Tritax Symmetry (Hinckley) Limited

HINCKLEY NATIONAL RAIL FREIGHT INTERCHANGE

The Hinckley National Rail Freight Interchange Development Consent Order

Project reference TR050007

Environmental Statement
Volume 2: Appendices

Appendix 8.1: Transport Assessment [part 11 of 20] PRTM 2.2 Forecast Modelling

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November 2022

Planning Act 2008

The Infrastructure Planning (Applications: Prescribed Forms and Procedure) Regulations 2009 Regulation 5(2)(a)

The Infrastructure Planning (Environmental Impact Assessment) Regulations 2017 Regulation 14

This document forms a part of the Environmental Statement for the Hinckley National Rail Freight Interchange project.

Tritax Symmetry (Hinckley) Limited (TSH) has applied to the Secretary of State for Transport for a Development Consent Order (DCO) for the Hinckley National Rail Freight Interchange (HNRFI).

To help inform the determination of the DCO application, TSH has undertaken an environmental impact assessment (EIA) of its proposals. EIA is a process that aims to improve the environmental design of a development proposal, and to provide the decision maker with sufficient information about the environmental effects of the project to make a decision.

The findings of an EIA are described in a written report known as an Environmental Statement (ES). An ES provides environmental information about the scheme, including a description of the development, its predicted environmental effects and the measures proposed to ameliorate any adverse effects.

Further details about the proposed Hinckley National Rail Freight Interchange are available on the project website:

[redacted]

The DCO application and documents relating to the examination of the proposed development can be viewed on the Planning Inspectorate's National Infrastructure Planning website:

https://infrastructure.planninginspectorate.gov.uk/projects/east-midlands/hinckley-national-rail-freight-interchange/

AECOM

PRTM v2.2

Hinckley National Rail Freight Interchange Application: Forecast Modelling

Quality Information

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Revision History

Revision	Revision date	Details	Authorised	Name	Position
v1.0	2021-07-15	For Issue	Yes	Mark Dazeley	Regional Director
v2.0	2022-04-07	For Issue	Yes	Mark Dazeley	Regional Director
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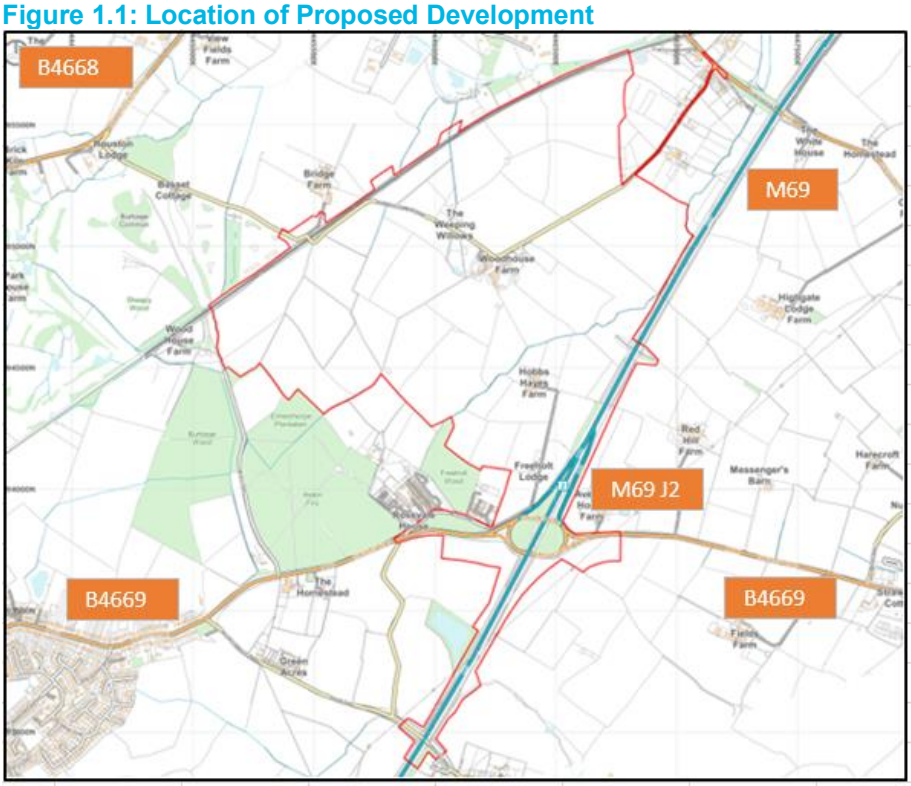
Section 1 – Overview

1.1 Introduction

1.1.1 The Hinckley National Rail Freight Interchange (NRFI) is a proposed B8 (warehousing) employment development located to the north-west of the M69 Junction 2, near Hinckley, Leicestershire. This proposed development has a capacity for 850,000m^2 of employment land and is expected to generate around 8,000 jobs. An indication of the location of the proposed development site is outlined in red as shown in Figure 1.1.

Figure 1.1: Location of Proposed Development



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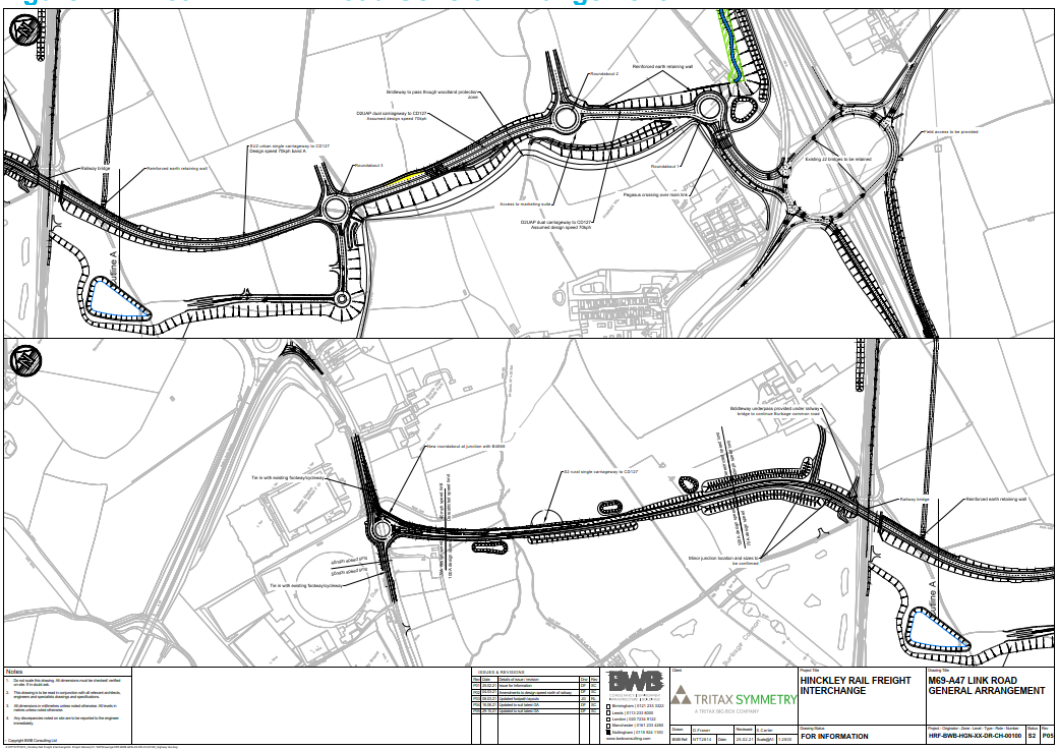
1.1.2 The proposed development will connect with the existing road network directly onto the M69 Junction 2 and include the following infrastructure associated with the proposed development:

- M69 Junction 2 south-facing slips (a two-lane northbound off-slip and a two-lane southbound on-slip);
- a link road from a new access arm at the M69 Junction 2 to the B4668 where a new roundabout is proposed (dual carriageway to Roundabout 3 and then single carriageway over the railway between Roundabout 3 and the B4668), as shown in Figure 1.2; and
- a sensitivity test to include a fully dualled link road.

Figure 1.2: M69-A47 Link Road General Arrangement[1]



1.1.3 AECOM has been commissioned by Leicestershire County Council (LCC) to undertake a strategic assessment of the development using the latest production version of the Pan-Regional Transport Model (PRTM v2.2) for the AM Peak and PM Peak hours.

1.2 Background

1.2.1 AECOM has undertaken forecast modelling to provide an early understanding of the potential impact for the proposed Hinckley NRFI development using the PRTM v1.0 previously in 2018 / 2019. The outcome of this work is documented in a technical note[2].

1.2.2 Since 2018 / 2019, the PRTM has been enhanced and updated. As part of this enhancement, the PRTM v2.2 has been recalibrated and validated using observed count and journey time data, and in Spring / Summer 2021, an updated assessment for the proposed Hinckley NRFI development using the PRTM v2.2 was undertaken. As part of this assessment, updated planning data and updated DfT assumptions (Road Traffic Forecasts and TAG economic parameters) have been used. The assumptions and results of this updated assessment are documented in a model forecasting report[3]. A base year model review of the PRTM v2.2 was also undertaken to set out of the performance of the base year model in the vicinity of the proposed development which has been documented in a base year model review addendum[4].

1.2.3 In Autumn / Winter 2021, following comments from the stakeholders on the Hinckley NRFI base year model review report, further base year model refinements were undertaken, specifically to improve the journey time performance for routes to the east of the M69. Details of the base year model refinements and results are documented in a base year model review and refinements report[5].

[1] Dwg no. HRF-BWB-HGN-XX-DR-CH-00100 S2 P05, Hinckley National Rail Freight Interchange PRTM 2.2 Forecast Modelling Brief (Rev 6) (22/11/2021)
[2] PRTM Hinckley HRFI Application: Forecasting Modelling ('TN2 - Hinckley NRFI - Forecast Modelling v1.2') (05/10/2018)
[3] PRTM v2.2 Hinckley NRFI Application: Forecast Modelling v1.0 ('PRTM - Hinckley NRFI- Forecasting Report_V1.0 (For Issue).pdf') (15/07/2021)
[4] PRTM v2.2 Hinckley National Rail Freight Interchange Transport Modelling: Base Year Model Review Addendum v2.0 ('PRTM - Hinckley NRFI - Base Year Model Review v2.0.pdf') (01/10/2021)
[5] PRTM v2.2 Hinckley National Rail Freight Interchange Transport Modelling: Base Year Model Review and Refinements v4.0 ('PRTM - Hinckley NRFI - Base Year Model Review and Refinements v4.0.pdf') (11/02/2022)

1.2.4 This report documents the updated assessment and forecast modelling outputs for the proposed Hinckley NRFI development, following the base year model refinement works. As part of the updated assessment, the planning data and infrastructure assumptions for the forecast years were also reviewed and updated (see Section 2.2).

1.2.5 Within this updated assessment of the proposed Hinckley NRFI development, the following forecast year model scenarios have been produced:

- 'Without Development' scenario for 2026 and 2036;
- 'Without Development With Infrastructure' scenario with the proposed infrastructure for 2026 and 2036;
- 'With Development' scenario with the proposed infrastructure and development for 2026 and 2036; and
- a sensitivity test for the 'With Development' scenario for 2036 with a fully dualled link road.

1.3 Report Structure

1.3.1 Following this introduction, this report contains the following sections:

- Section 2 – Forecasting Approach and Assumptions: this section details the forecasting assumptions adopted within this assessment of the proposed Hinckley NRFI development, including the assumed development trip generation and distribution.
- Section 3 – Forecast Model Results: this section presents the forecast results requested as part of the brief.
- Section 4 – Summary of the PRTM Assessment: this section provides a summary of the assessment of the proposed development.

Section 2 – Forecasting Approach and Assumptions

2.1 Introduction

2.1.1 This section sets out the forecasting assumptions applied for this application of the PRTM, and the methodology adopted to create the required model forecasts. In addition to the calibrated 2014 base year model and the 2019 'Without Development' scenario used for noise and air quality assessment, the following forecast scenarios have been produced:

- 'Without Development' scenario for 2026 and 2036;
- 'Without Development With Infrastructure' scenario with the proposed infrastructure for 2026 and 2036;
- 'With Development' scenario with the proposed infrastructure and development for 2026 and 2036; and
- a sensitivity test for the 'With Development' scenario for 2036 with a fully dualled link road.

2.1.2 Table 2.1 summarises the model scenarios for this application.

Table 2.1: Hinckley NRFI Model Scenarios

Scenario	Forecast Years	Proposed HNRFI Development	Proposed HNRFI Infrastructure	Proposed HNRFI Infrastructure (fully dualled link road)
Without Development	2026 & 2036	×	×	×
Without Development With Infrastructure	2026 & 2036	×	✓	×
With Development	2026 & 2036	✓	✓	×
With Development (Sensitivity Test)	2036	✓	✓	✓

2.1.3 The 2026 and 2036 'With Development' scenarios assume full build-out of the proposed development in both forecast years.

2.1.4 The 2026 and 2036 'Without Development' and 'Without Development With Infrastructure' forecasts use the highway, public transport, and variable demand model components of the PRTM. The forecasts therefore include the response of travel demand to forecast changes in the costs of travel (including congestion, fuel prices and public transport fares) and changes in assumed highway and public transport infrastructure over time.

2.1.5 For the 2026 and 2036 'With Development' scenarios, the demand associated with the proposed development have been added to the 'Without Development With Infrastructure' scenarios and highway assignment runs were undertaken.

2.2 Planning Data and Infrastructure Assumptions

2.2.1 The forecast planning data and infrastructure schemes, in the format of an uncertainty log, used to produce the 'Without Development' scenarios were reviewed by the stakeholders.

2.2.2 Appendix A presents the planning data assumptions (residential and employment) incorporated in the PRTM forecast year models. Given the number of developments, the reporting of the planning data used has been limited to residential sites with more than 500 dwellings and employment sites with more than 750 jobs. All available planning data that should be used in the modelling, irrespective of size, have been used in the model forecast. The complete list of planning data assumptions[6] is included in the Hinckley NRFI uncertainty log (v8)[7].

2.2.3 Appendix B presents the uncertainty log assumptions for highway, public transport, and active modes for this application.

2.3 'Without Development' Assumptions

2.3.1 As discussed above, the 'Without Development' scenarios for 2026 and 2036 were produced based on the Hinckley NRFI uncertainty log, which included assumptions regarding forecast year developments and infrastructure. The 'Without Development' scenario excludes the proposed development and associated infrastructure for the proposed Hinckley NRFI development. It should also be noted the level crossing barrier downtimes for Narborough level crossing have been adjusted for the 2026 and 2036 'Without Development' scenarios (see Table 2.2).

2.3.2 The trip forecasting process contained within PRTM uses forecasts of population, households, and jobs to generate estimates of future year travel demand. Planning forecasts (containing measures of housing and employment) were unconstrained (NTEM minimum)[8] for this application as noted in the proposal[9].

2.4 Hinckley NRFI Network Assumptions

2.4.1 This section details the changes which have been made to the highway networks in both the 'Without Development With Infrastructure' and 'With Development' scenarios to represent the associated network assumptions for the proposed Hinckley NRFI development. The associated network assumptions have been based on the drawing '*HRF-BWB-HGN-XX-DR-CH-00100 S2 P05*' (Figure 1.2), which is provided to AECOM as part of the forecast modelling brief[10] by BWB.

2.4.2 The highway network changes are as follows:

- the addition of a two-lane northbound off-slip for M69 Junction 2;
- the addition of a two-lane southbound on-slip for M69 Junction 2;
- a link road from a new access arm at the M69 Junction 2 to the B4668 where a new roundabout is proposed (dual carriageway to Roundabout 3 and then single carriageway over the railway between Roundabout 3 and the B4668 (Figure 1.2)); and
- two roundabouts on the proposed link road providing access to the proposed NRFI development site.

2.4.3 The proposed Hinckley NRFI development is represented within PRTM using a single development zone (zone 9002).

2.4.4 No other network adjustments have been made except the signal timings representing the Narborough level crossing which is summarised in Table 2.2.

[6] For Hinckley and Bosworth, Blaby, Leicester City, Harborough, Charnwood and Warwickshire
[7] 'Hinckley NRFI Uncertainty Log Oct 2021 v8 (For Issue).xlsx'
[8] By unconstrained, it means that the planning data in Leicestershire will not be downwardly adjusted if in excess of the DfT's NTEM / TEMPro forecasts. If, however, the local planning data are lower than NTEM / TEMPro forecasts, then these data will be controlled upwards to be consistent with the DfT data. 'Unconstrained' therefore means that the planning data will not be lower than NTEM / TEMPro forecasts.
[9] Fee Proposal: Hinckley National Rail Freight Interchange Strategic Modelling v2.0 ('Fee Proposal for Hinckley NRFI Modelling v2.0.pdf') (02/12/2021)
[10] Dwg no. HRF-BWB-HGN-XX-DR-CH-00100 S2 P05, Hinckley National Rail Freight Interchange PRTM 2.2 Forecast Modelling Brief (Rev 6) (22/11/2021)

Table 2.2: Narborough Level Crossing Barrier Downtimes[11]

Scenario	Year	Barrier Downtime (mm:ss)		
		AM Peak	Interpeak	PM Peak
Base	2014	22:59	09:00	17:50
Without Development	2026 & 2036	22:59	15:00	17:50
Without Development With Infrastructure	2026 & 2036	22:59	15:00	17:50
With Development	2026 & 2036	22:59	17:00	20:21
With Development (Sensitivity Test)	2036	22:59	17:00	20:21

2.4.5 For the 2036 'With Development (Sensitivity Test)' scenario, the network assumptions are consistent with the 2036 'With Development' scenario except a fully dualled link road between the M69 Junction 2 and the A47 is assumed.

2.5 Hinckley NRFI Trip Generation Assumptions

2.5.1 Development trip generation data for the proposed Hinckley NRFI development were provided by BWB which have been reproduced in Table 2.3. These have been added to the 'Without Development With Infrastructure' demand matrices to form the 'With Development' demand matrices, and assigned in the PRTM highway model.

2.5.2 In terms of the development phasing, both the 2026 and 2036 'With Development' scenarios contain the full build-out of the proposed development.

Table 2.3: Development Trip Generation for Hinckley NRFI (vehicles)[12]

	AM Peak hour (08:00-09:00)			PM Peak hour (17:00-18:00)		
	Arrivals	Departures	Total	Arrivals	Departures	Total
Lights	899	117	1,016	351	922	1,273
HGVs	208	219	427	235	259	494
Total	1,107	336	1,443	586	1,181	1,767

2.5.3 For HGV trips, the vehicle trip to / from the proposed development provided have been converted to Passenger Car Units (PCUs) using a factor of 2.0. This is the PCU factor applied across the PRTM highway model, which has been applied based on TAG guidance. This therefore assumes that one HGV vehicle is equivalent to two cars in terms of road space used.

2.5.4 The forecast light vehicles to / from the proposed NRFI development are assumed to correspond to employees and are therefore assigned to the car commuting user class within the highway assignment model.

2.6 Trip Distribution Assumptions

2.6.1 To produce the 2026 and 2036 'With Development' scenarios, assumptions regarding the distribution of development traffic were also required in the form of highway origin-destination (OD) trip matrices.

2.6.2 It was agreed[13] that the development trip distribution generated for previous Hinckley NRFI modelling work (using PRTM v1.0) should be adopted for this assessment. A detailed description of the methodology used, and results is provided in a separate technical note[14].

[11] Narborough level crossing barrier downtime assumptions for forecast model scenarios provided by BWB (via email, 07/01/2022 & 11/01/2022)
[12] Table 4.1, Hinckley National Rail Freight Interchange PRTM 2.2 Forecast Modelling Brief (Rev 6) (22/11/2021)
[13] Hinckley NRFI Transport Modelling Inception Meeting, 5th March 2021
[14] TN1 - NRFI Trip Distribution v2.0, December 2018.

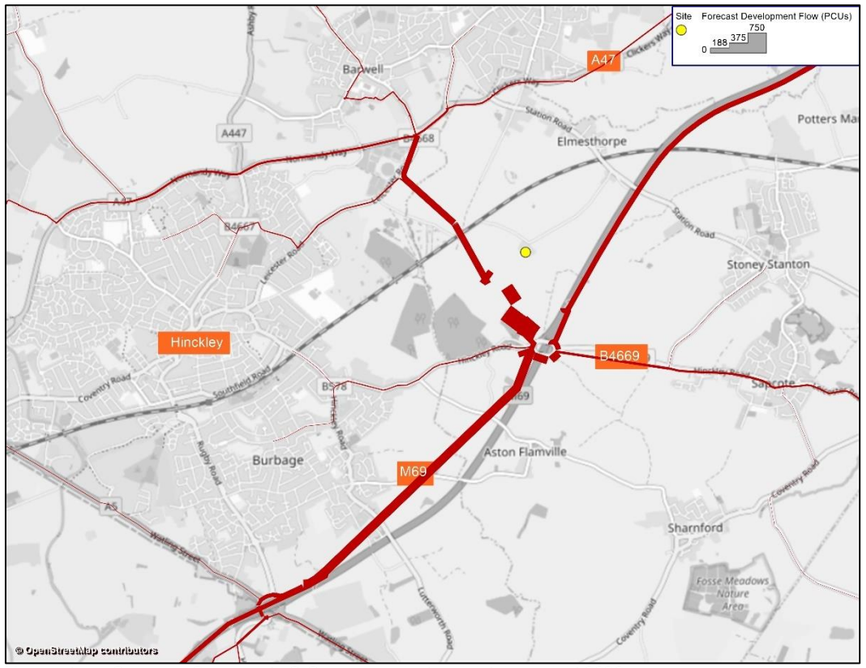
2.6.3 Figure 2.1 shows the forecast trip distribution of light vehicles on the highway network in the AM Peak (In) and PM Peak hours (Out) respectively for the 2026 and 2036 'With Development' scenarios. These figures show that, as expected, most traffic routes via the M69 Junction 2 to access the wider highway network. The highest volume of development traffic is forecast on the M69, the proposed link road joining the B4668 Leicester Road and the A47, and the B4669 Hinckley Road to the east of M69 Junction 2.

2.6.4 Figure 2.2 illustrates that the distribution of heavy vehicle traffic has, as expected, a higher proportion of trips routes via the strategic road network (SRN) / M69 reflecting the longer distance trips made by freight traffic. Figure 2.2 also shows that a small proportion of heavy vehicle trips is forecast to route via the proposed link road and the B4668 Leicester Road / A47.

2.6.5 Figure 3.1 to Figure 3.2 in Section 3.2 illustrate the assigned forecast trip distributions for development traffic over a wider area for the 2026 and 2036 'With Development' scenarios.

Figure 2.1: Light Vehicles Trip Distribution to and from the Hinckley NRFI Development Site for 2026 and 2036 (in PCUs)

2026 'With Development' (AM) - To the Development



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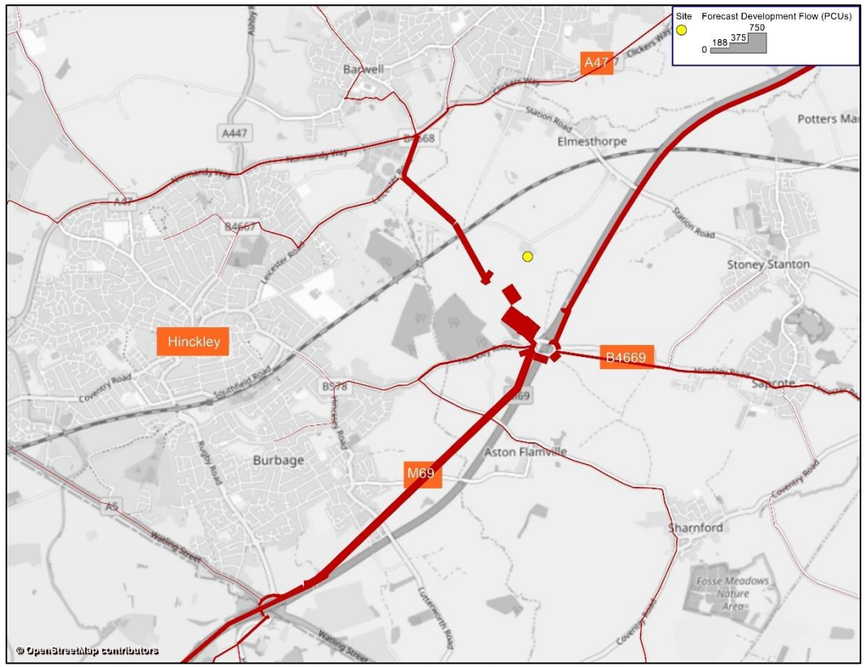
2036 'With Development' (AM) - To the Development



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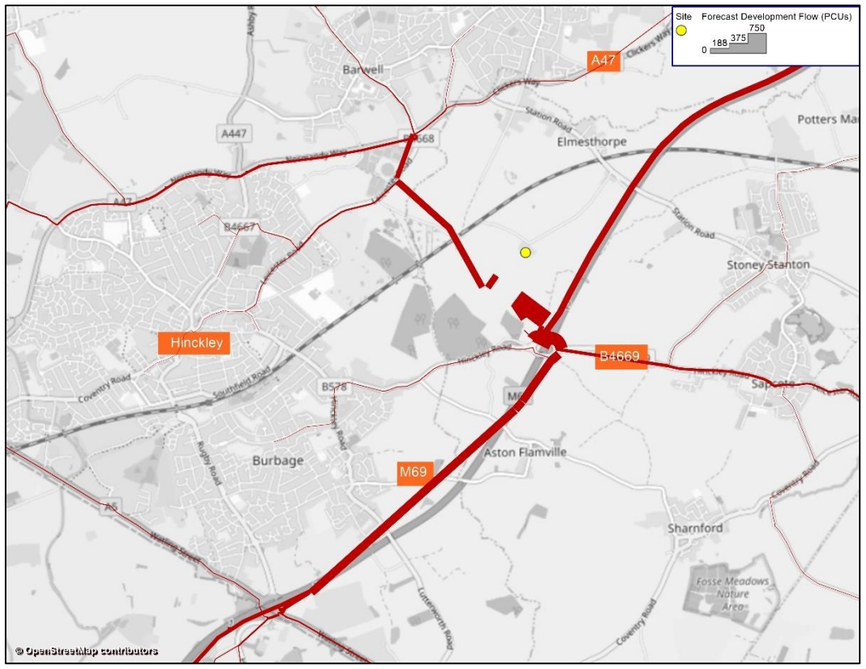
2026 'With Development' (PM) - From the Development



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2036 'With Development' (PM) - From the Development

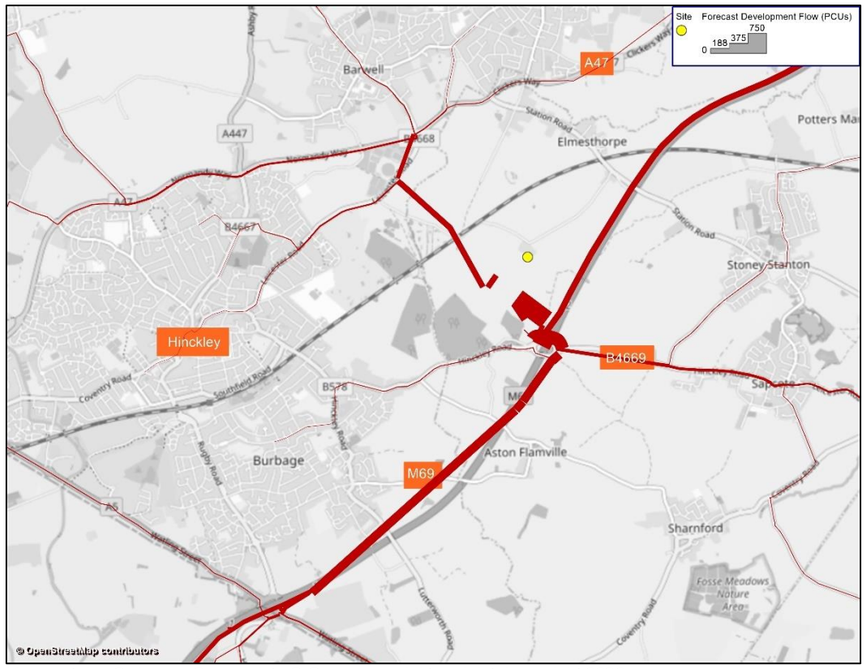

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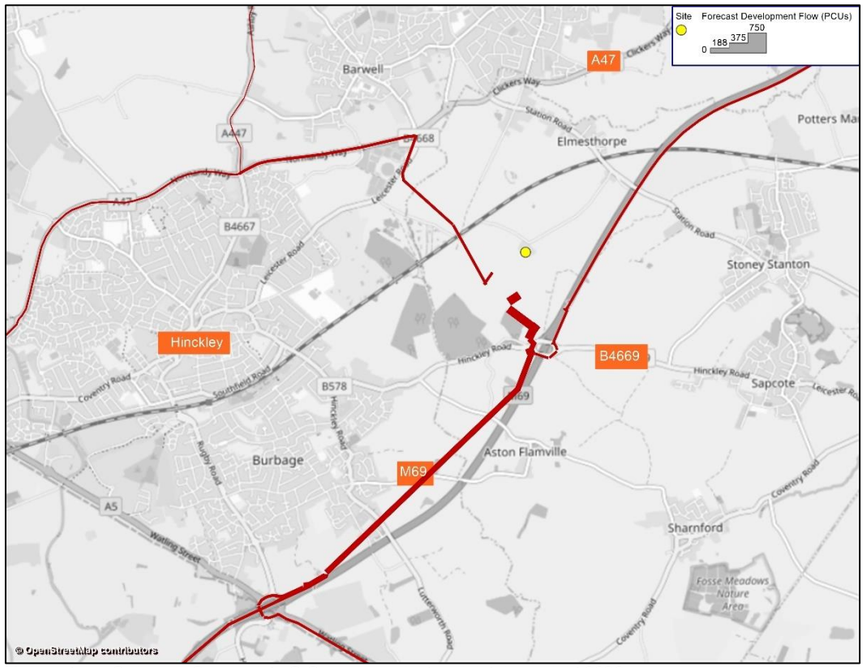
Figure 2.2: Heavy Vehicles Trip Distribution to and from the Hinckley NRFI Development Site for 2026 and 2036 (in PCUs)

2026 'With Development' (AM) - To the Development



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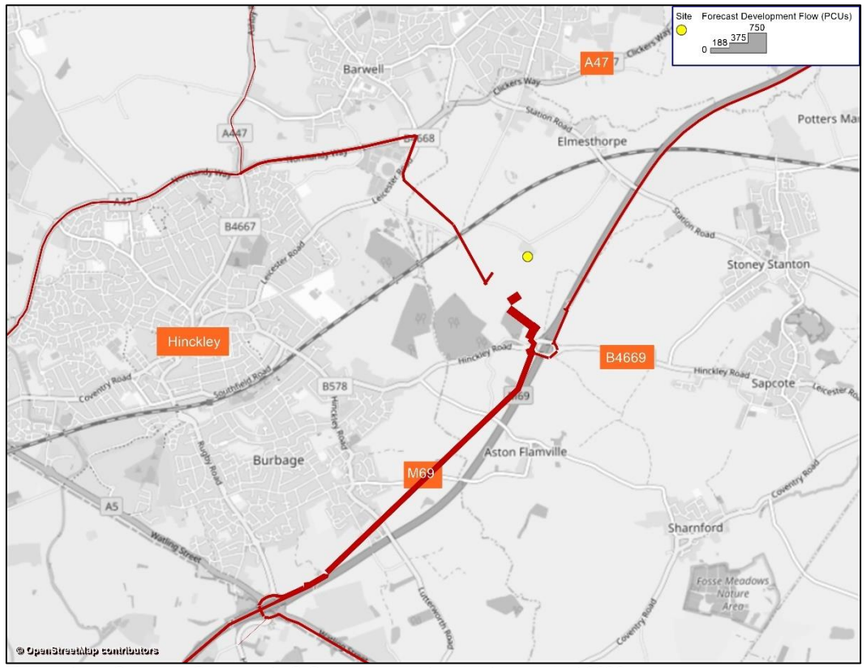
2036 AM - To the Development



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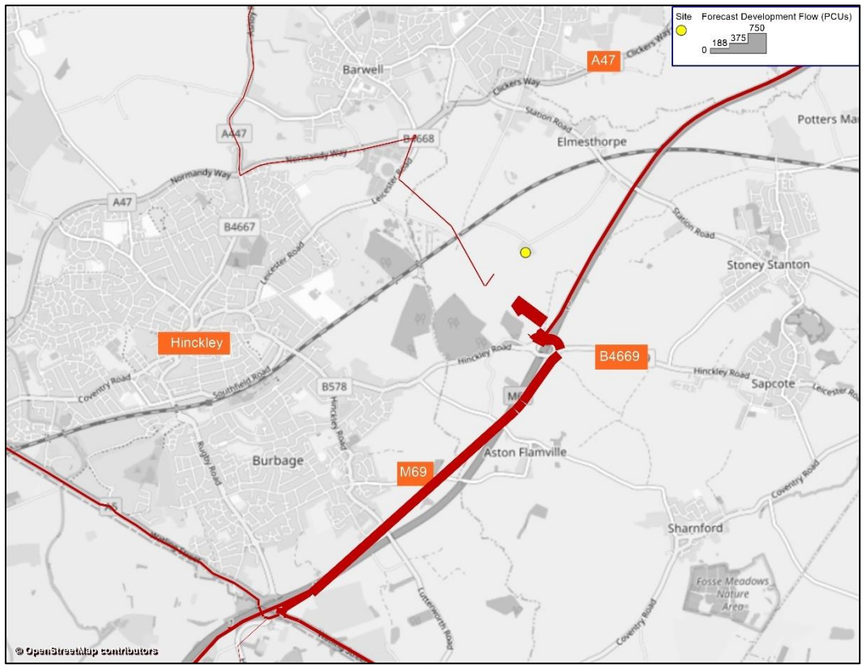
2026 PM - From the Development



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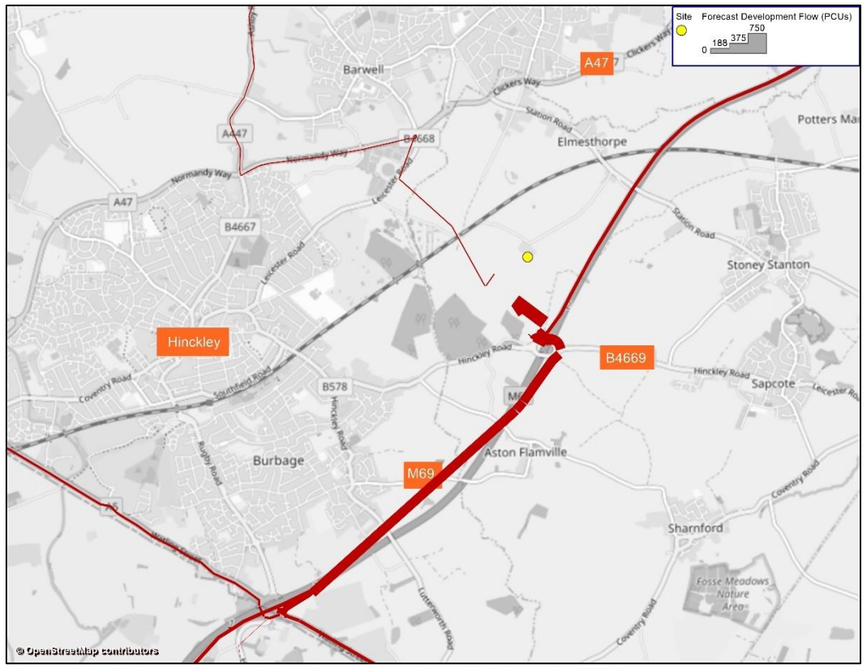
2036 PM - From the Development



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Section 3 – Forecast Model Results

3.1 Introduction

3.1.1 This section sets out the results of the proposed Hinckley NRFI model forecasts. This analysis for the AM Peak (08:00 to 09:00) and PM Peak (17:00 to 18:00) hours includes:

- the routeing of the development traffic in the 2026 and 2036 'With Development' forecasts (see Section 3.2);
- the forecast flow changes in 2026 and 2036
    - between the 'Without Development With Infrastructure' and 'Without Development' scenarios;
    - between the 'With Development' and 'Without Development' scenarios
    - between the 'With Development' and 'Without Development with Infrastructure' scenarios; and
    - between the 'With Development (Sensitivity Test)' and 'With Development scenarios,

  and includes an assessment of the Area of Influence (AoI) (see Section 3.3);
- the forecast trip distribution analysis for the proposed link road and the B4669 near Stanton Lane (to the east of the M69 Junction 2) (see Section 3.4 and Section 3.5);
- the forecast delay changes in 2026 and 2036
    - between the 'Without Development With Infrastructure' and 'Without Development' scenarios;
    - between the 'With Development' and 'Without Development with Infrastructure' scenarios; and
    - between the 'With Development (Sensitivity Test)' and 'With Development scenarios (see Section 3.6); and
- the forecast volume-to-capacity ratios in 2026 and 2036 for the 'Without Development', 'Without Development With Infrastructure', 'With Development' and 'With Development (Sensitivity Test)' scenarios (see Section 3.7).

3.1.2 In addition, and separate to this report, the following forecast outputs have been provided separately in GIS or MS Excel format for the following data sets:

- volume over capacity ratio values for AM Peak and PM Peak hours for links and nodes within the AoI;
- traffic flow data (demand and actual flows) for AM Peak and PM Peak hours for light vehicles, HGVs and all vehicles for all links within the AoI;
- 24-hour annual average daily traffic (AADT) and 18-hour annual average weekday traffic (AAWT) flows within the AoI; and
- turning movements (demand and actual flows) for M69 Junction 2.

3.2 Forecast Development Traffic

3.2.1 Figure 2.1 and Figure 2.2 in Section 2 illustrate the trip distribution of development traffic to and from the proposed Hinckley NRFI development within close proximity to the proposed development site. Figure 3.1 and Figure 3.2 show the assigned trip distribution over a wider area for 2026 and 2036 for both AM Peak and PM Peak hours for light and heavy vehicles. These figures show that development traffic has been forecast to route:

- via the M69 to the north and east - to and from Leicester City and the M1 northbound;
- via the M69 to the south and west - to and from the A5, the M6 and A46 Coventry Eastern Bypass;
- via the proposed link road to the west - to and from locations including Hinckley, Barwell, Earl Shilton and locations further north via A447 Ashby Road, Dan's Lane and Stoke Road; and
- in the case of light vehicles, via the B4669 Hinckley Road to the east - to and from locations including Sapcote, Primethorpe and Countesthorpe via the B4114 Coventry Road.

