

Land South of Burbage
Burbage
Transport Assessment

LAND SOUTH OF BURBAGE

BURBAGE, LEICESTERSHIRE

Transport Assessment

For

Redrow Homes

DATE: July 2024

REV: P08

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1 Introduction

1.1 General

- 1.1.1 Rodgers Leask Limited (RL) have been appointed by Redrow Homes to produce this Transport Assessment (TA) in support of:

“A hybrid planning application for (a) a full planning application for 422 dwellings, public open space and associated infrastructure and (b) an outline planning application for a residential care home and up to 11no. self-build plots.”

- 1.1.2 The planning application (ref: [24/00083/HYB](#)) was submitted in January 2024. Since submission, this TA has been updated to encapsulate the additional information requested by statutory consultees and the local highway authority.

- 1.1.3 The masterplan for the proposed development is presented in **Appendix A**.

1.2 Site Location

- 1.2.1 The site is located on the urban fringe of Burbage, Leicestershire, approximately 700 metres to the south-west of Burbage village centre and approximately 2.6km to the south-east of Hinckley town centre.

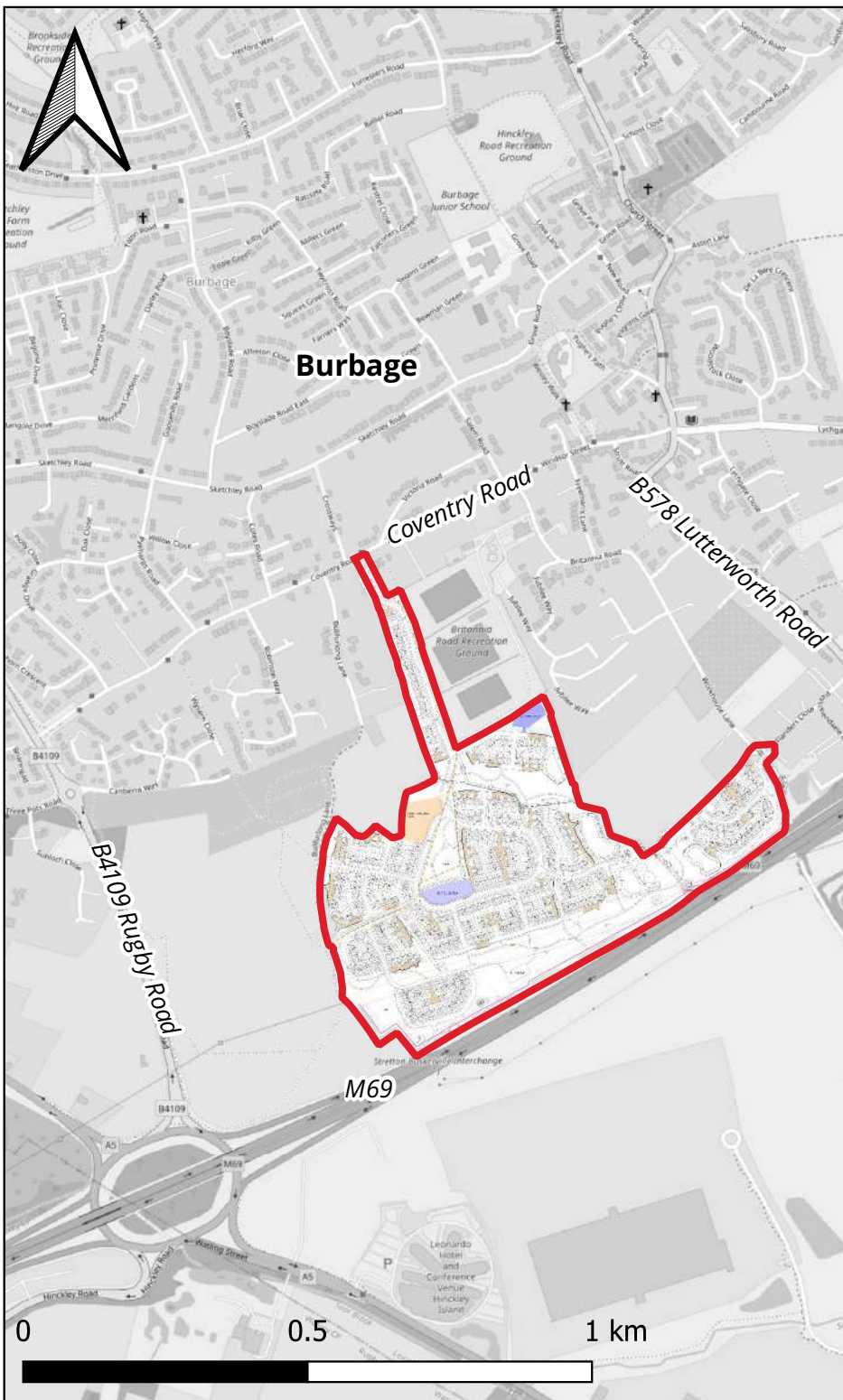
- 1.2.2 The sites northern boundary abuts Coventry Road for approximately 20m with the eastern boundary formed by the Burbage Rugby Football Club ground, Britannia Park playing fields, existing open fields and Workhouse Lane. The southern boundary is formed by the M69 with the western boundary formed by Bullfurlong Lane and existing residential properties accessed off Bullfurlong Lane. The site location plan is presented below in **Figure 1**.

- 1.2.3 The site is neither within nor near a designated Air Quality Management Area.

1.3 Planning History

- 1.3.1 A planning application (ref: [21/00502/OUT](#)), known as ‘Land To The South West Of Lutterworth Road Burbage Leicestershire’, was submitted in April 2021 proposing up to 80 dwellings on land accessed from the existing residential development of Ambion Way, accessed off the B578 Lutterworth Road. The application was approved through the appeal process (ref: [23/00017/PP](#)) in October 2023.

- 1.3.2 The ‘Land To The South West Of Lutterworth Road Burbage Leicestershire’ development lies within the application boundary of the proposed ‘Land South of Burbage’ development.



- Legend**
- Indicative Site Boundary
 - ★ Site Location

Source: © OpenStreetMap contributors, CC-BY-SA



Client
Redrow Homes
 Project
Land South of Burbage

Figure Title
Site Location

Status
FOR INFORMATION
 Scale

A4 @ 1:Varies
 Drawn
 JWB
 Checked
 ADM
 Date
 25/04/23

Figure Number
Figure 1

1.4 Scope of Assessment

- 1.4.1 A scoping note was sent to both Leicestershire County Council (LCC) Highways and National Highways (NH) in April 2023. The scoping note provided information on the proposed methodology of the TA and the traffic modelling. Prior to this note various scoping correspondence was sent to both LCC and NH. A summary of the key scoping dialogue is presented below in **Table 1**.

Table 1: Scoping Correspondence

Correspondence from RL		Response Received	
Form	Date	LCC	NH
Email	July 2021	Email - Requirement to use the PRTM	-
Email	August 2022	-	Email - Furnessing requirement
Email	September 2022	-	Email - Agreement of trip distribution
Email	October 2022	-	Email - Methodology for furnessing
Scoping Note	April 2023	No response	Response Ref 7046

- 1.4.2 The scoping responses referred to above have been included within **Appendix B**.

1.5 Post Submission Discussions

- 1.5.1 Following the submission of the planning application, comments concerning transport and highways were received from the statutory consultees. The timeline of the correspondence and responses provided by RL to date are documented below in **Table 2**.

Table 2: Post Submission Correspondence

Date	Consultee Comments	RL Response	Date
16 Feb 2024	NH (doc ref: NH/24/04828)	RL doc ref: 21390-RLL-24-XX-TN-D-5015	07 May 2024
19 Feb 2024	Active Travel England (doc ref: ATE/24/00145/HYB)	No response, comments addressed within this TA (P08)	-
19 Feb 2024	LCC (doc ref: 2024/0083/04/H)	No response required	-
5 Apr 2024	LCC (doc ref: 2024/0083/04/H/R1)	RL doc ref: 21390-RLL-24-XX-TN-D-5016	23 Apr 2024
9 May 2024	Highways meeting with LCC & RL		
15 May 2024	LCC email	RL doc ref: 21390-RLL-24-XX-TN-D-5018	17 May 2024

24 May 2024	NH (doc ref: NH/24/04828)	Requested information provided within this TA (P08)	-
14 Jun 2024	LCC (doc ref: 2024/0083/04/H/R2)	Requested information provided within this TA (P08)	-

1.5.2 The consultee comments and responses prepared by Rodgers Leask have been provided in **Appendix C**. It should be noted that the appendices to the RL response technical notes have not been included within this appendix.

1.5.3 The TA has been updated to encapsulate the additional information requested by LCC, NH and Active Travel England (ATE) as well as the information previously provided within the aforementioned RL responses to consultee comments.

1.6 Report Structure

1.6.1 This TA comprises the following sections:

- **Section 2.0** presents a review of national and local policies relevant to the preparation of this TA;
- **Section 3.0** establishes the existing conditions, collision records, and a description of the existing local sustainable transport options;
- **Section 4.0** describes all elements of the development proposals including the multi-modal site access arrangements and parking provision;
- **Section 5.0** presents the trip generation and mode share for the proposed development;
- **Section 6.0** explains the use of the traffic flow data sources used within this assessment which includes LCC's strategic modelling tool and the use of traffic survey data;
- **Section 7.0** presents the development trip distribution and assignment used to inform the junction capacity assessments;
- **Section 8.0** provides a summary of the junction capacity assessments;
- **Section 9.0** presents a brief overview of construction traffic management;
- **Section 10.0** summarises the key points and presents the final conclusions of this assessment.

2 Policy Review

2.1 Policy Context

- 2.1.1 This TA has been prepared in line with the relevant national and local policies and guidance.
- 2.1.2 It is considered that the most significant transport-related policies of relevance to the proposals are contained within the following documents:
- The National Planning Policy Framework (NPPF – December 2023);
 - LCC Local Transport Plan (2011 – 2026); and
 - Hinckley and Bosworth Borough Council (HBBC) Local Plan (2006-2026) - Site Allocations & Development Management Policies DPD.
- 2.1.3 The following guidance documents have also been considered:
- DfT Planning Practice Guidance on Travel Plans, Transport Assessments and Statements (March 2014);
 - Leicestershire Highways Design Guide (interim 2022);
 - CIHT Providing for Journeys on Foot (2000); and
 - Design Manual for Roads and Bridges (DMRB) – various documents.

2.2 The National Planning Policy Framework

- 2.2.1 The NPPF sets out the government's current planning policies for England and how they should be applied. With regard to Transport, this theme is applied to transport specific policies within Section 9: 'Promoting sustainable transport' of the document.

- 2.2.2 As stated in paragraph 114:

In assessing sites that may be allocated for development in plans, or specific applications for development, it should be ensured that:

- a) appropriate opportunities to promote sustainable transport modes can be – or have been – taken up, given the type of development and its location;*
- b) safe and suitable access to the site can be achieved for all users;*
- c) the design of streets, parking areas, other transport elements and the content of associated standards reflects current national guidance, including the National Design Guide and the National Model Design Code; and*

- d) *any significant impacts from the development on the transport network (in terms of capacity and congestion), or on highway safety, can be cost effectively mitigated to an acceptable degree.*

2.2.3 As stated in paragraph 115:

Development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe.

2.2.4 As stated in paragraph 117;

All developments that will generate significant amounts of movement should be required to provide a travel plan, and the application should be supported by a transport statement or transport assessment so that the likely impacts of the proposal can be assessed.

2.3 DfT Planning Practice Guidance on Travel Plans, Transport Assessments & Statements

2.3.1 This guidance sets out the overarching principles of Travel Plans, Transport Assessments and Transport Statements.

2.3.2 As stated in paragraph 002:

Travel Plans, Transport Assessments and Statements are all ways of assessing and mitigating the negative transport impacts of development in order to promote sustainable development. They are required for all developments which generate significant amounts of movements (Reference ID: 42-002-20140306).

2.3.3 As stated in paragraph 005:

The Transport Assessment or Transport Statement may propose mitigation measures where these are necessary to avoid unacceptable or "severe" impacts. Travel Plans can play an effective role in taking forward those mitigation measures which relate to on-going occupation and operation of the development (Reference ID: 42-005-20140306).

2.3.4 As stated in paragraph 014:

The need for, scale, scope and level of detail required of a Transport Assessment or Statement should be established as early in the development management process as possible as this may therefore positively influence the overall nature or the detailed design of the development (Reference ID: 42-014-20140306).

2.4 Leicestershire County Council Local Transport Plan 3 (LTP3) 2011 - 2026

2.4.1 The LTP3 sets out LCC's approach concerning the development and management of the transport system. The document sets out objectives for the county council to maximise sustainable development to help grow the local economy and ensure the safe and efficient operation of the transport system.

2.4.2 To help deliver the LTP3 approach, paragraph 5.83 states:

Our approach to doing this will include:

a) Encouraging and facilitating the continued use of credible and robust transport evidence by District Councils and others to underpin their development proposals.

b) Maximising the use of our existing transport system by encouraging new development to be located in areas that are already able to be well served by walking, cycling and public transport.

c) Encouraging high quality, safe facilities in new developments for pedestrians, cyclists and public transport users. We will do this by inputting to the Masterplan process, especially for the Sustainable Urban Extensions around the edges of Leicester and the county towns. Note that, if it is appropriate, we will use the planning system to seek to resist proposals that do not achieve these things.

2.4.3 As stated in paragraph 6.12:

Our LTP3 approach will also seek to ensure that encouraging more active and sustainable travel plays its part in delivering other LTP3 outcomes. For example:

- *Encouraging more people to walk, cycle and use public transport will help to reduce congestion and achieve a transport system that provides for the effective and efficient movement of people, materials and goods.*
- *Continuing to support bus services / alternative forms of public transport and seeking to ensure that new developments can access a range of facilities by means other than the private car, should help to promote equality of opportunity.*
- *Efforts to improve information about existing sustainable transport services and facilities should help to improve satisfaction with our transport system.*

2.4.4 As stated in paragraph 7.45:

5. Work through the planning system to co-ordinate land use and transportation planning with the aim that development is located in accessible locations with appropriate improvements for walking, cycling and public transport. Our efforts will include:

- *Working with partners to explore ways that we may be able to bring services to people (rather than requiring people to travel to services) in order to meet identified accessibility needs.*
- *Delivering new developments in areas that are already able to be well served by walking, cycling and public transport. It should be noted that we may seek to resist developments that do not do this.*
- *Inputting to the master planning of new developments that are put forward by others, especially the Sustainable Urban Extensions that are planned around the edges of Leicester City and some of the county towns. In doing so, we will be seeking to ensure that they are designed from the outset to provide:*
 - *High quality, safe facilities for those who walk, cycle and use public transport.*
 - *Safe access for cars and other vehicles.*
- *Seeking to ensure that new development proposals put forward by others are either supported by an appropriate range of facilities (e.g. new housing developments are supported by employment, schools, leisure, health, retail facilities). Where it is necessary to travel off-site, safe, high quality choices are available (or can be provided), in particular for people to walk, cycle and use public transport to access facilities and services nearby.*

2.4.5 As stated in paragraph 8.42:

1. Deliver a safer road environment for all road users

- *Seeking to ensure that new developments do not make an existing road safety problem worse or give rise to new safety problems by continuing to:*
- *Review our design standards for new developments to ensure that they reflect relevant requirements and best practice.*
- *Work with developers and local planning authorities to ensure that accesses into new development sites are suitably designed and subject to independent safety auditing where appropriate; and the layout of any roads, footways and cycle routes within the site are designed to a high quality, are safe and can be readily maintained in the future*

2.5 Hinckley and Bosworth Local Plan 2006-2026

- 2.5.1 The “Hinckley and Bosworth Local Plan 2006 – 2026” is a suite of documents that set out the vision and framework to develop the borough of Hinckley & Bosworth.
- 2.5.2 The Site Allocations and Development Management Policies Development Plan Document (adopted July 2016) forms part of the Local Plan and includes development management policies which are used when determining planning applications.

DM17 Highways and Transportation

Development proposals will be supported where they:

- a) Seek to make the best use of existing public transport services and, where appropriate, provide opportunities for improving and sustaining the viability of those services;*
- b) Seek to ensure that there is convenient and safe access for walking and cycling to services and facilities;*
- c) Demonstrate that there is not a significant adverse impact upon highway safety; and in the case of development that generates significant movement;*
- d) That the development is located where the need to travel will be minimised and the use of sustainable transport modes can be maximised;*
- e) Where it can be demonstrated that the residual cumulative impacts of development on the transport network are not severe.*

Where appropriate, improvements will be required to be undertaken to the highways and transportation network to limit any significant impacts arising from the development (taking into account cost effectiveness).

All proposals for new development and changes of use should reflect the highway design standards that are set out in the most up to date guidance adopted by the relevant highways authority.

- 2.5.3 HBBC are currently working on a new Local Plan which will set out land allocations and planning policies for the period 2020 to 2039. The draft policies from the document, relevant to Transport and Highways have been included below.
- 2.5.4 It should be noted that *Policy DM17* will be updated and reworded. An extract of part of the new wording is provided below.

2.5.5 The draft HT01 Highways and Transportation wording states:

All proposals for new development and changes of use should conform to the highway design standards that are set out in the most up to date guidance adopted by the relevant highways authority, and, where appropriate, be supported by a transport assessment and travel plan.

Where the impacts of the development taken cumulatively with other schemes would have a significantly adverse effect on the transport network, the Council will seek measures including, where necessary, a financial contribution fairly and reasonably related to the development to mitigate the impact of the scheme in accordance with Policy INF01.

2.5.6 The draft HT02 Parking Standards wording states:

All proposals for new development will be required to provide an appropriate level of parking provision in conformity with the prevailing highways authority design guidance, justified by an assessment of the site location, type of housing, other modes of transport available (e.g. public transport and cycle provision) and appropriate design. Any development will be expected to provide disabled parking provision.

On site cycle parking should be provided however where it is demonstrated that the minimum on-site provision to meet the standards set out in the highways authority design guidance is not feasible, a financial contribution will be required towards public facilities.

2.5.7 Suitable parking provision will be provided at the development, proportionate to the number of bedrooms for each dwelling type.

2.5.8 The draft HT03 EV Charging Infrastructure wording states:

Proposals for new major residential development will be required to provide the following electric vehicle charging infrastructure:

- *One electric charging point for every new dwelling with parking provision within its curtilage.*
- *One charging point for every 10 parking spaces for residential development with unallocated communal off street parking, and passive charging provision to be provided for all remaining spaces.*

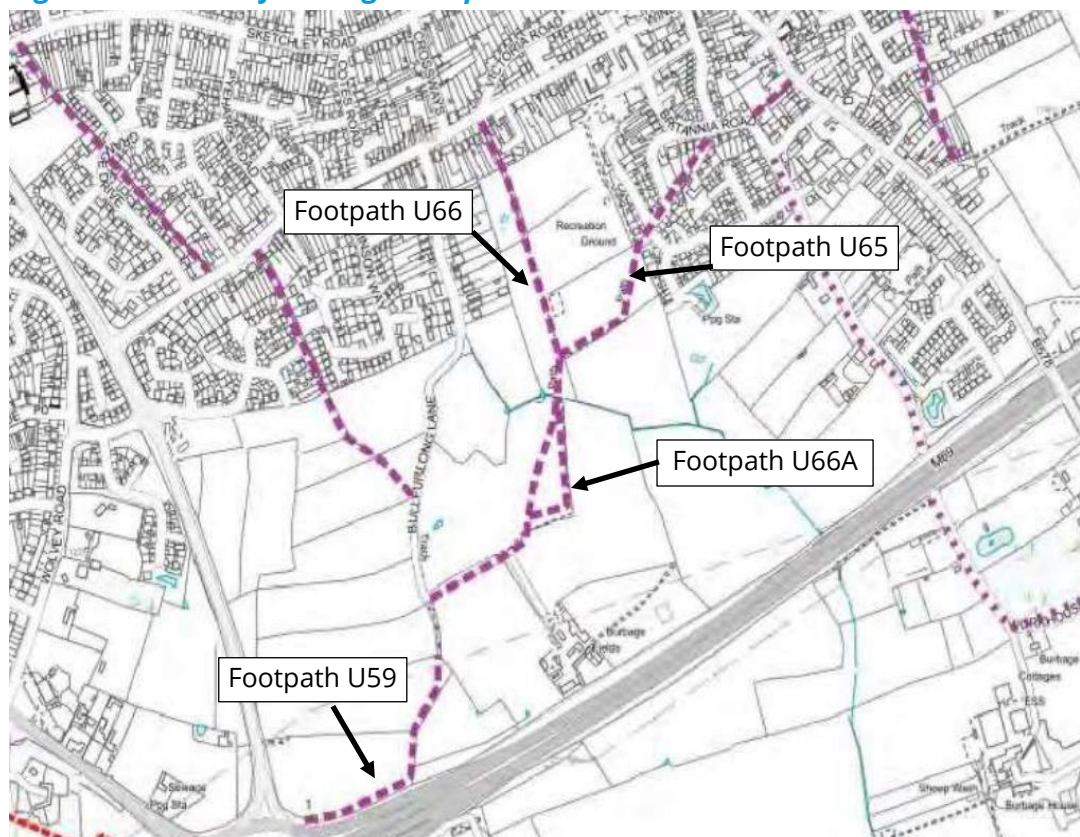
All active charge points and passive infrastructure for residential development should be or enable a minimum Mode 3 Standard AC charging outlet and shall meet the minimum standard technical specification published by the Office for Zero Emission Vehicles.

3 Existing Conditions

3.1 The Site

- 3.1.1 The site is located on the urban fringe of Burbage, Leicestershire, approximately 700 metres to the south-west of Burbage village centre.
- 3.1.2 There are multiple public rights of way (PROW) which route across and in proximity to the site. **Figure 2** shows an extract of a map of Burbage Footpaths from the Burbage Neighbourhood Plan.

Figure 2: Extract of Burbage Footpaths



- 3.1.3 Footpath U66 provides access between Coventry Road and Bullfurlong Lane, routing through the site on a north-south axis with an alternative route across a small section of the site provided on Footpath U66A. Existing PROW that cross the site will be retained by diverting the paths utilising the proposed footways and footpaths within the proposed layout of the development.
- 3.1.4 A section of Footpath U66 facing south-west is shown below in **Photograph 1**.

Photograph 1: Footpath U66 Facing South-West



Source: Site Visit by JWB on 19/04/23

3.2 Local Highway Network

Coventry Road

- 3.2.1 Coventry Road is a street lit 30mph single carriageway residential street connecting the B4109 Rugby Road with the B578 Church Street / Lutterworth Road. The road routes through Burbage becoming Windsor Street at the village centre. The road has 2m footways either side of the carriageway and there are numerous simple priority junctions off Coventry Road providing access to adjoining residential streets. Coventry Road is shown in **Photograph 2**.

Photograph 2: Coventry Road Facing Westbound



Source: Site Visit by JWB on 19/04/2023

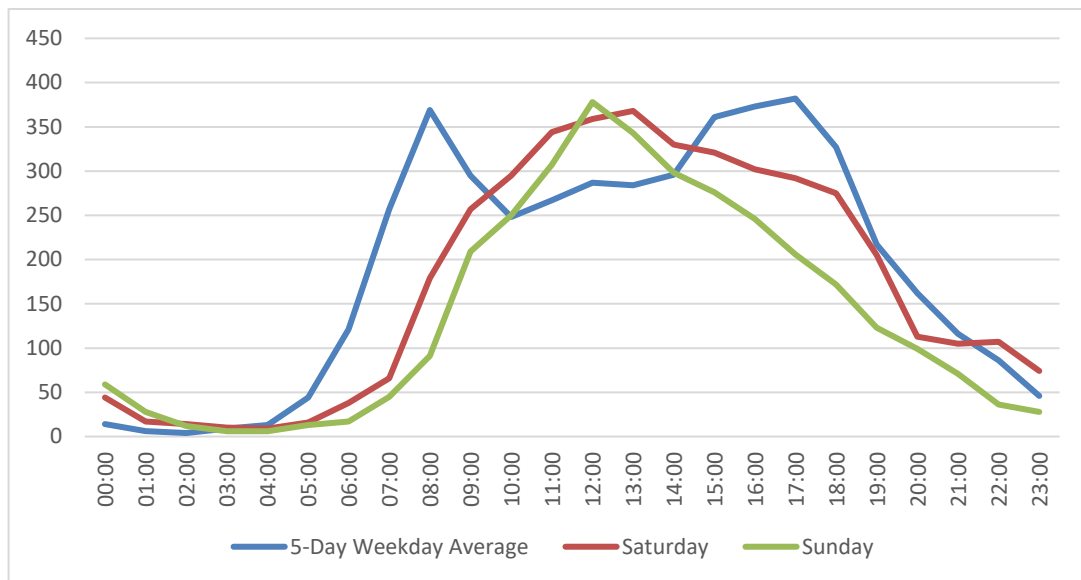
- 3.2.2 Traffic flows along Coventry Road were recorded over a 7-day period from Wednesday 24th to Tuesday 30th November 2021 using an Automatic Traffic Counter (ATC) situated to the west of the Coventry Road / Victoria Road junction.
- 3.2.3 A summary of the weekday peak hour traffic flows and weekday and weekend daily traffic flow is provided below in **Table 3**.

Table 3: Coventry Road ATC Flows

Time Period	Eastbound	Westbound	Two way
5-day average weekday			
08:00 - 09:00	159	210	369
17:00 - 18:00	226	156	382
24h Flow 00:00-24:00	2,372	2,213	4,585
Saturday			
24h Flow 00:00-24:00	2,136	2,004	4,140
Sunday			
24h Flow 00:00-24:00	1,731	1,588	3,319

- 3.2.4 The ATC has demonstrated that the weekday daily traffic flow on Coventry Road is in the region of 4,600 vehicles a day. On a Saturday, the daily vehicle flows are in the order of 4,100 with Sunday daily flows approximately 3,300 vehicles. A graph showing the traffic profile for the two-way 5-day average weekday and the Saturday and Sunday traffic flows is shown below in **Graph 1**.

Graph 1: Hourly Two-way Traffic Flows on Coventry Road



- 3.2.5 The ATC also recorded the speeds of vehicles along Coventry Road, with the 85th percentile eastbound speed recorded as 30.4mph and the 85th percentile westbound speed recorded as 32mph.

Passchendaele Drive

- 3.2.6 Passchendaele Drive is a street lit estate road which connects the residential estate of Ambion Way (Redrow Homes) to the B578 Lutterworth Road via the B578 Lutterworth Road / Passchendaele Drive priority junction. Passchendaele Drive also provides access to the rear accesses of residential properties, separate from the Ambion Way estate, which front the B578 Lutterworth Road. Passchendaele Drive is shown below in **Photograph 3**.

Photograph 3: Passchendaele Drive Facing Westbound



Source: Site Visit by ADM on 20/11/2022

- 3.2.7 As Passchendaele Drive routes through the estate it becomes Flanders Close, ending on the western side of the estate. The road has a carriageway width of 5.5m with 2m footways either side of the carriageway. The road has measures to reduce vehicles speeds in the form of raised tables.
- 3.2.8 The B578 Lutterworth Road / Passchendaele Drive junction was designed in accordance with LCC's highways design standards as part of the development of Ambion Way. The junction benefits from double yellow lines at the junction bellmouth with these yellow lines extending for approximately 10m along Passchendaele Drive. This parking restriction prevents vehicles from parking in the vicinity of the junction, ensuring visibility at the junction is not obstructed.
- 3.2.9 In the immediate vicinity of the B578 Lutterworth Road / Passchendaele Drive junction, a footway is situated on the western side of the B578 Lutterworth Road.

B578 Lutterworth Road

- 3.2.10 In the vicinity of the B578 Lutterworth Road / Passchendaele Drive junction, the B578 Lutterworth Road is single carriageway and subject to a 30mph speed limit, increasing to the national speed limit approximately 160m south of the junction. The 30mph speed limit was extended to its current location as part of

works associated with the Ambion Way development with dragon's teeth markings, white line narrowing, and additional signage provided. A photo of the B578 Lutterworth Road has been provided in **Photograph 4**.

Photograph 4: B578 Lutterworth Road Facing Southward



Source: Site Visit by ADM on 20/11/2022

- 3.2.11 Traffic flows along the B578 Lutterworth Road were recorded over a 7-day period from Wednesday 24th to Tuesday 30th November 2021 using an ATC. A summary of the weekday peak hour traffic flows and weekday and weekend daily traffic flow is provided below in **Table 4**.

Table 4: Lutterworth Road ATC Flows

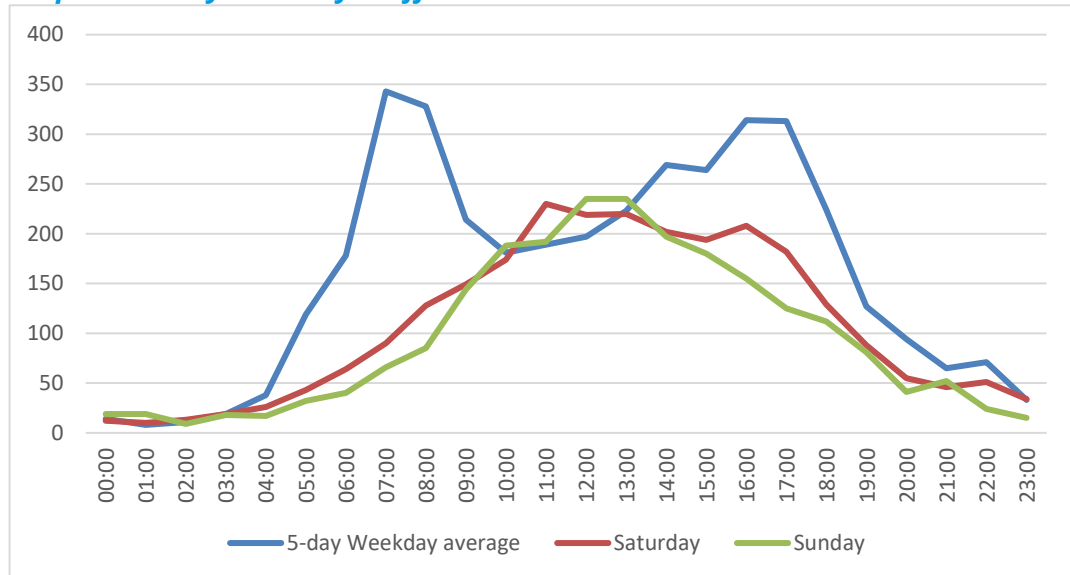
Time Period	Northbound	Southbound	Two way
5-day average weekday			
08:00 - 09:00	101	227	328
17:00 - 18:00	210	103	313
24h Flow 00:00-24:00	1,766	2,070	3,836
Saturday			
24h Flow 00:00-24:00	1,216	1,370	2,586
Sunday			
24h Flow 00:00-24:00	1,086	1,195	2,281

- 3.2.12 The ATC has demonstrated that the weekday daily traffic flow on the B578 Lutterworth Road is in the region of 3,800 vehicles a day. On Saturday, the daily

vehicle flows are in the order of 2,600 movements and Sunday daily flows are in the order of 2,300 vehicle movements.

- 3.2.13 The traffic profile for the two-way 5-day average weekday, and the Saturday and Sunday traffic flows is shown below in **Graph 2**.

