



Appendix D

PIA Data

Accidents between dates **01/01/2019** and **31/08/2024** (68) months

Selection:

; Refined using Accidents within selected Polygons -Data Requests 2024 ("TTC Newbold Verdon 25.10.2024")

Selected Polygon:TTC Newbold Verdon 25.10.2024

Police_ref	Date	Easting	Northing	Weather	Road_cond	Visibility	Severity
201900157	06/03/2019	443060	303541	Fine without high winds	Dry	Darkness: no street lighting	Serious

Location: B585 BOSWORTH LANE OSBASTON EXACT LOCATION UNKNOWN

Vehicles:

Type	Junct_Loan	Manvres	Movef	Movet
Car	Not at, or within 20M of Jct	Going ahead other	NE	SW
Pedal Cycle (Including pedal assisted electric bicycles)	Not at, or within 20M of Jct	Going ahead other	NE	SW

Casualties:

Class	Severity
Driver / Rider	Serious

Accidents between dates 01/01/2019 and 31/08/2024 (68) months

Notes:

; Refined using Accidents within selected Polygons -Data Requests 2024 ("TTC Newbold Verdon 25.10.2024")

Police_ref	Date	Easting	Northing	Weather	Road_cond	Visibility	Severity
201900159	14/01/2019	442241	303890	Fine without high winds	Dry	Darkness: no street lighting	Slight

Location: A447 ASHBY ROAD CADEBY (OSBASTON PARISH) APPROX. 80M S JW OSBASTON LANE

Vehicles:

Type	Junct_Locn	Manvres	Movef	Movet
Car	Not at, or within 20M of Jct	Going ahead other	S	N
Car	Not at, or within 20M of Jct	Going ahead other	N	S
Car	Not at, or within 20M of Jct	Going ahead other	S	N
Car	Not at, or within 20M of Jct	Going ahead other	S	N

Casualties:

Class	Severity
Driver / Rider	Slight
Driver / Rider	Slight
Driver / Rider	Slight

Accidents between dates 01/01/2019 and 31/08/2024 (68) months

Selection:

Notes:

; Refined using Accidents within selected Polygons -Data

Requests 2024 ("TTC Newbold Verdon 25.10.2024")

Police_ref	Date	Easting	Northing	Weather	Road_cond	Visibility	Severity
201900378	19/04/2019	444475	304420	Fine without high winds	Dry	Daylight	Serious

Location: B582 BARLESTONE ROAD NEWBOLD VERDON 10M NW DRAGON LANE.

Vehicles:

Type	Junct_Locn	Manvres	Movef	Movet
Car	Cleared junction or waiting/parked at junction exit	Going ahead other	SE	NW

Casualties:

Class	Severity
Pedestrian	Serious

Police_ref	Date	Easting	Northing	Weather	Road_cond	Visibility	Severity
201900751	25/07/2019	442005	304970	Fine without high winds	Dry	Daylight	Slight

Location: A447 HINCKLEY ROAD OSBASTON APPROX 50M S OF BOSWORTH ROAD.

Vehicles:

Type	Junct_Locn	Manvres	Movef	Movet
Car	Not at, or within 20M of Jct	Going ahead other	N	S
Car	Not at, or within 20M of Jct	Going ahead other	S	N

Casualties:

Class	Severity
Vehicle	Slight
Passenger	
Driver / Rider	Slight

Accidents between dates **01/01/2019** and **31/08/2024** (68) months

Selection:

; Refined using Accidents within selected Polygons -Data Requests 2024 ("TTC Newbold Verdon 25.10.2024")

Police_ref	Date	Easting	Northing	Weather	Road_cond	Visibility	Severity
201900850	01/09/2019	442264	303278	Fine without high winds	Dry	Darkness: street lights present and lit	Slight

Location: A447 ASHBY RD OSBASTON J/W BOSWORTH RD

Vehicles:

Type	Junct_Locn	Manvres	Movef	Movet
Car	Entering main road	Turning left	W	NW
Van / Goods 3.5 tonnes mgw and under	Mid Junction - on roundabout or main road	Going ahead other	SE	NW

Casualties:

Class	Severity
Driver / Rider	Slight
Driver / Rider	Slight

Police_ref	Date	Easting	Northing	Weather	Road_cond	Visibility	Severity
201901559	11/06/2019	444500	304395	Fine without high winds	Dry	Daylight	Slight

Location: B582 NEWBOLD VERDON JW DRAGON LANE.

Vehicles:

Type	Junct_Locn	Manvres	Movef	Movet
Van / Goods 3.5 tonnes mgw and under	Mid Junction - on roundabout or main road	Going ahead other	SE	NW
Car	Mid Junction - on roundabout or main road	Going ahead other	SE	NW

Casualties:

Class	Severity
Driver / Rider	Slight

Accidents between dates 01/01/2019 and 31/08/2024 (68) months

Selection:

; Refined using Accidents within selected Polygons -Data

Requests 2024 ("TTC Newbold Verdon 25.10.2024")

Notes:

Police_ref	Date	Easting	Northing	Weather	Road_cond	Visibility	Severity
202100963	24/11/2021	442320	303150	Raining without high winds	Wet/Damp	Darkness: no street lighting	Slight

Location: A447 ASHBY ROAD CADEBY S OF BULL IN THE OAK.

Vehicles:

Type	Junct_Locn	Manvres	Movef	Movet
Car	Not at, or within 20M of Jct	Overtaking moving vehicle O/S	S	N
Van / Goods 3.5 tonnes mgw and under	Not at, or within 20M of Jct	Going ahead other	N	S

Casualties:

Class	Severity
Driver / Rider	Slight

Accidents between dates 01/01/2019 and 31/08/2024 (68) months

Notes:

Selection:
; Refined using Accidents within selected Polygons -Data
Requests 2024 ("TTC Newbold Verdon 25.10.2024")

Police_ref	Date	Easting	Northing	Weather	Road_cond	Visibility	Severity
202101008	09/12/2021	441490	307010	Raining without high winds	Wet/Damp	Darkness: street lights present and lit	Slight

Location: A447 HINCKLEY ROAD NAILSTONE JW BARTON LANE.

Vehicles:

Type	Junct_Locn	Manvres	Movef	Movet
Car	Mid Junction - on roundabout or main road	Going ahead other	S	N
Car	Leaving main road	Turning right	N	W

Casualties:

Class	Severity
Driver / Rider	Slight
Driver / Rider	Slight
Vehicle	Slight
Passenger	

Police_ref	Date	Easting	Northing	Weather	Road_cond	Visibility	Severity
202201101	19/12/2022	444490	304405	Fine without high winds	Dry	Daylight	Serious

Location: B582 BARLESTON ROAD NEWBOLD VERSON JW DRAGON LANE.

Vehicles:

Type	Junct_Locn	Manvres	Movef	Movet
Car	Entering main road	Turning right	S	SE
Car	Mid Junction - on roundabout or main road	Going ahead other	SE	NW

Casualties:

Class	Severity
Vehicle	Serious
Passenger	

Accidents between dates 01/01/2019 and 31/08/2024 (68) months

Selection: Notes:

; Refined using Accidents within selected Polygons -Data Requests 2024 ("TTC Newbold Verdon 25.10.2024")

Police_ref	Date	Easting	Northing	Weather	Road_cond	Visibility	Severity
202300146	20/02/2023	441754	305638	Other	Wet/Damp	Daylight	Slight
Location:	A447 CROSSROADS WITH LOUNT ROAD, BARLESTONE						

Vehicles:

Type	Junct_Locn	Manvres	Movef	Movet
Van / Goods 3.5 tonnes mgw and under	Entering main road	Going ahead other	W	E
Car	Mid Junction - on roundabout or main road	Going ahead other	S	N

Casualties:

Class	Severity
Driver / Rider	Slight

Police_ref	Date	Easting	Northing	Weather	Road_cond	Visibility	Severity
202300686	10/08/2023	441650	307125	Fine without high winds	Dry	Daylight	Serious
Location:	THE OVAL NAILSTONE EXACT LOCATION UNKNOWN.						

Vehicles:

Type	Junct_Locn	Manvres	Movef	Movet
Other vehicle - Not at, or specify	Within 20M of Jet	Going ahead other	SE	NW

Casualties:

Class	Severity
Driver / Rider	Serious

Accidents between dates 01/01/2019 and 31/08/2024 (68) months

Selection: Notes:

; Refined using Accidents within selected Polygons -Data Requests 2024 ("TTC Newbold Verdon 25.10.2024")

Police_ref	Date	Easting	Northing	Weather	Road_cond	Visibility	Severity
202300785	06/05/2023	444475	304195	Raining without high winds	Wet/Damp	Daylight	Slight

Location: C5103 DRAGON LANE NEWBOLD VERDON EXACT LOCATION UNKNOWN..

Vehicles:

Type	Junct_Locn	Manvres	Movef	Movet
Car	Not at, or within 20M of Jct	Going ahead	N	S

Casualties:

Class	Severity
Pedestrian	Slight

Police_ref	Date	Easting	Northing	Weather	Road_cond	Visibility	Severity
202301017	21/10/2023	442290	303240	Fine without high winds	Wet/Damp	Daylight	Slight

Location: A447 ASHBY ROAD CADEBY JW BOSWORTH LANE.

Vehicles:

Type	Junct_Locn	Manvres	Movef	Movet
Car	Leaving main road	Turning right	S	E
Car	Leaving main road	Turning left	N	E

Casualties:

Class	Severity
Driver / Rider	Slight

Accidents between dates 01/01/2019 and 31/08/2024 (68) months

Notes:

Selection:
; Refined using Accidents within selected Polygons -Data
Requests 2024 ("TTC Newbold Verdon 25.10.2024")

Police_ref	Date	Easting	Northing	Weather	Road_cond	Visibility	Severity
202400368	29/04/2024	442285	303235	Fine without high winds	Dry	Daylight	Slight

Location: A447 BULL IN THE OAK CADEBT EXACT LOCATION NOT GIVEN.

Vehicles:

Type	Junct_Locn	Manvres	Movef	Movet
Car	Mid Junction - on roundabout or main road	Going ahead	N	S
Car	Entering main road	Starting	E	W

Casualties:

Class	Severity
Driver / Rider	Slight

Police_ref	Date	Easting	Northing	Weather	Road_cond	Visibility	Severity
202400609	01/07/2024	443030	303530	Raining without high winds	Wet/Damp	Daylight	Slight

Location: B585 BOSWORTH LANE OSBASTON EXACT LOCATION UNKNOWN.

Vehicles:

Type	Junct_Locn	Manvres	Movef	Movet
Car	Not at, or within 20M of Jct	Stopping	NE	SW

Casualties:

Class	Severity
Driver / Rider	Slight

Accidents between dates **01/01/2019** and **31/08/2024** (68) months

Selection:

Notes:

; Refined using Accidents within selected Polygons -Data Requests 2024 ("TTC Newbold Verdon 25.10.2024")

Police_ref	Date	Easting	Northing	Weather	Road_cond	Visibility	Severity
202400714	06/08/2024	444390	304530	Fine without high winds	Wet/Damp	Daylight	Less serious

Location: B582 BARLESTONE ROAD NEWBOLD VERON JW BOSWORTH LANE.

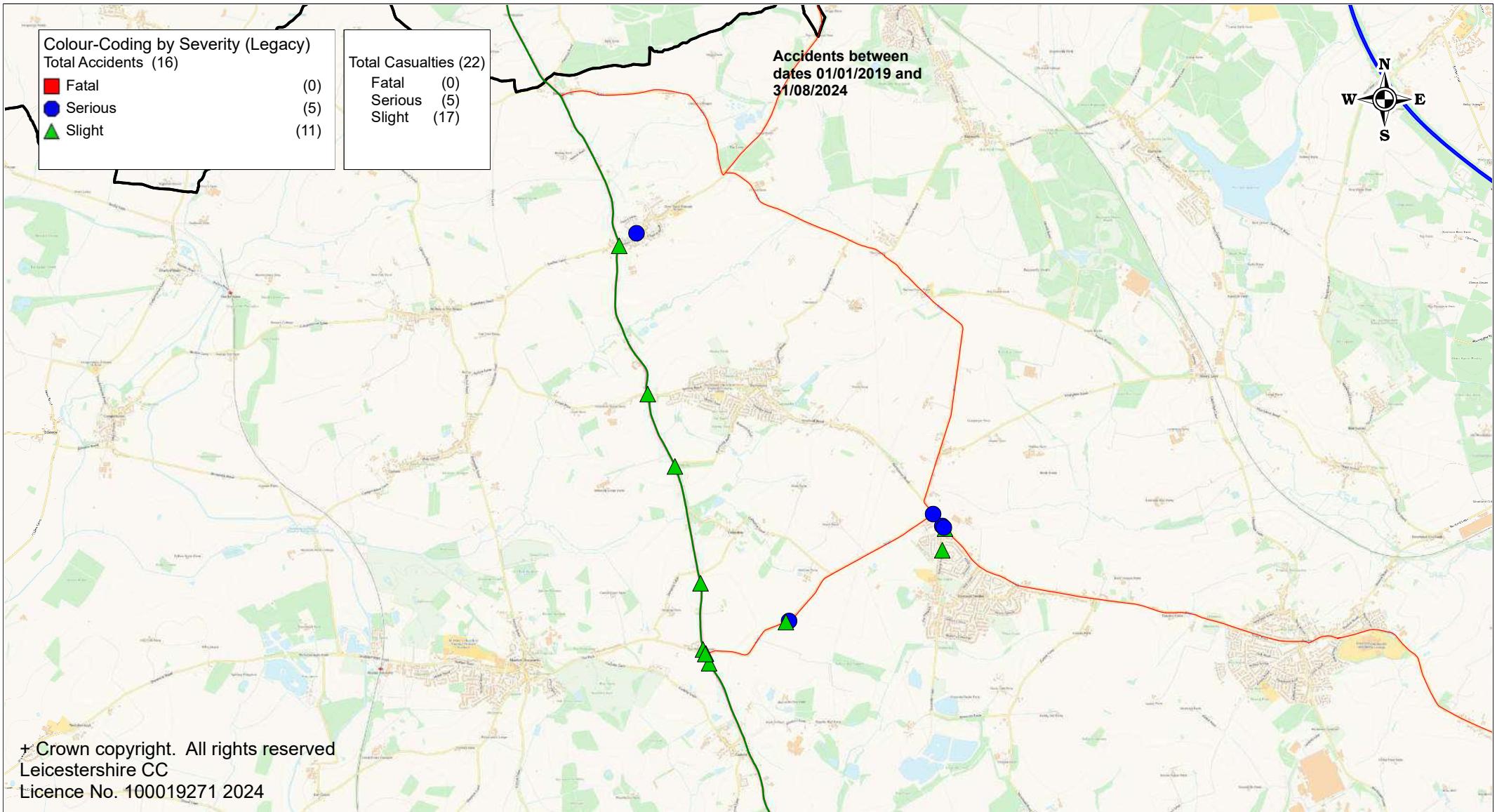
Vehicles:

Type	Junct_Locn	Manvres	Movef	Movet
Motor Cycle over 50 cc and up to 125cc	Mid Junction - on roundabout or main road	Going ahead	SE	NW
Car	Leaving main road	Turning right	NW	SW

Casualties:

Class	Severity
Driver / Rider	Less serious

Number of records in selection: **16**



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	SCALE	1 : 48980
	DATE	29/10/2024
	DRAWING No.	
	DRAWN BY	

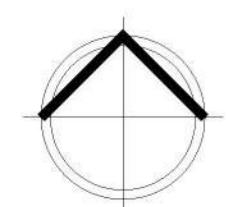
TTC Newbold Verdon



Appendix E

Site Layout

- Key Landmark Buildings
- Indicative Play Spaces
- PS Pumping Station
- Community Health and Well-being Hub or Community Shop
- Potential School Pedestrian / Cycle Access



0 20m 40m 60m 80m 100m

Status

Notes:
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This drawing is for planning purposes only and is not to be used as a basis for construction.
Do not scale from this drawing - use figured dimensions only.

Planning

Client: Bloor Homes - East Midlands

Project title: Land South of Bosworth Lane, Newbold Verdon

Drawing title: Indicative Framework Plan

Scale: 1:1500 (A2)

Date: January 2025

Drawn by: JMP

Checked by: LH

Drawing no.: 2508709.11.03

Revision: F

Marrons

Birmingham
1 Colmore Square,
B4 6AA
t: 0121 214 0001
e: info@marrons.co.uk

Bristol
One Temple Quay,
Temple Back East, BS1 6DZ
t: 0117 906 9400
e: info@marrons.co.uk



Appendix F

General Arrangement Drawings

REVISIONS

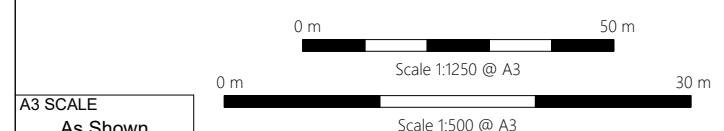
Mark	Revision	Drawn	Date	Chkd
a	Inclusion of topographical survey data	SB	25/10/24	JC
b	Amendments to access plans following comments from project team	OH	13/11/24	JC
c	Location of access amended	SB	25.11.24	JC
d	Update to site boundary	SB	07/02/25	JC

Key:

	Site Boundary
	Topographical Survey Data
	Proposed Design
	Dimensions
	Visibility Splays
	Extent of Adopted Highway

Notes:

1. Drawing units are in metres unless specified otherwise.
2. Drawing is based on topographical survey data.
3. Ghost Island design based on guidance taken from DMRB CD 123.
4. Internal access road design and footway based on guidance from the Leicestershire Highway Design Guide.
5. Visibility Splays based on National Speed Limit.
6. Extent of adopted highway interpreted from plans received from Leicestershire County Council.

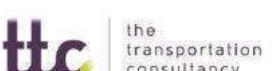


Drawing Title
Newbold Verdon
Design Package
Visibility Splays & General Arrangement

Client
Bloor Homes

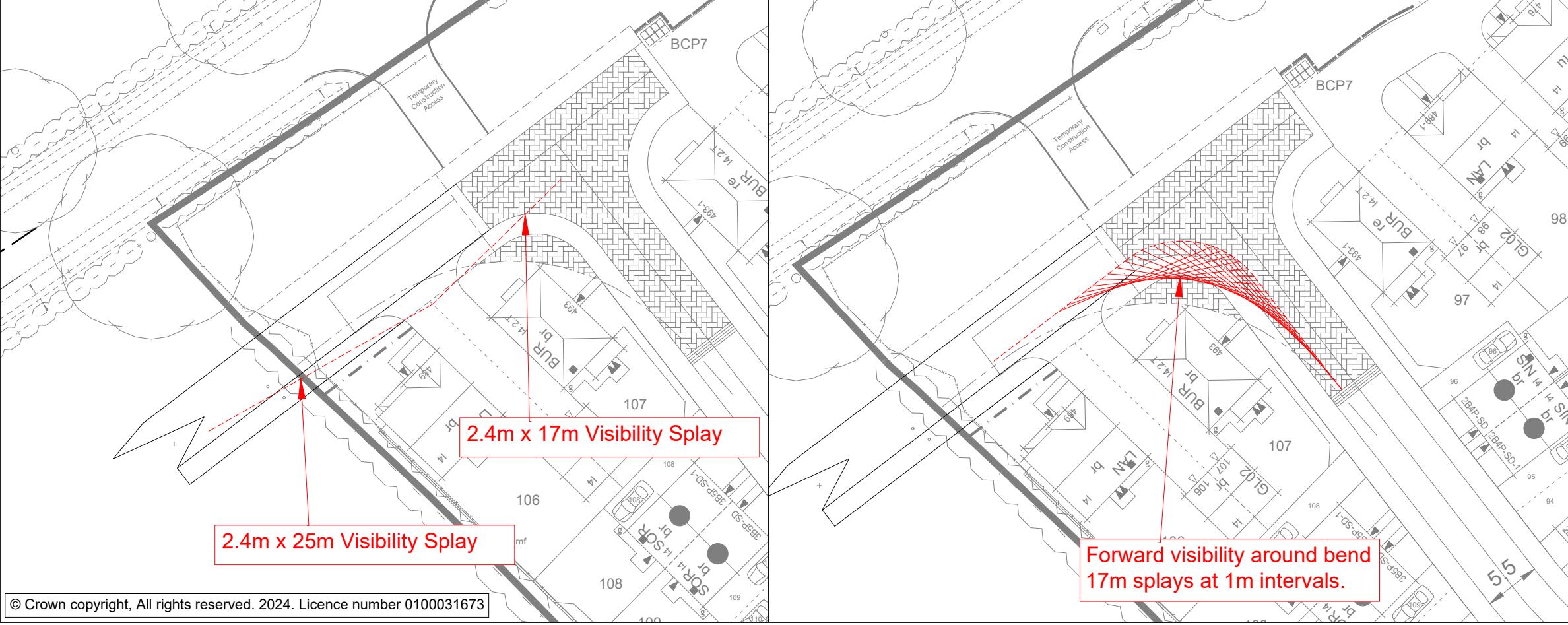
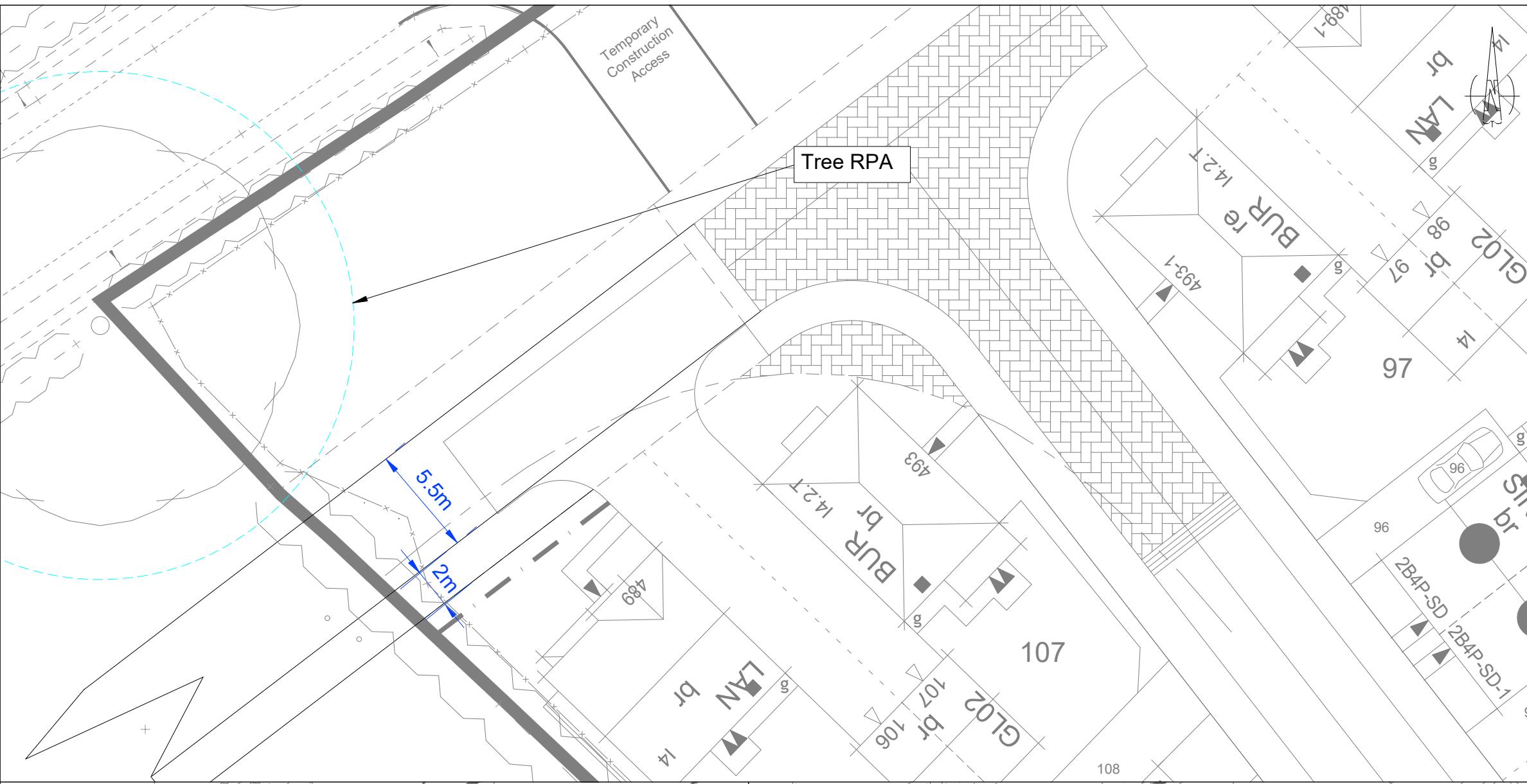
Drawing Status
Planning

27 Park Street
Leamington Spa
CV32 4QN
E: info@ttc-transportplanning.com



Drawing Number
210988-01

d



Date of 1st Issue 30/10/2024	Description First Issue	Drawn by OH	Checked by JC	
REVISIONS				
Mark	Revision	Drawn	Date	Chkd
A	Minor amendments to footway provision	SB	25.11.24	JC

REVISIONS

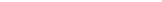
Mark	Revision	Drawn	Date	Chkd
A	Minor amendments to footway provision	SB	25.11.24	JC

Key:

-  Architect Layout
-  Proposed Design
-  Forward Visibility Splay
-  Key Dimensions

Notes:

1. Drawing units are in metres unless specified otherwise.
2. Drawing is based on Architectural Layout provided by Bloor Homes.
3. Forward visibility splays around bend have identified that 19m can be achieved at 1m intervals, in accordance with the guidance within the Leicestershire Highway Design Guide.



