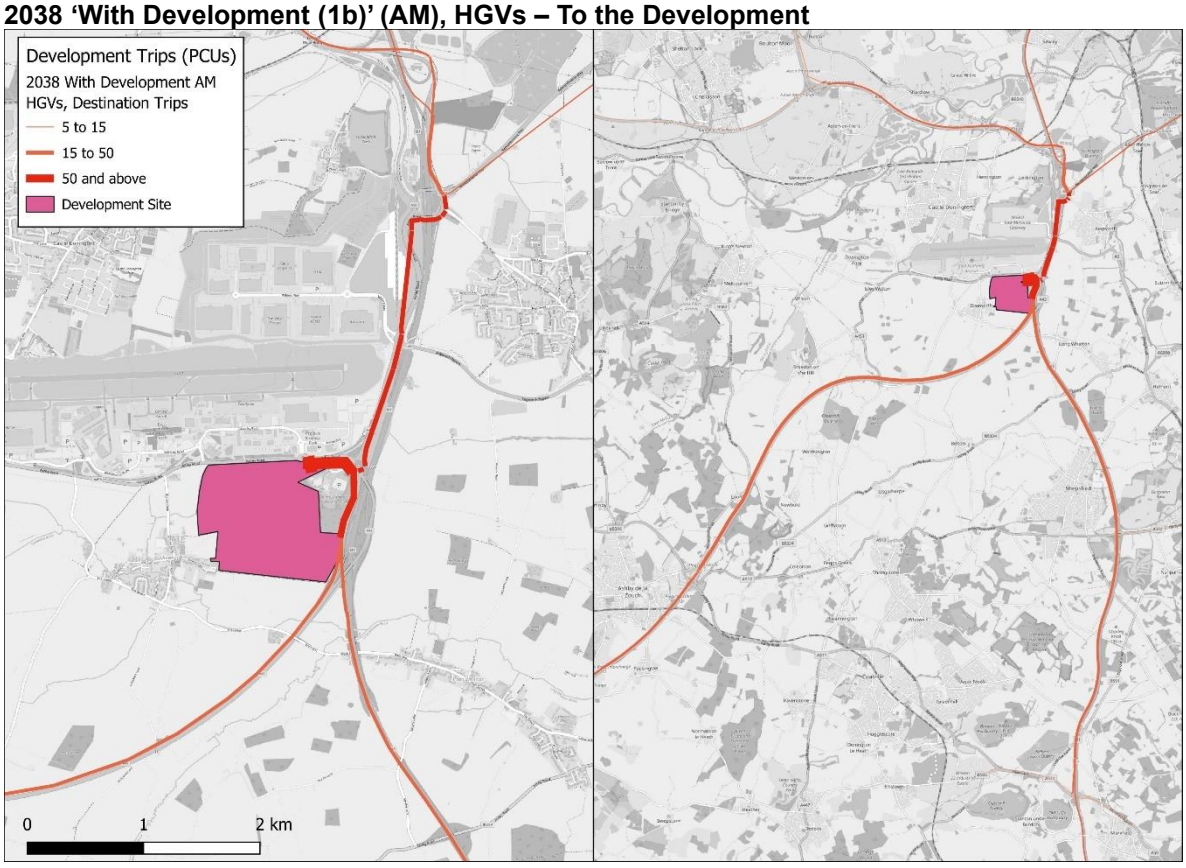
Figure 2.5: HGV Trip Distribution to and from the Proposed Development for 2038 (AM)

2038 'With Development (1b)' (AM), HGVs – From the Development



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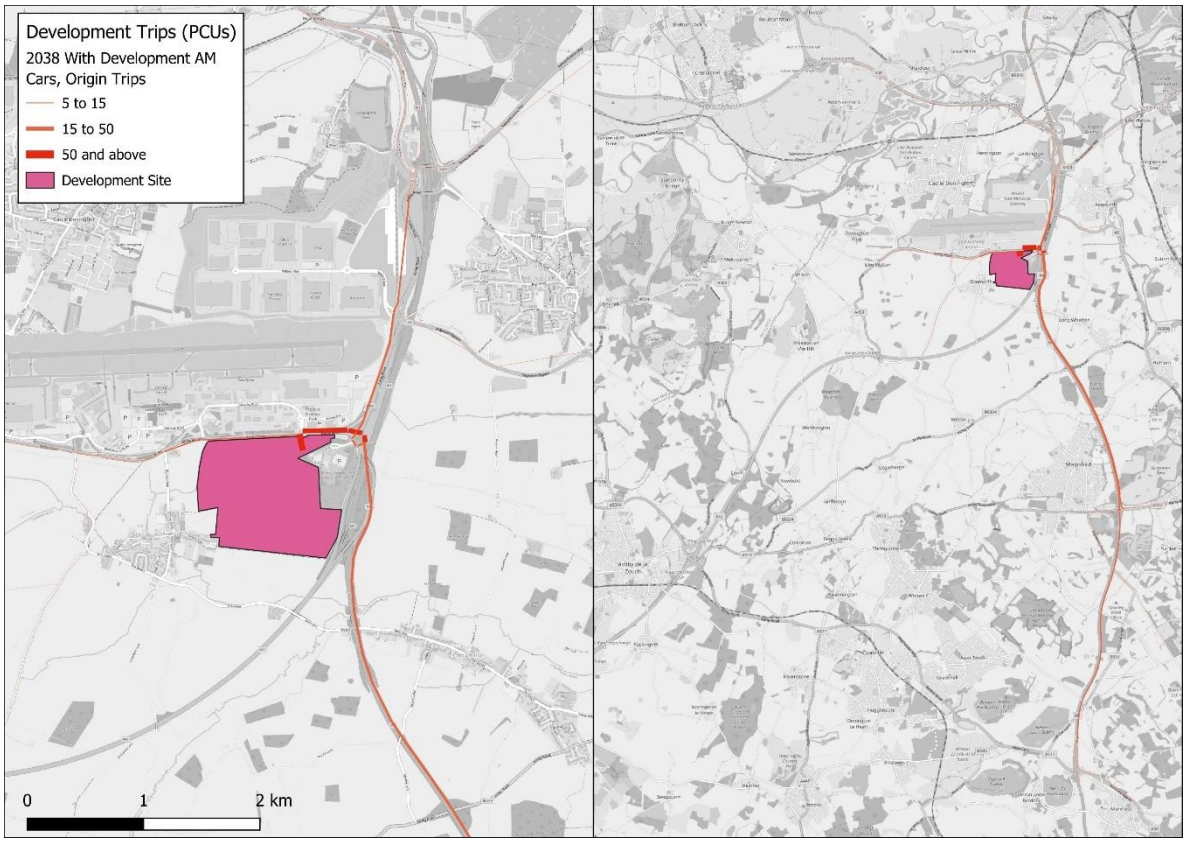
2038 'With Development (1b)' (AM), HGVs – To the Development



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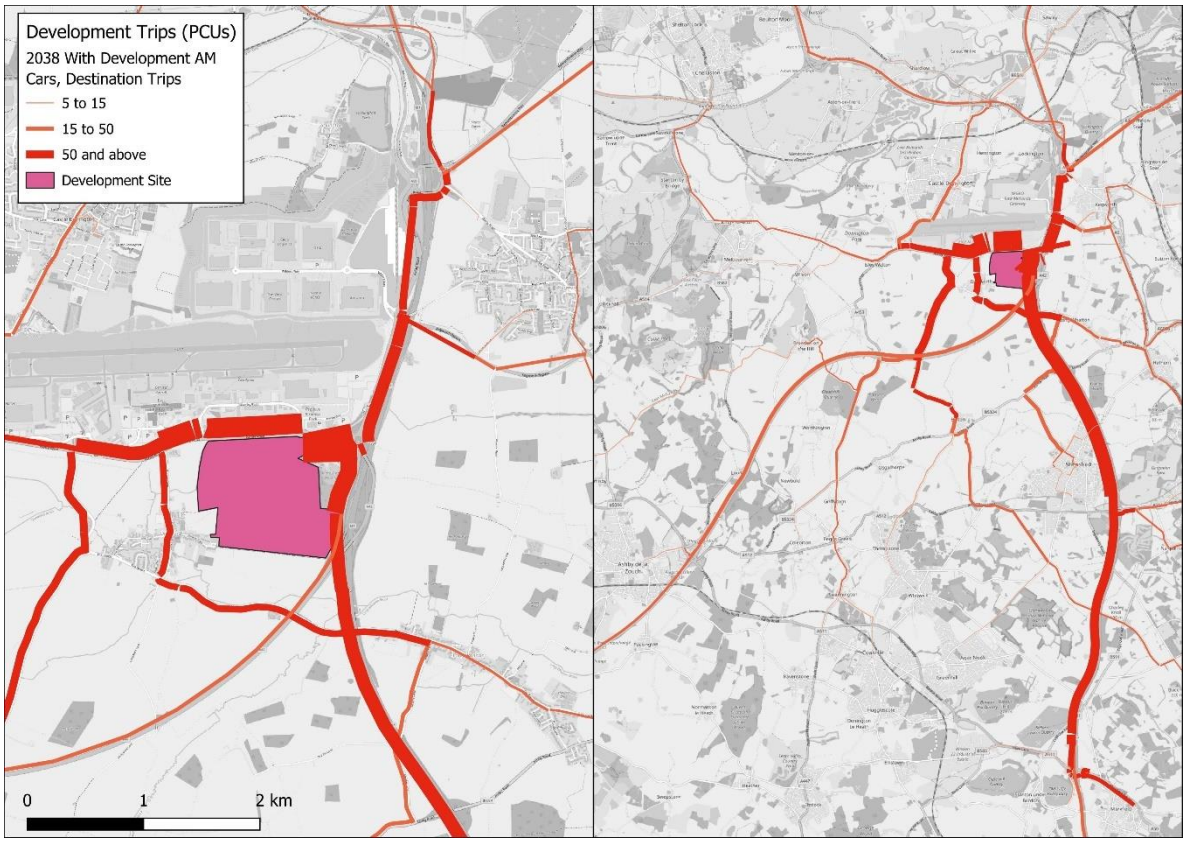
Figure 2.6: Light Vehicle Trip Distribution to and from the Proposed Development for 2038 (AM)

2038 'With Development (1b)' (AM), Light Vehicles – From the Development



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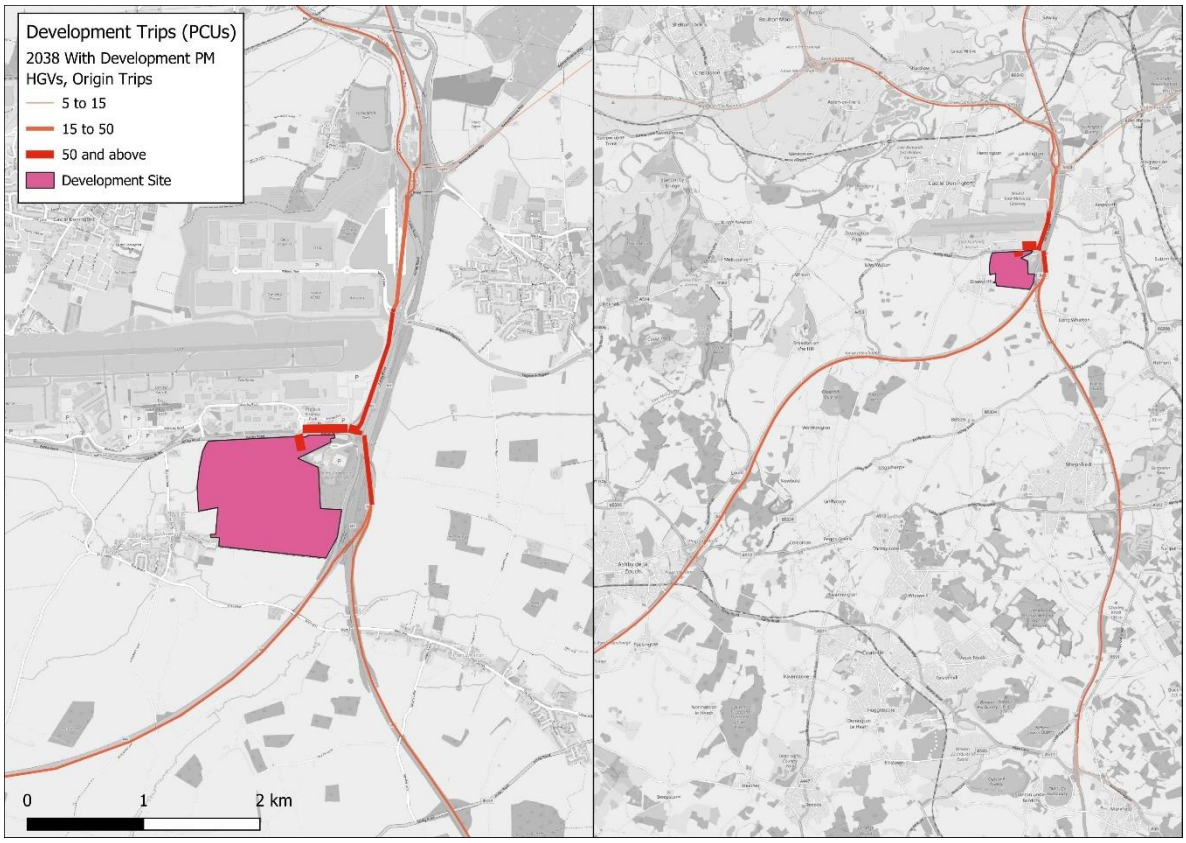
2038 'With Development (1b)' (AM), Light Vehicles – To the Development



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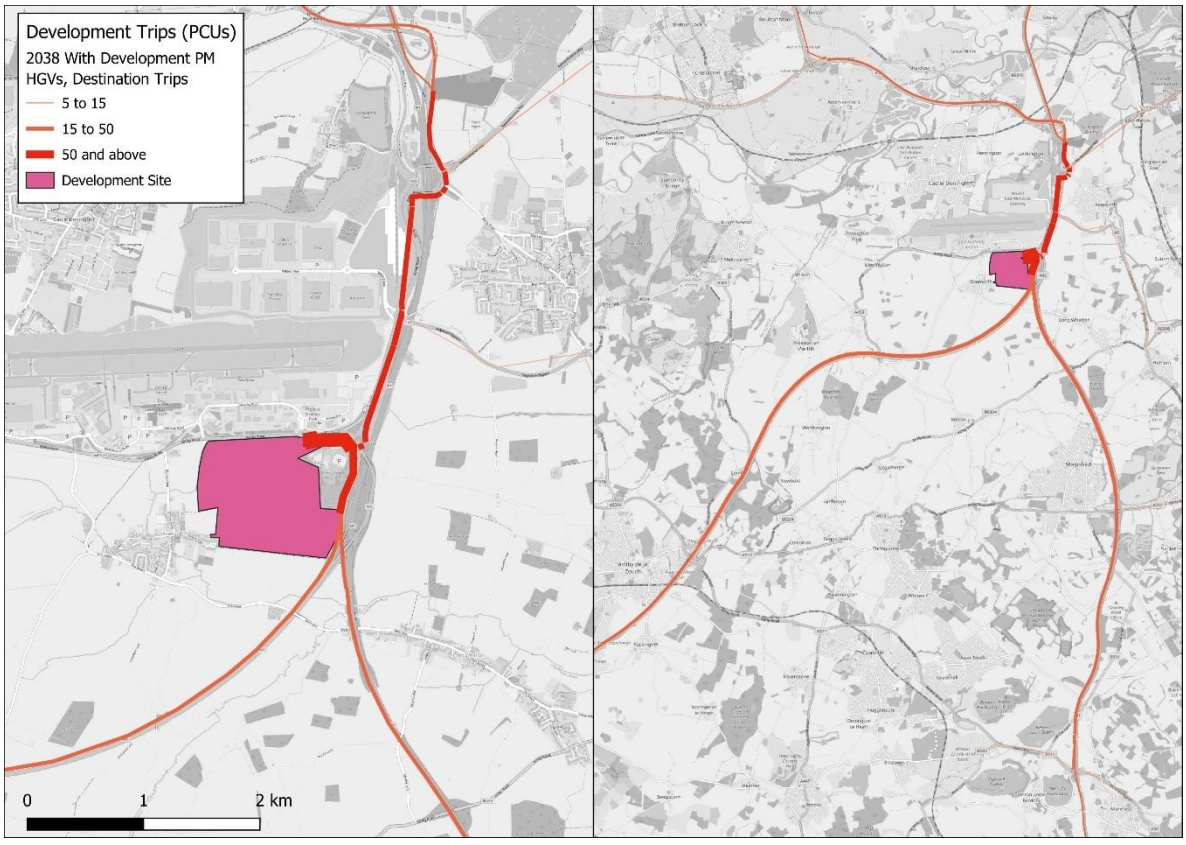
Figure 2.7: HGV Trip Distribution to and from the Proposed Development for 2038 (PM)

2038 'With Development (1b)' (PM), HGVs – From the Development



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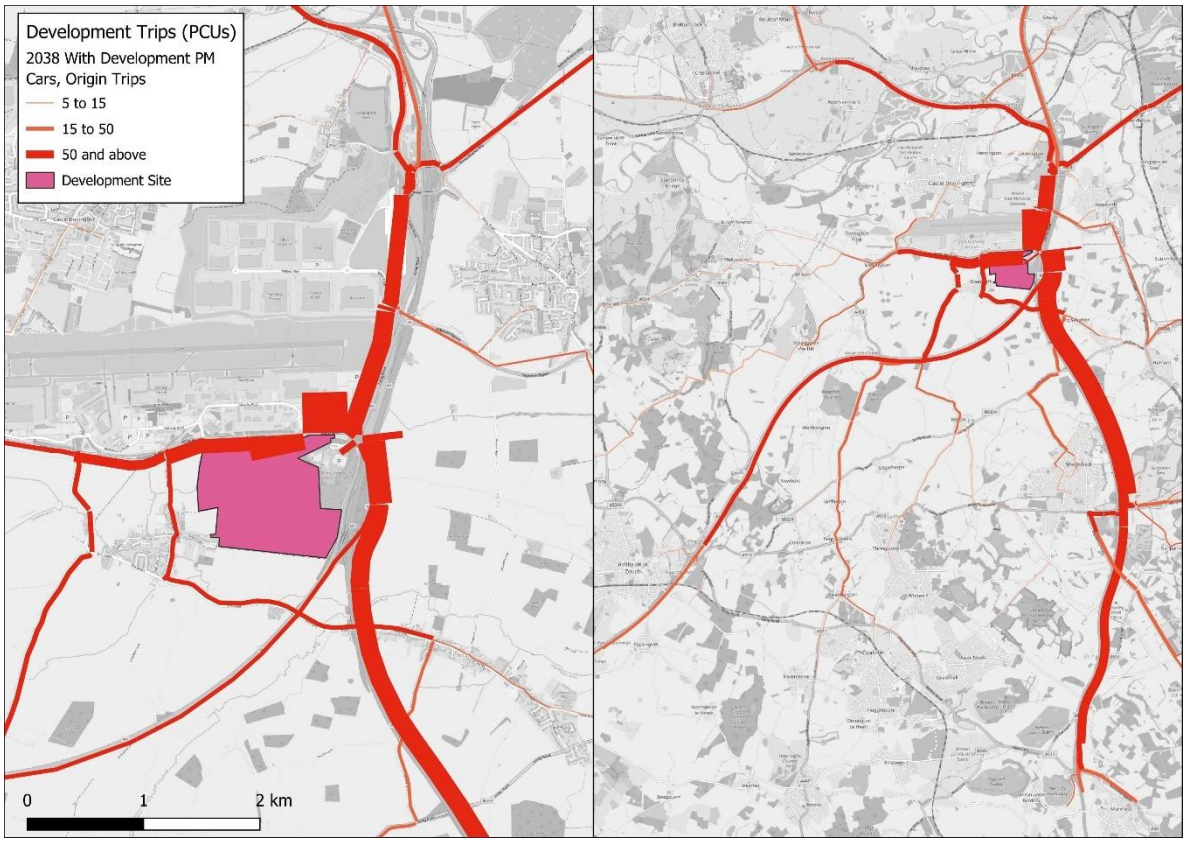
2038 'With Development (1b)' (PM), HGVs – To the Development



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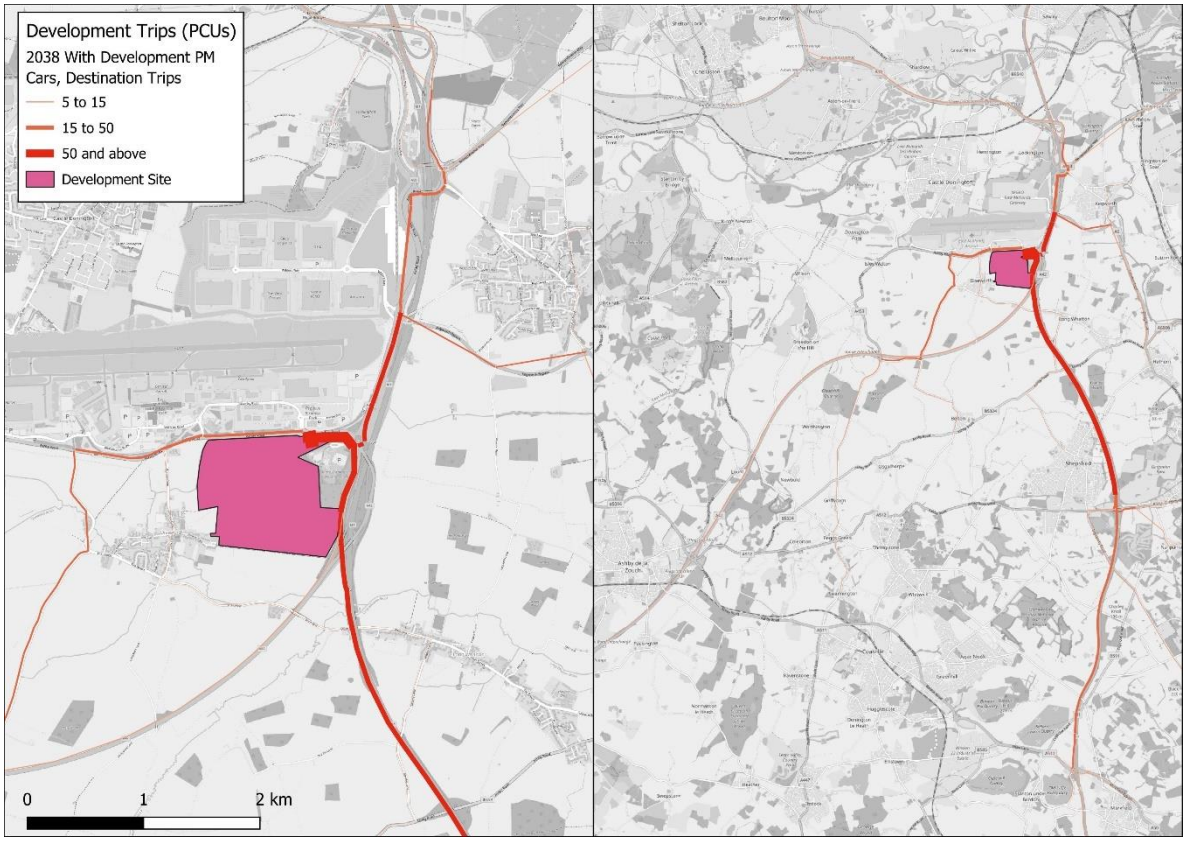
Figure 2.8: Light Vehicle Trip Distribution to and from the Proposed Development for 2038 (PM)

2038 'With Development (1b)' (PM), Light Vehicles – From the Development



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2038 'With Development (1b)' (PM), Light Vehicles – To the Development



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Section 3 – Forecast Model Results

3.1 Introduction

3.1.1 This section details the forecast model results for the proposed East Midlands Gateway Phase 2 development assessment for the AM Peak (08:00 to 09:00) and PM Peak (17:00 to 18:00) hours. The analysis includes:

- routeing of the forecast development traffic in the 2028 and 2038 'With Development (1b)' scenarios (Section 2.5 and Section 3.2);
- forecast flow changes in 2028 and 2038 between the 'With Development (1b)' and 'Without Development (1b)' scenarios (Section 3.3);
- an assessment of the Area of Influence (AoI) (Section 3.4);
- forecast delay changes in 2028 and 2038 between the 'With Development (1b)' and 'Without Development (1b)' scenarios (Section 3.6);
- forecast maximum node volume-capacity ratios in the 2028 and 2038 'With Development (1b)' scenarios (Section 3.7); and
- forecast turning flows (and volume-capacity ratios for turns) at selected junctions (Section 3.8).

3.2 Forecast Development Traffic

3.2.1 Figure 2.1 to Figure 2.8 in Section 2.5 illustrate the assigned forecast trip distribution to and from the proposed development in 2028 and 2038 for both AM Peak and PM Peak hours. These figures show that the HGV development traffic mainly routes via the SRN including the M1, A42, A50 and the A453 Remembrance Way.

3.2.2 For light vehicle development traffic, the M1 Junction 24 area is congested and has high delays, particularly in the AM Peak hour. As such, a proportion of the light vehicle trips to the development is forecast to route via Castle Donnington Relief Road and the A6 Kegworth Bypass to avoid the M1 Junction 24 and Junction 24a area.

3.2.3 The modelling shows that the light vehicle development traffic is forecast to:

- route to and from the north via the M1 and Castle Donnington Relief Road;
- route to and from the south via the M1 and M1 Junction 23a;
- route to and from the south-west using the A42 via both Diseworth and the M1 Junction 23a;
- route to and from the west via the A50, M1 Junction 24 and through Castle Donington Relief Road; and
- route to and from the east via the A453 Remembrance Way, A6 Kegworth Bypass and through the local network of Kegworth and Diseworth.

3.3 Forecast Flow Change

3.3.1 Figure 3.1 and Figure 3.2 show the forecast flow changes in 2028 and 2038 between the 'With Development (1b)' and 'Without Development (1b)' scenarios for the AM Peak and PM Peak hours. Red bandwidth represents an increase in traffic flow in the 'With Development (1b)' scenario and green bandwidth represents a decrease.

3.3.2 As expected, the largest increases in flows are forecast along the A453 in the immediate vicinity of the proposed development. The M1 and the A42 are also forecast to experience increases in flow across all modelled forecast scenarios. There is a decrease in traffic forecast on the east side of Beverley Road, particularly for the AM Peak hour. This decrease has been caused by traffic diverting off the Beverly Road / A453 / EMG Phase 2 access roundabout in the 'With Development (1b)' scenario and on to the A453 / East Midlands Airport signal-controlled junction. A high proportion of these trips is from the south routeing via Gelscoe Lane and the A42.

3.3.3 For the local network of Castle Donington, Kegworth and Diseworth, higher flows are forecast for 'With Development (1b)' scenarios when compared with the 'Without Development (1b)' scenarios. This is particularly notable for the AM Peak hour, as a proportion of the development trips is forecast to route via the local network to access / egress from the proposed development site to avoid the congested M1 Junction 24 area.

3.3.4 The majority of the forecast flow changes are largely very similar to those of Stage 1a as documented in the Forecasting Report. The large delay fluctuations that caused some traffic to reroute in the vicinity of the Derby Road / Bostocks Lane junction (to the north of the M1 Junction 25) in Stage 1a during the 2038 AM Peak hour are no longer forecast in Stage 1b.

Figure 3.1: Forecast Flow Change for 2028 'With Development (1b)' minus 'Without Development (1b)'

AM Peak hour



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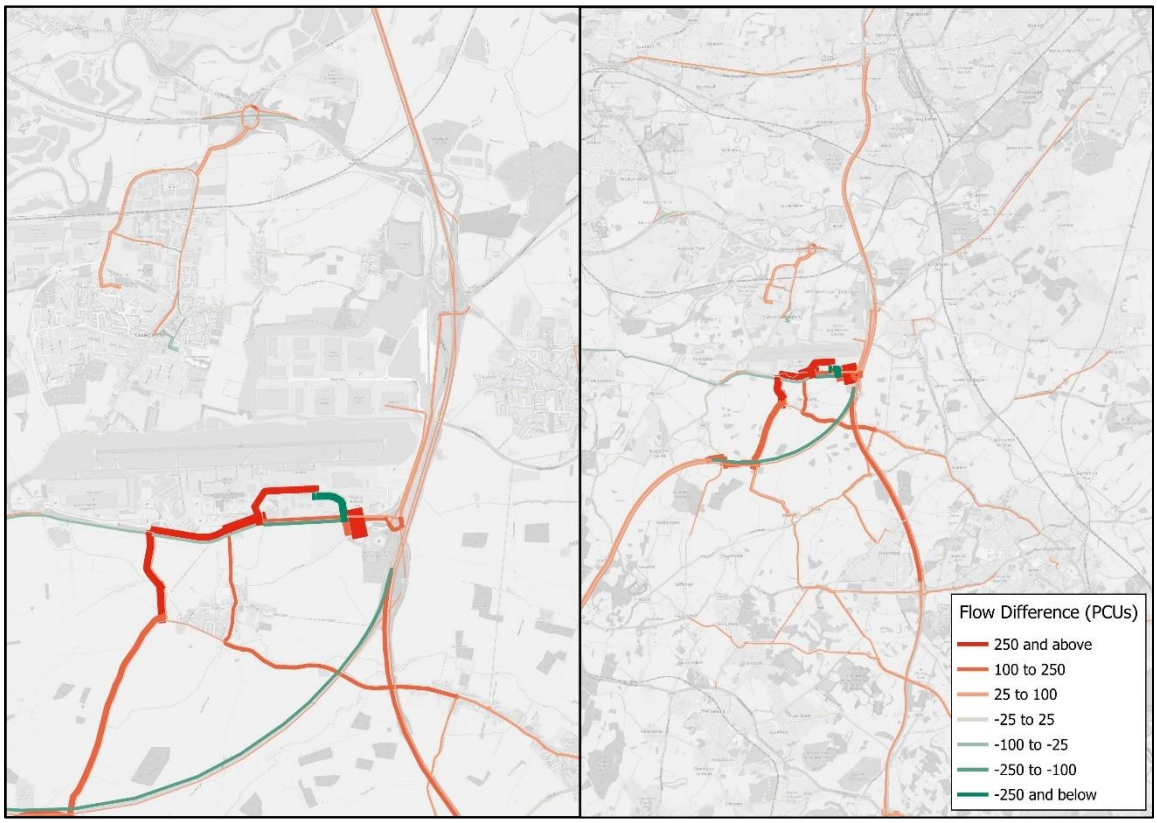
PM Peak hour



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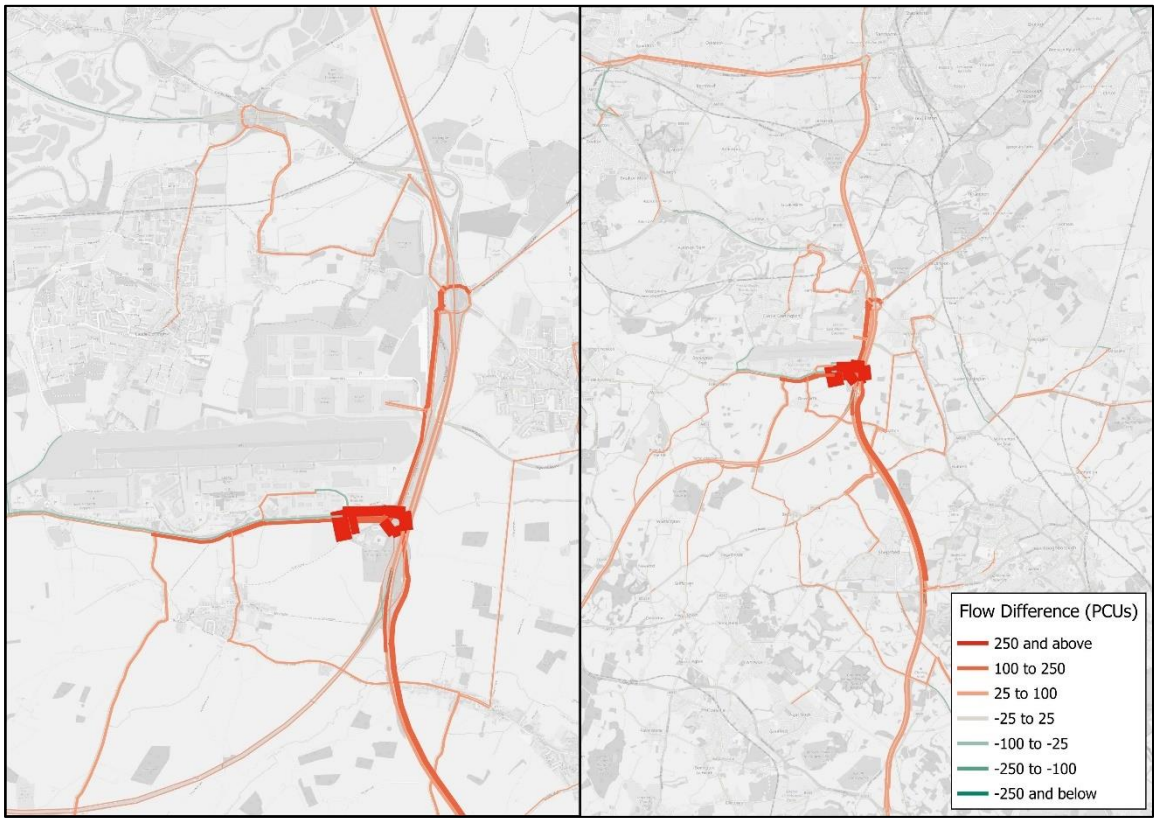
Figure 3.2: Forecast Flow Change for 2038 'With Development (1b)' minus 'Without Development (1b)'

AM Peak hour



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PM Peak hour



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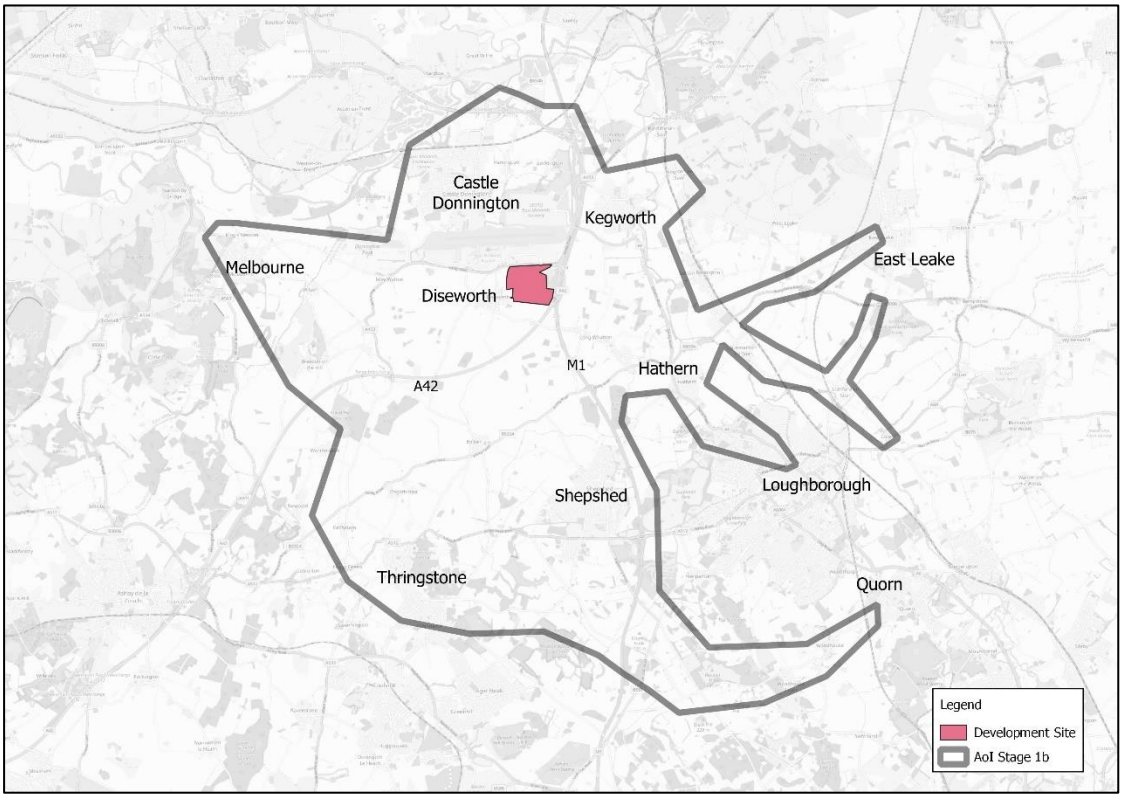
3.4 Area of Influence for Stage 1b

3.4.1 Using the forecast flow changes between the 'With Development (1b)' and 'Without Development (1b)' scenarios, an indication of the Area of Influence (AoI) has been defined. Figure 3.3 shows the Area of Influence for the proposed development.

3.4.2 For the proposed development, the AoI has been defined by considering the links which are forecast to change flow by more than ±5% and ±30 PCUs between the 2028 and 2038 'With Development (1b)' and 'Without Development (1b)' scenarios in either the AM Peak or the PM Peak hours. The links which are forecast to meet these criteria are included in the AoI, as shown in Figure 3.3, and contains the following areas / links:

- the A453 including Finger Farm roundabout;
- the M1 between Junction 23 and Junction 24a;
- the A42 Junction 14; and
- local roads in and around Castle Donnington; Kegworth; Diseworth; Hathern; Melbourne; Thringstone; and Shepshed.

Figure 3.3: Area of Influence for Stage 1b

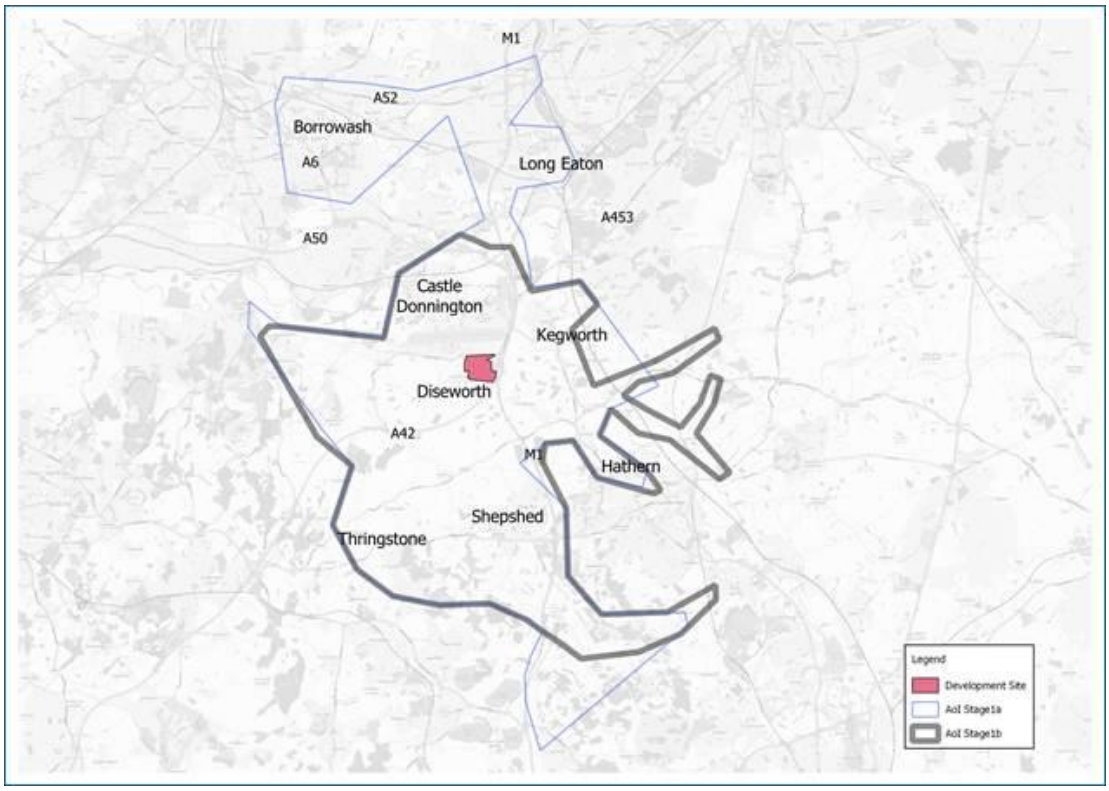


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3.5 Comparison of Area of Influence Comparison with Stage 1a

3.5.1 Figure 3.4 shows the AoI for both Stage 1a and Stage 1b for the proposed development. The AoI for Stage 1b is smaller compared with Stage 1a, with the AoI not extending as far north compared with Stage 1a, particularly around the areas of Borrowash and Long Eaton. The remainder of the AoI remains largely unchanged, except for an eastern extension that reaches Woodgate Road and Leake Lane in Stage 1b.

Figure 3.4: Comparison of Area of Influence Between Stage 1a and Stage 1b



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3.6 Forecast Delay Change

3.6.1 As a result of forecast flow changes in the 'With development (1b)' scenario, there are also changes to the forecast delays on the highway network. These changes in delay can be generated from two sources: link delay based on the speed-flow curve applied to the link; and the junction delay due to capacity constraints for individual turning movements. The analysis in this section combines the link and junction delays (taking a flow-weighted average of junction delays) to assess the changes in forecast delays with the proposed development traffic.

3.6.2 Figure 3.5 and Figure 3.6 show the forecast delay changes (in seconds) in 2028 and 2038 between the 'With Development (1b)' and 'Without Development (1b)' scenarios for the AM Peak and PM Peak hours. For the A453 in the immediate vicinity of the proposed development; delays are forecast to increase by up 102 seconds to due to increases in flow from the development site.

3.6.3 Increases in delay are forecast on the approaches and circulatory lanes of M1 Junction 24 for both AM Peak and PM Peak hours for the 2038 'With Development (1b)' scenario when compared with the 2038 'Without Development (1b)' scenario. Forecast delays are also higher on the approach to Finger Farm Roundabout from the A453 and southbound from Castle Donnington towards the A453 / Walton Hill signalised junction.

3.6.4 The forecast change in delay near the development site in Stage 1b is similar to that in Stage 1a. As noted in Paragraph 3.3.4, the Derby Road / Bostocks Lane signalised junction (to the north of M1 Junction 25) is not forecast in Stage 1b. There is an increase in delay at the Derby Road/ High Street junction and the Harvey Road/ Osmaston Road in Derby during the 2028 PM Peak. The changes are attributed to modelling noise, as the distribution of development trips is not expected to cause a significant increase in delays in this area.

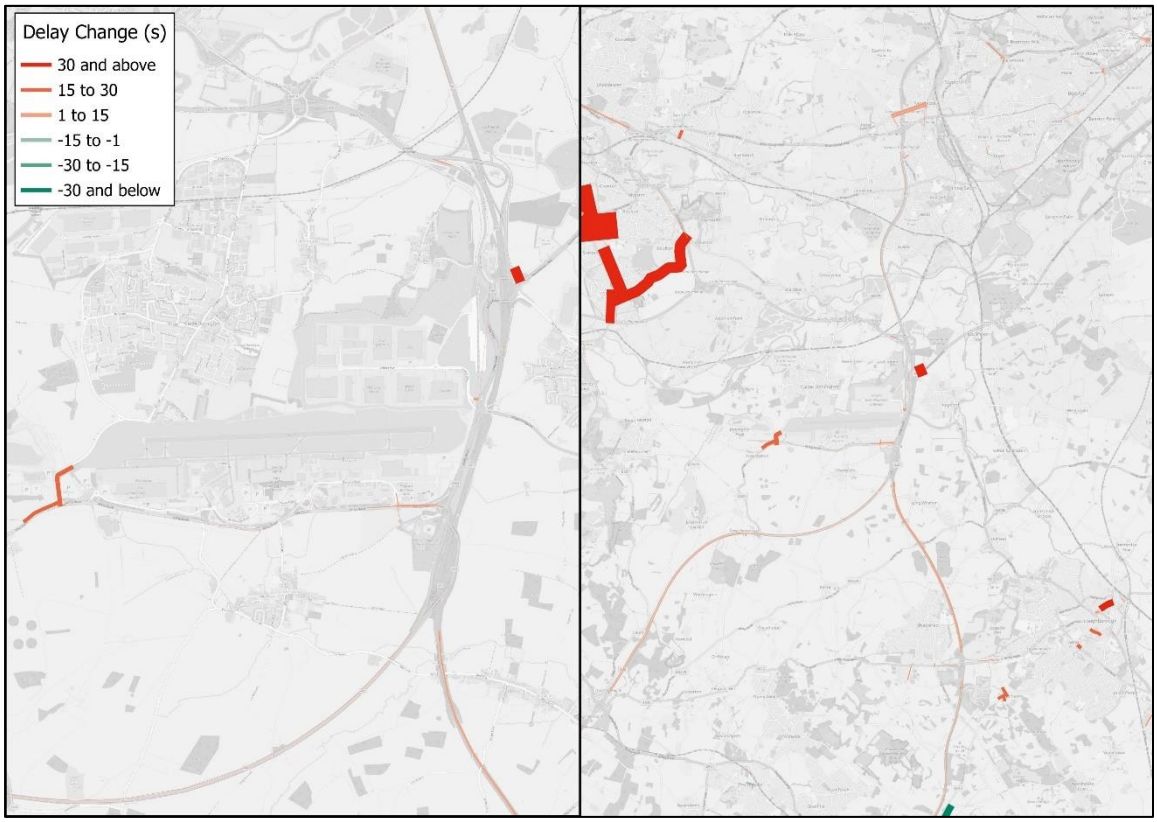
Figure 3.5: Forecast Delay Change for 2028 'With Development (1b)' minus 'Without Development (1b)'

AM Peak hour



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PM Peak hour



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Figure 3.6: Forecast Delay Change for 2038 'With Development (1b)' minus 'Without Development (1b)'

AM Peak hour



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PM Peak hour



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3.7 Forecast Node Volume-Capacity Ratios

3.7.1 As a part of the forecast modelling, node / junction capacities are estimated for individual turning movements based on a number of factors including priority of the turn (for example, give-way or merge), the level of green-time at signalised junctions, and the amount of opposing traffic at the junction. Using these calculated capacities and the forecast traffic volumes, node volume-capacity ratios are estimated to identify locations where the forecast flows are approaching or exceeding the forecast capacity.

3.7.2 To summarise the forecast-capacity ratios for the individual turning movements at a node, there are two approaches. These are to calculate the flow-weighted average volume-capacity of the node, or to calculate the maximum volume-capacity ratio for all turns within a node. The average volume-capacity ratio provides an overview of how the individual node is performing but may not highlight locations where a limited number of movements at a node are approaching or exceeding capacity. To highlight these locations, the maximum volume-capacity ratio at each node has been used. Node volume-capacity ratios exceeding 85% indicate that the highway network is under stress, and there is likely to be a reduction in speed and increase in delay.

3.7.3 Figure 3.7 and Figure 3.8 show the forecast maximum junction volume-capacity ratios for 2028 and 2038, 'With Development (1b)' and 'Without Development (1b)' scenarios. For ease of comparison, the symbology has been designed to show the data for 'Without Development (1b)' and 'With Development (1b)' scenarios on the same plot.

3.7.4 The reader should note that Figure 3.7 and Figure 3.8 show a subset of all nodes within the EMFM to reduce the number of data points within the plots. Nodes which do not fall within the AoI, as defined in Figure 3.3, are not shown. Nodes with maximum volume-capacity ratios below 85% in all forecast scenarios are not shown, except for the node which is located at the proposed site access on the A453.

3.7.5 The forecast maximum node volume-capacity ratio plots show that the A453 / Beverly Road / EMG Phase 2 access roundabout junction, the signalised junction with the A453 / East Midlands Airport signalised junction and M1 Junction 24 are most affected by the proposed development. For 2028 and 2038, the proposed development increased the node volume-capacity ratios at these junctions.

3.7.6 For M1 Junction 24, the node volume-capacity ratios are high for the 'Without Development (1b)' scenarios, with multiple nodes at this junction exceeding 85%. For the 'With Development (1b)' scenarios, the node volume-capacity ratios remain high, exceeding 85%, showing that the M1 Junction 24 is forecast to have high delays.

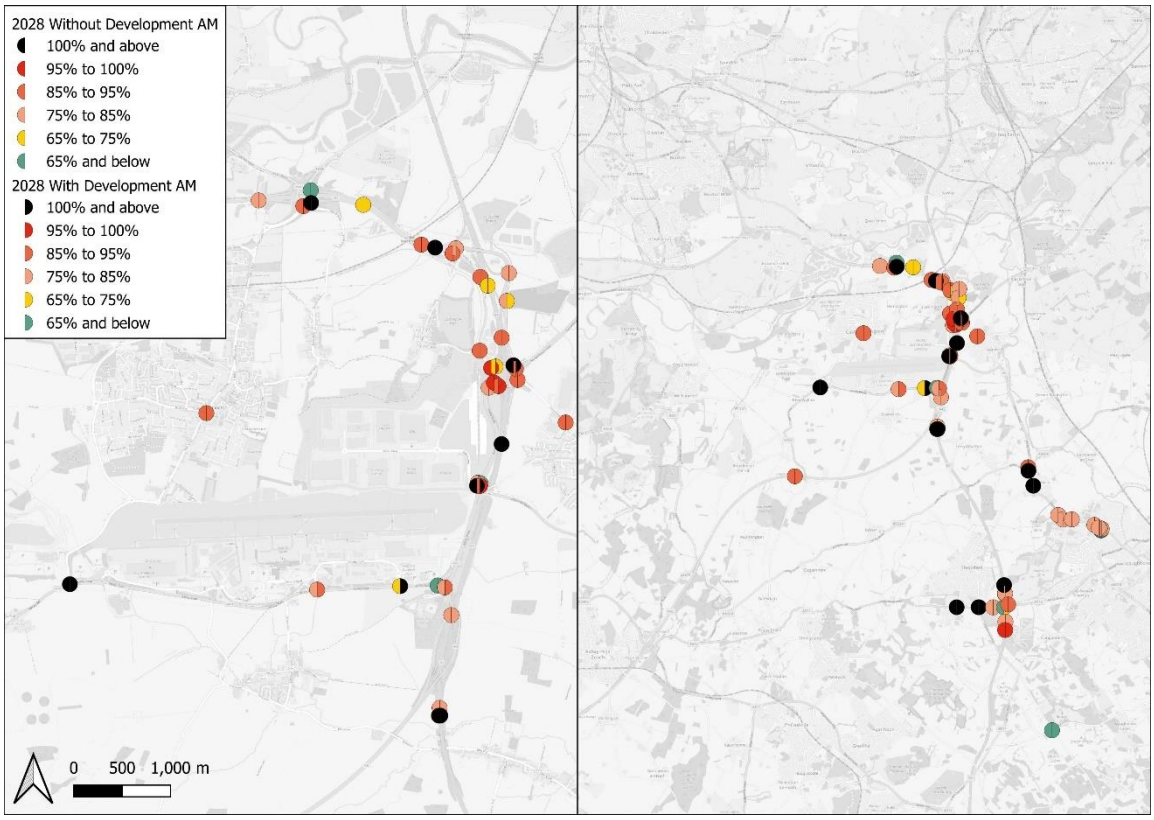
3.7.7 In the AM Peak hour, the node volume-capacity ratios for the A453 / Beverly Road / EMG Phase 2 access roundabout junction is forecast to be greater than the PM Peak hour in both the 2028 and 2038 forecast year scenarios, consistent with the forecast delay shown in Figure 3.5 and Figure 3.6.

3.7.8 Comparing the forecast results between 2028 and 2038, the node volume-capacity ratios are forecast to be greater for the later forecast year (i.e. 2038) as forecast flows increase (when compared with 2028).

3.7.9 Most of the change of the node volume-capacity ratios in Stage 1b are very similar to those of Stage 1a.

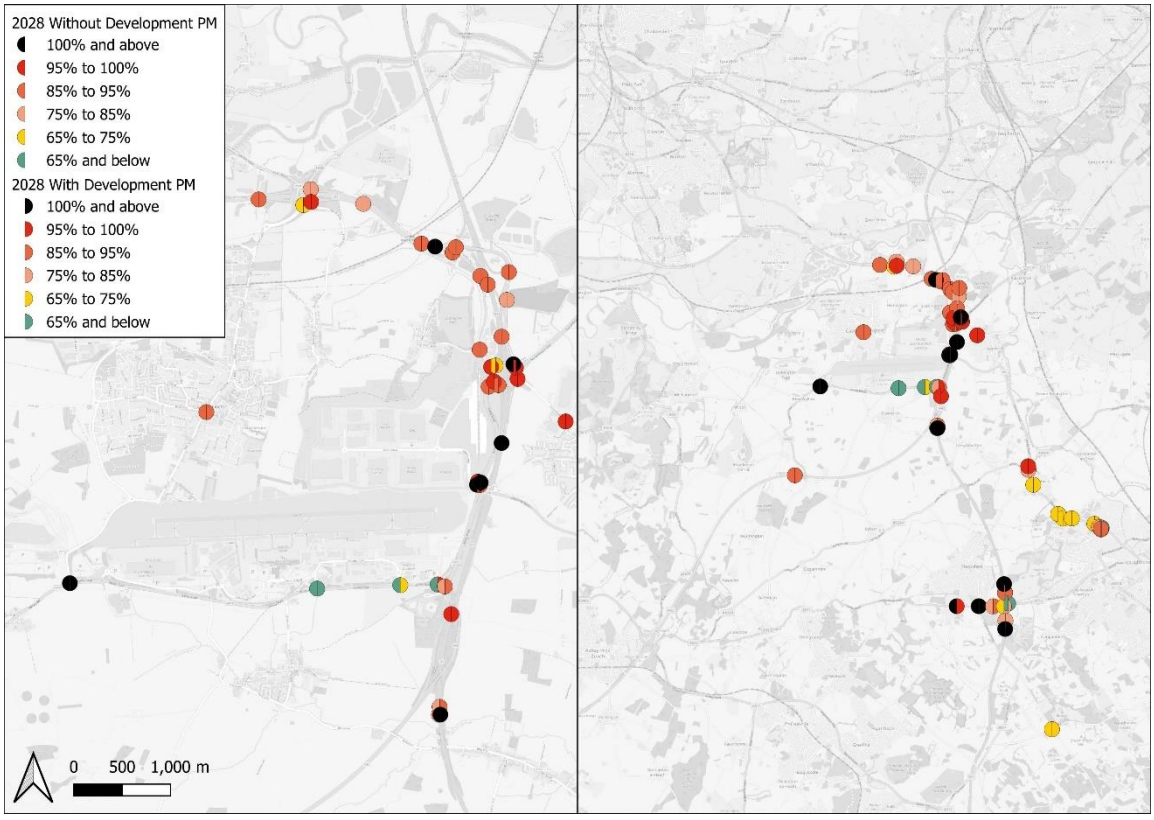
Figure 3.7: Forecast Node Volume-Capacity Ratio for 2028 'Without Development (1b)' and the 2028 'With Development (1b)' Scenarios

AM Peak hour



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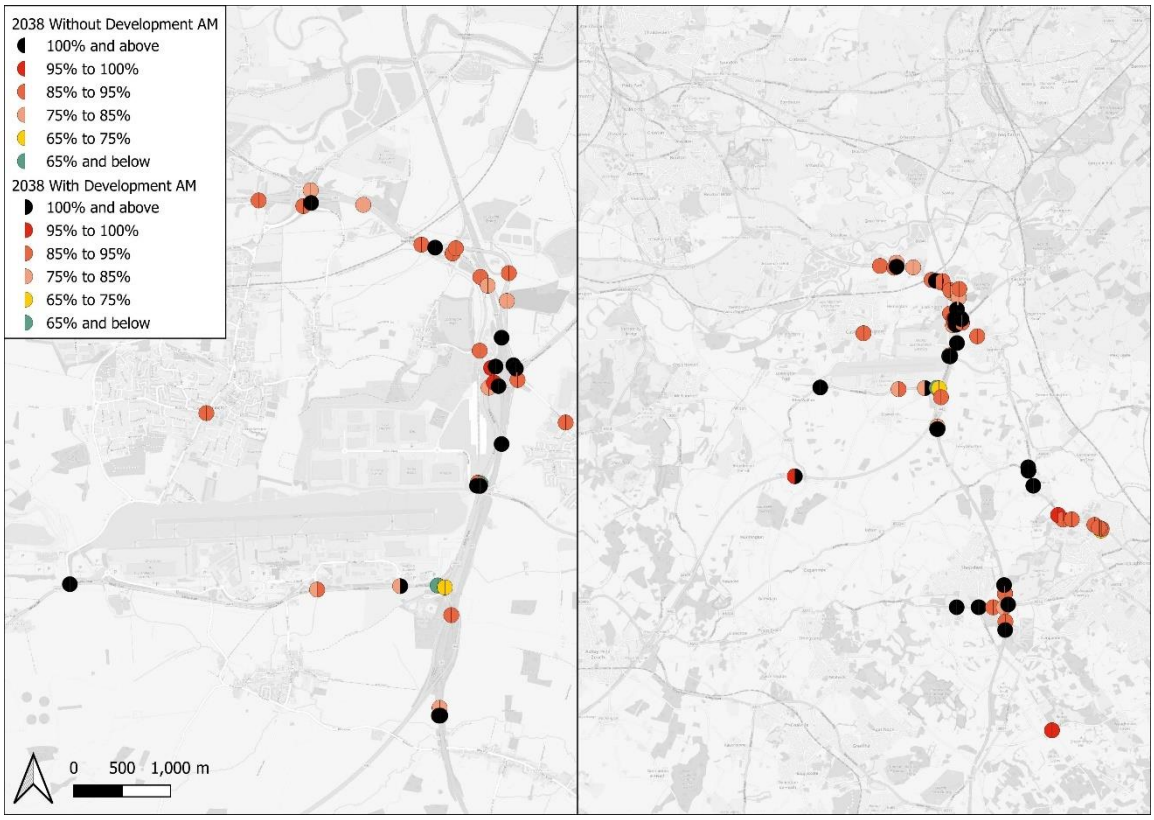
PM Peak hour



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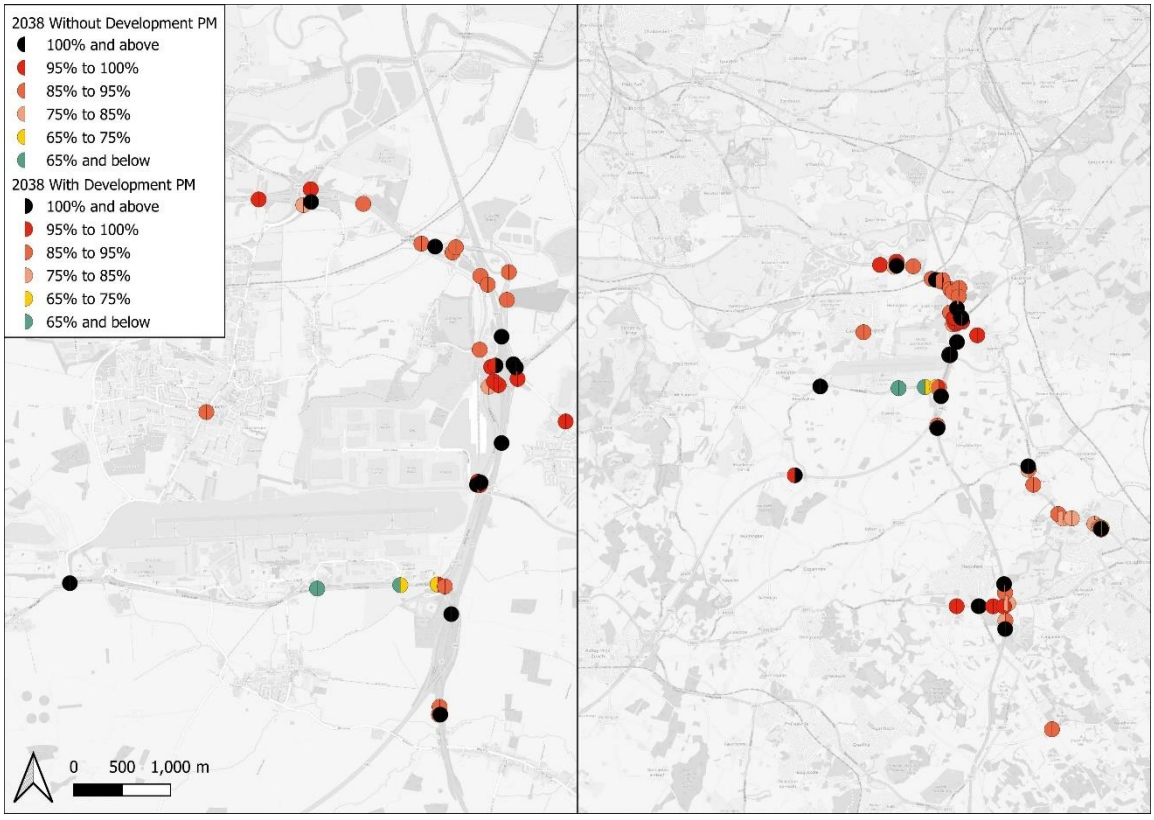
Figure 3.8: Forecast Node Volume-Capacity Ratio for 2038 'Without Development (1b)' and the 2038 'With Development (1b)' Scenarios

AM Peak hour



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PM Peak hour



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3.8 Forecast Junction Turning Flows

3.8.1 Forecast turning flows have been extracted for the following 16 junctions (also shown in Figure 3.9) in the vicinity of the proposed development:

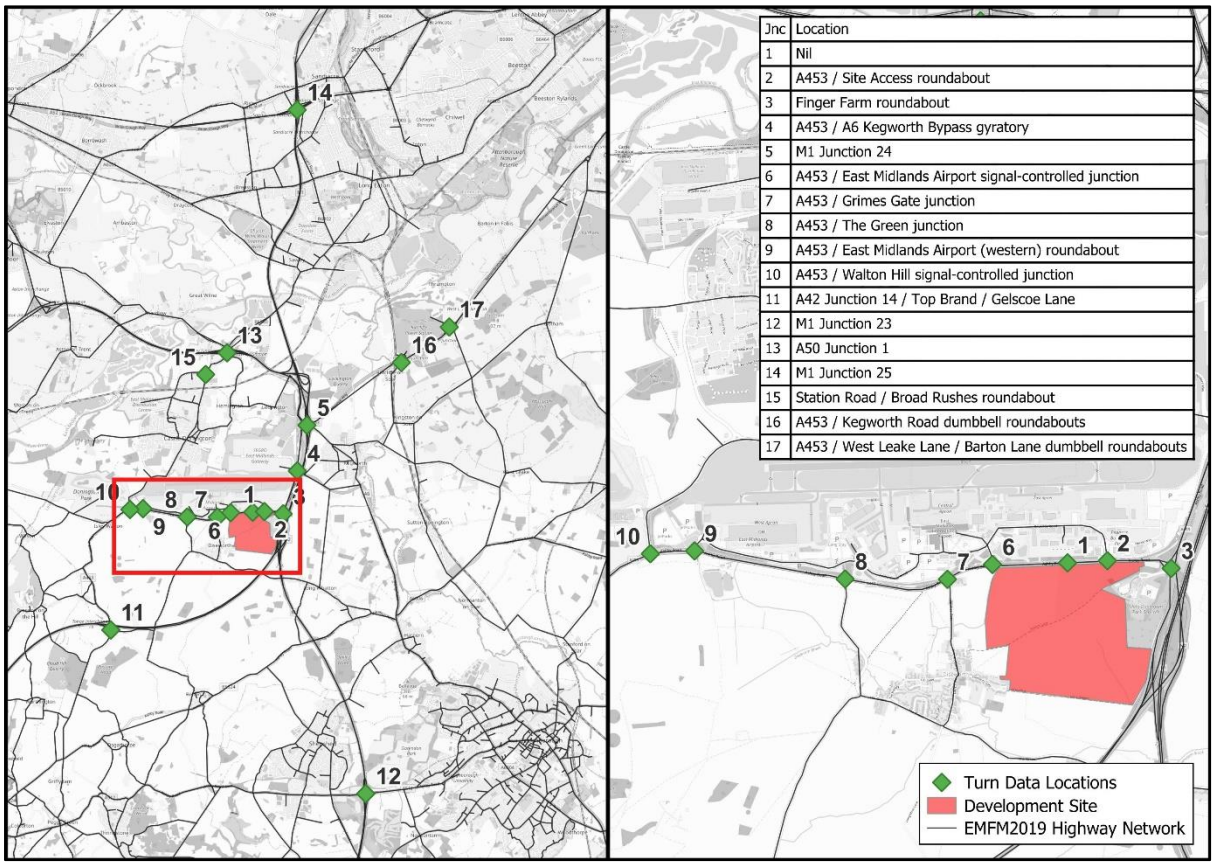
- A453 /Site access Roundabout (Junction 2);
- Finger Farm roundabout (Junction 3);
- A453 / A6 Kegworth Bypass gyratory (Junction 4);
- M1 Junction 24 (Junction 5);
- A453 / East Midlands Airport signal-controlled junction (Junction 6);
- A453 / Grimes Gate junction (Junction 7);
- A453 / The Green junction (Junction 8);
- A453 / East Midlands Airport (western) roundabout (Junction 9);
- A453 / Walton Hill signal-controlled junction (Junction 10);
- A42 Junction 14 / Top Brand / Gelscoe Lane (Junction 11);
- M1 Junction 23 (Junction 12);
- A50 Junction 1 (Junction 13);
- M1 Junction 25 (Junction 14);
- Station Road / Broad Rushes roundabout (Junction 15);
- A453 / Kegworth Road dumbbell roundabouts (Junction 16); and
- A453 / West Leake Lane / Barton Lane dumbbell roundabouts (Junction 17).

3.8.2 The data have been provided separately in MS Excel spreadsheet format[11] which contains the forecast turning flows for the AM Peak and PM Peak hours for light and heavy vehicles. Data are provided for the 2028 and 2038 'Without Development (1b)' and the 2028 and 2038 'With Development (1b)' scenarios. In addition to the turning flows, turn volume-capacity ratios have also been provided where available.

3.8.3 By design the EMFM highway model has not been calibrated or validated for individual turning movements, so care should be taken when using forecasts of flows and volume-capacity ratios at this level.

[11] EMGP2 - Junction Turning Flows (Stage 1b) v1.0 - For Issue.xlsx (provided via email on 3rd March 2025)

Figure 3.9: Location of Forecast Turning Flow Data



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Section 4 – Summary of the EMFM Assessment

4.1 Summary of Assessment

4.1.1 Using the East Midlands Freeport Model (EMFM), forecasts have been undertaken to produce the 2028 and 2038 'Without Development (1b)' and 'With Development (1b)' scenarios for both the AM Peak and PM Peak hours for the strategic assessment of the proposed East Midlands Gateway Phase 2 development.

4.1.2 Based on these model forecasts, the following is a summary of the key findings for the assessment of the proposed development and are similar to those forecast for Stage 1a.

- Development trips (HGVs) have been forecast to route via the following roads:
  - the M1 to and from the south and north;
  - the A42 to and from the south-west;
  - the A50 to and from the west; and
  - the A453 Remembrance Way to and from the east.
- Development trips (light vehicles) have been forecast to route via the following roads:
  - the M1 to and from the south and north;
  - the A42, the A42 Junction 14, A453 and Gelscoe Lane from the south-west;
  - the A50 and through the local network of Castle Donington to and from the west; and
  - the A453 Remembrance Way, A6 Kegworth Bypass and through the local network of Kegworth and Diseworth to and from the east.
- The forecast flow changes in 2028 and 2038 between the 'With Development (1b)' and 'Without Development (1b)' scenarios show that the largest increases in flows are, as expected, forecast along the A453. The M1 and A42 are also forecast to experience increases in flows as well as the local network of Castle Donington, Kegworth and Diseworth.
- An Area of Influence (AoI) for the proposed development has been defined by identifying links which are forecast to change by more than ±5% and ±30 PCUs between the 'With Development (1b)' and 'Without Development (1b)' scenarios for 2028 and 2038 in either the AM Peak or PM Peak hours. The AoI for Stage 1b is forecast to be smaller compared with Stage 1a, with the AoI not extending as far north in Stage 1b. The forecast AoI includes:
  - the A453 including Finger Farm roundabout;
  - the M1 between Junction 23 and Junction 24a;
  - the A42 Junction 14; and
  - local roads in and around Castle Donnington; Kegworth; Diseworth; Hathern; Melbourne; Thringstone; and Shepshed.
- The forecast delay changes in 2028 and 2038 between the 'With Development (1b)' and 'Without Development (1b)' scenarios show the proposed development is forecast to increase delays on the A453 and the approaches of the M1 Junction 24.
- The forecast maximum node volume-capacity ratios show that the proposed development is forecast to increase pressure for the junctions along the A453 including the Finger Farm roundabout. For the M1 Junction 24, the node volume-capacity ratios are high for both the 'Without Development (1b)' and 'With Development (1b)' scenarios with multiple nodes at this junction exceeding 85% which shows high delays and congestion at this location.

4.1.3 The forecasts undertaken reflect the forecast impact of the proposed development at East Midlands Gateway Phase 2. It should be noted that the results provided in this report are at a high level. Due to the strategic nature of the EMFM, not all roads are modelled, and the results should be interpreted with that in mind.

4.1.4 Although the EMFM modelling provides the strategic impact and form part of the proposed East Midlands Gateway Phase 2 assessment evidence packs, the overall assessment should be complemented by local operational assessment and analysis.

Appendix A Planning Data Assumptions

Table A.1: Residential Development Assumptions (sites with more than 500 dwellings) (North West Leicestershire)

District	Location	Quantum	Timescale	Include
North West Leicestershire	Money Hill North of Nottingham Road	1,953	2021-2037	Y
North West Leicestershire	Land North and South of Park Lane	657	2021-2027	Y
North West Leicestershire	Land off Grange Road (South East Coalville)	3,433	2021-2035	Y
North West Leicestershire	Land at Measham Waterside Burton Road	585	2027-2041	Y
North West Leicestershire	Land North and South of Park Lane, Castle Donington (CD10)	1,076	2027-2036	N
North West Leicestershire	Isley Woodhouse (IW1)	4,500	2029-2050	N

Table A.2: Employment Development Assumptions (sites with more than 750 jobs) (North West Leicestershire and East Midlands Freeport sites)

For information, the following table shows the employment sites with more than 750 jobs within North West Leicestershire as well as the sites associated with the East Midlands Freeport development in South Derbyshire.

District	Location	Quantum	Timescale	Include
North West Leicestershire	Mercia Park	393,100 sqm (floorspace)	2023-2027	Y
North West Leicestershire	Strategic Rail Freight Interchange on Land North of East Midlands Airport/West of M1 Junction 24	499,630 sqm (floorspace)	2020-2025	Y
North West Leicestershire	Money Hill	15.9 ha (Site Area)	2027-2031	Y
North West Leicestershire	Segro East Midlands Gateway Phase 2	400,000 sqm (floorspace)	2028-2031	N
North West Leicestershire	Land South of Junction 1 of the A50 Castle Donington Leicestershire	92,500 sqm (floorspace)	2026-2029	Y
North West Leicestershire*	East Midlands Airport Aviation Expansion	940 Jobs	2026-2028	N
North West Leicestershire	Land West of Hilltop Farm, Castle Donington (Emp89)	17,850 sqm (floorspace)	2025-2034	N
North West Leicestershire	Land North of Remembrance Way (A453), Kegworth (Emp73 (Part))	40,000 sqm (floorspace)	2025-2034	N
South Derbyshire*	EMIP Masterplan 1	4,440 Jobs	2026-2030	N
South Derbyshire*	EMIP Masterplan 2	3,540 Jobs	2026-2030	N
South Derbyshire*	EMIP Masterplan 3	1,620 Jobs	2026-2030	N

***** East Midlands Freeport development sites

Appendix B Network Assumptions

Table B.1: Highway Network Assumptions

Location	Scheme Name	Forecast Year	Include
Earl Shilton	Access arrangements for SUE / Highway improvements for SUE	2026	Y
Barwell	Access arrangements for SUE / Highway improvements for SUE	2026	Y
Lubbesthorpe	Access arrangements for SUE including strategic traffic link to the A563 Lubbesthorpe Way	2021	Y
Loughborough	A512 widening B591 to M1 J23, improvements to J23 and completion of dualling thereafter to either Snell's Nook Lane or Epinal Way junction	2021	Y
Coalville	4. Bardon Road Link: Southern section only	2026	Y
Castle Donington	Western Link Road from Back Lane to Tops Hill, NWLDC package of measures to help mitigate growth planned	2021	Y
Lubbesthorpe	Link across M69 to join North and South of the Lubbesthorpe development.	2031	Y
Earl Shilton & Barwell	Highway improvements for SUE	2026	Y
Lubbesthorpe	Highway improvements for SUE	2026	Y
Loughborough	West of Loughborough SUE (access from the north via the A6 roundabout)	2022	Y
Blaby	Desford Crossroads	2026	N
Harborough	Harborough Strategic Development Area	2021	Y
Charnwood	North of Birstall SUE	2026	Y
Charnwood	Mountsorrel Lane, Rothley Link Road	2021	Y
Charnwood	A512 junction improvements	2021	Y
North of East Leicester	North of East Leicester Development Network - Thorpebury (previously Thurmaston) SUE.	2026	Y
Leicester City	Traffic Calming Schemes (Phase 2)	2021	Y
Leicester City	Welford Road	2021	Y
Leicester City	Waterside Development	2026	Y
Leicester City	Belgrave Gate South	2020	Y
Leicester City	Lancaster Road	2020	Y
Leicester City	Mansfield Street & Church Gate	2021	Y
Leicester City	SMBS Access to Burleys Way	2021	Y
Leicester City	Vaughan Way	2020	Y
Leicester City	Ashton Green	2021	Y
Leicester City	LNW2 Ravensbridge Drive / Blackbird Road	2020	Y
Melton	MMDR Northern Section	2026	Y
Melton	MMDR Eastern Section	2026	Y
Melton	MMDR Southern Section	2026	Y
Melton	Gladman's Site (Leicester Road and Kirby Lane Access)	2021	Y
Leicester City	Beaumont Leys Anstey Lane Improvements	2021	Y
Hinckley	Hinckley Rugby Road Corridor Improvements - Phase 4	2023	Y
Leicester City	Putney Road West Improvement	2022	Y
Lutterworth	Frank Whittle Roundabout approaches	2021	Y

Location	Scheme Name	Forecast Year	Include
Lutterworth	Lutterworth East Development (Development Access (A4304, Gilmorton Road and A426))	2026	Y
Lutterworth	Lutterworth East Development associated mitigations	2031	Y
Lutterworth	Lutterworth East Development (Link Road between A4304 and A426)	2031	Y
Lutterworth	Lutterworth East Development (Gilmorton Road bridge bus restriction)	2026	Y
Bardon Hill	Bardon Hill Link Road North Section	2026	Y
Coalville	Hoo Ash Roundabout	2025	Y
Coalville	Thornborough Road Roundabout	2025	Y
Coalville	Dual Carriageway from Thornborough Rd to Whitwick Road	2025	Y
Coalville	Whitwick Road Roundabout	2025	Y
Coalville	Broom Leys Road Junction	2025	Y
Coalville	Bardon Link Road Junction	2025	Y
Coalville	Birch Tree Roundabout	2025	Y
Coalville	Flying Horse Roundabout	2025	Y
Coalville	Fieldhead Roundabout	2025	Y
Hinckley	DPD A5 Access	2021	Y
Padge Hall	Padge Hall Development Access	2024	Y
Leicester City	Abbey Park Road Cycle Provision	2021	Y
Blaby	A47 / Kirby Lane Tesco Express	2021	Y
Leicester City	Abbey Street	2021	Y
Leicester City	A50 Groby Road Bus Lane	2022	Y
Harborough	Magna Park Extension Access - Mere Lane, Lutterworth	2021	Y
Harborough	Magna Park Extension Access - A5, Lutterworth	2026	Y
Blaby	Highway improvements for Lubbesthorpe SUE	2021	Y
Blaby	Foxhunter Roundabout Eastbound Approach	2021	Y
Loughborough	West of Loughborough SUE (connection to the northern arm of the A512 roundabout)	2036	Y
Harborough	B4114 / B581 Signalisation Improvement, Broughton Astley	2026	Y
Blaby	Blaby DPD Site Access	2026	Y
Blaby	West of St Johns (Blaby DPD) Site Access	2026	Y
Harborough	Wigston Direction for Growth Site Access	2026	Y
Blaby	Everard Way Closure, Fosse Park	2020	Y
Loughborough	Access connection for the Science Park via the A512 roundabout	2031	Y
North West Leicestershire	Money Hill Site Access A511	2026	Y
Derbyshire	Wragley Way (South Derbyshire) SUE Access A50	2031	Y
Derbyshire	Clifton (Rushcliffe) SUE Access	2022	Y
Derbyshire	EMIP A50 (Freeport)	2030	N
Derbyshire	Toton Innovation Hub (HS2)	2026	Y
Nottinghamshire	Ratcliffe Power Station A453 (Freeport)	2030	N
Rugby	Rugby Radio Station - A5 Access	2022	Y
North West Leicestershire	Mercia Park	2020	Y

Location	Scheme Name	Forecast Year	Include
Leicester City	Western Park Golf Course	2029	Y
Harborough	Kettering Road Signalisation	2021	Y
Charnwood	Shuttle signals on Tickow Lane (over bridge)	2022	Y
Charnwood	Buttercup Lane in Shepshed	2022	Y
Blaby	Dans Lane (A47)	2023	Y
Hinckley	B582 / B585 signalisation	2023	Y
Hinckley	A47 roundabout between Wykin Road and Outlands Drive	2021	Y
M6 Junction 10-13	M54-Stafford ALR	2021	Y
M54-M6 Toll	New Link Road min 2 lane motorway	2024	Y
M6 J13-J16	Stafford South to Stoke ALR	2022	Y
M1 J13-16	MK South - J16 ALR	2022	Y
M40 M42	M40 J16-M42 J3 ALR	2026	Y
A46 Coventry	Remove Binley and Walsgrove roundabouts M40-M6 as 'expressway standard' (i.e. all grade separated junctions)	2026	Y
A46 Toll Bar End	Grade separated junction at TBE & Stonebridge Highway to 3 lanes	2021	Y
Newark North	Dualling Newark N bypass first stages now in RIS 2	2031	Y
Newark South	A1-A46 link S of Newark; part constructed. Not in MRTM list	2031	Y
Lincoln East	A15-A158; under construction	2021	Y
Lincoln South	A158-A46; *sketchy details*; envisaged as dual carriageway… Assumed costing will be similar to Lincoln E bypass and will be 60mph single	2031	Y
Grantham South	A1-A52 link bypassing Grantham; under construction	2023	Y
Warwickshire	M6 J2 - J4 SMART motorway	2021	Y
Nuneaton and Bedworth Borough	Coton Arches	2021	Y
Nuneaton and Bedworth Borough	A4254b Eastboro Way Phase 1	2024	Y
Nuneaton and Bedworth Borough	College Street / A444	2026	Y
Nuneaton and Bedworth Borough	Transforming Nuneaton	2026	Y
Nuneaton and Bedworth Borough	Croft Road / Greenmoor Road Priority	2031	Y
Nuneaton and Bedworth Borough	A47 Old Hinckley Road	2024	Y
Nuneaton and Bedworth Borough	Coventry Road / Gipsy Lane	2026	Y
Nuneaton and Bedworth Borough	A4254 / B4114 / Eastboro Way	2026	Y
Nuneaton and Bedworth Borough	Nuneaton Northern Sites Link Road	2026	Y
North Warwickshire	B5000 Market Street/Bridge Street Signals	2026	Y
North Warwickshire	A5 Dualling between Grendon and Dordon Junction	2033	Y
Rugby Borough	A426/A4071 Avon Mill Roundabout/Newbold Road/Hunters Lane Priority Junction	2026	Y

Location	Scheme Name	Forecast Year	Include
Rugby Borough	Ashlawn Road/Hillmorton Road	2021	Y
Rugby Borough	A5 Northern Access to DIRFT III	2021	Y
Rugby Borough	A5/A428 Halfway House Roundabout	2026	Y
Rugby Borough	M1 Junction 18	2031	Y
Rugby Borough	M6 to Coton House	2021	Y
Rugby Borough	A5 Southern Access to DIRFT III	2021	Y
North Warwickshire	A5 dualling Grendon to Atherstone	2031	Y
Rugby Borough	M6 J2 Signalisation	2024	Y
Nuneaton and Bedworth Borough	Callendar Farm Phase 2	2031	Y
Nuneaton and Bedworth Borough	Bermuda Triangle Project	2026	Y
Rugby Borough	Ansty Park Access (Combe Fields Road)	2020	Y
Castle Donington	Land South of A50 J1 Development Access	2024	Y
Hinckley	B4114 Coventry Rd / Broughton Rd widening	2021	Y
Shepshed	A512 Ashby Rd Quarry access/signalised junction	2021	Y
Bardon	Tungsten Park, Bardon A511	2021	Y
North West Leicestershire	Segro EMG Phase 2 Development Access	2028	N
Leicester City	St George Street (Queen Street to Southampton Street)	2022	Y
Leicester City	Dover Street (Granby Street Junction)	2024	Y
Leicester City	Granby Street (Bishop Street to Halford Street)	2024	Y
Leicester City	Granby Street (Northampton Street to Street George's Way)	2022	Y
Leicester City	Pocklingtons Walk	2022	Y
Leicester City	Aylestone Road, Saffron Lane to Oxford Street (A426)	2023	Y
Leicester City	Saffron Lane (B5366)	2023	Y
Leicester City	Duns Lane/Braunstone Gate	2023	Y
Leicester City	Abbey Park Road (Eastern section and bridge)	2023	Y
Leicester City	Anstey Lane (A5630)	2022	Y
Leicester City	St. Margaret's to Birstall (A6)	2024	Y
Leicester City	Melton Road (A607)	2023	Y
Leicester City	Belgrave Gate/Haymarket/Church Gate Pedestrianisation	2020	Y
North West Leicestershire	A50 Junction 1 signalisation of two additional arms (Tamworth Road and Trent Lane)	2025	Y
Blaby	Desford Road/Ratby Lane signalisation	2022	Y
Nottinghamshire	A52 Gamston roundabout	2023	Y
Nottinghamshire	A52 Wheatcroft junction	2028	Y
Nottinghamshire	A52 Nottingham Knight junction	2028	Y
Derbyshire	A38 grade-separated junctions (Kingsway Roundabout, Markeaton Island and Little Eaton Roundabout)	2024	Y
Broxtowe	Toton Link Road	2026	N

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APPENDIX 46: VISSIM Local Model Validation Report (document reference EMG2-BWB-GEN-XX-RP-TR-0006_S2-P4)

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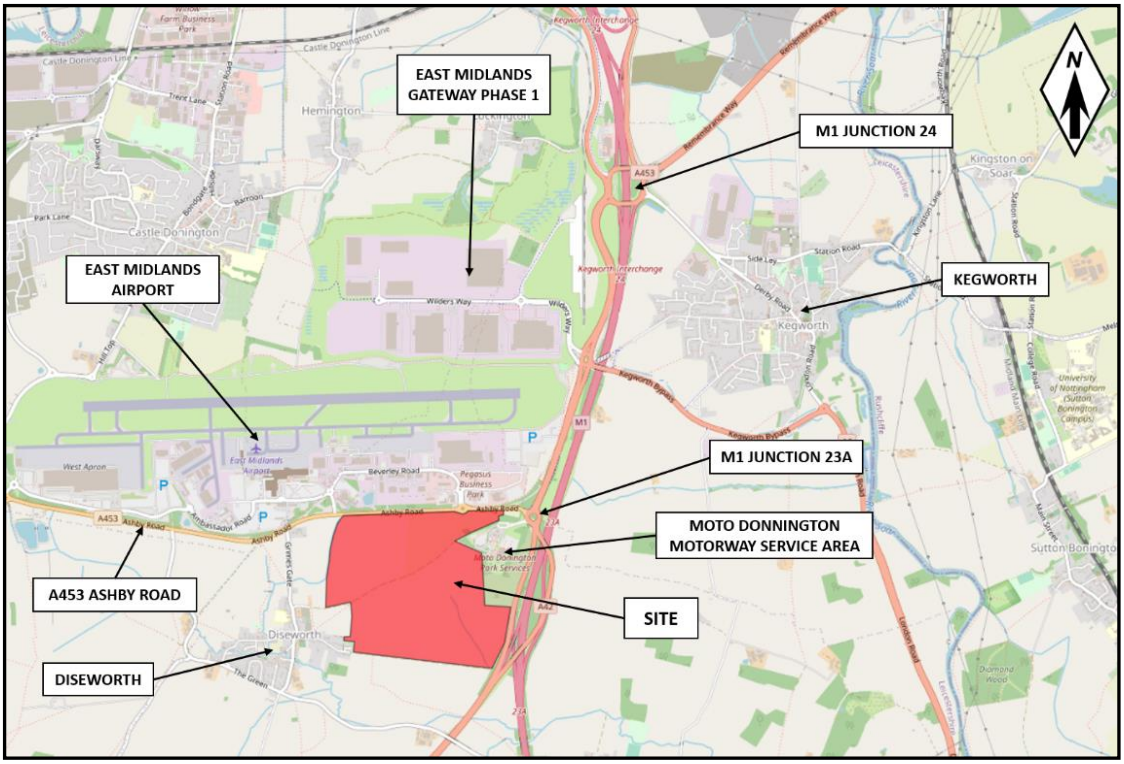
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1. INTRODUCTION

1.1 BWB Consulting Ltd (BWB) has been appointed by SEGRO (the Applicant) to produce a microsimulation traffic model of the M1 Junction 24, in support of an outline planning application for the Phase 2 Expansion of East Midlands Gateway (EMG) site.

1.2 The gross floor area (GFA) of the proposed scheme is approximately 3.23 million sqft (300,000sqm) comprising of 80% B8 use and 20% for B2 use, all with ancillary office use. The location of the proposed development is show in **Figure 1**.

Figure 1. Site Location



1.3 As part of East Midlands Gateway Phase 1, BWB obtained a copy of the M1 J24 VISSIM model network from National Highways in 2014. The model was validated and calibrated by AECOM to a base year of 2012. This model was utilised by BWB to assess the proposed highway network changes including improvements to M1 J24 as part of the EMG Phase 1. However, the model is now outdated and the proposed migitation as well as the scheme have been constructed on site since and is operational.

1.4 Therefore, to assess the impact of EMG Phase 2, a revalidation of the base model was required, this technical note has been produced to outline the modelling methodology undertaken as well as provide details of model calibration and validation.

Report Structure

1.5 Following this introduction, the remainder of this report is structured as follows:

- **Section 2:** Network Development, sets out the modelling parameters associated with the baseline model;

- **Section 3:** Model calibration, including comparison of manual turning count data against modelled flows.

- **Section 4:** Model validation comparing surveyed journey times with modelled journey times.

- **Section 5:** Summary and Conclusions.

2. NETWORK DEVELOPMENT

Model Approach

2.1 The PTV software package VISSIM is a microscopic, time-step, behaviour-based simulation tool developed to model traffic and public transport operations. VISSIM models individual vehicles and presents these movements visually, assisting in model validation and in the assessment of the performance of network improvement options.

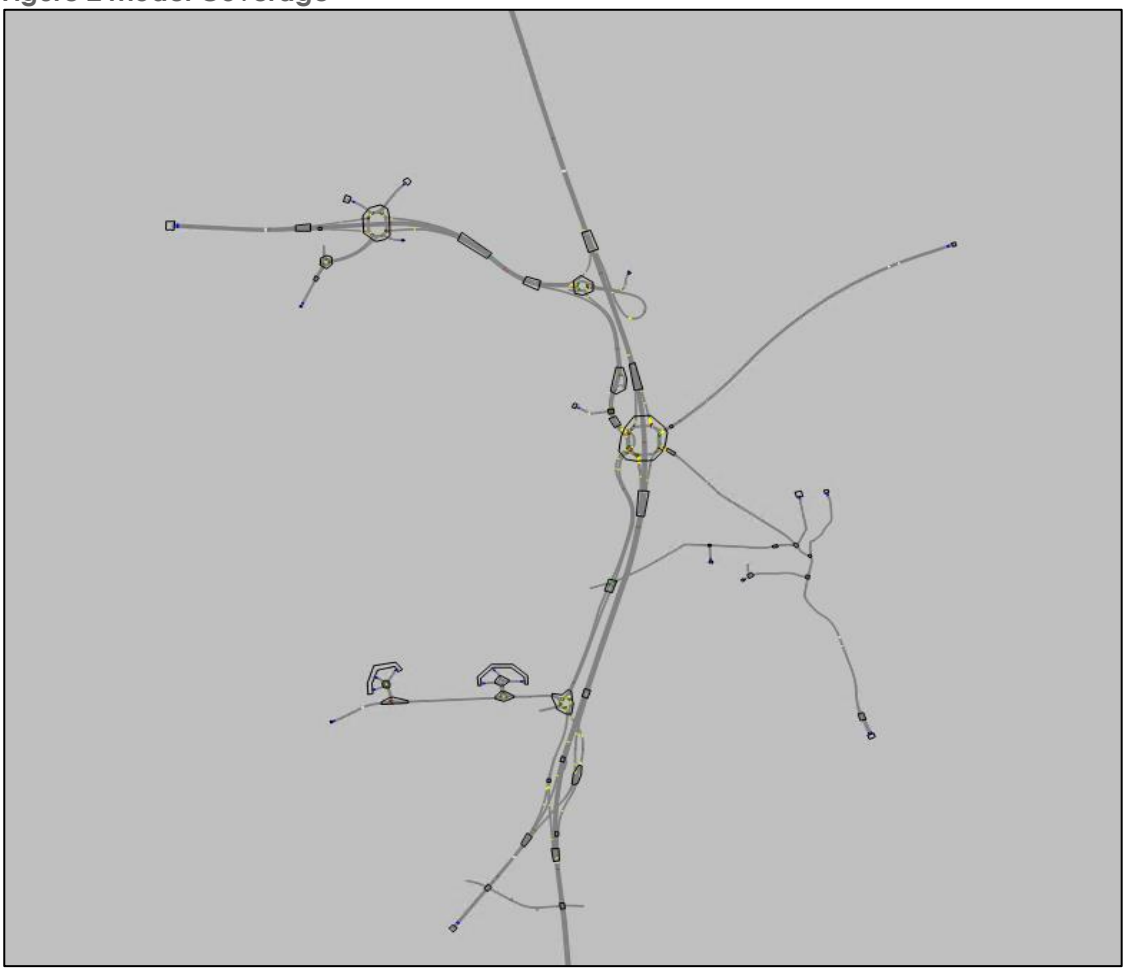
2.2 VISSIM provides output information such as queues, delays, and journey times on identified routes and other specific information. VISSIM also enables 3D videos to be produced providing a powerful visual simulation of the highway network.

2.3 The existing VISSIM model has utilised dynamics assignment for traffic flow input, therefore the this has been retained.

Model Coverage

2.4 The extents of the existing VISSIM model has been illustrated in **Figure 2** below.

Figure 2 Model Coverage



2.5 The existing model comprises of the following junctions.

i. A50 junction 1 Sawley Interchange;
ii. M1 J24a;
iii. M1 J24;
iv. A453/EMG Phase 1/Kegworth Bypass signal controlled gyratory;
v. M1 J23a Finger Farm roundabout (including M1/A42 on and off slip roads);
vi. A453/Hunter Road/minor EMG Phase 2 access roundabout
vii. A453 East Midlands airport internal roundabouts.

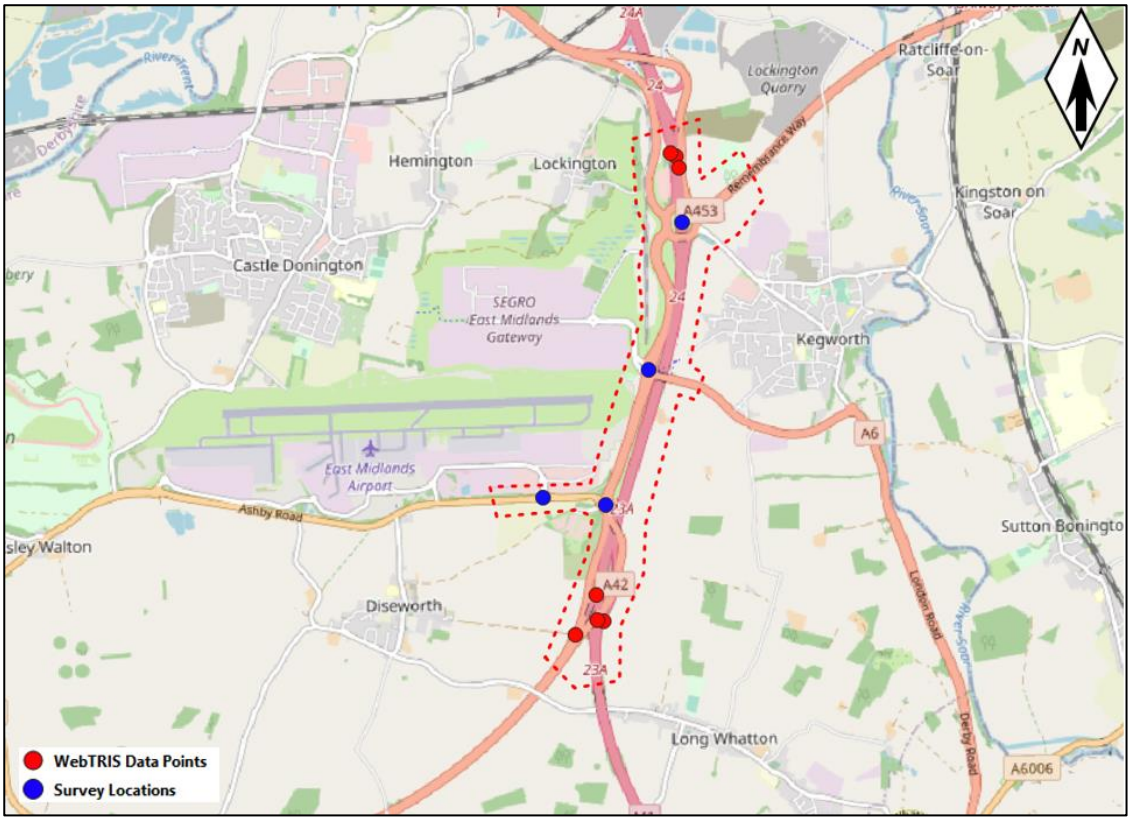
2.6 Following discussions with NH, it was agreed that the model will be cordoned of to the following junctions:

i. M1 J24;
ii. M1 J24a southbound merge onto the M1 and M1 junction 24;
iii. A453/EMG Phase 1/Kegworth Bypass signal controlled gyratory;
iv. M1 J23a Finger Farm roundabout (including M1/A42 on and off slip roads);
v. A453/Hunter Road/minor EMG Phase 2 access roundabout;
vi. A453/EMG Phase 2 site access roundabout.

Survey Data

2.7 Manual turning count surveys were undertaken on 3rd November 2023 for all junctions outlined in Paragraph 2.4. with the exception of the A453/Kegworth Bypass junction which was undertaken on 23rd November 2023. **Figure 3** illustrates locations of surveys undertaken and data points that are available on the WebTRIS website.

Figure 3: Survey and WebTRIS Data Locations



2.8 The survey data has been compared to a neutal month which was obtained from the Webtris website for a number of available data points around J24. The **Tables 1** and **2** sets our the GEH comapison between the survey data and the Webtris data.

Table 1: Survey Comparison AM

Appoarch/Exit	Traffic Flows (Veh)			GEH Comparison	
	Survey	2022 (Webtris)	2023 (Webtris)	2022 vs Survey	2023 vs Survey
M1 S Approach	1876	1811	1859	1.51	0.39
M1 S Exit	655	689	691	1.31	1.39
A453 Exit Towards EMG1	944	954	1014	0.32	2.24

Table 2: Survey Comparison PM

Appoarch/Exit	Traffic Flows (Veh)			GEH Comparison	
	Survey	2022 (Webtris)	2023 (Webtris)	2022 vs Survey	2023 vs Survey
M1 S Approach	1712	1715	1769	0.07	1.37
M1 S Exit	955	984	1002	0.93	1.50
A453 Exit Towards EMG1	615	666	699	2.02	3.28

2.9 The tables above illistriaght that the survey data is within a GEH 5 when comparing the neutal month from webtris and therefore, the survey data is acceptable.

2.10 The network peak hours were calculated as 0730-0830 and 1700-1800 in the morning and evening period respectively.

2.11 TomTom journey time data was obtained for all neutral days within the month of November 2022. Ths has been utilised for journey time validation purposes.

Model Time Periods

2.12 The modelled time periods include half an of hour warm up and cool down period either side of the peak hours. Subsequently, the model covers the following time periods:

- Weekday morning period from 0700-0900; and
- Weekday evening period from 1630-1830.

Traffic Flow Calculations

2.13 The traffic survey were utlised to generate traffic flow diagrams for each 15 minute interval with the time periods set out above for both light and heavy vehicles respectively. As the EMG gyratory junction was surveyed on a different day, there where significant discrepencies in flows northbound/southbound along the A453 therefore the flows have factored in accordance with flows approaching M1 J24 and Finger Farm Roundabout to ensure consistency for OD matrix estimation

2.14 The flows for the ahead and merge/diverge proportions have been calculated using counts that are avabilble on the WebTRIS website. **Tables 1** and **2** illustrate the calculations undertaken to derive the flows along the motorway as well as the split of traffic at the merges and diverges.

Table 3: Hourly WebTRIS Flows

Time Periods	WebTRIS				Divided By 4 (each 15 interval)			
	Northbound		Southbound		Northbound		Southbound	
	Lights	Heavies	Lights	Heavies	Lights	Heavies	Lights	Heavies
07:00-08:00	2275	605	4471	643	569	151	1118	161
08:00-09:00	2463	442	4069	581	616	111	1017	145
16:00-17:00	4132	502	3740	518	1033	126	935	130
17:00-18:00	4127	416	3863	491	1032	104	966	123
18:00-19:00	3307	290	3113	410	827	73	778	103

Table 4: 15-minute WebTRIS Flows

Time Periods	WebTRIS				% Split				Inputs into VISSIM			
	Northbound		Southbound		Northbound		Southbound					
	A42	M1	A42	M1	A42	M1	A42	M1	B-G	B-H	G-B	H-B
07:00 - 07:15	463	942	446	1028	33%	67%	30%	70%	780	338	381	187
07:15 - 07:30	441	895	477	1024	33%	67%	32%	68%	763	355	381	188
07:30 - 07:45	466	926	455	937	33%	67%	33%	67%	752	365	378	190
07:45 - 08:00	428	794	455	921	35%	65%	33%	67%	748	370	370	199
08:00 - 08:15	374	777	432	790	32%	68%	35%	65%	658	360	416	200
08:15 - 08:30	360	727	388	714	33%	67%	35%	65%	659	358	412	204
08:30 - 08:45	368	688	395	760	35%	65%	34%	66%	669	348	401	215
08:45 - 09:00	358	645	371	719	36%	64%	34%	66%	671	346	396	220
16:30 - 16:45	646	1148	547	902	36%	64%	38%	62%	582	353	661	372
16:45 - 17:00	525	1079	517	945	33%	67%	35%	65%	604	331	695	338
17:00 - 17:15	545	1145	542	944	32%	68%	36%	64%	614	352	699	333
17:15 - 17:30	571	1196	539	974	32%	68%	36%	64%	622	344	698	333
17:30 - 17:45	497	1301	579	887	28%	72%	39%	61%	584	381	747	285
17:45 - 18:00	615	1140	494	829	35%	65%	37%	63%	605	361	670	362
18:00 - 18:15	524	1040	442	795	34%	66%	36%	64%	500	278	550	277
18:15 - 18:30	464	945	417	718	33%	67%	37%	63%	492	286	554	272

HGVs												
Time Periods	WebTRIS				% Split				Inputs into VISSIM			
	Northbound		Southbound		Northbound		Southbound					
	A42	M1	A42	M1	A42	M1	A42	M1	B-G	B-H	G-B	H-B
07:00 - 07:15	75	102	68	96	42%	58%	41%	59%	94	67	87	64
07:15 - 07:30	62	115	66	105	35%	65%	39%	61%	99	62	98	53
07:30 - 07:45	57	119	56	115	32%	68%	33%	67%	108	53	102	49
07:45 - 08:00	65	102	54	112	39%	61%	33%	67%	108	52	92	59
08:00 - 08:15	40	120	58	129	25%	75%	31%	69%	100	45	83	28
08:15 - 08:30	55	108	60	125	34%	66%	32%	68%	98	47	73	37
08:30 - 08:45	58	121	85	123	32%	68%	41%	59%	86	59	75	36
08:45 - 09:00	80	103	71	104	44%	56%	41%	59%	86	59	62	48
16:30 - 16:45	80	107	64	89	43%	57%	42%	58%	75	54	72	54
16:45 - 17:00	55	88	55	81	38%	62%	40%	60%	77	52	77	48
17:00 - 17:15	49	108	54	116	31%	69%	32%	68%	84	39	72	32
17:15 - 17:30	41	92	45	117	31%	69%	28%	72%	89	34	72	32
17:30 - 17:45	47	83	50	89	36%	64%	36%	64%	79	44	66	38
17:45 - 18:00	43	91	57	104	32%	68%	35%	65%	79	43	71	33
18:00 - 18:15	36	59	58	88	38%	62%	40%	60%	62	41	45	27
18:15 - 18:30	49	51	40	77	49%	51%	34%	66%	67	35	37	36

2.15 Each 15-minute interval has been inputed into a skeleton LinSig model of the assessment area for both lights and heavies vehicles to allow LinSig's matrix estimation function to generate OD matrices that can be inputted into VISSIM.

Traffic Signals

2.16 A copy of the MOVA files for M1 J24 and the EMG gyratory were obtained from NH and the model has been updated to utilise the latest files.

2.17 PCMOVA has been utilised to replicate the the signal operation of the M1 J24 and EMG gyratory. The video footage of the junction was compared with the signal operation in VISSIM and it was concluded that this was reflective of on site behaviour.

2.18 MOVA data sets were not available for EMG West Steam 3, East Stream 3 and M1 J24 West Stream 4, therefore, VisVAP program has been ustilised to set up the exit/crossing signal controllers and subsequently link them to the respective MOVA junctions using detectors.

3. Network Development

3.1 A number of changes have been made to the original base model to ensure calibration & validation of the model. These include changes to reduced speed areas, desired speed distributions, priority rules, conflict area and link/flare usage. Details of these have been provided below.

Desired Speed Distribution And Reduced Speed Area

3.2 Initial review of the desired speed distributions utilised in the EMG Phase 1 model had been undertaken and it was noted that the speed distributions for 30, 60 and 70mph were affecting the journey times of vehicles in the model. Therefore, DfT data for the most recent year available (2021) has been obtained and new desired speed distributions have been calculated in coded into VISSIM.

3.3 Reduced speed areas have been retained and checked in accordance streetview, from the initial model apart from the road that connects the A50 to the M1/M1 J24. The TomTom Journey Data has been review and it was noted that the average speed traveling along this link is lower than what is sign posted and therefore amended to reflect this in the model.

3.4 A number of reduced speed area have been coded on to EMG gyratory around the bus stops.

Priority Rules & Conflict Areas

M1 J24

3.5 The existing priority rules and conflict areas have largely been unaltered apart from a small number of priority rules at the M1 J24 on the M1 northbound Off-Slip entry. The priority rules that have been amended are as follows:

- 495, 496, 497, 498

3.6 A few priority rules have been added on the M1 southbound Off-Slip entry. The priority rules that have been added are as follows:

- 501, 502, 502, 504

EMG Gyratory

3.7 The existing priority rules and conflict areas have largely been unaltered apart from a small number of priority rules at the EMG gyratory. The priority rules that have been amended are as follows:

- 469, 489, 509

3.8 The above alterations have been undertaken to ensure no overrunning of vehicles along the circulatory carriageway.

Public Transport

3.9 A number of bus services were identified within the study area therefore these have been coded into VISSIM in accordance with the respectively timetables and route maps. The following services are included within the model:

- EMG Shuttle Bus
- 9 – EMA – Queens Hospital
- Skylink Derby – Leicester – Derby
- Skylink Derby – Derby – Leicester
- Skylink Nottingham – Nottingham – Loughborough
- Skylink Nottingham – Loughborough – Nottingham
- Skylink Express – Nottingham – EMA
- Skylink Express – Nottingham – EMA

4. Model Changes

4.1 A copy of the VISSIM model was submitted to National Highways on 31 March 2023 subsequently comments were received on 3 May 2023. Following this, a revised copy of the VISSIM models were submitted on 11 July 2023 to ensure network parameters were acceptable prior to rerunning the models for validation. Details of the changes made are provided below.

Comment 1: "Driver behaviour parameter should retain default values unless a reasonable justification for the changes made is provided."