Graph 2: Hourly Two-way Traffic Flows on the B578 Lutterworth Road



B4109 Rugby Road

- 3.2.14 The B4109 Rugby Road is a single carriageway road that connects M69 Junction 1 to Hinckley town centre. It has a speed limit of 50mph from the M69 junction to the B4109 Rugby Road / Canberra Way roundabout, which changes to 40mph until the B4109 Rugby Road / Sketchley Road roundabout where the speed limit drops further to 30mph towards Hinckley.
- 3.2.15 The B4109 Rugby Road has a 3m width shared footway / cycleway on the eastern side of the carriageway, with a contraflow cycle lane located on a residential access road that runs parallel with Rugby Road.
- 3.2.16 A photo of the B4109 Rugby Road has been included as **Photograph 5**.

Photograph 5: B4109 Rugby Road Facing Southwards



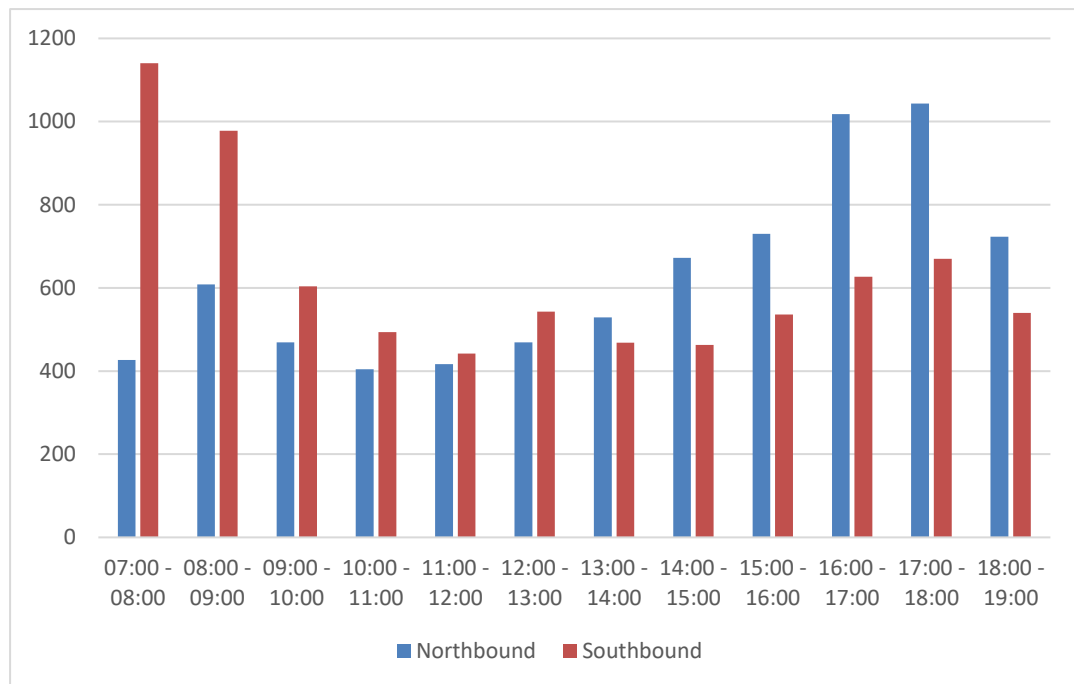
Source: Site Visit by ADM on 20/11/2022

- 3.2.17 A Department for Transport (DfT) traffic count was undertaken on the B4109 Rugby Road in 2021. A summary of the recorded traffic flows are shown below in **Table 5**.

Table 5: B4109 Rugby Road DfT 2021 Traffic Flows

Time Period	Northbound			Southbound		
	All Vehicles	HGVs	HGV %	All Vehicles	HGVs	HGV %
AM Peak Hour (08:00 – 09:00)	608	23	3.8%	978	12	1.2%
PM Peak Hour (17:00 – 18:00)	1,043	4	0.4%	670	6	0.9%
12-Hr Period (07:00 – 19:00)	7,509	104	1.4%	7,505	114	1.5%

- 3.2.18 The DfT traffic count shows that there were approximately 15,000 vehicle movements along the B4109 Rugby Road for the 12 hour period. The traditional highway peak hour two-way traffic flows were recorded as 1,586 in the AM peak (08:00 – 09:00) and 1,713 in the PM peak (17:00 – 18:00). The traffic profile along the B4109 Rugby Road over the 12-hour period (07:00 – 19:00) is shown below in **Graph 3**.

Graph 3: B4109 Rugby Road 12-Hour Traffic Profile by Direction

- 3.2.19 The traffic profile of the B4109 Rugby Road highlights that the 1-hour period with the highest two-way traffic flow is 17:00 – 18:00, the highway PM peak hour.
- 3.2.20 The B4109 Rugby Road / Coventry Road junction is a three arm priority junction with a ghost island right turn lane. The main carriageway has as a kerbed central island separating northbound and southbound traffic. A shared footway/cycleway routes along Rugby Road (on the eastern side of the carriageway) to the north and south of the junction with pedestrians and cyclists crossing the bellmouth of Coventry Road via dropped kerb / tactile paving crossing with a pedestrian refuge island. A toucan crossing is located on the southern arm of the junction providing a formal crossing point for both pedestrians and cyclists to cross the B4109 Rugby Road.

3.3 Local Highway Collision Records

Overview

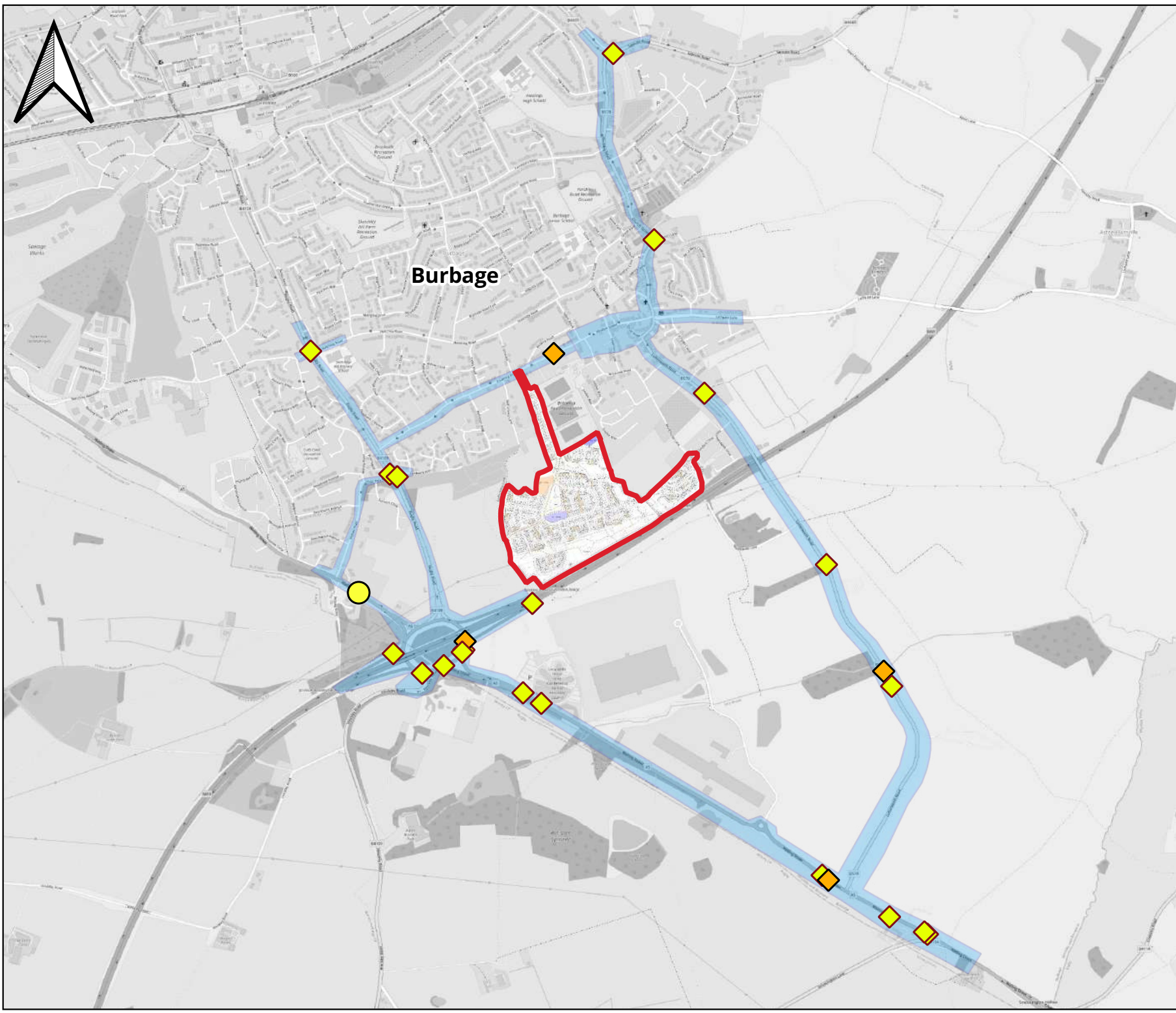
- 3.3.1 Collision records have been obtained from LCC for the most recently available 5-year period from January 2019 – January 2024.
- 3.3.2 The collision records received from LCC have been appended to this report in **Appendix D**. One of the collisions occurred along the M69 mainline approximately 1km to the east of the junction, therefore this collision has been discounted from the write up.

- 3.3.3 Due to the proximity of the Leicestershire and Warwickshire county boundaries, additional collision records have been obtained from Crashmap.co.uk for the latest 5-year period. This data provides two additional collision records within the study area. The Crashmap report has also been included within **Appendix D**.
- 3.3.4 **Figure 3** shows the plot of all collisions recorded in the latest 5-year period within the study area by classification and location.
- 3.3.5 **Table 6** presents a summary of the recorded collisions by year and severity occurring on the sections of highway within Leicestershire and Warwickshire that form the study area.

Table 6: Summary of Collisions by Severity & Year

Year	Accident Severity			Total
	Slight	Serious	Fatal	
2019	7	0	0	7
2020	4	1	0	5
2021	5	0	0	5
2022	3	2	0	5
2023	2	1	0	3
Total	22	3	0	25

- 3.3.6 **Table 6** shows that there were 25 recorded collisions in the study area assessed over the 5-year period analysed. Descriptions of the collisions recorded are provided below.



Legend

Indicative Site Boundary

Collision Study Area

Collision data

Serious

Slight

Slight - Involving Pedestrian

Source: © OpenStreetMap contributors, CC-BY-SA



Client
Redrow Homes

Project
Land South of Burbage

Figure Title
Collision Records Plot

Status
FOR INFORMATION

Scale
A4 @ 1:20000

Drawn

Checked
ADM

Date
29/03/23

Figure Number

Figure 3

Coventry Road

- 3.3.7 One collision occurred along Coventry Road within the 5-year period. The collision occurred in January 2023 and involved a car was overtaking stationary vehicles, colliding with an on coming vehicle resulting in one of the drivers sustaining serious injuries. The collision occurred in darkness, with street lighting present and lit during fine weather conditions with wet/damp road conditions.
- 3.3.8 LCC requested for RL to consider the circumstances surrounding this collision during the consultation period. RL emailed the LCC Road Traffic Collision (RTC) team on the 17th June 2024 requesting the further details on the collision. The RTC team responded on the 18th June and stating that the police would not permit them to release any detailed information regarding the collision.
- 3.3.9 As no further information is available to RL on this collision and that there has only been one collision along Coventry Road in the most recent five year period data is available, it is considered that there is not an existing highway safety issue along Coventry Road.

B578 Lutterworth Road

- 3.3.10 Four collisions have been recorded along the section of the B578 Lutterworth Road included within the study area during the 5-year period analysed.
- 3.3.11 Three of the collisions recorded were classified as slight in severity, with one collision being classified as serious. The collision data from LCC noted that the serious collision occurred whilst it was raining with wet / damp road conditions, in darkness with no streetlights.
- 3.3.12 None of the collisions involved a pedestrian or a cyclist. Two of the collisions along the B578 Lutterworth Road were in darkness, where no street lighting is present.

A5 / B578 Lutterworth Road Junction

- 3.3.13 Two collisions have occurred within the vicinity of the A5 / B578 Lutterworth Road junction. One of these were classified as slight collisions, with the other being recorded as serious. The serious collision occurred in darkness with no street lighting present. It was noted that during the time of this collision, the roads were flooded due to heavy rainfall.
- 3.3.14 The slight collision occurred during daylight hours, with dry road conditions and fine weather.
- 3.3.15 It should be noted that none of the collisions at the A5 / B578 Lutterworth Road junction involved any pedestrians or cyclists.

A5 / B4114 Smockington Lane Junction

- 3.3.16 Two slight collisions were recorded at the A5 / B4114 Smockington Lane junction between 2019 and 2023. All three collisions occurred in fine weather conditions, with one collision occurring in daylight with dry road conditions. The other slight collision occurred with wet / damp road conditions in darkness, with no street lighting present.
- 3.3.17 None of the collisions recorded at the A5 / B4114 Smockington Lane junction involved any pedestrians or cyclists.

A5 Watling Street / Wolvey Road

- 3.3.18 One serious collision have occurred within the vicinity of the A5 / Wolvey Road junction. The collision occurred in fine weather conditions with dry road conditions occurred during daylight hours.

A5

- 3.3.19 There have been three slight collisions which have occurred between 2019 – 2023. All three collisions occurred during fine weather conditions. Two of these collisions occurred during daylight hours, with one occurring with dry conditions and the second with wet / damp road conditions. The collision recorded in the hours of darkness occurred in a period with dry conditions.

M69 Junction 1

- 3.3.20 Seven collisions have occurred within the vicinity of the M69 J1 within the latest 5-year period. Six of the collisions were recorded as a slight severity, with the sixth collision being recorded as serious. Six collisions were in fine weather, with the seventh being recorded in 'other' weather conditions.
- 3.3.21 Three of the slight collisions recorded had dry road conditions and were in daylight hours. The other three slight collisions had wet or damp road conditions, with two collisions occurring during daylight hours and the other occurring within the hours of darkness with street lighting present and lit. The serious collision occurred during daylight hours and with dry road conditions.

B4109 Rugby Road / Sketchley Road Roundabout

- 3.3.22 One slight collision has occurred at the B4109 Rugby Road / Sketchley Road roundabout. The collision occurred during daylight hours during a period of rain with wet road conditions observed. No cyclists or pedestrians were involved with this collision.

B4109 Rugby Road / Canberra Way Roundabout

- 3.3.23 Two slight collisions have occurred at the B4109 Rugby Road / Canberra Way / Three Pots Road roundabout in the latest 5-year period. Both collisions occurred during daylight hours and had wet or damp road conditions. One of the collisions happened in fine weather, and the other occurred during foggy / misty conditions. Neither of these collisions involved a pedestrian or a cyclist.

B578 Hinckley Road

- 3.3.24 One slight collision has occurred along the B578 Hinckley Road in the 5-year period. The collision occurred in fine weather and road conditions. The collision occurred in daylight hours and did not involve a cyclist or a pedestrian.

B578 Hinckley Road / B4669 Burbage Road / B4669 Sapcote Road

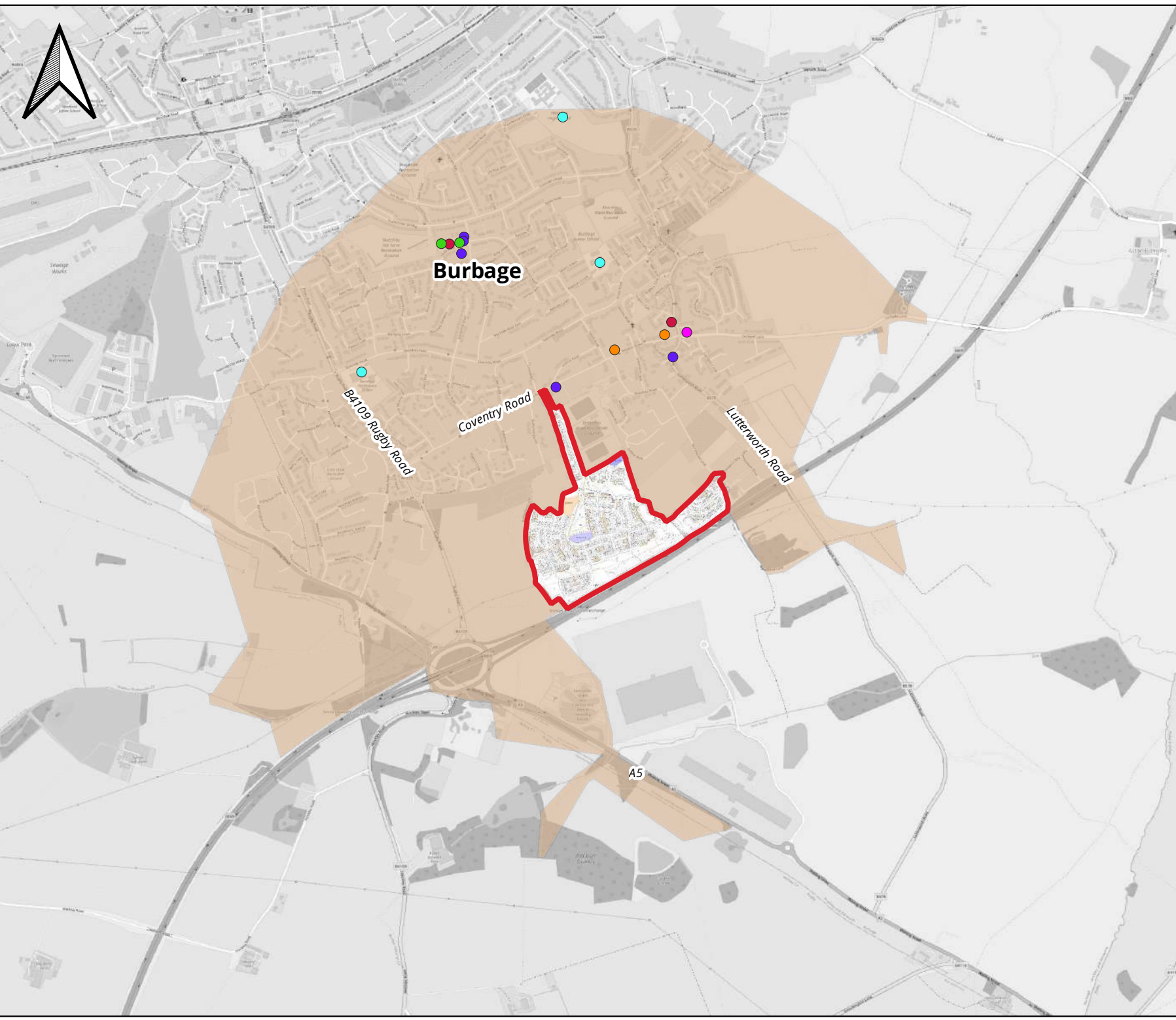
- 3.3.25 One slight collision has occurred within the vicinity of the B578 Hinckley Road / B4669 Burbage Road / B4669 Sapcote Road junction in the 5-year period. The collision occurred along the designated one-way section of the road from the B4669 Sapcote Road to the B578 Hinckley Road in fine weather and dry road conditions. The collision occurred in the daytime and did not involve a cyclist or a pedestrian.

Summary

- 3.3.26 The above analysis has considered all recorded collisions within the study area. It is considered that there are no existing highway safety concerns which would be exacerbated by the development proposals.

3.4 Walking

- 3.4.1 Along Coventry Road, there are 2m wide footways either side of the carriageway with footways provided along the interconnecting streets establishing a network of footways around the local area. As well as these footways, there are a number of PROW in the form of footpaths intersecting the local area. A map of the PROWs across Burbage, extracted from the Burbage Neighbourhood Plan, has been included as **Appendix E**.
- 3.4.2 To understand the destinations that can be accessed on foot using this existing infrastructure, a plan showing the 2km catchment from the centre of the site has been created. The Chartered Institute for Highways and Transport (CIHT) in their document 'Guidelines for Providing for Journeys on Foot' (2000) suggests that the preferred maximum walking distance is 2km for commuting, which is comparable to a 25-minute walk.
- 3.4.3 **Figure 4** shows the walking catchment from the site and its extent in the context of the local area.



- Legend**
- Indicative Site Boundary
 - Amenities**
 - Place of Worship
 - Library
 - Public House
 - Retail
 - Medical
 - Education
 - Walking Catchment**
 - 2km

Source: © OpenStreetMap contributors, CC-BY-SA



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Land South of Burbage

Figure Title
Indicative 2km Walking Catchment
Status

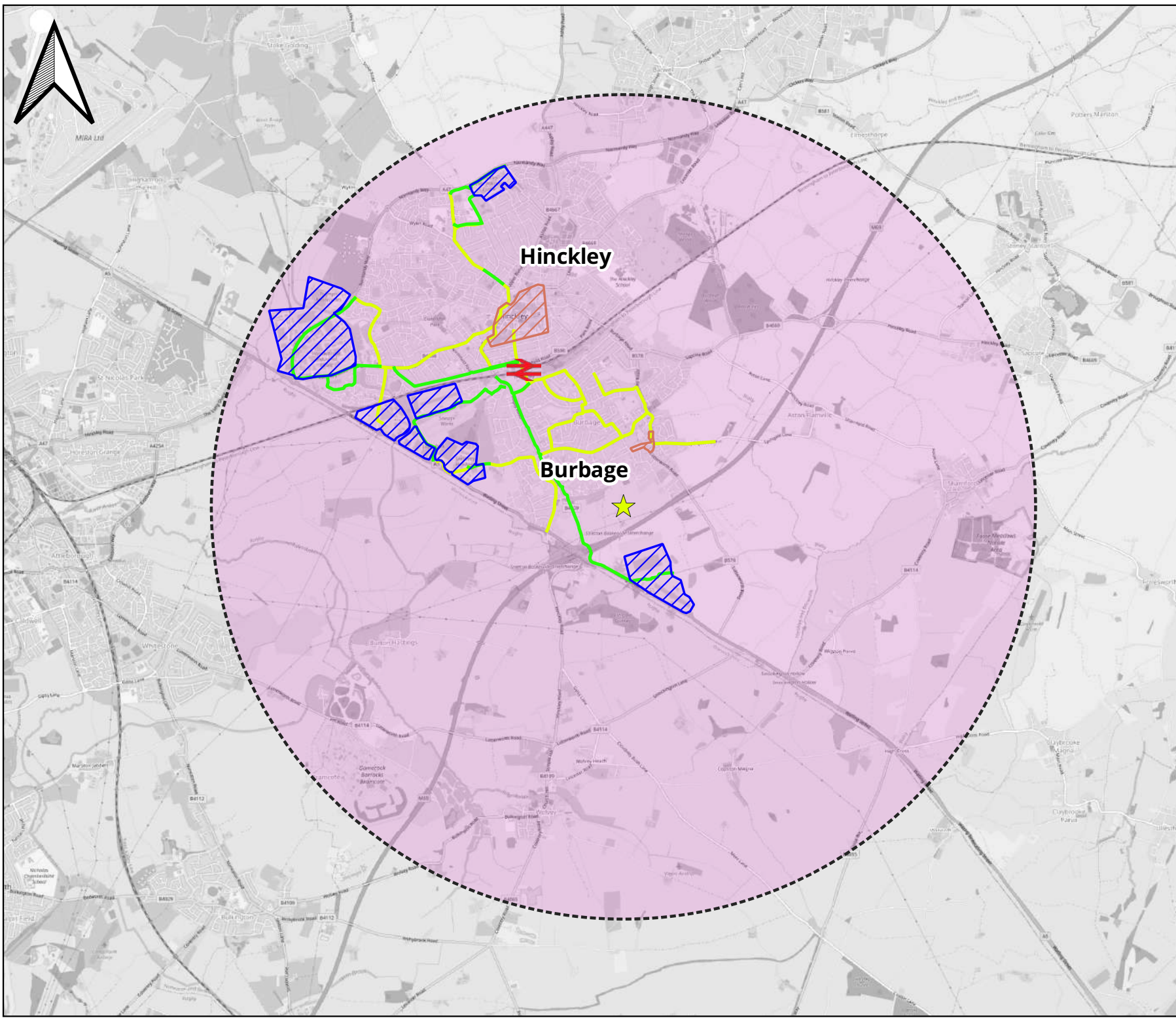
FOR INFORMATION

Scale
A4 @ 1:20000
Drawn
JWB
Checked
ADM
Date
27/03/23
Figure Number

Figure 4

3.5 Cycling

- 3.5.1 The Choose How You Move partnership project is a joint venture between LCC and Leicester City Council that provides travel information in Leicester and Leicestershire online. The website includes a cycle map for Hinckley and Burbage that highlights on-road / off-road cycle routes as well as roads considered 'quieter routes', routes that can provide an opportunity to experience cycling along roads with less motor traffic. In addition the map also includes the location of toucan crossings. Both the Choose How You Move cycling map for Hinckley and the Cycleways plan from the Burbage Neighbourhood Plan have been included within **Appendix E**.
- 3.5.2 As shown on the Hinckley and Burbage cycling map, a shared footway / cycleway runs along the eastern side of the B4109 Rugby Road providing a direct route from the western side of the Burbage to Hinckley to the north. Locally within Burbage a number of streets are considered quieter routes, namely Sketchley Road and Twycross Road in the vicinity of the site.
- 3.5.3 The Hinckley and Burbage cycle map shows the extensive network of on-road / off-road cycle routes, quieter routes and toucan crossings. These routes can be used to access employment areas to the west of Burbage such as the Harrowbrook Industrial Estate, the Dodwells Bridge Industrial Estate and Logics Park, as well as the facilities and amenities within Hinckley town centre and the various designated cycle parking locations. It should also be noted that the Hastings High School, located on the northeast side of Burbage, can also be accessed using quieter routes and off-road cycle routes.
- 3.5.4 To understand the areas which future residents and employees could travel to / from by bicycle, a 5km cycling catchment from the site has been calculated. The cycle catchment from the site is shown on **Figure 5**.
- 3.5.5 As shown on **Figure 5**, the 5km catchment includes the entire village of Burbage and the majority of Hinckley.



- Legend**
- ★ Site Location
 - ⇄ Hinckley Railway Station
 - Quieter Cycling Routes
 - On-Road / Off-Road Cycle Routes
 - ▨ Urban Centres
 - ▨ Employment Areas
 - Indicative 5km Cycling Catchment

Note: Both the "Quieter Cycling Routes" and the "On-Road / Off-Road Cycle Routes" are annotated based on the Hinckley and Burbage Cycle Map from Choose How You Move.

Source: © OpenStreetMap contributors, CC-BY-SA



Client
Redrow Homes

Project
Land South of Burbage

Figure Title
Indicative 5km Cycling Catchment

Status
FOR INFORMATION

Scale

A4 @ 1:60000

Drawn	Checked	Date
JWB	ADM	27/03/23

Figure Number

Figure 5

3.6 Public Transport – Buses

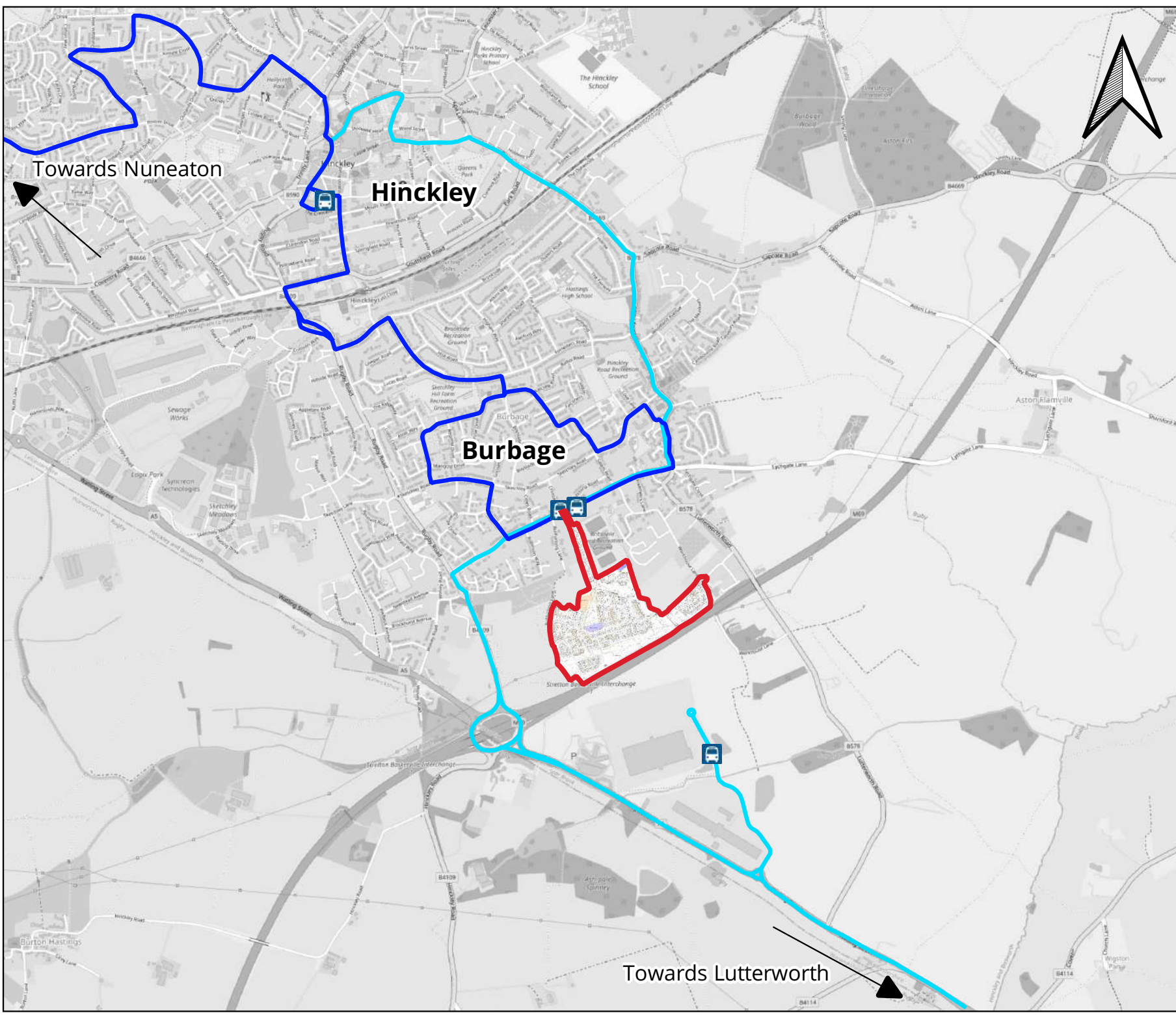
- 3.6.1 The closest bus stops to the proposed development are located approximately 640m (a 7 minute walk) from the centre of the proposed development, at the 'Crossways' bus stop along Coventry Road. The existing bus stop facilities comprise a flagpole with timetable information. **Table 7** provides a summary of the timetables for the local bus services, operated by Arriva, that serve the 'Crossways' bus stop along Coventry Road.