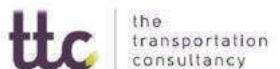
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Scale 1:1500 @ A3

Drawing Title
Newbold Verdon
Secondary Site Access

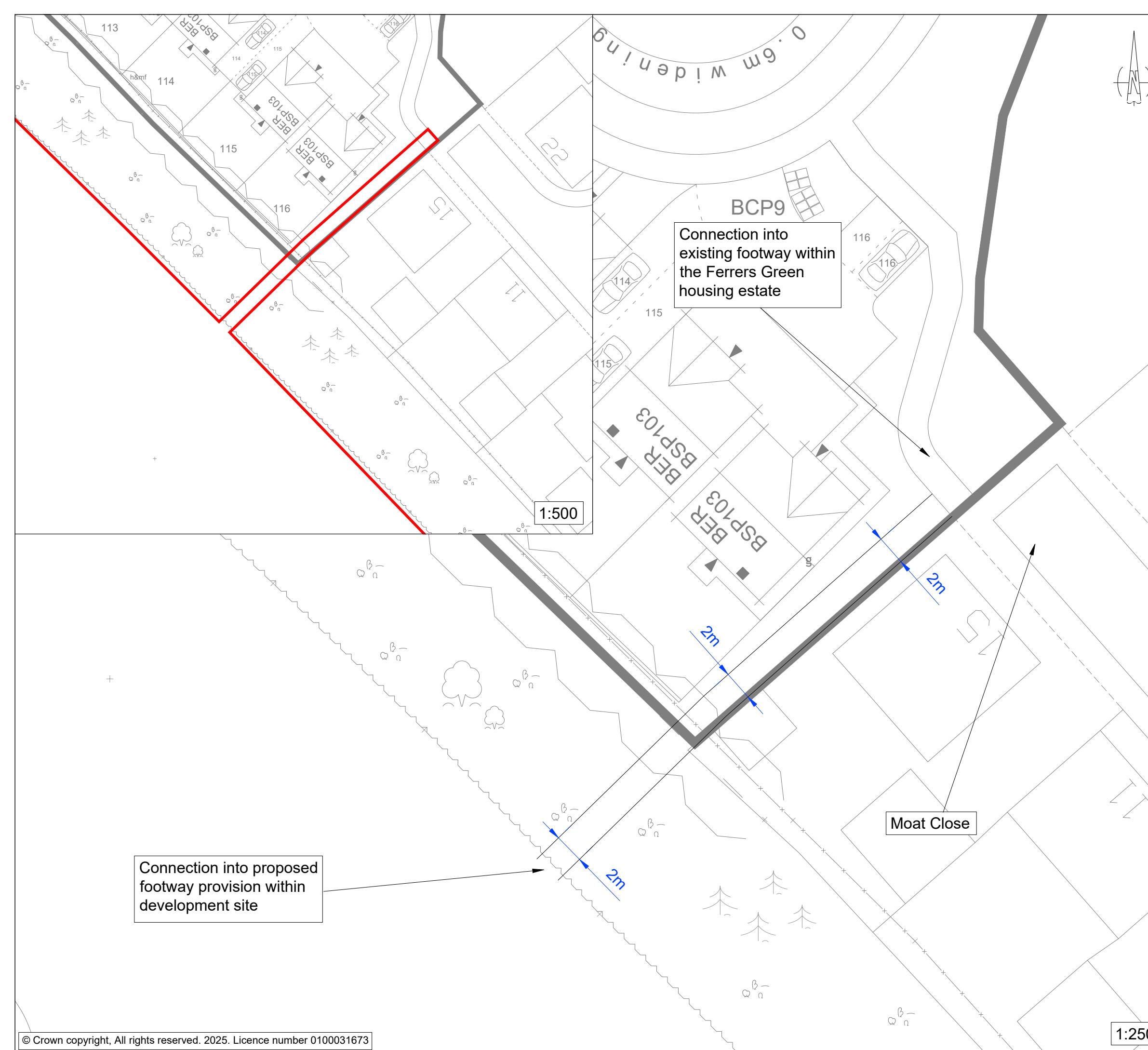
Client
Bloor Homes

Drawing Status **Planning**

27 Park Street
Leamington Spa
CV32 4QN
E: info@ttc-transportplanning.co.uk



Drawing Number	210988-03	Revision
		a



Date of 1st Issue 07/02/25	Description First Issue	Drawn by SB	Checked by JC
-------------------------------	----------------------------	----------------	------------------

Key:

-  Site Boundary
-  Architect Layout / OSMastermapping
-  Proposed Design
-  Dimensions

Notes:

1. Drawing units are in metres unless specified otherwise.
2. Drawing is based on Architectural Layout provided by Bloor Homes and OSMastermapping.

Drawing Title
Newbold Verdon
Design Package
Moat Close Pedestrian Link

Client
Bloor Homes

Drawing Status

Planning

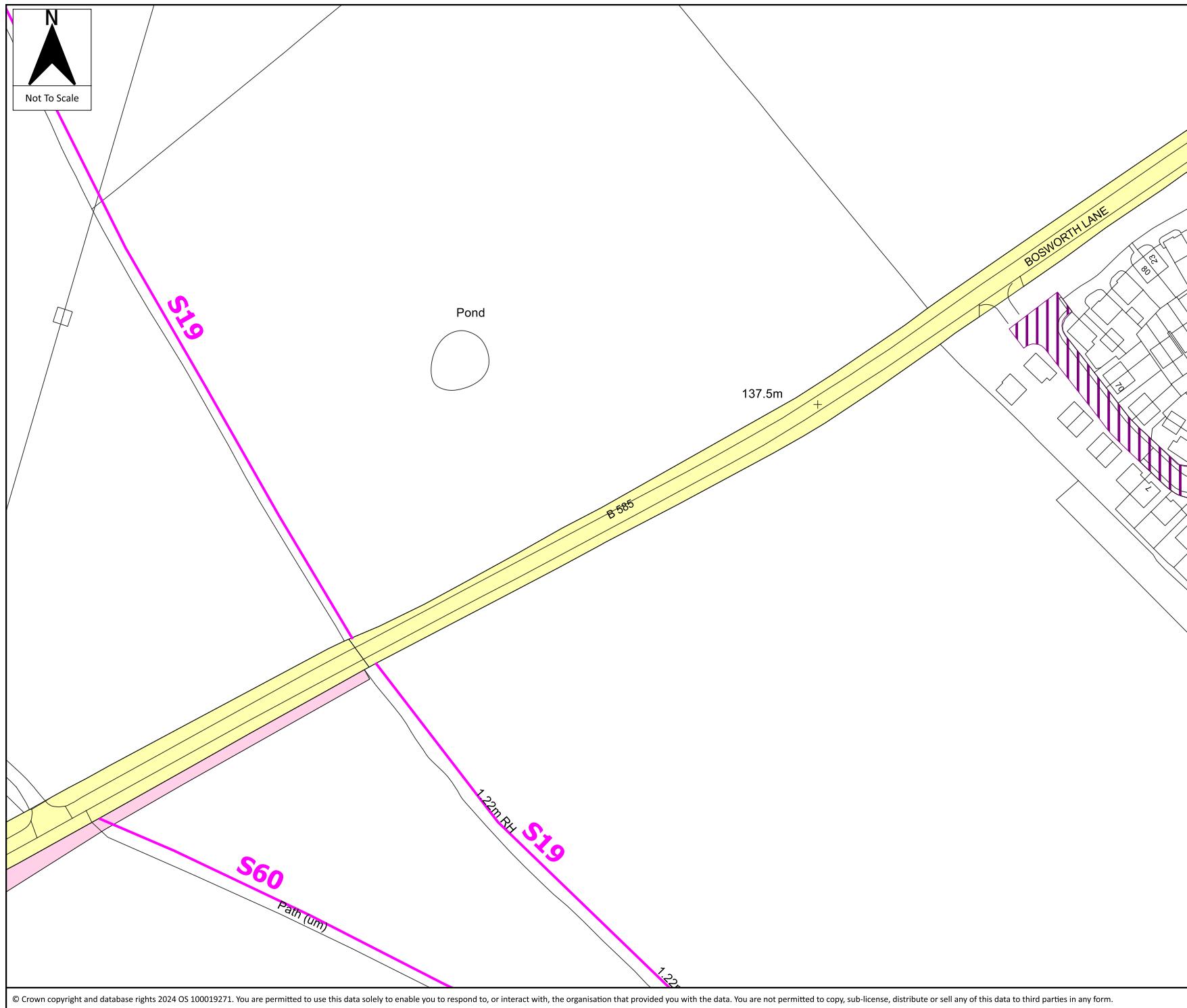
27 Park Street
Leamington Spa
CV32 4QN



Drawing Number	210088.05	Revision
		-

Appendix G

Highway Boundary Data



ENVIRONMENT AND TRANSPORT
DEPARTMENT

On Behalf Of
Ann Carruthers, Director

Highway Record Enquiry

Location

B585 (Bosworth Lane) Newbold
Verdon

Reference	NDI/HRE/2404044
Drawing No.	100/A
Date Produced	19/04/2024

Highway Record Enquiries
County Hall, Glenfield, LE3 8RJ
0116 305 7189 | hre@leics.gov.uk



Not To Scale

A detailed map of a residential area. The map shows several streets and property boundaries. Key features include:

- Streets and Areas:** Bosworth Firs, BOSTON SIDINGS, BOSWORTH ROAD, The Old Farmhouse, Aberdeen Cottage, Highland Cottage, Heriot Cottages, Bosworth Firs, Acres Green, Spring Cottage, Wayside Cottage, and a Pond.
- Boundaries:** A yellow boundary line runs along the bottom and right side of the map, with labels "134.9m" and "1,220m RW" indicating its length and distance from a reference point.
- Other Labels:** "Pond" is labeled near the top left and top right. "Bull in the Oak" is labeled in the center. "Def" is labeled at the top center. "1,220m R/W" is labeled at the top right.

Key

Highway Status

Extents

 Adopted: Classified Route

Public Rights of Way

— Footpat

NOTES

The highway records are not definitive, but are based on currently available supporting information and are given without warranty. If roadside ditches are present, the legal presumption without evidence to the contrary is that these do not generally form part of the publicly maintainable highway.

the publicly maintainable highway.

This plan has been produced in response to the enquiry shown in the title address and should not be used for any other purpose, since its accuracy cannot be guaranteed.

If a scale has been provided, measurements scaled from this plan may not match measurements between the same points on the ground.



Leicestershire
County Council

ENVIRONMENT AND TRANSPORT DEPARTMENT

On Behalf Of
Ann Carruthers, Director

Highway Record Enquiry

Location

Bosworth Road/Ashby Road Cadeby

Reference	NDI/HRE/2412017
Drawing No.	100/A
Date Produced	21/01/2025

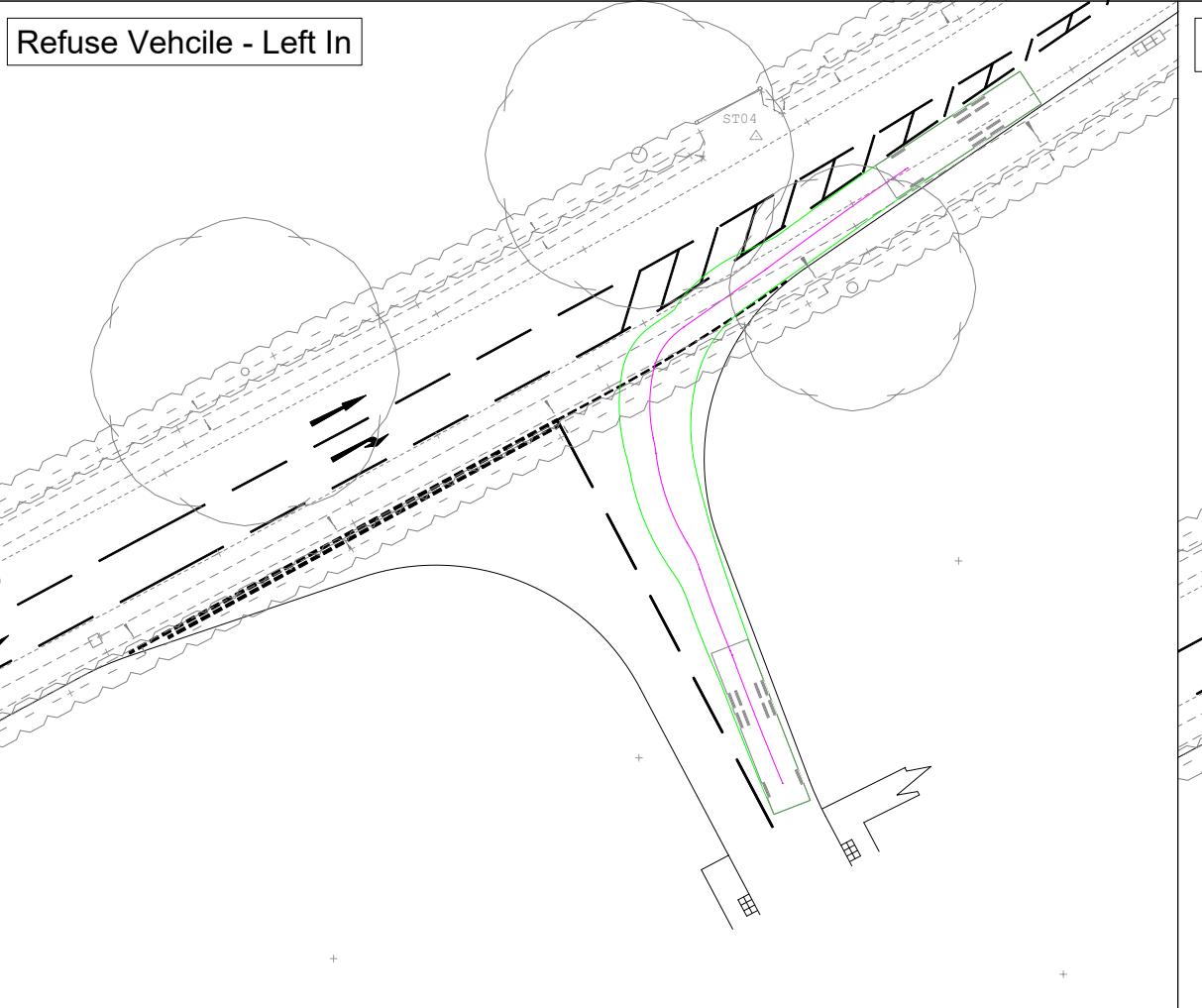
Highway Record Enquiries
County Hall, Glenfield, LE3 8RJ
0116 205 7180 | hbs@leics.gov.uk



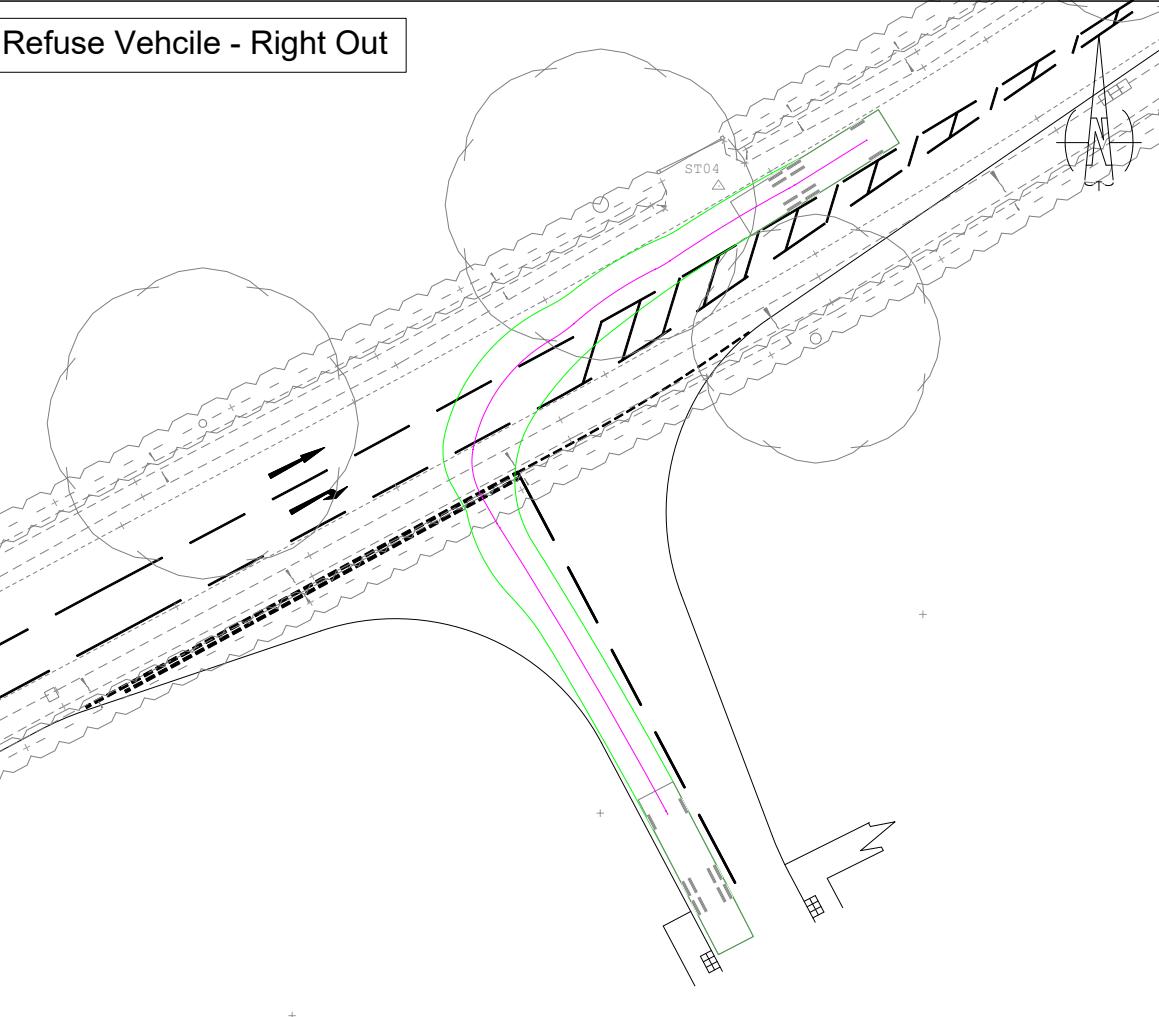
Appendix H

Swept Path Analysis Drawings

Refuse Vehicle - Left In



Refuse Vehicle - Right Out



Date of 1st Issue 25/04/2024	Description First Issue	Drawn by SB	Checked by LF
---------------------------------	----------------------------	----------------	------------------

REVISIONS

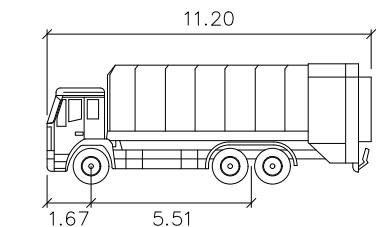
Mark	Revision	Drawn	Date	Chkd
a	Inclusion of topographical survey data	SB	25/10/24	JC
b	Amendments to access plans following comments from project team	OH	13/11/24	JC
C	Location of access amended	SB	25.11.24	JC

Key:

- Topographical Survey
- Proposed Design
- Vehicle Outline

Notes:

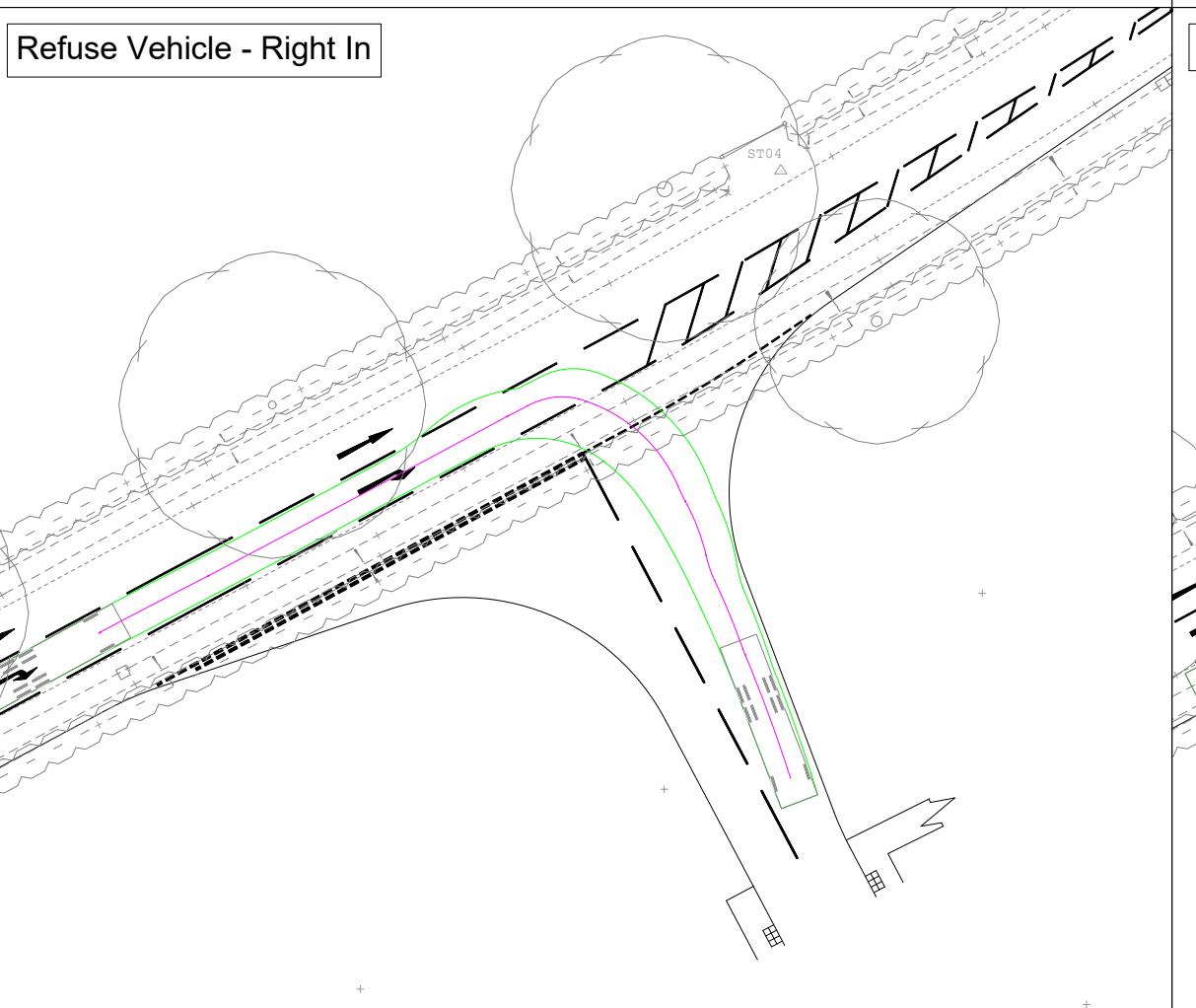
1. Drawing units are in metres unless specified otherwise.
2. Drawing is based on topographical survey data.



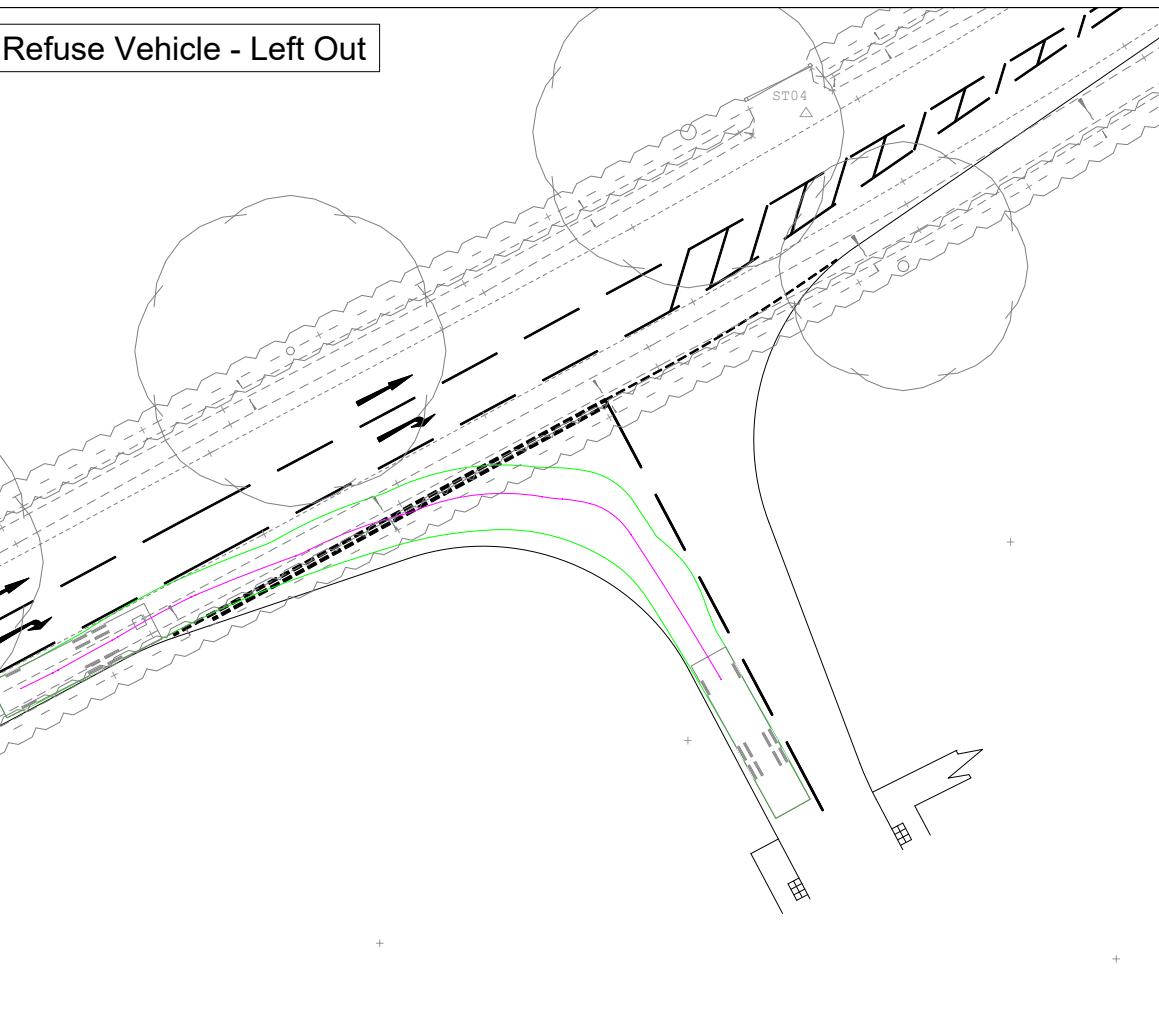
Refuse 11.2m

meters
Width : 2.53
Track : 2.53
Lock to Lock Time : 6.0
Steering Angle : 40.4

Refuse Vehicle - Right In



Refuse Vehicle - Left Out



A3 SCALE
1:500

Scale 1:500 @ A3

Drawing Title
Newbold Verdon
Design Package
Swept Path Analysis

Client
Bloor Homes

Drawing Status
Planning

27 Park Street
Leamington Spa
CV32 4QN
E: info@ttc-transportplanning.com



Drawing Number
210988-02

C



Appendix I

Site Access RSA Designers Response

Stage 1 Road Safety Audit Brief: Proposed Residential Development on Land at the B585 (Bosworth Lane)

In accordance with DMRB GG 119 Road Safety Audit, a Stage 1 Road Safety Audit Brief has been prepared. The Audit Brief defines the scope of the Road Safety Audit to be undertaken. Details of the Audit Brief are set out in **Tables 1 to 6** below.