Amendment 1: The driver behaviour parameters have been reverted back to defult

Comment 2: "It is considered that Wiedemann 74 is not suitable for use on motorway, or even dual carriageway links (away from junctions) and that a behaviour type based on Wiedemann 99 should be used."

Amendment 2: Motorway link and dual carriageway links have been amended to Wiedemann 99

Comment 3: "The Behaviour at Amber/Red Signal for Driver Behaviour types should be changed to 'stop' rather than 'go' as current modelled."

Amendment 3: Behaviour at Amber/Red Signal for Driver Behaviour types set to 'stop'

Comment 4: "The various discrepancies between the on-street highway layout and that in the model should be reviewed and corrected."

Amendment 4: Link arrangements have been reviews and amended to reflectexactly whats on the ground.

Comment 5: "The coded vehicle entry speed from Parking Lots and DSDs throughout the network need to be revised to ensure consistent implied vehicles speeds on the same stretch of highway."

Amendment 5: All Parking Lots and DSD have been reviewed and amended where needed to provide more realistic vehicle speeds throughout the network.

Comment 6: "The omission of RDAs in the locations listed in this review should be investigated and appropriate RDAs added to the network."

Amendment 6: RDAs have been review and added/amended throughout the network

Comment 7: "All discrepancies between the controller information and the modelled controller parameters, in particular the inter-green values, should be checked and corrected as appropriate."

Amendment 7: All Signal spec checked and amended where required including intergreens

Comment 8: "There appears to be differences in the call/cancel times between the controller information and those used in the model. These should be checked and corrected as appropriate."

Amendment 8: call/cancel times have been amended

Comment 9: "The dummy connector on the AS453 eastbound entry to Hunter Roundabout should be deleted, mainly to ensure vehicles entering the roundabout correctly give-way."

Amendment 9: call/cancel times have been amended

4.2 Further to the above, some slight modifications were requested for the models, and these changes have been incorporated into the updated VISSIM model.

5. ADDITIONAL MODEL CHANGES

5.1 Initial runs of the forecast modelling indicated some calibration issues, therefore, additional changes have been made to the base model. These amendments are set out below.

VISSIM Version

5.2 VISSIM base model revalidated in VISSIM 24. VISSIM 24 utilises all cores therefore this will reduce computation time of forecast modelling runs.

Links

M1 J24

5.3 M1 NB exit altered (Link 10079) to one lane to reflect existing layout.

5.4 Altered the M1 south approach circulatory from 2 x 2-lane links (Link 17 & Link 194) to 1 x 4-lane link (Link 17). This allows better lane utilisation.

5.5 M1 N approach lane connectors (Link 10016) to A453 Remembrance Way from 1 lane connectors to a 2-lane connector to reflect video observation as well as road markings.

EMG Gyratory

5.6 Altered the EMG approach from 2x2-lane links to 1x4-lane link as the former caused convergence issues in the forecast modelling scenarios.

- Links Amended: 48, 70, 83, 576, 10481, 10482, 10487

Flare lengths

5.7 Flare lenths and allignments have also been reviewed and amended, the northbound approach to Finger Farm Roundabout (Link 136) and the eastbound approach to Hunters Road Roundabout (Link 212).

Signals

5.8 MOVA changes at M1 J24 special conditioning amended from call/cancel to delay/persistence. Signal linkage issues were noted in the forecast modelling scenarios.

A review of the video footage indicated that the call/cancel special conditioning did not reflect the signal operation well, particularly on the southwestern quadrant of the junction. Therefore special conditioning was amended to delay/persistence which reflected the operation better.

5.9 BWB have had discussions with a MOVA engineer who indicated that typically if links are set to simple traffic, these are not utilised on-site. Therefore detectors associated with simple traffic at the EMG gyratory have been removed.

Priority Rules

5.10 Some of the priority were slightly misaligned at the Finger Farm Roundabout causing vehicles to change lanes at the approach to the circulatory. Therefore, these have been repositioned to ensure no unnecessary lane changes.

Route Clousures

5.11 When undertaking the forecast modelling a calibration issue presented itself where traffic coming from the M1 south would come off the M1 travel up the A453 to Junction 24 in the AM. This is not realistic and therefore a route closure has veen added to stop vehicles doing this movement. This route closure will be used in all AM forecast modelling to remain consistent.

Route Costs

5.12 There are 2 routes to access the A50 via Junction 24 for vehicles travelling northbound from the the M1 and the A42, one route is to travel up the M1 and the other route is via the A453. As the model is a dynamic model and when running the models for calibration VISSIM assigns flows to each of these routes depending on where delay is in the model.

5.13 The GEH at Junction 24 for the 2 routes were unbalanced where VISSIM was assigning too many vehicles to use the A453 compared to the M1 and therefore, as a result a cost has been assigned to link number 184 of 75/km. this value provides the best split of traffic between the 2 routes and provides a cohesive GEH at J24. The will remain consistent between all forecast modelling scenarios.

6. MODEL CALIBRATION

Traffic Data

6.1 A skeleton LinSig model of the VISSIM network was built and Lights/Heavies turning movements were input into LinSig at 15-minute intervals. LinSig matrix estimation was subsequently used to generate synthetic OD matrices for input into the VISSIM model.

Convergence

6.2 The base model has been developed using dynamic assignment therefore models have been converged prior to extracting results from the model. TfL traffic modelling guidelines indicates that a model is converged if:

- 95% of all path traffic volumes change by less than 5% for at least four consecutive iterations; and
- 95% of travel times on all paths change by less than 20% for at least four consecutive iterations.

6.3 A summary of the convergence is presented in **Table 5** below.

Table 5: Model Convergence Summary

Sim Run	Traffic Volume		Travel Time on Paths	
	AM	PM	AM	PM
1	96%	99%	98%	98%
2	96%	98%	98%	97%
3	97%	98%	97%	96%
4	96%	97%	96%	95%
5	98%	96%	95%	97%
6	96%	95%	99%	96%
7	99%	98%	98%	98%
8	98%	99%	97%	99%
9	98%	97%	98%	99%
10	99%	98%	97%	99%

6.4 Based on the above, it is considered that both morning and evening peak hour models are converged.

Simulation

6.5 Ten iterations of each of the models were run starting at a random seed of 42 and increasing by 5 each interaction. The network performance parameter 'average delay per vehicle' was obtained for each run. The mean of the 10 runs was found for each option and the average was selected for calibration. The results of this process are presented in **Table 6** below.

Table 6: Network Performance

Seed Value	AM PEAK	PM PEAK
	Average Delay per Vehicle	Average Delay per Vehicle
42	52.774	43.351
47	49.629	42.303
52	50.065	44.313
57	52.982	46.324
62	54.638	42.574
67	53.609	41.910
72	54.941	42.829
77	52.246	41.791
82	50.938	41.322
87	52.155	42.929
Average	52.40	42.96
SD	1.70	1.38
Confidence	1.05	0.86

6.6 The stability of the models was judged using the Chi2 goodness of fit test which seeks to demonstrate that statistically the different model runs pass the goodness of fit null hypothesis that there is no significant difference in average delays between the seed values, thus demonstrating stability.

6.7 **Table 7** below demonstrate that, using the Chi2 distribution, in the morning and evening peak models pass the Chi2 goodness of fit test for respective degrees of freedom. The models therefore exhibit suitable stability/repeatability and are fit for purpose.

Table 7: Summary of Seed Stability Assessment

	MORNING PEAK					EVENING PEAK				
Seed	Observed	Expected	o-e	(o-e)2	(o-e)2/e	Observed	Expected	o-e	(o-e)2	(o-e)2/e
42	52.774	52.398	0.376	0	0.003	43.351	42.965	0.387	0.149	0.003
47	49.629	52.398	-2.769	8	0.146	42.303	42.965	-0.662	0.438	0.010
52	50.065	52.398	-2.333	5	0.104	44.313	42.965	1.349	1.819	0.042
57	52.982	52.398	0.584	0	0.007	46.324	42.965	3.360	11.287	0.263
62	54.638	52.398	2.241	5	0.096	42.574	42.965	-0.391	0.153	0.004
67	53.609	52.398	1.211	1	0.028	41.910	42.965	-1.055	1.113	0.026
72	54.941	52.398	2.544	6	0.124	42.829	42.965	-0.136	0.018	0.000
77	52.246	52.398	-0.152	0	0.000	41.791	42.965	-1.173	1.377	0.032
82	50.938	52.398	-1.459	2	0.041	41.322	42.965	-1.643	2.698	0.063
87	52.155	52.398	-0.243	0	0.001	42.929	42.965	-0.036	0.001	0.000
					0.549					0.443
	chi critical	0.05				chi critical	0.05			
	DF	(n-1)	9	=	16.919	DF	(n-1)	9	=	16.919
					Pass as 0.549 is less than 16.919					**Pass as 0.443 is less than 16.919**

Network Performance

6.8 **Table 8** presents a summary of the average Network Performance information.

Table 8: Network Performance

	AM	PM
Average Delay (s)	52	43
Average Speed (mph)	49	51
Vehicles Arrived	18194	18535
Latent Demand	1	0.6

6.9 **Table 8** illustrates that there is minimal latent demand in the morning peak hour period however a review of the error logs indicate that by the end of the cool down period, all vehicles are able to enter the VISSIM network.

Calibration Methodology

6.10 The Design Manual for Roads and Bridges (DMRB) defines model calibration as "the process of adjusting the parameters used in the various mathematical relationships within the model to reflect the data as well as is necessary to reflect the model objectives". The model calibration process ensures that model has the ability to exhibit characteristics that accurately compare with observed data.

6.11 The model calibration has been undertaken over a model period of 1.0 hour in the morning peak (07:30 – 08:30) and 1 hour in the evening peak (17:00 – 18:00). These periods of calibration do not include the 'warm up' and 'cool down' period before and after the identified 07:30 – 08:30 and 17:00 – 18:00 morning and evening peak hours.

Traffic Flow Calibration

6.12 The Design Manual for Roads and Bridges (DMRB) defines model calibration as "the process of adjusting the parameters used in the various mathematical relationships within the model to reflect the data as well as is necessary to reflect the model objectives". The model calibration process ensures that the model has the ability to exhibit characteristics that accurately compare with observed data.

6.13 DfT Transport Analysis Guidance (TAG) states that the calibration of traffic data in a model should be based on the Geffrey E.Havers (GEH) statistic, and states that modelled flows must have a GEH value of less than 5 in at least 85% of the cases.

6.14 The turning count calibration for the base model has been based on the average of all simulation runs. **Table** 9 provides a summary of the comparison between the observed and modelled total turning movements within the model.

Table 9: Summary of Traffic Flow Calibration

	Total Turns	Counts GEH<5
Morning Peak	59	92%
Evening Peak	59	93%

3.1 The above table represent a pass rate of over 85% for a GEH of less than 5 in both peak hour periods. The model is therefore considered to be fit for purpose. A copy of the full output is presented in **Appendix 1**.

7. MODEL VALIDATION

Introduction

7.1 TAG Unit M3.1 states that "for journey time calibration, the measure which should be used is: the percentage difference between modelled and observed journey times, subject to an absolute maximum difference". Subsequently, Table 3 of TAG states that the "modelled times along routes should be within 15% of surveyed times or 1 minute, if higher than 15%."

Travel Time Survey

7.2 TomTom journey time survey was obtained at 15 minute intervals for the neutral days within the month of November 2023 during the peak hours.

7.3 **Figure 4** and **5** provides routes utilised for journey time validation.

Figure 4: Journey Time Routes (1 - 10)

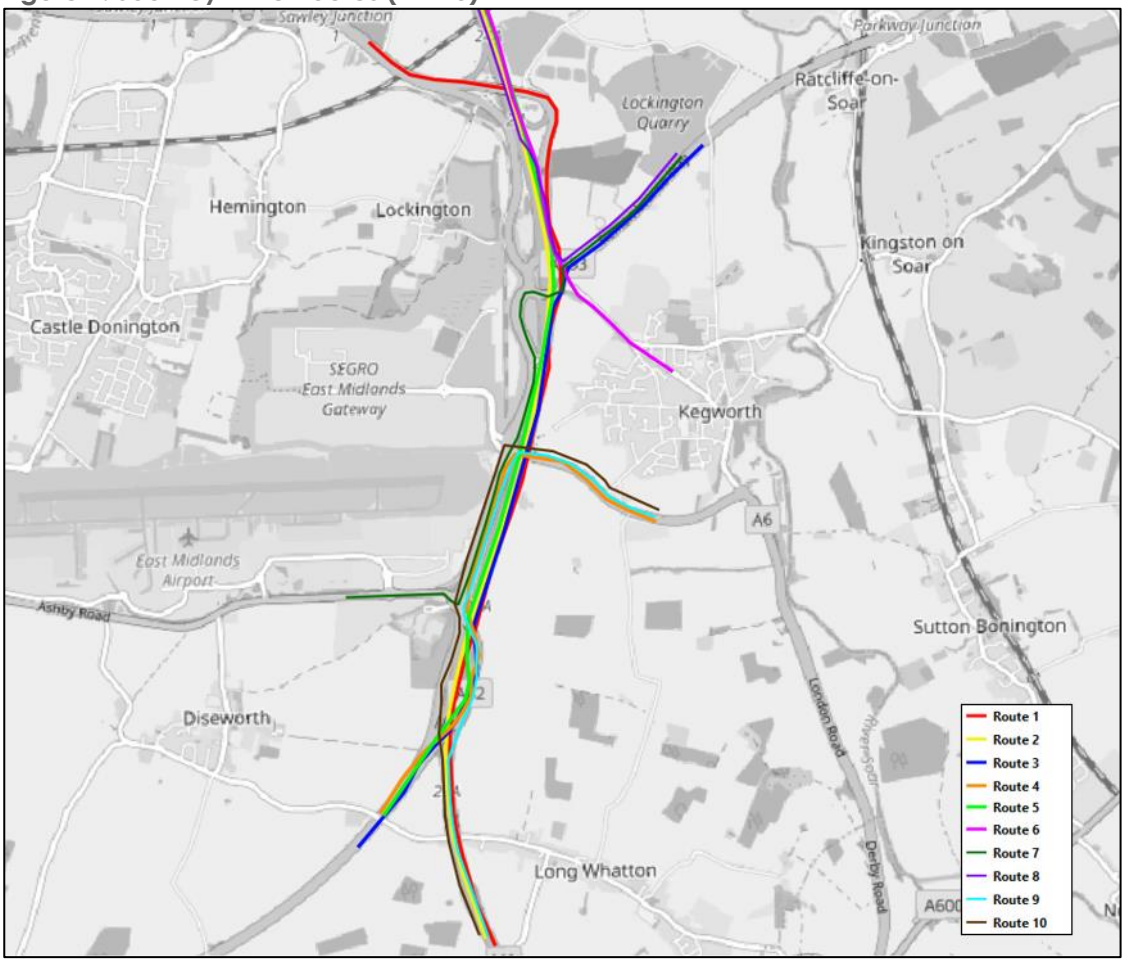
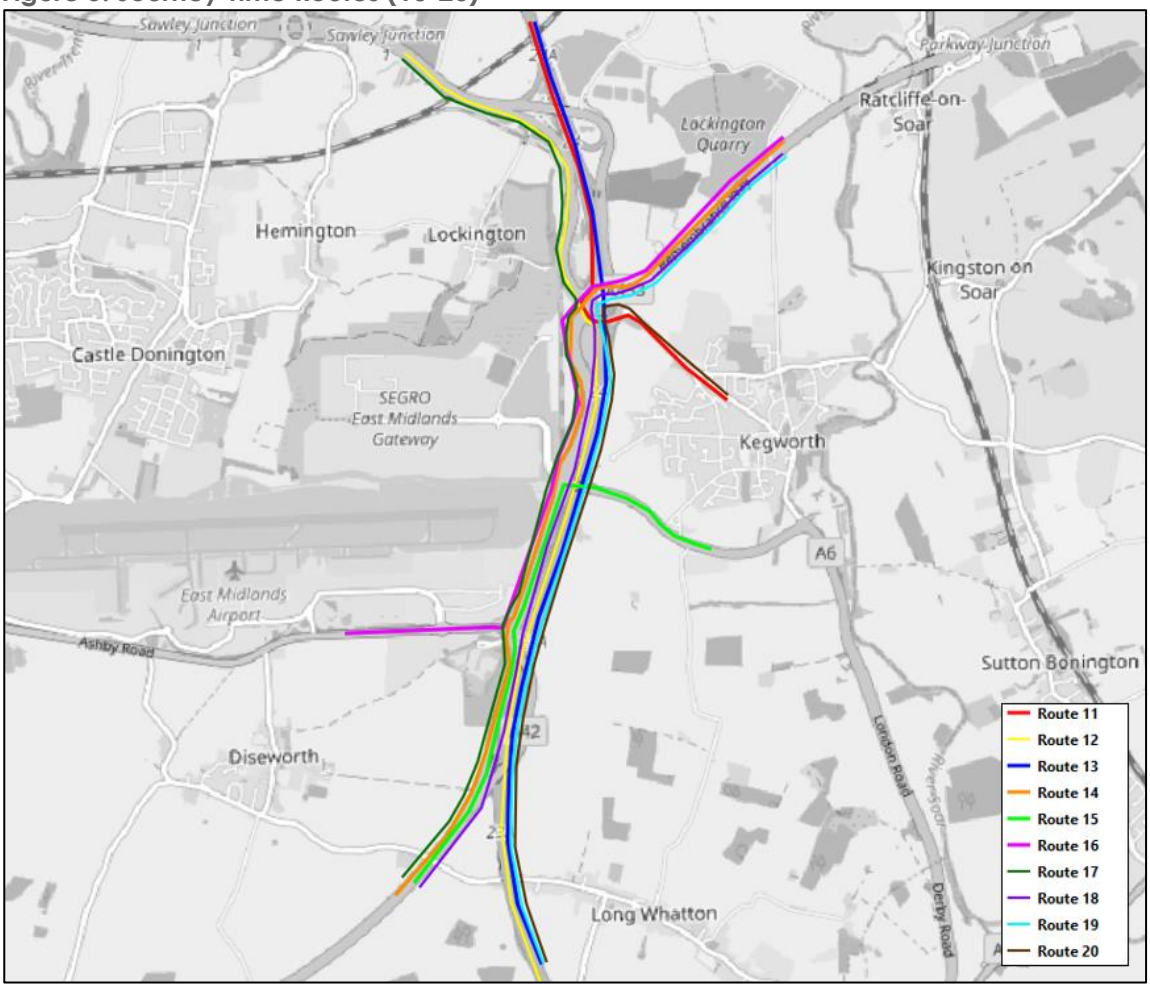


Figure 5: Journey Time Routes (10-20)



7.4 Details of the origin and destination of the routes identified above is provided below:

- Route 1 – A50 to M1 South
- Route 2 – M1 North to M1 South
- Route 3 – A453 Rememberance Way to A42
- Route 4 – Kegworth Bypass to A42
- Route 5 - M1 North to A42
- Route 6 – M1 North to Derby Road
- Route 7 – A453 Rememberance Way to A453 EMA
- Route 8 – M1 North to A453 Rememberance Way
- Route 9 – Kegworth Bypass to M1 South
- Route 10 - M1 South to Kegworth Bypass
- Route 11 – Derby Road to M1 North
- Route 12 – M1 South to A50
- Route 13 – M1 South to M1 North
- Route 14 – A42 to A453 Rememberance Way via A453

- Route 15 - A42 to Kegworth Bypass
- Route 16 – A453 EMA to A453 Rememberance Way
- Route 17 – A42 to A50 via A453
- Route 18 – A42 to A453 Rememberance Way via M1
- Route 19 – M1 South to A453 Rememberance Way via M1
- Route 20 - M1 South to Derby Road via M1

Validation Results

7.5 Model validation has been undertaken using 10 simulation seed runs as illustrated in **Table 7**. The average journey time for each full route has been compared with the surveyed journey times and the resultant output is presented in **Table 10** below.

Table 10: Travel Time Validation

Route	AM			PM		
	Observed	Modelled	% Difference	Observed	Modelled	% Difference
1	489	349	-28.6%	413	321	-22.4%
2	358	333	-6.9%	352	315	-10.4%
3	318	310	-2.5%	353	305	-13.6%
4	271	308	13.5%	269	288	7.2%
5	377	324	-14.0%	359	312	-13.0%
6	311	285	-8.5%	299	260	-12.9%
7	397	389	-1.9%	445	367	-17.4%
8	271	278	2.7%	255	258	1.4%
9	293	305	4.2%	294	291	-1.1%
10	318	338	6.4%	338	337	-0.4%
11	325	343	5.7%	394	339	-13.9%
12	374	348	-7.0%	408	361	-11.5%
13	331	327	-1.3%	397	356	-10.2%
14	393	424	7.9%	427	392	-8.2%
15	293	324	10.4%	314	297	-5.5%
16	389	400	2.8%	443	412	-6.9%
17	343	353	2.8%	414	441	6.5%
18	372	360	-3.2%	370	339	-8.4%
19	393	375	-4.7%	394	376	-4.5%
20	433	373	-13.8%	438	377	-13.9%

Table 11: Travel Time Validation Summary

	<15%	
	AM	PM
Fail	1	2
Pass	19	18
Total	20	20
%	95%	90%

7.6 **Table 8** illustrates that the over 85% of the journey times validate within 15% therefore it is considered the model is fit for purpose for future year assessment.

8. SUMMARY & CONCLUSIONS

8.1 BWB Consulting Ltd (BWB) has been appointed by SEGRO (the Applicant) to produce a microsimulation traffic model of the M1 Junction 24, in support of an outline planning application for the Phase 2 Expansion of the East Midlands Gateway (EMG) site.

8.2 The gross floor area (GFA) of the proposed scheme is approximately 3.23 million sqft (300,000sqm) comprising of 80% B8 use and 20% for B2 use, all with ancillary office use.

8.3 Traffic surveys were undertaken in November 2022 and subsequently a base VISSIM model of the study area has been developed by BWB.

8.4 The model was calibrated using observed and modelled turning movements during the peak hours at a 15-minute interval. These were assessed against DfT modelling guidelines and it was concluded that the base model satisfies both criterias.

8.5 Modelled journey times indicate that over 85% of these validate within 15% of observed data therefore it is considered the model is 'fit for purpose'.

APPENDICES

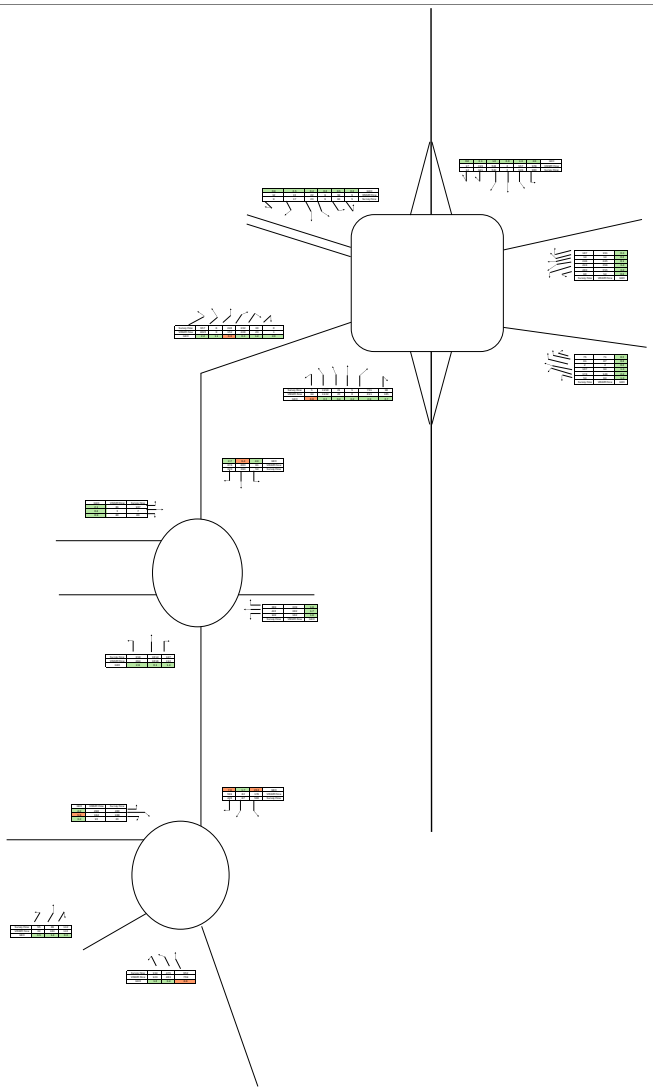
APPENDIX 1: TURNING COUNT CALIBRATION

AM Peak			Survey Flow	VISSIM Flow	Difference (M - C)	% Difference	GEH	GEH <5
Junction	From	To						
Junction 1	A453 (N)	M1 J23A Access	560	176	384	218%	20.02	Fail
Junction 1	A453 (N)	Donington Services Access	67	82	-15	-18%	1.74	Pass
Junction 1	A453 (N)	A453 (W)	420	591	-171	-29%	7.61	Fail
Junction 1	M1 J23A Access	Donington Services Access	134	123	11	9%	0.97	Pass
Junction 1	M1 J23A Access	A453 (W)	475	403	72	18%	3.44	Pass
Junction 1	M1 J23A Access	A453 (N)	952	759	193	25%	6.60	Fail
Junction 1	Donington Services Access	A453 (W)	55	32	23	72%	3.49	Pass
Junction 1	Donington Services Access	A453 (N)	89	103	-14	-14%	1.43	Pass
Junction 1	Donington Services Access	M1 J23A Access	112	115	-3	-3%	0.28	Pass
Junction 1	A453 (W)	A453 (N)	408	498	-90	-18%	4.23	Pass
Junction 1	A453 (W)	M1 J23A Access	249	164	85	52%	5.92	Fail
Junction 1	A453 (W)	Donington Services Access	23	10	13	130%	3.20	Pass
Junction 2	M1 J24 (N)	A453 (N)	900	979	-79	-8%	2.58	Pass
Junction 2	M1 J24 (N)	To Derby Road	526	557	-31	-6%	1.33	Pass
Junction 2	M1 J24 (N)	To M1 J24 (S)	0	0	0	0%	0.00	Pass
Junction 2	M1 J24 (N)	A453 (S)	542	520	22	4%	0.95	Pass
Junction 2	M1 J24 (N)	A50	321	319	2	1%	0.11	Pass
Junction 2	M1 J24 (N)	Hilton Hotel Lane	14	17	-3	-18%	0.76	Pass
Junction 2	A453 (N)	Derby Road	60	54	6	11%	0.79	Pass
Junction 2	A453 (N)	M1 J24 (S)	483	555	-72	-13%	3.16	Pass
Junction 2	A453 (N)	A453 (S)	424	356	68	19%	3.44	Pass
Junction 2	A453 (N)	A50	246	245	1	0%	0.06	Pass
Junction 2	A453 (N)	Hilton Hotel Lane	14	14	0	0%	0.00	Pass
Junction 2	A453 (N)	M1 J24 (N)	187	191	-4	-2%	0.29	Pass
Junction 2	Derby Road	M1 J24 (S)	54	64	-10	-16%	1.30	Pass
Junction 2	Derby Road	A453 (S)	174	146	28	19%	2.21	Pass
Junction 2	Derby Road	A50	107	94	13	14%	1.30	Pass
Junction 2	Derby Road	Hilton Hotel Lane	2	2	0	0%	0.00	Pass
Junction 2	Derby Road	M1 J24 (N)	61	67	-6	-9%	0.75	Pass
Junction 2	Derby Road	A453 (N)	75	71	4	6%	0.47	Pass
Junction 2	M1 J24 (S)	A453 (S)	5	34	-29	-85%	6.57	Fail
Junction 2	M1 J24 (S)	A50	1150	1132	18	2%	0.53	Pass
Junction 2	M1 J24 (S)	Hilton Hotel Lane	21	23	-2	-9%	0.43	Pass
Junction 2	M1 J24 (S)	M1 J24 (N)	5	0	5	0%	3.16	Pass
Junction 2	M1 J24 (S)	A453 (N)	731	811	-80	-10%	2.88	Pass
Junction 2	M1 J24 (S)	Derby Road	98	105	-7	-7%	0.69	Pass
Junction 2	A453 (S)	A50	957	1025	-68	-7%	2.16	Pass
Junction 2	A453 (S)	Hilton Hotel Lane	6	9	-3	-33%	1.10	Pass
Junction 2	A453 (S)	M1 J24 (N)	240	152	88	58%	6.29	Fail
Junction 2	A453 (S)	A453 (N)	232	228	4	2%	0.26	Pass
Junction 2	A453 (S)	Derby Road	30	23	7	30%	1.36	Pass
Junction 2	Hilton Hotel Lane	M1 J24 (N)	5	5	0	0%	0.00	Pass
Junction 2	Hilton Hotel Lane	A453 (N)	63	59	4	7%	0.51	Pass
Junction 2	Hilton Hotel Lane	Derby Road	9	9	0	0%	0.00	Pass
Junction 2	Hilton Hotel Lane	M1 J24 (S)	23	22	1	5%	0.21	Pass
Junction 2	Hilton Hotel Lane	A453 (S)	17	15	2	13%	0.50	Pass
Junction 2	Hilton Hotel Lane	A50	9	12	-3	-25%	0.93	Pass
Junction 3	A453 (N)	A6 Kegworth Bypass	54	91	-37	-41%	4.35	Pass
Junction 3	A453 (N)	A453 (S)	393	603	-210	-35%	9.41	Fail
Junction 3	A453 (N)	Wilders Way	323	374	-51	-14%	2.73	Pass
Junction 3	A6 Kegworth Bypass	A453 (S)	142	162	-20	-12%	1.62	Pass
Junction 3	A6 Kegworth Bypass	Wilders Way	415	382	33	9%	1.65	Pass
Junction 3	A6 Kegworth Bypass	A453 (N)	369	339	30	9%	1.59	Pass
Junction 3	A453 (S)	Wilders Way	219	264	-45	-17%	2.90	Pass
Junction 3	A453 (S)	A453 (N)	1014	1016	-2	0%	0.06	Pass
Junction 3	A453 (S)	A6 Kegworth Bypass	127	112	15	13%	1.37	Pass
Junction 3	Wilders Way	A453 (N)	107	86	21	24%	2.14	Pass
Junction 3	Wilders Way	A6 Kegworth Bypass	7	5	2	40%	0.82	Pass
Junction 3	Wilders Way	A453 (S)	80	88	-8	-9%	0.87	Pass

	<5
Fail	7
Pass	52
Total	59
%	88%

AM Peak			Survey Flow	VISSIM Flow	Difference (M - C)	% Difference	GEH	GEH <5
Junction	From	To						
Junction 1	A453 (N)	M1 J23A Access	367	209	158	76%	9.31	Fail
Junction 1	A453 (N)	Donington Services Access	88	73	15	21%	1.67	Pass
Junction 1	A453 (N)	A453 (W)	178	187	-9	-5%	0.67	Pass
Junction 1	M1 J23A Access	Donington Services Access	138	137	1	1%	0.09	Pass
Junction 1	M1 J23A Access	A453 (W)	420	406	14	3%	0.69	Pass
Junction 1	M1 J23A Access	A453 (N)	771	767	4	1%	0.14	Pass
Junction 1	Donington Services Access	A453 (W)	53	60	-7	-12%	0.93	Pass
Junction 1	Donington Services Access	A453 (N)	88	95	-7	-7%	0.73	Pass
Junction 1	Donington Services Access	M1 J23A Access	124	146	-22	-15%	1.89	Pass
Junction 1	A453 (W)	A453 (N)	587	498	89	18%	3.82	Pass
Junction 1	A453 (W)	M1 J23A Access	253	316	-63	-20%	3.74	Pass
Junction 1	A453 (W)	Donington Services Access	51	59	-8	-14%	1.08	Pass
Junction 2	M1 J24 (N)	A453 (N)	907	949	-42	-4%	1.38	Pass
Junction 2	M1 J24 (N)	To Derby Road	545	528	17	3%	0.73	Pass
Junction 2	M1 J24 (N)	To M1 J24 (S)	4	0	4	0%	2.83	Pass
Junction 2	M1 J24 (N)	A453 (S)	182	141	41	29%	3.23	Pass
Junction 2	M1 J24 (N)	A50	240	221	19	9%	1.25	Pass
Junction 2	M1 J24 (N)	Hilton Hotel Lane	10	9	1	11%	0.32	Pass
Junction 2	A453 (N)	Derby Road	74	72	2	3%	0.23	Pass
Junction 2	A453 (N)	M1 J24 (S)	813	865	-52	-6%	1.80	Pass
Junction 2	A453 (N)	A453 (S)	294	356	-62	-17%	3.44	Pass
Junction 2	A453 (N)	A50	405	376	29	8%	1.47	Pass
Junction 2	A453 (N)	Hilton Hotel Lane	11	9	2	22%	0.63	Pass
Junction 2	A453 (N)	M1 J24 (N)	263	269	-6	-2%	0.37	Pass
Junction 2	Derby Road	M1 J24 (S)	51	59	-8	-14%	1.08	Pass
Junction 2	Derby Road	A453 (S)	88	87	1	1%	0.11	Pass
Junction 2	Derby Road	A50	135	133	2	2%	0.17	Pass
Junction 2	Derby Road	Hilton Hotel Lane	2	2	0	0%	0.00	Pass
Junction 2	Derby Road	M1 J24 (N)	87	89	-2	-2%	0.21	Pass
Junction 2	Derby Road	A453 (N)	57	61	-4	-7%	0.52	Pass
Junction 2	M1 J24 (S)	A453 (S)	5	1	4	400%	2.31	Pass
Junction 2	M1 J24 (S)	A50	1089	980	109	11%	3.39	Pass
Junction 2	M1 J24 (S)	Hilton Hotel Lane	14	15	-1	-7%	0.26	Pass
Junction 2	M1 J24 (S)	M1 J24 (N)	0	0	0	0%	0.00	Pass
Junction 2	M1 J24 (S)	A453 (N)	528	686	-158	-23%	6.41	Fail
Junction 2	M1 J24 (S)	Derby Road	76	95	-19	-20%	2.05	Pass
Junction 2	A453 (S)	A50	999	875	124	14%	4.05	Pass
Junction 2	A453 (S)	Hilton Hotel Lane	5	5	0	0%	0.00	Pass
Junction 2	A453 (S)	M1 J24 (N)	323	347	-24	-7%	1.31	Pass
Junction 2	A453 (S)	A453 (N)	256	269	-13	-5%	0.80	Pass
Junction 2	A453 (S)	Derby Road	41	33	8	24%	1.32	Pass
Junction 2	Hilton Hotel Lane	M1 J24 (N)	15	15	0	0%	0.00	Pass
Junction 2	Hilton Hotel Lane	A453 (N)	20	21	-1	-5%	0.22	Pass
Junction 2	Hilton Hotel Lane	Derby Road	10	10	0	0%	0.00	Pass
Junction 2	Hilton Hotel Lane	M1 J24 (S)	8	7	1	14%	0.37	Pass
Junction 2	Hilton Hotel Lane	A453 (S)	4	3	1	33%	0.53	Pass
Junction 2	Hilton Hotel Lane	A50	11	10	1	10%	0.31	Pass
Junction 3	A453 (N)	A6 Kegworth Bypass	77	94	-17	-18%	1.84	Pass
Junction 3	A453 (N)	A453 (S)	305	194	111	57%	7.03	Fail
Junction 3	A453 (N)	Wilders Way	243	223	20	9%	1.31	Pass
Junction 3	A6 Kegworth Bypass	A453 (S)	132	139	-7	-5%	0.60	Pass
Junction 3	A6 Kegworth Bypass	Wilders Way	402	388	14	4%	0.70	Pass
Junction 3	A6 Kegworth Bypass	A453 (N)	389	388	1	0%	0.05	Pass
Junction 3	A453 (S)	Wilders Way	90	136	-46	-34%	4.33	Pass
Junction 3	A453 (S)	A453 (N)	1026	906	120	13%	3.86	Pass
Junction 3	A453 (S)	A6 Kegworth Bypass	187	328	-141	-43%	8.79	Fail
Junction 3	Wilders Way	A453 (N)	221	214	7	3%	0.47	Pass
Junction 3	Wilders Way	A6 Kegworth Bypass	19	17	2	12%	0.47	Pass
Junction 3	Wilders Way	A453 (S)	140	138	2	1%	0.17	Pass

	<5
Fail	2
Pass	45
Total	47
%	96%



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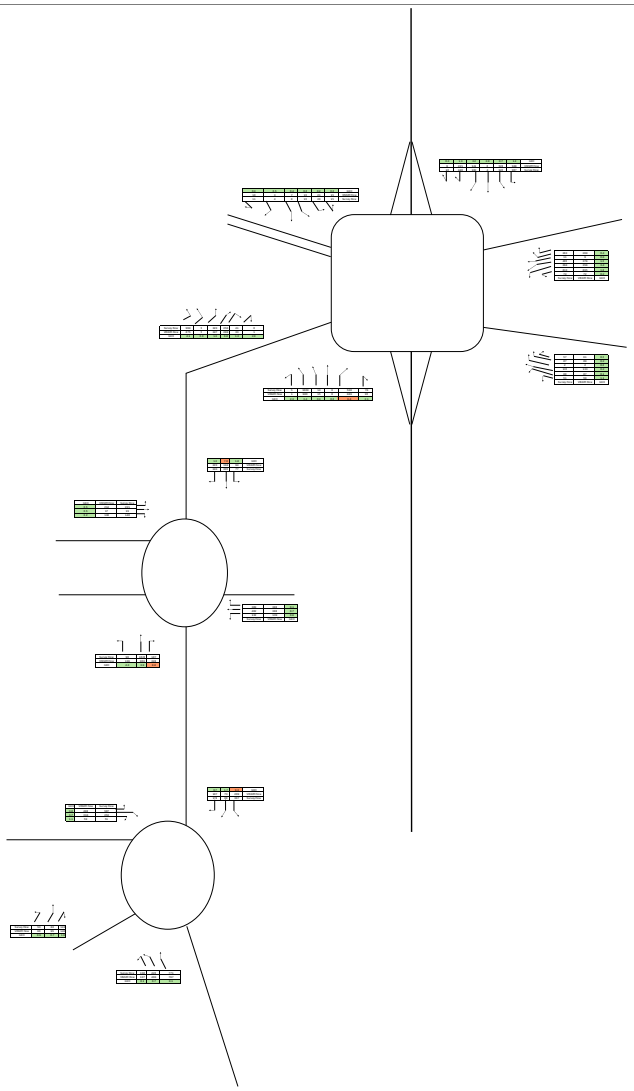
Project	East Midlands Gateway Phase 2		
Drawn	CC	**Approved**	VD
Checked	CC	**Date**	03.03.25

Drawing Title

GEM Comparison AM

Project Number

220500



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Checked	CC	**Date**	03.03.25

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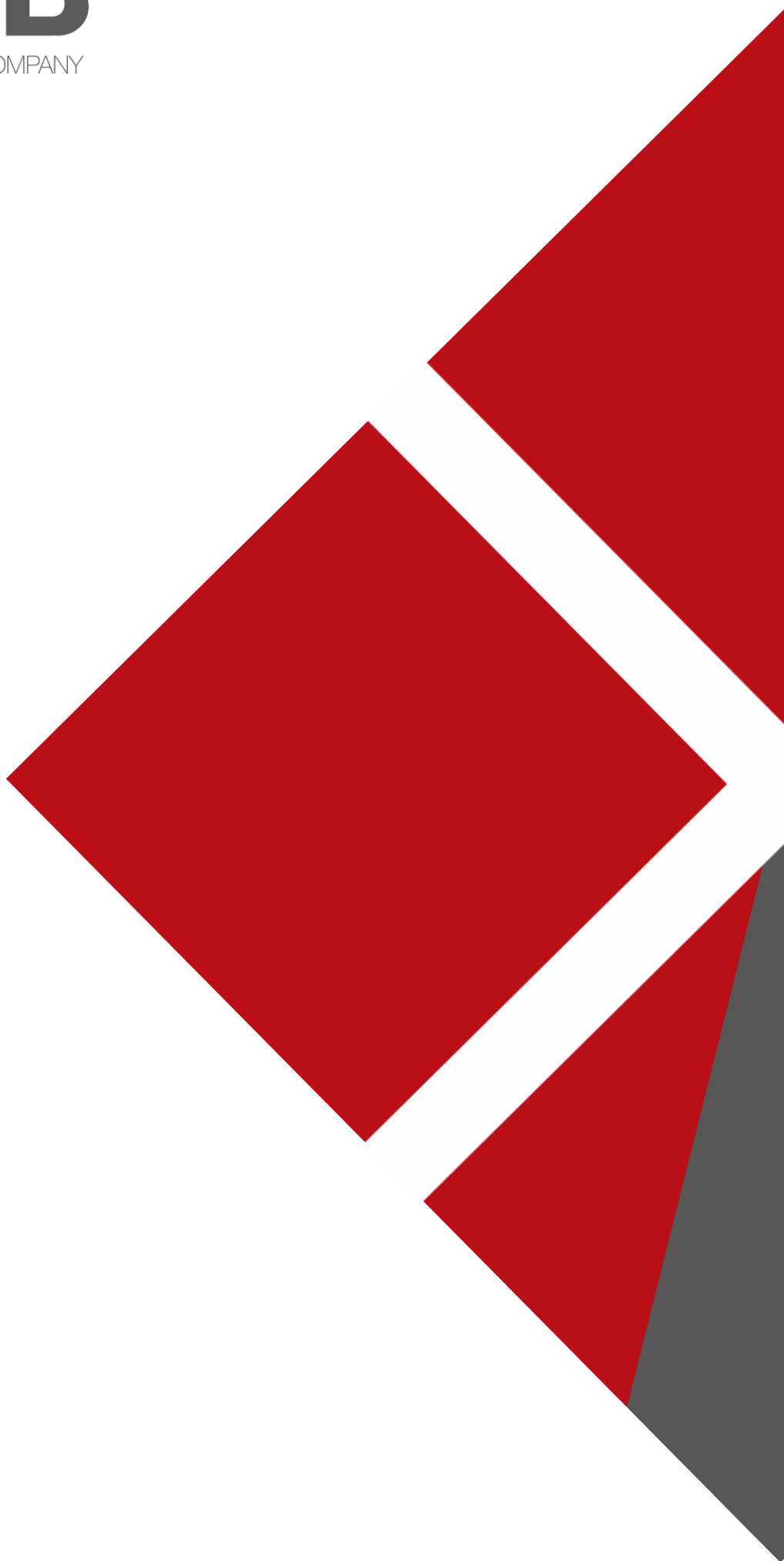
GEM Comparison PM

Project Number

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APPENDIX 47: National Highways Technical Note agreeing base Junctions 11 models

Tech Note

Spatial Planning Framework Commission

Prepared by Jacobs-SYSTRA Joint Venture (JSJV) for the National Highways National Spatial Planning Contract 2021 in relation to the South East Region

Job number:	B2428400		
Job title:	East Midlands Gateway Phase 2		
To:	Paul Wilson (BWB), Matt Corner (BWB), Vibeeshan Devaharan (BWB) and Ian Rigby (Segro).	**cc:**	Catherine Townend (NH) & Steve Freek (NH). EMG2 TWG (Highway Authorities only).
Topic:	Base Junction Models Review - EMG2		

	Prepared:	**Checked**	**Approved**
Name:	L Templeman	A Chandler-Hurst	G Nock
Date:	3rd June 2024	3rd June 2024	5th June 2024

Introduction

BWB have prepared a series of isolated junction models as part of the emerging Transport Assessment for the East Midlands Gateway Phase 2 development. National Highways has commissioned JSJV to carry out a review of the existing situation / base (ARCADY, LinSig and PICADY) models in relation to the Strategic Road Network (SRN).

Purpose of Audit

The aim of the model audit is to ensure that the supplied models have been developed in accordance with best practice, are a reasonable and robust approximation of the actual highway network and are sufficiently well calibrated and validated to observed flows and conditions.

This review has been undertaken in relation to junctions on or close to the SRN.

Items Reviewed

The following items have been supplied, via WeTransfer on 26th January 2024 and 1st February 2024, for the purposes of the model audit which include junction models for 12 different sites comprising a mix of signalised junctions (LinSig), roundabouts (ARCADY) and major-minor priority junctions (PICADY):

- EMG2-BWB-GEN-XX-RP-TR-0007_Modelling Validation Report_P1.pdf;
- **Junction 6**: 230124 A453_Airport Access Signal Junction (BASE ONLY).lsg3x (LinSig model);

- **Junction 6**: A453 East Midlands Airport Entrance controller specification;
- **Junction 7**: 230124 A453_Grimes Gate (BASE ONLY).j10 (PICADY model);
- **Junction 7**: A453_Grimes Gate PICADY Measurements.pdf;
- **Junction 8**: Import of 230124 A453_The Green (BASE ONLY).j10 (PICADY model);
- **Junction 8**: A453_The Grn PICADY Measurements.pdf;
- **Junction 9**: 230124 A453_EMA Roundabout (BASE ONLY).j10 (ARCADY model);
- **Junction 9**: A453_EMA Roundabout ARCADY Measurements.pdf;
- **Junction 11:** A453_Gelscoe Lane_Top Brand roundabout (BASE ONLY).j10 (ARCADY model);
- **Junction 11:** Junction Measurements-Layout1.pdf;
- **Junction 10:** 230124 A453_Local Road Signal Junction (BASE ONLY).lsg3x (LinSig model);
- **Junction 10:** A454 Copice Corner junction layout drawing and controller specification;
- **Junction 12**: M1 Junction 23 (BASE ONLY).lsg3x (LinSig model);
- **Junction 12**: M1 Junction 23 layout drawing and controller specification;
- **Junction 13**: A50 Junction 1 (BASE ONLY).lsg3x (LinSig model);
- **Junction 13**: A50 J1 traffic signal information layout (controller configuration and MOVA data);
- **Junction 14**: M1 Junction 25 (BASE ONLY).lsg3x (LinSig model);
- **Junction 14**: M1 Junction 25 controller specification documents;
- **Junction 15**: Import of Station Road_Broad Rushes roundabout (BASE ONLY).10 (ARCADY model);
- **Junction 15**: [Station Road_Broad Rushes roundabout] Junction Measurements-Layout1.pdf
- **Junction i:** Import of West Leake Lane.j10 (ARCADY model);
- **Junction i:** A453_West Leake Lane ARCADY Measurements-BWB_A1_H;
- **Junction ii:** Import of A453 Kegworth Road.j10 (ARCADY model);
- **Junction ii:** Junction Measurements Kegworth Road-BWB_A1_H.pdf;

Updated models (where models required revision) were received from BWB on 5th April 2024 with further comments issued by JSJV on 19th April 2024.

A further, and final, re-submission from BWB addressing the outstanding comments on the base models was received on 14th May 2024.

Methodology

Issues are categorised according to the categories in Table 1: -

Table 1: Review Categorisations

Classification	Description
Observations	are points for consideration on an issue that would not significantly affect model operation or output.
Comments	which may identify particular assumptions, technical approaches or guidance references which may be deemed inadequate but may not influence the result of the analysis. The main function is to highlight such issues for attention in subsequent project stages or for future projects.
Substantive Issues	which require corrective action. The audit will suggest the detailed action required to address the issue, although there should be freedom for the model development team to use alternative approaches in order to achieve the required level of analysis.

Model Audit

The findings from the junction model audits are shown in the comment tracker table contained in **Appendix A**. The comments have been updated following successive update submissions from BWB over a number of iterations with the responses from BWB and their consideration by JSJV fully detailed in the table.

Summary

This Technical Note details the findings of a review of 12 existing situation / base (ARCADY, LinSig and PICADY) junction models prepared by BWB in support of the East Midlands Gateway Phase 2 development.

Following a number of re-submissions to address the comments raised in the initial audit and further review-work, the models are now considered suitable for their use in assessing the impacts of the East Midlands Gateway Phase 2 development on the SRN.

It is recommended that approval/ views are sought from the relevant Local Highway Authorities with regards to the junction models of the respective local road network junctions.

Appendix A: Model Audit Comment Tracker

Appendix A: EMG2 Junction Model Audit Comment Tracker

		JSAV Comment (8th February 2024)	BMB Response (5th April 2024)	BMB Action (5th April 2024)	JSAV Further Comments (10th April 2024)	BMB Comments (14th May 2024)	JSAV Further Comments (2nd June 2024)
Junction 1 A40 East Roundabout Upgrade	1	Network: Am 31sa been modelled as two lane,however the flare is only circa 80m in length so one of the lanes should be modelled as a "short" 80m lane. Whilst this may not have much influence on the base year modelling, it will become more important in form-ulat years with higher volumes on this arm (priority: Substantive Issue)	Agreed	Amended	Amendment confirmed. No further action		
	2	Network: lane saturation flows are considered reasonable. Total av reservoir has been selected for all lanes which yields robust saturation flows which is welcomed (priority: Observation)	Agreed	Amended	No further action		
	3	Network: the model assumes give-way behaviour on the offside lane for the A403 eastbound and 2-1 merge. This is singular however it is a novel way of ensuring that the secondary eastbound streamline is not used by an unrealistic volume of traffic leading to non-optimistic capacity modelling. These parameters will need to be maintained on forecast testing, ensuring that the merge remains present in the future (priority: Observation)	Agreed	This will be review in any future year modelling to ensure realistic lane usage	No further action		
	4	Flow and Journey Time: the model is calibrated to a reasonable standard against the relevant criteria. Appendix A2.7 recommends volumes of 7/15 PCUs/hr Practical Reserve and a coefficient of 0.15 for gamma which has been correctly implemented (priority: Substantive Issue)	Agreed	Amended	No Further Action	Amendments/changes confirmed and accepted.	
	5	Controller: modelled phase delays appear to be different from those in the supplied controller configurations. An examination of the latter suggests that no phase delays are used for the model, since those in the controller information mainly relate to event-to-event all-red stages. Please check (priority: Substantive Issue)	Agreed	Amended	Amendment confirmed. No further action		
	6	Stage Sequence: modelling assumes appearance of Stage 3 (Depart Access all-moves) every third cycle. BMB need to clarify the basis upon which this assumption has been revised. Whilst the right turn volumes are relatively small (99 PCUs AM and 85 PCUs PM), there is sufficient traffic for one vehicle roughly every minute which would equate to a cycle appearance of the right turn. In addition, this assumption will tend to be reviewed for the forecast years when the right turn volumes may be higher (priority: Comment).	The values of the survey have been reviewed to determine how often stage 3 is activated. The video showed that in the morning peak period stage 3 is used a total of 14 times within the hour. As a result of this in the tuning model it has been coded that stage 3 activates every 300s. This is 3 cycles in the AM peak period. In the PM peak period, the model has been coded to have a fixed time cycle and stage 3 activates every 300s.	Agreed	Amended in Validation Report to reflect changes set out above.	Confirmed confirmed although requested that values be put in the report to clarify the model. especially for the AM peak hour	Stage cycle switch to base green times (Shown on 'Bonus Green Time Calcs' tab) for AM peak period, A403 east 3 cycles after a stage 3 has been activated. This will result compared to however conversion of Lanes 2/1a long lane overtime with the observed Bolt meetings despite the flare having sufficient stacking capacity to end Work Zone 1. Furthermore a new additional tab 'Queue Comparison' has been provided which illustrates the models flow purposes.	Amendments/changes confirmed and accepted.
Junction 2 A40 Oak Meadows Link & A40 Junction 1	1	Proximity: Measurements of junction geometry and their input into the model appear generally acceptable. However, the Rhee arm has a modelled flare length value of two cycle (approximately 10 - 12 metres). An examination of the layout shows that the near-side vehicle waiting to turn right, which is the dominant movement at the junction, would block access to the left turn flare. Consider using a flare length of one PCU (priority: Comment) and	Agreed	Amended	Amendment confirmed. No further action		
	2	Validation: Table 2 of the BMB HVR compares observed and modelled queue lengths. The comparison indicates that the PICADY model is under-estimating queuing, although the differences are small, and the overall level of observed queuing is minimal (priority: Observation)	Agreed	Amended in Validation Report to reflect changes set out above.	Amendment confirmed. No further action		
	3	Validation: Table 3 of the BMB HVR compares observed and modelled queues which show that there is a close match between observed and modelled queuing (priority: Observation) and	Agreed	N/A	No further action	Rose Phalen Approved	Amendments/changes confirmed and accepted.
	4	Validation: Table 3 of the BMB HVR compares observed and modelled queues which show that there is a close match between observed and modelled queuing (priority: Observation) and	Agreed	N/A	No further action	Rose Phalen Approved	Amendments/changes confirmed and accepted.
	5	Proximity: measurements of the roundabout geometry and their input into the model are generally acceptable (priority: Observation)	Agreed	Amended	Amendment confirmed. No further action		
Junction 3 A40 East Roundabout Upgrade & Flyover	1	Lane usage: the model assumes that two entry lanes for the A403 arm which has been weighted to one lane's distance of approximately 80m on both A403 arms. This appears to be a reasonable assumption based on the video survey. The model has been calibrated to a reasonable standard (priority: Observation) Please could you refer survey of the site be reviewed to validate this and the model corrected accordingly, either through informal discussion along the Bureau Chord methodology (see https://www.jcbroadway.co.uk/home/dcs_cms_archive/m6Morning.pdf) or ARCADY's Lane Analysis modelling (priority: Substantive Issue); and	Agreed	Model has been change to junctions 10 junior simulation model which allows for coding of which lanes can exit which arms and, in this case, the left turn lane which is the dominant movement in the AM peak traffic that it avoids using the lane. A review of the video survey shows that approx 20% of vehicle use the secondary ahead lane and therefore that is what has been coded into the model.	The use of the Lane Simulation outputs is welcomed. However, the coding for secondary lane use does not appear to be correctly applied. For this to work, the secondary lane has to be de-selected from 'Normal Movements' and then selected under 'Secondary Movements'. Formulation report may need to be updated following correct application of secondary lane modelling (see above)	Model has been amended and queue comparison has been provided on 'Queue Comparison' tab	
	2	Validation: Table 8 of the BMB HVR compares observed and modelled queues which show that there is a close match between observed and modelled queuing especially in the AM. However, validation will need to be re-checked depending on the queue survey checks on lane distribution as mentioned in Point 2 above (priority: Observation)	Agreed	Amended in Validation Report to reflect changes set out above.	Formulation report may need to be updated following correct application of secondary lane modelling (see above)		
	3	Network: Lane saturation flows are acceptable. Treat as reservoir has been selected for all lanes which yields robust saturation flows which is welcomed (priority: Observation)	N/A	N/A			
Junction 4 A40 Junction with Whitethorn Lane & Flyover	1	Controller: modelled controller parameters are consistent with the controller configuration information. However, there are discrepancies that raise some concern that the controller information might not be correct as built. These include: (a) Drawing 1 Rev A shows that the crossings at the junction are uncontrolled, however the controller information (and model) includes phases and inter-greens for these; and (b) the model assumes that the A40 eastbound movement (Phase 8) runs during Stage 3 (Phase 3). Whilst this is not impossible, it is unusual. Please could BMB confirm that this is the current controller information, as there might be other changes to which the model needs to take into account (priority: Substantive Issue); and	Agreed, upon checking the controller spec and reviewing google maps in the current year the data that has been provided is still data	Latest Signal data received and model has been updated accordingly	Amendments confirmed. No further action	Rose Phalen Approved	Amendments/changes confirmed and accepted.
	2	Validation: Table 18 of the MVR compares observed and modelled DoS. This suggest that the model validates well and is therefore acceptable, although confirmation of the controller configuration, as set out above, is needed (priority: Observation)	Agreed	Amended in Validation Report to reflect changes set out above.	Amendments confirmed. No further action		
	3	Proximity: Measurements of the roundabout geometry and their input into the model are generally acceptable (priority: Observation)	N/A	N/A	No further Action	No Further Action	Amendments/changes confirmed and accepted.
Junction 5 A40 Junction with Whitethorn Lane & Flyover	1	Lane usage: The model uses standard ARCADY analysis which assumes that all entry capacity is used by all entering traffic. However, examination of the modelled turning movements shows that certain movements are dominant which would result in traffic being forced in times of lane-choice reducing overall entry capacity. Please therefore check and correct mismatches as per the Bureau Chord methodology for both base and any subsequent forecast scenarios (priority: Substantive Issue); and	Agreed	The junction has been modelled using junctions 10 lane simulation type which allows modelling for unequal lane usage. The lanes within the model have been coded to replicate movement at a typical 4 lane entry roundabout i.e. lane 1 to left and ahead and lane 2 to right and U-turns as there are no zebra markings on the ground.	Amendments confirmed. No further action	Rose Phalen Approved	Amendments/changes confirmed and accepted.
	2	Network: Lane saturation flows are generally acceptable. Treat as reservoir has been selected for all lanes which yields robust saturation flows which is welcomed. However, lane 2/1b has no offside when it is clearly on a turning circulatory section. Similarly, the ahead movements on lane 6/1 and 6/2 have no radius but these movements are clearly on the circulatory section (priority: Observation)	Agreed	Amended	Amendments confirmed. No further action		
	3	Controller: controller 1 is the model is missing Phase 8. The controller specification states that this phase appears every cycle in Stages 1 and 2, respectively, so it should be included in the modelling along with the correct intergreen and ahead inter-green times (priority: Substantive Issue);	Agreed	Controller 1 Phase 8 (Phase 8 in the model) has been included for use	Amendments confirmed. No further action		
	4	Controller: controller 2 in the model is missing Phases 6 and 7. The controller specification states that these appear every cycle in Stages 3 and 3 respectively, so it should be included in the modelling along with the correct intergreen times and phase delays (priority: Substantive Issue);	Agreed	Amended	Amendments confirmed. No further action	Rose Phalen Approved	Amendments/changes confirmed and accepted.
Junction 6 A6 Junction 33	7	Validation: Table 20 of the BMB HVR compares observed and modelled DoS. This suggest that the model validates well, although no comparisons of the circulatory flares is possible which would be useful. The model will also need to be revised to address the above issues. This may result in some change to the Degrees of Saturation (priority: Observation)	Agreed	Amended in Validation Report to reflect changes set out above.	Amendments confirmed. No further action		
	8	Validation: Table 20 of the BMB HVR compares observed and modelled DoS. This suggest that the model validates well, although no comparisons of the circulatory flares is possible which would be useful. The model will also need to be revised to address the above issues. This may result in some change to the Degrees of Saturation (priority: Observation)	Agreed	Amended to Validation Report to reflect changes set out above.	Amendments confirmed. No further action		
	BMB Additional Changes			Allowed arm 4 to two lane to overcome merge - changed from length of circa 64 to 80m Altered give way parameters for Arm 1d Link 2 Amended cosmetics for from Arm 1 onwards/middle lane to egress onto Arm 6 A6 pre junction layout	These changes appear fine. No further comments		
Junction 7 A6 Junction 32	1	Network: lane saturation flows are high on non-roundabout circulatory lanes. This is because small av reservoir has been unchecked for these lanes. It would be preferable for these lanes to be treated as reservoir in view of the likely friction experienced by vehicles when circulating the roundabout. Other models also have no reservoir lanes treated as reservoir so this change would ensure consistency (priority: Substantive Issue);	Agreed	Amended	No Further Action		Amendments/changes confirmed and accepted.
	2	Network: lane 3/1b is missing a radius in the HVR/ calculations (priority: Comment);	Agreed	Amended	Amendment confirmed. No further action		
	3	The way: all give-way entries to the roundabout are coded to default give-way parameters which are configured for opposed right turns at signals. These values are unlikely to be representative of the behaviour at the junction and will need to be reviewed. The model will need to be revised to reflect the values as set out in the survey ARCADY and the appropriate geometry for the lane. For approaches that flare relatively close to the give-way line, such as the offside approach lane of Yard Lane and the W/SD entry, these values should be estimated using the full approach geometry (or for lanes 2 and 3 of Yard Lane) and applied to a single entry lane/link in the Linsig model. This will result in the capacity provided by the flare to be modelled realistically. In addition, for the "Flow when opposing traffic is stopped" setting, 'Use Maximum Flow when Ending Stop Value' should be used rather than 'Use Lane Saturation Flow Value' (priority: Substantive Issue);	Agreed	ICT Table of Coefficient and Opposed Max Flow for M/SD/M/SLD - Roundabout Entry which states a Coefficient of 0.33 and 1000 Opposed Max Flow	Amendments confirmed although Yard Lane Saturation Flow Value were appearing this is suspect it will need when Yard Lane Saturation Flow is revised to higher capacity	Established validation table provided in 'DoS Comparison' tab	Amendments/changes confirmed and accepted.
	4	Yard Lane: lane saturation flows are high on non-roundabout circulatory lanes. This is because small av reservoir has been unchecked for these lanes. It would be preferable for these lanes to be treated as reservoir in view of the likely friction experienced by vehicles when circulating the roundabout. Other models also have no reservoir lanes treated as reservoir so this change would ensure consistency (priority: Substantive Issue);	Agreed	Amended	Amendments confirmed. No further action		
	5	Yard Lane: the model assumes give-way behaviour on the offside lane for the A403 eastbound and 2-1 merge. This is singular however it is a novel way of ensuring that the secondary eastbound streamline is not used by an unrealistic volume of traffic leading to non-optimistic capacity modelling. These parameters will need to be maintained on forecast testing, ensuring that the merge remains present in the future (priority: Observation)	Agreed	This will be review in any future year modelling to ensure realistic lane usage	No further action		
	6	Yard Lane: lane saturation flows are generally acceptable. Treat as reservoir has been selected for all lanes which yields robust saturation flows which is welcomed. However, lane 2/1b has no offside when it is clearly on a turning circulatory section. Similarly, the ahead movements on lane 6/1 and 6/2 have no radius but these movements are clearly on the circulatory section (priority: Observation)	Agreed	Amended	Amendments confirmed. No further action		
	7	Controller: controller 1 in the model is missing Phase 8. The controller specification states that this phase appears every cycle in Stages 1 and 2, respectively, so it should be included in the modelling along with the correct intergreen and ahead inter-green times (priority: Substantive Issue);	Agreed	Controller 1 Phase 8 (Phase 8 in the model) has been included for use	Amendments confirmed. No further action		
	8	Controller: controller 2 in the model is missing Phases 6 and 7. The controller specification states that these appear every cycle in Stages 3 and 3 respectively, so it should be included in the modelling along with the correct intergreen times and phase delays (priority: Substantive Issue);	Agreed	Amended	Amendments confirmed. No further action		
	9	Validation: Table 20 of the BMB HVR compares observed and modelled DoS. This suggest that the model validates well, although no comparisons of the circulatory flares are specifically made in the submitted queuing. The controller specification A24 phases and A27 inters should be reviewed and revised to cycle time of circa a 90-96 seconds. However, the min operates to be MOVA so actual cycle times will be determined by MOVA parameters. Please check and revise as appropriate (priority: Substantive Issue); and	Agreed	Amended to Validation Report to reflect changes set out above.	Amendments confirmed. No further action		
	10	Validation: Table 20 of the BMB HVR compares observed and modelled DoS. This suggest that the model validates well, although no comparisons of the circulatory flares is possible which would be useful. The model will also need to be revised to address the above issues. This may result in some change to the Degrees of Saturation (priority: Observation)	Agreed	Amended to Validation Report to reflect changes set out above.	Amendments confirmed. No further action		
	BMB Additional Changes			Altered arm 4 to two lane to overcome merge - changed from length of circa 64 to 80m Altered give way parameters for Arm 1d Link 2 Amended cosmetics for from Arm 1 onwards/middle lane to egress onto Arm 6 A6 pre junction layout	These changes appear fine. No further comments		
J1 A3 Junction 1	1	Network: lane saturation flows are high on non-roundabout circulatory lanes. This is because small av reservoir has been unchecked for these lanes. It would be preferable for these lanes to be treated as reservoir in view of the likely friction experienced by vehicles when circulating the roundabout. Other models also have no reservoir lanes treated as reservoir so this change would ensure consistency (priority: Substantive Issue);	Agreed	Amended	No Further Action		Amendments/changes confirmed and accepted.
	2	Network: lane 3/1b is missing a radius in the HVR/ calculations (priority: Comment);	Agreed	Amended	Amendment confirmed. No further action		
	3	The way: all give-way entries to the roundabout are coded to default give-way parameters which are configured for opposed right turns at signals. These values are unlikely to be representative of the behaviour at the junction and will need to be reviewed. The model will need to be revised to reflect the values as set out in the survey ARCADY and the appropriate geometry for the lane. For approaches that flare relatively close to the give-way line, such as the offside approach lane of Yard Lane and the W/SD entry, these values should be estimated using the full approach geometry (or for lanes 2 and 3 of Yard Lane) and applied to a single entry lane/link in the Linsig model. This will result in the capacity provided by the flare to be modelled realistically. In addition, for the "Flow when opposing traffic is stopped" setting, 'Use Maximum Flow when Ending Stop Value' should be used rather than 'Use Lane Saturation Flow Value' (priority: Substantive Issue);	Agreed	ICT Table of Coefficient and Opposed Max Flow for M/SD/M/SLD - Roundabout Entry which states a Coefficient of 0.33 and 1000 Opposed Max Flow	Amendments confirmed although Yard Lane Saturation Flow Value were appearing this is suspect it will need when Yard Lane Saturation Flow is revised to higher capacity	Established validation table provided in 'DoS Comparison' tab	Amendments/changes confirmed and accepted.
	4	Yard Lane: lane saturation flows are high on non-roundabout circulatory lanes. This is because small av reservoir has been unchecked for these lanes. It would be preferable for these lanes to be treated as reservoir in view of the likely friction experienced by vehicles when circulating the roundabout. Other models also have no reservoir lanes treated as reservoir so this change would ensure consistency (priority: Substantive Issue);	Agreed	Amended	Amendments confirmed. No further action		

Junction	9	Cycle time: a cycle time of 90 seconds has been assumed for the base AM and PM scenarios. Whilst an examination of the MOVA information provided for the test suggests that this is roughly the upper end of the potential cycle time the signals can run, the supplied TMA logs for both controllers suggest that the actual cycle times that the signal were running in early September was around 50-60 seconds. Please review the TMA logs and revise the model cycle times accordingly (priority: Medium) - Comment 9	Agreed	Amended	Amendments confirmed. No further action	No Further Action	Amendments/changes confirmed and accepted.
	6	Validation: Table 32 of the BWB MVR compares observed and modelled Dx3. The comparisons provided suggest that these values correspond well. However, only three comparisons are made, and no circulatory lanes are checked. This would be useful. Also, given the availability of TMA logs and the recorded on-screen timings have include, it would be useful to see some comparisons of observed and modelled stage lengths as further validation of the cutting model (priority: Comment 6)	Agreed	Amended to Validation Report to reflect changes set out above.	Amendments confirmed. No further action		
BWB Additional Changes			Allowed 6m 6 and 12 to provide two lane to one lane merge		Three changes appear fine. No further comments		
	1	Network: the model permits a left turn from the M1 southbound off-slip arm to lanes one and two however Streetview shows that only lane one is marked for the left turn. If this is a deliberate change, it is not noted in the MVR (priority: Substantive Issue)	Agreed	Amended	Amendments confirmed. No further action		
	2	Network: lane 1/2/3 lanes on popular and can be deleted (priority: Observation)	Agreed	Amended	Amendments confirmed. No further action		
	3	Network: link lengths are not consistent with measurements using Google Maps. Some appear to exceed back to the upstream exit (when they should extend to the upstream stop line to give say 4m/s and others are somewhere in between. However, this has little or no impact on the capacity modelling (priority: Observation)	Lane Lengths have been reassumed back to a length before there is any merging	Lane Lengths reinstated as provided	Accepted. No further action	No Further Action	Amendments/changes confirmed and accepted.
	4	Network: lane saturation flows are high on non-roundabout circulatory lanes. This is because lanes are measured as lanes, it would be more appropriate to model them as flares, as the capacity is then constrained by vehicles when circulating the roundabout. As noted above, when models have non-traversable lanes treated as traversable (priority: Substantive Issue)	Agreed	Amended	Amendments confirmed. No further action		
	5	Network: lane 12/3 has no radius entered for the right turn circulating to Ave 14 (priority: Substantive Issue)	Agreed	Amended	Amendments confirmed. No further action		
	6	Network: lane 12/3 has a directly entered saturation flow of 1794 PCU/hr. This is not noted in the MVR and requires explanation (priority: Comment 7)	Agreed	Amended	Amendments confirmed, but the MVR's calculation is missing a table for the about explanation	Amended	Amendments/changes confirmed and accepted.
	7	Give way: no give way behaviour is modelled on any of the give way entries. Vehicles on Brooklands Lane (North and South) entry arms currently free flow onto the roundabout in the model. This can be corrected. As noted above, give way parameters can be customised using ARCADY and VISTA. Intermediate Flow within Gyratory Entry Value' should be used for all lanes (priority: Substantive Issue)	Agreed	Give way cobbed to with 3/2 Table of Overhound and Opposed Max Flow for M2 BRIDGE - Roundabout Entry which states a Overflood Entry Flow = 1415 and 3000 Opposed Max Flow	Accepted. Table from the Overhound and Opposed Max Flow for M2 BRIDGE - Roundabout Entry which states a Overflood Entry Flow = 1415 and 3000 Opposed Max Flow	Amended	Amendments/changes confirmed and accepted.
	8	Controller: the model includes facing 11 circular delays for the internal circulatory phases (Phase 01 for both controllers). Whilst these phase delays make sense in terms of operation, they are not evident in the controller information. An explanation as what basis these phase delays were set is required (priority: Substantive Issue)	The Phase Delays fall under Stage Timing Changes in the signal spec	Accepted. No further action			
	9	Stage sequence: the model assumes a 2-3-4 stage sequence at both controllers so omits Stage 1 which provides go to the M1 slip road entries at the same time as the downstream circulatory. This is an irregular omission. The sequence is also different from that stated as used in the model in the MVR (a '1-2-5-6' sequence). An explanation on what basis the assumed stage sequence was selected is required (priority: Substantive Issue)	Partly Agree	The model has the Latest Stage sequences as the junction has changed stage sequences through the day. However, the validation report has been amended to show the correct stage sequence for AM and PM respectively.	Accepted. No further action	No Further Action	Amendments/changes confirmed and accepted.
	10	Delayed lane usage: the BWB MVR states that some unequal lane usage on the Trent Lane arm was adjusted using the Route List function in Linsig. However, the model does not appear to have any Route List 'tests' applied (priority: Comment 8) and	Agreed	Amended	Amendments confirmed. No further action		
	11	Additional modelling changes:					
	12	Validation: Table 10 of the BWB MVR compares observed and modelled Dx3. There is a close match which suggest that the model validates well. However, the comments ought to be addressed which may result in different Dx3 results (priority: Observation)	Agreed	Amended to Validation Report to reflect changes set out above.	Validation report may need to be updated following consideration of further comments raised above		Validated validation table provided in 'Dx3 Comparison' tab
	1	Overall: the ARCADY model has been built incorrectly with the lanes proceeding left clockwise. ARCADY models must be constructed with the arms proceeding clockwise (priority: Substantive Issue)	Agreed	Amended	Amendments confirmed. No further action		
	2	Geometry: measurements of the roundabout geometry and their input into the model appear to be generally fair (priority: Observation)	Yes	Yes	No further action		
Junction 10 Upper Rickmansworth Road Roundabout Model	3	Lane usage: an examination of the modelled traffic flows shows that certain turning movements from Bristol Rubber and Watford Road (South) are highly dominant with the result that most of the traffic from these arms will be using only one of the two available entry lanes. The model uses standard ARCADY analysis which assumes that all entry capacity is used by all entering traffic. Please check and correct movements to account for uneven lane usage as per the Wallace Chart methodology for both base and any subsequent forecast scenarios (priority: Substantive Issue)	Agreed	The junction has been modelled using two lane 30 lane embedded route which allows modelling for unequal lane usage. The lanes within the model have been scaled to replicate what the road buildings does at the junction.	Amendment confirmed, but note that Lane 2 capacities tends to be pessimistic when used to represent short flared multi-lane entries, it may therefore be better to use the Barbara Charrenthall of results were used to hand.	Base Model Approved	Amendments/changes confirmed and accepted.
	4	Geometry: Table 2a of the BWB MVR lists the lane 1 entry as 'full width' and lane 2 as 'flared'. These are not standard geometry terms. The actual dimensions of the entry widths should be provided and reviewed before the model can be accepted (priority: Observation)	Agreed	Amended to Validation Report to reflect changes set out above.	Amendments confirmed. No further action		
	5	Overall: Measurements of the roundabout geometry and their input into the model appear to be generally acceptable (priority: Observation)	Yes	Yes	No further action		
	6	Validation: Table 12 of the BWB MVR shows that there is a close match between observed and modelled queuing, although the overall level of observed queuing is relatively low (priority: Observation)	Yes	Yes	No further action	Base Model Approved	Amendments/changes confirmed and accepted.
	7	Overall: Measurements of the roundabout geometry and their input into the model are generally acceptable (priority: Observation)	Yes	Yes	No further action		
	8	Validation: Table 14 of the BWB MVR shows that there is a close match between observed and modelled queuing, although the overall level of observed queuing is relatively low (priority: Observation)	Yes	Yes	No further action	Base Model Approved	Amendments/changes confirmed and accepted.

APPENDIX 48: Stage 1D Modelling Sign Off Sheet

TECHNICAL APPROVAL
East Midlands Gateway 2

Document Name	Stage 1D Modelling Documents	**Project reference**	220500
Document reference / revision	Local Junction Base Model Validation (EMG2-BWB-GEN-XX-RP-TR-0007 Revision P4)	**Date**	28.02.25

Approver 1	**Name**	Jeremy Bloom
	Organisation	National Highways
	Position	Interim Spatial Planner
	Date	21/05/2025
	Signature	[redacted]
	Comments *(if applicable)*	National Highways requested JSJV review the supporting Local Junction Modelling files. The findings of the audit are presented in a Tech Note dated 12th February 2024 [B2428400 Midlands EMG_BWB Junction Models Review 2024]. The audit identified 26 Substantive issues, with 7 Comments and 23 Observations. Two further re-submissions were made and further audit comments captured in the Audit Tracker [240514 EMG2_Base Jct Model Comments and Responses_150524]. A final audit was undertaken by JSJV and the base models were approved for use in June 2024. The findings of the audit are presented in a Tech Note [B2428400 Midlands EMG_BWB Junction Models Review June 2024].

Approver 2	**Name**	
	Organisation	
	Position	
	Date	

	Signature	
	Comments *(if applicable)*	
Approver 3	Name	
	Organisation	
	Position	
	Date	
	Signature	
	Comments *(if applicable)*	

APPENDIX 49: Modelling Furnessing Approach (document reference EMG2-BWB-GEN-XX-RP-TR-0004_S2-P7)

EMGP2 TRAFFIC FLOW TECHNICAL NOTE 2 – FURNESSING AND FORECASTING METHODOLOGY

Project Name	**East Midlands Gateway, Phase 2**		
Document Number	EMG2-BWB-GEN-XX-RP-TR-0004	**BWB Ref**	220500
Author	Matt Corner	**Status**	S2
Checked	Vibeeshan Devaharan	**Revision**	P7
Approved	Paul Wilson	**Date**	21.08.25

1. INTRODUCTION

1.1 BWB Consulting Ltd have been appointed by SEGRO ("the Applicant") to provide highways and transport planning advice on a proposed Phase 2 Expansion of the East Midlands Gateway (EMG) site. The site comprises 430,000sqm of industrial development across the following sites:

- 400,000sqm of B2/B8 industrial development on EMG2, including 100,000sqm of B8 mezzanine floorspace.
- 30,000sqm of B8 industrial development on Plot 16 of EMG1.

1.2 It has been agreed with the Transport Working Group for the development impacts to be assessed using the East Midlands Freeport Model (PRTM) – a cordon of the wider Pan Regional Transport Model (PRTM). This Technical Note has been produced to set out the furnessing methodology to derive future forecast traffic flow matrices for each junction being assessed in the Transport Assessment. It therefore facilitates the transition from strategic to local junction modelling.

1.3 This revision of the Technical Note (Revision P4) follows the completion of an update of the PRTM base and future forecast modelling scenarios and output information. It therefore adopts the following structure:

- **Section 2: Proposed Methodology** – sets out the furnessing methodology options and the strategy that will be undertaken to determine the most appropriate methodology to derive the future forecast traffic flows.
- **Section 3: Future Forecast Traffic Flows** – provides more detail on the methodology used to derive future forecast traffic flows.
- **Section 4: Development Traffic** – sets out how the development traffic will be accounted for in the VISSIM modelling
- **Section 5: Committed Traffic** – sets out how the East Midlands Point committed development traffic will be accounted for in the VISSIM modelling
- **Section 6: Traffic Flow Data Set** – sets out the various dataset outputs provided from the PRTM and explains the dataset used in the furnessing calculations.
- **Section 7: VISSIM Modelling** – sets out the methodology of extracting PRTM cordon matrices for the VISSIM modelling work.

- **Section 8: Traffic Flow Furnessing** – sets out the future forecast traffic flows derived using the preferred methodology and for input into the detailed junction models. It also includes an example as to how the flows have been furnessed.

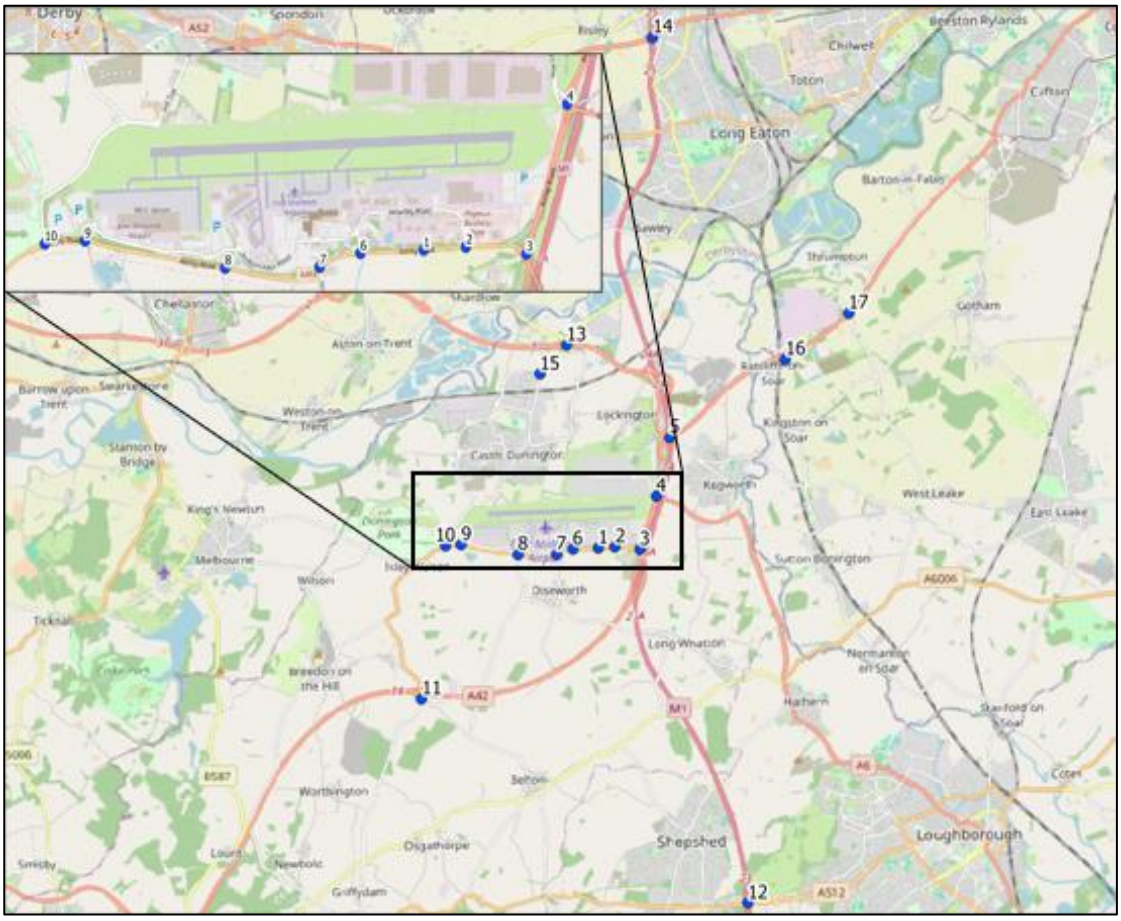
- **Section 9: Summary** – summarises the key conclusions of this Technical Note.

2. PROPOSED METHODOLOGY

Traffic Data and Model Outputs

2.1 Manual classified turning counts were commissioned in November 2022 and May 2023 at 16 junctions across the highway network (with the proposed site access roundabout on the A453 forming the 10th junction). These surveys therefore provide observed turning movements which will be used as part of the furnessing procedure to derive future forecast traffic flows and are listed below. The raw survey data for the 16 exisitng junctions is also appended at the corresponding locations as set out below, whilst the locations are shown at **Figure 1**.

Figure 1. Study Area



November 2023 Surveys

- Junction 2: A453/Hunter Road roundabout (**Appendix 1**)

- Junction 3: Finger Farm roundabout (**Appendix 2**)
- Junction 4: EMGP1 gyratory (**Appendix 3**)
- Junction 5: M1 Junction 24 (**Appendix 4**)
- Junction 6: A453/Grimes Gate priority junction (**Appendix 5**)
- Junction 7: A453/The Green priority junction (**Appendix 6**)
- Junction 8: A453/East Midlands Airport signal junction (**Appendix 7**)
- Junction 9: A453/East Midlands Airport roundabout (**Appendix 8**)
- Junction 10: A453/Walton Hill signal junction (**Appendix 9**)
- Junction 12: M1 Junction 23 (**Appendix 10**)

May 2023 Surveys

- Junction 11: A42 Junction 14 on-slip/A453/Top Brand/Gelscoe Lane Roundabout (**Appendix 11**)
- Junction 13: A50 Junction 1 (**Appendix 12**)
- Junction 14: M1 Junction 25 (**Appendix 13**)
- Junction 15: Station Road/Broad Rushes Roundabout (**Appendix 14**)
- Junction 16: A453/Kegworth Road Roundabouts (**Appendix 15**)
- Junction 17: A453/Barton Lane/West Leake dumbbell Roundabouts (**Appendix 16**)

2.2 The EMFM was updated to a 2019 base year and outputs are being are being provided for 2022, 2023, 2024, 2028 and 2038 scenarios. Hence, an initial comparison will be undertaken between the 2022 observed counts and 2022 flows from the PRTM to understand turning count validation, details of which are provided in the next section.

Traffic Flow Validation

2.3 The first step in understanding the most appropriate furnessing methodology is to compare the 2022 traffic flows from the PRTM against observed counts to provide an indication of the statistical significance of any differences. This has been undertaken using the GEH Statistics formula. The formula is set out below where M is the hourly traffic volume of the PRTM and C is the hourly traffic volume from the observed count.

$$GEH = \sqrt{\frac{2(M-C)^2}{M+C}}$$

2.4 It is generally accepted that a GEH value below 5 represents a good correlation between the two datasets. Details of the analysis for all 10 junctions highlighted in Paragraph 2.1 has been presented in Section 3.

Traffic Flow Furnessing Options

2.5 Orginially, four possible methodologies for furnessing the PRTM model outputs to derive future forecast traffic flows were being considered. The followng details provide a brief overview of each option, highlighting the benefits and potential downfalls of each one.

Option 1 – Extraction of target entry and exit flows directly from PRTM

2.6 Option 1 involves taking the future year traffic flows directly from the PRTM. This option would only be suitable if the 2022 turning counts compare well against the PRTM base year flows i.e. GEH less than 5.

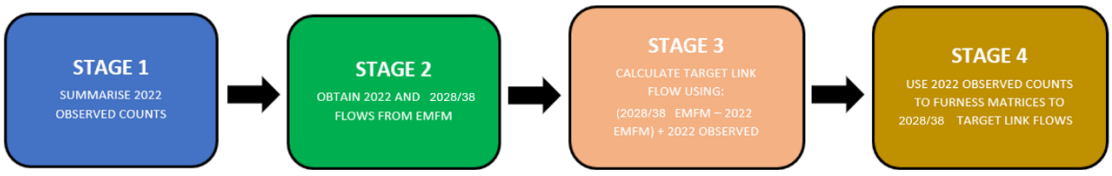
2.7 The benefit of this method is the reduced number of assumptions applied to derive the target trip ends. Notwithstanding this, during a meeting with the Transport Working Group on 12 January 2023, Leicestershire County Council raised concern with this methodology suggesting that whilst the PRTM is well validated against observed link data, it is not calibrated/validated against individual turning movements and hence this option would unlikely be acceptable.

Option 2 – Use 2022 PRTM model base in conjunction with future PRTM flows to calculate percentage growth factors and apply this to the 2022 observed counts

2.8 Option 2 invovles calculating the percentage difference between the 2022 base and 2028/2038 future PRTM flows and applying the percentage growth directly to the 2022 observed counts at turning movement level. This option has the potential to significantly exacerbate future traffic flows and hence will need to be undertaken alongside a manual assessment.

2.9 For example, should the PRTM traffic flows show a turning movement of 1 vehicle in the base year (2022) increasing to 5 movements in the future year (2038), then this equates to a 500% increase. If the 500% increase is applied to a turning movement of 20 vehicles recorded from an observed count then this would result in 100 movements at the future year, which could be a significant overestimate. The four stage methodology invovled with Option 2 is shown in **Figure 2**.

Figure 2: Option 2 Furnessing Methdology

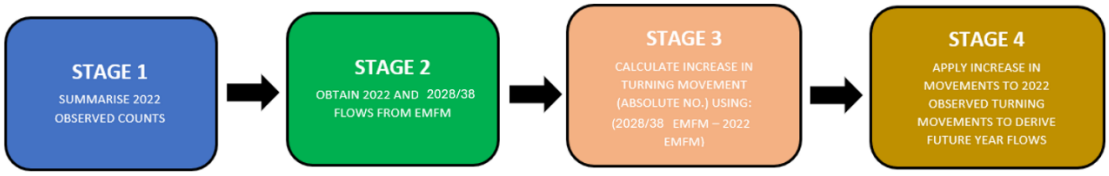


Option 3 – Use 2022 PRTM base in conjunction with future PRTM flows to calculate absolute increases in turning movements and apply this to the 2022 observed counts

2.10 Option 3 calcuates the difference between the 2022 base and 2028/2038 future PRTM flows in absolute numbers and applies the increase directly to the 2022 observed counts. This option would only be suitable if the 2022 observed counts show good levels of

correlation against the 2022 PRTM base flows using the GEH Statistics formula. The four stage furnessing methdology for Option 3 is shown in **Figure 3**.

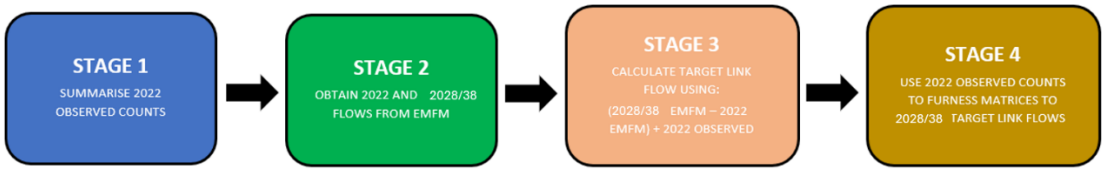
Figure 3: Option 3 Furnessing Methdology



Option 4 – Use 2022 PRTM base in conjunction with future PRTM flows to calculate absolute increases in link flows and apply the increase propotionatley to the 2022 observed turning counts

2.11 Option 4 involves adding the difference in link flows between the 2022 base and 2028/38 future PRTM to the 2022 observed link flows to derive a target link flow. The target link flow is applied proportionally in accordance with the observed turning movements to derive forecast traffic flow matrices. The four stage furnessing methdology for Option 4 is shown in **Figure 4**.

Figure 4: Option 4 Furnessing Methdology



3. FUTURE FORECAST TRAFFIC FLOWS

GEH Statistics

3.1 To start with, a comparison was made between the latest received 2022 PRTM flows and the 2022 observed counts to understand the statistical signifiance of any differences. This was undertaken for Junctions 1 to 9 which formed the original study area. To do this, an Excel spreadsheet was sent separately comparing light and heavy goods vehicle turning movements for both peak hours. The formula set out at Paragraph 2.3 was then applied to compare the two datasets.

3.2 A copy of the calculations is included at **Appendix 17**, which shows that all junctions have turning movements with a GEH value in excess of 5 and hence outside of the critieria for where there is a good level of correlation. On this basis, the furnessing options 1 and 3 detailed in Section 2 have been disregarded.

3.3 The percentage growth between PRTM base and forecast years were calculated; however, this resulted in large overestimations as described in Paragraph 2.11. Option 4 has however still been utilised to furness forecast traffic flow matrices.

Furnessing Methodology

3.4 The furnessing approach for Option 4 has been built using an MS Excel macro using VBA to ensure an extensive spreadsheet is not required to display every iteration of the furnessing. This also ensures that the methodology is consistent between all furnessed matrices. A summary of the process undertaken by the macros is provided below.

- Column adjustment: calculate turning counts across columns using survey data proportions in combination with the target link flow out of each arm.
- Sum row: calculate the sum of each arm row total.
- Row adjustment: calculate turning counts across rows using survey data proportions in combination with the target link flow into each arm.
- Sum column: calculate the sum of each column.
- Round all values in the matrix to the closest integer.
- Update sums for column and row total.
- Repeat the above 'x' number of iterations until the flows converge.

3.5 The macro has been built to run the furnessing 20 times for each matrix, however it should be noted that every time the macro is executed, it runs an additional 20 times. The furnessing spreadsheet therefore has been run for at least 20 iterations. The furnessing methodology has been double constrained, i.e. both origin and destination and the traffic flow matrices are furnessed until link flows are within a GEH of 5.

3.6 Additional matrices are provided to calculate the absolute difference and percentage difference between the forecast and furnessed link flows for each scenario respectively. A review of these indicates that this is considered to be convergent with the accepted furnessing methodology.

3.7 For certain turning movements there is expected to be negative growth. The PRTM rassigns vehicle routes based on delays and cost of journey and therefore some movements may experience a reduction in flows. The negative growth forecast by PRTM will also be taken into account during furnessing as excluding this would overestimate impacts at junctions.

3.8 Due to high volumes of traffic that travel on the motorways and key A-roads there is the potential for these numbers to affect the furnessing outputs. As the furnessing process is based on turning proportions, the large motorway flows could cause the furnessing to assign traffic that would use the junctions to the motorway mainline movements instead.

3.9 Therefore, the M1 and A42 mainline flows have been removed and furnessed seperately to avoid any re assignment.

4. DEVELOPMENT TRAFFIC

4.1 Strategic models reroute traffic in response to congestion within the network. To ensure the true impact of the development is modelled and mitigation is provided along the main routes that the development traffic would take, rather than rerouting via smaller junctions. The distribution of development traffic was extracted from the PRTM model, and it is proposed that the assignment of development traffic is assigned manually to exclude for any rerouting of traffic as a result the proposed development.

4.2 It was noticed that in the latest PRTM outputs that 7% of development car trips are originating/travelling to East Midlands Airport. This was queried this with AECOM/LCC NDI and it is because EMA is a zone in PRTM. Therefore, it is proposed to proportionately distribute the 7% of traffic to/from EMA along the seven highest other routes as set out to the TWG.

5. COMMITTED DEVELOPMENT TRAFFIC

5.1 The East Midlands Point comitted development off Finger Farm roundabout has been included in the PRTM modelling however as the development is not operational, there are no surveyed flows associated with the development. As such, the forecast traffic flows associated with the development has been directly extracted from the PRTM VISSIM cordon matrices and will be utilised for assessment in VISSIM.

6. TRAFFIC FLOW DATA SET

6.1 BWB was provided a copy of both 'Actual' and 'Demand' flow datasets by AECOM. Demand flow within SATURN does not assume a fully unconstrained network, both demand and actual flow account for all network constraints i.e. congestion, etc. and include for rerouting within the network.

6.2 Demand flow can be considered as the flow from the model assignment within the modelled period, independent of when the flow arrives i.e. if 100 vehicles are predicted to arrive at a certain junction between 0800-0900, demand flow will be displayed as 100.

6.3 On the contrary, actual flows can be considered as the flow that reaches a particular link or turn during the simulated time, i.e. if 100 vehicles are predicted to arrive at a certain junction between 0800-0900 however 20 vehicles are unable to get to the link within the modelled time due to constraints elsewhere in the network, actual flows will be displayed as 80 vehicles.

6.4 Discussions were held with AECOM and LCC/NDI and it was concluded that 'Actual' flows should be utilised within the modelling therefore all furnessing has been undertaken utilising 'Actual' flow data.

7. VISSIM MODELLING

7.1 A VISSIM model has been developed for the following junctions.

i. M1 J24;

ii. M1 J24a southbound merge onto the M1 and M1 junction 24;

iii. A453/EMG Phase 1/Kegworth Bypass signal controlled gyratory;

iv. M1 J23a Finger Farm roundabout (including M1/A42 on and off slip roads);

v. A453/Hunter Road/minor EMG Phase 2 access roundabout;

vi. A453/EMG Phase 2 site access roundabout.

7.2 Subsequently cordoned model flows have been obtained from AECOM to furness the traffic flows for each of the junctions in the VISSIM network in line with furnessing methodology Option 4 to derive forecast modelling traffic flow matrices.

Post Stage 1a Modelling

7.3 Stage 1a modelling comprises of 2028/38 forecast years with committed development, proposed development and Local Plan allocations

7.4 Upon receiving the Stage 1a VISSIM Corden modelling outputs from AECOM, a review of the data was undertaken to determine if the PRTM model outputs were coherent and that there was no unforeseen increase/decrease in flows on the links within the VISSIM network.

7.5 A review of the Stage 1a VISSIM cordon model was undertaken, which indicated that the 2022 flows provided as part of Stage 1a were lower than that provided previously. A proportion of the reduction in flows between the 2022 datasets were as a result of lower traffic flows accessing/egressing the EMG 1 site having previously considered such informatio in greater detail. The EMG1 traffic flows are more in line with that set out in the planning application. However, in addition to this, reduction in flows were noted primarily on the A42 and M1 S approach arms.

7.6 The agreed furnessing methodology, Option 4, calculates the flow difference between 2022 base and forecast modelling scenarios and adds the increase/decrease in traffic to the observed link flows. Therefore a lower 2022 base would provide a higher furnessed link flow to be modelled in VISSIM.

7.7 Whilst this approach has been retained, an additional comparison has been undertaken between the furnessed link flows and PRTM link flows by way of considering flows forecast to travel along each link in 2038. This is illustrated in **Table 1** below.

		AM Origin Total			PM Origin Total		
Link No	**Link Name**	**Furnessed Target Flows**	**2038 Raw Link Flows**	**Diff**	**Furnessed Target Flows**	**2038 Raw Link Flows**	**Diff**
1	A50	2720	2650	-70	1926	2884	+958
2	M1 North	5957	4558	-1399	5309	4011	-1298
3	A453 Remembrance Way	1769	2163	+394	2112	2364	+252
4	Derby Road	684	857	+173	639	938	+299
5	Hilton Lane	493	524	+31	342	446	+104

6	Keg Worth Bypass	1028	1008	-20	1045	1083	+38
7	M1 South	5253	5160	-93	5710	5286	-424
8	A42	2895	2793	-102	2164	2547	+383
9	A453	614	670	+56	948	959	+11
10	Wilders Way	217	202	-15	655	842	+187
11	Services	259	0	-259	268	0	-268
12	Hunter Road	107	106	-1	263	411	+148

7.8 Therefore, the scenarios will be tested within VISSIM to determine if the mitigation still provides the benefits envisaged within the internal testing.

Post Stage 2 Modelling

7.9 Stage 2 modelling comprises of 2028/38 forecast years with committed development, proposed development and Local Plan allocations with the proposed mitigation scheme that have been determined as a result of the Stage 1 VISSIM Modelling.

7.10 Upon receiving the Stage 2 outputs, the outputs were furnessed using option 4 methodology but as option 4 is based on the survey turning proportions it was not encapsulating the rerouting of traffic due to the mitigation strategy and provided unrealistic O-D Matrices.

7.11 Therefore, an alternative methodology has been used for the Stage 2 furnessing, which retains the Stage 1A furnessed flows and applies the difference between PRTM forecast flows for Stage 1A and Stage 2A. This accounts for the re-routing as a result of the mitigation while maintaining consistency in the matrix build process from Stage 1A. This approach has been discussed and agreed with NH..

8. TRAFFIC FLOW FURNESSING

8.1 Future forecast traffic flows for the 2028 and 2038 assessment years have been derived in line with the Option 4 methodology, using outputs from the PRTM and the survey data (noting the junctions included in VISSIM have used separate outputs from the cordon model flows).

8.2 A copy of the furnessing spreadsheet has been issued separately which show that the vast majority of link flows are converged so that furnessed link flows are within a GEH of 5 of calculated link flows. In calculating the final Passenger Car Unit (PCU) flows, a PCU factor of 2.0 has been applied to all HGVs and 1.0 for light vehicles, which mirrors the PRTM for consistency.

8.3 A worked example of how the traffic flows have been furnessed is shown on the 'Furness Process' tab within the spreadsheets.

9. SUMMARY

9.1 This Technical Note has been produced to set out the furnessing methodology to derive future forecast traffic flow matrices for each junction being assessed in the Transport Assessment.

9.2 To understand how the 2022 PRTM flows compare to the 2022 observed counts at each junction, the GEH Statistics formula has been used to provide an indication of the statistical significance of any differences. This will then provide a gauge as to which of the four furnessing methodologies considered up until this point is most appropriate, which are summarised below:

- **Option 1** – Extraction of target entry and exit flows directly from PRTM
- **Option 2** – Use 2022 PRTM model base in conjunction with future PRTM flows to calculate percentage growth factors and apply this to the 2022 observed counts
- **Option 3** – Use 2022 PRTM base in conjunction with future PRTM flows to calculate absolute increases in turning movements and apply this to the 2022 observed counts
- **Option 4** – Use 2022 PRTM base in conjunction with future PRTM flows to calculate absolute increases in link flows and apply the increase propotionatley to the 2022 observed turning counts

9.3 A comparison of GEH indicated that several movements for all surveyed junctions did not meet the GEH threshold therefore Options 1 and 3 had been discounted.

9.4 Furthermore, a review of the percentage increase between PRTM base and forecast traffic flow matrices was calculated however this resulted in a significant overestimate of traffic flow movements in some instances therefore Option 2 has also been discounted.

9.5 Based on the above, it is considered that Option 4 is the most appropriate furnessing methodology to be utilised in this instance.

9.6 Discussions were undertaken with AECOM and LCC/NDI and it was concluded that 'Actual' flows should be utilised in the forecast modelling scenarios.

9.7 Additionally, NH was consulted on the approach to utilise forecast flows within the VISSIM modelling and it was concluded that a cordon of the VISSIM extent should be used to extract OD flows from PRTM. Subsequently Option 4 furnessing methodology will be used to derive forecast traffic flow matrices.

9.8 A review of the Stage 1a VISSIM cordon model was undertaken, which indicated that the 2022 flows provided as part of Stage 1a were lower than that provided previously. The agreed Option 4 furnessing methodology would provide a higher furnessed link flow to be modelled in VISSIM as a result.

9.9 An alternative methodology has been applied to Stage 2 furnessing which is retaining Stage 1A furnessed flows, with the difference between PRTM forecast flows for Stage 1A and Stage 2A added which accounts for the rerouting.

9.10 The scenarios will be tested within VISSIM to determine if the suggested mitigation still provides significant benefits. The final furnessed traffic flows at this stage of the process for the forecast years have been provided within separate spreadsheets.

National Highway's Review

9.11 All the forecast modelling inputs have yet to be accepted and signed off by National Highway (NH) and therefore, are potentially subject to change. As a result of this, this Furnessing Approach report will be revised once NH and any other highway authority have accepted and signed off the modelling inputs methodology with the agreed information.