Table 7: Local Bus Service Timetables

Bus Service	Weekday			Weekend		
	Start Time	Frequency	End Time	Start Time	Frequency	End Time
7 / 7A						
Burbage – Nuneaton	07:35	30mins – 60mins	18:20	Sat 08:30	Sat Every 30 minutes	Sat 17:30
Nuneaton – Burbage	07:25	30mins – 60mins	17:35	Sat 09:05	Sat Every 30 minutes	Sat 17:05
8						
Hinckley – Lutterworth	05:00	Hourly (05:00 – 18:00), 21:10	21:10	Sat 05:10 Sun 05:05	Sat Hourly (05:10 – 17:00), 21:10 Sun Every 8 Hours	Sat 21:10 Sun 21:05
Lutterworth – Hinckley	05:10	Hourly (05:10 – 19:00), 22:05	22:05	Sat 05:10 Sun 06:05	Sat Hourly (05:10 – 18:05), 22:05 Sun Every 8 Hours	Sat 22:05 Sun 22:05

Note: Times shown are departure time of service from the origin stop of the service and are up to date as of 13/07/24.

- 3.6.2 The current timetables for these bus services are included within **Appendix F**, with the routes of the bus services shown on **Figure 6**.



Legend

- Indicative Site Boundary
- Key Bus Stops
- 7 Bus Route
- 8 Bus Route

Source: © OpenStreetMap contributors, CC-BY-SA



Client
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Figure Title
Existing Bus Route Map

Status
FOR INFORMATION
Scale

A4 @ 1:25000
Drawn
JWB
Checked
ADM
Date
20/04/23
Figure Number
Figure 6

3.7 Public Transport – Rail

- 3.7.1 The closest railway station to the proposed development is in Hinckley, approximately 3km to the north of the proposed development. Hinckley Station is on the Birmingham – Peterborough railway line. The railway station is located on the southern side of Hinckley town centre. A summary of the facilities provided at the station can be seen below in **Table 8**.

Table 8: Hinckley Railway Station Facilities

Facilities		Hinckley Railway Station	
Cycle Parking	Stands	Yes	
	Sheltered	Yes	
	Spaces	16 (Platform 1) & 10 (Platform 2)	
Ticket Office Opening Hours		Mon - Fri	06:40 - 13:00
		Saturday	06:40 - 13:00
		Sunday	Closed
CCTV Coverage		Yes	
Refreshment Facilities		No	
Passenger Information		Departure screens, Announcements	

- 3.7.2 A photograph of the sheltered Sheffield stand cycle parking at Hinckley Railway Station at Platform 2 (10 spaces) can be seen below in **Photograph 6**.

Photograph 6: Hinckley Railway Station Platform Two Cycle Parking



- 3.7.3 Railway services from Hinckley railway station provide access to a number of towns and cities in the region. The average journey time by rail to reach these destinations is shown below in **Table 9**.

Table 9: Average Journey Times to Local Railway Stations

Destination	Journey Length (Minutes)
Nuneaton	6
Narborough	8
South Wigston	13
Leicester	21
Coleshill Parkway	22
Birmingham New Street	37

- 3.7.4 It can be concluded that Hinckley Railway station provides a feasible option for journeys to neighbouring towns and cities for both leisure and commuting purposes.

3.8 Accessibility to Key Services

- 3.8.1 **Table 10** provides indicative sustainable transport journey times for the shortest available routes between the centre of the site and the key facilities and amenities in the local area. It should be noted that **Table 10** does not represent an exhaustive list of local facilities and amenities.
- 3.8.2 Bus journey times have been calculated based on bus timetable information. It should be noted that the bus journey times include all parts of the journey (i.e. walking to / from the stops at the origin and destination, transfer times, etc). Public transport times have not been included where the approximate walking journey time is 15 minutes or less. In addition, any walking journey times exceeding 90 minutes have also been disregarded.

Table 10: Distances and Journey Times to Local Facilities and Amenities

Service Category	Facility / Amenity	Approx. Dist. (km)	Approx. Journey Time (minutes)		
			Walking	Cycling	Bus
Community	Village Hall	0.91	11	3	N/A
Community	Scouts' Hut	1.07	12	3	N/A
Community	Methodist Church	1.07	12	3	N/A
Community	Library	1.23	14	3	N/A
Community	Post Office	1.23	14	3	N/A
Community	Salon 65 (Hairdressers)	1.39	16	4	10

Service Category	Facility / Amenity	Approx. Dist. (km)	Approx. Journey Time (minutes)		
			Walking	Cycling	Bus
Community	Jets (Hairdressers)	1.39	16	4	10
Community	St Catherine's Church	1.56	18	4	12
Community	Burbage Day Nursery	2.04	24	6	21
Education (Infant)	Burbage C of E Infants School	1.23	14	3	N/A
Education (Primary)	Burbage Junior School	1.39	16	4	13
Education (Primary)	Sketchley Hill Primary School	1.56	18	4	N/A
Education (Secondary)	Hastings High School	2.04	24	6	22
Education (FE/HE)	Hinckley Academy and John Cleveland Sixth Form Centre	3.97	47	12	42
Food Retail (Convenience)	Burbage "News and Booze"	0.64	7	2	N/A
Food (Restaurant)	The Windsor Tiffin	0.91	11	3	N/A
Food Retail (Supermarket)	Co-op	1.56	18	4	13
Health	Dental Practice	1.56	18	4	13
Health	Pharmacy	1.56	18	4	13
Health	Doctors' Surgery	1.56	18	4	13
Hospital	George Eliot Hospital (Nuneaton)	10.78	N/A	36	65
Leisure	The Sycamores (Public House)	0.91	11	3	N/A
Leisure	The Red Lion (Public House)	1.07	12	3	N/A
Leisure	Leisure Centre (Hinckley)	3.70	44	11	27
Village Centre	Burbage	1.09	12	3	N/A
Town Centre	Hinckley	3.70	44	11	27
Transport	Hinckley Railway Station	3.21	38	10	22

- 3.8.3 When viewing the indicative journey times presented above in **Table 10**, it can be seen that future residents and employees of/at the site can access a number of local facilities and amenities via sustainable transport modes.

Routes to Key Local Facilities

- 3.8.4 Further to **Table 10** above, a review has been undertaken of the routes to key local facilities within proximity of the site considering the local walking and cycling infrastructure available. The routes to the local facilities are as follows:

- Sketchley Hill Primary School (Education)
- Burbage Infant and Junior Schools (Education)
- Co-op (Retail)
- Spar (Retail)
- Burbage Village Centre (leisure / Retail)
- Hastings High School (Education)
- Hinckley Railway Station

- 3.8.5 The routes to these facilities are described below with each route presented graphically with photo and descriptive annotation in the respective figures included within this report.

Sketchley Hill Primary School (Education)

- 3.8.6 The walking route to the Sketchley Hill Primary School utilises 2m wide footways along Coventry Road and dropped kerbs at the Coventry Road / Pyeharps Road junction. The Pyeharps Road / Grange Drive junction also has dropped kerbs and 2m wide footways. Footpath U57 connects Grange Drive to Sketchley Road and takes the form of a segregated footpath and is street lit. Sketchley Road has a guardrail near the entrance of the school at the northern end of Footpath U57.

- 3.8.7 The route to Sketchley Hill Primary School is shown on **Figure 7**.

Burbage Infant and Junior Schools (Education)

- 3.8.8 The walking route to the Burbage CE Infant and Junior Schools utilises 2m wide footways along Coventry Road and dropped kerbs at the Coventry Road / Salem Road junction. The Sketchley Road / Grove Road / Salem Road junction has dropped kerbs and tactile paving on all arms of the junction. Grove Road has a 2.5m wide footway to the north and a 2m wide footway to the south. All footways along the route are street lit.

3.8.9 Sketchley Road is also considered a quieter route, suitable for on-carriageway cycling and in addition, a section of shared footway / cycleway is located on the western side of Grove Road passing the entrance of the Junior school.

3.8.10 The route to Burbage Infant and Junior Schools is shown on **Figure 8**.

The Co-op (Retail)

3.8.11 The walking route to the Co-op utilises the 2m wide footways along Coventry Road and dropped kerbs at the Coventry Road / Cotes Road junction. Cotes Road has a 1.5m wide footway along the western side of the carriageway and connects to Sketchley Road via dropped kerbs. The Sketchley Road / Boyslade Road junction also has dropped kerbs, with Boyslade Road having 2m wide footways and a 1m wide service strip on both sides of the carriageway. All footways along this route are street lit.

3.8.12 Sketchley Road and Twycross Road are also considered quieter routes, suitable for on-carriageway cycling.

3.8.13 The route to the Co-op is shown on **Figure 9**.

Spar (Retail)

3.8.14 The walking route to the Spar shop utilises Workhouse Lane, a very lightly trafficked single carriageway road. There is no footway along Workhouse Lane for approximately 300m until the road approaches the edge of urban area of Burbage where a 2m wide footway is present on the western side of the carriageway. Continuing along Workhouse Lane, 60m to the north of the Workhouse Lane / Britannia Road priority junction, Footpath U81 known as 'The Craft' routes on an east-west axis between Britannia Road and the B578 Lutterworth Road. Following the B578 Lutterworth Road to the north, 2m footways are provided on either side of the carriageway with dropped kerbs and tactile paving provided near to the entrance to the Spar shop.

3.8.15 The route to the Spar shop is shown on **Figure 10**.

Burbage Village Centre (Leisure / Retail)

3.8.16 From the northern boundary of the site, the route to Burbage village centre utilises the existing 2m wide footways either side of Coventry Road. In addition Workhouse Lane can be used from the east of the site utilising Britannia Road and Freeman's Lane to access the village centre.

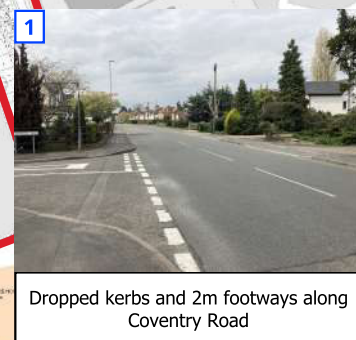
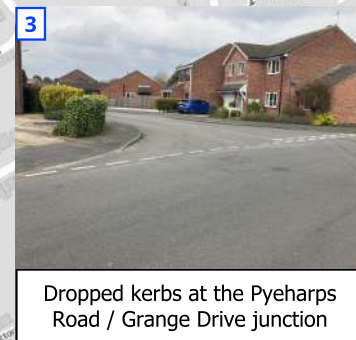
3.8.17 The Workhouse Lane route to the Burbage village centre is shown on **Figure 10**.

Hastings High School (Education)

- 3.8.18 The route to Hastings High School utilises 2m wide footways along Coventry Road and dropped kerbs at the Coventry Road / Salem Road junction. The Sketchley Road / Grove Road / Salem Road junction has dropped kerbs and tactile paving on all arms of the junction. Grove Road has a 2.5m wide footway to the north and a 2m wide footway to the south.
- 3.8.19 Between Grove Road and Sunnysore South, a segregated 3m wide shared footway / cycleway runs alongside the Hinckley Road Cricket Ground. The Forresters Road / Sunnysore South junction has dropped kerbs and tactile paving on all arms, with the Forresters Road / Far Lash junction having dropped kerbs. Far Lash has 2m wide footways and a 1m wide service strip.
- 3.8.20 Sketchley Road and Grove Road are considered quieter routes, suitable for on-carriageway cycling, and using the off-carriageway cycle route between Grove Road and Far Lash, existing infrastructure can be utilised to facilitate cycle trips to the school.
- 3.8.21 The route to the Hastings High School is shown on **Figure 11**.

Hinckley Railway Station

- 3.8.22 There are two separate routes to Hinckley Railway Station.
- 3.8.23 The walking route to Hinckley Railway Station utilises the 2m width footways along Coventry Road and dropped kerbs at the Coventry Road / Cotes Road junction. Cotes Road connects to Sketchley Road via dropped kerbs, with the Sketchley Road / Boyslade Road junction also having dropped kerbs. Featherston Drive has a 2.4m wide service strip and 2m wide footways on both sides of the carriageway. Brookside has 2m wide footways and dropped kerbs at the Brookside / Bridge Road junction. Bridge Road leads to the 3m wide shared footway / cycleway leading to Hinckley Railway Station.
- 3.8.24 The cycling route to Hinckley Railway Station utilises the 3m wide shared footway / cycleway along the B4109 Rugby Road, which is accessible from the B4109 Rugby Road / Coventry Road junction. Brookside also has a 3m wide shared footway / cycleway which can be accessed via dropped kerbs along Brookside. Alternatively cyclists could use the quiet routes along Sketchley Road, Twycross Road, Holt Road and Brookside (from the east) to reach Bridge Road.
- 3.8.25 The route to Hinckley Railway Station is shown on **Figure 12**.



Legend

- Walking Route to Sketchley Hill Primary School
- Indicative Site Boundary



Source: © OpenStreetMap contributors, CC-BY-SA



Client:

Redrow Homes

Project:

Land South of Burbage

Figure Title:

Walking Route to Sketchley Hill Primary School
Status

FOR INFORMATION

Scale:

A4 @ 1:6500

Drawn

Checked

Date

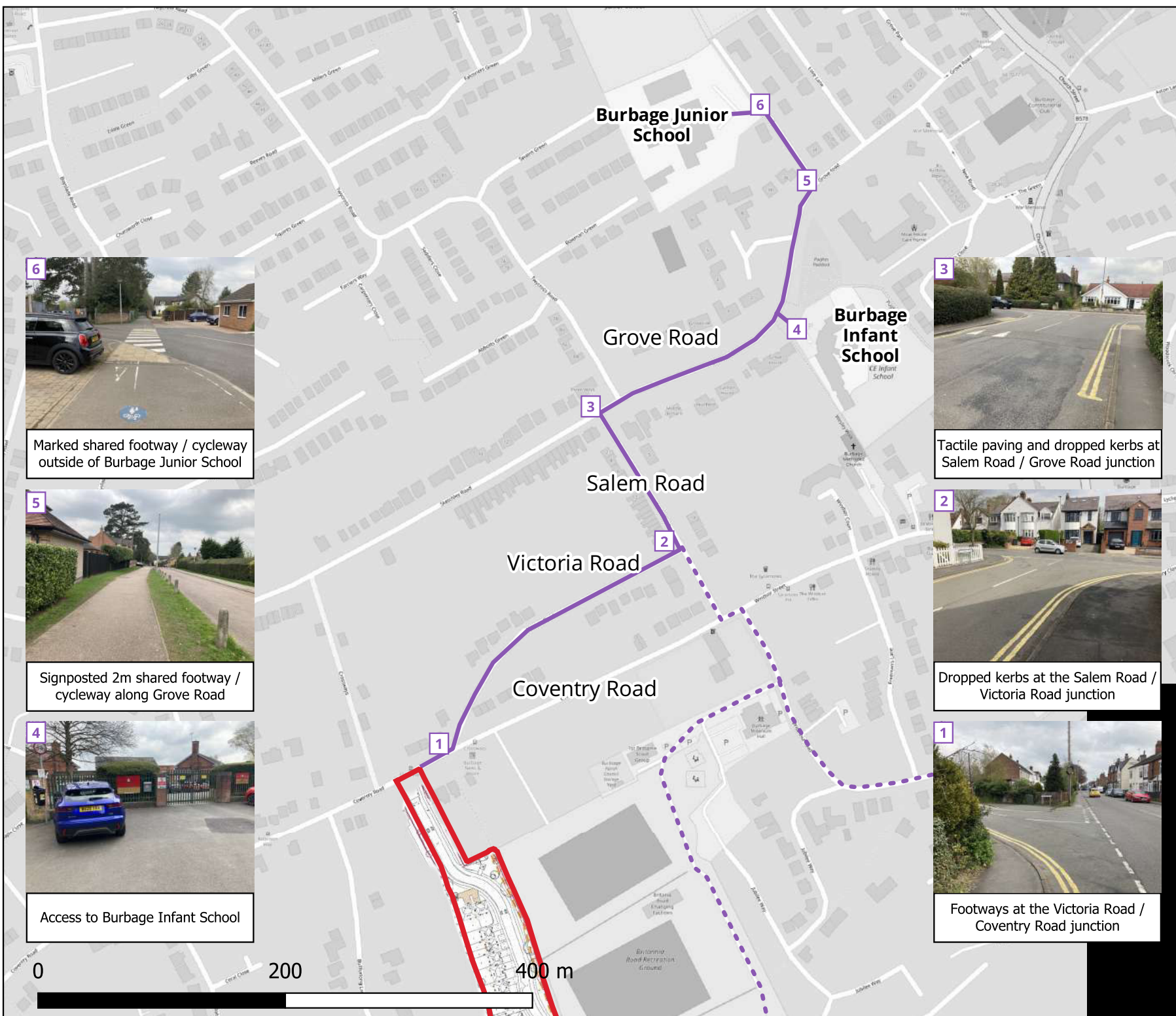
JWB

ADM

20/04/23

Figure Number:

Figure 7



- Legend**
- Walking Route to Burbage Junior & Infant School
 - Alternative Routes to Burbage Junior & Infant Schools
 - Indicative Site Boundary



Source: © OpenStreetMap contributors, CC-BY-SA



Client
Redrow Homes
Project
Land South of Burbage

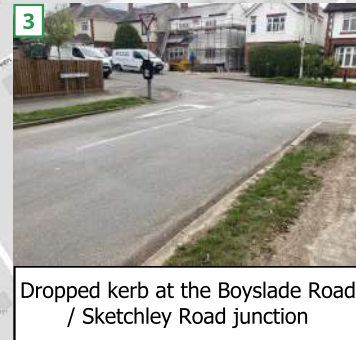
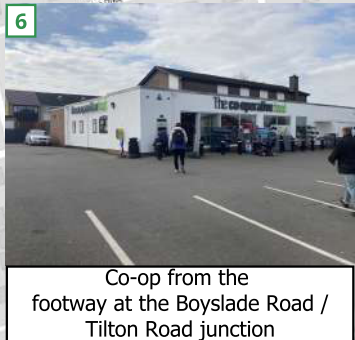
Figure Title
Walking Route to Burbage Infant & Junior Schools
Status

FOR INFORMATION

Scale
A4 @ 1:3000
Drawn
JWB
Checked
ADM
Date
20/04/23
Figure Number

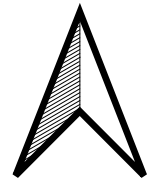
Figure 8





Legend

- Walking Route to Co-op
- Indicative Site Boundary



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Client
Redrow Homes
Project
Land South of Burbage

Figure Title
Walking Route to Co-op

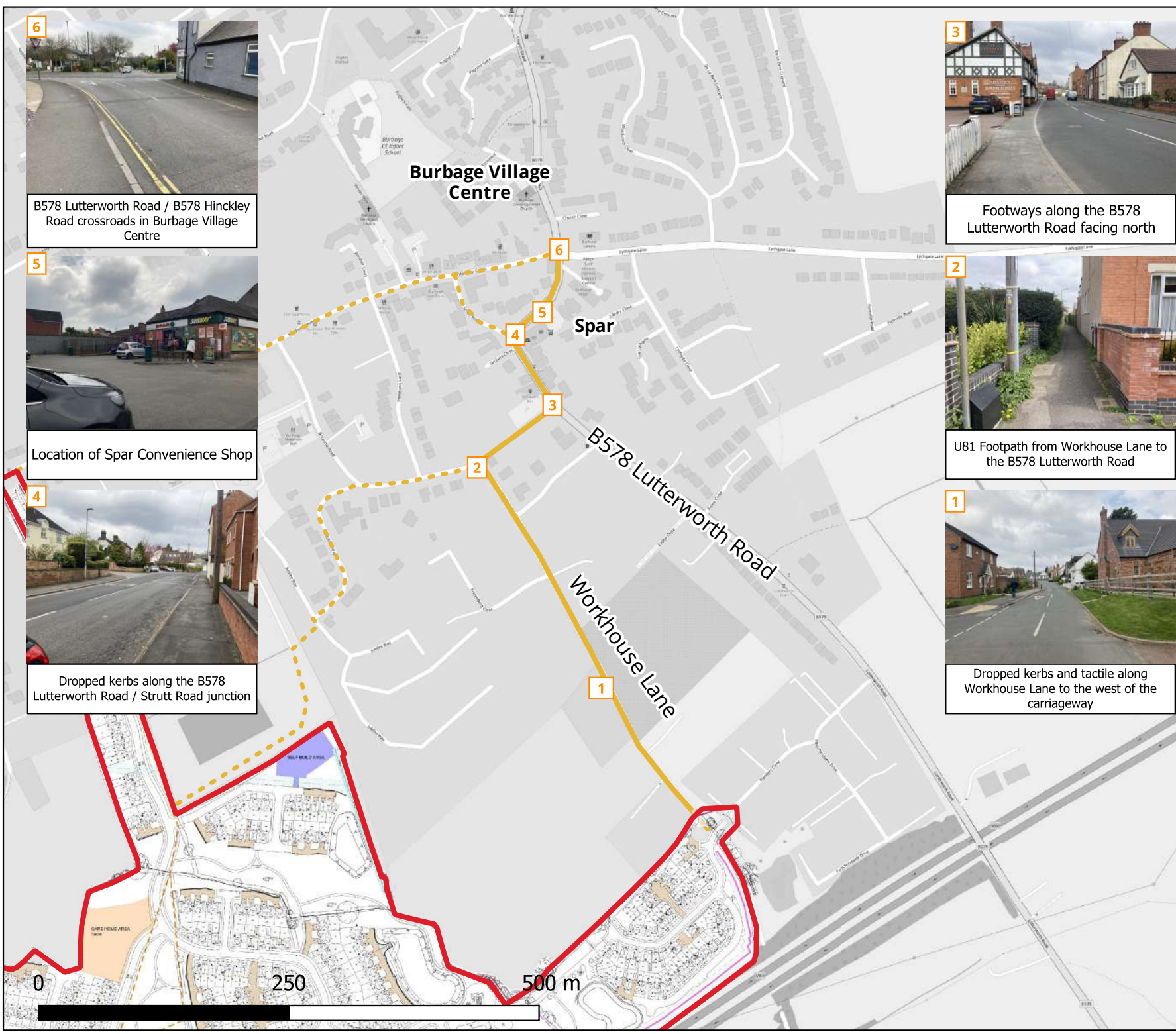
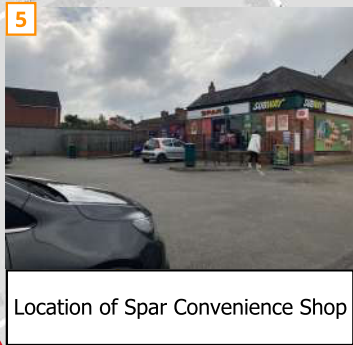
Status
FOR INFORMATION

Scale
A4 @ 1:4000

Drawn
JWB
Checked
ADM
Date
20/04/23

Figure Number

Figure 9



- Legend
- Walking Route to Spar & Burbage Village Centre
 - Alternative Routes to Spar & Burbage Village Centre
 - Indicative Site Boundary



Source: © OpenStreetMap contributors, CC-BY-SA



Client:
Redrow Homes
Project
Land South of Burbage

Figure Title:
Walking Route to the Spar & Burbage Village Centre
Status

FOR INFORMATION

Scale

A4 @ 1:5000

Drawn

Checked

Date

JWB

ADM

20/04/23

Figure Number

Figure 10



Dropped kerbs and tactile paving at junction



Dropped kerbs leading at Forrester's Road / Far Lash junction



Shared footway / cycleway routing through Hinckley Road Recreation Ground



Shared footway / cycleway outside of Burbage Junior School



2.5m signposted shared footway / cycleway along Grove Road



Tactile paving with dropped kerbs at Salem Road/Grove Road junction



Dropped kerbs at Victoria Road / Salem Road junction



Footways at Victoria Road / Coventry Road junction

Legend

- Walking Route to Hastings High School
- Alternative Routes to Hastings High School
- Indicative Site Boundary



Source: © OpenStreetMap contributors, CC-BY-SA



Client:

Redrow Homes

Project

Land South of Burbage

Figure Title:

Walking Route to Hastings High School
Status

FOR INFORMATION

Scale

A4 @ 1:6500

Drawn

Checked

Date

JWB

ADM

20/04/23

Figure Number:

Figure 11



3m shared footway / cycleway leading to Hinckley Railway Station



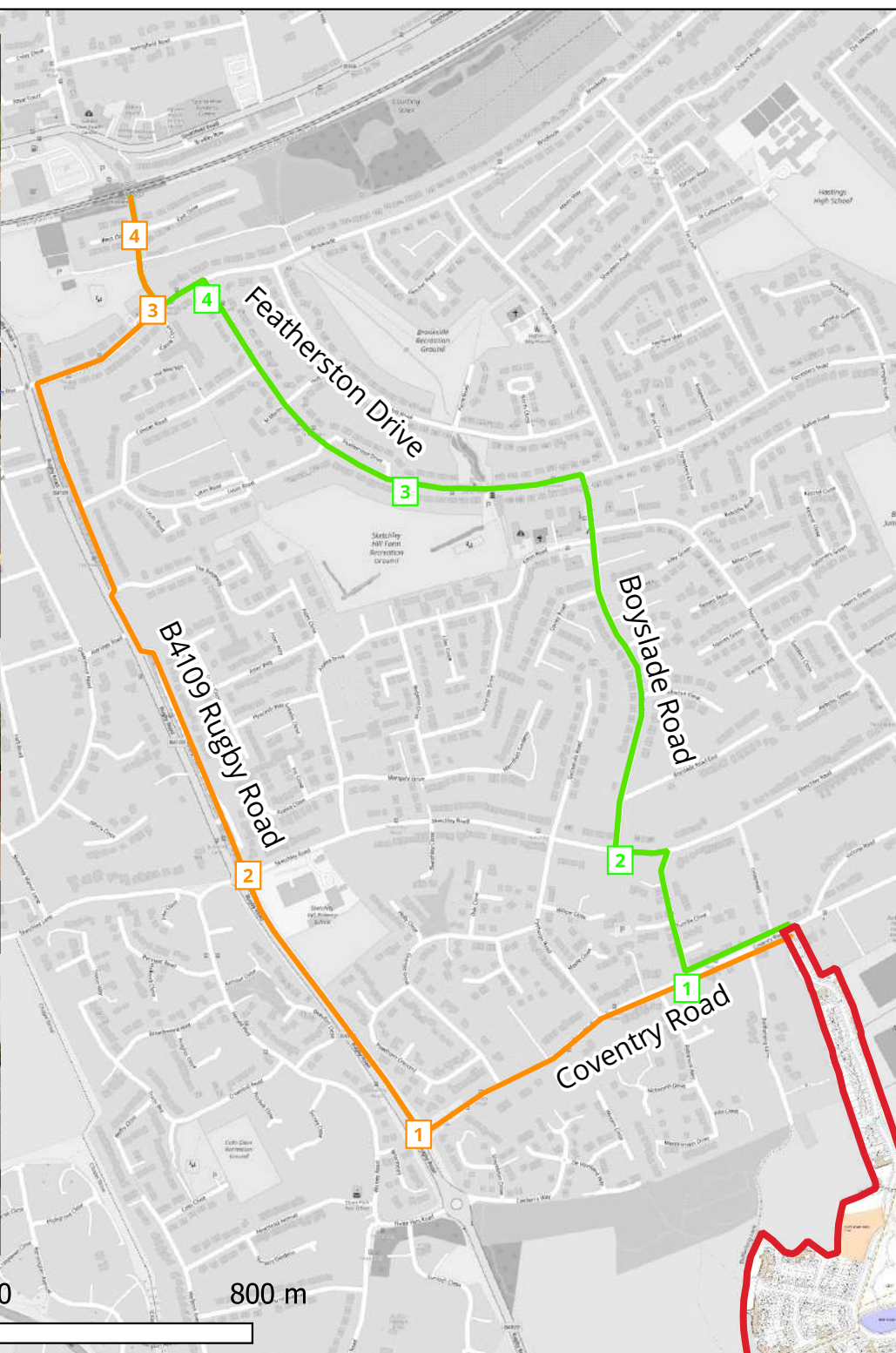
Transition point from off-carriageway to on-carriageway cycleway along Bridge Road



3m shared footway / cycleway facing northbound along the B4109 Rugby Road



Dropped kerbs and tactile paving at the 3m shared footway / cycleway along the B4109 Rugby Road



Dropped kerbs along Featherston Drive



Featherston Drive facing northbound, showing 2m wide footways



Dropped kerbs at the Sketchley Road / Boyslade Road junction



Dropped kerbs at Coventry Road / Cotes Road junction

Legend

- Indicative Site Boundary
- Cycling Route to Hinckley Railway Station
- Walking Route to Hinckley Railway Station



Source: © OpenStreetMap contributors, CC-BY-SA



Client:

Redrow Homes

Project:

Land South of Burbage

Figure Title:

Routes to Hinckley Railway Station
Status

FOR INFORMATION

Scale:

A4 @ 1:10000

Drawn

Checked

Date

JWB

ADM

20/04/23

Figure Number:

Figure 12

4 Development Proposals

4.1 General Description

- 4.1.1 The development proposals consist of:
- 422 dwellings (full planning application)
 - Residential care home (up to 66 beds) (outline planning application)
 - 11 self-build plots (outline planning application)
- 4.1.2 A copy of the site layout is presented in **Appendix A**.
- 4.1.3 The development comprises two parts. The new access off Coventry Road will serve 367 dwellings, the residential care home and 11 self-build plots. The remaining 55 dwellings will take access off Flanders Close. For the purposes of this report, areas of the development accessed from Coventry Road are referred to as 'the western part' comprising 367 dwellings, the care home and the self-build plots. The remaining 55 dwellings accessed from Flanders Close are referred to as 'the eastern part'.
- 4.1.4 It should be noted that vehicle access is not provided between the two parts of the development, with the western part of the site being served via a new access off Coventry Road, and the eastern part being served via an extension of Flanders Close.
- 4.1.5 The breakdown of Redrow dwellings by number of bedrooms can be seen below in **Table 11**.

Table 11: Housing Schedule (dwellings)

Number of Bedrooms	Number of Dwellings
1	30
2	144
3	180
4	48
5	20
Total	422

4.2 Vehicular Site Access: Coventry Road

Site Access Design

- 4.2.1 The site access arrangements for the western part of the development will take the form of a new priority junction onto Coventry Road. The access design includes:
- Tapered kerb line from the junction bellmouth to the existing kerb line to facilitate the largest vehicles expected to access the development.
 - Cycle ramp on the eastern side of the access to facilitate cyclists transitioning from the carriageway to the shared footway/cycleway on the eastern side of the spine road.
 - Indicative cycle markings on the carriageway at the junction and on the shared footway/cycleway.
 - A delineated informal pedestrian / cyclist crossing on the estate road in the vicinity of the access.
 - An informal pedestrian crossing with dropped kerbs and tactile paving along Coventry Road to the west of the junction.
- 4.2.2 A drawing of the site access arrangements (drawing no. 21390-RLL-23-XX-DR-D-5008P08) has been appended as **Appendix G**.
- 4.2.3 The junction has been subject to a Stage 1 Road Safety Audit, with the RSA and Designers Response included within **Appendix H**.
- 4.2.4 As specified in *Table DG1: General Geometry of Residential Roads (Internal)* of the Leicestershire Highways Design Guide (2022 interim guide), a Major Residential Access Road can accommodate up to 400 dwellings off a single point of access. As shown in **Appendix G**, the preliminary design includes a 6.75m wide site access carriageway. In accordance with the Leicestershire Highways Design Guide, it is considered a Major Residential Access Road.

Design Process

- 4.2.5 During consultation with LCC, it was requested that a ghost island right turn lane should be considered along Coventry Road as part of the access design. The comments from LCC referred to Figure 2.3.1 from DMRB CD123: *Geometric design of at-grade priority and signal controlled junctions* which outlines an approximate threshold for the provision of ghost island right turn lane using minor and major road annual average daily traffic flow.
- 4.2.6 Given the proposed access is located off a residential road in a urban area, the suitability of a ghost island right turn lane should be considered against current guidance in Manual for Streets 2 (MfS2).