Table 1 Project Summary

Date:	18 th November 2024
Document Reference:	210988-04
Prepared by:	The Transportation Consultancy
On behalf of:	Bloor Homes
AUTHORISATION SHEET	
Project:	Proposed Residential Development on land at the B585 (Bosworth Lane) in Newbold Verdon, Leicestershire.
Report title:	Stage 1 Road Safety Audit Brief
PREPARED BY	
Name:	Sam Barber
Signed:	
Organisation:	The Transportation Consultancy
Date:	29th October 2024

Table 2 General Details

General Details	
Type of scheme:	The development proposals are for up to 220no. residential dwellings. The development will include vehicular access from the B585 (Bosworth Lane), public open space, and green infrastructure. The scheme involves provision of a priority T-junction with ghost island right turn facility off the B585 (Bosworth Lane).
RSA Stage:	Stage 1
Overseeing Organisation details:	Design Organisation details:
	Sam Barber Consultant Transport Planner The Transportation Consultancy, 27 Park Street, Leamington Spa, CV32 4QN

General Details

Terms of Reference

The RSA Audit Team are required to conduct the RSA in strict accordance with DMRB GG 119 and the content of this Stage 1 Road Safety Audit Brief (210988-04).

Table 3 Scheme Details

Scheme description/objective						
General						
<p>The Stage 1 RSA concerns the proposed access junction off the B585 (Bosworth Lane), which is in the form of a priority T-junction to serve the proposed development and footways either side of the carriageway supported by a dropped kerb tactile crossing. An additional link is provided to the newly constructed residential site to the northeast.</p> <p>The proposed design is provided in Drawing 210988-01c, 210988-02c and 210988-03a Appendix A.</p> <p>The construction start date and end date are currently unknown.</p>						
Design standards applied to the scheme design						
<p>The scheme has been designed in accordance with relevant guidance from the LCC Highways Design Guide, CD 123 and ongoing consultation with the LHA that is LCC.</p>						
Design speeds						
<p>The design speed along the B585 (Bosworth Lane) at the access junction is the national speed limit.</p>						
Forecast traffic flows						
<p>Traffic movements associated with the proposed development will be low. The following is an extract from the Scoping Note ref. 210988-02, which sets out the peak hour and daily movements:</p>						
Table 5.1 Potential Trip Generation – Residential Dwellings						
Time Range	Trip Rate			Trip Generation (220-dwellings)		
	Arrive	Depart	Two-Way	Arrive	Depart	Two-way
AM Peak (07:00 – 08:00)	0.074	0.606	0.681	16	133	149
PM Peak (17:00 – 18:00)	0.521	0.170	0.691	115	37	152
Environmental constraints						
<p>No environmental constraints are noted.</p>						

Table 4 **Locality**

Description of locality
The proposed development site is situated on a parcel of agricultural land to the south of the B585 (Bosworth Lane) at the northwestern extremity of Newbold Verdon's built up area.
The proposed development is bounded by the B585 (Bosworth Lane) to the northwest, newly developed residential dwellings to the northeast, primary school grounds to the southeast and agricultural land to the southwest.

Figure 1 illustrates the site's location within a local and strategic context.

Figure 1 **Site Location**



General description

The Stage 1 RSA concerns the proposed access junction off the B585 (Bosworth Lane), which is in the form of a priority T-junction with ghost island right turn facility to serve the proposed development and footways either side of the carriageway supported by a dropped kerb tactile crossing. Within the vicinity of the application, the highway network is managed and maintained by LCC in their capacity as the LHA.

The B585 (Bosworth Lane) is a two-way single lane carriageway which routes on a northeast-southwest alignment between its junction with Barlestoke Road (B582) and the A447. The highway forms the northwestern boundary of the development site. The B585 (Bosworth Lane) is subject to the national speed limit along the site frontage with a carriageway width of c.5.6m. Directly fronting the proposed development site, the highway does not afford pedestrian footways along either side of the carriageway until its junction with Hall Lane where provision exists along the southeastern side of the road.

There are a number of local facilities within an 'acceptable' walking distance from the proposed development site, including a medical practice, a takeaway, a primary school, and a playpark. The proposed development site also benefits from access to local services and amenities within the

Description of locality

Preferred Maximum walking distance specified in the IHT guidance including supermarkets, a nursery, a library, and a post office. This will ensure future residents are not dependent on using a private vehicle for everyday needs.

An ATC has been carried out along the B585 (Bosworth Road) to collect speed and traffic flow information. The ATC showed that the B585 (Bosworth Lane) carries a modest level of traffic, which averages 466 and 485 two-way movements in the respective AM and PM peak periods. The 85th percentile speeds are lower than the posted speed limit. A copy of the ATC is included in Appendix B.

Relevant factors which may affect road safety

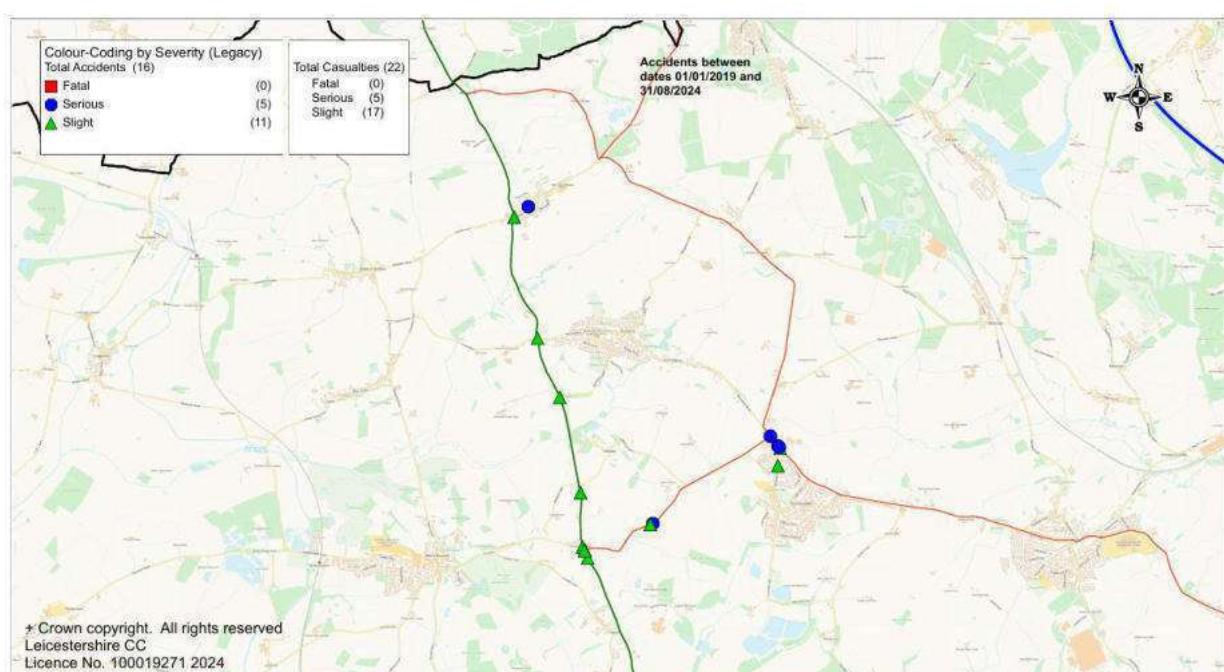
We are not aware of any relevant factors affecting road safety.

Table 5 Analysis

Collision Data Analysis

Personal Injury Accident (PIA) data has been requested from LCC for the most recent 5-year period (2018-2022). **Figure 2** illustrates the PIA data search within the vicinity of the proposed development site.

Figure 2 PIA Data Search



On the B585 (Bosworth Lane) in the vicinity of the proposed development site access (200m radius search area) there are no recorded accidents in the latest five-year period. A copy of the PIA data map is included in Appendix C.

Departures from standards

Collision Data Analysis

There has been no departure from standards and the proposed design has been based on consultation with LCC and the relevant guidance contained within the LCC Highways Design Guide and CD 123.

Previous road safety audit stage reports, road safety audit response reports and evidence of agreed actions

No road safety audit consultation has preceded this brief.

List of included documents and drawings

Documents

Drawings

The package of drawings is provided in [Appendix A](#).210988-01b, 210988-02b and 210988-03

Table 6 Checklist

Tick all that are included and provide reasons for those that are not included			
Site location plan	Figure 1.	Scale layout plans	Appendix A (Drawing 210988-01c, 210988-02c and 210988-03a)
Departures and relaxations from standard	N/A	Construction/typical detail	N/A
Previous RSA reports	N/A	Previous RSA response reports and evidence of agreed actions	N/A
Collision data and collision data analysis	Table 5	Road traffic collision plot	Figure 2
Traffic signal staging	N/A	Traffic Counts	ATC contained in Appendix B
Speed surveys	ATC contained in Appendix B	Pedestrian, cyclist and horse-riding desire lines and volumes	Table 4
Walking, cycling and horse-riding assessment and reviews	N/A	Design speeds / speed limits	National Speed Limit
Design standards used	LCC Highways Design Guide and CD 123	Adjacent land uses	Residential and agricultural

**BOSWORTH LANE,
NEWBOLD VERDON,
LEICESTERSHIRE**

PROPOSED HIGHWAY WORKS

**STAGE 1
ROAD SAFETY AUDIT REPORT**

**REQUESTED BY:
THE TRANSPORTATION
CONSULTANCY**

NOVEMBER 2024



RKS
Associates

Project: Bosworth Lane, Newbold Verdon, Leicestershire
Proposed Highway Works

Client: The Transportation Consultancy

Document: Stage 1 Road Safety Audit

RKS Associates Ref: VRP1846 - RSA 1

Issue date: 30th November 2024

Status: Final

Authorised by: VP/BN

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RKS
Associates

11 Falconer Road
Bushey
Hertfordshire
WD23 3AQ

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1	Introduction	1
2	Issues Identified During Stage 1 Road Safety Audit.....	3
3	Audit Team Statement.....	4

Appendices:

Appendix A: Location of Problems Identified During Stage 1 Road Safety Audit

Appendix B: Road Safety Audit Decision Log

1 INTRODUCTION

1.1 This report results from a Stage 1 Road Safety Audit carried out on a proposed highway works along Bosworth Lane, Newbold Verdon in Leicestershire. The proposed highway works are associated with a residential development comprising of up to 220 dwellings on agricultural land located to the south of Bosworth Lane.

1.2 The proposed highway works involve widening along the southern side Bosworth Lane to provide a ghost island right turn lane junction to serve the proposed development with 3m wide ahead and right turn lane. The proposed development access takes the form of a priority junction it is 6.75m wide road with 15m junction radii with a 2m footway either side of the access road. The proposed highway works also include a secondary access at the north-eastern extent of the development which provides access via the adjacent development.

1.3 Bosworth Lane is a single two-way rural road aligned in an east to west direction with grass verge/hedgerows along both sides of the road. The carriageway is unlit and is subject to a national speed limit which reduces to a 40mph approximately 250m southwest of the Bosworth Lane/Barlestone Road junction.

1.4 The Transportation Consultancy has supplied the following information upon which this Stage 1 RSA is based:

- Stage 1 Road Safety Audit Brief prepared by The Transportation Consultancy Reference: 210988-04 (November 2024);
- Automated Traffic Count (ATC) Surveys (April 2024);
- The Transportation Consultancy Drawing Numbers:
 - 210988-01 Revision C – Visibility Splays & General Arrangement;
 - 210988-02 Revision C – Swept Path Analysis; and
 - 210988-03 Revision A – Secondary Site Access.

1.5 The main parties to this Road Safety Audit include the following:

Road Safety Audit Team Leader	Vimal Patel BEng (Hons), GMICE, FIHE, NH Cert Comp
Road Safety Audit Team Member	Beth Newiss MCIHT, MSoRSA
Overseeing Organisation	Leicestershire City Council
Design Organisation	The Transportation Consultancy

1.6 The Audit has been undertaken following examination of the submitted documents, including a site visit carried out on Friday 24th October 2024 between the hours of midday and 1pm. The weather was overcast, and the road surface was damp, no traffic congestion or incidents, moderate traffic flows and no pedestrian and cycle flows were observed along Bosworth Lane during the site inspection.

Terms of Reference

1.7 The Audit Team is independent of the project design team and has no other involvement with the project. This Stage 1 RSA has been undertaken in accordance with the relevant sections of GG-119, part of the Design Manual for Roads and Bridges (DMRB).

1.8 The Safety Audit Team has examined only matters relating to road safety implications of the scheme and has not verified compliance of the design to any other criteria. The Audit Team have not been made aware of any Departures from Standard or any previous Road Safety Audits undertaken on the highway works.

1.9 All of the problems identified in this report are considered by the Audit Team to require action in order to improve the safety of the scheme and to minimise accident occurrence for all users. The extent of the Road Safety Audit is limited to the drawing and location of the problems identified contained in **Appendix A** where the reference numbers relate to the problems identified in this Road Safety Audit.

1.10 The recommendations in this report are aimed at addressing the identified road safety problems; however, there may be other alternative acceptable ways to overcome a specific problem when other practical issues are considered. The recommendations contained herein do not absolve the Designer of his/her responsibilities. The Auditors would be pleased to discuss the acceptability of alternative solutions to problems identified during the Audit and would encourage the Designer to consult them on this matter.

1.11 The Designer is advised to prepare a Road Safety Audit Decision Log, a template for which is included in **Appendix B**. This enables the Designers and Overseeing Organisations Response to the Audit to be documented along with an agreed RSA Action.

Collision Data

1.12 Personal Injury Collision (PIC) information contained in the Stage 1 Road Safety Audit brief has been obtained from Leicestershire County Council. The PIC data covering the wider highway network for the 68-month period up to 31st August 2024 indicates that no collisions have occurred along the Bosworth Lane in the immediate vicinity of proposed highway works during the 5-year period up to December 2022.

Traffic Data

1.13 The Automated Traffic Count (ATC) surveys undertaken during April 2024 on Bosworth Lane indicate that the average two-way flows along Bosworth Lane was 466 and 485 vehicles during the AM and PM peak periods respectively and the 7-day 85th percentile speeds were 55.3mph in the both directions. The Transport Assessment Scoping report also provides details of the traffic generation associated with the development proposals, it is anticipated that the proposed development is likely to generate 149 and 152 two-way movements during the respective AM and PM peak periods.

2 ISSUES IDENTIFIED DURING STAGE 1 ROAD SAFETY AUDIT

2.1 Problem:

Summary: Potential collisions due to standing water or service covers

Location: *Throughout*

No details have been provided in respect of surface water drainage or other services and it is therefore not possible to ascertain whether there will be any safety implications. Observations during the site inspection noted that the existing surface water drains into the verge. The absence surface water drainage may result in the collection of surface water which could increase the risk of loss of control collisions.

Recommendation:

Ensure that surface water drainage is provided to mitigate the risk of collection of surface water on the carriageway.

2.2 Problem:

Summary: Potential collisions associated with poor lighting

Location: *Bosworth Lane vicinity of proposed development access*

No details have been provided in respect of street lighting along Bosworth Lane in the vicinity of the proposed development access. Observation during the site inspection noted a system of street lighting terminated to the east of the proposed development access. The proposed development is likely to extend the built environment and as a result the absence of street lighting may increase the risk of collisions during the hours of darkness.

Recommendation:

Ensure that street lighting along Bosworth Lane is extended to cover the proposed development access.

2.3 Problem:

Summary: Potential risk of vehicle collisions associated poor visibility

Location: *Development Access*

Observations during the site inspection noted that overgrown hedges along the southern side of Bosworth Lane adjacent to the proposed development access. Whilst visibility spays conforming to speed limit of Bosworth Lane have been provided, there is concern that any existing vegetation or proposed landscaping adjacent to the proposed development access may restrict visibility for motorists entering/exiting the development. Poor visibility may increase the risk of turning collisions between traffic accessing the development and traffic travelling along Bosworth Lane.

Recommendation:

Ensure that any existing vegetation adjacent to the proposed development access is cut back and regularly maintained or alternatively any proposed landscaping is low-level variety to ensure visibility to and from the proposed development access is not compromised.

3 AUDIT TEAM STATEMENT

3.1 We certify that this audit has been carried out in accordance with GG-119 of Design Manual for Roads & Bridges Volume 5 Section 2 - Road Safety Audits. Its sole purpose being to identify features of the scheme that could be removed or modified to improve safety. No member of the Audit Team has been involved in the scheme design.

Audit Team Leader

Vimal Patel
BEng (Hons), GMICE, FIHE, NH Cert Comp

Signed:

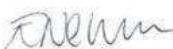


Date: 30th November 2024

Audit Team Member

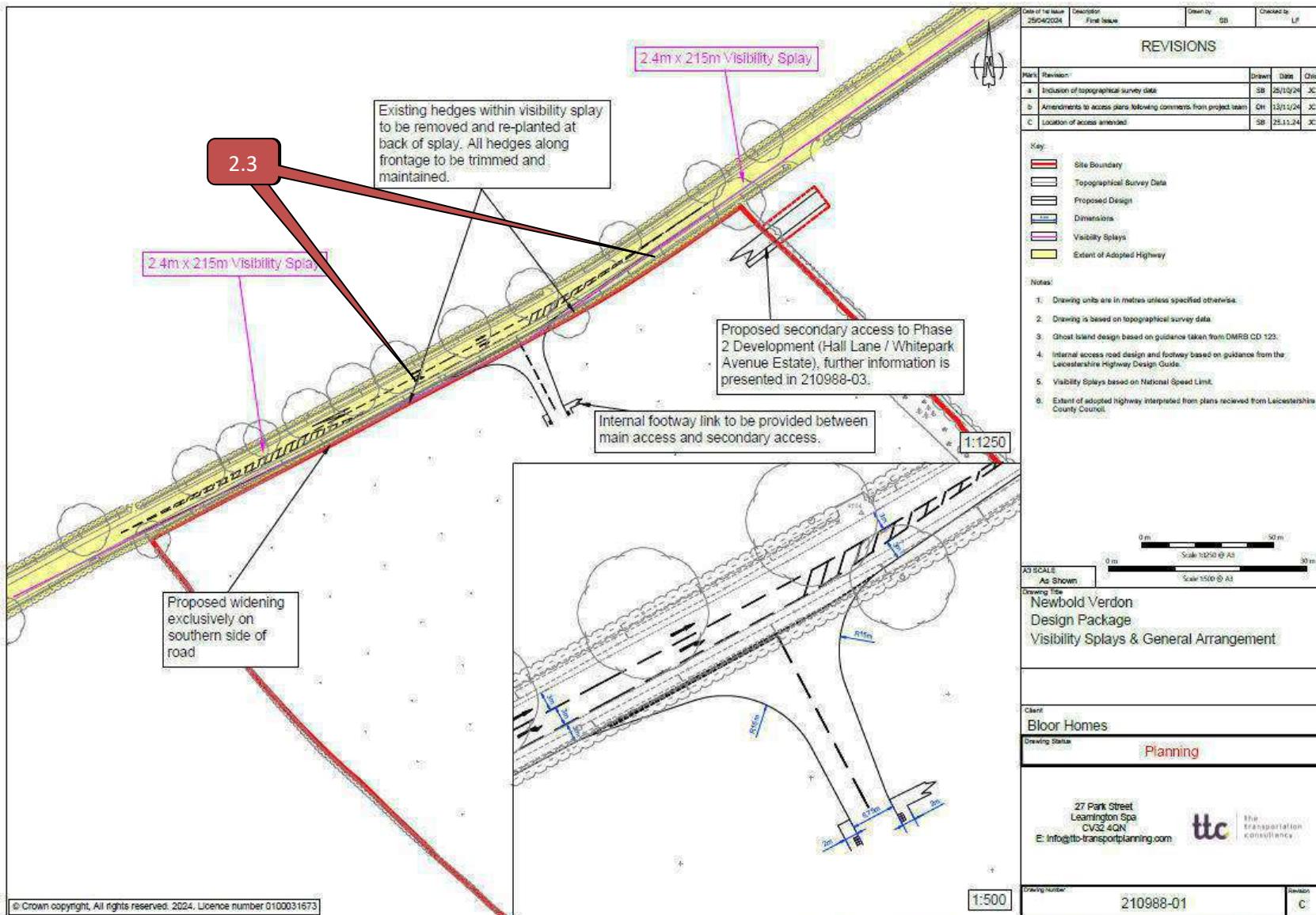
Beth Newiss
MCIHT, MSoRSA

Signed:



Date: 30th November 2024

Appendix A



Appendix B



Issue Nº	RSA Problem	RSA Recommendation	Design Organisation Response	Overseeing Organisation Response	Agreed RSA Action
2.1	No details have been provided in respect of surface water drainage or other services and it is therefore not possible to ascertain whether there will be any safety implications. Observations during the site inspection noted that the existing surface water drains into the verge. The absence surface water drainage may result in the collection of surface water which could increase the risk of loss of control collisions.	Ensure that surface water drainage is provided to mitigate the risk of collection of surface water on the carriageway.	Recommendation accepted. The surface water drainage will be considered further at detailed design stage.		
2.2	No details have been provided in respect of street lighting along Bosworth Lane in the vicinity of the proposed development access. Observation during the site inspection noted a system of street lighting terminated to the east of the proposed development access. The proposed development is likely to extend the built environment and as a result the absence of street lighting may increase the risk of collisions during the hours of darkness.	Ensure that street lighting along Bosworth Lane is extended to cover the proposed development access	Recommendation accepted. A lighting assessment will be carried out during the detailed design stage to inform street lighting provision.		

2.3	<p>Observations during the site inspection noted that overgrown hedges along the southern side of Bosworth Lane adjacent to the proposed development access. Whilst visibility spays conforming to speed limit of Bosworth Lane have been provided, there is concern that any existing vegetation or proposed landscaping adjacent to the proposed development access may restrict visibility for motorists entering/exiting the development. Poor visibility may increase the risk of turning collisions between traffic accessing the development and traffic travelling along Bosworth Lane.</p>	<p>Ensure that any existing vegetation adjacent to the proposed development access is cut back and regularly maintained or alternatively any proposed landscaping is low-level variety to ensure visibility to and from the proposed development access is not compromised.</p>	<p>Recommendation accepted. The extent of the visibility splays is within land under the applicants control or the adopted highway. As a result, any foliage within the splays will be removed, or trimmed and maintained.</p>		
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Sam Barber

From: vpatel <vpatel@rks.org.uk>
Sent: 20 January 2025 17:50
To: Sam Barber
Cc: James Corbett
Subject: RE: Road Safety Audit Designers Response - Newbold Verdon

Sam,

Thank you for the Designers response to the Stage 1 RSA for Newbold Verdon, Leicestershire scheme.
I can confirm that we agree with the Designer Response, the Audit Report with the Designers response should be submitted to the Local Highway Authority for their approval and sign off.

Warmest Regards

Raz

Vimal (Raz) Patel
BEng(Hons), FIHE, CoC (HE)

(Director)
Mobile: 0783 777 6252
E-mail: vpatel@rks.org.uk



From: Sam Barber <sam@ttc-tp.com>
Sent: 20 January 2025 14:59
To: vpatel <vpatel@rks.org.uk>
Cc: James Corbett <james.c@ttc-tp.com>
Subject: Road Safety Audit Designers Response - Newbold Verdon

Hi Raz,

I hope you are well and are back into the speed of things after the break.

You sent over a Stage 1 RSA for a site in Newbold Verdon, Leicestershire back in November 2024 (internal reference: VRP1846 - RSA 1).