APPENDIX 1 – A453/Hunter Road Roundabout Turning Count Results

Road Data Services Ltd

East Midlands Gateway
Thursday 3rd November 2022
Junction: 3
Approach: Hunter Road

	Left to A453 (E)									Right to A453 (W)								
TIME	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs
07:00 - 07:15	0	0	23	1	0	1	3	28	32.3	0	0	6	0	1	0	0	7	7.5
07:15 - 07:30	0	0	16	0	2	1	0	19	21.3	0	0	2	0	0	0	0	2	2.0
07:30 - 07:45	0	0	17	4	4	0	4	29	35.0	0	0	6	0	0	0	0	6	6.0
07:45 - 08:00	0	0	16	0	0	0	1	17	18.0	0	0	3	2	0	0	0	5	5.0
Hourly Total	**0**	**0**	**72**	**5**	**6**	**2**	**8**	**93**	**106.6**	**0**	**0**	**17**	**2**	**1**	**0**	**0**	**20**	**20.5**
08:00 - 08:15	0	0	23	3	2	3	2	33	39.9	0	0	6	4	0	0	0	10	10.0
08:15 - 08:30	0	0	19	7	0	1	1	28	30.3	0	0	5	0	0	0	0	5	5.0
08:30 - 08:45	0	0	28	4	2	0	2	36	39.0	0	0	5	1	0	0	0	6	6.0
08:45 - 09:00	0	0	9	3	2	2	2	18	23.6	0	0	0	1	0	0	0	1	1.0
Hourly Total	**0**	**0**	**79**	**17**	**6**	**6**	**7**	**115**	**132.8**	**0**	**0**	**16**	**6**	**0**	**0**	**0**	**22**	**22.0**
09:00 - 09:15	0	0	4	1	1	2	2	10	15.1	0	0	0	0	0	0	0	0	0.0
09:15 - 09:30	0	0	11	5	2	0	3	21	25.0	0	0	2	2	2	0	0	6	7.0
09:30 - 09:45	0	0	13	6	2	0	1	22	24.0	0	0	4	1	0	0	0	5	5.0
09:45 - 10:00	0	0	5	3	1	0	4	13	17.5	0	0	2	0	0	1	0	3	4.3
Hourly Total	**0**	**0**	**33**	**15**	**6**	**2**	**10**	**66**	**81.6**	**0**	**0**	**8**	**3**	**2**	**1**	**0**	**14**	**16.3**
TOTAL	**0**	**0**	**184**	**37**	**18**	**10**	**25**	**274**	**321.0**	**0**	**0**	**41**	**11**	**3**	**1**	**0**	**56**	**58.8**
16:00 - 16:15	0	0	118	6	0	3	4	131	138.9	0	0	20	0	0	0	0	20	20.0
16:15 - 16:30	0	0	70	4	1	3	1	79	84.4	0	0	6	0	0	0	1	7	8.0
16:30 - 16:45	0	0	80	7	0	1	1	89	91.3	0	0	12	0	0	0	0	12	12.0
16:45 - 17:00	0	0	64	1	1	1	3	70	74.8	0	0	6	0	0	0	1	7	8.0
Hourly Total	**0**	**0**	**332**	**18**	**2**	**8**	**9**	**369**	**389.4**	**0**	**0**	**44**	**0**	**0**	**0**	**2**	**46**	**48.0**
17:00 - 17:15	0	0	101	3	1	1	2	108	111.8	0	0	14	0	0	0	0	14	14.0
17:15 - 17:30	0	0	85	7	2	2	1	97	101.6	0	0	7	1	0	0	0	8	8.0
17:30 - 17:45	0	0	60	7	2	2	1	72	76.6	0	0	5	0	0	0	0	5	5.0
17:45 - 18:00	0	0	64	8	1	4	0	77	82.7	0	0	7	0	1	0	0	8	8.5
Hourly Total	**0**	**0**	**310**	**25**	**6**	**9**	**4**	**354**	**372.7**	**0**	**0**	**33**	**1**	**1**	**0**	**0**	**35**	**35.5**
18:00 - 18:15	0	0	41	2	0	0	3	46	49.0	0	0	7	0	0	0	0	7	7.0
18:15 - 18:30	0	0	38	3	0	1	2	44	47.3	0	0	1	0	0	0	0	1	1.0
18:30 - 18:45	0	0	29	0	2	8	1	40	52.4	0	0	1	1	0	0	0	2	2.0
18:45 - 19:00	0	0	23	0	1	2	3	29	35.1	0	0	0	0	0	0	0	0	0.0
Hourly Total	**0**	**0**	**131**	**5**	**3**	**11**	**9**	**159**	**183.8**	**0**	**0**	**9**	**1**	**0**	**0**	**0**	**10**	**10.0**
TOTAL	**0**	**0**	**773**	**48**	**11**	**28**	**22**	**882**	**945.9**	**0**	**0**	**86**	**2**	**1**	**0**	**2**	**91**	**93.5**

PCU Factors:	
CYCLE	0.2
M/CYCLE	0.4
CAR	1.0
LGV	1.0
OGV1	1.5
OGV2	2.3
BUS	2.0

Road Data Services Ltd

East Midlands Gateway
Thursday 3rd November 2022
Junction: 3
Approach: A453 East

	Ahead to A453 (W)									Right to Hunter Road									U-Turn								
TIME	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs
07:00 - 07:15	0	0	118	18	6	4	0	146	154.2	0	1	29	1	0	3	1	35	39.3	0	0	0	0	0	0	0	0	0.0
07:15 - 07:30	0	0	99	28	6	3	0	136	142.9	0	0	38	0	2	1	2	43	47.3	0	0	0	0	0	0	0	0	0.0
07:30 - 07:45	0	0	135	15	2	7	0	159	169.1	0	0	54	4	1	3	3	65	72.4	0	0	0	0	0	0	0	0	0.0
07:45 - 08:00	0	0	101	14	5	5	1	126	136.0	0	0	102	3	1	2	2	110	115.1	0	0	0	0	0	0	0	0	0.0
Hourly Total	**0**	**0**	**453**	**75**	**19**	**19**	**1**	**567**	**602.2**	**0**	**1**	**223**	**8**	**4**	**9**	**8**	**253**	**274.1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**
08:00 - 08:15	0	0	102	15	3	5	0	125	133.0	0	1	81	8	2	0	1	93	94.4	0	0	0	0	0	0	0	0	0.0
08:15 - 08:30	0	0	127	16	3	9	0	155	168.2	0	0	108	6	1	0	1	116	117.5	0	0	0	1	0	0	0	1	1.0
08:30 - 08:45	0	0	122	19	8	6	2	157	170.8	0	0	96	5	0	0	2	103	105.0	0	0	2	1	0	0	0	3	3.0
08:45 - 09:00	0	0	97	16	4	4	0	121	128.2	0	0	82	4	1	1	0	88	89.8	0	0	1	0	0	0	0	1	1.0
Hourly Total	**0**	**0**	**448**	**66**	**18**	**24**	**2**	**558**	**600.2**	**0**	**1**	**367**	**23**	**4**	**1**	**4**	**400**	**406.7**	**0**	**0**	**3**	**2**	**0**	**0**	**0**	**5**	**5.0**
09:00 - 09:15	0	0	77	11	7	4	1	100	109.7	0	1	78	6	1	3	3	92	98.8	0	0	1	0	0	0	0	1	1.0
09:15 - 09:30	0	0	58	13	5	5	0	81	90.0	0	0	68	4	1	2	2	77	82.1	0	0	1	1	0	0	0	2	2.0
09:30 - 09:45	0	1	53	8	4	7	0	73	83.5	0	0	31	4	3	2	2	42	48.1	0	0	3	0	0	0	0	3	3.0
09:45 - 10:00	0	2	41	12	6	9	1	71	85.5	0	0	31	7	1	1	2	42	45.8	0	0	3	0	0	0	0	3	3.0
Hourly Total	**0**	**3**	**229**	**44**	**22**	**25**	**2**	**325**	**368.7**	**0**	**1**	**208**	**21**	**6**	**8**	**9**	**253**	**274.8**	**0**	**0**	**8**	**1**	**0**	**0**	**0**	**9**	**9.0**
TOTAL	**0**	**3**	**1130**	**185**	**59**	**68**	**5**	**1450**	**1571.1**	**0**	**3**	**798**	**52**	**14**	**18**	**21**	**906**	**955.6**	**0**	**0**	**11**	**3**	**0**	**0**	**0**	**14**	**14.0**
16:00 - 16:15	0	0	92	14	3	7	0	116	126.6	0	0	18	2	1	1	3	25	29.8	0	0	3	1	1	0	0	5	5.5
16:15 - 16:30	0	0	83	13	1	8	0	105	115.9	0	0	21	3	4	2	2	32	38.6	0	0	1	0	0	0	0	1	1.0
16:30 - 16:45	0	0	92	24	3	4	0	123	129.7	0	0	16	2	0	1	1	20	22.3	0	0	1	2	0	0	0	3	3.0
16:45 - 17:00	0	0	122	27	2	3	1	155	160.9	0	0	18	2	0	2	2	24	28.6	0	0	2	2	0	0	0	4	4.0
Hourly Total	**0**	**0**	**389**	**78**	**9**	**22**	**1**	**499**	**533.1**	**0**	**0**	**73**	**9**	**5**	**6**	**8**	**101**	**119.3**	**0**	**0**	**7**	**5**	**1**	**0**	**0**	**13**	**13.5**
17:00 - 17:15	0	2	120	12	4	2	0	140	143.4	0	0	15	4	2	1	1	23	26.3	0	0	3	0	1	0	0	4	4.5
17:15 - 17:30	0	0	112	15	6	5	0	138	147.5	0	0	27	3	0	3	3	36	42.9	0	0	3	0	0	0	0	3	3.0
17:30 - 17:45	0	0	102	14	3	2	0	121	125.1	0	0	26	2	1	0	2	31	33.5	0	0	1	0	0	0	0	1	1.0
17:45 - 18:00	0	0	98	13	3	1	0	115	117.8	0	0	29	4	1	2	0	36	39.1	0	0	3	0	0	0	0	3	3.0
Hourly Total	**0**	**2**	**432**	**54**	**16**	**10**	**0**	**514**	**533.8**	**0**	**0**	**97**	**13**	**4**	**6**	**6**	**126**	**141.8**	**0**	**0**	**10**	**0**	**1**	**0**	**0**	**11**	**11.5**
18:00 - 18:15	0	0	92	12	2	3	0	109	113.9	0	0	19	4	0	2	2	27	31.6	0	0	2	0	0	0	0	2	2.0
18:15 - 18:30	0	1	103	10	3	2	0	119	122.5	0	0	24	2	0	6	3	35	45.8	0	0	2	0	0	0	0	2	2.0
18:30 - 18:45	0	2	77	6	2	2	0	89	91.4	0	0	13	1	1	1	0	16	17.8	0	0	2	0	0	0	0	2	2.0
18:45 - 19:00	0	0	69	5	2	5	0	81	88.5	0	0	27	3	2	1	3	36	41.3	0	0	0	0	0	1	0	1	2.3
Hourly Total	**0**	**3**	**341**	**33**	**9**	**12**	**0**	**398**	**416.3**	**0**	**0**	**83**	**10**	**3**	**10**	**8**	**114**	**136.5**	**0**	**0**	**6**	**0**	**0**	**1**	**0**	**7**	**8.3**
TOTAL	**0**	**5**	**1162**	**165**	**34**	**44**	**1**	**1411**	**1483.2**	**0**	**0**	**253**	**32**	**12**	**22**	**22**	**341**	**397.6**	**0**	**0**	**23**	**5**	**2**	**1**	**0**	**31**	**33.3**

PCU Factors:	
CYCLE	0.2
M/CYCLE	0.4
CAR	1.0
LGV	1.0
OGV1	1.5
OGV2	2.3
BUS	2.0

Road Data Services Ltd

East Midlands Gateway
Thursday 3rd November 2022
Junction: 3
Approach: A453 West

	Left to Hunter Road									Ahead to A453 (E)								
TIME	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs
07:00 - 07:15	0	0	3	1	1	0	0	5	5.5	0	0	64	11	2	9	0	86	98.7
07:15 - 07:30	0	0	9	1	0	0	0	10	10.0	0	2	99	21	6	7	0	135	145.9
07:30 - 07:45	0	0	3	0	0	0	0	3	3.0	0	1	100	17	5	14	0	137	157.1
07:45 - 08:00	0	0	25	0	1	0	0	26	26.5	0	0	103	17	4	5	1	130	139.5
Hourly Total	**0**	**0**	**40**	**2**	**2**	**0**	**0**	**44**	**45.0**	**0**	**3**	**366**	**66**	**17**	**35**	**1**	**488**	**541.2**
08:00 - 08:15	0	0	10	0	0	0	0	10	10.0	0	0	103	26	3	8	1	141	153.9
08:15 - 08:30	0	0	12	0	0	0	0	12	12.0	0	0	117	28	6	12	1	164	183.6
08:30 - 08:45	0	0	7	1	0	0	0	8	8.0	0	0	66	19	5	12	1	103	122.1
08:45 - 09:00	0	0	8	1	0	0	0	9	9.0	0	0	65	9	4	14	1	93	114.2
Hourly Total	**0**	**0**	**37**	**2**	**0**	**0**	**0**	**39**	**39.0**	**0**	**0**	**351**	**82**	**18**	**46**	**4**	**501**	**573.8**
09:00 - 09:15	0	0	11	1	0	0	0	12	12.0	0	0	48	7	9	7	0	71	84.6
09:15 - 09:30	0	0	3	0	0	0	0	3	3.0	0	1	38	11	4	6	1	61	71.2
09:30 - 09:45	0	0	2	0	0	0	0	2	2.0	0	0	27	11	6	5	1	50	60.5
09:45 - 10:00	0	0	6	0	0	0	0	6	6.0	0	0	37	10	2	7	0	56	66.1
Hourly Total	**0**	**0**	**22**	**1**	**0**	**0**	**0**	**23**	**23.0**	**0**	**1**	**150**	**39**	**21**	**25**	**2**	**238**	**282.4**
TOTAL	**0**	**0**	**99**	**5**	**2**	**0**	**0**	**106**	**107.0**	**0**	**4**	**867**	**187**	**56**	**106**	**7**	**1227**	**1397.4**
16:00 - 16:15	0	0	2	0	0	0	0	2	2.0	0	0	110	18	5	8	0	141	153.9
16:15 - 16:30	0	0	2	0	0	0	0	2	2.0	0	0	98	17	5	1	0	121	124.8
16:30 - 16:45	0	0	4	0	0	0	0	4	4.0	0	0	122	17	2	3	0	144	148.9
16:45 - 17:00	0	0	3	2	0	0	0	5	5.0	0	0	125	15	0	2	1	143	146.6
Hourly Total	**0**	**0**	**11**	**2**	**0**	**0**	**0**	**13**	**13.0**	**0**	**0**	**455**	**67**	**12**	**14**	**1**	**549**	**574.2**
17:00 - 17:15	0	0	6	0	0	0	0	6	6.0	0	0	136	11	1	3	1	152	157.4
17:15 - 17:30	0	0	8	0	0	0	0	8	8.0	0	0	73	4	1	3	0	81	85.4
17:30 - 17:45	0	0	5	3	0	0	0	8	8.0	0	0	135	9	2	3	1	150	155.9
17:45 - 18:00	0	0	6	0	0	0	0	6	6.0	0	0	134	7	1	1	0	143	144.8
Hourly Total	**0**	**0**	**25**	**3**	**0**	**0**	**0**	**28**	**28.0**	**0**	**0**	**478**	**31**	**5**	**10**	**2**	**526**	**543.5**
18:00 - 18:15	0	0	5	0	0	0	0	5	5.0	0	0	94	9	1	2	0	106	109.1
18:15 - 18:30	0	0	6	0	0	0	0	6	6.0	0	0	79	8	2	1	0	90	92.3
18:30 - 18:45	0	0	1	0	0	0	0	1	1.0	0	1	62	6	0	1	0	70	70.7
18:45 - 19:00	0	0	5	1	0	0	0	6	6.0	0	0	55	6	1	2	0	64	67.1
Hourly Total	**0**	**0**	**17**	**1**	**0**	**0**	**0**	**18**	**18.0**	**0**	**1**	**290**	**29**	**4**	**6**	**0**	**330**	**339.2**
TOTAL	**0**	**0**	**53**	**6**	**0**	**0**	**0**	**59**	**59.0**	**0**	**1**	**1223**	**127**	**21**	**30**	**3**	**1405**	**1456.9**

PCU Factors:	
CYCLE	0.2
M/CYCLE	0.4
CAR	1.0
LGV	1.0
OGV1	1.5
OGV2	2.3
BUS	2.0

APPENDIX 2 – Finger Farm Roundabout Turning Count Results

Road Data Services Ltd

East Midlands Gateway
Thursday 3rd November 2022
Junction: 4
Approach: A453 North

	To M1 J23A Access									To Donington Services Access										To A453 (W)									
TIME	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs
07:00 - 07:15	0	0	47	13	4	10	0	74	89.0	0	0	4	5	4	11	0	24	40.3	0	1	78	4	2	1	1	87	89.7
07:15 - 07:30	0	0	41	10	1	0	1	53	54.5	0	0	7	0	3	4	0	14	20.7	0	0	77	10	3	3	2	95	102.4
07:30 - 07:45	0	0	63	23	7	12	0	105	124.1	0	1	5	3	0	0	0	9	8.4	0	0	93	6	1	3	3	106	113.4
07:45 - 08:00	0	0	119	42	6	18	0	185	211.4	0	0	9	2	0	3	0	14	17.9	0	0	73	4	2	4	3	86	95.2
Hourly Total	**0**	**0**	**270**	**88**	**18**	**40**	**1**	**417**	**479.0**	**0**	**1**	**25**	**10**	**7**	**18**	**0**	**61**	**87.3**	**0**	**1**	**321**	**24**	**8**	**11**	**9**	**374**	**400.7**
08:00 - 08:15	0	0	122	30	4	10	0	166	181.0	0	0	12	7	1	4	0	24	29.7	0	1	82	9	1	2	1	96	99.5
08:15 - 08:30	0	0	67	20	2	15	0	104	124.5	0	0	16	2	0	2	0	20	22.6	0	0	117	10	2	2	1	132	136.6
08:30 - 08:45	0	0	48	15	7	12	1	83	103.1	0	0	13	2	0	4	0	19	24.2	0	0	122	11	0	2	3	138	143.6
08:45 - 09:00	0	0	49	9	3	12	1	74	92.1	0	0	18	3	0	4	0	25	30.2	0	0	76	12	0	1	0	89	90.3
Hourly Total	**0**	**0**	**286**	**74**	**16**	**49**	**2**	**427**	**500.7**	**0**	**0**	**59**	**14**	**1**	**14**	**0**	**88**	**106.7**	**0**	**1**	**397**	**42**	**3**	**7**	**5**	**455**	**470.0**
09:00 - 09:15	0	0	18	4	8	11	0	41	59.3	0	0	14	4	1	2	0	21	24.1	0	1	81	6	3	3	4	98	106.8
09:15 - 09:30	0	0	28	5	4	9	0	46	59.7	0	0	18	4	2	5	1	30	38.5	0	0	77	8	1	1	1	88	90.8
09:30 - 09:45	0	0	11	4	6	7	0	28	40.1	0	0	19	2	3	6	0	30	39.3	0	1	44	7	0	4	2	58	64.6
09:45 - 10:00	0	0	12	7	3	11	1	34	50.8	0	1	14	5	2	3	0	25	29.3	0	2	37	6	5	4	2	56	64.5
Hourly Total	**0**	**0**	**69**	**20**	**21**	**38**	**1**	**149**	**209.9**	**0**	**1**	**65**	**15**	**8**	**16**	**1**	**106**	**131.2**	**0**	**4**	**239**	**27**	**9**	**12**	**9**	**300**	**326.7**
TOTAL	**0**	**0**	**625**	**182**	**55**	**127**	**4**	**993**	**1189.6**	**0**	**2**	**149**	**39**	**16**	**48**	**1**	**255**	**325.2**	**0**	**6**	**957**	**93**	**20**	**30**	**23**	**1129**	**1197.4**
16:00 - 16:15	0	0	72	14	2	10	0	98	112.0	0	0	12	4	4	5	0	25	33.5	0	0	21	8	0	1	2	32	35.3
16:15 - 16:30	0	0	78	18	4	11	0	111	127.3	0	0	9	5	0	3	0	17	20.9	0	0	39	6	0	1	2	48	51.3
16:30 - 16:45	0	0	81	11	0	6	1	99	107.8	0	0	12	2	0	4	0	18	23.2	0	0	9	9	2	2	1	23	27.6
16:45 - 17:00	0	0	67	6	2	7	0	82	92.1	0	0	14	3	0	3	0	20	23.9	0	0	28	14	0	1	3	46	50.3
Hourly Total	**0**	**0**	**298**	**49**	**8**	**34**	**1**	**390**	**439.2**	**0**	**0**	**47**	**14**	**4**	**15**	**0**	**80**	**101.5**	**0**	**0**	**97**	**37**	**2**	**5**	**8**	**149**	**164.5**
17:00 - 17:15	0	0	95	4	1	3	0	103	107.4	0	0	9	2	3	6	0	20	29.3	0	1	24	6	5	2	1	39	44.5
17:15 - 17:30	0	0	64	5	3	7	0	79	89.6	0	0	12	2	0	5	0	19	25.5	0	0	50	12	3	1	3	69	74.8
17:30 - 17:45	0	0	72	7	1	7	0	87	96.6	0	0	13	0	0	4	0	17	22.2	0	0	21	7	2	2	2	34	39.6
17:45 - 18:00	0	0	77	8	3	10	0	98	112.5	0	0	19	5	0	8	0	32	42.4	0	0	29	4	1	2	0	36	39.1
Hourly Total	**0**	**0**	**308**	**24**	**8**	**27**	**0**	**367**	**406.1**	**0**	**0**	**53**	**9**	**3**	**23**	**0**	**88**	**119.4**	**0**	**1**	**124**	**29**	**11**	**7**	**6**	**178**	**198.0**
18:00 - 18:15	0	0	105	6	2	7	1	121	132.1	0	0	11	0	2	4	0	17	23.2	0	0	40	11	0	4	2	57	64.2
18:15 - 18:30	0	0	58	2	3	5	1	69	78.0	0	1	10	1	1	3	0	16	19.8	0	1	79	9	1	3	3	96	102.8
18:30 - 18:45	0	0	78	3	2	5	0	88	95.5	0	0	11	2	0	2	0	15	17.6	0	1	58	3	2	0	0	64	64.4
18:45 - 19:00	0	0	34	2	1	5	0	42	49.0	0	0	16	6	0	4	0	26	31.2	0	0	47	5	3	1	3	59	64.8
Hourly Total	**0**	**0**	**275**	**13**	**8**	**22**	**2**	**320**	**354.6**	**0**	**1**	**48**	**9**	**3**	**13**	**0**	**74**	**91.8**	**0**	**2**	**224**	**28**	**6**	**8**	**8**	**276**	**296.2**
TOTAL	**0**	**0**	**881**	**86**	**24**	**83**	**3**	**1077**	**1199.9**	**0**	**1**	**148**	**32**	**10**	**51**	**0**	**242**	**312.7**	**0**	**3**	**445**	**94**	**19**	**20**	**22**	**603**	**658.7**

PCU Factors:	
CYCLE	0.2
M/CYCLE	0.4
CAR	1.0
LGV	1.0
OGV1	1.5
OGV2	2.3
BUS	2.0

Road Data Services Ltd

East Midlands Gateway
Thursday 3rd November 2022
Junction: 4
Approach: M1 J23A Access

	To Donington Services Access									To A453 (W)									To A453 (N)								
TIME	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs
07:00 - 07:15	0	0	16	6	3	5	0	**30**	**38.0**	0	0	60	14	2	6	0	**82**	**90.8**	0	0	97	28	7	27	2	**161**	**201.6**
07:15 - 07:30	0	0	13	6	4	5	0	**28**	**36.5**	0	0	53	17	3	1	0	**74**	**76.8**	0	0	172	29	8	19	0	**228**	**256.7**
07:30 - 07:45	0	0	11	7	2	7	1	**28**	**39.1**	0	0	89	10	2	7	0	**108**	**118.1**	0	0	184	38	10	23	2	**257**	**293.9**
07:45 - 08:00	0	0	21	11	2	3	0	**37**	**41.9**	0	0	121	12	2	2	0	**137**	**140.6**	0	1	199	28	9	22	0	**259**	**291.5**
Hourly Total	**0**	**0**	**61**	**30**	**11**	**20**	**1**	**123**	**155.5**	**0**	**0**	**323**	**53**	**9**	**16**	**0**	**401**	**426.3**	**0**	**1**	**652**	**123**	**34**	**91**	**4**	**905**	**1043.7**
08:00 - 08:15	0	0	19	3	2	3	0	**27**	**31.9**	0	0	89	12	3	3	0	**107**	**112.4**	0	0	152	29	8	13	0	**202**	**222.9**
08:15 - 08:30	0	0	17	13	4	8	0	**42**	**54.4**	0	0	107	8	1	7	0	**123**	**132.6**	0	0	163	34	15	22	0	**234**	**270.1**
08:30 - 08:45	0	0	20	7	2	7	0	**36**	**46.1**	0	0	85	13	6	4	1	**109**	**118.2**	0	0	102	15	8	25	1	**151**	**188.5**
08:45 - 09:00	0	0	22	5	0	6	0	**33**	**40.8**	0	0	90	6	3	4	0	**103**	**109.7**	0	0	106	21	10	15	0	**152**	**176.5**
Hourly Total	**0**	**0**	**78**	**28**	**8**	**24**	**0**	**138**	**173.2**	**0**	**0**	**371**	**39**	**13**	**18**	**1**	**442**	**472.9**	**0**	**0**	**523**	**99**	**41**	**75**	**1**	**739**	**858.0**
09:00 - 09:15	0	0	24	8	3	9	0	**44**	**57.2**	0	0	69	8	5	4	0	**86**	**93.7**	0	0	108	18	8	19	0	**153**	**181.7**
09:15 - 09:30	0	0	19	7	1	9	0	**36**	**48.2**	0	0	40	8	4	5	1	**58**	**67.5**	0	0	67	20	6	19	0	**112**	**139.7**
09:30 - 09:45	0	0	22	6	2	10	0	**40**	**54.0**	0	0	31	3	6	5	0	**45**	**54.5**	0	0	74	17	7	9	1	**108**	**124.2**
09:45 - 10:00	0	0	16	6	2	6	0	**30**	**38.8**	0	0	30	11	1	6	0	**48**	**56.3**	0	0	56	15	9	16	0	**96**	**121.3**
Hourly Total	**0**	**0**	**81**	**27**	**8**	**34**	**0**	**150**	**198.2**	**0**	**0**	**170**	**30**	**16**	**20**	**1**	**237**	**272.0**	**0**	**0**	**305**	**70**	**30**	**63**	**1**	**469**	**566.9**
TOTAL	**0**	**0**	**220**	**85**	**27**	**78**	**1**	**411**	**526.9**	**0**	**0**	**864**	**122**	**38**	**54**	**2**	**1080**	**1171.2**	**0**	**1**	**1480**	**292**	**105**	**229**	**6**	**2113**	**2468.6**
16:00 - 16:15	0	0	27	5	2	9	0	**43**	**55.7**	0	0	79	5	4	6	1	**95**	**105.8**	0	0	81	35	9	13	0	**138**	**159.4**
16:15 - 16:30	0	0	20	5	2	3	0	**30**	**34.9**	0	0	59	9	4	8	0	**80**	**92.4**	0	0	97	36	2	16	2	**153**	**176.8**
16:30 - 16:45	0	0	25	6	1	5	0	**37**	**44.0**	0	0	85	17	1	3	0	**106**	**110.4**	0	1	110	27	5	16	0	**159**	**181.7**
16:45 - 17:00	0	0	26	13	2	4	0	**45**	**51.2**	0	0	101	16	2	4	0	**123**	**129.2**	0	1	101	23	4	0	0	**129**	**130.4**
Hourly Total	**0**	**0**	**98**	**29**	**7**	**21**	**0**	**155**	**185.8**	**0**	**0**	**324**	**47**	**11**	**21**	**1**	**404**	**437.8**	**0**	**2**	**389**	**121**	**20**	**45**	**2**	**579**	**648.3**
17:00 - 17:15	0	0	19	6	4	7	0	**36**	**47.1**	0	1	105	7	2	1	0	**116**	**117.7**	0	0	141	19	6	18	0	**184**	**210.4**
17:15 - 17:30	0	0	26	5	0	4	0	**35**	**40.2**	0	0	84	5	2	7	0	**98**	**108.1**	0	0	194	20	7	17	0	**238**	**263.6**
17:30 - 17:45	0	0	17	12	0	6	0	**35**	**42.8**	0	0	95	6	2	0	0	**103**	**104.0**	0	0	174	15	2	11	0	**202**	**217.3**
17:45 - 18:00	0	0	24	2	3	3	0	**32**	**37.4**	0	0	88	11	3	1	0	**103**	**105.8**	0	0	130	7	0	9	1	**147**	**159.7**
Hourly Total	**0**	**0**	**86**	**25**	**7**	**20**	**0**	**138**	**167.5**	**0**	**1**	**372**	**29**	**9**	**9**	**0**	**420**	**435.6**	**0**	**0**	**639**	**61**	**15**	**55**	**1**	**771**	**851.0**
18:00 - 18:15	0	0	23	2	1	6	0	**32**	**40.3**	0	0	60	3	1	0	0	**64**	**64.5**	0	0	105	3	6	14	0	**128**	**149.2**
18:15 - 18:30	0	0	12	4	0	2	0	**18**	**20.6**	0	0	38	1	1	4	0	**44**	**49.7**	0	0	76	6	1	7	0	**90**	**99.6**
18:30 - 18:45	0	0	3	1	1	0	0	**5**	**5.5**	0	0	25	4	1	2	0	**32**	**35.1**	0	0	26	1	1	4	0	**32**	**37.7**
18:45 - 19:00	0	0	32	7	2	4	0	**45**	**51.2**	0	0	39	3	1	6	0	**49**	**57.3**	0	0	93	8	3	9	0	**113**	**126.2**
Hourly Total	**0**	**0**	**70**	**14**	**4**	**12**	**0**	**100**	**117.6**	**0**	**0**	**162**	**11**	**4**	**12**	**0**	**189**	**206.6**	**0**	**0**	**300**	**18**	**11**	**34**	**0**	**363**	**412.7**
TOTAL	**0**	**0**	**254**	**68**	**18**	**53**	**0**	**393**	**470.9**	**0**	**1**	**858**	**87**	**24**	**42**	**1**	**1013**	**1080.0**	**0**	**2**	**1328**	**200**	**46**	**134**	**3**	**1713**	**1912.0**

PCU Factors:	
CYCLE	0.2
M/CYCLE	0.4
CAR	1.0
LGV	1.0
OGV1	1.5
OGV2	2.3
BUS	2.0

Road Data Services Ltd

East Midlands Gateway
Thursday 3rd November 2022
Junction: 4
Approach: Donington Services Access

	To A453 (W)									To A453 (N)									To M1 J23A Access								
TIME	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs
07:00 - 07:15	0	0	9	1	2	0	0	12	13.0	0	0	8	10	3	8	0	29	40.9	0	0	8	3	1	7	0	19	28.6
07:15 - 07:30	0	0	7	1	2	0	0	10	11.0	0	0	10	8	3	2	0	23	27.1	0	0	9	4	4	6	0	23	32.8
07:30 - 07:45	0	0	7	3	0	0	0	10	10.0	0	0	7	8	2	10	0	27	41.0	0	0	6	2	2	3	0	13	17.9
07:45 - 08:00	0	0	9	1	2	1	0	13	15.3	0	0	8	5	5	14	0	32	52.7	0	0	14	5	0	5	0	24	30.5
Hourly Total	**0**	**0**	**32**	**6**	**6**	**1**	**0**	**45**	**49.3**	**0**	**0**	**33**	**31**	**13**	**34**	**0**	**111**	**161.7**	**0**	**0**	**37**	**14**	**7**	**21**	**0**	**79**	**109.8**
08:00 - 08:15	0	0	12	2	1	0	0	15	15.5	0	0	1	4	3	5	0	13	21.0	0	0	24	5	2	4	0	35	41.2
08:15 - 08:30	0	0	11	5	1	0	0	17	17.5	0	0	4	4	2	7	0	17	27.1	0	0	23	10	1	6	0	40	48.3
08:30 - 08:45	0	0	13	1	2	0	0	16	17.0	0	0	5	7	3	3	0	18	23.4	0	0	21	6	2	6	0	35	43.8
08:45 - 09:00	0	0	14	2	2	0	0	18	19.0	0	0	0	2	1	3	1	7	12.4	0	0	19	3	3	3	0	28	33.4
Hourly Total	**0**	**0**	**50**	**10**	**6**	**0**	**0**	**66**	**69.0**	**0**	**0**	**10**	**17**	**9**	**18**	**1**	**55**	**83.9**	**0**	**0**	**87**	**24**	**8**	**19**	**0**	**138**	**166.7**
09:00 - 09:15	0	0	6	3	0	0	0	9	9.0	0	0	7	6	1	7	0	21	30.6	0	0	27	3	2	5	0	37	44.5
09:15 - 09:30	0	0	10	2	1	1	0	14	15.8	0	0	20	5	3	6	0	34	43.3	0	0	16	7	2	4	0	29	35.2
09:30 - 09:45	0	0	12	2	1	0	0	15	15.5	0	0	10	2	0	6	0	18	25.8	0	0	20	5	4	3	0	32	37.9
09:45 - 10:00	0	0	8	2	1	0	1	12	13.5	0	0	13	8	0	11	0	32	46.3	0	0	12	4	1	6	0	23	31.3
Hourly Total	**0**	**0**	**36**	**9**	**3**	**1**	**1**	**50**	**53.8**	**0**	**0**	**50**	**21**	**4**	**30**	**0**	**105**	**146.0**	**0**	**0**	**75**	**19**	**9**	**18**	**0**	**121**	**148.9**
TOTAL	**0**	**0**	**118**	**25**	**15**	**2**	**1**	**161**	**172.1**	**0**	**0**	**93**	**69**	**26**	**82**	**1**	**271**	**391.6**	**0**	**0**	**199**	**57**	**24**	**58**	**0**	**338**	**425.4**
16:00 - 16:15	0	0	13	4	1	1	0	19	20.8	0	0	23	2	0	5	0	30	36.5	0	0	18	5	2	5	0	30	37.5
16:15 - 16:30	0	0	7	1	1	1	0	10	11.8	0	0	15	4	2	4	0	25	31.2	0	0	21	3	1	6	0	31	39.3
16:30 - 16:45	0	0	15	2	0	0	0	17	17.0	0	1	25	1	5	7	0	39	50.0	0	0	20	5	3	5	0	33	41.0
16:45 - 17:00	0	0	13	1	0	0	0	14	14.0	0	0	10	2	2	4	0	18	24.2	0	0	22	5	0	3	0	30	33.9
Hourly Total	**0**	**0**	**48**	**8**	**2**	**2**	**0**	**60**	**63.6**	**0**	**1**	**73**	**9**	**9**	**20**	**0**	**112**	**141.9**	**0**	**0**	**81**	**18**	**6**	**19**	**0**	**124**	**151.7**
17:00 - 17:15	0	0	9	3	0	0	0	12	12.0	0	0	9	7	0	5	0	21	27.5	0	0	31	4	0	2	0	37	39.6
17:15 - 17:30	0	0	8	1	1	0	0	10	10.5	0	0	21	1	2	1	0	25	27.3	0	0	19	8	2	4	0	33	39.2
17:30 - 17:45	0	0	13	3	0	0	0	16	16.0	0	0	13	0	0	1	0	14	15.3	0	0	22	2	0	4	0	28	33.2
17:45 - 18:00	0	0	13	2	0	0	0	15	15.0	0	0	17	8	0	3	0	28	31.9	0	0	21	2	0	3	0	26	29.9
Hourly Total	**0**	**0**	**43**	**9**	**1**	**0**	**0**	**53**	**53.5**	**0**	**0**	**60**	**16**	**2**	**10**	**0**	**88**	**102.0**	**0**	**0**	**93**	**16**	**2**	**13**	**0**	**124**	**141.9**
18:00 - 18:15	0	0	13	2	1	1	0	17	18.8	0	0	26	4	0	3	0	33	36.9	0	0	12	2	1	5	0	20	27.0
18:15 - 18:30	0	0	12	2	1	1	0	16	17.8	0	0	15	2	0	2	0	19	21.6	0	0	11	3	3	4	0	21	27.7
18:30 - 18:45	0	1	9	0	0	1	0	11	11.7	0	0	17	2	0	4	0	23	28.2	0	0	9	0	0	1	0	10	11.3
18:45 - 19:00	0	0	10	0	0	0	0	10	10.0	0	0	14	2	0	0	0	16	16.0	0	0	13	1	1	3	0	18	22.4
Hourly Total	**0**	**1**	**44**	**4**	**2**	**3**	**0**	**54**	**58.3**	**0**	**0**	**72**	**10**	**0**	**9**	**0**	**91**	**102.7**	**0**	**0**	**45**	**6**	**5**	**13**	**0**	**69**	**88.4**
TOTAL	**0**	**1**	**135**	**21**	**5**	**5**	**0**	**167**	**175.4**	**0**	**1**	**205**	**35**	**11**	**39**	**0**	**291**	**346.6**	**0**	**0**	**219**	**40**	**13**	**45**	**0**	**317**	**382.0**

PCU Factors:	
CYCLE	0.2
M/CYCLE	0.4
CAR	1.0
LGV	1.0
OGV1	1.5
OGV2	2.3
BUS	2.0

Road Data Services Ltd

East Midlands Gateway
Thursday 3rd November 2022
Junction: 4
Approach: A453 West

	To A453 (N)									To M1 J23A Access									To Donington Services Access								
TIME	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs
07:00 - 07:15	0	0	46	10	0	6	3	65	75.8	0	0	29	1	2	4	0	36	42.2	0	0	12	1	0	0	0	13	13.0
07:15 - 07:30	0	0	85	16	2	6	0	109	117.8	0	1	25	3	5	2	0	36	40.5	0	1	5	2	1	0	0	9	8.9
07:30 - 07:45	0	1	81	11	5	8	3	109	124.3	0	0	32	10	4	6	1	53	63.8	0	0	4	0	0	0	0	4	4.0
07:45 - 08:00	0	0	77	12	0	2	0	91	93.6	0	0	35	5	4	3	2	49	56.9	0	0	7	0	0	0	0	7	7.0
Hourly Total	**0**	**1**	**289**	**49**	**7**	**22**	**6**	**374**	**411.5**	**0**	**1**	**121**	**19**	**15**	**15**	**3**	**174**	**203.4**	**0**	**1**	**28**	**3**	**1**	**0**	**0**	**33**	**32.9**
08:00 - 08:15	0	0	76	12	4	6	2	100	111.8	0	0	48	16	1	5	1	71	79.0	0	0	2	1	0	0	0	3	3.0
08:15 - 08:30	0	0	81	17	3	5	2	108	118.0	0	0	48	19	1	8	0	76	86.9	0	0	7	0	2	0	0	9	10.0
08:30 - 08:45	0	0	60	15	4	7	2	88	101.1	0	0	30	8	3	5	1	47	56.0	0	0	6	1	0	0	0	7	7.0
08:45 - 09:00	0	0	48	7	3	8	3	69	83.9	0	0	24	3	3	7	0	37	47.6	0	0	3	2	0	1	0	6	7.3
Hourly Total	**0**	**0**	**265**	**51**	**14**	**26**	**9**	**365**	**414.8**	**0**	**0**	**150**	**46**	**8**	**25**	**2**	**231**	**269.5**	**0**	**0**	**18**	**4**	**2**	**1**	**0**	**25**	**27.3**
09:00 - 09:15	0	0	26	3	5	8	2	44	58.9	0	0	20	4	4	1	0	29	32.3	0	0	7	1	1	0	0	9	9.5
09:15 - 09:30	0	1	25	9	6	2	4	47	56.0	0	0	21	4	0	4	0	29	34.2	0	0	4	4	0	0	0	8	8.0
09:30 - 09:45	0	0	24	11	7	1	2	45	51.8	0	0	12	3	1	3	0	19	23.4	0	0	7	3	0	1	0	11	12.3
09:45 - 10:00	0	0	31	8	2	4	4	49	59.2	0	0	9	5	0	2	0	16	18.6	0	0	5	0	1	1	0	7	8.8
Hourly Total	**0**	**1**	**106**	**31**	**20**	**15**	**12**	**185**	**225.9**	**0**	**0**	**62**	**16**	**5**	**10**	**0**	**93**	**108.5**	**0**	**0**	**23**	**8**	**2**	**2**	**0**	**35**	**38.6**
TOTAL	**0**	**2**	**660**	**131**	**41**	**63**	**27**	**924**	**1052.2**	**0**	**1**	**333**	**81**	**28**	**50**	**5**	**498**	**581.4**	**0**	**1**	**69**	**15**	**5**	**3**	**0**	**93**	**98.8**
16:00 - 16:15	0	0	161	12	2	3	3	181	188.9	0	0	66	11	2	8	1	88	100.4	0	0	4	2	2	0	0	8	9.0
16:15 - 16:30	0	0	136	12	3	2	1	154	159.1	0	0	25	7	3	2	0	37	41.1	0	0	8	2	0	0	0	10	10.0
16:30 - 16:45	0	0	126	9	0	2	1	138	141.6	0	0	68	15	0	2	0	85	87.6	0	0	9	2	2	0	0	13	14.0
16:45 - 17:00	0	0	133	16	0	1	3	153	157.3	0	0	48	1	1	2	1	53	57.1	0	0	10	1	0	0	0	11	11.0
Hourly Total	**0**	**0**	**556**	**49**	**5**	**8**	**8**	**626**	**646.9**	**0**	**0**	**207**	**34**	**6**	**14**	**2**	**263**	**286.2**	**0**	**0**	**31**	**7**	**4**	**0**	**0**	**42**	**44.0**
17:00 - 17:15	0	0	132	8	2	4	3	149	158.2	0	0	97	4	0	0	0	101	101.0	0	0	11	2	1	0	0	14	14.5
17:15 - 17:30	0	0	113	2	2	1	1	119	122.3	0	0	36	9	1	3	0	49	53.4	0	0	12	0	0	1	0	13	14.3
17:30 - 17:45	0	0	154	8	0	2	2	166	170.6	0	0	30	6	2	3	0	41	45.9	0	0	12	2	2	0	0	16	17.0
17:45 - 18:00	0	0	143	8	1	1	0	153	154.8	0	0	51	6	1	4	0	62	67.7	0	0	7	1	0	0	0	8	8.0
Hourly Total	**0**	**0**	**542**	**26**	**5**	**8**	**6**	**587**	**605.9**	**0**	**0**	**214**	**25**	**4**	**10**	**0**	**253**	**268.0**	**0**	**0**	**42**	**5**	**3**	**1**	**0**	**51**	**53.8**
18:00 - 18:15	0	0	88	7	0	0	3	98	101.0	0	0	41	3	1	2	0	47	50.1	0	0	8	1	0	0	0	9	9.0
18:15 - 18:30	0	0	83	7	1	1	2	94	97.8	0	0	28	4	1	1	0	34	35.8	0	0	8	0	0	0	0	8	8.0
18:30 - 18:45	0	1	74	4	0	7	1	87	96.5	0	0	16	2	1	2	0	21	24.1	0	0	3	0	1	0	0	4	4.5
18:45 - 19:00	0	0	57	3	2	2	3	67	73.6	0	0	16	2	0	3	0	21	24.9	0	0	5	1	0	0	0	6	6.0
Hourly Total	**0**	**1**	**302**	**21**	**3**	**10**	**9**	**346**	**368.9**	**0**	**0**	**101**	**11**	**3**	**8**	**0**	**123**	**134.9**	**0**	**0**	**24**	**2**	**1**	**0**	**0**	**27**	**27.5**
TOTAL	**0**	**1**	**1400**	**96**	**13**	**26**	**23**	**1559**	**1621.7**	**0**	**0**	**522**	**70**	**13**	**32**	**2**	**639**	**689.1**	**0**	**0**	**97**	**14**	**8**	**1**	**0**	**120**	**125.3**

PCU Factors:	
CYCLE	0.2
M/CYCLE	0.4
CAR	1.0
LGV	1.0
OGV1	1.5
OGV2	2.3
BUS	2.0

APPENDIX 3 – A453/EMGP1 Gyratory Turning Count Results

Road Data Services Ltd

East Midlands Gateway
Wednesday 23rd November 2022
Junction: 1
Approach: A453 North

	Left to A6 Kegworth Bypass									Ahead to A453 (S)										Right to Wilders Way										U-Turn									
TIME	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs
07:00 - 07:15	0	0	2	4	0	1	0	7	8.3	0	0	70	10	4	7	1	92	104.1	0	0	90	5	3	7	0	105	115.6	0	0	0	0	0	0	0	0	0.0
07:15 - 07:30	0	0	15	2	2	1	0	20	22.3	0	0	66	12	2	7	0	87	97.1	0	0	107	5	1	7	1	121	131.6	0	0	1	0	0	0	0	1	1.0
07:30 - 07:45	0	0	5	2	2	2	0	11	14.6	0	0	65	8	0	6	0	79	86.8	0	1	106	5	2	5	0	119	125.9	0	0	1	1	0	0	0	2	2.0
07:45 - 08:00	0	0	8	0	2	6	0	16	24.8	0	0	88	12	1	4	0	105	110.7	0	0	83	2	1	7	1	94	104.6	0	0	1	0	0	0	0	1	1.0
Hourly Total	**0**	**0**	**30**	**8**	**6**	**10**	**0**	**54**	**70.0**	**0**	**0**	**289**	**42**	**7**	**24**	**1**	**363**	**398.7**	**0**	**1**	**386**	**17**	**7**	**26**	**2**	**439**	**477.7**	**0**	**0**	**3**	**1**	**0**	**0**	**0**	**4**	**4.0**
08:00 - 08:15	0	0	9	2	5	3	0	19	25.4	0	0	95	7	1	5	0	108	115.0	0	0	42	11	5	5	0	63	72.0	0	0	0	0	0	0	0	0	0.0
08:15 - 08:30	0	0	6	1	1	0	0	8	8.5	0	0	91	4	3	3	0	101	106.4	0	0	35	4	3	5	0	47	55.0	0	0	3	0	1	0	0	4	4.5
08:30 - 08:45	0	0	7	1	1	1	0	10	11.8	0	0	107	7	4	0	0	118	120.0	0	1	28	9	1	10	1	50	63.9	0	0	0	0	0	1	0	1	2.3
08:45 - 09:00	0	1	5	3	4	5	0	18	25.9	0	0	87	10	4	5	0	106	114.5	0	0	40	5	1	3	1	50	55.4	0	0	2	0	0	0	0	2	2.0
Hourly Total	**0**	**1**	**27**	**7**	**11**	**9**	**0**	**55**	**71.6**	**0**	**0**	**380**	**28**	**12**	**13**	**0**	**433**	**455.9**	**0**	**1**	**145**	**29**	**10**	**23**	**2**	**210**	**246.3**	**0**	**0**	**5**	**0**	**1**	**1**	**0**	**7**	**8.8**
09:00 - 09:15	0	0	3	1	1	5	0	10	17.0	0	0	87	4	6	5	0	102	111.5	0	0	48	9	0	6	0	63	70.8	0	0	1	0	0	0	0	1	1.0
09:15 - 09:30	0	0	6	1	0	0	0	7	7.0	0	0	74	6	3	14	0	97	116.7	0	0	52	11	3	5	0	71	79.0	0	0	1	1	0	0	0	2	2.0
09:30 - 09:45	0	0	4	3	3	4	0	14	20.7	0	0	56	3	6	8	0	73	86.4	0	0	55	15	0	9	2	81	94.7	0	0	0	0	0	0	0	0	0.0
09:45 - 10:00	0	0	2	2	2	2	0	8	11.6	0	0	54	6	2	5	0	67	74.5	0	0	66	20	1	9	0	96	108.2	0	0	2	0	0	0	0	2	2.0
Hourly Total	**0**	**0**	**15**	**7**	**6**	**11**	**0**	**39**	**56.3**	**0**	**0**	**271**	**19**	**17**	**32**	**0**	**339**	**389.1**	**0**	**0**	**221**	**55**	**4**	**29**	**2**	**311**	**352.7**	**0**	**0**	**4**	**1**	**0**	**0**	**0**	**5**	**5.0**
TOTAL	**0**	**1**	**72**	**22**	**23**	**30**	**0**	**148**	**197.9**	**0**	**0**	**940**	**89**	**36**	**69**	**1**	**1135**	**1243.7**	**0**	**2**	**752**	**101**	**21**	**78**	**6**	**960**	**1076.7**	**0**	**0**	**12**	**2**	**1**	**1**	**0**	**16**	**17.8**
16:00 - 16:15	0	0	9	2	1	1	0	13	14.8	0	0	54	11	2	6	1	74	83.8	0	0	10	5	1	3	0	19	23.4	0	0	0	0	0	0	0	0	0.0
16:15 - 16:30	0	0	19	3	2	1	0	25	27.3	0	0	45	14	3	3	0	65	70.4	0	0	10	9	0	4	1	24	30.2	0	0	1	0	0	0	0	1	1.0
16:30 - 16:45	0	0	15	4	1	0	0	20	20.5	0	0	41	8	3	11	0	63	78.8	0	0	16	3	0	4	0	23	28.2	0	0	2	0	0	0	0	2	2.0
16:45 - 17:00	0	1	15	0	1	0	0	17	16.9	0	0	40	6	4	3	0	53	58.9	0	0	15	7	0	6	1	29	37.8	0	0	3	1	0	0	0	4	4.0
Hourly Total	**0**	**1**	**58**	**9**	**5**	**2**	**0**	**75**	**79.5**	**0**	**0**	**180**	**39**	**12**	**23**	**1**	**255**	**291.9**	**0**	**0**	**51**	**24**	**1**	**17**	**2**	**95**	**119.6**	**0**	**0**	**6**	**1**	**0**	**0**	**0**	**7**	**7.0**
17:00 - 17:15	0	0	13	2	0	0	0	15	15.0	0	0	45	8	4	8	1	66	79.4	0	0	19	13	0	4	0	36	41.2	0	0	1	0	0	0	0	1	1.0
17:15 - 17:30	0	0	22	1	1	1	0	25	26.8	0	1	58	1	3	10	0	73	86.9	0	1	31	13	0	6	1	52	60.2	0	0	3	0	0	0	0	3	3.0
17:30 - 17:45	0	1	17	0	2	1	0	21	22.7	0	0	73	4	3	4	0	84	90.7	0	3	54	11	0	4	0	72	75.4	0	0	2	0	0	0	0	2	2.0
17:45 - 18:00	0	0	11	5	0	0	0	16	16.0	0	0	70	2	3	7	0	82	92.6	0	0	66	14	0	3	0	83	86.9	0	0	0	0	0	0	0	0	0.0
Hourly Total	**0**	**1**	**63**	**8**	**3**	**2**	**0**	**77**	**80.5**	**0**	**1**	**246**	**15**	**13**	**29**	**1**	**305**	**349.6**	**0**	**4**	**170**	**51**	**0**	**17**	**1**	**243**	**263.7**	**0**	**0**	**6**	**0**	**0**	**0**	**0**	**6**	**6.0**
18:00 - 18:15	0	0	7	0	0	2	0	9	11.6	0	0	42	3	2	7	0	54	64.1	0	1	103	10	0	3	0	117	120.3	0	0	2	0	0	0	0	2	2.0
18:15 - 18:30	0	0	12	3	0	0	0	15	15.0	0	1	59	3	0	4	0	67	71.6	0	1	103	14	0	2	1	121	124.0	0	0	1	0	0	0	0	1	1.0
18:30 - 18:45	0	0	10	0	1	1	0	12	13.8	0	0	84	0	4	4	0	92	99.2	0	0	54	12	0	4	0	70	75.2	0	0	0	0	0	1	0	1	2.3
18:45 - 19:00	0	0	10	0	0	2	0	12	14.6	0	0	80	1	1	4	0	86	91.7	0	0	43	9	0	4	1	57	63.2	0	0	0	0	0	0	0	0	0.0
Hourly Total	**0**	**0**	**39**	**3**	**1**	**5**	**0**	**48**	**55.0**	**0**	**1**	**265**	**7**	**7**	**19**	**0**	**299**	**326.6**	**0**	**2**	**303**	**45**	**0**	**13**	**2**	**365**	**382.7**	**0**	**0**	**3**	**0**	**0**	**1**	**0**	**4**	**5.3**
TOTAL	**0**	**2**	**160**	**20**	**9**	**9**	**0**	**200**	**215.0**	**0**	**2**	**691**	**61**	**32**	**71**	**2**	**859**	**968.1**	**0**	**6**	**524**	**120**	**1**	**47**	**5**	**703**	**766.0**	**0**	**0**	**15**	**1**	**0**	**1**	**0**	**17**	**18.3**

PCU Factors:	
CYCLE	0.2
M/CYCLE	0.4
CAR	1.0
LGV	1.0
OGV1	1.5
OGV2	2.3
BUS	2.0

East Midlands Gateway
Wednesday 23rd November 2022
Junction: 1
Approach: A6 Kegworth Bypass

	Left to A453 (S)									Ahead to Wilders Way									Right to A453 (N)								
TIME	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs
07:00 - 07:15	0	2	15	3	0	0	0	20	18.8	0	1	87	11	10	2	0	111	118.0	0	0	74	10	8	3	2	97	106.9
07:15 - 07:30	0	0	26	2	1	0	0	29	29.5	0	1	101	16	4	1	1	124	127.7	0	1	65	18	5	0	0	89	90.9
07:30 - 07:45	0	0	29	3	1	0	1	34	35.5	0	0	76	10	2	0	2	90	93.0	0	0	61	10	1	0	0	72	72.5
07:45 - 08:00	0	0	29	5	0	1	0	35	36.3	0	0	109	21	3	3	1	137	143.4	0	0	92	21	4	2	0	119	123.6
Hourly Total	**0**	**2**	**99**	**13**	**2**	**1**	**1**	**118**	**120.1**	**0**	**2**	**373**	**58**	**19**	**6**	**4**	**462**	**482.1**	**0**	**1**	**292**	**59**	**18**	**5**	**2**	**377**	**393.9**
08:00 - 08:15	0	0	35	1	0	0	0	36	36.0	1	0	74	15	3	1	1	95	98.0	0	0	73	13	3	1	0	90	92.8
08:15 - 08:30	0	0	30	2	2	2	1	37	41.6	0	3	69	19	2	1	0	94	94.5	0	3	66	16	1	2	0	88	89.3
08:30 - 08:45	0	1	41	7	1	3	0	53	56.8	0	1	46	14	3	1	1	66	69.2	0	1	43	12	2	2	0	60	63.0
08:45 - 09:00	0	0	31	0	4	0	0	35	37.0	0	0	54	11	6	3	0	74	80.9	0	0	51	10	6	3	0	70	76.9
Hourly Total	**0**	**1**	**137**	**10**	**7**	**5**	**1**	**161**	**171.4**	**1**	**4**	**243**	**59**	**14**	**6**	**2**	**329**	**342.6**	**0**	**4**	**233**	**51**	**12**	**8**	**0**	**308**	**322.0**
09:00 - 09:15	0	0	24	5	0	1	0	30	31.3	0	0	61	13	6	3	3	86	95.9	0	0	54	12	7	3	1	77	85.4
09:15 - 09:30	0	0	17	4	1	0	0	22	22.5	0	0	34	12	3	4	1	54	61.7	0	0	32	12	4	4	0	52	59.2
09:30 - 09:45	0	0	17	5	0	1	0	23	24.3	0	0	30	12	1	2	0	45	48.1	0	0	28	9	1	1	0	39	40.8
09:45 - 10:00	0	0	9	4	0	1	1	15	17.3	0	0	37	19	3	3	0	62	67.4	0	0	26	16	4	3	0	49	54.9
Hourly Total	**0**	**0**	**67**	**18**	**1**	**3**	**1**	**90**	**95.4**	**0**	**0**	**162**	**56**	**13**	**12**	**4**	**247**	**273.1**	**0**	**0**	**140**	**49**	**16**	**11**	**1**	**217**	**240.3**
TOTAL	**0**	**3**	**303**	**41**	**10**	**9**	**3**	**369**	**386.9**	**1**	**6**	**778**	**173**	**46**	**24**	**10**	**1038**	**1097.8**	**0**	**5**	**665**	**159**	**46**	**24**	**3**	**902**	**956.2**
16:00 - 16:15	0	0	20	6	0	0	1	27	28.0	0	0	50	9	7	4	0	70	78.7	0	0	47	13	7	4	0	71	79.7
16:15 - 16:30	0	0	16	5	2	0	0	23	24.0	0	0	77	17	2	5	1	102	110.5	0	1	67	16	2	5	0	91	97.9
16:30 - 16:45	0	0	28	9	0	1	1	39	41.3	0	0	74	20	1	1	2	98	101.8	0	0	76	21	1	1	0	99	100.8
16:45 - 17:00	0	0	17	4	0	0	0	21	21.0	0	0	85	15	2	0	1	103	105.0	0	0	88	16	1	1	0	106	107.8
Hourly Total	**0**	**0**	**81**	**24**	**2**	**1**	**2**	**110**	**114.3**	**0**	**0**	**286**	**61**	**12**	**10**	**4**	**373**	**396.0**	**0**	**1**	**278**	**66**	**11**	**11**	**0**	**367**	**386.2**
17:00 - 17:15	0	0	25	4	2	0	0	31	32.0	0	0	80	13	2	4	1	100	107.2	0	0	76	16	2	2	0	96	99.6
17:15 - 17:30	0	0	33	3	1	0	0	37	37.5	0	0	94	8	2	0	0	104	105.0	0	0	88	9	2	0	0	99	100.0
17:30 - 17:45	0	0	28	3	1	1	0	33	34.8	0	0	90	15	2	0	1	108	110.0	0	1	87	16	2	0	0	106	106.4
17:45 - 18:00	0	0	26	2	3	0	0	31	32.5	0	0	81	6	2	0	1	90	92.0	0	0	81	6	1	0	0	88	88.5
Hourly Total	**0**	**0**	**112**	**12**	**7**	**1**	**0**	**132**	**136.8**	**0**	**0**	**345**	**42**	**8**	**4**	**3**	**402**	**414.2**	**0**	**1**	**332**	**47**	**7**	**2**	**0**	**389**	**394.5**
18:00 - 18:15	0	0	24	4	1	0	0	29	29.5	0	0	71	2	1	1	0	75	76.8	0	0	55	4	1	1	0	61	62.8
18:15 - 18:30	0	0	14	3	0	0	0	17	17.0	0	1	55	6	1	0	2	65	66.9	0	0	45	8	1	0	0	54	54.5
18:30 - 18:45	0	0	24	2	0	0	1	27	28.0	0	0	47	7	0	0	1	55	56.0	0	0	37	6	0	0	0	43	43.0
18:45 - 19:00	0	0	14	3	0	1	0	18	19.3	0	1	30	2	0	0	0	33	32.4	0	1	24	4	0	0	0	29	28.4
Hourly Total	**0**	**0**	**76**	**12**	**1**	**1**	**1**	**91**	**93.8**	**0**	**2**	**203**	**17**	**2**	**1**	**3**	**228**	**232.1**	**0**	**1**	**161**	**22**	**2**	**1**	**0**	**187**	**188.7**
TOTAL	**0**	**0**	**269**	**48**	**10**	**3**	**3**	**333**	**344.9**	**0**	**2**	**834**	**120**	**22**	**15**	**10**	**1003**	**1042.3**	**0**	**3**	**771**	**135**	**20**	**14**	**0**	**943**	**969.4**

PCU Factors:	
CYCLE	0.2
M/CYCL	0.4
CAR	1.0
LGV	1.0
OGV1	1.5
OGV2	2.3
BUS	2.0

Rijkin Data Services Ltd

East Midlands Gateway
Wednesday 23rd November 2022
Junction: 1
Approach: A453 South

	Left to Wilders Way									Ahead to A453 (N)									Right to A6 Kegworth Bypass									U-Turn								
TIME	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs
07:00 - 07:15	0	0	36	1	3	5	2	47	57.0	0	0	102	22	5	8	0	137	149.9	0	0	13	2	1	1	0	17	18.8	0	0	0	0	0	0	0	0	0.0
07:15 - 07:30	0	0	102	3	3	11	1	120	136.8	0	0	143	24	4	15	0	186	207.5	0	0	17	11	1	1	1	31	33.8	0	0	2	0	0	0	0	2	2.0
07:30 - 07:45	0	0	66	2	1	7	3	79	91.6	0	2	162	35	5	19	1	224	251.0	0	0	21	6	1	1	0	29	30.8	0	0	2	0	0	0	0	2	2.0
07:45 - 08:00	0	0	57	2	1	9	1	70	83.2	0	0	184	43	8	20	0	255	285.0	0	0	26	10	1	0	1	38	39.5	0	0	0	0	0	0	0	0	0.0
Hourly Total	**0**	**0**	**261**	**8**	**8**	**32**	**7**	**316**	**368.6**	**0**	**2**	**591**	**124**	**22**	**62**	**1**	**802**	**893.4**	**0**	**0**	**77**	**29**	**4**	**3**	**2**	**115**	**122.9**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**4**	**4.0**
08:00 - 08:15	0	0	25	4	1	4	1	35	41.7	0	0	215	40	9	2	1	267	275.1	0	0	24	5	3	0	0	32	33.5	0	0	0	0	0	0	0	0	0.0
08:15 - 08:30	0	0	15	2	3	12	3	35	55.1	0	0	191	49	9	18	1	268	296.9	0	0	17	11	0	0	0	28	28.0	0	0	2	0	0	0	0	2	2.0
08:30 - 08:45	0	0	16	2	1	11	1	31	46.8	0	1	143	30	8	31	0	213	256.7	0	0	17	10	4	2	1	34	39.6	0	0	0	0	0	0	0	0	0.0
08:45 - 09:00	0	0	27	6	1	9	2	45	59.2	0	0	92	24	6	19	0	141	168.7	0	0	23	2	0	0	0	25	25.0	0	0	1	0	0	0	0	1	1.0
Hourly Total	**0**	**0**	**83**	**14**	**6**	**36**	**7**	**146**	**202.8**	**0**	**1**	**641**	**143**	**32**	**70**	**2**	**889**	**997.4**	**0**	**0**	**81**	**28**	**7**	**2**	**1**	**119**	**126.1**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**3**	**3.0**
09:00 - 09:15	0	0	18	3	3	5	2	31	41.0	0	0	86	28	5	25	0	144	179.0	0	0	18	7	1	1	0	27	28.8	0	0	2	0	0	0	0	2	2.0
09:15 - 09:30	0	0	20	6	1	7	1	35	45.6	0	0	88	22	11	19	0	140	170.2	0	0	26	6	0	2	0	34	36.6	0	0	1	0	0	0	0	1	1.0
09:30 - 09:45	0	0	28	12	1	2	3	46	52.1	0	0	81	19	4	21	0	125	154.3	0	0	22	2	3	1	0	28	30.8	0	0	0	0	0	0	0	0	0.0
09:45 - 10:00	0	0	21	12	2	7	2	44	56.1	0	0	76	17	14	11	0	118	139.3	0	0	7	6	0	1	0	14	15.3	0	0	1	0	0	0	0	1	1.0
Hourly Total	**0**	**0**	**87**	**33**	**7**	**21**	**8**	**156**	**194.8**	**0**	**0**	**331**	**86**	**34**	**76**	**0**	**527**	**642.8**	**0**	**0**	**73**	**21**	**4**	**5**	**0**	**103**	**111.5**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**4**	**4.0**
TOTAL	**0**	**0**	**431**	**55**	**21**	**89**	**22**	**618**	**766.2**	**0**	**3**	**1563**	**353**	**88**	**208**	**3**	**2218**	**2533.6**	**0**	**0**	**231**	**78**	**15**	**10**	**3**	**337**	**360.5**	**0**	**0**	**11**	**0**	**0**	**0**	**0**	**11**	**11.0**
16:00 - 16:15	0	0	3	2	1	6	4	16	28.3	0	0	205	50	10	20	0	285	316.0	0	0	26	8	0	0	0	34	34.0	0	0	0	0	0	0	0	0	0.0
16:15 - 16:30	0	0	4	3	0	3	1	11	15.9	0	0	153	37	4	15	0	209	230.5	0	0	31	2	2	1	0	36	38.3	0	0	0	0	0	0	0	0	0.0
16:30 - 16:45	0	1	8	0	2	5	1	17	24.9	0	1	198	39	10	15	0	263	286.9	0	0	28	6	2	0	1	37	39.0	0	0	0	0	0	0	0	0	0.0
16:45 - 17:00	0	0	6	0	1	5	2	14	23.0	0	1	203	38	9	21	0	272	303.2	0	0	35	5	1	1	0	42	43.8	0	0	0	0	0	0	0	0	0.0
Hourly Total	**0**	**1**	**21**	**5**	**4**	**19**	**8**	**58**	**92.1**	**0**	**2**	**759**	**164**	**33**	**71**	**0**	**1029**	**1136.6**	**0**	**0**	**120**	**21**	**5**	**2**	**1**	**149**	**155.1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**
17:00 - 17:15	0	0	8	0	1	9	2	20	34.2	0	1	243	30	10	23	0	307	341.3	0	0	29	7	1	0	0	37	37.5	0	0	0	0	0	0	0	0	0.0
17:15 - 17:30	0	0	13	0	3	3	3	22	30.4	0	0	206	19	5	17	1	248	273.6	0	0	46	7	1	0	0	54	54.5	0	0	0	0	0	0	0	0	0.0
17:30 - 17:45	0	0	10	0	4	6	1	21	31.8	0	0	211	27	8	11	0	257	275.3	0	0	53	2	0	0	0	55	55.0	0	0	0	0	0	0	0	0	0.0
17:45 - 18:00	0	0	18	1	1	5	2	27	36.0	0	0	179	23	2	10	0	214	228.0	0	1	36	1	1	2	0	41	43.5	0	0	0	0	0	0	0	0	0.0
Hourly Total	**0**	**0**	**49**	**1**	**9**	**23**	**8**	**90**	**132.4**	**0**	**1**	**839**	**99**	**25**	**61**	**1**	**1026**	**1118.2**	**0**	**1**	**164**	**17**	**3**	**2**	**0**	**187**	**190.5**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**
18:00 - 18:15	0	0	34	1	1	2	3	41	47.1	0	1	156	23	3	14	1	198	218.1	0	0	30	5	0	1	1	37	39.3	0	0	0	0	0	0	0	0	0.0
18:15 - 18:30	0	1	51	0	0	2	0	54	56.0	0	0	154	9	6	8	0	177	190.4	0	0	24	3	1	0	0	28	28.5	0	0	0	0	0	0	0	0	0.0
18:30 - 18:45	0	0	28	0	0	3	1	32	36.9	0	0	91	6	6	13	0	116	135.9	0	0	23	7	1	0	0	31	31.5	0	0	0	0	0	0	0	0	0.0
18:45 - 19:00	0	0	24	0	0	8	1	33	44.4	0	0	98	10	4	7	0	119	130.1	0	1	27	2	0	1	0	31	31.7	0	0	0	0	0	0	0	0	0.0
Hourly Total	**0**	**1**	**137**	**1**	**1**	**15**	**5**	**160**	**184.4**	**0**	**1**	**499**	**48**	**19**	**42**	**1**	**610**	**674.5**	**0**	**1**	**104**	**17**	**2**	**2**	**1**	**127**	**131.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**
TOTAL	**0**	**2**	**207**	**7**	**14**	**57**	**21**	**308**	**408.9**	**0**	**4**	**2097**	**311**	**77**	**174**	**2**	**2665**	**2929.3**	**0**	**2**	**388**	**55**	**10**	**6**	**2**	**463**	**476.6**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**

PCU Factors	
CYCLE	0.2
M/CYCLE	0.4
CAR	1.0
LGV	1.0
OGV1	1.3
OGV2	2.3
BUS	2.0

Road Data Services Ltd

East Midlands Gateway
Wednesday 23rd November 2022
Junction: 1
Approach: Wilders Way

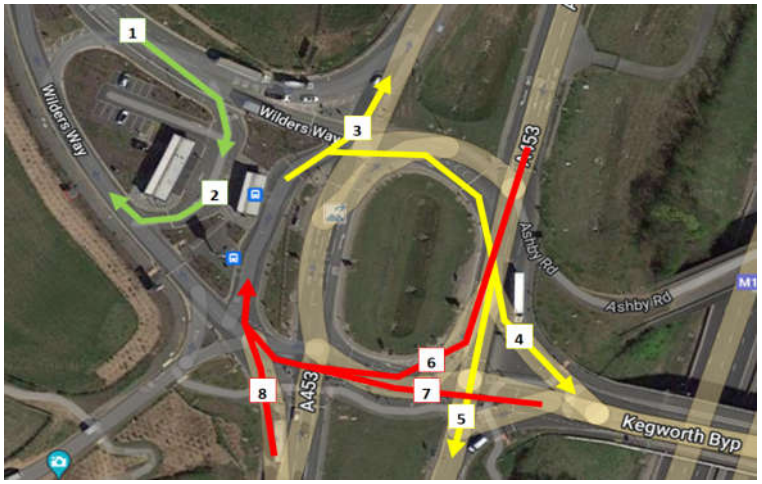
	Left to A453 (N)									Ahead to A6 Kegworth Bypass									Right to A453 (S)								
TIME	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs
07:00 - 07:15	0	0	30	0	2	5	0	37	44.5	0	0	2	0	0	0	0	2	2.0	0	1	12	1	0	7	0	21	29.5
07:15 - 07:30	0	0	8	1	1	5	0	15	22.0	0	0	2	1	1	1	0	5	6.8	0	0	4	1	0	9	0	14	25.7
07:30 - 07:45	0	0	18	1	1	9	0	29	41.2	0	0	2	0	0	2	0	4	6.6	0	0	9	0	3	5	0	17	25.0
07:45 - 08:00	0	0	22	2	0	5	0	29	35.5	0	0	0	0	0	0	0	0	0.0	0	0	13	1	2	6	0	22	30.8
Hourly Total	**0**	**0**	**78**	**4**	**4**	**24**	**0**	**110**	**143.2**	**0**	**0**	**6**	**1**	**1**	**3**	**0**	**11**	**15.4**	**0**	**1**	**38**	**3**	**5**	**27**	**0**	**74**	**111.0**
08:00 - 08:15	0	0	23	3	1	5	0	32	39.0	0	0	0	0	0	0	0	0	0.0	0	0	11	3	0	5	0	19	25.5
08:15 - 08:30	0	0	11	1	2	3	0	17	21.9	0	0	2	1	0	0	0	3	3.0	0	0	13	1	1	7	0	22	31.6
08:30 - 08:45	0	0	8	3	3	6	0	20	29.3	0	0	1	1	0	0	0	2	2.0	0	0	7	1	1	6	0	15	23.3
08:45 - 09:00	0	0	5	2	0	10	0	17	30.0	0	0	1	0	0	0	0	1	1.0	0	0	2	2	0	6	0	10	17.8
Hourly Total	**0**	**0**	**47**	**9**	**6**	**24**	**0**	**86**	**120.2**	**0**	**0**	**4**	**2**	**0**	**0**	**0**	**6**	**6.0**	**0**	**0**	**33**	**7**	**2**	**24**	**0**	**66**	**98.2**
09:00 - 09:15	0	0	3	2	0	8	0	13	23.4	0	0	3	0	0	1	0	4	5.3	0	0	2	1	1	6	1	11	20.3
09:15 - 09:30	0	0	7	1	2	6	0	16	24.8	0	0	0	0	0	0	0	0	0.0	0	0	2	2	1	8	0	13	23.9
09:30 - 09:45	0	0	12	2	0	8	0	22	32.4	0	0	0	1	1	1	0	3	4.8	0	0	3	2	0	9	0	14	25.7
09:45 - 10:00	0	0	31	48	2	6	1	88	97.8	0	0	6	1	1	0	0	8	8.5	0	0	6	6	1	7	2	22	33.6
Hourly Total	**0**	**0**	**53**	**53**	**4**	**28**	**1**	**139**	**178.4**	**0**	**0**	**9**	**2**	**2**	**2**	**0**	**15**	**18.6**	**0**	**0**	**13**	**11**	**3**	**30**	**3**	**60**	**103.5**
TOTAL	**0**	**0**	**178**	**66**	**14**	**76**	**1**	**335**	**441.8**	**0**	**0**	**19**	**5**	**3**	**5**	**0**	**32**	**40.0**	**0**	**1**	**84**	**21**	**10**	**81**	**3**	**200**	**312.7**
16:00 - 16:15	0	1	76	9	1	5	0	92	98.4	0	0	8	0	2	0	0	10	11.0	0	0	27	2	3	5	0	37	45.0
16:15 - 16:30	0	1	54	2	2	2	0	61	64.0	0	0	2	1	0	1	0	4	5.3	0	0	21	2	3	3	0	29	34.4
16:30 - 16:45	0	0	65	6	1	1	0	73	74.8	0	0	9	0	0	0	0	9	9.0	0	0	14	5	0	6	0	25	32.8
16:45 - 17:00	0	0	47	3	4	2	0	56	60.6	0	1	1	3	0	0	0	5	4.4	0	0	19	2	1	5	0	27	34.0
Hourly Total	**0**	**2**	**242**	**20**	**8**	**10**	**0**	**282**	**297.8**	**0**	**1**	**20**	**4**	**2**	**1**	**0**	**28**	**29.7**	**0**	**0**	**81**	**11**	**7**	**19**	**0**	**118**	**146.2**
17:00 - 17:15	0	0	40	7	1	5	0	53	60.0	0	0	2	0	0	0	0	2	2.0	0	0	25	2	3	10	1	41	56.5
17:15 - 17:30	0	0	42	8	0	4	0	54	59.2	0	0	4	1	0	1	0	6	7.3	0	1	26	2	2	5	0	36	42.9
17:30 - 17:45	0	0	58	4	0	7	0	69	78.1	0	1	2	1	0	0	0	4	3.4	0	0	21	2	3	7	0	33	43.6
17:45 - 18:00	0	0	33	4	4	4	0	45	52.2	0	0	6	0	1	0	0	7	7.5	0	1	16	4	3	6	0	30	38.7
Hourly Total	**0**	**0**	**173**	**23**	**5**	**20**	**0**	**221**	**249.5**	**0**	**1**	**14**	**2**	**1**	**1**	**0**	**19**	**20.2**	**0**	**2**	**88**	**10**	**11**	**28**	**1**	**140**	**181.7**
18:00 - 18:15	0	0	203	9	1	2	0	215	218.1	0	0	24	1	0	0	0	25	25.0	0	0	74	1	4	6	1	86	96.8
18:15 - 18:30	0	1	59	2	2	2	0	66	69.0	0	0	10	0	0	0	0	10	10.0	0	0	31	2	1	7	0	41	50.6
18:30 - 18:45	0	2	170	3	2	2	0	179	181.4	0	0	24	2	1	0	0	27	27.5	0	0	63	1	1	4	0	69	74.7
18:45 - 19:00	0	0	49	4	1	0	0	54	54.5	0	0	9	1	0	0	0	10	10.0	0	0	13	3	1	1	0	18	19.8
Hourly Total	**0**	**3**	**481**	**18**	**6**	**6**	**0**	**514**	**523.0**	**0**	**0**	**67**	**4**	**1**	**0**	**0**	**72**	**72.5**	**0**	**0**	**181**	**7**	**7**	**18**	**1**	**214**	**241.9**
TOTAL	**0**	**5**	**896**	**61**	**19**	**36**	**0**	**1017**	**1070.3**	**0**	**2**	**101**	**10**	**4**	**2**	**0**	**119**	**122.4**	**0**	**2**	**350**	**28**	**25**	**65**	**2**	**472**	**569.8**

PCU Factors:	
CYCLE	0.2
M/CYCLE	0.4
CAR	1.0
LGV	1.0
OGV1	1.5
OGV2	2.3
BUS	2.0

Road Data Services Ltd

East Midlands Gateway
Wednesday 23rd November 2022
Junction: 1
Bus Moves

	Bus Moves							
TIME	Move 1	Move 2	Move 3	Move 4	Move 5	Move 6	Move 7	Move 8
07:00 - 07:15	1	1	0	1	1	0	0	2
07:15 - 07:30	2	3	1	0	3	1	2	1
07:30 - 07:45	1	2	1	1	2	0	2	2
07:45 - 08:00	2	2	0	2	2	1	1	2
Hourly Total	**6**	**8**	**2**	**4**	**8**	**2**	**5**	**7**
08:00 - 08:15	1	1	1	0	1	0	1	1
08:15 - 08:30	2	1	0	1	1	0	0	2
08:30 - 08:45	1	3	0	1	3	1	1	1
08:45 - 09:00	2	0	1	1	0	1	0	2
Hourly Total	**6**	**5**	**2**	**3**	**5**	**2**	**2**	**6**
09:00 - 09:15	1	2	1	1	2	0	2	2
09:15 - 09:30	2	1	0	1	1	0	1	1
09:30 - 09:45	1	2	0	1	2	1	0	3
09:45 - 10:00	2	1	1	1	1	0	0	2
Hourly Total	**6**	**6**	**2**	**4**	**6**	**1**	**3**	**8**
TOTAL	**18**	**19**	**6**	**11**	**19**	**5**	**10**	**21**
16:00 - 16:15	1	2	1	2	2	0	0	3
16:15 - 16:30	2	2	0	1	2	1	1	1
16:30 - 16:45	1	2	1	0	2	0	2	1
16:45 - 17:00	2	1	0	1	1	1	1	2
Hourly Total	**6**	**7**	**2**	**4**	**7**	**2**	**4**	**7**
17:00 - 17:15	1	1	1	1	1	0	1	2
17:15 - 17:30	2	3	1	1	3	1	0	3
17:30 - 17:45	1	1	1	0	1	0	1	1
17:45 - 18:00	2	0	0	1	0	0	1	1
Hourly Total	**6**	**5**	**3**	**3**	**5**	**1**	**3**	**7**
18:00 - 18:15	1	1	0	2	1	0	0	3
18:15 - 18:30	2	3	0	1	3	1	2	1
18:30 - 18:45	1	2	0	1	2	0	1	2
18:45 - 19:00	2	1	1	0	1	1	0	1
Hourly Total	**6**	**7**	**1**	**4**	**7**	**2**	**3**	**7**
TOTAL	**18**	**19**	**6**	**11**	**19**	**5**	**10**	**21**



APPENDIX 4 – M1 Junction 24 Turning Count Results

East Midlands Gateway
Thursday 3rd November 2022
Junction: 5
Approach: M1 J24 North

	To A453 (N)									To Derby Road										To M1 J24 (S)										To A453 (S)										To A50										To Hilton Hotel Lane									
TIME	CYCLE	M/CYCL	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCL	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCL	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCL	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCL	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCL	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs
07:00 - 07:15	0	1	138	48	11	9	0	207	223.6	0	0	97	31	8	1	0	137	142.3	0	0	0	0	0	0	0	0	0.0	0	2	94	11	6	12	0	125	142.4	0	0	36	23	2	4	0	65	71.2	0	0	1	0	0	0	0	1	1.0
07:15 - 07:30	0	0	123	36	9	9	1	178	195.2	0	0	97	34	2	0	0	133	134.0	0	0	0	0	0	0	0	0	0.0	0	1	119	11	9	9	0	149	164.6	0	0	40	29	2	7	0	78	88.1	0	0	1	1	0	0	0	2	2.0
07:30 - 07:45	0	0	152	55	8	5	0	220	230.5	0	0	139	38	7	0	0	184	187.5	0	0	0	0	0	0	0	0	0.0	0	0	110	16	2	8	0	136	147.4	0	0	69	14	2	6	0	91	99.8	0	0	3	1	0	0	0	4	4.0
07:45 - 08:00	0	0	146	37	9	7	0	199	212.6	0	0	79	22	0	1	0	102	103.3	0	0	0	0	0	0	0	0	0.0	0	0	124	28	4	13	0	169	187.9	0	0	62	20	4	6	0	92	101.8	0	0	3	0	0	0	0	3	3.0
Hourly Total	**0**	**1**	**559**	**176**	**37**	**30**	**1**	**804**	**861.9**	**0**	**0**	**412**	**125**	**17**	**2**	**0**	**556**	**567.1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**3**	**447**	**66**	**21**	**42**	**0**	**579**	**642.3**	**0**	**0**	**207**	**86**	**10**	**23**	**0**	**326**	**360.9**	**0**	**0**	**8**	**2**	**0**	**0**	**0**	**10**	**10.0**
08:00 - 08:15	0	3	151	47	5	18	0	224	248.1	0	0	92	25	6	0	0	123	126.0	0	0	0	0	0	0	0	0	0.0	0	0	100	15	6	4	0	125	133.2	0	0	55	16	2	4	0	77	83.2	0	0	3	0	0	0	0	3	3.0
08:15 - 08:30	0	0	196	33	15	13	0	257	281.4	0	0	85	25	7	0	0	117	120.5	0	0	0	0	0	0	0	0	0.0	0	0	88	10	2	12	0	112	128.6	0	0	40	11	3	7	0	61	71.6	0	0	3	1	0	0	0	4	4.0
08:30 - 08:45	0	1	179	42	16	17	0	255	284.5	0	2	78	29	1	0	0	110	109.3	0	0	1	0	0	0	0	1	1.0	0	0	88	7	4	12	0	111	128.6	0	0	35	13	3	5	1	57	66.0	0	0	2	1	0	0	0	3	3.0
08:45 - 09:00	0	0	157	45	11	16	1	230	257.3	0	1	82	29	7	0	0	119	121.9	0	0	0	0	0	0	0	0	0.0	0	0	62	14	2	10	0	88	102.0	0	0	26	15	2	2	0	45	48.6	0	1	2	1	0	0	0	4	3.4
Hourly Total	**0**	**4**	**683**	**167**	**47**	**64**	**1**	**966**	**1071.3**	**0**	**3**	**337**	**108**	**21**	**0**	**0**	**469**	**477.7**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**1.0**	**0**	**0**	**338**	**46**	**14**	**38**	**0**	**436**	**492.4**	**0**	**0**	**156**	**55**	**10**	**18**	**1**	**240**	**269.4**	**0**	**1**	**10**	**3**	**0**	**0**	**0**	**14**	**13.4**
09:00 - 09:15	0	0	117	34	14	21	0	186	220.3	0	0	59	17	1	0	0	77	77.5	0	0	0	0	0	0	0	0	0.0	0	2	55	6	5	12	0	80	96.9	0	1	36	8	4	8	0	57	68.8	0	0	3	1	0	0	0	4	4.0
09:15 - 09:30	0	1	111	21	8	22	0	163	195.0	0	0	53	21	1	2	0	77	80.1	0	0	1	0	0	0	0	1	1.0	0	0	62	10	7	8	0	87	100.9	0	0	28	11	4	6	1	50	60.8	0	0	2	0	0	0	0	2	2.0
09:30 - 09:45	0	0	79	27	6	16	0	128	151.8	0	0	51	23	0	0	0	74	74.0	0	0	0	1	0	0	0	1	1.0	0	0	56	7	3	13	0	79	97.4	0	0	33	8	3	4	0	48	54.7	0	0	3	0	0	0	0	3	3.0
09:45 - 10:00	0	0	74	29	9	17	0	129	155.6	0	0	52	14	4	0	0	70	72.0	0	0	0	0	0	0	0	0	0.0	0	1	46	9	4	10	0	70	84.4	0	0	27	3	2	6	0	38	46.8	0	0	2	1	0	0	0	3	3.0
Hourly Total	**0**	**1**	**381**	**111**	**37**	**76**	**0**	**606**	**722.7**	**0**	**0**	**215**	**75**	**6**	**2**	**0**	**298**	**303.6**	**0**	**0**	**1**	**1**	**0**	**0**	**0**	**2**	**2.0**	**0**	**3**	**219**	**32**	**19**	**43**	**0**	**316**	**379.6**	**0**	**1**	**124**	**30**	**13**	**24**	**1**	**193**	**231.1**	**0**	**0**	**10**	**2**	**0**	**0**	**0**	**12**	**12.0**
TOTAL	**0**	**6**	**1623**	**454**	**121**	**170**	**2**	**2376**	**2655.9**	**0**	**3**	**964**	**308**	**44**	**4**	**0**	**1323**	**1348.4**	**0**	**0**	**2**	**1**	**0**	**0**	**0**	**3**	**3.0**	**0**	**6**	**1004**	**144**	**54**	**123**	**0**	**1331**	**1514.3**	**0**	**1**	**487**	**171**	**33**	**65**	**2**	**759**	**861.4**	**0**	**1**	**28**	**7**	**0**	**0**	**0**	**36**	**35.4**

16:00 - 16:15	0	0	124	30	8	9	0	171	186.7	0	0	88	17	4	0	0	109	111.0	0	0	0	0	0	0	0	0	0.0	0	0	24	3	2	5	0	34	41.5	0	0	32	9	3	3	0	47	52.4	0	0	2	0	0	0	0	2	2.0
16:15 - 16:30	0	0	163	28	3	6	0	200	209.3	0	0	103	20	0	0	0	123	123.0	0	0	1	0	0	0	0	1	1.0	0	0	29	3	2	4	0	38	44.2	0	0	38	6	3	7	0	54	64.6	0	0	1	0	0	0	0	1	1.0
16:30 - 16:45	0	0	154	33	2	9	0	198	210.7	0	0	101	19	1	0	0	121	121.5	0	0	0	0	0	0	0	0	0.0	0	0	24	4	4	5	0	37	45.5	0	0	31	7	4	3	0	45	50.9	0	0	1	0	0	0	0	1	1.0
16:45 - 17:00	0	1	176	27	6	8	0	218	230.8	0	0	92	12	0	0	0	104	104.0	0	0	2	0	0	0	0	2	2.0	0	0	28	3	3	6	0	40	49.3	0	0	33	15	3	4	0	55	61.7	0	0	1	0	0	0	0	1	1.0
Hourly Total	**0**	**1**	**617**	**118**	**19**	**32**	**0**	**787**	**837.5**	**0**	**0**	**384**	**68**	**5**	**0**	**0**	**457**	**459.5**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**3**	**3.0**	**0**	**0**	**105**	**13**	**11**	**20**	**0**	**149**	**180.5**	**0**	**0**	**134**	**37**	**13**	**17**	**0**	**201**	**229.6**	**0**	**0**	**5**	**0**	**0**	**0**	**0**	**5**	**5.0**
17:00 - 17:15	0	1	181	32	5	10	0	229	243.9	0	0	94	18	1	2	0	115	118.1	0	0	0	0	0	0	0	0	0.0	0	0	27	2	4	9	0	42	55.7	0	0	34	8	2	5	0	49	56.5	0	0	2	0	0	0	0	2	2.0
17:15 - 17:30	0	0	186	34	3	8	0	231	242.9	0	0	143	20	4	0	0	167	169.0	0	0	1	0	0	0	0	1	1.0	0	1	36	2	2	0	0	41	41.4	0	0	52	6	1	6	0	65	73.3	0	0	2	1	0	0	0	3	3.0
17:30 - 17:45	0	0	191	28	2	7	2	230	242.1	0	0	120	19	2	0	0	141	142.0	0	0	2	0	0	0	0	2	2.0	0	2	34	4	0	2	0	42	43.4	0	1	49	9	1	2	0	62	64.5	0	0	2	0	0	0	0	2	2.0
17:45 - 18:00	0	0	191	13	4	9	0	217	230.7	0	1	103	12	5	0	1	122	124.9	0	0	0	1	0	0	0	1	1.0	0	0	48	4	0	5	0	57	63.5	0	0	46	13	2	3	0	64	68.9	0	0	2	1	0	0	0	3	3.0
Hourly Total	**0**	**1**	**749**	**107**	**14**	**34**	**2**	**907**	**959.6**	**0**	**1**	**460**	**69**	**12**	**2**	**1**	**545**	**554.0**	**0**	**0**	**3**	**1**	**0**	**0**	**0**	**4**	**4.0**	**0**	**3**	**145**	**12**	**6**	**16**	**0**	**182**	**204.0**	**0**	**1**	**181**	**36**	**6**	**16**	**0**	**240**	**263.2**	**0**	**0**	**8**	**2**	**0**	**0**	**0**	**10**	**10.0**
18:00 - 18:15	0	0	173	13	3	5	0	194	202.0	0	0	98	10	0	0	0	108	108.0	0	0	1	0	0	0	0	1	1.0	0	0	55	2	0	7	0	64	73.1	0	0	43	13	1	4	0	61	66.7	0	0	2	0	0	0	0	2	2.0
18:15 - 18:30	0	0	136	11	1	4	0	152	157.7	0	0	103	5	0	0	0	108	108.0	0	0	0	0	0	0	0	0	0.0	0	0	80	4	2	5	0	91	98.5	0	0	47	5	2	3	0	57	61.9	0	0	2	0	0	0	0	2	2.0
18:30 - 18:45	0	0	94	15	4	10	0	123	138.0	0	0	53	5	1	0	0	59	59.5	0	0	0	0	0	0	0	0	0.0	0	1	67	8	1	8	0	85	95.3	0	0	42	5	2	4	0	53	59.2	0	0	2	0	0	0	0	2	2.0
18:45 - 19:00	0	0	95	7	2	6	0	110	118.8	0	0	83	2	0	1	0	86	87.3	0	0	0	0	0	0	0	0	0.0	0	0	53	5	0	7	0	65	74.1	0	0	32	6	2	3	0	43	47.9	0	0	2	0	0	0	0	2	2.0
Hourly Total	**0**	**0**	**498**	**46**	**10**	**25**	**0**	**579**	**616.5**	**0**	**0**	**337**	**22**	**1**	**1**	**0**	**361**	**362.8**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**1.0**	**0**	**1**	**255**	**19**	**3**	**27**	**0**	**305**	**341.0**	**0**	**0**	**164**	**29**	**7**	**14**	**0**	**214**	**235.7**	**0**	**0**	**8**	**0**	**0**	**0**	**0**	**8**	**8.0**
TOTAL	**0**	**2**	**1864**	**271**	**43**	**91**	**2**	**2273**	**2413.6**	**0**	**1**	**1181**	**159**	**18**	**3**	**1**	**1363**	**1376.3**	**0**	**0**	**7**	**1**	**0**	**0**	**0**	**8**	**8.0**	**0**	**4**	**505**	**44**	**20**	**63**	**0**	**636**	**725.5**	**0**	**1**	**479**	**102**	**26**	**47**	**0**	**655**	**728.5**	**0**	**0**	**21**	**2**	**0**	**0**	**0**	**23**	**23.0**

PCU Factors:	
CYCLE	0.2
M/CYCLE	0.4
CAR	1.0
LGV	1.0
OGV1	1.5
OGV2	2.3
BUS	2.0

East Midlands Gateway
Thursday 3rd November 2022
Junction: 5
Approach: A453 North

	To Derby Road									To M1 J24 (S)									To A453 (S)									To A50									To Hilton Hotel Lane									To M1 J24 (N)								
TIME	CYCLE	M/CYCL	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCL	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCL	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCL	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCL	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCL	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs
07:00 - 07:15	0	1	8	3	0	0	0	12	11.4	0	0	103	29	3	14	0	149	168.7	0	0	69	9	6	6	0	90	100.8	0	0	31	19	4	3	0	57	62.9	0	0	1	0	0	0	0	1	1.0	0	0	24	10	2	1	0	37	39.3
07:15 - 07:30	0	0	10	3	1	0	0	14	14.5	0	0	96	16	3	14	2	131	152.7	0	0	82	8	4	9	2	105	120.7	0	0	29	21	2	7	0	59	69.1	0	0	1	1	0	0	0	2	2.0	0	0	32	10	2	6	0	50	58.8
07:30 - 07:45	0	0	20	4	0	0	0	24	24.0	0	0	68	13	5	6	0	92	102.3	0	4	87	18	2	9	1	121	132.3	0	0	49	13	2	5	0	69	76.5	0	0	3	1	0	0	0	4	4.0	0	0	37	6	2	5	0	50	57.5
07:45 - 08:00	0	1	6	0	1	0	0	8	7.9	0	1	81	16	8	8	0	114	127.8	0	0	89	9	4	9	0	111	124.7	0	1	44	7	8	4	0	64	72.6	0	0	3	0	0	0	0	3	3.0	0	0	30	9	3	4	0	46	52.7
Hourly Total	**0**	**2**	**44**	**10**	**2**	**0**	**0**	**58**	**57.8**	**0**	**1**	**348**	**74**	**19**	**42**	**2**	**486**	**551.5**	**0**	**4**	**327**	**44**	**16**	**33**	**3**	**427**	**478.5**	**0**	**1**	**153**	**60**	**16**	**19**	**0**	**249**	**####**	**0**	**0**	**8**	**2**	**0**	**0**	**0**	**10**	**10.0**	**0**	**0**	**123**	**35**	**9**	**16**	**0**	**183**	**208.3**
08:00 - 08:15	0	0	9	2	0	0	0	11	11.0	0	0	100	21	6	8	0	135	148.4	0	0	81	12	3	4	0	100	106.7	0	0	44	13	1	6	0	64	72.3	0	0	3	0	0	0	0	3	3.0	0	0	41	11	1	3	0	56	60.4
08:15 - 08:30	0	0	15	2	0	0	0	17	17.0	0	0	97	26	11	7	1	142	157.6	0	0	73	8	2	8	1	92	104.4	0	0	32	9	2	6	0	49	57.8	0	0	3	1	0	0	0	4	4.0	0	0	22	6	2	5	0	35	42.5
08:30 - 08:45	0	0	11	2	1	0	0	14	14.5	0	0	98	24	10	8	0	140	155.4	0	0	71	7	3	8	0	89	100.9	0	0	28	13	3	6	1	51	61.3	0	0	2	1	0	0	0	3	3.0	0	0	18	8	5	5	0	36	45.0
08:45 - 09:00	0	0	7	2	1	0	0	10	10.5	0	0	74	18	8	11	1	112	131.3	0	0	49	7	2	5	0	63	70.5	0	0	24	6	2	2	1	35	39.6	0	0	2	1	0	0	0	3	3.0	0	0	13	6	2	2	0	23	26.6
Hourly Total	**0**	**0**	**42**	**8**	**2**	**0**	**0**	**52**	**53.0**	**0**	**0**	**369**	**89**	**35**	**34**	**2**	**529**	**592.7**	**0**	**0**	**274**	**34**	**10**	**25**	**1**	**344**	**382.5**	**0**	**0**	**128**	**41**	**8**	**20**	**2**	**199**	**####**	**0**	**0**	**10**	**3**	**0**	**0**	**0**	**13**	**13.0**	**0**	**0**	**94**	**31**	**10**	**15**	**0**	**150**	**174.5**
09:00 - 09:15	0	0	5	0	2	0	0	7	8.0	0	0	69	20	3	11	2	105	122.8	0	0	40	5	6	7	2	60	74.1	0	0	25	5	4	4	0	38	45.2	0	0	2	1	0	0	0	3	3.0	0	0	19	2	2	3	0	26	30.9
09:15 - 09:30	0	0	4	3	0	1	0	8	9.3	0	0	88	26	2	18	0	134	158.4	0	0	44	5	2	9	0	60	72.7	0	0	19	5	3	5	2	34	44.0	0	0	2	0	0	0	0	2	2.0	0	0	15	4	2	5	0	26	33.5
09:30 - 09:45	0	0	9	3	0	0	0	12	12.0	0	0	70	13	3	12	0	98	115.1	0	0	38	8	6	8	0	60	73.4	0	0	26	6	4	4	0	40	47.2	0	0	2	0	0	0	0	2	2.0	0	0	27	6	0	4	0	37	42.2
09:45 - 10:00	0	0	5	3	0	0	0	8	8.0	0	0	82	24	10	9	0	125	141.7	0	1	42	9	4	12	0	68	85.0	0	1	26	7	2	9	0	45	57.1	0	0	2	1	0	0	0	3	3.0	0	0	20	4	0	6	0	30	37.8
Hourly Total	**0**	**0**	**23**	**9**	**2**	**1**	**0**	**35**	**37.3**	**0**	**0**	**309**	**83**	**18**	**50**	**2**	**462**	**538.0**	**0**	**1**	**164**	**27**	**18**	**36**	**2**	**248**	**305.2**	**0**	**1**	**96**	**23**	**13**	**22**	**2**	**157**	**####**	**0**	**0**	**8**	**2**	**0**	**0**	**0**	**10**	**10.0**	**0**	**0**	**81**	**16**	**4**	**18**	**0**	**119**	**144.4**
TOTAL	**0**	**2**	**109**	**27**	**6**	**1**	**0**	**145**	**148.1**	**0**	**1**	**1026**	**246**	**72**	**126**	**6**	**1477**	**1682.2**	**0**	**5**	**765**	**105**	**44**	**94**	**6**	**1019**	**1166.2**	**0**	**2**	**377**	**124**	**37**	**61**	**4**	**605**	**####**	**0**	**0**	**26**	**7**	**0**	**0**	**0**	**33**	**33.0**	**0**	**0**	**298**	**82**	**23**	**49**	**0**	**452**	**527.2**
16:00 - 16:15	0	1	8	0	1	0	0	10	9.9	0	0	160	23	7	9	1	200	216.2	0	0	43	11	2	7	0	63	73.1	0	1	76	27	6	8	0	118	####	0	0	2	0	0	0	0	2	2.0	0	0	52	26	2	4	0	84	90.2
16:15 - 16:30	0	0	9	1	0	0	0	10	10.0	0	2	167	33	2	10	0	214	226.8	0	0	47	7	2	6	0	62	70.8	0	0	64	26	3	8	0	101	####	0	0	2	0	0	0	0	2	2.0	0	0	51	16	5	6	0	78	88.3
16:30 - 16:45	0	0	13	1	0	0	0	14	14.0	0	2	181	45	9	2	0	239	244.9	0	0	30	6	3	7	0	46	56.6	0	2	52	17	3	6	0	80	88.1	0	0	1	0	0	0	0	1	1.0	0	0	54	25	4	4	0	87	94.2
16:45 - 17:00	0	0	15	3	0	0	0	18	18.0	0	0	193	35	4	4	0	236	243.2	0	1	58	10	1	3	1	74	78.8	0	0	68	23	1	3	0	95	99.4	0	0	2	0	0	0	0	2	2.0	0	0	60	21	2	3	0	86	90.9
Hourly Total	**0**	**1**	**45**	**5**	**1**	**0**	**0**	**52**	**51.9**	**0**	**4**	**701**	**136**	**22**	**25**	**1**	**889**	**931.1**	**0**	**1**	**178**	**34**	**8**	**23**	**1**	**245**	**279.3**	**0**	**3**	**260**	**93**	**13**	**25**	**0**	**394**	**####**	**0**	**0**	**7**	**0**	**0**	**0**	**0**	**7**	**7.0**	**0**	**0**	**217**	**88**	**13**	**17**	**0**	**335**	**363.6**
17:00 - 17:15	0	0	10	3	0	0	0	13	13.0	0	1	184	22	2	2	0	211	214.0	0	1	47	3	3	5	0	59	66.4	0	0	66	12	2	1	0	81	83.3	0	0	2	0	0	0	0	2	2.0	0	1	53	15	3	2	0	74	77.5
17:15 - 17:30	0	0	27	1	0	0	0	28	28.0	0	0	175	25	0	8	0	208	218.4	0	1	59	2	6	0	0	68	70.4	0	0	93	17	2	4	0	116	####	0	0	2	1	0	0	0	3	3.0	0	0	58	12	0	6	0	76	83.8
17:30 - 17:45	0	0	18	0	0	0	0	18	18.0	0	0	171	14	4	5	0	194	202.5	0	0	66	6	0	2	0	74	76.6	0	0	89	13	2	5	0	109	####	0	0	2	0	0	0	0	2	2.0	0	0	45	8	0	3	0	56	59.9
17:45 - 18:00	0	1	12	1	1	0	0	15	14.9	0	0	173	12	4	11	0	200	216.3	0	0	81	4	0	8	0	93	103.4	0	0	74	15	4	6	0	99	####	0	0	3	1	0	0	0	4	4.0	0	0	49	6	0	2	0	57	59.6
Hourly Total	**0**	**1**	**67**	**5**	**1**	**0**	**0**	**74**	**73.9**	**0**	**1**	**703**	**73**	**10**	**26**	**0**	**813**	**851.2**	**0**	**2**	**253**	**15**	**9**	**15**	**0**	**294**	**316.8**	**0**	**0**	**322**	**57**	**10**	**16**	**0**	**405**	**####**	**0**	**0**	**9**	**2**	**0**	**0**	**0**	**11**	**11.0**	**0**	**1**	**205**	**41**	**3**	**13**	**0**	**263**	**280.8**
18:00 - 18:15	0	0	17	0	0	0	0	17	17.0	0	0	171	9	3	8	2	193	206.9	0	1	71	2	1	4	0	79	84.1	0	0	54	17	1	2	0	74	77.1	0	0	2	0	0	0	0	2	2.0	0	0	33	8	0	3	0	44	47.9
18:15 - 18:30	0	0	6	1	0	0	0	7	7.0	0	0	144	14	0	6	0	164	171.8	0	0	77	5	2	3	0	87	91.9	0	0	46	6	2	4	0	58	64.2	0	0	3	1	0	0	0	4	4.0	0	0	28	3	1	2	0	34	37.1
18:30 - 18:45	0	0	13	3	1	0	0	17	17.5	0	0	116	9	1	3	0	129	133.4	0	0	63	11	2	4	0	80	86.2	0	0	36	6	2	1	0	45	47.3	0	0	2	0	0	0	0	2	2.0	0	0	40	5	2	2	0	49	52.6
18:45 - 19:00	0	0	7	1	0	1	0	9	10.3	0	0	104	8	1	6	0	119	127.3	0	0	43	9	2	5	0	59	66.5	0	0	23	10	1	2	1	37	41.1	0	0	2	0	0	0	0	2	2.0	0	0	31	4	1	3	0	39	43.4
Hourly Total	**0**	**0**	**43**	**5**	**1**	**1**	**0**	**50**	**51.8**	**0**	**0**	**535**	**40**	**5**	**23**	**2**	**605**	**639.4**	**0**	**1**	**254**	**27**	**7**	**16**	**0**	**305**	**328.7**	**0**	**0**	**159**	**39**	**6**	**9**	**1**	**214**	**####**	**0**	**0**	**9**	**1**	**0**	**0**	**0**	**10**	**10.0**	**0**	**0**	**132**	**20**	**4**	**10**	**0**	**166**	**181.0**
TOTAL	**0**	**2**	**155**	**15**	**3**	**1**	**0**	**176**	**177.6**	**0**	**5**	**1939**	**249**	**37**	**74**	**3**	**2307**	**2421.7**	**0**	**4**	**685**	**76**	**24**	**54**	**1**	**844**	**924.8**	**0**	**3**	**741**	**189**	**29**	**50**	**1**	**1013**	**####**	**0**	**0**	**25**	**3**	**0**	**0**	**0**	**28**	**28.0**	**0**	**1**	**554**	**149**	**20**	**40**	**0**	**764**	**825.4**

PCU Factors:	
CYCLE	0.2
M/CYCLE	0.4
CAR	1.0
LGV	1.0
OGV1	1.5
OGV2	2.3
BUS	2.0

East Midlands Gateway
Thursday 3rd November 2022
Junction: 5
Approach: Derby Road

	To M1 J24 (S)									To A453 (S)										To A50										To Hilton Hotel Lane										To M1 J24 (N)										To A453 (N)									
TIME	CYCLE	M/CYCL	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCL	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCL	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCL	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCL	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCL	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs
07:00 - 07:15	0	0	18	1	0	1	0	20	21.3	0	0	26	2	0	0	1	29	30.0	0	0	10	2	0	1	0	13	14.3	0	0	0	0	0	0	0	0	0.0	0	0	9	0	0	0	0	9	9.0	0	0	7	2	0	0	0	9	9.0
07:15 - 07:30	0	0	9	3	0	0	0	12	12.0	0	0	27	2	0	0	0	29	29.0	0	0	10	3	1	2	0	16	19.1	0	0	0	0	0	0	0	0	0.0	0	0	9	0	0	0	0	9	9.0	0	0	8	2	1	0	0	11	11.5
07:30 - 07:45	0	0	11	3	0	0	0	14	14.0	0	0	35	2	0	0	0	37	37.0	0	0	18	2	2	1	0	23	25.3	0	0	1	0	0	0	0	1	1.0	0	0	10	0	0	0	0	10	10.0	0	0	12	4	1	0	0	17	17.5
07:45 - 08:00	0	0	7	0	1	1	0	9	10.8	0	0	46	7	0	0	1	54	55.0	0	0	24	5	1	1	0	31	32.8	0	0	1	0	0	0	0	1	1.0	0	0	16	9	0	0	0	25	25.0	0	0	16	4	1	0	0	21	21.5
Hourly Total	**0**	**0**	**45**	**7**	**1**	**2**	**0**	**55**	**58.1**	**0**	**0**	**134**	**13**	**0**	**0**	**2**	**149**	**151.0**	**0**	**0**	**62**	**12**	**4**	**5**	**0**	**83**	**91.5**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**2**	**2.0**	**0**	**0**	**44**	**9**	**0**	**0**	**0**	**53**	**53.0**	**0**	**0**	**43**	**12**	**3**	**0**	**0**	**58**	**59.5**
08:00 - 08:15	0	0	11	5	2	0	0	18	19.0	0	0	33	3	0	0	0	36	36.0	0	0	20	3	0	2	0	25	27.6	0	0	0	0	0	0	0	0	0.0	0	0	11	2	0	0	0	13	13.0	0	0	17	4	0	0	0	21	21.0
08:15 - 08:30	0	0	11	1	1	0	0	13	13.5	0	0	43	4	0	0	0	47	47.0	0	0	19	3	4	2	0	28	32.6	0	0	0	0	0	0	0	0	0.0	0	0	10	3	0	0	0	13	13.0	0	0	12	4	0	0	0	16	16.0
08:30 - 08:45	0	0	8	4	0	1	0	13	14.3	0	0	32	3	0	0	0	35	35.0	0	0	16	9	3	0	1	29	31.5	0	0	1	0	0	0	0	1	1.0	0	0	11	4	0	0	0	15	15.0	0	0	9	3	1	0	0	13	13.5
08:45 - 09:00	0	0	3	2	0	0	0	5	5.0	0	0	24	2	0	0	0	26	26.0	0	0	13	2	2	1	2	20	24.3	0	0	0	0	0	0	0	0	0.0	0	0	7	3	2	0	0	12	13.0	0	0	9	2	2	0	0	13	14.0
Hourly Total	**0**	**0**	**33**	**12**	**3**	**1**	**0**	**49**	**51.8**	**0**	**0**	**132**	**12**	**0**	**0**	**0**	**144**	**144.0**	**0**	**0**	**68**	**17**	**9**	**5**	**3**	**102**	**116.0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**1.0**	**0**	**0**	**39**	**12**	**2**	**0**	**0**	**53**	**54.0**	**0**	**0**	**47**	**13**	**3**	**0**	**0**	**63**	**64.5**
09:00 - 09:15	0	0	10	5	1	1	0	17	18.8	0	0	21	5	0	0	0	26	26.0	0	0	14	3	0	1	0	18	19.3	0	0	0	0	0	0	0	0	0.0	0	0	14	3	0	0	0	17	17.0	0	0	11	2	0	1	0	14	15.3
09:15 - 09:30	0	0	12	0	0	0	0	12	12.0	0	0	22	4	0	0	0	26	26.0	0	0	9	3	1	2	0	15	18.1	0	0	0	0	0	0	0	0	0.0	0	0	6	3	0	0	0	9	9.0	0	0	8	1	1	0	0	10	10.5
09:30 - 09:45	0	0	5	0	1	1	0	7	8.8	0	0	17	2	0	0	0	19	19.0	0	0	10	2	2	0	0	14	15.0	0	0	1	0	0	0	0	1	1.0	0	0	7	2	0	0	0	9	9.0	0	0	5	2	0	0	0	7	7.0
09:45 - 10:00	0	0	6	2	0	2	0	10	12.6	0	1	11	4	0	0	0	16	15.4	0	1	5	4	1	0	0	11	10.9	0	0	0	0	0	0	0	0	0.0	0	0	5	2	0	0	0	7	7.0	0	0	5	2	1	0	0	8	8.5
Hourly Total	**0**	**0**	**33**	**7**	**2**	**4**	**0**	**46**	**52.2**	**0**	**1**	**71**	**15**	**0**	**0**	**0**	**87**	**86.4**	**0**	**1**	**38**	**12**	**4**	**3**	**0**	**58**	**63.3**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**1.0**	**0**	**0**	**32**	**10**	**0**	**0**	**0**	**42**	**42.0**	**0**	**0**	**29**	**7**	**2**	**1**	**0**	**39**	**41.3**
TOTAL	**0**	**0**	**111**	**26**	**6**	**7**	**0**	**150**	**162.1**	**0**	**1**	**337**	**40**	**0**	**0**	**2**	**380**	**381.4**	**0**	**1**	**168**	**41**	**17**	**13**	**3**	**243**	**270.8**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**4**	**4.0**	**0**	**0**	**115**	**31**	**2**	**0**	**0**	**148**	**149.0**	**0**	**0**	**119**	**32**	**8**	**1**	**0**	**160**	**165.3**
16:00 - 16:15	0	0	14	0	0	0	0	14	14.0	0	0	20	2	0	0	0	22	22.0	0	0	33	9	0	0	0	42	42.0	0	0	1	0	0	0	0	1	1.0	0	0	23	7	0	0	0	30	30.0	0	0	16	3	0	0	0	19	19.0
16:15 - 16:30	0	0	8	1	2	0	0	11	12.0	0	0	20	2	0	0	0	22	22.0	0	0	27	14	2	0	0	43	44.0	0	0	0	0	0	0	0	0	0.0	0	0	21	6	0	0	0	27	27.0	0	0	13	6	0	0	0	19	19.0
16:30 - 16:45	0	0	10	4	0	0	0	14	14.0	0	0	14	4	0	0	0	18	18.0	0	4	26	9	0	0	0	39	36.6	0	0	0	0	0	0	0	0	0.0	0	0	23	3	0	0	0	26	26.0	0	0	11	7	0	0	0	18	18.0
16:45 - 17:00	0	0	6	2	0	1	0	9	10.3	0	0	22	2	0	0	0	24	24.0	0	0	26	4	0	2	0	32	34.6	0	0	0	0	0	0	0	0	0.0	0	0	20	4	0	0	0	24	24.0	0	0	11	2	0	0	0	13	13.0
Hourly Total	**0**	**0**	**38**	**7**	**2**	**1**	**0**	**48**	**50.3**	**0**	**0**	**76**	**10**	**0**	**0**	**0**	**86**	**86.0**	**0**	**4**	**112**	**36**	**2**	**2**	**0**	**156**	**157.2**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**1.0**	**0**	**0**	**87**	**20**	**0**	**0**	**0**	**107**	**107.0**	**0**	**0**	**51**	**18**	**0**	**0**	**0**	**69**	**69.0**
17:00 - 17:15	0	0	17	5	0	1	0	23	24.3	0	0	25	0	0	2	0	27	29.6	0	0	31	10	0	1	0	42	43.3	0	0	1	0	0	0	0	1	1.0	0	0	25	6	0	0	0	31	31.0	0	0	9	1	0	0	0	10	10.0
17:15 - 17:30	0	0	8	1	0	0	0	9	9.0	0	1	16	0	0	0	0	17	16.4	0	0	28	4	0	0	0	32	32.0	0	0	0	0	0	0	0	0	0.0	0	0	16	2	0	0	0	18	18.0	0	0	16	1	0	0	0	17	17.0
17:30 - 17:45	0	0	15	0	0	0	0	15	15.0	0	0	25	2	0	0	0	27	27.0	0	0	33	3	1	1	0	38	39.8	0	0	1	0	0	0	0	1	1.0	0	0	19	2	0	0	0	21	21.0	0	0	17	2	0	0	1	20	21.0
17:45 - 18:00	0	0	4	0	0	0	0	4	4.0	0	0	17	0	0	0	0	17	17.0	0	0	16	4	1	2	0	23	26.1	0	0	0	0	0	0	0	0	0.0	0	0	14	3	0	0	0	17	17.0	0	0	8	2	0	0	0	10	10.0
Hourly Total	**0**	**0**	**44**	**6**	**0**	**1**	**0**	**51**	**52.3**	**0**	**1**	**83**	**2**	**0**	**2**	**0**	**88**	**90.0**	**0**	**0**	**108**	**21**	**2**	**4**	**0**	**135**	**141.2**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**2**	**2.0**	**0**	**0**	**74**	**13**	**0**	**0**	**0**	**87**	**87.0**	**0**	**0**	**50**	**6**	**0**	**0**	**1**	**57**	**58.0**
18:00 - 18:15	0	0	14	0	0	0	0	14	14.0	0	0	36	1	0	0	0	37	37.0	0	0	27	5	1	0	0	33	33.5	0	0	1	0	0	0	0	1	1.0	0	0	18	5	0	0	0	23	23.0	0	0	12	4	1	0	0	17	17.5
18:15 - 18:30	0	0	8	1	1	0	0	10	10.5	0	0	28	0	0	0	0	28	28.0	0	0	17	4	0	0	0	21	21.0	0	0	1	0	0	0	0	1	1.0	0	0	12	0	0	0	0	12	12.0	0	0	9	0	0	0	0	9	9.0
18:30 - 18:45	0	0	6	0	0	0	0	6	6.0	0	0	12	1	0	0	0	13	13.0	0	0	10	1	1	0	0	12	12.5	0	0	1	0	0	0	0	1	1.0	0	0	7	1	0	0	0	8	8.0	0	0	10	2	1	0	0	13	13.5
18:45 - 19:00	0	0	3	0	1	0	0	4	4.5	0	0	29	3	0	0	0	32	32.0	0	0	16	4	3	0	0	23	24.5	0	0	0	0	0	0	0	0	0.0	0	0	16	1	0	0	0	17	17.0	0	0	10	1	0	0	1	12	13.0
Hourly Total	**0**	**0**	**31**	**1**	**2**	**0**	**0**	**34**	**35.0**	**0**	**0**	**105**	**5**	**0**	**0**	**0**	**110**	**110.0**	**0**	**0**	**70**	**14**	**5**	**0**	**0**	**89**	**91.5**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**3**	**3.0**	**0**	**0**	**53**	**7**	**0**	**0**	**0**	**60**	**60.0**	**0**	**0**	**41**	**7**	**2**	**0**	**1**	**51**	**53.0**
TOTAL	**0**	**0**	**113**	**14**	**4**	**2**	**0**	**133**	**137.6**	**0**	**1**	**264**	**17**	**0**	**2**	**0**	**284**	**286.0**	**0**	**4**	**290**	**71**	**9**	**6**	**0**	**380**	**389.9**	**0**	**0**	**6**	**0**	**0**	**0**	**0**	**6**	**6.0**	**0**	**0**	**214**	**40**	**0**	**0**	**0**	**254**	**254.0**	**0**	**0**	**142**	**31**	**2**	**0**	**2**	**177**	**180.0**