- 4.2.7 As stated in paragraph 9.4.7 of MfS2 : "TD 42/95 recommends that consideration should be given to providing a right turning lane at priority junctions where the side road flow exceeds 500 vehicles per day, but this advice relates to trunk roads, where there is an emphasis on providing an unimpeded route for through traffic. If it is a relatively low flow, and junctions without right turn lanes will often be able to cater for higher levels of turning traffic without resulting in significant congestion".
- 4.2.8 MfS2 goes on to state in Paragraph 9.4.8: "Right turning lanes make it more difficult for pedestrians to cross major roads and lead to higher traffic speeds and authorities should therefore consider carefully all of the effects before deciding to provide them".
- 4.2.9 It should also be considered that none of the existing priority junctions along the length of Coventry Road include a ghost island right turn lane.
- 4.2.10 LCC have subsequently agreed with RL that the provision of a ghost island right turn lane, designed to standards as set out in Design Manual for Roads and Bridges (DMRB) CD123, is considered unachievable given the extent of highway land available within the vicinity of the site access.
- 4.2.11 However, LCC requested that the effect on pedestrians crossing Coventry Road could be mitigated. RL have explored the options for providing a pedestrian crossing facility across Coventry Road as summarised in **Table 12** below.

Table 12: Pedestrian Crossing Options

Option	Location	Comments	Decision
Pedestrian refuge	West of Site Access	Locations limited by existing driveways and junctions. Pedestrian refuge would impede certain vehicles movements to/from existing driveways. Pedestrian refuge would impede bus manoeuvring from site access to the west	x
Dropped kerbs with tactiles	West of Site Access	Locations limited by existing driveways and junctions. Tactiles can be located as to avoid vehicle overrun.	✓
Dropped kerbs with tactiles	East of Site Access	Locations limited by existing driveways and junctions. Existing driveways on the south side of Coventry Road would result in tactile paving overrun from manoeuvring cars.	x

- 4.2.12 The exploration of various pedestrian crossing options along Coventry Road determined that there was not a suitable location along Coventry Road within a suitable distance from the proposed site access which could accommodate a traffic island.
- 4.2.13 It was concluded that the most suitable form of pedestrian crossing facility along Coventry Road in the vicinity of the site access would be a dropped kerb crossing with tactile paving approximately 15m from the centre of the site access. A swept path analysis drawing (drawing: 21390-RLL-24-XX-DR-D-5020) showing dwellings 67 & 69 Coventry Road accessing and egressing their driveways whilst avoiding overrunning the proposed pedestrian crossing has been included as part of **Appendix I**.
- 4.2.14 The iterative design process has determined that a simple priority junction with a cycle ramp and a dropped kerb crossing with tactile paving along Coventry Road is the most suitable form of access to the proposed development when considered traffic flows along Coventry Road and the local constraints.
- 4.2.15 On this basis the proposed access arrangements as shown on drawing no. 21390-RLL-23-XX-DR-D-5008P08 (appended as **Appendix G**) are considered safe and suitable to access the proposed development off Coventry Road.

Pedestrian and Cyclist Access

- 4.2.16 As part of the new site access junction with Coventry Road, an informal pedestrian / cyclist crossing is provided on the estate road at the site access consisting of a dropped kerb and tactile paving. This crossing is located approximately 12m back from the give way line of the junction and will be delineated with surface colour and/or treatment to highlight the crossing to motorists.
- 4.2.17 The location of spine road crossing point is considered appropriate for the following reasons:
- Provides carriageway space within the development to allow a bus or refuse vehicle to wait off the main carriageway of Coventry Road whilst a pedestrian or cyclist is using the crossing point.
 - Allows a vehicle turning into the development access from Coventry Road to give way to a pedestrian or cyclist using the crossing point without obstructing Coventry Road.
 - Allows for a bus or refuse vehicle to wait at the stopline of the junction before manoeuvring onto Coventry Road without the rear of the vehicle obstructing the crossing point.
 - A crossing point at the bellmouth of the junction would result in a longer time for pedestrians walking in the carriageway. The shorter crossing point

to the south of the junction, with surface colouring, dropped kerbs and tactile paving (400mm depth in accordance with Guidance on the Use of Tactile Paving Surfaces, December 2021) provides a safe, delineated crossing point.

- 4.2.18 The location of the crossing is located 12m back from the give way line of the junction. This position has been chosen to allow a bus or a refuse vehicle to wait within the development without obstructing pedestrian or cyclists using the crossing. This location also provides a short crossing distance over the carriageway.
- 4.2.19 As part of the Coventry Road site access, a cyclist ramp has been added in order to facilitate cyclists along Coventry Road moving onto the shared footway / cycleway within the development. Cycle markings have been included on the carriageway and the shared footway / cycleway in order to direct cyclists.

Visibility Splays

- 4.2.20 Visibility splays for the proposed site access junction have been provided in accordance with Table DG4 from Part 3 of the Leicestershire Highway Design Guide (2022 interim guide). An ATC was undertaken along Coventry Road from Wednesday 24th to Tuesday 30th November 2021. The ATC recorded 85th percentile speeds of 30.4mph and 32mph from vehicles heading eastbound and westbound respectively. Using Table DG4, visibility splays of 2.4 x 54m are required in both directions from the site access.
- 4.2.21 The abundance of dropped kerbs along Coventry Road severely reduces the locations within the visibility splays that are suitable for a vehicle to park without blocking existing driveways. Even if a vehicle was to park at the extent of either visibility splay, a motorist waiting to pull out of the site access would be able to see a vehicle travelling on the northern side of the carriageway, to the left for a vehicle travelling eastbound or to the right for a vehicle travelling on the opposite side of the carriageway when overtaking a parked vehicle. On this basis even if a vehicle was parked at the extent of the visibility splay, there is adequate visibility to ensure a safe manoeuvres to/from the site access.

Vehicle Swept Path Analysis

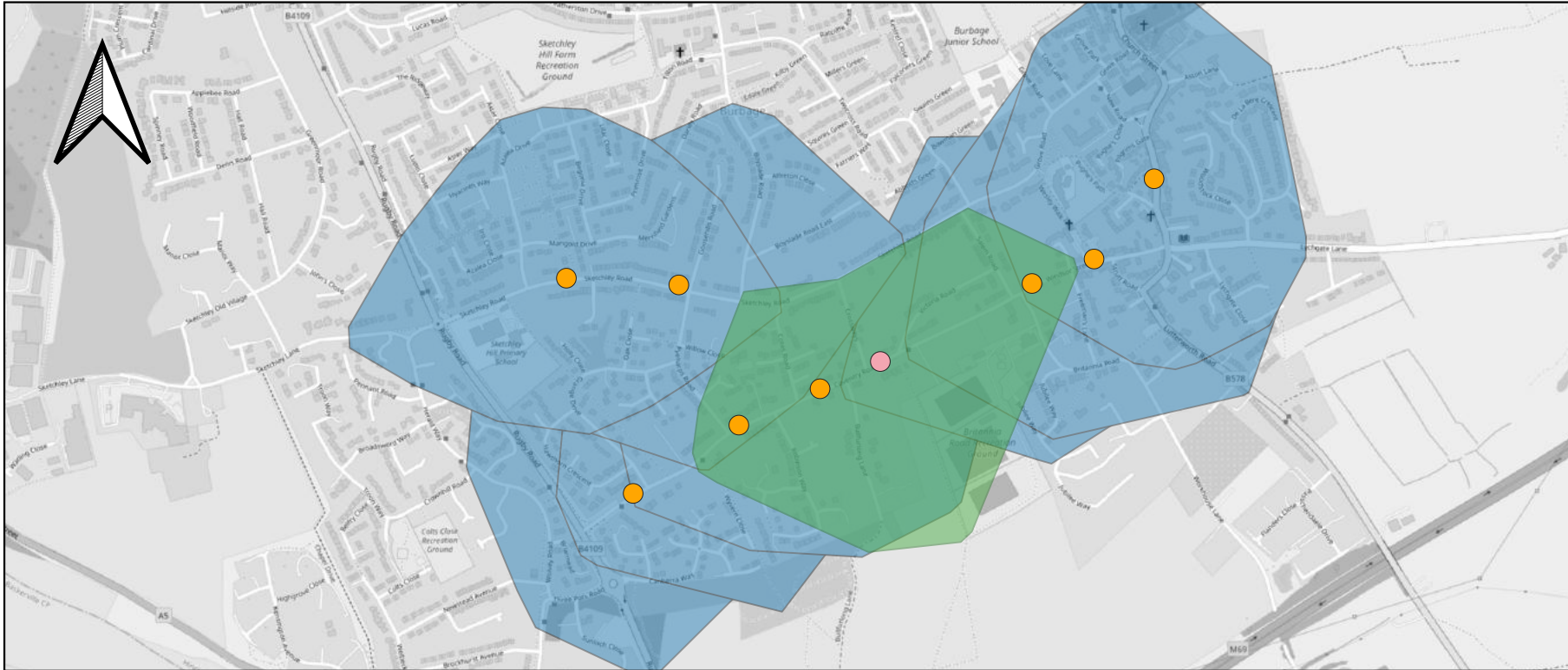
- 4.2.22 As requested by LCC, all vehicle swept path analysis drawings have been undertaken using a 15kph vehicle speed.
- 4.2.23 A swept path analysis drawing (drawing: 21390-RLL-23-XX-DR-D-5009P07) has been produced showing a bus accessing and egressing the proposed site access off Coventry Road. In addition, a swept path analysis drawing (drawing: 21390-RLL-23-XX-DR-D-5012P05) showing an 11.2m refuse vehicle accessing and

egressing the proposed site access has also been produced. Both drawings are available in **Appendix I**.

- 4.2.24 It is acknowledged that minor carriageway overrun is shown on the bus swept path analysis drawing for the Coventry Road access. However, it should be noted that there is sufficient room for a car to wait safely on the spine road approach to the junction when a bus is manoeuvring onto the spine road.
- 4.2.25 It should also be considered that a bus would only pull out onto Coventry Road when there is suitable gap in traffic to do so. Considering the low hourly background traffic flows along Coventry Road, it is highly unlikely that a bus would have difficulty finding gaps in traffic.
- 4.2.26 Given that buses will be accessing/egressing the site each hour during the daytime, it is considered acceptable that vehicles will acknowledge a bus manoeuvring out of the site access when travelling along Coventry Road and approaching the site access. It is also expected that experienced motorists would be aware that buses, on occasion, may use more carriageway space than delineated by carriageway markings when manoeuvring in and out of Coventry Road and will leave sufficient space for the bus accordingly.

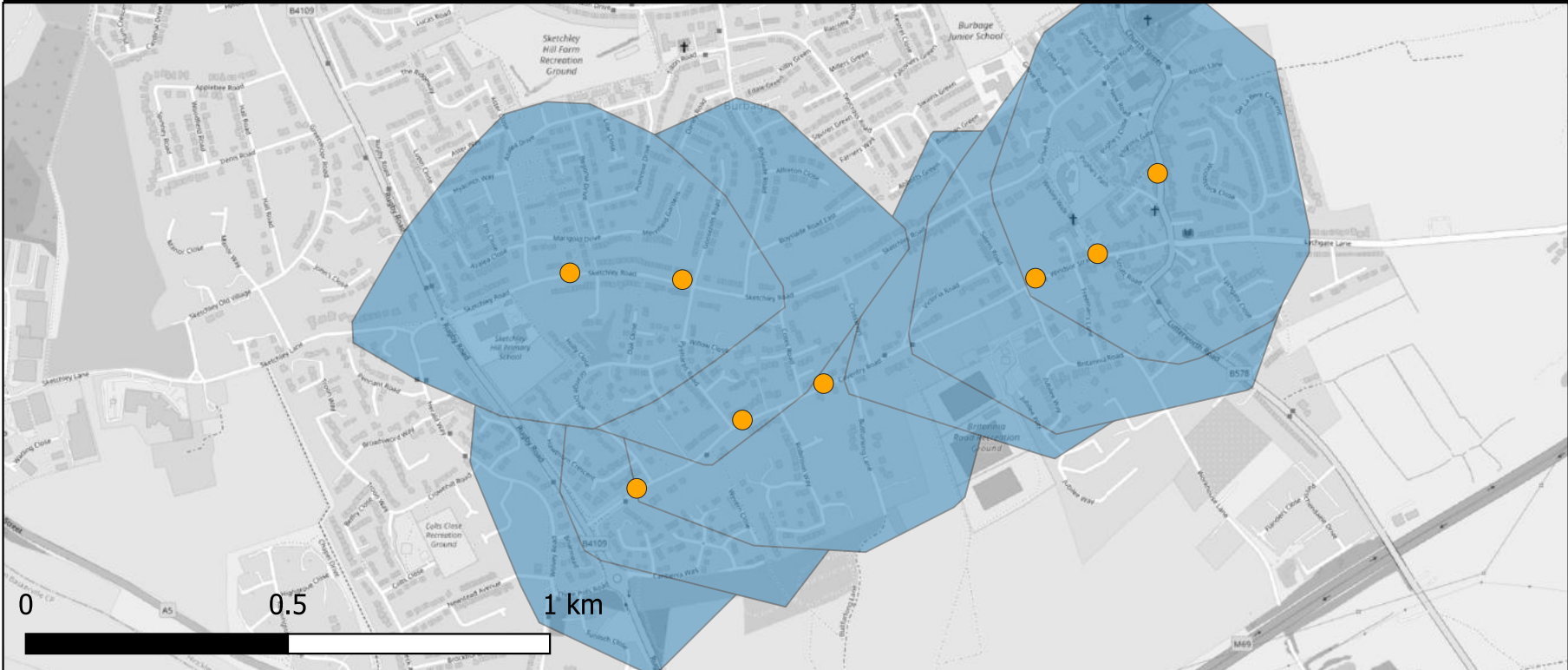
Bus Stop Removal

- 4.2.27 As part of the proposals, the existing bus stop 'Crossways' that is opposite the proposed site access off Coventry Road will be removed or relocated, subject to discussions with LCC and Arriva. The nearest bus stops to the east and west of the 'Crossways' bus stop are the 'Sycamores' and the 'Robinson Way' bus stops, being 320m and 140m away respectively.
- 4.2.28 The Leicestershire Highways Design Guide states that walking distances to bus stops in urban areas should be a maximum of 400m. **Figure 13** shows the existing eastbound bus stops along Coventry Road, the B578 Church Street and Sketchley Road as well as the 400m walking catchment surrounding each bus stop. It also shows the catchments of all the bus stops if the Crossways bus stop was to be removed.
- 4.2.29 If the existing bus stop was to be removed, the existing Burbage residents would still be able to access an eastbound bus stop without exceeding the 400m maximum walking distance.



- Legend**
- Bus Stop to be Removed
 - Existing Burbage Bus Stops
 - Removed Bus Stop Catchment
 - 400 m
 - Existing Bus Stop Catchment
 - 400 m

Source: © OpenStreetMap contributors, CC-BY-SA



Client:
Redrow Homes
 Project
Land South of Burbage

Figure Title:
Bus Stop Catchments in Burbage

Status
FOR INFORMATION
 Scale

A4 @ 1:12500
 Drawn Checked Date
JWB ADM 20/06/23
 Figure Number

Figure 13

St James House, Mansfield Road, Derby, DE1 3TQ, Tel: 01332 285000, Fax 01332 291728, www.rodgersleask.co.uk

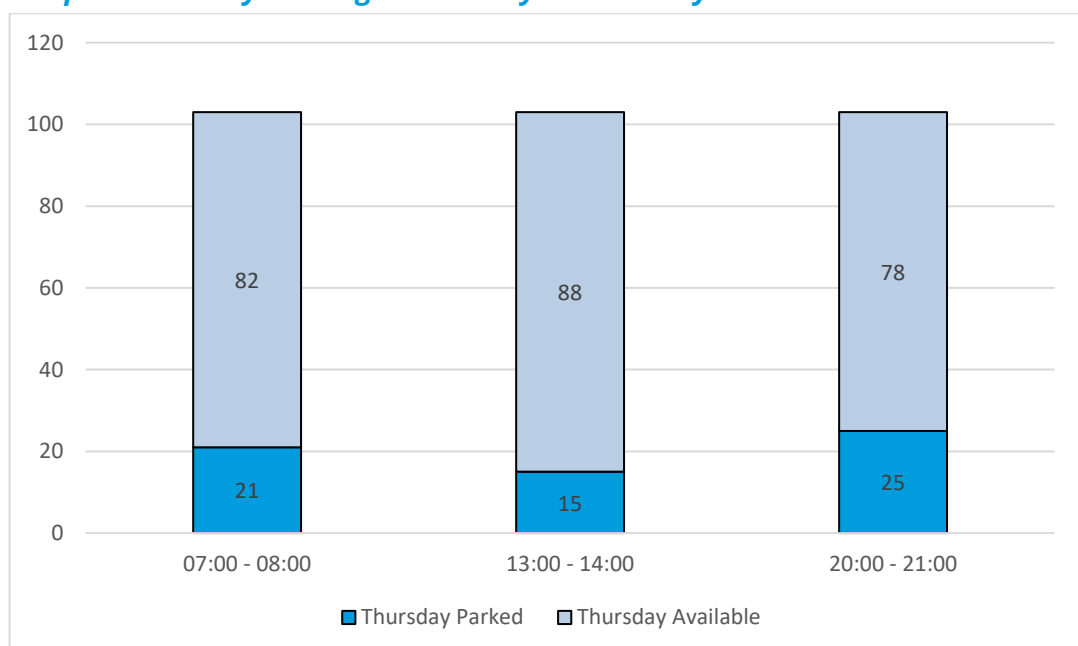
Parking Along Coventry Road

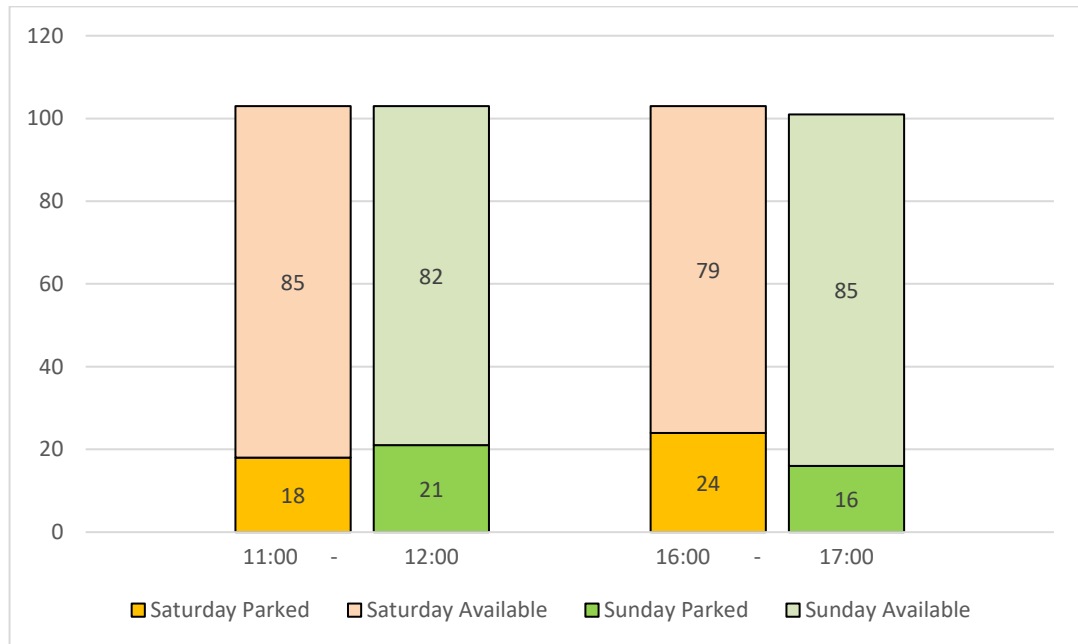
4.2.30 To understand the existing parking situation in the vicinity of the proposed access a parking beat survey was commissioned along Coventry Road and several roads in the vicinity that connect to Coventry Road. The parking beat survey cordoned the study area in several zones and recorded the number of parked vehicles within each zone over a three day period for the following time periods:

- Thursday 7th September 2023
 - 07:00 – 08:00
 - 13:00 – 14:00
 - 20:00 – 21:00
- Saturday 9th September 2023
 - 11:00 – 12:00
 - 16:00 – 17:00
- Sunday 10th September 2023
 - 11:00 – 12:00
 - 16:00 – 17:00

4.2.31 The full results of the parking beat survey have been included **Appendix J**. A summary of the total number of parked vehicles within the study area for each zone in each surveyed time period for Thursday is presented below in **Graph 4** with the results for Saturday and Sunday also shown below in **Graph 5**.

Graph 4 Thursday Parking Availability in the Study Area



Graph 5: Weekend Parking Availability in the Study Area

- 4.2.32 The parking beat survey demonstrated that during the time periods surveyed there was space for up to 80 vehicles within areas of the study area that have no parking restrictions.
- 4.2.33 An overview of the parking beat survey results for each specific parking beat has been provided in **Appendix J**, which graphically shows the availability of parking per zone. It can be seen that there is an abundance of parking available within the surrounding area of the proposed site access.
- 4.2.34 Given that the proposed site access will be on the southern side of Coventry Road, the number of vehicles parked within zones 7 & 8 has been examined in further detail. This is of particular relevance given the 54m visibility splays from the site access pass through both zones. The number of parked vehicles for zones 7 & 8 have been highlighted below in **Table 13**.

Table 13: Zones 7 & 8: Parked Vehicles

Time Period	Zone 7			Zone 8		
	Parked Vehicles	Uncontrolled Road Space (Space for Vehicles)	Total	Parked Vehicles	Uncontrolled Road Space (Space for Vehicles)	Total
Thursday 7th September 2023						
07:00 – 08:00	6	1	7	0	8	8
13:00 – 14:00	4	3	7	1	7	8
20:00 – 21:00	6	1	7	0	8	8
Saturday 9th September 2023						
11:00 – 12:00	4	3	7	1	7	8
16:00 – 17:00	5	2	7	2	6	8

Sunday 10 th September 2023						
11:00 – 12:00	5	2	7	2	6	8
16:00 – 17:00	3	4	7	1	7	8

- 4.2.35 **Table 13** has demonstrated that there are typically between 3 – 6 vehicles parked within zone 7, and that there are a maximum of 1 – 2 vehicles parked within zone 8 during typical peak times. The table shows that very little parking occurs within zone 8, highlighting that the proposed access will result in a negligible amount of displaced parking. Given the abundance of available parking in the vicinity, any displaced vehicles from zones 7 & 8 can relocate to the other zones.

4.3 Vehicular Site Access: Flanders Close

Site Access Design

- 4.3.1 This Flanders Close access will connect into the existing residential area of Ambion Way (Redrow Homes) which in turn takes access off the B578 Lutterworth Road via the existing B578 Lutterworth Road / Passchendaele Drive priority junction. The Flanders Close access will serve the eastern part of the development.
- 4.3.2 It should be noted that drawings showing the access design have been previously submitted as part of the Land To The South West Of Lutterworth Road Burbage outline (ref 21/00502/OUT) and 'free go' (ref 23/00148/OUT) applications and have been agreed in principle with the local highway authority.
- 4.3.3 The access will consist of a 5.5m wide carriageway with 2m wide footways both sides of the carriageway. The drawing (19409-RLL-20-XX-DR-C-2100G) showing the connection has been included as **Appendix K**.
- 4.3.4 As part of the access into the site there is a section of narrowing proposed on the existing Flanders Close carriageway. This narrowing is 20m in length and reduces the carriageway width from 5.5m to 4.75m. In turn, the northern footway reduces in width from 2m to 1.80m over this section with the southern footway reducing from 2m to 1.08m.
- 4.3.5 The section of narrowing acts a traffic calming feature at the access into the development and it has been demonstrated using swept path analysis that an 11.2m refuse vehicle can safely access the development (drawing: 19409-RLL-21-XX-DR-D-5005P02). This drawing has been included within **Appendix K**.
- 4.3.6 As these access arrangements have previously been agreed as part of Land To The South West Of Lutterworth Road the access arrangements onto Flanders Close are considered suitable for the scale of development and meet the requirements of the LHDG.

Workhouse Lane Stopping Up

- 4.3.7 As part of the access arrangements it is proposed to stop up Workhouse Lane, an existing lane that bisects the proposed development and Ambion Way. The stopping up arrangements will still allow for pedestrian and cyclist access onto Workhouse Lane. The drawing (19409-RLL-20-XX-DR-D-5004C) showing the stopping up of Workhouse Lane has been included as **Appendix K**.

4.4 Internal Layout

Speed Control Measures

- 4.4.1 As requested by both LCC and ATE during the determination period, details of speed control measures along the internal access roads have been provided.
- 4.4.2 Speed cushions, carriageway build outs and bend widening has been provided in accordance with LCC highway design guidance. These measures are shown on the site layout presented in **Appendix A**.

Refuse Vehicle

- 4.4.3 A swept path analysis plot of a 11.2m refuse vehicle navigating the internal layout has been provided for the site layout. Swept path analysis drawings have been undertaken in the following locations:
- Full movement around the internal loop (drawing: 21390-RLL-23-XX-DR-D-5013P03)
 - North-eastern corner (drawing: 21390-RLL-23-XX-DR-D-5014P03)
 - South-western corner (drawing: 21390-RLL-23-XX-DR-D-5015P03)
 - Western corner (drawing: 21390-RLL-24-XX-DR-D-5021)
 - Southern corner (drawing: 21390-RLL-24-XX-DR-D-5022)
- 4.4.4 These swept path analysis drawings have been included as **Appendix I**.

Pedestrians & Cyclists

- 4.4.5 To encourage pedestrian travel, footways and shared footway / cycleways will be provided throughout the site. In order to connect to the existing off-site infrastructure on Coventry Road, a 2m wide footway would be provided on the western side of the site access road, with a 3m shared footway / cycleway on the eastern side of the carriageway. This shared footway / cycleway will loop around the development parallel with the internal access road.
- 4.4.6 During discussions with LCC, it was requested that a 3m wide segregated cycle lane and a 2m footway along the internal spine road is explored.

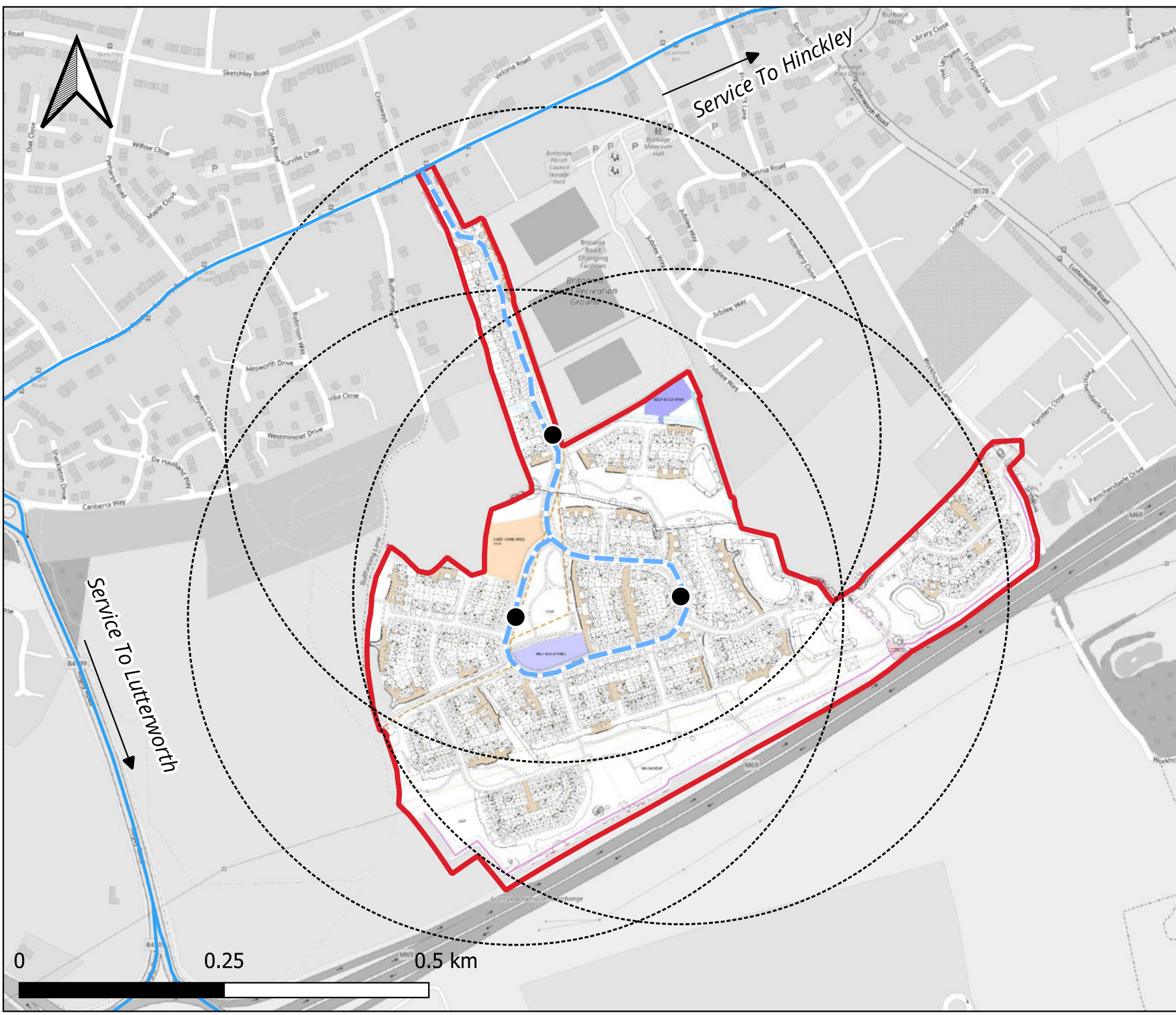
-
- 4.4.7 It should be considered that in the locality of site, the existing provision for cyclists along the B4109 Rugby Road consists of a shared footway/cycleway on the eastern side of the carriageway. There is also a shared footway/cycleway along the A5 to the southeast of the M69 J1.
- 4.4.8 As stated within *Table DG10: Joint Use of Cycle and Pedestrian Routes and Cycle-Only Use* of the LHDG, the width of a "Joint Use With Pedestrians" cycle route is required to be 3m.
- 4.4.9 It is noted that footnote (a) of Table DG10, providing additional guidance on the type of infrastructure, states: "Normally provide joint use, except where cyclist and pedestrian flows are likely to be high, for example, outside a school or in a shopping area. Where cyclists and visually impaired pedestrians could meet, you should provide warning surfaces to standard drawings."
- 4.4.10 Table 6-3 of Local Transport Note (LTN) 1/20 states the recommended minimum width for a shared use routes carrying up to 300 pedestrians and cyclists an hour is 3m. It should be noted that the development proposals are estimated to generate approximately 33 pedestrians and 11 cyclists in the AM peak hour and 26 pedestrians and 9 cyclists in the PM peak hour. This is prior to the implementation of Travel Plan measures that will likely see and increase in the number of pedestrians and cyclists travelling to/from the development.
- 4.4.11 Given that the estimated hourly pedestrian and cyclists trips generated by the development are well below the threshold for a shared footway / cycleway identified within LTN 1/20 and that the proposed shared footway / cycleway adheres to the guidance in Table DG10 from the LHDG, the proposed shared footway / cycleway is considered suitable for the scale of the development proposals. It should also be considered that the provision of a shared footway cycleway is in keeping with the existing provision of pedestrian / cyclists infrastructure within the locality.
- 4.4.12 As shown on **Appendix A**, the site will have a shared pedestrian / cyclist access between the western and eastern parts of the site in the form of a 3.7m wide shared footway / cycleway. This connection will also be available as an emergency access. In addition, the internal layout will provide pedestrian infrastructure in the form of a network of footways in addition to footpaths to greenspace around the development.
- 4.4.13 Bullfurlong Lane is partly adopted, the unadopted section of the Lane provides direct access to Burbage Fields Farm before terminating. A pedestrian connection on to Bullfurlong Lane is proposed from the proposed development to enable pedestrian access to the wider footpath network. LCC's request for the applicant to enter into a Deed of Dedication in respect of Bullfurlong Lane is acknowledged and will be investigated further.