We have taken time to go over the problems raised and have produced a designers response – see attached.

It would be much appreciated if you could take time to review the document.

I look forward to your response.

Kind regards,

Sam Barber BA (Hons) MSc GCIHT
Consultant Transport Planner

The Transportation Consultancy
102 Colmore Row, Birmingham, B2 3AG

T: 0121 661 5968

sam@ttc-tp.com
www.ttc-tp.com



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Appendix J

Multi Modal Trip Rates

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 03 - RESIDENTIAL
Category : A - HOUSES PRIVATELY OWNED

MULTI-MODAL CYCLISTS*Selected regions and areas:*

02	SOUTH EAST	
ES	EAST SUSSEX	4 days
EX	ESSEX	1 days
HC	HAMPSHIRE	5 days
HF	HERTFORDSHIRE	2 days
KC	KENT	4 days
SC	SURREY	2 days
WB	WEST BERKSHIRE	1 days
WS	WEST SUSSEX	4 days
04	EAST ANGLIA	
NF	NORFOLK	7 days
05	EAST MIDLANDS	
DY	DERBY	1 days
06	WEST MIDLANDS	
ST	STAFFORDSHIRE	1 days
09	NORTH	
IM	ISLE OF MAN	1 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Primary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter: No of Dwellings
 Actual Range: 106 to 537 (units:)
 Range Selected by User: 100 to 600 (units:)

Parking Spaces Range: All Surveys Included

Parking Spaces per Dwelling Range: All Surveys Included

Bedrooms per Dwelling Range: All Surveys Included

Percentage of dwellings privately owned: All Surveys Included

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/16 to 28/06/24

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Monday	6 days
Tuesday	13 days
Wednesday	7 days
Thursday	5 days
Friday	2 days

This data displays the number of selected surveys by day of the week.

Selected survey types:

Manual count	33 days
Directional ATC Count	0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaking using machines.

Selected Locations:

Edge of Town	33
--------------	----

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:

Residential Zone	33
------------------	----

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Inclusion of Servicing Vehicles Counts:

Servicing vehicles Included	9 days - Selected
Servicing vehicles Excluded	30 days - Selected

Secondary Filtering selection:

Use Class:
 C3 33 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order (England) 2020 has been used for this purpose, which can be found within the Library module of TRICS®.

Population within 500m Range:

All Surveys Included

Secondary Filtering selection (Cont.):Population within 1 mile:

1,001 to 5,000	2 days
5,001 to 10,000	8 days
10,001 to 15,000	11 days
15,001 to 20,000	8 days
20,001 to 25,000	4 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

5,001 to 25,000	6 days
25,001 to 50,000	3 days
50,001 to 75,000	3 days
75,001 to 100,000	4 days
100,001 to 125,000	3 days
125,001 to 250,000	12 days
250,001 to 500,000	2 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

0.6 to 1.0	7 days
1.1 to 1.5	23 days
1.6 to 2.0	3 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

Yes	25 days
No	8 days

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

No PTAL Present	33 days
-----------------	---------

This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

1	DY-03-A-01	MIXED HOUSES	DERBY
	RADBOURNE LANE		
	DERBY		
	Edge of Town		
	Residential Zone		
	Total No of Dwellings:	371	
	<i>Survey date: TUESDAY</i>	<i>10/07/18</i>	<i>Survey Type: MANUAL</i>
2	ES-03-A-03	MIXED HOUSES & FLATS	EAST SUSSEX
	SHEPHAM LANE		
	POLEGATE		
	Edge of Town		
	Residential Zone		
	Total No of Dwellings:	212	
	<i>Survey date: MONDAY</i>	<i>11/07/16</i>	<i>Survey Type: MANUAL</i>
3	ES-03-A-08	MIXED HOUSES & FLATS	EAST SUSSEX
	WRESTWOOD ROAD		
	BEXHILL		
	Edge of Town		
	Residential Zone		
	Total No of Dwellings:	110	
	<i>Survey date: WEDNESDAY</i>	<i>12/10/22</i>	<i>Survey Type: MANUAL</i>
4	ES-03-A-10	MIXED HOUSES & FLATS	EAST SUSSEX
	WATERGATE		
	BEXHILL-ON-SEA		
	Edge of Town		
	Residential Zone		
	Total No of Dwellings:	139	
	<i>Survey date: THURSDAY</i>	<i>28/09/23</i>	<i>Survey Type: MANUAL</i>
5	ES-03-A-14	MIXED HOUSES & FLATS	EAST SUSSEX
	RATTLE ROAD		
	NEAR EASTBOURNE		
	STONE CROSS		
	Edge of Town		
	Residential Zone		
	Total No of Dwellings:	120	
	<i>Survey date: TUESDAY</i>	<i>30/04/24</i>	<i>Survey Type: MANUAL</i>
6	EX-03-A-03	MIXED HOUSES	ESSEX
	KESTREL GROVE		
	RAYLEIGH		
	Edge of Town		
	Residential Zone		
	Total No of Dwellings:	123	
	<i>Survey date: MONDAY</i>	<i>27/09/21</i>	<i>Survey Type: MANUAL</i>
7	HC-03-A-28	MIXED HOUSES & FLATS	HAMPSHIRE
	EAGLE AVENUE		
	WATERLOOVILLE		
	LOVEDEAN		
	Edge of Town		
	Residential Zone		
	Total No of Dwellings:	125	
	<i>Survey date: MONDAY</i>	<i>08/11/21</i>	<i>Survey Type: MANUAL</i>

LIST OF SITES relevant to selection parameters (Cont.)

8	HC-03-A-34	MIXED HOUSES & FLATS	HAMPSHIRE
	STONEHAM LANE		
	EASTLEIGH		
	Edge of Town		
	Residential Zone		
	Total No of Dwellings:	243	
	Survey date: TUESDAY	14/11/23	
9	HC-03-A-35	MIXED HOUSES & FLATS	HAMPSHIRE
	EAGLE AVENUE		
	WATERLOOVILLE		
	LOVEDEAN		
	Edge of Town		
	Residential Zone		
	Total No of Dwellings:	289	
	Survey date: TUESDAY	31/10/23	
10	HC-03-A-36	MIXED HOUSES & FLATS	HAMPSHIRE
	HAVANT ROAD		
	EMSWORTH		
	Edge of Town		
	Residential Zone		
	Total No of Dwellings:	145	
	Survey date: TUESDAY	12/09/23	
11	HC-03-A-38	MIXED HOUSES & FLATS	HAMPSHIRE
	CROW LANE		
	RINGWOOD		
	CROW		
	Edge of Town		
	Residential Zone		
	Total No of Dwellings:	195	
	Survey date: WEDNESDAY	26/06/24	
12	HF-03-A-03	MIXED HOUSES	HERTFORDSHIRE
	HARE STREET ROAD		
	BUNTINGFORD		
	Edge of Town		
	Residential Zone		
	Total No of Dwellings:	160	
	Survey date: MONDAY	08/07/19	
13	HF-03-A-06	MIXED HOUSES & FLATS	HERTFORDSHIRE
	A505		
	ROYSTON		
	Edge of Town		
	Residential Zone		
	Total No of Dwellings:	180	
	Survey date: TUESDAY	28/11/23	
14	IM-03-A-06	MIXED HOUSES	ISLE OF MAN
	MOORAGH PROMENADE		
	RAMSEY		
	Edge of Town		
	Residential Zone		
	Total No of Dwellings:	129	
	Survey date: THURSDAY	23/05/24	

LIST OF SITES relevant to selection parameters (Cont.)

15	KC-03-A-04	SEMI-DETACHED & TERRACED	KENT
	KILN BARN ROAD		
	AYLESFORD		
	DITTON		
	Edge of Town		
	Residential Zone		
	Total No of Dwellings:	110	
	<i>Survey date: FRIDAY</i>	22/09/17	<i>Survey Type: MANUAL</i>
16	KC-03-A-07	MIXED HOUSES	KENT
	RECOLVER ROAD		
	HERNE BAY		
	Edge of Town		
	Residential Zone		
	Total No of Dwellings:	288	
	<i>Survey date: WEDNESDAY</i>	27/09/17	<i>Survey Type: MANUAL</i>
17	KC-03-A-10	MIXED HOUSES	KENT
	HEADCORN ROAD		
	STAPLEHURST		
	Edge of Town		
	Residential Zone		
	Total No of Dwellings:	106	
	<i>Survey date: TUESDAY</i>	09/05/23	<i>Survey Type: MANUAL</i>
18	KC-03-A-12	MIXED HOUSES & FLATS	KENT
	WESTERN LINK		
	FAVERSHAM		
	DAVINGTON		
	Edge of Town		
	Residential Zone		
	Total No of Dwellings:	186	
	<i>Survey date: TUESDAY</i>	19/09/23	<i>Survey Type: MANUAL</i>
19	NF-03-A-06	MIXED HOUSES	NORFOLK
	BEAUFORT WAY		
	GREAT YARMOUTH		
	BRADWELL		
	Edge of Town		
	Residential Zone		
	Total No of Dwellings:	275	
	<i>Survey date: MONDAY</i>	23/09/19	<i>Survey Type: MANUAL</i>
20	NF-03-A-30	MIXED HOUSES	NORFOLK
	BRANDON ROAD		
	SWAFFHAM		
	Edge of Town		
	Residential Zone		
	Total No of Dwellings:	266	
	<i>Survey date: THURSDAY</i>	23/09/21	<i>Survey Type: MANUAL</i>
21	NF-03-A-33	MIXED HOUSES	NORFOLK
	LONDON ROAD		
	ATTLEBOROUGH		
	Edge of Town		
	Residential Zone		
	Total No of Dwellings:	143	
	<i>Survey date: THURSDAY</i>	29/09/22	<i>Survey Type: MANUAL</i>

LIST OF SITES relevant to selection parameters (Cont.)

22	NF-03-A-35	MIXED HOUSES & FLATS	NORFOLK
	REPTON AVENUE		
	NORWICH		
	Edge of Town		
	Residential Zone		
	Total No of Dwellings:	116	
	<i>Survey date: WEDNESDAY</i>	28/09/22	<i>Survey Type: MANUAL</i>
23	NF-03-A-38	MIXED HOUSES	NORFOLK
	BEAUFORT WAY		
	GREAT YARMOUTH		
	BRADWELL		
	Edge of Town		
	Residential Zone		
	Total No of Dwellings:	537	
	<i>Survey date: TUESDAY</i>	20/09/22	<i>Survey Type: MANUAL</i>
24	NF-03-A-39	MIXED HOUSES	NORFOLK
	HEATH DRIVE		
	HOLT		
	Edge of Town		
	Residential Zone		
	Total No of Dwellings:	212	
	<i>Survey date: TUESDAY</i>	27/09/22	<i>Survey Type: MANUAL</i>
25	NF-03-A-46	MIXED HOUSES & FLATS	NORFOLK
	BURGH ROAD		
	AYLSHAM		
	Edge of Town		
	Residential Zone		
	Total No of Dwellings:	300	
	<i>Survey date: TUESDAY</i>	14/09/21	<i>Survey Type: MANUAL</i>
26	SC-03-A-05	MIXED HOUSES	SURREY
	REIGATE ROAD		
	HORLEY		
	Edge of Town		
	Residential Zone		
	Total No of Dwellings:	207	
	<i>Survey date: MONDAY</i>	01/04/19	<i>Survey Type: MANUAL</i>
27	SC-03-A-12	MIXED HOUSES & FLATS	SURREY
	AARONS HILL		
	GODALMING		
	Edge of Town		
	Residential Zone		
	Total No of Dwellings:	252	
	<i>Survey date: WEDNESDAY</i>	12/06/24	<i>Survey Type: MANUAL</i>
28	ST-03-A-07	DETACHED & SEMI-DETACHED	STAFFORDSHIRE
	BEACONSIDE		
	STAFFORD		
	MARSTON GATE		
	Edge of Town		
	Residential Zone		
	Total No of Dwellings:	248	
	<i>Survey date: WEDNESDAY</i>	22/11/17	<i>Survey Type: MANUAL</i>

LIST OF SITES relevant to selection parameters (Cont.)

29	WB-03-A-03	MIXED HOUSES	WEST BERKSHIRE
	DORKING WAY		
	READING		
	CALCOT		
	Edge of Town		
	Residential Zone		
	Total No of Dwellings:	108	
	<i>Survey date: FRIDAY</i>	<i>09/09/22</i>	<i>Survey Type: MANUAL</i>
30	WS-03-A-08	MIXED HOUSES	WEST SUSSEX
	ROUNDSTONE LANE		
	ANGMERING		
	Edge of Town		
	Residential Zone		
	Total No of Dwellings:	180	
	<i>Survey date: THURSDAY</i>	<i>19/04/18</i>	<i>Survey Type: MANUAL</i>
31	WS-03-A-14	MIXED HOUSES	WEST SUSSEX
	TODDINGTON LANE		
	LITTLEHAMPTON		
	WICK		
	Edge of Town		
	Residential Zone		
	Total No of Dwellings:	117	
	<i>Survey date: WEDNESDAY</i>	<i>20/10/21</i>	<i>Survey Type: MANUAL</i>
32	WS-03-A-22	MIXED HOUSES & FLATS	WEST SUSSEX
	SHOPWHYKE ROAD		
	CHICHESTER		
	Edge of Town		
	Residential Zone		
	Total No of Dwellings:	129	
	<i>Survey date: TUESDAY</i>	<i>19/03/24</i>	<i>Survey Type: MANUAL</i>
33	WS-03-A-23	MIXED HOUSES & FLATS	WEST SUSSEX
	TURNERS HILL ROAD		
	EAST GRINSTEAD		
	Edge of Town		
	Residential Zone		
	Total No of Dwellings:	197	
	<i>Survey date: TUESDAY</i>	<i>14/05/24</i>	<i>Survey Type: MANUAL</i>

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

MANUALLY DESELECTED SITES

Site Ref	Reason for Deselection
SF-03-A-10	Covid
WS-03-A-13	Covid

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

MULTI-MODAL CYCLISTS**Calculation factor: 1 DWELLS****BOLD print indicates peak (busiest) period**

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	33	198	0.003	33	198	0.010	33	198	0.013
08:00 - 09:00	33	198	0.005	33	198	0.017	33	198	0.022
09:00 - 10:00	33	198	0.001	33	198	0.003	33	198	0.004
10:00 - 11:00	33	198	0.003	33	198	0.003	33	198	0.006
11:00 - 12:00	33	198	0.002	33	198	0.004	33	198	0.006
12:00 - 13:00	33	198	0.003	33	198	0.002	33	198	0.005
13:00 - 14:00	33	198	0.002	33	198	0.002	33	198	0.004
14:00 - 15:00	33	198	0.005	33	198	0.003	33	198	0.008
15:00 - 16:00	33	198	0.010	33	198	0.005	33	198	0.015
16:00 - 17:00	33	198	0.015	33	198	0.008	33	198	0.023
17:00 - 18:00	33	198	0.012	33	198	0.007	33	198	0.019
18:00 - 19:00	33	198	0.008	33	198	0.006	33	198	0.014
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:		0.069				0.070			0.139

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

MULTI-MODAL PEDESTRIANS**Calculation factor: 1 DWELLS****BOLD print indicates peak (busiest) period**

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	33	198	0.017	33	198	0.043	33	198	0.060
08:00 - 09:00	33	198	0.043	33	198	0.109	33	198	0.152
09:00 - 10:00	33	198	0.035	33	198	0.030	33	198	0.065
10:00 - 11:00	33	198	0.020	33	198	0.021	33	198	0.041
11:00 - 12:00	33	198	0.025	33	198	0.028	33	198	0.053
12:00 - 13:00	33	198	0.031	33	198	0.027	33	198	0.058
13:00 - 14:00	33	198	0.025	33	198	0.024	33	198	0.049
14:00 - 15:00	33	198	0.027	33	198	0.036	33	198	0.063
15:00 - 16:00	33	198	0.098	33	198	0.047	33	198	0.145
16:00 - 17:00	33	198	0.064	33	198	0.038	33	198	0.102
17:00 - 18:00	33	198	0.046	33	198	0.035	33	198	0.081
18:00 - 19:00	33	198	0.040	33	198	0.038	33	198	0.078
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:		0.471			0.476				0.947

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

MULTI-MODAL BUS/TRAM PASSENGERS**Calculation factor: 1 DWELLS****BOLD print indicates peak (busiest) period**

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	33	198	0.001	33	198	0.017	33	198	0.018
08:00 - 09:00	33	198	0.004	33	198	0.030	33	198	0.034
09:00 - 10:00	33	198	0.002	33	198	0.007	33	198	0.009
10:00 - 11:00	33	198	0.002	33	198	0.004	33	198	0.006
11:00 - 12:00	33	198	0.003	33	198	0.004	33	198	0.007
12:00 - 13:00	33	198	0.002	33	198	0.002	33	198	0.004
13:00 - 14:00	33	198	0.004	33	198	0.003	33	198	0.007
14:00 - 15:00	33	198	0.004	33	198	0.003	33	198	0.007
15:00 - 16:00	33	198	0.027	33	198	0.006	33	198	0.033
16:00 - 17:00	33	198	0.015	33	198	0.004	33	198	0.019
17:00 - 18:00	33	198	0.010	33	198	0.002	33	198	0.012
18:00 - 19:00	33	198	0.008	33	198	0.003	33	198	0.011
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:		0.082			0.085				0.167

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

MULTI-MODAL TOTAL RAIL PASSENGERS**Calculation factor: 1 DWELLS****BOLD print indicates peak (busiest) period**

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	33	198	0.000	33	198	0.009	33	198	0.009
08:00 - 09:00	33	198	0.000	33	198	0.008	33	198	0.008
09:00 - 10:00	33	198	0.000	33	198	0.002	33	198	0.002
10:00 - 11:00	33	198	0.000	33	198	0.002	33	198	0.002
11:00 - 12:00	33	198	0.000	33	198	0.000	33	198	0.000
12:00 - 13:00	33	198	0.000	33	198	0.001	33	198	0.001
13:00 - 14:00	33	198	0.001	33	198	0.001	33	198	0.002
14:00 - 15:00	33	198	0.001	33	198	0.001	33	198	0.002
15:00 - 16:00	33	198	0.002	33	198	0.000	33	198	0.002
16:00 - 17:00	33	198	0.003	33	198	0.000	33	198	0.003
17:00 - 18:00	33	198	0.005	33	198	0.000	33	198	0.005
18:00 - 19:00	33	198	0.006	33	198	0.000	33	198	0.006
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:		0.018				0.024			0.042

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

MULTI-MODAL PUBLIC TRANSPORT USERS**Calculation factor: 1 DWELLS****BOLD print indicates peak (busiest) period**

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	33	198	0.001	33	198	0.026	33	198	0.027
08:00 - 09:00	33	198	0.004	33	198	0.038	33	198	0.042
09:00 - 10:00	33	198	0.002	33	198	0.009	33	198	0.011
10:00 - 11:00	33	198	0.002	33	198	0.006	33	198	0.008
11:00 - 12:00	33	198	0.003	33	198	0.004	33	198	0.007
12:00 - 13:00	33	198	0.002	33	198	0.003	33	198	0.005
13:00 - 14:00	33	198	0.005	33	198	0.004	33	198	0.009
14:00 - 15:00	33	198	0.005	33	198	0.004	33	198	0.009
15:00 - 16:00	33	198	0.029	33	198	0.006	33	198	0.035
16:00 - 17:00	33	198	0.019	33	198	0.004	33	198	0.023
17:00 - 18:00	33	198	0.015	33	198	0.002	33	198	0.017
18:00 - 19:00	33	198	0.015	33	198	0.003	33	198	0.018
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:		0.102			0.109				0.211

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

MULTI-MODAL TOTAL PEOPLE**Calculation factor: 1 DWELLS****BOLD print indicates peak (busiest) period**

Total People to Total Vehicles ratio (all time periods and directions): 1.76

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	33	198	0.109	33	198	0.524	33	198	0.633
08:00 - 09:00	33	198	0.234	33	198	0.799	33	198	1.033
09:00 - 10:00	33	198	0.204	33	198	0.283	33	198	0.487
10:00 - 11:00	33	198	0.170	33	198	0.223	33	198	0.393
11:00 - 12:00	33	198	0.198	33	198	0.224	33	198	0.422
12:00 - 13:00	33	198	0.237	33	198	0.218	33	198	0.455
13:00 - 14:00	33	198	0.232	33	198	0.219	33	198	0.451
14:00 - 15:00	33	198	0.246	33	198	0.281	33	198	0.527
15:00 - 16:00	33	198	0.609	33	198	0.291	33	198	0.900
16:00 - 17:00	33	198	0.542	33	198	0.282	33	198	0.824
17:00 - 18:00	33	198	0.591	33	198	0.274	33	198	0.865
18:00 - 19:00	33	198	0.479	33	198	0.261	33	198	0.740
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:		3.851			3.879				7.730

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.



Appendix K

PRTM Base Year Model Review Report

Environment and Transport Commissioning Framework

Bosworth Lane, Newbold Verdon

Base Year Model Review

October 2024
3851.211

Document Sign-off

Control Details

Document Location:	\lccfp3\htwdata\Transportation\Transport Policy and Programs\Traffic Modelling\TMODELLING\05. 3851 (External)\MF3851.211 Bosworth Lane, Newbold Verdon\12. Deliverables\01. Reports\01. BYMR\3851.211_Bosworth Lane Newbold Verdon_BYMR_v1.0.docx
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0.1	09/10/24	Draft for internal review	AB	PB		
0.2	10/10/24	Second draft for internal review	AB	PB		
1.0	14/10/24	Final version for release to the client	AB	PB	PB	ETCF

Model Version

Model:	PRTM2019 v1.2
Constrained / Unconstrained:	NTEM Minimum
SATURN Version:	11.5.05N

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1. Overview

1.1. Introduction

1.1.1. Figure 1.1 shows the indicative location of the proposed development. The proposed development will have up to 220 dwellings, it is located to the South of the B585 Bosworth Lane in Newbold Verdon, Leicestershire. The development is expected to be fully built by 2029.



Figure 1.1: Location of the proposed development

1.1.2. The proposed development will be accessed via a new priority T-junction, with ghost island provision, on the B585 Bosworth Lane. Figure 1.2 shows the access arrangement.

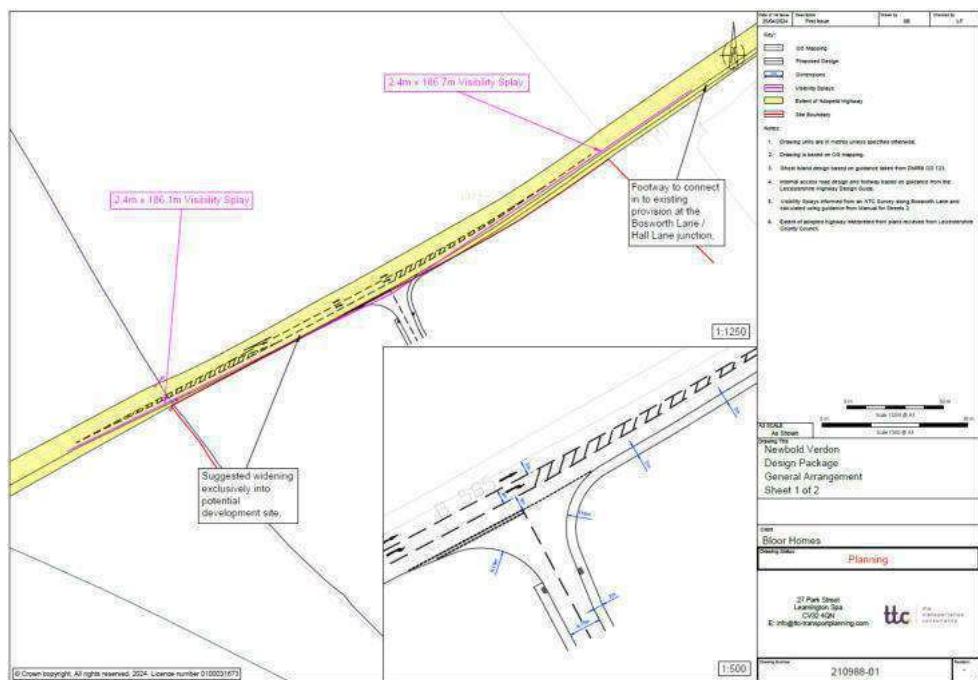


Figure 1.2: Proposed access to the development

- 1.1.3. Leicestershire County Council (Network and Data Intelligence Team) have been commissioned to undertake a strategic assessment of the development using the latest version of the Pan Regional Transport Model (PRTM2019 v1.2).
- 1.1.4. PRTM2019 is a strategic model which validates well to Government Transport Analysis Guidance (TAG) over the wider area. Despite this, and as TAG makes clear, it is necessary to review model validation in the context of the specific project being undertaken to ensure its suitability.
- 1.1.5. This document is the Base Year Model Review of the PRTM2019 base year of 2019. It presents the results of the base year calibration and validation performance in the vicinity of the proposed development.

2. PRTM Base Year Model Structure

2.1. Zone System

- 2.1.1. The PRTM2019 v1.2 zoning system is based on existing land-use and 2011 Census Geography
- 2.1.2. Figure 2.1 shows the PRTM2019 zoning system and the location of the proposed Bosworth Lane development site.
- 2.1.3. The settlement of Newbold Verdon sits within zone 6123, which loads onto the highway network via the B582 Barlestone Road. Zone 6123 is the zone proposed to be utilised for the trip distribution of the new development zone used to represent the Bosworth Lane proposed development.
- 2.1.4. The existing zone network in the vicinity of the proposed development is deemed suitable for this application of the PRTM2019. However, it is suggested that the proposed development and nearby approved/presumed future developments (Land South of Bosworth Lane and Land East of The Windmill Inn, Brascole Lane) are contained in their own new development zones to allow for detailed analysis and reporting of development trips.