PCU Factors:	
CYCLE	0.2
M/CYCLE	0.4
CAR	1.0
LGV	1.0
OGV1	1.5
OGV2	2.3
BUS	2.0

East Midlands Gateway
Thursday 3rd November 2022
Junction: 5
Approach: M1 J24 South

	To A453 (S)									To A50										To Hilton Hotel Lane										To M1 J24 (N)										To A453 (N)										To Derby Road									
TIME	CYCLE	M/CYCL	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCL	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCL	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCL	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCL	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCL	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs
07:00 - 07:15	0	0	0	0	0	0	0	**0**	**0.0**	0	0	139	42	11	38	0	**230**	**284.9**	0	0	1	0	0	0	0	**1**	**1.0**	0	0	0	0	0	0	0	**0**	**0.0**	0	0	87	35	9	17	0	**148**	**174.6**	0	0	8	5	1	1	0	**15**	**16.8**
07:15 - 07:30	0	0	0	0	0	0	0	**0**	**0.0**	0	0	181	50	12	32	0	**275**	**322.6**	0	0	2	1	0	0	0	**3**	**3.0**	0	0	0	0	0	0	0	**0**	**0.0**	0	0	130	39	8	12	0	**189**	**208.6**	0	0	15	6	1	1	0	**23**	**24.8**
07:30 - 07:45	0	0	0	0	0	1	0	**1**	**2.3**	0	0	197	45	15	35	0	**292**	**345.0**	0	0	4	1	0	0	0	**5**	**5.0**	0	0	0	0	0	0	0	**0**	**0.0**	0	0	119	37	11	18	0	**185**	**213.9**	0	0	17	5	1	2	0	**25**	**28.1**
07:45 - 08:00	0	0	1	1	0	1	0	**3**	**4.3**	0	0	202	40	14	29	0	**285**	**329.7**	0	0	6	0	0	0	0	**6**	**6.0**	0	0	3	1	0	0	0	**4**	**4.0**	0	0	130	30	8	7	0	**175**	**188.1**	0	0	16	2	1	1	0	**20**	**21.8**
Hourly Total	**0**	**0**	**1**	**1**	**0**	**2**	**0**	**4**	**6.6**	**0**	**0**	**719**	**177**	**52**	**134**	**0**	**1082**	**1282.2**	**0**	**0**	**13**	**2**	**0**	**0**	**0**	**15**	**15.0**	**0**	**0**	**3**	**1**	**0**	**0**	**0**	**4**	**4.0**	**0**	**0**	**466**	**141**	**36**	**54**	**0**	**697**	**785.2**	**0**	**0**	**56**	**18**	**4**	**5**	**0**	**83**	**91.5**
08:00 - 08:15	0	0	1	0	0	0	0	**1**	**1.0**	0	0	186	27	14	37	0	**264**	**319.1**	0	0	4	0	0	0	0	**4**	**4.0**	0	0	0	0	0	0	0	**0**	**0.0**	0	0	145	36	5	6	0	**192**	**202.3**	0	0	24	5	3	0	0	**32**	**33.5**
08:15 - 08:30	0	0	0	0	0	0	0	**0**	**0.0**	0	0	220	40	21	28	0	**309**	**355.9**	0	0	5	1	0	0	0	**6**	**6.0**	0	0	0	1	0	0	0	**1**	**1.0**	0	0	138	26	4	11	0	**179**	**195.3**	0	0	16	2	2	1	0	**21**	**23.3**
08:30 - 08:45	0	0	1	0	0	0	0	**1**	**1.0**	0	0	203	43	9	29	0	**284**	**326.2**	0	0	9	1	0	0	0	**10**	**10.0**	0	0	0	0	0	0	0	**0**	**0.0**	0	0	104	18	7	7	0	**136**	**148.6**	0	0	11	1	3	1	0	**16**	**18.8**
08:45 - 09:00	0	0	0	0	0	0	0	**0**	**0.0**	0	0	202	29	9	36	0	**276**	**327.3**	0	0	6	1	0	0	0	**7**	**7.0**	0	0	0	0	0	0	0	**0**	**0.0**	0	0	89	20	7	6	0	**122**	**133.3**	0	0	9	4	2	0	0	**15**	**16.0**
Hourly Total	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**2**	**2.0**	**0**	**0**	**811**	**139**	**53**	**130**	**0**	**1133**	**1328.5**	**0**	**0**	**24**	**3**	**0**	**0**	**0**	**27**	**27.0**	**0**	**0**	**0**	**1**	**0**	**0**	**0**	**1**	**1.0**	**0**	**0**	**476**	**100**	**23**	**30**	**0**	**629**	**679.5**	**0**	**0**	**60**	**12**	**10**	**2**	**0**	**84**	**91.6**
09:00 - 09:15	0	0	1	1	0	0	0	**2**	**2.0**	0	0	138	42	10	31	0	**221**	**266.3**	0	0	7	2	0	0	0	**9**	**9.0**	0	0	0	0	1	0	0	**1**	**1.5**	0	0	120	28	9	18	0	**175**	**202.9**	0	0	14	5	2	0	0	**21**	**22.0**
09:15 - 09:30	0	0	1	1	0	1	0	**3**	**4.3**	0	0	161	47	11	29	1	**249**	**293.2**	0	0	3	0	0	0	0	**3**	**3.0**	0	0	0	0	0	0	0	**0**	**0.0**	0	0	106	27	13	8	0	**154**	**170.9**	0	0	5	2	2	2	0	**11**	**14.6**
09:30 - 09:45	0	0	3	0	2	0	0	**5**	**6.0**	0	0	141	29	16	36	0	**222**	**276.8**	0	0	3	0	0	0	0	**3**	**3.0**	0	0	1	0	0	0	0	**1**	**1.0**	0	1	92	15	6	4	0	**118**	**125.6**	0	0	10	4	3	0	0	**17**	**18.5**
09:45 - 10:00	0	0	1	0	1	0	0	**2**	**2.5**	0	0	121	29	16	30	0	**196**	**243.0**	0	0	4	1	0	0	0	**5**	**5.0**	0	0	0	0	0	0	0	**0**	**0.0**	0	0	67	24	10	13	0	**114**	**135.9**	0	0	6	4	2	0	0	**12**	**13.0**
Hourly Total	**0**	**0**	**6**	**2**	**3**	**1**	**0**	**12**	**14.8**	**0**	**0**	**561**	**147**	**53**	**126**	**1**	**888**	**1079.3**	**0**	**0**	**17**	**3**	**0**	**0**	**0**	**20**	**20.0**	**0**	**0**	**1**	**0**	**1**	**0**	**0**	**2**	**2.5**	**0**	**1**	**385**	**94**	**38**	**43**	**0**	**561**	**635.3**	**0**	**0**	**35**	**15**	**9**	**2**	**0**	**61**	**68.1**
TOTAL	**0**	**0**	**9**	**3**	**3**	**3**	**0**	**18**	**23.4**	**0**	**0**	**2091**	**463**	**158**	**390**	**1**	**3103**	**3690.0**	**0**	**0**	**54**	**8**	**0**	**0**	**0**	**62**	**62.0**	**0**	**0**	**4**	**2**	**1**	**0**	**0**	**7**	**7.5**	**0**	**1**	**1327**	**335**	**97**	**127**	**0**	**1887**	**2100.0**	**0**	**0**	**151**	**45**	**23**	**9**	**0**	**228**	**251.2**
16:00 - 16:15	0	0	0	0	0	0	0	**0**	**0.0**	0	0	146	41	11	37	0	**235**	**288.6**	0	0	2	0	0	0	0	**2**	**2.0**	0	0	1	0	0	0	0	**1**	**1.0**	0	0	48	16	3	6	0	**73**	**82.3**	0	0	7	3	0	1	0	**11**	**12.3**
16:15 - 16:30	0	0	0	0	1	0	0	**1**	**1.5**	0	0	138	48	7	34	0	**227**	**274.7**	0	0	1	0	0	0	0	**1**	**1.0**	0	0	0	0	0	0	0	**0**	**0.0**	0	0	65	17	3	11	2	**98**	**115.8**	0	0	9	5	0	2	0	**16**	**18.6**
16:30 - 16:45	0	0	1	0	0	0	0	**1**	**1.0**	0	0	182	29	7	30	0	**248**	**290.5**	0	0	3	0	0	0	0	**3**	**3.0**	0	0	1	0	0	0	0	**1**	**1.0**	0	0	73	21	6	4	0	**104**	**112.2**	0	0	12	5	1	0	0	**18**	**18.5**
16:45 - 17:00	0	0	1	0	0	0	0	**1**	**1.0**	0	0	174	38	8	23	0	**243**	**276.9**	0	0	2	0	0	0	0	**2**	**2.0**	0	0	0	0	0	0	0	**0**	**0.0**	0	0	82	21	3	4	0	**110**	**116.7**	0	0	9	4	2	0	0	**15**	**16.0**
Hourly Total	**0**	**0**	**2**	**0**	**1**	**0**	**0**	**3**	**3.5**	**0**	**0**	**640**	**156**	**33**	**124**	**0**	**953**	**1130.7**	**0**	**0**	**8**	**0**	**0**	**0**	**0**	**8**	**8.0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**2**	**2.0**	**0**	**0**	**268**	**75**	**15**	**25**	**2**	**385**	**427.0**	**0**	**0**	**37**	**17**	**3**	**3**	**0**	**60**	**65.4**
17:00 - 17:15	0	0	0	0	0	0	0	**0**	**0.0**	0	0	216	38	4	22	0	**280**	**310.6**	0	0	3	0	0	0	0	**3**	**3.0**	0	0	0	0	0	0	0	**0**	**0.0**	0	0	91	16	7	7	0	**121**	**133.6**	0	0	11	4	1	2	0	**18**	**21.1**
17:15 - 17:30	0	0	1	0	0	0	0	**1**	**1.0**	0	0	185	25	8	16	0	**234**	**258.8**	0	0	2	1	0	0	0	**3**	**3.0**	0	0	0	0	0	0	0	**0**	**0.0**	0	0	96	14	1	6	1	**118**	**127.3**	0	0	15	4	0	2	0	**21**	**23.6**
17:30 - 17:45	0	0	1	0	0	1	0	**2**	**3.3**	0	1	225	21	4	24	0	**275**	**307.6**	0	0	3	0	0	0	0	**3**	**3.0**	0	0	0	0	0	0	0	**0**	**0.0**	0	0	112	21	4	5	3	**145**	**156.5**	0	0	12	4	1	2	0	**19**	**22.1**
17:45 - 18:00	0	0	2	0	0	0	0	**2**	**2.0**	0	0	228	39	8	25	0	**300**	**336.5**	0	0	3	2	0	0	0	**5**	**5.0**	0	0	0	0	0	0	0	**0**	**0.0**	0	0	122	17	2	3	0	**144**	**148.9**	0	0	12	5	1	0	0	**18**	**18.5**
Hourly Total	**0**	**0**	**4**	**0**	**0**	**1**	**0**	**5**	**6.3**	**0**	**1**	**854**	**123**	**24**	**87**	**0**	**1089**	**1213.5**	**0**	**0**	**11**	**3**	**0**	**0**	**0**	**14**	**14.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**421**	**68**	**14**	**21**	**4**	**528**	**566.3**	**0**	**0**	**50**	**17**	**3**	**6**	**0**	**76**	**85.3**
18:00 - 18:15	0	0	0	1	0	0	0	**1**	**1.0**	0	0	174	20	4	34	0	**232**	**278.2**	0	0	2	0	0	0	0	**2**	**2.0**	0	0	0	0	0	0	0	**0**	**0.0**	0	0	79	9	3	2	0	**93**	**97.1**	0	0	8	2	0	0	0	**10**	**10.0**
18:15 - 18:30	0	0	2	0	0	0	0	**2**	**2.0**	0	0	94	18	4	11	0	**127**	**143.3**	0	0	2	1	0	0	0	**3**	**3.0**	0	0	0	0	0	0	0	**0**	**0.0**	0	0	59	5	0	5	0	**69**	**75.5**	0	0	5	1	0	2	0	**8**	**10.6**
18:30 - 18:45	0	0	0	0	0	0	0	**0**	**0.0**	0	0	27	3	0	4	0	**34**	**39.2**	0	0	1	0	0	0	0	**1**	**1.0**	0	0	0	0	0	0	0	**0**	**0.0**	0	0	29	4	0	1	0	**34**	**35.3**	0	0	2	3	0	0	0	**5**	**5.0**
18:45 - 19:00	0	0	0	1	0	0	0	**1**	**1.0**	0	0	127	18	4	13	0	**162**	**180.9**	0	0	2	0	0	0	0	**2**	**2.0**	0	0	0	0	0	0	0	**0**	**0.0**	0	0	119	6	1	7	0	**133**	**142.6**	0	0	12	1	0	2	0	**15**	**17.6**
Hourly Total	**0**	**0**	**2**	**2**	**0**	**0**	**0**	**4**	**4.0**	**0**	**0**	**422**	**59**	**12**	**62**	**0**	**555**	**641.6**	**0**	**0**	**7**	**1**	**0**	**0**	**0**	**8**	**8.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**286**	**24**	**4**	**15**	**0**	**329**	**350.5**	**0**	**0**	**27**	**7**	**0**	**4**	**0**	**38**	**43.2**
TOTAL	**0**	**0**	**8**	**2**	**1**	**1**	**0**	**12**	**13.8**	**0**	**1**	**1916**	**338**	**69**	**273**	**0**	**2597**	**2985.8**	**0**	**0**	**26**	**4**	**0**	**0**	**0**	**30**	**30.0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**2**	**2.0**	**0**	**0**	**975**	**167**	**33**	**61**	**6**	**1242**	**1343.8**	**0**	**0**	**114**	**41**	**6**	**13**	**0**	**174**	**193.9**

PCU Factors:	
CYCLE	0.2
M/CYCLE	0.4
CAR	1.0
LGV	1.0
OGV1	1.5
OGV2	2.3
BUS	2.0

East Midlands Gateway
Thursday 3rd November 2022
Junction: 5
Approach: A453 South

	To A50									To Hilton Hotel Lane										To M1 J24 (N)										To A453 (N)										To Derby Road										To M1 J24 (S)									
TIME	CYCLE	M/CYCL	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCL	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCL	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCL	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCL	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCL	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs
07:00 - 07:15	0	1	128	30	19	17	0	195	226.0	0	0	0	0	0	0	0	0	0.0	0	0	30	2	2	7	0	41	51.1	0	0	23	11	1	2	0	37	40.1	0	0	3	2	1	1	0	7	8.8	0	0	4	2	1	3	0	10	14.4
07:15 - 07:30	0	0	154	30	7	17	0	208	233.6	0	0	0	1	0	0	0	1	1.0	0	0	33	5	0	7	0	45	54.1	0	0	25	9	1	2	1	38	42.1	0	0	4	3	1	1	0	9	10.8	0	0	4	3	1	4	0	12	17.7
07:30 - 07:45	0	0	180	37	10	23	1	251	286.9	0	0	1	0	0	0	0	1	1.0	0	0	43	5	0	4	0	52	57.2	0	0	36	7	2	2	1	48	52.6	0	0	5	2	1	0	0	8	8.5	0	0	4	2	1	3	0	10	14.4
07:45 - 08:00	0	0	180	26	12	19	0	237	267.7	0	0	2	0	0	0	0	2	2.0	0	0	50	10	0	10	0	70	83.0	0	0	55	8	2	5	0	70	77.5	0	0	6	1	0	1	0	8	9.3	0	0	9	2	2	5	0	18	25.5
Hourly Total	**0**	**1**	**642**	**123**	**48**	**76**	**1**	**891**	**1014.2**	**0**	**0**	**3**	**1**	**0**	**0**	**0**	**4**	**4.0**	**0**	**0**	**156**	**22**	**2**	**28**	**0**	**208**	**245.4**	**0**	**0**	**139**	**35**	**6**	**11**	**2**	**193**	**212.3**	**0**	**0**	**18**	**8**	**3**	**3**	**0**	**32**	**37.4**	**0**	**0**	**21**	**9**	**5**	**15**	**0**	**50**	**72.0**
08:00 - 08:15	0	1	173	42	13	8	0	237	253.3	0	0	1	0	0	0	0	1	1.0	0	0	37	1	3	10	0	51	65.5	0	0	38	7	3	1	0	49	51.8	0	0	5	2	1	0	0	8	8.5	0	0	8	3	1	1	0	13	14.8
08:15 - 08:30	0	0	183	24	15	10	0	232	252.5	0	0	2	0	0	0	0	2	2.0	0	0	51	7	2	7	0	67	77.1	0	0	51	9	3	2	0	65	69.1	0	0	5	1	0	0	0	6	6.0	0	0	8	2	2	4	0	16	22.2
08:30 - 08:45	0	1	125	18	15	17	1	177	207.0	0	0	0	0	0	0	0	0	0.0	0	0	58	8	0	7	0	73	82.1	0	0	60	9	2	4	0	75	81.2	0	0	6	1	0	1	0	8	9.3	0	0	11	1	2	3	0	17	21.9
08:45 - 09:00	0	0	107	22	10	18	0	157	185.4	0	0	2	0	0	0	0	2	2.0	0	0	51	8	2	12	0	73	89.6	0	0	51	4	2	1	0	58	60.3	0	0	5	2	1	0	0	8	8.5	0	0	6	1	1	2	2	12	17.1
Hourly Total	**0**	**2**	**588**	**106**	**53**	**53**	**1**	**803**	**898.2**	**0**	**0**	**5**	**0**	**0**	**0**	**0**	**5**	**5.0**	**0**	**0**	**197**	**24**	**7**	**36**	**0**	**264**	**314.3**	**0**	**0**	**200**	**29**	**10**	**8**	**0**	**247**	**262.4**	**0**	**0**	**21**	**6**	**2**	**1**	**0**	**30**	**32.3**	**0**	**0**	**33**	**7**	**6**	**10**	**2**	**58**	**76.0**
09:00 - 09:15	0	0	101	17	10	23	1	152	187.9	0	0	1	0	0	0	0	1	1.0	0	0	16	3	2	5	0	26	33.5	0	0	16	3	2	6	0	27	35.8	0	0	3	2	1	0	0	6	6.5	0	0	5	2	2	3	0	12	16.9
09:15 - 09:30	0	0	84	17	10	19	1	131	161.7	0	0	0	0	0	0	0	0	0.0	0	0	29	8	2	12	0	51	67.6	0	0	30	5	4	4	0	43	50.2	0	0	2	1	1	0	0	4	4.5	0	0	4	1	2	2	0	9	12.6
09:30 - 09:45	0	0	74	18	14	12	2	120	144.6	0	0	0	0	0	0	0	0	0.0	0	0	22	8	0	9	0	39	50.7	0	0	17	5	3	2	0	27	31.1	0	0	3	2	0	0	0	5	5.0	0	0	5	2	0	2	0	9	11.6
09:45 - 10:00	0	0	63	16	10	12	0	101	121.6	0	0	1	0	0	0	0	1	1.0	0	0	16	2	0	6	0	24	31.8	0	0	17	9	0	7	1	34	44.1	0	0	2	2	0	0	0	4	4.0	0	0	5	2	0	4	0	11	16.2
Hourly Total	**0**	**0**	**322**	**68**	**44**	**66**	**4**	**504**	**615.8**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**2**	**2.0**	**0**	**0**	**83**	**21**	**4**	**32**	**0**	**140**	**183.6**	**0**	**0**	**80**	**22**	**9**	**19**	**1**	**131**	**161.2**	**0**	**0**	**10**	**7**	**2**	**0**	**0**	**19**	**20.0**	**0**	**0**	**19**	**7**	**4**	**11**	**0**	**41**	**57.3**
TOTAL	**0**	**3**	**1552**	**297**	**145**	**195**	**6**	**2198**	**2528.2**	**0**	**0**	**10**	**1**	**0**	**0**	**0**	**11**	**11.0**	**0**	**0**	**436**	**67**	**13**	**96**	**0**	**612**	**743.3**	**0**	**0**	**419**	**86**	**25**	**38**	**3**	**571**	**635.9**	**0**	**0**	**49**	**21**	**7**	**4**	**0**	**81**	**89.7**	**0**	**0**	**73**	**23**	**15**	**36**	**2**	**149**	**205.3**
16:00 - 16:15	0	0	178	44	14	13	0	249	272.9	0	0	2	0	0	0	0	2	2.0	0	0	95	16	0	4	0	115	120.2	0	0	44	10	0	3	0	57	60.9	0	0	6	2	0	0	0	8	8.0	0	0	5	2	0	2	0	9	11.6
16:15 - 16:30	0	1	181	33	7	12	1	235	254.5	0	0	1	0	0	0	0	1	1.0	0	0	85	8	3	1	0	97	99.8	0	0	48	9	2	1	0	60	62.3	0	0	6	3	0	0	0	9	9.0	0	0	7	2	2	1	0	12	14.3
16:30 - 16:45	0	0	192	55	9	13	0	269	290.4	0	0	1	0	0	0	0	1	1.0	0	0	88	15	6	9	0	118	132.7	0	0	33	10	1	5	0	49	56.0	0	0	5	2	1	0	0	8	8.5	0	0	7	3	1	2	0	13	16.1
16:45 - 17:00	0	0	130	20	7	8	0	165	178.9	0	0	1	0	0	0	0	1	1.0	0	0	94	9	3	2	0	108	112.1	0	0	53	7	1	1	0	62	63.8	0	0	7	2	0	0	0	9	9.0	0	0	7	2	1	2	0	12	15.1
Hourly Total	**0**	**1**	**681**	**152**	**37**	**46**	**1**	**918**	**996.7**	**0**	**0**	**5**	**0**	**0**	**0**	**0**	**5**	**5.0**	**0**	**0**	**362**	**48**	**12**	**16**	**0**	**438**	**464.8**	**0**	**0**	**178**	**36**	**4**	**10**	**0**	**228**	**243.0**	**0**	**0**	**24**	**9**	**1**	**0**	**0**	**34**	**34.5**	**0**	**0**	**26**	**9**	**4**	**7**	**0**	**46**	**57.1**
17:00 - 17:15	0	0	204	26	7	16	1	254	279.3	0	0	0	0	0	0	0	0	0.0	0	0	91	16	2	3	0	112	116.9	0	0	44	6	1	4	1	56	62.7	0	0	7	2	0	1	0	10	11.3	0	0	8	2	1	1	0	12	13.8
17:15 - 17:30	0	0	255	26	6	20	0	307	336.0	0	0	1	0	0	0	0	1	1.0	0	0	56	2	0	2	0	60	62.6	0	0	49	4	4	1	0	58	61.3	0	0	9	2	0	0	0	11	11.0	0	0	5	2	0	2	0	9	11.6
17:30 - 17:45	0	1	191	23	4	9	0	228	241.1	0	0	1	0	0	0	0	1	1.0	0	0	60	1	0	3	0	64	67.9	0	0	67	6	0	2	1	76	79.6	0	0	7	2	0	0	0	9	9.0	0	0	6	2	0	2	0	10	12.6
17:45 - 18:00	0	0	181	19	2	8	0	210	221.4	0	0	2	1	0	0	0	3	3.0	0	0	78	5	0	4	0	87	92.2	0	0	59	7	0	0	0	66	66.0	0	0	7	4	0	0	0	11	11.0	0	0	7	3	0	1	0	11	12.3
Hourly Total	**0**	**1**	**831**	**94**	**19**	**53**	**1**	**999**	**1077.8**	**0**	**0**	**4**	**1**	**0**	**0**	**0**	**5**	**5.0**	**0**	**0**	**285**	**24**	**2**	**12**	**0**	**323**	**339.6**	**0**	**0**	**219**	**23**	**5**	**7**	**2**	**256**	**269.6**	**0**	**0**	**30**	**10**	**0**	**1**	**0**	**41**	**42.3**	**0**	**0**	**26**	**9**	**1**	**6**	**0**	**42**	**50.3**
18:00 - 18:15	0	1	172	14	5	11	1	204	221.2	0	0	1	0	0	0	0	1	1.0	0	0	86	12	0	0	0	98	98.0	0	1	63	10	0	2	0	76	78.0	0	0	6	2	0	0	0	8	8.0	0	0	8	1	0	1	0	10	11.3
18:15 - 18:30	0	0	106	11	1	6	0	124	132.3	0	0	0	0	0	0	0	0	0.0	0	0	64	5	6	0	0	75	78.0	0	0	57	4	0	0	0	61	61.0	0	0	5	0	0	0	0	5	5.0	0	0	6	1	0	0	0	7	7.0
18:30 - 18:45	0	0	115	7	1	5	0	128	135.0	0	0	2	0	0	0	0	2	2.0	0	0	49	3	0	0	0	52	52.0	0	0	67	4	0	3	1	75	79.9	0	0	4	2	0	0	0	6	6.0	0	0	8	3	0	1	0	12	13.3
18:45 - 19:00	0	0	114	13	2	6	0	135	143.8	0	0	0	0	0	0	0	0	0.0	0	0	41	3	1	5	0	50	57.0	0	0	36	3	3	2	1	45	50.1	0	0	5	1	0	1	0	7	8.3	0	0	6	1	0	1	0	8	9.3
Hourly Total	**0**	**1**	**507**	**45**	**9**	**28**	**1**	**591**	**632.3**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**3**	**3.0**	**0**	**0**	**240**	**23**	**7**	**5**	**0**	**275**	**285.0**	**0**	**1**	**223**	**21**	**3**	**7**	**2**	**257**	**269.0**	**0**	**0**	**20**	**5**	**0**	**1**	**0**	**26**	**27.3**	**0**	**0**	**28**	**6**	**0**	**3**	**0**	**37**	**40.9**
TOTAL	**0**	**3**	**2019**	**291**	**65**	**127**	**3**	**2508**	**2706.8**	**0**	**0**	**12**	**1**	**0**	**0**	**0**	**13**	**13.0**	**0**	**0**	**887**	**95**	**21**	**33**	**0**	**1036**	**1089.4**	**0**	**1**	**620**	**80**	**12**	**24**	**4**	**741**	**781.6**	**0**	**0**	**74**	**24**	**1**	**2**	**0**	**101**	**104.1**	**0**	**0**	**80**	**24**	**5**	**16**	**0**	**125**	**148.3**

PCU Factors:	
CYCLE	0.2
M/CYCLE	0.4
CAR	1.0
LGV	1.0
OGV1	1.5
OGV2	2.3
BUS	2.0

East Midlands Gateway
Thursday 3rd November 2022
Junction: 5
Approach: A50

	To Hilton Hotel Lane								To M1 J24 (N)								To A453 (N)								To Derby Road								To M1 J24 (S)								To A453 (S)							
TIME	CYCLE	M/CYCL	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCL	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCL	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCL	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCL	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCL	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs
07:00 - 07:15	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
07:15 - 07:30	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
07:30 - 07:45	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
07:45 - 08:00	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
Hourly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**
08:00 - 08:15	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
08:15 - 08:30	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
08:30 - 08:45	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
08:45 - 09:00	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
Hourly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**
09:00 - 09:15	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
09:15 - 09:30	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
09:30 - 09:45	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
09:45 - 10:00	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
Hourly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**
16:00 - 16:15	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
16:15 - 16:30	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
16:30 - 16:45	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
16:45 - 17:00	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
Hourly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**
17:00 - 17:15	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
17:15 - 17:30	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
17:30 - 17:45	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
17:45 - 18:00	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
Hourly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**
18:00 - 18:15	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
18:15 - 18:30	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
18:30 - 18:45	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
18:45 - 19:00	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
Hourly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**

PCU Factors:	
CYCLE	0.2
M/CYCLE	0.4
CAR	1.0
LGV	1.0
OGV1	1.5
OGV2	2.3
BUS	2.0

East Midlands Gateway
Thursday 3rd November 2022
Junction: 5
Approach: Hilton Hotel Lane

	To M1 J24 (N)									To A453 (N)									To Derby Road									To M1 J24 (S)									To A453 (S)									To A50								
TIME	CYCLE	M/CYCL	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCL	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCL	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCL	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCL	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCL	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs
07:00 - 07:15	0	0	0	2	0	0	0	2	2.0	0	0	1	0	0	0	0	1	1.0	0	0	1	0	0	0	0	1	1.0	0	0	1	0	0	0	0	1	1.0	0	0	1	0	0	0	0	1	1.0	0	0	1	0	0	0	0	1	1.0
07:15 - 07:30	0	0	1	0	0	0	0	1	1.0	0	0	1	1	0	0	0	2	2.0	0	0	0	0	0	0	0	0	0.0	0	0	2	0	0	0	0	2	2.0	0	0	3	0	0	0	0	3	3.0	0	0	1	1	0	0	0	2	2.0
07:30 - 07:45	0	0	1	0	0	0	0	1	1.0	0	0	15	0	0	0	0	15	15.0	0	0	1	0	0	0	0	1	1.0	0	0	5	0	0	0	0	5	5.0	0	0	5	0	0	0	0	5	5.0	0	0	0	0	0	0	0	0	0.0
07:45 - 08:00	0	0	2	0	0	0	0	2	2.0	0	0	10	3	0	0	0	13	13.0	0	0	2	1	0	0	0	3	3.0	0	0	4	0	0	0	0	4	4.0	0	0	2	1	0	0	0	3	3.0	0	0	1	1	0	0	0	2	2.0
Hourly Total	**0**	**0**	**4**	**2**	**0**	**0**	**0**	**6**	**6.0**	**0**	**0**	**27**	**4**	**0**	**0**	**0**	**31**	**31.0**	**0**	**0**	**4**	**1**	**0**	**0**	**0**	**5**	**5.0**	**0**	**0**	**12**	**0**	**0**	**0**	**0**	**12**	**12.0**	**0**	**0**	**11**	**1**	**0**	**0**	**0**	**12**	**12.0**	**0**	**0**	**3**	**2**	**0**	**0**	**0**	**5**	**5.0**
08:00 - 08:15	0	0	1	0	0	0	0	1	1.0	0	0	20	1	0	0	0	21	21.0	0	0	3	1	0	0	0	4	4.0	0	0	7	1	0	0	0	8	8.0	0	0	2	1	0	0	0	3	3.0	0	0	2	1	0	0	0	3	3.0
08:15 - 08:30	0	0	1	0	0	0	0	1	1.0	0	1	10	3	0	0	0	14	13.4	0	0	1	0	0	0	0	1	1.0	0	0	5	1	0	0	0	6	6.0	0	0	6	0	0	0	0	6	6.0	0	0	2	2	0	0	0	4	4.0
08:30 - 08:45	0	0	1	0	0	0	0	1	1.0	0	0	9	0	0	0	0	9	9.0	0	0	1	0	0	0	0	1	1.0	0	0	3	0	0	0	0	3	3.0	0	0	3	0	0	0	0	3	3.0	0	0	2	5	0	0	0	7	7.0
08:45 - 09:00	0	0	2	2	0	0	0	4	4.0	0	0	1	1	0	0	0	2	2.0	0	1	2	0	0	0	0	3	2.4	0	0	1	0	0	0	0	1	1.0	0	0	2	0	0	0	0	2	2.0	0	0	1	1	0	0	0	2	2.0
Hourly Total	**0**	**0**	**5**	**2**	**0**	**0**	**0**	**7**	**7.0**	**0**	**1**	**40**	**5**	**0**	**0**	**0**	**46**	**45.4**	**0**	**1**	**7**	**1**	**0**	**0**	**0**	**9**	**8.4**	**0**	**0**	**16**	**2**	**0**	**0**	**0**	**18**	**18.0**	**0**	**0**	**13**	**1**	**0**	**0**	**0**	**14**	**14.0**	**0**	**0**	**7**	**9**	**0**	**0**	**0**	**16**	**16.0**
09:00 - 09:15	0	0	1	0	0	0	0	1	1.0	0	0	2	0	0	0	0	2	2.0	0	0	1	0	0	0	0	1	1.0	0	0	2	0	0	0	0	2	2.0	0	0	2	0	0	0	0	2	2.0	0	0	2	0	0	0	0	2	2.0
09:15 - 09:30	0	0	0	0	0	0	0	0	0.0	0	0	1	1	1	0	0	3	3.5	0	0	1	0	0	0	0	1	1.0	0	0	1	0	0	0	0	1	1.0	0	0	0	0	0	0	0	0	0.0	0	0	1	0	0	0	0	1	1.0
09:30 - 09:45	0	0	2	0	0	0	0	2	2.0	0	0	1	1	0	0	0	2	2.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	3	0	0	0	0	3	3.0	0	0	1	0	0	0	0	1	1.0
09:45 - 10:00	0	0	0	0	0	0	0	0	0.0	0	0	1	0	0	0	0	1	1.0	0	0	0	0	0	0	0	0	0.0	0	0	1	0	0	0	0	1	1.0	0	0	1	0	0	0	0	1	1.0	0	0	1	0	0	0	0	1	1.0
Hourly Total	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**3**	**3.0**	**0**	**0**	**5**	**2**	**1**	**0**	**0**	**8**	**8.5**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**2**	**2.0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**4**	**4.0**	**0**	**0**	**6**	**0**	**0**	**0**	**0**	**6**	**6.0**	**0**	**0**	**5**	**0**	**0**	**0**	**0**	**5**	**5.0**
TOTAL	**0**	**0**	**12**	**4**	**0**	**0**	**0**	**16**	**16.0**	**0**	**1**	**72**	**11**	**1**	**0**	**0**	**85**	**84.9**	**0**	**1**	**13**	**2**	**0**	**0**	**0**	**16**	**15.4**	**0**	**0**	**32**	**2**	**0**	**0**	**0**	**34**	**34.0**	**0**	**0**	**30**	**2**	**0**	**0**	**0**	**32**	**32.0**	**0**	**0**	**15**	**11**	**0**	**0**	**0**	**26**	**26.0**
16:00 - 16:15	0	0	8	1	0	0	0	9	9.0	0	0	5	0	0	0	0	5	5.0	0	0	4	0	0	0	0	4	4.0	0	0	1	0	0	0	0	1	1.0	0	0	2	0	0	0	0	2	2.0	0	0	1	1	0	0	0	2	2.0
16:15 - 16:30	0	0	2	0	0	0	0	2	2.0	0	0	2	0	0	0	0	2	2.0	0	0	2	0	0	0	0	2	2.0	0	0	2	0	0	0	0	2	2.0	0	0	2	0	0	0	0	2	2.0	0	0	2	0	0	0	0	2	2.0
16:30 - 16:45	0	0	6	0	0	0	0	6	6.0	0	0	12	0	0	0	0	12	12.0	0	0	2	0	0	0	0	2	2.0	0	0	4	0	0	0	0	4	4.0	0	0	1	0	0	0	0	1	1.0	0	0	0	0	0	0	0	0	0.0
16:45 - 17:00	0	0	5	1	0	0	0	6	6.0	0	0	9	0	0	0	0	9	9.0	0	0	4	0	0	0	0	4	4.0	0	0	2	0	0	0	0	2	2.0	0	0	2	0	0	0	0	2	2.0	0	0	2	0	0	0	0	2	2.0
Hourly Total	**0**	**0**	**21**	**2**	**0**	**0**	**0**	**23**	**23.0**	**0**	**0**	**28**	**0**	**0**	**0**	**0**	**28**	**28.0**	**0**	**0**	**12**	**0**	**0**	**0**	**0**	**12**	**12.0**	**0**	**0**	**9**	**0**	**0**	**0**	**0**	**9**	**9.0**	**0**	**0**	**7**	**0**	**0**	**0**	**0**	**7**	**7.0**	**0**	**0**	**5**	**1**	**0**	**0**	**0**	**6**	**6.0**
17:00 - 17:15	0	0	7	0	0	0	0	7	7.0	0	0	9	0	0	0	0	9	9.0	0	0	3	0	0	0	0	3	3.0	0	0	1	0	0	0	0	1	1.0	0	0	1	0	0	0	0	1	1.0	0	0	2	0	0	0	0	2	2.0
17:15 - 17:30	0	0	4	1	0	0	0	5	5.0	0	0	6	1	0	0	0	7	7.0	0	0	1	0	0	0	0	1	1.0	0	0	3	0	0	0	0	3	3.0	0	0	2	0	0	0	0	2	2.0	0	0	2	1	0	0	0	3	3.0
17:30 - 17:45	0	0	3	0	0	0	0	3	3.0	0	0	2	0	0	0	0	2	2.0	0	0	2	0	0	0	0	2	2.0	0	0	2	0	0	0	0	2	2.0	0	0	0	0	0	0	0	0	0.0	0	0	5	0	0	0	0	5	5.0
17:45 - 18:00	0	0	0	0	0	0	0	0	0.0	0	0	2	0	0	0	0	2	2.0	0	0	4	0	0	0	0	4	4.0	0	0	2	0	0	0	0	2	2.0	0	0	1	0	0	0	0	1	1.0	0	0	1	0	0	0	0	1	1.0
Hourly Total	**0**	**0**	**14**	**1**	**0**	**0**	**0**	**15**	**15.0**	**0**	**0**	**19**	**1**	**0**	**0**	**0**	**20**	**20.0**	**0**	**0**	**10**	**0**	**0**	**0**	**0**	**10**	**10.0**	**0**	**0**	**8**	**0**	**0**	**0**	**0**	**8**	**8.0**	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**4**	**4.0**	**0**	**0**	**10**	**1**	**0**	**0**	**0**	**11**	**11.0**
18:00 - 18:15	0	0	3	0	0	0	0	3	3.0	0	0	2	0	0	0	0	2	2.0	0	0	1	0	0	0	0	1	1.0	0	0	2	0	0	0	0	2	2.0	0	0	1	0	0	0	0	1	1.0	0	0	0	0	0	0	0	0	0.0
18:15 - 18:30	0	0	3	0	0	0	0	3	3.0	0	0	2	0	0	0	0	2	2.0	0	0	0	0	0	0	0	0	0.0	0	0	3	0	0	0	0	3	3.0	0	0	1	0	0	0	0	1	1.0	0	0	0	0	0	0	0	0	0.0
18:30 - 18:45	0	0	1	1	0	0	0	2	2.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	2	0	0	0	0	2	2.0	0	0	0	0	0	0	0	0	0.0
18:45 - 19:00	0	0	2	0	0	0	0	2	2.0	0	0	1	0	0	0	0	1	1.0	0	0	1	0	0	0	0	1	1.0	0	0	1	0	0	0	0	1	1.0	0	0	1	0	0	0	0	1	1.0	0	0	1	0	0	0	0	1	1.0
Hourly Total	**0**	**0**	**9**	**1**	**0**	**0**	**0**	**10**	**10.0**	**0**	**0**	**5**	**0**	**0**	**0**	**0**	**5**	**5.0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**2**	**2.0**	**0**	**0**	**6**	**0**	**0**	**0**	**0**	**6**	**6.0**	**0**	**0**	**5**	**0**	**0**	**0**	**0**	**5**	**5.0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**1.0**
TOTAL	**0**	**0**	**44**	**4**	**0**	**0**	**0**	**48**	**48.0**	**0**	**0**	**52**	**1**	**0**	**0**	**0**	**53**	**53.0**	**0**	**0**	**24**	**0**	**0**	**0**	**0**	**24**	**24.0**	**0**	**0**	**23**	**0**	**0**	**0**	**0**	**23**	**23.0**	**0**	**0**	**16**	**0**	**0**	**0**	**0**	**16**	**16.0**	**0**	**0**	**16**	**2**	**0**	**0**	**0**	**18**	**18.0**

PCU Factors:	
CYCLE	0.2
M/CYCLE	0.4
CAR	1.0
LGV	1.0
OGV1	1.5
OGV2	2.3
BUS	2.0

APPENDIX 5 – A453/Grimes Gate Priority Junction Turning Count Results

Road Data Services Ltd

East Midlands Gateway
Wednesday 23rd November 2022
Junction: 3
Approach: A453 East

	To Grimes Gate				To A453 (W)			
TIME	LIGHT	HEAVY	TOTAL	PCUs	LIGHT	HEAVY	TOTAL	PCUs
07:00 - 07:15	4	0	4	4.0	50	7	57	66.1
07:15 - 07:30	2	1	3	4.3	55	8	63	73.4
07:30 - 07:45	5	0	5	5.0	53	5	58	64.5
07:45 - 08:00	6	0	6	6.0	63	11	74	88.3
Hourly Total	**17**	**1**	**18**	**19.3**	**221**	**31**	**252**	**292.3**
08:00 - 08:15	4	0	4	4.0	61	9	70	81.7
08:15 - 08:30	5	0	5	5.0	57	6	63	70.8
08:30 - 08:45	7	1	8	9.3	92	11	103	117.3
08:45 - 09:00	3	1	4	5.3	75	6	81	88.8
Hourly Total	**19**	**2**	**21**	**23.6**	**285**	**32**	**317**	**358.6**
09:00 - 09:15	7	0	7	7.0	46	7	53	62.1
09:15 - 09:30	6	0	6	6.0	53	6	59	66.8
09:30 - 09:45	7	1	8	9.3	31	5	36	42.5
09:45 - 10:00	2	1	3	4.3	41	9	50	61.7
Hourly Total	**22**	**2**	**24**	**26.6**	**171**	**27**	**198**	**233.1**
TOTAL	**58**	**5**	**63**	**69.5**	**677**	**90**	**767**	**884.0**
16:00 - 16:15	21	0	21	21.0	86	9	95	106.7
16:15 - 16:30	12	0	12	12.0	63	7	70	79.1
16:30 - 16:45	9	0	9	9.0	75	4	79	84.2
16:45 - 17:00	9	2	11	13.6	78	7	85	94.1
Hourly Total	**51**	**2**	**53**	**55.6**	**302**	**27**	**329**	**364.1**
17:00 - 17:15	15	2	17	19.6	80	6	86	93.8
17:15 - 17:30	20	0	20	20.0	90	6	96	103.8
17:30 - 17:45	20	0	20	20.0	98	6	104	111.8
17:45 - 18:00	15	0	15	15.0	92	6	98	105.8
Hourly Total	**70**	**2**	**72**	**74.6**	**360**	**24**	**384**	**415.2**
18:00 - 18:15	8	1	9	10.3	78	2	80	82.6
18:15 - 18:30	16	0	16	16.0	79	4	83	88.2
18:30 - 18:45	7	1	8	9.3	99	5	104	110.5
18:45 - 19:00	11	0	11	11.0	77	3	80	83.9
Hourly Total	**42**	**2**	**44**	**46.6**	**333**	**14**	**347**	**365.2**
TOTAL	**163**	**6**	**169**	**176.8**	**995**	**65**	**1060**	**1144.5**

PCU Factors:	
LIGHT	1.0
HEAVY	2.3

Road Data Services Ltd

East Midlands Gateway
Wednesday 23rd November 2022
Junction: 3
Approach: Grimes Gate

	To A453 (W)				To A453 (E)			
TIME	LIGHT	HEAVY	TOTAL	PCUs	LIGHT	HEAVY	TOTAL	PCUs
07:00 - 07:15	0	0	0	0.0	12	0	12	12.0
07:15 - 07:30	0	0	0	0.0	15	1	16	17.3
07:30 - 07:45	1	0	1	1.0	15	0	15	15.0
07:45 - 08:00	4	0	4	4.0	21	1	22	23.3
Hourly Total	**5**	**0**	**5**	**5.0**	**63**	**2**	**65**	**67.6**
08:00 - 08:15	0	0	0	0.0	9	0	9	9.0
08:15 - 08:30	1	0	1	1.0	17	0	17	17.0
08:30 - 08:45	2	0	2	2.0	15	1	16	17.3
08:45 - 09:00	7	0	7	7.0	14	0	14	14.0
Hourly Total	**10**	**0**	**10**	**10.0**	**55**	**1**	**56**	**57.3**
09:00 - 09:15	1	0	1	1.0	5	0	5	5.0
09:15 - 09:30	3	0	3	3.0	11	0	11	11.0
09:30 - 09:45	1	0	1	1.0	8	1	9	10.3
09:45 - 10:00	1	1	2	3.3	5	2	7	9.6
Hourly Total	**6**	**1**	**7**	**8.3**	**29**	**3**	**32**	**35.9**
TOTAL	**21**	**1**	**22**	**23.3**	**147**	**6**	**153**	**160.8**
16:00 - 16:15	1	0	1	1.0	5	0	5	5.0
16:15 - 16:30	3	0	3	3.0	4	0	4	4.0
16:30 - 16:45	0	0	0	0.0	3	0	3	3.0
16:45 - 17:00	1	0	1	1.0	9	1	10	11.3
Hourly Total	**5**	**0**	**5**	**5.0**	**21**	**1**	**22**	**23.3**
17:00 - 17:15	2	0	2	2.0	7	0	7	7.0
17:15 - 17:30	3	0	3	3.0	4	0	4	4.0
17:30 - 17:45	3	0	3	3.0	11	0	11	11.0
17:45 - 18:00	1	0	1	1.0	6	0	6	6.0
Hourly Total	**9**	**0**	**9**	**9.0**	**28**	**0**	**28**	**28.0**
18:00 - 18:15	1	0	1	1.0	10	1	11	12.3
18:15 - 18:30	3	0	3	3.0	6	0	6	6.0
18:30 - 18:45	1	0	1	1.0	7	0	7	7.0
18:45 - 19:00	2	0	2	2.0	4	0	4	4.0
Hourly Total	**7**	**0**	**7**	**7.0**	**27**	**1**	**28**	**29.3**
TOTAL	**21**	**0**	**21**	**21.0**	**76**	**2**	**78**	**80.6**

PCU Factors:	
LIGHT	1.0
HEAVY	2.3

Road Data Services Ltd

East Midlands Gateway
Wednesday 23rd November 2022
Junction: 3
Approach: A453 West

	To A453 (E)				To Grimes Gate			
TIME	LIGHT	HEAVY	TOTAL	PCUs	LIGHT	HEAVY	TOTAL	PCUs
07:00 - 07:15	67	12	79	94.6	1	0	1	1.0
07:15 - 07:30	99	16	115	135.8	0	0	0	0.0
07:30 - 07:45	121	13	134	150.9	2	0	2	2.0
07:45 - 08:00	132	8	140	150.4	1	0	1	1.0
Hourly Total	**419**	**49**	**468**	**531.7**	**4**	**0**	**4**	**4.0**
08:00 - 08:15	116	9	125	136.7	3	0	3	3.0
08:15 - 08:30	98	10	108	121.0	1	0	1	1.0
08:30 - 08:45	80	16	96	116.8	7	0	7	7.0
08:45 - 09:00	74	9	83	94.7	2	0	2	2.0
Hourly Total	**368**	**44**	**412**	**469.2**	**13**	**0**	**13**	**13.0**
09:00 - 09:15	61	8	69	79.4	0	0	0	0.0
09:15 - 09:30	42	13	55	71.9	0	0	0	0.0
09:30 - 09:45	38	15	53	72.5	2	0	2	2.0
09:45 - 10:00	42	8	50	60.4	1	0	1	1.0
Hourly Total	**183**	**44**	**227**	**284.2**	**3**	**0**	**3**	**3.0**
TOTAL	**970**	**137**	**1107**	**1285.1**	**20**	**0**	**20**	**20.0**
16:00 - 16:15	69	8	77	87.4	3	0	3	3.0
16:15 - 16:30	60	5	65	71.5	3	0	3	3.0
16:30 - 16:45	93	2	95	97.6	3	0	3	3.0
16:45 - 17:00	45	2	47	49.6	3	0	3	3.0
Hourly Total	**267**	**17**	**284**	**306.1**	**12**	**0**	**12**	**12.0**
17:00 - 17:15	76	2	78	80.6	5	0	5	5.0
17:15 - 17:30	52	7	59	68.1	1	0	1	1.0
17:30 - 17:45	97	4	101	106.2	3	0	3	3.0
17:45 - 18:00	63	2	65	67.6	3	0	3	3.0
Hourly Total	**288**	**15**	**303**	**322.5**	**12**	**0**	**12**	**12.0**
18:00 - 18:15	51	3	54	57.9	1	0	1	1.0
18:15 - 18:30	40	2	42	44.6	2	0	2	2.0
18:30 - 18:45	32	5	37	43.5	1	0	1	1.0
18:45 - 19:00	32	2	34	36.6	3	0	3	3.0
Hourly Total	**155**	**12**	**167**	**182.6**	**7**	**0**	**7**	**7.0**
TOTAL	**710**	**44**	**754**	**811.2**	**31**	**0**	**31**	**31.0**

PCU Factors:	
LIGHT	1.0
HEAVY	2.3

APPENDIX 6 – A453/The Green Priority Junction Turning Count Results

Road Data Services Ltd

East Midlands Gateway
Wednesdsay 23rd November 2022
Junction: 2
Approach: A453 East

	To The Green				To A453 (W)			
TIME	LIGHT	HEAVY	TOTAL	PCUs	LIGHT	HEAVY	TOTAL	PCUs
07:00 - 07:15	3	0	3	3.0	47	7	54	63.1
07:15 - 07:30	1	0	1	1.0	54	8	62	72.4
07:30 - 07:45	0	0	0	0.0	54	5	59	65.5
07:45 - 08:00	0	1	1	2.3	67	10	77	90.0
Hourly Total	**4**	**1**	**5**	**6.3**	**222**	**30**	**252**	**291.0**
08:00 - 08:15	2	0	2	2.0	59	9	68	79.7
08:15 - 08:30	8	0	8	8.0	50	6	56	63.8
08:30 - 08:45	11	0	11	11.0	83	11	94	108.3
08:45 - 09:00	4	0	4	4.0	78	6	84	91.8
Hourly Total	**25**	**0**	**25**	**25.0**	**270**	**32**	**302**	**343.6**
09:00 - 09:15	2	0	2	2.0	45	7	52	61.1
09:15 - 09:30	4	0	4	4.0	52	6	58	65.8
09:30 - 09:45	0	0	0	0.0	32	5	37	43.5
09:45 - 10:00	3	0	3	3.0	39	10	49	62.0
Hourly Total	**9**	**0**	**9**	**9.0**	**168**	**28**	**196**	**232.4**
TOTAL	**38**	**1**	**39**	**40.3**	**660**	**90**	**750**	**867.0**
16:00 - 16:15	7	0	7	7.0	80	9	89	100.7
16:15 - 16:30	0	1	1	2.3	66	6	72	79.8
16:30 - 16:45	3	0	3	3.0	72	4	76	81.2
16:45 - 17:00	5	0	5	5.0	74	7	81	90.1
Hourly Total	**15**	**1**	**16**	**17.3**	**292**	**26**	**318**	**351.8**
17:00 - 17:15	2	0	2	2.0	80	6	86	93.8
17:15 - 17:30	4	0	4	4.0	89	6	95	102.8
17:30 - 17:45	3	0	3	3.0	98	6	104	111.8
17:45 - 18:00	3	0	3	3.0	90	6	96	103.8
Hourly Total	**12**	**0**	**12**	**12.0**	**357**	**24**	**381**	**412.2**
18:00 - 18:15	3	0	3	3.0	76	2	78	80.6
18:15 - 18:30	0	0	0	0.0	82	4	86	91.2
18:30 - 18:45	1	0	1	1.0	99	5	104	110.5
18:45 - 19:00	3	0	3	3.0	76	3	79	82.9
Hourly Total	**7**	**0**	**7**	**7.0**	**333**	**14**	**347**	**365.2**
TOTAL	**34**	**1**	**35**	**36.3**	**982**	**64**	**1046**	**1129.2**

PCU Factors:	
LIGHT	1.0
HEAVY	2.3

Road Data Services Ltd

East Midlands Gateway
Wednesdsay 23rd November 2022
Junction: 2
Approach: The Green

	To A453 (W)				To A453 (E)			
TIME	LIGHT	HEAVY	TOTAL	PCUs	LIGHT	HEAVY	TOTAL	PCUs
07:00 - 07:15	6	1	7	8.3	2	0	2	2.0
07:15 - 07:30	10	0	10	10.0	3	0	3	3.0
07:30 - 07:45	17	0	17	17.0	6	0	6	6.0
07:45 - 08:00	18	0	18	18.0	2	1	3	4.3
Hourly Total	**51**	**1**	**52**	**53.3**	**13**	**1**	**14**	**15.3**
08:00 - 08:15	16	0	16	16.0	3	0	3	3.0
08:15 - 08:30	34	0	34	34.0	5	0	5	5.0
08:30 - 08:45	23	2	25	27.6	2	0	2	2.0
08:45 - 09:00	22	0	22	22.0	3	0	3	3.0
Hourly Total	**95**	**2**	**97**	**99.6**	**13**	**0**	**13**	**13.0**
09:00 - 09:15	10	1	11	12.3	1	0	1	1.0
09:15 - 09:30	9	0	9	9.0	2	0	2	2.0
09:30 - 09:45	6	0	6	6.0	1	0	1	1.0
09:45 - 10:00	11	2	13	15.6	2	0	2	2.0
Hourly Total	**36**	**3**	**39**	**42.9**	**6**	**0**	**6**	**6.0**
TOTAL	**182**	**6**	**188**	**195.8**	**32**	**1**	**33**	**34.3**
16:00 - 16:15	20	0	20	20.0	2	0	2	2.0
16:15 - 16:30	16	0	16	16.0	2	0	2	2.0
16:30 - 16:45	16	0	16	16.0	4	0	4	4.0
16:45 - 17:00	19	1	20	21.3	1	0	1	1.0
Hourly Total	**71**	**1**	**72**	**73.3**	**9**	**0**	**9**	**9.0**
17:00 - 17:15	11	0	11	11.0	5	0	5	5.0
17:15 - 17:30	14	0	14	14.0	2	0	2	2.0
17:30 - 17:45	15	0	15	15.0	3	0	3	3.0
17:45 - 18:00	18	0	18	18.0	4	0	4	4.0
Hourly Total	**58**	**0**	**58**	**58.0**	**14**	**0**	**14**	**14.0**
18:00 - 18:15	13	1	14	15.3	2	0	2	2.0
18:15 - 18:30	8	0	8	8.0	2	0	2	2.0
18:30 - 18:45	10	0	10	10.0	1	0	1	1.0
18:45 - 19:00	9	0	9	9.0	2	0	2	2.0
Hourly Total	**40**	**1**	**41**	**42.3**	**7**	**0**	**7**	**7.0**
TOTAL	**169**	**2**	**171**	**173.6**	**30**	**0**	**30**	**30.0**

PCU Factors:	
LIGHT	1.0
HEAVY	2.3

Road Data Services Ltd

East Midlands Gateway
Wednesdsay 23rd November 2022
Junction: 2
Approach: A453 West

	To A453 (E)				To The Green			
TIME	LIGHT	HEAVY	TOTAL	PCUs	LIGHT	HEAVY	TOTAL	PCUs
07:00 - 07:15	66	12	78	93.6	10	1	11	12.3
07:15 - 07:30	96	16	112	132.8	27	0	27	27.0
07:30 - 07:45	117	13	130	146.9	17	0	17	17.0
07:45 - 08:00	131	7	138	147.1	16	1	17	18.3
Hourly Total	**410**	**48**	**458**	**520.4**	**70**	**2**	**72**	**74.6**
08:00 - 08:15	116	9	125	136.7	14	1	15	16.3
08:15 - 08:30	94	10	104	117.0	22	0	22	22.0
08:30 - 08:45	85	16	101	121.8	12	0	12	12.0
08:45 - 09:00	73	9	82	93.7	18	1	19	20.3
Hourly Total	**368**	**44**	**412**	**469.2**	**66**	**2**	**68**	**70.6**
09:00 - 09:15	60	8	68	78.4	7	0	7	7.0
09:15 - 09:30	40	13	53	69.9	6	0	6	6.0
09:30 - 09:45	39	15	54	73.5	6	0	6	6.0
09:45 - 10:00	41	8	49	59.4	4	1	5	6.3
Hourly Total	**180**	**44**	**224**	**281.2**	**23**	**1**	**24**	**25.3**
TOTAL	**958**	**136**	**1094**	**1270.8**	**159**	**5**	**164**	**170.5**
16:00 - 16:15	70	8	78	88.4	33	0	33	33.0
16:15 - 16:30	61	5	66	72.5	15	0	15	15.0
16:30 - 16:45	92	2	94	96.6	30	0	30	30.0
16:45 - 17:00	47	2	49	51.6	28	0	28	28.0
Hourly Total	**270**	**17**	**287**	**309.1**	**106**	**0**	**106**	**106.0**
17:00 - 17:15	76	2	78	80.6	28	0	28	28.0
17:15 - 17:30	51	7	58	67.1	22	0	22	22.0
17:30 - 17:45	97	4	101	106.2	37	0	37	37.0
17:45 - 18:00	62	2	64	66.6	17	0	17	17.0
Hourly Total	**286**	**15**	**301**	**320.5**	**104**	**0**	**104**	**104.0**
18:00 - 18:15	50	3	53	56.9	14	0	14	14.0
18:15 - 18:30	40	2	42	44.6	9	0	9	9.0
18:30 - 18:45	32	5	37	43.5	5	0	5	5.0
18:45 - 19:00	33	2	35	37.6	8	0	8	8.0
Hourly Total	**155**	**12**	**167**	**182.6**	**36**	**0**	**36**	**36.0**
TOTAL	**711**	**44**	**755**	**812.2**	**246**	**0**	**246**	**246.0**

PCU Factors:	
LIGHT	1.0
HEAVY	2.3

APPENDIX 7 – A453/East Midlands Airport Signal Junction Turning Count Results

Road Data Services Ltd

East Midlands Gateway
Thursday 3rd November 2022
Junction: 2
Approach: East Midlands Airport Access

	Left to A453 (E)									Right to A453 (W)								
TIME	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs
07:00 - 07:15	0	0	33	0	0	0	0	33	33.0	0	0	9	5	0	0	0	14	14.0
07:15 - 07:30	0	0	34	4	1	0	0	39	39.5	0	0	7	1	1	0	1	10	11.5
07:30 - 07:45	0	0	19	0	0	0	0	19	19.0	0	0	6	3	0	0	0	9	9.0
07:45 - 08:00	0	0	17	3	1	1	0	22	23.8	0	0	6	4	0	0	0	10	10.0
Hourly Total	**0**	**0**	**103**	**7**	**2**	**1**	**0**	**113**	**115.3**	**0**	**0**	**28**	**13**	**1**	**0**	**1**	**43**	**44.5**
08:00 - 08:15	0	0	23	4	1	0	0	28	28.5	0	0	10	1	0	0	0	11	11.0
08:15 - 08:30	0	0	35	3	1	1	0	40	41.8	0	0	3	2	0	1	1	7	9.3
08:30 - 08:45	0	0	23	1	0	0	1	25	26.0	0	0	4	1	1	0	0	6	6.5
08:45 - 09:00	0	0	14	2	0	1	1	18	20.3	0	0	2	0	0	1	0	3	4.3
Hourly Total	**0**	**0**	**95**	**10**	**2**	**2**	**2**	**111**	**116.6**	**0**	**0**	**19**	**4**	**1**	**2**	**1**	**27**	**31.1**
09:00 - 09:15	0	0	9	0	1	0	0	10	10.5	0	0	5	0	0	0	0	5	5.0
09:15 - 09:30	0	0	5	0	1	0	0	6	6.5	0	0	3	2	0	0	1	6	7.0
09:30 - 09:45	0	0	7	2	1	0	0	10	10.5	0	0	2	0	1	1	0	4	5.8
09:45 - 10:00	0	0	8	3	0	0	0	11	11.0	0	0	1	2	0	1	0	4	5.3
Hourly Total	**0**	**0**	**29**	**5**	**3**	**0**	**0**	**37**	**38.5**	**0**	**0**	**11**	**4**	**1**	**2**	**1**	**19**	**23.1**
TOTAL	**0**	**0**	**227**	**22**	**7**	**3**	**2**	**261**	**270.4**	**0**	**0**	**58**	**21**	**3**	**4**	**3**	**89**	**98.7**
16:00 - 16:15	0	0	66	4	1	0	0	71	71.5	0	0	25	4	1	0	0	30	30.5
16:15 - 16:30	0	0	55	5	0	0	0	60	60.0	0	0	18	6	0	0	0	24	24.0
16:30 - 16:45	0	0	60	5	0	0	0	65	65.0	0	0	26	2	0	0	1	29	30.0
16:45 - 17:00	0	0	69	7	0	0	1	77	78.0	0	0	8	2	0	0	0	10	10.0
Hourly Total	**0**	**0**	**250**	**21**	**1**	**0**	**1**	**273**	**274.5**	**0**	**0**	**77**	**14**	**1**	**0**	**1**	**93**	**94.5**
17:00 - 17:15	0	0	57	3	0	0	1	61	62.0	0	0	18	4	0	0	0	22	22.0
17:15 - 17:30	0	0	27	0	1	0	0	28	28.5	0	0	15	2	0	0	0	17	17.0
17:30 - 17:45	0	0	64	6	0	0	0	70	70.0	0	0	15	0	0	0	0	15	15.0
17:45 - 18:00	0	0	59	4	0	0	0	63	63.0	0	0	10	1	0	0	0	11	11.0
Hourly Total	**0**	**0**	**207**	**13**	**1**	**0**	**1**	**222**	**223.5**	**0**	**0**	**58**	**7**	**0**	**0**	**0**	**65**	**65.0**
18:00 - 18:15	0	0	49	5	0	0	0	54	54.0	0	1	12	2	0	0	1	16	16.4
18:15 - 18:30	0	0	47	6	0	0	0	53	53.0	0	0	6	1	0	0	0	7	7.0
18:30 - 18:45	0	0	44	6	0	0	0	50	50.0	0	0	4	1	0	0	1	6	7.0
18:45 - 19:00	0	0	20	0	0	1	0	21	22.3	0	0	10	2	1	0	0	13	13.5
Hourly Total	**0**	**0**	**160**	**17**	**0**	**1**	**0**	**178**	**179.3**	**0**	**1**	**32**	**6**	**1**	**0**	**2**	**42**	**43.9**
TOTAL	**0**	**0**	**617**	**51**	**2**	**1**	**2**	**673**	**677.3**	**0**	**1**	**167**	**27**	**2**	**0**	**3**	**200**	**203.4**

PCU Factors:	
CYCLE	0.2
M/CYCLE	0.4
CAR	1.0
LGV	1.0
OGV1	1.5
OGV2	2.3
BUS	2.0

Road Data Services Ltd

East Midlands Gateway
Thursday 3rd November 2022
Junction: 2
Approach: A453 East

	Ahead to A453 (W)									Right to East Midlands Airport Access								
TIME	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs
07:00 - 07:15	0	0	59	12	6	4	0	81	89.2	0	0	65	6	1	0	0	72	72.5
07:15 - 07:30	0	0	36	16	5	3	0	60	66.4	0	0	65	12	1	0	0	78	78.5
07:30 - 07:45	0	0	78	10	2	7	0	97	107.1	0	0	63	5	0	0	0	68	68.0
07:45 - 08:00	0	0	47	10	5	5	1	68	78.0	0	0	57	6	0	0	0	63	63.0
Hourly Total	**0**	**0**	**220**	**48**	**18**	**19**	**1**	**306**	**340.7**	**0**	**0**	**250**	**29**	**2**	**0**	**0**	**281**	**282.0**
08:00 - 08:15	0	0	56	16	3	5	0	80	88.0	0	0	52	3	0	0	0	55	55.0
08:15 - 08:30	0	0	81	14	2	9	0	106	118.7	0	0	51	2	1	0	0	54	54.5
08:30 - 08:45	0	0	72	18	7	4	0	101	109.7	0	0	55	2	1	2	2	62	67.1
08:45 - 09:00	0	0	67	15	4	4	0	90	97.2	0	0	30	2	0	0	0	32	32.0
Hourly Total	**0**	**0**	**276**	**63**	**16**	**22**	**0**	**377**	**413.6**	**0**	**0**	**188**	**9**	**2**	**2**	**2**	**203**	**208.6**
09:00 - 09:15	0	0	55	8	7	4	1	75	84.7	0	0	22	3	0	0	0	25	25.0
09:15 - 09:30	0	0	37	11	6	3	0	57	63.9	0	0	23	4	1	2	0	30	33.1
09:30 - 09:45	0	1	25	8	4	7	0	45	55.5	0	0	32	1	0	0	0	33	33.0
09:45 - 10:00	0	2	22	10	5	9	1	49	63.0	0	0	21	2	1	1	0	25	26.8
Hourly Total	**0**	**3**	**139**	**37**	**22**	**23**	**2**	**226**	**267.1**	**0**	**0**	**98**	**10**	**2**	**3**	**0**	**113**	**117.9**
TOTAL	**0**	**3**	**635**	**148**	**56**	**64**	**3**	**909**	**1021.4**	**0**	**0**	**536**	**48**	**6**	**5**	**2**	**597**	**608.5**
16:00 - 16:15	0	0	75	9	2	7	0	93	103.1	0	0	37	5	1	0	0	43	43.5
16:15 - 16:30	0	0	62	10	1	8	0	81	91.9	0	0	27	3	0	0	1	31	32.0
16:30 - 16:45	0	0	74	21	3	4	0	102	108.7	0	0	30	3	0	0	0	33	33.0
16:45 - 17:00	0	0	86	19	2	3	0	110	114.9	0	0	42	8	0	0	2	52	54.0
Hourly Total	**0**	**0**	**297**	**59**	**8**	**22**	**0**	**386**	**418.6**	**0**	**0**	**136**	**19**	**1**	**0**	**3**	**159**	**162.5**
17:00 - 17:15	0	2	102	11	4	2	0	121	124.4	0	0	32	1	0	0	0	33	33.0
17:15 - 17:30	0	0	87	15	5	4	0	111	118.7	0	0	32	1	1	1	0	35	36.8
17:30 - 17:45	0	0	86	12	2	2	0	102	105.6	0	0	21	2	1	0	0	24	24.5
17:45 - 18:00	0	0	73	9	3	1	0	86	88.8	0	0	32	4	1	0	0	37	37.5
Hourly Total	**0**	**2**	**348**	**47**	**14**	**9**	**0**	**420**	**437.5**	**0**	**0**	**117**	**8**	**3**	**1**	**0**	**129**	**131.8**
18:00 - 18:15	0	0	78	8	2	3	0	91	95.9	0	0	21	4	0	0	0	25	25.0
18:15 - 18:30	0	1	68	8	3	2	0	82	85.5	0	0	36	2	0	0	0	38	38.0
18:30 - 18:45	0	2	51	3	2	2	0	60	62.4	0	0	27	4	0	0	0	31	31.0
18:45 - 19:00	0	0	50	2	2	5	0	59	66.5	0	0	19	3	0	0	0	22	22.0
Hourly Total	**0**	**3**	**247**	**21**	**9**	**12**	**0**	**292**	**310.3**	**0**	**0**	**103**	**13**	**0**	**0**	**0**	**116**	**116.0**
TOTAL	**0**	**5**	**892**	**127**	**31**	**43**	**0**	**1098**	**1166.4**	**0**	**0**	**356**	**40**	**4**	**1**	**3**	**404**	**410.3**

PCU Factors:	
CYCLE	0.2
M/CYCLE	0.4
CAR	1.0
LGV	1.0
OGV1	1.5
OGV2	2.3
BUS	2.0

Road Data Services Ltd

East Midlands Gateway
Thursday 3rd November 2022
Junction: 2
Approach: A453 West

	Left to East Midlands Airport Access									Ahead to A453 (E				
TIME	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1
07:00 - 07:15	0	0	18	2	0	0	0	20	20.0	0	0	34	12	3
07:15 - 07:30	0	0	18	1	0	0	1	20	21.0	0	2	74	18	5
07:30 - 07:45	0	0	26	5	0	0	0	31	31.0	0	1	84	17	5
07:45 - 08:00	0	0	31	6	0	1	0	38	39.3	0	0	111	14	4
Hourly Total	**0**	**0**	**93**	**14**	**0**	**1**	**1**	**109**	**111.3**	**0**	**3**	**303**	**61**	**17**
08:00 - 08:15	0	0	24	6	0	0	0	30	30.0	0	0	90	22	2
08:15 - 08:30	0	0	28	1	0	0	0	29	29.0	0	0	94	25	5
08:30 - 08:45	0	0	20	1	2	0	1	24	26.0	0	0	50	19	5
08:45 - 09:00	0	0	18	1	0	0	0	19	19.0	0	0	59	8	4
Hourly Total	**0**	**0**	**90**	**9**	**2**	**0**	**1**	**102**	**104.0**	**0**	**0**	**293**	**74**	**16**
09:00 - 09:15	0	0	11	0	0	0	0	11	11.0	0	0	50	8	8
09:15 - 09:30	0	0	7	1	0	1	0	9	10.3	0	1	36	11	3
09:30 - 09:45	0	0	4	2	1	0	1	8	9.5	0	0	22	9	5
09:45 - 10:00	0	0	9	3	0	0	0	12	12.0	0	0	35	7	2
Hourly Total	**0**	**0**	**31**	**6**	**1**	**1**	**1**	**40**	**42.8**	**0**	**1**	**143**	**35**	**18**
TOTAL	**0**	**0**	**214**	**29**	**3**	**2**	**3**	**251**	**258.1**	**0**	**4**	**739**	**170**	**51**
16:00 - 16:15	0	0	6	1	1	0	0	8	8.5	0	0	46	14	4
16:15 - 16:30	0	0	11	3	0	0	0	14	14.0	0	0	45	12	5
16:30 - 16:45	0	0	10	2	1	0	0	13	13.5	0	0	66	12	2
16:45 - 17:00	0	0	8	3	0	0	1	12	13.0	0	0	59	10	0
Hourly Total	**0**	**0**	**35**	**9**	**2**	**0**	**1**	**47**	**49.0**	**0**	**0**	**216**	**48**	**11**
17:00 - 17:15	0	0	9	0	0	0	0	9	9.0	0	0	85	8	1
17:15 - 17:30	0	0	6	1	0	0	0	7	7.0	0	0	54	4	0
17:30 - 17:45	0	0	9	0	0	0	1	10	11.0	0	0	76	6	2
17:45 - 18:00	0	0	11	1	0	0	1	13	14.0	0	0	81	3	1
Hourly Total	**0**	**0**	**35**	**2**	**0**	**0**	**2**	**39**	**41.0**	**0**	**0**	**296**	**21**	**4**
18:00 - 18:15	0	0	6	0	0	0	0	6	6.0	0	0	50	4	1
18:15 - 18:30	0	0	6	2	0	0	0	8	8.0	0	0	38	2	2
18:30 - 18:45	0	0	6	1	0	0	0	7	7.0	0	1	19	0	0
18:45 - 19:00	0	0	9	2	1	0	0	12	12.5	0	0	40	7	1
Hourly Total	**0**	**0**	**27**	**5**	**1**	**0**	**0**	**33**	**33.5**	**0**	**1**	**147**	**13**	**4**
TOTAL	**0**	**0**	**97**	**16**	**3**	**0**	**3**	**119**	**123.5**	**0**	**1**	**659**	**82**	**19**

APPENDIX 8 – A453/East Midlands Airport Roundabout Turning Count Results

Road Data Services Ltd

East Midlands Gateway
Wednesday 23rd November 2022
Junction: 1
Approach: Northern Arm

	To A453 (E)				To A453 (W)			
TIME	LIGHT	HEAVY	TOTAL	PCUs	LIGHT	HEAVY	TOTAL	PCUs
07:00 - 07:15	21	3	24	27.9	13	4	17	22.2
07:15 - 07:30	10	3	13	16.9	12	1	13	14.3
07:30 - 07:45	8	4	12	17.2	4	6	10	17.8
07:45 - 08:00	11	4	15	20.2	7	5	12	18.5
Hourly Total	**50**	**14**	**64**	**82.2**	**36**	**16**	**52**	**72.8**
08:00 - 08:15	13	1	14	15.3	13	2	15	17.6
08:15 - 08:30	10	2	12	14.6	4	3	7	10.9
08:30 - 08:45	5	3	8	11.9	9	4	13	18.2
08:45 - 09:00	5	2	7	9.6	8	4	12	17.2
Hourly Total	**33**	**8**	**41**	**51.4**	**34**	**13**	**47**	**63.9**
09:00 - 09:15	5	2	7	9.6	5	4	9	14.2
09:15 - 09:30	1	5	6	12.5	6	1	7	8.3
09:30 - 09:45	5	5	10	16.5	10	2	12	14.6
09:45 - 10:00	5	3	8	11.9	7	2	9	11.6
Hourly Total	**16**	**15**	**31**	**50.5**	**28**	**9**	**37**	**48.7**
TOTAL	**99**	**37**	**136**	**184.1**	**98**	**38**	**136**	**185.4**
16:00 - 16:15	22	6	28	35.8	55	2	57	59.6
16:15 - 16:30	5	4	9	14.2	40	2	42	44.6
16:30 - 16:45	50	1	51	52.3	64	3	67	70.9
16:45 - 17:00	29	1	30	31.3	47	3	50	53.9
Hourly Total	**106**	**12**	**118**	**133.6**	**206**	**10**	**216**	**229.0**
17:00 - 17:15	31	1	32	33.3	62	1	63	64.3
17:15 - 17:30	18	3	21	24.9	18	3	21	24.9
17:30 - 17:45	67	3	70	73.9	88	2	90	92.6
17:45 - 18:00	28	2	30	32.6	39	1	40	41.3
Hourly Total	**144**	**9**	**153**	**164.7**	**207**	**7**	**214**	**223.1**
18:00 - 18:15	16	2	18	20.6	25	1	26	27.3
18:15 - 18:30	9	1	10	11.3	12	2	14	16.6
18:30 - 18:45	10	2	12	14.6	24	5	29	35.5
18:45 - 19:00	9	2	11	13.6	11	2	13	15.6
Hourly Total	**44**	**7**	**51**	**60.1**	**72**	**10**	**82**	**95.0**
TOTAL	**294**	**28**	**322**	**358.4**	**485**	**27**	**512**	**547.1**

PCU Factors:	
LIGHT	1.0
HEAVY	2.3

Road Data Services Ltd

East Midlands Gateway
Wednesday 23rd November 2022
Junction: 1
Approach: A453 East

	To A453 (W)				To Northern Arm			
TIME	LIGHT	HEAVY	TOTAL	PCUs	LIGHT	HEAVY	TOTAL	PCUs
07:00 - 07:15	32	3	35	38.9	19	5	24	30.5
07:15 - 07:30	31	5	36	42.5	31	3	34	37.9
07:30 - 07:45	43	4	47	52.2	28	1	29	30.3
07:45 - 08:00	47	8	55	65.4	38	2	40	42.6
Hourly Total	**153**	**20**	**173**	**199.0**	**116**	**11**	**127**	**141.3**
08:00 - 08:15	48	6	54	61.8	27	3	30	33.9
08:15 - 08:30	67	5	72	78.5	17	1	18	19.3
08:30 - 08:45	62	10	72	85.0	44	3	47	50.9
08:45 - 09:00	67	4	71	76.2	33	2	35	37.6
Hourly Total	**244**	**25**	**269**	**301.5**	**121**	**9**	**130**	**141.7**
09:00 - 09:15	44	4	48	53.2	11	4	15	20.2
09:15 - 09:30	42	4	46	51.2	19	2	21	23.6
09:30 - 09:45	27	1	28	29.3	11	4	15	20.2
09:45 - 10:00	39	7	46	55.1	11	5	16	22.5
Hourly Total	**152**	**16**	**168**	**188.8**	**52**	**15**	**67**	**86.5**
TOTAL	**549**	**61**	**610**	**689.3**	**289**	**35**	**324**	**369.5**
16:00 - 16:15	94	4	98	103.2	6	5	11	17.5
16:15 - 16:30	69	4	73	78.2	11	2	13	15.6
16:30 - 16:45	74	1	75	76.3	12	3	15	18.9
16:45 - 17:00	75	6	81	88.8	14	2	16	18.6
Hourly Total	**312**	**15**	**327**	**346.5**	**43**	**12**	**55**	**70.6**
17:00 - 17:15	77	2	79	81.6	12	4	16	21.2
17:15 - 17:30	92	4	96	101.2	11	2	13	15.6
17:30 - 17:45	85	2	87	89.6	24	4	28	33.2
17:45 - 18:00	88	3	91	94.9	20	3	23	26.9
Hourly Total	**342**	**11**	**353**	**367.3**	**67**	**13**	**80**	**96.9**
18:00 - 18:15	65	2	67	69.6	22	1	23	24.3
18:15 - 18:30	46	1	47	48.3	44	3	47	50.9
18:30 - 18:45	58	0	58	58.0	51	5	56	62.5
18:45 - 19:00	40	0	40	40.0	45	3	48	51.9
Hourly Total	**209**	**3**	**212**	**215.9**	**162**	**12**	**174**	**189.6**
TOTAL	**863**	**29**	**892**	**929.7**	**272**	**37**	**309**	**357.1**

PCU Factors:	
LIGHT	1.0
HEAVY	2.3

Road Data Services Ltd

East Midlands Gateway
Wednesday 23rd November 2022
Junction: 1
Approach: A453 West

	To Northern Arm				To A453 (E)			
TIME	LIGHT	HEAVY	TOTAL	PCUs	LIGHT	HEAVY	TOTAL	PCUs
07:00 - 07:15	41	3	44	47.9	55	10	65	78.0
07:15 - 07:30	40	4	44	49.2	113	13	126	142.9
07:30 - 07:45	62	5	67	73.5	126	9	135	146.7
07:45 - 08:00	51	3	54	57.9	136	4	140	145.2
Hourly Total	**194**	**15**	**209**	**228.5**	**430**	**36**	**466**	**512.8**
08:00 - 08:15	35	2	37	39.6	117	9	126	137.7
08:15 - 08:30	60	6	66	73.8	106	8	114	124.4
08:30 - 08:45	88	5	93	99.5	92	13	105	121.9
08:45 - 09:00	57	2	59	61.6	86	8	94	104.4
Hourly Total	**240**	**15**	**255**	**274.5**	**401**	**38**	**439**	**488.4**
09:00 - 09:15	31	4	35	40.2	62	6	68	75.8
09:15 - 09:30	19	1	20	21.3	45	8	53	63.4
09:30 - 09:45	24	4	28	33.2	40	10	50	63.0
09:45 - 10:00	13	3	16	19.9	40	6	46	53.8
Hourly Total	**87**	**12**	**99**	**114.6**	**187**	**30**	**217**	**256.0**
TOTAL	**521**	**42**	**563**	**617.6**	**1018**	**104**	**1122**	**1257.2**
16:00 - 16:15	8	1	9	10.3	81	2	83	85.6
16:15 - 16:30	13	0	13	13.0	71	1	72	73.3
16:30 - 16:45	9	4	13	18.2	72	1	73	74.3
16:45 - 17:00	15	4	19	24.2	46	1	47	48.3
Hourly Total	**45**	**9**	**54**	**65.7**	**270**	**5**	**275**	**281.5**
17:00 - 17:15	17	3	20	23.9	73	1	74	75.3
17:15 - 17:30	32	1	33	34.3	55	4	59	64.2
17:30 - 17:45	34	1	35	36.3	67	1	68	69.3
17:45 - 18:00	27	7	34	43.1	51	0	51	51.0
Hourly Total	**110**	**12**	**122**	**137.6**	**246**	**6**	**252**	**259.8**
18:00 - 18:15	27	3	30	33.9	48	1	49	50.3
18:15 - 18:30	35	3	38	41.9	40	1	41	42.3
18:30 - 18:45	69	2	71	73.6	27	3	30	33.9
18:45 - 19:00	49	4	53	58.2	32	0	32	32.0
Hourly Total	**180**	**12**	**192**	**207.6**	**147**	**5**	**152**	**158.5**
TOTAL	**335**	**33**	**368**	**410.9**	**663**	**16**	**679**	**699.8**

PCU Factors:	
LIGHT	1.0
HEAVY	2.3

APPENDIX 9 – A453/Walton Hill Signal Junction Turning Count Results

Road Data Services Ltd

East Midlands Gateway
Thursday 3rd November 2022
Junction: 1
Approach: Northern Arm

	Left to A453									Right to Walton Hill								
TIME	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs
07:00 - 07:15	1	1	66	9	6	0	1	84	86.6	0	2	27	4	1	0	0	34	33.3
07:15 - 07:30	0	2	66	9	1	0	1	79	79.3	0	0	37	7	1	1	0	46	47.8
07:30 - 07:45	0	1	107	8	2	2	4	124	131.0	0	1	43	12	7	2	0	65	70.5
07:45 - 08:00	0	0	97	12	5	2	3	119	127.1	0	0	48	6	2	1	0	57	59.3
Hourly Total	**1**	**4**	**336**	**38**	**14**	**4**	**9**	**406**	**424.0**	**0**	**3**	**155**	**29**	**11**	**4**	**0**	**202**	**210.9**
08:00 - 08:15	0	0	90	16	3	2	2	113	119.1	0	1	55	13	3	2	0	74	77.5
08:15 - 08:30	0	0	92	7	11	8	1	119	135.9	0	0	51	11	1	5	0	68	75.0
08:30 - 08:45	0	0	86	9	7	3	3	108	118.4	0	1	50	7	2	1	0	61	62.7
08:45 - 09:00	0	1	65	10	1	1	3	81	85.2	0	4	33	5	5	4	0	51	56.3
Hourly Total	**0**	**1**	**333**	**42**	**22**	**14**	**9**	**421**	**458.6**	**0**	**6**	**189**	**36**	**11**	**12**	**0**	**254**	**271.5**
09:00 - 09:15	1	0	26	6	4	1	4	42	48.5	0	0	37	8	4	3	0	52	57.9
09:15 - 09:30	0	1	33	5	2	1	1	43	45.7	2	0	28	7	2	4	0	43	47.6
09:30 - 09:45	0	0	22	3	2	3	3	33	40.9	0	0	28	9	0	1	0	38	39.3
09:45 - 10:00	0	0	19	2	2	0	3	26	30.0	0	0	25	8	4	1	0	38	41.3
Hourly Total	**1**	**1**	**100**	**16**	**10**	**5**	**11**	**144**	**165.1**	**2**	**0**	**118**	**32**	**10**	**9**	**0**	**171**	**186.1**
TOTAL	**2**	**6**	**769**	**96**	**46**	**23**	**29**	**971**	**1047.7**	**2**	**9**	**462**	**97**	**32**	**25**	**0**	**627**	**668.5**
16:00 - 16:15	0	2	42	8	2	2	2	58	62.4	0	0	62	15	5	2	0	84	89.1
16:15 - 16:30	0	2	39	11	2	1	1	56	58.1	1	1	59	12	0	0	0	73	71.6
16:30 - 16:45	0	0	35	5	2	2	1	45	49.6	0	0	68	10	0	1	0	79	80.3
16:45 - 17:00	1	3	37	5	1	1	2	50	51.2	0	1	41	8	0	2	1	53	56.0
Hourly Total	**1**	**7**	**153**	**29**	**7**	**6**	**6**	**209**	**221.3**	**1**	**2**	**230**	**45**	**5**	**5**	**1**	**289**	**297.0**
17:00 - 17:15	0	0	51	9	1	2	2	65	70.1	0	0	81	4	1	2	0	88	91.1
17:15 - 17:30	0	0	43	10	0	1	1	55	57.3	0	0	67	5	0	1	0	73	74.3
17:30 - 17:45	0	0	47	4	0	0	0	51	51.0	1	2	51	9	0	1	0	64	63.3
17:45 - 18:00	1	0	43	1	0	0	3	48	50.2	0	0	56	2	1	0	0	59	59.5
Hourly Total	**1**	**0**	**184**	**24**	**1**	**3**	**6**	**219**	**228.6**	**1**	**2**	**255**	**20**	**2**	**4**	**0**	**284**	**288.2**
18:00 - 18:15	0	0	49	1	0	0	2	52	54.0	0	0	53	4	0	0	0	57	57.0
18:15 - 18:30	0	1	49	9	0	1	2	62	64.7	0	0	45	1	0	0	0	46	46.0
18:30 - 18:45	1	2	64	4	1	1	2	75	76.8	0	0	17	2	2	0	0	21	22.0
18:45 - 19:00	0	0	52	4	1	1	2	60	63.8	0	0	39	3	1	0	0	43	43.5
Hourly Total	**1**	**3**	**214**	**18**	**2**	**3**	**8**	**249**	**259.3**	**0**	**0**	**154**	**10**	**3**	**0**	**0**	**167**	**168.5**
TOTAL	**3**	**10**	**551**	**71**	**10**	**12**	**20**	**677**	**709.2**	**2**	**4**	**639**	**75**	**10**	**9**	**1**	**740**	**753.7**

PCU Factors:	
CYCLE	0.2
M/CYCLE	0.4
CAR	1.0
LGV	1.0
OGV1	1.5
OGV2	2.3
BUS	2.0

Road Data Services Ltd

East Midlands Gateway
Thursday 3rd November 2022
Junction: 1
Approach: A453

	Ahead to Walton Hill									Right to Northern Arm									
TIME	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs
07:00 - 07:15	0	0	20	4	1	3	0	28	32.4	0	0	19	5	1	0	3	28	31.5
07:15 - 07:30	0	0	25	7	1	3	0	36	40.4	0	0	21	7	4	1	0	33	36.3
07:30 - 07:45	0	0	23	9	4	3	1	40	46.9	0	0	27	5	1	1	2	36	39.8
07:45 - 08:00	0	0	24	8	2	4	0	38	44.2	0	0	35	10	2	3	2	52	58.9
Hourly Total	**0**	**0**	**92**	**28**	**8**	**13**	**1**	**142**	**163.9**	**0**	**0**	**102**	**27**	**8**	**5**	**7**	**149**	**166.5**
08:00 - 08:15	0	0	27	3	1	3	0	34	38.4	0	1	29	14	3	2	3	52	58.5
08:15 - 08:30	0	0	35	4	2	8	0	49	60.4	0	0	34	10	2	3	1	50	55.9
08:30 - 08:45	0	0	38	5	1	4	0	48	53.7	0	1	25	6	3	1	1	37	40.2
08:45 - 09:00	0	0	19	5	1	4	0	29	34.7	0	0	30	10	1	3	2	46	52.4
Hourly Total	**0**	**0**	**119**	**17**	**5**	**19**	**0**	**160**	**187.2**	**0**	**2**	**118**	**40**	**9**	**9**	**7**	**185**	**207.0**
09:00 - 09:15	0	0	28	7	1	3	0	39	43.4	0	0	19	5	5	1	1	31	35.8
09:15 - 09:30	0	0	13	5	4	1	0	23	26.3	0	0	15	5	2	2	2	26	31.6
09:30 - 09:45	0	0	17	3	1	4	0	25	30.7	0	0	25	6	4	0	1	36	39.0
09:45 - 10:00	0	0	10	6	1	6	1	24	33.3	0	2	21	6	2	1	1	33	35.1
Hourly Total	**0**	**0**	**68**	**21**	**7**	**14**	**1**	**111**	**133.7**	**0**	**2**	**80**	**22**	**13**	**4**	**5**	**126**	**141.5**
TOTAL	**0**	**0**	**279**	**66**	**20**	**46**	**2**	**413**	**484.8**	**0**	**4**	**300**	**89**	**30**	**18**	**19**	**460**	**515.0**
16:00 - 16:15	0	1	63	3	3	5	0	75	82.4	0	0	62	4	0	2	2	70	74.6
16:15 - 16:30	0	0	60	7	2	3	1	73	78.9	0	0	57	9	0	2	3	71	76.6
16:30 - 16:45	0	0	92	13	2	3	0	110	114.9	1	0	61	5	1	1	1	70	72.0
16:45 - 17:00	0	0	62	8	0	0	0	70	70.0	0	1	65	3	0	0	2	71	72.4
Hourly Total	**0**	**1**	**277**	**31**	**7**	**11**	**1**	**328**	**346.2**	**1**	**1**	**245**	**21**	**1**	**5**	**8**	**282**	**295.6**
17:00 - 17:15	0	0	78	3	2	1	0	84	86.3	0	2	85	7	0	0	1	95	94.8
17:15 - 17:30	0	0	56	5	0	1	1	63	65.3	0	0	62	8	2	0	2	74	77.0
17:30 - 17:45	0	0	72	0	1	3	0	76	80.4	1	1	78	5	0	0	1	86	85.6
17:45 - 18:00	0	0	53	3	0	0	0	56	56.0	0	0	74	3	0	0	3	80	83.0
Hourly Total	**0**	**0**	**259**	**11**	**3**	**5**	**1**	**279**	**288.0**	**1**	**3**	**299**	**23**	**2**	**0**	**7**	**335**	**340.4**
18:00 - 18:15	0	0	49	2	0	0	0	51	51.0	0	1	37	1	0	1	1	41	42.7
18:15 - 18:30	0	2	36	0	1	0	0	39	38.3	0	2	38	6	0	1	2	49	51.1
18:30 - 18:45	0	2	30	1	0	0	1	34	33.8	0	0	27	4	1	0	0	32	32.5
18:45 - 19:00	0	0	29	1	2	0	0	32	33.0	0	0	26	2	0	0	0	28	28.0
Hourly Total	**0**	**4**	**144**	**4**	**3**	**0**	**1**	**156**	**156.1**	**0**	**3**	**128**	**13**	**1**	**2**	**3**	**150**	**154.3**
TOTAL	**0**	**5**	**680**	**46**	**13**	**16**	**3**	**763**	**790.3**	**2**	**7**	**672**	**57**	**4**	**7**	**18**	**767**	**790.3**

PCU Factors:	
CYCLE	0.2
M/CYCLE	0.4
CAR	1.0
LGV	1.0
OGV1	1.5
OGV2	2.3
BUS	2.0

Road Data Services Ltd

East Midlands Gateway
Thursday 3rd November 2022
Junction: 1
Approach: Walton Hill

	Left to Northern Arm									Ahead to A453								
TIME	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs
07:00 - 07:15	1	0	33	12	2	0	0	48	48.2	0	0	45	6	1	6	1	59	68.3
07:15 - 07:30	1	0	45	12	1	1	0	60	61.0	0	1	64	8	2	5	0	80	86.9
07:30 - 07:45	0	0	49	10	4	1	0	64	67.3	0	0	81	8	3	9	0	101	114.2
07:45 - 08:00	0	0	60	20	1	3	0	84	88.4	0	0	90	6	1	4	0	101	106.7
Hourly Total	**2**	**0**	**187**	**54**	**8**	**5**	**0**	**256**	**264.9**	**0**	**1**	**280**	**28**	**7**	**24**	**1**	**341**	**376.1**
08:00 - 08:15	0	0	54	8	2	0	0	64	65.0	0	0	70	7	2	5	0	84	91.5
08:15 - 08:30	0	0	74	9	3	1	0	87	89.8	0	0	62	16	5	3	1	87	94.4
08:30 - 08:45	0	0	58	4	3	2	1	68	73.1	0	0	57	3	3	6	0	69	78.3
08:45 - 09:00	0	0	49	3	3	3	0	58	63.4	0	0	66	4	4	6	0	80	89.8
Hourly Total	**0**	**0**	**235**	**24**	**11**	**6**	**1**	**277**	**291.3**	**0**	**0**	**255**	**30**	**14**	**20**	**1**	**320**	**354.0**
09:00 - 09:15	0	0	28	3	6	3	0	40	46.9	0	0	47	10	4	6	0	67	76.8
09:15 - 09:30	0	0	36	3	3	2	0	44	48.1	0	0	31	6	3	2	2	44	50.1
09:30 - 09:45	0	1	30	5	5	0	0	41	42.9	0	0	25	6	1	2	0	34	37.1
09:45 - 10:00	0	1	38	5	1	3	0	48	51.8	0	0	31	5	2	3	0	41	45.9
Hourly Total	**0**	**2**	**132**	**16**	**15**	**8**	**0**	**173**	**189.7**	**0**	**0**	**134**	**27**	**10**	**13**	**2**	**186**	**209.9**
TOTAL	**2**	**2**	**554**	**94**	**34**	**19**	**1**	**706**	**745.9**	**0**	**1**	**669**	**85**	**31**	**57**	**4**	**847**	**940.0**
16:00 - 16:15	0	0	37	9	0	2	0	48	50.6	0	0	33	6	1	1	0	41	42.8
16:15 - 16:30	0	1	47	6	0	1	0	55	55.7	0	0	25	12	3	0	0	40	41.5
16:30 - 16:45	0	2	36	7	0	0	0	45	43.8	0	0	23	11	0	0	0	34	34.0
16:45 - 17:00	0	0	57	7	0	1	0	65	66.3	0	0	30	5	0	0	1	36	37.0
Hourly Total	**0**	**3**	**177**	**29**	**0**	**4**	**0**	**213**	**216.4**	**0**	**0**	**111**	**34**	**4**	**1**	**1**	**151**	**155.3**
17:00 - 17:15	0	1	49	1	1	0	0	52	51.9	0	0	41	3	0	0	0	44	44.0
17:15 - 17:30	0	0	51	3	1	1	0	56	57.8	0	0	35	1	0	0	0	36	36.0
17:30 - 17:45	0	0	50	6	2	0	0	58	59.0	0	1	54	3	0	1	1	60	61.7
17:45 - 18:00	0	1	45	6	2	0	0	54	54.4	0	0	41	2	1	0	0	44	44.5
Hourly Total	**0**	**2**	**195**	**16**	**6**	**1**	**0**	**220**	**223.1**	**0**	**1**	**171**	**9**	**1**	**1**	**1**	**184**	**186.2**
18:00 - 18:15	0	0	36	2	1	0	0	39	39.5	0	0	29	2	2	0	1	34	36.0
18:15 - 18:30	0	0	32	4	0	1	0	37	38.3	0	0	23	0	0	0	0	23	23.0
18:30 - 18:45	0	1	27	3	1	0	0	32	31.9	0	0	39	2	1	1	0	43	44.8
18:45 - 19:00	0	0	28	1	0	0	0	29	29.0	0	0	39	4	0	0	0	43	43.0
Hourly Total	**0**	**1**	**123**	**10**	**2**	**1**	**0**	**137**	**138.7**	**0**	**0**	**130**	**8**	**3**	**1**	**1**	**143**	**146.8**
TOTAL	**0**	**6**	**495**	**55**	**8**	**6**	**0**	**570**	**578.2**	**0**	**1**	**412**	**51**	**8**	**3**	**3**	**478**	**488.3**

PCU Factors:	
CYCLE	0.2
M/CYCLE	0.4
CAR	1.0
LGV	1.0
OGV1	1.5
OGV2	2.3
BUS	2.0

APPENDIX 10 – M1 Junction 23 Turning Count Results

Road Data Services Ltd

East Midlands Gateway
Wednesday 2nd November 2022
Junction: 6
Approach: M1 J23 Slip Road North

	To A512									To M1 J23 Slip Road (S)									To Ashby Road East								
TIME	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs
07:00 - 07:15	0	0	41	28	1	1	2	73	76.8	0	0	0	0	0	0	0	0	0.0	0	0	26	9	0	4	0	39	44.2
07:15 - 07:30	0	0	59	16	6	2	0	83	88.6	0	0	0	0	0	0	0	0	0.0	0	0	27	22	2	1	0	52	54.3
07:30 - 07:45	0	0	115	19	2	0	0	136	137.0	0	0	0	0	0	0	0	0	0.0	0	0	33	17	7	0	0	57	60.5
07:45 - 08:00	0	1	189	31	6	1	0	228	231.7	0	0	0	0	0	0	0	0	0.0	0	0	68	18	9	4	0	99	108.7
Hourly Tota	**0**	**1**	**404**	**94**	**15**	**4**	**2**	**520**	**534.1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**154**	**66**	**18**	**9**	**0**	**247**	**267.7**
08:00 - 08:15	0	0	153	39	8	3	0	203	210.9	0	0	0	0	0	0	0	0	0.0	0	0	53	24	6	3	0	86	92.9
08:15 - 08:30	0	1	170	23	2	5	0	201	207.9	0	0	0	0	0	0	0	0	0.0	0	0	58	18	7	8	0	91	104.9
08:30 - 08:45	0	0	165	24	9	8	0	206	220.9	0	0	0	0	0	0	0	0	0.0	0	0	39	16	9	2	0	66	73.1
08:45 - 09:00	0	0	131	17	0	3	0	151	154.9	0	0	0	0	0	0	0	0	0.0	0	0	61	17	1	4	1	84	90.7
Hourly Tota	**0**	**1**	**619**	**103**	**19**	**19**	**0**	**761**	**794.6**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**211**	**75**	**23**	**17**	**1**	**327**	**361.6**
09:00 - 09:15	0	0	92	17	2	6	2	119	129.8	0	0	0	0	0	0	0	0	0.0	0	0	42	10	4	5	0	61	69.5
09:15 - 09:30	0	0	84	13	7	4	3	111	122.7	0	0	0	0	0	0	0	0	0.0	0	0	46	16	2	7	0	71	81.1
09:30 - 09:45	0	0	83	16	5	1	0	105	108.8	0	0	0	0	0	0	0	0	0.0	0	0	25	12	2	7	0	46	56.1
09:45 - 10:00	0	0	74	20	5	3	1	103	110.4	0	0	0	0	0	0	0	0	0.0	0	0	25	4	4	4	0	37	44.2
Hourly Tota	**0**	**0**	**333**	**66**	**19**	**14**	**6**	**438**	**471.7**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**138**	**42**	**12**	**23**	**0**	**215**	**250.9**
TOTAL	**0**	**2**	**1356**	**263**	**53**	**37**	**8**	**1719**	**1800.4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**503**	**183**	**53**	**49**	**1**	**789**	**880.2**
16:00 - 16:15	0	0	58	11	3	3	1	76	82.4	0	0	0	0	0	0	0	0	0.0	0	0	28	8	1	3	1	41	46.4
16:15 - 16:30	0	0	83	17	2	0	0	102	103.0	0	0	0	0	0	0	0	0	0.0	0	0	30	17	2	5	0	54	61.5
16:30 - 16:45	0	1	88	20	3	1	0	113	115.2	0	0	0	0	0	0	0	0	0.0	0	0	44	12	5	5	0	66	75.0
16:45 - 17:00	0	1	100	11	2	1	1	116	118.7	0	0	0	0	0	0	0	0	0.0	0	1	36	10	2	4	0	53	58.6
Hourly Tota	**0**	**2**	**329**	**59**	**10**	**5**	**2**	**407**	**419.3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**1**	**138**	**47**	**10**	**17**	**1**	**214**	**241.5**
17:00 - 17:15	0	0	91	14	0	2	0	107	109.6	0	0	0	0	0	0	0	0	0.0	0	0	36	9	0	1	0	46	47.3
17:15 - 17:30	0	0	107	12	1	0	0	120	120.5	0	0	0	0	0	0	0	0	0.0	0	0	37	6	2	7	0	52	62.1
17:30 - 17:45	0	0	70	8	1	1	0	80	81.8	0	0	0	0	0	0	0	0	0.0	0	0	38	5	0	3	0	46	49.9
17:45 - 18:00	0	0	83	9	0	2	0	94	96.6	0	0	0	0	0	0	0	0	0.0	0	0	22	2	1	2	0	27	30.1
Hourly Tota	**0**	**0**	**351**	**43**	**2**	**5**	**0**	**401**	**408.5**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**133**	**22**	**3**	**13**	**0**	**171**	**189.4**
18:00 - 18:15	0	0	71	12	1	1	0	85	86.8	0	0	0	0	0	0	0	0	0.0	0	0	33	5	2	1	0	41	43.3
18:15 - 18:30	0	0	99	6	1	0	1	107	108.5	0	0	0	0	0	0	0	0	0.0	0	0	59	1	2	3	0	65	69.9
18:30 - 18:45	0	0	65	7	0	1	0	73	74.3	0	0	0	0	0	0	0	0	0.0	0	0	41	6	3	4	0	54	60.7
18:45 - 19:00	0	0	84	6	2	0	1	93	95.0	0	0	0	0	0	0	0	0	0.0	0	0	34	11	1	3	0	49	53.4
Hourly Tota	**0**	**0**	**319**	**31**	**4**	**2**	**2**	**358**	**364.6**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**167**	**23**	**8**	**11**	**0**	**209**	**227.3**
TOTAL	**0**	**2**	**999**	**133**	**16**	**12**	**4**	**1166**	**1192.4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**1**	**438**	**92**	**21**	**41**	**1**	**594**	**658.2**