Access to Public Transport

- 4.4.14 Initial discussions have been held with Arriva to divert the existing no. 7 or 8 bus services into the proposed development. The diverted services will loop anti-clockwise along the internal access road of the development. A swept path analysis drawing (ref: 21390-RLL-23-XX-DR-D-5010P03) showing a bus safely navigating the internal loop anticlockwise has been included within **Appendix I**.
- 4.4.15 The applicant will fund the diversion of this bus service, secured through the Section 106 agreement.
- 4.4.16 **Figure 14** shows how the existing bus services could be rerouted through Land South of Burbage, as well as showing indicative bus stop locations with 400m bus stop catchments.
- 4.4.17 Although the bus stop locations are indicative, the bus stop catchments show the majority of future residents and employees of the proposed development will be able to access the bus service within a 400m walk to their nearest bus stop.
- 4.4.18 Details of the bus stop forms will be discussed and agreed between the applicant, LCC and Arriva during the detailed design stage.

Parking Provision

- 4.4.19 As seen in **Appendix A**, the masterplan for the proposed development presents the number of car parking space for each dwelling type. The number of car parking spaces provided per dwelling type and parking space dimensions have been provided in accordance with the Leicestershire Highways Design Guide.
- 4.4.20 Cycle storage within the curtilage of each dwelling will take the form of sheds and garages, with the cycle sheds being shown on the masterplan.



- Legend
- Potential Bus Route Diversion
 - Existing Bus Route
 - Indicative Bus Stop Locations
 - Proposed Bus Stops Catchments (400m)
 - Indicative Site Boundary

Source: © OpenStreetMap contributors, CC-BY-SA



Client:
Redrow Homes
Project:
Land South of Burbage

Figure Title:
Potential Bus Route Diversion

Status:
FOR INFORMATION
Scale:

A4 @ 1:6000
Drawn: JWB
Checked: ADM
Date: 20/04/23
Figure Number:

Figure 14

4.5 Travel Plans

- 4.5.1 A Residential Travel Plan and an Employee Travel Plan (care homes employees) have been produced to support this application. The documents outline the proposed measures to encourage sustainable travel to / from the proposed development. In conjunction with the proposed physical infrastructure shown on the masterplan to facilitate walking, cycling and public transport trips, the Travel Plans will outline objectives, targets and measures to reduce car travel for the respective residential and care home components of the development.
- 4.5.2 As part of the Travel Plans, the mode share of trips made to / from the development will be monitored annually with questionnaires distributed to residents and employees to understand travel choices. This data will be used to understand the change in mode share at the development over time and help achieve the targets for single occupancy car reduction outlined in the Travel Plan.

5 Total Travel Demand

5.1 Introduction

- 5.1.1 The trip generation associated with the proposed 422 dwellings, the residential care home and 11 self-build plots has been considered as part of this TA. This includes both vehicle trips as well as total person trips which encapsulates other methods of travel, i.e. pedestrian, cyclist and public transport trips.

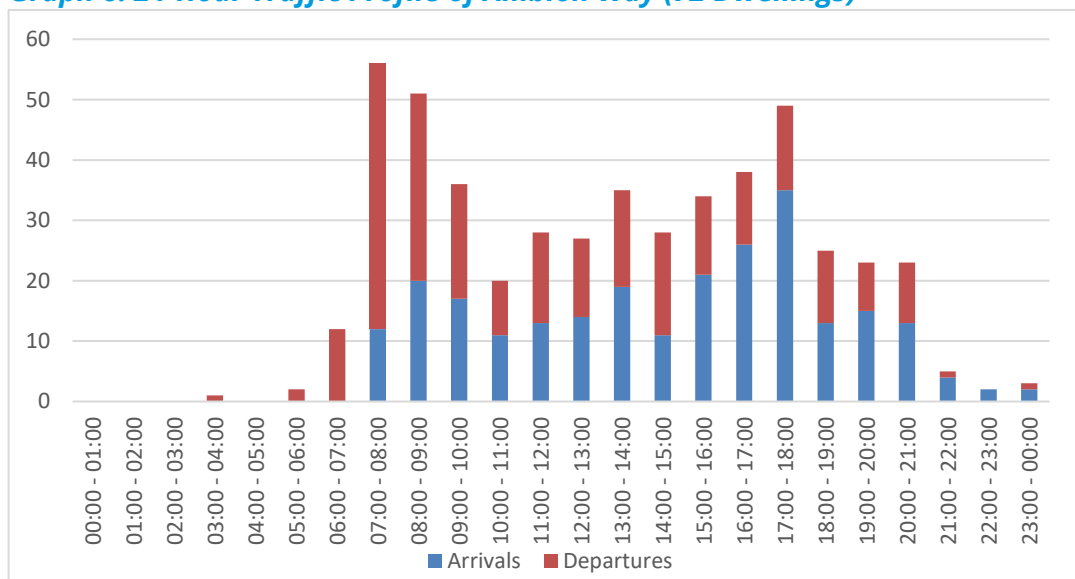
5.2 Vehicular Trip Rates (Residential Dwellings)

- 5.2.1 To ensure a robust assessment of the vehicular trip generation associated with Land South of Burbage, local trip rates were obtained for the existing residential development of Ambion Way.
- 5.2.2 Ambion Way was considered a suitable residential development to obtain representative local trip rates given its location in the context of Burbage and that the eastern part of the proposed development would connect to the Ambion Way development via the eastern access point.
- 5.2.3 It should be noted that future residents of the proposed development will have access to a local bus service and formal cycling infrastructure, providing more opportunities for travel to be made by alternative modes to the private car. Prior to the implementation of the proposed development, residents at Ambion Way do not have access to this infrastructure in close proximity and on this basis the use of these local trip rates can be considered robust.
- 5.2.4 The Ambion Way residential development consists of 72 dwellings, with access to the local highway network off one estate road, Passchendaele Drive. Passchendaele Drive becomes Flanders Close as it routes through Ambion Way on an east-west axis.
- 5.2.5 A classified 24-hour link count traffic survey was commissioned on Passchendaele Drive with the location of the survey selected to ensure that only trips from the Ambion Way development were included, avoiding vehicle trips from the rear access to the properties that front the B578 Lutterworth Road.
- 5.2.6 The traffic survey was undertaken on the 24th of January 2023 and recorded vehicle movements in each direction in 15-minute intervals. A summary of the link count is shown below in **Table 14** with the location of the survey and full traffic count data available in **Appendix L**.

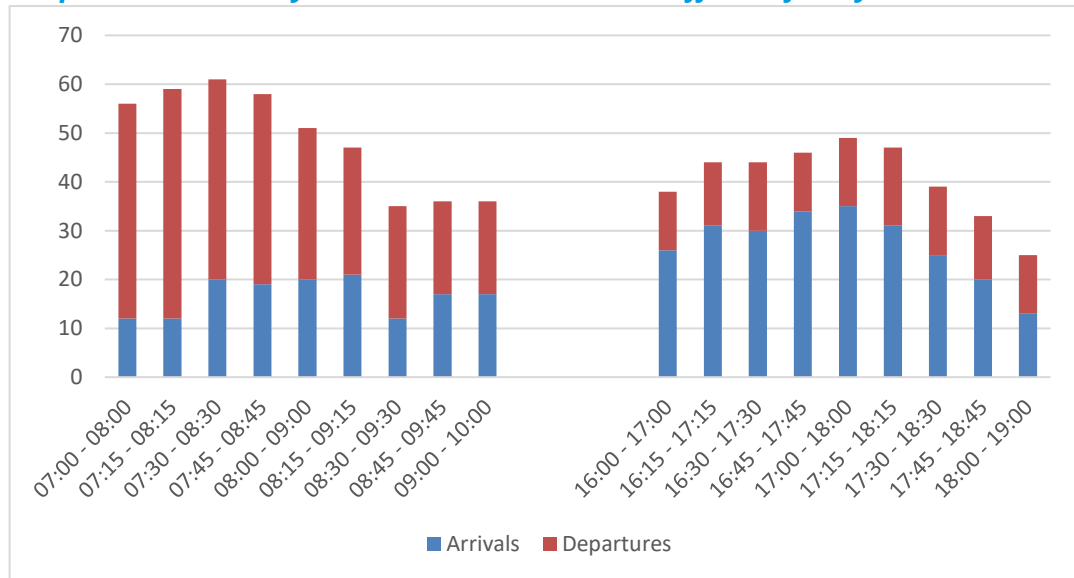
Table 14: Ambion Way Traffic Survey (72 Dwellings)

Time Period	Arrivals	Departures	Two-Way
AM Peak Period			
07:00 – 08:00	12	44	56
07:30 – 08:30	20	41	61
08:00 – 09:00	20	31	51
08:30 – 09:30	12	23	35
09:00 – 10:00	17	19	36
PM Peak Period			
16:00 – 17:00	26	12	38
16:30 – 17:30	30	14	44
17:00 – 18:00	35	14	49
17:30 – 18:30	25	14	39
18:00 – 19:00	13	12	25
12-Hour			
07:00 – 19:00	212	215	427
24-Hour			
00:00 – 24:00	248	250	498

5.2.7 **Graph 6** shows the 24-hour traffic profile of the Ambion Way estate.

Graph 6: 24-Hour Traffic Profile of Ambion Way (72 Dwellings)

5.2.8 Since the survey data was recorded in 15-minute intervals, the AM and PM peak hours can be determined. **Graph 7** below shows the hourly arrival and departure movements associated with Ambion Way, based on 1-hour periods between 07:00 – 10:00 and 16:00 – 19:00 in increasing 15-minute intervals.

Graph 7: Ambion Way AM and PM Peak Hours Traffic Profile by 15 Minutes

5.2.9 Analysis of the link count survey data, summarised in **Graph 7**, confirmed the following peak hours:

- AM Peak Hour: 07:30 – 08:30
- PM Peak Hour: 17:00 – 18:00

5.2.10 Local vehicular trip rates were calculated by dividing the recorded arrival and departure vehicle trips by the total number of dwellings at Ambion Way. The calculated local vehicular trip rates for the peak hours, 12-hour period and 24-hour period are shown below in **Table 15** with the full summary of the recorded trips and calculated trip rates, by 1-hour period, provided in **Appendix L**.

Table 15: Local Vehicular Trip Rates per Dwelling

Time Period	Arrivals	Departures	Two-Way
AM Peak Hour 07:30 – 08:30	0.278	0.569	0.847
PM Peak Hour 17:00 – 18:00	0.486	0.194	0.681
12-Hour 07:00 – 19:00	2.944	2.986	5.931
24-Hour 00:00 – 24:00	3.444	3.472	6.917

Note: Rounding error to 3DP.

5.2.11 The local trip rates were agreed with NH as stated in their planning response (NHPR 22-12) dated 16 February 2024 and agreed with LCC as stated in their planning response (2024/0083/04/H/R2) dated 14 June 2024.

5.3 Care Home Trip Rates (TRICS)

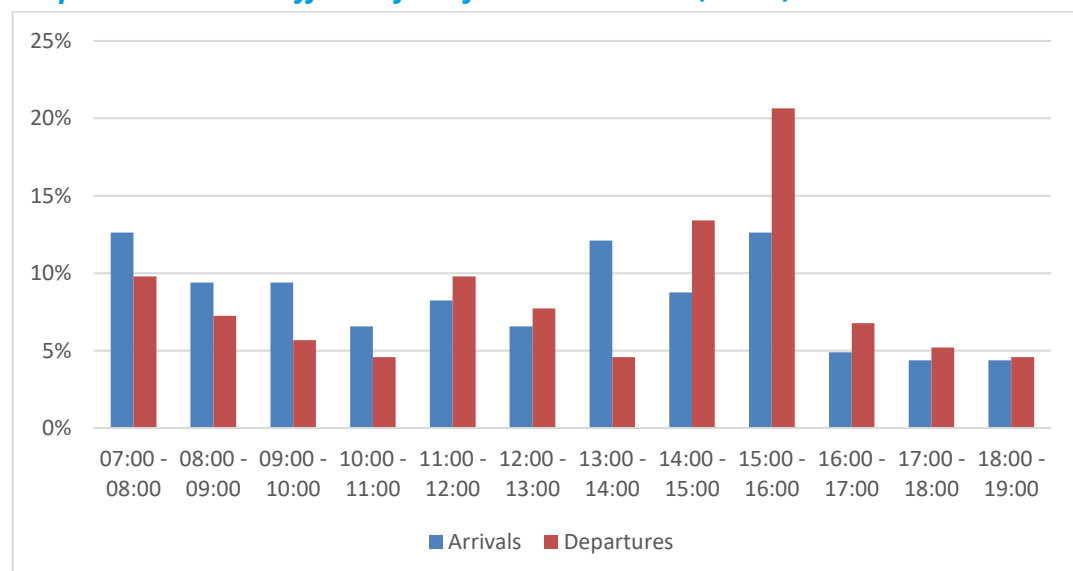
- 5.3.1 Trip rates for the proposed residential care home have been extracted from the TRICS database (7.10.3) for the '05 - Health, F - Care Home (Elderly Residential) category. The full TRICS output has been included as **Appendix M**.
- 5.3.2 The peak hour and 12-hour trip rates extracted from the TRICS database are shown below in **Table 16**.

Table 16: Care Home Vehicular Trip Rates (per resident)

Time Period	Arrivals	Departures	Two-Way
AM Peak Hour 08:00 – 09:00	0.073	0.060	0.133
PM Peak Hour 17:00 – 18:00	0.034	0.043	0.077
12-Hour 07:00 – 19:00	0.776	0.828	1.604

- 5.3.3 Vehicle trip generation is expected to consist of employee trips (management and operation of the care home) and visitor trips (family and friends visiting residents). **Graph 8** shows the 12-hour traffic profile for the proposed residential care home calculated from the TRICS trip rates.

Graph 8: 14-Hour Traffic Profile of the Care Home (TRICS)



- 5.3.4 The traffic profile for the care home highlights that the time period with the highest number of two way trips will be the 15:00 – 16:00 with 13% of arrivals and 21% of departures over the 12-hour period. The traffic profile also demonstrates that the proportion of trips over a day made during the traditional AM (08:00 – 09:00) and PM (17:00 – 18:00) peak hours will be low.

- 5.3.5 The care home trip rates were agreed with NH as stated in their planning response (NHPR 22-12) dated 16 February 2024 and agreed with LCC as stated in their planning response (2024/0083/04/H/R2) dated 14 June 2024.

5.4 Vehicle Trip Generation

- 5.4.1 The vehicular trip generation for Land South of Burbage has been calculated for the AM & PM peak hours, 12-hour period (07:00 – 19:00) and 24-hour period (00:00 – 24:00). To calculate the trip generation for both the Redrow dwellings and the self-build plots, the local residential trip rates have been used.
- 5.4.2 For the residential care home, the TRICS trip rates have been used for the peak hour and daytime trips with National Travel Survey (2022) data from Table NTS0501: 'Trips in progress by time of day and day of week' used to uplift the 12-hour daytime trips to 24-hour daily trips.
- 5.4.3 An extract from the Table NTS0501 showing how the uplift has been calculated is shown below in **Table 17**.

Table 17: NTS0501: 'Trips in Progress by Time of Day and Day of Week' Extract

Time Period	Number of Trips	Percentage of Trips
00:00 – 01:00	4	0.2%
01:00 – 02:00	1	0.0%
02:00 – 03:00	1	0.0%
03:00 – 04:00	2	0.1%
04:00 – 05:00	5	0.2%
05:00 – 06:00	25	1.0%
06:00 – 07:00	69	2.7%
07:00 – 08:00	172	6.7%
08:00 – 09:00	286	11.1%
09:00 – 10:00	164	6.4%
10:00 – 11:00	143	5.5%
11:00 – 12:00	145	5.6%
12:00 – 13:00	149	5.8%
13:00 – 14:00	135	5.2%
14:00 – 15:00	160	6.2%
15:00 – 16:00	215	8.3%
16:00 – 17:00	231	9.0%
17:00 – 18:00	239	9.3%
18:00 – 19:00	184	7.1%
19:00 – 20:00	106	4.1%
20:00 – 21:00	62	2.4%
21:00 – 22:00	42	1.6%
22:00 – 23:00	27	1.0%
23:00 – 24:00	11	0.4%
12 Hour (07:00 – 19:00)	2,223	86.2%
24 Hour (00:00 – 23:59)	2,578	100.0%

- 5.4.4 Using the data in NTS0501, the uplift has been calculated on the basis that 12-hour daytime trips represent 86.2% of 24-hour daily trips.
- 5.4.5 The link count survey of the existing Ambion Way development concluded the development AM peak hour to be 07:30 – 08:30. For the Care Home land use category, TRICS provides trip rates in 1-hour intervals for the start of each hour.
- 5.4.6 To ensure a consistent approach, the residential development AM 07:30 – 08:30 peak hour trip generation will be used for the AM 08:00 – 09:00 peak hour assessments to ensure that the peak demand in the AM peak is accurately represented. The calculated vehicle trip generation for the proposed dwellings (Redrow and self-build) and the care home is shown below in **Table 18**.

Table 18: Vehicle Trip Generation

Time Period	Arrivals	Departures	Two-Way
Residential (433 dwellings)			
AM Peak Hour 07:30 – 08:30	120	247	367
PM Peak Hour 17:00 – 18:00	210	84	295
12-Hour 07:00 – 19:00	1,275	1,293	2,568
24-Hour 00:00 – 24:00	1,491	1,503	2,995
Residential Care Home (66 residents)			
AM Peak Hour 08:00 – 09:00	5	4	9
PM Peak Hour 17:00 – 18:00	2	3	5
12-Hour 07:00 – 19:00	51	55	106
24-Hour 00:00 – 24:00	59	63	123
Total			
AM Peak Hour 08:00 – 09:00	125	251	376
PM Peak Hour 17:00 – 18:00	213	87	300
12-Hour 07:00 – 19:00	1,326	1,348	2,674
24-Hour 00:00 – 24:00	1,551	1,567	3,118

Note: Rounding error to 1dp

- 5.4.7 As the Land South of Burbage development will connect to the local highway network via two separate points of access (Coventry Road and Flanders Close) for the western and eastern parts of the development respectively, the vehicular trip generation for each access has been provided in **Table 19**.

Table 19: Vehicular Trip Generation by Access

Time Period	Arrivals	Departures	Two-Way
Flanders Close Access (55 Dwellings)			
AM Peak Hour 08:00 – 09:00	15	31	47
PM Peak Hour 17:00 – 18:00	27	11	37
12-Hour 07:00 – 19:00	162	164	326
24-Hour 00:00 – 24:00	189	191	380
Coventry Road Site Access (378 Dwellings & Residential Care Home)			
AM Peak Hour 08:00 – 09:00	110	219	329
PM Peak Hour 17:00 – 18:00	186	76	262
12-Hour 07:00 – 19:00	1,164	1,183	2,348
24-Hour 00:00 – 24:00	1,361	1,376	2,737
Total			
AM Peak Hour 08:00 – 09:00	125	251	376
PM Peak Hour 17:00 – 18:00	213	87	300
12-Hour 07:00 – 19:00	1,326	1,348	2,674
24-Hour 00:00 – 24:00	1,551	1,567	3,118

Note: Rounding error to 1dp

5.5 Person Trips

Residential

- 5.5.1 As the local traffic count recorded vehicle movements, to provide the total person trips for the development, 2011 Census data has been utilised using the 'QS701EW - Method of Travel to Work' dataset for the Hinckley & Bosworth 014 Middle Super Output Area.
- 5.5.2 It should be noted that the data presented below relates to existing local residents trips to / from their workplace at the time of the 2011 Census. The mode share percentages have been calculated by removing residents classified as home workers or unemployed in order to represent trips made externally onto the transport network.

- 5.5.3 The method of travel to work mode share percentages and calculated trip generation by mode is presented below in **Table 20** with the raw data from the 2011 Census provided in **Appendix N**.

Table 20: Total Person Trips by Mode (two-way) - Residential

Time Period	Vehicle Driver	Vehicle Passengers	Bicycle	Foot	Motor cycle	Bus	Rail	Total
Hinckley Bosworth 014 – 2011 Census ‘Method of Travel to Work’								
2011 Census	82.3%	4.9%	2.4%	6.8%	0.7%	1.6%	1.3%	100%
Proposed Trip Generation by Mode (Residential)								
08:00 – 09:00	367	22	11	30	3	7	6	446
17:00 – 18:00	295	17	9	24	3	6	5	358

Note: As stated in Paragraph 5.4.6, the residential trip generation for the 07:30 – 08:30 hour has been used within the 08:00 – 09:00 peak hour assessment.

- 5.5.4 The vehicular trip generation based on the calculated local trip rates has been fixed at 82.3% of total person trips, equating to 446 and 358 two-way total trips in the AM and PM peak hours, respectively. The remaining person trips have been calculated using the relevant percentage for each mode.
- 5.5.5 ATE requested that a multi-modal trip generation analysis throughout the day is provided for the proposed development.
- 5.5.6 It should be noted that as the link count survey at Ambion Way only picked up car drivers, the mode share for other methods of travel has been calculated using the 2011 census method of travel to work data. It should be understood that once the development is occupied the bus service will be in place therefore it is expected that a greater share of daily trips will be attributed to public transport mode share percentages.
- 5.5.7 The number of multi-modal trips generated by the residential across a 12-hour period (07:00 – 19:00) can be seen below in **Table 21**.

Table 21: Person Trips per Hour by Mode – Residential

Time Period	Vehicle Driver	Vehicle Passenger	Cycle	Foot	Motor cycle	Bus	Rail	Total
07:00 - 08:00	337	20	10	28	3	7	5	409
08:00 - 09:00	367	22	11	30	3	7	6	446
09:00 - 10:00	217	13	6	18	2	4	3	263
10:00 - 11:00	120	7	4	10	1	2	2	146
11:00 - 12:00	168	10	5	14	1	3	3	205
12:00 - 13:00	162	10	5	13	1	3	3	197
13:00 - 14:00	210	13	6	17	2	4	3	256
14:00 - 15:00	168	10	5	14	1	3	3	205
15:00 - 16:00	204	12	6	17	2	4	3	248
16:00 - 17:00	229	14	7	19	2	4	4	278
17:00 - 18:00	295	18	9	24	3	6	5	358
18:00 - 19:00	150	9	4	12	1	3	2	183

Residential Care Home

- 5.5.8 As multi-modal surveys were selected within TRICS as part of the refinement process to obtain the representative trips rate, a separate mode share can be calculated for the proposed residential care home.
- 5.5.9 The number of trips calculated for each mode, using the estimated number of residents at full occupation and extracted trip rates, has been used to calculate the mode share in percentage terms, which can be seen below in **Table 22**.

Table 22: Total Person Trips by Mode (two-way) – Care Home

Time Period	Vehicle Driver	Vehicle Passengers	Bicycle	Foot	Bus	Total
Number of Trips						
08:00 – 09:00	9	1	0	3	1	13
17:00 – 18:00	5	1	1	1	0	8
Calculated Mode Share (%)						
08:00 – 09:00	66.5%	8.0%	0.0%	19.0%	6.5%	100.0%
17:00 – 18:00	62.1%	13.7%	6.5%	17.7%	0.0%	100.0%

Note: Rounding error to 1dp

- 5.5.10 The TRICS data indicates that 62% of trips in the AM peak will be made by car (as drivers) with the mode share reducing to 56% of trips in the PM peak hour.
- 5.5.11 As the trip rates extracted from the TRICs database were multi-modal, a specific multi-modal trip generation per hour can be calculated for the care home. The multi-modal trip generation can be seen below in **Table 23**.

Table 23: Person Trips per Hour by Mode – Care Home

Time Period	Vehicle Driver	Vehicle Passengers	Bicycle	Foot	Bus	Total
07:00 - 08:00	12	1	2	4	1	19
08:00 - 09:00	9	1	0	3	1	13
09:00 - 10:00	8	3	0	1	1	12
10:00 - 11:00	6	1	0	1	0	8
11:00 - 12:00	10	2	0	1	0	13
12:00 - 13:00	8	2	1	1	1	12
13:00 - 14:00	9	2	0	4	0	15
14:00 - 15:00	12	4	1	3	1	21
15:00 - 16:00	18	4	0	4	0	26
16:00 - 17:00	6	2	0	2	1	12
17:00 - 18:00	5	1	1	1	0	8
18:00 - 19:00	5	2	1	2	2	11

Proposed Development

5.5.12 The number of multi-modal trips for the Land South of Burbage development for the AM and PM peak hours can be seen below in **Table 24**, with the multi-modal trip generation per hour for the proposed development shown below in **Table 25**.

Table 24: Total Person Trips by Mode (two-way) – Total Development

	Vehicle Driver	Vehicle Passengers	Bicycle	Foot	Motor cycle	Bus	Rail	Total
08:00 – 09:00	376	23	11	33	3	9	6	460
17:00 – 18:00	300	19	9	26	3	6	5	366

Note: Rounding error to 1DP.

Table 25: Person Trips per Hour by Mode – Total Development

Hour	Vehicle Driver	Vehicle Passenger	Cycle	Foot	Motor cycle	Bus	Rail	Total
07:00 - 08:00	349	21	12	31	3	7	5	429
08:00 - 09:00	376	23	11	33	3	9	6	460
09:00 - 10:00	224	15	6	19	2	5	3	275
10:00 - 11:00	126	8	4	11	1	3	2	154
11:00 - 12:00	178	12	5	15	1	4	3	218
12:00 - 13:00	170	12	6	14	1	4	3	209
13:00 - 14:00	219	15	6	22	2	4	3	271
14:00 - 15:00	180	14	6	17	1	4	3	225
15:00 - 16:00	222	16	6	21	2	4	3	274
16:00 - 17:00	235	16	7	21	2	5	4	289
17:00 - 18:00	300	19	9	26	3	6	5	366
18:00 - 19:00	155	11	5	15	1	5	2	194

6 Traffic Flow Methodology

6.1 Introduction

- 6.1.1 This section outlines the data sources used to inform the highway impact assessment of the local highway network. Information regarding the traffic flow calculations and how the various data sources have been used is detailed later within this report.

6.2 Pan Regional Transport Model (PRTM)

- 6.2.1 During dialogue in July 2021 between RL and LCC for the initial scoping discussions, it was requested by LCC that Leicestershire's Pan Regional Transport Model (PRTM) be used to assess the development proposals.
- 6.2.2 RL engaged with LCCs Network Data & Intelligence (NDI) team to commission the use of the PRTM. As part of the process, the LCC NDI team provided a Development Trip Distribution Report which provided select link analysis plots showing the assignment of development trips across the network. The Development Trip Distribution Report has been included within **Appendix O**.
- 6.2.3 The PRTM assesses the AM (08:00 – 09:00) and PM (17:00 – 18:00) peak hours and was commissioned and run for the following scenarios:
- 2021 without development
 - 2026 without development
 - 2026 with development (450 dwellings)
 - 2031 without development
 - 2031 with development (450 dwellings)
- 6.2.4 The results of the PRTM runs were provided to RL by the LCC NDI team in a PRTM Forecasting Report which has been included within **Appendix O**. The PRTM Forecasting Report also includes the list of committed development modelled within the PRTM.
- 6.2.5 It should be noted that the PRTM forecast year 'with development' scenarios were used to identify junctions on the local highway that should be considered for detailed capacity assessment using detailed junction capacity testing software.
- 6.2.6 The junctions identified for detailed junction capacity testing are as follows:
- Coventry Road / Site Access priority junction (site access junction)
 - B4109 Rugby Road / Coventry Road priority junction

- B4669 Sapcote Road / B4669 Burbage Road / B578 Hinckley Road priority junction
- B578 Lutterworth Road / Passchendaele Drive priority junction
- A5 / B578 Lutterworth Road priority junction
- A5 / Wolvey Road
- B4109 Rugby Road / Three Pots Road / Canberra Way roundabout
- B4109 Rugby Road / Sketchley Road / Sketchley Lane roundabout
- B4109 Rugby Road / Brookside signalised junction
- B578 Lutterworth Road / Lychgate Lane Crossroads priority junction
- M69 Junction 1 signalised junction

6.3 Use of the PRTM model

- 6.3.1 Following the running of the PRTM model the development proposals were refined to reduce the quantum of the development to 433 dwellings (422 Redrow dwellings and 11 self-build) and to include a residential care home. The development also no longer provides a vehicle connection between the western and eastern parts of the development.
- 6.3.2 On this basis, traffic flows from the 2026 and 2031 'with development' runs of the PRTM model have **not** been used within this assessment since they do not include an accurate representation of the development.
- 6.3.3 For clarification purposes the PRTM model has been used for the following:
- **Residential distribution:** calculation of a residential distribution from a neighbouring 'parent' zone to apply to the proposed development.
 - **Base year traffic flows:** turning movements from the 2021 PRTM run outputs have been utilised and furnished to establish base year traffic movements for junction capacity modelling.
 - **Traffic growth:** the traffic growth between the base and the 2026 & 2031 future years has been extracted from the PRTM 'without development' model run outputs.

6.4 PRTM Traffic Flow Furnessing Process

- 6.4.1 During the process of commissioning the PRTM, RL agreed the methodology to assess the proposed development with NH. During these discussions it was raised by NH that the PRTM traffic flows would need to be furnished against 2021 observed traffic flows before being input into standalone junction capacity assessments. A three step methodology for this furnessing process was proposed by NH which is summarised as follows:

- **Step 1: Obtaining and uplift the 2021 observed data** with local covid factors from LCC to create neutral traffic data as represented in PRTM.
- **Step 2: Calculating the difference between each forecast scenario** (2026 DM & 2031 DM) and the 2021 PRTM model forecast.
- **Step 3: Adding the differences between each forecast scenario** resulted in Step 2 on top of the 2021 Observed Data in Step 1.

6.4.2 This three step methodology has been used to establish the traffic flows to be input into standalone junction capacity testing software.

Step 1: Obtaining and Uplifting the 2021 Observed Data

6.4.3 As a starting point, the PRTM 2021 turning movements extracted from the PRTM Forecasting Report have been presented graphically on a spreadsheet diagram. These 2021 turning movements for the AM (08:00 – 09:00) and PM (17:00 – 18:00) peak hours have been included within **Appendix P**.

6.4.4 To furnish the 2021 PRTM traffic flows, 2021 link count data was obtained. Where 2021 data was not available the most recent 2020 data was used.

6.4.5 Traffic survey data was purchased from the LCC NDI team and obtained from the DfT Road Traffic Statistics and WebTRIS databases. **Table 26** shows the traffic survey data obtained by road and date.