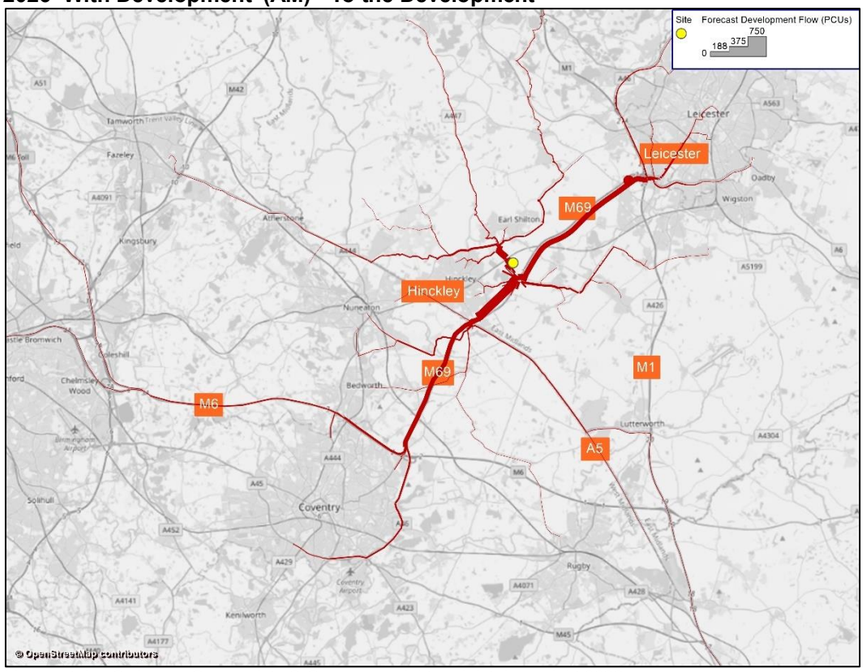
3.2.2 It is noted that the model forecasts a very small number of light vehicles from the west using the A5. Longer distance light vehicle trips from the west are forecast to route via the M42 and M6 before turning north on to the M69. Although this route is longer, the forecast journey time via the A5 is slower with several junctions along this route and longer delays. It should be noted that Figure 3.1 shows the forecast routeing for the AM Peak and PM Peak hours, and traffic during the Interpeak and off-peak hours may route along the A5 when there is less traffic and delay on the A5.

3.2.3 For heavy vehicles, a greater proportion of the trips from the west is forecast to route via the A5, turning left at the A5 / A47 Dodwells roundabout to continue on the A47 then joining the proposed link road as shown in Figure 3.2. This route is considerably shorter than the M6 and M69 route, and given the higher operating costs for heavy vehicles, this is the more attractive route. In addition, heavy vehicle speeds are lower than those of light vehicles on the M42, M6 and M69 (limited to 60mph), as such heavy vehicles are forecast to route via the A5 rather than the M69.

3.2.4 As shown in Figure 3.3, a small proportion of heavy vehicles is also forecast to route via the A447 Ashby Road to / from the north (approximately 25 vehicle trips on Ashby Road, immediately north of the A47 in the 2036 AM Peak hour). These trips have an origin and destination in locations including Coalville, Ashby-de-la-Zouch and beyond (including Derby). Routeing via the M1 and M69 is approximately 8km longer from Coalville than routeing via Ashby Road. Journey times between the two routes are comparable for light vehicles, however routeing via Ashby Road is faster than routeing via the M1 and M69 for heavy vehicles given the lower motorway speeds. In addition, vehicle operating costs for heavy vehicles are higher per kilometre than light vehicles, making Ashby Road more attractive.

Figure 3.1: Light Vehicles Trip Distribution to and from the Hinckley NRFI Development Site for 2026 and 2036 (in PCUs) (Wider View)

2026 'With Development' (AM) - To the Development



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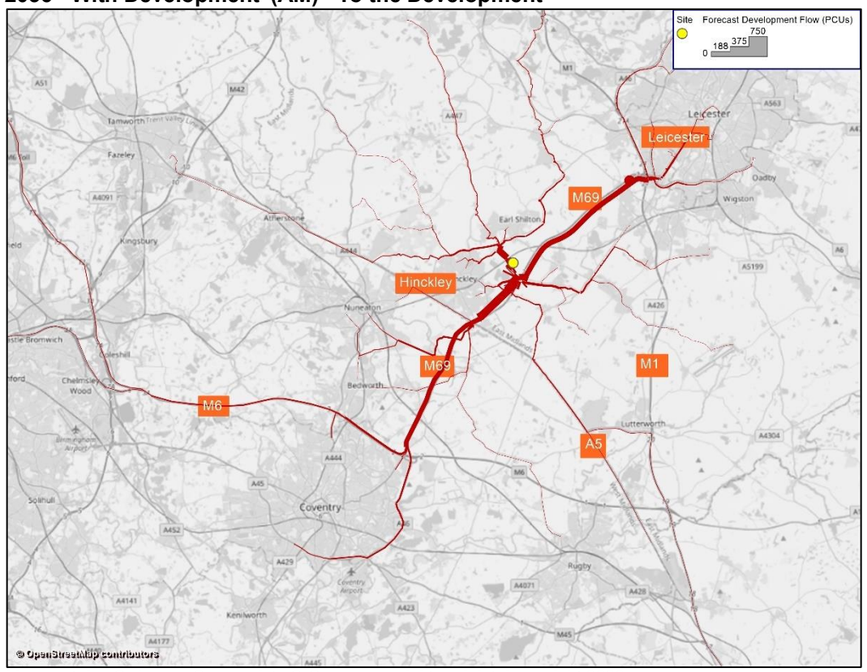
2036 ' With Development' (AM) - To the Development



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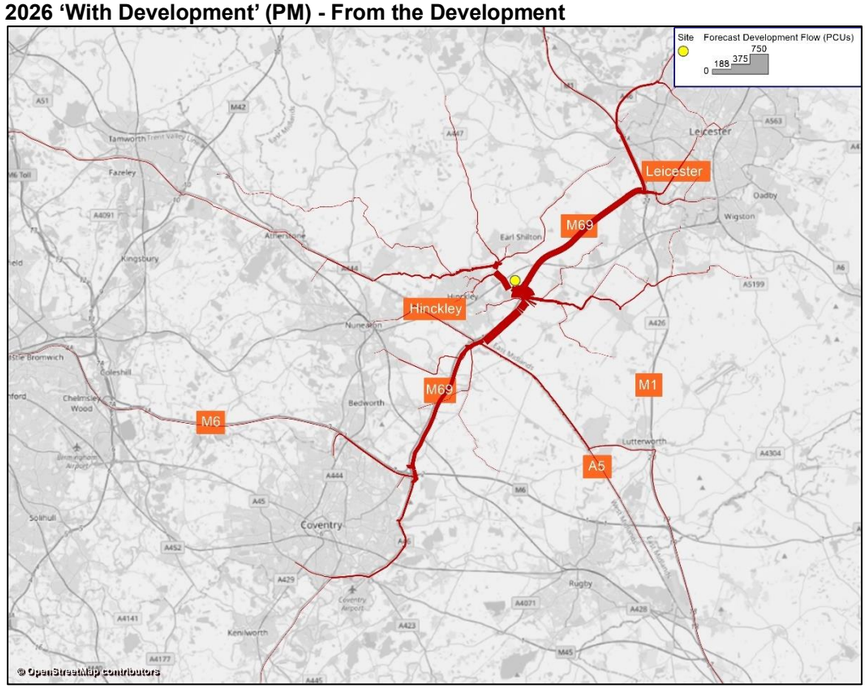
2026 'With Development' (PM) - From the Development



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2036 'With Development' (PM) - From the Development

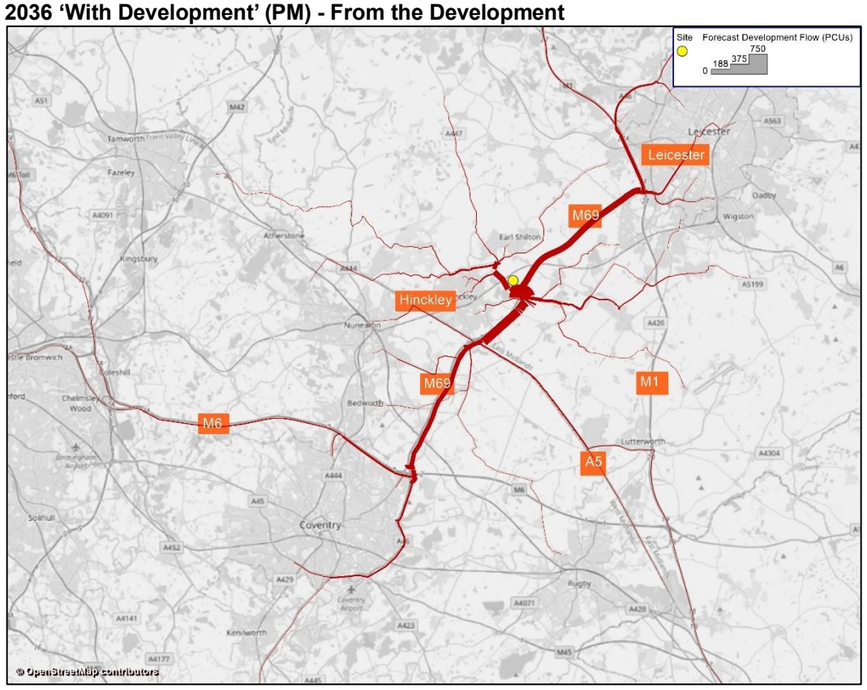

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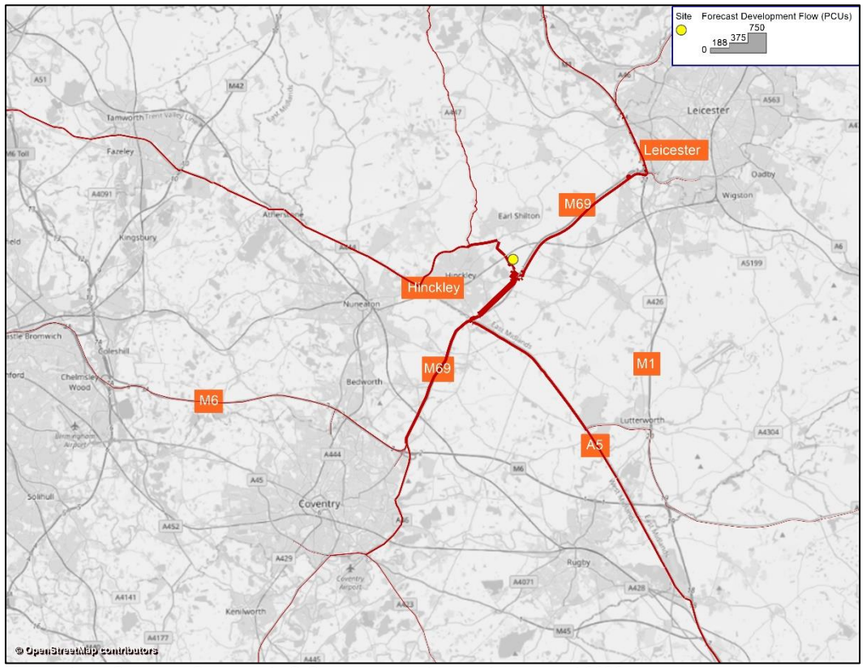
Figure 3.2: Heavy Vehicles Trip Distribution to and from the Hinckley NRFI Development Site for 2026 and 2036 (in PCUs) (Wider View)

2026 'With Development' (AM) - To the Development



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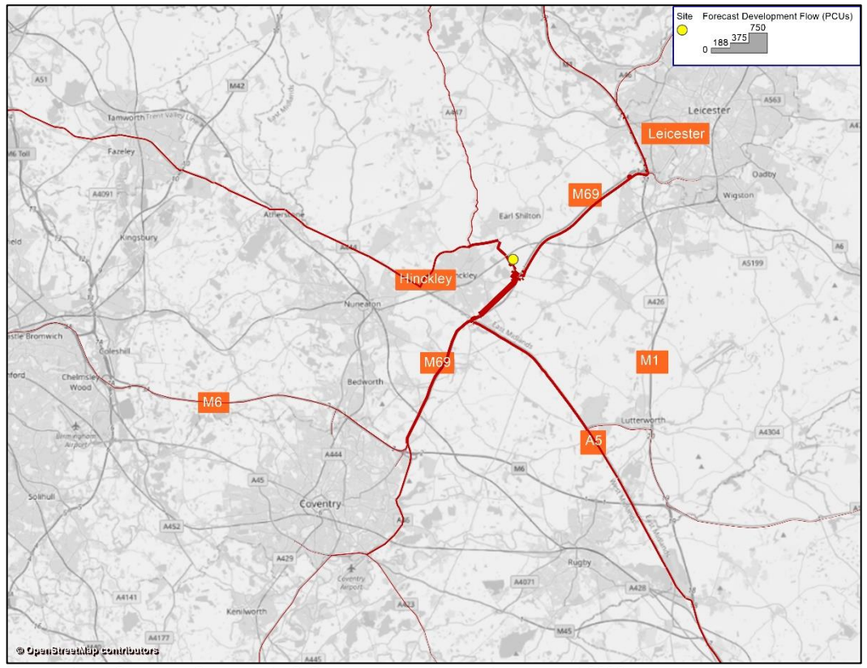
2036 'With Development' (AM) - To the Development



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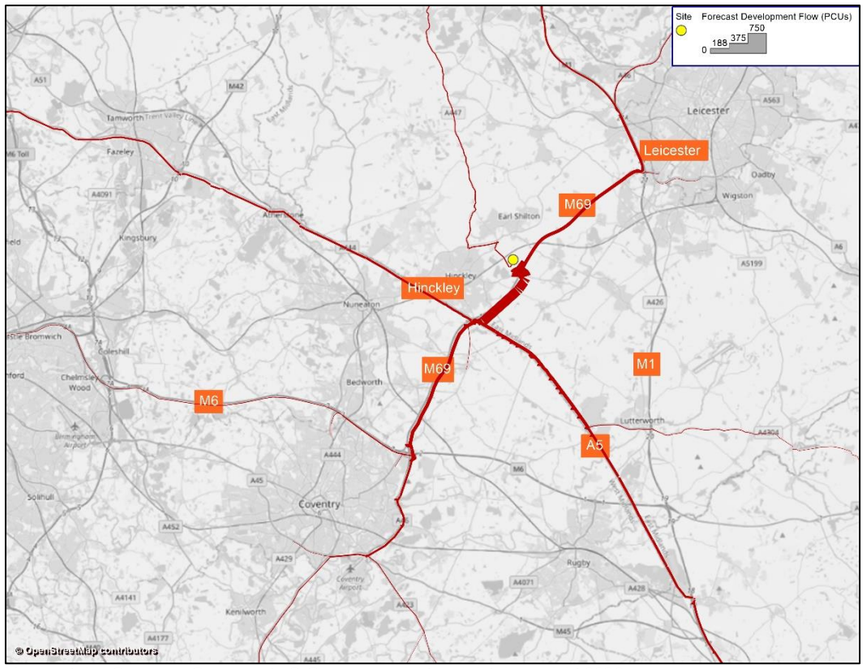
2026 'With Development' (PM) - From the Development



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2036 'With Development' (PM) - From the Development

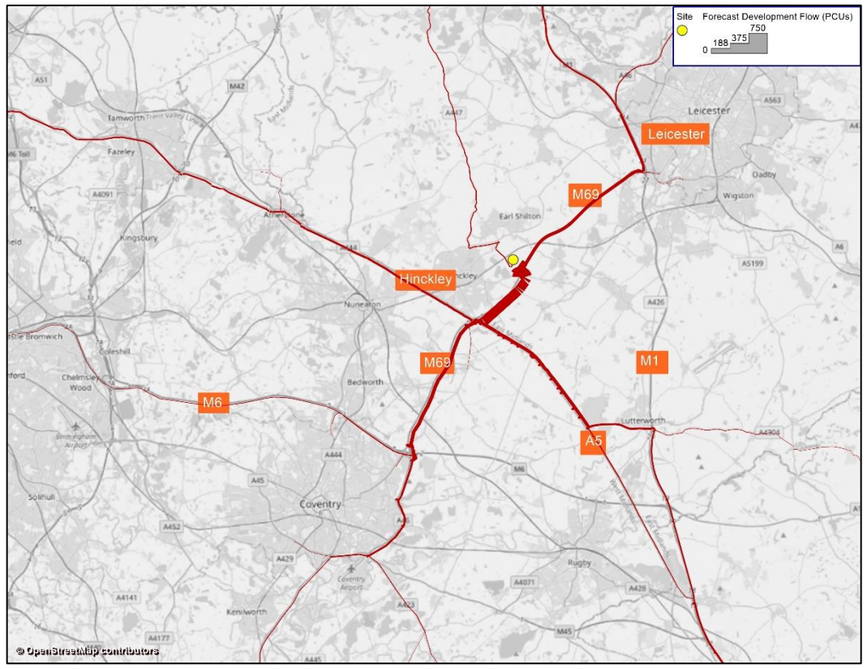

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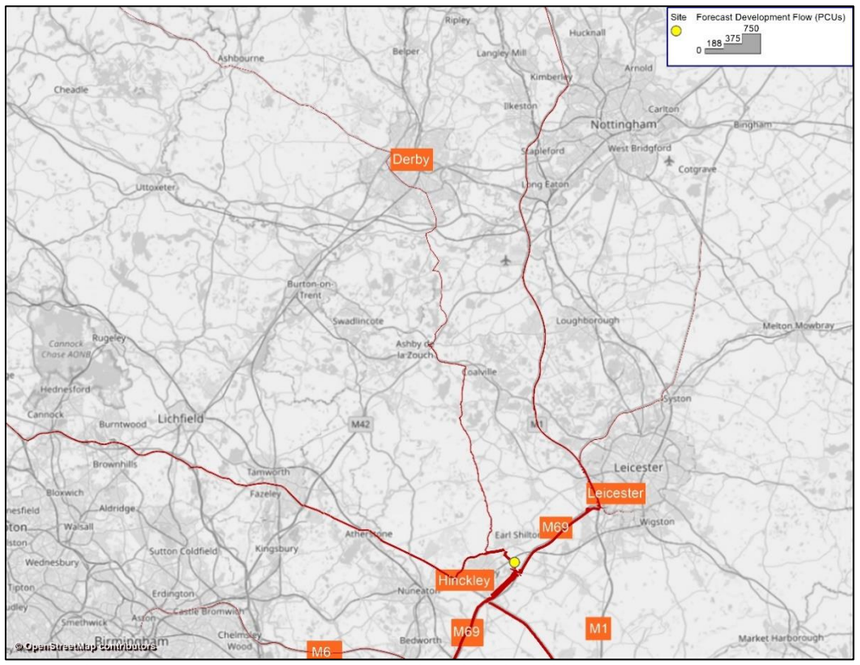
Figure 3.3: Heavy Vehicles Trip Distribution to and from the Hinckley NRFI Development Site for 2026 and 2036 (in PCUs) (Longer Distance Trips to / from the North)

2026 'With Development' (AM) - To the Development



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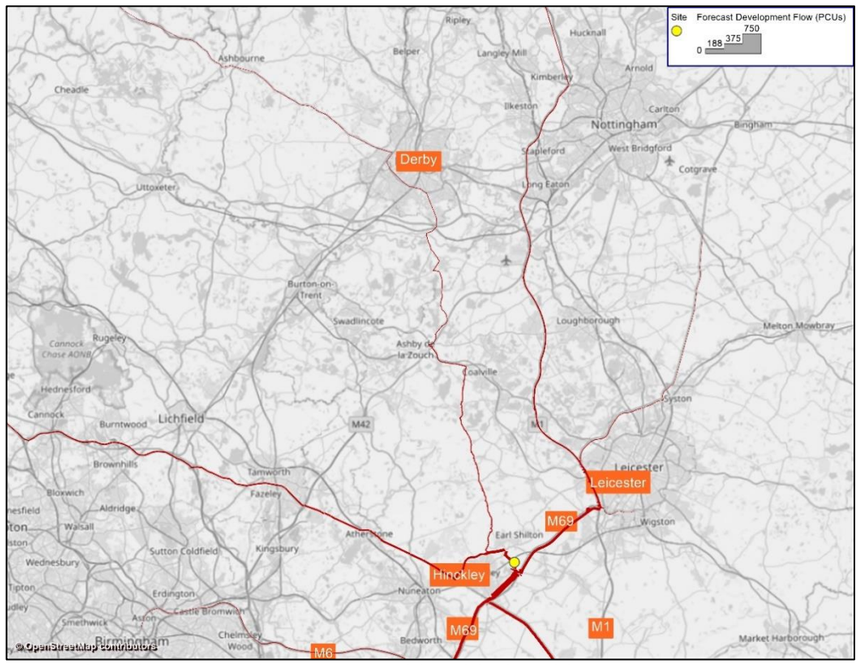
2036 'With Development' (AM) - To the Development



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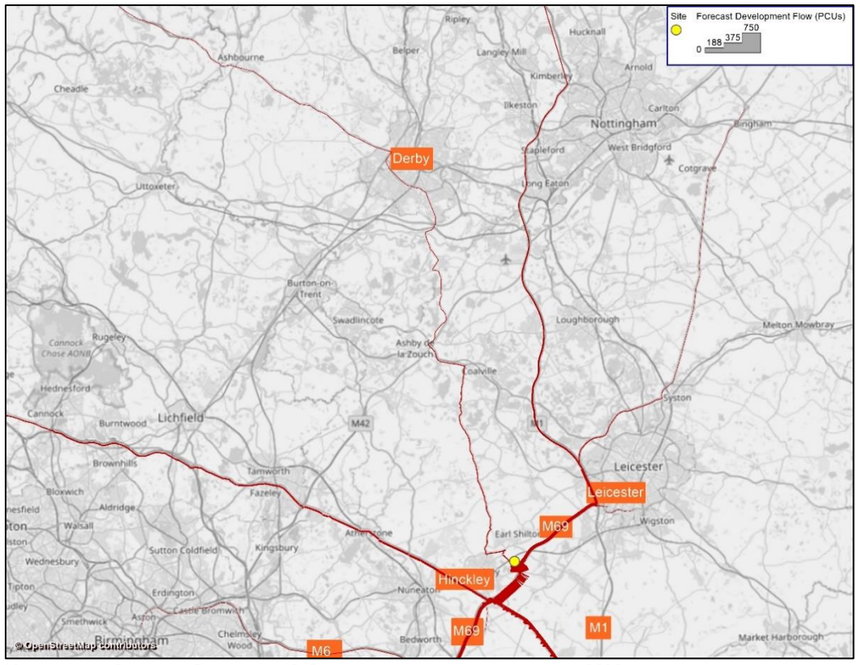
2026 'With Development' (PM) - From the Development



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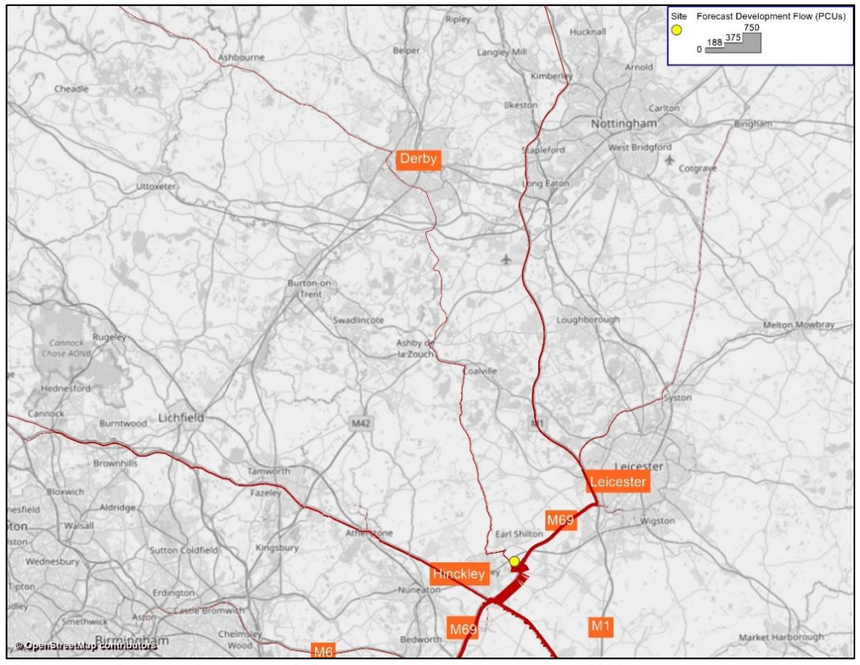
2036 'With Development' (PM) - From the Development



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3.3 Forecast Flow Change and Area of Influence

Forecast Flow Change

3.3.1 Figure 3.4 shows the 2026 and 2036 forecast flows (in PCUs) for the AM Peak and PM Peak hours for the 'Without Development' scenario as a starting point for the forecast flow change plots (Figure 3.5 to Figure 3.8). Figure 3.4 shows that the forecast flows are generally greater on the SRN, such as the A5, M69, M1, M6 and M42, as expected. The general pattern of the forecast flows is similar between the AM Peak and PM Peak hours, and between the two forecast years.

3.3.2 For reference, Appendix C shows the forecast flows (in PCUs and in vehicles) for all forecast scenarios, namely:

- 2026 and 2036 'Without Development' scenarios;
- 2026 and 2036 'Without Development With Infrastructure' scenarios;
- 2026 and 2036 'With Development' scenarios; and
- 2036 'With Development Sensitivity Test' scenario.

3.3.3 Figure 3.5 shows the forecast flow changes in 2026 and 2036 between the 'Without Development With Infrastructure' and 'Without Development' scenarios, for the AM Peak and PM Peak hours. Red bandwidth represents an increase in traffic flow in the 'Without Development With Infrastructure' scenario and green bandwidth represents a decrease.

3.3.4 Figure 3.5 shows that with the proposed Hinckley NRFI associated infrastructure included ('Without Development With Infrastructure'), the following changes in flow are forecast:

- Increases in flow are forecast on the M69, west of Junction 2, as traffic is routeing via the proposed M69 Junction 2 south-facing slips and the proposed link road.
- Increases in flow are forecast at the M69 Junction 2. With the south-facing slips at M69 Junction 2 and the proposed link road, more traffic is forecast to route via the M69 Junction 2 and the proposed link road to access Hinckley, Barwell and Earl Shilton. The proposed infrastructure has attracted traffic from routes including the A47 Dodwells Road (east of the A5), the B4668 Leicester Road (west of the proposed roundabout) and the radial routes to Hinckley and Burbage from the south and east including the B4109 Rugby Road, B578 Lutterworth Road and B4669 Sapcote Road.
- Increases in flow are forecast on the B4669 Hinckley Road (east of the M69 Junction 2) as vehicles are forecast to route via this road to access Sapcote, Stoney Stanton and Primethorpe. This traffic has diverted from the B4114 and High Cross Road, as vehicles are forecast to access these villages via the M69 Junction 2 in the 'Without Development With Infrastructure' scenario.
- It is noted that the forecast flow changes are small on the M69, east of Junction 2, as some movements on the M69 Junction 3 and the M1 Junction 21 are at or near capacity in both 2026 and 2036 for both peak hours, thus limiting flow in both directions on the M69 between Junctions 2 and Junction 3. As shown in Figure 3.1 and Figure 3.2, a proportion of the Hinckley NRFI development traffic is forecast to route via the M69, east of Junction 2, displacing non-development traffic which diverts on to alternative parallel routes (such as Huncote Road).

3.3.5 Figure 3.6 shows the forecast flow changes in 2026 and 2036 between the 'With Development' and 'Without Development' scenarios, which shows similar patterns to Figure 3.5 (comparison between 'Without Development With Infrastructure' and 'Without Development' scenarios).

3.3.6 Figure 3.7 shows the forecast flow changes in 2026 and 2036 between the 'With Development' and 'Without Development With Infrastructure' scenarios. With the addition of Hinckley NRFI development traffic, the following changes in flow are forecast when compared with the 'Without Development With Infrastructure' scenario:

- There are notable increases in forecast flow for the M69, west of Junction 2, as a large proportion of the Hinckley NRFI development traffic is forecast to route from the south including the M6 and A5, as shown in Figure 3.1 and Figure 3.2.

- Increases in flow are also forecast for the A47 to the north of Hinckley and Huncote Road to the east of the M69 as the Hinckley NRFI development traffic (light vehicles) are also forecast to use these routes to access / egress the development site.
- Whilst Figure 3.1 and Figure 3.2 show that a proportion of the Hinckley NRFI development traffic is forecast to access / egress the development site via the M69, east of Junction 2, the forecast flow changes for M69 between Junction 2 and Junction 3 are small. As discussed above, some movements on the M69 Junction 3 and the M1 Junction 21 are at or near capacity in both 2026 and 2036 for both peak hours, thus limiting flow in both directions on the M69 between Junctions 2 and Junction 3. This suggests that the Hinckley NRFI development traffic is forecast to cause some displaced traffic to the parallel routes, such as Huncote Road.

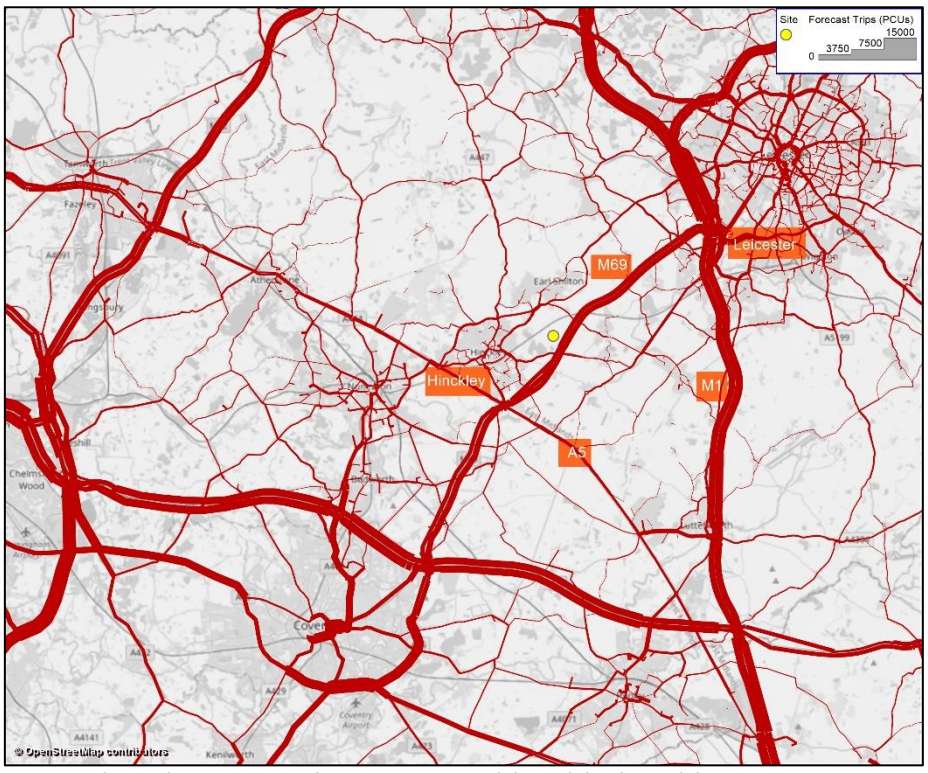
3.3.7 Figure 3.8 illustrates the forecast flow changes in 2036 for 'With Development (Sensitivity Test)' minus 'With Development' scenarios which shows the forecast impact of the fully dualled link road between the M69 Junction 2 and the A47:

- For the AM Peak hour, the fully dualled link between the A47 and the proposed roundabout on the B4668 is forecast to attract more traffic to access Hinckley town centre via the B4668 Leicester Road, reducing the forecast flows on Ashby Road.
- For the PM Peak hour, the fully dualled link is forecast to attract more traffic to access Hinckley via the M69 Junction 2, slightly reducing the forecast flows on the parallel B581 Station Road.

3.3.8 It should be noted that Figure 3.5 to Figure 3.8 show the forecast flow changes in PCUs. Forecast flow change plots in vehicles can be found in Appendix D .

Figure 3.4: Forecast Flow for the 2026 and 2036 'Without Development' Scenarios (in PCUs)

2026 'Without Development' (AM)



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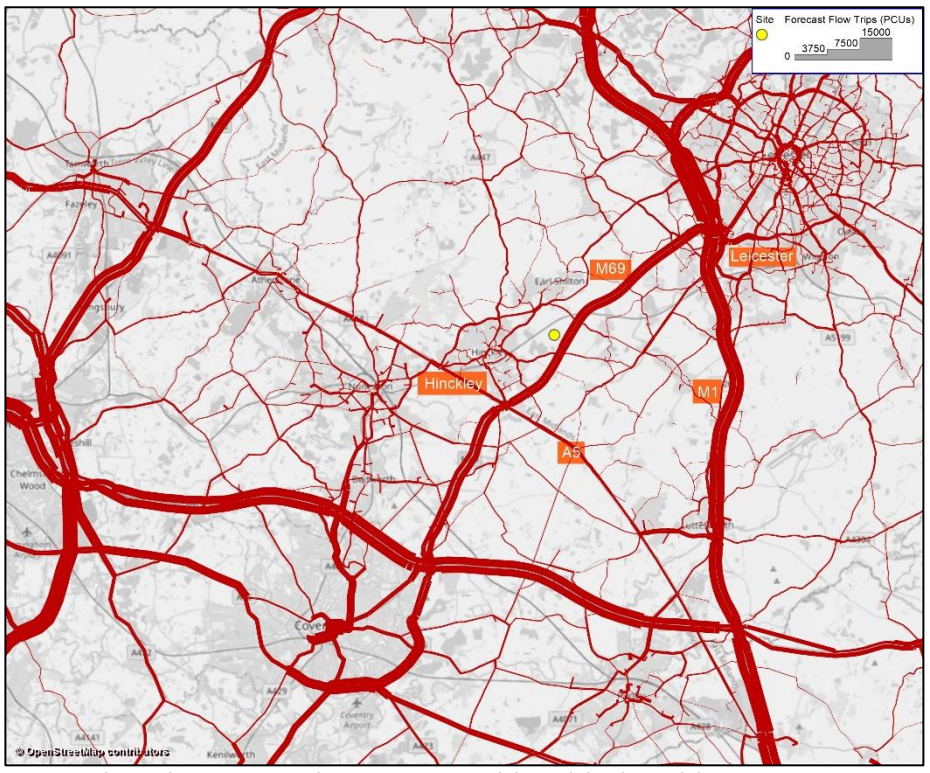
2036 'Without Development' (AM)



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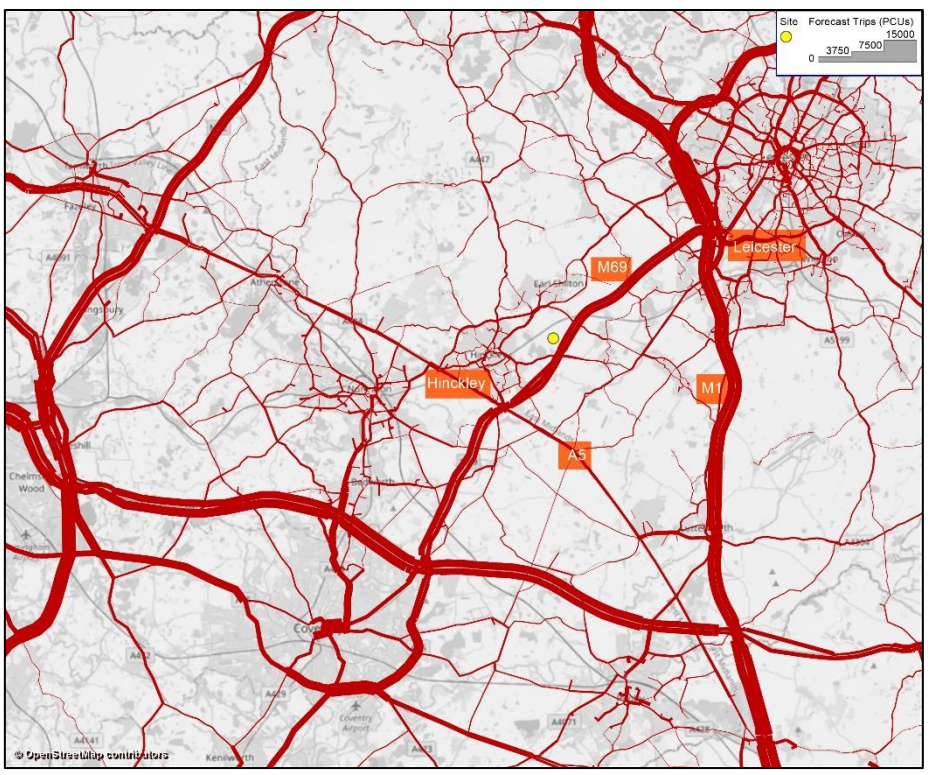
2026 'Without Development' (PM)



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2036 'Without Development' (PM)

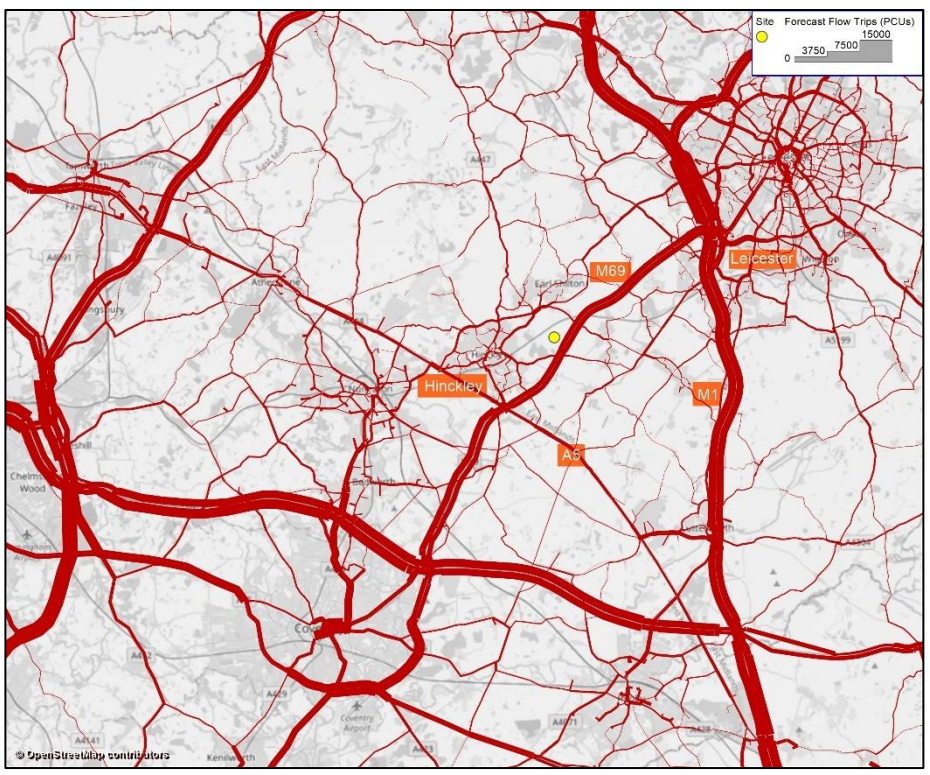

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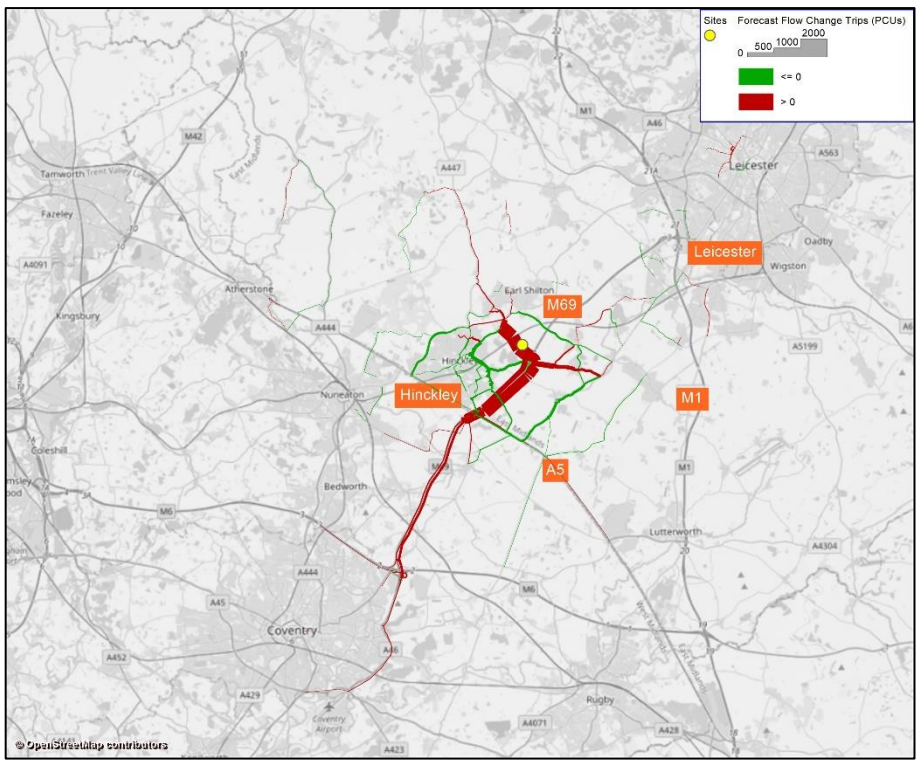
Figure 3.5: Forecast Flow Change for the 2026 and 2036 'Without Development With Infrastructure' minus 'Without Development' Scenarios (in PCUs)