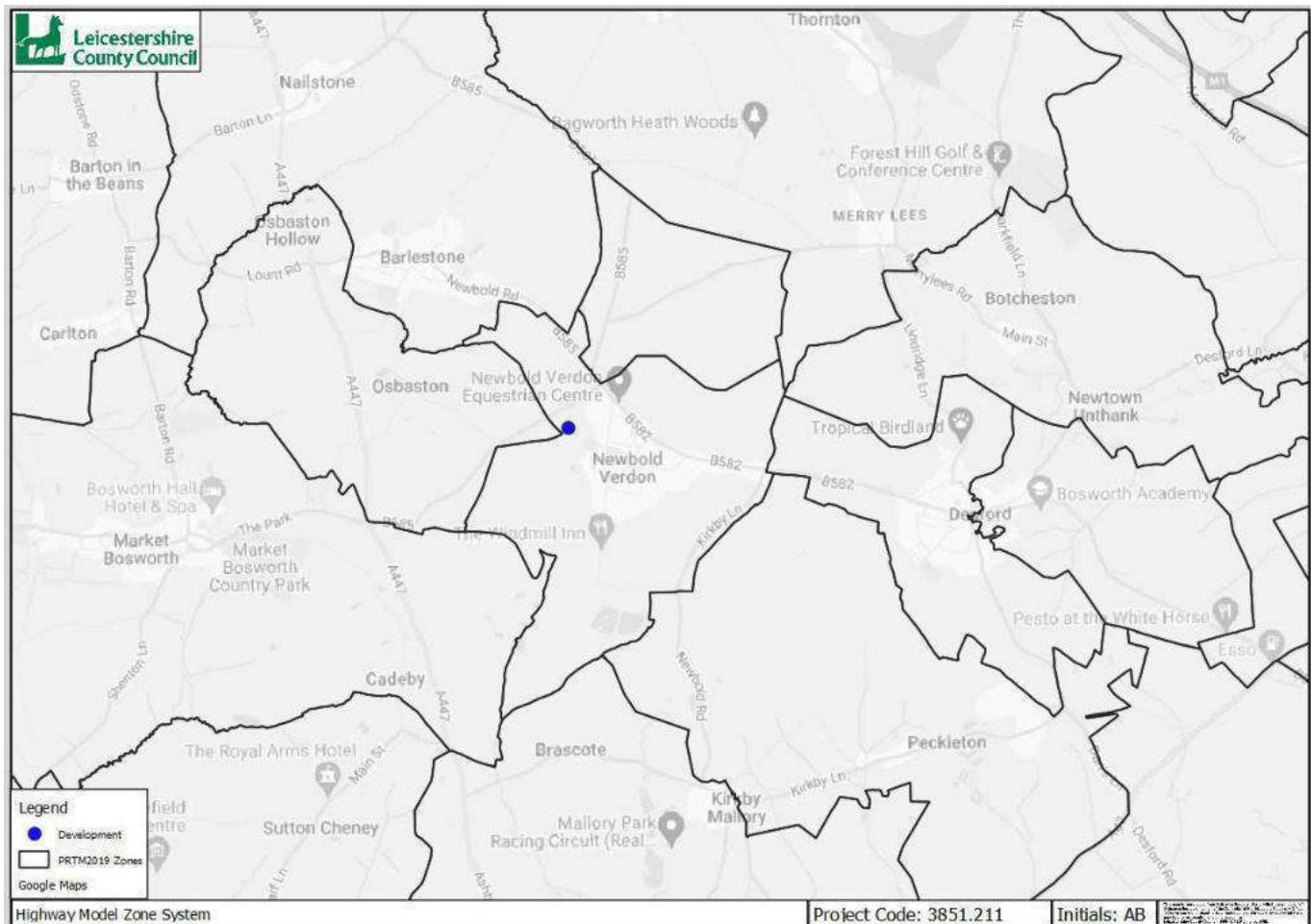


Figure 2.1: Highway Model Zone System

2.2. Network Structure

- 2.2.1. The highway network has been reviewed within the vicinity of the Bosworth Lane proposed development.
- 2.2.2. Figure 2.2 shows the extent of the highway network close to the proposed development. As the PRTM is a strategic transport model not all links are included, with the more minor residential and rural links omitted.
- 2.2.3. It is considered that the highway network in the base year model is a good representation with all important and significant links included. However, based on our experience of our client's needs we deemed it worthy to add Mill Lane and Main Street into the network for this application. As a result, we have moved the centroid connector for zone 6123 to ensure trips utilise the new roads added.
- 2.2.4. Key roads and junctions close to the development have been reviewed in detail and compared to the PRTM Highway Coding Manual¹. The link review included the coded distances, saturation flows and speed-flow curves (SFC, determining the speed on a link for a given traffic volume). The junction review included the number of lanes, turning movements, flare length (where used) and saturation flows for the key junctions in the vicinity of the proposed development.
- 2.2.5. Table 2.1 and Table 2.2 show the results of this review, there were no discrepancies found.
- 2.2.6. Overall, the coding of the network was found to be satisfactory and in line with the PRTM Highway Coding Manual.

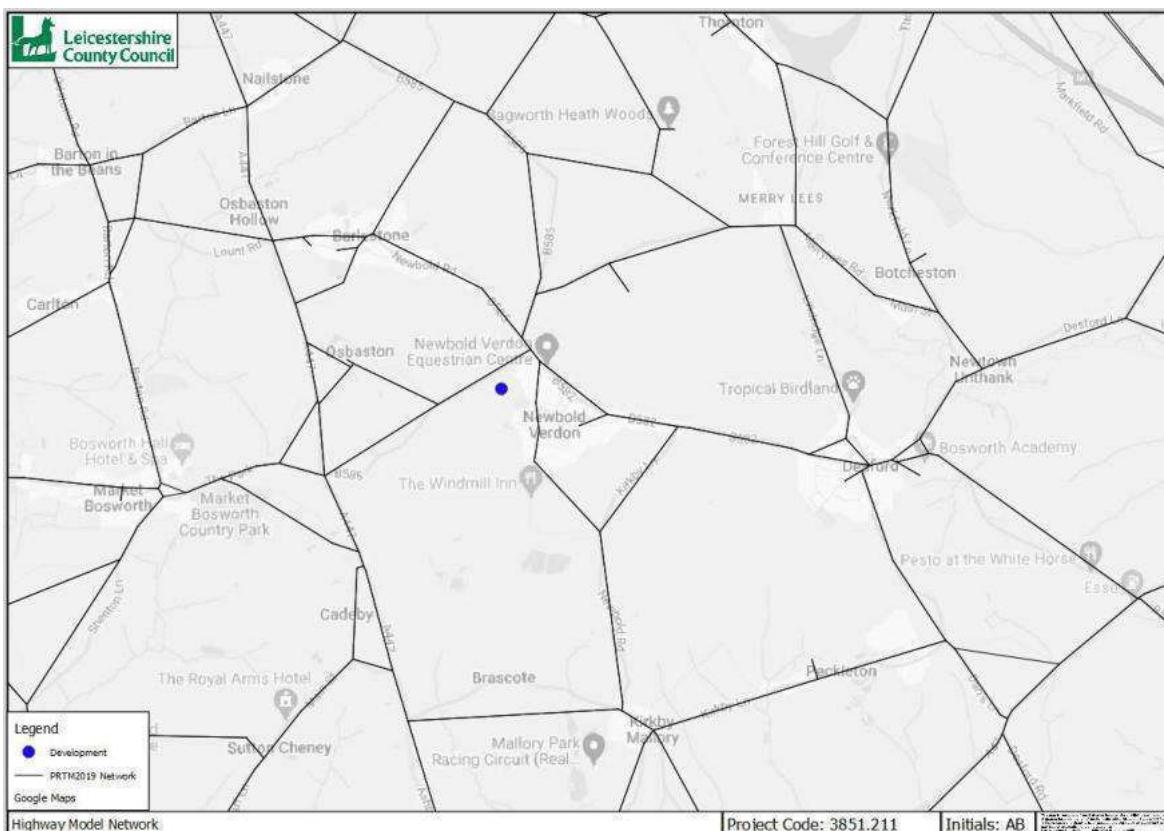


Figure 2.2: Highway Model Network (prior to NDI additions)

¹ PRTM 2019 Coding Manual (December 2020)

Links	Distance	Speed Flow Curves	Capacity
B582 Barlestone Road	✓	✓	✓
B585 Bosworth Lane	✓	✓	✓
Dragon Lane	✓	✓	✓
Brascote Lane	✓	✓	✓
Mill Lane	✓	✓	✓
Main Street	✓	✓	✓

Table 2.1: Highway Network Link Coding Review

Junctions	Lanes	Turning Movements	Flare Length	Saturation Flows
B585 Bosworth Lane / B582 Barlestone Road	✓	✓	✓	✓
B585 Barlestone Road / Bagworth Road	✓	✓	✓	✓
B585 Bosworth Lane / A447 Ashby Road / Bosworth Road	✓	✓	✓	✓
B582 Barlestone Road / Dragon Lane	✓	✓	✓	✓
B582 Barlestone Road / Main Street	✓	✓	✓	✓
B582 Barlestone Road / Mill Lane	✓	✓	✓	✓

Table 2.2: Junction Coding Review

3. Journey Time and Link Flow Validation

3.1. Link Flow Validation

3.1.1. TAG compliance for traffic flows is governed by meeting the acceptability rules, displayed in Table 3.1, in at least 85% of cases:

Criteria	Description of Criteria	Acceptability Guidelines
1	Individual flows within 100 veh/h of counts for flows less than 700 veh/h	> 85% of cases
	Individual flows within 15% of counts for flows from 700 to 2,700 veh/h	> 85% of cases
	Individual flows within 400 veh/h of counts for flows more than 2,700 veh/h	> 85% of cases
2	GEH < 5 for individual flows	> 85% of cases

Table 3.1: TAG Link Flow and Turning Movement Validation Criteria and Acceptability Guidelines

3.1.2. A local area review of the 2019 base year highway model for the AM and PM Peak hours is shown in Figure 3.1 and Figure 3.2. Green represents those links where the modelled flow passes TAG acceptability guidelines, blue represents links where the model is under assigning and red represents links where the model is over assigning.

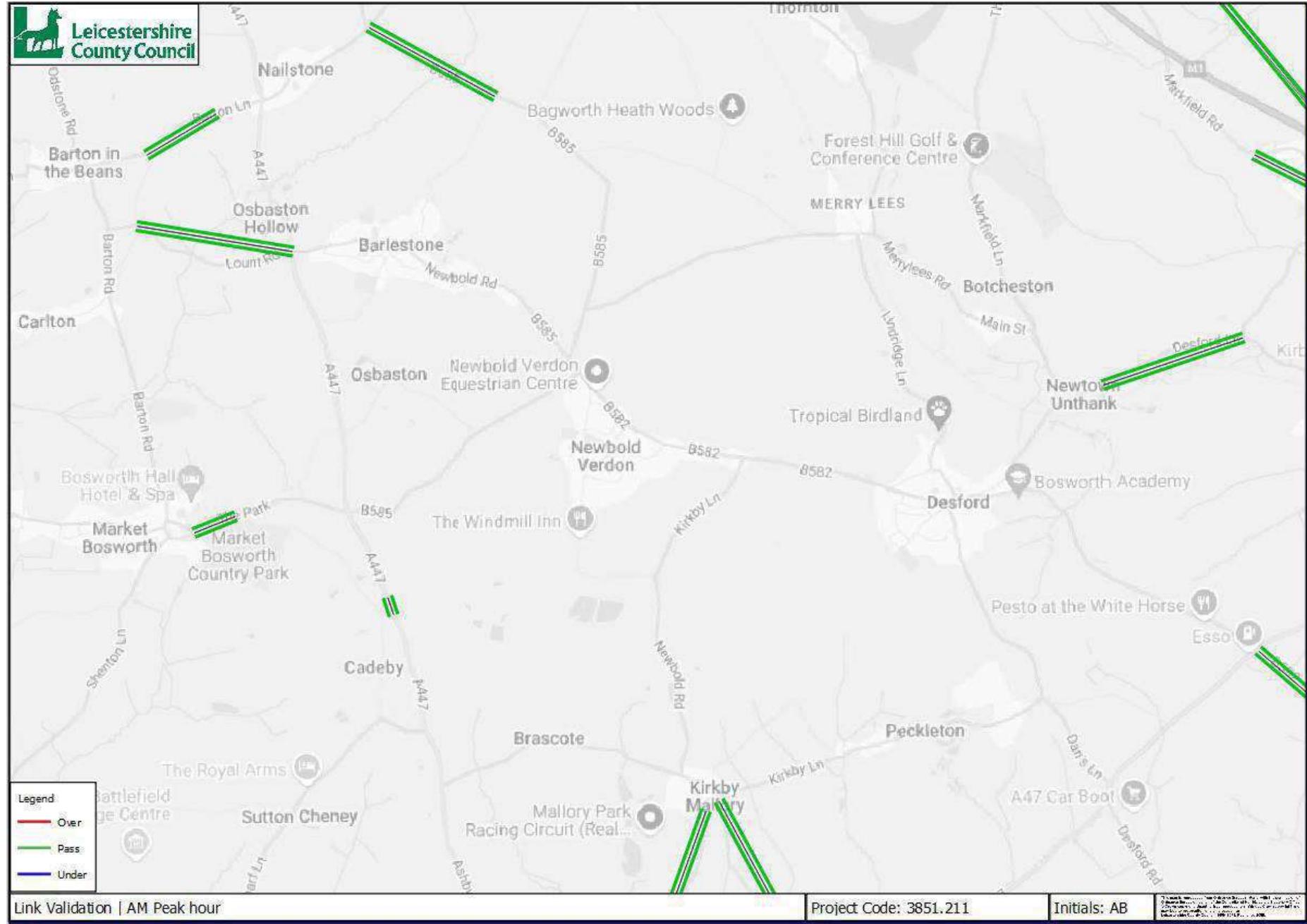


Figure 3.1: Link Validation - AM Peak hour

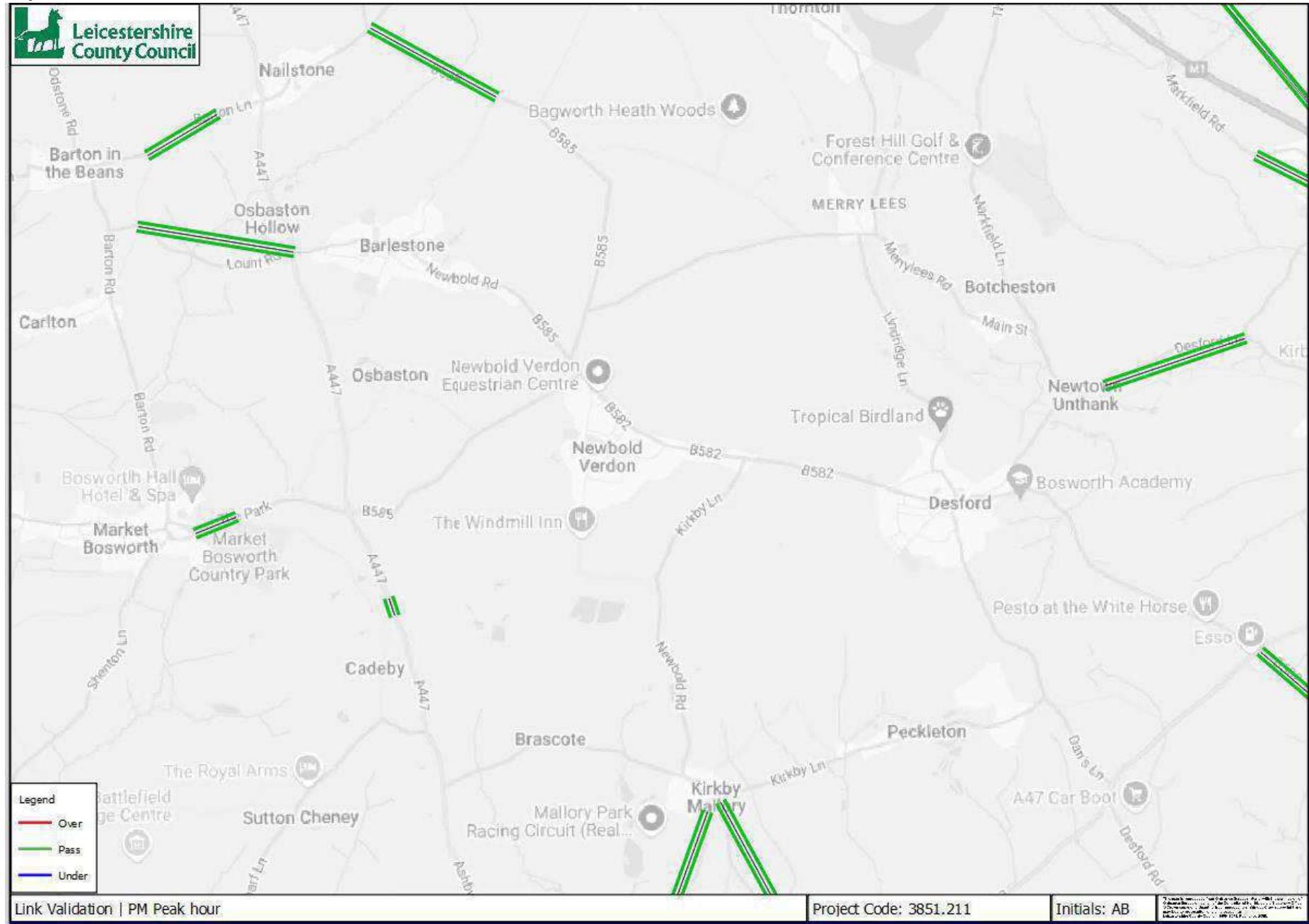


Figure 3.2: Link Validation - PM Peak hour

3.1.3. Table 3.2 shows how PRTM2019 performs with respect to TAG on modelled versus observed link flows in the vicinity of the proposed development.

3.1.4. In both the AM and PM Peak hours 100% of links pass.

		AM	PM
Number of Links	Pass	18	18
	Over Assigned	0	0
	Under Assigned	0	0
Percentage	Pass	100%	100%
	Over Assigned	0%	0%
	Under Assigned	0%	0%

Table 3.2 : Link Validation

3.1.5. Overall, the link flow performance exceeds, in both the AM and PM Peak, the 85% threshold of counts required to pass against TAG guidance. Therefore, the link flow performance in the vicinity of the proposed development is satisfactory.

3.2. Journey Time Validation

3.2.1. TAG compliance for modelled journey times is governed by meeting the following acceptability rules in at least 85% of cases:

- Modelled times along routes should be within 15% of surveyed times (or 1 minute, if higher than 15%)

3.2.2. Figure 3.3 and Figure 3.4 show the journey time routes in the vicinity of the proposed development and whether they pass (green), are faster (blue) or slower (red) in the model than observed.

3.2.3. Table 3.3 shows the journey time performance in the 2019 base year model for the journey time routes in the vicinity of the proposed development.

3.2.4. Table 3.4 shows the number of routes that pass the TAG criteria in the AM and PM Peak hours. All routes within the vicinity of the development pass in both the AM and PM Peak hours.

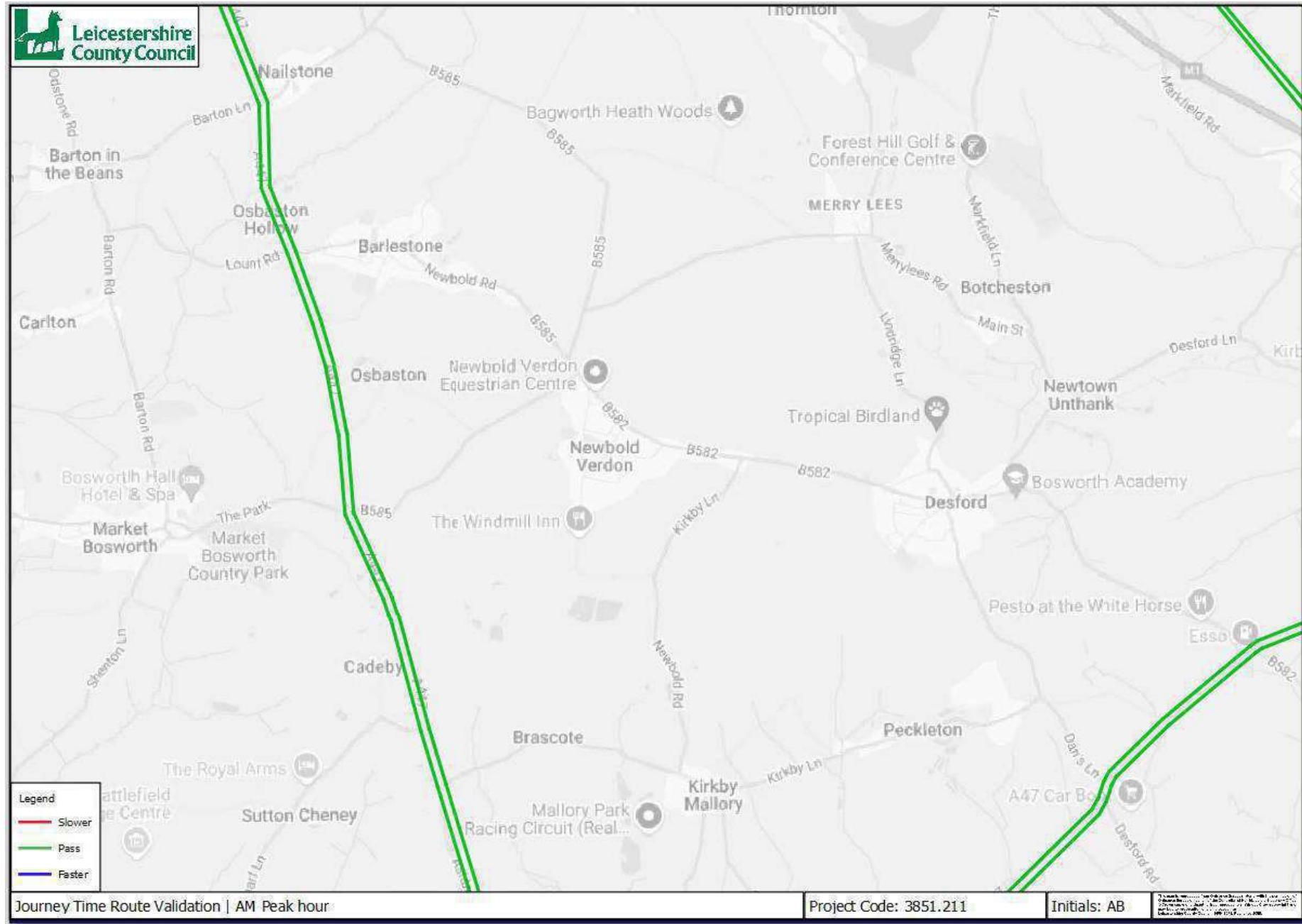


Figure 3.3: Journey Time Route Validation - AM Peak hour

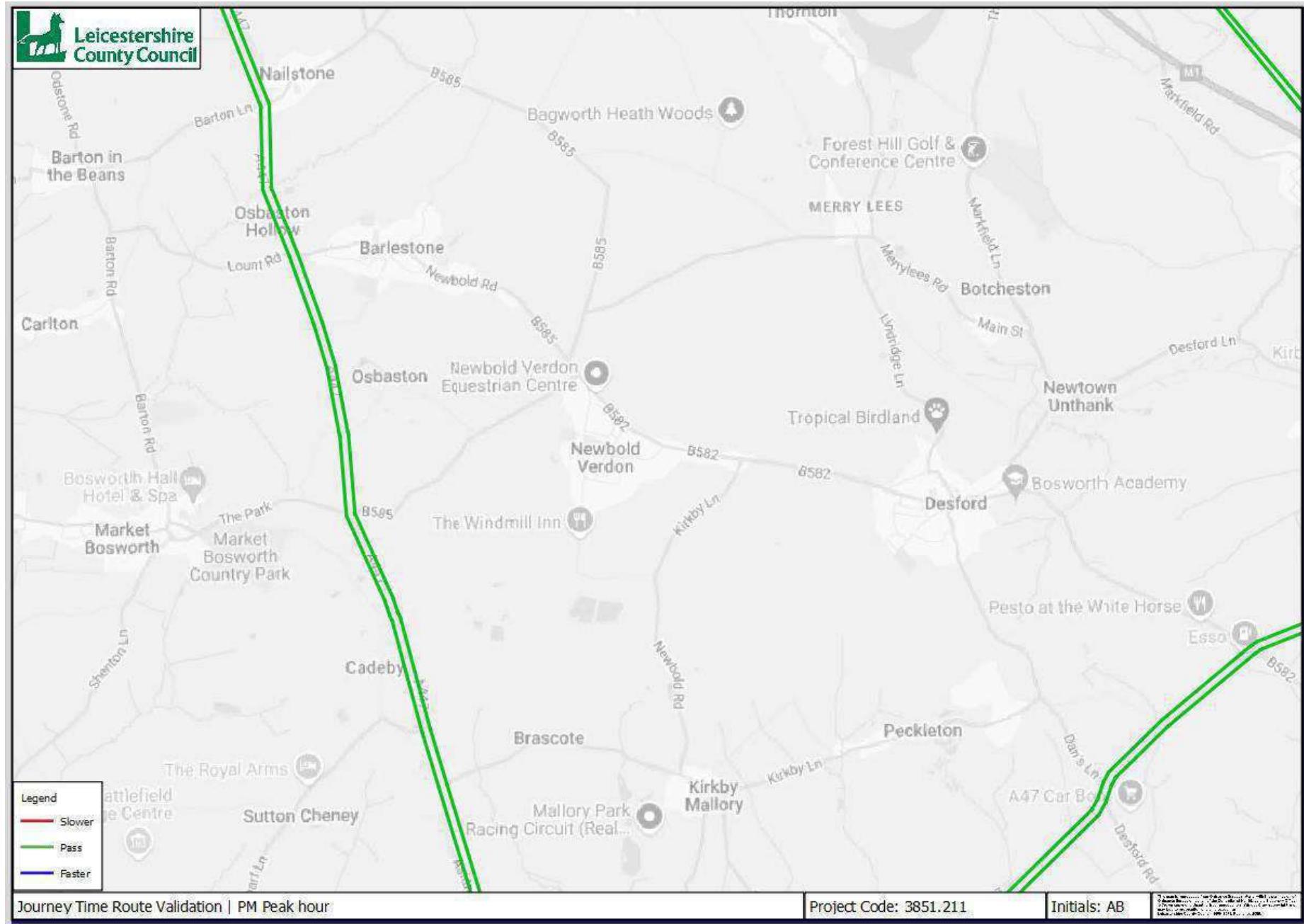


Figure 3.4: Journey Time Route Validation - PM Peak hour

	Distance (km)		AM Peak Hour					PM Peak Hour				
	Obs.	Mod.	Obs.	Mod.	Diff	%Diff	TAG	Obs.	Mod.	Diff	%Diff	TAG
A47 (Leicester Forest East to Earl Shilton) Eastbound	6.02	6.08	07:16	06:41	-00:36	-8.2%	✓	06:43	06:17	-00:26	-6.5%	✓
A47 (Leicester Forest East to Earl Shilton) Westbound	6.02	6.01	05:52	05:54	00:01	0.4%	✓	05:31	05:28	-00:03	-1.0%	✓
A447 (A47 to A511) Northbound	20.58	20.50	20:47	22:02	01:14	6.0%	✓	20:22	21:29	01:07	5.5%	✓
A447 (A47 to A511) Southbound	20.58	20.50	23:26	21:28	-01:58	-8.4%	✓	22:26	21:42	-00:43	-3.2%	✓

Table 3.3: Journey Time Route Validation in the vicinity of Bosworth Lane Newbold Verdon Development

	AM		PM	
	Pass	4	100%	4
Fail	0	0%	0	0%

Table 3.4: Journey Time Route Validation

4. Summary

- 4.1.1. This base year highway model review is focused on assessing the suitability of the PRTM for the assessment of the proposed development Bosworth Lane Newbold Verdon in the AM and PM Peak hours.
- 4.1.2. The review has considered many elements of the model, including: modelled link flow and journey time against data collected as part of the model development; zone system; network structure; and, coding in the vicinity of the proposed development.
- 4.1.3. The model zone system is considered to contain sufficient detail for a strategic assessment of the proposed development. It is suggested that the proposed development and nearby approved/presumed future developments (Land South of Bosworth Lane and Land East of The Windmill Inn, Brascole Lane) are contained in their own new development zones to allow for detailed analysis and reporting of development trips.
- 4.1.4. The highway network close to the proposed development, including key junctions, has been reviewed and is considered suitable for the assessment.
- 4.1.5. In the link flow performance, 18 links were considered in the vicinity of the proposed development. In both the AM and PM Peak hours 100% of links pass, suggesting that both time periods are robust in relation to the 85% TAG criterion.
- 4.1.6. In respect of journey time routes, 100% (4 out of 4) routes meet TAG criterion in both the AM and PM Peak hours.
- 4.1.7. Based on this base year model review the PRTM is considered suitable for the strategic assessment of the proposed development at Bosworth Lane Newbold Verdon.