PCU Factors:	
CYCLE	0.2
M/CYCLE	0.4
CAR	1.0
LGV	1.0
OGV1	1.5
OGV2	2.3
BUS	2.0

Road Data Services Ltd

East Midlands Gateway
Wednesday 2nd November 2022
Junction: 6
Approach: A512

	To M1 J23 Slip Road (S)									To Ashby Road East									To M1 J23 Slip Road (N)								
TIME	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs
07:00 - 07:15	0	0	42	7	4	1	0	54	57.3	0	1	39	11	3	0	1	55	56.9	0	0	90	20	2	4	0	116	122.2
07:15 - 07:30	0	0	28	9	2	0	0	39	40.0	0	1	52	14	3	1	0	71	73.2	0	0	106	24	3	4	0	137	143.7
07:30 - 07:45	0	0	30	5	2	1	0	38	40.3	0	0	65	8	4	4	1	82	90.2	0	1	121	13	4	1	0	140	142.7
07:45 - 08:00	0	0	21	7	1	2	1	32	36.1	0	0	79	14	2	1	2	98	102.3	0	0	100	14	3	5	0	122	130.0
Hourly Tota	0	0	121	28	9	4	1	163	173.7	0	2	235	47	12	6	4	306	322.6	0	1	417	71	12	14	0	515	538.6
08:00 - 08:15	0	0	35	3	2	3	0	43	47.9	0	0	101	12	5	0	0	118	120.5	0	1	82	10	3	4	0	100	106.1
08:15 - 08:30	0	0	22	4	4	1	0	31	34.3	0	0	51	8	0	0	1	60	61.0	0	0	90	12	3	2	0	107	111.1
08:30 - 08:45	0	0	19	7	2	6	3	37	48.8	0	0	72	14	2	4	0	92	98.2	0	0	81	7	1	3	1	93	98.4
08:45 - 09:00	0	0	19	7	3	3	1	33	39.4	0	0	59	18	0	0	2	79	81.0	0	1	70	9	2	3	0	85	89.3
Hourly Tota	0	0	95	21	11	13	4	144	170.4	0	0	283	52	7	4	3	349	360.7	0	2	323	38	9	12	1	385	404.9
09:00 - 09:15	0	0	19	12	3	2	1	37	42.1	0	0	45	20	3	2	1	71	76.1	0	1	76	15	3	1	0	96	98.2
09:15 - 09:30	0	0	19	2	6	2	0	29	34.6	0	0	45	14	3	0	2	64	67.5	0	0	57	11	2	5	0	75	82.5
09:30 - 09:45	0	0	28	7	7	4	2	48	58.7	0	0	42	14	1	3	0	60	64.4	0	0	64	12	4	5	0	85	93.5
09:45 - 10:00	0	0	22	9	3	2	0	36	40.1	0	0	46	13	4	1	1	65	69.3	0	1	53	10	6	2	0	72	77.0
Hourly Tota	0	0	88	30	19	10	3	150	175.5	0	0	178	61	11	6	4	260	277.3	0	2	250	48	15	13	0	328	351.2
TOTAL	0	0	304	79	39	27	8	457	519.6	0	2	696	160	30	16	11	915	960.6	0	5	990	157	36	39	1	1228	1294.7
16:00 - 16:15	0	0	102	14	2	1	0	119	121.3	0	0	127	16	2	1	2	148	152.3	0	0	102	16	3	0	3	124	128.5
16:15 - 16:30	0	1	99	12	0	1	1	114	115.7	0	0	113	10	2	2	2	129	134.6	0	0	121	11	4	2	1	139	144.6
16:30 - 16:45	0	0	79	16	1	3	0	99	103.4	1	1	121	14	1	1	0	139	139.4	0	0	120	22	1	1	0	144	145.8
16:45 - 17:00	0	1	95	12	0	0	0	108	107.4	0	2	134	15	1	2	0	154	155.9	0	0	126	18	2	2	2	150	155.6
Hourly Tota	0	2	375	54	3	5	1	440	447.8	1	3	495	55	6	6	4	570	582.2	0	0	469	67	10	5	6	557	574.5
17:00 - 17:15	0	0	90	11	0	0	1	102	103.0	0	0	162	13	0	1	3	179	183.3	0	0	112	16	1	2	1	132	136.1
17:15 - 17:30	0	0	87	8	1	1	1	98	100.8	0	1	92	10	0	0	0	103	102.4	0	0	135	14	1	3	1	154	159.4
17:30 - 17:45	0	0	78	4	1	0	0	83	83.5	0	0	124	13	1	3	1	142	147.4	0	0	91	4	1	0	0	96	96.5
17:45 - 18:00	0	0	53	10	0	0	0	63	63.0	0	0	72	9	0	0	3	84	87.0	0	0	91	6	1	0	0	98	98.5
Hourly Tota	0	0	308	33	2	1	2	346	350.3	0	1	450	45	1	4	7	508	520.1	0	0	429	40	4	5	2	480	490.5
18:00 - 18:15	0	0	52	3	0	0	0	55	55.0	0	7	83	17	1	3	2	113	115.2	0	1	62	6	0	0	0	69	68.4
18:15 - 18:30	0	0	38	4	0	1	3	46	50.3	0	0	104	15	0	0	2	121	123.0	0	1	48	4	3	0	0	56	56.9
18:30 - 18:45	0	0	40	2	2	0	0	44	45.0	0	0	61	9	0	0	1	71	72.0	0	1	50	6	0	1	0	58	58.7
18:45 - 19:00	0	0	24	2	0	0	1	27	28.0	0	0	56	7	0	1	1	65	67.3	0	0	47	5	1	1	1	55	57.8
Hourly Tota	0	0	154	11	2	1	4	172	178.3	0	7	304	48	1	4	6	370	377.5	0	3	207	21	4	2	1	238	241.8
TOTAL	0	2	837	98	7	7	7	958	976.4	1	11	1249	148	8	14	17	1448	1479.8	0	3	1105	128	18	12	9	1275	1306.8

PCU Factors:	
CYCLE	0.2
M/CYCLE	0.4
CAR	1.0
LGV	1.0
OGV1	1.5
OGV2	2.3
BUS	2.0

Road Data Services Ltd

East Midlands Gateway
Wednesday 2nd November 2022
Junction: 6
Approach: M1 J23 Slip Road South

	To Ashby Road East									To M1 J23 Slip Road (N)									To A512								
TIME	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs
07:00 - 07:15	0	0	15	2	2	4	0	23	29.2	0	0	0	0	0	0	0	0	0.0	0	0	30	9	3	0	0	42	43.5
07:15 - 07:30	0	1	24	7	1	0	0	33	32.9	0	0	0	0	0	0	0	0	0.0	0	0	49	6	6	0	0	61	64.0
07:30 - 07:45	0	0	34	8	2	2	0	46	49.6	0	0	0	0	0	0	0	0	0.0	0	0	60	10	6	3	0	79	85.9
07:45 - 08:00	0	0	37	7	1	3	0	48	52.4	0	0	0	0	0	0	0	0	0.0	0	1	74	8	2	2	0	87	90.0
Hourly Tota	**0**	**1**	**110**	**24**	**6**	**9**	**0**	**150**	**164.1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**1**	**213**	**33**	**17**	**5**	**0**	**269**	**283.4**
08:00 - 08:15	0	0	33	9	5	4	0	51	58.7	0	0	0	0	0	0	0	0	0.0	0	0	92	13	2	2	0	109	112.6
08:15 - 08:30	0	0	21	11	1	4	0	37	42.7	0	0	0	0	0	0	0	0	0.0	0	0	109	16	2	1	0	128	130.3
08:30 - 08:45	0	0	17	7	1	4	0	29	34.7	0	0	0	0	0	0	0	0	0.0	0	0	105	6	2	2	1	116	120.6
08:45 - 09:00	0	0	19	5	1	2	0	27	30.1	0	0	0	0	0	0	0	0	0.0	0	0	80	8	3	1	0	92	94.8
Hourly Tota	**0**	**0**	**90**	**32**	**8**	**14**	**0**	**144**	**166.2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**386**	**43**	**9**	**6**	**1**	**445**	**458.3**
09:00 - 09:15	0	0	16	9	3	3	0	31	36.4	0	0	0	0	0	0	0	0	0.0	0	0	76	5	4	0	0	85	87.0
09:15 - 09:30	0	0	13	10	2	2	0	27	30.6	0	0	0	0	0	0	0	0	0.0	0	0	55	7	3	1	0	66	68.8
09:30 - 09:45	0	0	14	3	1	1	1	20	22.8	0	0	0	0	0	0	0	0	0.0	0	0	36	6	4	3	1	50	56.9
09:45 - 10:00	0	0	18	5	0	2	0	25	27.6	0	0	0	0	0	0	0	0	0.0	0	0	34	8	2	4	0	48	54.2
Hourly Tota	**0**	**0**	**61**	**27**	**6**	**8**	**1**	**103**	**117.4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**201**	**26**	**13**	**8**	**1**	**249**	**266.9**
TOTAL	**0**	**1**	**261**	**83**	**20**	**31**	**1**	**397**	**447.7**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**1**	**800**	**102**	**39**	**19**	**2**	**963**	**1008.6**
16:00 - 16:15	0	0	12	5	2	4	0	23	29.2	0	0	0	0	0	0	0	0	0.0	0	0	28	2	2	0	1	33	35.0
16:15 - 16:30	0	0	34	7	2	4	0	47	53.2	0	0	0	0	0	0	0	0	0.0	0	0	28	10	2	1	0	41	43.3
16:30 - 16:45	0	0	32	7	3	2	0	44	48.1	0	0	0	0	0	0	0	0	0.0	0	0	47	5	0	4	0	56	61.2
16:45 - 17:00	0	0	22	3	2	1	0	28	30.3	0	0	0	0	0	0	0	0	0.0	0	0	28	3	1	0	0	32	32.5
Hourly Tota	**0**	**0**	**100**	**22**	**9**	**11**	**0**	**142**	**160.8**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**131**	**20**	**5**	**5**	**1**	**162**	**172.0**
17:00 - 17:15	0	0	17	3	1	6	0	27	35.3	0	0	0	0	0	0	0	0	0.0	0	0	47	3	1	0	1	52	53.5
17:15 - 17:30	0	0	38	4	3	5	0	50	58.0	0	0	0	0	0	0	0	0	0.0	0	0	50	4	1	1	0	56	57.8
17:30 - 17:45	0	0	30	4	1	2	0	37	40.1	0	0	0	0	0	0	0	0	0.0	0	0	44	2	2	1	0	49	51.3
17:45 - 18:00	0	0	24	2	3	2	0	31	35.1	0	0	0	0	0	0	0	0	0.0	0	0	32	3	2	0	0	37	38.0
Hourly Tota	**0**	**0**	**109**	**13**	**8**	**15**	**0**	**145**	**168.5**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**173**	**12**	**6**	**2**	**1**	**194**	**200.6**
18:00 - 18:15	0	0	20	6	2	2	0	30	33.6	0	0	0	0	0	0	0	0	0.0	0	0	41	0	1	1	0	43	44.8
18:15 - 18:30	0	0	31	3	2	1	0	37	39.3	0	0	0	0	0	0	0	0	0.0	0	0	34	3	0	0	0	37	37.0
18:30 - 18:45	0	0	29	3	1	3	0	36	40.4	0	0	0	0	0	0	0	0	0.0	0	0	23	4	0	0	0	27	27.0
18:45 - 19:00	0	0	24	0	1	1	0	26	27.8	0	0	0	0	0	0	0	0	0.0	0	0	22	3	1	0	0	26	26.5
Hourly Tota	**0**	**0**	**104**	**12**	**6**	**7**	**0**	**129**	**141.1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**120**	**10**	**2**	**1**	**0**	**133**	**135.3**
TOTAL	**0**	**0**	**313**	**47**	**23**	**33**	**0**	**416**	**470.4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**424**	**42**	**13**	**8**	**2**	**489**	**507.9**

PCU Factors:	
CYCLE	0.2
M/CYCLE	0.4
CAR	1.0
LGV	1.0
OGV1	1.5
OGV2	2.3
BUS	2.0

Road Data Services Ltd

East Midlands Gateway
Wednesday 2nd November 2022
Junction: 6
Approach: Ashby Road East

	To M1 J23 Slip Road (N)									To A512									To M1 J23 Slip Road (S)								
TIME	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs
07:00 - 07:15	0	1	58	23	2	8	0	92	102.8	0	0	74	13	1	1	1	90	92.8	0	0	38	11	1	2	0	52	55.1
07:15 - 07:30	0	0	55	13	2	10	0	80	94.0	0	1	75	21	2	2	1	102	106.0	0	0	28	7	1	3	0	39	43.4
07:30 - 07:45	0	0	70	17	2	7	0	96	106.1	0	1	135	17	5	1	1	160	164.2	0	0	27	9	0	1	0	37	38.3
07:45 - 08:00	0	0	52	9	1	3	0	65	69.4	0	1	165	15	4	1	2	188	192.7	0	0	20	9	4	3	0	36	41.9
Hourly Tota	**0**	**1**	**235**	**62**	**7**	**28**	**0**	**333**	**372.3**	**0**	**3**	**449**	**66**	**12**	**5**	**5**	**540**	**555.7**	**0**	**0**	**113**	**36**	**6**	**9**	**0**	**164**	**178.7**
08:00 - 08:15	0	0	44	10	6	1	0	61	65.3	0	0	137	15	0	0	4	156	160.0	0	0	21	2	2	1	0	26	28.3
08:15 - 08:30	0	0	30	10	3	1	0	44	46.8	0	2	162	21	6	6	2	199	210.6	0	0	16	4	0	1	0	21	22.3
08:30 - 08:45	0	0	31	7	2	1	0	41	43.3	0	0	149	13	5	8	1	176	189.9	0	0	15	3	2	4	0	24	30.2
08:45 - 09:00	0	0	39	8	2	2	0	51	54.6	0	0	114	15	6	1	1	137	142.3	0	1	19	1	4	4	0	29	35.6
Hourly Tota	**0**	**0**	**144**	**35**	**13**	**5**	**0**	**197**	**210.0**	**0**	**2**	**562**	**64**	**17**	**15**	**8**	**668**	**702.8**	**0**	**1**	**71**	**10**	**8**	**10**	**0**	**100**	**116.4**
09:00 - 09:15	0	0	27	6	3	6	0	42	51.3	0	1	102	15	5	2	0	125	129.5	0	0	15	1	2	2	0	20	23.6
09:15 - 09:30	0	1	15	6	1	5	1	29	36.4	1	0	88	13	8	3	1	114	122.1	0	0	10	5	1	2	0	18	21.1
09:30 - 09:45	0	0	30	6	2	4	0	42	48.2	0	1	95	11	6	1	1	115	119.7	0	0	12	3	1	4	0	20	25.7
09:45 - 10:00	0	0	7	8	5	2	0	22	27.1	0	1	109	16	0	1	1	128	129.7	0	0	10	6	2	6	0	24	32.8
Hourly Tota	**0**	**1**	**79**	**26**	**11**	**17**	**1**	**135**	**163.0**	**1**	**3**	**394**	**55**	**19**	**7**	**3**	**482**	**501.0**	**0**	**0**	**47**	**15**	**6**	**14**	**0**	**82**	**103.2**
TOTAL	**0**	**2**	**458**	**123**	**31**	**50**	**1**	**665**	**745.3**	**1**	**8**	**1405**	**185**	**48**	**27**	**16**	**1690**	**1759.5**	**0**	**1**	**231**	**61**	**20**	**33**	**0**	**346**	**398.3**
16:00 - 16:15	0	0	55	15	3	1	0	74	76.8	0	0	85	11	1	0	1	98	99.5	0	0	34	8	1	1	0	44	45.8
16:15 - 16:30	0	1	44	9	1	3	0	58	61.8	1	0	84	17	0	0	1	103	103.2	0	0	33	9	0	1	0	43	44.3
16:30 - 16:45	0	0	38	15	1	1	1	56	58.8	0	0	88	10	0	0	0	98	98.0	0	0	31	10	2	5	0	48	55.5
16:45 - 17:00	0	0	31	7	3	0	0	41	42.5	0	0	79	11	0	0	1	91	92.0	0	0	24	7	1	2	0	34	37.1
Hourly Tota	**0**	**1**	**168**	**46**	**8**	**5**	**1**	**229**	**239.9**	**1**	**0**	**336**	**49**	**1**	**0**	**3**	**390**	**392.7**	**0**	**0**	**122**	**34**	**4**	**9**	**0**	**169**	**182.7**
17:00 - 17:15	0	0	47	9	1	1	0	58	59.8	0	1	89	11	0	0	1	102	102.4	0	0	28	5	2	0	0	35	36.0
17:15 - 17:30	0	0	49	8	2	1	0	60	62.3	0	1	104	13	0	1	0	119	119.7	0	0	28	2	0	0	0	30	30.0
17:30 - 17:45	0	0	41	8	0	0	0	49	49.0	0	0	74	5	0	0	3	82	85.0	0	0	29	4	0	0	0	33	33.0
17:45 - 18:00	0	0	35	7	0	2	0	44	46.6	0	0	72	3	2	1	0	78	80.3	0	0	17	1	0	0	0	18	18.0
Hourly Tota	**0**	**0**	**172**	**32**	**3**	**4**	**0**	**211**	**217.7**	**0**	**2**	**339**	**32**	**2**	**2**	**4**	**381**	**387.4**	**0**	**0**	**102**	**12**	**2**	**0**	**0**	**116**	**117.0**
18:00 - 18:15	0	0	25	4	1	2	0	32	35.1	0	0	72	14	0	1	1	88	90.3	0	0	20	2	1	1	0	24	25.8
18:15 - 18:30	0	0	23	3	0	0	0	26	26.0	0	1	55	5	0	0	3	64	66.4	0	0	16	3	0	2	0	21	23.6
18:30 - 18:45	0	0	17	0	0	0	0	17	17.0	0	0	84	9	0	0	2	95	97.0	0	0	10	3	0	1	1	15	17.3
18:45 - 19:00	0	0	18	1	1	0	0	20	20.5	0	0	75	7	1	0	0	83	83.5	0	0	10	2	0	1	0	13	14.3
Hourly Tota	**0**	**0**	**83**	**8**	**2**	**2**	**0**	**95**	**98.6**	**0**	**1**	**286**	**35**	**1**	**1**	**6**	**330**	**337.2**	**0**	**0**	**56**	**10**	**1**	**5**	**1**	**73**	**81.0**
TOTAL	**0**	**1**	**423**	**86**	**13**	**11**	**1**	**535**	**556.2**	**1**	**3**	**961**	**116**	**4**	**3**	**13**	**1101**	**1117.3**	**0**	**0**	**280**	**56**	**7**	**14**	**1**	**358**	**380.7**

PCU Factors:	
CYCLE	0.2
M/CYCLE	0.4
CAR	1.0
LGV	1.0
OGV1	1.5
OGV2	2.3
BUS	2.0

APPENDIX 11 – A42/A453A/Top Brand Junction Turning Count Results

Road Data Services Ltd

East Midlands Airport
Wednesday 20th September 2023
Junction: 8
Approach: A453

	To Gelscoe Lane									To Top Brand									To A42 Entry Slip Road								
TIME	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs
07:00 - 07:15	0	0	3	0	0	0	0	3	3.0	0	0	10	0	0	1	0	11	12.3	0	0	6	5	2	1	0	14	16.3
07:15 - 07:30	1	0	11	1	0	0	0	13	12.2	0	1	7	3	0	8	0	19	28.8	0	0	18	2	1	0	0	21	21.5
07:30 - 07:45	0	0	11	2	1	0	0	14	14.5	0	1	14	5	0	4	0	24	28.6	0	0	9	1	1	0	0	11	11.5
07:45 - 08:00	0	0	11	2	0	0	0	13	13.0	0	0	12	2	0	6	0	20	27.8	0	0	17	2	1	0	0	20	20.5
Hourly Total	**1**	**0**	**36**	**5**	**1**	**0**	**0**	**43**	**42.7**	**0**	**2**	**43**	**10**	**0**	**19**	**0**	**74**	**97.5**	**0**	**0**	**50**	**10**	**5**	**1**	**0**	**66**	**69.8**
08:00 - 08:15	0	0	5	1	0	0	0	6	6.0	0	0	9	2	0	10	0	21	34.0	0	0	10	1	2	2	0	15	18.6
08:15 - 08:30	0	0	9	0	0	0	0	9	9.0	0	0	18	5	1	8	0	32	42.9	0	0	18	3	1	1	0	23	24.8
08:30 - 08:45	0	0	8	3	1	0	0	12	12.5	0	0	10	5	1	11	0	27	41.8	0	0	7	4	0	1	0	12	13.3
08:45 - 09:00	0	0	6	2	0	0	0	8	8.0	0	0	5	3	0	6	0	14	21.8	0	0	12	1	1	1	0	15	16.8
Hourly Total	**0**	**0**	**28**	**6**	**1**	**0**	**0**	**35**	**35.5**	**0**	**0**	**42**	**15**	**2**	**35**	**0**	**94**	**140.5**	**0**	**0**	**47**	**9**	**4**	**5**	**0**	**65**	**73.5**
09:00 - 09:15	0	0	6	1	0	0	0	7	7.0	0	0	7	2	0	6	0	15	22.8	0	0	8	3	0	0	0	11	11.0
09:15 - 09:30	0	0	3	2	0	1	0	6	7.3	0	0	5	2	0	7	0	14	23.1	0	0	1	1	0	1	0	3	4.3
09:30 - 09:45	0	0	3	4	2	0	0	9	10.0	0	0	4	2	1	6	0	13	21.3	0	0	8	1	1	0	0	10	10.5
09:45 - 10:00	1	0	3	0	0	0	0	4	3.2	0	0	5	0	0	15	0	20	39.5	0	0	3	2	1	2	0	8	11.1
Hourly Total	**1**	**0**	**15**	**7**	**2**	**1**	**0**	**26**	**27.5**	**0**	**0**	**21**	**6**	**1**	**34**	**0**	**62**	**106.7**	**0**	**0**	**20**	**7**	**2**	**3**	**0**	**32**	**36.9**
TOTAL	**2**	**0**	**79**	**18**	**4**	**1**	**0**	**104**	**105.7**	**0**	**2**	**106**	**31**	**3**	**88**	**0**	**230**	**344.7**	**0**	**0**	**117**	**26**	**11**	**9**	**0**	**163**	**180.2**
16:00 - 16:15	0	0	8	0	0	0	0	8	8.0	0	0	15	4	0	3	0	22	25.9	0	0	23	5	0	0	0	28	28.0
16:15 - 16:30	0	0	4	3	0	0	0	7	7.0	0	0	12	4	1	3	0	20	24.4	0	0	22	4	1	1	0	28	29.8
16:30 - 16:45	0	0	7	3	0	0	0	10	10.0	0	0	23	1	1	0	0	25	25.5	0	0	31	5	1	0	1	38	39.5
16:45 - 17:00	0	0	3	0	0	0	0	3	3.0	0	0	7	8	0	1	0	16	17.3	0	0	16	2	1	0	0	19	19.5
Hourly Total	**0**	**0**	**22**	**6**	**0**	**0**	**0**	**28**	**28.0**	**0**	**0**	**57**	**17**	**2**	**7**	**0**	**83**	**93.1**	**0**	**0**	**92**	**16**	**3**	**1**	**1**	**113**	**116.8**
17:00 - 17:15	0	0	11	1	0	0	0	12	12.0	0	1	26	2	0	0	0	29	28.4	0	0	18	10	0	0	0	28	28.0
17:15 - 17:30	0	0	4	0	0	0	0	4	4.0	0	0	24	0	0	0	0	24	24.0	0	0	33	4	1	0	0	38	38.5
17:30 - 17:45	0	0	8	1	0	0	0	9	9.0	0	0	20	4	0	0	0	24	24.0	0	0	21	2	0	1	0	24	25.3
17:45 - 18:00	0	0	6	0	0	0	0	6	6.0	0	1	12	1	0	0	0	14	13.4	0	0	11	3	0	0	0	14	14.0
Hourly Total	**0**	**0**	**29**	**2**	**0**	**0**	**0**	**31**	**31.0**	**0**	**2**	**82**	**7**	**0**	**0**	**0**	**91**	**89.8**	**0**	**0**	**83**	**19**	**1**	**1**	**0**	**104**	**105.8**
18:00 - 18:15	0	0	10	2	0	0	0	12	12.0	0	0	20	0	0	1	0	21	22.3	0	0	22	4	0	2	0	28	30.6
18:15 - 18:30	0	0	8	0	0	0	0	8	8.0	0	0	9	0	0	1	0	10	11.3	0	0	10	2	0	1	0	13	14.3
18:30 - 18:45	0	0	10	2	0	0	0	12	12.0	0	0	16	2	0	0	0	18	18.0	0	0	9	1	2	1	0	13	15.3
18:45 - 19:00	0	0	8	1	0	0	0	9	9.0	0	0	8	0	0	1	0	9	10.3	0	0	11	0	0	1	0	12	13.3
Hourly Total	**0**	**0**	**36**	**5**	**0**	**0**	**0**	**41**	**41.0**	**0**	**0**	**53**	**2**	**0**	**3**	**0**	**58**	**61.9**	**0**	**0**	**52**	**7**	**2**	**5**	**0**	**66**	**73.5**
TOTAL	**0**	**0**	**87**	**13**	**0**	**0**	**0**	**100**	**100.0**	**0**	**2**	**192**	**26**	**2**	**10**	**0**	**232**	**244.8**	**0**	**0**	**227**	**42**	**6**	**7**	**1**	**283**	**296.1**

PCU Factors:	
CYCLE	0.2
M/CYCLE	0.4
CAR	1.0
LGV	1.0
OGV1	1.5
OGV2	2.3
BUS	2.0

Road Data Services Ltd

East Midlands Airport
Wednesday 20th September 2023
Junction: 8
Approach: Gelscoe Lane

	To Top Brand									To A42 Entry Slip Road									To A453								
TIME	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs
07:00 - 07:15	0	0	2	0	0	0	0	2	2.0	0	0	5	0	0	0	0	5	5.0	0	0	1	0	0	0	0	1	1.0
07:15 - 07:30	0	0	1	0	0	0	0	1	1.0	0	0	5	0	1	0	0	6	6.5	0	0	2	0	0	0	0	2	2.0
07:30 - 07:45	0	0	3	0	0	0	0	3	3.0	0	0	9	0	0	0	0	9	9.0	0	0	3	1	0	0	0	4	4.0
07:45 - 08:00	0	0	3	0	1	0	0	4	4.5	0	0	3	0	0	0	0	3	3.0	0	0	6	0	0	0	0	6	6.0
Hourly Total	**0**	**0**	**9**	**0**	**1**	**0**	**0**	**10**	**10.5**	**0**	**0**	**22**	**0**	**1**	**0**	**0**	**23**	**23.5**	**0**	**0**	**12**	**1**	**0**	**0**	**0**	**13**	**13.0**
08:00 - 08:15	0	0	3	0	0	0	0	3	3.0	0	0	4	0	2	0	0	6	7.0	0	0	5	0	0	0	0	5	5.0
08:15 - 08:30	0	0	0	1	0	0	0	1	1.0	0	0	4	0	0	0	0	4	4.0	0	0	4	0	0	0	0	4	4.0
08:30 - 08:45	0	0	3	0	0	0	0	3	3.0	0	0	1	0	0	0	0	1	1.0	0	0	4	1	0	0	0	5	5.0
08:45 - 09:00	0	0	0	0	0	0	0	0	0.0	0	0	3	0	1	0	0	4	4.5	0	0	7	0	0	0	0	7	7.0
Hourly Total	**0**	**0**	**6**	**1**	**0**	**0**	**0**	**7**	**7.0**	**0**	**0**	**12**	**0**	**3**	**0**	**0**	**15**	**16.5**	**0**	**0**	**20**	**1**	**0**	**0**	**0**	**21**	**21.0**
09:00 - 09:15	0	0	1	1	0	0	0	2	2.0	0	0	2	1	0	0	0	3	3.0	0	0	6	0	0	0	0	6	6.0
09:15 - 09:30	0	0	0	0	0	0	0	0	0.0	0	0	5	0	0	0	0	5	5.0	0	0	1	1	0	0	0	2	2.0
09:30 - 09:45	0	0	4	0	0	0	0	4	4.0	0	0	3	0	0	0	0	3	3.0	0	0	2	0	0	0	0	2	2.0
09:45 - 10:00	0	0	0	0	0	0	0	0	0.0	0	0	3	0	1	0	0	4	4.5	0	0	3	0	0	0	0	3	3.0
Hourly Total	**0**	**0**	**5**	**1**	**0**	**0**	**0**	**6**	**6.0**	**0**	**0**	**13**	**1**	**1**	**0**	**0**	**15**	**15.5**	**0**	**0**	**12**	**1**	**0**	**0**	**0**	**13**	**13.0**
TOTAL	**0**	**0**	**20**	**2**	**1**	**0**	**0**	**23**	**23.5**	**0**	**0**	**47**	**1**	**5**	**0**	**0**	**53**	**55.5**	**0**	**0**	**44**	**3**	**0**	**0**	**0**	**47**	**47.0**
16:00 - 16:15	0	0	6	2	0	0	0	8	8.0	0	0	4	0	0	0	0	4	4.0	0	0	3	1	0	0	0	4	4.0
16:15 - 16:30	0	0	6	0	0	0	0	6	6.0	0	0	1	1	0	0	0	2	2.0	0	1	4	2	0	0	0	7	6.4
16:30 - 16:45	0	0	6	0	0	0	0	6	6.0	0	0	6	1	0	0	0	7	7.0	0	0	5	1	0	0	0	6	6.0
16:45 - 17:00	0	0	3	0	0	0	0	3	3.0	0	0	0	1	0	0	0	1	1.0	0	0	6	1	0	0	0	7	7.0
Hourly Total	**0**	**0**	**21**	**2**	**0**	**0**	**0**	**23**	**23.0**	**0**	**0**	**11**	**3**	**0**	**0**	**0**	**14**	**14.0**	**0**	**1**	**18**	**5**	**0**	**0**	**0**	**24**	**23.4**
17:00 - 17:15	0	0	4	0	0	0	0	4	4.0	0	0	7	1	0	0	0	8	8.0	1	0	9	0	0	0	0	10	9.2
17:15 - 17:30	0	0	4	0	0	0	0	4	4.0	0	0	4	1	0	0	0	5	5.0	0	0	6	2	0	0	0	8	8.0
17:30 - 17:45	0	0	2	0	0	0	0	2	2.0	0	0	3	1	0	0	0	4	4.0	0	0	4	0	0	0	0	4	4.0
17:45 - 18:00	0	0	2	1	0	0	0	3	3.0	0	0	2	0	0	0	0	2	2.0	0	0	1	1	0	0	0	2	2.0
Hourly Total	**0**	**0**	**12**	**1**	**0**	**0**	**0**	**13**	**13.0**	**0**	**0**	**16**	**3**	**0**	**0**	**0**	**19**	**19.0**	**1**	**0**	**20**	**3**	**0**	**0**	**0**	**24**	**23.2**
18:00 - 18:15	0	0	1	0	0	0	0	1	1.0	0	0	1	2	0	0	0	3	3.0	0	0	4	0	0	0	0	4	4.0
18:15 - 18:30	0	0	1	1	0	0	0	2	2.0	0	0	2	0	0	0	0	2	2.0	0	0	3	0	0	0	0	3	3.0
18:30 - 18:45	0	0	0	0	0	0	0	0	0.0	0	0	2	1	0	0	0	3	3.0	0	0	5	1	0	0	0	6	6.0
18:45 - 19:00	0	0	2	0	0	0	0	2	2.0	0	0	3	0	0	0	0	3	3.0	0	0	5	0	0	0	0	5	5.0
Hourly Total	**0**	**0**	**4**	**1**	**0**	**0**	**0**	**5**	**5.0**	**0**	**0**	**8**	**3**	**0**	**0**	**0**	**11**	**11.0**	**0**	**0**	**17**	**1**	**0**	**0**	**0**	**18**	**18.0**
TOTAL	**0**	**0**	**37**	**4**	**0**	**0**	**0**	**41**	**41.0**	**0**	**0**	**35**	**9**	**0**	**0**	**0**	**44**	**44.0**	**1**	**1**	**55**	**9**	**0**	**0**	**0**	**66**	**64.6**

PCU Factors:	
CYCLE	0.2
M/CYCLE	0.4
CAR	1.0
LGV	1.0
OGV1	1.5
OGV2	2.3
BUS	2.0

Road Data Services Ltd

East Midlands Airport
Wednesday 20th September 2023
Junction: 8
Approach: Top Brand

	To A42 Entry Slip Road									To A453									To Gelscoe Lane								
TIME	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs
07:00 - 07:15	0	0	1	0	0	6	0	7	14.8	0	0	9	2	1	4	0	16	21.7	0	0	2	0	0	1	0	3	4.3
07:15 - 07:30	0	0	0	2	0	6	0	8	15.8	0	0	18	4	2	9	0	33	45.7	0	0	9	2	0	0	0	11	11.0
07:30 - 07:45	0	0	0	0	0	2	0	2	4.6	0	0	31	2	0	13	0	46	62.9	0	0	5	0	0	0	0	5	5.0
07:45 - 08:00	0	0	1	0	0	7	0	8	17.1	0	0	23	4	0	6	1	34	42.8	0	0	5	2	0	0	0	7	7.0
Hourly Total	**0**	**0**	**2**	**2**	**0**	**21**	**0**	**25**	**52.3**	**0**	**0**	**81**	**12**	**3**	**32**	**1**	**129**	**173.1**	**0**	**0**	**21**	**4**	**0**	**1**	**0**	**26**	**27.3**
08:00 - 08:15	0	0	0	0	0	4	0	4	9.2	0	0	22	2	1	4	0	29	34.7	0	0	7	0	0	0	0	7	7.0
08:15 - 08:30	0	0	1	0	1	5	0	7	14.0	0	1	15	1	1	7	1	26	36.0	0	0	3	1	0	0	0	4	4.0
08:30 - 08:45	0	0	0	0	1	3	0	4	8.4	0	0	13	3	2	5	0	23	30.5	0	0	4	0	0	0	0	4	4.0
08:45 - 09:00	0	0	0	0	0	8	0	8	18.4	0	0	20	4	0	4	0	28	33.2	0	0	2	1	0	0	0	3	3.0
Hourly Total	**0**	**0**	**1**	**0**	**2**	**20**	**0**	**23**	**50.0**	**0**	**1**	**70**	**10**	**4**	**20**	**1**	**106**	**134.4**	**0**	**0**	**16**	**2**	**0**	**0**	**0**	**18**	**18.0**
09:00 - 09:15	0	0	0	0	0	1	0	1	2.3	0	0	6	1	0	3	0	10	13.9	0	0	1	0	0	0	0	1	1.0
09:15 - 09:30	0	0	0	0	0	6	0	6	13.8	0	0	8	4	0	5	0	17	23.5	0	0	4	0	0	0	0	4	4.0
09:30 - 09:45	0	0	0	0	0	4	0	4	9.2	0	0	7	2	0	2	0	11	13.6	0	0	7	0	0	0	0	7	7.0
09:45 - 10:00	0	0	0	0	0	5	0	5	11.5	0	0	7	1	0	1	0	9	10.3	0	0	4	0	0	0	0	4	4.0
Hourly Total	**0**	**0**	**0**	**0**	**0**	**16**	**0**	**16**	**36.8**	**0**	**0**	**28**	**8**	**0**	**11**	**0**	**47**	**61.3**	**0**	**0**	**16**	**0**	**0**	**0**	**0**	**16**	**16.0**
TOTAL	**0**	**0**	**3**	**2**	**2**	**57**	**0**	**64**	**139.1**	**0**	**1**	**179**	**30**	**7**	**63**	**2**	**282**	**368.8**	**0**	**0**	**53**	**6**	**0**	**1**	**0**	**60**	**61.3**
16:00 - 16:15	0	0	2	0	0	1	0	3	4.3	0	0	10	2	0	0	0	12	12.0	0	0	4	0	2	0	0	6	7.0
16:15 - 16:30	0	0	1	0	0	0	0	1	1.0	0	0	11	2	1	0	0	14	14.5	0	0	3	1	0	0	0	4	4.0
16:30 - 16:45	0	0	1	0	0	0	0	1	1.0	0	0	15	1	0	0	0	16	16.0	0	0	5	2	0	0	0	7	7.0
16:45 - 17:00	0	0	2	0	0	0	0	2	2.0	0	1	7	0	0	0	0	8	7.4	0	0	1	2	0	0	0	3	3.0
Hourly Total	**0**	**0**	**6**	**0**	**0**	**1**	**0**	**7**	**8.3**	**0**	**1**	**43**	**5**	**1**	**0**	**0**	**50**	**49.9**	**0**	**0**	**13**	**5**	**2**	**0**	**0**	**20**	**21.0**
17:00 - 17:15	0	0	1	0	0	0	0	1	1.0	1	0	14	3	0	1	0	19	19.5	0	0	1	0	0	0	0	1	1.0
17:15 - 17:30	0	0	1	0	0	0	0	1	1.0	0	0	12	1	0	0	0	13	13.0	0	0	3	0	0	0	0	3	3.0
17:30 - 17:45	0	0	0	0	0	0	0	0	0.0	0	0	11	0	0	1	0	12	13.3	0	0	1	0	0	0	0	1	1.0
17:45 - 18:00	0	0	0	0	0	0	0	0	0.0	0	0	11	0	0	0	0	11	11.0	0	0	2	0	0	0	0	2	2.0
Hourly Total	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**2**	**2.0**	**1**	**0**	**48**	**4**	**0**	**2**	**0**	**55**	**56.8**	**0**	**0**	**7**	**0**	**0**	**0**	**0**	**7**	**7.0**
18:00 - 18:15	0	0	0	0	0	0	0	0	0.0	0	0	13	0	0	2	0	15	17.6	0	0	3	1	0	0	0	4	4.0
18:15 - 18:30	0	0	1	0	0	0	0	1	1.0	0	1	12	1	0	0	0	14	13.4	0	0	1	0	0	0	0	1	1.0
18:30 - 18:45	0	0	0	0	0	0	0	0	0.0	0	1	5	1	0	0	0	7	6.4	0	0	0	0	0	0	0	0	0.0
18:45 - 19:00	0	0	0	0	0	0	0	0	0.0	0	0	12	1	0	2	0	15	17.6	0	0	0	0	0	0	0	0	0.0
Hourly Total	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**1.0**	**0**	**2**	**42**	**3**	**0**	**4**	**0**	**51**	**55.0**	**0**	**0**	**4**	**1**	**0**	**0**	**0**	**5**	**5.0**
TOTAL	**0**	**0**	**9**	**0**	**0**	**1**	**0**	**10**	**11.3**	**1**	**3**	**133**	**12**	**1**	**6**	**0**	**156**	**161.7**	**0**	**0**	**24**	**6**	**2**	**0**	**0**	**32**	**33.0**

PCU Factors:	
CYCLE	0.2
M/CYCLE	0.4
CAR	1.0
LGV	1.0
OGV1	1.5
OGV2	2.3
BUS	2.0

Road Data Services Ltd

East Midlands Airport
Wednesday 20th September 2023
Junction: 8
Approach: A42 Entry Slip Road

	To A453									To Gelscoe Lane									To Top Brand								
TIME	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs
07:00 - 07:15	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
07:15 - 07:30	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
07:30 - 07:45	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
07:45 - 08:00	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
Hourly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**
08:00 - 08:15	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
08:15 - 08:30	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
08:30 - 08:45	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
08:45 - 09:00	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
Hourly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**
09:00 - 09:15	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
09:15 - 09:30	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
09:30 - 09:45	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
09:45 - 10:00	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
Hourly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**
16:00 - 16:15	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
16:15 - 16:30	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
16:30 - 16:45	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
16:45 - 17:00	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
Hourly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**
17:00 - 17:15	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
17:15 - 17:30	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
17:30 - 17:45	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
17:45 - 18:00	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
Hourly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**
18:00 - 18:15	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
18:15 - 18:30	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
18:30 - 18:45	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
18:45 - 19:00	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
Hourly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**

PCU Factors:	
CYCLE	0.2
M/CYCLE	0.4
CAR	1.0
LGV	1.0
OGV1	1.5
OGV2	2.3
BUS	2.0

APPENDIX 12 – A50 Junction 1 Turning Count Results

Road Data Services Ltd

East Midlands Airport
Thursday 21st September 2023
Junction: 3
Approach: B5010

	To B6540									To A50 J1 Slip Road (E)									To Ryecroft Road									To Trent Lane									To A50 J1 Slip Road (W)								
TIME	CYCLE	M/CYCL	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCL	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCL	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCL	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCL	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs
07:00 - 07:15	0	1	1	0	1	0	0	3	2.9	0	0	19	8	0	0	0	27	27.0	0	0	1	0	0	0	0	1	1.0	0	0	10	1	0	0	1	12	13.0	0	0	11	2	0	0	0	13	13.0
07:15 - 07:30	0	0	3	1	0	0	0	4	4.0	0	0	14	7	0	0	0	21	21.0	0	0	0	0	0	0	0	0	0.0	0	0	12	2	0	0	1	15	16.0	0	0	13	2	0	0	0	15	15.0
07:30 - 07:45	0	0	13	3	0	0	0	16	16.0	0	0	19	4	0	0	0	23	23.0	0	0	1	0	0	0	0	1	1.0	0	1	17	5	0	0	0	23	22.4	0	0	16	4	0	0	0	20	20.0
07:45 - 08:00	0	0	9	4	0	0	0	13	13.0	0	0	12	4	1	0	0	17	17.5	0	0	1	0	0	0	0	1	1.0	0	1	22	2	1	0	1	27	27.9	0	0	16	2	0	0	0	18	18.0
Hourly Total	**0**	**1**	**26**	**8**	**1**	**0**	**0**	**36**	**35.9**	**0**	**0**	**64**	**23**	**1**	**0**	**0**	**88**	**88.5**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**3**	**3.0**	**0**	**2**	**61**	**10**	**1**	**0**	**3**	**77**	**79.3**	**0**	**0**	**56**	**10**	**0**	**0**	**0**	**66**	**66.0**
08:00 - 08:15	0	0	12	2	1	0	2	17	19.5	0	0	24	2	0	0	0	26	26.0	0	0	1	0	0	0	0	1	1.0	0	1	13	1	0	0	1	16	16.4	0	0	11	5	0	0	0	16	16.0
08:15 - 08:30	0	1	11	4	0	0	0	16	15.4	0	0	18	3	0	0	0	21	21.0	0	0	2	0	0	0	0	2	2.0	0	0	20	4	0	0	1	25	26.0	0	0	16	2	0	0	0	18	18.0
08:30 - 08:45	0	0	12	5	0	0	0	17	17.0	0	0	14	1	0	0	0	15	15.0	0	0	2	0	0	0	0	2	2.0	0	0	17	0	0	0	0	17	17.0	0	0	11	1	0	0	0	12	12.0
08:45 - 09:00	0	0	12	3	1	0	0	16	16.5	0	0	15	2	0	0	0	17	17.0	0	0	1	0	0	0	0	1	1.0	0	0	14	2	0	0	1	17	18.0	0	0	10	0	0	0	0	10	10.0
Hourly Total	**0**	**1**	**47**	**14**	**2**	**0**	**2**	**66**	**68.4**	**0**	**0**	**71**	**8**	**0**	**0**	**0**	**79**	**79.0**	**0**	**0**	**6**	**0**	**0**	**0**	**0**	**6**	**6.0**	**0**	**1**	**64**	**7**	**0**	**0**	**3**	**75**	**77.4**	**0**	**0**	**48**	**8**	**0**	**0**	**0**	**56**	**56.0**
09:00 - 09:15	0	0	12	2	1	0	0	15	15.5	0	0	11	8	1	0	0	20	20.5	0	0	2	0	0	0	0	2	2.0	0	0	11	1	1	0	0	13	13.5	0	0	8	1	0	0	0	9	9.0
09:15 - 09:30	0	0	8	1	0	0	0	9	9.0	0	0	10	3	1	0	0	14	14.5	0	0	1	0	0	0	0	1	1.0	0	0	9	3	1	0	2	15	17.5	0	0	4	2	0	0	0	6	6.0
09:30 - 09:45	0	1	14	4	0	0	0	19	18.4	0	0	11	5	1	0	0	17	17.5	0	0	1	0	0	0	0	1	1.0	0	0	10	1	1	0	0	12	12.5	0	0	8	1	0	0	0	9	9.0
09:45 - 10:00	0	0	16	5	0	0	0	21	21.0	0	0	9	3	1	0	0	13	13.5	1	0	1	0	0	0	0	2	1.2	0	0	7	1	0	0	0	8	8.0	0	0	6	1	0	0	0	7	7.0
Hourly Total	**0**	**1**	**50**	**12**	**1**	**0**	**0**	**64**	**63.9**	**0**	**0**	**41**	**19**	**4**	**0**	**0**	**64**	**66.0**	**1**	**0**	**5**	**0**	**0**	**0**	**0**	**6**	**5.2**	**0**	**0**	**37**	**6**	**3**	**0**	**2**	**48**	**51.5**	**0**	**0**	**26**	**5**	**0**	**0**	**0**	**31**	**31.0**
TOTAL	**0**	**3**	**123**	**34**	**4**	**0**	**2**	**166**	**168.2**	**0**	**0**	**176**	**50**	**5**	**0**	**0**	**231**	**233.5**	**1**	**0**	**14**	**0**	**0**	**0**	**0**	**15**	**14.2**	**0**	**3**	**162**	**23**	**4**	**0**	**8**	**200**	**208.2**	**0**	**0**	**130**	**23**	**0**	**0**	**0**	**153**	**153.0**
16:00 - 16:15	0	0	13	3	0	0	0	16	16.0	0	0	24	4	0	0	0	28	28.0	1	0	0	0	0	0	0	1	0.2	0	0	15	2	0	0	0	17	17.0	0	0	14	2	0	0	0	16	16.0
16:15 - 16:30	0	0	17	0	0	0	0	17	17.0	0	0	18	3	0	0	0	21	21.0	0	0	1	0	0	0	0	1	1.0	0	2	15	2	0	0	2	21	21.8	0	0	12	1	0	0	0	13	13.0
16:30 - 16:45	0	0	11	0	2	0	0	13	14.0	0	0	15	2	0	0	0	17	17.0	0	0	1	0	0	0	0	1	1.0	0	1	14	2	1	0	1	19	19.9	0	0	17	3	0	0	0	20	20.0
16:45 - 17:00	0	1	9	3	0	0	0	13	12.4	0	0	16	2	0	0	0	18	18.0	0	0	1	0	0	0	0	1	1.0	0	0	15	1	0	0	1	17	18.0	0	0	16	1	0	0	0	17	17.0
Hourly Total	**0**	**1**	**50**	**6**	**2**	**0**	**0**	**59**	**59.4**	**0**	**0**	**73**	**11**	**0**	**0**	**0**	**84**	**84.0**	**1**	**0**	**3**	**0**	**0**	**0**	**0**	**4**	**3.2**	**0**	**3**	**59**	**7**	**1**	**0**	**4**	**74**	**76.7**	**0**	**0**	**59**	**7**	**0**	**0**	**0**	**66**	**66.0**
17:00 - 17:15	0	1	7	3	0	0	0	11	10.4	0	0	14	4	0	0	0	18	18.0	0	0	1	0	0	0	0	1	1.0	0	0	15	3	0	0	0	18	18.0	0	0	30	3	0	0	0	33	33.0
17:15 - 17:30	0	0	12	1	0	0	0	13	13.0	0	0	13	1	0	0	0	14	14.0	0	0	1	0	0	0	0	1	1.0	0	0	11	1	0	0	0	12	12.0	0	0	12	1	0	0	0	13	13.0
17:30 - 17:45	0	0	12	4	0	0	0	16	16.0	0	0	13	4	0	0	0	17	17.0	0	0	0	0	0	0	0	0	0.0	0	0	13	2	1	0	0	16	16.5	0	1	14	3	0	0	0	18	17.4
17:45 - 18:00	0	0	9	2	0	0	0	11	11.0	0	0	9	3	0	0	0	12	12.0	0	0	1	0	0	0	0	1	1.0	0	0	11	3	1	0	1	16	17.5	0	0	11	4	0	0	0	15	15.0
Hourly Total	**0**	**1**	**40**	**10**	**0**	**0**	**0**	**51**	**50.4**	**0**	**0**	**49**	**12**	**0**	**0**	**0**	**61**	**61.0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**3**	**3.0**	**0**	**0**	**50**	**9**	**2**	**0**	**1**	**62**	**64.0**	**0**	**1**	**67**	**11**	**0**	**0**	**0**	**79**	**78.4**
18:00 - 18:15	0	2	10	3	0	0	0	15	13.8	0	0	17	2	0	0	0	19	19.0	0	0	0	0	0	0	0	0	0.0	0	0	18	1	0	0	2	21	23.0	0	0	13	1	0	0	0	14	14.0
18:15 - 18:30	0	0	7	1	0	0	0	8	8.0	0	0	8	2	0	0	0	10	10.0	0	0	0	0	0	0	0	0	0.0	0	0	10	2	0	0	0	12	12.0	0	0	5	1	0	0	0	6	6.0
18:30 - 18:45	0	0	16	2	0	0	0	18	18.0	0	0	6	0	0	0	0	6	6.0	0	0	0	0	0	0	0	0	0.0	0	0	9	1	0	0	0	10	10.0	0	0	5	1	0	0	0	6	6.0
18:45 - 19:00	0	0	10	0	0	0	0	10	10.0	0	0	7	2	0	0	0	9	9.0	0	0	1	0	0	0	0	1	1.0	0	0	10	0	0	0	0	10	10.0	0	0	8	0	0	0	0	8	8.0
Hourly Total	**0**	**2**	**43**	**6**	**0**	**0**	**0**	**51**	**49.8**	**0**	**0**	**38**	**6**	**0**	**0**	**0**	**44**	**44.0**	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**1.0**	**0**	**0**	**47**	**4**	**0**	**0**	**2**	**53**	**55.0**	**0**	**0**	**31**	**3**	**0**	**0**	**0**	**34**	**34.0**
TOTAL	**0**	**4**	**133**	**22**	**2**	**0**	**0**	**161**	**159.6**	**0**	**0**	**160**	**29**	**0**	**0**	**0**	**189**	**189.0**	**1**	**0**	**7**	**0**	**0**	**0**	**0**	**8**	**7.2**	**0**	**3**	**156**	**20**	**3**	**0**	**7**	**189**	**195.7**	**0**	**1**	**157**	**21**	**0**	**0**	**0**	**179**	**178.4**

PCU Factors:	
CYCLE	0.2
M/CYCLE	0.4
CAR	1.0
LGV	1.0
OGV1	1.5
OGV2	2.3
BUS	2.0

Road Data Services Ltd

East Midlands Airport
Thursday 21st September 2023
Junction: 3
Approach: B6540

	To A50 J1 Slip Road (E)									To Ryecroft Road									To Trent Lane									To A50 J1 Slip Road (W)									To B5010								
TIME	CYCLE	M/CYCL	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCL	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCL	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCL	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCL	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs
07:00 - 07:15	0	0	36	11	1	5	0	53	60.0	0	0	1	0	0	0	0	1	1.0	0	6	31	3	0	0	2	42	40.4	0	0	39	10	2	4	0	55	61.2	0	1	6	1	0	0	0	8	7.4
07:15 - 07:30	0	1	65	15	2	7	0	90	99.5	0	0	2	0	0	0	0	2	2.0	0	1	40	4	2	1	2	50	53.7	0	0	48	5	2	2	0	57	60.6	0	0	6	1	0	0	0	7	7.0
07:30 - 07:45	0	1	66	13	1	3	0	84	87.8	0	0	3	0	0	0	0	3	3.0	0	2	51	6	1	0	1	61	61.3	0	0	49	2	1	2	0	54	57.1	0	0	10	0	0	0	0	10	10.0
07:45 - 08:00	0	1	56	18	4	1	0	80	82.7	0	0	2	0	0	0	0	2	2.0	0	2	47	5	2	0	0	56	55.8	0	0	31	9	0	0	0	40	40.0	0	0	8	3	0	0	0	11	11.0
Hourly Total	**0**	**3**	**223**	**57**	**8**	**16**	**0**	**307**	**330.0**	**0**	**0**	**8**	**0**	**0**	**0**	**0**	**8**	**8.0**	**0**	**11**	**169**	**18**	**5**	**1**	**5**	**209**	**211.2**	**0**	**0**	**167**	**26**	**5**	**8**	**0**	**206**	**218.9**	**0**	**1**	**30**	**5**	**0**	**0**	**0**	**36**	**35.4**
08:00 - 08:15	0	1	59	8	5	2	0	75	79.5	0	0	3	0	0	0	0	3	3.0	0	1	44	2	0	1	0	48	48.7	0	0	29	7	0	2	0	38	40.6	0	0	5	1	0	0	0	6	6.0
08:15 - 08:30	0	0	41	5	4	3	0	53	58.9	0	0	3	0	0	0	0	3	3.0	0	0	55	8	1	0	1	65	66.5	0	0	43	6	3	3	0	55	60.4	0	0	8	2	0	0	0	10	10.0
08:30 - 08:45	0	0	43	8	4	1	0	56	59.3	0	0	3	1	0	0	0	4	4.0	0	0	58	2	0	2	0	62	64.6	0	0	34	10	0	0	1	45	46.0	0	0	10	1	0	0	0	11	11.0
08:45 - 09:00	0	0	27	14	2	5	0	48	55.5	0	0	3	1	0	0	0	4	4.0	0	0	40	7	2	0	1	50	52.0	0	0	28	6	0	2	0	36	38.6	0	0	5	3	0	0	1	9	10.0
Hourly Total	**0**	**1**	**170**	**35**	**15**	**11**	**0**	**232**	**253.2**	**0**	**0**	**12**	**2**	**0**	**0**	**0**	**14**	**14.0**	**0**	**1**	**197**	**19**	**3**	**3**	**2**	**225**	**231.8**	**0**	**0**	**134**	**29**	**3**	**7**	**1**	**174**	**185.6**	**0**	**0**	**28**	**7**	**0**	**0**	**1**	**36**	**37.0**
09:00 - 09:15	0	0	39	2	1	3	0	45	49.4	0	0	5	1	0	0	0	6	6.0	0	0	33	3	1	1	1	39	41.8	0	0	29	7	2	2	0	40	43.6	0	0	4	1	0	0	0	5	5.0
09:15 - 09:30	0	0	21	9	2	4	0	36	42.2	0	0	3	0	0	0	0	3	3.0	0	0	39	8	2	0	2	51	54.0	0	0	18	6	0	2	0	26	28.6	0	0	8	4	0	0	0	12	12.0
09:30 - 09:45	0	1	26	15	3	0	0	45	45.9	0	0	2	1	0	0	0	3	3.0	0	0	24	7	2	2	1	36	40.6	0	0	21	8	0	7	0	36	45.1	0	0	7	2	0	0	1	10	11.0
09:45 - 10:00	0	0	19	6	1	6	0	32	40.3	0	0	2	0	0	0	0	2	2.0	0	0	20	2	2	0	1	25	27.0	0	1	22	6	0	3	0	32	35.3	0	0	8	1	0	0	0	9	9.0
Hourly Total	**0**	**1**	**105**	**32**	**7**	**13**	**0**	**158**	**177.8**	**0**	**0**	**12**	**2**	**0**	**0**	**0**	**14**	**14.0**	**0**	**0**	**116**	**20**	**7**	**3**	**5**	**151**	**163.4**	**0**	**1**	**90**	**27**	**2**	**14**	**0**	**134**	**152.6**	**0**	**0**	**27**	**8**	**0**	**0**	**1**	**36**	**37.0**
TOTAL	**0**	**5**	**498**	**124**	**30**	**40**	**0**	**697**	**761.0**	**0**	**0**	**32**	**4**	**0**	**0**	**0**	**36**	**36.0**	**0**	**12**	**482**	**57**	**15**	**7**	**12**	**585**	**606.4**	**0**	**1**	**391**	**82**	**10**	**29**	**1**	**514**	**557.1**	**0**	**1**	**85**	**20**	**0**	**0**	**2**	**108**	**109.4**
16:00 - 16:15	0	0	36	8	1	6	0	51	59.3	0	0	1	1	0	0	0	2	2.0	0	1	27	6	0	2	3	39	44.0	0	1	26	8	0	2	0	37	39.0	0	0	8	2	0	0	0	10	10.0
16:15 - 16:30	0	1	33	8	2	6	0	50	58.2	0	0	2	1	0	0	0	3	3.0	0	1	36	4	1	1	0	43	44.2	0	0	32	6	0	1	0	39	40.3	0	0	14	2	0	0	0	16	16.0
16:30 - 16:45	0	0	34	5	1	4	0	44	49.7	0	0	2	0	0	0	0	2	2.0	0	0	36	9	0	1	0	46	47.3	0	0	41	8	0	4	0	53	58.2	0	0	11	2	0	0	0	13	13.0
16:45 - 17:00	0	1	42	8	3	6	0	60	68.7	0	0	3	0	0	0	0	3	3.0	0	0	45	4	0	0	2	51	53.0	0	1	46	2	0	0	0	49	48.4	0	1	17	3	0	0	0	21	20.4
Hourly Total	**0**	**2**	**145**	**29**	**7**	**22**	**0**	**205**	**235.9**	**0**	**0**	**8**	**2**	**0**	**0**	**0**	**10**	**10.0**	**0**	**2**	**144**	**23**	**1**	**4**	**5**	**179**	**188.5**	**0**	**2**	**145**	**24**	**0**	**7**	**0**	**178**	**185.9**	**0**	**1**	**50**	**9**	**0**	**0**	**0**	**60**	**59.4**
17:00 - 17:15	0	2	55	9	0	6	1	73	80.6	0	0	2	0	0	0	0	2	2.0	0	1	28	4	1	1	2	37	40.2	0	2	41	5	0	1	0	49	49.1	0	1	14	2	0	0	0	17	16.4
17:15 - 17:30	0	0	44	2	2	2	0	50	53.6	0	0	2	1	0	0	0	3	3.0	0	2	38	4	0	2	2	48	51.4	0	2	40	6	0	2	0	50	51.4	0	0	12	4	0	0	0	16	16.0
17:30 - 17:45	0	0	62	5	0	5	0	72	78.5	0	0	0	0	0	0	0	0	0.0	0	2	29	3	1	1	0	36	36.6	0	2	34	4	0	0	0	40	38.8	0	1	18	1	0	0	0	20	19.4
17:45 - 18:00	0	0	39	3	0	4	0	46	51.2	0	0	1	0	0	0	0	1	1.0	0	0	35	3	0	1	1	40	42.3	0	0	34	4	0	1	0	39	40.3	0	0	12	4	0	0	0	16	16.0
Hourly Total	**0**	**2**	**200**	**19**	**2**	**17**	**1**	**241**	**263.9**	**0**	**0**	**5**	**1**	**0**	**0**	**0**	**6**	**6.0**	**0**	**5**	**130**	**14**	**2**	**5**	**5**	**161**	**170.5**	**0**	**6**	**149**	**19**	**0**	**4**	**0**	**178**	**179.6**	**0**	**2**	**56**	**11**	**0**	**0**	**0**	**69**	**67.8**
18:00 - 18:15	0	0	48	6	0	6	0	60	67.8	0	0	0	0	0	0	0	0	0.0	0	3	35	7	0	0	2	47	47.2	0	0	26	1	0	0	0	27	27.0	0	0	12	2	0	0	0	14	14.0
18:15 - 18:30	0	0	31	7	1	3	1	43	48.4	0	0	1	1	0	0	0	2	2.0	0	0	42	5	0	0	1	48	49.0	0	0	25	2	0	0	0	27	27.0	0	0	16	6	0	0	0	22	22.0
18:30 - 18:45	0	0	31	4	0	3	0	38	41.9	0	0	1	0	0	0	0	1	1.0	0	0	47	2	0	1	2	52	55.3	0	0	22	1	0	0	0	23	23.0	0	0	13	1	0	0	0	14	14.0
18:45 - 19:00	0	0	27	8	0	4	0	39	44.2	0	0	1	0	0	0	0	1	1.0	0	1	34	6	0	1	1	43	44.7	0	0	25	3	0	1	0	29	30.3	0	1	11	2	0	0	0	14	13.4
Hourly Total	**0**	**0**	**137**	**25**	**1**	**16**	**1**	**180**	**202.3**	**0**	**0**	**3**	**1**	**0**	**0**	**0**	**4**	**4.0**	**0**	**4**	**158**	**20**	**0**	**2**	**6**	**190**	**196.2**	**0**	**0**	**98**	**7**	**0**	**1**	**0**	**106**	**107.3**	**0**	**1**	**52**	**11**	**0**	**0**	**0**	**64**	**63.4**
TOTAL	**0**	**4**	**482**	**73**	**10**	**55**	**2**	**626**	**702.1**	**0**	**0**	**16**	**4**	**0**	**0**	**0**	**20**	**20.0**	**0**	**11**	**432**	**57**	**3**	**11**	**16**	**530**	**555.2**	**0**	**8**	**392**	**50**	**0**	**12**	**0**	**462**	**472.8**	**0**	**4**	**158**	**31**	**0**	**0**	**0**	**193**	**190.6**

PCU Factors:	
CYCLE	0.2
M/CYCLE	0.4
CAR	1.0
LGV	1.0
OGV1	1.5
OGV2	2.3
BUS	2.0

Road Data Services Ltd

East Midlands Airport
Thursday 21st September 2023
Junction: 3
Approach: A50 J1 Slip Road East

	To Ryecroft Road									To Trent Lane									To A50 J1 Slip Road (W)									To B5010									To B6540								
TIME	CYCLE	M/CYCL	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCL	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCL	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCL	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCL	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs
07:00 - 07:15	0	0	0	0	1	0	0	1	1.5	0	0	41	17	2	1	1	62	65.3	0	0	0	0	0	0	0	0	0.0	0	0	7	2	0	0	0	9	9.0	0	0	25	7	1	4	0	37	42.7
07:15 - 07:30	0	0	0	0	0	0	0	0	0.0	0	1	57	11	7	1	0	77	81.2	0	0	0	0	0	0	0	0	0.0	0	0	6	2	0	0	0	8	8.0	0	0	39	7	1	4	0	51	56.7
07:30 - 07:45	0	0	4	1	0	0	0	5	5.0	0	0	43	16	2	5	2	68	77.5	0	0	0	0	0	0	0	0	0.0	0	0	8	3	0	0	0	11	11.0	0	0	33	5	3	2	0	43	47.1
07:45 - 08:00	0	0	3	1	0	0	0	4	4.0	0	0	84	24	4	3	1	116	122.9	0	0	0	0	0	0	0	0	0.0	0	0	14	5	2	0	0	21	22.0	0	0	55	7	2	5	0	69	76.5
Hourly Total	**0**	**0**	**7**	**2**	**1**	**0**	**0**	**10**	**10.5**	**0**	**1**	**225**	**68**	**15**	**10**	**4**	**323**	**346.9**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**35**	**12**	**2**	**0**	**0**	**49**	**50.0**	**0**	**0**	**152**	**26**	**7**	**15**	**0**	**200**	**223.0**
08:00 - 08:15	0	0	1	0	0	0	0	1	1.0	0	1	79	18	5	2	0	105	109.5	0	0	0	0	0	0	0	0	0.0	0	0	11	2	0	0	0	13	13.0	0	0	39	4	2	10	0	55	69.0
08:15 - 08:30	0	0	3	0	0	0	0	3	3.0	0	0	77	9	5	4	1	96	104.7	0	0	0	0	0	0	0	0	0.0	0	0	10	5	1	0	0	16	16.5	0	0	46	10	5	6	0	67	77.3
08:30 - 08:45	0	0	3	0	0	0	0	3	3.0	0	0	75	16	1	8	0	100	110.9	0	0	0	0	0	0	0	0	0.0	0	0	16	7	0	1	0	24	25.3	0	1	45	5	2	5	0	58	64.9
08:45 - 09:00	0	0	5	1	0	0	1	7	8.0	0	0	73	14	7	6	0	100	111.3	0	0	0	0	0	0	0	0	0.0	0	0	13	4	1	0	0	18	18.5	0	0	48	10	2	6	0	66	74.8
Hourly Total	**0**	**0**	**12**	**1**	**0**	**0**	**1**	**14**	**15.0**	**0**	**1**	**304**	**57**	**18**	**20**	**1**	**401**	**436.4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**50**	**18**	**2**	**1**	**0**	**71**	**73.3**	**0**	**1**	**178**	**29**	**11**	**27**	**0**	**246**	**286.0**
09:00 - 09:15	0	0	4	1	0	0	0	5	5.0	0	0	60	16	6	4	0	86	94.2	0	0	0	0	0	0	0	0	0.0	0	0	6	4	1	0	0	11	11.5	0	0	45	19	0	4	0	68	73.2
09:15 - 09:30	0	0	4	0	1	0	0	5	5.5	0	0	32	10	9	3	0	54	62.4	0	0	0	0	0	0	0	0	0.0	0	0	9	4	0	0	0	13	13.0	0	0	53	13	2	5	0	73	80.5
09:30 - 09:45	0	0	2	1	0	0	0	3	3.0	0	0	36	6	9	6	0	57	69.3	0	0	0	0	0	0	0	0	0.0	0	0	13	2	1	0	0	16	16.5	0	0	40	11	5	4	0	60	67.7
09:45 - 10:00	0	0	1	1	0	0	0	2	2.0	0	0	25	11	2	0	1	39	41.0	0	0	0	0	0	0	0	0	0.0	0	0	10	5	0	0	0	15	15.0	0	1	34	4	4	7	0	50	60.5
Hourly Total	**0**	**0**	**11**	**3**	**1**	**0**	**0**	**15**	**15.5**	**0**	**0**	**153**	**43**	**26**	**13**	**1**	**236**	**266.9**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**38**	**15**	**2**	**0**	**0**	**55**	**56.0**	**0**	**1**	**172**	**47**	**11**	**20**	**0**	**251**	**281.9**
TOTAL	**0**	**0**	**30**	**6**	**2**	**0**	**1**	**39**	**41.0**	**0**	**2**	**682**	**168**	**59**	**43**	**6**	**960**	**1050.2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**123**	**45**	**6**	**1**	**0**	**175**	**179.3**	**0**	**2**	**502**	**102**	**29**	**62**	**0**	**697**	**790.9**
16:00 - 16:15	0	0	4	0	0	1	0	5	6.3	0	0	37	11	2	8	0	58	69.4	0	0	0	0	0	0	0	0	0.0	0	0	11	4	0	0	0	15	15.0	0	0	39	10	1	5	0	55	62.0
16:15 - 16:30	0	0	1	1	0	0	0	2	2.0	0	0	49	8	4	6	0	67	76.8	0	0	0	0	0	0	0	0	0.0	0	0	20	4	0	0	0	24	24.0	0	1	47	12	2	3	0	65	69.3
16:30 - 16:45	0	0	2	1	0	1	0	4	5.3	0	1	59	13	3	5	0	81	88.4	0	0	0	0	0	0	0	0	0.0	0	0	18	4	1	0	0	23	23.5	0	3	50	10	4	3	0	70	74.1
16:45 - 17:00	0	0	1	0	0	0	0	1	1.0	0	0	59	6	4	1	0	70	73.3	0	0	0	0	0	0	0	0	0.0	0	0	22	5	0	0	0	27	27.0	0	0	57	9	0	4	0	70	75.2
Hourly Total	**0**	**0**	**8**	**2**	**0**	**2**	**0**	**12**	**14.6**	**0**	**1**	**204**	**38**	**13**	**20**	**0**	**276**	**307.9**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**71**	**17**	**1**	**0**	**0**	**89**	**89.5**	**0**	**4**	**193**	**41**	**7**	**15**	**0**	**260**	**280.6**
17:00 - 17:15	0	0	1	0	0	0	0	1	1.0	0	0	48	11	6	1	0	66	70.3	0	0	0	0	0	0	0	0	0.0	0	0	27	3	0	0	0	30	30.0	0	0	52	3	2	1	0	58	60.3
17:15 - 17:30	0	0	3	0	0	1	0	4	5.3	0	0	61	9	2	5	0	77	84.5	0	0	0	0	0	0	0	0	0.0	0	0	21	4	0	0	0	25	25.0	0	0	57	6	0	5	0	68	74.5
17:30 - 17:45	0	0	3	0	0	0	0	3	3.0	0	0	53	11	3	5	0	72	80.0	0	0	0	0	0	0	0	0	0.0	0	0	27	4	0	0	0	31	31.0	0	0	66	4	0	3	0	73	76.9
17:45 - 18:00	0	0	4	1	1	0	0	6	6.5	0	0	64	5	2	8	2	81	94.4	0	0	0	0	0	0	0	0	0.0	0	0	25	6	2	0	0	33	34.0	0	0	50	9	1	4	0	64	69.7
Hourly Total	**0**	**0**	**11**	**1**	**1**	**1**	**0**	**14**	**15.8**	**0**	**0**	**226**	**36**	**13**	**19**	**2**	**296**	**329.2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**100**	**17**	**2**	**0**	**0**	**119**	**120.0**	**0**	**0**	**225**	**22**	**3**	**13**	**0**	**263**	**281.4**
18:00 - 18:15	0	0	4	0	0	0	0	4	4.0	0	1	64	4	4	1	0	74	76.7	0	0	0	0	0	0	0	0	0.0	0	0	20	1	0	0	0	21	21.0	0	0	45	13	1	4	0	63	68.7
18:15 - 18:30	0	0	4	0	0	0	0	4	4.0	0	0	37	4	0	4	0	45	50.2	0	0	0	0	0	0	0	0	0.0	0	0	14	4	0	0	0	18	18.0	0	0	44	5	0	7	0	56	65.1
18:30 - 18:45	0	0	1	0	0	0	0	1	1.0	0	0	50	4	4	2	0	60	64.6	0	0	0	0	0	0	0	0	0.0	0	1	14	2	0	0	0	17	16.4	0	0	26	2	1	2	0	31	34.1
18:45 - 19:00	0	0	1	1	0	0	0	2	2.0	0	0	35	4	2	1	0	42	44.3	0	0	0	0	0	0	0	0	0.0	0	0	11	2	0	0	0	13	13.0	0	0	31	2	2	2	0	37	40.6
Hourly Total	**0**	**0**	**10**	**1**	**0**	**0**	**0**	**11**	**11.0**	**0**	**1**	**186**	**16**	**10**	**8**	**0**	**221**	**235.8**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**1**	**59**	**9**	**0**	**0**	**0**	**69**	**68.4**	**0**	**0**	**146**	**22**	**4**	**15**	**0**	**187**	**208.5**
TOTAL	**0**	**0**	**29**	**4**	**1**	**3**	**0**	**37**	**41.4**	**0**	**2**	**616**	**90**	**36**	**47**	**2**	**793**	**872.9**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**1**	**230**	**43**	**3**	**0**	**0**	**277**	**277.9**	**0**	**4**	**564**	**85**	**14**	**43**	**0**	**710**	**770.5**

PCU Factors:	
CYCLE	0.2
M/CYCLE	0.4
CAR	1.0
LGV	1.0
OGV1	1.5
OGV2	2.3
BUS	2.0

Road Data Services Ltd

East Midlands Airport
Thursday 21st September 2023
Junction: 3
Approach: Ryecroft Road

	To Trent Lane									To A50 J1 Slip Road (W)									To B5010									To B6540									To A50 J1 Slip Road (E)								
TIME	CYCLE	M/CYCL	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCL	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCL	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCL	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCL	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs
07:00 - 07:15	0	0	2	1	0	0	0	3	3.0	0	0	2	1	0	0	0	3	3.0	0	0	0	0	0	0	0	0	0.0	0	0	2	1	0	0	0	3	3.0	0	0	3	2	0	0	0	5	5.0
07:15 - 07:30	0	0	0	0	0	0	0	0	0.0	0	0	1	0	0	0	0	1	1.0	0	0	0	0	0	0	0	0	0.0	0	0	1	0	0	0	0	1	1.0	0	0	3	0	0	0	0	3	3.0
07:30 - 07:45	0	0	1	1	0	0	1	3	4.0	0	0	4	1	0	0	0	5	5.0	0	0	1	0	0	0	0	1	1.0	0	0	3	0	0	0	0	3	3.0	0	0	2	1	0	0	0	3	3.0
07:45 - 08:00	0	0	2	1	0	0	0	3	3.0	0	0	2	1	0	0	0	3	3.0	0	0	1	0	0	0	0	1	1.0	0	0	3	1	0	0	0	4	4.0	0	0	4	1	0	0	0	5	5.0
Hourly Total	**0**	**0**	**5**	**3**	**0**	**0**	**1**	**9**	**10.0**	**0**	**0**	**9**	**3**	**0**	**0**	**0**	**12**	**12.0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**2**	**2.0**	**0**	**0**	**9**	**2**	**0**	**0**	**0**	**11**	**11.0**	**0**	**0**	**12**	**4**	**0**	**0**	**0**	**16**	**16.0**
08:00 - 08:15	0	0	2	0	0	0	0	2	2.0	0	0	1	2	0	0	0	3	3.0	0	0	0	0	0	0	0	0	0.0	0	0	1	1	0	0	0	2	2.0	0	0	1	0	0	0	0	1	1.0
08:15 - 08:30	0	0	6	0	0	0	0	6	6.0	0	0	1	0	0	0	0	1	1.0	0	0	1	0	0	0	0	1	1.0	0	0	1	0	0	0	0	1	1.0	0	0	5	1	0	0	0	6	6.0
08:30 - 08:45	0	0	2	0	0	0	0	2	2.0	0	0	2	0	0	0	0	2	2.0	0	0	0	0	0	0	0	0	0.0	0	0	2	0	0	0	0	2	2.0	0	0	1	0	0	0	0	1	1.0
08:45 - 09:00	0	0	2	2	0	0	0	4	4.0	0	0	2	0	0	0	0	2	2.0	0	0	1	1	0	0	0	2	2.0	0	0	2	1	0	0	0	3	3.0	0	0	4	1	0	0	0	5	5.0
Hourly Total	**0**	**0**	**12**	**2**	**0**	**0**	**0**	**14**	**14.0**	**0**	**0**	**6**	**2**	**0**	**0**	**0**	**8**	**8.0**	**0**	**0**	**2**	**1**	**0**	**0**	**0**	**3**	**3.0**	**0**	**0**	**6**	**2**	**0**	**0**	**0**	**8**	**8.0**	**0**	**0**	**11**	**2**	**0**	**0**	**0**	**13**	**13.0**
09:00 - 09:15	0	0	1	0	0	1	0	2	3.3	0	0	3	0	0	0	0	3	3.0	0	0	1	0	0	0	0	1	1.0	0	0	3	0	0	0	0	3	3.0	0	0	3	1	0	0	0	4	4.0
09:15 - 09:30	0	0	2	0	0	0	0	2	2.0	0	0	2	1	0	0	0	3	3.0	0	0	1	1	0	0	0	2	2.0	0	0	4	2	0	0	0	6	6.0	0	0	3	0	0	0	0	3	3.0
09:30 - 09:45	0	0	2	1	0	0	0	3	3.0	0	0	1	1	0	0	0	2	2.0	0	0	1	0	0	0	0	1	1.0	0	0	1	1	0	0	0	2	2.0	0	0	2	1	0	0	0	3	3.0
09:45 - 10:00	0	0	2	0	0	0	0	2	2.0	0	0	2	0	0	0	0	2	2.0	0	0	1	0	0	0	0	1	1.0	0	0	4	0	0	0	0	4	4.0	0	0	1	0	0	0	0	1	1.0
Hourly Total	**0**	**0**	**7**	**1**	**0**	**1**	**0**	**9**	**10.3**	**0**	**0**	**8**	**2**	**0**	**0**	**0**	**10**	**10.0**	**0**	**0**	**4**	**1**	**0**	**0**	**0**	**5**	**5.0**	**0**	**0**	**12**	**3**	**0**	**0**	**0**	**15**	**15.0**	**0**	**0**	**9**	**2**	**0**	**0**	**0**	**11**	**11.0**
TOTAL	**0**	**0**	**24**	**6**	**0**	**1**	**1**	**32**	**34.3**	**0**	**0**	**23**	**7**	**0**	**0**	**0**	**30**	**30.0**	**0**	**0**	**8**	**2**	**0**	**0**	**0**	**10**	**10.0**	**0**	**0**	**27**	**7**	**0**	**0**	**0**	**34**	**34.0**	**0**	**0**	**32**	**8**	**0**	**0**	**0**	**40**	**40.0**
16:00 - 16:15	0	0	3	1	0	0	0	4	4.0	0	0	5	1	0	0	0	6	6.0	0	0	2	0	0	0	0	2	2.0	0	0	4	1	0	0	0	5	5.0	0	0	3	1	0	0	0	4	4.0
16:15 - 16:30	0	0	5	0	0	0	0	5	5.0	0	0	2	1	0	0	0	3	3.0	0	0	1	0	0	0	0	1	1.0	0	0	2	0	0	0	0	2	2.0	0	0	2	1	0	0	0	3	3.0
16:30 - 16:45	0	0	1	0	0	0	0	1	1.0	0	0	2	0	0	0	0	2	2.0	0	0	1	0	0	0	0	1	1.0	0	0	2	0	0	0	0	2	2.0	0	0	4	0	0	0	0	4	4.0
16:45 - 17:00	0	0	1	1	0	0	0	2	2.0	0	0	4	1	0	0	0	5	5.0	0	0	2	0	0	0	0	2	2.0	0	0	4	1	0	0	0	5	5.0	0	0	5	0	0	0	0	5	5.0
Hourly Total	**0**	**0**	**10**	**2**	**0**	**0**	**0**	**12**	**12.0**	**0**	**0**	**13**	**3**	**0**	**0**	**0**	**16**	**16.0**	**0**	**0**	**6**	**0**	**0**	**0**	**0**	**6**	**6.0**	**0**	**0**	**12**	**2**	**0**	**0**	**0**	**14**	**14.0**	**0**	**0**	**14**	**2**	**0**	**0**	**0**	**16**	**16.0**
17:00 - 17:15	0	0	1	0	0	0	0	1	1.0	0	0	6	0	0	0	0	6	6.0	0	0	2	0	0	0	0	2	2.0	0	0	4	1	0	0	0	5	5.0	0	0	6	1	0	0	0	7	7.0
17:15 - 17:30	0	0	3	0	0	0	0	3	3.0	0	0	3	0	0	0	0	3	3.0	0	0	1	0	0	0	0	1	1.0	0	0	3	2	0	0	0	5	5.0	0	0	1	0	0	0	0	1	1.0
17:30 - 17:45	0	0	4	1	0	1	0	6	7.3	0	0	3	0	0	0	0	3	3.0	0	0	1	0	0	0	0	1	1.0	0	0	2	0	0	0	0	2	2.0	0	0	4	0	0	0	0	4	4.0
17:45 - 18:00	0	0	0	0	0	0	0	0	0.0	0	0	3	0	0	0	0	3	3.0	0	0	1	0	0	0	0	1	1.0	0	0	2	1	0	0	0	3	3.0	0	0	5	0	0	0	0	5	5.0
Hourly Total	**0**	**0**	**8**	**1**	**0**	**1**	**0**	**10**	**11.3**	**0**	**0**	**15**	**0**	**0**	**0**	**0**	**15**	**15.0**	**0**	**0**	**5**	**0**	**0**	**0**	**0**	**5**	**5.0**	**0**	**0**	**11**	**4**	**0**	**0**	**0**	**15**	**15.0**	**0**	**0**	**16**	**1**	**0**	**0**	**0**	**17**	**17.0**
18:00 - 18:15	0	0	2	0	0	0	0	2	2.0	0	0	4	0	0	0	0	4	4.0	0	0	1	0	0	0	0	1	1.0	0	0	1	0	0	0	0	1	1.0	0	0	3	0	0	0	0	3	3.0
18:15 - 18:30	0	0	1	0	0	0	0	1	1.0	0	0	2	0	0	0	0	2	2.0	0	0	2	1	0	0	0	3	3.0	2	0	4	0	0	0	0	6	4.4	0	0	3	0	0	0	0	3	3.0
18:30 - 18:45	0	0	2	1	0	0	0	3	3.0	0	0	2	0	0	0	0	2	2.0	0	0	1	0	0	0	0	1	1.0	0	0	2	0	0	0	0	2	2.0	0	0	2	0	1	0	0	3	3.5
18:45 - 19:00	0	0	1	0	0	0	0	1	1.0	0	0	2	2	0	0	0	4	4.0	0	0	1	0	0	0	0	1	1.0	0	0	3	1	0	0	0	4	4.0	0	0	2	0	0	0	0	2	2.0
Hourly Total	**0**	**0**	**6**	**1**	**0**	**0**	**0**	**7**	**7.0**	**0**	**0**	**10**	**2**	**0**	**0**	**0**	**12**	**12.0**	**0**	**0**	**5**	**1**	**0**	**0**	**0**	**6**	**6.0**	**2**	**0**	**10**	**1**	**0**	**0**	**0**	**13**	**11.4**	**0**	**0**	**10**	**0**	**1**	**0**	**0**	**11**	**11.5**
TOTAL	**0**	**0**	**24**	**4**	**0**	**1**	**0**	**29**	**30.3**	**0**	**0**	**38**	**5**	**0**	**0**	**0**	**43**	**43.0**	**0**	**0**	**16**	**1**	**0**	**0**	**0**	**17**	**17.0**	**2**	**0**	**33**	**7**	**0**	**0**	**0**	**42**	**40.4**	**0**	**0**	**40**	**3**	**1**	**0**	**0**	**44**	**44.5**

PCU Factors:	
CYCLE	0.2
M/CYCLE	0.4
CAR	1.0
LGV	1.0
OGV1	1.5
OGV2	2.3
BUS	2.0

Road Data Services Ltd

East Midlands Airport
Thursday 21st September 2023
Junction: 3
Approach: Trent Lane

	To A50 J1 Slip Road (W)									To B5010									To B6540									To A50 J1 Slip Road (E)									To Ryecroft Road								
TIME	CYCLE	M/CYCL	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCL	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCL	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCL	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCL	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs
07:00 - 07:15	0	0	38	14	2	4	0	58	64.2	0	0	5	1	0	0	0	6	6.0	0	0	15	2	0	1	1	19	21.3	0	0	38	8	2	3	0	51	55.9	0	0	1	0	0	0	0	1	1.0
07:15 - 07:30	0	0	44	12	8	7	0	71	84.1	0	0	4	1	0	0	1	6	7.0	0	0	13	2	1	1	1	18	20.8	0	0	43	7	4	2	0	56	60.6	0	0	1	0	0	0	0	1	1.0
07:30 - 07:45	0	0	70	13	6	1	0	90	94.3	0	0	8	1	1	0	1	11	12.5	0	0	26	4	2	0	1	33	35.0	0	0	57	10	7	0	0	74	77.5	0	0	3	0	0	0	0	3	3.0
07:45 - 08:00	0	0	62	15	3	3	0	83	88.4	0	0	8	2	2	0	0	12	13.0	0	0	30	3	2	1	1	37	40.3	0	0	45	8	4	3	0	60	65.9	0	0	2	0	0	0	0	2	2.0
Hourly Total	**0**	**0**	**214**	**54**	**19**	**15**	**0**	**302**	**331.0**	**0**	**0**	**25**	**5**	**3**	**0**	**2**	**35**	**38.5**	**0**	**0**	**84**	**11**	**5**	**3**	**4**	**107**	**117.4**	**0**	**0**	**183**	**33**	**17**	**8**	**0**	**241**	**259.9**	**0**	**0**	**7**	**0**	**0**	**0**	**0**	**7**	**7.0**
08:00 - 08:15	0	0	69	4	1	3	0	77	81.4	0	0	7	1	0	0	2	10	12.0	1	0	19	10	1	1	2	34	37.0	0	0	59	5	6	7	0	77	89.1	0	0	4	1	0	0	0	5	5.0
08:15 - 08:30	0	0	55	11	4	3	0	73	78.9	0	0	5	3	1	0	0	9	9.5	0	0	19	6	1	0	2	28	30.5	0	0	38	8	4	0	0	50	52.0	0	0	2	0	0	0	0	2	2.0
08:30 - 08:45	0	0	37	5	2	2	0	46	49.6	0	0	8	3	0	0	0	11	11.0	0	0	18	3	1	1	0	23	24.8	0	0	33	9	4	2	0	48	52.6	0	0	3	1	0	0	0	4	4.0
08:45 - 09:00	0	0	40	5	2	2	0	49	52.6	0	0	6	3	1	0	2	12	14.5	0	1	18	6	0	1	0	26	26.7	0	0	45	8	2	4	0	59	65.2	0	0	4	0	0	0	0	4	4.0
Hourly Total	**0**	**0**	**201**	**25**	**9**	**10**	**0**	**245**	**262.5**	**0**	**0**	**26**	**10**	**2**	**0**	**4**	**42**	**47.0**	**1**	**1**	**74**	**25**	**3**	**3**	**4**	**111**	**119.0**	**0**	**0**	**175**	**30**	**16**	**13**	**0**	**234**	**258.9**	**0**	**0**	**13**	**2**	**0**	**0**	**0**	**15**	**15.0**
09:00 - 09:15	0	1	33	13	2	2	0	51	54.0	0	0	4	0	1	0	0	5	5.5	0	1	27	0	0	1	0	29	29.7	0	0	36	3	5	5	0	49	58.0	0	0	5	0	0	0	0	5	5.0
09:15 - 09:30	0	0	28	8	1	1	0	38	39.8	0	0	4	2	0	0	3	9	12.0	0	1	17	6	0	1	0	25	25.7	0	0	26	5	5	5	0	41	50.0	0	0	3	1	0	0	0	4	4.0
09:30 - 09:45	0	0	32	10	0	3	0	45	48.9	0	0	7	1	1	0	1	10	11.5	0	0	17	3	1	1	2	24	27.8	0	0	31	13	7	4	0	55	63.7	0	0	3	0	0	0	0	3	3.0
09:45 - 10:00	0	0	27	7	3	1	0	38	40.8	0	0	5	2	0	0	0	7	7.0	0	0	15	2	1	1	1	20	22.8	0	0	21	9	7	7	0	44	56.6	0	0	2	0	0	0	0	2	2.0
Hourly Total	**0**	**1**	**120**	**38**	**6**	**7**	**0**	**172**	**183.5**	**0**	**0**	**20**	**5**	**2**	**0**	**4**	**31**	**36.0**	**0**	**2**	**76**	**11**	**2**	**4**	**3**	**98**	**106.0**	**0**	**0**	**114**	**30**	**24**	**21**	**0**	**189**	**228.3**	**0**	**0**	**13**	**1**	**0**	**0**	**0**	**14**	**14.0**
TOTAL	**0**	**1**	**535**	**117**	**34**	**32**	**0**	**719**	**777.0**	**0**	**0**	**71**	**20**	**7**	**0**	**10**	**108**	**121.5**	**1**	**3**	**234**	**47**	**10**	**10**	**11**	**316**	**342.4**	**0**	**0**	**472**	**93**	**57**	**42**	**0**	**664**	**747.1**	**0**	**0**	**33**	**3**	**0**	**0**	**0**	**36**	**36.0**
16:00 - 16:15	0	0	99	18	4	3	0	124	129.9	0	1	17	2	0	0	0	20	19.4	0	2	53	4	0	2	3	64	68.4	0	0	98	20	3	2	0	123	127.1	0	0	4	2	0	0	0	6	6.0
16:15 - 16:30	0	0	67	8	3	2	0	80	84.1	0	0	19	3	0	0	0	22	22.0	0	4	43	6	1	0	0	54	52.1	0	0	66	15	4	3	0	88	93.9	0	0	4	0	0	0	0	4	4.0
16:30 - 16:45	0	1	84	14	1	2	0	102	104.5	0	0	22	3	0	0	0	25	25.0	0	3	57	5	0	0	0	65	63.2	0	0	88	13	0	1	0	102	103.3	0	0	4	0	0	0	0	4	4.0
16:45 - 17:00	0	1	82	8	1	2	0	94	96.5	0	1	19	3	0	0	3	26	28.4	0	4	44	3	2	1	3	57	59.9	0	0	66	11	2	3	0	82	86.9	0	0	5	1	0	0	0	6	6.0
Hourly Total	**0**	**2**	**332**	**48**	**9**	**9**	**0**	**400**	**415.0**	**0**	**2**	**77**	**11**	**0**	**0**	**3**	**93**	**94.8**	**0**	**13**	**197**	**18**	**3**	**3**	**6**	**240**	**243.6**	**0**	**0**	**318**	**59**	**9**	**9**	**0**	**395**	**411.2**	**0**	**0**	**17**	**3**	**0**	**0**	**0**	**20**	**20.0**
17:00 - 17:15	0	0	137	5	3	5	0	150	158.0	0	1	29	2	0	0	0	32	31.4	0	4	62	3	0	1	0	70	68.9	0	0	119	7	2	2	0	130	133.6	0	0	5	2	0	0	0	7	7.0
17:15 - 17:30	0	1	92	6	2	2	0	103	106.0	0	0	20	5	0	0	0	25	25.0	0	2	49	7	0	1	1	60	61.1	0	0	87	10	4	3	0	104	109.9	0	0	4	0	0	0	0	4	4.0
17:30 - 17:45	0	2	120	3	1	0	0	126	125.3	0	2	24	2	0	0	0	28	26.8	0	1	56	4	0	0	2	63	64.4	0	0	90	7	1	2	0	100	103.1	0	0	2	1	0	0	0	3	3.0
17:45 - 18:00	0	0	92	11	0	3	0	106	109.9	0	1	18	3	0	0	0	22	21.4	0	0	33	4	0	0	0	37	37.0	0	0	57	6	0	2	0	65	67.6	0	0	3	0	0	0	0	3	3.0
Hourly Total	**0**	**3**	**441**	**25**	**6**	**10**	**0**	**485**	**499.2**	**0**	**4**	**91**	**12**	**0**	**0**	**0**	**107**	**104.6**	**0**	**7**	**200**	**18**	**0**	**2**	**3**	**230**	**231.4**	**0**	**0**	**353**	**30**	**7**	**9**	**0**	**399**	**414.2**	**0**	**0**	**14**	**3**	**0**	**0**	**0**	**17**	**17.0**
18:00 - 18:15	0	2	101	6	2	1	0	112	113.1	0	0	23	1	0	0	3	27	30.0	0	3	47	2	1	0	2	55	55.7	0	0	73	3	0	0	1	77	78.0	0	0	2	0	0	0	0	2	2.0
18:15 - 18:30	0	2	62	6	0	1	0	71	71.1	0	0	15	3	0	0	0	18	18.0	0	3	38	3	1	1	0	46	46.0	0	1	70	6	1	2	0	80	82.5	0	0	1	0	0	0	0	1	1.0
18:30 - 18:45	0	0	99	5	1	2	0	107	110.1	0	1	22	2	0	0	1	26	26.4	0	2	35	2	0	1	1	41	42.1	0	0	54	2	2	1	0	59	61.3	0	0	2	0	0	0	0	2	2.0
18:45 - 19:00	0	0	38	6	1	1	0	46	47.8	0	0	11	0	0	0	0	11	11.0	0	2	29	0	0	0	1	32	31.8	0	0	37	0	2	0	0	39	40.0	0	0	3	0	0	0	0	3	3.0
Hourly Total	**0**	**4**	**300**	**23**	**4**	**5**	**0**	**336**	**342.1**	**0**	**1**	**71**	**6**	**0**	**0**	**4**	**82**	**85.4**	**0**	**10**	**149**	**7**	**2**	**2**	**4**	**174**	**175.6**	**0**	**1**	**234**	**11**	**5**	**3**	**1**	**255**	**261.8**	**0**	**0**	**8**	**0**	**0**	**0**	**0**	**8**	**8.0**
TOTAL	**0**	**9**	**1073**	**96**	**19**	**24**	**0**	**1221**	**1256.3**	**0**	**7**	**239**	**29**	**0**	**0**	**7**	**282**	**284.8**	**0**	**30**	**546**	**43**	**5**	**7**	**13**	**644**	**650.6**	**0**	**1**	**905**	**100**	**21**	**21**	**1**	**1049**	**1087.2**	**0**	**0**	**39**	**6**	**0**	**0**	**0**	**45**	**45.0**

PCU Factors:	
CYCLE	0.2
M/CYCLE	0.4
CAR	1.0
LGV	1.0
OGV1	1.5
OGV2	2.3
BUS	2.0

Road Data Services Ltd

East Midlands Airport
Thursday 21st September 2023
Junction: 3
Approach: A50 J1 Slip Road West

	To B5010									To B6540									To A50 J1 Slip Road (E)									To Ryecroft Road									To Trent Lane								
TIME	CYCLE	M/CYCL	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCL	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCL	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCL	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCL	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs
07:00 - 07:15	0	0	2	0	0	0	0	2	2.0	0	0	27	9	1	1	0	38	39.8	0	0	0	0	0	0	0	0	0.0	0	0	1	0	0	0	0	1	1.0	0	0	40	10	4	3	0	57	62.9
07:15 - 07:30	0	0	0	1	0	0	0	1	1.0	0	0	33	8	1	2	0	44	47.1	0	0	0	0	0	0	0	0	0.0	0	0	2	0	0	0	0	2	2.0	0	0	76	12	3	3	0	94	99.4
07:30 - 07:45	0	0	0	0	0	0	0	0	0.0	0	0	47	4	2	6	0	59	67.8	0	0	0	0	0	0	0	0	0.0	0	0	4	1	0	0	0	5	5.0	0	1	79	14	3	6	0	103	111.7
07:45 - 08:00	0	0	4	2	0	0	0	6	6.0	0	0	35	7	1	4	0	47	52.7	0	0	0	0	0	0	0	0	0.0	0	0	3	0	0	0	0	3	3.0	0	0	91	10	3	1	0	105	107.8
Hourly Total	**0**	**0**	**6**	**3**	**0**	**0**	**0**	**9**	**9.0**	**0**	**0**	**142**	**28**	**5**	**13**	**0**	**188**	**207.4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**10**	**1**	**0**	**0**	**0**	**11**	**11.0**	**0**	**1**	**286**	**46**	**13**	**13**	**0**	**359**	**381.8**
08:00 - 08:15	0	0	3	1	0	0	0	4	4.0	0	0	40	11	2	9	0	62	74.7	0	0	0	0	0	0	0	0	0.0	0	0	4	0	0	0	0	4	4.0	0	0	72	14	4	3	0	93	98.9
08:15 - 08:30	0	0	4	0	0	0	0	4	4.0	0	0	37	8	1	3	0	49	53.4	0	0	0	0	0	0	0	0	0.0	0	0	3	0	0	0	0	3	3.0	0	0	88	16	6	6	0	116	126.8
08:30 - 08:45	0	0	7	3	0	0	0	10	10.0	0	0	39	7	1	2	0	49	52.1	0	0	0	0	0	0	0	0	0.0	0	0	4	1	0	0	0	5	5.0	0	0	90	8	3	2	0	103	107.1
08:45 - 09:00	0	0	1	1	0	0	0	2	2.0	0	0	44	6	0	5	0	55	61.5	0	0	0	0	0	0	0	0	0.0	0	0	6	1	0	1	0	8	9.3	0	0	84	6	4	5	0	99	107.5
Hourly Total	**0**	**0**	**15**	**5**	**0**	**0**	**0**	**20**	**20.0**	**0**	**0**	**160**	**32**	**4**	**19**	**0**	**215**	**241.7**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**17**	**2**	**0**	**1**	**0**	**20**	**21.3**	**0**	**0**	**334**	**44**	**17**	**16**	**0**	**411**	**440.3**
09:00 - 09:15	0	0	0	2	0	0	0	2	2.0	0	0	28	3	3	1	0	35	37.8	0	0	0	0	0	0	0	0	0.0	0	0	4	1	0	0	0	5	5.0	0	0	34	11	5	5	0	55	64.0
09:15 - 09:30	0	0	4	1	0	0	0	5	5.0	0	0	23	8	0	7	0	38	47.1	0	0	0	0	0	0	0	0	0.0	0	0	4	1	0	0	0	5	5.0	0	0	42	7	3	7	0	59	69.6
09:30 - 09:45	0	0	4	1	0	0	0	5	5.0	0	0	20	8	1	2	0	31	34.1	0	0	0	0	0	0	0	0	0.0	0	0	3	0	0	0	0	3	3.0	0	0	32	9	2	4	0	47	53.2
09:45 - 10:00	0	0	4	2	0	0	0	6	6.0	0	1	30	10	1	4	0	46	51.1	0	0	0	0	0	0	0	0	0.0	0	0	2	1	0	0	0	3	3.0	0	0	31	5	1	2	0	39	42.1
Hourly Total	**0**	**0**	**12**	**6**	**0**	**0**	**0**	**18**	**18.0**	**0**	**1**	**101**	**29**	**5**	**14**	**0**	**150**	**170.1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**13**	**3**	**0**	**0**	**0**	**16**	**16.0**	**0**	**0**	**139**	**32**	**11**	**18**	**0**	**200**	**228.9**
TOTAL	**0**	**0**	**33**	**14**	**0**	**0**	**0**	**47**	**47.0**	**0**	**1**	**403**	**89**	**14**	**46**	**0**	**553**	**619.2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**40**	**6**	**0**	**1**	**0**	**47**	**48.3**	**0**	**1**	**759**	**122**	**41**	**47**	**0**	**970**	**1051.0**
16:00 - 16:15	0	0	6	0	0	0	0	6	6.0	0	0	45	8	2	0	0	55	56.0	0	0	0	0	0	0	0	0	0.0	0	0	2	0	0	0	0	2	2.0	0	0	53	7	2	4	0	66	72.2
16:15 - 16:30	0	0	5	0	0	0	0	5	5.0	0	0	41	8	1	3	0	53	57.4	0	0	0	0	0	0	0	0	0.0	0	0	2	1	0	0	0	3	3.0	0	0	52	11	4	5	0	72	80.5
16:30 - 16:45	0	0	5	1	0	0	0	6	6.0	0	1	38	7	0	1	0	47	47.7	0	0	0	0	0	0	0	0	0.0	0	0	4	2	0	0	0	6	6.0	0	0	57	7	3	3	0	70	75.4
16:45 - 17:00	0	0	5	0	0	0	0	5	5.0	0	0	37	6	0	1	0	44	45.3	0	0	0	0	0	0	0	0	0.0	0	0	3	1	0	0	0	4	4.0	0	0	55	9	1	4	0	69	74.7
Hourly Total	**0**	**0**	**21**	**1**	**0**	**0**	**0**	**22**	**22.0**	**0**	**1**	**161**	**29**	**3**	**5**	**0**	**199**	**206.4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**11**	**4**	**0**	**0**	**0**	**15**	**15.0**	**0**	**0**	**217**	**34**	**10**	**16**	**0**	**277**	**302.8**
17:00 - 17:15	0	0	4	2	0	0	0	6	6.0	0	1	31	7	1	1	0	41	42.2	0	0	0	0	0	0	0	0	0.0	0	0	4	0	0	0	0	4	4.0	0	0	74	8	4	3	0	89	94.9
17:15 - 17:30	0	1	4	0	0	0	0	5	4.4	0	1	41	7	0	2	0	51	53.0	0	0	0	0	0	0	0	0	0.0	0	0	3	1	0	0	0	4	4.0	0	0	63	10	0	2	0	75	77.6
17:30 - 17:45	0	0	5	0	0	0	0	5	5.0	0	0	50	7	0	1	0	58	59.3	0	0	0	0	0	0	0	0	0.0	0	0	2	0	0	0	0	2	2.0	0	2	95	4	1	2	0	104	105.9
17:45 - 18:00	0	0	4	0	0	0	0	4	4.0	0	0	36	6	0	1	0	43	44.3	0	0	0	0	0	0	0	0	0.0	0	0	3	1	0	0	0	4	4.0	0	0	85	6	3	3	0	97	102.4
Hourly Total	**0**	**1**	**17**	**2**	**0**	**0**	**0**	**20**	**19.4**	**0**	**2**	**158**	**27**	**1**	**5**	**0**	**193**	**198.8**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**12**	**2**	**0**	**0**	**0**	**14**	**14.0**	**0**	**2**	**317**	**28**	**8**	**10**	**0**	**365**	**380.8**
18:00 - 18:15	0	0	6	1	0	0	0	7	7.0	0	0	43	4	0	2	0	49	51.6	0	0	0	0	0	0	0	0	0.0	0	0	2	0	0	0	0	2	2.0	0	3	67	4	0	2	0	76	76.8
18:15 - 18:30	0	0	3	0	0	0	0	3	3.0	0	0	25	2	2	0	0	29	30.0	0	0	0	0	0	0	0	0	0.0	0	0	1	0	0	0	0	1	1.0	0	2	62	4	0	0	0	68	66.8
18:30 - 18:45	0	0	5	0	0	0	0	5	5.0	0	2	31	1	0	1	0	35	35.1	0	0	0	0	0	0	0	0	0.0	0	0	2	0	0	0	0	2	2.0	0	0	58	3	0	3	0	64	67.9
18:45 - 19:00	0	0	6	0	0	0	0	6	6.0	0	1	18	2	0	0	0	21	20.4	0	0	0	0	0	0	0	0	0.0	0	0	1	0	0	0	0	1	1.0	0	0	49	2	0	0	0	51	51.0
Hourly Total	**0**	**0**	**20**	**1**	**0**	**0**	**0**	**21**	**21.0**	**0**	**3**	**117**	**9**	**2**	**3**	**0**	**134**	**137.1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**6**	**0**	**0**	**0**	**0**	**6**	**6.0**	**0**	**5**	**236**	**13**	**0**	**5**	**0**	**259**	**262.5**
TOTAL	**0**	**1**	**58**	**4**	**0**	**0**	**0**	**63**	**62.4**	**0**	**6**	**436**	**65**	**6**	**13**	**0**	**526**	**542.3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**29**	**6**	**0**	**0**	**0**	**35**	**35.0**	**0**	**7**	**770**	**75**	**18**	**31**	**0**	**901**	**946.1**

PCU Factors:	
CYCLE	0.2
M/CYCLE	0.4
CAR	1.0
LGV	1.0
OGV1	1.5
OGV2	2.3
BUS	2.0

APPENDIX 13 – M1 Junction 25 Turning Count Results

Road Data Services Ltd

East Midlands Airport
Tuesday 26th September 2023
Junction: 1
Approach: M1 J25 Slip Road North