2026 'Without Development With Infrastructure' minus 'Without Development' (AM)



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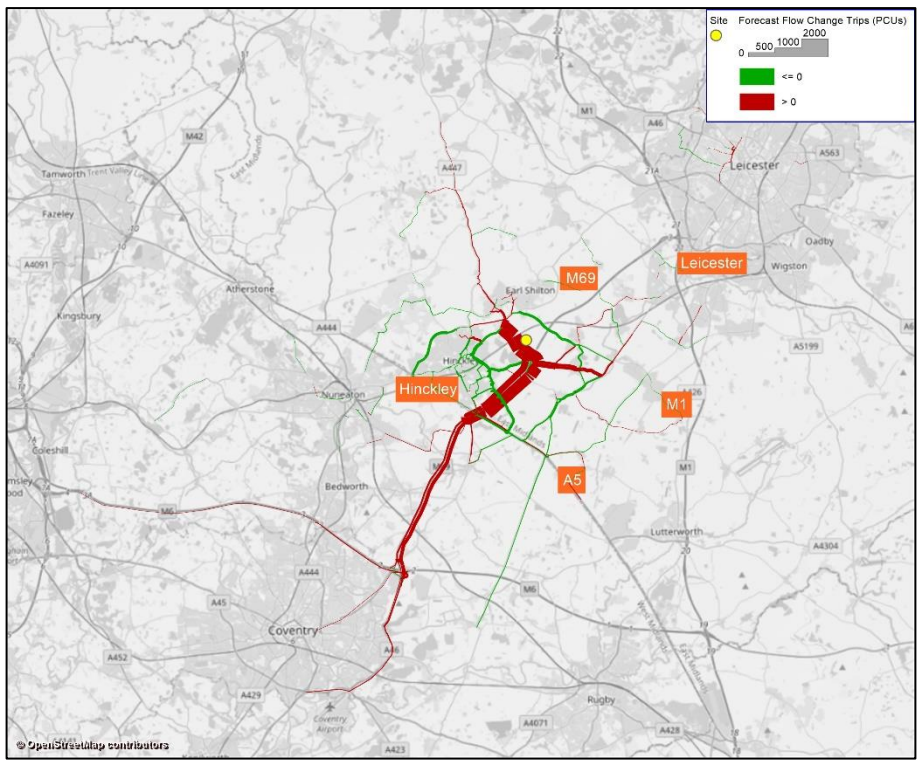
2036 'Without Development With Infrastructure' minus 'Without Development' (AM)



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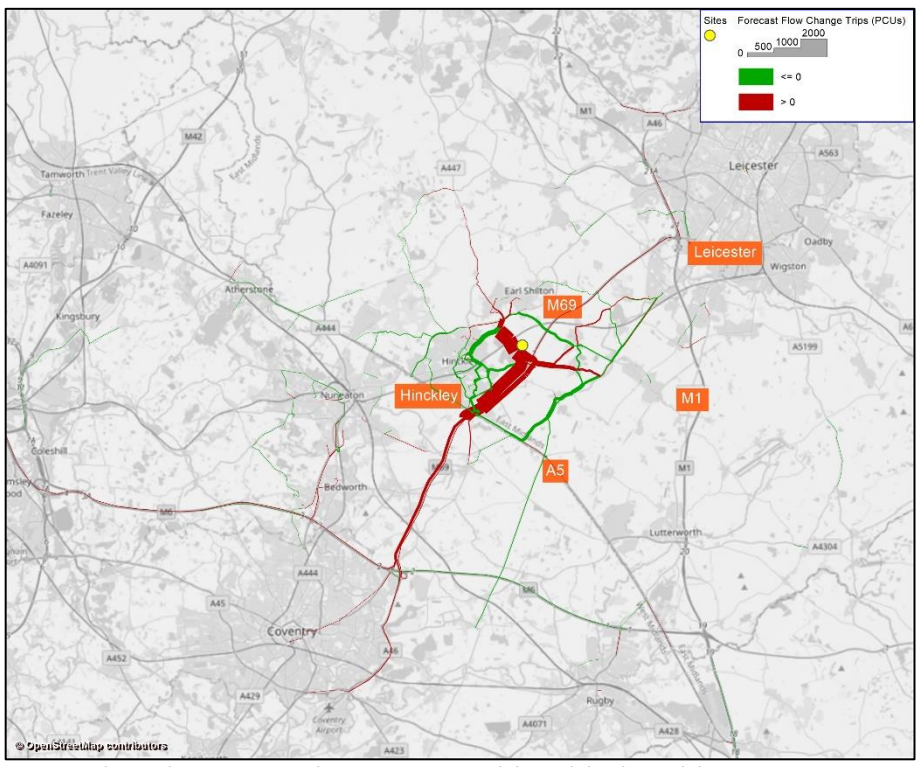
2026 'Without Development With Infrastructure' minus 'Without Development' (PM)



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2036 'Without Development With Infrastructure' minus 'Without Development' (PM)

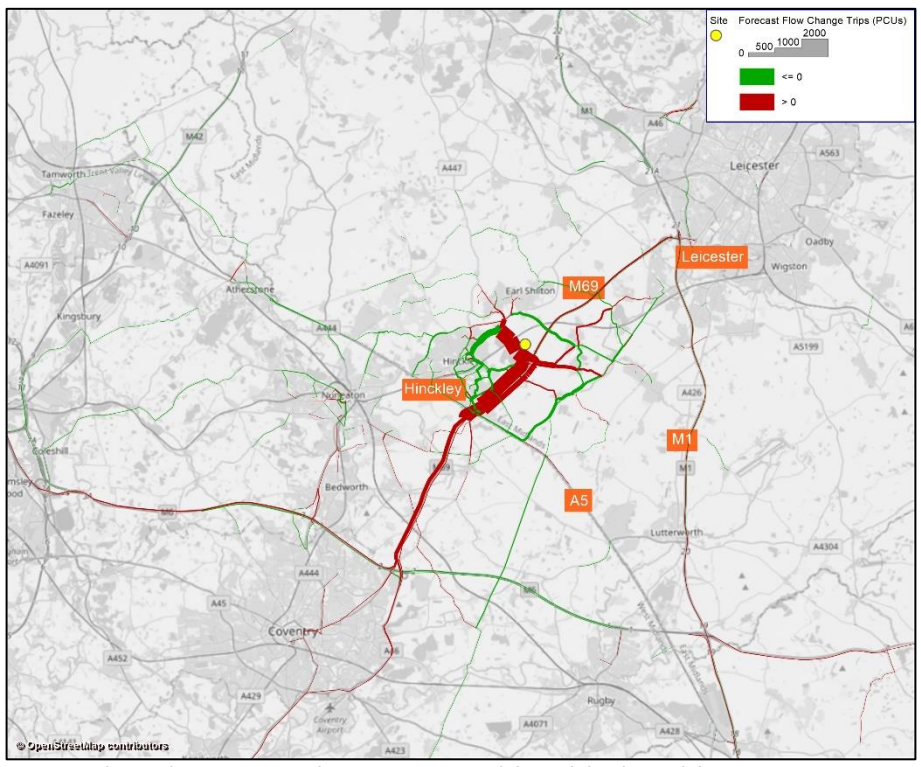

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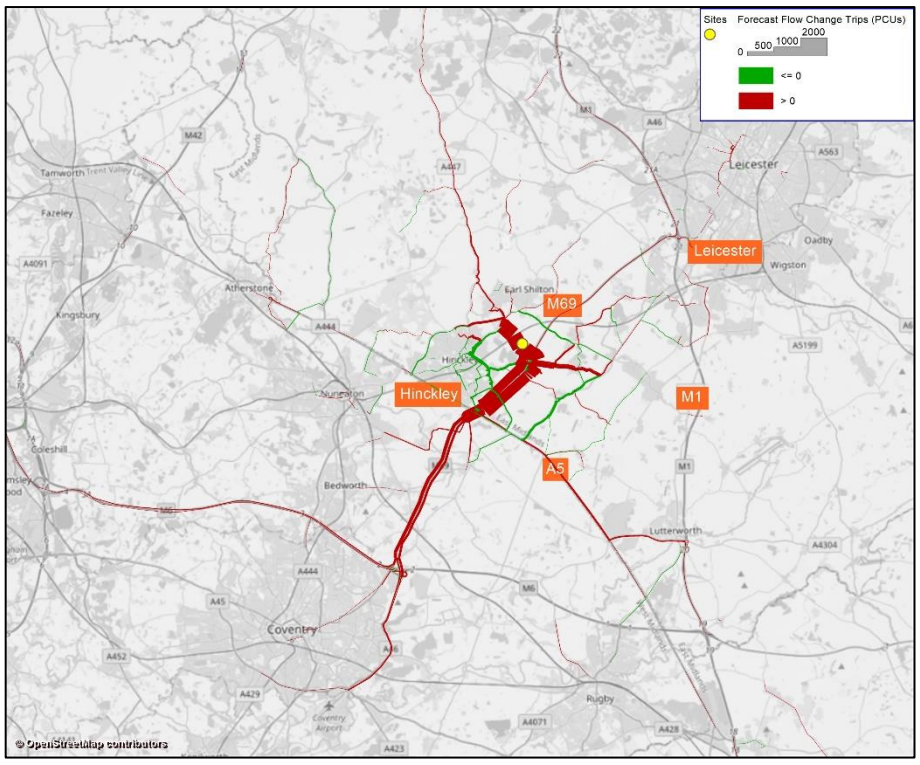
Figure 3.6: Forecast Flow Change for the 2026 and 2036 'With Development' minus 'Without Development' Scenarios (in PCUs)

2026 'With Development' minus 'Without Development' (AM)



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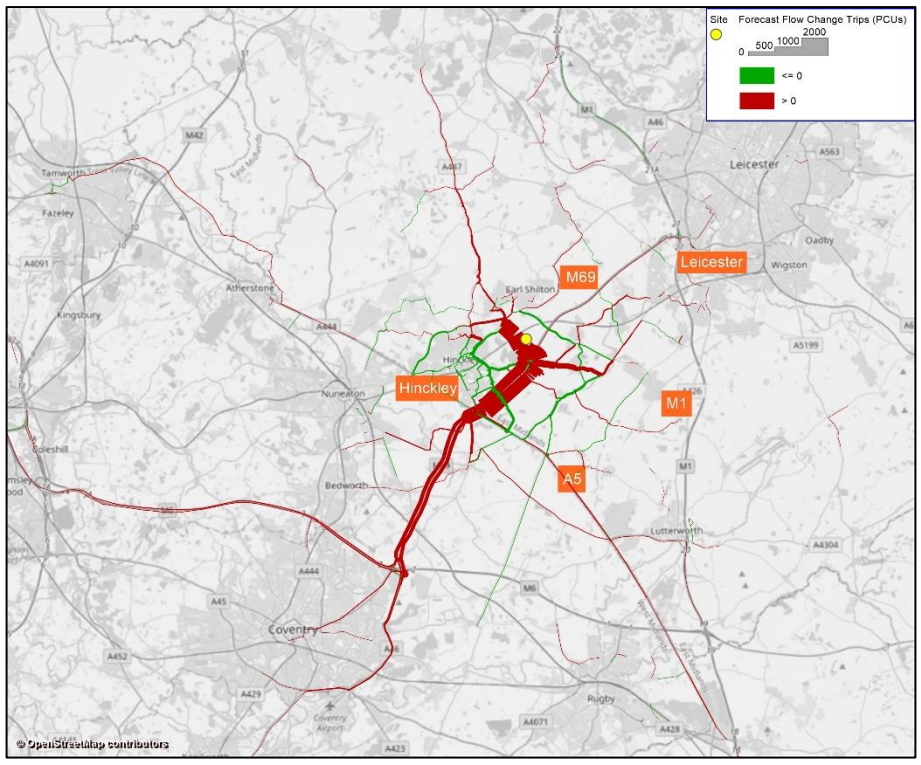
2036 'With Development' minus 'Without Development' (AM)



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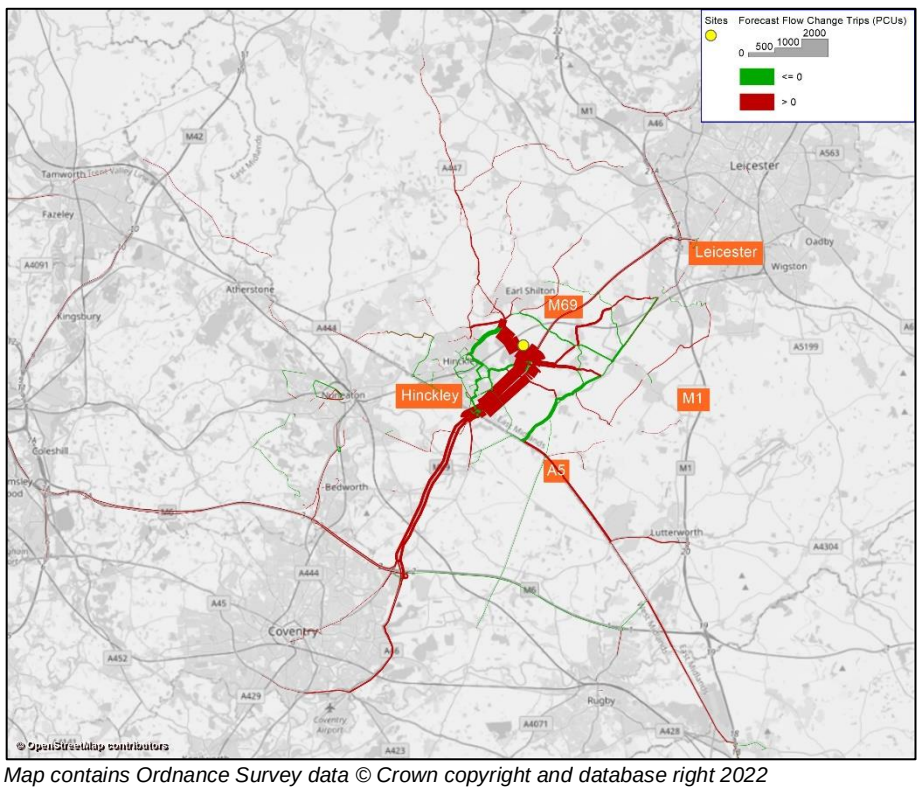
2026 'With Development' minus 'Without Development' (PM)



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2036 'With Development' minus 'Without Development' (PM)

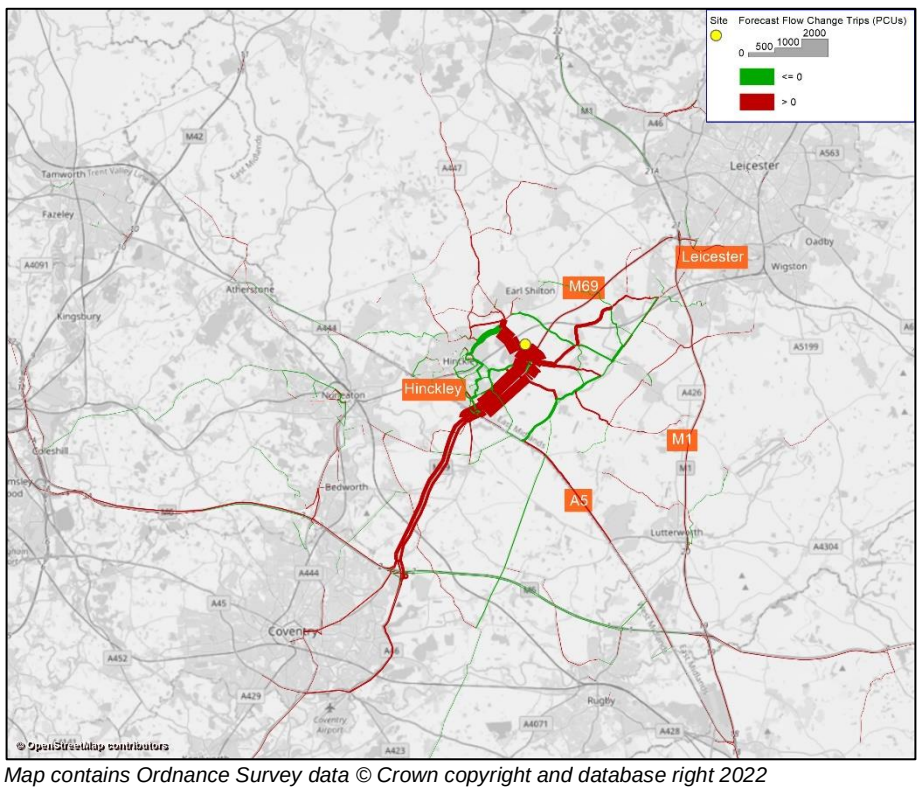

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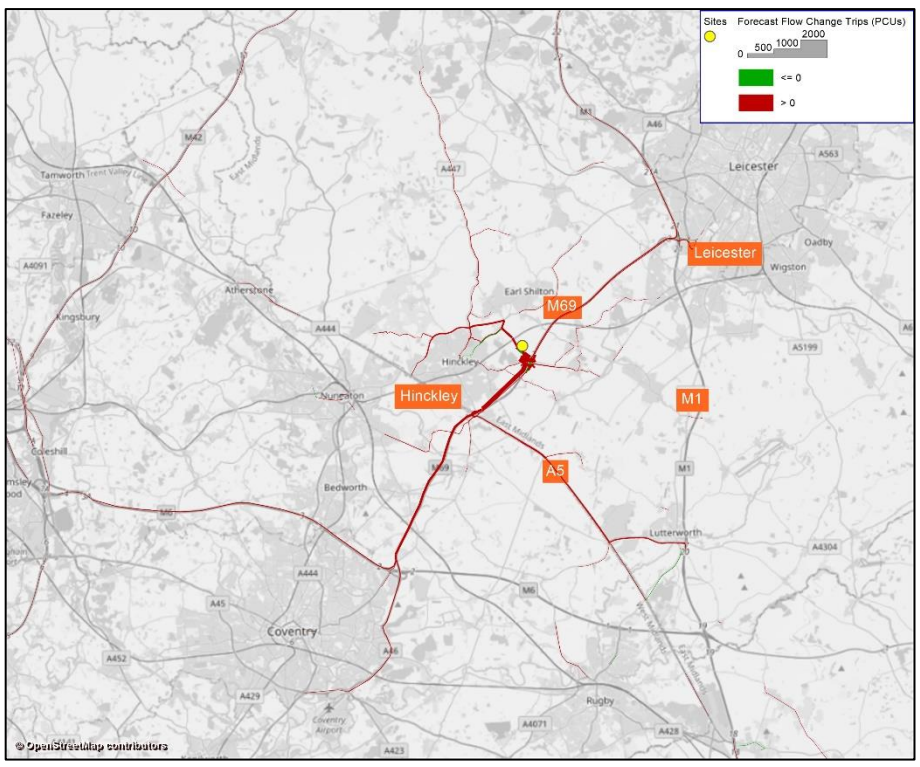
Figure 3.7: Forecast Flow Change for the 2026 and 2036 'With Development' minus 'Without Development With Infrastructure' Scenarios (in PCUs)

2026 'With Development' minus 'Without Development With Infrastructure' (AM)



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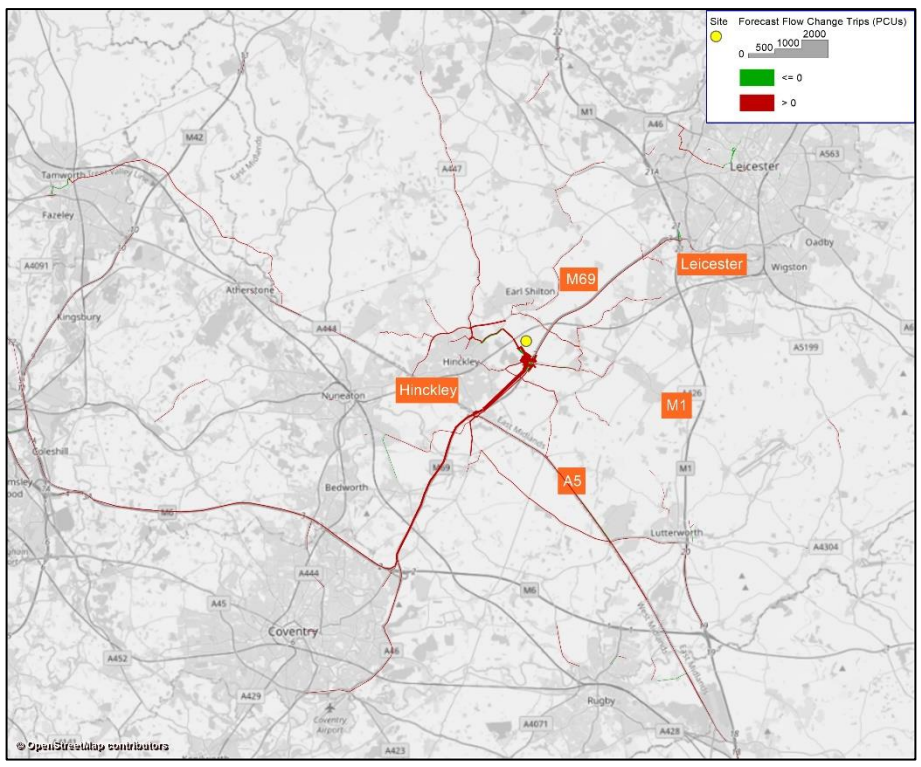
2036 'With Development' minus 'Without Development With Infrastructure' (AM)



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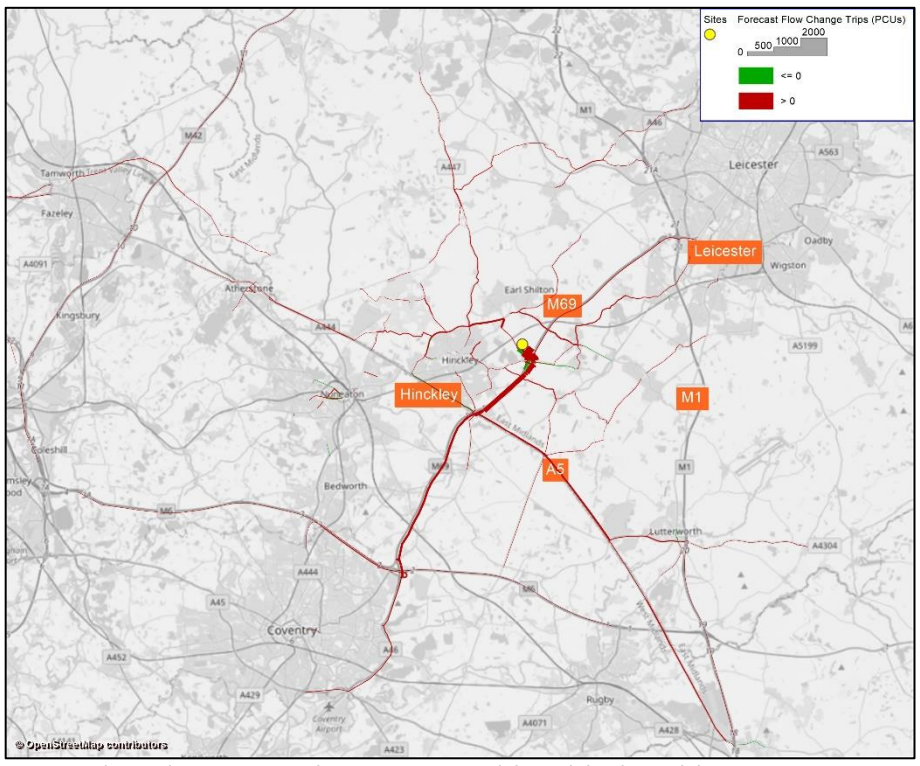
2026 'With Development' minus 'Without Development With Infrastructure' (PM)



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2036 'With Development' minus 'Without Development With Infrastructure' (PM)

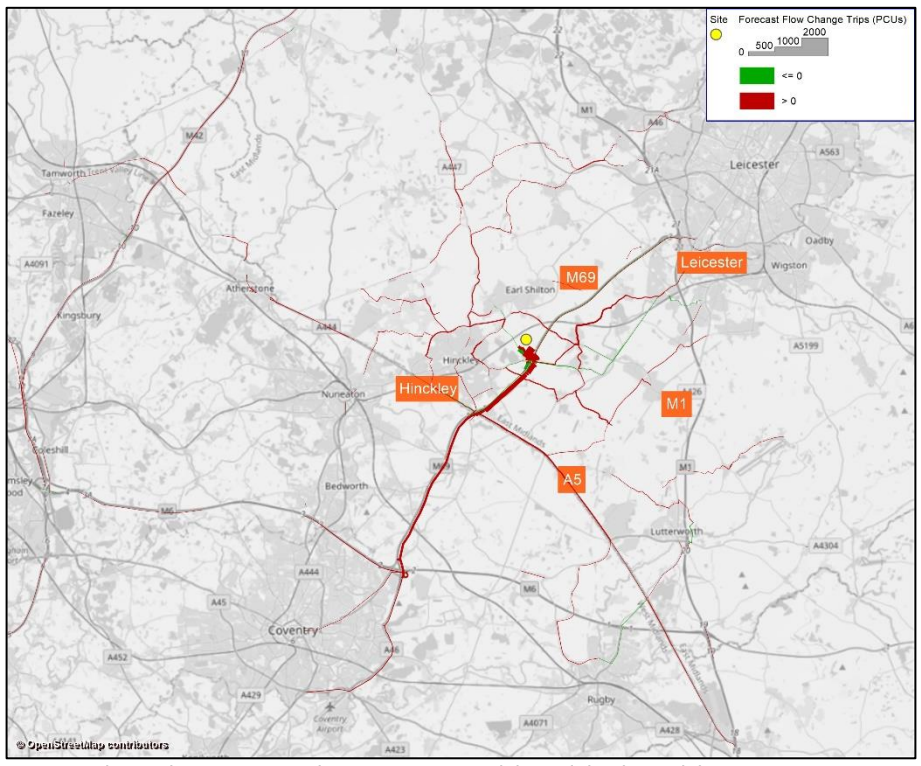

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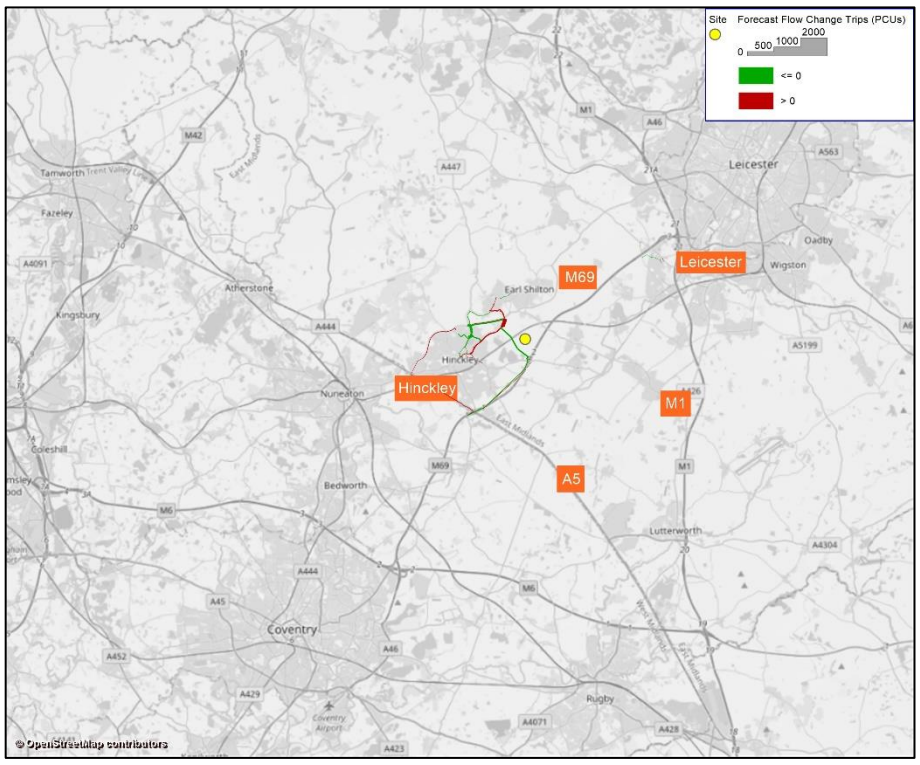
Figure 3.8: Forecast Flow Change for the 2036 'With Development (Sensitivity Test)' minus 'With Development' Scenarios (in PCUs)

2036 'With Development (Sensitivity Test)' minus 'With Development' (AM)



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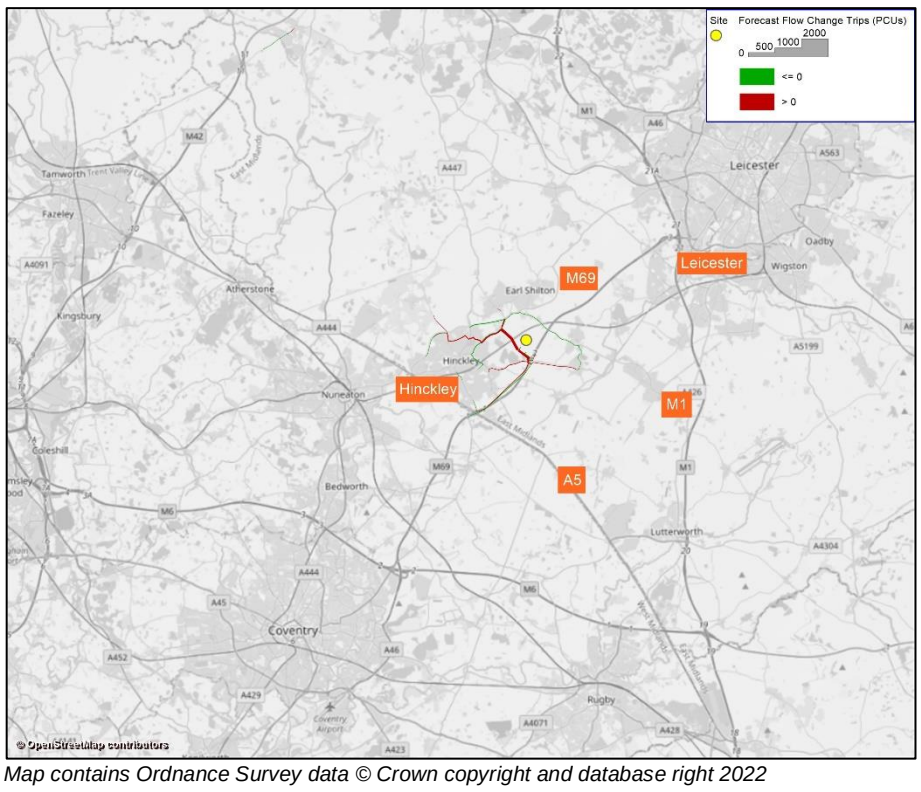
2036 'With Development (Sensitivity Test)' minus 'With Development' (PM)



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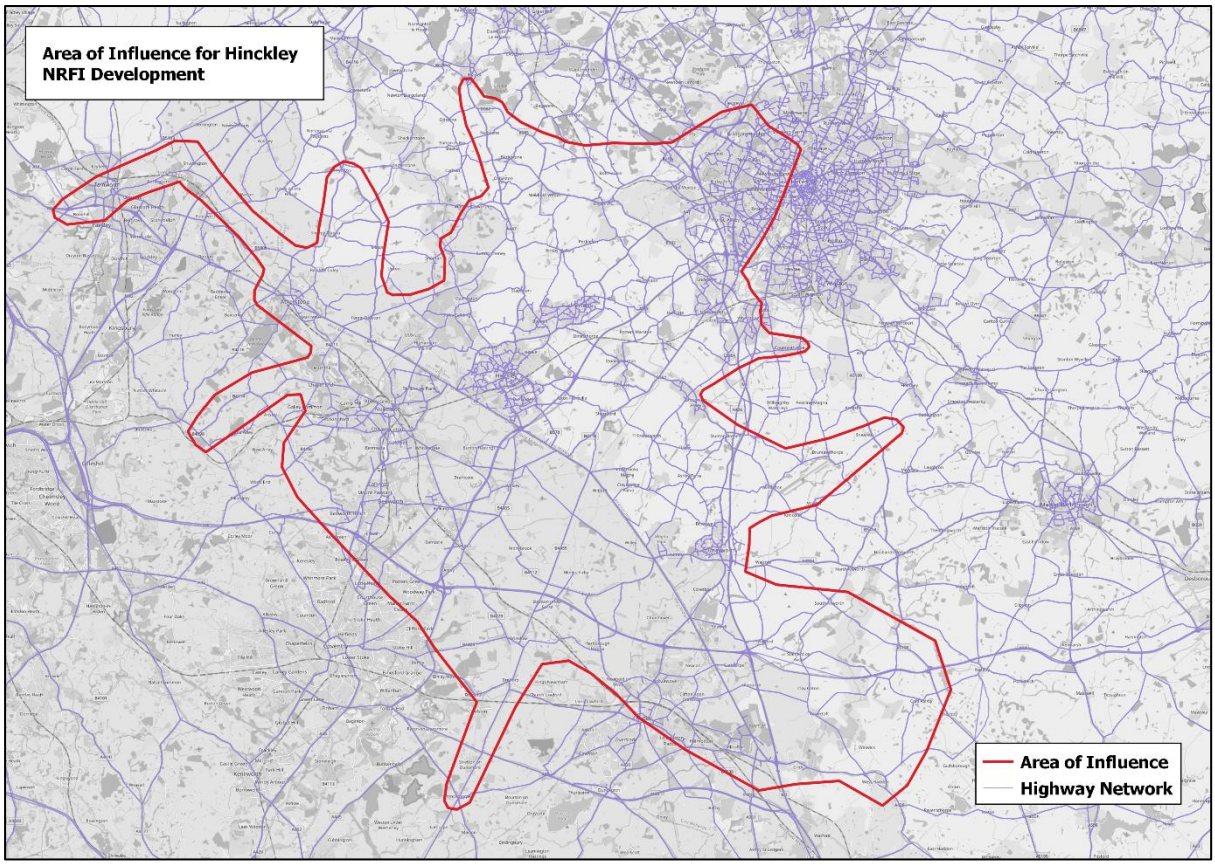
Area of Influence

3.3.9 Using the forecast flow changes between the 'With Development' and 'Without Development' scenarios, an Area of Influence (AoI) has been defined. This has been defined by identifying links which are forecast to change by more than ±5% and ±30 vehicles between the two scenarios for 2026 and 2036 in either the AM Peak or PM Peak hours. The links which are forecast to meet these criteria are included in the AoI, the spatial extent of which is as follows (see Figure 3.9):

- the M69 between the M1 and the M6;
- the M6 between the M1 and the A444;
- roads within the urban areas of Hinckley, Barwell, Earl Shilton, Atherstone, Lutterworth; and
- the A5 between Tamworth and the M6.

Figure 3.9: Area of Influence



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3.4 Forecast Trip Distribution for the Proposed Link Road

3.4.1 To provide a better understanding of the trips that are forecast to use the proposed link road, Figure 3.10 and Figure 3.11 show the distribution of the northbound and southbound trips that are forecast to use the proposed link road respectively.

3.4.2 Figure 3.10 and Figure 3.11 show that the general distributions for trips using the proposed link road are similar between two forecast years and the AM Peak and PM Peak hours. A large proportion of the trips are forecast to route between the M69 (South) and the urban areas of Hinckley, Burbage, Barwell and Earl Shilton. A smaller proportion of the trips are forecast to travel to / from the A47, A5, A447 Ashby Road and B4669 Hinckley Road.

3.4.3 Similar trip distributions are also forecast for the proposed link road for the 2036 'With Development (Sensitivity Test)' scenario with the fully dualled link road. The trip distribution plots for the 2036 'With Development (Sensitivity Test)' scenario are included in Appendix D .

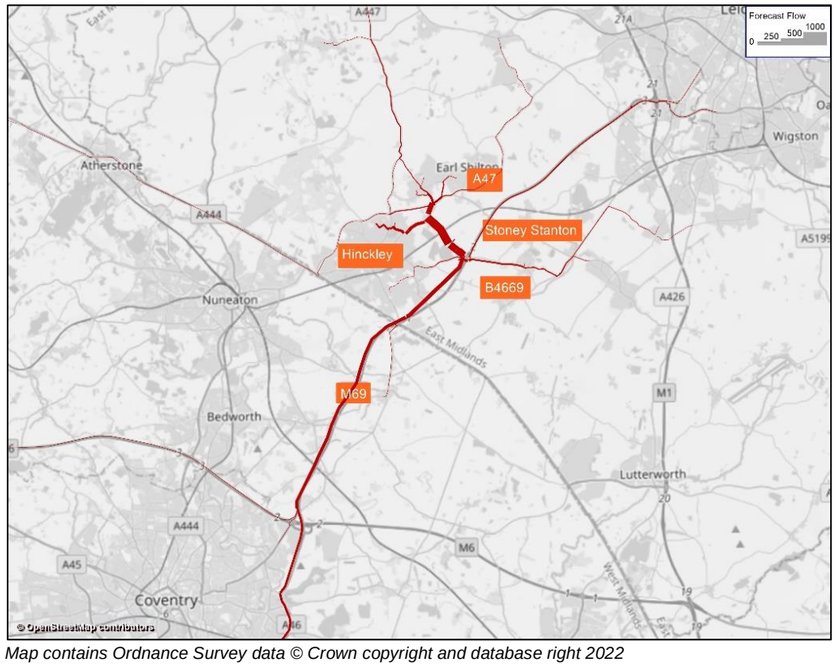
3.5 Forecast Trip Distribution for the B4669 Leicester Road

3.5.1 Figure 3.12 and Figure 3.13 show the distribution of trips using the B4669 Leicester Road to the east and west of the Stanton Lane junction respectively. Figure 3.12 and Figure 3.13 are generally similar, which show that the trips using the B4669 Leicester Road are forecast to travel between the villages to the east of the M69 (such as Sapcote, Primethorpe and Narborough) and south-west of Leicester City, and Hinckley / Burbage and the M69 (South).