5. Contact Details

We trust that our report meets your expectations and look forward to working with you again soon.

If you have any questions, please do not hesitate to contact:

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Network Data & Intelligence
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Appendix L

PRTM Forecasting Report

Environment and Transport Modelling Services Contract

Bosworth Lane, Newbold Verdon

Forecasting Report

November 2024
3851.211

Document Sign-off

Control Details

Document Location:	D:\05. 3851 (External)\MF3851.211 Bosworth Lane, Newbold Verdon\12. Deliverables\01. Reports\02. Forecasting\3851.211 Bosworth Lane, Newbold Verdon; Forecasting Report v1.0.docx
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0.2	04/11/24	Second draft for internal review	AB	PB		
1.0	07/11/24	Final version	AB	PB	PB	ETCF

Model Version

Model:	PRTM2019 v1.2
Constrained / Unconstrained:	NTEM Minimum
SATURN Version:	11.5.05N

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1. Introduction

1.1. Background

1.1.1. Leicestershire County Council's (LCC's) Network Data & Intelligence (NDI) consultants have been commissioned by The Transportation Consultancy, on behalf of Bloor Homes, to provide transport evidence to inform the impact of a future development located to the South of Bosworth Lane, Newbold Verdon, Leicestershire.

1.1.2. Figure 1.1 shows the indicative location of the proposed development. The proposed development will have up to 220 dwellings. The development is expected to be fully built by 2029.



Figure 1.1: Location of the Proposed Development

1.1.3. The proposed development will be accessed via a new priority T-junction, with ghost island provision, on the B585 Bosworth Lane. Figure 1.2 shows the access arrangement.

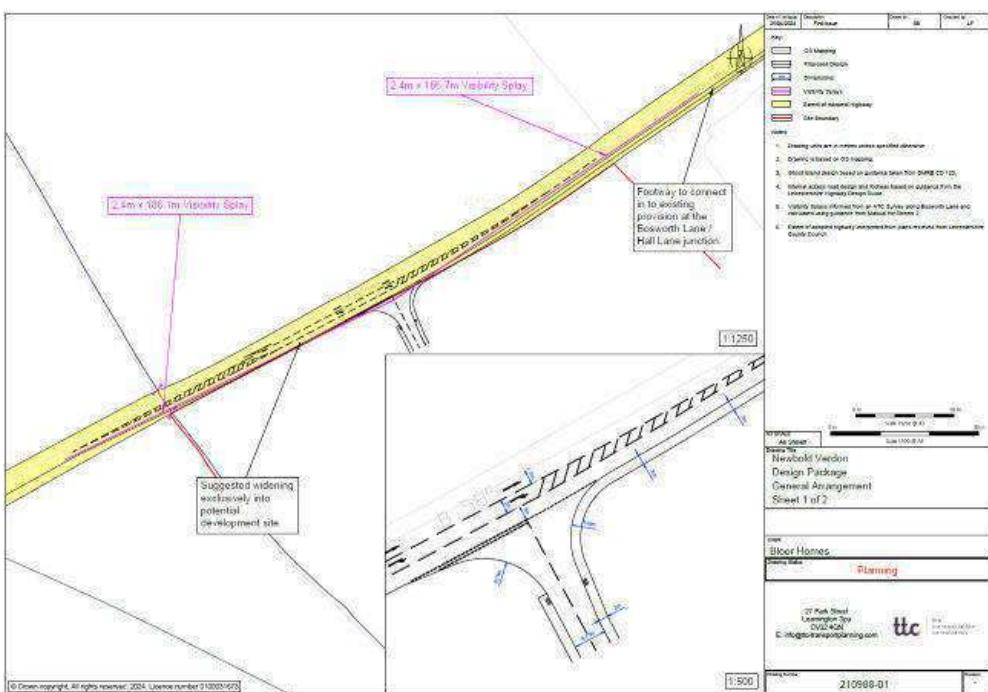


Figure 1.2: Proposed Access to the Development

1.1.4. This report is the Forecasting Report containing the forecast model results of the strategic modelling assessment of the proposed development. This report follows the Bosworth Lane Newbold Verdon Base Year Model Review Report¹, which details the 2019 base year model network review and performance in the vicinity of the proposed site.

1.2. Report Structure

- 1.2.1. Section 2 details the model suitability, including the agreements around the Uncertainty log and development trip generation.
- 1.2.2. Section 3 outlines the forecast model results for all scenarios.
- 1.2.3. Section 4 summarises the results of the PRTM Assessment of the proposed development.

¹ 3851.211 Bosworth Lane Newbold Verdon_BYMR_v1.0 (14/10/24)

2. Forecast Approach and Assumptions

2.1. Introduction

2.1.1. For this strategic modelling assessment, the following forecast model scenarios have been produced:

- 2024 Core
- 2029 Core; the 'Do Nothing' scenario.
- 2029 Core + Development (100%); the 'Do Something' scenario.

2.1.2. The 'Without Development' forecasts have been run through the wider PRTM modelling suite which includes, among others: a highway model, a public transport model, and a variable demand model. Therefore, the forecasts include the response of travel demand to forecast changes in the costs of travel (including congestion, fuel prices and public transport fares) and change in assumed highway and public transport infrastructure over time.

2.1.3. To produce the 2029 'Do Something' forecast; the highway trips, specified by the client in the trip generation numbers for the proposed development, have been added to the 2029 'Do Nothing' highway demand matrices using the agreed parent-zone distribution and assigned in the PRTM highway model.

2.2. 'Do Nothing' Assumptions

2.2.1. The forecast planning data and infrastructure schemes used to produce the forecast 'Do Nothing' scenarios were reviewed by the client, and subsequently accepted by highway stakeholders during the inception meeting, in the format of an uncertainty log.

2.2.2. The trip forecasting process contained within the PRTM uses forecasts of population, households, and jobs to generate estimates of future travel demand. Planning forecasts (containing measures of housing and development) were unconstrained (NTEM minimum²) for this application.

2.2.3. Mill Lane and Main Street in Newbold Verdon have also been included in the 'Do Nothing' network, above and beyond what is included 'as standard' within the PRTM, as it was identified by the NDI project team that these roads were likely to be of notice for the client team. This resulted in the centroid connector for zone 6123 being moved to utilise the new roads.

2.3. Proposed Development Access Assumptions

2.3.1. To create the 2029 'Do Something' network the proposed developments access on the B585 Bosworth Lane, as shown in Figure 1.2, was added to the 'Do Nothing' network.

2.3.2. 3 new development zones have been used for this application; these are to represent:

- The approved Land South of Bosworth Lane application (20/00143/FUL)
- The approved Land East of The Windmill Inn, Brascote Lane application (22/00277/OUT)
- The proposed development being assessed in this commission.

2.3.3. Two simple priority accesses were added to the 'Do Nothing' network for both approved developments to access the network on Bosworth Lane and Brascote Lane respectively.

2.4. Proposed Development Trip Generation Assumptions

2.4.1. Assumptions regarding trip rates generated by the proposed development in 2029 were provided by the client in the PRTM Modelling Proforma. The trip rate figures provided are shown in Table 2.1. These trips have been added to the 'Do Nothing' highway demand matrices and assigned in the PRTM highway model.

² If the planning data result in forecasts below NTEM / TEMPro growth, the model reverts to NTEM / TEMPro as minimum.

Vehicle Type	AM			PM		
	In	Out	Total	In	Out	Total
Lights	16	133	149	115	37	152
Heavies	-	-	-	-	-	-
Total	16	133	149	115	37	152

Table 2.1: Development Trip Generation (2029)

2.5. Proposed Development Trip Distribution Assumptions

- 2.5.1. It was agreed³ that existing 'parent zone' 6123 is used for the trip distribution of the new development zone representing the proposed development. Zone 6123 represents the village of Newbold Verdon which largely contains residential land-use.
- 2.5.2. Figure 2.1 and Figure 2.2 show the forecast development trip distribution on the highway network for the 2029 'Do Something' scenario in the AM and PM Peak hours.
- 2.5.3. These figures show that traffic is predominantly routeing to and from the development via the A447 and B585. Trips travelling to the north are routeing towards Coalville with some trips accessing the M1 at junction 22. Traffic is routeing to and from the east via Merrylees Road and Desford Lane, towards Ratby and Groby, to access the A46. Trips travelling to and from the south use the A447 to access Hinckley. A small number of trips also travel southeast via Desford and beyond.

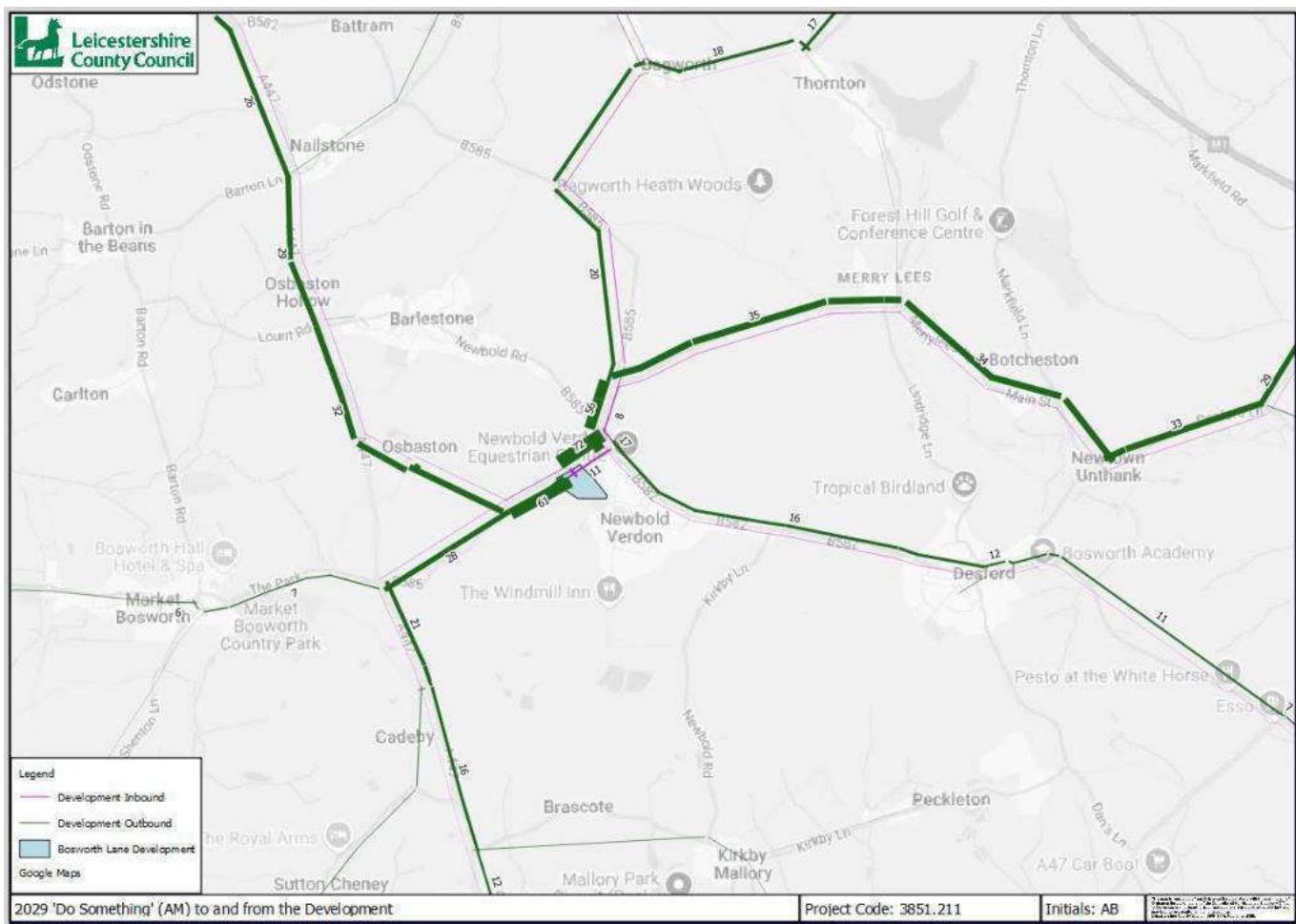


Figure 2.1: Vehicle Trip Distribution to and from the Proposed Development - 2029 DS AM

³ Inception Meeting, 22nd October 2024.

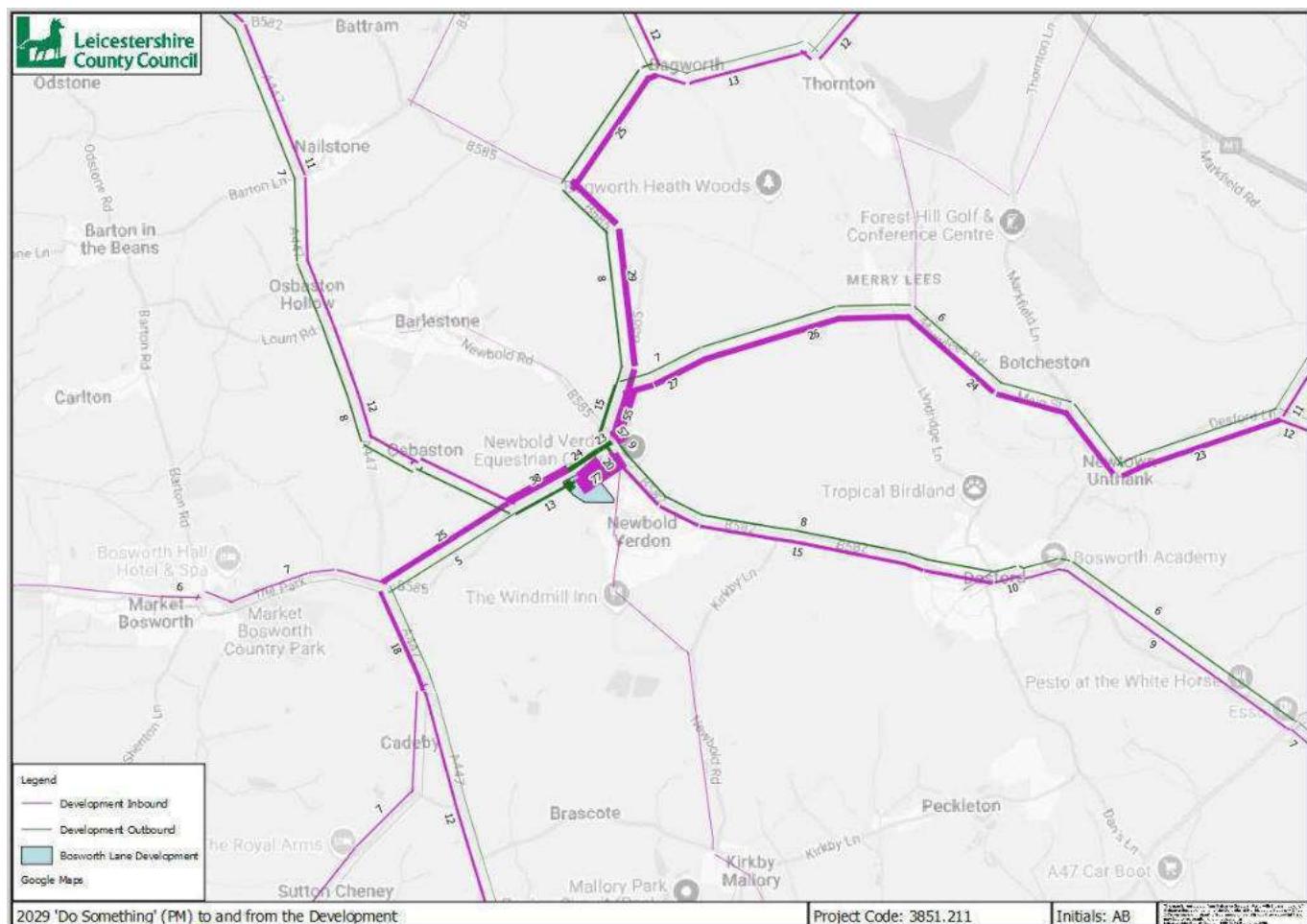


Figure 2.2: Vehicle Trip Distribution to and from the Proposed Development – 2029 DS PM

3. Forecast Model Results

3.1. Introduction

3.1.1. This section details the forecast model results for the proposed development, Bosworth Lane Newbold Verdon, for the AM Peak (8am to 9am) and PM Peak (5pm to 6pm) hours.

3.2. Forecast Development Traffic

3.2.1. Figure 2.1 and Figure 2.2 in Section 2.5 show the assigned forecast trip distribution to and from the proposed development in 2029 for both the AM and PM Peak hours. The figures show that traffic generated by the proposed development is forecast to:

- route north via the A447 and B585, towards Coalville and the M1 J22
- route east via Merrylees Road and Desford Lane, towards Ratby and Groby, to access the A46
- route south using the A447 to access Hinckley
- route southeast via Desford and beyond

3.3. Forecast Flow Change

3.3.1. Figure 3.1 and Figure 3.2 show the background traffic growth between the 2024 'Core' and 2029 'Do Nothing' forecast scenarios for the AM and PM Peak hours respectively. Red bandwidths represent a flow increase and blue represent a flow decrease. Note, only flow changes greater than 80 passenger car units (PCU) are labelled.

3.3.2. Figure 3.3 and Figure 3.4 show the forecast flow changes in 2029 between the 'Do Something' and 'Do Nothing' scenarios for the AM and PM Peak hours respectively. The labels are only displayed when the change in flow is 20 PCU or more.

3.3.3. When comparing the 2029 'Do Something' and 'Do Nothing' scenarios, the largest increases in flow are forecast along the B585 Bosworth Lane between the development site, and junctions with the B582 and the A447. In the AM Peak hour flow between the development and the junction with the B582 is forecast to increase by 34 PCU. Flow is also forecast to increase in the AM Peak hour by 59 PCU on the B585 between the development and the junction with Osbaston Lane. In the PM Peak hour, the largest increase in flow is forecast between the B585/B582 junction and the development, 63 PCU.

3.3.4. In 2029 in the AM Peak hour there is also a forecast decrease in flow southwest on the B585 towards the A447, this is because of trips rerouting because of the development traffic.

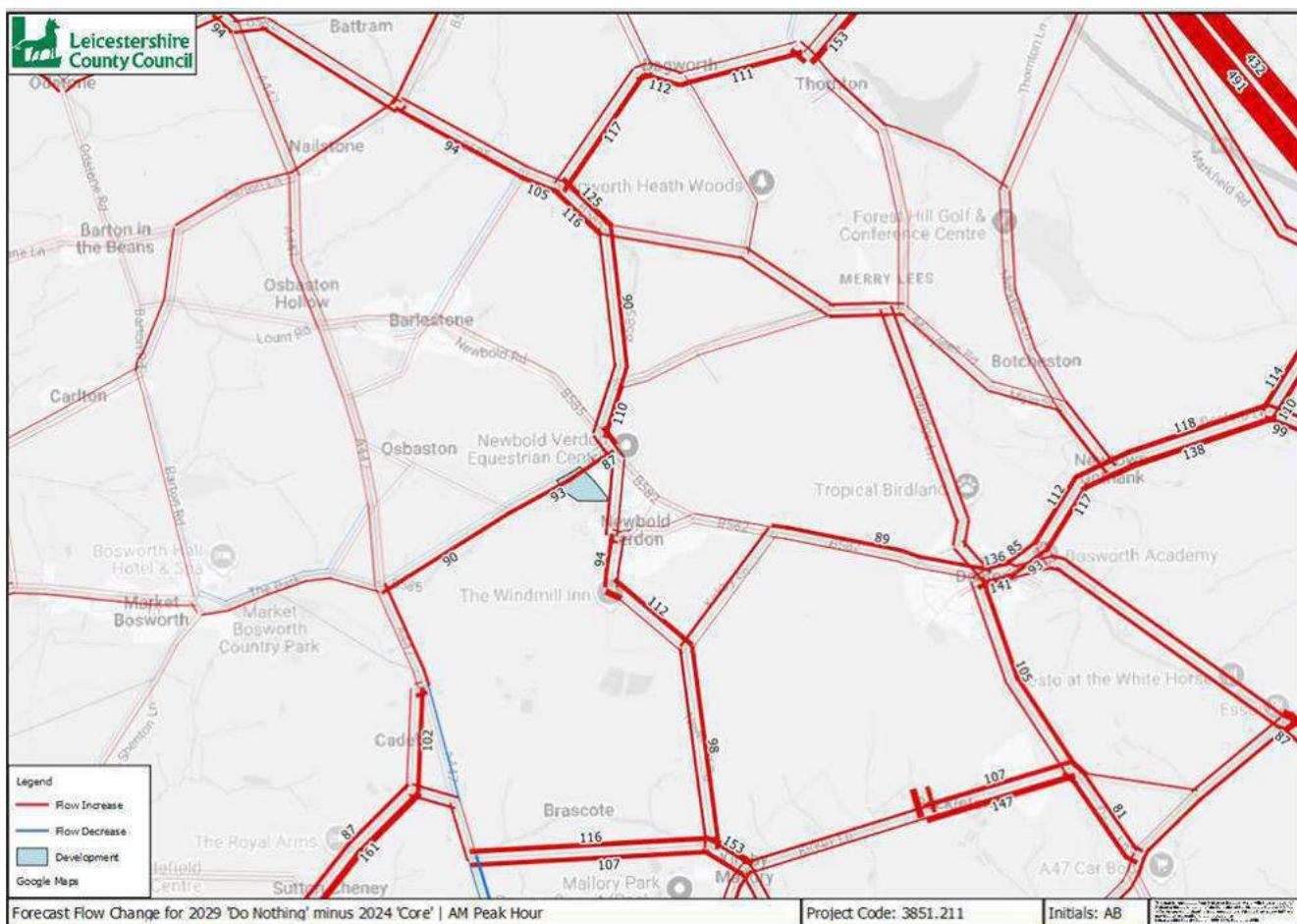


Figure 3.1: Forecast Flow Change for 2029 'Do Nothing' minus 2024 'Core' - AM Peak Hour