Table 26: Traffic Survey Data for Furnessing Process

Source	Road	Count Date
LCC	Burbage Road	2 nd – 10 th Nov 2020
LCC	Sapcote Road	2 nd – 10 th Nov 2020
LCC	Coventry Road	27 th April – 4 th May 2021
DfT	Rugby Road	Sept 2021
LCC	Wolvey Road	Apr 2021
LCC	Lutterworth Road	Nov 2021
WebTRIS	M69 north of J1 Northbound (NB)	Wed 3 rd – Tues 9 th Nov 2021
WebTRIS	M69 north of J1 Southbound (SB)	Wed 3 rd – Tues 9 th Nov 2021
WebTRIS	M69 J1 NB within junction	Wed 3 rd – Tues 9 th Nov 2021
WebTRIS	M69 J1 NB on slip	Wed 3 rd – Tues 9 th Nov 2021
WebTRIS	M69 J1 SB off slip	Wed 3 rd – Tues 9 th Nov 2021
WebTRIS	M69 south of J1 NB	Mon 11 th – Fri 15 th Oct 2021
WebTRIS	M69 south of J1 SB	Mon 11 th – Fri 15 th Oct 2021
WebTRIS	M6 off slip to M69 NB	Mon 11 th – Fri 15 th Oct 2021
WebTRIS	A5 (north west of M69 J1) NB	Wed 3 rd – Tues 9 th Nov 2021
WebTRIS	A5 (north west of M69 J1) SB	Wed 3 rd – Tues 9 th Nov 2021
WebTRIS	A5 (south east of M69 J1) NB	Wed 3 rd – Tues 9 th Nov 2021
WebTRIS	A5 (south east of M69 J1) SB	Wed 3 rd – Tues 9 th Nov 2021

6.4.6 A plan showing the locations of link counts has been attached as **Figure 15**.

-
- 6.4.7 For links along the M69 which did not have an active TRIS count point, the flows were calculated using the data from neighbouring links.
- 6.4.8 Covid-19 uplift factors were provided by LCC alongside the purchased traffic survey data in order to uplift the observed traffic flows. The appropriate uplift factors were also applied to the DfT and WebTRIS data to ensure a robust baseline for the furnishing process.
- 6.4.9 For all road links with a November date range, the corresponding Covid-19 weekday factors were applied to the data. For the links with an October date, the Monday 25th – Friday 29th of October Covid-19 factors were applied as this was the closest week to the October survey date.

Step 2: Calculating the Difference Between Each Forecast Scenario

- 6.4.10 In order to replicate the traffic growth within the PRTM, the difference between the PRTM 2021 and the PRTM 2026 & 2031 'without' development traffic flows for both peak hours was calculated in a spreadsheet. These differences are shown graphically within **Appendix P**.

Step 3: Adding the Differences Between Each Forecast Scenario

- 6.4.11 The calculated differences between PRTM 2021 and PRTM 2026 & 2031 'without' development traffic flows were added to the 2021 furnished traffic flows in order to produce the 2026 and 2031 'without' development traffic flows for the AM and PM peaks, respectively.
- 6.4.12 NH stated in their planning response (NHPR 22-12) dated 16 February 2024 that they were content with the application of the furnishing methodology described above.

Furnished PRTM Traffic Flows

- 6.4.13 The 2021 PRTM turning movements extracted from the 2021 outputs, the furnished 2021 turning movements (using traffic survey data) and the growth within the PRTM by movement (the difference between the 2021 and 2026 & 2031 scenarios) are shown within **Appendix P**.



Legend

- ★ Site Location
- Traffic Count Data
 - Leicestershire County Council
 - 2021 Survey Data
 - WebTRIS
 - Department for Transport
 - 2023 Turning Count
 - 2024 Turning Count

Source: © OpenStreetMap contributors, CC-BY-SA



Client:
Redrow Homes

Project:
Land South of Burbage

Figure Title:
Traffic Count Data Locations

Status:
FOR INFORMATION

Scale:

A4 @ 1:60000

Drawn	Checked	Date
JWB	ADM	20/04/23

Figure Number:

Figure 15

6.5 Supplementary Traffic Surveys

- 6.5.1 Where required traffic survey data has also been collected to supplement the traffic flow data from the PRTM model and to validate junction capacity models.
- 6.5.2 Manual turning count and queue length surveys were undertaken on Thursday 29th June 2023 for the AM (06:00 – 09:00) and PM (16:00 – 19:00) peak periods for the following junctions:
- M69 Junction 1
 - B4109 Rugby Road / Canberra Way roundabout
 - B4109 Rugby Road / Coventry Road
- 6.5.3 Manual turning count and queue length surveys were undertaken on Wednesday 19th June 2024 for the AM (07:30 – 09:30) and PM (16:30 – 18:30) peak periods for the following junctions:
- A5 / B578 Lutterworth Road
 - A5 / Wolvey Road
 - B4109 Rugby Road / Sketchley Road
 - B4109 Rugby Road / Brookside
 - B578 Lutterworth Road / Lychgate Lane crossroads
 - B578 Hinckley Road / B4669 Burbage Road / B4669 Sapcote Road
 - B578 Lutterworth Road / Passchendaele Drive
- 6.5.4 The locations of these traffic surveys have been presented graphically on **Figure 15**.

7 Trip Distribution & Assignment

7.1 Trip Distribution

Residential Dwellings

- 7.1.1 As part of the PRTM modelling, preliminary 'with development' model runs were provided by the LCC NDI team to agree to the use of residential trip distribution from a parent zone (zone 6014), located nearby to the location of the proposed development.
- 7.1.2 The use of the PRTM model to extract a residential trip distribution was agreed with NH during the scoping stage via an email from NH on Sept 2022. Confirmation of this is included within the NH planning response (NHPR 22-12) dated 16 February 2024.
- 7.1.3 RL were provided with select link analysis plots showing the trip assignment within the PRTM model. The assignment plots for the total development were used to calculate the trip distribution for the study area defined for this assessment. For reference, these assignment plots are included within the Development Trip Distribution Report (**Appendix O**).
- 7.1.4 The use of this the assignment plots total development to calculate the distribution is considered suitable for this assessment, given that it represents trips travelling across the full extent of the PRTM. The study area as defined by the junctions identified for assessment by the PRTM, has been used to establish the locations for the external trip distribution percentages. It is also considered that the use of the total development assignment plots negates the effect of the original internal connection between the two development accesses.
- 7.1.5 The vehicle trip distribution calculated from the select link analysis plots of the trip assignment for the total development has been presented graphically and included within **Appendix Q**.

Residential Care Home

- 7.1.6 The trip distribution for the residential care home has been derived from a population and distance based gravity model with the form $\text{Population} / \text{Distance}^2$.
- 7.1.7 The use of a gravity model to calculate the care home trip distribution was agreed with NH as stated in their planning response (NHPR 22-12) dated 16 February 2024.

- 7.1.8 Population for key urban areas was obtained from the 2021 Census, and the Google route mapping tool has been used to establish the routes from these key urban areas to the proposed development. **Table 27** shows the gravity model distribution calculation for the residential care home.

Table 27: Gravity Model Distribution

Location	Population	Distance (km)	Calculation	Distribution
Atherstone	11,259	14	54	0.6%
Bedworth	31,332	9	382	4.2%
Bulkington	6,146	7	129	1.4%
Coalville	37,661	22	74	0.8%
Coventry	345,328	16	1,305	14.4%
Earl Shilton	10,047	7	224	2.5%
Hinckley	34,202	3	3,653	40.4%
Leicester	368,600	19	990	11.0%
Lutterworth	10,833	13	65	0.7%
Narborough	8,448	12	63	0.7%
Nuneaton	94,634	8	1,600	17.7%
Rugby	78,117	18	247	2.7%
Sapcote	3,260	5	118	1.3%
Syston	12,804	27	17	0.2%
Tamworth	78,653	26	116	1.3%
Total				100.0%

- 7.1.9 Some locations will have multiple routes which can be assigned to / from the residential care home due to the close proximity of the locations. The distribution to / from the care home can be seen in **Appendix Q**.

7.2 Trip Assignment

Proposed Development

- 7.2.1 The vehicular trips for the proposed dwellings served from both accesses has been assigned to the local highway network using the calculated residential (dwellings) distribution.
- 7.2.2 The vehicular trips for the residential care home have been assigned to the highway network using the calculated trip generation and the distribution calculated from the gravity model. Assignment plots of development traffic have been presented graphically in **Appendix Q** for the AM (08:00 – 09:00) and PM (17:00 – 18:00) peak hours.
- 7.2.3 Route choice assumptions along the internal network within the study have been made for vehicle trips travelling to/from each of the accesses given their locations. These assumptions have been included on the assignment plots included within **Appendix Q**.

Existing / Committed Development

- 7.2.4 It was observed from the turning flow outputs from the PRTM Forecasting report that the PRTM does not include the existing residential area of Ambion Way, or the residential area accessed off Canberra Way.
- 7.2.5 To account for the residential developments of Ambion Way and Canberra Way in the base year traffic flows, assignments plots have been created using the local trip rates and calculated trip distribution utilised for the proposed residential development. Given that Ambion Way was the survey site for the local trip rates, the trip generation for Ambion Way was taken directly from the link count survey.
- 7.2.6 Adjustments to the distribution at the externals of the study area has been undertaken for the Canberra Way existing development given its location within the study area. The changes include assuming that all vehicle trips to the north (i.e. Hinckley) will use Rugby Road and that all vehicle trips using the M69 will access the motorway via M69 Junction 1 only.
- 7.2.7 The vehicle trip generation for both of these developments is shown in **Table 28**.

Table 28: Committed Development Vehicular Trip Generation

Time Period	Arrivals	Departures	Two-Way
Ambion Way (72 Dwellings)			
AM Peak 07:30 – 08:30	20	41	61
PM Peak 17:00 – 18:00	35	14	49
Canberra Way (93 Dwellings)			
AM Peak 07:30 – 08:30	27	55	82
PM Peak 17:00 – 18:00	47	19	66

- 7.2.8 The distribution and assignment diagrams for these two existing developments are included within **Appendix Q**.
- 7.2.9 It was also recognised that the PRTM would not have included the approved planning application for “Land North of Deepdale Farm” (app ref: [19/01405/OUT](#)), a 135 dwelling development that takes access off the B578 Lutterworth Road. AM and PM peak hour trips associated with this committed development have been extracted from the TA submitted as part of the application. The assigned vehicle trips are shown graphically in **Appendix Q**.

8 Junction Capacity Assessments

8.1 Overview

- 8.1.1 To understand the highway impact of the proposed development, standalone junction capacity models have been developed. An overview of the junctions assessed, the traffic flow methodology used, and the conclusion of each assessment is shown below in **Table 29**.

Table 29: Study Area

Junction	Methodology		Mitigation
	Base Year Traffic Flow	Traffic Growth	
Coventry Road / Site Access (proposed site access junction)	Furnished PRTM 2021	PRTM	n/a
B578 Lutterworth Road / Passchendaele Drive priority junction	Furnished PRTM 2021	PRTM	No
B4109 Rugby Road / Coventry Road priority junction	2023 Traffic Survey	PRTM	Yes
B4109 Rugby Road / Three Pots Road / Canberra Way roundabout	Furnished PRTM 2021	PRTM	No
B4109 Rugby Road / Sketchley Road / Sketchley Lane roundabout	Furnished PRTM 2021	PRTM	No
B4109 Rugby Road / Brookside signalised junction	Furnished PRTM 2021 / 2024 Traffic Survey	PRTM	No
B578 Lutterworth Road / Lychgate Lane priority junction	Furnished PRTM 2021	PRTM	No
B4669 Sapcote Road / B4669 Burbage Road / B578 Hinckley Road priority junction	2024 Traffic Survey	PRTM	n/a ¹
A5 / B578 Lutterworth Road priority junction	Furnished PRTM 2021	PRTM	No
A5 / Wolvey Road priority junction	2024 Traffic Survey	PRTM	No
M69 Junction 1 signalised roundabout	2023 Traffic Survey	TEMPPro v8.1	No

Note(1): Mitigation scheme for 'Land To The South West Of Lutterworth Road Burbage' (ref 21/00502/OUT)

8.2 Traffic Flow Scenarios

- 8.2.1 The junctions have been assessed for the following scenarios:
- Base Year
 - 2026 Opening Year + Committed Development
 - 2026 Opening Year + Committed Development + Land South of Burbage (422 dwellings, residential care home, 11 self-build plots)
 - 2031 Forecast Year + Committed Development
 - 2031 Forecast Year + Committed Development + Land South of Burbage (422 dwellings, residential care home, 11 self-build plots)
- 8.2.2 In accordance with the peak hours of the PRTM, the junction capacity models have been assessed for the following time periods:
- AM Peak Hour – 08:00 – 09:00
 - PM Peak Hour – 17:00 – 18:00
- 8.2.3 The turning movements for each of these scenarios for both the AM and PM peak hours are presented graphically on a turning flow diagrams presented in **Appendix R**. These diagrams present the traffic flows input into the junction capacity assessment and where applicable the passenger car unit (PCU) traffic flow matrices are included.
- 8.2.4 The development will not be developed in a phased approach and on this basis the fully built out development has been assessed for both the 2026 opening and 2031 forecast year.
- 8.2.5 As a worst case scenario, the junction capacity assessments for each junction have used the base year HGV percentages for the opening year and forecast year scenarios.
- 8.2.6 Where observed 2023 or 2024 traffic survey data has been used to establish the base year, PRTM traffic growth has been used unless otherwise specified. It is recognised that this methodology applies 5 years of growth (2021 – 2026) over a three or two year period (2023 or 2024 – 2026) however, this approach can be considered a robust assessment of background traffic growth and ensures that the opening year and forecast year traffic modelling is consistent across all junction capacity models.

Junctions 10

- 8.2.7 To ensure that the junctions identified above will operate within capacity when the development is fully built out, the industry standard junction modelling software 'Junctions 10' has been used. This program is used for assessing the capacity of priority-controlled junctions and roundabouts.
- 8.2.8 A Ratio of Flow to Capacity (RFC) value of 0.85 (85%) or less typically demonstrates that a junction arm or turning movement is operating "within capacity" and is therefore unlikely to experience regular queuing. RFC values between 0.85 and 1.00 represent variable operation, meaning that the junction is likely to experience intermittent periods of congestion and increased queue lengths but still operates within theoretical capacity. RFC values greater than 1.00 (100%) represent overloaded conditions i.e. the junction operates "over capacity". When conditions reach this level of congestion queues are noted to build over time as vehicles are arriving at the junction at a greater rate than they are departing.
- 8.2.9 Junctions 10 model geometric parameter inputs have been entered based on measurements taken from a combination of Ordinance Survey mapping and aerial imagery from Getmapping.

LinSig

- 8.2.10 To assess signal-controlled junctions on the local highway network the industry standard junction modelling software LinSig has been used.
- 8.2.11 Results for the entire signalised junction are returned in Practical Reserve Capacity (PRC) values and individual results for junction approaches returned in Degree of Saturation (DoS). PRC and DoS values represent a measure of how much capacity remains within a junction or approach for a given scenario. A minus PRC value for the junctions overall performance for any modelled scenario indicates that a lane on an approach to the junction has potentially exceeded its operational capacity, with a Degree of Saturation greater than 90%. In addition to the PRC and DoS value, the LinSig software provides a mean max queue (MMQ) and delay (average delay per PCU) figure which provides an indication of the extent of queuing and likely delay on any given lane.
- 8.2.12 For the purposes of the LinSig software, background and development traffic flows have been converted to Passenger Car Units (PCUs), with heavy vehicles converted using a PCU factor of 2.3.

8.3 Coventry Road / Site Access

- 8.3.1 The proposed site access arrangement off Coventry Lane as shown on drawing 21390-RLL-23-XX-DR-D-5008P08 (**Appendix G**) has been assessed using the Junctions 10 software.
- 8.3.2 The model parameters for the Coventry Road / Site Access junction were agreed with LCC as stated in their email correspondence dated 15 May 2024.
- 8.3.3 The results of the capacity testing of the Coventry Road / Site Access junction are shown below in **Table 30** with the full Junctions 10 output included within **Appendix T**.

Table 30: Coventry Road / Site Access Results

	AM					PM				
	Set ID	Queue (Veh)	Delay (s)	RFC	LOS	Set ID	Queue (Veh)	Delay (s)	RFC	LOS
	2026 Opening Year + Development									
Stream B-AC	D5	1.0	15.65	0.51	C	D6	0.2	9.25	0.18	A
Stream C-AB		0.2	5.46	0.14	A		0.5	5.90	0.23	A
	2031 Forecast Year + Development									
Stream B-AC	D9	1.0	15.35	0.51	C	D10	0.2	9.37	0.18	A
Stream C-AB		0.3	5.21	0.14	A		0.5	5.92	0.23	A

Note: A – Coventry Road East, B – Site Access Road, C – Coventry Road West

- 8.3.4 The Junctions 10 capacity testing results show that the Coventry Road / Site Access priority junction will operate within capacity in the 2026 and 2031 'with development' scenario in both peak hours.

8.4 B578 Lutterworth Road / Passchendaale Drive

- 8.4.1 The B578 Lutterworth Road / Passchendaale Drive junction is the existing access junction for the Ambion Way residential development. Development trips from the eastern side of the development will access the wider highway network using this junction.
- 8.4.2 The model parameters for the B578 Lutterworth Road / Passchendaale Drive junction were agreed with LCC as stated in their email correspondence dated 15 May 2024.
- 8.4.3 Queue length validation of the base year junction model was undertaken using the observed 2024 queue lengths and is shown below in **Table 31**.

Table 31: B578 Lutterworth Rd / Passchendaale Dr Queue Length Validation

Arm	AM Peak Hour 08:00 – 09:00		PM Peak Hour 17:00 – 18:00	
	Modelled	Observed	Modelled	Observed
Passchendaale Drive	0.1	1	0	1
B578 Lutterworth Road (N)	0	0	0.1	1

8.4.4 The model validation has shown that the modelled queues within the base year are consistent with the observed queuing at the junction. On this basis the model is considered suitable to forecast the impact of development traffic on the junctions performance for the 2026 opening and 2031 forecast years.

8.4.5 The results of the capacity assessment at the B578 Lutterworth Road / Passchendaale Drive junction are shown below in **Table 32** with the full Junctions 10 output included as **Appendix U**.

Table 32: B578 Lutterworth Road / Passchendaale Drive Results

	AM					PM				
	Set ID	Queue (Veh)	Delay (s)	RFC	LOS	Set ID	Queue (Veh)	Delay (s)	RFC	LOS
	Base Year									
Stream B-AC	D1	0.1	7.62	0.09	A	D2	0.0	7.29	0.03	A
Stream C-AB		0.0	4.54	0.03	A		0.1	5.18	0.04	A
	2026 Opening Year									
Stream B-AC	D3	0.1	8.02	0.09	A	D4	0.0	7.87	0.03	A
Stream C-AB		0.1	4.10	0.04	A		0.1	5.19	0.04	A
	2026 Opening Year + Development									
Stream B-AC	D5	0.2	8.84	0.16	A	D6	0.1	8.30	0.06	A
Stream C-AB		0.1	4.12	0.08	A		0.1	5.44	0.07	A
	2031 Forecast Year									
Stream B-AC	D7	0.1	8.27	0.09	A	D8	0.0	8.07	0.03	A
Stream C-AB		0.1	3.84	0.05	A		0.1	5.17	0.04	A
	2031 Forecast Year + Development									
Stream B-AC	D9	0.2	9.15	0.17	A	D10	0.1	8.52	0.06	A
Stream C-AB		0.2	3.87	0.09	A		0.1	5.42	0.08	A

Note: A – B578 Lutterworth Road South, B – Passchendaale Drive, C – B578 Lutterworth Road North

8.4.6 The Junctions 10 capacity testing results show that the B578 Lutterworth Road / Passchendaale Drive junction will operate within capacity in the 2026 opening year and 2031 forecast year, 'with' and 'without' development in both peak hours assessed.

8.5 B4109 Rugby Road / Coventry Road

Existing Priority Arrangement

- 8.5.1 The B4109 Rugby Road / Coventry Road priority junction was initially assessed within Junctions 10 using the furnished PRTM traffic flows. Following preliminary runs of the model it was concluded that the junction would need a mitigation scheme to facilitate future year traffic movements.
- 8.5.2 To validate the need for a mitigation scheme, a manual turning count was undertaken at the B4109 Rugby Road / Coventry Road priority junction to provide the base year turning movements for the initial Junctions 10 assessment to establish existing performance. It should be noted that as the 2023 turning count would have included vehicle movements to/from both the built Canberra Way and the Ambion Way residential estates, the traffic flows added previously to the PRTM flows to represent these developments have not been added to the 2023 observed turning movements to avoid double counting.
- 8.5.3 The results of the Junctions 10 capacity assessment can be found in **Table 33** with the full output included within **Appendix V**.

Table 33: B4109 Rugby Road / Coventry Road Junctions 10 Results

	AM					PM				
	Set ID	Queue (Veh)	Delay (s)	RFC	LOS	Set ID	Queue (Veh)	Delay (s)	RFC	LOS
	Base Year									
Stream B-C	D1	2.9	33.66	0.76	D	D2	0.7	12.22	0.40	B
Stream B-A		0.4	36.95	0.30	E		0.2	30.32	0.19	D
Stream C-B		0.5	11.58	0.33	B		2.0	20.44	0.68	C
	2026 Opening Year									
Stream B-C	D3	7.3	81.56	0.92	F	D4	1.5	28.54	0.62	D
Stream B-A		2.4	188.82	0.82	F		1.6	89.12	0.65	F
Stream C-B		0.4	12.24	0.31	B		2.8	26.33	0.75	D
	2026 Opening Year + Development									
Stream B-C	D5	55.4	473.64	1.33	F	D6	25.0	383.89	1.27	F
Stream B-A		12.4	554.46	1.27	F		12.1	436.27	1.23	F
Stream C-B		0.6	13.56	0.37	B		7.0	57.49	0.90	F
	2031 Forecast Year									
Stream B-C	D7	3.6	45.45	0.81	E	D8	5.1	87.95	0.90	F
Stream B-A		0.9	67.28	0.49	F		3.4	165.41	0.86	F
Stream C-B		0.6	13.17	0.36	B		3.0	28.31	0.76	D
	2031 Forecast Year + Development									
Stream B-C	D9	40.8	360.85	1.25	F	D10	36.9	550.60	1.45	F
Stream B-A		10.3	456.32	1.19	F		17.5	595.31	1.42	F
Stream C-B		0.7	14.71	0.42	B		8.2	66.00	0.92	F

Note: A – B4109 Rugby Road North, B – Coventry Road, C – B4109 Rugby Road South

- 8.5.4 The Junctions 10 capacity assessment results show that the B4109 Rugby Road / Coventry Road junction will exceed operational capacity in the 2026 opening year 'with development' scenario in both the AM and PM peak hours with a noticeable increase in queuing and delay on the Coventry Road approach, as well as in the 2031 forecast year.
- 8.5.5 The increase in vehicle delay on Coventry Road for both 2026 'without' development peak hour scenarios indicates that the opportunities for vehicles to pull out into gaps reduce greatly as northbound and southbound background traffic movements increase on the B4109 Rugby Road. With the inclusion of development traffic manoeuvring in and out of Coventry Road in 2026 this problem is only exacerbated.

Mitigation Scheme

- 8.5.6 The results of the Junctions 10 modelling indicate that a scheme is required to mitigate the impact of development traffic at the junction. Given the issue of vehicles turning in gaps, it is proposed that the junction is signalised. As well as aiding vehicle movements, the signalisation will also benefit pedestrians and cyclists, allowing for the provision of a controlled crossing point across Coventry Road. This will provide a betterment over the existing informal crossing as pedestrians and cyclists will no longer have to judge gaps in traffic movements to cross the Coventry Road bellmouth.
- 8.5.7 A conceptual scheme to signalise the Rugby Road / Coventry Road junction (drawing: 21390-RLL-23-XX-DR-D-5011P04), as well as a swept path analysis drawing showing an 18.5m HGV (the max legal length) using the junction (drawing: 21390-RLL-23-XX-DR-D-5016P03) have been included as **Appendix W**.
- 8.5.8 The signalisation of the Rugby Road / Coventry Road junction includes:
- Coventry Road being widened on the northern side of the carriageway to allow for two 3.2m width lanes on the approach
 - The introduction of a staggered toucan crossing along Coventry Road with a 3m width island
 - The toucan crossing along the B4109 Rugby Road has been relocated approximately 10m to the north-west to be incorporated into the junction signalisation
 - A new traffic island has been placed on the B4109 Rugby Road north arm
 - Re alignment of the kerb line on the northern side of Coventry Road.
- 8.5.9 A Stage 1 Road Safety Audit and Designers Response for the proposed signalisation scheme has been included in **Appendix W**. It is expected that the scheme can be delivered through a Section 278 application.

- 8.5.10 The scheme to signalise the B4109 Rugby Road / Coventry Road junction has been assessed using LinSig software. The LinSig results can be seen below in **Table 34** with the full results provided in **Appendix W**.
- 8.5.11 It should be noted that to integrate the toucan crossings into the signal arrangements, the AM peak hour has been assessed on a triple cycle with the PM peak hour assessed on a double cycle. In both cases the toucan crossings are called within the last cycle.

Table 34: B4109 Rugby Road / Coventry Road LinSig Results – Ped Crossings Called

Approach	AM Peak (08:00 – 09:00)			PM Peak (17:00 – 18:00)		
	MMQ (PCU)	Av. Delay per PCU (s/pcu)	Degree of Sat (%)	MMQ (PCU)	Av. Delay per PCU (s/pcu)	Degree of Sat (%)
2026 with Land South of Burbage (433 Dwellings) - Pedestrian Crossings Called						
B4109 Rugby Road (N)	38	44	94.2%	16	21	76.7%
Coventry Road	18	79	94.3%	6	53	79.7%
B4109 Rugby Rd South (Ahead)	11	14	55.7%	13	11	69.5%
B4109 Rugby Rd South (Right turn)	3	64	62.9%	6	40	78.8%
Total PRC	-4.8%			13.0%		
2031 with Land South of Burbage (433 Dwellings) - Pedestrian Crossings Called						
B4109 Rugby Road (N)	34	36	91.6%	16	23	79.1%
Coventry Road	16	70	91.1%	7	54	82.5%
B4109 Rugby Rd South (Ahead)	12	13	55.5%	13	11	71.1%
B4109 Rugby Rd South (Right turn)	3	66	69.3%	7	44	82.3%
Total PRC	-1.8%			9.1%		

- 8.5.12 The LinSig results demonstrate that the signalised scheme will operate near to capacity in the AM peak hour (the D.o.S does not exceed 100% on any lane) and within capacity in the PM peak hour.
- 8.5.13 There is a noticeable decrease in queuing on Coventry Road in the AM peak hour when compared to the existing priority arrangement, however this is at the determinant of the queueing on the B4109 Rugby Road (N) approach which is seeing a noticeable increase.

Turning in Gaps

- 8.5.14 During correspondence with LCC, it was requested that the southbound speeds along Coventry Road are understood to ensure the suitability of right turners,

turning from Rugby Road into Coventry Road, turning in gaps without a full green phase.

- 8.5.15 A stated in paragraph 7.18.2 of DMRB CD123:

Where the 85th percentile approach speed is greater than 72 kph (45 mph), right-turns should be separately signalled.

- 8.5.16 RL have purchased speed data from the LCC NDI team in the form of an ATC which recorded traffic flows and speeds along Rugby Road to the north of the Rugby Road / Coventry Road junction between Friday 16 June 2023 – Friday 23 June 2023. A summary of the 5-day and 7-day average recorded speeds for the AM peak hour, PM peak hour, 12-hour and 24-hour periods is presented below in **Table 35**.

Table 35: Rugby Road Speed Data

Time Period	5-day average	7-day average
AM Peak Hour 08:00 - 09:00	37.2	38.0
PM Peak hour 17:00 - 18:00	38.8	38.9
12-Hour 07:00 – 19:00	38.4	38.7
24-Hour 00:00 – 24:00	38.8	39.0

- 8.5.17 The ATC data has demonstrated that the 85th percentile southbound speeds recorded along Rugby Road are below the 45mph threshold that would require the right turn from Rugby Road (South) to Coventry Road to be fully signalised.

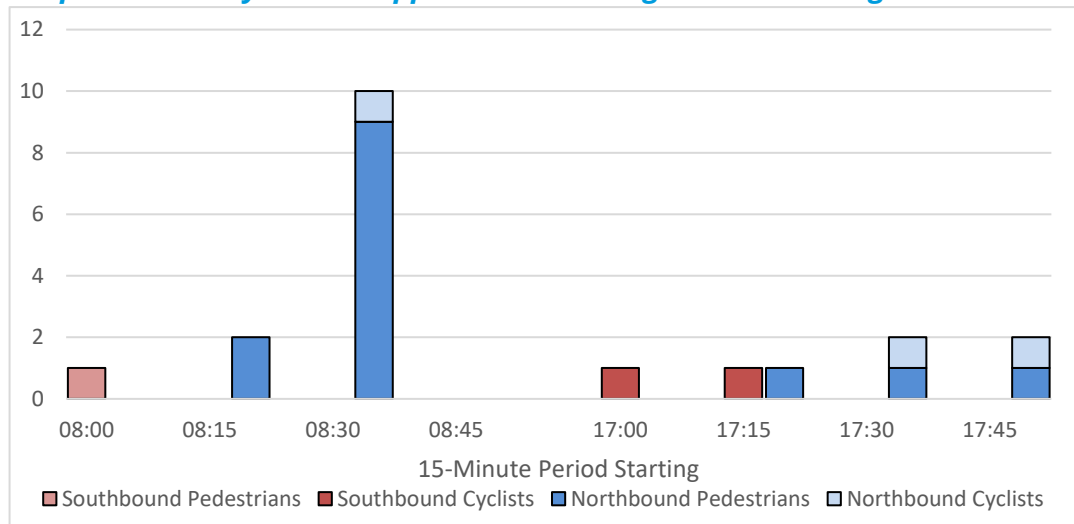
Toucan Crossing Frequency

- 8.5.18 It should be considered that both these peak hour model runs assume that the toucan crossings on Rugby Road and Coventry Road are being called every cycle. The frequency of the crossings being called results in noticeable queuing on the B4109 Rugby Road (N) approach, especially as the associated traffic phase can only be called once per cycle.
- 8.5.19 To inform how frequent the crossings will likely be called at the proposed signalised arrangement, it was necessary to understand the existing pedestrian and cyclists movements that use the Rugby Road toucan crossings and the dropped kerb crossings on Coventry Road.
- 8.5.20 Alongside the traffic count undertaken at the Rugby Road / Coventry Road junction on 29th June 2023, a pedestrian and cyclist count was also undertaken

at the dropped kerb crossing on the Coventry Road arm of the junction and the toucan crossing on the B4109 Rugby Road (south) arm.

- 8.5.21 The number of pedestrians and cyclists using the Coventry Road crossing within each peak hour, broken down into 15-minute periods, can be seen below in **Graph 9**.