3.5.2 Figure 3.13 which shows the distribution of trips using the B4669 Leicester Road (to the west of Stanton Lane) also shows a proportion trips routeing via Huncote Road to and from villages such as Huncote, Enderby and Narborough.

Figure 3.10: Forecast Trip Distribution for the Proposed Link Road (Northbound) for the 2026 and 2036 'With Development' Scenarios (in PCUs)

2026 'With Development' - Proposed Link Road (Northbound) (AM)



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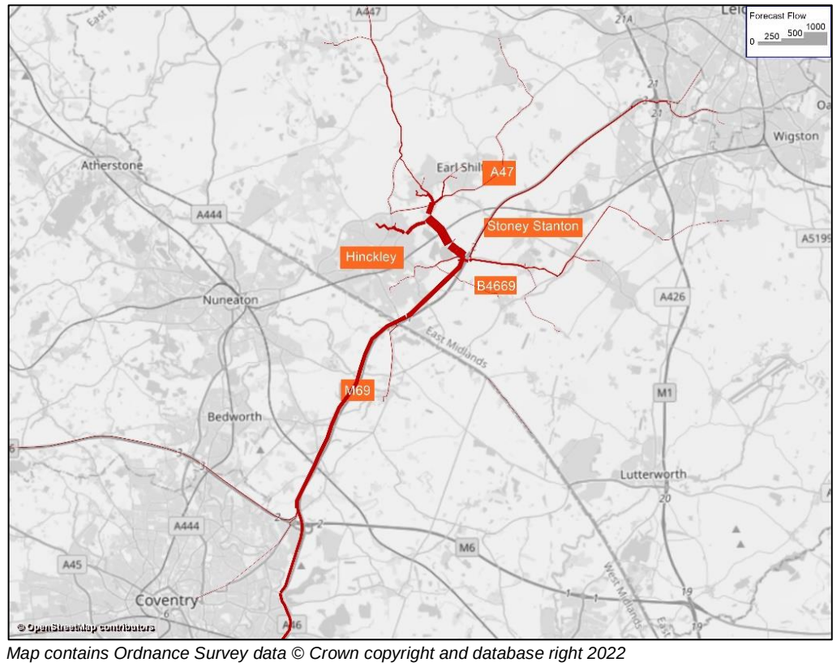
2036 'With Development' - Proposed Link Road (Northbound) (AM)



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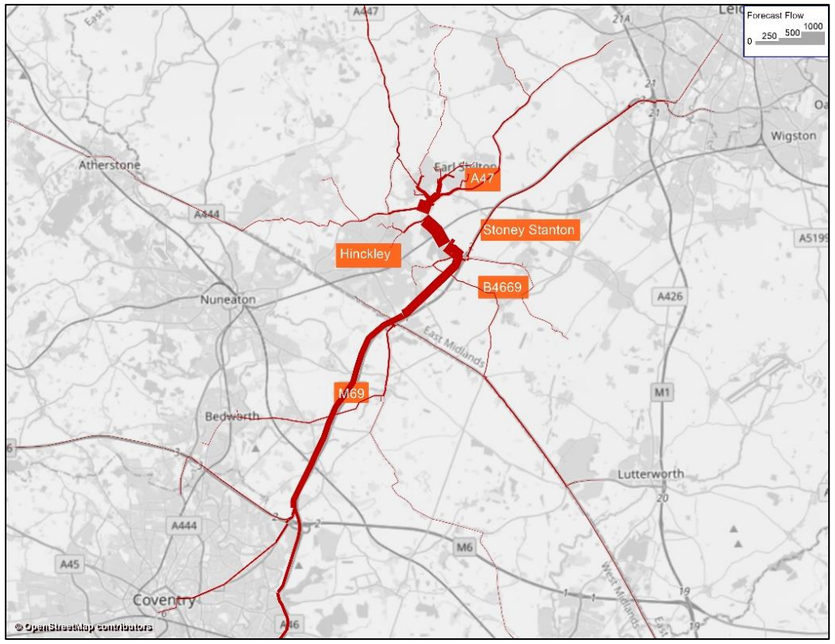
2026 'With Development' - Proposed Link Road (Northbound) (PM)



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2036 'With Development' - Proposed Link Road (Northbound) (AM)

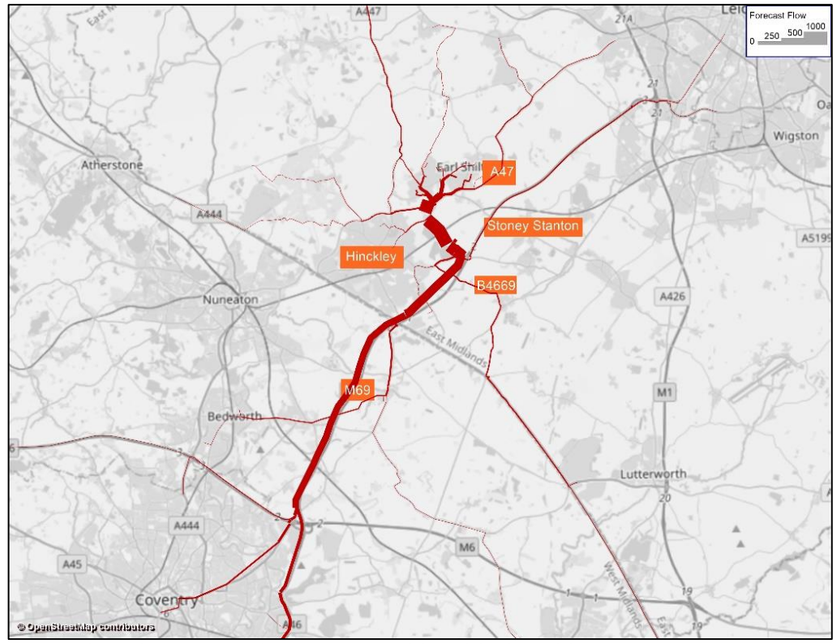

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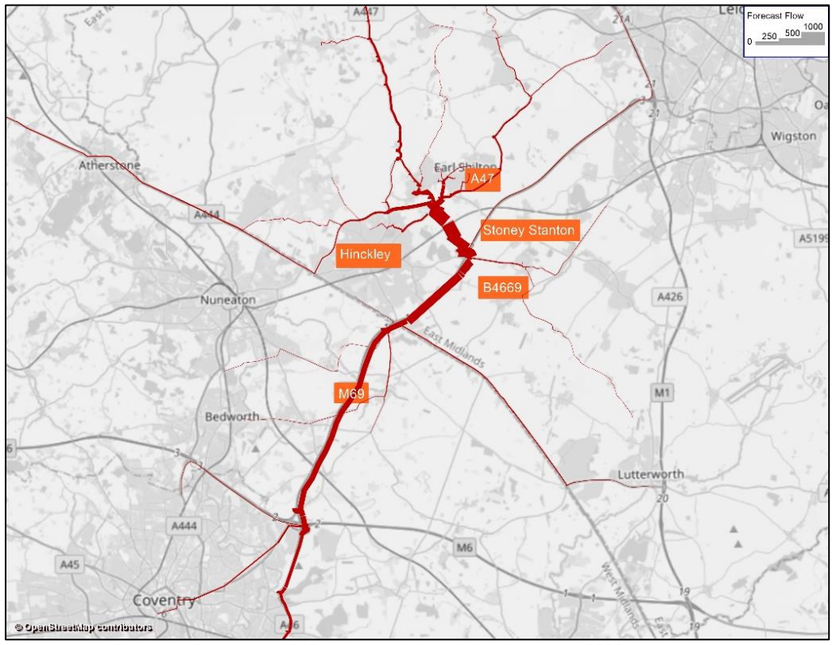
Figure 3.11: Forecast Trip Distribution for the Proposed Link Road (Southbound) for the 2026 and 2036 'With Development' Scenarios (in PCUs)

2026 'With Development' - Proposed Link Road (Southbound) (AM)



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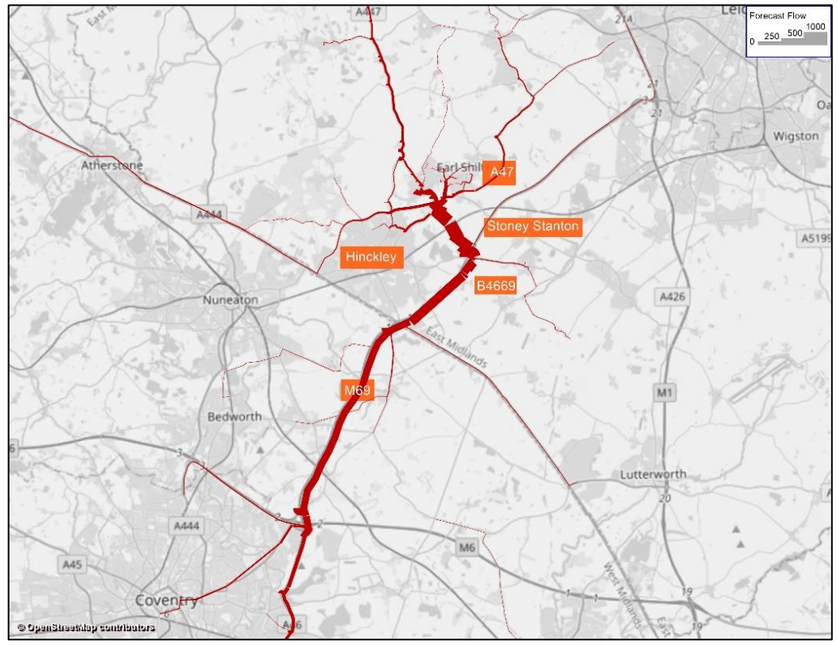
2036 'With Development' - Proposed Link Road (Southbound) (AM)



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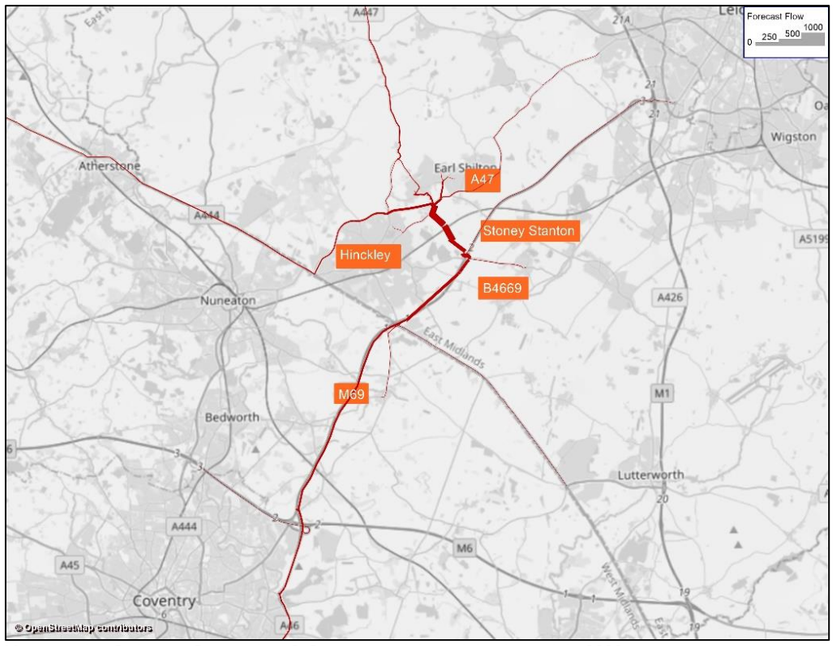
2026 'With Development' - Proposed Link Road (Southbound) (PM)



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2036 'With Development' - Proposed Link Road (Southbound) (PM)

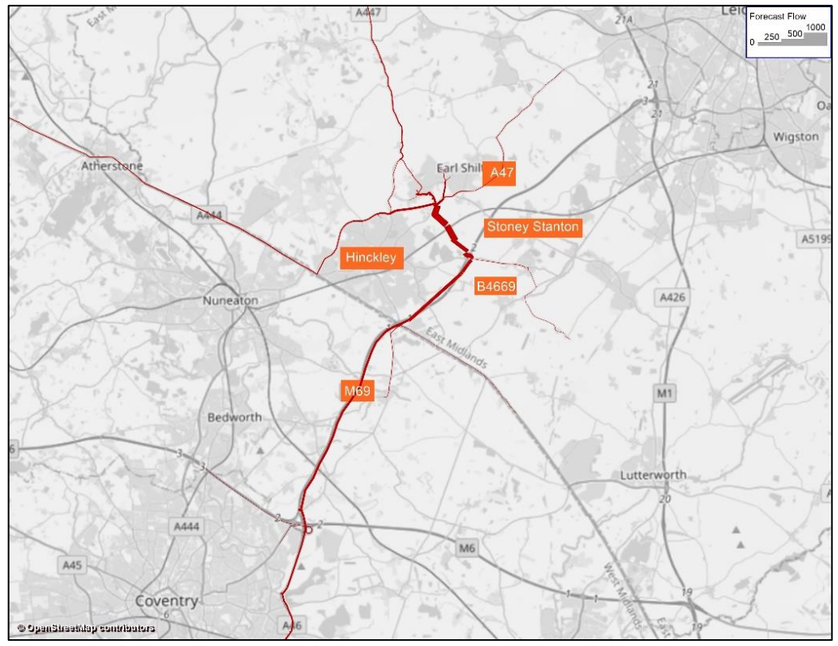

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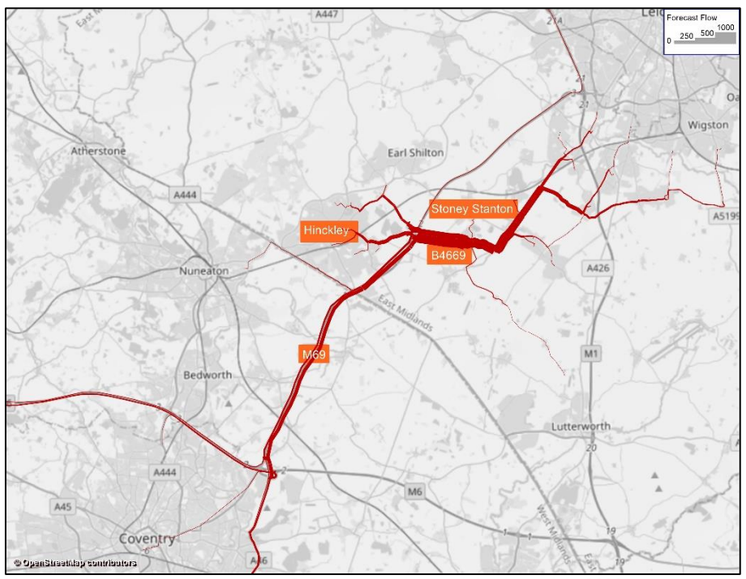
Figure 3.12: Forecast Trip Distribution for the B4669, East of the Stanton Lane Junction, for the 2026 and 2036 'With Development' Scenarios (in PCUs)

2026 'With Development' - B4669 East of Stanton Lane (AM)



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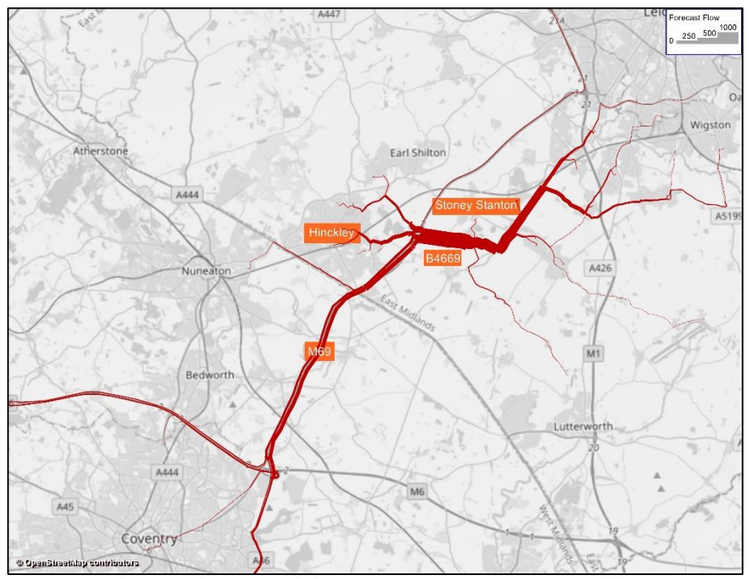
2036 'With Development' - B4669 East of Stanton Lane (AM)



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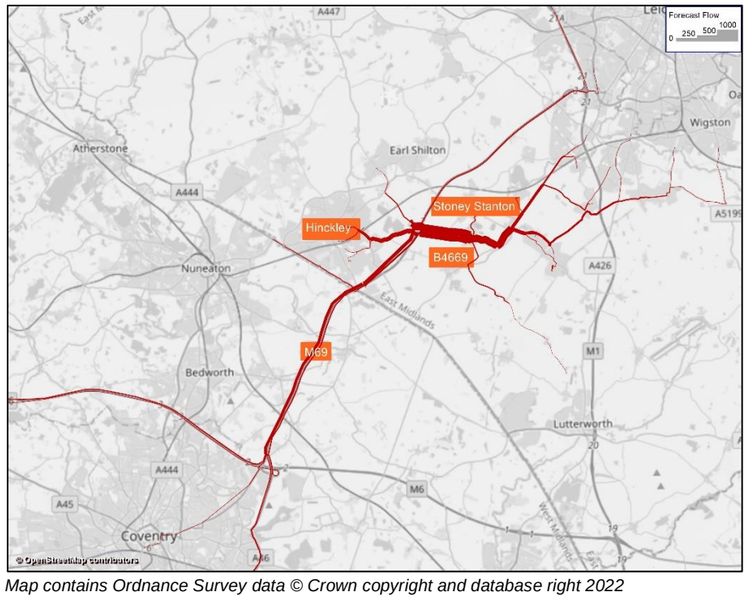
2026 'With Development' - B4669 East of Stanton Lane (PM)



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2036 'With Development' - B4669 East of Stanton Lane (PM)

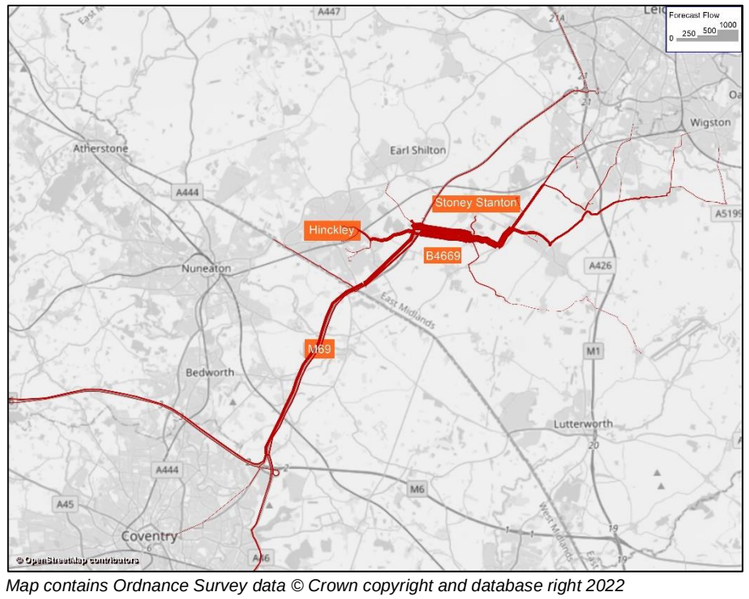

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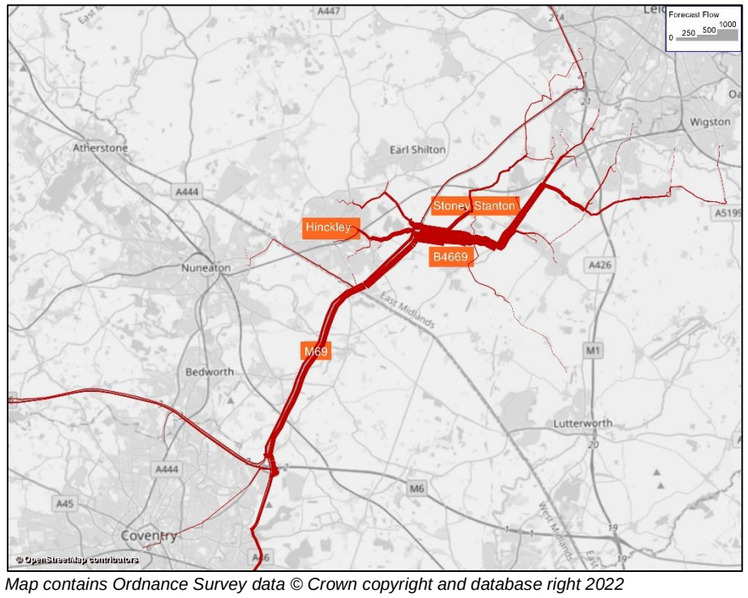
Figure 3.13: Forecast Trip Distribution for the B4669, West of the Stanton Lane Junction, for the 2026 and 2036 'With Development' Scenarios (in PCUs)

2026 'With Development' - B4669 West of Stanton Lane (AM)



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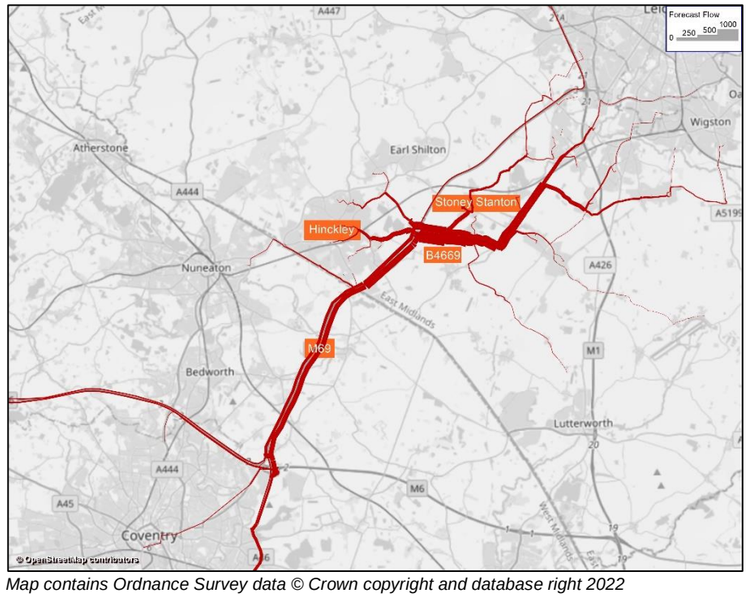
2036 'With Development' - B4669 West of Stanton Lane (AM)



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2026 'With Development' - B4669 West of Stanton Lane (PM)

Map contains Ordnance Survey data © Crown copyright and database right 2022

2036 'With Development' - B4669 West of Stanton Lane (PM)

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3.6 Forecast Delay Change

3.6.1 As a result of forecast flow changes in the 'With Development' and 'Without Development With Infrastructure' scenario, there are changes to the forecast delay on the highway network. These changes in delay can be generated from two sources: link delay based on the speed-flow curve applied to the link; and junction delay due to capacity constraints for individual turning movements. The analysis in this section combines the link and junction delays (taking a flow-weighted average of junction delays) to assess the changes in forecast delay with the proposed development and infrastructure.

3.6.2 Figure 3.14 shows the 2026 and 2036 forecast delay for the AM Peak and PM Peak hours for the 'Without Development' scenario as a starting point for the forecast delay change plots (Figure 3.15 to Figure 3.17). Figure 3.14 shows that the forecast delays on the approaches to the M69 Junction 3 and M1 Junction 21 are high. Delays are also forecast on the approaches to the A5 / M69 junction (M69 Junction 1) and the A4114 Smockington Lane approach to the A5. In the urban area of Nuneaton and Hinckley, there are also high forecast delays, as well as the B581 Broughton Road / B4114 Coventry Road junction to the south-east of Stoney Stanton.

3.6.3 Figure 3.15 shows the forecast delay change in 2026 and 2036 between the 'Without Development With Infrastructure' and 'Without Development' scenarios for the AM Peak and PM Peak hours. The forecast delay change shows that there tends to be an increase in delay (red bandwidth) along the B4669 Hinckley Road in both AM Peak and PM Peak hours as the proposed infrastructure attracts more vehicles from the wider network.

3.6.4 Figure 3.15 also shows there are forecast delay reductions for the M69 Junction 1. With the proposed south-facing slips at M69 Junction 2, a proportion of trips between M69 (South) and Hinckley / Burbage is forecast to route via Junction 2 rather than via Junction 1, reducing the pressure on some approaches to the M69 Junction 1 roundabout.

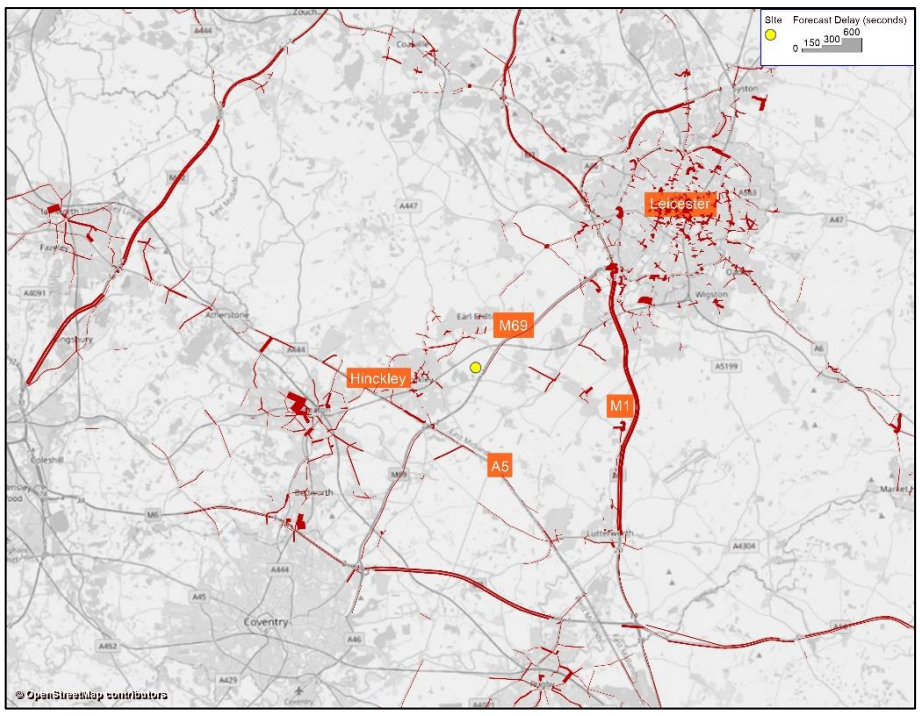
3.6.5 In addition to the M69 Junction 1, Figure 3.15 shows forecast delay reductions on several links in the vicinity of Hinckley NRFI development site, including the B4114 Smocking Lane approach to the A5, the M69 approach to M1 and junctions within the urban area of Nuneaton. It should be noted that there are high forecast delays on these links in the 'Without Development' scenario, as shown in Figure 3.14. High levels of delay such as this can introduce an element of instability in the highway assignments which often reflects the observed day-to-day variation in the levels of delay. The forecast flow change results (Figure 3.5) show that there are only small forecast flow changes for these links between the 'Without Development With Infrastructure' and 'Without Development' scenarios, suggesting that the forecast delays for these links are very sensitive to small changes in forecast flows.

3.6.6 Figure 3.16 shows the forecast delay change in 2026 and 2036 between the 'With Development' and 'Without Development With Infrastructure' scenarios for the AM Peak and PM Peak hours. With the addition of the Hinckley NRFI traffic, increases in delay are forecast on the approaches to the M69 Junction 2 and the A47, to the west of the proposed link road, when compared with the 'Without Development With Infrastructure' scenario, as these are main access routes to the proposed Hinckley NRFI development site. Increases in delay are also forecast on the M69 approach to the M1 despite the small changes in forecast flow (Figure 3.7), but as discussed above, this link is very sensitive to the small flow changes due to already high levels of delay in the 'Without Development' scenario.

3.6.7 Figure 3.17 shows the forecast delay change in 2036 between the 'With Development (Sensitivity Test)' and 'With Development' scenarios for the AM Peak and PM Peak hours. The fully dualled link is forecast to attract more traffic to route through the proposed link road from the surrounding routes (Figure 3.8) thus increasing the forecast delays slightly particularly on the A47 approaches to the A47 / B4668 Leicester Road roundabout.

Figure 3.14: Forecast Delay for the 2026 and 2036 'Without Development' Scenarios

2026 'Without Development' (AM)



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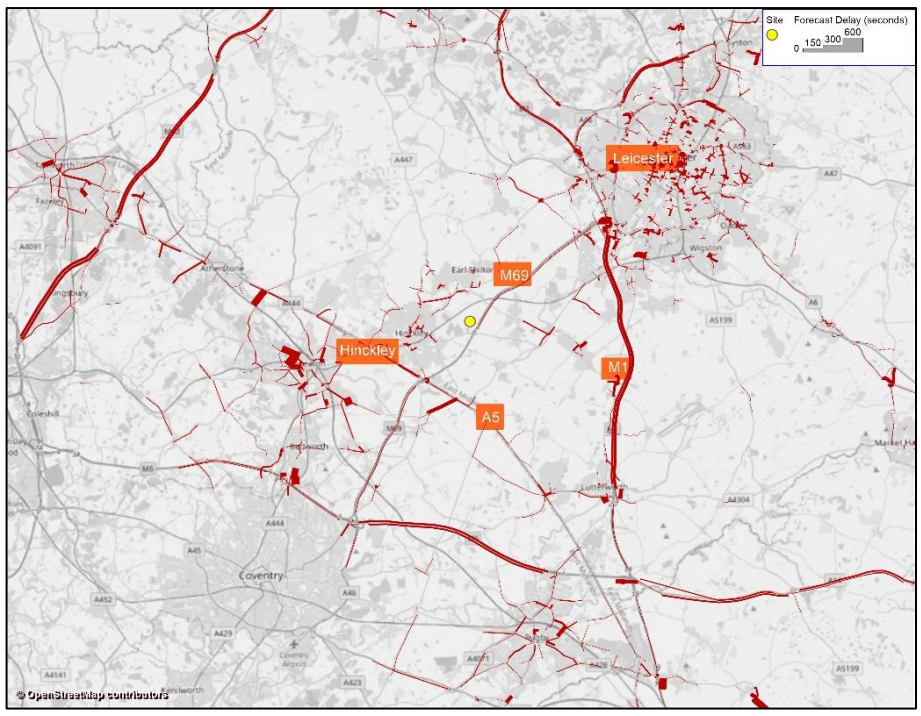
2036 'Without Development' (AM)



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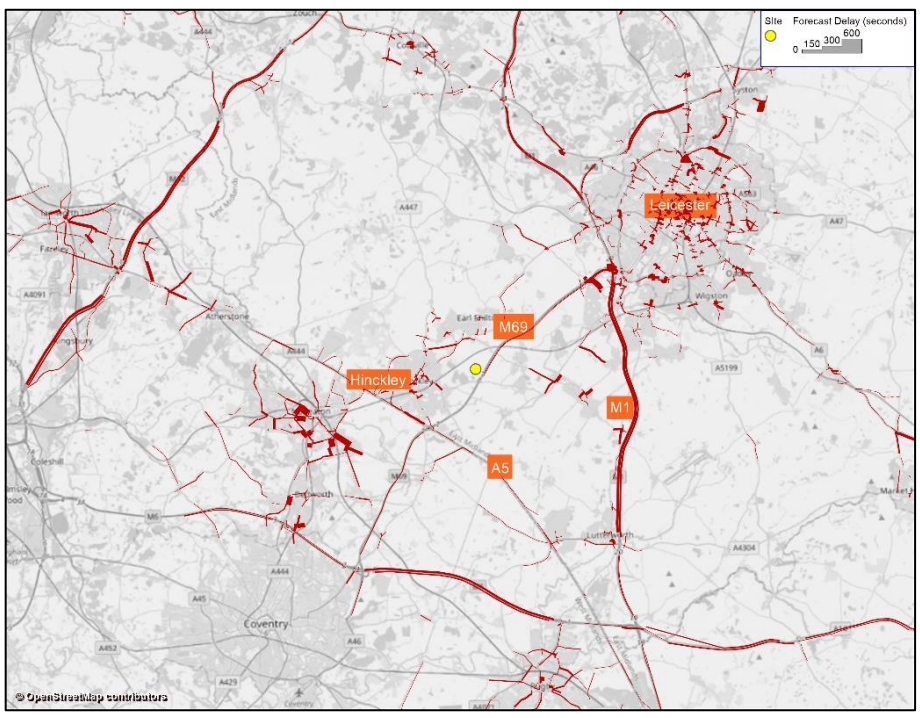
2026 'Without Development' (PM)



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2036 'Without Development' (PM)

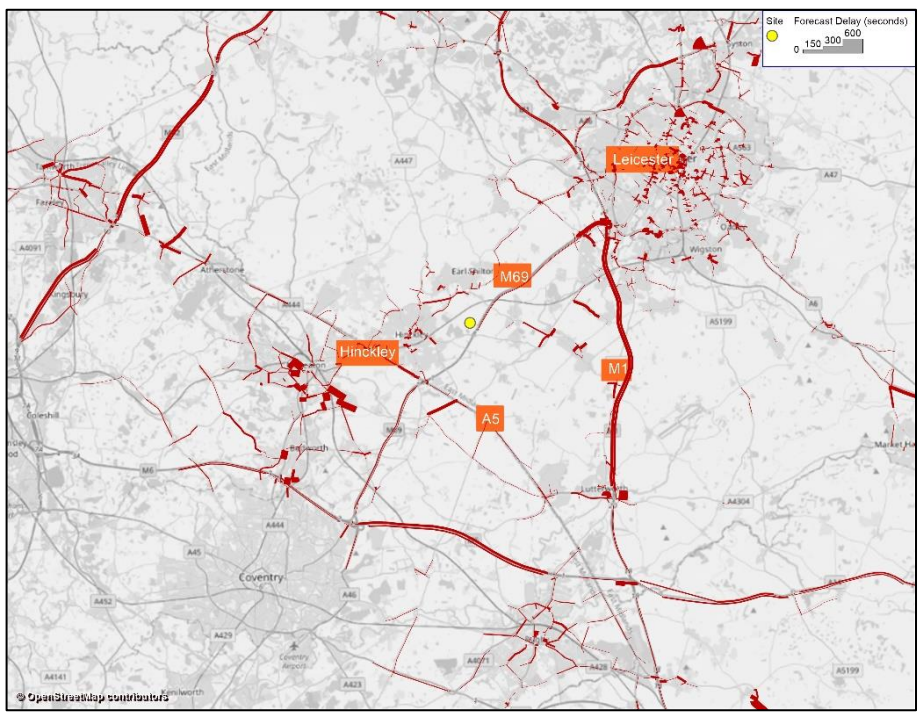

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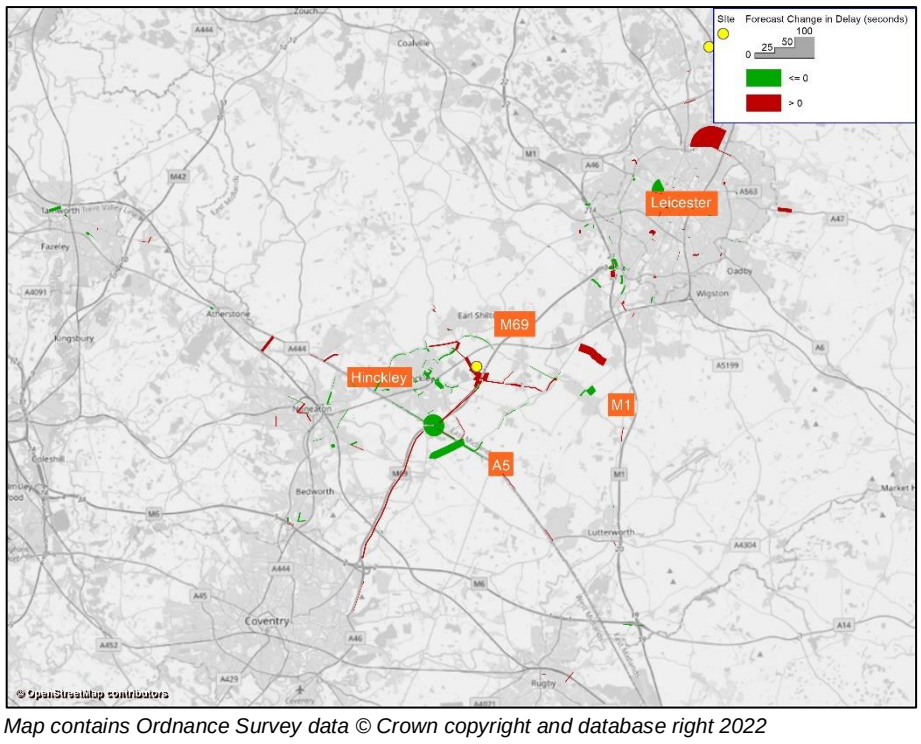
Figure 3.15: Forecast Delay Change for 2026 and 2036 'Without Development With Infrastructure' minus 'Without Development' Scenarios

2026 'Without Development With Infrastructure' minus 'Without Development' (AM)



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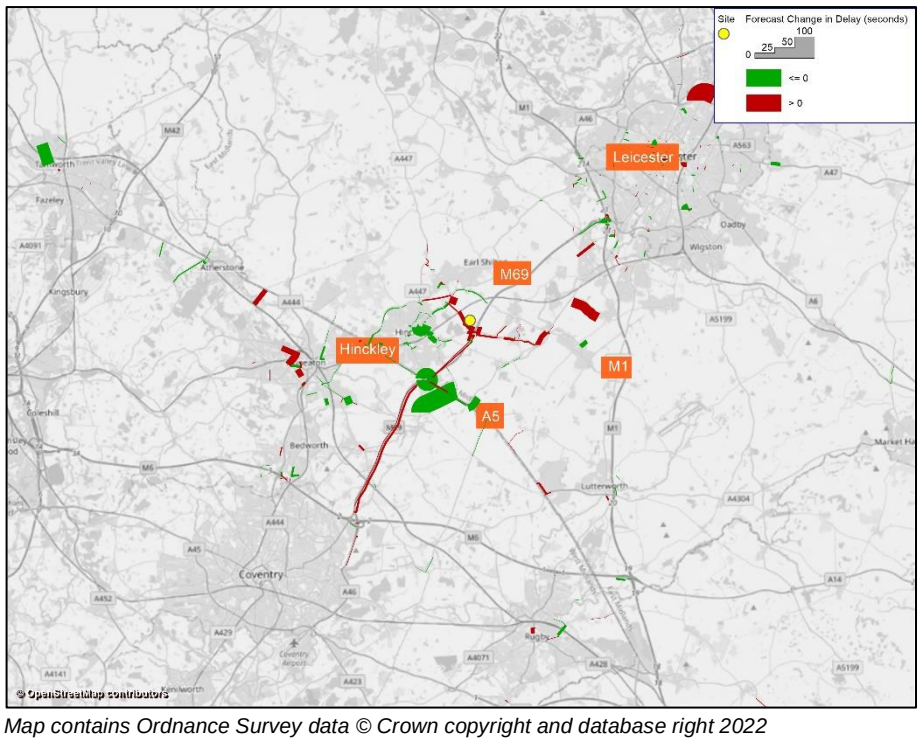
2036 'Without Development With Infrastructure' minus 'Without Development' (AM)