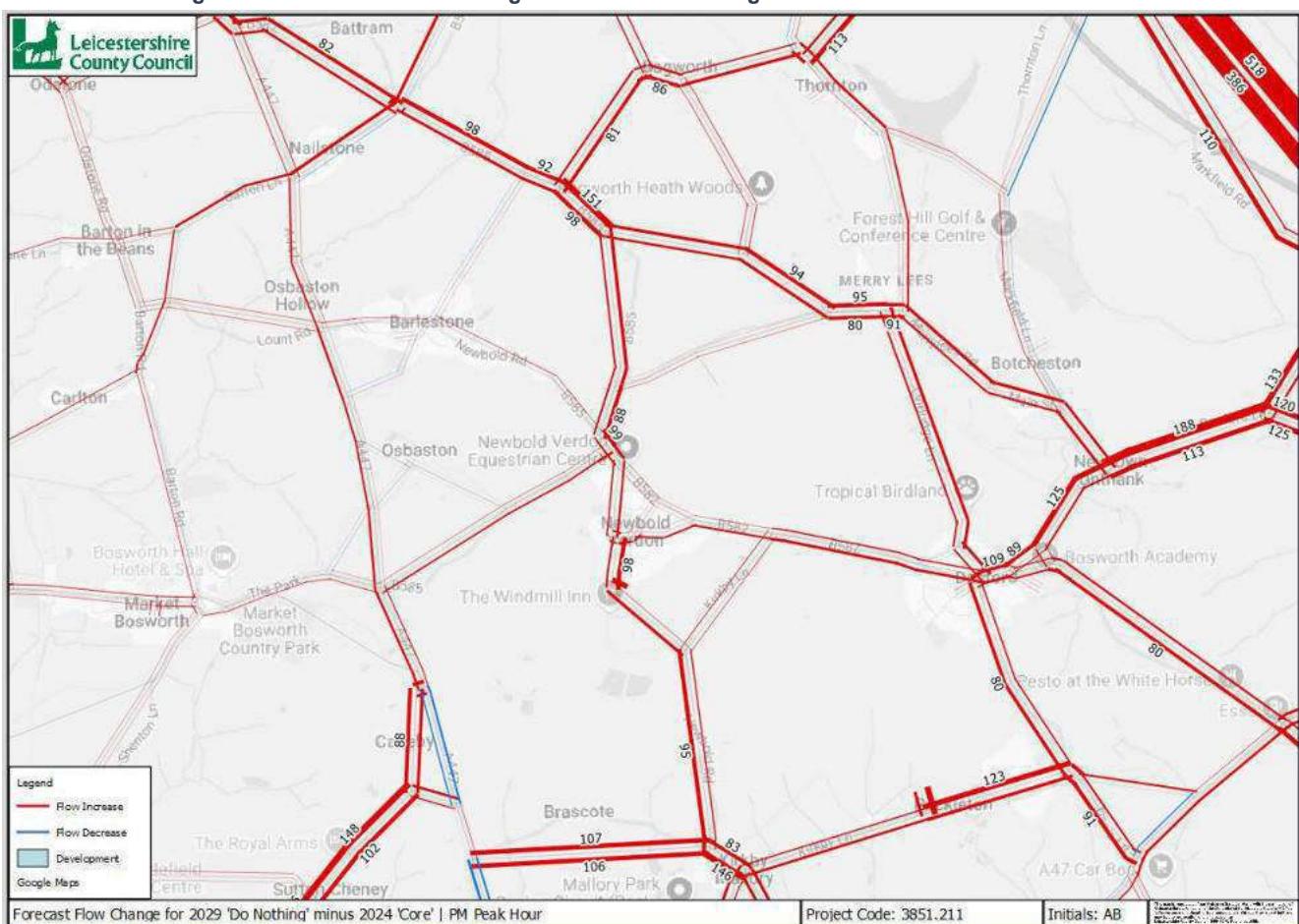


Figure 3.2: Forecast Flow Change for 2029 'Do Nothing' minus 2024 'Core' - PM Peak Hour

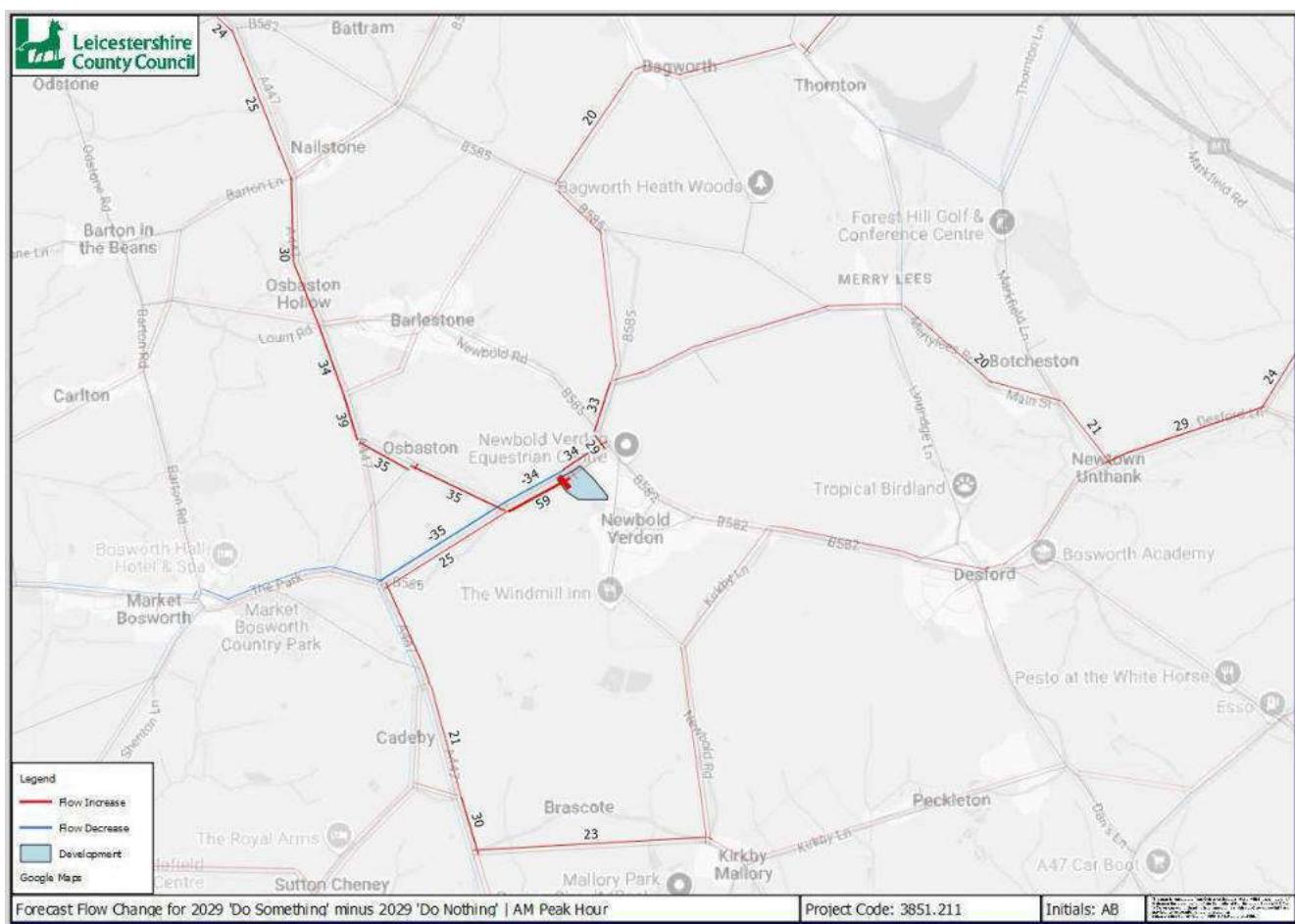


Figure 3.3: Forecast Flow Change for 2029 'Do Something' minus 2029 'Do Nothing' - AM Peak Hour

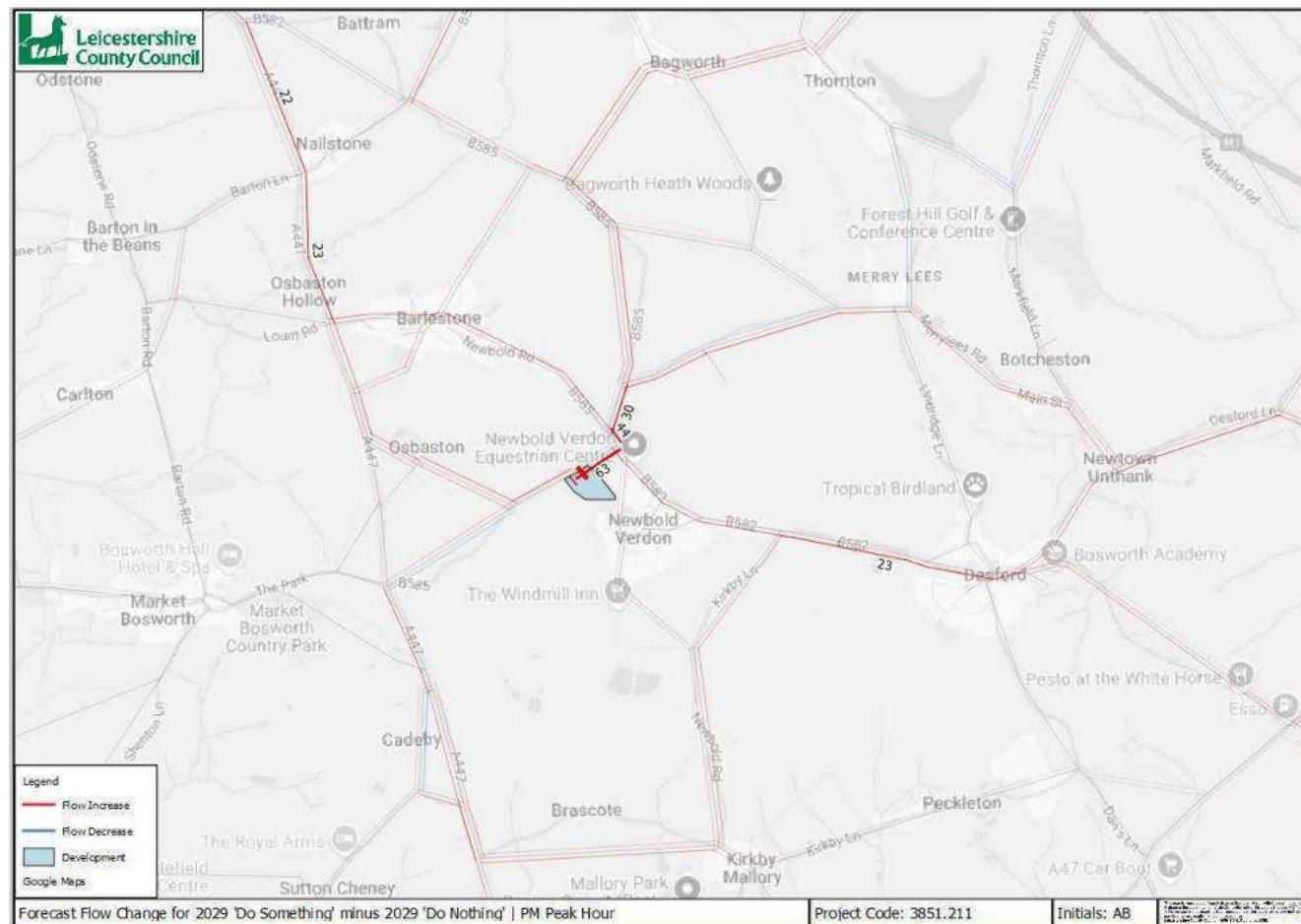


Figure 3.4: Forecast Flow Change for 2029 'Do Something' minus 2029 'Do Nothing' - PM Peak Hour

3.4. Area of Influence (AoI)

3.4.1. The Area of Influence, shown in Figure 3.5, has been defined using the forecast flow changes between the '2029 Do Something' and the '2029 Do Nothing' scenarios. This considers the full proposed development build out.

3.4.2. The AoI was defined by links which are forecast to have a change of flow of more than $\pm 5\%$ and ± 30 passenger car units (PCU) between the scenarios mentioned above, in either the AM Peak or the PM peak hour.

3.4.3. The forecast Area of Influence includes the following roads:

- B585 Bosworth Lane
- B585 Bagworth Road (between the B585 Newbold Road and Merrylees Road)
- B582 Barlestorne Road (between the B585/B582 junction and Main Street)
- A447 Ashby Road (between Hall Lane and Nailstone crossroads)
- Osbaston Lane

3.4.4. To align with HDMs requirements for individual junction assessment, flow data (actual flows) in csv and GIS format for links within the AoI for all forecast scenarios, have been provided separately, to enable link targets to be calculated for the Furness process.

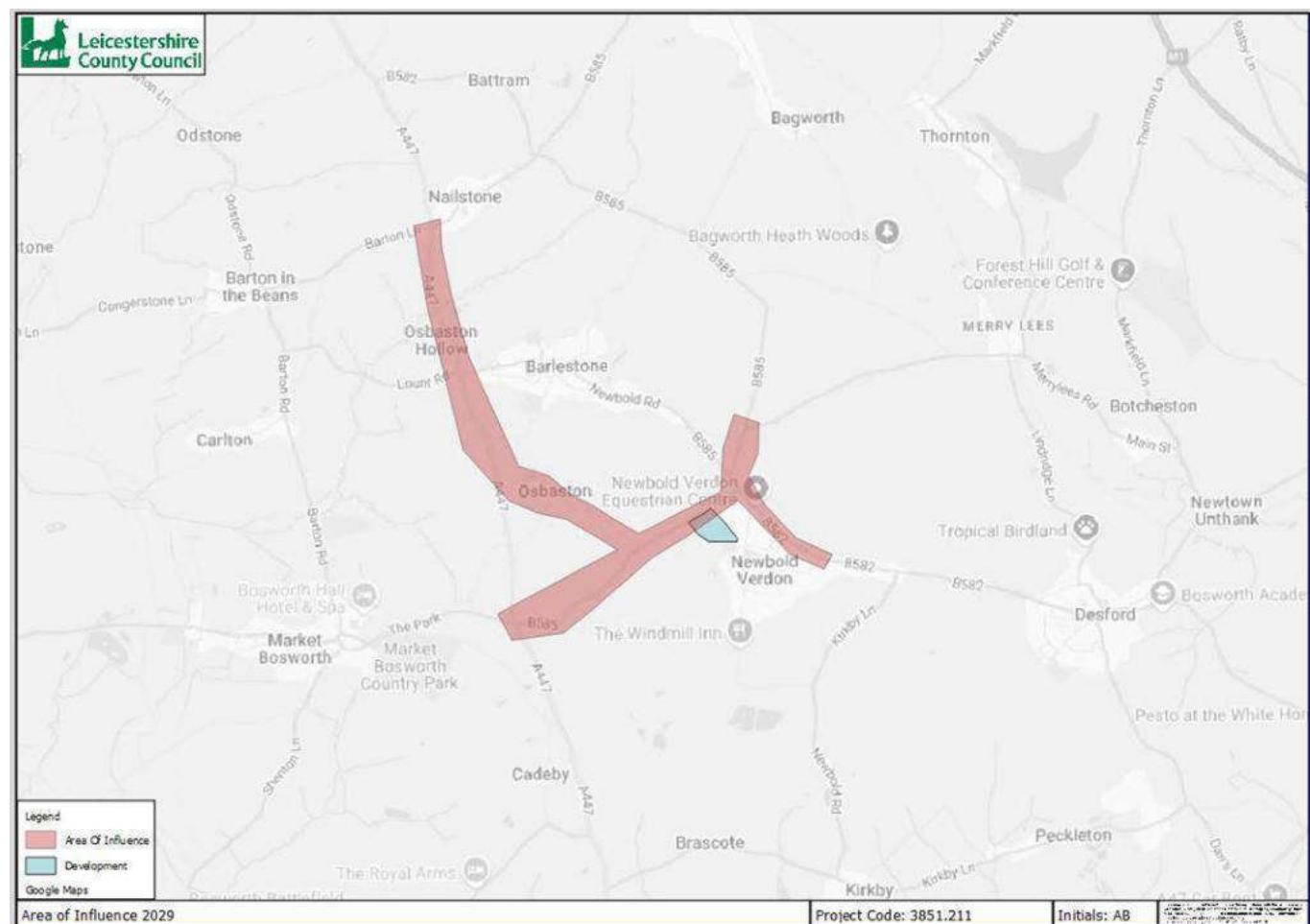


Figure 3.5: Area of Influence for 2029 'Do Something'

3.5. Forecast Delay Change

3.5.1. Figure 3.6 and Figure 3.7 show the background delay growth between the 2024 'Core' and 2029 'Do Nothing' forecast scenarios for the AM and PM Peak hours respectively. Red bandwidths represent a delay increase and blue represent a delay decrease. Note, only delay changes greater than 10 seconds are labelled.

3.5.2. Figure 3.8 and Figure 3.9 show the forecast delay changes in 2029 between the 'Do Something' and 'Do Nothing' scenarios for the AM and PM Peak hours respectively. The labels are only displayed when the change in flow is 10 seconds or more.

3.5.3. In 2029 the only delay change over 10 seconds in either the AM or PM Peak hour is between the proposed development and the B585/B582 signalised junction, a delay of 78 seconds, in the AM Peak hour.

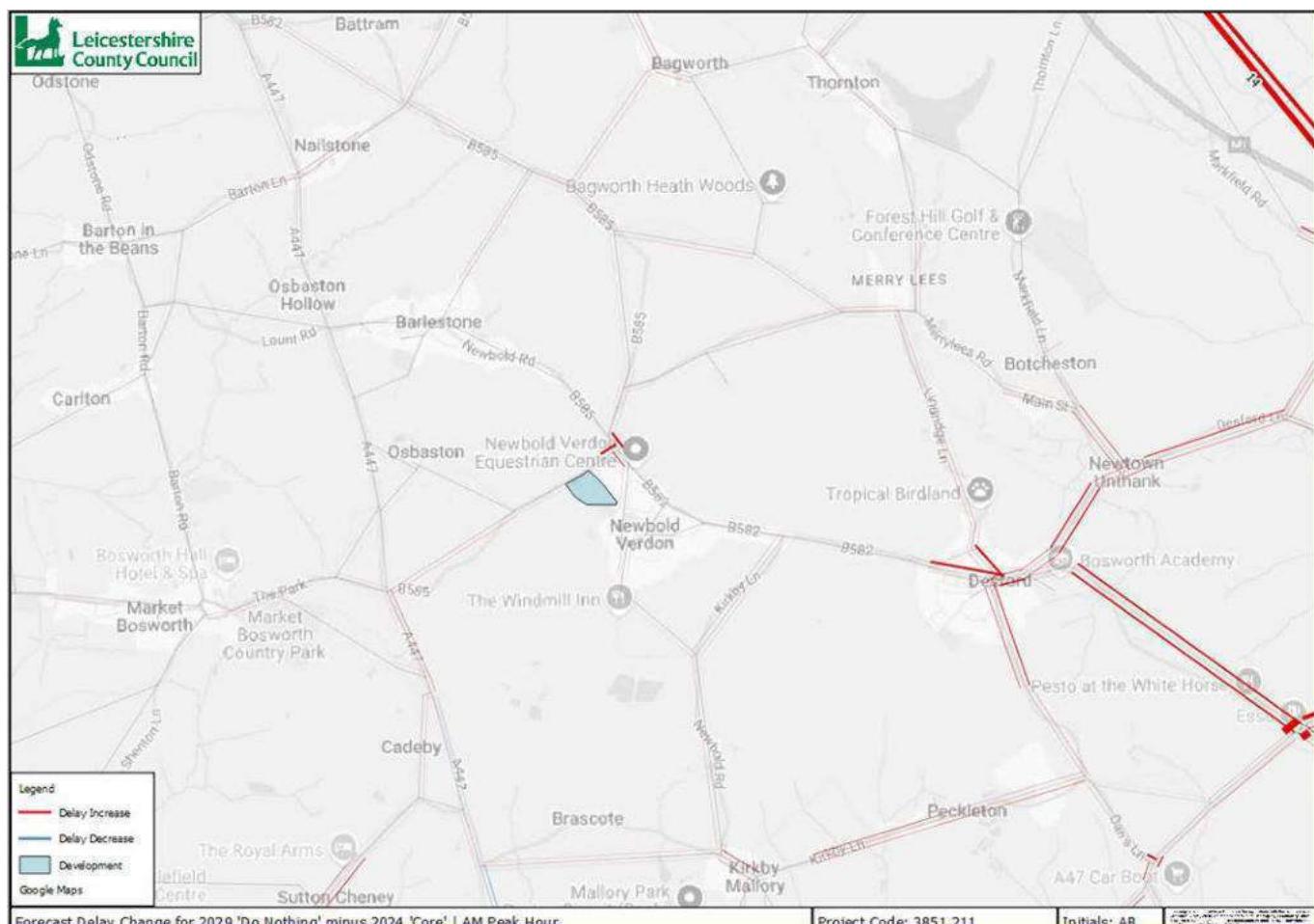


Figure 3.6: Forecast Delay Change for 2029 'Do Nothing' minus 2024 'Core' - AM Peak Hour

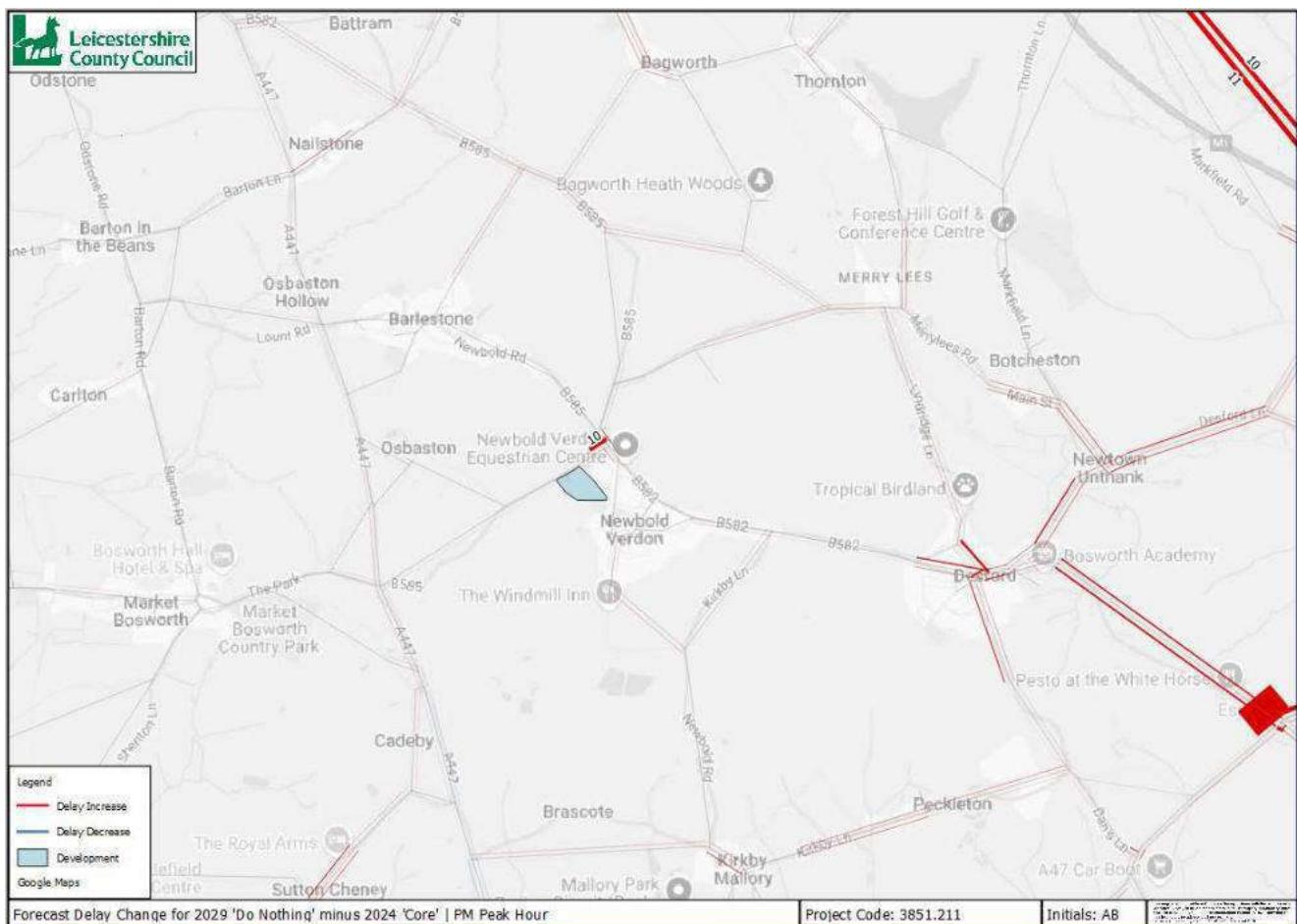


Figure 3.7: Forecast Delay Change for 2029 'Do Nothing' minus 2024 'Core' - PM Peak Hour