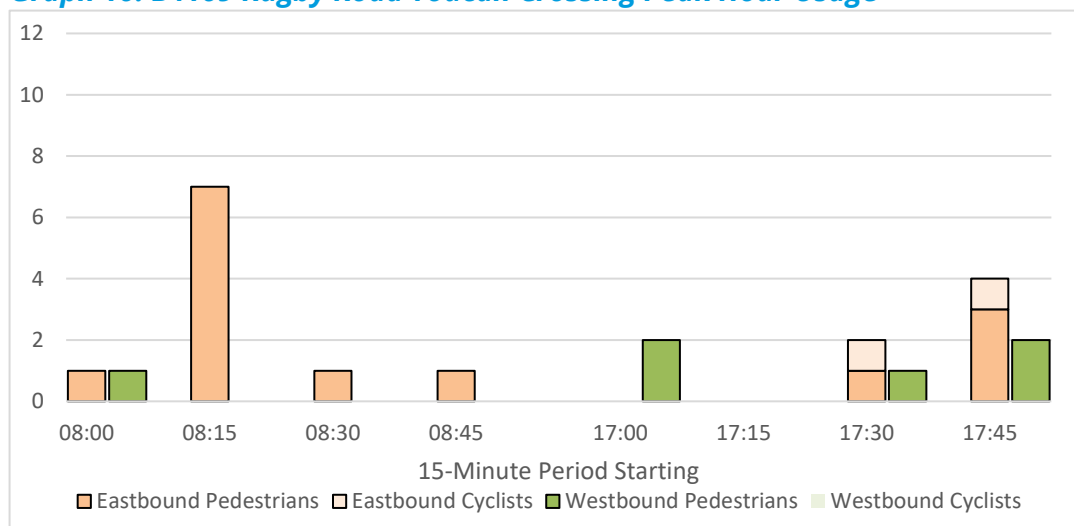
Graph 9: Coventry Road Dropped Kerb Crossing Peak Hour Usage



- 8.5.22 The survey of the dropped kerbed crossing at Coventry Road recorded 13 people (one cyclist / twelve pedestrians) using the crossing in the AM peak hour, with ten people using the crossing during the 08:30 – 08:45 time segment. In the PM peak hour seven people (two cyclists / five pedestrians) used the crossing with the profile of movements relatively flat across the hour.

- 8.5.23 The number of pedestrians and cyclists using the B4109 Rugby Road toucan crossing within each peak hour, broken down into 15-minute periods, can be seen below in **Graph 10**.

Graph 10: B4109 Rugby Road Toucan Crossing Peak Hour Usage



- 8.5.24 The survey of the toucan crossing on Rugby Road recorded eleven pedestrians using the crossing in the AM peak hour, with seven of these movements being made during the 08:15 – 08:30 time segment. In the PM peak hour twelve people (two cyclists / nine pedestrians) used the crossing with six of these movements being made during the 17:45 – 18:00 time segment.

Staging Arrangement (No Toucan Crossing calls)

- 8.5.25 Given the observed number of people using both the Rugby Road and Coventry Road crossings facilities it has been concluded that any integrated / proposed crossings facilities in the signalised mitigation scheme will be called infrequently. On this basis an assessment looking at a cycle that only includes traffic phases, replicating how the junction will work for the majority of the time, has been undertaken.
- 8.5.26 The LinSig modelling results, assessing the junction with only the traffic phases being called, are shown below in **Table 36** with the full results provided **Appendix W**.

Table 36: B4109 Rugby Road / Coventry Road LinSig Results – No Ped Crossings

Approach	AM Peak (08:00 – 09:00)			PM Peak (17:00 – 18:00)		
	MMQ (PCU)	Av. Delay per PCU (s/pcu)	Degree of Sat (%)	MMQ (PCU)	Av. Delay per PCU (s/pcu)	Degree of Sat (%)
2026 with Land South of Burbage (433 Dwellings) – No Pedestrian Crossings Called						
B4109 Rugby Road (N)	25	30	90.2%	12	20	78.8%
Coventry Road	13	57	89.6%	5	43	76.2%
B4109 Rugby Rd South (Ahead)	10	14	58.5%	11	11	72.7%
B4109 Rugby Rd South (Right turn)	3	74	75.7%	5	38	79.9%
Total PRC	-0.3%			12.6%		
2031 with Land South of Burbage (433 Dwellings) – No Pedestrian Crossings Called						
B4109 Rugby Road (N)	23	27	88.1%	13	21	80.2%
Coventry Road	11	51	85.8%	6	48	81.5%
B4109 Rugby Rd South (Ahead)	10	14	58.4%	12	12	73.6%
B4109 Rugby Rd South (Right turn)	4	84	82.8%	6	42	82.8%
Total PRC	2.1%			8.7%		

- 8.5.27 The assessment of the junction operating with traffic phases only has demonstrated that the junction will operate within capacity in both peak hours

with a reduction in queueing on all arms when compared to the assessment where crossings are being called.

- 8.5.28 It should be noted that running a traffic phase only model allows a shorter cycle time to be assessed. Of note, for the PM peak hour this reduces the overall PRC of the junction when compared to the assessment with the toucan crossings being called. In addition the shorter cycle time reduces the queue lengths on all lanes as on average queueing vehicles are waiting for a shorter time each cycle.

Conclusion

- 8.5.29 When considering the merits of this mitigation scheme, the theoretical highway capacity is only one element. The introduction of a toucan crossing on Coventry Road provides a safe crossing facility for both pedestrians and cyclists using the shared footway/cycleway along Rugby Road, a betterment to the existing provision.
- 8.5.30 The signalisation of the junction also avoids vehicles having to judge safe gaps in northbound and southbound traffic on Rugby Road when pulling out of Coventry Road. Although vehicles manoeuvring from Rugby Road (south) to Coventry Road can still turn in gaps, the introduction of an indicative green arrow allows the phase to be called if demand requires it, providing a betterment to highway safety.

8.6 B4109 Rugby Road / Canberra Way / Three Pots Road Roundabout

- 8.6.1 During correspondence with LCC, it has been raised that it is likely that unequal lane usage is occurring on the B4109 Rugby Road (south) approach to the B4109 Rugby Road / Canberra Way / Three Pots Road Roundabout given the opposing B4109 Rugby Road (north) has a two lane exit with the offside exit lane designated for right turning traffic at the downstream B4109 Rugby Road / Coventry Road junction.
- 8.6.2 To ensure that the junction model reflects this unequal lane usage on the B4109 Rugby Road (south) approach, intercept corrections have been used. The values used have been finalised whilst validating the model against the observed queue lengths and are included within the Junctions 10 output.
- 8.6.3 The queue length validation is shown below in **Table 37**.

Table 37: B4109 Rugby Road / Canberra Way Queue Length Validation

Arm	AM Peak Hour 08:00 – 09:00		PM Peak Hour 17:00 – 18:00	
	Modelled	Observed	Modelled	Observed
Canberra Way	0.2	1	0	1
B4109 Rugby Road (S)	1	2	3	4
Three Pots Road	1	2	2	4
B4109 Rugby Road (N)	4	4	1	2

8.6.4 The model validation has shown that the modelled queues within the base year are consistent with the observed queuing at the junction. On this basis the model is considered suitable to forecast the impact of development traffic on the junctions performance for the 2026 opening and 2031 forecast years.

8.6.5 The results of the B4109 Rugby Road / Canberra Way / Three Pots Road roundabout capacity assessment can be found in **Table 38** with the full Junctions 10 output included within **Appendix X**.

Table 38: B4109 Rugby Road / Canberra Way / Three Pots Road Results

	AM					PM				
	Set ID	Queue (Veh)	Delay (s)	RFC	LOS	Set ID	Queue (Veh)	Delay (s)	RFC	LOS
	Base Year									
1 - Canberra Way	D1	0.2	12.21	0.17	B	D2	0.0	6.05	0.03	A
2 - B4109 Rugby Road South		0.9	5.13	0.47	A		3.0	10.16	0.75	B
3 - Three Pots Road		0.8	11.70	0.45	B		1.8	30.34	0.66	D
4 - B4109 Rugby Road North		3.9	11.52	0.80	B		1.1	4.59	0.51	A
	2026 Opening Year									
1 - Canberra Way	D3	0.2	14.66	0.19	B	D4	0.0	6.33	0.04	A
2 - B4109 Rugby Road South		1.4	6.56	0.59	A		6.1	18.48	0.87	C
3 - Three Pots Road		1.0	15.26	0.51	C		1.3	32.39	0.58	D
4 - B4109 Rugby Road North		6.0	16.73	0.86	C		1.2	4.92	0.55	A
	2026 Opening Year + Development									
1 - Canberra Way	D5	0.3	17.53	0.22	C	D6	0.0	6.44	0.04	A
2 - B4109 Rugby Road South		1.5	6.91	0.61	A		9.2	26.96	0.91	D
3 - Three Pots Road		1.2	16.51	0.54	C		2.2	52.89	0.72	F
4 - B4109 Rugby Road North		9.5	25.56	0.92	D		1.3	5.04	0.56	A
	2031 Forecast Year									
1 - Canberra Way	D7	0.2	13.42	0.18	B	D8	0.0	6.51	0.04	A
2 - B4109 Rugby Road South		1.6	6.94	0.61	A		10.0	29.16	0.92	D
3 - Three Pots Road		1.1	16.61	0.54	C		0.7	27.50	0.41	D
4 - B4109 Rugby Road North		4.8	13.93	0.84	B		1.3	5.13	0.57	A
	2031 Forecast Year + Development									
1 - Canberra Way	D9	0.3	15.83	0.20	C	D10	0.0	6.61	0.04	A
2 - B4109 Rugby Road South		1.7	7.34	0.63	A		17.6	48.01	0.97	E
3 - Three Pots Road		1.3	18.11	0.57	C		1.1	39.78	0.54	E
4 - B4109 Rugby Road North		7.2	19.90	0.89	C		1.4	5.26	0.58	A

8.6.6 The Junctions 10 capacity assessment results show that the B4109 Rugby Road / Canberra Way / Three Pots Road roundabout will operate close to the

theoretical capacity in the forecast years, both 'with' and 'without' development, in both peak hours assessed. However, the impact of the development cannot be considered severe given the negligible increase in queueing and delay forecast for both 2026 opening and 2031 forecast year.

8.7 B4109 Rugby Road / Sketchley Road / Sketchley Lane Roundabout

8.7.1 The model parameters for the B4109 Rugby Road / Sketchley Road / Sketchley Lane Roundabout were agreed with LCC as stated in their email correspondence dated 15 May 2024.

8.7.2 Queue length validation of the base year junction model was undertaken using the observed 2024 queue lengths and is shown below in **Table 39**.

Table 39: B4109 Rugby Road / Sketchley Road Queue Length Validation

Arm	AM Peak Hour 08:00 – 09:00		PM Peak Hour 17:00 – 18:00	
	Modelled	Observed	Modelled	Observed
Sketchley Road	1	4	0.2	3
B4109 Rugby Road (S)	1	3	4	3
Sketchley Lane	1	3	0.3	2
B4109 Rugby Road (N)	2	3	2	2

8.7.3 The model validation has shown that the modelled queues within the base year are consistent with the observed queueing at the junction. On this basis the model is considered suitable to forecast the impact of development traffic on the junctions performance for the 2026 opening and 2031 forecast years.

8.7.4 The results of the B4109 Rugby Road / Sketchley Road / Sketchley Lane roundabout capacity assessment are shown below in **Table 40** with the full Junctions 10 output included within **Appendix Y**.

Table 40: B4109 Rugby Road / Sketchley Road / Sketchley Lane Results

	AM					PM				
	Set ID	Queue (Veh)	Delay (s)	RFC	LOS	Set ID	Queue (Veh)	Delay (s)	RFC	LOS
	Base Year									
1 - Sketchley Road	D1	0.5	8.08	0.32	A	D2	0.2	6.28	0.18	A
2 - B4109 Rugby Road South		1.0	5.71	0.49	A		3.6	13.72	0.79	B
3 - Sketchley Lane		0.5	8.37	0.32	A		0.3	10.02	0.26	B
4 - B4109 Rugby Road North		1.8	10.46	0.64	B		2.0	12.63	0.67	B
	2026 Opening Year									
1 - Sketchley Road	D3	0.7	10.05	0.41	B	D4	0.3	6.75	0.21	A
2 - B4109 Rugby Road South		1.8	8.20	0.64	A		7.4	25.97	0.89	D
3 - Sketchley Lane		0.6	10.63	0.38	B		0.7	15.12	0.42	C
4 - B4109 Rugby Road North		2.6	13.59	0.73	B		2.3	13.27	0.70	B
	2026 Opening Year + Development									
1 - Sketchley Road	D5	0.7	10.44	0.42	B	D6	0.3	6.90	0.22	A
2 - B4109 Rugby Road South		2.0	8.93	0.67	A		9.2	31.53	0.92	D
3 - Sketchley Lane		0.6	11.26	0.39	B		0.8	16.21	0.44	C
4 - B4109 Rugby Road North		3.0	15.08	0.75	C		2.5	14.40	0.72	B
	2031 Forecast Year									
1 - Sketchley Road	D7	0.6	9.55	0.37	A	D8	0.3	6.83	0.22	A
2 - B4109 Rugby Road South		1.9	8.40	0.65	A		8.6	29.53	0.91	D
3 - Sketchley Lane		0.6	10.74	0.38	B		1.2	19.55	0.54	C
4 - B4109 Rugby Road North		2.9	14.67	0.75	B		2.2	12.84	0.69	B
	2031 Forecast Year + Development									
1 - Sketchley Road	D9	0.6	9.90	0.38	A	D10	0.3	6.98	0.22	A
2 - B4109 Rugby Road South		2.1	9.17	0.68	A		10.9	36.72	0.93	E
3 - Sketchley Lane		0.6	11.39	0.39	B		1.3	21.42	0.57	C
4 - B4109 Rugby Road North		3.3	16.42	0.78	C		2.5	13.89	0.72	B

- 8.7.5 The Junctions 10 capacity assessment results show that the junction will be operating within its theoretical capacity in the AM peak hour, for all scenarios, however for the PM peak hour the RFC on the Rugby Road South approach exceeds 0.85 in both 2026 and 2031 scenarios.
- 8.7.6 In capacity terms, an RFC of up to 1.00 is seen as a junction operating at or near to the total capacity with intermittent periods of queueing. TRL, the developers of the 'Junctions 10' software package, recommend that the delay-per-vehicle is also examined when an RFC of 0.85 is exceeded.
- 8.7.7 The increase in delay in the PM peak hour on the B4109 Rugby Road south arm as a consequence of development traffic is less than 10 seconds within both the 2026 opening and 2031 forecast years. On this basis the impact on junction performance can be seen to be indiscernible.

8.8 B4109 Rugby Road / Brookside

- 8.8.1 A LinSig model of the existing B4109 Rugby Road / Brookside signalised crossroads was developed using the traffic signal specification purchased from the LCC NDI team.
- 8.8.2 As the PRTM model didn't include turning movements for Dudley Rise, the model has been developed using traffic flows from the 2024 turning count as well as the furnished traffic flows for the northbound and southbound movements on Rugby Road.
- 8.8.3 Queue length validation of the base year junction model was undertaken using the observed 2024 queue lengths and is shown below in **Table 41**.

Table 41: B4109 Rugby Road / Brookside Queue Length Validation

Arm	Lane	AM Peak Hour 08:00 – 09:00		PM Peak Hour 17:00 – 18:00	
		Modelled	Observed	Modelled	Observed
B4109 Rugby Rd (N)	1	12	9	12	10
	2	9	8	10	8
Brookside	1	13	11	11	8
B4109 Rugby Rd (S)	1	11	11	9	14
	2	-	3	-	4
Dudley Rise	1	0.2	1	0.1	0

- 8.8.4 The model validation has shown that the modelled queues within the base year are consistent with the observed queuing at the junction. On this basis the model is considered suitable to forecast the impact of development traffic on the junctions performance for the 2026 opening and 2031 forecast years.
- 8.8.5 The LinSig results for the junction capacity assessment of the B4109 Rugby Road / Brookside signalised crossroads are shown below in **Table 42**.

Table 42: B4109 Rugby Road / Brookside Results

Approach	AM Peak (08:00 – 09:00)			PM Peak (17:00 – 18:00)		
	MMQ (PCU)	Av. Delay per PCU (s/pcu)	Degree of Sat (%)	MMQ (PCU)	Av. Delay per PCU (s/pcu)	Degree of Sat (%)
Base Year						
B4109 (N)	12	48	77.7%	12	49	82.4%
Brookside	13	47	78.5%	11	61	85.0%
B4109 (S)	11	35	74.0%	9	32	78.0%
Dudley Rise	0.2	36	2.1%	0.1	42	2.0%
Total PRC	14.6%			5.8%		
2026 Opening Year						
B4109 (N)	15	46	81.6%	14	44	82.0%
Brookside	12	51	79.8%	9	54	78.3%
B4109 (S)	17	33	77.0%	16	28	77.0%
Dudley Rise	0.2	39	2.4%	0.1	43	2.2%
Total PRC	10.2%			9.7%		
2026 Opening Year + Development						
B4109 (N)	15	45	81.2%	14	42	81.5%
Brookside	13	55	82.9%	10	60	82.6%
B4109 (S)	18	33	78.9%	17	28	78.2%
Dudley Rise	0.2	40	2.5%	0.1	45	2.5%
Total PRC	8.6%			9.0%		
2031 Forecast Year						
B4109 (N)	15	45	81.8%	14	45	83.3%
Brookside	12	53	80.9%	10	56	81.7%
B4109 (S)	17	32	76.2%	20	34	84.8%
Dudley Rise	0.2	40	2.5%	0.1	42	2.0%
Total PRC	10.1%			6.1%		
2031 Forecast Year + Development						
B4109 (N)	16	47	83.7%	14	43	82.7%
Brookside	12	53	80.9%	11	64	85.9%
B4109 (S)	19	33	79.6%	21	34	85.7%
Dudley Rise	0.2	40	2.5%	0.1	43	2.2%
Total PRC	7.5%			4.7%		

- 8.8.6 The junction capacity testing results show that the B4109 Rugby Road / Brookside signalised crossroads will operate within capacity in the 2026 and 2031 'with development' scenario in both peak hours.

8.9 B578 Lutterworth Road / B578 Hinckley Road / Lychgate Lane Crossroads

8.9.1 The junction model has been reviewed and updated during the determination period of the application following recommendations from LCC in their email correspondence dated 15 May 2024.

8.9.2 Queue length validation of the base year junction model was undertaken using the observed 2024 queue lengths and is shown below in **Table 43**.

Table 43: Lutterworth Rd / Hinckley Rd Queue Length Validation

Arm	AM Peak Hour 08:00 – 09:00		PM Peak Hour 17:00 – 18:00	
	Modelled	Observed	Modelled	Observed
B578 Hinckley Road	1	1	1	2
Lychgate Lane	0.4	1	0.3	1
B578 Lutterworth Road	0	0	0.1	0
Windsor Street	0.4	2	1	3

8.9.3 The model validation has shown that the modelled queues within the base year are consistent with the observed queuing at the junction. On this basis the model is considered suitable to forecast the impact of development traffic on the junctions performance for the 2026 opening and 2031 forecast years.

8.9.4 The results of the B578 Lutterworth Road / B578 Hinckley Road / Lychgate Lane crossroads capacity assessment are shown below in **Table 44** with the full Junctions 10 output included within **Appendix AA**.

Table 44: B578 Lutterworth Rd / B578 Hinckley Rd / Lychgate Ln Results

	AM					PM				
	Set ID	Queue (Veh)	Delay (s)	RFC	LOS	Set ID	Queue (Veh)	Delay (s)	RFC	LOS
	Base Year									
Stream B-ACD	D1	0.4	17.18	0.28	C	D2	0.3	16.00	0.26	C
Stream A-B-C		1.1	9.16	0.42	A		0.4	7.77	0.22	A
Stream A-D		0.8	13.00	0.57	B		0.7	11.32	0.48	B
Stream D-AB		0.4	10.12	0.29	B		1.4	16.05	0.58	C
Stream D-BC		0.3	12.98	0.21	B		0.2	13.70	0.19	B
Stream C-ABD		0.0	6.41	0.01	A		0.1	5.64	0.04	A
	2026 Opening Year									
Stream B-ACD	D3	0.6	21.79	0.37	C	D4	0.4	17.96	0.28	C
Stream A-B-C		1.7	10.03	0.52	B		0.6	8.18	0.27	A
Stream A-D		0.7	12.89	0.59	B		0.7	12.35	0.50	B
Stream D-AB		0.5	11.16	0.34	B		1.7	20.33	0.64	C
Stream D-BC		0.7	21.39	0.40	C		0.3	17.55	0.25	C
Stream C-ABD		0.0	6.35	0.01	A		0.1	5.19	0.05	A
	2026 Opening Year + Development									
Stream B-ACD	D5	0.8	27.42	0.45	D	D6	0.4	20.37	0.31	C
Stream A-B-C		1.8	11.06	0.55	B		0.6	8.73	0.29	A
Stream A-D		1.0	15.56	0.65	C		1.2	16.35	0.60	C
Stream D-AB		1.8	27.00	0.65	D		2.7	29.75	0.74	D
Stream D-BC		2.0	48.57	0.69	E		0.6	27.55	0.40	D
Stream C-ABD		0.0	6.31	0.01	A		0.1	5.10	0.05	A
	2031 Forecast Year									
Stream B-ACD	D7	0.7	24.42	0.41	C	D8	0.5	20.59	0.34	C
Stream A-B-C		2.0	10.28	0.56	B		0.6	8.46	0.29	A
Stream A-D		0.5	12.15	0.59	B		0.8	13.37	0.53	B
Stream D-AB		0.7	14.82	0.43	B		1.9	22.63	0.66	C
Stream D-BC		1.1	29.17	0.54	D		0.4	20.22	0.29	C
Stream C-ABD		0.0	6.39	0.01	A		0.1	5.09	0.05	A
	2031 Forecast Year + Development									
Stream B-ACD	D9	1.0	32.68	0.50	D	D10	0.6	23.90	0.39	C
Stream A-B-C		2.3	11.54	0.60	B		0.7	9.04	0.31	A
Stream A-D		0.8	14.51	0.64	B		1.4	18.03	0.64	C
Stream D-AB		8.6	118.47	0.98	F		3.2	36.24	0.78	E
Stream D-BC		6.9	143.49	0.95	F		0.8	35.97	0.47	E
Stream C-ABD		0.0	6.35	0.01	A		0.1	5.00	0.05	A

Note: A – B578 Hinckley Road, B – Lychgate Lane, C – B578 Lutterworth Road, D – Windsor Street

- 8.9.5 The Junctions 10 capacity assessment results show that the B578 Lutterworth Road / B578 Hinckley Road / Lychgate Lane crossroads will operate within capacity in the 2026 opening year both ‘with’ and ‘without’ development, in both peak hours assessed.

- 8.9.6 In the 2031 forecast year, the results indicate that the Windsor Street approach will be operating near to capacity with the inclusion of development traffic, with a noticeable increase in queue lengths and delay.
- 8.9.7 It should be noted that the PRTM routed all development trips (41 in the AM and 17 in the PM) from Windsor Street to the B578 Lutterworth Road via the B578 Lutterworth Road / B578 Hinckley Road crossroads. Approximately 100m to the west of the crossroads is a one-way street known as Strutt Road. In reality, vehicles travelling from Coventry Road to B578 Lutterworth Road would use Strutt Street and therefore bypass the B578 Lutterworth Road / B578 Hinckley Road / Lychgate Lane crossroads. On this basis the forecast increase in queuing and delay is unrealistic and it is considered that the development will not have a severe impact on the operation of the B578 Lutterworth Road / B578 Hinckley Road / Lychgate Lane crossroads.

8.10 B578 Hinckley Road / B4669 Burbage Road / B4669 Sapcote Road

- 8.10.1 The model parameters for the B578 Hinckley Road / B4669 Burbage Road / B4669 Sapcote Road junction were agreed with LCC as stated in their email correspondence dated 15 May 2024.
- 8.10.2 During the development of the Junctions 10 model, a comparison of the 2024 traffic survey and the furnished PRTM turning movements was undertaken and it was concluded that there was a noticeable difference in the number of vehicles movements through the junction. On this basis the 2024 survey data was used to establish the base year for Junctions 10 assessment.
- 8.10.3 As a point of note, as the turning count would have included vehicle movements to/from both the built Canberra Way and the Ambion Way residential estates, no committed development trips have been added to the base year turning movements to avoid double counting.
- 8.10.4 Queue length validation of the base year junction model was undertaken using the observed 2024 queue lengths and is shown below in **Table 45**.

Table 45: Hinckley Rd / Burbage Rd / Sapcote Rd Queue Length Validation

Arm	AM Peak Hour 08:00 – 09:00		PM Peak Hour 17:00 – 18:00	
	Modelled	Observed	Modelled	Observed
B578 Hinckley Road	2	3	1	11
B4669 Burbage Road	2	3	1	2

- 8.10.5 The model validation has shown that the modelled queues within the base year are consistent with the observed queuing at the junction with the exception of the Hinckley Road approach in the PM peak hour. A review of the survey video

footage indicated that slow moving traffic on the B4669 Burbage Road exit impacted junction operation, an occurrence that is not possible to replicate within Junctions 10. The model is considered suitable to forecast the impact of development traffic on the junctions performance for the 2026 opening and 2031 forecast years.

- 8.10.6 The results of the B578 Hinckley Road / B4669 Burbage Road / B4669 Sapcote Road junction capacity assessment are shown below in **Table 46** with the full Junctions 10 output included within **Appendix BB**.

Table 46: B578 Hinckley Road / B4669 Burbage Road / B4669 Sapcote Road Results

	AM					PM				
	Set ID	Queue (Veh)	Delay (s)	RFC	LOS	Set ID	Queue (Veh)	Delay (s)	RFC	LOS
	Base Year									
Stream B-C	D1	1.0	15.55	0.50	C	D2	1.0	12.52	0.51	B
Stream B-A		1.5	42.25	0.61	E		0.8	21.21	0.44	C
Stream C-AB		1.6	15.40	0.60	C		0.9	11.58	0.46	B
	2026 Opening Year									
Stream B-C	D3	4.0	65.45	0.85	F	D4	1.6	18.06	0.63	C
Stream B-A		4.7	117.44	0.88	F		1.2	30.97	0.56	D
Stream C-AB		3.5	21.33	0.74	C		0.9	12.10	0.48	B
	2026 Opening Year + Development									
Stream B-C	D5	17.0	205.17	1.08	F	D6	2.0	21.71	0.68	C
Stream B-A		11.0	237.50	1.06	F		1.6	37.61	0.62	E
Stream C-AB		5.5	26.70	0.81	D		1.1	13.04	0.52	B
	2031 Forecast Year									
Stream B-C	D7	17.2	247.47	1.11	F	D8	2.2	23.04	0.70	C
Stream B-A		13.2	270.63	1.10	F		1.6	38.10	0.63	E
Stream C-AB		8.0	32.55	0.86	D		1.1	13.06	0.52	B
	2031 Forecast Year + Development									
Stream B-C	D9	37.1	454.37	1.34	F	D10	3.0	30.31	0.76	D
Stream B-A		24.3	474.87	1.32	F		2.2	50.26	0.70	F
Stream C-AB		15.1	51.13	0.93	F		1.3	14.14	0.56	B

Note: A – B4669 Sapcote Road, B – B578 Hinckley Road, C – B4669 Burbage Road

- 8.10.7 The results show that the B578 Hinckley Road / B4669 Burbage Road / B4669 Sapcote Road junction will operate over capacity in the AM peak hour with the inclusion of development traffic
- 8.10.8 A proposed conceptual scheme to signalise the junction was submitted as part of the 'Land To The South West Of Lutterworth Road Burbage' outline (ref 21/00502/OUT) and 'free go' (ref 23/00148/OUT) planning applications.

- 8.10.9 The mitigation scheme drawing for the B578 Hinckley Road / B4669 Burbage Road / B4669 Sapcote Road junction, drawing: P19409-22-XX-DR-D-5006RevA, has been included as **Appendix CC**.
- 8.10.10 The LinSig model for the scheme has been utilised to test the 2026 'with' and 'without' development scenarios. The results of the modelling are shown below in below in **Table 47** with the full LinSig output included within **Appendix CC**.

Table 47: B578 Hinckley Road / Burbage Road / Sapcote Road Results

Approach	AM Peak (08:00 – 09:00)		PM Peak (17:00 – 18:00)	
	MMQ (PCU)	Degree of Sat (%)	MMQ (PCU)	Degree of Sat (%)
2026 Opening Year				
B578 Hinckley Road	3.9	68.4%	4.6	57.5%
B4669 Burbage Road	10.2	77.1%	6.8	61.1%
B4669 Sapcote Road	11.2	73.3%	4.9	54.5%
Total PRC	16.7%		47.3%	
2026 Opening Year with Development				
B578 Hinckley Road	4.8	72.6%	4.8	60.4%
B4669 Burbage Road	10.6	79.6%	7.0	62.4%
B4669 Sapcote Road	11.9	76.3%	5.3	58.7%
Total PRC	13.1%		44.2%	
2031 Forecast Year				
B578 Hinckley Road	4.5	74.6%	4.9	61.4%
B4669 Burbage Road	11.7	83.0%	6.7	61.1%
B4669 Sapcote Road	11.6	74.6%	5.3	59.1%
Total PRC	8.5%		46.7%	
2031 Forecast Year with Development				
B578 Hinckley Road	5.3	79.2%	5.1	62.1%
B4669 Burbage Road	12.5	85.5%	6.9	62.9%
B4669 Sapcote Road	12.1	77.8%	5.9	63.5%
Total PRC	5.3%		41.8%	

- 8.10.11 The modelling results show that the mitigation scheme will operate within theoretical capacity in both the peak hours, both 'with' and 'without' development traffic.
- 8.10.12 It should be acknowledged that the signalisation of the junction also introduces a signalised crossings on the Sapcote Road and Hinckley Road arms, providing a safe crossing facilities for pedestrians, a betterment to the existing informal provision that requires pedestrians to cross within gaps in the traffic.
- 8.10.13 A financial contribution towards the cost to implement this scheme, or a similar scheme to signalise the junction, can be secured through the S106 agreement.

8.11 A5 / B578 Lutterworth Road

- 8.11.1 NH have provided comments on the submitted Junctions 10 model of the A5 / B578 Lutterworth Road junction within their second response (NHPR 22-12). These comments have been reviewed and the model parameters has been refined accordingly as shown below in **Table 48**.

Table 48: NH Comments on the A5 / B578 Lutterworth Road Junction

NH Comment	RL Response
Reduce the minor arm flare length to 1 PCU.	The flare length along the B578 Lutterworth Road has been kept at 2 PCUs.
Reduce the minor arm right arm visibility to approximately 35 metres.	The right arm visibility has been reduced from 152m to 100m.

- 8.11.2 With reference to the flare length of the B578 Lutterworth Road, the traffic survey footage was reviewed, and a screenshot extracted to demonstrate that there is ample room for two cars to wait next to each other in the carriageway space available. This screenshot can be seen below in **Figure 16**.

Figure 16: B578 Lutterworth Road Approach



- 8.11.3 Consideration has been given to the use of this storage space by an HGV, a situation that may restrict two vehicles waiting next to one another. Review of the HGV percentages on the Lutterworth Road approach to the A5 / B578 junction has highlighted that only 1% of vehicle movements were classed as HGVs during the AM peak hour and that no HGVs were expected to use the approach in the PM peak. On this basis the 2 PCU flare length value is considered appropriate.
- 8.11.4 It is unclear how the 35m visibility value suggested by NH has been determined. Using the aerial mapping, it has been determined that a visibility splay of 100m to the right and 110m to the left can be achieved at the junction.