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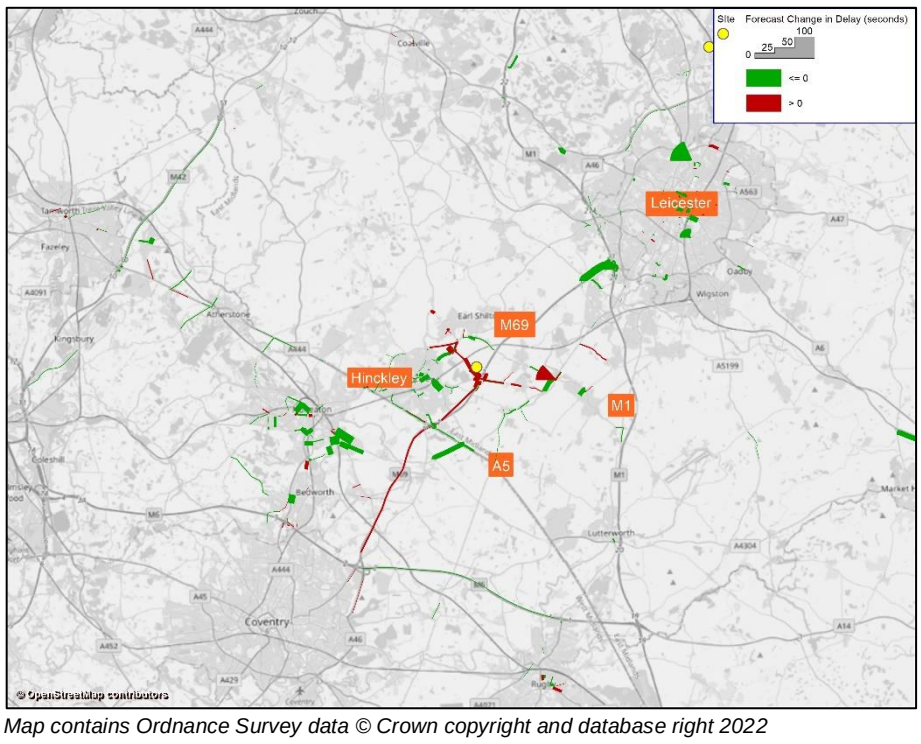
2026 'Without Development With Infrastructure' minus 'Without Development' (PM)



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2036 'Without Development With Infrastructure' minus 'Without Development' (PM)

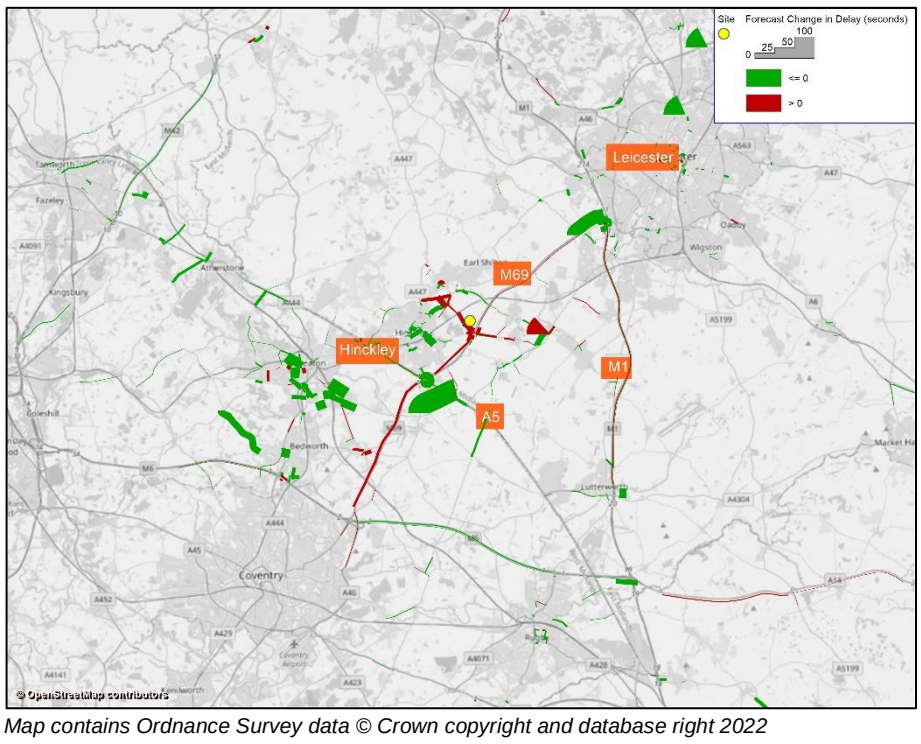

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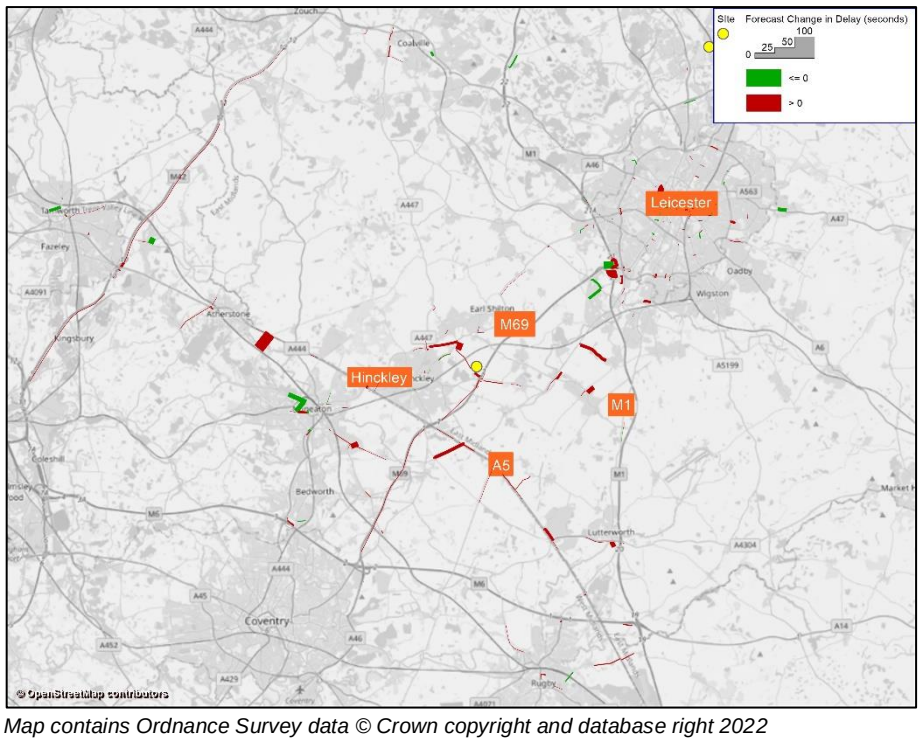
Figure 3.16: Forecast Delay Change for 2026 and 2036 'With Development' minus 'Without Development With Infrastructure' Scenarios

2026 'With Development' minus 'Without Development With Infrastructure' (AM)



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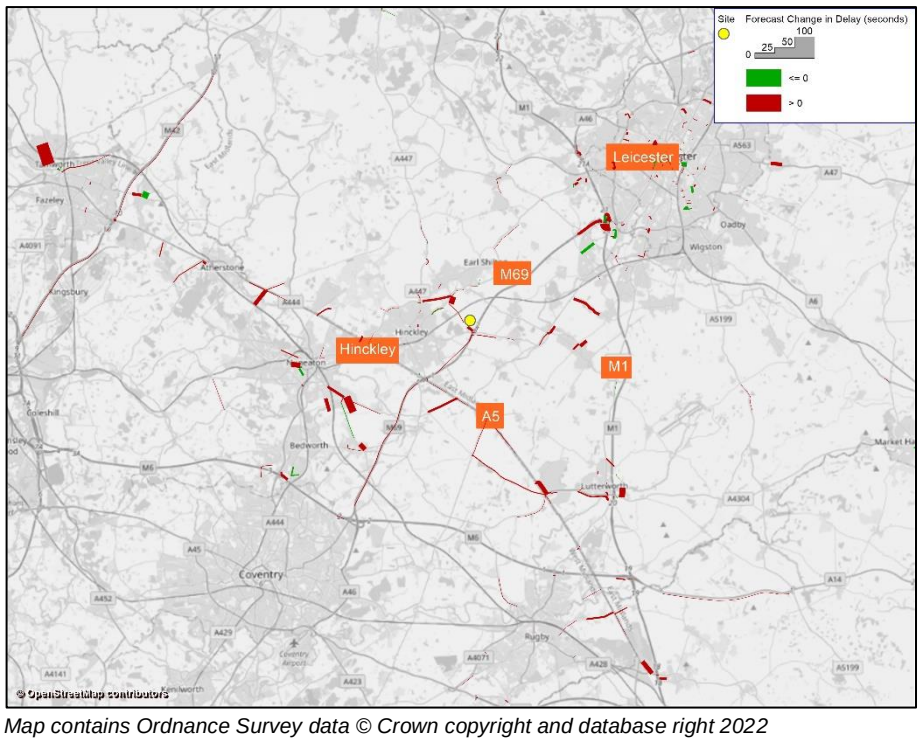
2036 'With Development' minus 'Without Development With Infrastructure' (AM)



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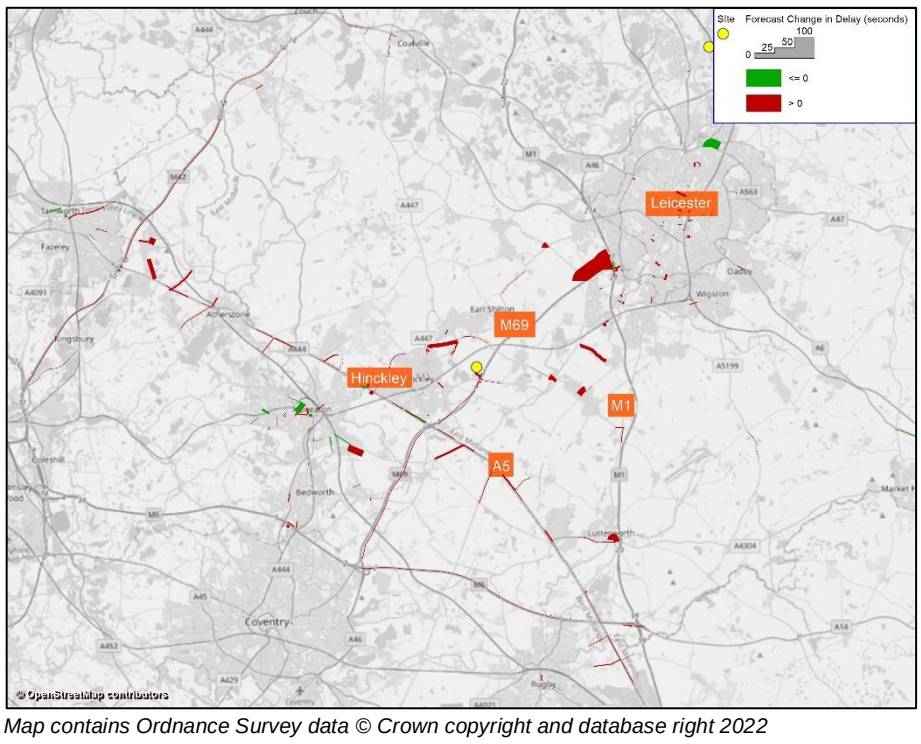
2026 'With Development' minus 'Without Development With Infrastructure' (PM)



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2036 'With Development' minus 'Without Development With Infrastructure' (PM)

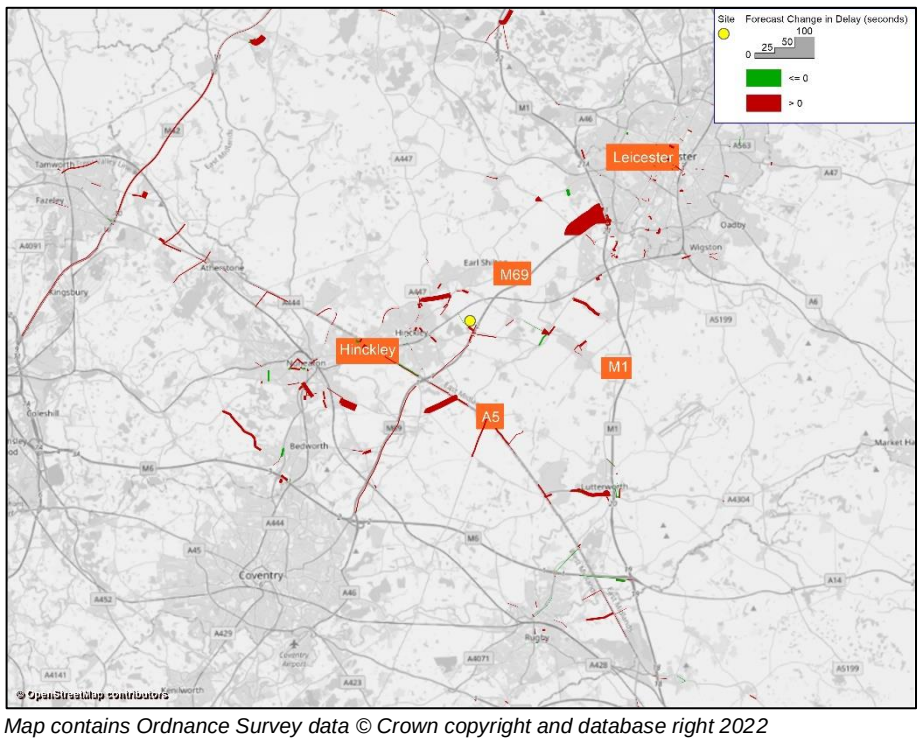

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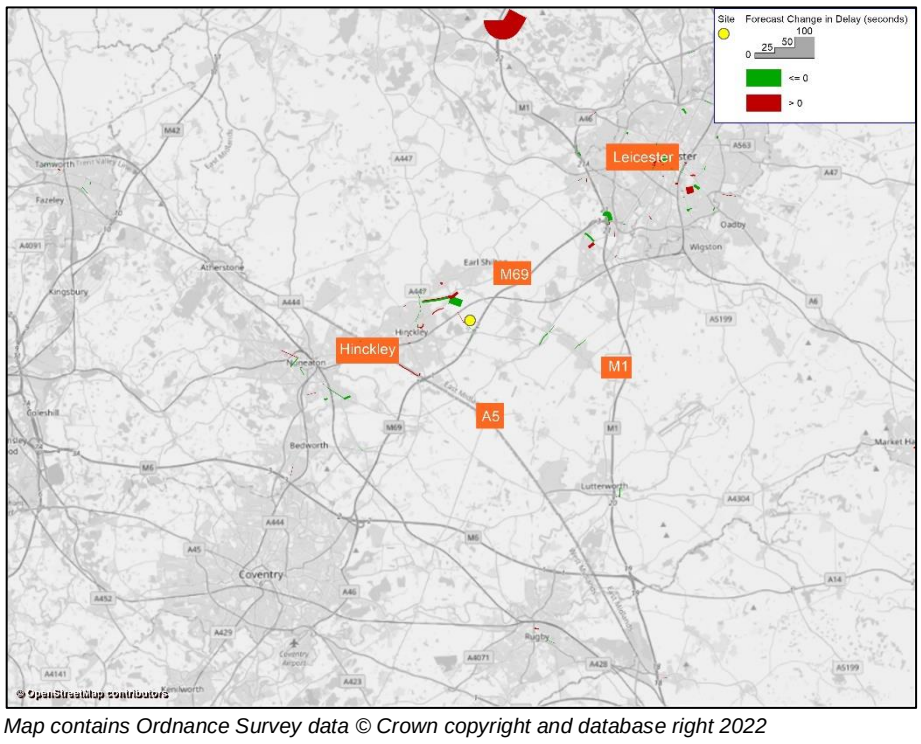
Figure 3.17: Forecast Delay Change for 2036 ‘With Development (Sensitivity Test)’ minus ‘With Development’ Scenarios

2036 ‘With Development (Sensitivity Test)’ minus ‘With Development’ (AM)



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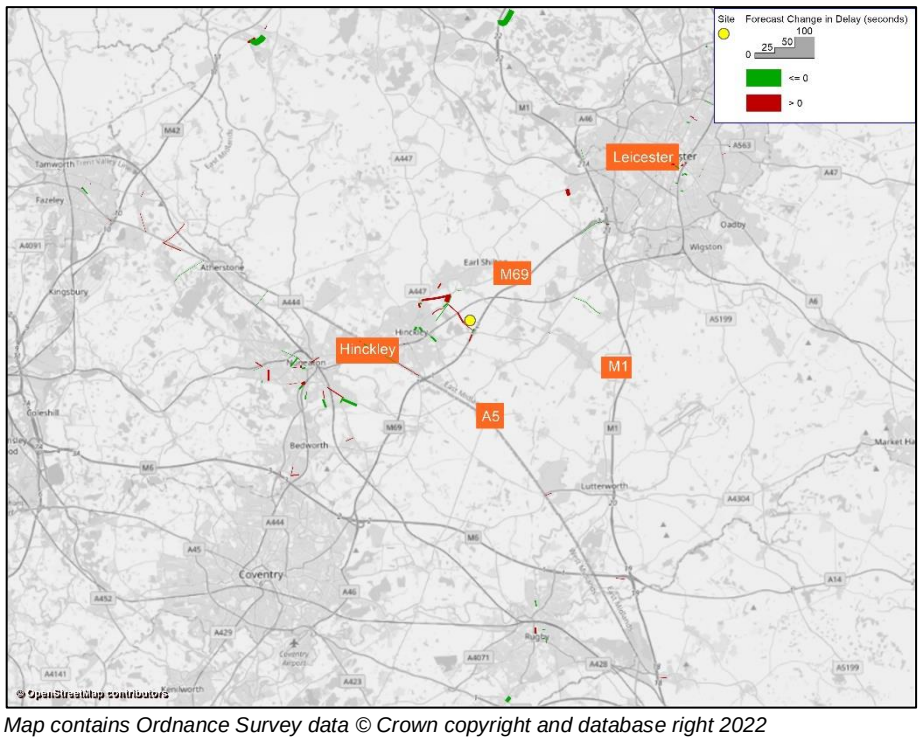
2036 ‘With Development (Sensitivity Test)’ minus ‘With Development’ (PM)



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3.7 Forecast Junction Volume-Capacity Ratios

Junction Volume-Capacity

3.7.1 As part of the forecast modelling, junction capacities are estimated for individual turning movements based on a number of factors including the priority of the turn (for example, give-way or merge), the level of green-time at signalised junctions, and the amount of opposing traffic at the junction. Using these calculated capacities and the forecast traffic volumes, junction volume-capacity ratios are estimated to identify locations where the forecast flows are approaching or exceeding the forecast junction capacity.

3.7.2 To summarise the forecast volume-capacity ratios for the individual turning movements at a junction, there are two approaches. These are to calculate the flow-weighted average volume-capacity of the junction, or to also calculate the maximum volume-capacity ratio for all turns within a junction. The average volume-capacity ratio provides an overview of how the individual junction is performing but may not highlight locations where a limited number of movements at a junction are approaching or exceeding capacity. To highlight these locations, the maximum volume-capacity ratio at each junction has been used. Volume-capacity ratios exceeding 85% indicate that the highway network is under stress and there is likely to be a reduction in speed and an increase in delay.

3.7.3 Figure 3.18 to Figure 3.21 show the forecast 2026 and 2036 maximum junction volume-capacity ratios for all forecast scenarios for the AM Peak and PM Peak hours respectively.

AM Peak hour

3.7.4 Figure 3.18 and Figure 3.19 show the forecast maximum junction volume-capacity ratios for the AM Peak hour for 2026 and 2036 respectively.

2026 'Without Development' – the following junctions in the vicinity of the proposed Hinckley NRFI development site are forecast to have a maximum junction volume-capacity ratio exceeding 85% in this scenario:

- the B581 Broughton Road / B4114 Coventry Road junction;
- the M69 Junction 1;
- junctions along the B4669 Burbage Road and B590 London Road in Hinckley; and
- the A47 Normandy Way / A447 Ashby Road junction.

2026 'Without Development With Infrastructure'

- Similar to the 2026 'Without Development' scenario, the forecast maximum junction volume-capacity ratios for the B581 Broughton Road / B4114 Coventry Road junction, the M69 Junction 1 and the A47 Normandy Way / A447 Ashby Road junction exceed 85%.
- There are fewer junctions with forecast maximum junction volume-capacity ratios exceeding 85% along the B4669 Burbage Road and B590 London Road in Hinckley as the proposed infrastructure is forecast to reduce traffic flows along these routes as shown in Figure 3.5.

2026 'With Development'

- In addition to the junctions that are forecast to have high maximum junction volume-capacity ratio in the 2026 'Without Development With Infrastructure', the proposed roundabout on the B4668 Leicester Road is also forecast to have a maximum junction volume-capacity ratio exceeding 85%, with the addition of the Hinckley NRFI traffic.

2036 'Without Development' – the following junctions in the vicinity of the proposed Hinckley NRFI development site are forecast to have a maximum junction volume-capacity ratio exceeding 85% in this scenario:

- the B581 Broughton Road / B4114 Coventry Road junction;
- the M69 Junction 1;
- junctions along the B4669 Burbage Road and B590 London Road in Hinckley; and
- the A47 Normandy Way / A447 Ashby Road junction.

2036 'Without Development With Infrastructure'

- Similar to the 2036 'Without Development' scenario, the forecast maximum junction volume-capacity ratios for the B581 Broughton Road / B4114 Coventry Road junction, the M69 Junction 1 and the A47 Normandy Way / A447 Ashby Road junction exceed 85%.
- With the proposed infrastructure, the proposed roundabout on the B4668 Leicester Road and A47 / Wilkinson Lane are also forecast to have maximum junction volume-capacity ratios exceeding 85%.
- There are fewer junctions with forecast maximum junction volume-capacity ratios exceeding 85% along B4669 Burbage Road and B590 London Road in Hinckley as the proposed infrastructure is forecast to reduce traffic flows along these routes as shown in Figure 3.5.

2036 'With Development'

- The forecast maximum junction volume-capacity ratios for the 2036 'With Development' scenario are generally similar to the 2036 'Without Development With Infrastructure' scenario, but with the addition of the Hinckley NRFI traffic, there are generally higher junction volume-capacity ratios along the B4668 Leicester Road (north of the proposed link road).

2036 'With Development (Sensitivity Test)'

- With the fully dualled link road, the maximum junction volume-capacity ratio for the proposed roundabout on the B4668 Leicester Road reduces, as the capacity on the approaches to the proposed roundabout increases.

2026 PM Peak

2026 'Without Development' – the following junctions in the vicinity of the proposed Hinckley NRFI development site are forecast to have a maximum junction volume-capacity ratio exceeding 85% in this scenario:

- the B581 Broughton Road / B4114 Coventry Road junction;
- the M69 Junction 1;
- junctions along the B4669 Burbage Road and B590 London Road in Hinckley;
- the A47 Normandy Way / A447 Ashby Road junction; and
- the A47 / B581 Station Road junction.

2026 'Without Development With Infrastructure'

- Similar to the 2026 'Without Development' scenario, the forecast maximum junction volume-capacity ratios for the B581 Broughton Road / B4114 Coventry Road junction and the A47 Normandy Way / A447 Ashby Road junction exceed 85%.
- With the proposed infrastructure, the proposed roundabout on the B4668 Leicester Road is forecast to have maximum junction volume-capacity ratios exceeding 85%.
- There are fewer junctions with forecast maximum junction volume-capacity ratios exceeding 85% along B4669 Burbage Road and B590 London Road in Hinckley as the proposed infrastructure is forecast to reduce traffic flows along these routes as shown in Figure 3.5.
- The maximum junction volume-capacity ratios for the M69 Junction 1 also reduce as a proportion of M69 eastbound trips to Burbage and Hinckley is forecast to route via M69 Junction 2 (using the south-facing slips) rather than via M69 Junction 1, reducing the pressure on the eastbound approach to the M69 Junction 1 roundabout.

2026 'With Development'

- In addition to the junctions that are forecast to have high maximum junction volume-capacity ratio in the 2026 'Without Development With Infrastructure', the addition of the Hinckley NRFI traffic is also forecast to increase the junction volume-capacity ratios for M69 Junction 2 and those along the A47 with more nodes exceeding 85%.

2036 'Without Development' – the following junctions in the vicinity of the proposed Hinckley NRFI development site are forecast to have a maximum junction volume-capacity ratio exceeding 85% in this scenario:

- the B581 Broughton Road / B4114 Coventry Road junction;
- the M69 Junction 1;
- junctions along the B4669 Burbage Road, B590 London Road and B4109 Rugby Road in Hinckley and Burbage;
- the A47 Normandy Way / A447 Ashby Road junction;
- the Chapel Street / Shilton Road / High Street / Stapleton Lane roundabout in Barwell; and
- the A47 / B581 Station Road junction.

2036 'Without Development With Infrastructure'

- Similar to the 2036 'Without Development' scenario, the forecast maximum junction volume-capacity ratios for the B581 Broughton Road / B4114 Coventry Road junction, the M69 Junction 1 and the A47 Normandy Way / A447 Ashby Road junction exceed 85%.
- With the proposed infrastructure, the proposed roundabout on the B4668 Leicester Road and the A47 / B4668 Leicester Road roundabout are forecast to have maximum junction volume-capacity ratios exceeding 85%.
- There are fewer junctions with forecast maximum junction volume-capacity ratios exceeding 85% along B4669 Burbage Road, B590 London Road and B4109 Rugby Road in Hinckley and Burbage as the proposed infrastructure is forecast to reduce traffic flows along these routes as shown in Figure 3.5.

2036 'With Development'

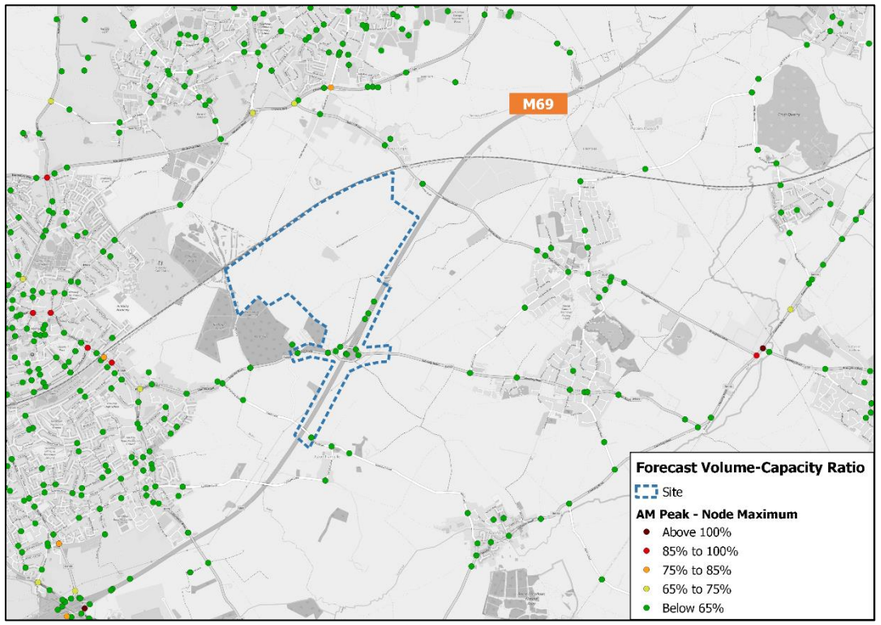
- In addition to the junctions that are forecast to have high maximum junction volume-capacity ratio in the 2026 'Without Development With Infrastructure', the addition of the Hinckley NRFI traffic is also forecast to increase the junction volume-capacity ratios for M69 Junction 2 with more nodes exceeding 85%.

2036 'With Development (Sensitivity Test)'

- The fully dualled link road is forecast to attract more traffic to route via the proposed link road and the A47, increasing the junction volume-capacity ratios along the B4668 Leicester Road and the A47.

Figure 3.18 Forecast Junction Volume-Capacity Ratio for 2026 - AM Peak hour

2026 'Without Development' (AM)



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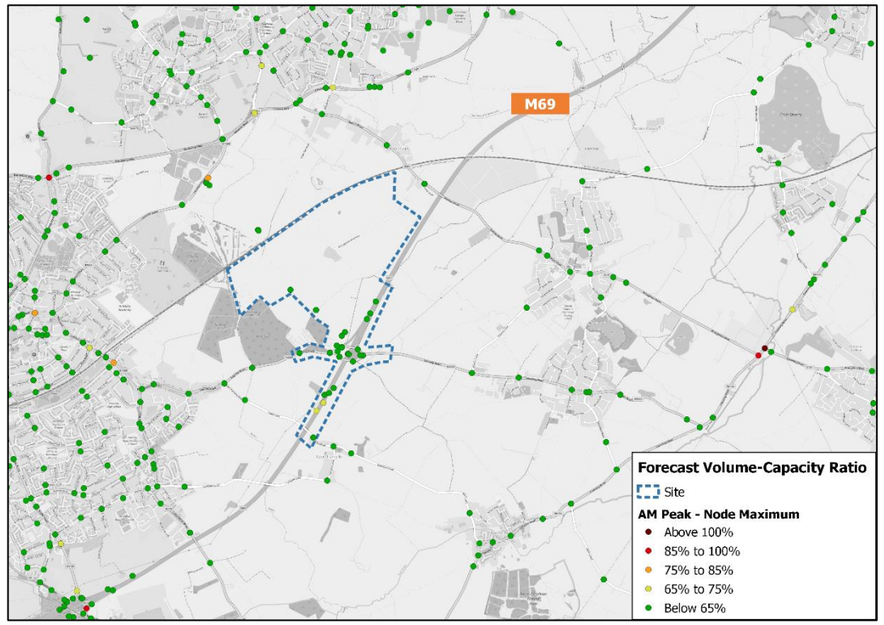
2026 'Without Development With Infrastructure' (AM)



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2026 'With Development' (AM)

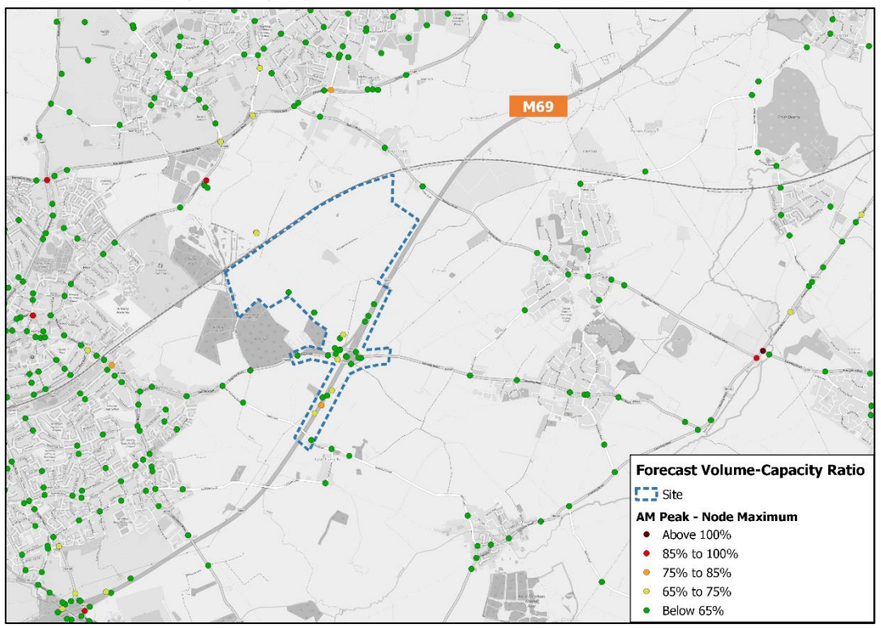

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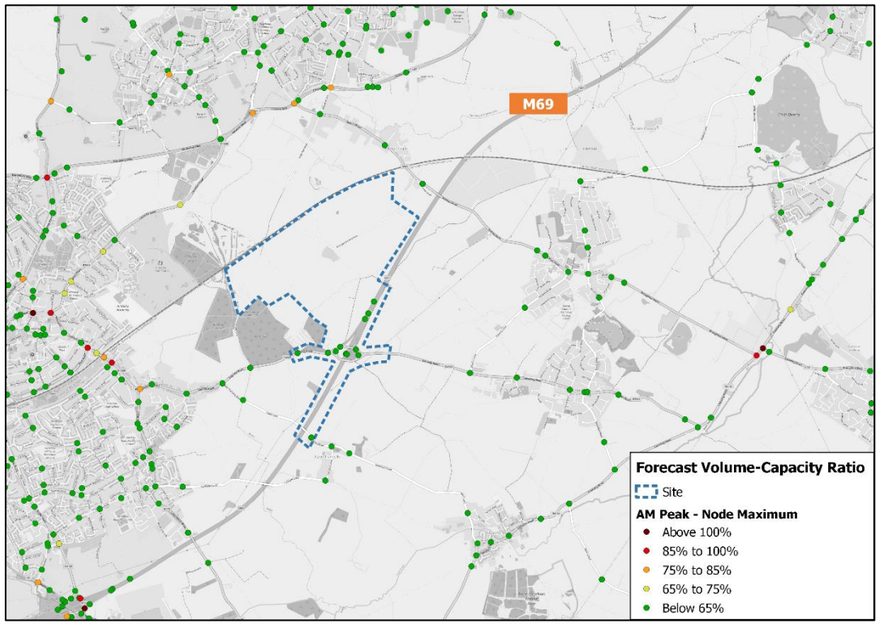
Figure 3.19 Forecast Junction Volume-Capacity Ratio for 2036 - AM Peak hour

2036 'Without Development' (AM)



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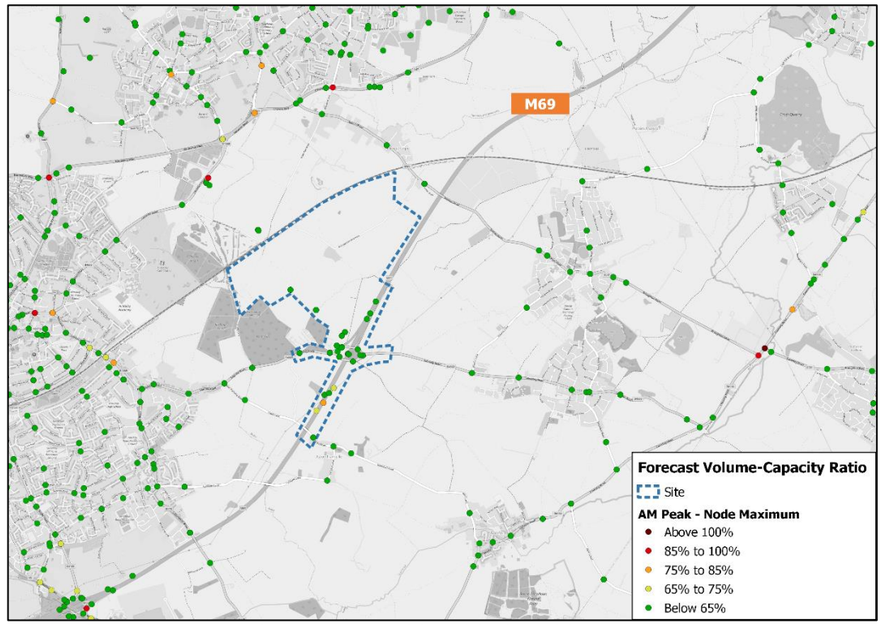
2036 'Without Development With Infrastructure' (AM)



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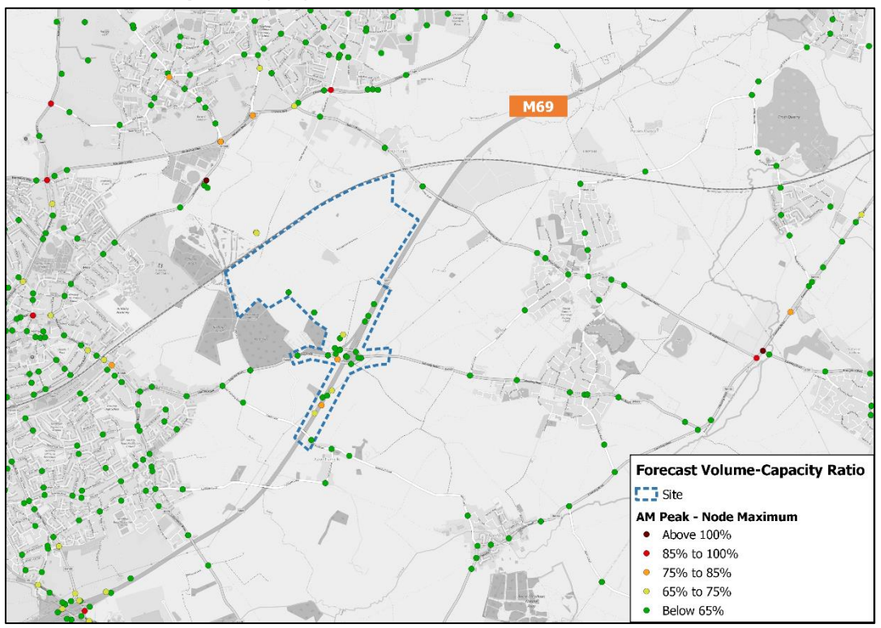
2036 'With Development' (AM)



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2036 'With Development (Sensitivity Test)' (AM)

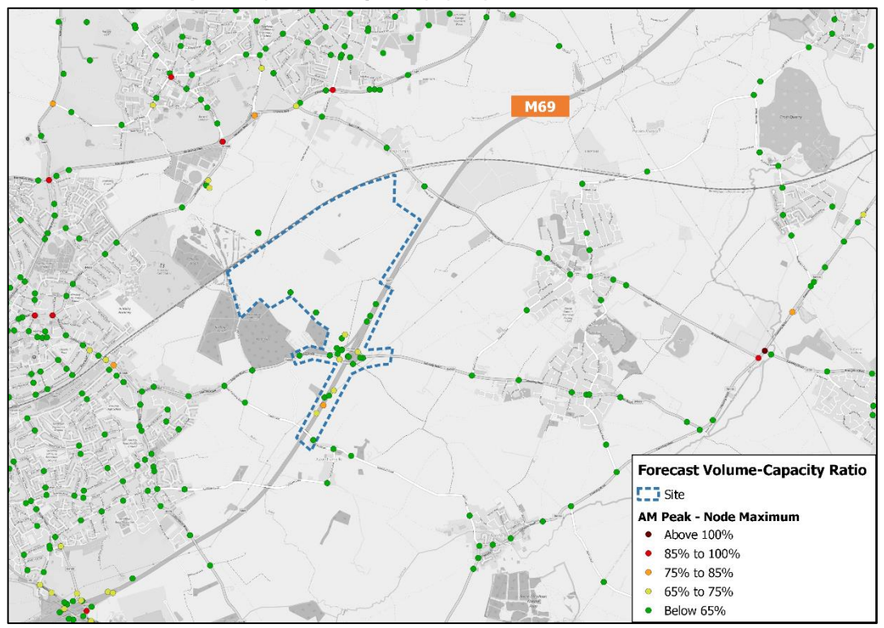

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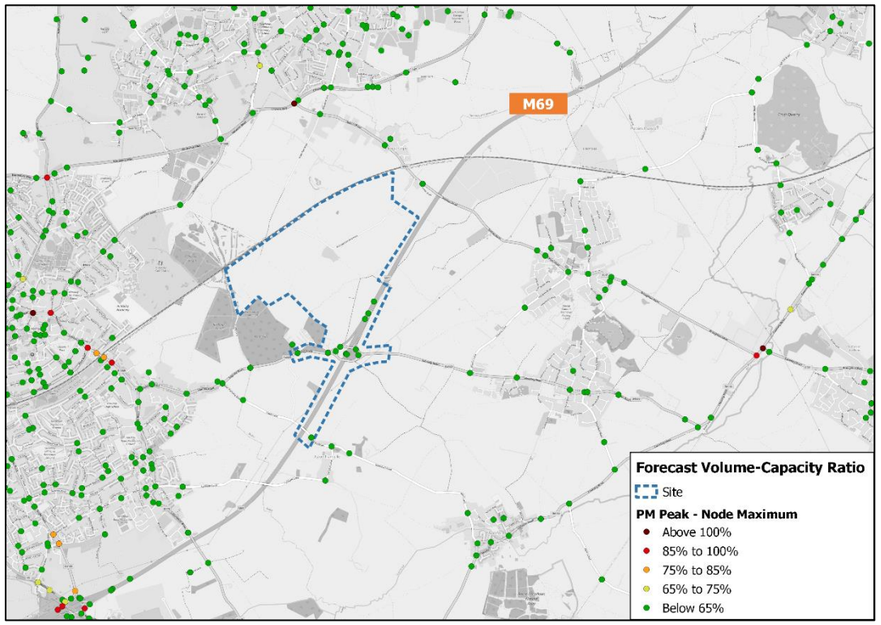
Figure 3.20: Forecast Junction Volume-Capacity Ratio for 2026 – PM Peak hour