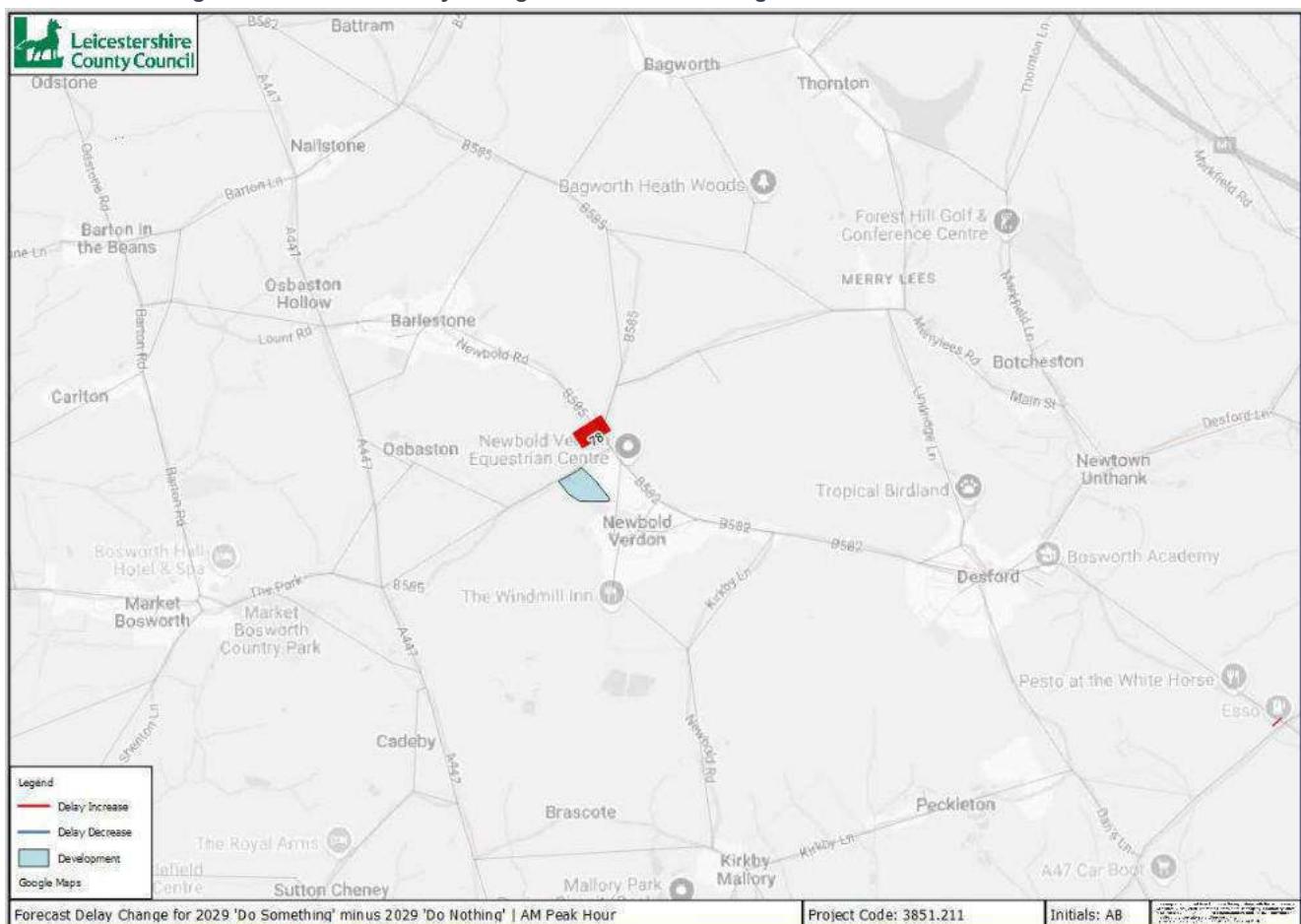


Figure 3.8: Forecast Delay Change for 2029 'Do Something' minus 2029 'Do Nothing' - AM Peak Hour

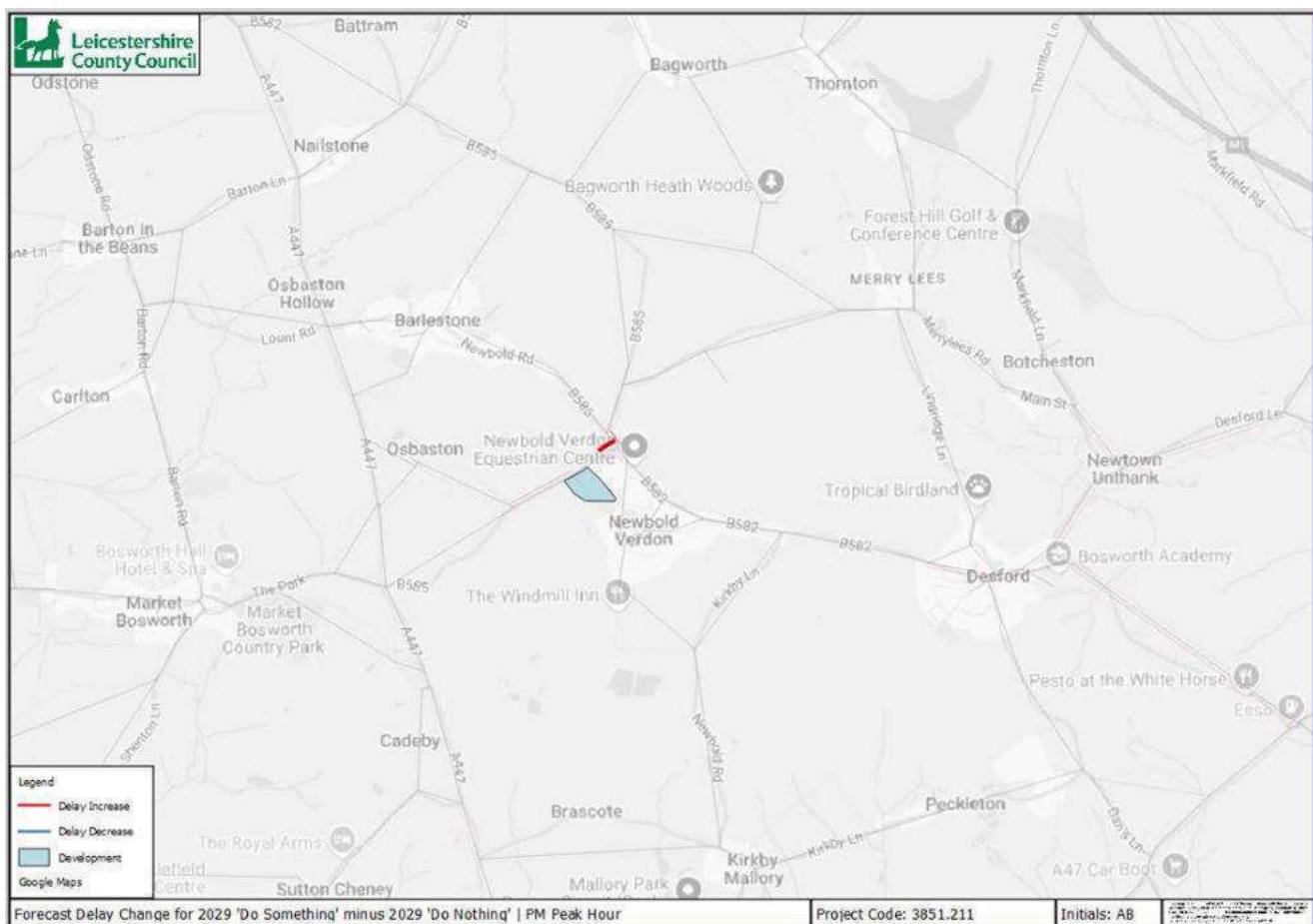
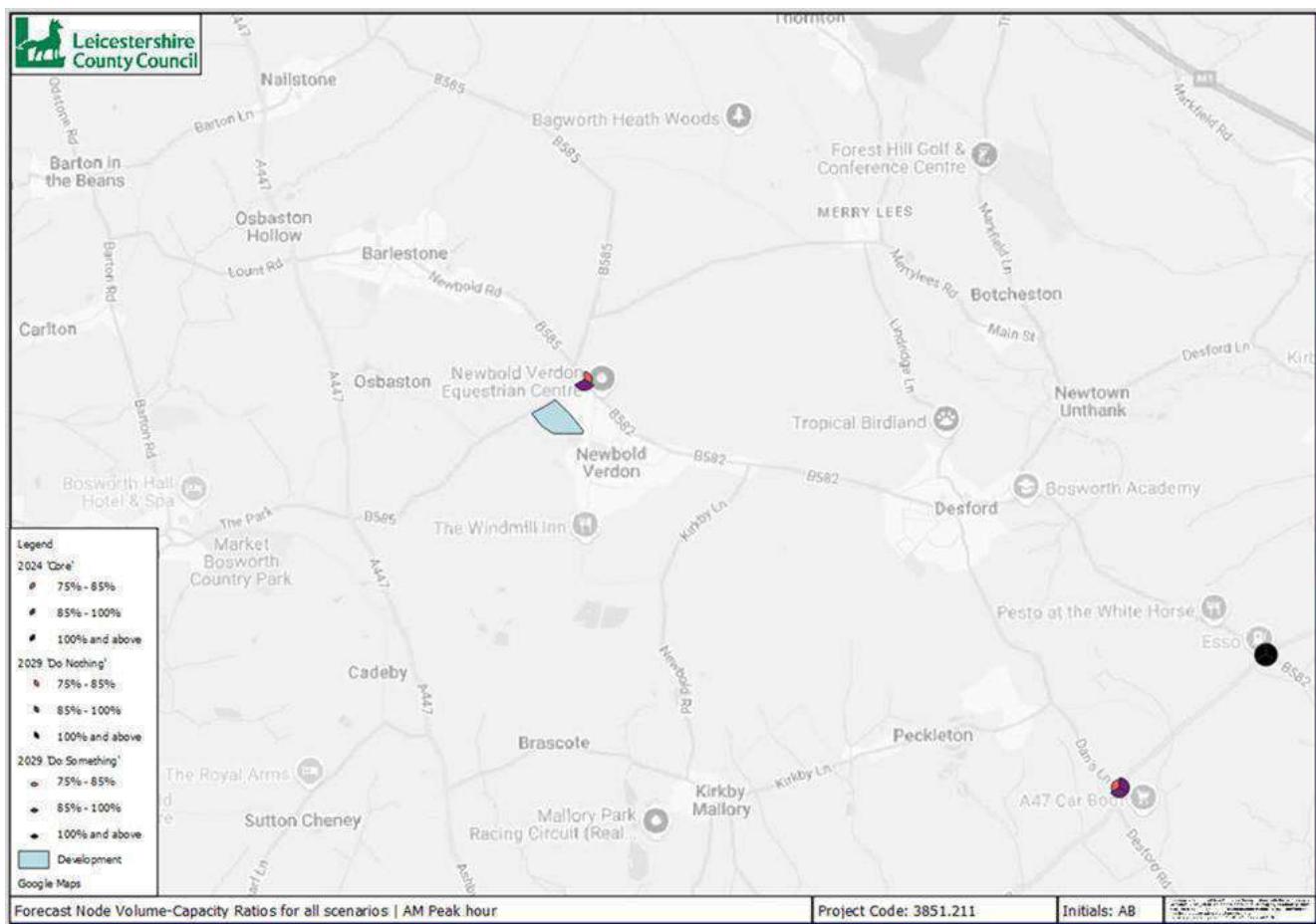
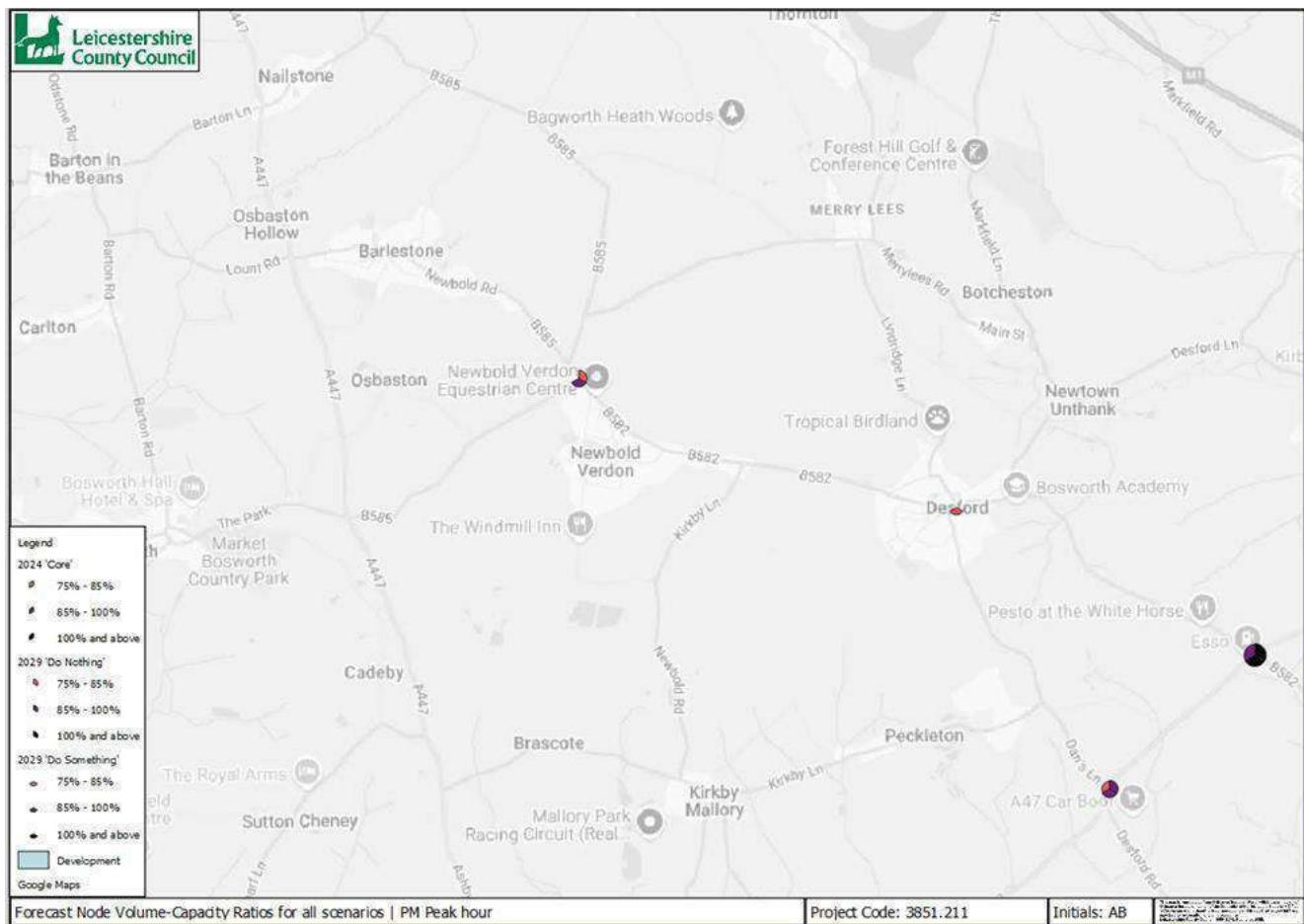


Figure 3.9: Forecast Delay Change for 2029 'Do Something' minus 2029 'Do Nothing' - PM Peak Hour

3.6. Maximum Volume/Capacity Ratios

- 3.6.1. Junction capacities are estimated for individual turning movements at the junction, reporting on these maximum values. Node volume-capacity ratios are used to identify locations where the forecast flows are approaching or exceeding the forecast capacity.
- 3.6.2. Ratios exceeding 85% indicate that the highway network is under stress and there is likely to be increased delays. When junctions have a high volume-capacity ratio, a large increase in delay can be created by a small increase in flow.
- 3.6.3. Figure 3.10 and Figure 3.11 show the forecast maximum volume-capacity ratios for all three scenarios, 2024 'Core', 2029 'Do Nothing' and 2029 'Do Something', on the same plot for the AM and PM Peak hours.
- 3.6.4. It should be noted that only junctions where the volume/capacity ratio exceeds 75% are displayed on the plots.
- 3.6.5. Figure 3.10 shows that in 2029 in the vicinity of the proposed development, the B585/B582 signalised junction is forecast to have a volume-capacity ratio between 85% to 100% in the AM Peak hour in the 'Do Something' scenario. This is an increase from a ratio between 75% to 85% in the 'Do Nothing' scenario.
- 3.6.6. Figure 3.11 shows the same volume-capacity increase on the B585/B582 signalised junction in the PM Peak hour as the AM Peak hour.


Figure 3.10: Forecast Node Volume-Capacity Ratios for all Scenarios - AM Peak Hour

Figure 3.11: Forecast Node Volume-Capacity Ratios for all Scenarios - PM Peak Hour

4. Summary

4.1. Summary of Assessment

- 4.1.1. Using the PRTM, forecasts have been undertaken to produce the 2029 'Do Nothing' and 'Do Something' scenarios for the AM and PM Peak hours for the strategic assessment of the proposed development at Bosworth Lane, Newbold Verdon.
- 4.1.2. Development trips are forecast to route via the following roads:
 - to and from the north, via the A447 and B585, towards Coalville with some trips accessing the M1 at junction 22
 - to and from the east via Merrylees Road and Desford Lane, towards Ratby and Groby, to access the A46
 - to and from the south use the A447 to access Hinckley
 - to and from the southeast via Desford and beyond
- 4.1.3. The forecast flow changes show that the largest increases in flow are forecast along roads in the immediate vicinity of the proposed development. This includes, the B585 Bosworth Lane, Osbaston Lane and the A447 Ashby Road.
- 4.1.4. The Area of Influence has been identified by identifying links forecast to change by more than $\pm 5\%$ flow and ± 30 PCUs between the 2029 'Do Nothing' and 'Do Something' scenarios in either the AM or PM Peak hour. The forecast Area of Influence includes:
 - B585 Bosworth Lane
 - B585 Bagworth Road (between the B585 Newbold Road and Merrylees Road)
 - B582 Barlestorne Road (between the B585/B582 junction and Main Street)
 - A447 Ashby Road (between Hall Lane and Nailstone crossroads)
 - Osbaston Lane
- 4.1.5. The B585 Bosworth Lane is forecast to have the largest delay in the 2029 'Do Something' scenario, a delay of 78 seconds is forecast in the AM Peak hour. This is caused by additional traffic using the signalised junction with the B582 Barlestorne Road. There are no other delays over 10 seconds in either peak hour.
- 4.1.6. The forecast maximum node volume/capacity ratios show that the B585/B582 signalised junction is forecast to have an increase in volume/capacity between the 2029 'Do Nothing' and 'Do Something' scenarios in both Peak hours. The change is from a 75% to 85% ratio to 85% to 100%.
- 4.1.7. Due to the strategic nature of the PRTM, not all roads are modelled, and the results should be interpreted with that in mind.

5. Contact Details

We trust that our report meets your expectations and look forward to working with you again soon.

If you have any questions, please do not hesitate to contact:

Laura Good
Framework Manager
Network Data & Intelligence
Environment & Transport Department
Leicestershire County Council

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Glenfield
Leicester
LE3 8RA

etcf@leics.gov.uk

<http://www.leics.gov.uk>

Appendix M

Furnessed Flow Matrices

Site Access A = B585 to the East B = Site Access C = B585 to the West	B585/B582 Signalled junction A = B582 Barlestone Road B = B585 Bosworth Lane C = B585 Barlestone Road	Barlestone Rd/Bagworth Rd T junction A = B585 to the North B = Bagworth Road C = B585 to the South																																																																											
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Total	280	494	384																																																																										
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Barlestone Rd/Dragon Ln T junction

A = B582 to the South
 B = Dragon Lane
 C = B582 to the North

AM			
A	B	C	Total
A 0 26 332 358			
B 46 0 109 155			
C 433 104 0 537			
Total 479 130 441			

PM			
A	B	C	Total
A 0 24 406 430			
B 17 0 82 99			
C 333 117 0 450			
Total 350 141 488			

2024 Core AM			
A	B	C	Total
A 242			
B 31			
C 227			
Total 182 46 274			

2024 Core PM			
A	B	C	Total
A 220			
B 58			
C 245			
Total 216 28 279			

2029 DN AM			
A	B	C	Total
A 249			
B 96			
C 279			
Total 192 87 345			

2029 DN PM			
A	B	C	Total
A 232			
B 94			
C 305			
Total 229 77 326			

2029 DS AM			
A	B	C	Total
A 251			
B 97			
C 280			
Total 194 86 348			

2029 DS PM			
A	B	C	Total
A 247			
B 98			
C 307			
Total 230 77 345			

2029 DN AM			
A	B	C	Target
A 0 26 332 365			
B 46 0 109 220			
C 433 104 0 589			
Target 489 171 512			

2029 DN PM			
A	B	C	Target
A 0 24 406 442			
B 17 0 82 135			
C 333 117 0 510			
Target 363 190 535			

2029 DS AM			
A	B	C	Target
A 0 27 338 367			
B 48 0 172 221			
C 444 145 0 590			
Total 491 170 515			

2029 DS PM			
A	B	C	Target
A 0 26 431 457			
B 20 0 119 139			
C 347 165 0 512			
Total 367 191 550			

2029 DN AM			
A	B	C	Total
A 0 27 338 365			
B 48 0 172 220			
C 444 145 0 589			
Total 492 172 510			

2029 DN PM			
A	B	C	Total
A 0 26 416 442			
B 20 0 115 135			
C 345 165 0 510			
Total 365 191 531			

2029 DS AM			
A	B	C	Total
A 0 27 340 367			
B 48 0 173 221			
C 446 144 0 590			
Total 494 171 513			

2029 DS PM			
A	B	C	Total
A 0 26 431 457			
B 20 0 119 139			
C 347 165 0 512			
Total 367 191 550			

2029 DN AM			
A	B	C	Total
A 0 27 340 367			
B 48 0 173 221			
C 446 144 0 590			
Total 494 171 513			

2029 DN PM			
A	B	C	Total
A 0 26 431 457			
B 20 0 119 139			
C 347 165 0 512			
Total 367 191 550			

2029 DS AM			
A	B	C	Total
A 0 27 340 367			
B 48 0 173 221			
C 446 144 0 590			
Total 494 171 513			

2029 DS PM			
A	B	C	Total
A 0 26 431 457			
B 20 0 119 139			
C 347 165 0 512			
Total 367 191 550			

2029 DN AM			
A	B	C	Total
A 0 27 340 367			
B 48 0 173 221			
C 446 144 0 590			
Total 494 171 513			

2029 DN PM			
A	B	C	Total
A 0 26 431 457			
B 20 0 119 139			
C 347 165 0 512			
Total 367 191 550			

2029 DS AM			
A	B	C	Total
A 0 27 340 367			
B 48 0 173 221			
C 446 144 0 590			
Total 494 171 513			

2029 DS PM			
A	B	C	Total
A 0 26 431 457			
B 20 0 119 139			
C 347 165 0 512			

Hall Lane/A447 T junction			
A = A447 to the North			
B = Hall Lane			
C = A447 to the South			

A447/Barton Rd/Lount Road x-roads			
A = A447 to the North			
B = Barton Road			
C = A447 to the South			

A447/Main St/Barton Ln x-roads			
A = A447 to the North			
B = Main Street			
C = A447 to the South			

AM	PM			Total
	A	B	C	
A	0	1	590	591
B	6	0	2	8
C	462	1	0	463
Total	468	2	592	

PM	AM			Total
	A	B	C	
A	0	2	473	475
B	0	0	1	1
C	551	0	0	551
Total	551	2	474	

2024 Core AM	2024 Core PM			Total
	A	B	C	
A	529			401
B	11			11
C	545			585
Total	556	8	521	

2024 Core PM	2024 Core AM			Total
	A	B	C	
A	0	2	401	
B				272
C				436
D				39
Total	378	274	527	43

2029 DN AM	2029 DN PM			Total
	A	B	C	
A	544			406
B	15			13
C	561			627
Total	576	8	536	

2029 DN PM	2029 DN AM			Total
	A	B	C	
A	0	2	406	
B				281
C				459
D				42
Total	409	281	534	48

2029 DS AM	2029 DS PM			Total
	A	B	C	
A	545			419
B	50			21
C	565			629
Total	615	11	534	

2029 DS PM	2029 DS AM			Total
	A	B	C	
A	0	2	419	
B				283
C				493
D				44
Total	440	289	535	49

2029 DN AM	2029 DN PM			Target
	A	B	C	
A	0	1	590	606
B	6	0	2	12
C	462	1	0	479
Total	488	2	607	

2029 DN PM	2029 DN AM			Target
	A	B	C	
A	0	2	480	
B	0	0	1	3
C	551	0	0	593
Total	596	4	478	

2029 DS AM	2029 DS PM			Target
	A	B	C	
A	0	1	590	607
B	6	0	2	47
C	462	1	0	483
Total	527	5	605	

2029 DS PM	2029 DS AM			Target
	A	B	C	
A	0	2	493	
B	0	0	1	11
C	551	0	0	595
Total	606	15	478	

2029 DN AM	2029 DN PM			Total
	A	B	C	
A	0	1	605	606
B	9	0	3	12
C	478	1	0	479
Total	487	2	608	

2029 DN PM	2029 DN AM			Total
	A	B	C	
A	0	4	480	
B	0	0	3	3
C	593	0	0	593
Total	593	4	479	

2029 DS AM	2029 DS PM			Total
	A	B	C	
A	0	15	478	493
B	0	0	11	11
C	595	0	0	595
Total	595	15	489	

2029 DS PM	2029 DS AM			Total
	A	B	C	
A	0	15	478	
B	0	0	11	11
C	595	0	0	595
Total	580	146	582	73

AM	PM			Total
	A	B	C	
A	0	59	496	560
B	84	0	65	58
C	412	34	0	19
D	24	37	10	0
Total	520	130	571	82

PM	AM			Total
	A	B	C	
A	0	2	475	
B	81	0	52	38
C	427	87	0	17
D	8	36	10	0
Total	516	239	467	60

AM



Appendix N

Traffic Flow Diagrams