	To A52 (E)									To Bostocks Lane (E)									To M1 J25 Slip Road (S)									To A52 (W)									To Bostocks Lane (W)								
TIME	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs
07:00 - 07:15	0	0	28	14	1	3	0	46	50.4	0	1	39	7	8	1	0	56	60.7	0	0	0	0	0	0	0	0	0.0	0	0	104	45	8	4	0	161	170.2	0	1	13	6	2	2	0	24	27.0
07:15 - 07:30	0	0	47	19	2	0	0	68	69.0	0	0	50	26	2	2	0	80	83.6	0	0	0	0	0	0	0	0	0.0	0	0	126	37	5	4	0	172	179.7	0	0	29	7	2	2	0	40	43.6
07:30 - 07:45	0	0	59	25	1	1	0	86	87.8	0	2	37	9	5	1	0	54	56.6	0	0	0	0	0	0	0	0	0.0	0	0	121	41	9	2	0	173	180.1	0	0	20	12	1	1	0	34	35.8
07:45 - 08:00	0	0	54	22	2	2	0	80	83.6	0	1	67	20	4	1	0	93	95.7	0	0	0	0	0	0	0	0	0.0	0	1	111	33	5	4	0	154	161.1	0	0	27	4	2	0	0	33	34.0
Hourly Total	**0**	**0**	**188**	**80**	**6**	**6**	**0**	**280**	**290.8**	**0**	**4**	**193**	**62**	**19**	**5**	**0**	**283**	**296.6**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**1**	**462**	**156**	**27**	**14**	**0**	**660**	**691.1**	**0**	**1**	**89**	**29**	**7**	**5**	**0**	**131**	**140.4**
08:00 - 08:15	0	0	58	18	2	2	0	80	83.6	0	0	66	14	6	0	0	86	89.0	0	0	0	0	0	0	0	0	0.0	0	1	111	28	6	0	0	146	148.4	0	0	28	9	6	0	0	43	46.0
08:15 - 08:30	0	0	73	14	4	3	0	94	99.9	0	1	36	15	1	2	0	55	57.5	0	0	0	0	0	0	0	0	0.0	0	0	98	31	5	2	0	136	141.1	0	0	29	9	1	0	0	39	39.5
08:30 - 08:45	0	1	78	16	4	2	0	101	105.0	0	1	60	19	4	5	0	89	96.9	0	0	0	0	0	0	0	0	0.0	0	0	100	20	5	1	0	126	129.8	0	0	30	5	2	1	0	38	40.3
08:45 - 09:00	0	0	35	7	4	3	0	49	54.9	0	0	22	6	0	0	0	28	28.0	0	0	0	0	0	0	0	0	0.0	0	0	52	17	1	2	0	72	75.1	0	0	17	4	1	4	0	26	31.7
Hourly Total	**0**	**1**	**244**	**55**	**14**	**10**	**0**	**324**	**343.4**	**0**	**2**	**184**	**54**	**11**	**7**	**0**	**258**	**271.4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**1**	**361**	**96**	**17**	**5**	**0**	**480**	**494.4**	**0**	**0**	**104**	**27**	**10**	**5**	**0**	**146**	**157.5**
09:00 - 09:15	0	0	25	9	4	0	0	38	40.0	0	0	27	12	1	1	0	41	42.8	0	0	0	0	0	0	0	0	0.0	0	0	51	14	2	2	0	69	72.6	0	0	16	6	1	1	0	24	25.8
09:15 - 09:30	0	0	55	10	3	0	0	68	69.5	0	0	32	6	0	0	0	38	38.0	0	0	0	0	0	0	0	0	0.0	0	0	50	18	7	1	0	76	80.8	0	0	21	9	2	1	0	33	35.3
09:30 - 09:45	0	0	42	7	3	0	0	52	53.5	0	0	21	5	0	1	0	27	28.3	0	0	0	0	0	0	0	0	0.0	0	0	63	13	5	7	0	88	99.6	0	0	24	7	3	1	0	35	37.8
09:45 - 10:00	0	0	27	8	3	3	0	41	46.4	0	0	27	13	2	0	0	42	43.0	0	0	0	0	0	0	0	0	0.0	0	0	25	13	6	4	0	48	56.2	0	0	15	5	2	1	0	23	25.3
Hourly Total	**0**	**0**	**149**	**34**	**13**	**3**	**0**	**199**	**209.4**	**0**	**0**	**107**	**36**	**3**	**2**	**0**	**148**	**152.1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**189**	**58**	**20**	**14**	**0**	**281**	**309.2**	**0**	**0**	**76**	**27**	**8**	**4**	**0**	**115**	**124.2**
TOTAL	**0**	**1**	**581**	**169**	**33**	**19**	**0**	**803**	**843.6**	**0**	**6**	**484**	**152**	**33**	**14**	**0**	**689**	**720.1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**2**	**1012**	**310**	**64**	**33**	**0**	**1421**	**1494.7**	**0**	**1**	**269**	**83**	**25**	**14**	**0**	**392**	**422.1**
16:00 - 16:15	0	0	33	17	3	2	0	55	59.1	0	0	40	13	0	0	0	53	53.0	0	0	0	0	0	0	0	0	0.0	0	0	59	19	2	3	1	84	89.9	0	0	16	13	3	0	0	32	33.5
16:15 - 16:30	0	0	49	16	2	1	0	68	70.3	0	0	60	13	2	0	0	75	76.0	0	0	0	0	0	0	0	0	0.0	0	0	63	20	2	6	0	91	99.8	0	0	20	6	2	1	0	29	31.3
16:30 - 16:45	0	2	57	13	2	0	0	74	73.8	0	0	47	11	0	0	0	58	58.0	0	0	0	0	0	0	0	0	0.0	0	0	60	8	1	2	0	71	74.1	0	0	28	15	2	1	0	46	48.3
16:45 - 17:00	0	0	55	4	0	0	0	59	59.0	0	0	41	11	0	0	1	53	54.0	0	0	0	0	0	0	0	0	0.0	0	0	61	18	2	0	0	81	82.0	0	0	27	9	1	0	0	37	37.5
Hourly Total	**0**	**2**	**194**	**50**	**7**	**3**	**0**	**256**	**262.2**	**0**	**0**	**188**	**48**	**2**	**0**	**1**	**239**	**241.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**243**	**65**	**7**	**11**	**1**	**327**	**345.8**	**0**	**0**	**91**	**43**	**8**	**2**	**0**	**144**	**150.6**
17:00 - 17:15	0	1	38	14	3	0	0	56	56.9	0	0	42	15	2	0	0	59	60.0	0	0	0	0	0	0	0	0	0.0	0	0	54	12	2	2	0	70	73.6	0	0	24	12	0	2	0	38	40.6
17:15 - 17:30	0	0	62	5	2	0	0	69	70.0	0	0	67	12	0	0	0	79	79.0	0	0	0	0	0	0	0	0	0.0	0	0	73	7	1	4	0	85	90.7	0	0	32	10	4	2	0	48	52.6
17:30 - 17:45	0	0	57	10	0	1	0	68	69.3	0	0	52	8	0	0	0	60	60.0	0	0	0	0	0	0	0	0	0.0	0	0	45	6	2	2	0	55	58.6	0	0	26	7	2	1	0	36	38.3
17:45 - 18:00	0	1	63	10	1	1	0	76	77.2	0	1	48	8	1	0	0	58	57.9	0	0	0	0	0	0	0	0	0.0	0	0	54	8	1	0	1	64	65.5	0	1	23	4	1	0	0	29	28.9
Hourly Total	**0**	**2**	**220**	**39**	**6**	**2**	**0**	**269**	**273.4**	**0**	**1**	**209**	**43**	**3**	**0**	**0**	**256**	**256.9**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**226**	**33**	**6**	**8**	**1**	**274**	**288.4**	**0**	**1**	**105**	**33**	**7**	**5**	**0**	**151**	**160.4**
18:00 - 18:15	0	0	47	6	0	1	0	54	55.3	0	0	39	8	2	0	0	49	50.0	0	0	0	0	0	0	0	0	0.0	0	0	45	9	0	0	0	54	54.0	0	0	25	4	2	2	0	33	36.6
18:15 - 18:30	0	0	41	5	0	0	0	46	46.0	0	0	54	5	3	1	0	63	65.8	0	0	0	0	0	0	0	0	0.0	0	0	41	8	0	2	0	51	53.6	0	0	18	2	0	2	0	22	24.6
18:30 - 18:45	0	0	31	2	0	0	0	33	33.0	0	0	42	3	0	4	0	49	54.2	0	0	0	0	0	0	0	0	0.0	0	0	36	8	2	0	0	46	47.0	0	0	14	3	2	0	0	19	20.0
18:45 - 19:00	0	0	33	5	1	1	0	40	41.8	0	0	32	2	0	7	0	41	50.1	0	0	0	0	0	0	0	0	0.0	0	0	33	6	0	0	0	39	39.0	0	0	16	2	0	0	0	18	18.0
Hourly Total	**0**	**0**	**152**	**18**	**1**	**2**	**0**	**173**	**176.1**	**0**	**0**	**167**	**18**	**5**	**12**	**0**	**202**	**220.1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**155**	**31**	**2**	**2**	**0**	**190**	**193.6**	**0**	**0**	**73**	**11**	**4**	**4**	**0**	**92**	**99.2**
TOTAL	**0**	**4**	**566**	**107**	**14**	**7**	**0**	**698**	**711.7**	**0**	**1**	**564**	**109**	**10**	**12**	**1**	**697**	**718.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**624**	**129**	**15**	**21**	**2**	**791**	**827.8**	**0**	**1**	**269**	**87**	**19**	**11**	**0**	**387**	**410.2**

PCU Factors:	
CYCLE	0.2
M/CYCLE	0.4
CAR	1.0
LGV	1.0
OGV1	1.5
OGV2	2.3
BUS	2.0

Road Data Services Ltd

East Midlands Airport
Tuesday 26th September 2023
Junction: 1
Approach: A52 East

	To Bostocks Lane (E)									To M1 J25 Slip Road (S)									To A52 (W)									To Bostocks Lane (W)									To M1 J25 Slip Road (N)								
TIME	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs
07:00 - 07:15	0	0	12	3	0	0	0	15	15.0	0	0	123	21	2	2	0	148	151.6	0	0	0	0	0	0	0	0	0.0	0	0	9	2	0	0	1	12	13.0	0	0	40	12	2	1	0	55	57.3
07:15 - 07:30	0	0	35	9	0	0	0	44	44.0	0	1	94	20	2	1	0	118	119.7	0	0	0	0	0	0	0	0	0.0	0	0	16	2	1	1	0	20	21.8	0	0	73	10	5	0	0	88	90.5
07:30 - 07:45	0	0	36	0	0	1	0	37	38.3	0	0	97	20	3	0	1	121	123.5	0	0	0	0	0	0	0	0	0.0	0	0	22	4	1	0	0	27	27.5	0	0	90	15	2	2	0	109	112.6
07:45 - 08:00	0	0	36	5	0	0	0	41	41.0	0	0	99	27	6	3	2	137	145.9	0	0	0	0	0	0	0	0	0.0	0	0	17	2	1	0	0	20	20.5	0	1	59	9	5	0	0	74	75.9
Hourly Total	**0**	**0**	**119**	**17**	**0**	**1**	**0**	**137**	**138.3**	**0**	**1**	**413**	**88**	**13**	**6**	**3**	**524**	**540.7**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**64**	**10**	**3**	**1**	**1**	**79**	**82.8**	**0**	**1**	**262**	**46**	**14**	**3**	**0**	**326**	**336.3**
08:00 - 08:15	0	0	40	8	1	0	0	49	49.5	0	2	103	7	3	3	0	118	122.2	0	0	0	0	0	0	0	0	0.0	0	0	12	3	1	0	0	16	16.5	0	0	46	7	3	2	0	58	62.1
08:15 - 08:30	0	0	57	7	1	1	0	66	67.8	0	1	64	12	2	1	0	80	81.7	0	0	0	0	0	0	0	0	0.0	0	0	29	3	1	0	0	33	33.5	0	0	68	9	1	4	0	82	87.7
08:30 - 08:45	0	0	39	2	0	0	0	41	41.0	0	0	69	17	3	3	0	92	97.4	0	0	0	0	0	0	0	0	0.0	0	0	16	5	1	1	0	23	24.8	0	0	48	7	2	1	0	58	60.3
08:45 - 09:00	0	0	29	6	2	1	0	38	40.3	0	0	69	12	5	2	0	88	93.1	0	0	0	0	0	0	0	0	0.0	0	0	27	3	1	1	0	32	33.8	0	0	36	7	1	3	0	47	51.4
Hourly Total	**0**	**0**	**165**	**23**	**4**	**2**	**0**	**194**	**198.6**	**0**	**3**	**305**	**48**	**13**	**9**	**0**	**378**	**394.4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**84**	**14**	**4**	**2**	**0**	**104**	**108.6**	**0**	**0**	**198**	**30**	**7**	**10**	**0**	**245**	**261.5**
09:00 - 09:15	0	0	25	2	1	0	0	28	28.5	0	1	46	10	2	6	2	67	77.2	0	0	0	0	0	0	0	0	0.0	0	0	14	3	1	1	0	19	20.8	0	0	39	8	4	1	1	53	57.3
09:15 - 09:30	0	0	20	11	1	0	0	32	32.5	0	0	60	9	4	1	0	74	77.3	0	0	0	0	0	0	0	0	0.0	0	0	13	3	1	1	0	18	19.8	0	0	33	7	3	1	0	44	46.8
09:30 - 09:45	0	0	28	4	0	0	0	32	32.0	0	0	39	10	6	2	0	57	62.6	0	0	0	0	0	0	0	0	0.0	0	0	20	5	1	1	0	27	28.8	0	0	41	7	2	1	1	52	55.3
09:45 - 10:00	0	0	26	5	0	0	0	31	31.0	0	0	38	6	2	2	0	48	51.6	0	0	0	0	0	0	0	0	0.0	0	0	12	2	1	1	0	16	17.8	0	0	18	4	1	1	0	24	25.8
Hourly Total	**0**	**0**	**99**	**22**	**2**	**0**	**0**	**123**	**124.0**	**0**	**1**	**183**	**35**	**14**	**11**	**2**	**246**	**268.7**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**59**	**13**	**4**	**4**	**0**	**80**	**87.2**	**0**	**0**	**131**	**26**	**10**	**4**	**2**	**173**	**185.2**
TOTAL	**0**	**0**	**383**	**62**	**6**	**3**	**0**	**454**	**460.9**	**0**	**5**	**901**	**171**	**40**	**26**	**5**	**1148**	**1203.8**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**207**	**37**	**11**	**7**	**1**	**263**	**278.6**	**0**	**1**	**591**	**102**	**31**	**17**	**2**	**744**	**783.0**
16:00 - 16:15	0	2	66	13	3	0	0	84	84.3	0	1	87	10	4	0	0	102	103.4	0	0	0	0	0	0	0	0	0.0	0	0	23	5	1	0	0	29	29.5	0	1	51	20	4	0	0	76	77.4
16:15 - 16:30	0	1	84	9	1	0	0	95	94.9	0	0	89	16	3	1	1	110	113.8	0	0	0	0	0	0	0	0	0.0	0	1	17	4	1	1	0	24	25.2	0	0	56	13	2	0	0	71	72.0
16:30 - 16:45	0	0	82	11	2	0	0	95	96.0	0	0	61	14	4	1	0	80	83.3	0	0	0	0	0	0	0	0	0.0	0	0	27	13	1	1	0	42	43.8	0	1	83	20	2	0	0	106	106.4
16:45 - 17:00	0	1	89	9	0	0	0	99	98.4	0	0	76	15	1	1	0	93	94.8	0	0	0	0	0	0	0	0	0.0	0	0	32	5	1	1	0	39	40.8	0	2	92	11	3	0	0	108	108.3
Hourly Total	**0**	**4**	**321**	**42**	**6**	**0**	**0**	**373**	**373.6**	**0**	**1**	**313**	**55**	**12**	**3**	**1**	**385**	**395.3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**1**	**99**	**27**	**4**	**3**	**0**	**134**	**139.3**	**0**	**4**	**282**	**64**	**11**	**0**	**0**	**361**	**364.1**
17:00 - 17:15	0	0	88	8	2	0	0	98	99.0	0	0	88	13	2	3	0	106	110.9	0	0	0	0	0	0	0	0	0.0	0	0	29	6	0	1	0	36	37.3	0	0	84	18	3	3	1	109	115.4
17:15 - 17:30	0	0	98	9	1	0	0	108	108.5	0	0	103	14	0	1	0	118	119.3	0	0	0	0	0	0	0	0	0.0	0	0	22	6	0	0	0	28	28.0	0	0	70	11	0	1	0	82	83.3
17:30 - 17:45	0	1	87	10	0	0	0	98	97.4	0	0	79	7	1	1	0	88	89.8	0	0	0	0	0	0	0	0	0.0	0	0	26	4	1	1	0	32	33.8	0	0	60	12	1	0	0	73	73.6
17:45 - 18:00	0	0	97	9	0	0	0	106	106.0	0	0	95	6	0	0	1	102	103.0	0	0	0	0	0	0	0	0	0.0	0	0	28	3	0	0	0	31	31.0	0	0	58	5	0	0	0	63	63.0
Hourly Total	**0**	**1**	**370**	**36**	**3**	**0**	**0**	**410**	**410.9**	**0**	**0**	**365**	**40**	**3**	**5**	**1**	**414**	**423.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**105**	**19**	**1**	**2**	**0**	**127**	**130.1**	**0**	**0**	**272**	**46**	**4**	**4**	**1**	**327**	**335.2**
18:00 - 18:15	0	1	75	11	1	0	1	89	89.9	0	0	48	6	2	2	0	58	61.6	0	0	0	0	0	0	0	0	0.0	0	0	24	2	1	1	0	28	29.8	0	0	47	3	3	2	0	55	59.1
18:15 - 18:30	0	0	79	6	1	0	0	86	86.5	0	0	41	5	2	3	0	51	55.9	0	0	0	0	0	0	0	0	0.0	0	0	17	2	0	2	0	21	23.6	0	0	32	2	0	2	0	36	38.6
18:30 - 18:45	0	0	48	5	0	0	0	53	53.0	0	0	51	4	0	0	0	55	55.0	0	0	0	0	0	0	0	0	0.0	0	1	21	4	0	0	0	26	25.4	0	0	34	4	0	0	0	38	38.0
18:45 - 19:00	0	0	62	3	1	0	1	67	68.5	0	0	35	4	0	3	0	42	45.9	0	0	0	0	0	0	0	0	0.0	0	0	17	3	0	0	0	20	20.0	0	0	31	4	0	0	0	35	35.0
Hourly Total	**0**	**1**	**264**	**25**	**3**	**0**	**2**	**295**	**297.9**	**0**	**0**	**175**	**19**	**4**	**8**	**0**	**206**	**218.4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**1**	**79**	**11**	**1**	**3**	**0**	**95**	**98.8**	**0**	**0**	**144**	**13**	**3**	**4**	**0**	**164**	**170.7**
TOTAL	**0**	**6**	**955**	**103**	**12**	**0**	**2**	**1078**	**1082.4**	**0**	**1**	**853**	**114**	**19**	**16**	**2**	**1005**	**1036.7**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**2**	**283**	**57**	**6**	**8**	**0**	**356**	**368.2**	**0**	**4**	**698**	**123**	**18**	**8**	**1**	**852**	**870.0**

PCU Factors:	
CYCLE	0.2
M/CYCLE	0.4
CAR	1.0
LGV	1.0
OGV1	1.5
OGV2	2.3
BUS	2.0

Road Data Services Ltd

East Midlands Airport
Tuesday 26th September 2023
Junction: 1
Approach: Bostocks Lane East

	To M1 J25 Slip Road (S)									To A52 (W)									To Bostocks Lane (W)									To M1 J25 Slip Road (N)									To A52 (E)								
TIME	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs
07:00 - 07:15	0	0	43	9	0	2	0	54	56.6	0	0	62	9	2	0	0	73	74.0	0	0	9	2	0	0	0	11	11.0	0	0	38	21	2	0	0	61	62.0	0	0	21	3	0	0	0	24	24.0
07:15 - 07:30	0	0	52	8	3	0	0	63	64.5	0	1	38	8	1	0	0	48	47.9	0	0	8	3	0	0	0	11	11.0	0	0	46	15	1	0	0	62	62.5	0	1	35	1	0	0	0	37	36.4
07:30 - 07:45	0	1	34	8	2	2	0	47	50.0	0	0	49	6	1	0	0	56	56.5	0	0	9	2	0	0	0	11	11.0	0	0	37	7	1	0	0	45	45.5	0	0	35	5	0	0	0	40	40.0
07:45 - 08:00	0	0	54	8	0	1	0	63	64.3	0	1	50	6	1	0	0	58	57.9	0	0	11	2	1	0	0	14	14.5	0	0	41	11	1	0	0	53	53.5	0	0	29	2	1	0	0	32	32.5
Hourly Total	**0**	**1**	**183**	**33**	**5**	**5**	**0**	**227**	**235.4**	**0**	**2**	**199**	**29**	**5**	**0**	**0**	**235**	**236.3**	**0**	**0**	**37**	**9**	**1**	**0**	**0**	**47**	**47.5**	**0**	**0**	**162**	**54**	**5**	**0**	**0**	**221**	**223.5**	**0**	**1**	**120**	**11**	**1**	**0**	**0**	**133**	**132.9**
08:00 - 08:15	0	1	57	7	2	3	0	70	74.3	0	0	45	6	1	0	0	52	52.5	0	0	9	4	1	0	0	14	14.5	0	0	43	10	7	1	0	61	65.8	0	0	25	6	2	1	0	34	36.3
08:15 - 08:30	0	0	39	6	1	1	0	47	48.8	0	0	47	7	0	0	0	54	54.0	0	0	14	2	0	0	0	16	16.0	0	0	33	6	0	0	0	39	39.0	0	0	54	3	0	0	0	57	57.0
08:30 - 08:45	0	0	27	8	3	3	0	41	46.4	0	0	42	7	1	0	0	50	50.5	0	0	12	2	0	0	0	14	14.0	0	0	37	4	1	0	0	42	42.5	0	0	40	4	1	0	0	45	45.5
08:45 - 09:00	0	0	39	6	0	0	0	45	45.0	0	0	53	9	1	1	0	64	65.8	0	0	14	2	1	1	0	18	19.8	0	0	24	3	5	1	3	36	42.8	0	0	51	4	1	1	0	57	58.8
Hourly Total	**0**	**1**	**162**	**27**	**6**	**7**	**0**	**203**	**214.5**	**0**	**0**	**187**	**29**	**3**	**1**	**0**	**220**	**222.8**	**0**	**0**	**49**	**10**	**2**	**1**	**0**	**62**	**64.3**	**0**	**0**	**137**	**23**	**13**	**2**	**3**	**178**	**190.1**	**0**	**0**	**170**	**17**	**4**	**2**	**0**	**193**	**197.6**
09:00 - 09:15	0	0	33	5	2	0	0	40	41.0	0	0	41	7	1	0	0	49	49.5	0	0	14	4	1	0	0	19	19.5	0	0	36	14	4	1	1	56	60.3	0	0	51	3	2	0	0	56	57.0
09:15 - 09:30	0	0	19	4	6	2	0	31	36.6	0	0	43	6	1	0	0	50	50.5	0	0	16	4	0	1	0	21	22.3	0	0	42	13	2	1	3	61	66.3	0	0	40	5	1	0	0	46	46.5
09:30 - 09:45	0	0	16	5	1	3	0	25	29.4	0	0	36	6	2	0	0	44	45.0	0	0	13	3	1	0	0	17	17.5	0	0	27	7	2	0	3	39	43.0	0	0	37	3	1	0	0	41	41.5
09:45 - 10:00	0	0	16	3	0	1	0	20	21.3	0	0	32	9	2	0	0	43	44.0	0	0	16	3	1	0	0	20	20.5	0	0	26	13	2	0	0	41	42.0	0	1	45	5	2	0	0	53	53.4
Hourly Total	**0**	**0**	**84**	**17**	**9**	**6**	**0**	**116**	**128.3**	**0**	**0**	**152**	**28**	**6**	**0**	**0**	**186**	**189.0**	**0**	**0**	**59**	**14**	**3**	**1**	**0**	**77**	**79.8**	**0**	**0**	**131**	**47**	**10**	**2**	**7**	**197**	**211.6**	**0**	**1**	**173**	**16**	**6**	**0**	**0**	**196**	**198.4**
TOTAL	**0**	**2**	**429**	**77**	**20**	**18**	**0**	**546**	**578.2**	**0**	**2**	**538**	**86**	**14**	**1**	**0**	**641**	**648.1**	**0**	**0**	**145**	**33**	**6**	**2**	**0**	**186**	**191.6**	**0**	**0**	**430**	**124**	**28**	**4**	**10**	**596**	**625.2**	**0**	**2**	**463**	**44**	**11**	**2**	**0**	**522**	**528.9**
16:00 - 16:15	0	0	12	8	0	0	0	20	20.0	0	0	44	3	0	0	0	47	47.0	0	0	14	2	1	0	0	17	17.5	0	1	24	7	2	0	0	34	34.4	0	1	22	2	0	0	0	25	24.4
16:15 - 16:30	0	0	10	2	0	1	0	13	14.3	0	0	32	3	0	0	0	35	35.0	0	1	9	2	1	0	0	13	12.9	0	0	32	6	0	0	0	38	38.0	0	0	13	2	1	0	0	16	16.5
16:30 - 16:45	0	0	32	5	0	4	0	41	46.2	0	0	44	3	0	0	0	47	47.0	0	0	19	5	0	0	0	24	24.0	0	2	64	7	2	0	0	75	74.8	0	0	40	4	1	0	0	45	45.5
16:45 - 17:00	0	0	23	1	0	1	0	25	26.3	0	0	40	6	0	0	0	46	46.0	0	0	18	4	0	0	0	22	22.0	0	1	58	11	2	0	0	72	72.4	0	0	39	3	0	0	0	42	42.0
Hourly Total	**0**	**0**	**77**	**16**	**0**	**6**	**0**	**99**	**106.8**	**0**	**0**	**160**	**15**	**0**	**0**	**0**	**175**	**175.0**	**0**	**1**	**60**	**13**	**2**	**0**	**0**	**76**	**76.4**	**0**	**4**	**178**	**31**	**6**	**0**	**0**	**219**	**219.6**	**0**	**1**	**114**	**11**	**2**	**0**	**0**	**128**	**128.4**
17:00 - 17:15	0	0	48	6	0	1	0	55	56.3	0	0	49	3	0	0	0	52	52.0	0	0	18	3	0	0	0	21	21.0	0	0	57	8	1	0	0	66	66.5	0	0	38	3	1	0	0	42	42.5
17:15 - 17:30	0	0	39	7	1	0	0	47	47.5	0	0	46	2	0	0	0	48	48.0	0	0	19	3	0	0	0	22	22.0	0	0	70	5	0	0	0	75	75.0	0	0	45	7	0	0	0	52	52.0
17:30 - 17:45	0	0	29	4	0	1	0	34	35.3	0	2	49	5	0	0	0	56	54.8	0	0	29	5	1	0	0	35	35.5	0	0	65	12	1	0	0	78	78.5	0	1	53	5	0	0	0	59	58.4
17:45 - 18:00	0	0	24	2	0	0	1	27	28.0	0	0	48	6	0	0	1	55	56.0	0	0	22	2	0	0	0	24	24.0	0	0	44	3	0	0	1	48	49.0	0	0	39	2	0	0	2	43	45.0
Hourly Total	**0**	**0**	**140**	**19**	**1**	**2**	**1**	**163**	**167.1**	**0**	**2**	**192**	**16**	**0**	**0**	**1**	**211**	**210.8**	**0**	**0**	**88**	**13**	**1**	**0**	**0**	**102**	**102.5**	**0**	**0**	**236**	**28**	**2**	**0**	**1**	**267**	**269.0**	**0**	**1**	**175**	**17**	**1**	**0**	**2**	**196**	**197.9**
18:00 - 18:15	0	0	20	3	0	2	0	25	27.6	0	0	34	3	0	0	0	37	37.0	0	0	19	3	1	0	0	23	23.5	0	0	35	10	1	0	0	46	46.5	0	0	34	3	0	0	0	37	37.0
18:15 - 18:30	0	0	15	3	0	0	0	18	18.0	0	0	39	4	0	0	0	43	43.0	0	1	15	2	0	0	0	18	17.4	0	0	29	2	0	0	0	31	31.0	0	0	31	2	0	0	0	33	33.0
18:30 - 18:45	0	0	19	1	2	0	0	22	23.0	0	0	33	6	0	0	1	40	41.0	0	1	14	3	0	0	0	18	17.4	0	0	19	3	0	0	0	22	22.0	0	1	44	4	0	0	0	49	48.4
18:45 - 19:00	0	0	13	3	0	2	0	18	20.6	0	0	30	4	0	0	0	34	34.0	0	0	15	2	0	0	0	17	17.0	0	0	27	2	0	0	0	29	29.0	0	0	35	1	0	0	0	36	36.0
Hourly Total	**0**	**0**	**67**	**10**	**2**	**4**	**0**	**83**	**89.2**	**0**	**0**	**136**	**17**	**0**	**0**	**1**	**154**	**155.0**	**0**	**2**	**63**	**10**	**1**	**0**	**0**	**76**	**75.3**	**0**	**0**	**110**	**17**	**1**	**0**	**0**	**128**	**128.5**	**0**	**1**	**144**	**10**	**0**	**0**	**0**	**155**	**154.4**
TOTAL	**0**	**0**	**284**	**45**	**3**	**12**	**1**	**345**	**363.1**	**0**	**2**	**488**	**48**	**0**	**0**	**2**	**540**	**540.8**	**0**	**3**	**211**	**36**	**4**	**0**	**0**	**254**	**254.2**	**0**	**4**	**524**	**76**	**9**	**0**	**1**	**614**	**617.1**	**0**	**3**	**433**	**38**	**3**	**0**	**2**	**479**	**480.7**

PCU Factors:	
CYCLE	0.2
M/CYCLE	0.4
CAR	1.0
LGV	1.0
OGV1	1.5
OGV2	2.3
BUS	2.0

Road Data Services Ltd

East Midlands Airport
Tuesday 26th September 2023
Junction: 1
Approach: M1 J25 Slip Road South

	To A52 (W)									To Bostocks Lane (W)										To M1 J25 Slip Road (N)										To A52 (E)										To Bostocks Lane (E)									
TIME	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs
07:00 - 07:15	0	0	36	14	4	4	0	58	65.2	0	0	15	6	0	2	0	23	25.6	0	0	0	0	0	0	0	0	0.0	0	0	51	10	2	4	0	67	73.2	0	0	11	5	3	1	0	20	22.8
07:15 - 07:30	0	0	48	15	0	4	0	67	72.2	0	0	15	13	2	4	0	34	40.2	0	0	0	0	0	0	0	0	0.0	0	0	62	12	3	1	0	78	80.8	0	0	27	4	2	1	0	34	36.3
07:30 - 07:45	0	0	50	16	2	5	0	73	80.5	0	0	18	11	5	4	0	38	45.7	0	0	0	0	0	0	0	0	0.0	0	0	64	18	5	6	0	93	103.3	0	0	41	7	4	2	0	54	58.6
07:45 - 08:00	0	1	50	18	2	2	0	73	76.0	0	0	31	10	2	7	0	50	60.1	0	0	0	0	0	0	0	0	0.0	0	0	83	17	7	2	1	110	117.1	0	0	40	4	3	2	0	49	53.1
Hourly Total	**0**	**1**	**184**	**63**	**8**	**15**	**0**	**271**	**293.9**	**0**	**0**	**79**	**40**	**9**	**17**	**0**	**145**	**171.6**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**260**	**57**	**17**	**13**	**1**	**348**	**374.4**	**0**	**0**	**119**	**20**	**12**	**6**	**0**	**157**	**170.8**
08:00 - 08:15	0	0	62	11	6	2	0	81	86.6	0	0	32	10	4	1	0	47	50.3	0	0	0	0	0	0	0	0	0.0	0	0	80	24	3	8	0	115	126.9	0	0	33	6	2	4	0	45	51.2
08:15 - 08:30	0	0	56	5	0	3	0	64	67.9	0	0	25	11	2	1	0	39	41.3	0	0	0	0	0	0	0	0	0.0	0	0	75	18	2	5	0	100	107.5	0	0	39	10	2	1	0	52	54.3
08:30 - 08:45	0	0	36	7	3	2	0	48	52.1	0	0	17	7	2	1	0	27	29.3	0	0	0	0	0	0	0	0	0.0	0	0	65	14	5	2	0	86	91.1	0	0	31	4	4	2	0	41	45.6
08:45 - 09:00	0	0	30	3	2	4	0	39	45.2	0	0	22	6	3	2	0	33	37.1	0	0	0	0	0	0	0	0	0.0	0	0	79	6	6	8	0	99	112.4	0	0	16	7	3	0	0	26	27.5
Hourly Total	**0**	**0**	**184**	**26**	**11**	**11**	**0**	**232**	**251.8**	**0**	**0**	**96**	**34**	**11**	**5**	**0**	**146**	**158.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**299**	**62**	**16**	**23**	**0**	**400**	**437.9**	**0**	**0**	**119**	**27**	**11**	**7**	**0**	**164**	**178.6**
09:00 - 09:15	0	0	34	3	2	1	0	40	42.3	0	0	13	13	2	3	0	31	35.9	0	0	0	0	0	0	0	0	0.0	0	0	51	11	5	1	0	68	71.8	0	0	23	4	1	3	0	31	35.4
09:15 - 09:30	0	0	27	4	1	3	0	35	39.4	0	0	16	8	2	7	0	33	43.1	0	0	0	0	0	0	0	0	0.0	0	0	47	15	5	3	0	70	76.4	0	0	16	4	2	0	0	22	23.0
09:30 - 09:45	0	0	27	7	2	4	0	40	46.2	0	0	18	12	7	3	0	40	47.4	0	0	0	0	0	0	0	0	0.0	0	0	51	9	3	8	0	71	82.9	0	0	22	9	3	2	0	36	40.1
09:45 - 10:00	0	0	19	4	3	1	0	27	29.8	0	0	17	10	1	4	0	32	37.7	0	0	0	0	0	0	0	0	0.0	0	0	45	13	4	6	0	68	77.8	0	0	15	4	2	1	0	22	24.3
Hourly Total	**0**	**0**	**107**	**18**	**8**	**9**	**0**	**142**	**157.7**	**0**	**0**	**64**	**43**	**12**	**17**	**0**	**136**	**164.1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**194**	**48**	**17**	**18**	**0**	**277**	**308.9**	**0**	**0**	**76**	**21**	**8**	**6**	**0**	**111**	**122.8**
TOTAL	**0**	**1**	**475**	**107**	**27**	**35**	**0**	**645**	**703.4**	**0**	**0**	**239**	**117**	**32**	**39**	**0**	**427**	**493.7**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**753**	**167**	**50**	**54**	**1**	**1025**	**1121.2**	**0**	**0**	**314**	**68**	**31**	**19**	**0**	**432**	**472.2**
16:00 - 16:15	0	0	32	11	3	2	0	48	52.1	0	0	47	18	1	5	0	71	78.0	0	0	0	0	0	0	0	0	0.0	0	0	88	18	4	0	1	111	114.0	0	0	33	9	0	0	0	42	42.0
16:15 - 16:30	0	0	34	4	0	1	0	39	40.3	0	2	56	20	4	7	0	89	98.9	0	0	0	0	0	0	0	0	0.0	0	0	79	21	3	4	0	107	113.7	0	0	38	13	0	0	0	51	51.0
16:30 - 16:45	0	0	27	9	1	2	0	39	42.1	0	0	45	16	3	2	0	66	70.1	0	0	0	0	0	0	0	0	0.0	0	0	98	17	6	2	0	123	128.6	0	0	42	7	0	0	0	49	49.0
16:45 - 17:00	0	0	39	7	0	3	0	49	52.9	0	0	60	15	2	2	0	79	82.6	0	0	0	0	0	0	0	0	0.0	0	0	125	18	2	2	0	147	150.6	0	0	48	5	2	0	0	55	56.0
Hourly Total	**0**	**0**	**132**	**31**	**4**	**8**	**0**	**175**	**187.4**	**0**	**2**	**208**	**69**	**10**	**16**	**0**	**305**	**329.6**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**390**	**74**	**15**	**8**	**1**	**488**	**506.9**	**0**	**0**	**161**	**34**	**2**	**0**	**0**	**197**	**198.0**
17:00 - 17:15	0	0	34	2	1	0	0	37	37.5	0	1	51	15	3	2	0	72	75.5	0	0	0	0	0	0	0	0	0.0	0	1	110	15	7	2	1	136	142.5	0	1	52	8	1	0	1	63	63.9
17:15 - 17:30	0	0	30	1	0	1	0	32	33.3	0	0	37	5	1	1	0	44	45.8	0	0	0	0	0	0	0	0	0.0	0	1	87	11	1	0	0	100	99.9	0	0	36	4	0	0	0	40	40.0
17:30 - 17:45	0	0	24	6	1	0	0	31	31.5	0	0	53	10	2	4	0	69	75.2	0	0	0	0	0	0	0	0	0.0	0	0	104	13	2	0	0	119	120.0	0	0	47	5	1	0	0	53	53.5
17:45 - 18:00	0	0	26	1	1	3	0	31	35.4	0	0	73	9	2	2	0	86	89.6	0	0	0	0	0	0	0	0	0.0	0	0	130	11	0	2	0	143	145.6	0	0	50	6	1	0	0	57	57.5
Hourly Total	**0**	**0**	**114**	**10**	**3**	**4**	**0**	**131**	**137.7**	**0**	**1**	**214**	**39**	**8**	**9**	**0**	**271**	**286.1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**2**	**431**	**50**	**10**	**4**	**1**	**498**	**508.0**	**0**	**1**	**185**	**23**	**3**	**0**	**1**	**213**	**214.9**
18:00 - 18:15	0	0	34	3	1	2	0	40	43.1	0	0	64	11	2	5	0	82	89.5	0	0	0	0	0	0	0	0	0.0	0	0	121	12	4	5	0	142	150.5	0	0	50	3	1	1	0	55	56.8
18:15 - 18:30	0	0	31	4	1	0	0	36	36.5	0	0	33	9	5	2	0	49	54.1	0	0	0	0	0	0	0	0	0.0	0	0	80	6	0	3	0	89	92.9	0	0	35	6	0	1	0	42	43.3
18:30 - 18:45	0	0	20	4	0	1	0	25	26.3	0	0	21	3	0	3	0	27	30.9	0	0	0	0	0	0	0	0	0.0	0	0	78	5	1	2	0	86	89.1	0	0	21	3	0	0	0	24	24.0
18:45 - 19:00	0	0	27	5	0	1	1	34	36.3	0	0	26	5	2	0	0	33	34.0	0	0	0	0	0	0	0	0	0.0	0	0	70	2	0	0	0	72	72.0	0	0	30	5	2	0	0	37	38.0
Hourly Total	**0**	**0**	**112**	**16**	**2**	**4**	**1**	**135**	**142.2**	**0**	**0**	**144**	**28**	**9**	**10**	**0**	**191**	**208.5**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**349**	**25**	**5**	**10**	**0**	**389**	**404.5**	**0**	**0**	**136**	**17**	**3**	**2**	**0**	**158**	**162.1**
TOTAL	**0**	**0**	**358**	**57**	**9**	**16**	**1**	**441**	**467.3**	**0**	**3**	**566**	**136**	**27**	**35**	**0**	**767**	**824.2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**2**	**1170**	**149**	**30**	**22**	**2**	**1375**	**1419.4**	**0**	**1**	**482**	**74**	**8**	**2**	**1**	**568**	**575.0**

PCU Factors:
CYCLE	0.2
M/CYCLE	0.4
CAR	1.0
LGV	1.0
OGV1	1.5
OGV2	2.3
BUS	2.0

Road Data Services Ltd

East Midlands Airport
Tuesday 26th September 2023
Junction: 1
Approach: A52 West

	To Bostocks Lane (W)									To M1 J25 Slip Road (N)										To A52 (E)										To Bostocks Lane (E)										To M1 J25 Slip Road (S)									
TIME	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs
07:00 - 07:15	0	0	9	4	4	1	0	18	21.3	0	0	61	16	2	3	0	82	86.9	0	0	0	0	0	0	0	0	0.0	0	0	9	2	2	1	0	14	16.3	0	0	43	15	6	2	0	66	71.6
07:15 - 07:30	0	0	21	4	1	1	0	27	28.8	0	0	48	30	2	3	1	84	89.9	0	0	0	0	0	0	0	0	0.0	0	0	19	2	1	1	1	24	26.8	0	0	59	8	3	1	0	71	73.8
07:30 - 07:45	0	0	13	3	4	2	0	22	26.6	0	0	53	12	6	2	0	73	78.6	0	0	0	0	0	0	0	0	0.0	0	0	33	3	1	1	0	38	39.8	0	0	81	12	4	2	0	99	103.6
07:45 - 08:00	0	0	29	9	1	0	0	39	39.5	0	1	79	28	5	5	0	118	126.4	0	0	0	0	0	0	0	0	0.0	0	1	26	2	1	1	0	31	32.2	0	0	57	6	6	1	0	70	74.3
Hourly Total	**0**	**0**	**72**	**20**	**10**	**4**	**0**	**106**	**116.2**	**0**	**1**	**241**	**86**	**15**	**13**	**1**	**357**	**381.8**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**1**	**87**	**9**	**5**	**4**	**1**	**107**	**115.1**	**0**	**0**	**240**	**41**	**19**	**6**	**0**	**306**	**323.3**
08:00 - 08:15	0	0	29	6	4	0	0	39	41.0	0	0	67	18	6	1	0	92	96.3	0	0	0	0	0	0	0	0	0.0	0	0	19	4	1	1	0	25	26.8	0	0	60	15	3	4	0	82	88.7
08:15 - 08:30	0	0	22	7	3	0	1	33	35.5	0	0	46	11	2	2	0	61	64.6	0	0	0	0	0	0	0	0	0.0	0	0	36	4	1	0	0	41	41.5	0	1	73	20	4	2	0	100	104.0
08:30 - 08:45	0	0	12	1	0	0	0	13	13.0	0	0	46	17	8	2	0	73	79.6	0	0	0	0	0	0	0	0	0.0	0	1	27	6	2	1	0	37	38.7	0	0	64	13	7	2	0	86	92.1
08:45 - 09:00	0	0	19	5	1	2	0	27	30.1	0	0	50	11	4	3	0	68	73.9	0	0	0	0	0	0	0	0	0.0	0	0	17	4	0	0	0	21	21.0	0	0	37	15	3	2	0	57	61.1
Hourly Total	**0**	**0**	**82**	**19**	**8**	**2**	**1**	**112**	**119.6**	**0**	**0**	**209**	**57**	**20**	**8**	**0**	**294**	**314.4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**1**	**99**	**18**	**4**	**2**	**0**	**124**	**128.0**	**0**	**1**	**234**	**63**	**17**	**10**	**0**	**325**	**345.9**
09:00 - 09:15	0	0	11	4	0	0	0	15	15.0	0	0	35	15	3	7	0	60	70.6	0	0	0	0	0	0	0	0	0.0	0	0	22	3	1	1	0	27	28.8	0	0	43	11	2	4	0	60	66.2
09:15 - 09:30	0	0	11	6	3	2	0	22	26.1	0	0	35	16	3	5	0	59	67.0	0	0	0	0	0	0	0	0	0.0	0	0	14	4	0	0	0	18	18.0	0	0	44	9	4	2	0	59	63.6
09:30 - 09:45	0	1	13	3	4	1	0	22	24.7	0	0	30	9	5	4	0	48	55.7	0	0	0	0	0	0	0	0	0.0	0	0	17	4	0	1	0	22	23.3	0	0	44	7	4	2	0	57	61.6
09:45 - 10:00	0	0	9	6	0	2	0	17	19.6	0	0	24	10	2	0	0	36	37.0	0	0	0	0	0	0	0	0	0.0	0	0	14	3	2	0	0	19	20.0	0	0	24	8	4	0	0	36	38.0
Hourly Total	**0**	**1**	**44**	**19**	**7**	**5**	**0**	**76**	**85.4**	**0**	**0**	**124**	**50**	**13**	**16**	**0**	**203**	**230.3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**67**	**14**	**3**	**2**	**0**	**86**	**90.1**	**0**	**0**	**155**	**35**	**14**	**8**	**0**	**212**	**229.4**
TOTAL	**0**	**1**	**198**	**58**	**25**	**11**	**1**	**294**	**321.2**	**0**	**1**	**574**	**193**	**48**	**37**	**1**	**854**	**926.5**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**2**	**253**	**41**	**12**	**8**	**1**	**317**	**333.2**	**0**	**1**	**629**	**139**	**50**	**24**	**0**	**843**	**898.6**
16:00 - 16:15	0	0	18	7	1	1	0	27	28.8	0	0	102	42	2	2	0	148	151.6	0	0	0	0	0	0	0	0	0.0	0	0	30	5	0	0	0	35	35.0	0	0	41	9	0	2	0	52	54.6
16:15 - 16:30	0	1	15	0	2	0	0	18	18.4	0	0	116	26	3	2	0	147	151.1	0	0	0	0	0	0	0	0	0.0	0	0	25	4	0	0	0	29	29.0	0	0	53	10	3	4	0	70	76.7
16:30 - 16:45	0	0	17	4	1	1	0	23	24.8	0	0	103	21	2	3	0	129	133.9	0	0	0	0	0	0	0	0	0.0	0	0	27	7	0	0	0	34	34.0	0	0	46	9	2	4	0	61	67.2
16:45 - 17:00	0	0	30	4	1	1	0	36	37.8	0	1	113	13	5	2	0	134	138.5	0	0	0	0	0	0	0	0	0.0	0	1	25	3	0	0	0	29	28.4	0	0	47	5	1	3	0	56	60.4
Hourly Total	**0**	**1**	**80**	**15**	**5**	**3**	**0**	**104**	**109.8**	**0**	**1**	**434**	**102**	**12**	**9**	**0**	**558**	**575.1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**1**	**107**	**19**	**0**	**0**	**0**	**127**	**126.4**	**0**	**0**	**187**	**33**	**6**	**13**	**0**	**239**	**258.9**
17:00 - 17:15	0	0	26	3	1	0	0	30	30.5	0	0	98	22	3	2	0	125	129.1	0	0	0	0	0	0	0	0	0.0	0	1	33	5	1	0	0	40	39.9	0	0	59	8	1	2	0	70	73.1
17:15 - 17:30	0	0	20	2	0	0	0	22	22.0	0	0	114	12	1	1	0	128	129.8	0	0	0	0	0	0	0	0	0.0	0	0	31	4	0	0	0	35	35.0	0	0	73	8	1	1	0	83	84.8
17:30 - 17:45	0	0	21	4	2	1	0	28	30.3	0	0	113	13	1	0	0	127	127.5	0	0	0	0	0	0	0	0	0.0	0	0	35	4	0	0	0	39	39.0	0	0	64	5	1	0	0	70	70.5
17:45 - 18:00	0	0	32	2	2	0	0	36	37.0	0	0	96	15	2	3	0	116	120.9	0	0	0	0	0	0	0	0	0.0	0	0	30	3	1	0	0	34	34.5	0	0	58	6	1	3	2	70	76.4
Hourly Total	**0**	**0**	**99**	**11**	**5**	**1**	**0**	**116**	**119.8**	**0**	**0**	**421**	**62**	**7**	**6**	**0**	**496**	**507.3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**1**	**129**	**16**	**2**	**0**	**0**	**148**	**148.4**	**0**	**0**	**254**	**27**	**4**	**6**	**2**	**293**	**304.8**
18:00 - 18:15	0	0	17	0	1	0	0	18	18.5	0	0	112	18	2	3	0	135	139.9	0	0	0	0	0	0	0	0	0.0	0	0	38	2	1	1	0	42	43.8	0	0	49	4	1	1	0	55	56.8
18:15 - 18:30	0	0	19	0	0	0	0	19	19.0	0	0	63	7	0	0	0	70	70.0	0	0	0	0	0	0	0	0	0.0	0	0	35	2	0	0	0	37	37.0	0	0	32	4	0	0	0	36	36.0
18:30 - 18:45	0	0	21	5	0	0	0	26	26.0	0	0	58	3	4	2	0	67	71.6	0	0	0	0	0	0	0	0	0.0	0	0	38	3	0	0	0	41	41.0	0	0	29	4	2	0	0	35	36.0
18:45 - 19:00	0	0	12	2	0	0	0	14	14.0	0	0	54	10	0	0	0	64	64.0	0	0	0	0	0	0	0	0	0.0	0	0	27	3	0	0	0	30	30.0	0	0	26	3	0	0	0	29	29.0
Hourly Total	**0**	**0**	**69**	**7**	**1**	**0**	**0**	**77**	**77.5**	**0**	**0**	**287**	**38**	**6**	**5**	**0**	**336**	**345.5**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**138**	**10**	**1**	**1**	**0**	**150**	**151.8**	**0**	**0**	**136**	**15**	**3**	**1**	**0**	**155**	**157.8**
TOTAL	**0**	**1**	**248**	**33**	**11**	**4**	**0**	**297**	**307.1**	**0**	**1**	**1142**	**202**	**25**	**20**	**0**	**1390**	**1427.9**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**2**	**374**	**45**	**3**	**1**	**0**	**425**	**426.6**	**0**	**0**	**577**	**75**	**13**	**20**	**2**	**687**	**721.5**

PCU Factors:	
CYCLE	0.2
M/CYCLE	0.4
CAR	1.0
LGV	1.0
OGV1	1.5
OGV2	2.3
BUS	2.0

Road Data Services Ltd

East Midlands Airport
Tuesday 26th September 2023
Junction: 1
Approach: Bostocks Lane West

	To M1 J25 Slip Road (N)									To A52 (E)									To Bostocks Lane (E)								
TIME	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs
07:00 - 07:15	0	0	26	9	1	0	0	36	36.5	0	0	31	3	2	1	0	37	39.3	0	0	6	3	2	0	0	11	12.0
07:15 - 07:30	0	0	34	12	1	0	0	47	47.5	0	0	24	5	1	2	0	32	35.1	0	0	12	3	1	1	0	17	18.8
07:30 - 07:45	0	0	35	8	3	1	0	47	49.8	0	0	23	6	1	1	0	31	32.8	0	0	14	2	1	0	0	17	17.5
07:45 - 08:00	0	0	48	9	2	3	0	62	66.9	0	0	29	4	3	1	0	37	39.8	0	0	15	3	2	0	0	20	21.0
Hourly Total	**0**	**0**	**143**	**38**	**7**	**4**	**0**	**192**	**200.7**	**0**	**0**	**107**	**18**	**7**	**5**	**0**	**137**	**147.0**	**0**	**0**	**47**	**11**	**6**	**1**	**0**	**65**	**69.3**
08:00 - 08:15	0	0	35	7	2	1	0	45	47.3	0	0	36	6	2	0	0	44	45.0	0	0	15	3	1	0	0	19	19.5
08:15 - 08:30	0	0	37	6	3	0	0	46	47.5	0	0	30	5	1	1	2	39	42.8	0	0	17	4	1	0	0	22	22.5
08:30 - 08:45	0	0	34	5	5	1	0	45	48.8	0	0	31	5	2	1	0	39	41.3	0	0	16	4	2	1	0	23	25.3
08:45 - 09:00	0	0	4	2	2	0	0	8	9.0	0	0	17	1	1	1	0	20	21.8	0	0	19	1	0	0	0	20	20.0
Hourly Total	**0**	**0**	**110**	**20**	**12**	**2**	**0**	**144**	**152.6**	**0**	**0**	**114**	**17**	**6**	**3**	**2**	**142**	**150.9**	**0**	**0**	**67**	**12**	**4**	**1**	**0**	**84**	**87.3**
09:00 - 09:15	0	0	24	4	2	2	0	32	35.6	0	0	21	3	3	1	0	28	30.8	0	0	10	2	1	1	0	14	15.8
09:15 - 09:30	0	0	21	7	1	0	0	29	29.5	0	0	11	3	1	0	0	15	15.5	0	0	5	1	0	0	0	6	6.0
09:30 - 09:45	0	0	10	4	3	1	0	18	20.8	0	0	18	4	1	0	0	23	23.5	0	0	8	3	0	0	0	11	11.0
09:45 - 10:00	0	0	9	5	5	2	0	21	26.1	0	0	20	3	1	2	0	26	29.1	0	0	12	2	1	0	0	15	15.5
Hourly Total	**0**	**0**	**64**	**20**	**11**	**5**	**0**	**100**	**112.0**	**0**	**0**	**70**	**13**	**6**	**3**	**0**	**92**	**98.9**	**0**	**0**	**35**	**8**	**2**	**1**	**0**	**46**	**48.3**
TOTAL	**0**	**0**	**317**	**78**	**30**	**11**	**0**	**436**	**465.3**	**0**	**0**	**291**	**48**	**19**	**11**	**2**	**371**	**396.8**	**0**	**0**	**149**	**31**	**12**	**3**	**0**	**195**	**204.9**
16:00 - 16:15	0	0	33	10	1	0	0	44	44.5	0	0	32	6	2	0	0	40	41.0	0	0	13	4	0	0	0	17	17.0
16:15 - 16:30	0	0	28	5	0	0	0	33	33.0	0	0	32	3	2	0	0	37	38.0	0	1	16	3	0	0	0	20	19.4
16:30 - 16:45	0	0	31	5	1	1	0	38	39.8	0	0	25	8	1	0	0	34	34.5	0	0	12	3	0	0	0	15	15.0
16:45 - 17:00	0	0	38	8	1	0	0	47	47.5	0	0	28	2	0	1	0	31	32.3	0	0	10	2	0	0	0	12	12.0
Hourly Total	**0**	**0**	**130**	**28**	**3**	**1**	**0**	**162**	**164.8**	**0**	**0**	**117**	**19**	**5**	**1**	**0**	**142**	**145.8**	**0**	**1**	**51**	**12**	**0**	**0**	**0**	**64**	**63.4**
17:00 - 17:15	0	0	56	12	1	1	0	70	71.8	0	0	24	5	0	0	0	29	29.0	0	0	11	2	0	0	1	14	15.0
17:15 - 17:30	0	0	42	8	0	1	0	51	52.3	0	0	25	7	0	0	0	32	32.0	0	0	10	2	0	0	0	12	12.0
17:30 - 17:45	0	0	26	3	2	0	0	31	32.0	0	0	28	3	0	0	0	31	31.0	0	0	14	2	0	0	0	16	16.0
17:45 - 18:00	0	0	24	4	0	1	0	29	30.3	0	0	21	2	0	0	0	23	23.0	0	0	8	2	0	0	0	10	10.0
Hourly Total	**0**	**0**	**148**	**27**	**3**	**3**	**0**	**181**	**186.4**	**0**	**0**	**98**	**17**	**0**	**0**	**0**	**115**	**115.0**	**0**	**0**	**43**	**8**	**0**	**0**	**1**	**52**	**53.0**
18:00 - 18:15	0	0	25	3	1	1	0	30	31.8	0	0	24	4	0	0	0	28	28.0	0	0	16	1	0	0	0	17	17.0
18:15 - 18:30	0	0	22	2	1	1	0	26	27.8	0	0	28	2	0	0	0	30	30.0	0	1	13	2	0	0	0	16	15.4
18:30 - 18:45	0	0	13	1	0	0	0	14	14.0	0	1	32	2	0	0	0	35	34.4	0	0	11	2	0	0	0	13	13.0
18:45 - 19:00	0	0	10	0	0	0	0	10	10.0	0	0	23	1	0	0	0	24	24.0	0	0	12	1	0	0	0	13	13.0
Hourly Total	**0**	**0**	**70**	**6**	**2**	**2**	**0**	**80**	**83.6**	**0**	**1**	**107**	**9**	**0**	**0**	**0**	**117**	**116.4**	**0**	**1**	**52**	**6**	**0**	**0**	**0**	**59**	**58.4**
TOTAL	**0**	**0**	**348**	**61**	**8**	**6**	**0**	**423**	**434.8**	**0**	**1**	**322**	**45**	**5**	**1**	**0**	**374**	**377.2**	**0**	**2**	**146**	**26**	**0**	**0**	**1**	**175**	**174.8**

	To M1 J25 Slip Road (S)									To A52 (W)								
TIME	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs
07:00 - 07:15	0	0	37	24	7	2	0	70	76.1	0	0	16	7	2	2	0	27	30.6
07:15 - 07:30	0	0	41	19	4	3	0	67	72.9	0	0	26	5	2	1	0	34	36.3
07:30 - 07:45	0	0	32	14	1	1	0	48	49.8	0	0	41	9	1	2	0	53	56.1
07:45 - 08:00	0	0	42	17	6	2	0	67	72.6	0	0	36	4	3	0	0	43	44.5
Hourly Total	**0**	**0**	**152**	**74**	**18**	**8**	**0**	**252**	**271.4**	**0**	**0**	**119**	**25**	**8**	**5**	**0**	**157**	**167.5**
08:00 - 08:15	0	1	61	11	6	0	0	79	81.4	0	0	29	6	1	0	1	37	38.5
08:15 - 08:30	0	0	32	12	6	7	0	57	69.1	0	0	43	7	2	0	0	52	53.0
08:30 - 08:45	0	0	38	9	8	2	0	57	63.6	0	0	27	8	2	1	1	39	42.3
08:45 - 09:00	0	0	27	8	2	3	0	40	44.9	0	0	22	3	1	1	0	27	28.8
Hourly Total	**0**	**1**	**158**	**40**	**22**	**12**	**0**	**233**	**259.0**	**0**	**0**	**121**	**24**	**6**	**2**	**2**	**155**	**162.6**
09:00 - 09:15	0	0	19	12	3	4	0	38	44.7	0	0	19	4	2	2	0	27	30.6
09:15 - 09:30	0	0	14	5	1	0	0	20	20.6	0	0	17	3	1	0	0	21	21.5
09:30 - 09:45	0	0	15	5	4	1	0	25	28.3	0	0	22	5	2	1	0	30	32.3
09:45 - 10:00	0	0	16	11	1	4	0	32	37.7	0	0	11	3	1	1	0	16	17.8
Hourly Total	**0**	**0**	**64**	**33**	**9**	**9**	**0**	**115**	**131.2**	**0**	**0**	**69**	**15**	**6**	**4**	**0**	**94**	**102.2**
TOTAL	**0**	**1**	**374**	**147**	**49**	**29**	**0**	**600**	**661.6**	**0**	**0**	**309**	**64**	**20**	**11**	**2**	**406**	**432.3**
16:00 - 16:15	0	0	19	8	3	0	0	30	31.5	0	0	20	4	0	0	0	24	24.0
16:15 - 16:30	0	0	28	10	4	0	0	42	44.0	0	0	16	4	0	0	0	20	20.0
16:30 - 16:45	0	0	22	4	2	1	0	29	31.3	0	0	20	4	1	2	0	27	30.1
16:45 - 17:00	0	0	21	4	1	3	0	29	33.4	0	0	16	2	1	1	0	20	21.8
Hourly Total	**0**	**0**	**90**	**26**	**10**	**4**	**0**	**130**	**140.2**	**0**	**0**	**72**	**14**	**2**	**3**	**0**	**91**	**95.9**
17:00 - 17:15	0	0	24	5	0	2	0	31	33.6	0	0	19	3	0	0	0	22	22.0
17:15 - 17:30	0	0	25	4	0	1	0	30	31.3	0	0	13	2	0	1	0	16	17.3
17:30 - 17:45	0	0	23	5	0	0	0	28	28.0	0	0	15	2	0	0	0	17	17.0
17:45 - 18:00	0	0	17	1	2	0	0	20	21.0	0	0	14	2	0	0	0	16	16.0
Hourly Total	**0**	**0**	**89**	**15**	**2**	**3**	**0**	**109**	**113.9**	**0**	**0**	**61**	**9**	**0**	**1**	**0**	**71**	**72.3**
18:00 - 18:15	0	0	19	5	0	0	0	24	24.0	0	0	19	1	0	0	0	20	20.0
18:15 - 18:30	0	0	16	2	0	0	0	18	18.0	0	0	14	2	0	0	0	16	16.0
18:30 - 18:45	0	0	9	2	0	0	0	11	11.0	0	0	12	3	0	0	0	15	15.0
18:45 - 19:00	0	0	13	1	0	0	0	14	14.0	0	0	14	2	0	0	0	16	16.0
Hourly Total	**0**	**0**	**57**	**10**	**0**	**0**	**0**	**67**	**67.0**	**0**	**0**	**59**	**8**	**0**	**0**	**0**	**67**	**67.0**
TOTAL	**0**	**0**	**236**	**51**	**12**	**7**	**0**	**306**	**321.1**	**0**	**0**	**192**	**31**	**2**	**4**	**0**	**229**	**235.2**

PCU Factors:	
CYCLE	0.2
M/CYCLE	0.4
CAR	1.0
LGV	1.0
OGV1	1.5
OGV2	2.3
BUS	2.0

APPENDIX 14 – Station Road/Broad Rushes Roundabout Junction Turning Count Results

Road Data Services Ltd

East Midlands Airport
Wednesday 27th September 2023
Junction: 2
Approach: Station Road North

	Ahead to Station Road (S)									Right to Broad Rushes								
TIME	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs
07:00 - 07:15	0	1	50	23	3	1	2	80	84.2	0	0	44	13	6	4	0	67	75.2
07:15 - 07:30	0	0	85	19	4	1	3	112	118.3	0	1	67	7	4	11	0	90	105.7
07:30 - 07:45	0	2	102	24	6	0	1	135	137.8	0	0	78	11	2	4	0	95	101.2
07:45 - 08:00	1	2	120	13	9	3	4	152	162.4	0	0	98	11	5	7	0	121	132.6
Hourly Total	**1**	**5**	**357**	**79**	**22**	**5**	**10**	**479**	**502.7**	**0**	**1**	**287**	**42**	**17**	**26**	**0**	**373**	**414.7**
08:00 - 08:15	2	2	106	25	4	4	2	145	151.4	0	1	80	17	6	5	0	109	117.9
08:15 - 08:30	0	0	135	15	3	1	3	157	162.8	0	0	111	11	5	7	0	134	145.6
08:30 - 08:45	0	0	103	20	4	1	0	128	131.3	0	1	91	15	7	8	0	122	135.3
08:45 - 09:00	0	1	85	23	2	1	3	115	119.7	0	1	96	12	5	11	0	125	141.2
Hourly Total	**2**	**3**	**429**	**83**	**13**	**7**	**8**	**545**	**565.2**	**0**	**3**	**378**	**55**	**23**	**31**	**0**	**490**	**540.0**
09:00 - 09:15	0	3	74	20	3	2	2	104	108.3	0	2	47	12	6	9	0	76	89.5
09:15 - 09:30	0	1	76	19	2	1	3	102	106.7	0	0	28	10	4	8	0	50	62.4
09:30 - 09:45	0	0	67	19	6	4	0	96	104.2	0	0	35	6	5	12	0	58	76.1
09:45 - 10:00	0	1	73	12	4	0	3	93	97.4	0	2	39	5	6	10	0	62	76.8
Hourly Total	**0**	**5**	**290**	**70**	**15**	**7**	**8**	**395**	**416.6**	**0**	**4**	**149**	**33**	**21**	**39**	**0**	**246**	**304.8**
TOTAL	**3**	**13**	**1076**	**232**	**50**	**19**	**26**	**1419**	**1484.5**	**0**	**8**	**814**	**130**	**61**	**96**	**0**	**1109**	**1259.5**
16:00 - 16:15	0	0	95	12	5	1	2	115	120.8	0	0	36	15	5	5	0	61	70.0
16:15 - 16:30	0	0	97	12	4	1	1	115	119.3	0	0	46	7	2	7	0	62	72.1
16:30 - 16:45	0	1	91	11	5	1	2	111	116.2	0	3	50	16	0	9	0	78	87.9
16:45 - 17:00	0	2	104	13	1	2	3	125	129.9	0	0	60	7	2	8	0	77	88.4
Hourly Total	**0**	**3**	**387**	**48**	**15**	**5**	**8**	**466**	**486.2**	**0**	**3**	**192**	**45**	**9**	**29**	**0**	**278**	**318.4**
17:00 - 17:15	0	0	112	14	1	0	1	128	129.5	0	0	70	11	2	5	0	88	95.5
17:15 - 17:30	0	0	189	7	0	0	3	199	202.0	0	3	80	4	2	3	0	92	95.1
17:30 - 17:45	0	2	99	6	1	1	1	110	111.6	0	0	119	5	1	4	0	129	134.7
17:45 - 18:00	0	2	86	10	1	0	3	102	104.3	0	1	95	8	1	4	0	109	114.1
Hourly Total	**0**	**4**	**486**	**37**	**3**	**1**	**8**	**539**	**547.4**	**0**	**4**	**364**	**28**	**6**	**16**	**0**	**418**	**439.4**
18:00 - 18:15	0	4	80	7	0	0	1	92	90.6	0	1	85	3	3	2	0	94	97.5
18:15 - 18:30	0	1	74	9	3	0	3	90	93.9	0	0	57	9	1	4	0	71	76.7
18:30 - 18:45	0	0	103	6	1	0	1	111	112.5	0	0	49	4	0	11	0	64	78.3
18:45 - 19:00	0	0	68	6	1	1	1	77	79.8	0	0	32	4	0	2	0	38	40.6
Hourly Total	**0**	**5**	**325**	**28**	**5**	**1**	**6**	**370**	**376.8**	**0**	**1**	**223**	**20**	**4**	**19**	**0**	**267**	**293.1**
TOTAL	**0**	**12**	**1198**	**113**	**23**	**7**	**22**	**1375**	**1410.4**	**0**	**8**	**779**	**93**	**19**	**64**	**0**	**963**	**1050.9**

PCU Factors:	
CYCLE	0.2
M/CYCLE	0.4
CAR	1.0
LGV	1.0
OGV1	1.5
OGV2	2.3
BUS	2.0

Road Data Services Ltd

East Midlands Airport
Wednesday 27th September 2023
Junction: 2
Approach: Station Road South

	Left to Broad Rushes									Ahead to Station Road (N)								
TIME	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs
07:00 - 07:15	0	0	2	1	0	0	0	3	3.0	0	0	40	10	2	3	0	55	59.9
07:15 - 07:30	0	0	2	1	0	0	0	3	3.0	0	0	33	13	4	0	2	52	56.0
07:30 - 07:45	0	0	4	0	0	0	0	4	4.0	0	0	73	14	3	0	2	92	95.5
07:45 - 08:00	0	0	2	2	0	0	0	4	4.0	0	0	53	15	4	0	1	73	76.0
Hourly Total	**0**	**0**	**10**	**4**	**0**	**0**	**0**	**14**	**14.0**	**0**	**0**	**199**	**52**	**13**	**3**	**5**	**272**	**287.4**
08:00 - 08:15	0	0	5	1	0	0	0	6	6.0	0	1	51	10	4	0	4	70	75.4
08:15 - 08:30	0	0	5	1	0	1	0	7	8.3	0	0	64	12	8	2	0	86	92.6
08:30 - 08:45	0	0	6	1	0	0	0	7	7.0	0	0	51	10	4	3	2	70	77.9
08:45 - 09:00	0	0	4	2	0	0	0	6	6.0	0	0	64	16	6	1	3	90	97.3
Hourly Total	**0**	**0**	**20**	**5**	**0**	**1**	**0**	**26**	**27.3**	**0**	**1**	**230**	**48**	**22**	**6**	**9**	**316**	**343.2**
09:00 - 09:15	0	0	2	0	0	0	0	2	2.0	0	0	51	13	2	2	1	69	73.6
09:15 - 09:30	0	0	0	1	0	0	0	1	1.0	5	0	56	19	3	4	2	89	93.7
09:30 - 09:45	0	0	0	0	0	0	0	0	0.0	0	1	56	17	2	0	4	80	84.4
09:45 - 10:00	0	0	2	2	0	0	0	4	4.0	0	0	59	11	6	0	0	76	79.0
Hourly Total	**0**	**0**	**4**	**3**	**0**	**0**	**0**	**7**	**7.0**	**5**	**1**	**222**	**60**	**13**	**6**	**7**	**314**	**330.7**
TOTAL	**0**	**0**	**34**	**12**	**0**	**1**	**0**	**47**	**48.3**	**5**	**2**	**651**	**160**	**48**	**15**	**21**	**902**	**961.3**
16:00 - 16:15	0	0	2	0	0	0	0	2	2.0	0	2	122	10	3	0	3	140	143.3
16:15 - 16:30	0	0	2	1	0	0	0	3	3.0	0	0	115	24	5	0	1	145	148.5
16:30 - 16:45	0	0	0	0	1	0	0	1	1.5	2	1	125	17	2	0	2	149	149.8
16:45 - 17:00	0	0	2	0	0	0	0	2	2.0	1	3	95	9	4	0	2	114	115.4
Hourly Total	**0**	**0**	**6**	**1**	**1**	**0**	**0**	**8**	**8.5**	**3**	**6**	**457**	**60**	**14**	**0**	**8**	**548**	**557.0**
17:00 - 17:15	0	0	3	0	0	0	0	3	3.0	1	2	195	23	1	0	2	224	224.5
17:15 - 17:30	0	0	4	1	0	0	0	5	5.0	0	0	119	10	1	1	2	133	136.8
17:30 - 17:45	0	1	1	2	0	0	0	4	3.4	1	3	97	11	0	0	3	115	115.4
17:45 - 18:00	0	0	0	0	0	0	0	0	0.0	0	2	99	13	0	0	1	115	114.8
Hourly Total	**0**	**1**	**8**	**3**	**0**	**0**	**0**	**12**	**11.4**	**2**	**7**	**510**	**57**	**2**	**1**	**8**	**587**	**591.5**
18:00 - 18:15	0	0	2	1	0	0	0	3	3.0	0	4	89	10	0	0	3	106	106.6
18:15 - 18:30	0	0	1	0	0	0	0	1	1.0	0	5	86	5	0	0	0	96	93.0
18:30 - 18:45	0	0	2	0	0	0	0	2	2.0	0	6	64	3	1	0	3	77	76.9
18:45 - 19:00	0	0	1	0	0	0	0	1	1.0	0	0	66	2	1	0	1	70	71.5
Hourly Total	**0**	**0**	**6**	**1**	**0**	**0**	**0**	**7**	**7.0**	**0**	**15**	**305**	**20**	**2**	**0**	**7**	**349**	**348.0**
TOTAL	**0**	**1**	**20**	**5**	**1**	**0**	**0**	**27**	**26.9**	**5**	**28**	**1272**	**137**	**18**	**1**	**23**	**1484**	**1496.5**

PCU Factors:	
CYCLE	0.2
M/CYCLE	0.4
CAR	1.0
LGV	1.0
OGV1	1.5
OGV2	2.3
BUS	2.0

Road Data Services Ltd

East Midlands Airport
Wednesday 27th September 2023
Junction: 2
Approach: Broad Rushes

	Left to Station Road (N)									Right to Station Road (S)								
TIME	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs
07:00 - 07:15	0	0	36	4	6	4	0	50	58.2	0	0	0	0	0	0	0	0	0.0
07:15 - 07:30	0	0	59	17	10	6	0	92	104.8	0	0	0	0	0	0	0	0	0.0
07:30 - 07:45	0	0	72	12	4	10	0	98	113.0	0	0	3	0	1	0	0	4	4.5
07:45 - 08:00	0	0	75	9	5	10	0	99	114.5	0	0	1	0	0	0	0	1	1.0
Hourly Total	**0**	**0**	**242**	**42**	**25**	**30**	**0**	**339**	**390.5**	**0**	**0**	**4**	**0**	**1**	**0**	**0**	**5**	**5.5**
08:00 - 08:15	0	0	79	8	1	10	0	98	111.5	0	0	2	1	0	0	0	3	3.0
08:15 - 08:30	0	0	42	11	9	4	0	66	75.7	0	0	3	0	0	0	0	3	3.0
08:30 - 08:45	0	0	54	7	1	9	0	71	83.2	0	0	4	1	0	0	0	5	5.0
08:45 - 09:00	0	0	51	13	6	6	0	76	86.8	0	0	5	1	1	0	0	7	7.5
Hourly Total	**0**	**0**	**226**	**39**	**17**	**29**	**0**	**311**	**357.2**	**0**	**0**	**14**	**3**	**1**	**0**	**0**	**18**	**18.5**
09:00 - 09:15	0	0	39	8	5	7	0	59	70.6	0	0	2	0	1	0	0	3	3.5
09:15 - 09:30	0	0	31	16	4	6	0	57	66.8	0	0	1	1	0	0	0	2	2.0
09:30 - 09:45	0	0	33	6	8	10	0	57	74.0	0	0	4	1	0	0	0	5	5.0
09:45 - 10:00	0	0	37	8	5	6	0	56	66.3	0	0	1	0	0	0	0	1	1.0
Hourly Total	**0**	**0**	**140**	**38**	**22**	**29**	**0**	**229**	**277.7**	**0**	**0**	**8**	**2**	**1**	**0**	**0**	**11**	**11.5**
TOTAL	**0**	**0**	**608**	**119**	**64**	**88**	**0**	**879**	**1025.4**	**0**	**0**	**26**	**5**	**3**	**0**	**0**	**34**	**35.5**
16:00 - 16:15	0	4	130	17	1	10	0	162	173.1	0	0	3	1	0	0	0	4	4.0
16:15 - 16:30	1	3	87	8	3	9	0	111	121.6	0	0	3	0	0	0	0	3	3.0
16:30 - 16:45	0	3	85	11	1	3	0	103	105.6	0	0	3	0	0	0	0	3	3.0
16:45 - 17:00	0	2	90	7	5	5	0	109	116.8	0	0	3	0	0	0	0	3	3.0
Hourly Total	**1**	**12**	**392**	**43**	**10**	**27**	**0**	**485**	**517.1**	**0**	**0**	**12**	**1**	**0**	**0**	**0**	**13**	**13.0**
17:00 - 17:15	0	2	132	12	0	3	0	149	151.7	0	0	3	0	0	0	0	3	3.0
17:15 - 17:30	0	1	90	3	2	2	0	98	101.0	0	0	3	1	0	0	0	4	4.0
17:30 - 17:45	0	0	130	7	2	5	0	144	151.5	0	0	10	0	0	0	0	10	10.0
17:45 - 18:00	0	0	73	6	1	2	0	82	85.1	0	0	4	0	0	0	0	4	4.0
Hourly Total	**0**	**3**	**425**	**28**	**5**	**12**	**0**	**473**	**489.3**	**0**	**0**	**20**	**1**	**0**	**0**	**0**	**21**	**21.0**
18:00 - 18:15	1	4	175	8	1	2	0	191	190.9	0	0	2	0	0	0	0	2	2.0
18:15 - 18:30	0	1	66	2	4	2	0	75	79.0	0	0	3	0	0	0	0	3	3.0
18:30 - 18:45	0	2	108	4	1	4	0	119	123.5	0	0	2	0	0	0	0	2	2.0
18:45 - 19:00	0	0	45	5	0	3	0	53	56.9	0	0	1	0	0	0	0	1	1.0
Hourly Total	**1**	**7**	**394**	**19**	**6**	**11**	**0**	**438**	**450.3**	**0**	**0**	**8**	**0**	**0**	**0**	**0**	**8**	**8.0**
TOTAL	**2**	**22**	**1211**	**90**	**21**	**50**	**0**	**1396**	**1456.7**	**0**	**0**	**40**	**2**	**0**	**0**	**0**	**42**	**42.0**

PCU Factors:	
CYCLE	0.2
M/CYCLE	0.4
CAR	1.0
LGV	1.0
OGV1	1.5
OGV2	2.3
BUS	2.0

APPENDIX 15 – A453/Kegworth Road Roundabout Junction Turning Count Results

Road Data Services Ltd

East Midlands Airport
Wednesday 20th September 2023
Junction: 4
Approach: A453 Exit Slip Road

	To Kegworth Road (E)									To Kegworth Road (S)									To A453 Entry Slip Road								
TIME	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs
07:00 - 07:15	0	0	14	4	0	0	0	18	18.0	0	0	4	0	0	0	0	4	4.0	0	0	0	0	0	0	0	0	0.0
07:15 - 07:30	0	0	11	2	0	0	0	13	13.0	0	0	2	1	0	1	0	4	5.3	0	0	0	0	0	0	0	0	0.0
07:30 - 07:45	0	0	11	0	0	0	0	11	11.0	0	0	7	0	0	0	0	7	7.0	0	0	0	0	0	0	0	0	0.0
07:45 - 08:00	0	0	10	1	0	0	0	11	11.0	0	0	4	2	0	0	0	6	6.0	0	0	0	0	0	0	0	0	0.0
Hourly Total	**0**	**0**	**46**	**7**	**0**	**0**	**0**	53	53.0	**0**	**0**	**17**	**3**	**0**	**1**	**0**	21	22.3	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0	0.0
08:00 - 08:15	0	0	8	2	1	0	0	11	11.5	0	0	3	2	0	0	0	5	5.0	0	0	0	0	0	0	0	0	0.0
08:15 - 08:30	0	0	5	0	0	0	0	5	5.0	0	0	6	1	1	0	0	8	8.5	0	0	0	0	0	0	0	0	0.0
08:30 - 08:45	0	0	4	0	0	1	0	5	6.3	0	0	2	3	1	0	0	6	6.5	0	0	0	0	0	0	0	0	0.0
08:45 - 09:00	0	0	5	0	0	0	0	5	5.0	0	0	3	0	0	0	0	3	3.0	0	0	0	0	0	0	0	0	0.0
Hourly Total	**0**	**0**	**22**	**2**	**1**	**1**	**0**	26	27.8	**0**	**0**	**14**	**6**	**2**	**0**	**0**	22	23.0	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0	0.0
09:00 - 09:15	0	0	2	0	0	0	0	2	2.0	0	0	2	0	0	0	1	3	4.0	0	0	0	0	0	0	0	0	0.0
09:15 - 09:30	0	0	5	2	0	0	0	7	7.0	0	0	1	1	0	0	0	2	2.0	0	0	0	0	0	0	0	0	0.0
09:30 - 09:45	0	0	3	0	0	0	0	3	3.0	0	0	1	0	0	0	0	1	1.0	0	0	0	0	0	0	0	0	0.0
09:45 - 10:00	0	0	2	3	0	0	0	5	5.0	0	0	1	0	0	1	0	2	3.3	0	0	0	0	0	0	0	0	0.0
Hourly Total	**0**	**0**	**12**	**5**	**0**	**0**	**0**	17	17.0	**0**	**0**	**5**	**1**	**0**	**1**	**1**	8	10.3	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0	0.0
TOTAL	**0**	**0**	**80**	**14**	**1**	**1**	**0**	96	97.8	**0**	**0**	**36**	**10**	**2**	**2**	**1**	51	55.6	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0	0.0
16:00 - 16:15	0	0	1	1	0	0	0	2	2.0	0	0	6	1	0	0	0	7	7.0	0	0	0	0	0	0	0	0	0.0
16:15 - 16:30	0	0	3	1	0	0	0	4	4.0	0	0	9	2	0	0	0	11	11.0	0	0	0	0	0	0	0	0	0.0
16:30 - 16:45	0	0	5	0	0	0	0	5	5.0	0	0	9	2	0	0	0	11	11.0	0	0	0	0	0	0	0	0	0.0
16:45 - 17:00	0	0	6	0	0	0	0	6	6.0	0	0	4	1	1	0	0	6	6.5	0	0	0	0	0	0	0	0	0.0
Hourly Total	**0**	**0**	**15**	**2**	**0**	**0**	**0**	17	17.0	**0**	**0**	**28**	**6**	**1**	**0**	**0**	35	35.5	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0	0.0
17:00 - 17:15	0	0	1	1	0	0	0	2	2.0	0	0	8	2	0	0	0	10	10.0	0	0	0	0	0	0	0	0	0.0
17:15 - 17:30	0	0	3	0	0	0	0	3	3.0	0	0	6	1	0	0	0	7	7.0	0	0	0	0	0	0	0	0	0.0
17:30 - 17:45	0	0	1	0	0	0	1	2	3.0	0	0	8	2	0	0	0	10	10.0	0	0	0	0	0	0	0	0	0.0
17:45 - 18:00	0	0	6	2	0	0	1	9	10.0	0	0	9	0	0	0	0	9	9.0	0	0	0	0	0	0	0	0	0.0
Hourly Total	**0**	**0**	**11**	**3**	**0**	**0**	**2**	16	18.0	**0**	**0**	**31**	**5**	**0**	**0**	**0**	36	36.0	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0	0.0
18:00 - 18:15	0	0	5	0	0	0	0	5	5.0	0	0	6	0	0	0	0	6	6.0	0	0	0	0	0	0	0	0	0.0
18:15 - 18:30	0	0	1	0	0	0	0	1	1.0	0	0	4	0	0	0	0	4	4.0	0	0	0	0	0	0	0	0	0.0
18:30 - 18:45	0	0	0	0	0	0	0	0	0.0	0	0	6	0	0	0	0	6	6.0	0	0	0	0	0	0	0	0	0.0
18:45 - 19:00	0	0	3	1	0	0	0	4	4.0	0	0	0	1	0	0	0	1	1.0	0	0	0	0	0	0	0	0	0.0
Hourly Total	**0**	**0**	**9**	**1**	**0**	**0**	**0**	10	10.0	**0**	**0**	**16**	**1**	**0**	**0**	**0**	17	17.0	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0	0.0
TOTAL	**0**	**0**	**35**	**6**	**0**	**0**	**2**	43	45.0	**0**	**0**	**75**	**12**	**1**	**0**	**0**	88	88.5	**0**	**0**	**0**	**0**	**0**	**0**	**0**	0	0.0

PCU Factors:	
CYCLE	0.2
M/CYCLE	0.4
CAR	1.0
LGV	1.0
OGV1	1.5
OGV2	2.3
BUS	2.0

Road Data Services Ltd

East Midlands Airport
Wednesday 20th September 2023
Junction: 4
Approach: Kegworth Road East

	To Kegworth Road (S)									To A453 Entry Slip Road									To A453 Exit Slip Road								
TIME	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs
07:00 - 07:15	0	0	0	1	0	0	0	1	1.0	0	0	5	2	0	0	0	7	7.0	0	0	0	0	0	0	0	0	0.0
07:15 - 07:30	0	0	1	3	0	0	0	4	4.0	0	1	2	0	0	0	0	3	2.4	0	0	0	0	0	0	0	0	0.0
07:30 - 07:45	0	0	3	1	0	0	0	4	4.0	0	0	4	0	0	0	0	4	4.0	0	0	0	0	0	0	0	0	0.0
07:45 - 08:00	0	0	6	0	0	0	0	6	6.0	0	0	13	0	0	0	0	13	13.0	0	0	0	0	0	0	0	0	0.0
Hourly Total	**0**	**0**	**10**	**5**	**0**	**0**	**0**	**15**	**15.0**	**0**	**1**	**24**	**2**	**0**	**0**	**0**	**27**	**26.4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**
08:00 - 08:15	0	0	6	1	0	0	0	7	7.0	0	0	5	0	0	1	0	6	7.3	0	0	0	0	0	0	0	0	0.0
08:15 - 08:30	0	0	1	2	0	0	0	3	3.0	0	0	2	0	1	0	0	3	3.5	0	0	0	0	0	0	0	0	0.0
08:30 - 08:45	0	0	2	1	0	0	0	3	3.0	0	0	3	0	1	0	0	4	4.5	0	0	0	0	0	0	0	0	0.0
08:45 - 09:00	0	0	1	1	0	0	0	2	2.0	0	0	6	2	1	0	0	9	9.5	0	0	0	0	0	0	0	0	0.0
Hourly Total	**0**	**0**	**10**	**5**	**0**	**0**	**0**	**15**	**15.0**	**0**	**0**	**16**	**2**	**3**	**1**	**0**	**22**	**24.8**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**
09:00 - 09:15	1	0	0	1	0	0	0	2	1.2	0	0	6	1	0	0	0	7	7.0	0	0	0	0	0	0	0	0	0.0
09:15 - 09:30	0	0	0	1	0	0	0	1	1.0	0	0	1	0	0	1	0	2	3.3	0	0	0	0	0	0	0	0	0.0
09:30 - 09:45	0	0	3	0	0	0	0	3	3.0	0	0	3	0	0	0	0	3	3.0	0	0	0	0	0	0	0	0	0.0
09:45 - 10:00	0	0	1	1	0	0	0	2	2.0	0	0	8	0	0	0	0	8	8.0	0	0	0	0	0	0	0	0	0.0
Hourly Total	**1**	**0**	**4**	**3**	**0**	**0**	**0**	**8**	**7.2**	**0**	**0**	**18**	**1**	**0**	**1**	**0**	**20**	**21.3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**
TOTAL	**1**	**0**	**24**	**13**	**0**	**0**	**0**	**38**	**37.2**	**0**	**1**	**58**	**5**	**3**	**2**	**0**	**69**	**72.5**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**
16:00 - 16:15	0	3	3	2	0	0	0	8	6.2	0	0	32	2	0	0	0	34	34.0	0	0	0	0	0	0	0	0	0.0
16:15 - 16:30	0	0	3	0	0	0	0	3	3.0	0	0	14	2	0	0	0	16	16.0	0	0	0	0	0	0	0	0	0.0
16:30 - 16:45	0	0	2	1	0	0	0	3	3.0	0	1	13	5	0	0	0	19	18.4	0	0	0	0	0	0	0	0	0.0
16:45 - 17:00	0	0	5	0	0	0	0	5	5.0	0	0	33	2	0	0	0	35	35.0	0	0	0	0	0	0	0	0	0.0
Hourly Total	**0**	**3**	**13**	**3**	**0**	**0**	**0**	**19**	**17.2**	**0**	**1**	**92**	**11**	**0**	**0**	**0**	**104**	**103.4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**
17:00 - 17:15	0	0	4	0	0	0	0	4	4.0	0	0	30	1	0	0	0	31	31.0	0	0	0	0	0	0	0	0	0.0
17:15 - 17:30	1	0	8	0	0	0	0	9	8.2	0	0	7	2	0	0	0	9	9.0	0	0	0	0	0	0	0	0	0.0
17:30 - 17:45	0	0	1	0	0	0	0	1	1.0	0	0	11	2	1	2	0	16	19.1	0	0	0	0	0	0	0	0	0.0
17:45 - 18:00	0	0	5	1	0	0	2	8	10.0	0	0	13	2	0	0	0	15	15.0	0	0	0	0	0	0	0	0	0.0
Hourly Total	**1**	**0**	**18**	**1**	**0**	**0**	**2**	**22**	**23.2**	**0**	**0**	**61**	**7**	**1**	**2**	**0**	**71**	**74.1**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**
18:00 - 18:15	0	0	0	0	0	0	1	1	2.0	0	0	20	1	0	0	0	21	21.0	0	0	0	0	0	0	0	0	0.0
18:15 - 18:30	0	0	5	1	0	0	0	6	6.0	0	0	22	1	1	0	1	25	26.5	0	0	0	0	0	0	0	0	0.0
18:30 - 18:45	0	0	4	0	0	0	0	4	4.0	0	0	5	2	1	0	0	8	8.5	0	0	0	0	0	0	0	0	0.0
18:45 - 19:00	0	0	2	0	0	0	1	3	4.0	0	0	27	1	0	0	0	28	28.0	0	0	0	0	0	0	0	0	0.0
Hourly Total	**0**	**0**	**11**	**1**	**0**	**0**	**2**	**14**	**16.0**	**0**	**0**	**74**	**5**	**2**	**0**	**1**	**82**	**84.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**
TOTAL	**1**	**3**	**42**	**5**	**0**	**0**	**4**	**55**	**56.4**	**0**	**1**	**227**	**23**	**3**	**2**	**1**	**257**	**261.5**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**

PCU Factors:	
CYCLE	0.2
M/CYCLE	0.4
CAR	1.0
LGV	1.0
OGV1	1.5
OGV2	2.3
BUS	2.0

Road Data Services Ltd

East Midlands Airport
Wednesday 20th September 2023
Junction: 4
Approach: Kegworth Road South

	To A453 Entry Slip Road									To A453 Exit Slip Road									To Kegworth Road (E)								
TIME	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs
07:00 - 07:15	0	0	1	0	0	0	0	1	1.0	0	0	0	0	0	0	0	0	0.0	0	0	9	3	0	0	0	12	12.0
07:15 - 07:30	0	0	1	0	0	0	0	1	1.0	0	0	0	0	0	0	0	0	0.0	0	0	7	1	0	0	0	8	8.0
07:30 - 07:45	0	1	3	1	0	0	0	5	4.4	0	0	0	0	0	0	0	0	0.0	0	0	11	3	0	0	1	15	16.0
07:45 - 08:00	0	0	0	0	0	1	0	1	2.3	0	0	0	0	0	0	0	0	0.0	3	0	15	3	0	0	0	21	18.6
Hourly Total	**0**	**1**	**5**	**1**	**0**	**1**	**0**	**8**	**8.7**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**3**	**0**	**42**	**10**	**0**	**0**	**1**	**56**	**54.6**
08:00 - 08:15	0	0	1	1	0	1	0	3	4.3	0	0	0	0	0	0	0	0	0.0	0	0	10	1	0	0	0	11	11.0
08:15 - 08:30	0	0	3	0	0	0	0	3	3.0	0	0	0	0	0	0	0	0	0.0	1	0	6	2	0	0	0	9	8.2
08:30 - 08:45	0	0	3	0	1	0	0	4	4.5	0	0	0	0	0	0	0	0	0.0	0	0	3	0	0	0	0	3	3.0
08:45 - 09:00	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	5	2	0	0	1	8	9.0
Hourly Total	**0**	**0**	**7**	**1**	**1**	**1**	**0**	**10**	**11.8**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**1**	**0**	**24**	**5**	**0**	**0**	**1**	**31**	**31.2**
09:00 - 09:15	0	0	1	0	0	0	0	1	1.0	0	0	0	0	0	0	0	0	0.0	0	0	1	1	0	0	0	2	2.0
09:15 - 09:30	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	10	0	0	0	0	10	10.0
09:30 - 09:45	0	0	1	1	1	0	0	3	3.5	0	0	0	0	0	0	0	0	0.0	0	0	2	0	0	0	0	2	2.0
09:45 - 10:00	0	0	1	0	0	0	0	1	1.0	0	0	0	0	0	0	0	0	0.0	0	0	6	1	0	0	0	7	7.0
Hourly Total	**0**	**0**	**3**	**1**	**1**	**0**	**0**	**5**	**5.5**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**19**	**2**	**0**	**0**	**0**	**21**	**21.0**
TOTAL	**0**	**1**	**15**	**3**	**2**	**2**	**0**	**23**	**26.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**4**	**0**	**85**	**17**	**0**	**0**	**2**	**108**	**106.8**
16:00 - 16:15	0	0	3	0	0	0	0	3	3.0	0	0	0	0	0	0	0	0	0.0	0	0	3	3	1	0	0	7	7.5
16:15 - 16:30	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	6	0	0	0	0	6	6.0
16:30 - 16:45	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	13	3	0	0	0	16	16.0
16:45 - 17:00	0	0	0	2	0	0	0	2	2.0	0	0	0	0	0	0	0	0	0.0	0	0	4	0	1	0	0	5	5.5
Hourly Total	**0**	**0**	**3**	**2**	**0**	**0**	**0**	**5**	**5.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**26**	**6**	**2**	**0**	**0**	**34**	**35.0**
17:00 - 17:15	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	10	1	0	0	0	11	11.0
17:15 - 17:30	0	0	1	1	0	0	0	2	2.0	0	0	0	0	0	0	0	0	0.0	1	0	4	2	0	0	0	7	6.2
17:30 - 17:45	0	0	2	0	0	0	0	2	2.0	0	0	0	0	0	0	0	0	0.0	0	0	9	3	0	0	0	12	12.0
17:45 - 18:00	0	0	2	0	0	0	0	2	2.0	0	0	0	0	0	0	0	0	0.0	0	0	5	1	0	0	0	6	6.0
Hourly Total	**0**	**0**	**5**	**1**	**0**	**0**	**0**	**6**	**6.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**1**	**0**	**28**	**7**	**0**	**0**	**0**	**36**	**35.2**
18:00 - 18:15	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	10	1	0	0	1	12	13.0
18:15 - 18:30	0	0	0	1	0	0	0	1	1.0	0	0	0	0	0	0	0	0	0.0	0	0	5	1	0	0	0	6	6.0
18:30 - 18:45	0	0	1	0	0	0	0	1	1.0	0	0	0	0	0	0	0	0	0.0	1	0	10	1	0	0	0	12	11.2
18:45 - 19:00	0	0	1	0	0	0	0	1	1.0	0	0	0	0	0	0	0	0	0.0	0	0	9	2	0	0	0	11	11.0
Hourly Total	**0**	**0**	**2**	**1**	**0**	**0**	**0**	**3**	**3.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**1**	**0**	**34**	**5**	**0**	**0**	**1**	**41**	**41.2**
TOTAL	**0**	**0**	**10**	**4**	**0**	**0**	**0**	**14**	**14.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**2**	**0**	**88**	**18**	**2**	**0**	**1**	**111**	**111.4**

PCU Factors	
CYCLE	0.2
M/CYCL	0.4
CAR	1.0
LGV	1.0
OGV1	1.5
OGV2	2.3
BUS	2.0

APPENDIX 16 – A453/Barton Lane/West Leake Lane Roundabouts Junction Turning Count Results

Road Data Services Ltd

East Midlands Airport
Wednesday 20th September 2023
Junction: 6
Approach: Barton Lane North

	To A453 Entry Slip Road									To Barton Lane (S)									To A453 Exit Slip Road								
TIME	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs
07:00 - 07:15	0	0	2	0	0	0	0	**2**	**2.0**	0	0	5	1	0	0	0	**6**	**6.0**	0	0	0	0	0	0	0	**0**	**0.0**
07:15 - 07:30	0	0	0	0	0	0	0	**0**	**0.0**	0	0	1	2	0	0	1	**4**	**5.0**	0	0	0	0	0	0	0	**0**	**0.0**
07:30 - 07:45	0	0	0	0	0	0	0	**0**	**0.0**	0	0	9	4	1	2	0	**16**	**19.1**	0	0	0	0	0	0	0	**0**	**0.0**
07:45 - 08:00	0	0	0	0	0	0	0	**0**	**0.0**	0	0	6	5	1	1	0	**13**	**14.8**	0	0	0	0	0	0	0	**0**	**0.0**
Hourly Total	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**2**	**2.0**	**0**	**0**	**21**	**12**	**2**	**3**	**1**	**39**	**44.9**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**
08:00 - 08:15	0	0	0	0	0	0	0	**0**	**0.0**	0	0	8	1	1	0	1	**11**	**12.5**	0	0	0	0	0	0	0	**0**	**0.0**
08:15 - 08:30	0	0	0	0	0	0	0	**0**	**0.0**	0	0	10	3	0	3	0	**16**	**19.9**	0	0	0	0	0	0	0	**0**	**0.0**
08:30 - 08:45	0	0	0	0	0	0	0	**0**	**0.0**	0	0	10	3	1	0	0	**14**	**14.5**	0	0	0	0	0	0	0	**0**	**0.0**
08:45 - 09:00	0	0	0	0	0	0	0	**0**	**0.0**	0	0	5	1	0	2	0	**8**	**10.6**	0	0	0	0	0	0	0	**0**	**0.0**
Hourly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**33**	**8**	**2**	**5**	**1**	**49**	**57.5**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**
09:00 - 09:15	0	0	0	0	0	0	0	**0**	**0.0**	0	0	1	1	1	1	0	**4**	**5.8**	0	0	0	0	0	0	0	**0**	**0.0**
09:15 - 09:30	0	0	0	0	0	0	0	**0**	**0.0**	0	0	4	2	0	0	0	**6**	**6.0**	0	0	0	0	0	0	0	**0**	**0.0**
09:30 - 09:45	0	0	0	0	0	0	0	**0**	**0.0**	0	0	5	2	0	0	1	**8**	**9.0**	0	0	0	0	0	0	0	**0**	**0.0**
09:45 - 10:00	0	0	0	0	0	0	0	**0**	**0.0**	0	0	3	1	0	0	0	**4**	**4.0**	0	0	0	0	0	0	0	**0**	**0.0**
Hourly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**13**	**6**	**1**	**1**	**1**	**22**	**24.8**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**
TOTAL	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**2**	**2.0**	**0**	**0**	**67**	**26**	**5**	**9**	**3**	**110**	**127.2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**
16:00 - 16:15	0	0	3	0	0	0	0	**3**	**3.0**	0	0	7	1	0	0	0	**8**	**8.0**	0	0	0	0	0	0	0	**0**	**0.0**
16:15 - 16:30	0	0	0	0	0	0	0	**0**	**0.0**	0	0	9	1	0	0	0	**10**	**10.0**	0	0	0	0	0	0	0	**0**	**0.0**
16:30 - 16:45	0	0	1	0	0	0	0	**1**	**1.0**	1	0	3	0	0	0	0	**4**	**3.2**	0	0	0	0	0	0	0	**0**	**0.0**
16:45 - 17:00	0	0	0	0	0	0	0	**0**	**0.0**	0	0	4	0	0	0	0	**4**	**4.0**	0	0	0	0	0	0	0	**0**	**0.0**
Hourly Total	**0**	**0**	**4**	**0**	**0**	**0**	**0**	**4**	**4.0**	**1**	**0**	**23**	**2**	**0**	**0**	**0**	**26**	**25.2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**
17:00 - 17:15	0	0	0	0	0	0	0	**0**	**0.0**	0	0	1	0	0	0	0	**1**	**1.0**	0	0	0	0	0	0	0	**0**	**0.0**
17:15 - 17:30	0	0	0	0	0	0	0	**0**	**0.0**	1	0	5	0	0	0	0	**6**	**5.2**	0	0	0	0	0	0	0	**0**	**0.0**
17:30 - 17:45	0	0	0	0	0	0	0	**0**	**0.0**	0	0	3	1	0	0	1	**5**	**6.0**	0	0	0	0	0	0	0	**0**	**0.0**
17:45 - 18:00	0	0	1	0	0	0	0	**1**	**1.0**	0	0	4	2	0	0	0	**6**	**6.0**	0	0	0	0	0	0	0	**0**	**0.0**
Hourly Total	**0**	**0**	**1**	**0**	**0**	**0**	**0**	**1**	**1.0**	**1**	**0**	**13**	**3**	**0**	**0**	**1**	**18**	**18.2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**
18:00 - 18:15	0	0	1	0	0	0	0	**1**	**1.0**	0	0	5	0	0	0	0	**5**	**5.0**	0	0	0	0	0	0	0	**0**	**0.0**
18:15 - 18:30	0	0	0	0	0	0	0	**0**	**0.0**	0	0	3	1	0	0	0	**4**	**4.0**	0	0	0	0	0	0	0	**0**	**0.0**
18:30 - 18:45	0	0	1	0	0	0	0	**1**	**1.0**	0	0	3	1	0	0	0	**4**	**4.0**	0	0	0	0	0	0	0	**0**	**0.0**
18:45 - 19:00	0	0	0	0	0	0	0	**0**	**0.0**	0	0	3	0	0	0	0	**3**	**3.0**	0	0	0	0	0	0	0	**0**	**0.0**
Hourly Total	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**2**	**2.0**	**0**	**0**	**14**	**2**	**0**	**0**	**0**	**16**	**16.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**
TOTAL	**0**	**0**	**7**	**0**	**0**	**0**	**0**	**7**	**7.0**	**2**	**0**	**50**	**7**	**0**	**0**	**1**	**60**	**59.4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**

PCU Factors:	
CYCLE	0.2
M/CYCLE	0.4
CAR	1.0
LGV	1.0
OGV1	1.5
OGV2	2.3
BUS	2.0

Road Data Services Ltd

East Midlands Airport
Wednesday 20th September 2023
Junction: 6
Approach: A453 Entry Slip Road

	To Barton Lane (S)									To A453 Exit Slip Road									To Barton Lane (N)								
TIME	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs
07:00 - 07:15	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
07:15 - 07:30	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
07:30 - 07:45	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
07:45 - 08:00	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
Hourly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**
08:00 - 08:15	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
08:15 - 08:30	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
08:30 - 08:45	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
08:45 - 09:00	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
Hourly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**
09:00 - 09:15	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
09:15 - 09:30	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
09:30 - 09:45	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
09:45 - 10:00	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
Hourly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**
16:00 - 16:15	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
16:15 - 16:30	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
16:30 - 16:45	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
16:45 - 17:00	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
Hourly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**
17:00 - 17:15	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
17:15 - 17:30	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
17:30 - 17:45	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
17:45 - 18:00	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
Hourly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**
18:00 - 18:15	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
18:15 - 18:30	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
18:30 - 18:45	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
18:45 - 19:00	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
Hourly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**

PCU Factors:	
CYCLE	0.2
M/CYCLE	0.4
CAR	1.0
LGV	1.0
OGV1	1.5
OGV2	2.3
BUS	2.0

Road Data Services Ltd

East Midlands Airport
Wednesday 20th September 2023
Junction: 6
Approach: Barton Lane South

	To A453 Exit Slip Road									To Barton Lane (N)									To A453 Entry Slip Road								
TIME	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs
07:00 - 07:15	0	0	0	0	0	0	0	0	0.0	0	0	5	1	1	0	0	7	7.5	0	0	2	0	2	1	0	5	7.3
07:15 - 07:30	0	0	0	0	0	0	0	0	0.0	0	0	1	0	0	0	0	1	1.0	0	0	6	1	1	1	0	9	10.8
07:30 - 07:45	0	0	0	0	0	0	0	0	0.0	0	0	1	0	0	0	0	1	1.0	0	0	13	1	0	2	1	17	20.6
07:45 - 08:00	0	0	0	0	0	0	0	0	0.0	0	0	2	1	0	0	0	3	3.0	0	0	11	1	0	4	0	16	21.2
Hourly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**9**	**2**	**1**	**0**	**0**	**12**	**12.5**	**0**	**0**	**32**	**3**	**3**	**8**	**1**	**47**	**59.9**
08:00 - 08:15	0	0	0	0	0	0	0	0	0.0	0	0	1	0	0	2	0	3	5.6	0	0	15	3	0	0	0	18	18.0
08:15 - 08:30	0	0	0	0	0	0	0	0	0.0	0	0	2	1	0	0	0	3	3.0	0	0	13	0	0	0	1	14	15.0
08:30 - 08:45	0	0	0	0	0	0	0	0	0.0	0	0	3	0	0	1	0	4	5.3	0	0	10	0	0	0	0	10	10.0
08:45 - 09:00	0	0	0	0	0	0	0	0	0.0	0	0	3	1	0	1	0	5	6.3	0	0	9	1	0	0	1	11	12.0
Hourly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**9**	**2**	**0**	**4**	**0**	**15**	**20.2**	**0**	**0**	**47**	**4**	**0**	**0**	**2**	**53**	**55.0**
09:00 - 09:15	0	0	0	0	0	0	0	0	0.0	0	0	2	0	0	0	0	2	2.0	0	0	4	1	0	0	0	5	5.0
09:15 - 09:30	0	0	0	0	0	0	0	0	0.0	0	0	3	0	0	1	0	4	5.3	0	0	3	0	1	0	1	5	6.5
09:30 - 09:45	0	0	0	0	0	0	0	0	0.0	0	0	2	0	0	1	0	3	4.3	0	0	5	0	0	0	0	5	5.0
09:45 - 10:00	0	0	0	0	0	0	0	0	0.0	0	0	0	1	1	0	1	3	4.5	0	0	4	0	0	2	0	6	8.6
Hourly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**7**	**1**	**1**	**2**	**1**	**12**	**16.1**	**0**	**0**	**16**	**1**	**1**	**2**	**1**	**21**	**25.1**
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**25**	**5**	**2**	**6**	**1**	**39**	**48.8**	**0**	**0**	**95**	**8**	**4**	**10**	**4**	**121**	**140.0**
16:00 - 16:15	0	0	0	0	0	0	0	0	0.0	0	0	3	1	1	0	0	5	5.5	0	0	6	4	0	0	0	10	10.0
16:15 - 16:30	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	1	8	2	0	0	1	12	12.4
16:30 - 16:45	0	0	0	0	0	0	0	0	0.0	0	0	1	1	0	0	0	2	2.0	0	1	7	0	0	1	0	9	9.7
16:45 - 17:00	0	0	0	0	0	0	0	0	0.0	0	0	3	0	0	0	0	3	3.0	0	0	7	1	0	0	0	8	8.0
Hourly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**7**	**2**	**1**	**0**	**0**	**10**	**10.5**	**0**	**2**	**28**	**7**	**0**	**1**	**1**	**39**	**40.1**
17:00 - 17:15	0	0	0	0	0	0	0	0	0.0	0	0	0	2	0	0	0	2	2.0	0	0	13	1	0	1	1	16	18.3
17:15 - 17:30	0	0	0	0	0	0	0	0	0.0	0	0	2	1	0	0	0	3	3.0	0	0	15	2	0	0	1	18	19.0
17:30 - 17:45	0	0	0	0	0	0	0	0	0.0	0	0	2	0	0	0	0	2	2.0	0	0	13	1	0	0	0	14	14.0
17:45 - 18:00	0	0	0	0	0	0	0	0	0.0	0	0	1	0	0	0	0	1	1.0	0	0	6	0	0	0	0	6	6.0
Hourly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**5**	**3**	**0**	**0**	**0**	**8**	**8.0**	**0**	**0**	**47**	**4**	**0**	**1**	**2**	**54**	**57.3**
18:00 - 18:15	0	0	0	0	0	0	0	0	0.0	0	0	3	0	0	0	0	3	3.0	0	0	5	1	0	1	1	8	10.3
18:15 - 18:30	0	0	0	0	0	0	0	0	0.0	0	0	3	0	0	0	0	3	3.0	0	0	4	1	0	1	0	6	7.3
18:30 - 18:45	0	0	0	0	0	0	0	0	0.0	0	0	2	0	0	0	0	2	2.0	0	0	1	0	0	0	0	1	1.0
18:45 - 19:00	0	0	0	0	0	0	0	0	0.0	0	0	1	0	0	0	0	1	1.0	0	0	5	1	0	0	0	6	6.0
Hourly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**9**	**0**	**0**	**0**	**0**	**9**	**9.0**	**0**	**0**	**15**	**3**	**0**	**2**	**1**	**21**	**24.6**
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**21**	**5**	**1**	**0**	**0**	**27**	**27.5**	**0**	**2**	**90**	**14**	**0**	**4**	**4**	**114**	**122.0**