2026 'Without Development' (PM)



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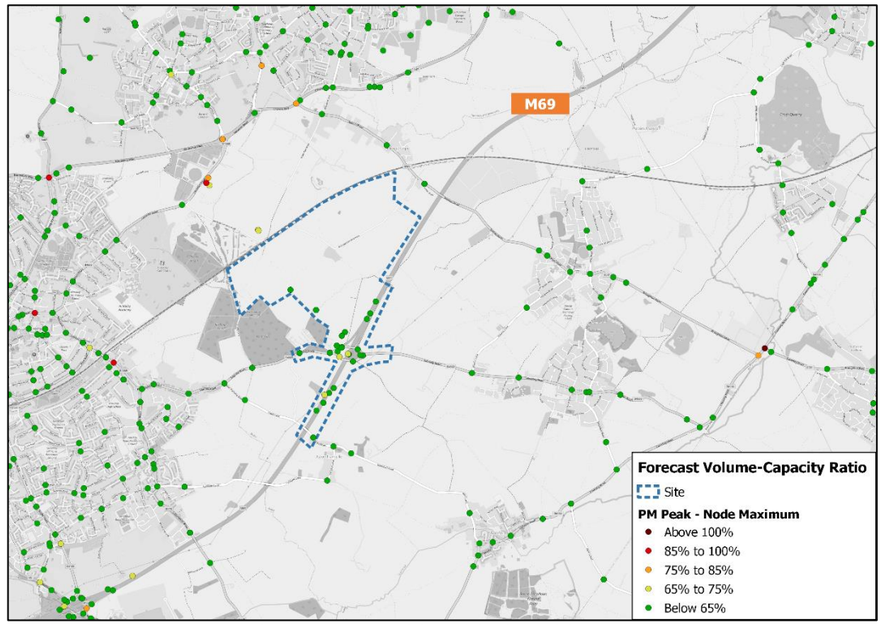
2026 'Without Development With Infrastructure' (PM)



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2026 'With Development' (PM)

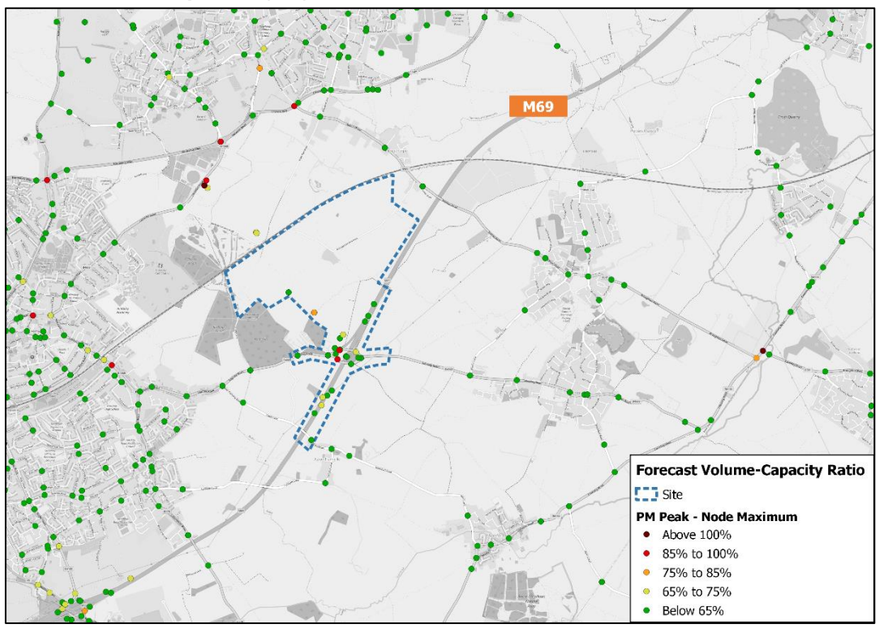

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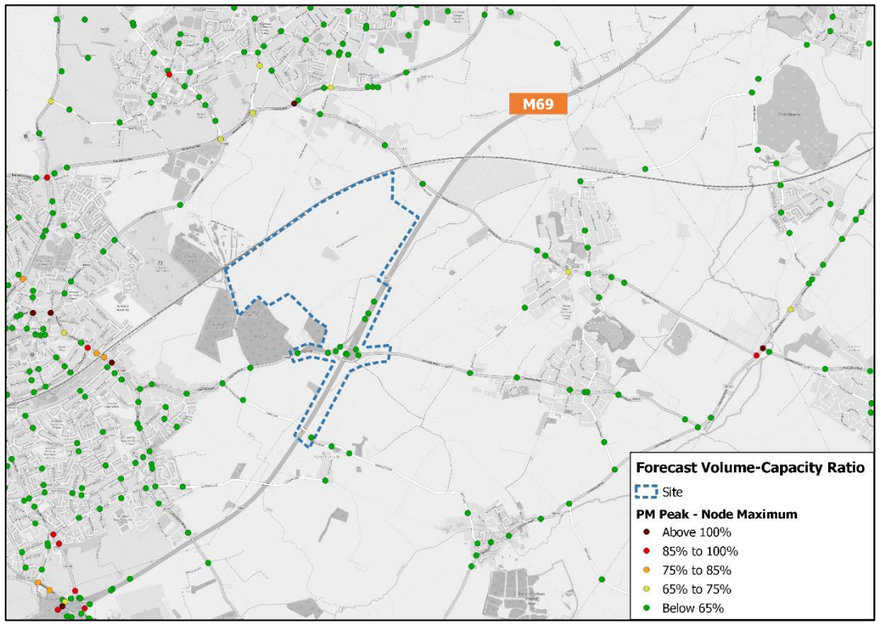
Figure 3.21: Forecast Junction Volume-Capacity Ratio for 2036 – PM Peak hour

2036 'Without Development' (PM)



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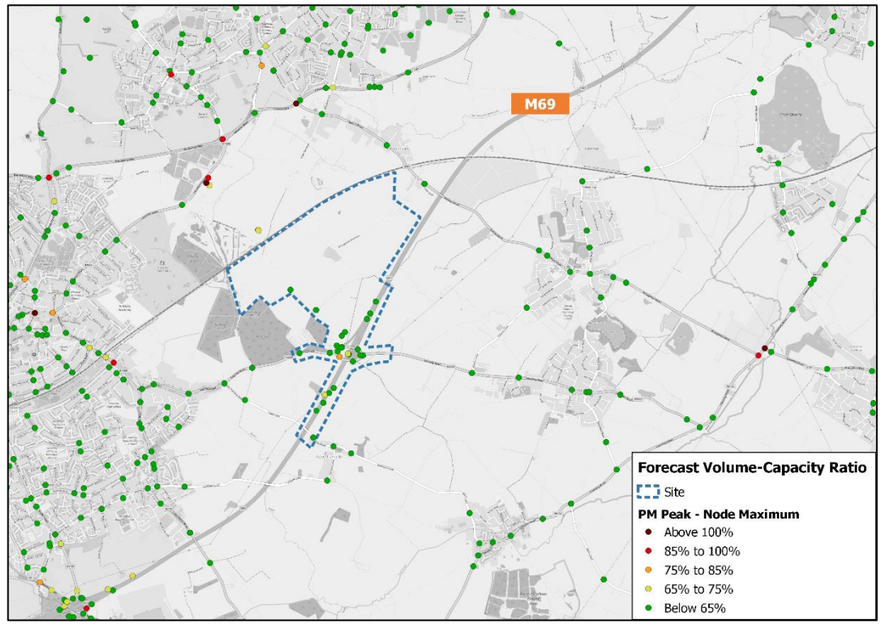
2036 'Without Development With Infrastructure' (PM)



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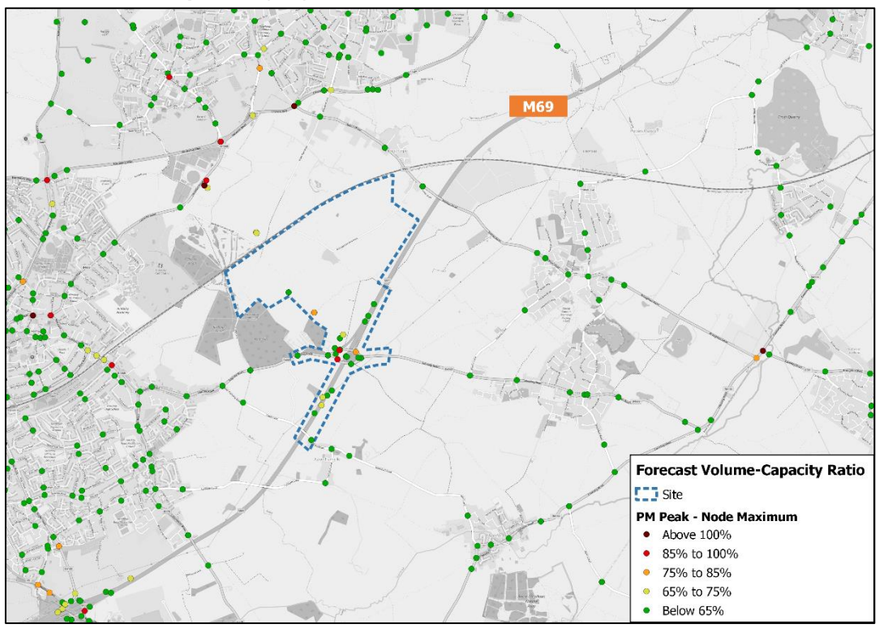
2036 'With Development' (PM)



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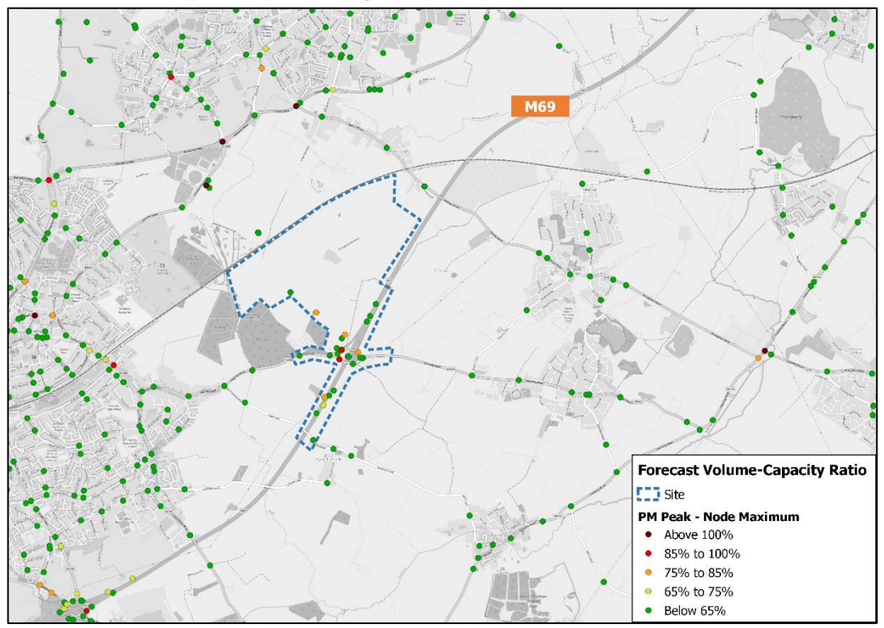
2036 'With Development (Sensitivity Test)' (PM)



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Section 4 – Summary of the PRTM Assessment

4.1 Summary of Assessment

4.1.1 Using the PRTM, forecasts have been undertaken to produce the 'Without Development', 'Without Development With Infrastructure', 'With Development' and 'Without Development (Sensitivity Test)' scenarios for 2026 and 2036 for both AM Peak and PM Peak hours. Table 4.1 summarises the forecast model scenarios.

4.1.2 The 'With Development' and 'With Development (Sensitivity Test)' scenarios were developed using estimated trip generation provided by the client, and trip distributions generated for previous Hinckley NRFI modelling[15].

Table 4.1: Hinckley NRFI Model Scenarios

Scenario	Forecast Years	Proposed HNRFI Development	Proposed HNRFI Infrastructure	Proposed HNRFI Infrastructure (fully dualled link road)
Without Development	2026 & 2036	×	×	×
Without Development With Infrastructure	2026 & 2036	×	✓	×
With Development	2026 & 2036	✓	✓	×
With Development (Sensitivity Test)	2036	✓	✓	✓

4.1.3 Based on these model forecasts, the following is a summary of the proposed Hinckley NRFI assessment:

- Development traffic has been forecast to route:
  - via the M69 to the north and east - to and from Leicester City and the M1 northbound;
  - via the M69 to the south and west - to and from the A5, the M6 and A46 Coventry Eastern Bypass;
  - via the proposed link road to the west - to and from locations including Hinckley, Barwell, Earl Shilton and locations further north via A447 Ashby Road, Dan's Lane and Stoke Road; and
  - in the case of light vehicles, via the B4669 Hinckley Road to the east - to and from locations including Sapcote, Primethorpe and Countesthorpe via the B4114 Coventry Road.
- The forecast flow change patterns between the 'Without development With infrastructure' and 'Without Development' and between the 'With Development' and 'Without Development scenarios are broadly similar, with increases in flow forecast for the M69, the B4469 Hinckley Road and the B4468 Leicester Road.

[15] TN1 - NRFI Trip Distribution v2.0, December 2018.

- Notably there is very little change in forecast flow between the 'Without development With infrastructure' and 'Without Development' and between the 'With Development' and 'Without Development scenarios on the M69, east of Junction 2. Some movements on the M69 Junction 3 and the M1 Junction 21 are at or near capacity in both 2026 and 2036 for both peak hours, thus limiting flow in both directions on the M69 between Junctions 2 and Junction 3. The development trip distribution analysis shows that a proportion of the Hinckley NRFI traffic is forecast to route via the M69, east of Junction 2, suggesting that non-development traffic is forecast to divert on to alternative parallel routes (such as Huncote Road).
- An Area of Influence (AoI) has been defined by identifying links which are forecast to change by more than ±5% and ±30 vehicles between the 'With Development' and 'Without Development' scenarios for 2026 and 2036 in either the AM Peak or PM Peak hours. The forecast AoI includes
    - the M69 between the M1 and the M6;
    - the M6 between the M1 and the A444;
    - roads within the urban areas of Hinckley, Barwell, Earl Shilton, Atherstone, Lutterworth; and
    - the A5 between Tamworth and the M6.
- Forecast delay change analysis between forecast model scenarios generally shows that the Hinckley NRFI development and associated infrastructure are forecast to increase the delays along the B4669 Hinckley Road. With the proposed south-facing slips at M69 Junction 1, a proportion of trips between M69 (South) and Hinckley / Burbage is forecast to route via Junction 2 rather than via Junction 1, reducing the pressure on some approaches to the M69 Junction 1 roundabout.
- In terms of forecast volume-capacity ratios at junctions, as expected, there are more junctions forecast to have a turning movement exceeding 85% forecast junction volume-capacity ratio in 2036 than in 2026. In general, the proposed Hinckley NRFI development and associated infrastructure are forecast to increase the junction volume-capacity ratios for the M69 Junction 2, junctions along the A47 and the B4668 Leicester Road, but are forecast to reduce traffic flows and junction volume-capacity ratios for some junctions along B4669 Burbage Road, B590 London Road and B4109 Rugby Road in Hinckley and Burbage.

4.1.4 The forecasts undertaken reflect the forecast impact of the proposed Hinckley NRFI development. It should be noted that the results provided in the report are at a high-level. Due to the strategic nature of PRTM, not all the roads are modelled, and the results should be interpreted with that in mind.

4.1.5 Although the PRTM modelling provides the forecast strategic impact and form part of the Hinckley NRFI development assessment evidence packs, the overall assessment should be complemented by further local and junction analysis as discussed in the project brief.

Appendix A Planning Data Assumption

Residential Development Assumptions (Sites with more than 500 Households)

Description	Quantum	Certainty	Timescales
Land off Golf Drive (HSG9)	621	More than likely	2022-2030
Lubbesthorpe	4,250	More than likely	2015-2034
North East of Thurmaston SUE	4,500	More than likely	2021-2041
West of Loughborough SUE	3,040	More than likely	2021-2035
Growth North of Birstall	1,950	More than likely	2022-2035
Land at Airfield Farm	1,350	More than likely	2019-2029
Overstone Park	550	More than likely	2022-2028
East of Lutterworth SDA	2,750	More than likely	2023-2036
Scraptoft North SDA	1,200	More than likely	2021-2030
Land north east of Triumph Motorcycles (Hinckley West site)	850	More than likely	2021-2034
Barwell Sustainable Urban Extension	2,500	More than likely	2025-2036
Abbey Meadows BUSM Site	1,210	More than likely	2014-2030
Bath Lane/Blackfriars - Phase 1	601	More than likely	2016-2021
Ashton Green SUE Phase D	895	More than likely	2031-2036
Nottingham Road to Scalford Road (Melton North)	646	More than likely	2019-2026
Sandy Lane to Burton Road (Melton South)	681	Near certain	2018-2031
Land north and south of Park Lane, Castle Donington	897	More than likely	2018-2031
Money Hill	1,955	More than likely	2017-2036
Land north and south of Grange Road	3,500	More than likely	2018-2036
Land west of Robeys Lane, Tamworth	1,270	More than likely	2022-2030
Land at Whittington Farm, Atherstone	1,282	More than likely	2025-2033
Tamworth Golf Club	1,270	More than likely	2022-2030
Land north of Nuneaton	4,409	More than likely	2015-2033
Arbury (HSG2)	1,525	More than likely	2022-2033
Gipsy Lane (HSG3)	575	More than likely	2022-2028
Woodlands (HSG4)	689	More than likely	2022-2033

Description	Quantum	Certainty	Timescales
Rugby Radio Station	3,674	More than likely	2025-2041
Eden Park	995	More than likely	2017-2031
Coton Park East Expansion	800	More than likely	2022-2035
Cawston Spinney	370	More than likely	2023-2039
Land west of Cawston Lane	550	More than likely	2023-2030
Land south of Alwyn Road	1,010	More than likely	2023-2041
Earl Shilton SUE	1,630	Near certain	2025-2035
Kirby Muxloe	885	Near certain	2024-2028

Employment Development Assumptions (Sites with more than 750 Jobs)

Description	Quantum	Certainty	Timescale
Land off Kirby Road/Ratby Lane	850	More than likely	2016-2018
Thurmaston	875	More than likely	2017-2027
Loughborough Science/Enterprise Park	1,920	More than likely	2019-2028
Land north of Lutterworth Road, Lutterworth	965	More than likely	2015-2017
Compass Point Business Park, Northampton Road	2,624	More than likely	2015-2028
Magna Park	7,200	More than likely	2021-2030
Symmetry Park	3,600	More than likely	2021-2030
Hinckley Commercial Park	987	More than likely	2016-2018
Land at Nailstone Colliery	931	More than likely	2016-2018
Mira, Watling Street, Higham On The Hill	1,920	More than likely	2016-2018
Land east of Hinckley Island Hotel, Watling Street, Burbage	2,592	More than likely	2017-2036
Nailstone Colliery	934	More than likely	2022-2031
Ashton Green, Leicester Road/Beaumont Leys Lane/Thurcaston Road	760	More than likely	2021-2031
Leicester Waterside B1(2)	2,668	More than likely	2021-2031
Dock 2 & 3 at Leicester Science Park (Abbey Meadows)	765	More than likely	2020-2021
Royal Mail Sorting Office	765	More than likely	2023-2024
Leicester Train Station redevelopment	1,700	More than likely	2024-2027
Sunningdale Road (former Sunningdale Business Park)	1,020	More than likely	2019-2020
Coalville SUE	1,208	More than likely	2015-2030
Strategic Rail Freight Interchange on land north of East Midlands Airport/west of Junction 24 of the M1	6,960	More than likely	2017-2021
Money Hill	816	More than likely	2017-2026
Mercia Park	7,319	More than likely	2022-2026
Land to the south of Horiba MIRA Technology Park & Enterprise Zone	919	More than likely	2015-2031
SW Rugby (inc Cawston Spinney)	985	More than likely	2015-2031
Rugby Gateway	1997	More than likely	2015-2031
Land south east of M42 J10, Trinity Road	2066	More than likely	2015-2031
Rolls Royce Ansty Business Park	2117	More than likely	2015-2031

Appendix B Network Assumptions

Highway Network Scheme Assumptions

Location	Scheme Name	Certainty	Timescale	First Forecast Year	Include
Blaby	Full signalisation of the B581 Staggered junction (Broughton Road/Coventry Road)	Near Certain	2026	2026	Y
Hinckley & Bosworth	RGF/MIRA, A5 Redgate Junction at A444 to Higham Lane Junction	Complete	Jan-15	2015	Y
Catthorpe	M1 J19	Complete	2016-2017	2017	Y
Nottingham	A453 upgrade - including removal of temporary 40mph speed limit	Complete	Sep-15	2016	Y
Kegworth	M1 J24	Complete	Oct-14	2015	Y
Hinckley & Bosworth	A5 Dodwells and Longshoot junctions	Complete	2016	2016	Y
Nottingham	M1 J23a-J25 SMART motorway	Complete	2019	2019	Y
Warwickshire	M6 J2-J4 SMART motorway	Complete	2017-2020	2021	Y
Various	M1 J16-J19	Complete	2019	2019	Y
Leicestershire	A5 widening to dual carriageway near Hinckley	Hypothetical	2020-2023	2026	N
Daventry	DIRFT III - Daventry International Rail Freight Terminal	Complete	2016	2021	Y
Cotes	A60 Nottingham Road/Loughborough reduction of speed limit traffic calming features	Complete	2016	2016	Y
Earl Shilton	Access arrangements for SUE/Highway improvements for SUE	Near Certain	2021-2035	2026	Y
Barwell	Access arrangements for SUE/Highway improvements for SUE	Near Certain	2019-2035	2026	Y
Lubbesthorpe	Access arrangements for SUE including strategic traffic link to the A563 Lubbesthorpe Way	Complete	2017-2026	2021	Y
SRFI	Southern access for new development	Complete	2016-2018	2019	Y
Loughborough	A512 widening B591 to M1 J23, improvements to J23 and completion of dualling thereafter to either Snell's Nook Lane or Epinal Way junction	Complete	2017-2020	2021	Y
Castle Donington	Western Link Road from Back lane to Tops Hill, NWLDC package of measures to help mitigate planned growth	Complete	2020	2021	Y
Lubbesthorpe	Link across M69 to join north and south of the Lubbesthorpe development	More than Likely	2026-2031	2031	Y

Location	Scheme Name	Certainty	Timescale	First Forecast Year	Include
Lubbesthorpe	Highway improvements for SUE (A47 / Braunstone Lane / Ratby Lane improvement scheme)	Complete	2017-2023	2021	Y
Kegworth	Kegworth Bypass	Complete	2017-2019	2019	Y
SRFI	Highway improvements for new development	Complete	2016-2019	2021	Y
Loughborough	West of Loughborough SUE (access from the north via the A6 roundabout)	More than Likely	2021-2026	2026	Y
Loughborough	Access connection for the Science Park via the A512 roundabout	More than Likely	2031	2031	Y
Loughborough	West of Loughborough SUE (connection to the northern arm of the A512 roundabout)	More than Likely	2036	2036	Y
North West Leicestershire	M1 J22	Complete	Before March 2016	2016	Y
North West Leicestershire	A42 J13	Complete	2017	2018	Y
Blaby	Leicester North West Project Phase 1	Complete	2015-2016	2016	Y
Harborough	Harborough Strategic Development Area	Complete	2021	2021	Y
Charnwood	Mountsorrel Lane, Rothley Link Road	Complete	2021	2021	Y
Charnwood	A512 junction improvements	Complete	2016-2021	2021	Y
Hinckley	Hinckley Area Project Phase 1-3	Complete	2014-2017	2021	Y
Blaby	Glenfield Park/Optimus Point S278 works	Complete	2014-2016	2016	Y
North of East Leicester	North of East Leicester Development Network – Thorpebury SUE	Near Certain	2026	2026	Y
Charnwood	A6 Loughborough Road Bus Lane and Parking Controls	Complete	2016	2016	Y
Leicester City	Removal of Belgrave Flyover	Complete	2014-2015	2016	Y
Leicester City	Saffron Lane - Old Velodrome Improvements	Complete	2016	2016	Y
Leicester City	Traffic Calming Schemes	Near Certain	2016-2021	2016	Y
Leicester City	East of Hamilton Development Improvements	Complete	2016	2017	Y
Leicester City	Pedestrianisation of Hotel Street, Pedestrianisation of St Martins	Complete	2016	2016	Y
Leicester City	Haymarket/Charles Street Bus Station development	Complete	2016	2016	Y
Leicester City	Existing & proposed 20mph zones	Complete	2012-2016	2016	Y
Leicester City	St Nicholas Circle	Complete	2015	2016	Y

Location	Scheme Name	Certainty	Timescale	First Forecast Year	Include
Leicester City	Welford Road	Complete	2018	2021	Y
Leicester City	Waterside Development	Near Certain	mid-2020s	2026	Y
Rugby	Rugby Radio Station	Near Certain	2026	2026	Y
Leicester City	Belgrave Gate South	Near Certain	2019	2020	Y
Leicester City	Belvoir Street	Complete	2017	2018	Y
Leicester City	York Road/Bonners Lane/Grange Road	Complete	2019	2019	Y
Leicester City	King St	Complete	2018	2018	Y
Leicester City	Lancaster Road	Complete	2019	2020	Y
Leicester City	Mansfield Street & Church Gate	Complete	2020	2021	Y
Leicester City	SMBS Access to Burleys Way	Complete	2019	2021	Y
Leicester City	Vaughan Way	Complete	2019	2020	Y
Leicester City	Ashton Green	Near Certain	2021-2031	2021	Y
Leicester City	London Road	Complete	2019	2020	Y
Melton	Melton Mowbray Distributor Road (Northern Section) (Nottingham Road to A607)	Near Certain	2023	2023	Y
Melton	Melton Mowbray Distributor Road (Eastern Section) (A607 to Burton Road)	Near Certain	2023	2023	Y
Melton	Melton Mowbray Southern Link Road (Burton Road to Leicester Road)	Near Certain	2023-2026	2026	Y
Melton	Gladman's Site Access (Leicester Road and Kirby Lane)	More than Likely	2026	2026	Y
Leicester City	Beaumont Leys Anstey Lane Improvements	Complete	2019	2021	Y
Hinckley	Rugby Road Corridor Improvements – Phase 4	Near Certain	2022	2022	Y
Leicester City	Putney Road West Improvements	Near Certain	2019	2021	Y
Lutterworth	Frank Whittle Roundabout approaches (Magna Park)	Complete	2018-2020	2021	Y
Lutterworth	Lutterworth East Development (Development Access (A4304, Gilmorton Road and A426))	More than Likely	2021-2026	2026	Y
Lutterworth	Lutterworth East Development (Link Road between A4304 and A426)	More than Likely	2031	2031	Y
Lutterworth	Lutterworth East Development (Gilmorton Road bridge bus restriction)	More than Likely	2026	2026	Y
Bardon Hill	Interlink Way East junction	Complete	2016	2016	Y

Location	Scheme Name	Certainty	Timescale	First Forecast Year	Include
Bardon Hill	Bardon Hill Link Road North Section	More than Likely	2021-2026	2026	Y
Coalville	Hoo Ash Roundabout	More than Likely	2021-2026	2026	Y
Coalville	Thornborough Road Roundabout	More than Likely	2021-2026	2026	Y
Coalville	Dual Carriageway from Thornborough Rd to Whitwick Road	More than Likely	2021-2026	2026	Y
Coalville	Whitwick Road Roundabout	More than Likely	2021-2026	2026	Y
Coalville	Broom Leys Road Junction	More than Likely	2021-2026	2026	Y
Coalville	Bardon Link Road Junction	More than Likely	2021-2026	2026	Y
Coalville	Birch Tree Roundabout	More than Likely	2019-2024	2026	Y
Coalville	Fieldhead Roundabout	More than Likely	2021-2026	2026	Y
Granby Street	Granby Street/Halford Street Improvements	Complete	2017	2018	Y
Loughborough	Alan Moss Road	Complete	2017	2018	Y
Hinckley	DPD A5 Access	Complete	2021	2021	Y
Leicester Forest East	Ratby Lane/Wembley Road junction	Complete	2017/18	2019	Y
Coalville	Flying Horse Roundabout	More than Likely	2021-2026	2026	Y
M6 J10-13	M6 J10-13, M54-Stafford ALR	Complete	2016	2016	Y
M54-M6 Toll	M54-M6 Toll, link road min 2 lane motorway	More than Likely	2024	2024	Y
M1 J28-31	M1 J28-31, Mansfield to Sheffield ALR	Complete	2016	2016	Y
M6 J13-J15	M6 J13-15, Stafford South to Stoke South ALR	Near Certain	2022	2022	Y
M1 J13-16	M1 J13-16, Milton Keynes South to J16 ALR	Near Certain	2022	2022	Y
M40 M42	M40-M42, M40 J16-M42 J3 ALR	More than Likely	2026	2026	Y
A46 Coventry	A46 Coventry, remove Binley and Walsgrove roundabouts & upgrade	More than Likely	2022-2026	2026	Y
A46 Toll Bar End	A46 Toll Bar End, grade separated junction and 3 lane highway	Complete	2021	2021	Y
Newark N	A46 Newark, dualling Newark North bypass	More than Likely	2026	2031	Y
Newark S	South of Newark, A1-A46 link S of Newark; part completed	More than Likely	2031	2031	Y
Lincoln E	East of Lincoln, A15-A158 link; part completed	Complete	2020	2021	Y
Lincoln S	South of Lincoln, A158-A46 link	More than Likely	2027	2031	Y
Grantham S	South of Grantham, A1-A52 link; part completed	Near Certain	2016-2023	2026	Y

Location	Scheme Name	Certainty	Timescale	First Forecast Year	Include
Nuneaton and Bedworth Borough	Coton Arches	Complete	2021	2021	Y
Nuneaton and Bedworth Borough	A4254b Eastboro Way P1	Complete	2021	2021	Y
Nuneaton and Bedworth Borough	College Street / A444	Near Certain	2023	2023	Y
Nuneaton and Bedworth Borough	Transforming Nuneaton	Near Certain	2026	2026	Y
Nuneaton and Bedworth Borough	Croft Road/Greenmoor Road Priority	Complete	2020	2020	Y
Nuneaton and Bedworth Borough	A47 Old Hinckley Road	Near Certain	2026	2026	Y
Nuneaton and Bedworth Borough	Coventry Road / Gipsy Lane	More than Likely	2026	2026	Y
Nuneaton and Bedworth Borough	A4254 / B4114/Eastboro Way	Near Certain	2026	2026	Y
Nuneaton and Bedworth Borough	Nuneaton Northern Sites Link Road	Near Certain	2031	2031	Y
North Warwickshire	B5000 Market Street/Bridge St Signals	Near Certain	2026	2026	Y
Rugby Borough	A426/A4071 Avon Mill Roundabout/Newbold Road/Hunters Lane Priority Junction	Near Certain	2026	2026	Y
Rugby Borough	Ashlawn Road/Hillmorton Road	Complete	2021	2021	Y
Rugby Borough	A5 Northern Access to DIRFT III	Complete	2022	2022	Y
Rugby Borough	A5/A428 Halfway House Roundabout	Complete	2021	2021	Y
Rugby Borough	M1 Junction 18	More than Likely	2031	2031	Y
Rugby Borough	M6 to Coton House	Near Certain	2021	2021	Y
Rugby Borough	A5 Southern Access to DIRFT III	Complete	2021	2021	Y
Loughborough	Loughborough Integrated Transport Scheme – not including LIRR	Complete	2013	2014	Y
Blaby	A47/Kirby Lane Tesco Express	Complete	2020	2021	Y
Charnwood	North of Birstall SUE (Broadnook SUE)	Near Certain	2021-2026	2026	Y
Leicester City	LNW2 Ravensbridge Drive / Blackbird Road	Complete	2019	2020	Y
Leicester City	Abbey Park Road Cycle Provision	Complete	2020	2021	Y

Location	Scheme Name	Certainty	Timescale	First Forecast Year	Include
Lutterworth	Lutterworth East Development Schemes	Reasonably Foreseeable	2021-2026	2026	N
Nuneaton and Bedworth Borough	New A5 Access to accommodate Callendar Farm Ph2	Near Certain	2026	2026	Y
M6 J3	Interim Improvement Scheme	More than Likely	2026	2026	Y
M6 J2	Update coding of M6 J2 Ansty interchange to include signalised roundabout	Complete	2020	2020	Y
Hinckley	M69 J1 DPD Mitigation	Complete	2020-2021	2021	Y
Lutterworth	Magna Park Extension Access (Mere Lane / A5 improvements and Mere Lane access)	Complete	2020	2020	Y
Lutterworth	Magna Park Extension Access (Northern site access)	Near Certain	2026	2026	Y
North Warwickshire	A5 Dualling between Grendon and Dordon and Dordon junction	More than Likely	2026	2026	Y
Lubbesthorpe	Access arrangements for SUE (southern access roundabout)	Near Certain	2031	2031	Y
Lubbesthorpe	Highway improvements for SUE (Meridian South / A563) (Warren Park Way / Mill Hill) (A47 / A563 signalised crossroads)	Near Certain	2031	2031	Y

Public Transport Scheme Assumptions

Location	Scheme Name	Certainty	Timescale	First Forecast Year	Include
Lubbesthorpe	Service to accommodate SUE	Near certain	2018	2021	Y
North of East Leicester	Package of bus measures to accommodate SUE	Complete	2013-16	2016	Y
North of East Leicester	Misc. services (Charnwood / Thurmaston)	Complete	2013-16	2016	Y
Garendon	New services for Garendon	More than likely	2031	2031	Y
Blaby	Leicester North West Project Phase 1	More than likely	2015-2016	2016	Y
Hinckley	Hinckley Area Project Phases 1-3	Complete	2016	2016	Y
Kegworth	East Midlands Gateway - Strategic Rail Freight Interchange	Near certain	2017-2020	2021	Y
Charnwood	A6 Loughborough Road Bus Lane and Parking Controls	Complete	2016	2016	Y
Ashton Green	Ashton Green bus services	More than likely	2021-2031	2026	Y
Midlands	Midland Mainline Electrification	Near certain	2021	2021	Y
East Midlands	East Midlands Railway frequency changes	More than likely	Dec-20	2021	Y
Leicester City	Transforming Cities Fund 2	More than likely	2026	2026	Y

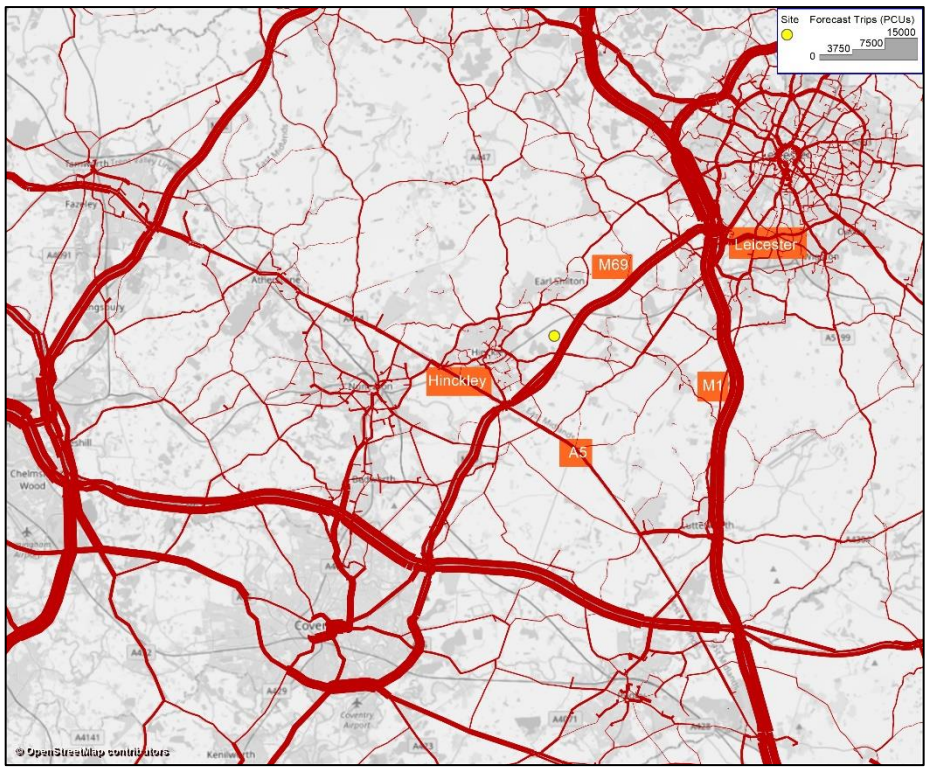
Active Mode Scheme Assumptions

Location	Scheme Name	Certainty	Timescale	First Forecast Year	Include
Coalville/Loughborough	LSTF package of measures	Complete	2012-2015	2016	Y
Hinckley	Hinckley Area Project Phases 1-3	Complete	Apr 2016	2016	Y
Leicester City	Cycling Ambition Funding	Complete	2016	2016	Y
Leicester City	Behavioural Change Programme	Complete	2017	2021	Y

Appendix C Forecast Flow for 2026 and 2036

Figure C.1: Forecast Flow for 2026 and 2036 'Without Development' Scenarios (in PCUs)

2026 'Without Development' (AM)