- 8.11.5 Queue length validation of the base year junction model was undertaken using the observed 2024 queue lengths and is shown below in **Table 49**.

Table 49: A5 / B578 Lutterworth Road Queue Length Validation

Arm	AM Peak Hour 08:00 – 09:00		PM Peak Hour 17:00 – 18:00	
	Modelled	Observed	Modelled	Observed
B578 Lutterworth Road	1	5	0.2	3
A5 South	0.3	2	1	4

- 8.11.6 The model validation has shown that the modelled queues within the base year are consistent with the pattern of observed queuing at the junction. On this basis the model is considered suitable to forecast the impact of development traffic on the junctions performance for the 2026 opening and 2031 forecast years.
- 8.11.7 The results of the A5 / Lutterworth Road junction capacity assessment are shown below in **Table 50** with the full Junctions 10 output included within **Appendix DD**.

Table 50: A5 / B578 Lutterworth Road Results

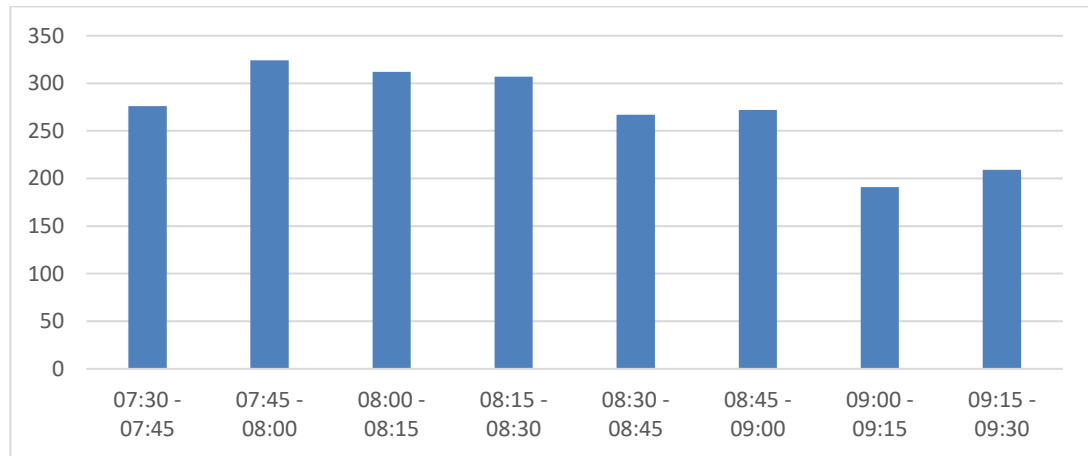
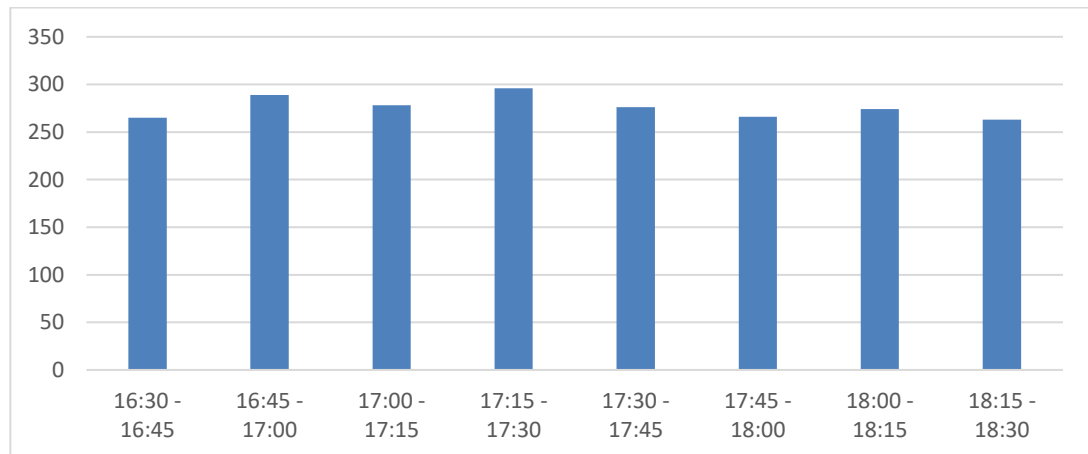
	AM					PM				
	Set ID	Queue (Veh)	Delay (s)	RFC	LOS	Set ID	Queue (Veh)	Delay (s)	RFC	LOS
	2021									
Stream B-C	D1	0.6	10.54	0.38	B	D2	0.2	7.28	0.17	A
Stream B-A		0.1	24.38	0.11	C		0.0	27.86	0.03	D
Stream C-AB		0.3	9.18	0.21	A		0.7	11.93	0.42	B
	2026									
Stream B-C	D3	1.0	13.17	0.50	B	D4	0.3	8.72	0.24	A
Stream B-A		0.2	28.27	0.14	D		0.1	53.62	0.06	F
Stream C-AB		0.2	9.04	0.20	A		0.9	14.09	0.46	B
	2026 + Dev									
Stream B-C	D5	1.2	14.98	0.55	B	D6	0.3	9.11	0.26	A
Stream B-A		0.2	31.45	0.17	D		0.1	77.73	0.11	F
Stream C-AB		0.3	9.25	0.21	A		1.2	16.59	0.54	C
	2031									
Stream B-C	D7	3.3	32.23	0.78	D	D8	0.4	9.17	0.28	A
Stream B-A		1.0	58.19	0.52	F		0.1	86.36	0.10	F
Stream C-AB		0.2	8.86	0.20	A		1.2	16.41	0.55	C
	2031 + Dev									
Stream B-C	D9	5.1	49.12	0.86	E	D10	0.4	9.96	0.30	A
Stream B-A		1.7	95.10	0.67	F		0.2	172.42	0.21	F
Stream C-AB		0.3	9.06	0.21	A		1.6	19.79	0.62	C

Note: A – A5 North, B – B578 Lutterworth Road, C – A5 South

-
- 8.11.8 The Junctions 10 capacity assessment results show that the A5 / B578 Lutterworth Road priority junction will operate within theoretical capacity in the 2026 opening and 2031 forecast years both 'with' and 'without' development in both peak hours assessed. The inclusion of background traffic growth is showing an increase in delay for vehicles turning right from the B578 to the A5 north as a consequence of increased A5 traffic flow. Development trips making this right turn manoeuvre are expected to be low and in reality, alternative routes would be taken by drivers if high delay was perceived as a regular occurrence.
- 8.11.9 On this basis the impact of development traffic on the A5 / B578 Lutterworth Road priority junction is not considered severe.

8.12 A5 / Wolvey Road Priority Junction

- 8.12.1 The model parameters for the A5 / Wolvey Road priority junction were agreed with NH their response (NHPR 22-12).
- 8.12.2 During the development of the Junctions 10 model, a comparison of the 2024 traffic survey and the furnished PRTM turning movements was undertaken and it was concluded that there was a noticeable difference in the number of vehicles turning from Wolvey Road. On this basis the 2024 survey data was used to establish the base year for Junctions 10 assessment.
- 8.12.3 As a point of note, as the A5 / Wolvey Road turning count would have included vehicle movements to/from both the built Canberra Way and the Ambion Way residential estates, no committed development trips have been added to the base year turning movements to avoid double counting.
- 8.12.4 Review of the 2024 traffic flows concluded that the flow on the A5 south-eastern arm was relatively consistent across the 15-minute internals during the AM and PM peaks. The approach flow traffic profile for the A5 south-eastern arm has been presented graphical in **Graph 11** and **Graph 12** below for the AM and PM peak hours respectively.

Graph 11: A5 South-Eastern Arm AM Peak Approach Flows**Graph 12: A5 South-Eastern Arm PM Peak Approach Flows**

8.12.5 Given the profile shown above, a “flat” traffic profile has been used within the Junctions 10 assessment for the A5 south-eastern arm.

8.12.6 Queue length validation of the base year junction model was undertaken using the observed 2024 queue lengths and is shown below **Table 51**.

Table 51: A5 / Wolvey Road Queue Length Comparison

Arm	AM Peak Hour 08:00 – 09:00		PM Peak Hour 17:00 – 18:00	
	Modelled	Observed	Modelled	Observed
Wolvey Road	1.6	1	1	1
A5 South (right turn)	0.1	1	0.3	2

8.12.7 The model validation has shown that the modelled queues within the base year are consistent with the observed queuing at the junction. On this basis the model is considered suitable to forecast the impact of development traffic on the junctions performance for the 2026 opening and 2031 forecast years.

- 8.12.8 The results of the B4109 Rugby Road / Sketchley Road / Sketchley Lane roundabout capacity assessment are shown below in **Table 52** with the full Junctions 10 output included within **Appendix EE**.

Table 52: A5 / Wolvey Road Junctions 10 Results

	AM				PM			
	Queue (Veh)	Delay (s)	RFC	LOS	Queue (Veh)	Delay (s)	RFC	LOS
	Base Year							
Stream B-C	0.3	23.15	0.24	C	0.2	15.90	0.19	C
Stream B-A	1.6	145.78	0.66	F	1.0	106.93	0.52	F
Stream C-AB	0.1	9.84	0.05	A	0.3	9.07	0.17	A
	2026 Opening Year							
Stream B-C	0.2	13.40	0.15	B	3.7	215.04	1.02	F
Stream B-A	0.7	85.39	0.44	F	3.0	298.82	0.89	F
Stream C-AB	0.0	10.02	0.03	B	0.6	8.37	0.27	A
	2026 Opening Year + Development							
Stream B-C	0.2	18.19	0.20	C	3.9	229.33	1.03	F
Stream B-A	1.2	111.06	0.59	F	3.2	313.23	0.91	F
Stream C-AB	0.0	10.05	0.03	B	0.6	8.41	0.27	A
	2031 Forecast Year							
Stream B-C	0.2	12.62	0.15	B	12.2	610.71	1.64	F
Stream B-A	0.5	96.71	0.36	F	9.3	704.52	1.58	F
Stream C-AB	0.0	10.49	0.02	B	0.7	8.11	0.29	A
	2031 Forecast Year + Development							
Stream B-C	0.2	17.63	0.19	C	12.7	655.08	1.71	F
Stream B-A	1.1	129.65	0.56	F	9.7	1246.41	1.64	F
Stream C-AB	0.0	10.53	0.02	B	0.7	8.15	0.30	A

Note: A – A5 North, B – Wolvey Road, C – A5 South

- 8.12.9 The results show that the junction will operate within its theoretical capacity in the AM peak hour in the 2026 opening and 2031 forecast year. The assignment of development trips quantified that there will only be 11 trips on the Wolvey Road approach in the AM peak hour with the increase in vehicle delay equating to approximately 30 seconds. This increase in delay is considered indiscernible and it should be recognised that in reality alternative routes to the A5 north would be sought by drivers if high delay was perceived as a regular occurrence.
- 8.12.10 The results indicate that the junction will operate over capacity in the PM peak hour in the 2026 opening and 2031 forecast years. The assignment of development trips quantified that there will only be 9 trips through the junction in the PM peak hour will all the trips turning left from the A5 to Wolvey Road.

- 8.12.11 The poor performance on the Wolvey Road in the PM peak in both the 2026 opening and 2031 forecast years is attributed to increases in background growth. On this basis the impact at the junction as a consequence of the proposed development is considered negligible.

8.13 M69 J1

Model Development

- 8.13.1 A model of the M69 J1 was developed using LinSig software. The traffic signal specification was obtained for the M69 J1 to understand the staging and phasing arrangements for the junction. The specification highlighted that the junction operates using three different controllers, one for the M69 eastbound off slip and the A5 (West), the second for the B4109 Rugby Road (North) and M69 eastbound on slip and the third for the A5 (East).
- 8.13.2 It is noted that for the permitted roadside services facility (ref: [20/00531/HYB](#)), situated adjacent to M69 J1 a LinSig model was produced as part of the application. This LinSig model assessed the junction with each signalised entry and adjacent circulatory operating under a two stage controller. In addition it was reported within the TA supporting the application that discussions between the applicant and NH confirmed that the approach was preferred by NH when addressing a junction of this type.
- 8.13.3 On this basis this approach has been replicated when developing the LinSig model of M69 J1 to support this application. The traffic signal specification has been used to ensure that the modelled signal timings don't exceed the maximum green times of each phase.
- 8.13.4 Following a review of the furnished PRTM flows and observed 2023 traffic flows, there were noticeable differences, particularly in relation to Hinckley Road. On this basis the assessment of the M69 J1 has been undertaken using the 2023 survey data.
- 8.13.5 As a point of note, as the M69 J1 2023 turning count survey would have included vehicle movements to/from both the built Canberra Way and the Ambion Way residential estates, no committed development trips have been added to the base year turning movements to avoid double counting.
- 8.13.6 In order to factor up the 2023 data to the forecast years, growth factors were extracted from TEMPro Version 8.1 for A-roads, Trunk roads and Motorways for the Hinckley and Bosworth area. The growth rates extracted from TEMPro can be seen below in **Table 53**.

Table 53: TEMPro Growth Rates

Road Type	2023 - 2026		2023 - 2031	
	AM	PM	AM	PM
A-roads	1.0126	1.0133	1.0586	1.0610
Trunk	1.0234	1.0241	1.0888	1.0913
Motorway	1.0304	1.0312	1.1180	1.1205

8.13.7 The A-road growth has been applied to traffic flows on the Rugby Road and Hinckley Road approaches with the trunk road and motorway growth applied to the traffic flows on the A5 approaches and M69 off slips respectively.

8.13.8 In the planning response (NHPR 22-12) dated 24 May 2024 NH confirmed that they are content with the TEMPro v8.1 growth factors used for this assessment.

Model Validation

8.13.9 During the determination period the M69 J1 model was refined following comments from NH. In addition model validation has been undertaken.

8.13.10 As stated in the 'LinSig Signal Roundabout Design' handbook, JCT, Issue 1.0, Section 2.5:

For evaluation work, the use of 1,900 pcu/hr saturation flows for all signal controlled entry and circulating lanes at the majority of roundabouts should provide a robust assessment. These may be adjusted if dictated by site observations. However, it is recommended that consistent saturation flows are utilised for all lanes. This avoids any issue that may arise when traffic arrives at a circulating lane with a slightly lower saturation flow than an upstream lane feeding it.

8.13.11 Queue length validation of the base year junction model was undertaken using the observed 2023 queue lengths and is shown below in **Table 54**.

Table 54: M69 Junction 1 Queue Length Comparison

Arm	Lane	AM Peak Hour 08:00 – 09:00		PM Peak Hour 17:00 – 18:00	
		Modelled	Observed	Modelled	Observed
B4109 Rugby Rd	1	-	2	-	2
	2	6	8	6	6
	3	15	15	8	7
M69 Westbound Slip	1	3	4	6	5
	2	4	3	3	4
	3	-	3	-	4
A5 South-East	1	-	6	-	3
	2	7	6	8	8
	3	8	6	8	8
Hinckley Road	1	-	3	-	3
	2	3	6	3	6
M69 Eastbound Slip	1	9	8	8	14
	2	6	6	14	17
	3	-	4	-	12
A5 North-West	1	5	7	3	6
	2	14	13	16	18
	3	-	8	-	12

- 8.13.12 The model validation has shown that the modelled queues within the base year scenario are consistent with the observed 2023 queuing at the junction. On this basis the model is considered suitable to forecast the impact of development traffic on the junctions performance for the 2026 opening and 2031 forecast years.

Results Summary

- 8.13.13 A summary of the total vehicles travelling through the junction in the AM and PM peak hours in 2026 for both the 'with' and 'without' development scenarios is shown below in **Table 55**.

Table 55: M69 J1 – 2026 Vehicle Movements

	AM Peak Hour (08:00 – 09:00)	PM Peak Hour (17:00 – 18:00)
2026	4,323	4,676
2026 + Dev	4,403	4,750
Difference	+80	+74
% Increase	+1.8%	+1.6%

- 8.13.14 **Table 55** highlights that there will be an approximate 2% increase in total peak hour vehicle movements through M69 J1 in 2026 with the inclusion of development traffic, a marginal increase in vehicle movements.

8.13.15 The total PRC and delay for the junction for each scenario is shown in **Table 56** with junction result plots and the LinSig output included as **Appendix FF**.

Table 56: M69 J1 Results

Scenario	AM Peak (08:00 – 09:00)		PM Peak (17:00 – 18:00)	
	PRC (%)	Total Delay (pcuHr)	PRC (%)	Total Delay (pcuHr)
2023 Base Year	-2.5%	61.20	-14.1%	74.72
2026 Opening Year	-4.9%	61.17	-9.4%	69.59
2026 with Land South of Burbage (433 dwellings)	-4.9%	63.81	-9.4%	73.41
2031 Opening Year	-11.7%	81.17	-15.4%	86.97
2031 with Land South of Burbage (433 dwellings)	-11.7%	85.78	-15.4%	91.64

8.13.16 The junction capacity assessment results show that with the inclusion of development traffic there will be no change in overall junction PRC in either of the 2026 opening or 2031 forecast years.

8.13.17 A breakdown of the Degree of Saturation (%) and Mean Max Queue (PCU) per lane has been provided for each arm of the junction providing a comparison between the 2026 ‘with’ and ‘without’ development scenarios. The comparison for the AM and PM peak hours is shown in **Table 57** and **Table 58** respectively.

Table 57: M69 J1 – 2026 Opening Year Results (AM Peak Hour 08:00-09:00)

Arm / Associated Circulatory	2026		2026 + Dev		Difference	
	Deg. of Sat. (%)	Mean Max Q.	Deg. of Sat. (%)	Mean Max Q.	Deg. of Sat. (%)	Mean Max Q.
Rugby Road	85.1%	12.4	89.2%	14.1	+4.1%	+1.7
EB Circ (Rugby Rd)	84.8%	4.8	84.8%	4.8	-	-
M69 Westbound Offslip	71.8%	4.1	71.8%	4.1	-	-
SB Circ (WB off)	81.8%	6.1	83.2%	6.1	+1.4%	-
A5 South	84.3%	8	84.8%	8	+0.5%	-
SB Circ (A5 S)	80.7%	6.2	83.4%	6.2	+2.7%	-
Hinckley Road	79.8%	3.7	83.1%	4.2	+3.3%	+0.5
WB Circ (Hinckley Rd)	62.2%	0	63.9%	0	+1.7%	-
M69 Eastbound Offslip	78.0%	6.7	79.2%	6.9	+1.2%	+0.2
NB Circ	51.7%	9.6	52.0%	9.6	+0.3%	-
A5 North	94.4%	15.4	94.4%	15.4	-	-
NB Circ (A5 N)	44.3%	2.7	45.2%	2.8	+0.9%	+0.1

Table 58: M69 J1 – 2026 Opening Year Results (PM Peak Hour 17:00-18:00)

Arm / Associated Circulatory	2026		2026 + Dev		Difference	
	Deg. of Sat. (%)	Mean Max Q.	Deg. of Sat. (%)	Mean Max Q.	Deg. of Sat. (%)	Mean Max Q.
Rugby Road	85.8%	7.9	87.1%	8.3	+1.3%	+0.4
EB Circ (Rugby Rd)	76.9%	10.1	77.0%	10.1	+0.1%	-
M69 Westbound Offslip	84.9%	6.4	84.9%	6.4	-	-
SB Circ (WB off)	93.6%	10.2	94.2%	10.4	+0.6%	+0.2
A5 South	86.7%	8.7	89.6%	9.8	+2.9%	+1.1
SB Circ (A5 S)	50.4%	1.8	50.9%	1.9	+0.5%	+0.1
Hinckley Road	72.3%	2.6	74.6%	3.2	+2.3%	+0.6
WB Circ (Hinckley Rd)	39.5%	0	39.8%	0	+0.3%	-
M69 Eastbound Offslip	83.8%	12.1	87.6%	13.6	+3.8%	+1.5
NB Circ	78.2%	10.5	79.7%	10.8	+1.5%	+0.3
A5 North	98.5%	19.5	98.5%	19.5	-	-
NB Circ (A5 N)	62.9%	6.4	65.5%	6.4	+2.6%	-

8.13.18 The results presented in **Table 57** and **Table 58** show a negligible increase in the Degree of Saturation and Mean Max Queuing at each arm of the junction. It should also be considered that in both peak hours, both 'with' and 'without' development, the predicted queuing can be accommodated within the available storage space on the circulatory carriageways. This conclusion is also applicable for the 2031 forecast year scenarios.

8.13.19 With the inclusion of development traffic flows in the 2026 and 2031 forecast scenarios, the impact of the proposed development cannot be considered severe and the effect on junction operation is considered negligible.

8.14 Merge & Diverge Assessments

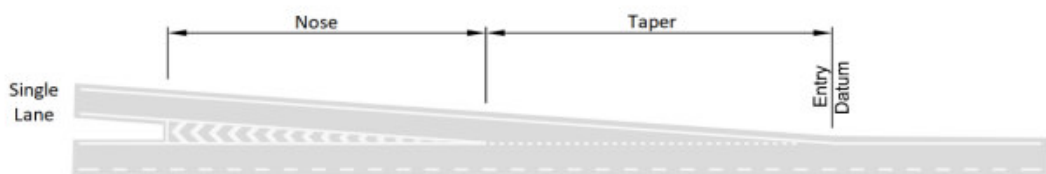
8.14.1 Merge & diverge assessments have been undertaken at M69 J1 using the standards set out in DMRB CD 122 Geometric design of grade separated junctions (Revision 1.1.1). The merge assessments have been undertaken using Figure 3.12b with the diverge assessments undertaken using Figure 3.26b.

8.14.2 The merge & diverge assessments have used observed 2023 traffic flows and calculated 2026 opening and 2031 forecast year flows. Mainline traffic flows were obtained from the TRIS database for the same date as the M69 traffic surveys to ensure consistency. The links selected for the merge and diverge assessments can be seen below in **Table 59**.

Table 59: Merge and Diverge Traffic Flow Locations

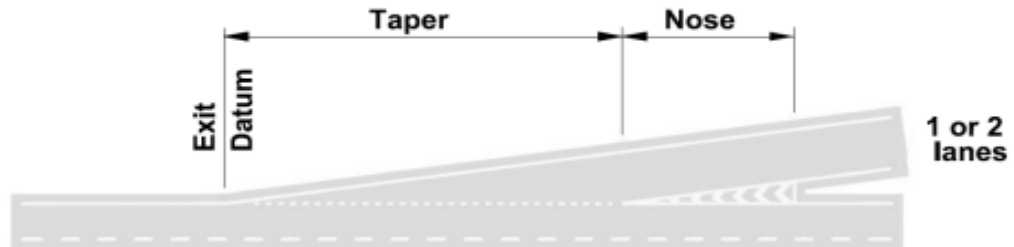
Location	Date	Source	Code
M69 J1 Northbound Diverge			
M69 Northbound (South of Junction)	29 th June 2023	WebTRIS	M69/8010A
M6 J2 Off-Slip to M69 Northbound (South of Junction)	29 th June 2023	WebTRIS	M69/8010K
M69 Northbound Off-Slip	29 th June 2023	Traffic Survey	-
M69 J1 Northbound Merge			
M69 Northbound (South of Junction)	29 th June 2023	WebTRIS	M69/8010A
M6 J2 Off-Slip to M69 Northbound (South of Junction)	29 th June 2023	WebTRIS	M69/8010K
M69 Northbound Off-Slip	29 th June 2023	Traffic Survey	-
M69 Northbound On-Slip	29 th June 2023	Traffic Survey	-
M69 J1 Southbound Diverge			
M69 Southbound (North of Junction)	29 th June 2023	WebTRIS	M69/8147B
M69 Southbound Off-Slip	29 th June 2023	Traffic Survey	-
M69 J1 Southbound Merge			
M69 Southbound (North of Junction)	29 th June 2023	WebTRIS	M69/8147B
M69 Southbound Off-Slip	29 th June 2023	Traffic Survey	-
M69 Southbound On-Slip	29 th June 2023	Traffic Survey	-

- 8.14.3 The M69 J1 existing merge layout for both the northbound and southbound merges is “Layout A; option 1”, which is a taper merge. An extract from CD 122 showing the merge layout is shown below.

Figure 3.14a Layout A option 1 - taper merge

- 8.14.4 The northbound and southbound diverge layouts for the M69 J1 are also “Layout A; option 1”, which is a taper diverge. An extract of CD 122 showing the diverge layout is shown below.

Figure 3.30a Layout A option 1 - taper diverge



- 8.14.5 The merge and diverge assessments for each slip of the M69 J1 in both the AM and PM periods are included in this TA as **Appendix GG**. NH confirmed in their planning response (NHPR 22-12) dated 24 May 2024 that they are content with the merge / diverge assessments attached to this TA.
- 8.14.6 The merge and diverge assessments for all four slip roads indicate that the M69 mainline currently accommodates traffic flows noticeably lower than normally expected for a three lane motorway. It is concluded that the existing layouts can accommodate the additional traffic generated by the proposed development.

9 Construction Traffic Management

9.1 Overview

- 9.1.1 Construction of the proposed development will require construction of the site itself as well as civil engineering works. A Construction Traffic Management Plan will be submitted to LCC prior to the start of construction.
- 9.1.2 The construction phase of the development will require deliveries of materials, plant and products, the majority of which will be transported by HGVs however, the construction phase is short term in the life cycle of the development.
- 9.1.3 The construction phase will operate 07:00 – 17:30 on weekdays, and between 08:00 – 13:00 on Saturdays.
- 9.1.4 Light vehicles will also be associated with the construction phases particularly with site staff travelling to the construction site. Due to the working hours of construction sites, these trips are likely to be made outside the typical highway peak hours.
- 9.1.5 The construction phase will be undertaken in accordance with health and safety legislation requirements and site practices. A construction management plan will be produced prior to the start of construction and will outline measures to protect the environment.
- 9.1.6 A construction traffic routing plan will be implemented to ensure that suitable, risk assessed vehicle routes to the site are specified and communicated to all workers. Road signs can be installed to guide delivery drivers along these specified routes.
- 9.1.7 Consideration will also be given to weight restrictions, low bridges and to the timings and arrangements for deliveries. This can ensure that deliveries are not made within the highway peaks wherever possible.

10 Summary & Conclusions

10.1 Summary

- 10.1.1 RL have been appointed by Redrow Homes to produce this Transport Assessment (TA) in support of:

A hybrid planning application for (a) a full planning application for 422 dwellings, public open space and associated infrastructure and (b) an outline planning application for a residential care home and up to 11no. self-build plots.

- 10.1.2 The site will have two access points to the local highway network although it should be noted that no vehicle access is available between the two accesses expect for emergency vehicles.
- 10.1.3 One access will be provided in the form of an extension of Flanders Close which will serve 55 dwellings, the eastern part of the development. The second access will take the form of a new priority junction off Coventry Road which will serve the remaining 367 dwellings, a residential care home and 11 self-build plots.
- 10.1.4 Collision records have been obtained from the NDI team at LCC for the local highway network and Crashmap where required. The review of these collision records has concluded that there are no existing highway safety issues on the local highway network that would be exacerbated by the proposed development.
- 10.1.5 There are existing footways along both Coventry Road and Flanders Close which are accessible from the proposed site accesses. A 2m wide footway will be provided on the western side of the estate road (from the Coventry Road access) with a 3m shared footway / cycleway on the eastern side of the carriageway. This shared footway / cycleway will loop around the development parallel with the internal access road.
- 10.1.6 A pedestrian / cyclist access is also proposed between the western and eastern parts of the site in the form of a 3.7m wide shared footway / cycleway. This connection will also be available as an emergency access. In addition, the internal layout will provide pedestrian infrastructure in the form of a network of footways in addition to footpaths to greenspace around the development.
- 10.1.7 Initial discussions have been held with Arriva to divert the existing no. 7 or 8 bus services into the proposed development. The diverted services will loop anticlockwise along the internal access road of the development. The applicant will fund the diversion of this bus service, secured through the Section 106 agreement.

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- 10.1.8 The proposed trip generation for the residential proportion of the development was estimated using a local trip rate calculated from a link count of Passchendaele Drive. At the request of LCC, the PRTM model was used to inform the highway impact assessment undertaken as part of this TA. NH were also consulted to agree the process by which to furnish the traffic flows using 2021 traffic counts (uplifted using Covid factors) prior to assessment in junction capacity models.
- 10.1.9 The proposed trip generation for the residential care home was calculated using TRICS trip rates. The trip distribution was derived from a population and distance based gravity model, with the Google route mapping tool used to establish the routes from these key urban areas to the proposed development.
- 10.1.10 Junction capacity assessments were undertaken for key junctions in the vicinity of the proposed development. Following the review of the results from the capacity modelling, a scheme to signalise the B4109 Rugby Road / Coventry Road junction has been proposed to mitigate the impact of the development. This scheme has also been subject of an independent road safety audit.
- 10.1.11 In addition a contribution will also be made to the signalisation of the B578 Hinckley Road / B4669 Burbage Road / B4669 Sapcote Road junction, a scheme proposed as part the 'Land To The South West Of Lutterworth Road Burbage Leicestershire' (ref: [21/00502/OUT](#) / [23/00148/OUT](#)) application. It should be noted that other development proposals in the vicinity of this junction have also proposed schemes to signalise this junction.
- 10.1.12 Merge and Diverge assessments have been undertaken at the M69 J1 and have determined that the current merge and diverge layouts are appropriate for the trips associated with the proposed development using these slip roads in the 2026 and 2031 forecast years.

10.2 Conclusions

- 10.2.1 This TA has examined the transport impacts of the proposed development and has identified opportunities for alternative methods of travel to / from the site other than private car. The development proposals can be seen to comply with Policy DM17 of the Hinckley and Bosworth Local Plan 2006-2026 and site layout plan has been designed with reference to the LCC highways design guide.
- 10.2.2 The layout of the estate road from the Coventry Road access has been designed to accommodate a bus service that will loop through the development. Initial discussions have been held with Arriva who have confirmed interest in diverting their existing bus services into the development.
- 10.2.3 Safe access has also been demonstrated for pedestrian and cyclists into the development with the inclusion of a shared footway/cycleway along the estate

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- road from the Coventry Road as well a shared footway/cycleway connecting the eastern and western sides of the development. Footway provision at the eastern side of the development provides safe pedestrian access to the neighbouring Ambion Way residential area.
- 10.2.4 Pedestrian and cyclist access is retained to Workhouse Lane encouraging walking and cycling trips to the local area alongside a network of footpaths through the development itself.
- 10.2.5 Safe access for vehicle traffic has been demonstrated for the new access off Coventry Road and at the connection into Ambion Way. In addition, the new access off Coventry Road was the subject of an independent road safety audit.
- 10.2.6 The local highway network has been assessed using industry recognised software with traffic flows from the LCC strategic traffic model used to inform the highway impact assessment through a furnishing process using observed traffic data. Where appropriate, observed traffic count and queue length data has been obtained and used within the model development process. On this basis the evidence base used for the highway impact assessment work can be considered robust.
- 10.2.7 It can be concluded from this TA that the proposed development on Land South of Burbage will not have a severe impact on the local highway network and where necessary, suitable measures have been proposed to mitigate the impact of the development in accordance with the NPPF and local planning policy.
- 10.2.8 The proposed development provides safe and suitable access for future residents and care home employees, and therefore there is no reason in transport terms why the proposed development should not be permitted.