PCU Factors:	
CYCLE	0.2
M/CYCLE	0.4
CAR	1.0
LGV	1.0
OGV1	1.5
OGV2	2.3
BUS	2.0

Road Data Services Ltd

East Midlands Airport
Wednesday 20th September 2023
Junction: 6
Approach: A453 Exit Slip Road

	To Barton Lane (N)									To A453 Entry Slip Road									To Barton Lane (S)								
TIME	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs
07:00 - 07:15	0	0	4	1	1	3	0	9	13.4	0	0	0	0	0	0	0	0	0.0	0	0	24	14	2	5	0	45	52.5
07:15 - 07:30	0	0	4	0	0	0	0	4	4.0	0	0	0	0	0	0	0	0	0.0	0	1	25	13	3	5	0	47	54.4
07:30 - 07:45	0	0	1	4	0	1	0	6	7.3	0	0	0	0	0	0	0	0	0.0	0	0	30	11	1	3	0	45	49.4
07:45 - 08:00	0	0	4	2	0	1	0	7	8.3	0	0	0	0	0	0	0	0	0.0	0	0	28	17	2	5	0	52	59.5
Hourly Total	**0**	**0**	**13**	**7**	**1**	**5**	**0**	**26**	**33.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**1**	**107**	**55**	**8**	**18**	**0**	**189**	**215.8**
08:00 - 08:15	0	0	3	2	0	0	0	5	5.0	0	0	0	0	0	0	0	0	0.0	0	0	39	11	1	5	0	56	63.0
08:15 - 08:30	0	0	4	0	1	0	0	5	5.5	0	0	0	0	0	0	0	0	0.0	0	0	49	9	7	8	0	73	86.9
08:30 - 08:45	0	0	10	4	1	0	0	15	15.5	0	0	0	0	0	0	0	0	0.0	0	0	42	6	3	7	0	58	68.6
08:45 - 09:00	0	0	8	5	2	1	0	16	18.3	0	0	0	0	0	0	0	0	0.0	0	0	40	13	5	3	0	61	67.4
Hourly Total	**0**	**0**	**25**	**11**	**4**	**1**	**0**	**41**	**44.3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**170**	**39**	**16**	**23**	**0**	**248**	**285.9**
09:00 - 09:15	0	0	28	8	1	1	0	38	39.8	0	0	0	0	0	0	0	0	0.0	0	0	34	12	2	7	0	55	65.1
09:15 - 09:30	0	0	5	5	1	1	0	12	13.8	0	0	0	0	0	0	0	0	0.0	0	0	26	7	2	5	0	40	47.5
09:30 - 09:45	0	0	7	2	2	0	0	11	12.0	0	0	0	0	0	0	0	0	0.0	0	0	8	2	1	1	0	12	13.8
09:45 - 10:00	0	0	4	0	0	0	0	4	4.0	0	0	0	0	0	0	0	0	0.0	0	0	5	5	0	3	0	13	16.9
Hourly Total	**0**	**0**	**44**	**15**	**4**	**2**	**0**	**65**	**69.6**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**73**	**26**	**5**	**16**	**0**	**120**	**143.3**
TOTAL	**0**	**0**	**82**	**33**	**9**	**8**	**0**	**132**	**146.9**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**1**	**350**	**120**	**29**	**57**	**0**	**557**	**645.0**
16:00 - 16:15	0	0	2	1	0	0	0	3	3.0	0	0	0	0	0	0	0	0	0.0	0	0	17	5	0	5	1	28	35.5
16:15 - 16:30	0	0	1	2	0	0	0	3	3.0	0	0	0	0	0	0	0	0	0.0	0	1	30	4	0	3	0	38	41.3
16:30 - 16:45	0	0	4	1	0	0	0	5	5.0	0	0	0	0	0	0	0	0	0.0	0	0	36	2	1	4	0	43	48.7
16:45 - 17:00	0	1	2	0	0	0	0	3	2.4	0	0	0	0	0	0	0	0	0.0	0	0	50	8	0	4	0	62	67.2
Hourly Total	**0**	**1**	**9**	**4**	**0**	**0**	**0**	**14**	**13.4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**1**	**133**	**19**	**1**	**16**	**1**	**171**	**192.7**
17:00 - 17:15	0	0	3	0	0	0	0	3	3.0	0	0	0	0	0	0	0	0	0.0	0	0	34	8	0	1	0	43	44.3
17:15 - 17:30	0	1	2	0	0	0	0	3	2.4	0	0	0	0	0	0	0	0	0.0	0	0	47	5	1	1	0	54	55.8
17:30 - 17:45	0	0	2	1	0	0	1	4	5.0	0	0	0	0	0	0	0	0	0.0	0	0	45	2	0	2	0	49	51.6
17:45 - 18:00	0	0	2	0	0	0	0	2	2.0	0	0	0	0	0	0	0	0	0.0	0	0	38	3	0	0	0	41	41.0
Hourly Total	**0**	**1**	**9**	**1**	**0**	**0**	**1**	**12**	**12.4**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**164**	**18**	**1**	**4**	**0**	**187**	**192.7**
18:00 - 18:15	0	0	3	0	0	0	0	3	3.0	0	0	0	0	0	0	0	0	0.0	0	0	23	3	0	0	0	26	26.0
18:15 - 18:30	0	0	1	0	0	0	0	1	1.0	0	0	0	0	0	0	0	0	0.0	0	0	27	2	0	1	0	30	31.3
18:30 - 18:45	0	0	1	0	0	0	0	1	1.0	0	0	0	0	0	0	0	0	0.0	0	0	13	3	1	2	0	19	22.1
18:45 - 19:00	0	0	4	0	0	0	0	4	4.0	0	0	0	0	0	0	0	0	0.0	0	0	17	2	0	4	0	23	28.2
Hourly Total	**0**	**0**	**9**	**0**	**0**	**0**	**0**	**9**	**9.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**80**	**10**	**1**	**7**	**0**	**98**	**107.6**
TOTAL	**0**	**2**	**27**	**5**	**0**	**0**	**1**	**35**	**34.8**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**1**	**377**	**47**	**3**	**27**	**1**	**456**	**493.0**

PCU Factors	
CYCLE	0.2
M/CYCL	0.4
CAR	1.0
LGV	1.0
OGV1	1.5
OGV2	2.3
BUS	2.0

Road Data Services Ltd

East Midlands Airport
Wednesday 20th September 2023
Junction: 7
Approach: Barton Lane

	To A453 Exit Slip Road									To West Leake Lane									To A453 Entry Slip Road								
TIME	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs
07:00 - 07:15	0	0	0	0	0	0	0	0	0.0	0	0	28	12	2	5	0	47	54.5	0	0	1	3	0	0	0	4	4.0
07:15 - 07:30	0	0	0	0	0	0	0	0	0.0	0	1	20	13	1	5	1	41	48.4	0	0	6	2	2	0	0	10	11.0
07:30 - 07:45	0	0	0	0	0	0	0	0	0.0	0	0	35	10	2	4	0	51	57.2	0	0	4	5	0	1	0	10	11.3
07:45 - 08:00	0	0	0	0	0	0	0	0	0.0	0	0	29	21	1	6	0	57	65.3	0	0	5	1	2	0	0	8	9.0
Hourly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**1**	**112**	**56**	**6**	**20**	**1**	**196**	**225.4**	**0**	**0**	**16**	**11**	**4**	**1**	**0**	**32**	**35.3**
08:00 - 08:15	0	0	0	0	0	0	0	0	0.0	0	0	41	11	2	5	1	60	68.5	0	0	6	1	0	0	0	7	7.0
08:15 - 08:30	0	0	0	0	0	0	0	0	0.0	0	0	47	11	6	7	0	71	83.1	0	0	12	1	1	4	0	18	23.7
08:30 - 08:45	0	0	0	0	0	0	0	0	0.0	0	0	41	9	2	6	0	58	66.8	0	0	11	0	2	1	0	14	16.3
08:45 - 09:00	0	0	0	0	0	0	0	0	0.0	0	0	40	13	5	4	0	62	69.7	0	0	5	1	0	1	0	7	8.3
Hourly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**169**	**44**	**15**	**22**	**1**	**251**	**288.1**	**0**	**0**	**34**	**3**	**3**	**6**	**0**	**46**	**55.3**
09:00 - 09:15	0	0	0	0	0	0	0	0	0.0	0	0	25	10	1	8	0	44	54.9	0	0	10	3	2	0	0	15	16.0
09:15 - 09:30	0	0	0	0	0	0	0	0	0.0	0	0	23	9	2	5	0	39	46.5	0	0	7	0	0	0	0	7	7.0
09:30 - 09:45	0	0	0	0	0	0	0	0	0.0	0	0	5	1	0	1	1	8	10.3	0	0	8	3	1	0	0	12	12.5
09:45 - 10:00	0	0	0	0	0	0	0	0	0.0	0	0	5	3	0	3	0	11	14.9	0	0	3	3	0	0	0	6	6.0
Hourly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**58**	**23**	**3**	**17**	**1**	**102**	**126.6**	**0**	**0**	**28**	**9**	**3**	**0**	**0**	**40**	**41.5**
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**1**	**339**	**123**	**24**	**59**	**3**	**549**	**640.1**	**0**	**0**	**78**	**23**	**10**	**7**	**0**	**118**	**132.1**
16:00 - 16:15	0	0	0	0	0	0	0	0	0.0	0	0	20	5	0	5	1	31	38.5	0	0	4	1	0	0	0	5	5.0
16:15 - 16:30	0	0	0	0	0	0	0	0	0.0	0	1	35	4	0	3	0	43	46.3	0	0	4	1	0	0	0	5	5.0
16:30 - 16:45	0	0	0	0	0	0	0	0	0.0	1	0	38	1	1	4	0	45	49.9	0	0	1	1	0	0	0	2	2.0
16:45 - 17:00	0	0	0	0	0	0	0	0	0.0	0	0	51	8	0	4	0	63	68.2	0	0	3	0	0	0	0	3	3.0
Hourly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**1**	**1**	**144**	**18**	**1**	**16**	**1**	**182**	**202.9**	**0**	**0**	**12**	**3**	**0**	**0**	**0**	**15**	**15.0**
17:00 - 17:15	0	0	0	0	0	0	0	0	0.0	0	0	32	8	0	1	0	41	42.3	0	0	3	0	0	0	0	3	3.0
17:15 - 17:30	0	0	0	0	0	0	0	0	0.0	1	0	50	3	1	1	0	56	57.0	0	0	2	2	0	0	0	4	4.0
17:30 - 17:45	0	0	0	0	0	0	0	0	0.0	0	0	44	2	0	2	1	49	52.6	0	0	4	1	0	0	0	5	5.0
17:45 - 18:00	0	0	0	0	0	0	0	0	0.0	0	0	39	5	0	0	0	44	44.0	0	0	3	0	0	0	0	3	3.0
Hourly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**1**	**0**	**165**	**18**	**1**	**4**	**1**	**190**	**195.9**	**0**	**0**	**12**	**3**	**0**	**0**	**0**	**15**	**15.0**
18:00 - 18:15	0	0	0	0	0	0	0	0	0.0	0	0	24	3	0	0	0	27	27.0	0	0	4	0	0	0	0	4	4.0
18:15 - 18:30	0	0	0	0	0	0	0	0	0.0	0	0	27	3	0	1	0	31	32.3	0	0	3	0	0	0	0	3	3.0
18:30 - 18:45	0	0	0	0	0	0	0	0	0.0	0	0	13	4	1	2	0	20	23.1	0	0	3	0	0	0	0	3	3.0
18:45 - 19:00	0	0	0	0	0	0	0	0	0.0	0	0	20	1	0	4	0	25	30.2	0	0	0	1	0	0	0	1	1.0
Hourly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**84**	**11**	**1**	**7**	**0**	**103**	**112.6**	**0**	**0**	**10**	**1**	**0**	**0**	**0**	**11**	**11.0**
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**2**	**1**	**393**	**47**	**3**	**27**	**2**	**475**	**511.4**	**0**	**0**	**34**	**7**	**0**	**0**	**0**	**41**	**41.0**

PCU Factors:	
CYCLE	0.2
M/CYCLE	0.4
CAR	1.0
LGV	1.0
OGV1	1.5
OGV2	2.3
BUS	2.0

Road Data Services Ltd

East Midlands Airport
Wednesday 20th September 2023
Junction: 7
Approach: A453 Exit Slip Road

	To West Leake Lane									To A453 Entry Slip Road									To Barton Lane								
TIME	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs
07:00 - 07:15	0	0	1	2	0	0	0	3	3.0	0	0	0	0	0	0	0	0	0.0	0	0	3	1	0	0	0	4	4.0
07:15 - 07:30	0	0	4	2	2	1	0	9	11.3	0	0	0	0	0	0	0	0	0.0	0	0	0	1	1	0	0	2	2.5
07:30 - 07:45	0	1	3	3	0	0	0	7	6.4	0	0	0	0	0	0	0	0	0.0	0	0	3	0	0	0	0	3	3.0
07:45 - 08:00	0	0	8	4	0	1	0	13	14.3	0	0	0	0	0	0	0	0	0.0	0	0	2	0	0	0	0	2	2.0
Hourly Total	**0**	**1**	**16**	**11**	**2**	**2**	**0**	**32**	**35.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**8**	**2**	**1**	**0**	**0**	**11**	**11.5**
08:00 - 08:15	0	0	14	0	0	0	0	14	14.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
08:15 - 08:30	0	0	8	1	0	0	2	11	13.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
08:30 - 08:45	0	0	5	3	1	0	1	10	11.5	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
08:45 - 09:00	0	0	11	1	1	0	0	13	13.5	0	0	0	0	0	0	0	0	0.0	0	0	2	0	0	0	0	2	2.0
Hourly Total	**0**	**0**	**38**	**5**	**2**	**0**	**3**	**48**	**52.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**2**	**2.0**
09:00 - 09:15	0	0	12	2	0	1	0	15	16.3	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
09:15 - 09:30	0	0	6	3	1	1	1	12	14.8	0	0	0	0	0	0	0	0	0.0	0	0	2	0	0	0	0	2	2.0
09:30 - 09:45	0	0	7	4	1	2	0	14	17.1	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
09:45 - 10:00	0	0	4	2	1	0	1	8	9.5	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
Hourly Total	**0**	**0**	**29**	**11**	**3**	**4**	**2**	**49**	**57.7**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**2**	**0**	**0**	**0**	**0**	**2**	**2.0**
TOTAL	**0**	**1**	**83**	**27**	**7**	**6**	**5**	**129**	**144.7**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**12**	**2**	**1**	**0**	**0**	**15**	**15.5**
16:00 - 16:15	0	0	1	2	0	1	1	5	7.3	0	0	0	0	0	0	0	0	0.0	0	0	1	0	0	0	0	1	1.0
16:15 - 16:30	0	0	10	2	0	2	0	14	16.6	0	0	0	0	0	0	0	0	0.0	0	0	2	0	0	0	0	2	2.0
16:30 - 16:45	0	0	5	4	1	1	1	12	14.8	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
16:45 - 17:00	0	0	18	1	0	0	0	19	19.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
Hourly Total	**0**	**0**	**34**	**9**	**1**	**4**	**2**	**50**	**57.7**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**3**	**0**	**0**	**0**	**0**	**3**	**3.0**
17:00 - 17:15	0	0	13	1	0	0	0	14	14.0	0	0	0	0	0	0	0	0	0.0	0	0	1	1	0	0	0	2	2.0
17:15 - 17:30	0	0	13	0	0	0	1	14	15.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
17:30 - 17:45	0	0	10	1	0	0	0	11	11.0	0	0	0	0	0	0	0	0	0.0	0	0	1	0	0	0	0	1	1.0
17:45 - 18:00	0	0	11	1	0	1	0	13	14.3	0	0	0	0	0	0	0	0	0.0	0	0	1	0	0	0	0	1	1.0
Hourly Total	**0**	**0**	**47**	**3**	**0**	**1**	**1**	**52**	**54.3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**3**	**1**	**0**	**0**	**0**	**4**	**4.0**
18:00 - 18:15	0	0	5	0	0	1	0	6	7.3	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
18:15 - 18:30	0	0	11	0	0	1	1	13	15.3	0	0	0	0	0	0	0	0	0.0	0	0	3	1	0	1	0	5	6.3
18:30 - 18:45	0	0	10	1	0	0	0	11	11.0	0	0	0	0	0	0	0	0	0.0	0	0	2	0	0	0	0	2	2.0
18:45 - 19:00	0	0	4	0	0	1	0	5	6.3	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
Hourly Total	**0**	**0**	**30**	**1**	**0**	**3**	**1**	**35**	**39.9**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**5**	**1**	**0**	**1**	**0**	**7**	**8.3**
TOTAL	**0**	**0**	**111**	**13**	**1**	**8**	**4**	**137**	**151.9**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**11**	**2**	**0**	**1**	**0**	**14**	**15.3**

PCU Factors:	
CYCLE	0.2
M/CYCLE	0.4
CAR	1.0
LGV	1.0
OGV1	1.5
OGV2	2.3
BUS	2.0

Road Data Services Ltd

East Midlands Airport
Wednesday 20th September 2023
Junction: 7
Approach: West Leake Lane

	To A453 Entry Slip Road									To Barton Lane									To A453 Exit Slip Road								
TIME	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs
07:00 - 07:15	0	0	35	4	3	3	0	45	50.4	0	0	4	0	3	1	0	8	10.8	0	0	0	0	0	0	0	0	0.0
07:15 - 07:30	0	0	25	5	0	5	0	35	41.5	0	0	7	0	0	1	0	8	9.3	0	0	0	0	0	0	0	0	0.0
07:30 - 07:45	0	0	34	13	1	3	0	51	55.4	0	0	11	1	0	2	1	15	18.6	0	0	0	0	0	0	0	0	0.0
07:45 - 08:00	0	1	57	4	0	8	0	70	79.8	0	0	11	2	0	4	0	17	22.2	0	0	0	0	0	0	0	0	0.0
Hourly Total	**0**	**1**	**151**	**26**	**4**	**19**	**0**	**201**	**227.1**	**0**	**0**	**33**	**3**	**3**	**8**	**1**	**48**	**60.9**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**
08:00 - 08:15	0	0	63	7	2	8	0	80	91.4	0	0	16	3	0	2	0	21	23.6	0	0	0	0	0	0	0	0	0.0
08:15 - 08:30	0	0	36	6	0	3	0	45	48.9	0	0	15	1	0	0	1	17	18.0	0	0	0	0	0	0	0	0	0.0
08:30 - 08:45	0	1	40	7	0	6	0	54	61.2	0	0	13	0	0	1	0	14	15.3	0	0	0	0	0	0	0	0	0.0
08:45 - 09:00	0	1	31	8	2	4	0	46	51.6	0	0	10	2	0	1	1	14	16.3	0	0	0	0	0	0	0	0	0.0
Hourly Total	**0**	**2**	**170**	**28**	**4**	**21**	**0**	**225**	**253.1**	**0**	**0**	**54**	**6**	**0**	**4**	**2**	**66**	**73.2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**
09:00 - 09:15	0	0	32	6	0	7	0	45	54.1	0	0	6	1	0	0	0	7	7.0	0	0	0	0	0	0	0	0	0.0
09:15 - 09:30	0	0	22	7	1	6	0	36	44.3	0	0	4	0	1	1	1	7	9.8	0	0	0	0	0	0	0	0	0.0
09:30 - 09:45	0	0	25	2	0	6	0	33	40.8	0	0	7	0	0	1	0	8	9.3	0	0	0	0	0	0	0	0	0.0
09:45 - 10:00	0	0	18	6	2	6	0	32	40.8	0	0	4	1	1	2	1	9	13.1	0	0	0	0	0	0	0	0	0.0
Hourly Total	**0**	**0**	**97**	**21**	**3**	**25**	**0**	**146**	**180.0**	**0**	**0**	**21**	**2**	**2**	**4**	**2**	**31**	**39.2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**
TOTAL	**0**	**3**	**418**	**75**	**11**	**65**	**0**	**572**	**660.2**	**0**	**0**	**108**	**11**	**5**	**16**	**5**	**145**	**173.3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**
16:00 - 16:15	0	0	37	16	3	0	0	56	57.5	0	0	8	5	1	0	0	14	14.5	0	0	0	0	0	0	0	0	0.0
16:15 - 16:30	0	0	39	13	2	3	0	57	61.9	0	1	6	2	0	0	1	10	10.4	0	0	0	0	0	0	0	0	0.0
16:30 - 16:45	0	0	37	11	2	2	0	52	55.6	0	1	8	1	0	1	0	11	11.7	0	0	0	0	0	0	0	0	0.0
16:45 - 17:00	0	1	36	5	0	5	0	47	52.9	0	0	10	1	0	0	0	11	11.0	0	0	0	0	0	0	0	0	0.0
Hourly Total	**0**	**1**	**149**	**45**	**7**	**10**	**0**	**212**	**227.9**	**0**	**2**	**32**	**9**	**1**	**1**	**1**	**46**	**47.6**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**
17:00 - 17:15	0	0	37	16	1	1	0	55	56.8	0	0	12	2	0	1	1	16	18.3	0	0	0	0	0	0	0	0	0.0
17:15 - 17:30	0	0	37	4	1	2	0	44	47.1	0	0	17	3	0	0	1	21	22.0	0	0	0	0	0	0	0	0	0.0
17:30 - 17:45	0	0	38	2	0	2	0	42	44.6	0	0	14	1	0	0	0	15	15.0	0	0	0	0	0	0	0	0	0.0
17:45 - 18:00	0	0	33	8	1	4	0	46	51.7	0	0	6	0	0	0	0	6	6.0	0	0	0	0	0	0	0	0	0.0
Hourly Total	**0**	**0**	**145**	**30**	**3**	**9**	**0**	**187**	**200.2**	**0**	**0**	**49**	**6**	**0**	**1**	**2**	**58**	**61.3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**
18:00 - 18:15	0	1	24	0	0	0	0	25	24.4	0	0	8	1	0	1	1	11	13.3	0	0	0	0	0	0	0	0	0.0
18:15 - 18:30	0	0	13	1	3	5	0	22	30.0	0	0	4	0	0	0	0	4	4.0	0	0	0	0	0	0	0	0	0.0
18:30 - 18:45	0	1	8	2	0	2	0	13	15.0	0	0	1	0	0	0	0	1	1.0	0	0	0	0	0	0	0	0	0.0
18:45 - 19:00	0	0	12	1	0	2	0	15	17.6	0	0	6	1	0	0	0	7	7.0	0	0	0	0	0	0	0	0	0.0
Hourly Total	**0**	**2**	**57**	**4**	**3**	**9**	**0**	**75**	**87.0**	**0**	**0**	**19**	**2**	**0**	**1**	**1**	**23**	**25.3**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**
TOTAL	**0**	**3**	**351**	**79**	**13**	**28**	**0**	**474**	**515.1**	**0**	**2**	**100**	**17**	**1**	**3**	**4**	**127**	**134.2**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**

PCU Factors:	
CYCLE	0.2
M/CYCLE	0.4
CAR	1.0
LGV	1.0
OGV1	1.5
OGV2	2.3
BUS	2.0

Road Data Services Ltd

East Midlands Airport
Wednesday 20th September 2023
Junction: 7
Approach: A453 Entry Slip Road

	To Barton Lane									To A453 Exit Slip Road									To West Leake Lane								
TIME	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs	CYCLE	M/CYCLE	CAR	LGV	OGV1	OGV2	BUS	TOTAL	PCUs
07:00 - 07:15	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
07:15 - 07:30	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
07:30 - 07:45	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
07:45 - 08:00	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
Hourly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**
08:00 - 08:15	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
08:15 - 08:30	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
08:30 - 08:45	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
08:45 - 09:00	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
Hourly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**
09:00 - 09:15	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
09:15 - 09:30	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
09:30 - 09:45	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
09:45 - 10:00	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
Hourly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**
16:00 - 16:15	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
16:15 - 16:30	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
16:30 - 16:45	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
16:45 - 17:00	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
Hourly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**
17:00 - 17:15	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
17:15 - 17:30	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
17:30 - 17:45	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
17:45 - 18:00	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
Hourly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**
18:00 - 18:15	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
18:15 - 18:30	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
18:30 - 18:45	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
18:45 - 19:00	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0	0	0	0	0	0	0	0	0	0.0
Hourly Total	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**
TOTAL	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0**	**0.0**

PCU Factors:	
CYCLE	0.2
M/CYCLE	0.4
CAR	1.0
LGV	1.0
OGV1	1.5
OGV2	2.3
BUS	2.0

APPENDIX 17 – GEH Comparison

J1 - A453 / Walton Hill

Junction Arm	
A	Northern Arm
B	A453
C	Walton Hill

2022 Observed Flows (Lights AM)

	A	B	C
A	0	430	241
B	165	0	133
C	284	340	0

2022 Saturn Actual Flows (Lights AM)

	A	B	C
A	0	721	337
B	131	0	228
C	399	320	0

GEH Comparison

	A	B	C
A	0	12	6
B	3	0	7
C	6	1	0

J2 - A453 / East Midland Airport Access

Junction Arm	
A	East Midlands Airport Access
B	A453 (E)
C	A453(W)

2022 Observed Flows (Lights AM)

	A	B	C
A	0	104	35
B	239	0	312
C	127	458	0

2022 Saturn Actual Flows (Lights AM)

	A	B	C
A	0	4	67
B	58	0	291
C	267	776	0

GEH Comparison

	A	B	C
A	0	14	4
B	15	0	1
C	10	13	0

J3 - A453 / Hunter Road

Junction Arm	
A	Hunter Road
B	A453 (E)
C	A453 (W)

2022 Observed Flows (Lights AM)

	A	B	C
A	0	89	26
B	367	0	525
C	50	512	0

2022 Saturn Actual Flows (Lights AM)

	A	B	C
A	0	155	0
B	543	0	281
C	0	578	0

GEH Comparison

	A	B	C
A	0	6	7
B	8	0	12
C	10	3	0

J4 - A453 / M1 J23A Access / Donnington Services

Junction Arm	
A	A453 (N)
B	M1 J23A Access
C	Donnington Services Access
D	A453 (W)

2022 Observed Flows (Lights AM)

	A	B	C	D
A	0	486	57	395
B	828	0	102	448
C	41	89	0	50
D	368	213	21	0

2022 Saturn Actual Flows (Lights AM)

	A	B	C	D
A	0	145	0	211
B	1276	0	0	608
C	0	0	0	0
D	351	381	0	0

GEH Comparison

	A	B	C	D
A	0	19	11	11
B	14	0	14	7
C	9	13	0	10
D	1	10	6	0

J5 - A453 / Derby Road / M1 J24 / A50

Junction Arm	
A	M1 J24 (N)
B	A453 (N)
C	Derby Road
D	M1 J24 (S)
E	A453 (S)
F	A50
G	Hilton Hotel Lane

2022 Observed Flows (Lights AM)

	A	B	C	D	E	F	G
A	0	820	505	0	491	287	14
B	162	0	59	423	381	212	14
C	61	73	0	49	173	94	2
D	5	661	87	0	3	957	21
E	204	211	27	38	0	846	6
F						0	
G	5	63	9	23	17	9	0

2022 Saturn Actual Flows (Lights AM)

	A	B	C	D	E	F	G
A	0	440	521	0	87	0	0
B	136	0	1	660	68	507	64
C	183	0	0	122	0	370	20
D	0	802	84	0	4	545	75
E	163	84	1	0	0	1024	7
F	0	0	0	0	0	0	0
G	13	203	159	16	1	0	0

GEH Comparison

	A	B	C	D	E	F	G
A	0	15	1	0	24	24	5
B	2	0	11	10	21	16	8
C	11	12	0	8	19	18	5
D	3	5	0	0	1	15	8
E	3	10	7	9	0	6	0
F	0	0	0	0	0	0	0
G	3	12	16	2	5	4	0

J6 - A453 / Northon Arm

Junction Arm	
A	Northern Arm
B	A453 (E)
C	A453 (W)

2022 Observed Flows (Lights AM)

	A	B	C
A	0	42	28
B	205	0	110
C	208	485	0

2022 Saturn Actual Flows (Lights AM)

	A	B	C
A	0	119	77
B	118	0	164
C	344	458	0

GEH Comparison

	A	B	C
A	0	9	7
B	7	0	5
C	8	1	0

J7 - A453 / The Green

Junction Arm	
A	A453 (E)
B	The Green
C	A453 (W)

2022 Observed Flows (Lights AM)

	A	B	C
A	0	10	230
B	16	0	85
C	458	69	0

2022 Saturn Actual Flows (Lights AM)

	A	B	C
A	0	33	172
B	200	0	177
C	560	219	0

GEH Comparison

	A	B	C
A	0	5	4
B	18	0	8
C	5	13	0

J8 - A453 / Grimes Gate

Junction Arm	
A	A453 (E)
B	Grimes Gate
C	A453 (W)

2022 Observed Flows (Lights AM)

	A	B	C
A	0	20	234
B	62	0	6
C	467	7	0

2022 Saturn Actual Flows (Lights AM)

	A	B	C
A	0	36	205
B	43	0	0
C	760	0	0

GEH Comparison

	A	B	C
A	0	3	2
B	3	0	3
C	12	4	0

J9 - A453 / A6 Kegworth Bypass / Wilders Way

Junction Arm	
A	A453 (N)
B	A6 Kegworth Bypass
C	A453 (S)
D	Wilders Way

2022 Observed Flows (Lights AM)

	A	B	C	D
A	0	26	275	250
B	270	0	102	305
C	681	92	2	156
D	69	2	37	0

2022 Saturn Actual Flows (Lights AM)

	A	B	C	D
A	0	4	145	3
B	179	0	186	269
C	1098	155	0	370
D	20	15	29	0

GEH Comparison

	A	B	C	D
A	0	6	9	22
B	6	0	7	2
C	14	6	0	13
D	7	4	1	0

J10 - M1 J23 Slip Road / A512 / Ashby Road East

Junction Arm	
A	M1 J23 Slip Road (N)
B	A512
C	M1 J23 Slip Road (S)
D	Ashby Road (E)

2022 Observed Flows (Lights AM)

	A	B	C	D
A	0	741	0	289
B	444	0	127	338
C	0	383	0	0
D	242	671	108	0

2022 Saturn Actual Flows (Lights AM)

	A	B	C	D
A	0	217	0	431
B	155	0	124	713
C	0	125	0	337
D	312	219	215	0

GEH Comparison

	A	B	C	D
A	0	24	0	7
B	17	0	0	16
C	0	16	0	26
D	4	21	8	0

J1 - A453 / Walton Hill

Junction Arm	
A	Northern Arm
B	A453
C	Walton Hill

2022 Observed Flows (Lights PM)

	A	B	C
A	0	208	277
B	325	0	270
C	213	181	0

2022 Saturn Actual Flows (Lights PM)

	A	B	C
A	0	245	353
B	382	0	284
C	322	193	0

GEH Comparison

	A	B	C
A	0	2	4
B	3	0	1
C	7	1	0

J2 - A453 / East Midland Airport Access

Junction Arm	
A	East Midlands Airport Access
B	A453 (E)
C	A453(W)

2022 Observed Flows (Lights PM)

	A	B	C
A	0	220	65
B	125	0	397
C	37	317	0

2022 Saturn Actual Flows (Lights PM)

	A	B	C
A	0	57	252
B	10	0	415
C	95	337	0

GEH Comparison

	A	B	C
A	0	14	15
B	14	0	1
C	7	1	0

J3 - A453 / Hunter Road

Junction Arm	
A	Hunter Road
B	A453 (E)
C	A453 (W)

2022 Observed Flows (Lights PM)

	A	B	C
A	0	335	34
B	110	0	488
C	28	509	0

2022 Saturn Actual Flows (Lights PM)

	A	B	C
A	0	476	0
B	136	0	447
C	0	582	0

GEH Comparison

	A	B	C
A	0	7	8
B	2	0	2
C	7	3	0

J4 - A453 / M1 J23A Access / Donnington Services

Junction Arm	
A	A453 (N)
B	M1 J23A Access
C	Donnington Services Access
D	A453 (W)

2022 Observed Flows (Lights PM)

	A	B	C	D
A	0	332	62	154
B	700	0	111	402
C	76	109	0	52
D	568	239	47	0

2022 Saturn Actual Flows (Lights PM)

	A	B	C	D
A	0	385	0	209
B	1201	0	0	338
C	0	0	0	0
D	491	566	0	0

GEH Comparison

	A	B	C	D
A	0	3	11	4
B	16	0	15	3
C	0	15	0	10
D	3	16	10	0

J5 - A453 / Derby Road / M1 J24 / A50

Junction Arm	
A	M1 J24 (N)
B	A453 (N)
C	Derby Road
D	M1 J24 (S)
E	A453 (S)
F	A50
G	Hilton Hotel Lane

2022 Observed Flows (Lights PM)

	A	B	C	D	E	F	G
A	0	857	530	4	160	218	10
B	247	0	73	777	270	379	11
C	87	56	0	50	86	129	2
D	0	489	67	0	4	978	14
E	309	242	40	35	0	926	5
F	0	0	0	0	0	0	0
G	15	20	10	8	4	11	0

2022 Saturn Actual Flows (Lights PM)

	A	B	C	D	E	F	G
A	0	754	578	0	233	0	0
B	138	0	0	936	164	644	68
C	285	0	0	0	0	347	22
D	0	662	112	0	83	584	55
E	271	116	24	81	0	1156	19
F	0	0	0	0	0	0	0
G	39	58	21	27	8	0	0

GEH Comparison

	A	B	C	D	E	F	G
A	0	4	2	3	5	21	4
B	8	0	12	5	7	12	9
C	15	11	0	10	13	14	6
D	0	7	5	0	12	14	7
E	2	9	3	6	0	7	4
F	0	0	0	0	0	0	0
G	5	6	3	5	2	5	0

J6 - A453 / Northern Arm

Junction Arm	
A	Northern Arm
B	A453 (E)
C	A453 (W)

2022 Observed Flows (Lights PM)

	A	B	C
A	0	144	207
B	67	0	342
C	110	246	0

2022 Saturn Actual Flows (Lights PM)

	A	B	C
A	0	46	309
B	110	0	273
C	332	116	0

GEH Comparison

	A	B	C
A	0	10	6
B	5	0	4
C	15	10	0

J7 - A453 / The Green

Junction Arm	
A	A453 (E)
B	The Green
C	A453 (W)

2022 Observed Flows (Lights PM)

	A	B	C
A	0	12	357
B	14	0	58
C	286	104	0

2022 Saturn Actual Flows (Lights PM)

	A	B	C
A	0	130	285
B	97	0	139
C	241	153	0

GEH Comparison

	A	B	C
A	0	14	4
B	11	0	8
C	3	4	0

J8 - A453 / Grimes Gate

Junction Arm	
A	A453 (E)
B	Grimes Gate
C	A453 (W)

2022 Observed Flows (Lights PM)

	A	B	C
A	0	70	360
B	28	0	9
C	288	12	0

2022 Saturn Actual Flows (Lights PM)

	A	B	C
A	0	27	415
B	17	0	0
C	338	0	0

GEH Comparison

	A	B	C
A	0	6	3
B	2	0	4
C	3	5	0

J9 - A453 / A6 Kegworth Bypass / Wilders Way

Junction Arm	
A	A453 (N)
B	A6 Kegworth Bypass
C	A453 (S)
D	Wilders Way

2022 Observed Flows (Lights PM)

	A	B	C	D
A	5	57	209	193
B	288	0	95	294
C	665	146	0	42
D	149	15	73	0

2022 Saturn Actual Flows (Lights PM)

	A	B	C	D
A	0	238	198	42
B	393	0	355	27
C	1516	61	0	87
D	373	126	173	0

GEH Comparison

	A	B	C	D
A	0	15	1	14
B	6	0	17	21
C	26	8	0	6
D	14	13	9	0

J10 - M1 J23 Slip Road / A512 / Ashby Road East

Junction Arm	
A	M1 J23 Slip Road (N)
B	A512
C	M1 J23 Slip Road (S)
D	Ashby Road (E)

2022 Observed Flows (Lights PM)

	A	B	C	D
A	0	394	0	155
B	469	0	341	496
C	0	185	0	122
D	204	373	114	0

2022 Saturn Actual Flows (Lights PM)

	A	B	C	D
A	0	305	0	348
B	258	0	119	401
C	0	182	0	243
D	311	467	340	0

GEH Comparison

	A	B	C	D
A	0	5	0	12
B	11	0	15	4
C	0	0	0	9
D	7	5	15	0

J1 - A453 / Walton Hill

Junction Arm	
A	Northern Arm
B	A453
C	Walton Hill

2022 Observed Flows (Heavies AM)

	A	B	C
A	0	45	23
B	25	0	28
C	15	33	0

2022 Saturn Actual Flows (Heavies AM)

	A	B	C
A	0	0	4
B	0	0	20
C	1	40	0

GEH Comparison

	A	B	C
A	0	9	5
B	7	0	2
C	5	1	0

J2 - A453 / East Midland Airport Access

Junction Arm	
A	East Midlands Airport Access
B	A453 (E)
C	A453(W)

2022 Observed Flows (Heavies AM)

	A	B	C
A	0	5	2
B	1	0	39
C	1	1	0

2022 Saturn Actual Flows (Heavies AM)

	A	B	C
A	0	0	3
B	0	0	17
C	8	32	0

GEH Comparison

	A	B	C
A	0	3	1
B	1	0	4
C	3	8	0

J3 - A453 / Hunter Road

Junction Arm	
A	Hunter Road
B	A453 (E)
C	A453 (W)

2022 Observed Flows (Heavies AM)

	A	B	C
A	0	18	0
B	17	0	40
C	1	60	0

2022 Saturn Actual Flows (Heavies AM)

	A	B	C
A	0	8	0
B	36	0	39
C	0	34	0

GEH Comparison

	A	B	C
A	0	3	####
B	4	0	0
C	1	4	0

J4 - A453 / M1 J23A Access / Donnington

Junction Arm	
A	A453 (N)
B	M1 J23A Access
C	Donnington Services Access
D	A453 (W)

2022 Observed Flows (Heavies AM)

	A	B	C	D
A	0	74	10	25
B	124	0	32	27
C	48	23	0	5
D	40	36	2	0

2022 Saturn Actual Flows (Heavies AM)

	A	B	C	D
A	0	65	0	20
B	362	0	0	54
C	0	0	0	0
D	39	3	0	0

GEH Comparison

	A	B	C	D
A	0	1	4	1
B	15	0	8	4
C	10	7	0	3
D	0	7	2	0

J5 - A453 / Derby Road / M1 J24 / A50

Junction Arm	
A	M1 J24 (N)
B	A453 (N)
C	Derby Road
D	M1 J24 (S)
E	A453 (S)
F	A50
G	Hilton Hotel Lane

2022 Observed Flows (Heavies AM)

	A	B	C	D	E	F	G
A	0	80	21	0	51	34	0
B	25	0	1	60	43	34	0
C	0	2	0	5	1	13	0
D	0	70	11	0	2	193	0
E	36	21	3	19	0	111	0
F						0	
G	0	0	0	0	0	0	0

2022 Saturn Actual Flows (Heavies AM)

	A	B	C	D	E	F	G
A	0	103	3	0	306	0	2
B	11	0	0	75	80	87	0
C	0	0	0	0	0	0	0
D	0	90	0	0	0	109	3
E	177	50	0	0	0	169	2
F	0	0	0	0	0	0	0
G	0	0	0	1	1	1	0

GEH Comparison

	A	B	C	D	E	F	G
A	0	2	5	0	19	8	2
B	3	0	1	2	5	7	0
C	0	2	0	3	1	5	0
D	0	2	5	0	2	7	2
E	14	5	2	6	0	5	2
F	0	0	0	0	0	0	0
G	0	0	0	1	1	1	0

J6 - A453 / Northan Arm

Junction Arm	
A	Northern Arm
B	A453 (E)
C	A453 (W)

2022 Observed Flows (Heavies AM)

	A	B	C
A	0	11	16
B	7	0	23
C	16	30	0

2022 Saturn Actual Flows (Heavies AM)

	A	B	C
A	0	3	29
B	0	0	5
C	17	22	0

GEH Comparison

	A	B	C
A	0	3	3
B	4	0	5
C	0	2	0

J7 - A453 / The Green

Junction Arm	
A	A453 (E)
B	The Green
C	A453 (W)

2022 Observed Flows (Heavies AM)

	A	B	C
A	0	1	30
B	1	0	0
C	39	2	0

2022 Saturn Actual Flows (Heavies AM)

	A	B	C
A	0	0	17
B	0	0	0
C	32	0	0

GEH Comparison

	A	B	C
A	0	1	3
B	1	0	0
C	1	2	0

J8 - A453 / Grimes Gate

Junction Arm	
A	A453 (E)
B	Grimes Gate
C	A453 (W)

2022 Observed Flows (Heavies AM)

	A	B	C
A	0	0	31
B	1	0	0
C	40	0	0

2022 Saturn Actual Flows (Heavies AM)

	A	B	C
A	0	0	17
B	0	0	0
C	32	0	0

GEH Comparison

	A	B	C
A	0	0	3
B	1	0	0
C	1	0	0

J9 - A453 / A6 Kegworth Bypass / Wilders Way

Junction Arm	
A	A453 (N)
B	A6 Kegworth Bypass
C	A453 (S)
D	Wilders Way

2022 Observed Flows (Heavies AM)

	A	B	C	D
A	3	20	17	26
B	11	0	3	16
C	65	7	0	28
D	21	2	21	0

2022 Saturn Actual Flows (Heavies AM)

	A	B	C	D
A	0	25	18	326
B	54	0	3	22
C	45	33	0	323
D	308	66	68	0

GEH Comparison

	A	B	C	D
A	0	1	0	23
B	8	0	0	1
C	3	6	0	22
D	22	11	7	0

J10 - M1 J23 Slip Road / A512 / Ashby Road East

Junction Arm	
A	M1 J23 Slip Road (N)
B	A512
C	M1 J23 Slip Road (S)
D	Ashby Road (E)

2022 Observed Flows (Heavies AM)

	A	B	C	D
A	0	27	0	44
B	25	0	17	20
C	0	20	0	22
D	24	32	12	0

2022 Saturn Actual Flows (Heavies AM)

	A	B	C	D
A	0	6	0	103
B	12	0	2	47
C	0	2	0	14
D	13	47	15	0

GEH Comparison

	A	B	C	D
A	0	5	0	7
B	3	0	5	5
C	0	5	0	2
D	3	2	1	0

J1 - A453 / Walton Hill

Junction Arm	
A	Northern Arm
B	A453
C	Walton Hill

2022 Observed Flows (Heavies PM)

	A	B	C
A	0	10	6
B	9	0	9
C	7	3	0

2022 Saturn Actual Flows (Heavies PM)

	A	B	C
A	0	0	0
B	0	0	20
C	0	11	0

GEH Comparison

	A	B	C
A	0	4	3
B	4	0	3
C	4	3	0

J2 - A453 / East Midland Airport Access

Junction Arm	
A	East Midlands Airport Access
B	A453 (E)
C	A453(W)

2022 Observed Flows (Heavies PM)

	A	B	C
A	0	2	0
B	4	0	23
C	2	15	0

2022 Saturn Actual Flows (Heavies PM)

	A	B	C
A	0	0	3
B	0	0	17
C	1	10	0

GEH Comparison

	A	B	C
A	0	2	2
B	3	0	1
C	1	1	0

J3 - A453 / Hunter Road

Junction Arm	
A	Hunter Road
B	A453 (E)
C	A453 (W)

2022 Observed Flows (Heavies PM)

	A	B	C
A	0	19	1
B	16	1	26
C	0	17	0

2022 Saturn Actual Flows (Heavies PM)

	A	B	C
A	0	7	0
B	4	0	20
C	0	24	0

GEH Comparison

	A	B	C
A	0	3	1
B	4	0	1
C	0	2	0

J4 - A453 / M1 J23A Access / Donnington

Junction Arm	
A	A453 (N)
B	M1 J23A Access
C	Donnington Services Access
D	A453 (W)

2022 Observed Flows (Heavies PM)

	A	B	C	D
A	0	35	26	24
B	71	0	27	18
C	12	15	0	1
D	19	14	4	0

2022 Saturn Actual Flows (Heavies PM)

	A	B	C	D
A	0	91	0	13
B	207	0	0	8
C	0	0	0	0
D	29	2	0	0

GEH Comparison

	A	B	C	D
A	0	7	7	3
B	12	0	7	3
C	5	5	0	1
D	2	4	3	0

J5 - A453 / Derby Road / M1 J24 / A50

Junction Arm	
A	M1 J24 (N)
B	A453 (N)
C	Derby Road
D	M1 J24 (S)
E	A453 (S)
F	A50
G	Hilton Hotel Lane

2022 Observed Flows (Heavies PM)

	A	B	C	D	E	F	G
A	0	50	15	0	22	22	0
B	16	0	1	36	24	26	0
C	0	1	0	1	2	6	0
D	0	39	9	0	1	111	0
E	14	14	1	7	0	73	0
F						0	
G	0	0	0	0	0	0	0

2022 Saturn Actual Flows (Heavies PM)

	A	B	C	D	E	F	G
A	0	54	0	0	167	0	1
B	4	0	0	65	52	52	0
C	0	0	0	0	0	0	0
D	0	45	0	0	0	48	1
E	121	70	0	0	0	162	1
F	0	0	0	0	0	0	0
G	0	0	0	1	1	0	0

GEH Comparison

	A	B	C	D	E	F	G
A	0	1	5	0	15	7	1
B	4	0	1	4	5	4	0
C	0	1	0	1	2	3	0
D	0	1	4	0	1	7	1
E	13	9	1	4	0	8	1
F	0	0	0	0	0	0	0
G	0	0	0	1	1	0	0

J6 - A453 / Northon Arm

Junction Arm	
A	Northern Arm
B	A453 (E)
C	A453 (W)

2022 Observed Flows (Heavies PM)

	A	B	C
A	0	9	7
B	13	0	11
C	12	6	0

2022 Saturn Actual Flows (Heavies PM)

	A	B	C
A	0	0	10
B	0	0	14
C	17	4	0

GEH Comparison

	A	B	C
A	0	4	1
B	5	0	1
C	1	1	0

J7 - A453 / The Green

Junction Arm	
A	A453 (E)
B	The Green
C	A453 (W)

2022 Observed Flows (Heavies PM)

	A	B	C
A	0	0	24
B	0	0	0
C	15	0	0

2022 Saturn Actual Flows (Heavies PM)

	A	B	C
A	0	0	17
B	0	0	0
C	10	0	0

GEH Comparison

	A	B	C
A	0	0	2
B	0	0	0
C	1	0	0

J8 - A453 / Grimes Gate

Junction Arm	
A	A453 (E)
B	Grimes Gate
C	A453 (W)

2022 Observed Flows (Heavies PM)

	A	B	C
A	0	2	24
B	0	0	0
C	15	0	0

2022 Saturn Actual Flows (Heavies PM)

	A	B	C
A	0	0	17
B	0	0	0
C	10	0	0

GEH Comparison

	A	B	C
A	0	2	2
B	0	0	0
C	1	0	0

J9 - A453 / A6 Kegworth Bypass / Wilders Way

Junction Arm	
A	A453 (N)
B	A6 Kegworth Bypass
C	A453 (S)
D	Wilders Way

2022 Observed Flows (Heavies PM)

	A	B	C	D
A	0	5	30	14
B	5	0	6	8
C	54	4	0	28
D	19	2	26	0

2022 Saturn Actual Flows (Heavies PM)

	A	B	C	D
A	0	27	14	176
B	46	0	1	46
C	26	13	0	192
D	420	118	114	0

GEH Comparison

	A	B	C	D
A	0	6	3	17
B	8	0	3	7
C	4	3	0	16
D	27	15	11	0

J10 - M1 J23 Slip Road / A512 / Ashby Road East

Junction Arm	
A	M1 J23 Slip Road (N)
B	A512
C	M1 J23 Slip Road (S)
D	Ashby Road (E)

2022 Observed Flows (Heavies PM)

	A	B	C	D
A	0	7	0	16
B	11	0	5	12
C	0	9	0	23
D	7	8	2	0

2022 Saturn Actual Flows (Heavies PM)

	A	B	C	D
A	0	5	0	17
B	9	0	0	26
C	0	3	0	5
D	16	22	4	0

GEH Comparison

	A	B	C	D
A	0	1	0	0
B	1	0	3	3
C	0	2	0	5
D	3	4	1	0

APPENDIX 50: VISSIM Forecast Modelling Report (document reference EMG2-BWB-GEN-XX-RP-TR-0019_S2-P2)

A CAF GROUP COMPANY

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SEGRO
East Midlands Gateway 2
VISSIM Forecast Modelling Report

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1. INTRODUCTION

1.1 BWB Consulting Ltd (BWB) has been appointed by SEGRO (the Applicant) to produce a microsimulation traffic model of the M1 Junction 24 and Strategic Road Network in the vicinity, to support a DCO application for the Phase 2 Expansion of East Midlands Gateway 2 development (EMG2) .

1.2 The EMG2 Project comprises a second phase to Segro's EMG1 logistics park and Rail Freight Interchange and comprises the following three components:

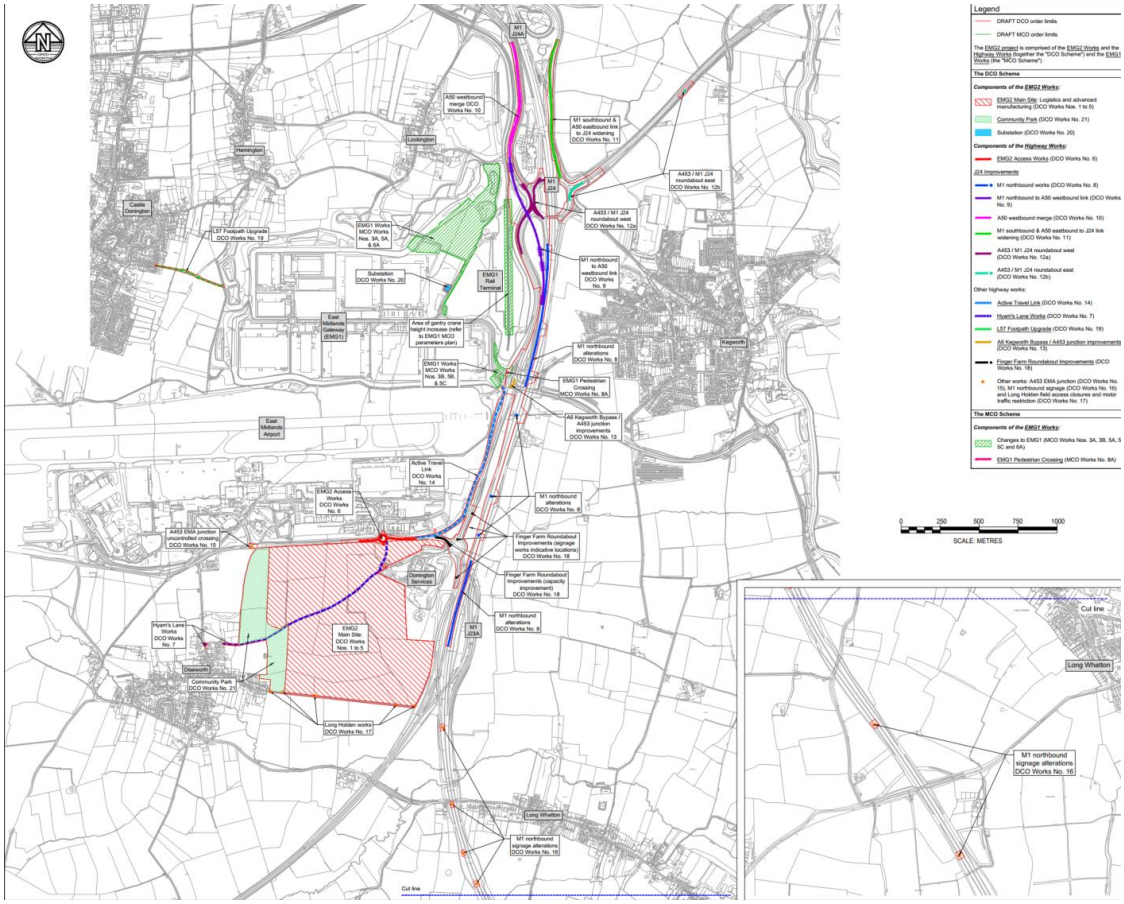
- **EMG2 Main Site** – A new logistics and advanced manufacturing employment park located south of East Midlands Airport and the A453, and west of the M1 motorway. This part of the site falls within the 'East Midlands Airport and Gateway Industrial Cluster' (EMAGIC) site, which forms part of the East Midlands Freeport designated by the Government in 2022. It comprises 300,000sqm of B2/B8 use (assessed as 60,000sqm B2 and 240,000sqm B8 as set out in Section 7 below), plus an allowance for 200,000sqm of B8 mezzanine floorspace.

- **Highways Works** – Highways works to the SRN including improvements at Junction 24 of the M1 motorway and the road network interacting with that junction; and

- **EMG1 Works** – Additional warehousing of 26,500sqm plus a mezzanine allowance for 3,500 sq.m (Use Class B8) at Plot 16 together with works to increase the permitted height of the cranes at the rail freight terminal, improvements to the EMG1 public transport interchange and site management building.

1.3 The location of the proposed development is show in **Figure 1**.

Figure 1. Site Location



1.4 A VISSIM model had been developed for the M1 J24 corridor and a Local Model Validation Report (LMVR) was produced within Technical Note EMG2-BWB-GEN-XX-RP-TR-0006 Revision P4 (**Appendix 1**) and issued to the TWG in consultation with National Highways (NH) and Leicestershire County Council (LCountyC). The report concluded that the model calibrates well against observed and modelled turning movements during both peak hours at 15-minute intervals in line with DfT guidelines and as a result satisfied the validation criteria.

1.5 The base model was subsequently agreed with NH within the Stage 1A Modelling sign off sheet with LCountyC and Nottinghamshire County Council (NCountyC) agreeing to defer to Nathional Highways (NH) on this element. LCountyC has more recently carried out a review of the base VISSIM model and have confirmed it is approved.

1.6 This report sets out the outcomes of the future year scenarios and assessment of the proposed mitigation scheme.

Report Structure

1.7 Following this introduction, the remainder of this report is structured as follows:

- **Section 2:** Modelling Background – Modelling Extents, Assessment Scenarios, Traffic Flows and Journey Time Routes

- **Section 3:** sets out the Stage 1A and 1B VISSIM Modelling Outcomes
- **Section 4:** sets out proposed highway mitigation and modelling results comparison between with and without the proposed development and mitigation.
- **Section 5:** sets out the Stage 2A and 2B PRTM outputs and VISSIM Modelling results
- **Section 6:** Summary and Conclusions.

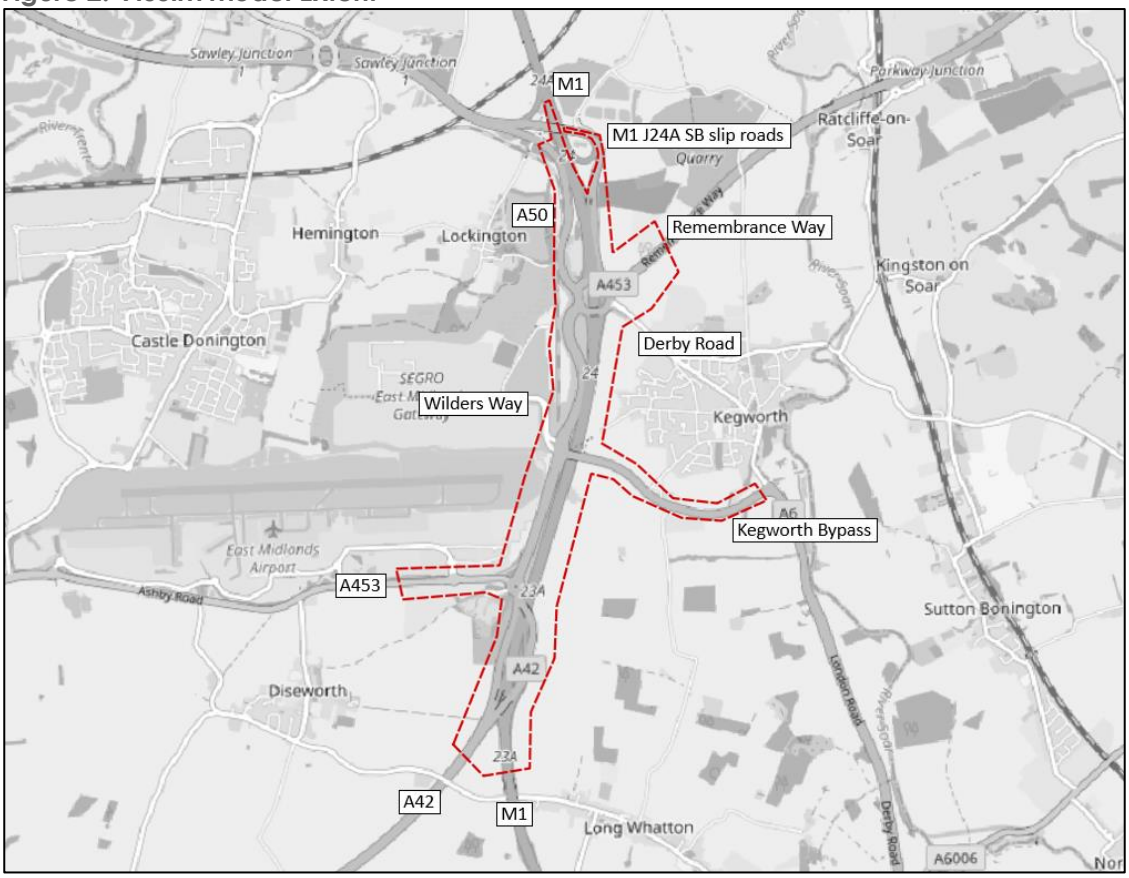
2. MODELLING BACKGROUND

VISSIM Modelling

2.1 It was agreed with the TWG that the following four junctions are tested using microsimulation VISSIM modelling because of their proximity to the SRN. The VISSIM model extent is shown at **Figure 2**.

- Junction 2: A453/Hunter Road Roundabout
- Junction 3: Finger Farm Roundabout
- Junction 4: A453/EMG1 Signal Gyratory
- Junction 5: M1 Junction 24

Figure 2. VISSIM Model Extent



Forecast Years & Assessment Criteria

2.2 It has been agreed with the TWG for a forecast base year of 2022 to be adopted (aligning with the year traffic surveys were undertaken) and forecast years of 2028 and 2038, reflecting the year of opening and post 10 years. The forecast year modelling has been undertaken in four stages, referred to as 'Stage 1A/2A modelling' and 'Stage 1B/2B modelling'. The stages adopt slightly different planning data assumptions in the uncertainty logs and baseline traffic, as summarised below.

- **Stage 1A modelling** (Proforma v14, Uncertainty Log v7) = 2028/2038 forecast years with and without EMG2, including, consented and committed sites as well as draft Local Plan allocation sites and Ratcliffe on Soar power station, which is authorised by a Local Development Order (LDO).

- **Stage 1B modelling** (Proforma v14a, Uncertainty Log v7a) = 2028/2038 forecast years with and without EMG2, including consented and committed sites but excluding the draft Local Plan allocation sites and Ratcliffe on Soar power station (beyond the element of Ratcliffe power station development which is currently able to proceed under the LDO).

- **Stage 2A modelling** = as per Stage 1A but with the inclusion of the proposed Highway Works, details of which are presented in Section 12.
- **Stage 2B modelling** = as per Stage 1B but with the inclusion of the proposed Highway Works, details of which are presented in Section 12.

2.3 The difference between Stage 1A/2A and 1B/2B is the inclusion (1A/2A) or exclusion (1B/2B) of the EMIP site, Ratcliffe on Soar Power Station site redevelopment proposals over and above that permitted in the LDO, and the draft Local Plan allocation sites in the baseline, which represent the following projects:

- Isley Woodhouse (W1)

- Land North and South of Park Lane, Castle Donington (CD10)

- Land West of Hilltop Farm, Castle Donington (EMP89)

- Land North of J11/M42 (EMP82)

- Land North of Remembrance Way, Kegworth (EMP73)

- Land North of Derby Road, Kegworth (EMP73)

2.4 Technical Note EMG2-BWB-GEN-XX-RP-TR-0017 Revision P4 (**Appendix 2**) sets out the basis for the four stage approach to modelling and the policy context for it, which can be summarised as follows:

- Stage 1A/2A modelling complies with the TWG interpretation of the TAG M4 Guidance

- Stage 1B/2B modelling complies with the guidance in Circular 01/2022 and Insitiute of Environmental Management and Assessment 2024.

2.5 The Stage 1A/2A modelling provides a highly robust assessment as it includes traffic from the draft Local Plan allocations but not any associated highway mitigation. This is with the exception of the proposed re-alignment of the A453 around the Isley Woodhouse draft allocation, which is included in the Uncertainty Log v7 because it forms part of the access strategy for that development.

2.6 The planning data assumptions and highway schemes included in the Uncertainty Log v7 (Stage 1A) and v7a (Stage 1B) were discussed and agreed with the TWG and relevant Local Planning Authorities. The committed and consented schemes and draft Local Plan allocations have been profiled out within the uncertainty logs in accordance with the Local Planning Authority's understanding of when they are likely to be built out.

2.7 The core scenario for the TA adopts the outputs from the Stage 1A/2A modelling, inclusive of draft Local Plan allocation sites. A sensitivity test will be carried out on a smaller number of junctions using Stage 1B/2b modelling, excluding draft Local Plan allocation sites due to the lack of mitigation measures included. This forecast report will therefore test the following scenarios:

- 2028 forecast opening year 'without development'
- 2028 forecast opening year 'with development'
- 2038 forecast future year 'without development'
- 2038 forecast future year 'with development'
- 2028 forecast future year with development with mitigation.
- 2038 forecast future year with development with mitigation.

2.8 Planned development growth is accounted for within the 'without development' scenarios as per the agreed Uncertainty Log v7. PRTM proforma v14 and Uncertainty Log v7 have been formally agreed with NH and NCountyC within the Stage 1A Modelling sign off sheet, whilst LCountyC confirmed they were accepted by email on 11 December 2024.

2.9 The 'with development' scenarios include the development on both EMG2 Main Site and Plot 16 of EMG1. A scenario has not been undertaken that considers EMG1 traffic in isolation, which is being applied for as a Material Change of Use (MCO) to the current DCO. Plot 16 is expected to generate 53 two-way trips in the morning peak hour and 67 two-way trips in the evening peak hour, circa one per minute. This would have a negligible impact on the network and would not trigger the requirement for further VISSIM modelling.

Deriving Future Forecast Traffic Flows

2.10 The PRTM model is validated at link flow level but not turning movement level and therefore a furnessing process has been carried out to derive future forecast traffic flows to be input into the Junctions 11, LinSig and VISSIM models.

2.11 BWB prepared Technical Note EMG2-BWB-GEN-XX-RP-TR-0004 Revision P7 setting out the methodology for deriving the future forecast traffic flows, which in summary involved the following process:

- Column adjustment: calculate turning counts across columns using survey data proportions in combination with the target link flow out of each arm.
- Sum row: calculate the sum of each arm row total.
- Row adjustment: calculate turning counts across rows using survey data proportions in combination with the target link flow into each arm.
- Sum column: calculate the sum of each column.
- Round all values in the matrix to the closest integer.
- Update sums for column and row total.
- Repeat the above 'x' number of iterations until the flows converge.

2.12 The macro has been built to run the furnessing 20 times for each matrix, however it should be noted that every time the macro is executed, it runs an additional 20 times. The furnessing spreadsheet therefore has been run for at least 20 iterations. The furnessing methodology has been double constrained, i.e. both origin and destination and the traffic flow matrices are furnessed until link flows are within a GEH of 5. This has been calculated by taking the absolute difference between the calculated target link flow and furnessed link flow. Should these be higher than a GEH of 5, the macro is executed until convergence is achieved. The furnessing process has been undertaken for the assessment years 2028 and 2038.

2.13 Due to high volumes of traffic that travel on the motorways and major A-roads there is the potential for these numbers to affect the furnessing outputs. As the furnessing process is based on turning proportions, the large motorway flows could cause the furnessing to assign traffic that would use the junctions to the motorway mainline movements instead.

2.14 Therefore, the M1 and A42 mainline flows were removed and furnessed seperately to avoid any re-assignment and subsequently added back into the matrix after the furnessing process was complete.

2.15 PRTM, as a strategic highway model, re-routes traffic in response to congestion. To ensure the true impact of the development is modelled and fully mitigated, the development traffic was extracted from the PRTM model, and assigned manually to exclude the effects of any rerouting. The modelling therefore presents a highly robust assessment of the full impact of the proposed development trips.

Post Stage 2 Modelling

2.16 Stage 2 modelling comprises of 2028/38 forecast years with committed development, proposed development and Local Plan allocations with the proposed mitigation scheme that have been determined as a result of the Stage 1 VISSIM Modelling.

2.17 Upon receiving the Stage 2 PRTM outputs, furnessing was carried out using the above methodology but because the original methodology is based on the survey turning proportions it was not encapsulating the re-routing of traffic due to the mitigation strategy and provided unrealistic O-D Matrices.

2.18 Therefore, an alternative methodology has been used for the Stage 2 furnessing, which retains the Stage 1A furnessed flows and applies the difference between PRTM forecast flows for Stage 1A and Stage 2A. This accounts for the re-routing as a result of the mitigation while maintaining consistency in the matrix build process from Stage 1A. This approach has been discussed and agreed with NH.

Journey Time Routes

2.19 To determine the impact of the development on the highway network, journey time routes utilised for the validation have been retained to provide a comparison between the "with" and "without development" scenarios.

2.20 **Figure3** and **4** show the routes utilised for journey time results.

Figure 3: Journey Time Routes (1 - 10)

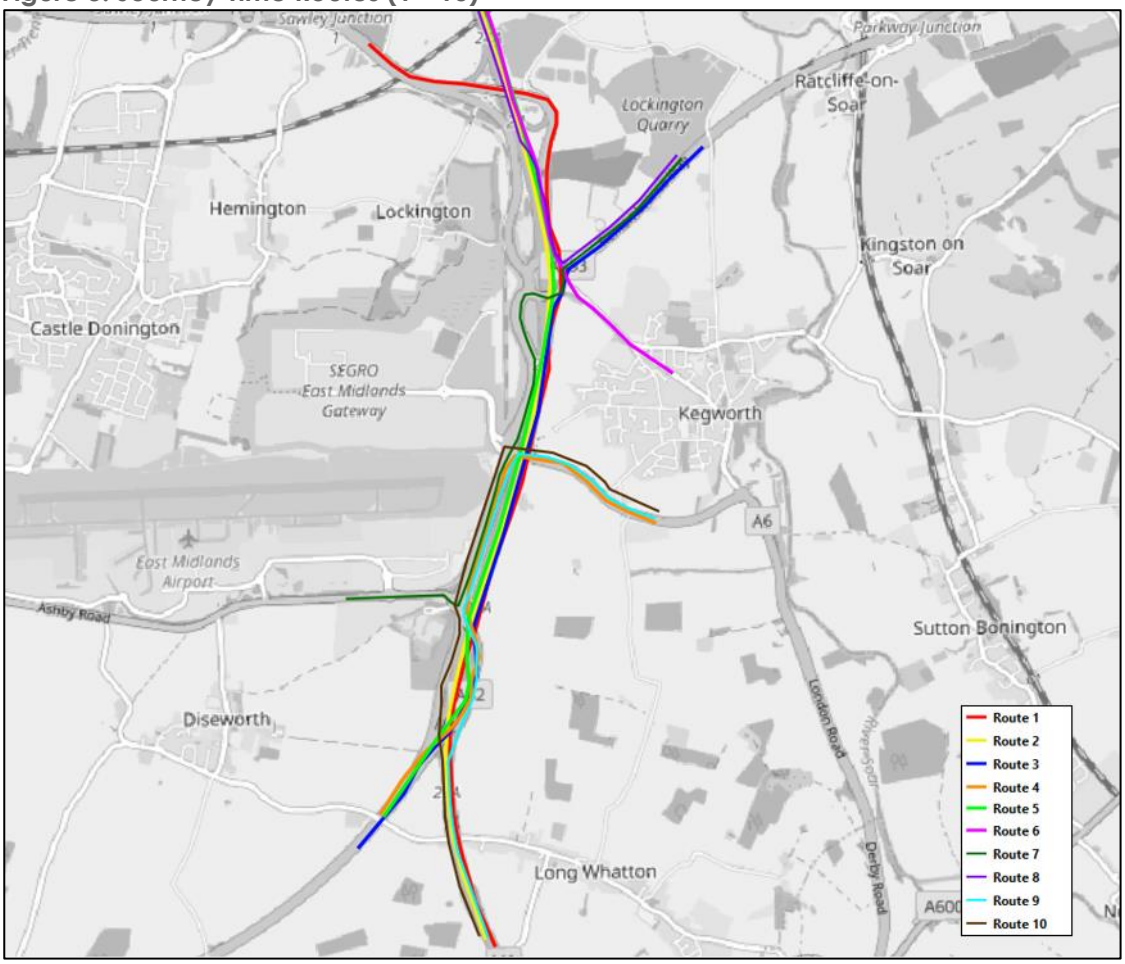
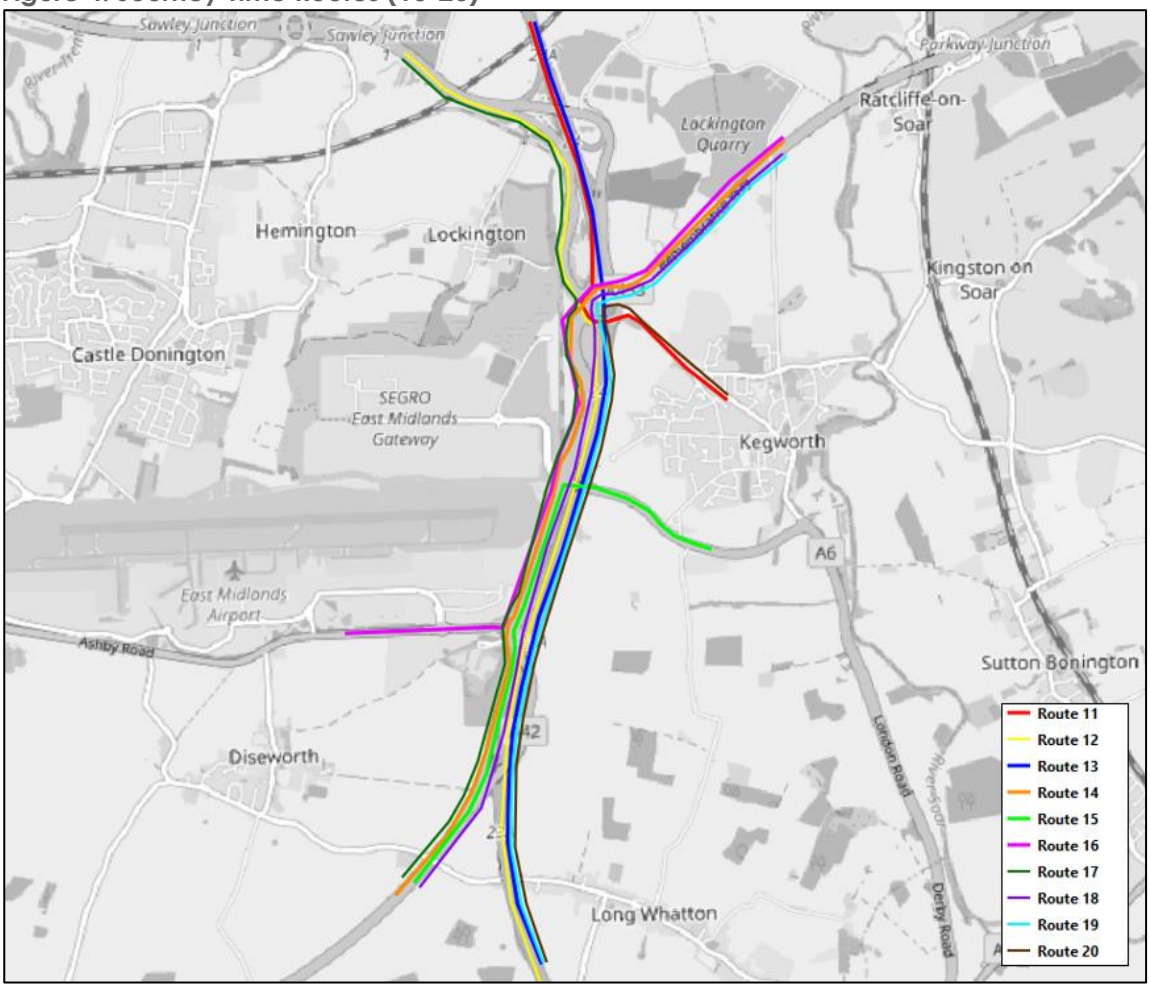


Figure 4: Journey Time Routes (10-20)



2.21 Details of the origin and destination of the routes identified above is provided below:

- Route 1 – A50 to M1 South
- Route 2 – M1 North to M1 South
- Route 3 – A453 Rememberance Way to A42
- Route 4 – Kegworth Bypass to A42
- Route 5 - M1 North to A42
- Route 6 – M1 North to Derby Road
- Route 7 – A453 Rememberance Way to A453 EMA
- Route 8 – M1 North to A453 Rememberance Way
- Route 9 – Kegworth Bypass to M1 South
- Route 10 - M1 South to Kegworth Bypass
- Route 11 – Derby Road to M1 North
- Route 12 – M1 South to A50
- Route 13 – M1 South to M1 North
- Route 14 – A42 to A453 Rememberance Way via A453

- Route 15 - A42 to Kegworth Bypass
- Route 16 – A453 EMA to A453 Rememberance Way
- Route 17 – A42 to A50 via A453
- Route 18 – A42 to A453 Rememberance Way via M1
- Route 19 – M1 South to A453 Rememberance Way via M1
- Route 20 - M1 South to Derby Road via M1

3. STAGE 1 VISSIM MODELLING

Introduction

3.1 The following section presents the results of the detailed junction modelling assessments for the Stage 1A core scenario and Stage 1B sensitivity forecast year scenarios using VISSIM.

Measurement of Capacity

3.2 The primary measurement of capacity in VISSIM is to conduct a journey time analysis between the without development and with development scenarios along with a comparison of predicted queues and a series of network perormance indicators such as average delays, average speeds, number of vehicles entering the network and latent demand. Judgement is then required as to where significant impacts are occuring and subsequently where mitigation needs to be focussed.

Measurement of Impacts

3.3 The impacts of the EMG2 Project will be assessed against the policy contained within Paragraph 5.283 of the NPS, which states:

> *"The applicant should provide evidence that the development improves the operation of the network and assists with capacity issues"*

3.4 In addition the impacts of the EMG2 Project will be assessed against the policy contained within Paragraph 116 of the NPPF, which states:

> "*development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network, following mitigation, would be severe, taking into account all reasonable future scenarios*"

3.5 While the Stage 1A modelling accounts for both committed sites, EMIP, Ratcliffe on Soar and draft Local Plan allocation sites, it does not consider any forthcoming mitigations. Therefore, it is important to focus on the overall improvements to the M1 J24 highway network rather than on individual journey time changes.

Stage 1A VISSIM Results

Journey Time Comparison

3.6 **Table 1** and **2** show the journey time comparison between the "without development" and "with development" scenarios for the forecast years 2028 and 2038 respectively.

Table 1: 2028 Journey Time Comparison

	AM			PM		
Route	WoD	WD	WD - WD	WoD	WD	WD - WoD
Route 1	354	370	16	327	343	16
Route 2	357	366	9	322	338	16
Route 3	313	318	5	473	490	17
Route 4	303	324	21	291	315	24
Route 5	341	346	5	317	325	8
Route 6	302	332	30	268	274	6
Route 7	394	421	26	435	463	28
Route 8	301	334	33	266	283	17
Route 9	308	338	30	294	335	42
Route 10	325	381	56	0	0	0
Route 11	367	373	6	371	399	29
Route 12	599	574	-25	390	453	63
Route 13	504	468	-36	398	467	69
Route 14	513	565	52	411	473	61
Route 15	329	366	37	300	347	48
Route 16	450	532	81	391	533	143
Route 17	411	459	47	345	416	71
Route 18	840	817	-23	368	392	24
Route 19	738	731	-7	430	497	67
Route 20	744	727	-17	429	487	58

Table 2: 2038 Journey Time Comparison

	AM			PM		
Route	WoD	WD	WD - WD	WoD	WD	WD - WoD
Route 1	427	505	78	329	344	15
Route 2	368	371	3	325	340	15
Route 3	432	665	232	982	982	0
Route 4	316	376	60	315	348	33
Route 5	346	349	4	322	331	9
Route 6	338	359	21	276	284	8
Route 7	675	934	259	857	864	7
Route 8	334	363	28	274	290	16
Route 9	322	388	66	314	364	49
Route 10	364	408	44	0	0	0
Route 11	384	391	8	378	406	28
Route 12	721	725	4	421	460	39
Route 13	620	612	-8	436	485	49
Route 14	656	733	77	424	495	71
Route 15	470	511	41	307	350	43

	AM			PM		
Route	WoD	WD	WD - WD	WoD	WD	WD - WoD
Route 16	488	568	80	464	784	320
Route 17	520	593	73	350	427	77
Route 18	1423	1419	-4	392	415	22
Route 19	1081	1082	1	483	532	49
Route 20	1098	1092	-6	485	524	39

3.7 **Tables 1** and **2** show that there are significant increases in journey times between the without development and with development scenarios particularly at Finger Farm roundabout, EMG1 Gyratory and M1 J24.

3.8 A review of the VISSIM simulation indicates that the M1 northbound off-slip becomes significantly congested under the forecast years without development scenarios, with queues extending back past Junction 23A. This issue is exacerbated in the forecast years with development scenarios, reducing the number of vehicles able to reach M1 J24.

3.9 This is shown in **Tables 3** and **4** which sumarise the average and maximum queues for the 2028 without and with development scenarios.

Table 3: 2028 Average Queue Comparison

	Average							
			AM			PM		
	IDs	Arm	WoD	WD	WD - WoD	WoD	WD	WD - WoD
Finger Farm Roundabout	1	A453 W	11	58	47	13	5	-7
	2	A453 N	2	4	2	1	1	0
	3	M1/A42 S	5	75	70	2	2	1
M1 J24	11	M1 SB Off Slip	107	475	368	30	54	23
	12	Remembrance Way	21	24	3	415	11	-404
	13	Deby Road	22	25	3	11	11	0
	15	A453 S	23	23	0	29	12	-17
	16	Hilton Hotel Lane	531	666	134	17	266	249
	17	M1 NB South of Slip	1137	1195	58	539	568	29
	20	M1 NB Off Slip	1137	1195	58	539	568	29
EMG Access	24	Kegworth By-Pass	58	77	18	43	29	-13
	25	A453 S	65	143	78	31	32	1
	26	Wilders Way	0	1	0	1	0	0
	28	A453 S Left turn	0	1	0	1	0	0
	29	Kegworth By-Pass Left Turn	33	54	21	16	17	1
	30	A453 N	12	19	7	7	6	-1

Table 4: 2028 Max Queue Comparison

	Max							
			AM			PM		
	IDs	Arm	WoD	WD	WD - WoD	WoD	WD	WD - WoD
Finger Farm Roundabout	1	A453 W	104	265	161	88	582	495
	2	A453 N	40	50	11	23	35	12
	3	M1/A42 S	74	336	262	35	42	7
M1 J24	11	M1 SB Off Slip	476	1152	676	132	133	1
	12	Remembrance Way	66	79	13	764	788	24
	13	Deby Road	77	99	22	51	52	1
	15	A453 S	86	92	6	112	168	56
	16	Hilton Hotel Lane	849	1073	223	56	55	-1
	17	M1 NB South of Slip	2010	2010	0	0	0	0
	20	M1 NB Off Slip	2010	2010	0	0	0	0
EMG Access	24	Kegworth By-Pass	262	282	20	219	226	7
	25	A453 S	271	537	266	150	158	9
	26	Wilders Way	9	15	6	15	19	4
	28	A453 S Left turn	9	15	6	15	19	4
	29	Kegworth By-Pass Left Turn	187	241	54	155	181	26
	30	A453 N	66	78	12	54	52	-2

3.10 **Table 5** and **6** which sets the average and max queues for the 2038 without and with development scenarios.

Table 5: 2038 Average Queue Comparison

	Average							
			AM			PM		
	IDs	Arm	WoD	WD	WD - WoD	WoD	WD	WD - WoD
Finger Farm Roundabout	1	A453 W	24	102	79	268	916	648
	2	A453 N	2	4	2	2	3	1
	3	M1/A42 S	10	114	104	2	3	1
M1 J24	11	M1 SB Off Slip	1220	1613	393	44	45	1
	12	Remembrance Way	662	1253	591	1611	1620	9
	13	Deby Road	24	27	3	13	14	1
	15	A453 S	29	37	8	36	52	16
	16	Hilton Hotel Lane	1164	1163	-1	152	160	8
	17	M1 NB South of Slip	1739	1723	-16	0	0	0
	20	M1 NB Off Slip	1739	1723	-16	0	0	0
EMG Access	24	Kegworth By-Pass	88	357	269	95	156	60
	25	A453 S	55	126	71	46	67	21
	26	Wilders Way	6	3	-2	2	2	0
	28	A453 S Left turn	6	3	-2	2	2	0
	29	Kegworth By-Pass Left Turn	59	340	281	56	130	74
	30	A453 N	22	23	1	9	10	1

Table 6: 2038 Max Queue Comparison

	Max							
			AM			PM		
	IDs	Arm	WoD	WD	WD - WoD	WoD	WD	WD - WoD
Finger Farm Roundabout	1	A453 W	122	392	270	505	1136	631
	2	A453 N	48	62	14	28	39	11
	3	M1/A42 S	128	475	347	37	47	10
M1 J24	11	M1 SB Off Slip	1972	2010	38	173	156	-17
	12	Remembrance Way	1097	2000	903	2010	2010	0
	13	Deby Road	89	96	7	55	60	6
	15	A453 S	89	128	38	132	221	89
	16	Hilton Hotel Lane	1645	1644	0	273	303	30
	17	M1 NB South of Slip	2010	2010	0	0	0	0
	20	M1 NB Off Slip	2010	2010	0	0	0	0
EMG Access	24	Kegworth By-Pass	346	906	560	407	546	139
	25	A453 S	242	440	198	168	283	115
	26	Wilders Way	34	23	-12	24	21	-3
	28	A453 S Left turn	34	23	-12	24	21	-3
	29	Kegworth By-Pass Left Turn	292	905	614	271	491	220
	30	A453 N	85	83	-2	51	56	4

Network Performance

3.11 **Table 7** sets out the network performance comparison for all scenarios at the 2028 forecast year.

Table 7: 2028 Network Performance Comparison

		Delay	Speed	Veh Arr	Latent D
AM	WoD	147	37.3	20483	207
	WD	156	36.1	21573	104
	WD - WoD	9	-1.2	1090	-103
PM	WoD	74	46.5	21307	4
	WD	112	41.1	21964	215
	WD - WoD	38	-5.5	657	212

3.12 When comparing the results of the with development scenario against the without development scenario, the average delay increases in both peak hours, more significantly in the evening peak hour with a delay increase of 38 seconds. The average speed decreases in both peak hours as a result of additional congestion.

3.13 **Table 8** sets out the network performance comparison for all scenarios at the 2038 forecast year.

Table 8: 2038 Network Performance Comparison

		Delay	Speed	Veh Arr	Latent D
AM	WoD	239	30.3	21375	810
	WD	281	27.5	21875	991
	WD - WoD	42	-2.8	500	182
PM	WoD	139	38.9	22196	485
	WD	175	35.1	22546	1207
	WD - WoD	36	-3.8	350	722

3.14 Similarly to the 2028 assessment year results, **Table 8** shows that the average delay increases, the amount of vehicles that enter the model increases and Latent Demand increases at 2038

3.15 In summary, the results show that, as expected, the EMG2 development is having an impact on the network performance across the VISSIM network area. Therefore, a comprehensive mitigation strategy using the Stage 2A modelling results has been proposed to address the impacts of the EMG2 development, details of which are presented in subsequent sections. The purpose of the mitigation is to demonstrate how the impacts of the EMG2 development would be mitigated and that there would be overall benefits to the operation of the Strategic Road Network around M1 Junction 24.

3.16 As a result a mitigation strategy is proposed which set out in **Section 4**.

Stage 1B VISSIM Results

Journey Time Comparison

3.17 **Table9** and **10** show the journey time comparison between the "without development" and "with development" scenarios for the forecast years 2028 and 2038 respectively for the Stage 1B scenarios. This excludes traffic from the Ratcliffe on Soar re-devleopment, EMIP and draft Local Plan allocations from the baseline.

Table 9: 2028 Journey Time Comparison

	AM			PM		
Route	WoD	WD	WD - WoD	WoD	WD	WD - WoD
Route 1	362	377	16	325	344	19
Route 2	362	367	5	322	336	14
Route 3	339	445	105	481	479	-1
Route 4	349	333	-16	288	323	35
Route 5	340	350	10	317	326	8
Route 6	303	390	86	265	272	6
Route 7	525	725	200	430	447	17
Route 8	296	383	87	264	282	19
Route 9	361	344	-17	288	337	48
Route 10	535	500	-35	0	0	0
Route 11	367	404	36	359	389	30
Route 12	371	449	78	470	547	77
Route 13	341	345	4	469	554	85
Route 14	548	603	55	401	468	67
Route 15	510	493	-17	305	345	40
Route 16	597	532	-65	380	502	122
Route 17	471	513	42	338	418	80
Route 18	380	403	23	371	389	18
Route 19	400	422	23	506	586	80
Route 20	403	420	16	502	578	76

Table 10: 2038 Journey Time Comparison

	AM			PM		
Route	WoD	WD	WD - WoD	WoD	WD	WD - WoD
Route 1	367	407	40	331	347	17
Route 2	365	369	4	331	346	16
Route 3	459	727	269	723	750	27
Route 4	320	430	110	322	319	-2
Route 5	345	348	3	325	332	7
Route 6	296	314	17	276	289	13
Route 7	690	1016	326	641	638	-4
Route 8	294	311	17	273	294	21
Route 9	327	430	104	324	345	22
Route 10	371	646	275	0	0	0
Route 11	391	394	3	378	406	28
Route 12	603	401	-202	530	561	31
Route 13	547	359	-189	545	582	36
Route 14	557	653	96	427	487	60
Route 15	428	490	62	312	333	21
Route 16	447	594	147	411	540	129
Route 17	475	584	109	346	414	68
Route 18	1042	392	-649	408	430	22
Route 19	831	414	-416	607	644	37
Route 20	840	410	-430	615	634	18

3.18 **Tables 9** and **10** show that there are significant increases in journey times between the without development and with development scenarios in 2038, particularly at Finger Farm roundabout, EMG1 Gyratory and M1 J24. This a similar outcome to the Stage 1A results.

3.19 This is shown in **Table 11** and **12** which sets the average and maximum queues for the 2028 without and with development scenarios.

Table 11: 2028 Average Queue Comparison

	Average							
			AM			PM		
	IDs	Arm	WoD	WD	WD - WoD	WoD	WD	WD - WoD
Finger Farm Roundabout	1	A453 W	87	45	-42	8	415	407
	2	A453 N	2	2	0	1	2	1
	3	M1/A42 S	19	385	367	1	2	0
M1 J24	11	M1 SB Off Slip	120	583	463	28	32	5
	12	Remembrance Way	347	683	337	614	496	-118
	13	Deby Road	28	26	-1	11	11	0
	15	A453 S	23	23	-1	22	32	10
	16	Hilton Hotel Lane	46	39	-7	10	12	2
	17	M1 NB South of Slip	1156	1203	47	539	568	29
	20	M1 NB Off Slip	1156	1203	47	539	568	29
EMG Access	24	Kegworth By-Pass	96	68	-29	25	57	32
	25	A453 S	420	287	-133	24	32	7
	26	Wilders Way	31	19	-12	0	3	3
	28	A453 S Left turn	31	19	-12	0	3	3
	29	Kegworth By-Pass Left Turn	76	50	-25	8	30	21
	30	A453 N	65	63	-2	7	11	4

Table 12: 2028 Max Queue Comparison

	Max							
			AM			PM		
	IDs	Arm	WoD	WD	WD - WoD	WoD	WD	WD - WoD
Finger Farm Roundabout	1	A453 W	351	235	-116	52	566	514
	2	A453 N	57	47	-10	25	36	11
	3	M1/A42 S	233	726	493	37	40	4
M1 J24	11	M1 SB Off Slip	490	1101	611	139	157	18
	12	Remembrance Way	665	1190	526	1192	1029	-163
	13	Deby Road	104	95	-8	56	65	8
	15	A453 S	92	82	-10	89	142	53
	16	Hilton Hotel Lane	136	100	-36	43	43	-1
	17	M1 NB South of Slip	2010	2010	0	0	0	0
	20	M1 NB Off Slip	2010	2010	0	0	0	0
EMG Access	24	Kegworth By-Pass	389	362	-27	140	302	163
	25	A453 S	955	748	-207	101	153	52
	26	Wilders Way	119	82	-38	13	34	22
	28	A453 S Left turn	119	82	-38	13	34	22
	29	Kegworth By-Pass Left Turn	378	362	-16	102	251	150
	30	A453 N	159	163	4	57	67	10

3.20 **Tables 13** and **14** summarise the average and maximum queues for the 2038 without and with development scenarios.

Table 13: 2038 Average Queue Comparison

	Average							
			AM			PM		
	IDs	Arm	WoD	WD	WD - WoD	WoD	WD	WD - WoD
Finger Farm Roundabout	1	A453 W	12	225	213	11	457	446
	2	A453 N	3	3	0	1	4	2
	3	M1/A42 S	6	458	452	2	3	1
M1 J24	11	M1 SB Off Slip	102	524	422	39	44	4
	12	Remembrance Way	848	1389	541	1240	1231	-10
	13	Deby Road	23	24	1	12	13	1
	15	A453 S	22	27	5	27	37	10
	16	Hilton Hotel Lane	8	11	2	129	156	27
	17	M1 NB South of Slip	1518	1518	0	0	0	0
	20	M1 NB Off Slip	1518	1518	0	0	0	0
EMG Access	24	Kegworth By-Pass	83	370	287	78	88	10
	25	A453 S	79	556	477	29	45	16
	26	Wilders Way	1	1	0	1	2	1
	28	A453 S Left turn	1	1	0	1	2	1
	29	Kegworth By-Pass Left Turn	49	364	314	39	66	27
	30	A453 N	24	24	1	9	10	1

Table 14: 2038 Max Queue Comparison

	Max							
			AM			PM		
	IDs	Arm	WoD	WD	WD - WoD	WoD	WD	WD - WoD
Finger Farm Roundabout	1	A453 W	101	666	566	91	616	525
	2	A453 N	69	65	-4	41	50	8
	3	M1/A42 S	79	831	752	57	60	3
M1 J24	11	M1 SB Off Slip	472	1801	1330	162	167	5
	12	Remembrance Way	1275	2010	735	2010	2009	-1
	13	Deby Road	73	79	6	62	68	6
	15	A453 S	89	105	17	97	136	39
	16	Hilton Hotel Lane	43	46	3	258	262	5
	17	M1 NB South of Slip	2010	2010	0	0	0	0
	20	M1 NB Off Slip	2010	2010	0	0	0	0
EMG Access	24	Kegworth By-Pass	353	927	574	408	526	118
	25	A453 S	404	1172	768	147	261	113
	26	Wilders Way	34	19	-15	28	29	2
	28	A453 S Left turn	34	19	-15	28	29	2
	29	Kegworth By-Pass Left Turn	327	926	599	288	522	233
	30	A453 N	91	92	2	65	58	-7

Network Performance

3.21 **Table 15** sets out the network performance comparison for all scenarios at the 2028 forecast year.

Table 15: 2028 Network Performance Comparison

		Delay	Speed	Veh Arr	Latent D
AM	WoD	89	43.6	21143	1
	WD	124	39.4	21748	43
	WD - WoD	35	-4.2	605	42
PM	WoD	94	44.1	20994	116
	WD	121	40.0	21678	355
	WD - WoD	28	-4.1	684	238

3.22 When comparing the results of the with development scenario against the without development scenario, the average delay increases in both peak hours with average speeds reducing, with the junction performance showing similarities in both peak hours.

3.23 **Table 16** summarises the network performance comparison for all scenarios at the 2038 forecast year.

Table 16: 2038 Network Performance Comparison

		Delay	Speed	Veh Arr	Latent D
AM	WoD	133	36.9	21707	134
	WD	155	36.5	22815	56
	WD - WoD	23	-0.5	1108	-78
PM	WoD	139	38.8	21944	570
	WD	166	35.7	22570	981
	WD - WoD	26	-3.1	626	411

3.24 Similarly to the 2028 assessment, the 2038 results show that the average delay increases, the number of vehicles that enter the model increases and Latent Demand increases. Average speeds therefore reduce as a result in both peak hours.

3.25 In summary, the results show that, as expected, the EMG2 development is also having an impact on the network performance across the VISSIM network area under the Stage 1B sensitivity test scenario. Therefore, similar to the conclusions of the Stage 1A scenario, a comprehensive mitigation strategy has been determined using the Stage 2A modelling outputs, as the core scenario which will also be tested using the Stage 2B modelling results to ensure it mitigates the impacts of the EMG2 development in both scenarios. This is detailed in subsequent sections.

4. MITIGATION

4.1 As a result of the VISSIM modelling, it has shown that mitigation is required to increase capacity on the highway network particularly at M1 Junction 24 as well as at Finger Farm Roundabout and EMG1 gyratory.

4.2 It should be noted that implementing mitigation measures, particularly at roundabouts, can have knock-on effects on other approach arms due to increased circulatory flow. As such, an iterative process was undertaken in VISSIM to identify a highway solution that delivers overall improvements to the network. The proposed highway works are shown on Highways Plans and the Components of the Proposed Development Plan which are included within the Transport Assessment (**BWB Reference EMG2-BWB-GEN-XX-RP-TR-0002 Revision P3)**.

4.3 The proposed highways works are described further as follows:

- A453/EMG2 Main Site access junction – providing access to the EMG2 Main Site via a new arm from the A453/Hunter Road roundabout (DCO Works No. 6).
- M1 Junction 24 improvements comprising:
  - Construction of a new free-flow link road from the M1 northbound to provide a direct link to the A50 westbound, which will cross over the A453, and will include the A50 westbound merge alterations (DCO Works Nos. 9 and 10);
  - Widening of the A50 eastbound link at J24 and other related works and traffic management measures in this location (DCO Works No. 11);
  - Alteration of the west side of the J24 roundabout to provide three lanes from the M1 northbound to A453 northbound through the junction, two lanes from the A453 northbound to the M1 northbound through the junction and removal of the segregated left-turn lane from the A453 northbound to the A50 westbound post feedback from NH (DCO Works No. 12a);
  - Signing and lining amendments on the east side of the J24 roundabout and the A453 southbound approach (DCO Works No. 12b);
  - Provision of new M1 northbound exit to the A50 and associated improvements to gantries signage, signals and road markings on the M1 (DCO Works No. 8); and
  - Changes to the signage on the M1 northbound before J23A to sign the A50 via the new M1 J24 link road rather than via J23A as at present (DCO Works No. 16).
- A6 Kegworth Bypass/A453 Junction Improvements providing widening at the EMG1 roundabout to increase junction capacity to accommodate traffic generation from the EMG2 Main Site (DCO Works No. 13).
- Works to the A453/A42/Finger Farm roundabout (DCO Works No 18).

4.4 The above mitigation packages have therefore been coded into VISSIM to determine how the highway improvements would affect journey times and queues. This retains the previous Stage 1A modelling results to start with.

Stage 1A VISSIM Mitigation Results

Journey Time Comparison

4.5 **Tables17** and **18** below shows the journey time comparison between the without development and with development + mitigation scenarios for the forecast years 2028 and 2038 respectively.

Table 17: 2028 Journey Time Comparison

	AM			PM		
Route	WoD	WD + Mit	WD + Mit – WoD	WoD	WD + Mit	WD + Mit – WoD
Route 1	354	348	-6	327	336	9
Route 2	357	347	-10	322	325	3
Route 3	313	317	4	473	476	3
Route 4	303	314	11	291	296	5
Route 5	341	336	-5	317	321	4
Route 6	302	320	18	268	303	35
Route 7	394	430	36	435	453	18
Route 8	301	313	12	266	301	35
Route 9	308	314	6	294	299	5
Route 10	325	343	18	0	351	351
Route 11	367	361	-6	371	362	-9
Route 12	599	294	-305	390	326	-64
Route 13	504	332	-172	398	378	-20
Route 14	513	484	-29	411	412	1
Route 15	329	321	-8	300	0	-300
Route 16	450	440	-10	391	412	21
Route 17	411	389	-22	345	335	-10
Route 18	840	375	-465	368	370	2
Route 19	738	389	-349	430	414	-16
Route 20	744	385	-359	429	413	-16

Table 18: 2038 Journey Time Comparison

	AM			PM		
Route	WoD	WD + Mit	WD + Mit – WoD	WoD	WD + Mit	WD + Mit – WoD
Route 1	427	402	-25	329	338	9
Route 2	368	356	-12	325	329	4
Route 3	432	504	72	982	948	-34
Route 4	316	338	22	315	312	-3
Route 5	346	341	-5	322	325	3
Route 6	338	428	90	276	326	50
Route 7	675	757	82	857	835	-22
Route 8	334	436	102	274	320	46
Route 9	322	342	20	314	320	6
Route 10	364	326	-38	0	0	0
Route 11	384	391	7	378	370	-8
Route 12	721	296	-425	421	341	-80
Route 13	620	345	-275	436	395	-41
Route 14	656	486	-170	424	423	-1
Route 15	470	299	-171	307	0	-307
Route 16	488	467	-21	464	463	-1
Route 17	520	363	-157	350	338	-12
Route 18	1423	611	-812	392	407	15
Route 19	1081	626	-455	483	453	-30
Route 20	1098	631	-467	485	458	-27

4.6 The results show that the proposed highway mitigation provides significant improvements to journey times, particularly on routes along the M1 northbound and A453 northbound. This benefit is primarily due to the proposed link road from the M1 northbound to the A50 westbound, which allows vehicles to remain on the M1 mainline and utilise the new link, thereby reducing the volume of traffic passing through M1 J24 and along the A453 corridor that runs parallel.

4.7 The mitigation also enables all vehicles on the M1 northbound slip road, previously waiting to turn onto Remembrance Way and Derby Road, to now use J24 directly which were previously queueing on the M1 northbound. This increases circulatory traffic at J24 but reduces the number of vehicles diverting from the M1 or A42 via the A453, consequently easing congestion at Finger Farm Roundabout and allowing improved access to the junction from other approaches.

4.8 This shift has knock-on effects on the Remembrance Way approach and the M1 southbound slip road. It is important to note that Stage 1A includes traffic from the draft Local Plan allocations such as the Uniper site (in addition to what can currently come forward under the LDO without further approval), which generates significant traffic to and from Remembrance Way. However, no mitigation measures have been included in the current scheme for this development or any other draft Local Plan allocations. Nonetheless, the reduction in diverted traffic via the A453 continues to relieve pressure on the Finger Farm Roundabout, improving access for other arms of the junction.

Network Performance

4.9 **Table 19** below sets out the network performance comparison for all scenarios at ther 2028 forecast year.

Table 19: 2028 Network Performance Comparison

		Delay	Speed	Veh Arr	Latent D
AM	WoD	147	37.3	20483	207
	WD	156	36.1	21573	104
	WD Mit	91	43.3	21427	79
	WD - WoD	9	-1.2	1090	-103
	Mit - WoD	-56	6	944	-128
PM	WoD	74	46.5	21307	4
	WD	112	41.1	21964	215
	WD Mit	72	46.5	22226	4
	WD - WoD	38	-5.5	657	212
	Mit - WoD	-2	0	919	0

4.10 When comparing the mitigation scheme against the base without development scenario, the results show that the average delay reduces, the number of vehicles that enter the model increases and Latent Demand reduces. This shows that the mitigation provides an overall betterment to the highway network.

4.11 **Table 20** below sets out the network performance comparison on all scenarios for 2038.

Table 20: 2038 Network Performance Comparison

		Delay	Speed	Veh Arr	Latent D
AM	WoD	239	30.3	21375	810
	WD	281	27.5	21875	991
	WD Mit	154	36.6	22619	180
	WD - WoD	42	-2.8	500	182
	Mit - WoD	-85	6.3	1244	-630
PM	WoD	139	38.9	22196	485
	WD	175	35.1	22546	1207
	WD Mit	41	39	23061	550
	WD - WoD	36	-3.8	350	722
	Mit - WoD	-98	0.1	865	65

4.12 Similarly to the 2028 assessment year results, **Table 20** shows that the average delay reduces, the number of vehicles that enter the model increases and Latent Demand reduces in the AM.

4.13 In the evening peak hour latent demend slightly inceases but the model accommodates circa 865 additional vehicles so therefore the mitigation still provides positive benefits.

4.14 Once the Stage 1A modelling testing of the proposed highway mitigation was complete, the scheme drawings were sent to AECOM to undertake Stage 2 PRTM modelling to see how the proposed highway mitigation would affect traffic routing in and around the network with the increase in capacity at M1 J24. The following section presents the results of the Stage 2 modelling.

5. STAGE 2 VISSIM MODELLING

Introduction

5.1 AECOM provided the Stage 2A/B PRTM modelling outputs which showed that the mitigation is drawing traffic back onto the Strategic Road Network due to the increased capacity at J24.

5.2 This section sets out the results of the stage 2A and 2B PRTM modelling outputs with the mitigation in place within VISSIM to determine if the mitigation scheme can still accommodate the re-routing of traffic.

Intial Runs

5.3 The initial runs in VISSIM showed that with traffic re-routing there is a need for further mitigation at M1 J24. This included the removal of the segregated left turn lane from the A453 northbound to A50 westbound and also at the southwest corner of M1 J24.

5.4 **Figure 5** shows an extract of the changes made at the southwest corner of M1 J24.

Figure 5. M1 Junction 24 Highway Mitigation changes



5.5 The following section summarises the proposed highway mitigation and presents the results of the strategic highway modelling under Stages 2A and 2B as well as revised VISSIM modelling to show the benefits of the proposed highway mitigation.

Stage 2A VISSIM Results

Journey Time Comparison

5.6 **Table 1** and **22** show the journey time comparison between the without development and with development + Mitigation scenarios for the forecast years 2028 and 2038 respectively.

Table 21: 2028 Journey Time Comparison

	AM			PM		
Route	WoD	WD + Mit	(WD + Mit) - WoD	WoD	WD + Mit	(WD + Mit) - WoD
Route 1	354	366	12	327	326	-1
Route 2	357	351	-6	322	321	-2
Route 3	313	315	2	473	862	389
Route 4	303	298	-5	291	294	4
Route 5	341	338	-3	317	317	0
Route 6	302	390	88	268	275	6
Route 7	394	392	-3	435	870	436
Route 8	301	373	73	266	271	5
Route 9	308	303	-5	294	291	-3
Route 10	325	319	-6	0	0	0
Route 11	367	358	-10	371	359	-12
Route 12	599	330	-269	390	351	-39
Route 13	504	373	-131	398	414	16
Route 14	513	456	-57	411	405	-6
Route 15	329	302	-27	300	303	4
Route 16	450	423	-27	391	387	-4
Route 17	411	396	-15	345	355	10
Route 18	840	479	-361	368	417	49
Route 19	738	434	-304	430	431	1
Route 20	744	457	-287	429	439	10

Table 22: 2038 Journey Time Comparison

	AM			PM		
Route	WoD	WD + Mit	(WD + Mit) - WoD	WoD	WD + Mit	(WD + Mit) - WoD
Route 1	427	524	97	329	345	16
Route 2	368	359	-9	325	325	0
Route 3	432	512	80	982	1022	40
Route 4	316	311	-5	315	302	-13
Route 5	346	346	0	322	322	1
Route 6	338	516	179	276	287	11
Route 7	675	600	-74	857	884	27
Route 8	334	502	168	274	280	6
Route 9	322	314	-8	314	304	-11
Route 10	364	318	-46	0	0	0
Route 11	384	447	63	378	374	-4
Route 12	721	353	-368	421	354	-67
Route 13	620	397	-223	436	418	-18
Route 14	656	661	5	424	501	76
Route 15	470	366	-105	307	311	4

	AM			PM		
Route	WoD	WD + Mit	(WD + Mit) - WoD	WoD	WD + Mit	(WD + Mit) - WoD
Route 16	488	583	95	464	423	-41
Route 17	520	450	-69	350	438	87
Route 18	1423	767	-656	392	521	129
Route 19	1081	639	-442	483	438	-45
Route 20	1098	679	-419	485	452	-33

5.7 **Tables 21** and **22** show that there are significant reductions in journey times between scenario 2038 without development and 2038 with development + mitigation particularly at Finger Farm roundabout, EMG1 Gyratory and M1 J24 in the morning peak hour.