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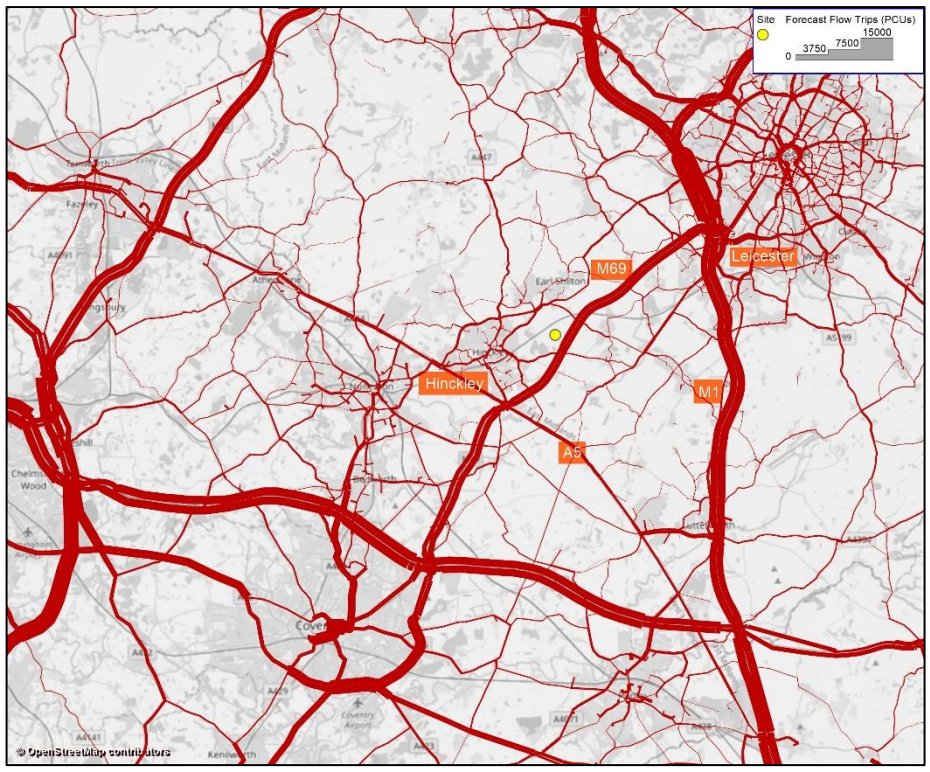
2036 'Without Development' (AM)



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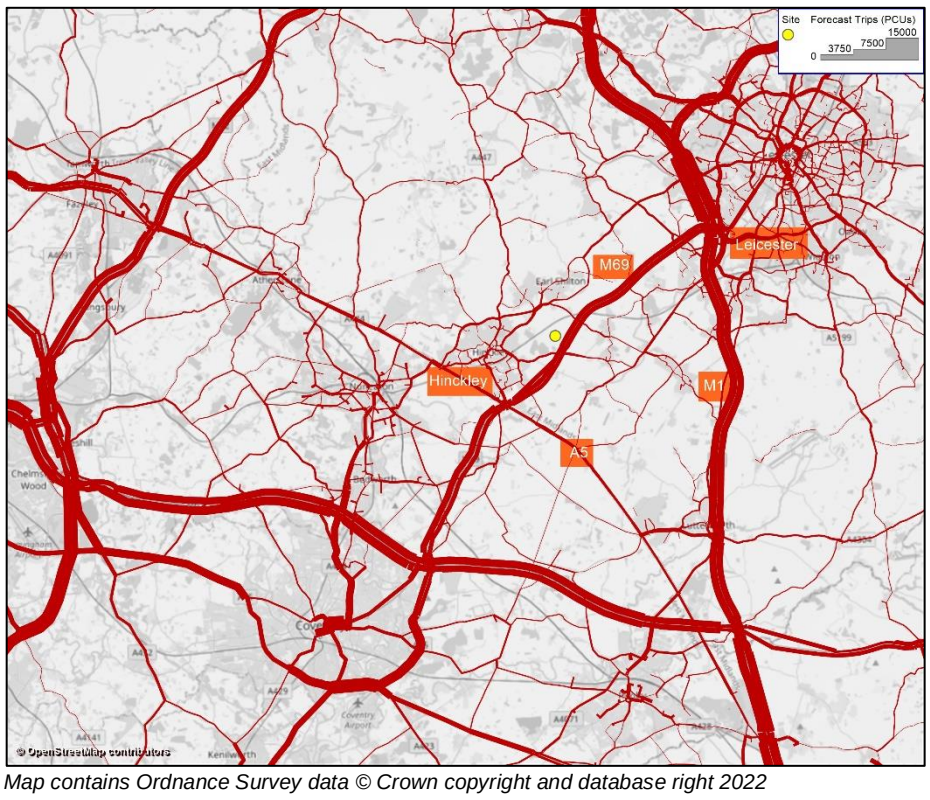
2026 'Without Development' (PM)



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2036 'Without Development' (PM)

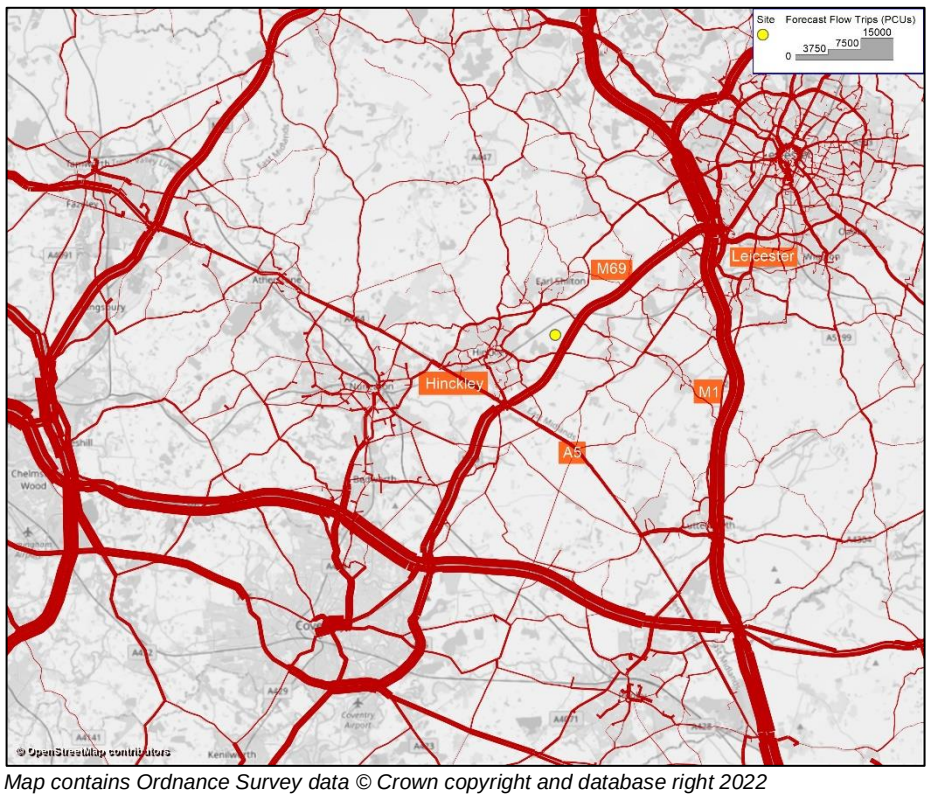

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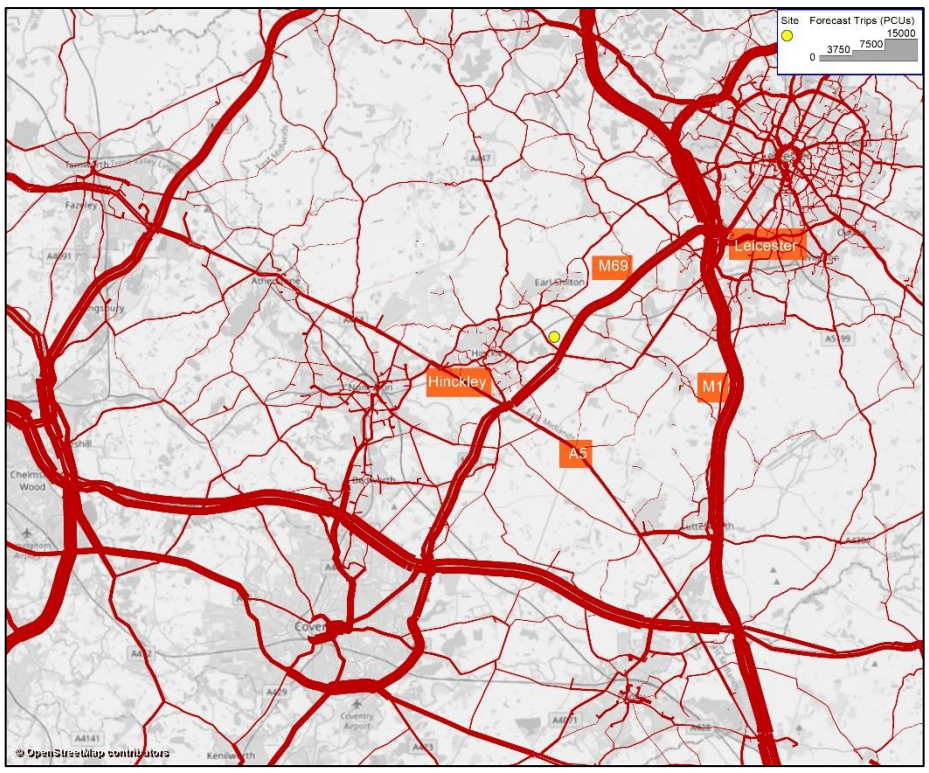
Figure C.2: Forecast Flow for 2026 and 2036 'Without Development With Infrastructure' Scenarios (in PCUs)

2026 'Without Development With Infrastructure' (AM)



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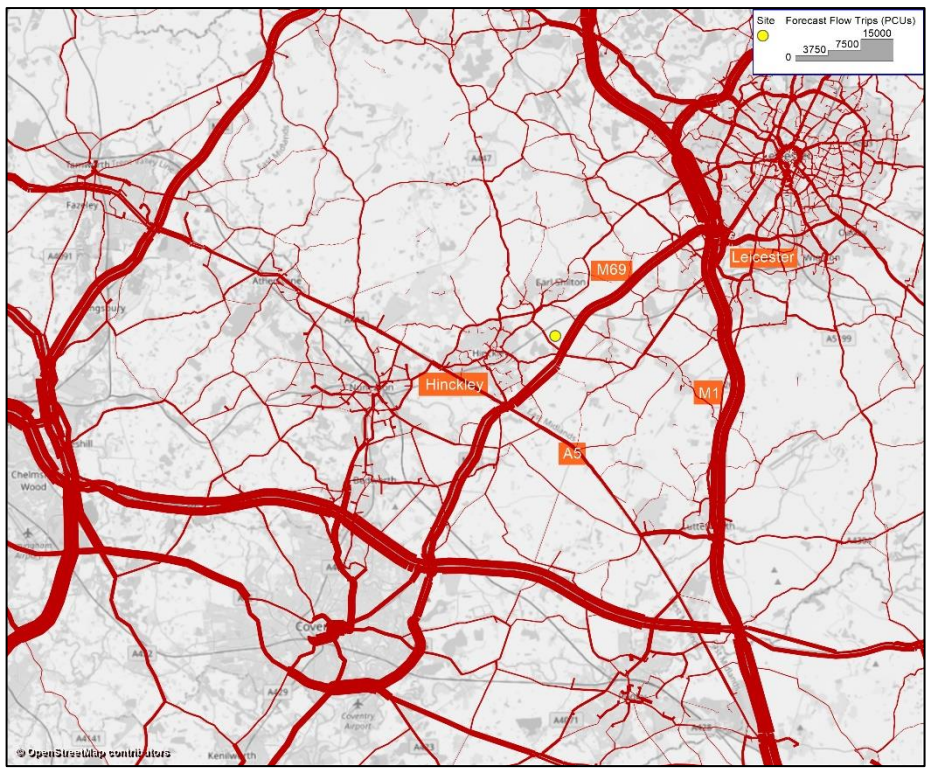
2036 'Without Development With Infrastructure' (AM)



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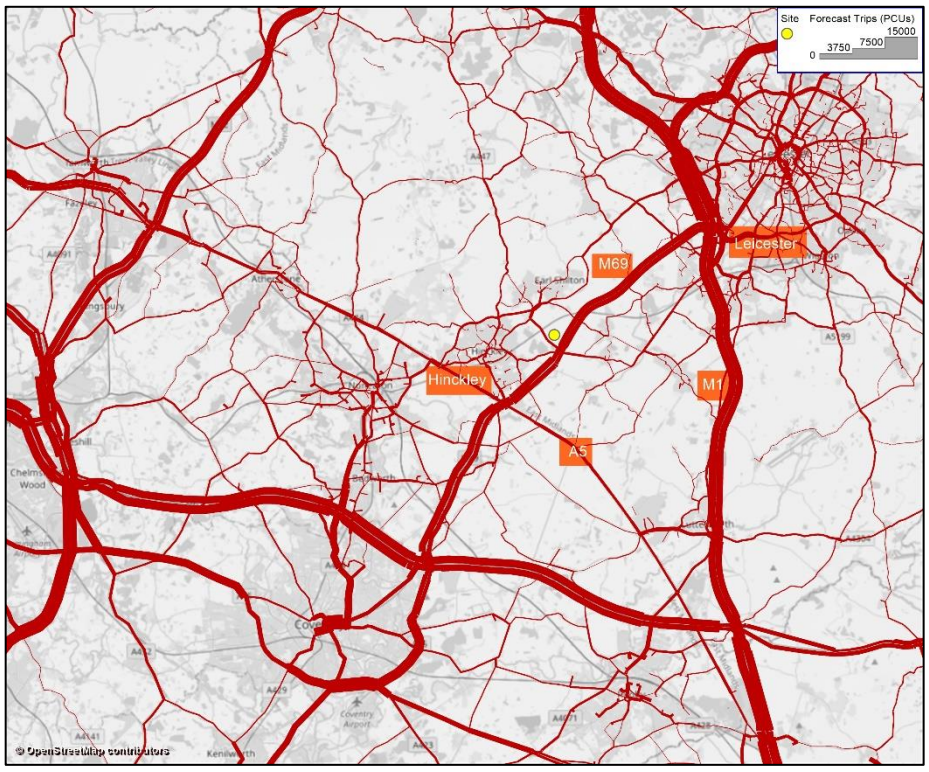
2026 'Without Development With Infrastructure' (PM)



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2036 'Without Development With Infrastructure' (PM)

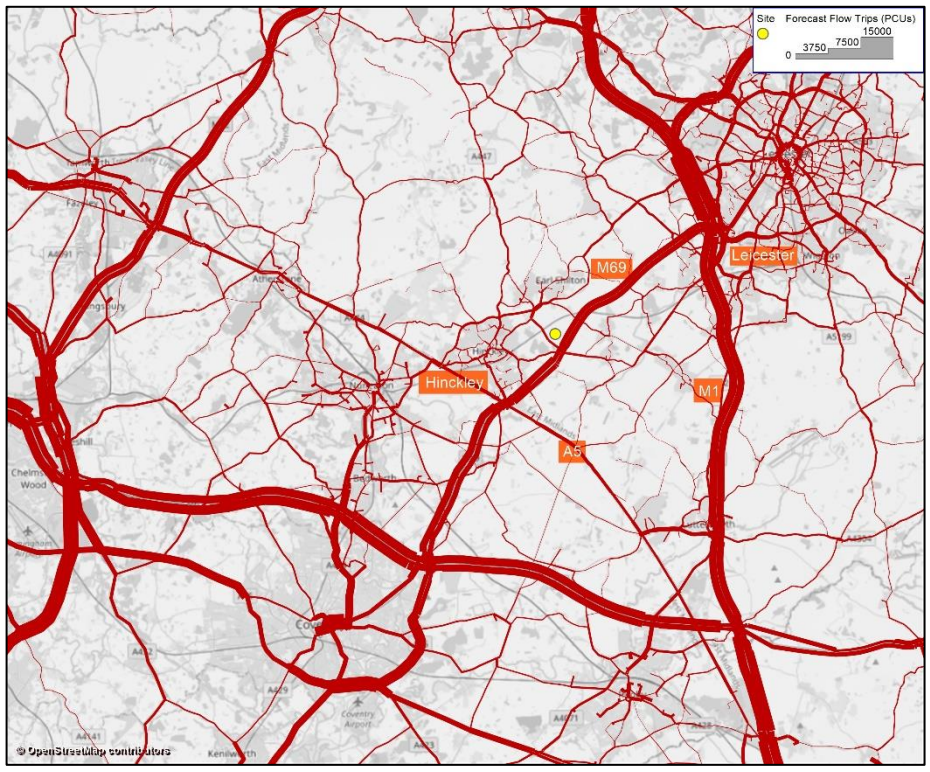

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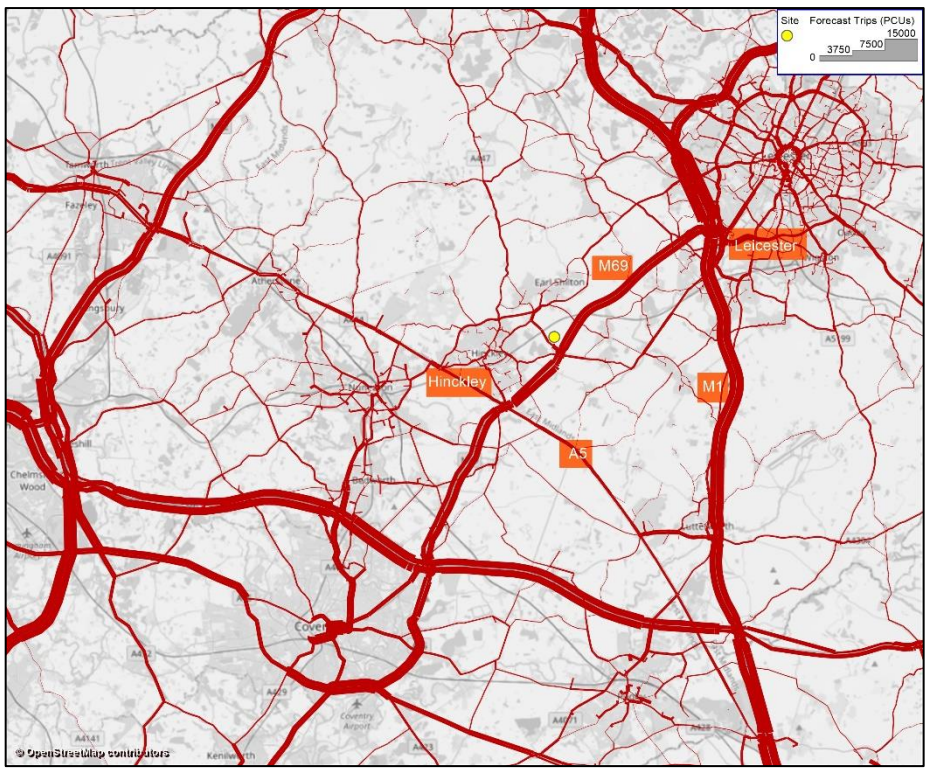
Figure C.3: Forecast Flow for 2026 and 2036 'With Development' Scenarios (in PCUs)

2026 'With Development' (AM)



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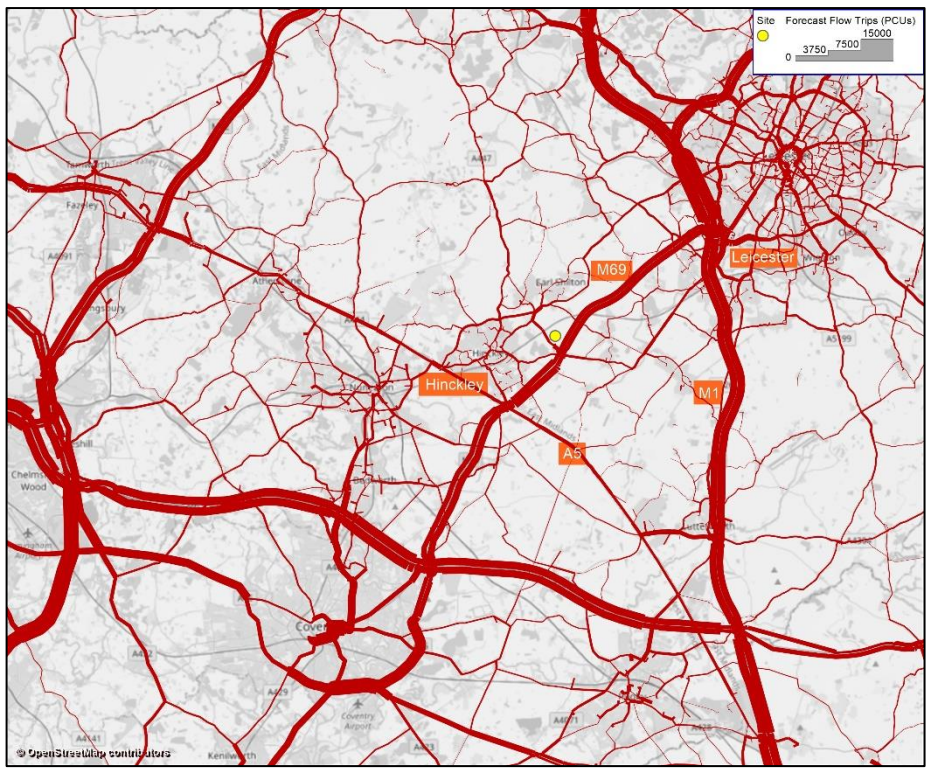
2036 'With Development' (AM)



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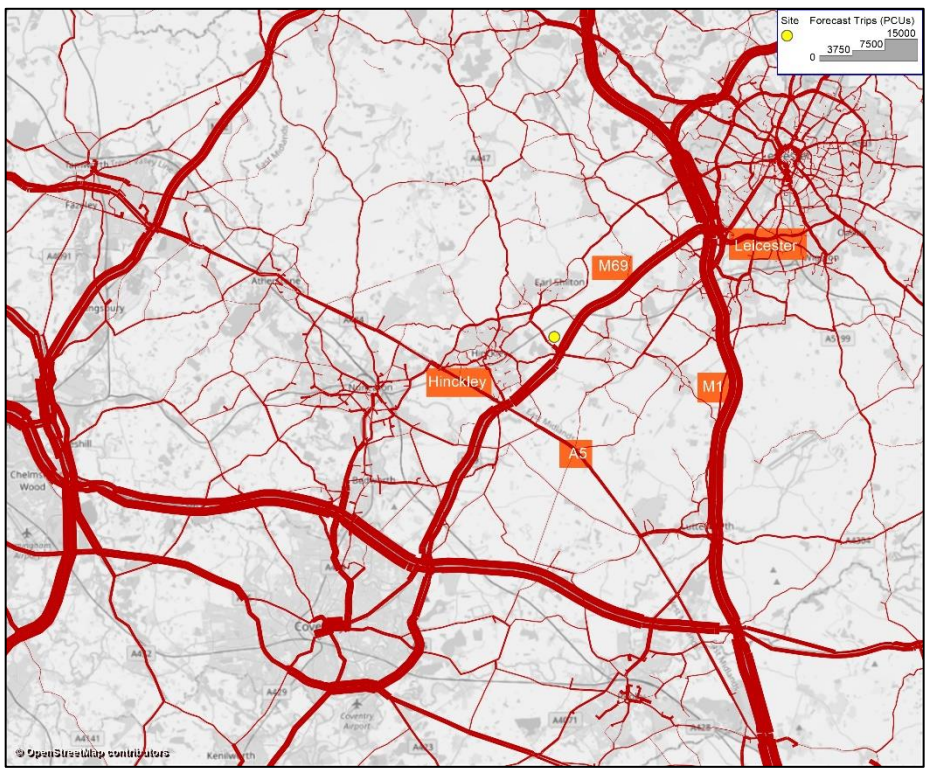
2026 'With Development' (PM)



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2036 'With Development' (PM)

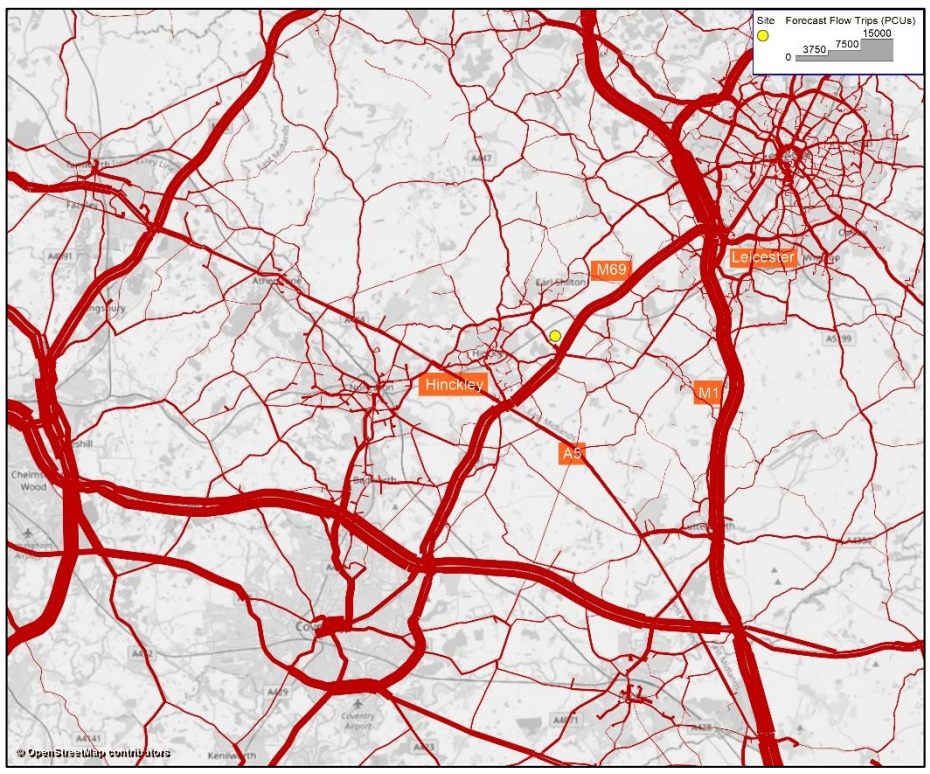

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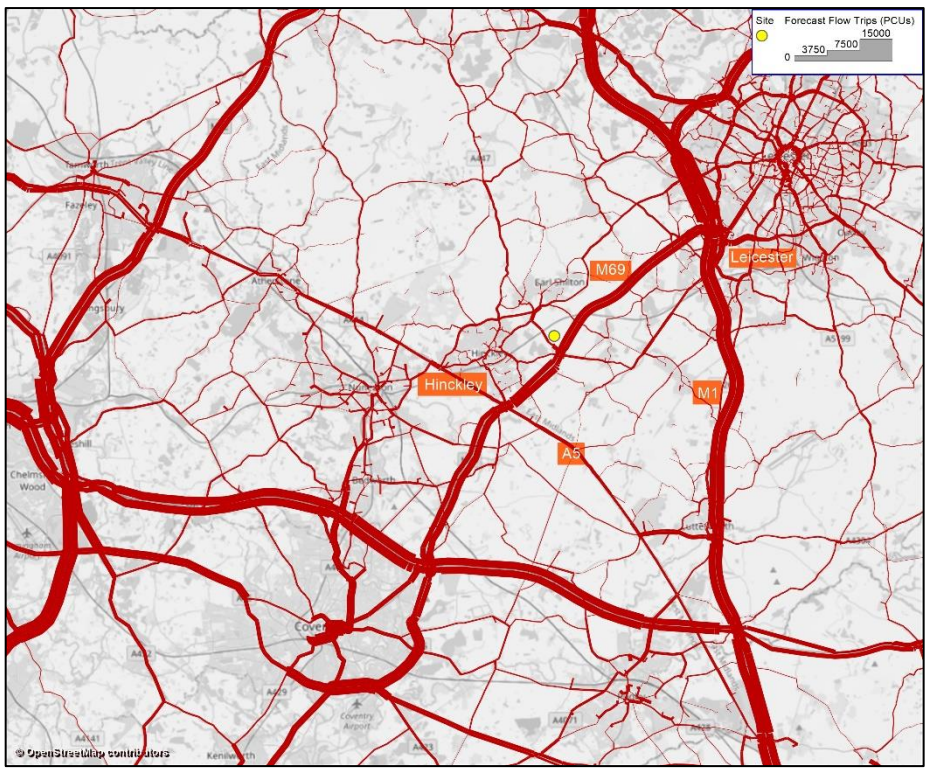
Figure C.4: Forecast Flow for 2036 'With Development (Sensitivity Test)' Scenarios (in PCUs)

2036 'With Development (Sensitivity Test)' (AM)



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2036 'With Development (Sensitivity Test)' (PM)

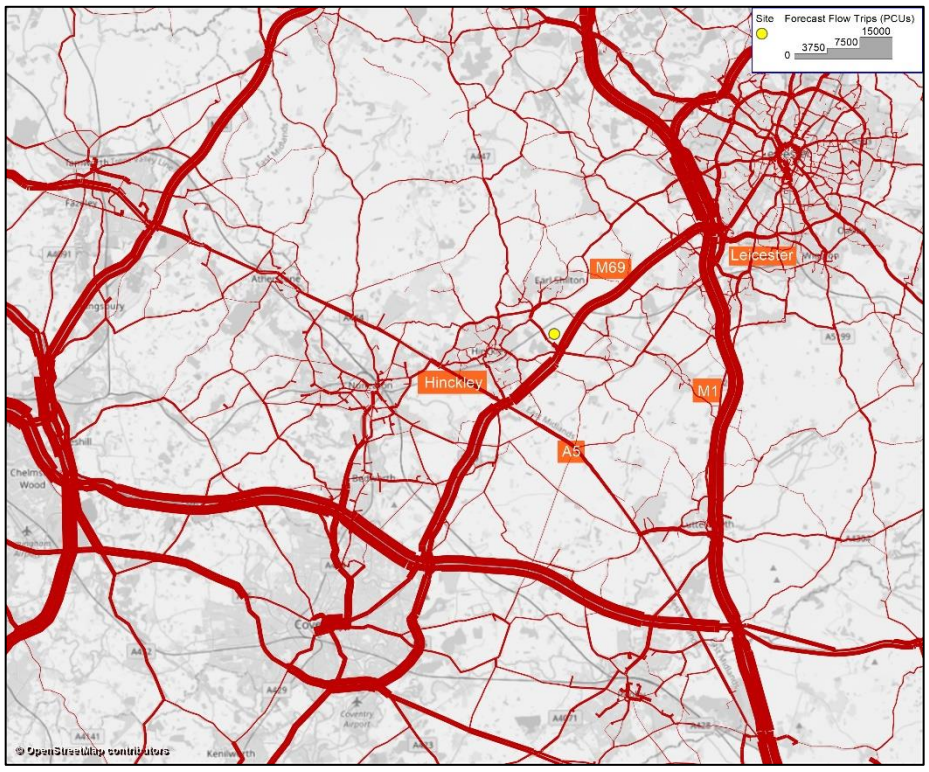

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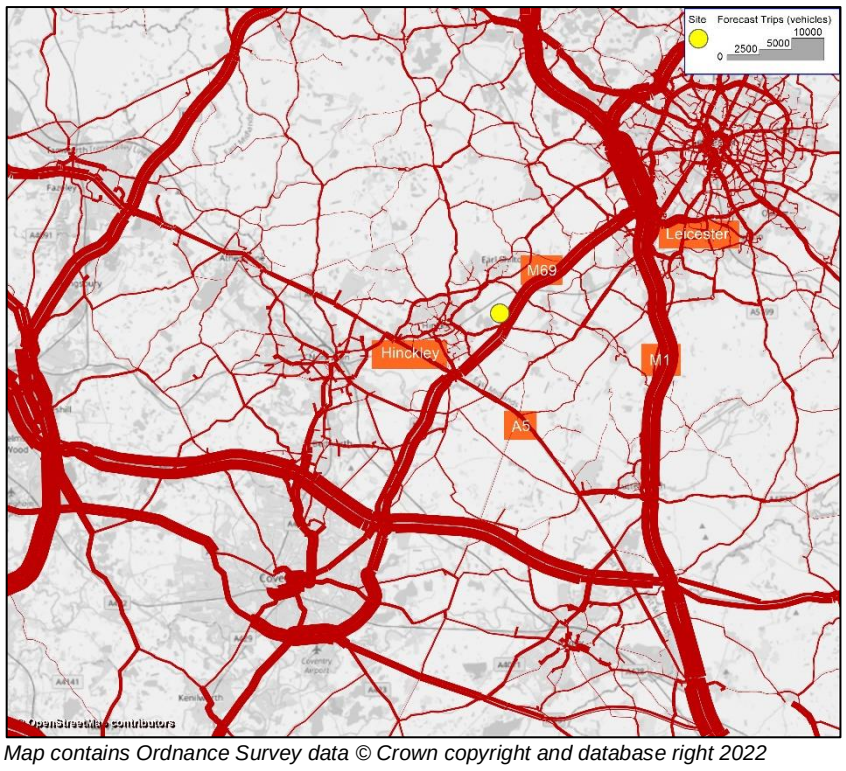
Figure C.5: Forecast Flow for 2026 and 2036 'Without Development' Scenarios (in Veh)

2026 'Without Development' (AM)



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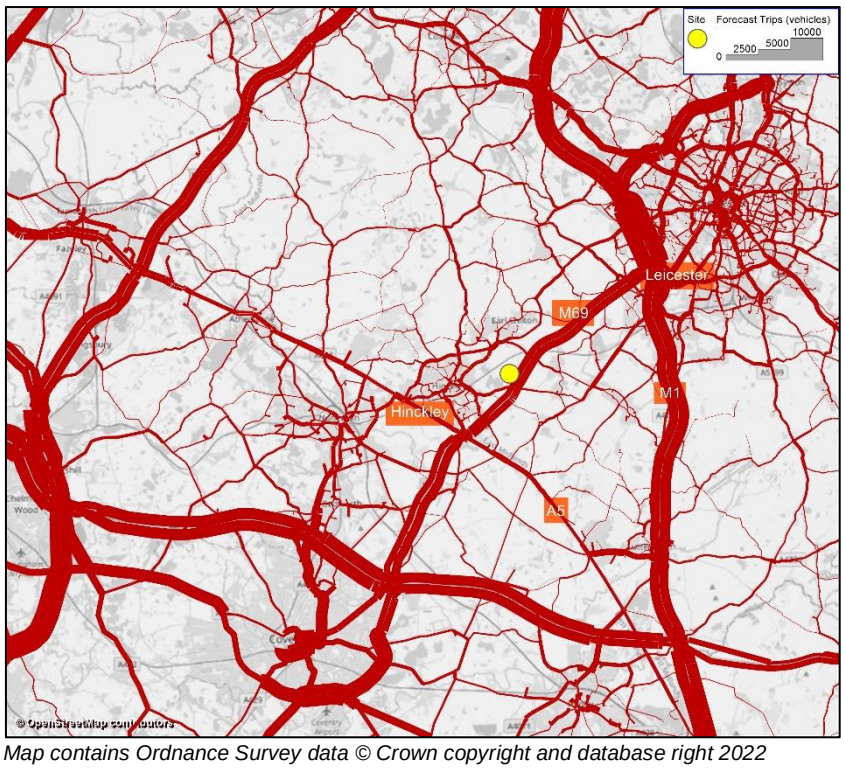
2036 'Without Development' (AM)



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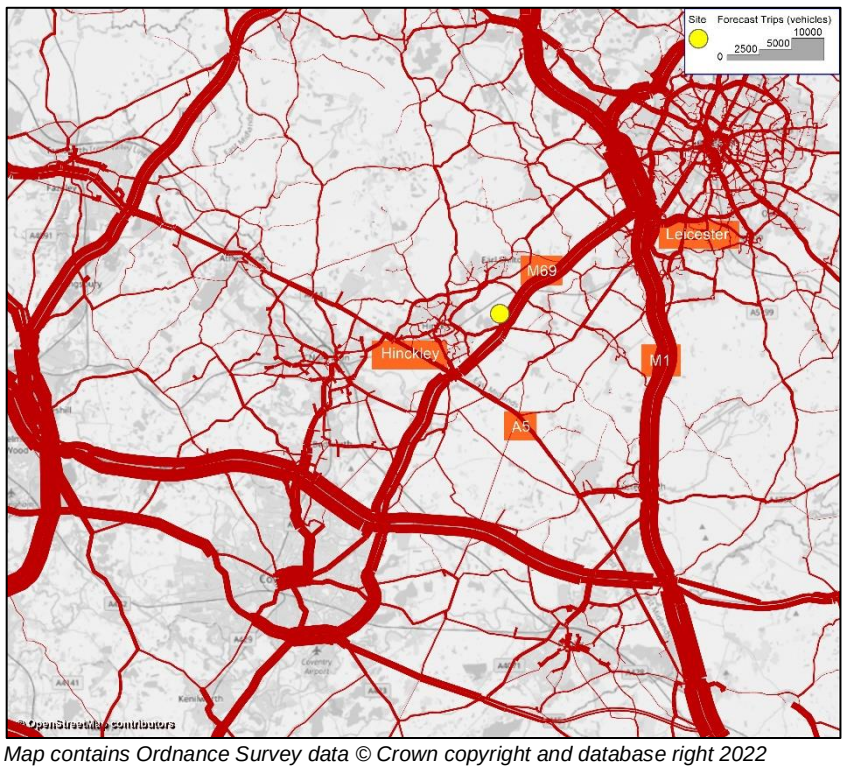
2026 'Without Development' (PM)



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2036 'Without Development' (PM)