5.8 A review of the VISSIM simulation indicates that in the morning peak period the M1 northbound off-slip becomes significantly less congested with slight queuing back onto the mainline but still allows vehicles to access the proposed link road.

5.9 There are also reductions in journey times in the evening peak hour which overall show that the mitigation provides significant benefit to the Strategic Road Network.

5.10 This is shown in **Table 23** and **24** which sets the average and maximum queues for the 2028 without and with development scenarios.

Table 23: 2028 Average Queue Comparison

	Average							
			AM			PM		
	IDs	Arm	WoD	WD Mit	Mit - WoD	WoD	WD Mit	Mit - WoD
Finger Farm Rounda	1	A453 W	11	4	-6	13	2	-11
	2	A453 N	2	3	2	1	4	3
	3	M1/A42 S	5	5	0	2	1	-1
M1 J24	11	M1 SB Off Slip	107	880	772	30	65	34
	12	Remembrance Way	21	20	-2	415	673	258
	13	Deby Road	22	26	4	11	12	1
	14	New Link Off Slip to A50	0	0	0	0	0	0
	15	A453 S	23	25	1	29	59	30
	16	Hilton Hotel Lane	531	385	-146	17	5	-12
	17	M1 NB South of Slip	1137	0	-1137	539	0	-539
	20	M1 NB Off Slip	1137	24	-1113	539	20	-519
EMG Access	24	Kegworth By-Pass	58	22	-36	43	22	-21
	25	A453 S	65	22	-42	31	22	-9
	26	Wilders Way	0	0	0	1	3	2
	28	A453 S Left turn	0	16	15	1	8	8
	29	Kegworth By-Pass Left Turn	33	26	-7	16	34	18
	30	A453 N	12	14	2	7	11	3

Table 24: 2028 Max Queue Comparison

	Max							
			AM			PM		
	IDs	Arm	WoD	WD Mit	Mit - WoD	WoD	WD Mit	Mit - WoD
Finger Farm Rounda	1	A453 W	104	51	-53	88	51	-37
	2	A453 N	40	68	29	23	55	33
	3	M1/A42 S	74	60	-14	35	19	-16
M1 J24	11	M1 SB Off Slip	476	1769	1293	132	244	112
	12	Remembrance Way	66	62	-4	764	1254	490
	13	Deby Road	77	157	80	51	70	19
	14	New Link Off Slip to A50	0	0	0	0	0	0
	15	A453 S	86	110	24	112	154	42
	16	Hilton Hotel Lane	849	553	-297	56	33	-23
	17	M1 NB South of Slip	2010	0	-2010	0	0	0
	20	M1 NB Off Slip	2010	101	-1909	0	75	75
EMG Access	24	Kegworth By-Pass	262	100	-163	219	201	-18
	25	A453 S	271	100	-171	150	201	51
	26	Wilders Way	9	14	4	15	63	48
	28	A453 S Left turn	9	80	71	15	71	56
	29	Kegworth By-Pass Left Turn	187	288	102	155	463	308
	30	A453 N	66	81	15	54	153	98

5.11 **Table 25** and **26** which sets the average and max queues for the 2038 without and with development traffic.

Table 25: 2038 Average Queue Comparison

			Average					
			AM			PM		
	IDs	Arm	WoD	WD Mit	Mit - WoD	WoD	WD Mit	Mit - WoD
Finger Farm Rounda	1	A453 W	24	6	-18	268	2	-266
	2	A453 N	2	6	4	2	4	3
	3	M1/A42 S	10	8	-3	2	1	-1
M1 J24	11	M1 SB Off Slip	1220	1803	583	44	76	32
	12	Remembrance Way	662	349	-313	1611	1696	85
	13	Deby Road	24	56	32	13	30	18
	14	New Link Off Slip to A50	0	0	0	0	0	0
	15	A453 S	29	47	18	36	77	41
	16	Hilton Hotel Lane	1164	802	-362	152	13	-139
	17	M1 NB South of Slip	1739	0	-1738	0	0	0
	20	M1 NB Off Slip	1739	170	-1569	0	21	21
EMG Access	24	Kegworth By-Pass	88	23	-65	95	19	-76
	25	A453 S	55	23	-31	46	19	-27
	26	Wilders Way	6	1	-5	2	1	-2
	28	A453 S Left turn	6	15	9	2	8	6
	29	Kegworth By-Pass Left Turn	59	87	28	56	31	-25
	30	A453 N	22	16	-6	9	8	-1

Table 26: 2038 Max Queue Comparison

			Max					
			AM			PM		
	IDs	Arm	WoD	WD Mit	Mit - WoD	WoD	WD Mit	Mit - WoD
Finger Farm Rounda	1	A453 W	122	196	74	505	48	-456
	2	A453 N	48	111	63	28	38	10
	3	M1/A42 S	128	118	-10	37	42	5
M1 J24	11	M1 SB Off Slip	1972	2010	39	173	268	95
	12	Remembrance Way	1097	570	-526	2010	2010	0
	13	Deby Road	89	255	166	55	207	152
	14	New Link Off Slip to A50	0	0	0	0	0	0
	15	A453 S	89	157	68	132	162	30
	16	Hilton Hotel Lane	1645	1323	-322	273	66	-207
	17	M1 NB South of Slip	2010	67	-1943	0	0	0
	20	M1 NB Off Slip	2010	747	-1263	0	83	83
EMG Access	24	Kegworth By-Pass	346	121	-225	407	75	-332
	25	A453 S	242	121	-121	168	75	-93
	26	Wilders Way	34	43	9	24	29	5
	28	A453 S Left turn	34	97	62	24	68	44
	29	Kegworth By-Pass Left Turn	292	616	324	271	398	127
	30	A453 N	85	104	19	51	58	7

Network Performance

5.12 **Table 27** below sets out the network performance comparison for all scenarios during the 2028 forecast year.

Table 27: 2028 Network Performance Comparison

		Delay	Speed	Veh Arr	Latent D
AM	WoD	147	37.3	20483	207
	WD	156	36.1	21573	104
	WD Mit	93	43.0	22053	2
	WD - WD	9	-1.2	1090	-103
	Mit - WoD	-54	5.7	1570	-205
PM	WoD	74	46.5	21307	4
	WD	112	41.1	21964	215
	WD Mit	118	40.9	21804	79
	WD - WD	38	-5.5	657	212
	Mit - WoD	44	-5.6	497	75

5.13 When comparing the results of the 'with development' scenario including for mitigation against the 'without development' scenario, the average delay reduces significantly in the morning peak hour (54 seconds), and the average speed and vehicles arriving increases significantly (+5.7mph and 1,570 vehicles respectively). The latent demand reduces considerably as a result (-205 vehicles). In the evening peak hour, the average delay increases slightly by 44 seconds, but from a very low base (the evening peak operates far better overall than the morning peak hour, which has always been the key peak hour of the two assessed). The average speed decreases slightly by 5.6mph, albeit from a high base (46.5mph). The number of vehicles arriving in the network increases by 497 vehicles, and the latent demand increases by 75, which is a positive overall in that the Strategic Road Network is able to accommodate a higher number of vehicles.

5.14 The benefit of the mitigation is also shown in the journey time tables which show a number of routes reducing in time once the mitigation scheme is introduced which re-enforces the above.

5.15 **Table 28** sets out the network performance comparison for all scenarios at the 2038 forecast year.

Table 28: 2038 Network Performance Comparison

		Delay	Speed	Veh Arr	Latent D
AM	WoD	239	30.3	21375	810
	WD	281	27.5	21875	991
	WD Mit	184	34.2	22776	548
	WD - WD	42	-2.8	500	182
	Mit - WoD	-55	3.9	1401	-262
PM	WoD	139	38.9	22196	485
	WD	175	35.1	22546	1207
	WD Mit	144	38.1	22948	556
	WD - WD	36	-3.8	350	722
	Mit - WoD	5	-0.8	752	71

5.16 Similarly to the 2028 assessment, the 2038 results show that the average delay reduces, considerably still in the morning peak hour (55 seconds), which results in higher average speeds and an additional 1,401 vehicles arriving through the network area.

5.17 In the evening peak hour, there is a marginal increase in delay of 5 seconds with average speeds reducing slightly by -0.8mph. Whilst this is a small change, they are from a very low base and the junction performance overall would be much better compared to the morning peak hour, which is the key time period.

5.18 Also journey times for the 2038 with mitigation scenarios show an number of routes decreasing in time taken which is a positive and illistraights that the mitigation sheme provided a major benefit to the Strategic Road Network

5.19 Therefore the results show that the proposed mitigation scheme provides a sufficient benefit for the Strategic Road Network especially at M1 J24.

Stage 2B VISSIM Results

Journey Time Comparison

5.20 **Table** 1**29** and **30** show the journey time comparison between the without development and with development + mitigation scenarios for the modelling years of 2028 and 2038 respectively.

Table 29: 2028 Journey Time Comparison

	AM			PM		
Route	WoD	WD + Mit	WD + Mit – WoD	WoD	WD + Mit	WD + Mit – WoD
Route 1	362	363	2	325	328	3
Route 2	362	348	-13	322	322	-1
Route 3	339	349	10	481	575	94
Route 4	349	312	-37	288	287	-1
Route 5	340	335	-5	317	317	0
Route 6	303	389	86	265	276	11
Route 7	525	420	-106	430	572	142
Route 8	296	364	68	264	271	7
Route 9	361	315	-46	288	289	1
Route 10	535	378	-157	0	0	0
Route 11	367	355	-12	359	359	1
Route 12	371	294	-77	470	348	-122
Route 13	341	341	0	469	408	-61
Route 14	548	529	-19	401	417	15
Route 15	510	348	-162	305	322	17
Route 16	597	518	-79	380	390	10
Route 17	471	469	-2	338	365	27
Route 18	380	136	-244	371	446	75
Route 19	400	151	-249	506	428	-78
Route 20	403	391	-12	502	438	-64

Table 30: 2038 Journey Time Comparison

	AM			PM		
Route	WoD	WD + Mit	WD + Mit – WoD	WoD	WD + Mit	WD + Mit – WoD
Route 1	367	419	51	331	344	13
Route 2	365	348	-17	331	327	-4
Route 3	459	553	95	723	755	32
Route 4	320	307	-13	322	291	-30
Route 5	345	333	-11	325	322	-3
Route 6	296	325	29	276	293	17
Route 7	690	637	-53	641	764	123
Route 8	294	305	12	273	282	8
Route 9	327	311	-16	324	290	-34
Route 10	371	324	-47	0	0	0
Route 11	391	366	-25	378	369	-9
Route 12	603	326	-277	530	344	-187
Route 13	547	372	-175	545	408	-137
Route 14	557	488	-69	427	527	99
Route 15	428	356	-72	312	408	96
Route 16	447	401	-47	411	403	-8
Route 17	475	451	-24	346	467	121
Route 18	1042	504	-537	408	542	133
Route 19	831	408	-423	607	430	-177
Route 20	840	426	-415	615	447	-168

5.21 Simialr to the Stage 2A scenario, **Tables 29** and **30** show that in Stage 2B there are significant decreases in journey times between the without development and with development scenarios at the 2038 forecast year particularly at Finger Farm roundabout, EMG1 Gyratory and M1 J24.

5.22 This is shown in **Tables 31** and **32** which summarise the average and maximum queues for the 2028 without and with development traffic.

Table 31: 2028 Average Queue Comparison

	Average							
			AM			PM		
	IDs	Arm	WoD	WD Mit	Mit - WoD	WoD	WD Mit	Mit - WoD
Finger Farm Rounda	1	A453 W	87	64	-23	8	3	-5
	2	A453 N	2	3	1	1	4	3
	3	M1/A42 S	19	63	44	1	1	-1
M1 J24	11	M1 SB Off Slip	120	518	398	28	55	27
	12	Remembrance Way	347	109	-238	614	916	302
	13	Deby Road	28	19	-8	11	13	2
	14	New Link Off Slip to A50	0	0	0	0	0	0
	15	A453 S	23	49	26	22	31	9
	16	Hilton Hotel Lane	46	24	-22	10	7	-4
	17	M1 NB South of Slip	1156	0	-1156	539	0	-539
	20	M1 NB Off Slip	1156	6	-1150	539	18	-521
EMG Access	24	Kegworth By-Pass	96	29	-67	25	16	-9
	25	A453 S	420	29	-391	24	16	-8
	26	Wilders Way	31	0	-31	0	1	1
	28	A453 S Left turn	31	282	251	0	8	8
	29	Kegworth By-Pass Left Turn	76	47	-29	8	14	6
	30	A453 N	65	25	-40	7	9	2

Table 32: 2028 Max Queue Comparison

	Max							
			AM			PM		
	IDs	Arm	WoD	WD Mit	Mit - WoD	WoD	WD Mit	Mit - WoD
Finger Farm Rounda	1	A453 W	351	422	71	52	56	4
	2	A453 N	57	83	25	25	50	25
	3	M1/A42 S	233	373	140	37	24	-13
M1 J24	11	M1 SB Off Slip	490	1630	1139	139	221	82
	12	Remembrance Way	665	374	-291	1192	1630	438
	13	Deby Road	104	75	-29	56	70	14
	14	New Link Off Slip to A50	0	0	0	0	0	0
	15	A453 S	92	186	94	89	113	24
	16	Hilton Hotel Lane	136	97	-39	43	38	-5
	17	M1 NB South of Slip	2010	0	-2010	0	0	0
	20	M1 NB Off Slip	2010	44	-1966	0	70	70
EMG Access	24	Kegworth By-Pass	389	1008	619	140	92	-47
	25	A453 S	955	1008	53	101	92	-9
	26	Wilders Way	119	17	-102	13	36	24
	28	A453 S Left turn	119	1011	892	13	70	58
	29	Kegworth By-Pass Left Turn	378	414	37	102	113	11
	30	A453 N	159	101	-58	57	72	14

5.23 **Table 33** and **34** which sets the average and max queues for the 2038 without and with development traffic.

Table 33: 2038 Average Queue Comparison

	Average							
			AM			PM		
	IDs	Arm	WoD	WD Mit	Mit - WoD	WoD	WD Mit	Mit - WoD
Finger Farm Rounda	1	A453 W	12	3	-10	11	4	-7
	2	A453 N	3	5	2	1	5	3
	3	M1/A42 S	6	8	2	2	1	-1
M1 J24	11	M1 SB Off Slip	102	238	136	39	89	50
	12	Remembrance Way	848	580	-268	1240	1449	209
	13	Deby Road	23	21	-3	12	20	8
	14	New Link Off Slip to A50	0	0	0	0	0	0
	15	A453 S	22	29	7	27	49	23
	16	Hilton Hotel Lane	8	6	-2	129	41	-88
	17	M1 NB South of Slip	1518	0	-1518	0	0	0
	20	M1 NB Off Slip	1518	28	-1490	0	19	19
EMG Access	24	Kegworth By-Pass	83	19	-63	78	19	-59
	25	A453 S	79	19	-60	29	19	-10
	26	Wilders Way	1	0	-1	1	2	1
	28	A453 S Left turn	1	14	13	1	7	6
	29	Kegworth By-Pass Left Turn	49	37	-12	39	25	-14
	30	A453 N	24	15	-9	9	10	0

Table 34: 2038 Max Queue Comparison

	Max							
			AM			PM		
	IDs	Arm	WoD	WD Mit	Mit - WoD	WoD	WD Mit	Mit - WoD
Finger Farm Rounda	1	A453 W	101	43	-57	91	54	-36
	2	A453 N	69	71	2	41	80	38
	3	M1/A42 S	79	97	19	57	26	-31
M1 J24	11	M1 SB Off Slip	472	574	102	162	268	106
	12	Remembrance Way	1275	1061	-214	2010	2010	0
	13	Deby Road	73	91	18	62	93	30
	14	New Link Off Slip to A50	0	0	0	0	0	0
	15	A453 S	89	93	5	97	135	38
	16	Hilton Hotel Lane	43	38	-5	258	129	-129
	17	M1 NB South of Slip	2010	0	-2010	0	0	0
	20	M1 NB Off Slip	2010	101	-1909	0	58	58
EMG Access	24	Kegworth By-Pass	353	87	-266	408	99	-309
	25	A453 S	404	87	-317	147	99	-48
	26	Wilders Way	34	18	-16	28	42	15
	28	A453 S Left turn	34	97	63	28	66	39
	29	Kegworth By-Pass Left Turn	327	381	54	288	406	117
	30	A453 N	91	92	1	65	106	42

Network Performance

5.24 **Table 35** below sets out the network performance comparison for all scenarios at the 2028 future year.

Table 35: 2028 Network Performance Comparison

		Delay	Speed	Veh Arr	Latent D
AM	WoD	89	43.6	21143	1
	WD	124	39.4	21748	43
	WD Mit	84	43.9	22109	4
	WD - WoD	35	-4.2	605	42
	Mit - WoD	-5	0.3	966	3
PM	WoD	94	44.1	20994	116
	WD	121	40.0	21678	355
	WD Mit	95	43.7	22138	70
	WD - WoD	28	-4.1	684	238
	Mit - WoD	1	-0.4	1144	-47

5.25 **Table 36** summarisesthe network performance comparison for all scenarios at the 2038 future year.

Table 36: 2038 Network Performance Comparison

		Delay	Speed	Veh Arr	Latent D
AM	WoD	133	36.9	21707	134
	WD	155	36.5	22815	56
	WD Mit	113	40.9	22976	11
	WD - WoD	23	-0.5	1108	-78
	Mit - WoD	-20	4.0	1269	-123
PM	WoD	139	38.8	21944	570
	WD	166	35.7	22570	981
	WD Mit	129	39.5	23080	381
	WD - WoD	26	-3.1	626	411
	Mit - WoD	-10	0.7	1136	-189

5.26 In summary, the results show that, with the comprehensive mitigation strategy included for the highway network within the VISSIM model, extending from the EMG2 site access to M1 Junction 24, would, overall, provide significant benefit. When considered the key areas within the network in greater detail, in summary:

i) A453/Hunter Road/EMG2 site access roundabout – traffic would be able to safely enter and exit the EMG2 site in any given scenario; vehicles would struggle to exit Hunter Road without the mitigation measures included for; hence the proposals provide betterment on said arm.

ii) Toucan crossing on the A453 – this operates within capacity when called, without any negative blocking back to either roundabout east or west.

iii) Finger Farm – the gyratory works well once the in mitigation is in place, as there are far less vehicles wanting to use the A453 when comparing to the base scenarios once the new M1 to A50 link road is included for.

iv) A453/Kegworth Bypass/EMG1 site access gyratory – while there is not an inherit capacity issue at EMG1 site access gyratory, the addition of a second right turn lane from the A453 southbound into EMG1 in affect future proofs the junction by increasing storage capacity within it and should also help alleviate the potential collision issue raised, as and the extra lane will help prevent vehicles from trying to manoeuvre around any queuing vehicles to enter the preceding two lane section into EMG1.

v) M1 Junction 24 diverge slip roads - in the base scenarios there is severe queuing forecast on both the M1 diverge slip road approaches, with vehicles queuing back onto the mainline to M1 Junction 23A to the south in the morning peak hour in particular, With the mitigation strategy included for, there is still queuing back onto the M1 mainline, but this is vastly improved, especially on the northbound approach, where the queue does not prejudice the operation of the proposed M1 northbound to A50 westbound link road and allows vehicles to access it. It is also worth reminding that the Stage 2A assessment work includes for all of the Ratcliffe on Soar Power Station redevelopment traffic in the baseline but not any mitigation, because it is unknown at this stage of the process. Either way, the improved operation will help improve the PIC record observed on the M1 northbound diverge slip road.

vi) M1 Junction 24 circulatory links – the inclusion of the additional lane on the western side of the junction increases capacity as it allows for more vehicles to access the junction and manoeuvre through it quicker. This in turn allows the MOVA at the junction to assign more green time to the busier arms (M1 southbound/A50, A453 Remembrance Way, and M1 northbound approaches), allowing for additional vehicles to enter the model. For the avoidance of doubt, the mitigation does not go as far as resolving all capacity issues at M1 Junction 24, especially on the A453 Remembrance Way arm and M1 southbound and A50 approach, but neither does it prejudice its operation either, over and above the congestion anticipated if the Ratcliffe on Soar Power Station is fully redeveloped in Stage 2A but without any further mitigation included for at this stage of the process (because it is not currently known).

vii) New M1 to A50 link road – whilst this introduces another conflict point, as result the removal of the current two to one merge on the exit from M1 Junction 24 to provide two full lanes, and the merge with the separated left turn lane, it reduces the number of conflict points overall. This in turn helps the A50 heading west from M1Junction 24, including for the new link road merge, to operate safely and within capacity.

7. SUMMARY & CONCLUSIONS

7.1 BWB Consulting Ltd (BWB) has been appointed by SEGRO (the Applicant) to produce a microsimulation traffic model of the M1 Junction 24 and Strategic Road Network in the vicinity to support a DCO application for the Phase 2 Expansion of East Midlands Gateway 2 developent (EMG2).

7.2 The EMG2 Project comprises a second phase to Segro's EMG1 logistics park and Rail Freight Interchange and comprises the following three components:

- **EMG2 Main Site** – A new logistics and advanced manufacturing employment park located south of East Midlands Airport and the A453, and west of the M1 motorway. This part of the site falls within the 'East Midlands Airport and Gateway Industrial Cluster' (EMAGIC) site, which forms part of the East Midlands Freeport designated by the Government in 2022. It comprises 300,000sqm of B2/B8 use (assessed as 60,000sqm B2 and 240,000sqm B8 as set out in Section 7 below), plus an allowance for 200,000sqm of B8 mezzanine floorspace.

- **Highways Works** – Highways works to the SRN including improvements at Junction 24 of the M1 motorway and the road network interacting with that junction; and

- **EMG1 Works** – Additional warehousing of 26,500sqm plus a mezzanine allowance for 3,500 sq.m (Use Class B8) at Plot 16 together with works to increase the permitted height of the cranes at the rail freight terminal, improvements to the EMG1 public transport interchange and site management building.

7.3 A VISSIM model had been developed for the M1 J24 corridor and it was agreed with the TWG that the following four junctions are tested using microsimulation VISSIM modelling because of their proximity to the SRN

i. Junction 2: A453/Hunter Road Roundabout
ii. Junction 3: Finger Farm Roundabout
iii. Junction 4: A453/EMGP1 Signal Gyratory
iv. Junction 5: M1 Junction 24

7.4 Junction modelling assessments for the Stage 1A core and 1B sensitivity forecast year scenarios have been carried out using VISSIM.

7.5 The VISSIM showed that in the forecast assessment year the corridor of junctions set out above would have capacity issues and as a result a mitigation scheme has been proposed.

7.6 The proposed highways works are described further as follows:

- A453/EMG2 Main Site access junction – providing access to the EMG2 Main Site via a new arm from the A453/Hunter Road roundabout (DCO Works No. 6).
- M1 Junction 24 improvements comprising:

- Construction of a new free-flow link road from the M1 northbound to provide a direct link to the A50 westbound, which will cross over the A453, and will include the A50 westbound merge alterations (DCO Works Nos. 9 and 10);
- Widening of the A50 eastbound link at J24 and other related works and traffic management measures in this location (DCO Works No. 11);
- Alteration of the west side of the J24 roundabout to provide three lanes from the M1 northbound to A453 northbound through the junction, two lanes from the A453 northbound to the M1 northbound through the junction and removal of the segregated left-turn lane from the A453 northbound to the A50 westbound post feedback from NH (DCO Works No. 12a);
- Signing and lining amendments on the east side of the J24 roundabout and the A453 southbound approach (DCO Works No. 12b);
- Provision of new M1 northbound exit to the A50 and associated improvements to gantries signage, signals and road markings on the M1 (DCO Works No. 8); and
- Changes to the signage on the M1 northbound before J23A to sign the A50 via the new M1 J24 link road rather than via J23A as at present (DCO Works No. 16).

- A6 Kegworth Bypass/A453 Junction Improvements providing widening at the EMG1 roundabout to increase junction capacity to accommodate traffic generation from the EMG2 Main Site (DCO Works No. 13).
- Works to the A453/A42/Finger Farm roundabout (DCO Works No 18).

7.7 The mitigation scheme showed that it would provide major benefits especially at M1 J24 when comparing journey times. The mitigation package was then coded into PRTM to see how it would affect the re-routing of traffic around the local area.

7.8 PRTM showed that the mitigation scheme would draw vehicles back onto the SRN and as a result AECOM provided Stage 2A/B modelling outputs to allow the revised traffic flows to be tested in VISSIM to determine if the mitigation scheme can still accommodate the re-routing of traffic.

7.9 The initial runs in VISSIM showed that with the increase if traffic due to the re-routing of traffic resulted in the need for further mitigation at M1 J24. This included the removal of the segregated left turn lane from the A453 northbound to A50 westbound and also at the southwest corner of M1 J24.

7.10 With the further mitigation measures, the overall mitigation scheme still provides a major benefit to the SRN.

APPENDICES

APPENDIX 1: EMG2-BWB-GEN-XX-RP-TR-0006_VISSIM_LMVR-S2-P4

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APPENDICES

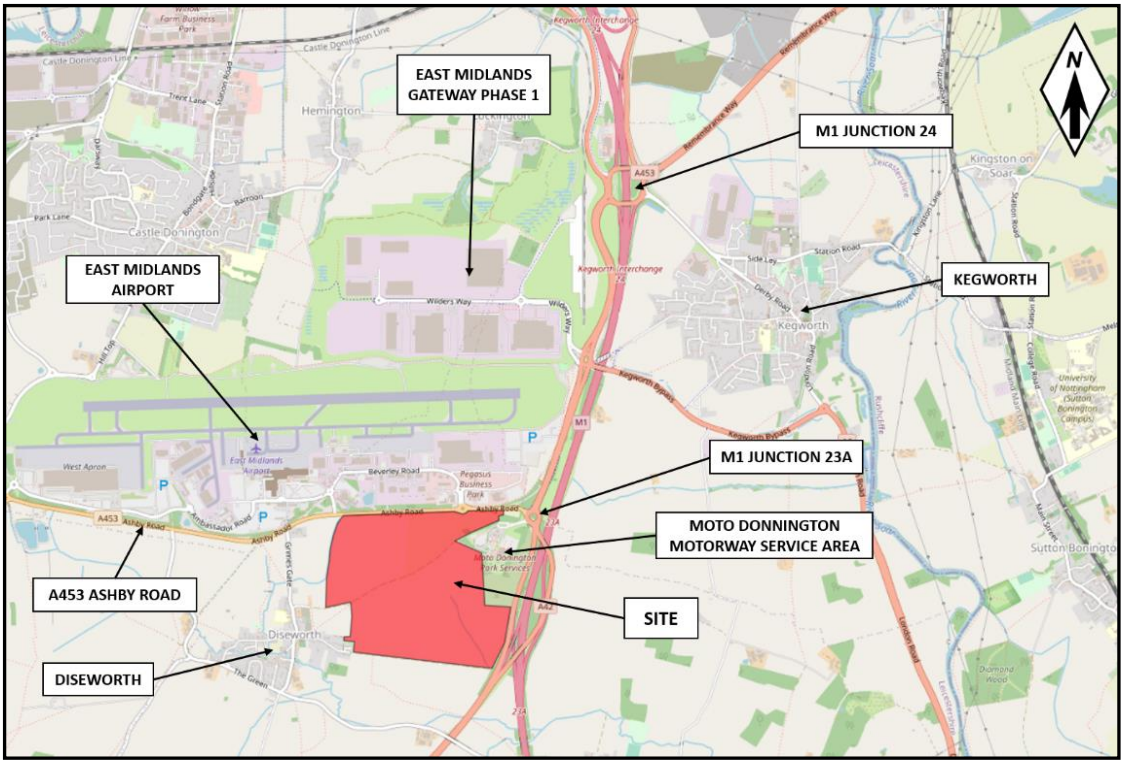
APPENDIX 1: TURNING COUNT CALIBRATION

1. INTRODUCTION

1.1 BWB Consulting Ltd (BWB) has been appointed by SEGRO (the Applicant) to produce a microsimulation traffic model of the M1 Junction 24, in support of an outline planning application for the Phase 2 Expansion of East Midlands Gateway (EMG) site.

1.2 The gross floor area (GFA) of the proposed scheme is approximately 3.23 million sqft (300,000sqm) comprising of 80% B8 use and 20% for B2 use, all with ancillary office use. The location of the proposed development is show in **Figure 1**.

Figure 1. Site Location



1.3 As part of East Midlands Gateway Phase 1, BWB obtained a copy of the M1 J24 VISSIM model network from National Highways in 2014. The model was validated and calibrated by AECOM to a base year of 2012. This model was utilised by BWB to assess the proposed highway network changes including improvements to M1 J24 as part of the EMG Phase 1. However, the model is now outdated and the proposed migitation as well as the scheme have been constructed on site since and is operational.

1.4 Therefore, to assess the impact of EMG Phase 2, a revalidation of the base model was required, this technical note has been produced to outline the modelling methodology undertaken as well as provide details of model calibration and validation.

Report Structure

1.5 Following this introduction, the remainder of this report is structured as follows:

- **Section 2:** Network Development, sets out the modelling parameters associated with the baseline model;

- **Section 3:** Model calibration, including comparison of manual turning count data against modelled flows.

- **Section 4:** Model validation comparing surveyed journey times with modelled journey times.

- **Section 5:** Summary and Conclusions.

2. NETWORK DEVELOPMENT

Model Approach

2.1 The PTV software package VISSIM is a microscopic, time-step, behaviour-based simulation tool developed to model traffic and public transport operations. VISSIM models individual vehicles and presents these movements visually, assisting in model validation and in the assessment of the performance of network improvement options.

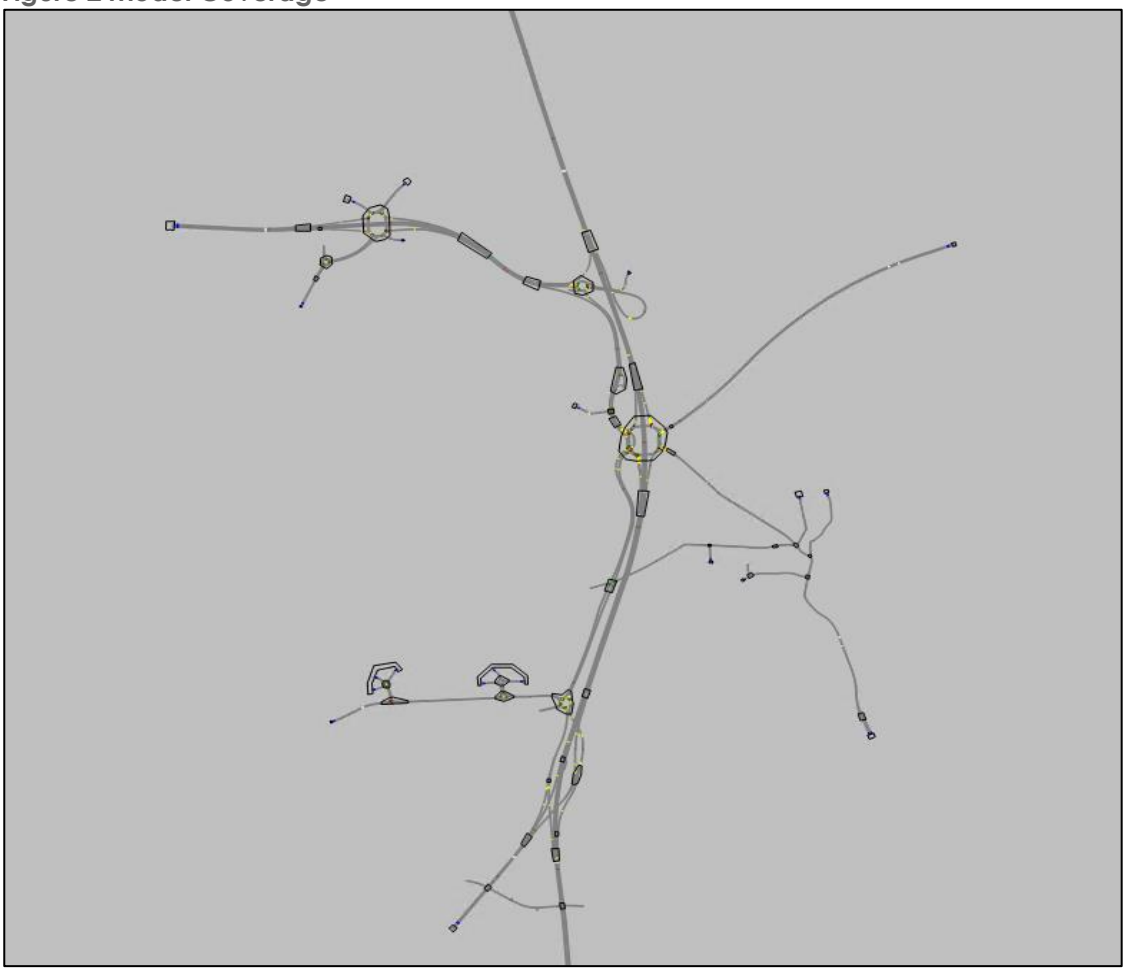
2.2 VISSIM provides output information such as queues, delays, and journey times on identified routes and other specific information. VISSIM also enables 3D videos to be produced providing a powerful visual simulation of the highway network.

2.3 The existing VISSIM model has utilised dynamics assignment for traffic flow input, therefore the this has been retained.

Model Coverage

2.4 The extents of the existing VISSIM model has been illustrated in **Figure 2** below.

Figure 2 Model Coverage



2.5 The existing model comprises of the following junctions.

i. A50 junction 1 Sawley Interchange;
ii. M1 J24a;
iii. M1 J24;
iv. A453/EMG Phase 1/Kegworth Bypass signal controlled gyratory;
v. M1 J23a Finger Farm roundabout (including M1/A42 on and off slip roads);
vi. A453/Hunter Road/minor EMG Phase 2 access roundabout
vii. A453 East Midlands airport internal roundabouts.

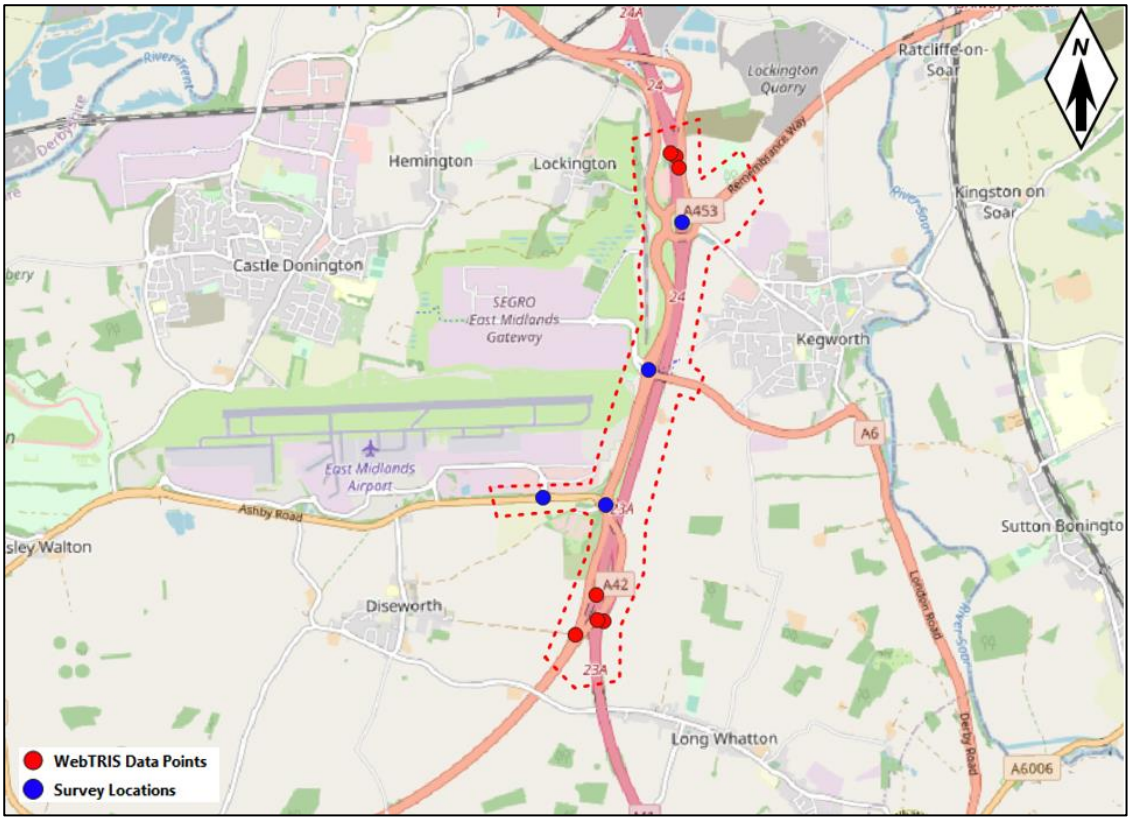
2.6 Following discussions with NH, it was agreed that the model will be cordoned of to the following junctions:

i. M1 J24;
ii. M1 J24a southbound merge onto the M1 and M1 junction 24;
iii. A453/EMG Phase 1/Kegworth Bypass signal controlled gyratory;
iv. M1 J23a Finger Farm roundabout (including M1/A42 on and off slip roads);
v. A453/Hunter Road/minor EMG Phase 2 access roundabout;
vi. A453/EMG Phase 2 site access roundabout.

Survey Data

2.7 Manual turning count surveys were undertaken on 3rd November 2023 for all junctions outlined in Paragraph 2.4. with the exception of the A453/Kegworth Bypass junction which was undertaken on 23rd November 2023. **Figure 3** illustrates locations of surveys undertaken and data points that are available on the WebTRIS website.

Figure 3: Survey and WebTRIS Data Locations



2.8 The survey data has been compared to a neutal month which was obtained from the Webtris website for a number of available data points around J24. The **Tables 1** and **2** sets our the GEH comapison between the survey data and the Webtris data.

Table 1: Survey Comparison AM

Appoarch/Exit	Traffic Flows (Veh)			GEH Comparison	
	Survey	2022 (Webtris)	2023 (Webtris)	2022 vs Survey	2023 vs Survey
M1 S Approach	1876	1811	1859	1.51	0.39
M1 S Exit	655	689	691	1.31	1.39
A453 Exit Towards EMG1	944	954	1014	0.32	2.24

Table 2: Survey Comparison PM

Appoarch/Exit	Traffic Flows (Veh)			GEH Comparison	
	Survey	2022 (Webtris)	2023 (Webtris)	2022 vs Survey	2023 vs Survey
M1 S Approach	1712	1715	1769	0.07	1.37
M1 S Exit	955	984	1002	0.93	1.50
A453 Exit Towards EMG1	615	666	699	2.02	3.28

2.9 The tables above illistriaght that the survey data is within a GEH 5 when comparing the neutal month from webtris and therefore, the survey data is acceptable.

2.10 The network peak hours were calculated as 0730-0830 and 1700-1800 in the morning and evening period respectively.

2.11 TomTom journey time data was obtained for all neutral days within the month of November 2022. Ths has been utilised for journey time validation purposes.

Model Time Periods

2.12 The modelled time periods include half an of hour warm up and cool down period either side of the peak hours. Subsequently, the model covers the following time periods:

- Weekday morning period from 0700-0900; and
- Weekday evening period from 1630-1830.

Traffic Flow Calculations

2.13 The traffic survey were utlised to generate traffic flow diagrams for each 15 minute interval with the time periods set out above for both light and heavy vehicles respectively. As the EMG gyratory junction was surveyed on a different day, there where significant discrepencies in flows northbound/southbound along the A453 therefore the flows have factored in accordance with flows approaching M1 J24 and Finger Farm Roundabout to ensure consistency for OD matrix estimation

2.14 The flows for the ahead and merge/diverge proportions have been calculated using counts that are avabilble on the WebTRIS website. **Tables 1** and **2** illustrate the calculations undertaken to derive the flows along the motorway as well as the split of traffic at the merges and diverges.

Table 3: Hourly WebTRIS Flows

Time Periods	WebTRIS				Divided By 4 (each 15 interval)			
	Northbound		Southbound		Northbound		Southbound	
	Lights	Heavies	Lights	Heavies	Lights	Heavies	Lights	Heavies
07:00-08:00	2275	605	4471	643	569	151	1118	161
08:00-09:00	2463	442	4069	581	616	111	1017	145
16:00-17:00	4132	502	3740	518	1033	126	935	130
17:00-18:00	4127	416	3863	491	1032	104	966	123
18:00-19:00	3307	290	3113	410	827	73	778	103

Table 4: 15-minute WebTRIS Flows

Time Periods	WebTRIS				% Split				Inputs into VISSIM			
	Northbound		Southbound		Northbound		Southbound					
	A42	M1	A42	M1	A42	M1	A42	M1	B-G	B-H	G-B	H-B
07:00 - 07:15	463	942	446	1028	33%	67%	30%	70%	780	338	381	187
07:15 - 07:30	441	895	477	1024	33%	67%	32%	68%	763	355	381	188
07:30 - 07:45	466	926	455	937	33%	67%	33%	67%	752	365	378	190
07:45 - 08:00	428	794	455	921	35%	65%	33%	67%	748	370	370	199
08:00 - 08:15	374	777	432	790	32%	68%	35%	65%	658	360	416	200
08:15 - 08:30	360	727	388	714	33%	67%	35%	65%	659	358	412	204
08:30 - 08:45	368	688	395	760	35%	65%	34%	66%	669	348	401	215
08:45 - 09:00	358	645	371	719	36%	64%	34%	66%	671	346	396	220
16:30 - 16:45	646	1148	547	902	36%	64%	38%	62%	582	353	661	372
16:45 - 17:00	525	1079	517	945	33%	67%	35%	65%	604	331	695	338
17:00 - 17:15	545	1145	542	944	32%	68%	36%	64%	614	352	699	333
17:15 - 17:30	571	1196	539	974	32%	68%	36%	64%	622	344	698	333
17:30 - 17:45	497	1301	579	887	28%	72%	39%	61%	584	381	747	285
17:45 - 18:00	615	1140	494	829	35%	65%	37%	63%	605	361	670	362
18:00 - 18:15	524	1040	442	795	34%	66%	36%	64%	500	278	550	277
18:15 - 18:30	464	945	417	718	33%	67%	37%	63%	492	286	554	272

HGVs												
Time Periods	WebTRIS				% Split				Inputs into VISSIM			
	Northbound		Southbound		Northbound		Southbound					
	A42	M1	A42	M1	A42	M1	A42	M1	B-G	B-H	G-B	H-B
07:00 - 07:15	75	102	68	96	42%	58%	41%	59%	94	67	87	64
07:15 - 07:30	62	115	66	105	35%	65%	39%	61%	99	62	98	53
07:30 - 07:45	57	119	56	115	32%	68%	33%	67%	108	53	102	49
07:45 - 08:00	65	102	54	112	39%	61%	33%	67%	108	52	92	59
08:00 - 08:15	40	120	58	129	25%	75%	31%	69%	100	45	83	28
08:15 - 08:30	55	108	60	125	34%	66%	32%	68%	98	47	73	37
08:30 - 08:45	58	121	85	123	32%	68%	41%	59%	86	59	75	36
08:45 - 09:00	80	103	71	104	44%	56%	41%	59%	86	59	62	48
16:30 - 16:45	80	107	64	89	43%	57%	42%	58%	75	54	72	54
16:45 - 17:00	55	88	55	81	38%	62%	40%	60%	77	52	77	48
17:00 - 17:15	49	108	54	116	31%	69%	32%	68%	84	39	72	32
17:15 - 17:30	41	92	45	117	31%	69%	28%	72%	89	34	72	32
17:30 - 17:45	47	83	50	89	36%	64%	36%	64%	79	44	66	38
17:45 - 18:00	43	91	57	104	32%	68%	35%	65%	79	43	71	33
18:00 - 18:15	36	59	58	88	38%	62%	40%	60%	62	41	45	27
18:15 - 18:30	49	51	40	77	49%	51%	34%	66%	67	35	37	36

2.15 Each 15-minute interval has been inputed into a skeleton LinSig model of the assessment area for both lights and heavies vehicles to allow LinSig's matrix estimation function to generate OD matrices that can be inputted into VISSIM.

Traffic Signals

2.16 A copy of the MOVA files for M1 J24 and the EMG gyratory were obtained from NH and the model has been updated to utilise the latest files.

2.17 PCMOVA has been utilised to replicate the the signal operation of the M1 J24 and EMG gyratory. The video footage of the junction was compared with the signal operation in VISSIM and it was concluded that this was reflective of on site behaviour.

2.18 MOVA data sets were not available for EMG West Steam 3, East Stream 3 and M1 J24 West Stream 4, therefore, VisVAP program has been ustilised to set up the exit/crossing signal controllers and subsequently link them to the respective MOVA junctions using detectors.

3. Network Development

3.1 A number of changes have been made to the original base model to ensure calibration & validation of the model. These include changes to reduced speed areas, desired speed distributions, priority rules, conflict area and link/flare usage. Details of these have been provided below.

Desired Speed Distribution And Reduced Speed Area

3.2 Initial review of the desired speed distributions utilised in the EMG Phase 1 model had been undertaken and it was noted that the speed distributions for 30, 60 and 70mph were affecting the journey times of vehicles in the model. Therefore, DfT data for the most recent year available (2021) has been obtained and new desired speed distributions have been calculated in coded into VISSIM.

3.3 Reduced speed areas have been retained and checked in accordance streetview, from the initial model apart from the road that connects the A50 to the M1/M1 J24. The TomTom Journey Data has been review and it was noted that the average speed traveling along this link is lower than what is sign posted and therefore amended to reflect this in the model.

3.4 A number of reduced speed area have been coded on to EMG gyratory around the bus stops.

Priority Rules & Conflict Areas

M1 J24

3.5 The existing priority rules and conflict areas have largely been unaltered apart from a small number of priority rules at the M1 J24 on the M1 northbound Off-Slip entry. The priority rules that have been amended are as follows:

- 495, 496, 497, 498

3.6 A few priority rules have been added on the M1 southbound Off-Slip entry. The priority rules that have been added are as follows:

- 501, 502, 502, 504

EMG Gyratory

3.7 The existing priority rules and conflict areas have largely been unaltered apart from a small number of priority rules at the EMG gyratory. The priority rules that have been amended are as follows:

- 469, 489, 509

3.8 The above alterations have been undertaken to ensure no overrunning of vehicles along the circulatory carriageway.

Public Transport

3.9 A number of bus services were identified within the study area therefore these have been coded into VISSIM in accordance with the respectively timetables and route maps. The following services are included within the model:

- EMG Shuttle Bus
- 9 – EMA – Queens Hospital
- Skylink Derby – Leicester – Derby
- Skylink Derby – Derby – Leicester
- Skylink Nottingham – Nottingham – Loughborough
- Skylink Nottingham – Loughborough – Nottingham
- Skylink Express – Nottingham – EMA
- Skylink Express – Nottingham – EMA

4. Model Changes

4.1 A copy of the VISSIM model was submitted to National Highways on 31 March 2023 subsequently comments were received on 3 May 2023. Following this, a revised copy of the VISSIM models were submitted on 11 July 2023 to ensure network parameters were acceptable prior to rerunning the models for validation. Details of the changes made are provided below.

Comment 1: "Driver behaviour parameter should retain default values unless a reasonable justification for the changes made is provided."

Amendment 1: The driver behaviour parameters have been reverted back to defult

Comment 2: "It is considered that Wiedemann 74 is not suitable for use on motorway, or even dual carriageway links (away from junctions) and that a behaviour type based on Wiedemann 99 should be used."

Amendment 2: Motorway link and dual carriageway links have been amended to Wiedemann 99

Comment 3: "The Behaviour at Amber/Red Signal for Driver Behaviour types should be changed to 'stop' rather than 'go' as current modelled."

Amendment 3: Behaviour at Amber/Red Signal for Driver Behaviour types set to 'stop'

Comment 4: "The various discrepancies between the on-street highway layout and that in the model should be reviewed and corrected."

Amendment 4: Link arrangements have been reviews and amended to reflectexactly whats on the ground.

Comment 5: "The coded vehicle entry speed from Parking Lots and DSDs throughout the network need to be revised to ensure consistent implied vehicles speeds on the same stretch of highway."

Amendment 5: All Parking Lots and DSD have been reviewed and amended where needed to provide more realistic vehicle speeds throughout the network.

Comment 6: "The omission of RDAs in the locations listed in this review should be investigated and appropriate RDAs added to the network."

Amendment 6: RDAs have been review and added/amended throughout the network

Comment 7: "All discrepancies between the controller information and the modelled controller parameters, in particular the inter-green values, should be checked and corrected as appropriate."

Amendment 7: All Signal spec checked and amended where required including intergreens

Comment 8: "There appears to be differences in the call/cancel times between the controller information and those used in the model. These should be checked and corrected as appropriate."

Amendment 8: call/cancel times have been amended

Comment 9: "The dummy connector on the AS453 eastbound entry to Hunter Roundabout should be deleted, mainly to ensure vehicles entering the roundabout correctly give-way."

Amendment 9: call/cancel times have been amended

4.2 Further to the above, some slight modifications were requested for the models, and these changes have been incorporated into the updated VISSIM model.

5. ADDITIONAL MODEL CHANGES

5.1 Initial runs of the forecast modelling indicated some calibration issues, therefore, additional changes have been made to the base model. These amendments are set out below.

VISSIM Version

5.2 VISSIM base model revalidated in VISSIM 24. VISSIM 24 utilises all cores therefore this will reduce computation time of forecast modelling runs.

Links

M1 J24

5.3 M1 NB exit altered (Link 10079) to one lane to reflect existing layout.

5.4 Altered the M1 south approach circulatory from 2 x 2-lane links (Link 17 & Link 194) to 1 x 4-lane link (Link 17). This allows better lane utilisation.

5.5 M1 N approach lane connectors (Link 10016) to A453 Remembrance Way from 1 lane connectors to a 2-lane connector to reflect video observation as well as road markings.

EMG Gyratory

5.6 Altered the EMG approach from 2x2-lane links to 1x4-lane link as the former caused convergence issues in the forecast modelling scenarios.

- Links Amended: 48, 70, 83, 576, 10481, 10482, 10487

Flare lengths

5.7 Flare lenths and allignments have also been reviewed and amended, the northbound approach to Finger Farm Roundabout (Link 136) and the eastbound approach to Hunters Road Roundabout (Link 212).

Signals

5.8 MOVA changes at M1 J24 special conditioning amended from call/cancel to delay/persistence. Signal linkage issues were noted in the forecast modelling scenarios.

A review of the video footage indicated that the call/cancel special conditioning did not reflect the signal operation well, particularly on the southwestern quadrant of the junction. Therefore special conditioning was amended to delay/persistence which reflected the operation better.

5.9 BWB have had discussions with a MOVA engineer who indicated that typically if links are set to simple traffic, these are not utilised on-site. Therefore detectors associated with simple traffic at the EMG gyratory have been removed.

Priority Rules

5.10 Some of the priority were slightly misaligned at the Finger Farm Roundabout causing vehicles to change lanes at the approach to the circulatory. Therefore, these have been repositioned to ensure no unnecessary lane changes.

Route Clousures

5.11 When undertaking the forecast modelling a calibration issue presented itself where traffic coming from the M1 south would come off the M1 travel up the A453 to Junction 24 in the AM. This is not realistic and therefore a route closure has veen added to stop vehicles doing this movement. This route closure will be used in all AM forecast modelling to remain consistent.

Route Costs

5.12 There are 2 routes to access the A50 via Junction 24 for vehicles travelling northbound from the the M1 and the A42, one route is to travel up the M1 and the other route is via the A453. As the model is a dynamic model and when running the models for calibration VISSIM assigns flows to each of these routes depending on where delay is in the model.

5.13 The GEH at Junction 24 for the 2 routes were unbalanced where VISSIM was assigning too many vehicles to use the A453 compared to the M1 and therefore, as a result a cost has been assigned to link number 184 of 75/km. this value provides the best split of traffic between the 2 routes and provides a cohesive GEH at J24. The will remain consistent between all forecast modelling scenarios.

6. MODEL CALIBRATION

Traffic Data

6.1 A skeleton LinSig model of the VISSIM network was built and Lights/Heavies turning movements were input into LinSig at 15-minute intervals. LinSig matrix estimation was subsequently used to generate synthetic OD matrices for input into the VISSIM model.

Convergence

6.2 The base model has been developed using dynamic assignment therefore models have been converged prior to extracting results from the model. TfL traffic modelling guidelines indicates that a model is converged if:

- 95% of all path traffic volumes change by less than 5% for at least four consecutive iterations; and
- 95% of travel times on all paths change by less than 20% for at least four consecutive iterations.

6.3 A summary of the convergence is presented in **Table 5** below.

Table 5: Model Convergence Summary

Sim Run	Traffic Volume		Travel Time on Paths	
	AM	PM	AM	PM
1	96%	99%	98%	98%
2	96%	98%	98%	97%
3	97%	98%	97%	96%
4	96%	97%	96%	95%
5	98%	96%	95%	97%
6	96%	95%	99%	96%
7	99%	98%	98%	98%
8	98%	99%	97%	99%
9	98%	97%	98%	99%
10	99%	98%	97%	99%

6.4 Based on the above, it is considered that both morning and evening peak hour models are converged.

Simulation

6.5 Ten iterations of each of the models were run starting at a random seed of 42 and increasing by 5 each interaction. The network performance parameter 'average delay per vehicle' was obtained for each run. The mean of the 10 runs was found for each option and the average was selected for calibration. The results of this process are presented in **Table 6** below.

Table 6: Network Performance

Seed Value	AM PEAK	PM PEAK
	Average Delay per Vehicle	Average Delay per Vehicle
42	52.774	43.351
47	49.629	42.303
52	50.065	44.313
57	52.982	46.324
62	54.638	42.574
67	53.609	41.910
72	54.941	42.829
77	52.246	41.791
82	50.938	41.322
87	52.155	42.929
Average	52.40	42.96
SD	1.70	1.38
Confidence	1.05	0.86

6.6 The stability of the models was judged using the Chi2 goodness of fit test which seeks to demonstrate that statistically the different model runs pass the goodness of fit null hypothesis that there is no significant difference in average delays between the seed values, thus demonstrating stability.

6.7 **Table 7** below demonstrate that, using the Chi2 distribution, in the morning and evening peak models pass the Chi2 goodness of fit test for respective degrees of freedom. The models therefore exhibit suitable stability/repeatability and are fit for purpose.

Table 7: Summary of Seed Stability Assessment

	MORNING PEAK					EVENING PEAK				
Seed	Observed	Expected	o-e	(o-e)2	(o-e)2/e	Observed	Expected	o-e	(o-e)2	(o-e)2/e
42	52.774	52.398	0.376	0	0.003	43.351	42.965	0.387	0.149	0.003
47	49.629	52.398	-2.769	8	0.146	42.303	42.965	-0.662	0.438	0.010
52	50.065	52.398	-2.333	5	0.104	44.313	42.965	1.349	1.819	0.042
57	52.982	52.398	0.584	0	0.007	46.324	42.965	3.360	11.287	0.263
62	54.638	52.398	2.241	5	0.096	42.574	42.965	-0.391	0.153	0.004
67	53.609	52.398	1.211	1	0.028	41.910	42.965	-1.055	1.113	0.026
72	54.941	52.398	2.544	6	0.124	42.829	42.965	-0.136	0.018	0.000
77	52.246	52.398	-0.152	0	0.000	41.791	42.965	-1.173	1.377	0.032
82	50.938	52.398	-1.459	2	0.041	41.322	42.965	-1.643	2.698	0.063
87	52.155	52.398	-0.243	0	0.001	42.929	42.965	-0.036	0.001	0.000
					0.549					0.443
	chi critical	0.05				chi critical	0.05			
	DF	(n-1)	9	=	16.919	DF	(n-1)	9	=	16.919
					Pass as 0.549 is less than 16.919					**Pass as 0.443 is less than 16.919**

Network Performance

6.8 **Table 8** presents a summary of the average Network Performance information.

Table 8: Network Performance

	AM	PM
Average Delay (s)	52	43
Average Speed (mph)	49	51
Vehicles Arrived	18194	18535
Latent Demand	1	0.6

6.9 **Table 8** illustrates that there is minimal latent demand in the morning peak hour period however a review of the error logs indicate that by the end of the cool down period, all vehicles are able to enter the VISSIM network.

Calibration Methodology

6.10 The Design Manual for Roads and Bridges (DMRB) defines model calibration as "the process of adjusting the parameters used in the various mathematical relationships within the model to reflect the data as well as is necessary to reflect the model objectives". The model calibration process ensures that model has the ability to exhibit characteristics that accurately compare with observed data.

6.11 The model calibration has been undertaken over a model period of 1.0 hour in the morning peak (07:30 – 08:30) and 1 hour in the evening peak (17:00 – 18:00). These periods of calibration do not include the 'warm up' and 'cool down' period before and after the identified 07:30 – 08:30 and 17:00 – 18:00 morning and evening peak hours.

Traffic Flow Calibration

6.12 The Design Manual for Roads and Bridges (DMRB) defines model calibration as "the process of adjusting the parameters used in the various mathematical relationships within the model to reflect the data as well as is necessary to reflect the model objectives". The model calibration process ensures that the model has the ability to exhibit characteristics that accurately compare with observed data.

6.13 DfT Transport Analysis Guidance (TAG) states that the calibration of traffic data in a model should be based on the Geffrey E.Havers (GEH) statistic, and states that modelled flows must have a GEH value of less than 5 in at least 85% of the cases.

6.14 The turning count calibration for the base model has been based on the average of all simulation runs. **Table** 9 provides a summary of the comparison between the observed and modelled total turning movements within the model.

Table 9: Summary of Traffic Flow Calibration

	Total Turns	Counts GEH<5
Morning Peak	59	92%
Evening Peak	59	93%

3.1 The above table represent a pass rate of over 85% for a GEH of less than 5 in both peak hour periods. The model is therefore considered to be fit for purpose. A copy of the full output is presented in **Appendix 1**.

7. MODEL VALIDATION

Introduction

7.1 TAG Unit M3.1 states that "for journey time calibration, the measure which should be used is: the percentage difference between modelled and observed journey times, subject to an absolute maximum difference". Subsequently, Table 3 of TAG states that the "modelled times along routes should be within 15% of surveyed times or 1 minute, if higher than 15%."

Travel Time Survey

7.2 TomTom journey time survey was obtained at 15 minute intervals for the neutral days within the month of November 2023 during the peak hours.

7.3 **Figure 4** and **5** provides routes utilised for journey time validation.

Figure 4: Journey Time Routes (1 - 10)

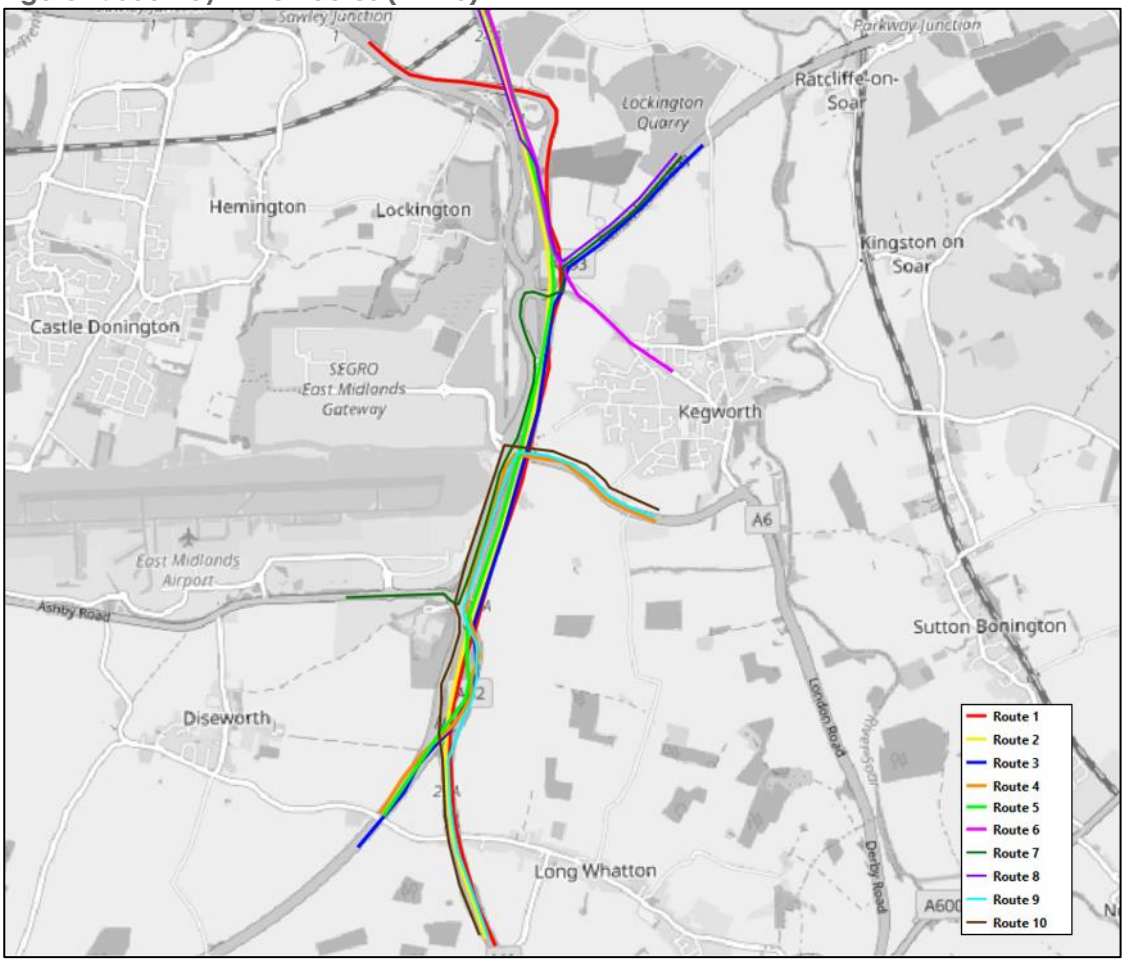
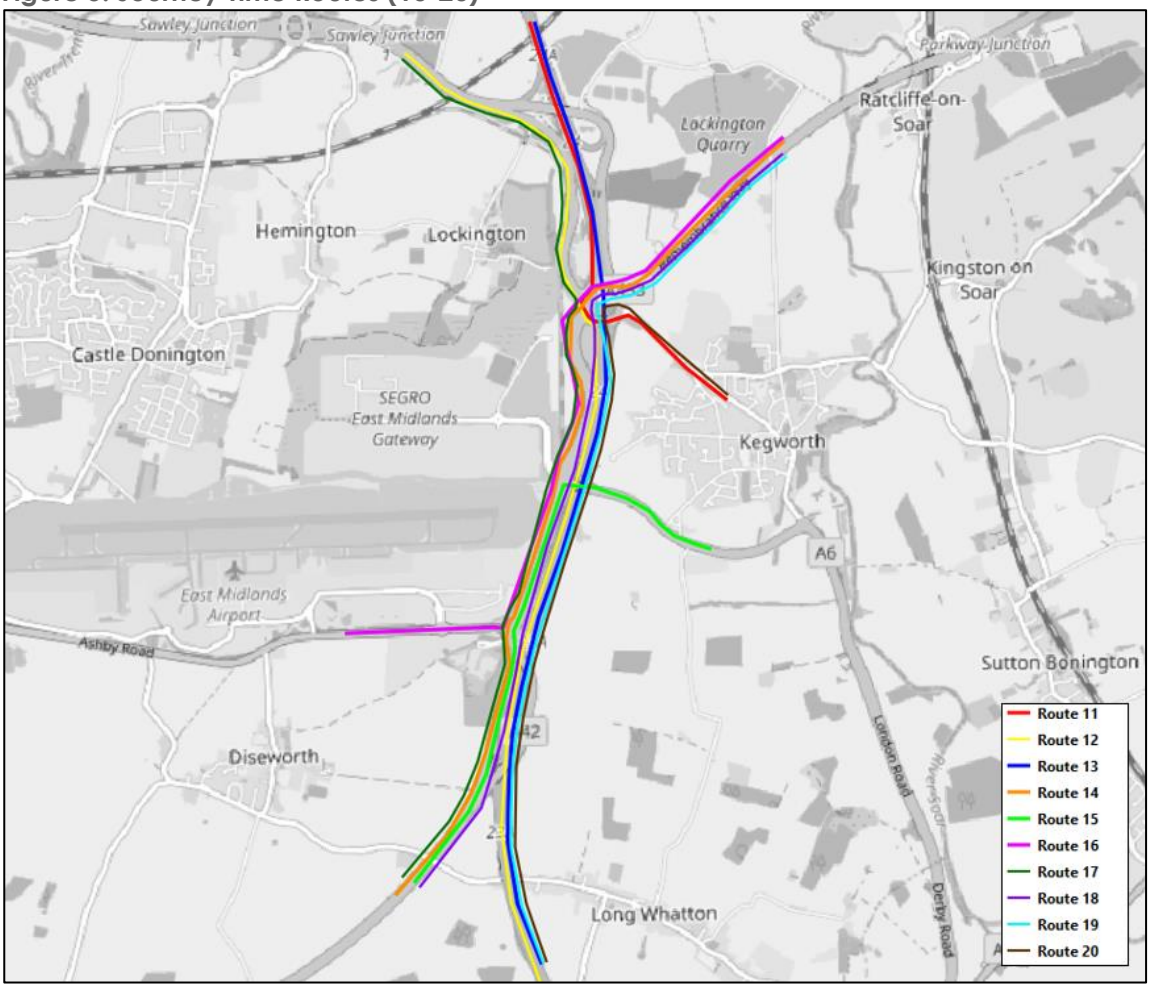


Figure 5: Journey Time Routes (10-20)



7.4 Details of the origin and destination of the routes identified above is provided below:

- Route 1 – A50 to M1 South
- Route 2 – M1 North to M1 South
- Route 3 – A453 Rememberance Way to A42
- Route 4 – Kegworth Bypass to A42
- Route 5 - M1 North to A42
- Route 6 – M1 North to Derby Road
- Route 7 – A453 Rememberance Way to A453 EMA
- Route 8 – M1 North to A453 Rememberance Way
- Route 9 – Kegworth Bypass to M1 South
- Route 10 - M1 South to Kegworth Bypass
- Route 11 – Derby Road to M1 North
- Route 12 – M1 South to A50
- Route 13 – M1 South to M1 North
- Route 14 – A42 to A453 Rememberance Way via A453

- Route 15 - A42 to Kegworth Bypass
- Route 16 – A453 EMA to A453 Rememberance Way
- Route 17 – A42 to A50 via A453
- Route 18 – A42 to A453 Rememberance Way via M1
- Route 19 – M1 South to A453 Rememberance Way via M1
- Route 20 - M1 South to Derby Road via M1

Validation Results

7.5 Model validation has been undertaken using 10 simulation seed runs as illustrated in **Table 7**. The average journey time for each full route has been compared with the surveyed journey times and the resultant output is presented in **Table 10** below.

Table 10: Travel Time Validation

Route	AM			PM		
	Observed	Modelled	% Difference	Observed	Modelled	% Difference
1	489	349	-28.6%	413	321	-22.4%
2	358	333	-6.9%	352	315	-10.4%
3	318	310	-2.5%	353	305	-13.6%
4	271	308	13.5%	269	288	7.2%
5	377	324	-14.0%	359	312	-13.0%
6	311	285	-8.5%	299	260	-12.9%
7	397	389	-1.9%	445	367	-17.4%
8	271	278	2.7%	255	258	1.4%
9	293	305	4.2%	294	291	-1.1%
10	318	338	6.4%	338	337	-0.4%
11	325	343	5.7%	394	339	-13.9%
12	374	348	-7.0%	408	361	-11.5%
13	331	327	-1.3%	397	356	-10.2%
14	393	424	7.9%	427	392	-8.2%
15	293	324	10.4%	314	297	-5.5%
16	389	400	2.8%	443	412	-6.9%
17	343	353	2.8%	414	441	6.5%
18	372	360	-3.2%	370	339	-8.4%
19	393	375	-4.7%	394	376	-4.5%
20	433	373	-13.8%	438	377	-13.9%

Table 11: Travel Time Validation Summary

	<15%	
	AM	PM
Fail	1	2
Pass	19	18
Total	20	20
%	95%	90%

7.6 **Table 8** illustrates that the over 85% of the journey times validate within 15% therefore it is considered the model is fit for purpose for future year assessment.

8. SUMMARY & CONCLUSIONS

8.1 BWB Consulting Ltd (BWB) has been appointed by SEGRO (the Applicant) to produce a microsimulation traffic model of the M1 Junction 24, in support of an outline planning application for the Phase 2 Expansion of the East Midlands Gateway (EMG) site.

8.2 The gross floor area (GFA) of the proposed scheme is approximately 3.23 million sqft (300,000sqm) comprising of 80% B8 use and 20% for B2 use, all with ancillary office use.

8.3 Traffic surveys were undertaken in November 2022 and subsequently a base VISSIM model of the study area has been developed by BWB.

8.4 The model was calibrated using observed and modelled turning movements during the peak hours at a 15-minute interval. These were assessed against DfT modelling guidelines and it was concluded that the base model satisfies both criterias.

8.5 Modelled journey times indicate that over 85% of these validate within 15% of observed data therefore it is considered the model is 'fit for purpose'.

APPENDICES

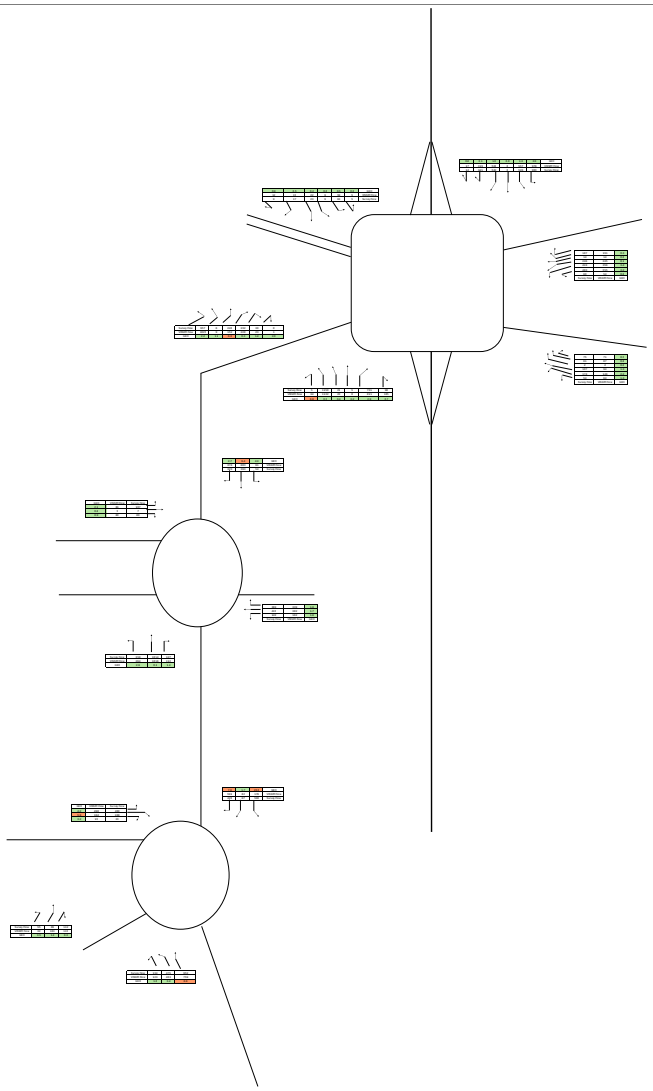
APPENDIX 1: TURNING COUNT CALIBRATION

AM Peak			Survey Flow	VISSIM Flow	Difference (M - C)	% Difference	GEH	GEH <5
Junction	From	To						
Junction 1	A453 (N)	M1 J23A Access	560	176	384	218%	20.02	Fail
Junction 1	A453 (N)	Donington Services Access	67	82	-15	-18%	1.74	Pass
Junction 1	A453 (N)	A453 (W)	420	591	-171	-29%	7.61	Fail
Junction 1	M1 J23A Access	Donington Services Access	134	123	11	9%	0.97	Pass
Junction 1	M1 J23A Access	A453 (W)	475	403	72	18%	3.44	Pass
Junction 1	M1 J23A Access	A453 (N)	952	759	193	25%	6.60	Fail
Junction 1	Donington Services Access	A453 (W)	55	32	23	72%	3.49	Pass
Junction 1	Donington Services Access	A453 (N)	89	103	-14	-14%	1.43	Pass
Junction 1	Donington Services Access	M1 J23A Access	112	115	-3	-3%	0.28	Pass
Junction 1	A453 (W)	A453 (N)	408	498	-90	-18%	4.23	Pass
Junction 1	A453 (W)	M1 J23A Access	249	164	85	52%	5.92	Fail
Junction 1	A453 (W)	Donington Services Access	23	10	13	130%	3.20	Pass
Junction 2	M1 J24 (N)	A453 (N)	900	979	-79	-8%	2.58	Pass
Junction 2	M1 J24 (N)	To Derby Road	526	557	-31	-6%	1.33	Pass
Junction 2	M1 J24 (N)	To M1 J24 (S)	0	0	0	0%	0.00	Pass
Junction 2	M1 J24 (N)	A453 (S)	542	520	22	4%	0.95	Pass
Junction 2	M1 J24 (N)	A50	321	319	2	1%	0.11	Pass
Junction 2	M1 J24 (N)	Hilton Hotel Lane	14	17	-3	-18%	0.76	Pass
Junction 2	A453 (N)	Derby Road	60	54	6	11%	0.79	Pass
Junction 2	A453 (N)	M1 J24 (S)	483	555	-72	-13%	3.16	Pass
Junction 2	A453 (N)	A453 (S)	424	356	68	19%	3.44	Pass
Junction 2	A453 (N)	A50	246	245	1	0%	0.06	Pass
Junction 2	A453 (N)	Hilton Hotel Lane	14	14	0	0%	0.00	Pass
Junction 2	A453 (N)	M1 J24 (N)	187	191	-4	-2%	0.29	Pass
Junction 2	Derby Road	M1 J24 (S)	54	64	-10	-16%	1.30	Pass
Junction 2	Derby Road	A453 (S)	174	146	28	19%	2.21	Pass
Junction 2	Derby Road	A50	107	94	13	14%	1.30	Pass
Junction 2	Derby Road	Hilton Hotel Lane	2	2	0	0%	0.00	Pass
Junction 2	Derby Road	M1 J24 (N)	61	67	-6	-9%	0.75	Pass
Junction 2	Derby Road	A453 (N)	75	71	4	6%	0.47	Pass
Junction 2	M1 J24 (S)	A453 (S)	5	34	-29	-85%	6.57	Fail
Junction 2	M1 J24 (S)	A50	1150	1132	18	2%	0.53	Pass
Junction 2	M1 J24 (S)	Hilton Hotel Lane	21	23	-2	-9%	0.43	Pass
Junction 2	M1 J24 (S)	M1 J24 (N)	5	0	5	0%	3.16	Pass
Junction 2	M1 J24 (S)	A453 (N)	731	811	-80	-10%	2.88	Pass
Junction 2	M1 J24 (S)	Derby Road	98	105	-7	-7%	0.69	Pass
Junction 2	A453 (S)	A50	957	1025	-68	-7%	2.16	Pass
Junction 2	A453 (S)	Hilton Hotel Lane	6	9	-3	-33%	1.10	Pass
Junction 2	A453 (S)	M1 J24 (N)	240	152	88	58%	6.29	Fail
Junction 2	A453 (S)	A453 (N)	232	228	4	2%	0.26	Pass
Junction 2	A453 (S)	Derby Road	30	23	7	30%	1.36	Pass
Junction 2	Hilton Hotel Lane	M1 J24 (N)	5	5	0	0%	0.00	Pass
Junction 2	Hilton Hotel Lane	A453 (N)	63	59	4	7%	0.51	Pass
Junction 2	Hilton Hotel Lane	Derby Road	9	9	0	0%	0.00	Pass
Junction 2	Hilton Hotel Lane	M1 J24 (S)	23	22	1	5%	0.21	Pass
Junction 2	Hilton Hotel Lane	A453 (S)	17	15	2	13%	0.50	Pass
Junction 2	Hilton Hotel Lane	A50	9	12	-3	-25%	0.93	Pass
Junction 3	A453 (N)	A6 Kegworth Bypass	54	91	-37	-41%	4.35	Pass
Junction 3	A453 (N)	A453 (S)	393	603	-210	-35%	9.41	Fail
Junction 3	A453 (N)	Wilders Way	323	374	-51	-14%	2.73	Pass
Junction 3	A6 Kegworth Bypass	A453 (S)	142	162	-20	-12%	1.62	Pass
Junction 3	A6 Kegworth Bypass	Wilders Way	415	382	33	9%	1.65	Pass
Junction 3	A6 Kegworth Bypass	A453 (N)	369	339	30	9%	1.59	Pass
Junction 3	A453 (S)	Wilders Way	219	264	-45	-17%	2.90	Pass
Junction 3	A453 (S)	A453 (N)	1014	1016	-2	0%	0.06	Pass
Junction 3	A453 (S)	A6 Kegworth Bypass	127	112	15	13%	1.37	Pass
Junction 3	Wilders Way	A453 (N)	107	86	21	24%	2.14	Pass
Junction 3	Wilders Way	A6 Kegworth Bypass	7	5	2	40%	0.82	Pass
Junction 3	Wilders Way	A453 (S)	80	88	-8	-9%	0.87	Pass

	<5
Fail	7
Pass	52
Total	59
%	88%

AM Peak			Survey Flow	VISSIM Flow	Difference (M - C)	% Difference	GEH	GEH <5
Junction	From	To						
Junction 1	A453 (N)	M1 J23A Access	367	209	158	76%	9.31	Fail
Junction 1	A453 (N)	Donington Services Access	88	73	15	21%	1.67	Pass
Junction 1	A453 (N)	A453 (W)	178	187	-9	-5%	0.67	Pass
Junction 1	M1 J23A Access	Donington Services Access	138	137	1	1%	0.09	Pass
Junction 1	M1 J23A Access	A453 (W)	420	406	14	3%	0.69	Pass
Junction 1	M1 J23A Access	A453 (N)	771	767	4	1%	0.14	Pass
Junction 1	Donington Services Access	A453 (W)	53	60	-7	-12%	0.93	Pass
Junction 1	Donington Services Access	A453 (N)	88	95	-7	-7%	0.73	Pass
Junction 1	Donington Services Access	M1 J23A Access	124	146	-22	-15%	1.89	Pass
Junction 1	A453 (W)	A453 (N)	587	498	89	18%	3.82	Pass
Junction 1	A453 (W)	M1 J23A Access	253	316	-63	-20%	3.74	Pass
Junction 1	A453 (W)	Donington Services Access	51	59	-8	-14%	1.08	Pass
Junction 2	M1 J24 (N)	A453 (N)	907	949	-42	-4%	1.38	Pass
Junction 2	M1 J24 (N)	To Derby Road	545	528	17	3%	0.73	Pass
Junction 2	M1 J24 (N)	To M1 J24 (S)	4	0	4	0%	2.83	Pass
Junction 2	M1 J24 (N)	A453 (S)	182	141	41	29%	3.23	Pass
Junction 2	M1 J24 (N)	A50	240	221	19	9%	1.25	Pass
Junction 2	M1 J24 (N)	Hilton Hotel Lane	10	9	1	11%	0.32	Pass
Junction 2	A453 (N)	Derby Road	74	72	2	3%	0.23	Pass
Junction 2	A453 (N)	M1 J24 (S)	813	865	-52	-6%	1.80	Pass
Junction 2	A453 (N)	A453 (S)	294	356	-62	-17%	3.44	Pass
Junction 2	A453 (N)	A50	405	376	29	8%	1.47	Pass
Junction 2	A453 (N)	Hilton Hotel Lane	11	9	2	22%	0.63	Pass
Junction 2	A453 (N)	M1 J24 (N)	263	269	-6	-2%	0.37	Pass
Junction 2	Derby Road	M1 J24 (S)	51	59	-8	-14%	1.08	Pass
Junction 2	Derby Road	A453 (S)	88	87	1	1%	0.11	Pass
Junction 2	Derby Road	A50	135	133	2	2%	0.17	Pass
Junction 2	Derby Road	Hilton Hotel Lane	2	2	0	0%	0.00	Pass
Junction 2	Derby Road	M1 J24 (N)	87	89	-2	-2%	0.21	Pass
Junction 2	Derby Road	A453 (N)	57	61	-4	-7%	0.52	Pass
Junction 2	M1 J24 (S)	A453 (S)	5	1	4	400%	2.31	Pass
Junction 2	M1 J24 (S)	A50	1089	980	109	11%	3.39	Pass
Junction 2	M1 J24 (S)	Hilton Hotel Lane	14	15	-1	-7%	0.26	Pass
Junction 2	M1 J24 (S)	M1 J24 (N)	0	0	0	0%	0.00	Pass
Junction 2	M1 J24 (S)	A453 (N)	528	686	-158	-23%	6.41	Fail
Junction 2	M1 J24 (S)	Derby Road	76	95	-19	-20%	2.05	Pass
Junction 2	A453 (S)	A50	999	875	124	14%	4.05	Pass
Junction 2	A453 (S)	Hilton Hotel Lane	5	5	0	0%	0.00	Pass
Junction 2	A453 (S)	M1 J24 (N)	323	347	-24	-7%	1.31	Pass
Junction 2	A453 (S)	A453 (N)	256	269	-13	-5%	0.80	Pass
Junction 2	A453 (S)	Derby Road	41	33	8	24%	1.32	Pass
Junction 2	Hilton Hotel Lane	M1 J24 (N)	15	15	0	0%	0.00	Pass
Junction 2	Hilton Hotel Lane	A453 (N)	20	21	-1	-5%	0.22	Pass
Junction 2	Hilton Hotel Lane	Derby Road	10	10	0	0%	0.00	Pass
Junction 2	Hilton Hotel Lane	M1 J24 (S)	8	7	1	14%	0.37	Pass
Junction 2	Hilton Hotel Lane	A453 (S)	4	3	1	33%	0.53	Pass
Junction 2	Hilton Hotel Lane	A50	11	10	1	10%	0.31	Pass
Junction 3	A453 (N)	A6 Kegworth Bypass	77	94	-17	-18%	1.84	Pass
Junction 3	A453 (N)	A453 (S)	305	194	111	57%	7.03	Fail
Junction 3	A453 (N)	Wilders Way	243	223	20	9%	1.31	Pass
Junction 3	A6 Kegworth Bypass	A453 (S)	132	139	-7	-5%	0.60	Pass
Junction 3	A6 Kegworth Bypass	Wilders Way	402	388	14	4%	0.70	Pass
Junction 3	A6 Kegworth Bypass	A453 (N)	389	388	1	0%	0.05	Pass
Junction 3	A453 (S)	Wilders Way	90	136	-46	-34%	4.33	Pass
Junction 3	A453 (S)	A453 (N)	1026	906	120	13%	3.86	Pass
Junction 3	A453 (S)	A6 Kegworth Bypass	187	328	-141	-43%	8.79	Fail
Junction 3	Wilders Way	A453 (N)	221	214	7	3%	0.47	Pass
Junction 3	Wilders Way	A6 Kegworth Bypass	19	17	2	12%	0.47	Pass
Junction 3	Wilders Way	A453 (S)	140	138	2	1%	0.17	Pass

	<5
Fail	2
Pass	45
Total	47
%	96%



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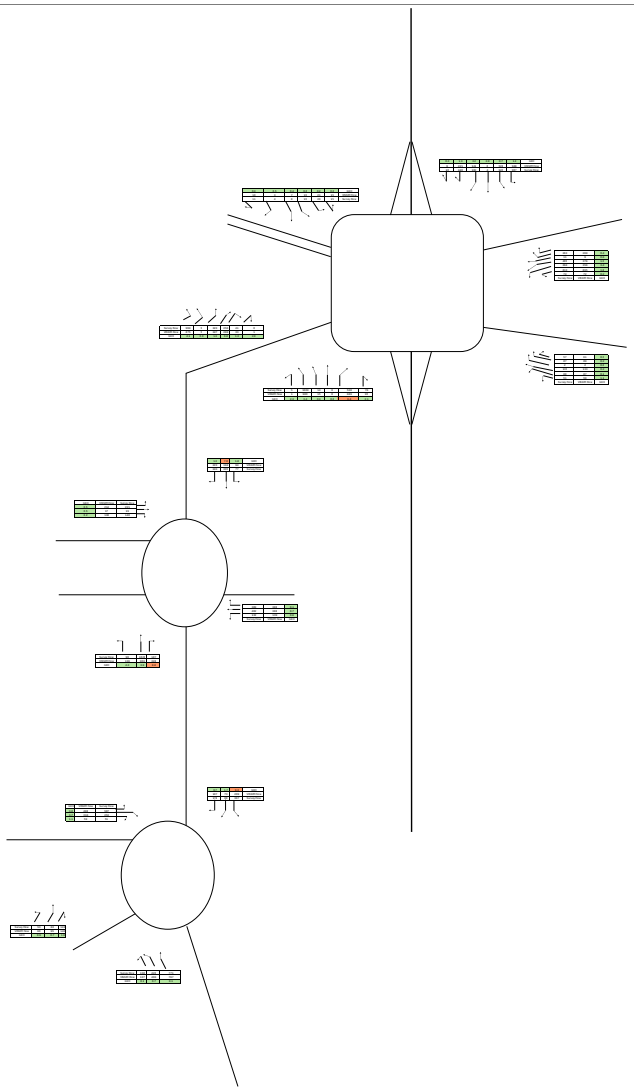
Project	East Midlands Gateway Phase 2		
Drawn	CC	**Approved**	VD
Checked	CC	**Date**	03.03.25

Drawing Title

GEM Comparison AM

Project Number

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Drawing Title

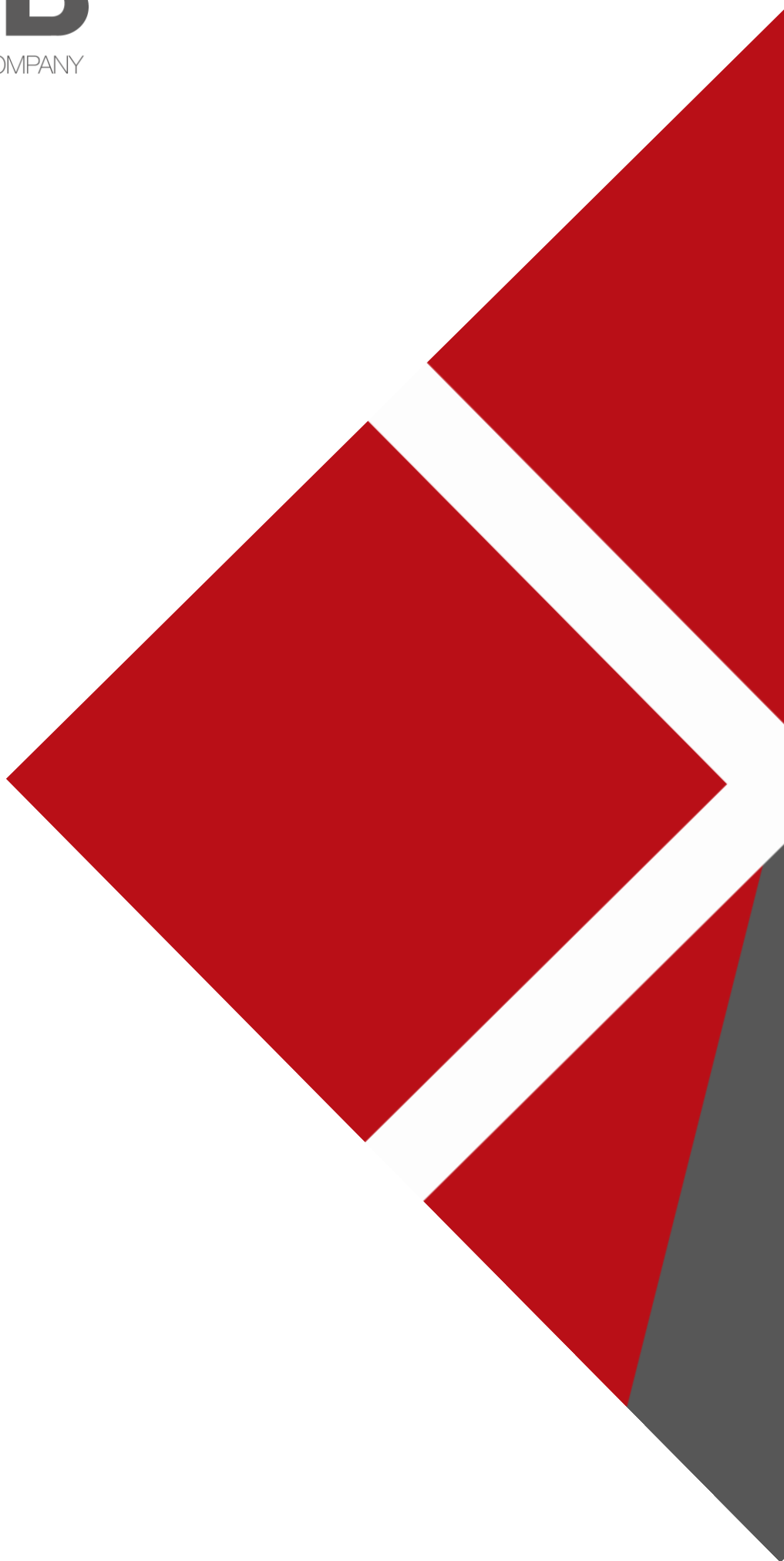
GEM Comparison PM

Project Number

220500

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APPENDIX 2: EMG2-BWB-GEN-XX-RP-TR-0017_TA ES Chapter Assessment Methodology-S2-P4

PROJECT NAME	East Midlands Gateway Phase 2 – TA & ES Chapter Assessment Methodology		
DOCUMENT NUMBER	EMG2-BWB-GEN-XX-RP-TR-0017	BWB REF	220500
AUTHOR	Matt Corner	STATUS	S2
CHECKED	Simon Hilditch	REVISION	P4
APPROVED	Paul Wilson	DATE	28/04/25

1. INTRODUCTION

1.1 BWB Consulting Ltd (BWB) is working with the Transport Working Group (TWG) consisting of key statutory highway authorities, including National Highways, Leicestershire County Council and Nottinghamshire County Council on the East Midlands Gateway 2 (EMG2) project.

1.2 Transport modelling has been undertaken using Leicestershire's Pan Regional Transport Model (PRTM) to assess the impacts of EMG2. In agreement with the TWG, forecast years of 2028 and 2038 have been adopted, which reflect the year of opening and post 10 years.

1.3 The forecast year PRTM modelling has been undertaken in two stages, referred to as 'Stage 1a modelling' and 'Stage 1b modelling'. This was to separate the scenarios required by the highway authorities for the Transport Assessment from those needed for environmental assessment purposes because there are differences in the planning data assumptions and developments included in the baseline traffic, as summarised below:

- **Stage 1a modelling** (Proforma v14, Uncertainty Log v7) = 2028/2038 forecast years with and without EMG2, including, consented and committed sites as well as draft Local Plan allocation sites and Ratcliffe on Soar power station, which is authorised by a Local Development Order (LDO).
- **Stage 1b modelling** (Proforma v14a, Uncertainty Log v7a) = 2028/2038 forecast years with and without EMG2, including consented and committed sites but excluding the draft Local Plan allocation sites and Ratcliffe on Soar power station (beyond the element of Ratcliffe power station development which is currently able to proceed under the LDO).

1.4 The difference between Stage 1a and 1b is the inclusion or exclusion of the Ratcliffe Power Station and the draft Local Plan allocation sites, which represent the following projects:

- Isley Woodhouse (W1)
- Land North and South of Park Lane, Castle Donington (CD10)
- Land West of Hilltop Farm, Castle Donington (EMP89)
- Land North of J11/M42 (EMP82)
- Land North of Remembrance Way, Kegworth (EMP73)
- Land North of Derby Road, Kegworth (EMP73)

1.5 This note sets out the basis for the two stage approach to modelling and the policy context for it.

2. POLICY REQUIREMENTS

Department for Transport TAG M4 'Forecasting and Uncertainty' Guidance

2.1 The Department for Transport TAG M4 Forecasting and Uncertainty guidance is primarily used for the appraisal of new transport schemes. This is arguably applicable to the highway works element of the EMG2 scheme, particularly given they are focussed on the Strategic Road Network.

2.2 Accordingly, Stage 1a modelling is based on the application of TAG M4.

2.3 Paragraph 3.2.4 of M4 refers to four categories of sites for consideration for inclusion in the core scenario[1], being:

- **Near certain**: The outcome will happen or there is a high probability that it will occur
- **More than likely**: The outcome is likely to happen, but there is some uncertainty
- **Reasonably foreseeable**: The outcome may occur, but there is significant uncertainty surrounding it
- **Hypothetical**: There is considerable uncertainty whether the outcome will ever happen

2.4 Paragraph 3.2.4 states:

> *"Local sources of uncertainty categorised as **near certain** should be included in the core scenario, whilst all sources categorised as **hypothetical** should be excluded. Between these two categories an element of judgement may be required but usually it would be expected that those inputs categorised as **more than likely** will be included in the core scenario, whilst those categorised **as reasonably foreseeable** will be excluded.*

2.5 Whilst it could be argued that not all the draft allocated sites meet the criteria of "more than likely" and some could be considered to fall within the "reasonably foreseeable" category, the highway authorities, applying their judgement, require that all the sites be treated the same and be included in the core scenario. The Applicant has agreed to this.

2.6 The forecasting/profiling of these draft Local Plan allocations and the Ratcliffe power station within Uncertainty Log v7 has been agreed with the relevant local highway and planning authorities, based on their judgement and expectations for them receiving planning permission and being built out.

2.7 Although the anticipated traffic from the draft Local Plan allocations is being included, any associated highway mitigation is not included. This is with the exception of the

[1] Table A2 Appendix 2 M4 defines these terms

proposed realignment of the A453 around the Isley Woodhouse draft allocation, which is included in the agreed Uncertainty Log v7 for Stage 1a modelling because it forms part of the access strategy for that development.

2.8 The Uncertainty Log v7 does include committed highway network changes, the list of which has been agreed with the local highway and planning authorities and are included in both Stage 1a and 1b modelling. This is in accordance with Paragraph 7.4.15 of TAG M4, which requires the without scheme scenario to include *"physical changes to highway or public transport networks, including new links and removal of existing links…"*

2.9 Since it is not possible to include additional off-site mitigation that is likely to be required to accommodate the draft Local Plan allocations, the inclusion of those sites in the Stage 1a scenario will provide a robust and worse than worst-case assessment of future impacts on the highway network. Therefore, it has been agreed that Stage 1a modelling outputs (i.e. including draft Local Plan allocations) are adopted as the core scenario within the Transport Assessment. As agreed with the TWG, this will also form the cumulative scenario for the transport modelling.

2.10 The Stage 1a modelling therefore reflects the above approach.

Department for Transport Circular 01/2022 'Strategic Road Network and the Delivery of Sustainable Development'

2.11 Circular 01/2022 sets out the Secretary of State's national policy requirements for the Strategic Road Network (SRN). Paragraph 49 covers details on the 'assessment of development proposals' and states:

> *"A transport assessment for consideration by the company must also consider existing and forecast levels of traffic on the SRN, alongside any additional trips from committed developments [footnote 21] that would impact on the same sections (link or junction) as the proposed development. Assumptions underpinning projected levels of traffic should be clearly stated to avoid the default factoring up of baseline traffic. The scenario(s) to be assessed, which depending on the development and local circumstances may include sensitivity testing, should be agreed with the company; where a scenario with particularly high or low growth is proposed, this should be supported by appropriate evidence. Planned improvements to the SRN or local road network should also be considered in any assessment where there is a high degree of certainty that this will be delivered [footnote 22]."*

2.12 Footnote 21 describes committed developments as:

> *"Where development proposals are consistent with an up-to-date plan or strategy (or where there is no up-to-date plan or strategy), this should include all relevant development that is consented or allocated where there is a reasonable degree of certainty will proceed within the next 3 years and include the full amount of development to be built. Where development proposals are not consistent with an up-to-date plan or strategy, this should include all relevant development that is*

consented or allocated over the entirety of the plan period. In some instances, due regard should be had to permissions and allocations in neighbouring authorities. The inclusion or exclusion of specific developments should be agreed with the local planning authority at pre-application stage."

2.13 The key difference with Circular 01/2022 policy from the TAG M4 Guidance is that to comply with 01/22, the core scenario should only include consented or allocated sites and their associated mitigation, i.e. it does not include draft allocations.

2.14 The Stage 1b modelling is therefore compliant with the Circular 01/2022 policy.

IEMA Guidelines: Environmental Assessment of Traffic and Movement

2.15 The EMG2 development triggers the requirement for an EIA. The guidance for Environmental Assessment is set out in the IEMA Guidelines: Environmental Assessment of Traffic and Movement (July 2023).

2.16 Paragraph 2.23 states that:

"Different traffic forecasts may have to be produced for each stage, which may also require the estimation of the changing patterns of general traffic levels in order to provide estimates of different baseline conditions. Use should be made of available datasets (e.g. Local Plan Traffic Models, Department for Transport Trip End Model Presentation Program (TEMPro) and National Traffic Model). It may also be necessary to make an assumption with regard to other existing and/or approved projects and forecasted changes in the highway network that could occur over the time period. These assumptions will need to be based on best judgement taken in consultation with the local planning authority. Any changes in ambient environmental characteristics should also be taken into account."

2.17 Paragraph 2.24 of the IEMA Guidelines states:

"Transport Assessments are principally interested in evaluating a situation when traffic flows are at their greatest. This may involve looking at a period sometime in the future when traffic from the project is added to traffic flows on the surrounding network, which has itself increased due to natural traffic growth. Such a situation clearly presents the critical traffic pattern, but the natural increase of traffic will generally have the effect of diluting the environmental impact of a project. The greatest environmental change will generally be when the project traffic is at the largest proportion of the total flow. It is therefore recommended that the environmental assessment should be undertaken at the construction/decommissioning phase, year of opening of the project or the first full year of its operation."

2.18 Paragraph 2.29 discusses the baseline assessment and states the following:

"Future baseline and cumulative assessment should not be confused. They are two different considerations within the environmental assessment process. Derived forecast traffic growth (e.g. TEMPro) should be utilised to derive future year baseline

traffic conditions. However, discrete projects within the agreed study area that are existing, approved or likely to come forward (where sufficient certainty and relevant information about the project exists) should not be added to the baseline scenario and should be considered in the cumulative scenario. The competent traffic and movement expert should exercise care to ensure:

- *'Double counting' is avoided when applying growth factors to the baseline that may have been influenced by approved projects that are being considered in the cumulative scenario,*
- *The proposed transport model has adequate scope to model cumulative scenarios (as they may differ from those required in the Transport Assessment).*

2.19 The words underlined above demonstrate the difference between the approach taken by the highway authorities in the application of the TAG M4 guidance and the approach required to comply with IEMA Guidelines.

2.20 The Stage 1b modelling is compliant with the IEMA Guidance for the core scenario, whilst Stage 1a modelling is compliant for the cumulative scenario.

3. ASSESSMENT METHODOLOGY

3.1 In accordance with the above consideration of the relevant policies, the modelling and related assessment is being undertaken on the following basis:

i Stage 1a modelling to comply with the highway authorities interpretation of the TAG M4 Guidance

ii Stage 1b modelling to comply with the guidance in Circular 01/22 and IEMA

3.2 The Stage 2a[2] modelling will also provide the cumulative assessment required for the IEMA assessment.

4. SUMMARY

4.1 The assessment methodology follows detailed discussions with the Transport Working Group. The above review of current adopted policy within the Department for Transport's TAG M4, Circular 01/2022 and IEMA Guidelines documents explains how the agreed assessment methodology, and in particular the modelling being undertaken, is compliant with those policies.

4.2 The key difference in policy requirements is the forecast year baseline position and the developments that should be included in the core scenarios.

[2] The original note incorrectly referred to Stage 1a

4.3 Taking this into account, the following methodology is adopted for the Transport Assessment and Transport ES Chapter:

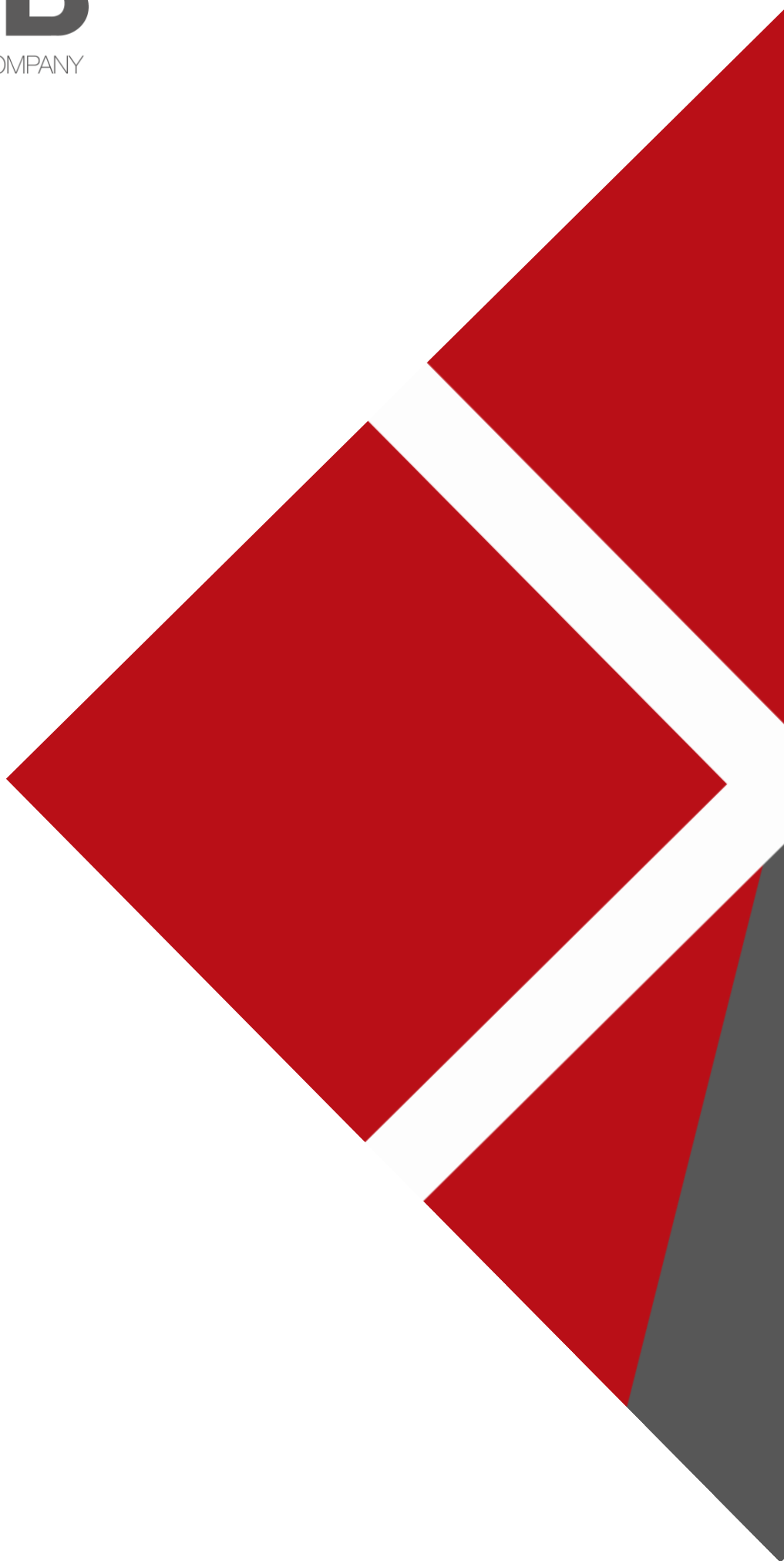
- **Transport Assessment** – core scenario adopts the Stage 1a modelling, inclusive of draft Local Plan allocation sites, with a sensitivity test using the Stage 1b modelling excluding the draft Local Plan allocation sites due to the lack of mitigation measures included within the Stage 1a modelling associated with the draft Local Plan allocations.

- **Transport ES Chapter** – core scenario adopts the Stage 1b modelling with cumulative assessment based on Stage 1a.

4.4 The above approach should ensure that a robust assessment of EMG2 is undertaken within the Transport Assessment and Transport ES Chapter, in accordance with adopted planning policy and assessment requirements.

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