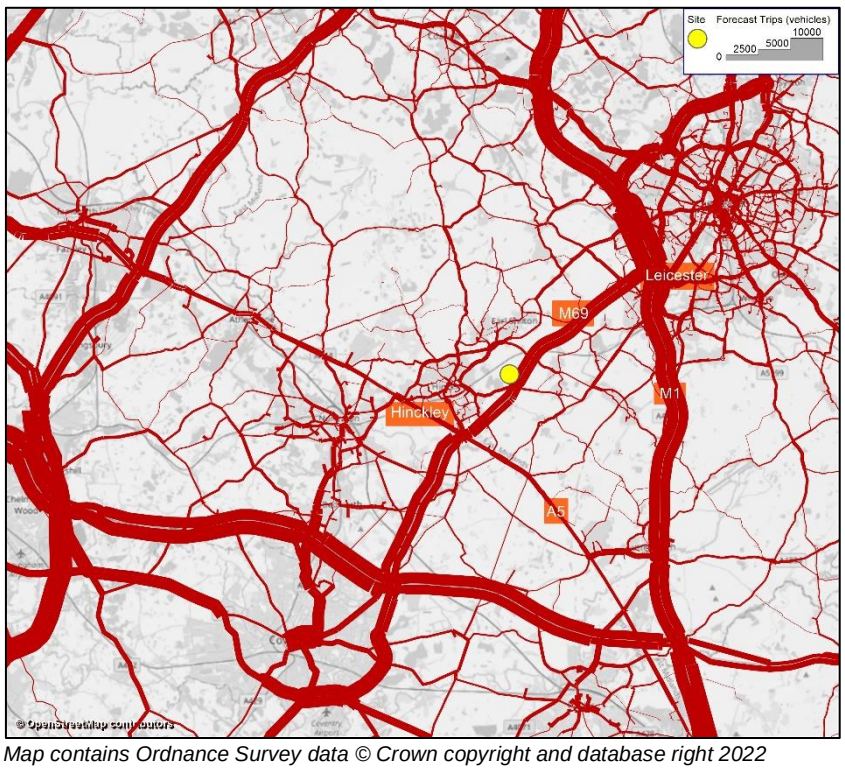

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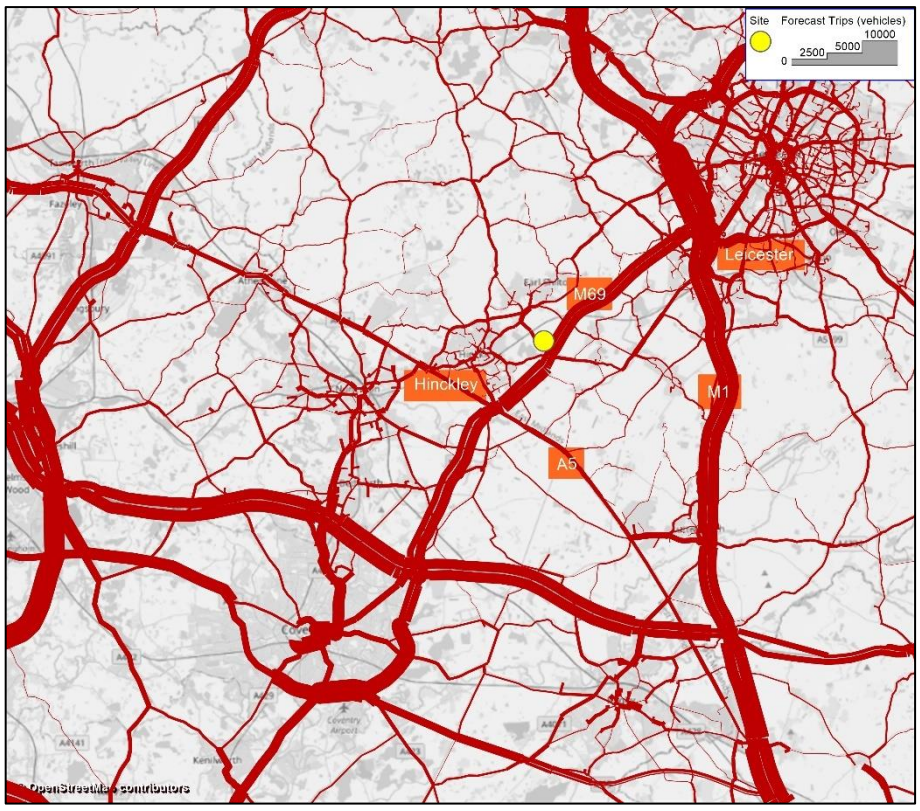
Figure C.6: Forecast Flow for 2026 and 2036 'Without Development With Infrastructure' Scenarios (in Veh)

2026 'Without Development With Infrastructure' (AM)



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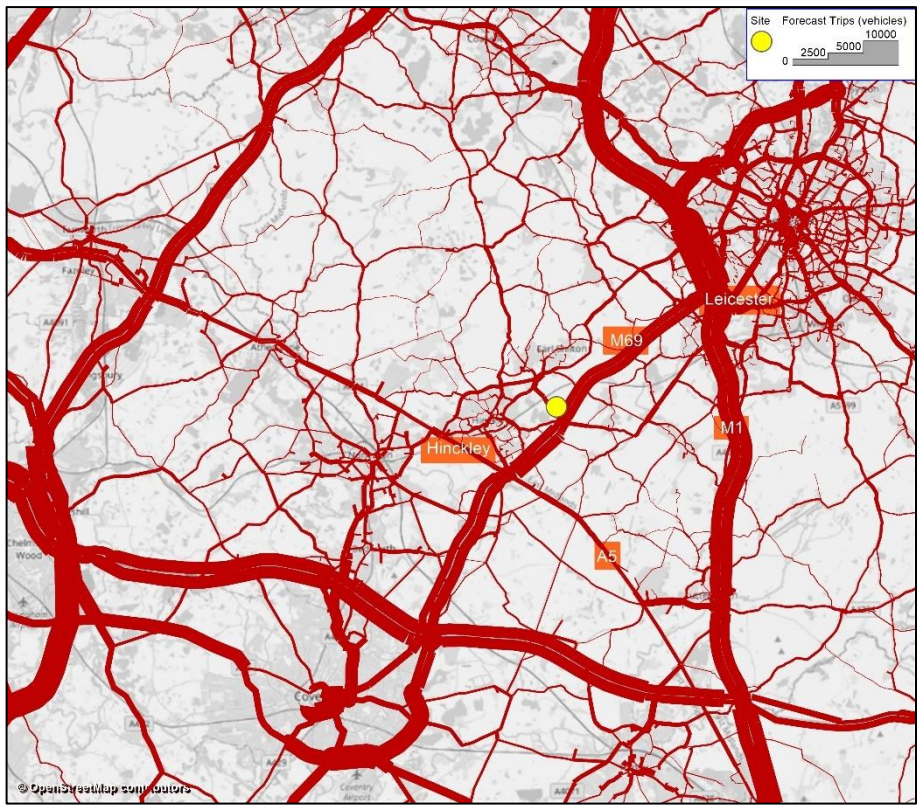
2036 'Without Development With Infrastructure' (AM)



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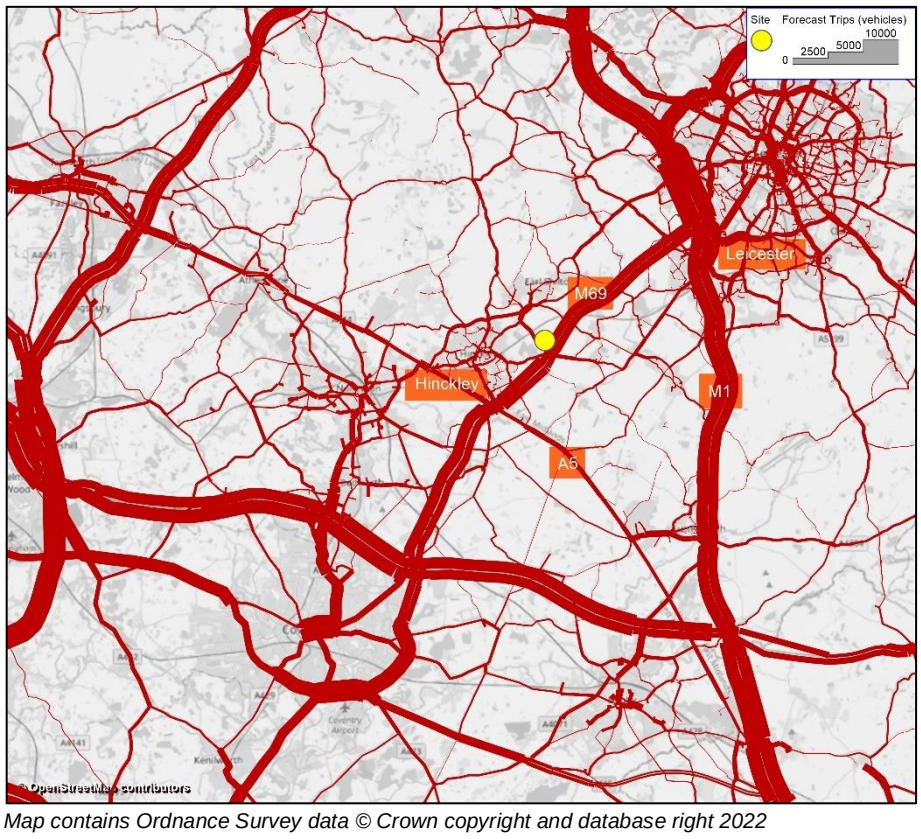
2026 'Without Development With Infrastructure' (PM)



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2036 'Without Development With Infrastructure' (PM)

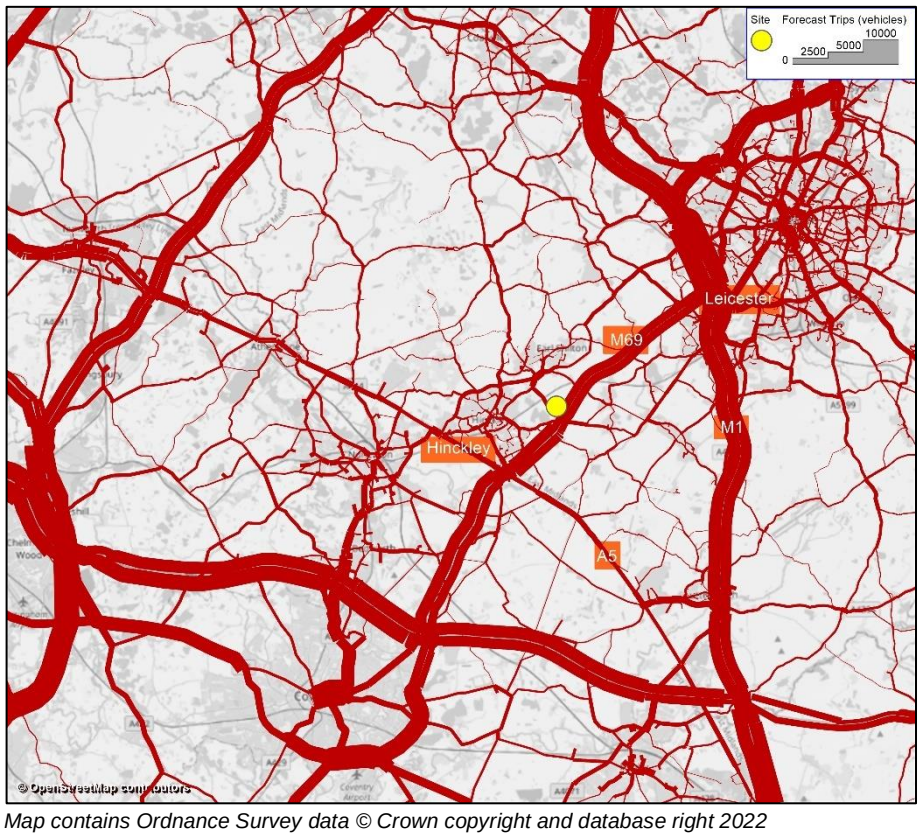

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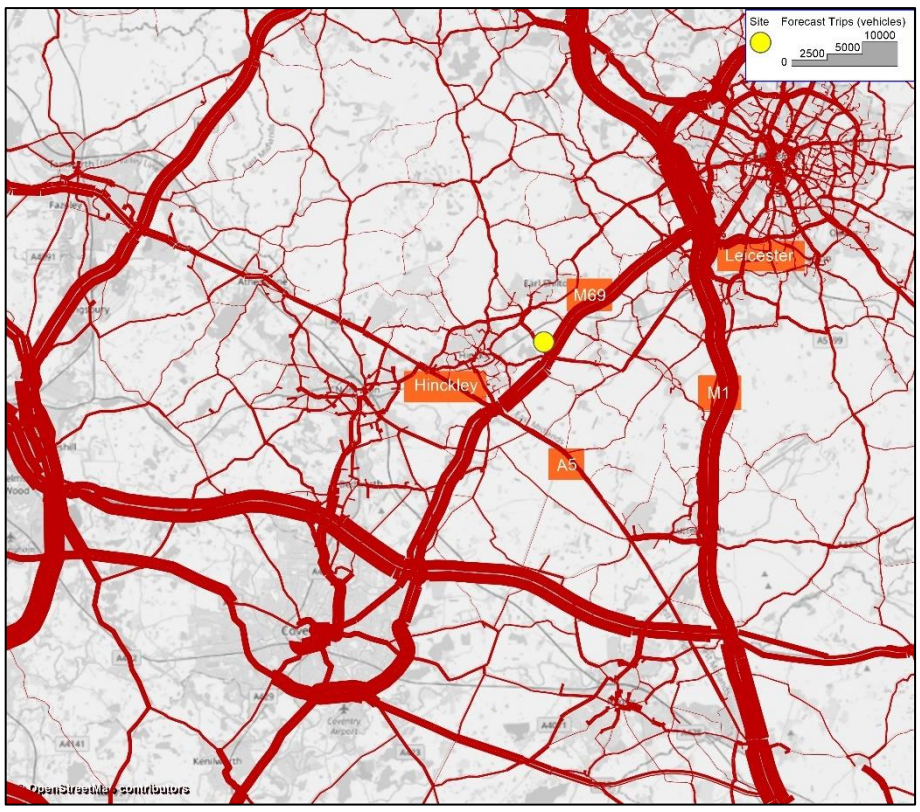
Figure C.7: Forecast Flow for 2026 and 2036 'With Development' Scenarios (in Veh)

2026 'With Development' (AM)



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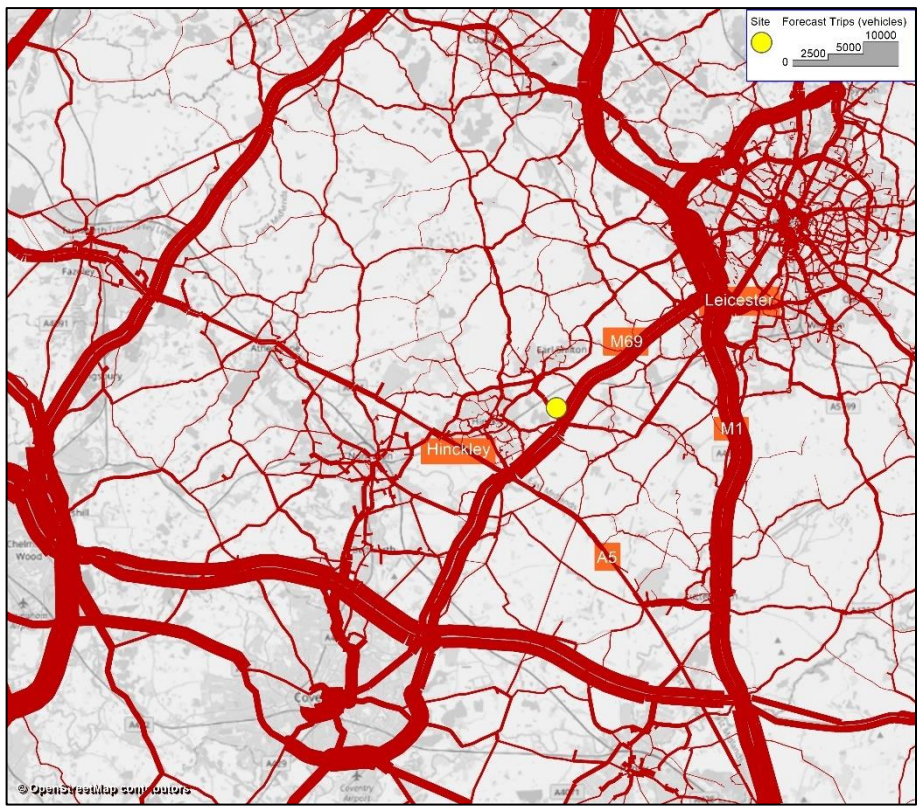
2036 'Without Development' (AM)



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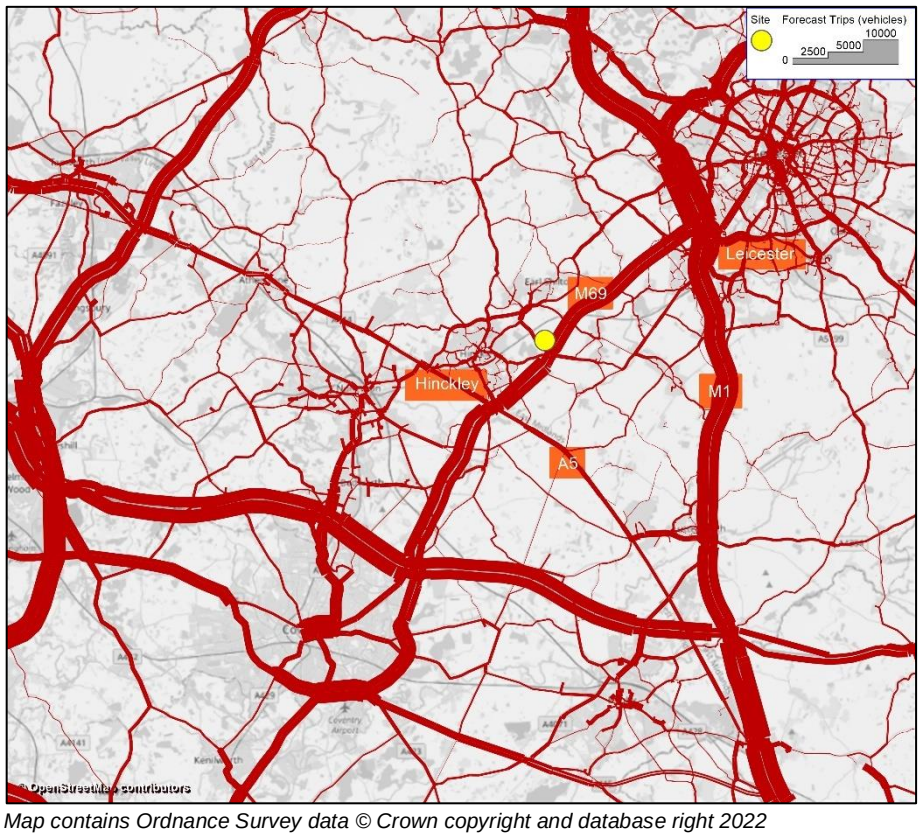
2026 'With Development' (PM)



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2036 'Without Development' (PM)

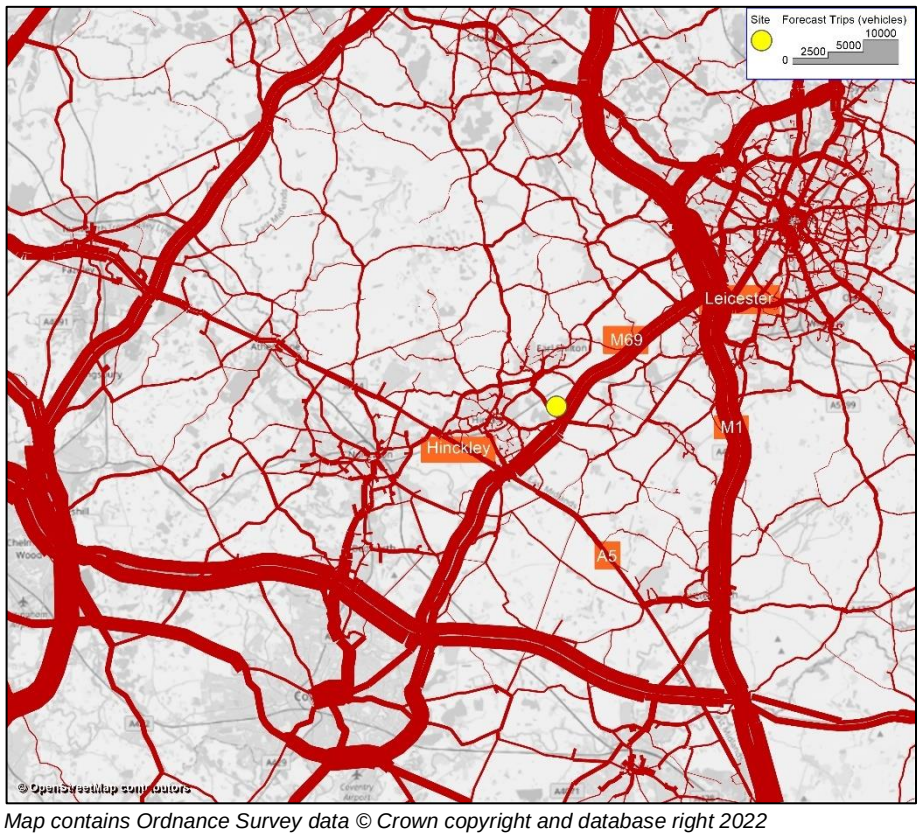

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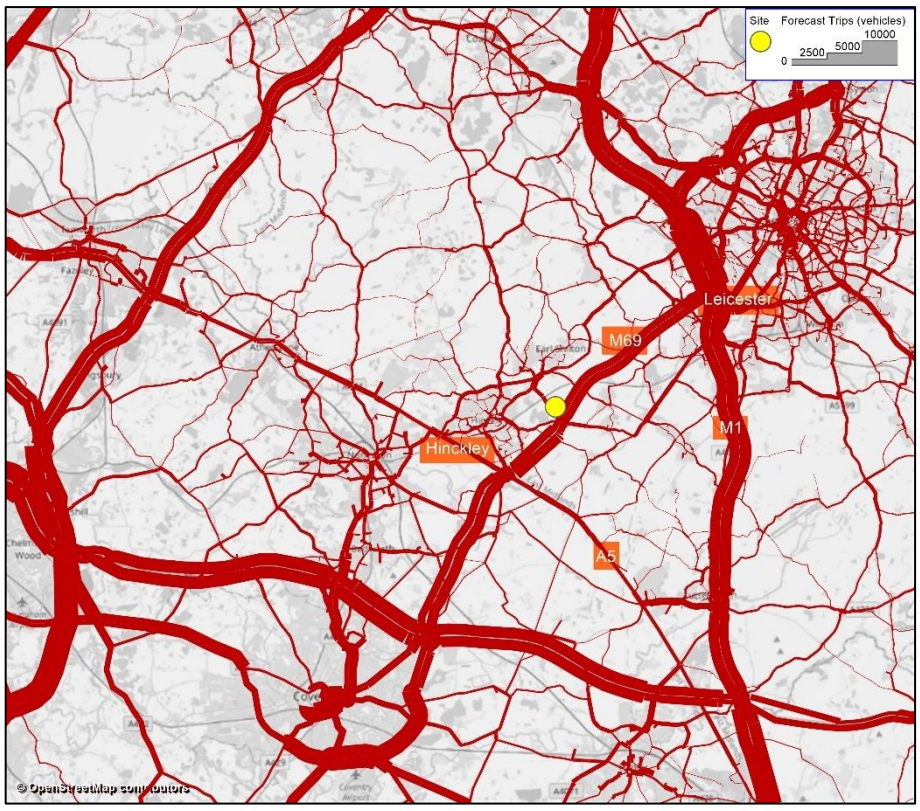
Figure C.8: Forecast Flow for 2036 'With Development (Sensitivity Test)' Scenarios (in Veh)

2036 'With Development (Sensitivity Test)' (AM)



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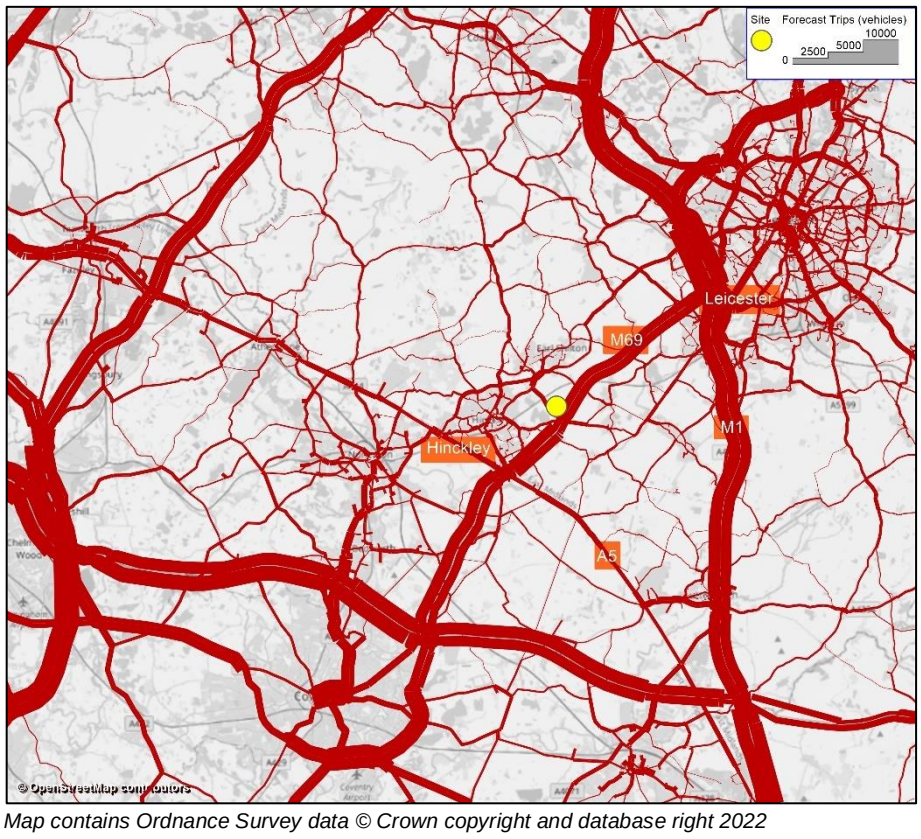
2036 'With Development (Sensitivity Test)' (PM)



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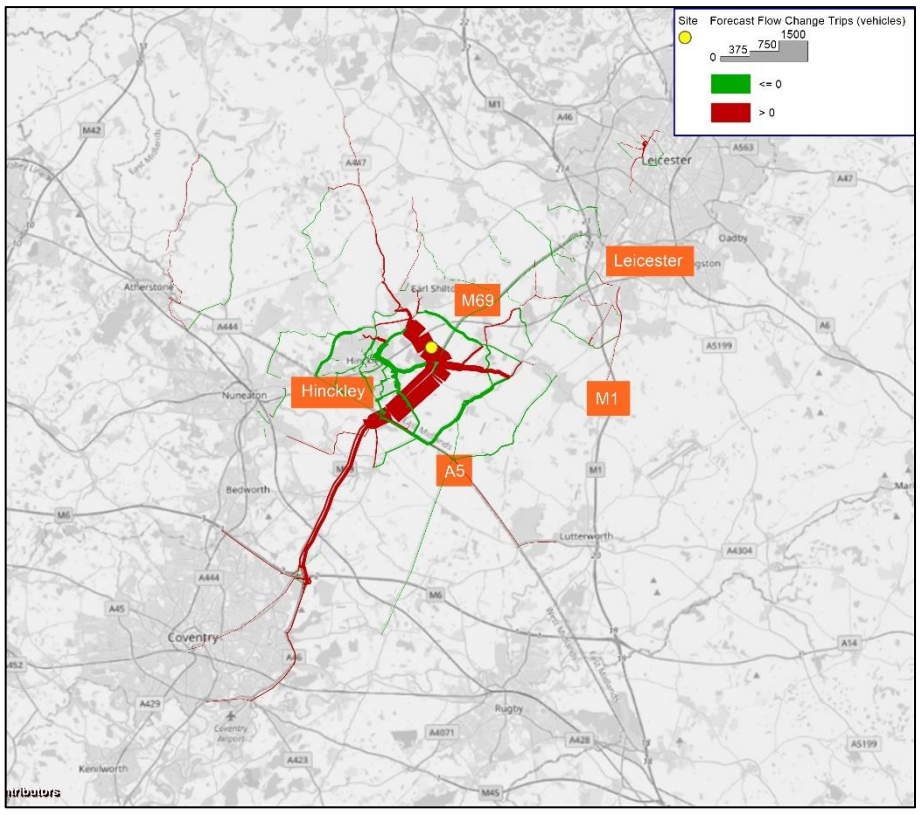
Appendix D Forecast Flow Change

Figure D.1: Forecast Flow Change for the 2026 and 2036 'Without Development With Infrastructure' minus 'Without Development' Scenarios (in Veh)

2026 'Without Development With Infrastructure' minus 'Without Development' (AM)



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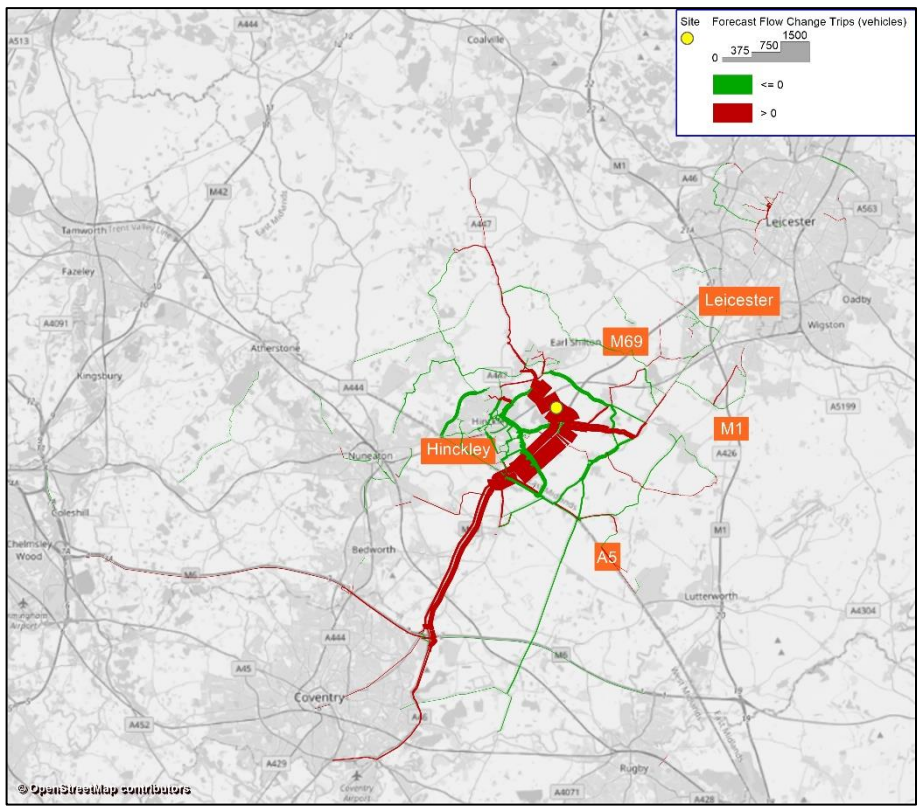
2036 'Without Development With Infrastructure' minus 'Without Development' (AM)



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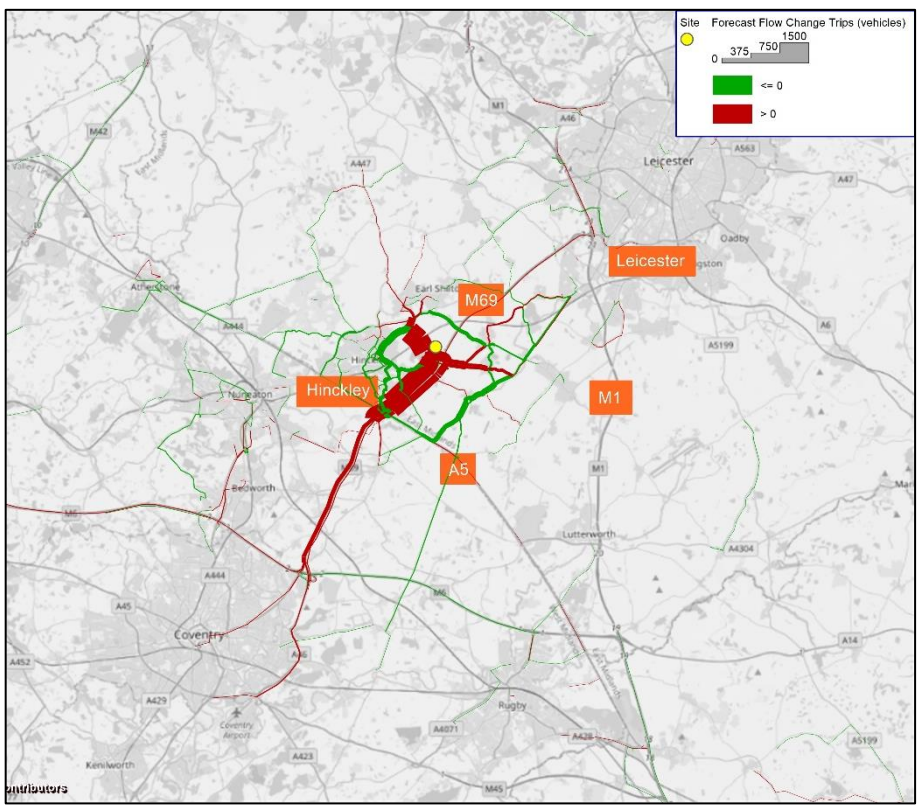
2026 'Without Development With Infrastructure' minus 'Without Development' (PM)



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2036 'Without Development With Infrastructure' minus 'Without Development' (PM)

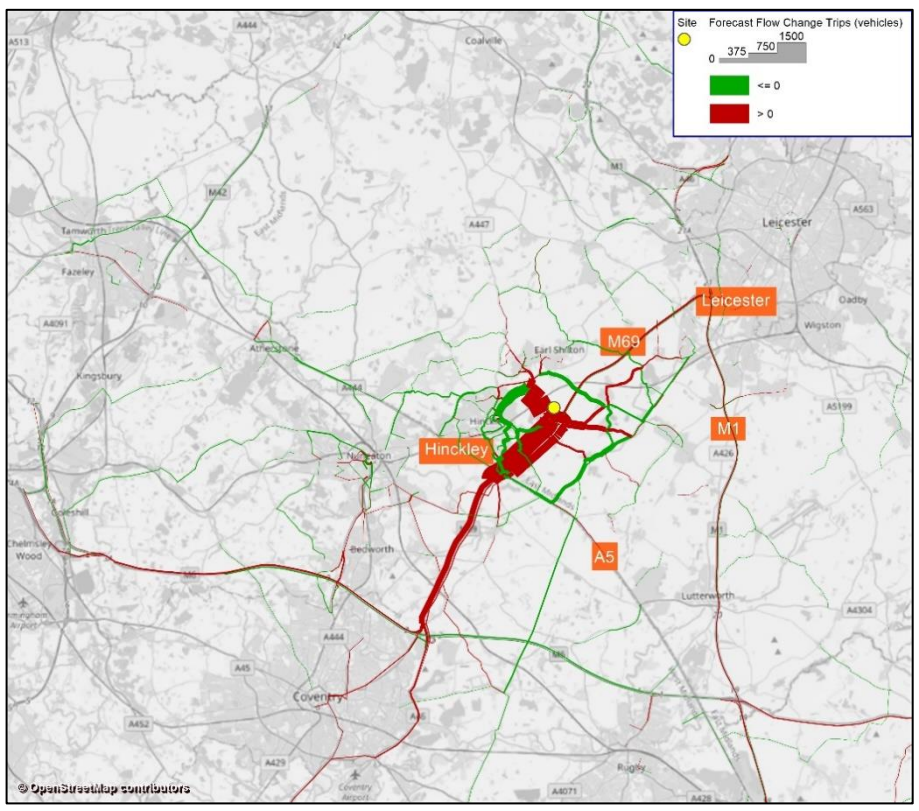

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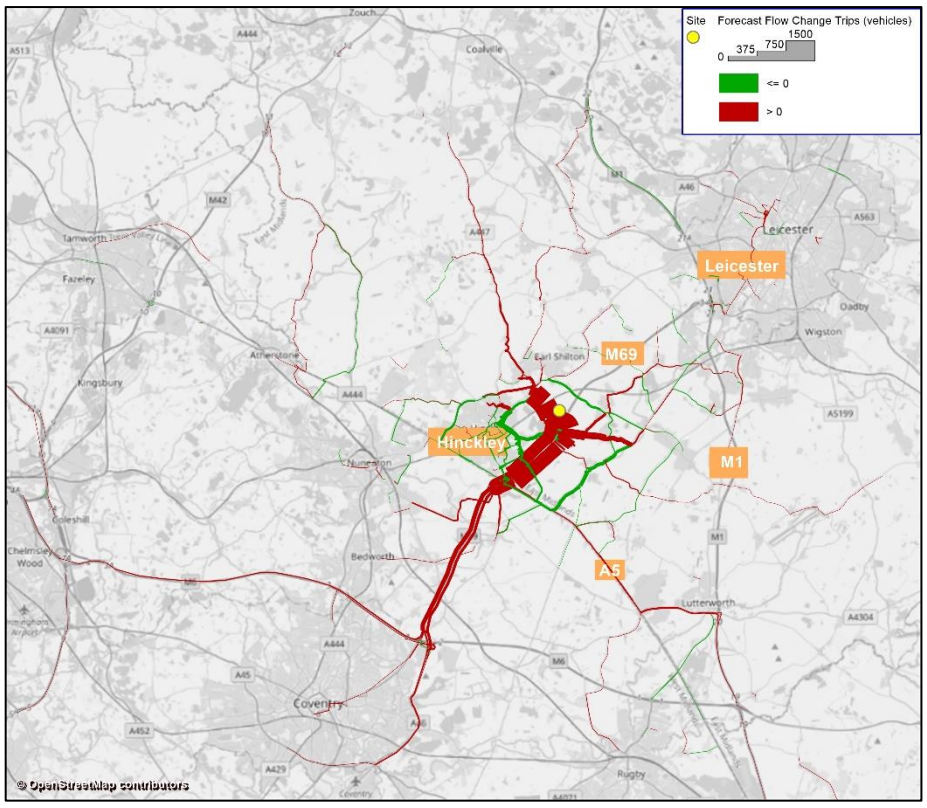
Figure D.2: Forecast Flow Change for the 2026 and 2036 'With Development' minus 'Without Development' Scenarios (in Veh)

2026 'With Development' minus 'Without Development' (AM)



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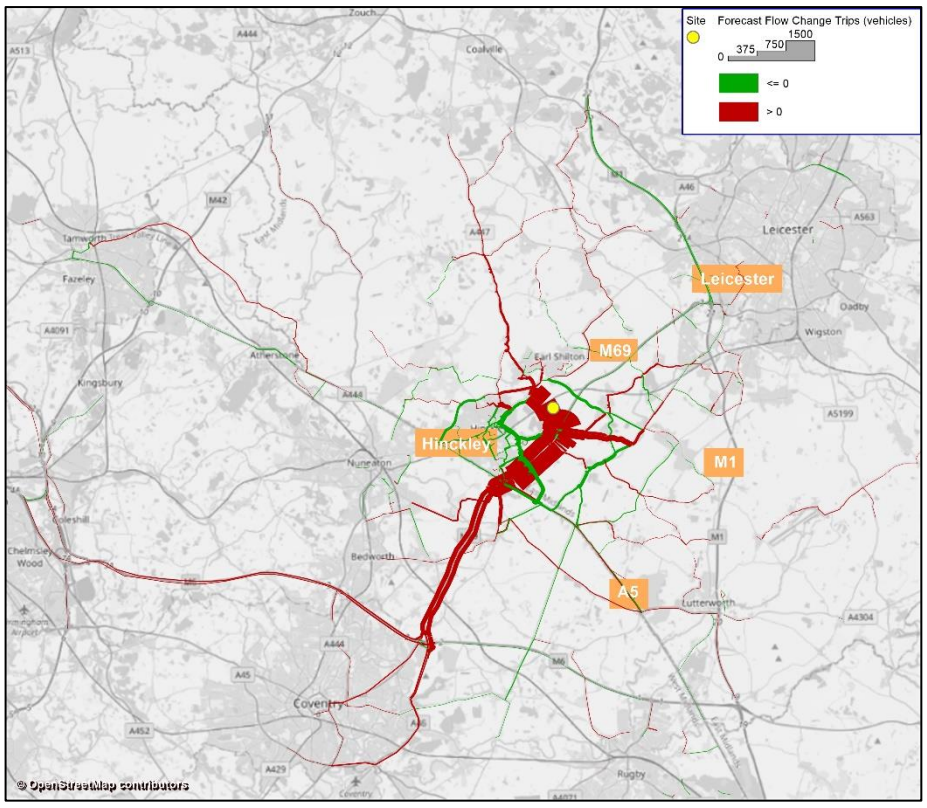
2036 'With Development' minus 'Without Development' (AM)



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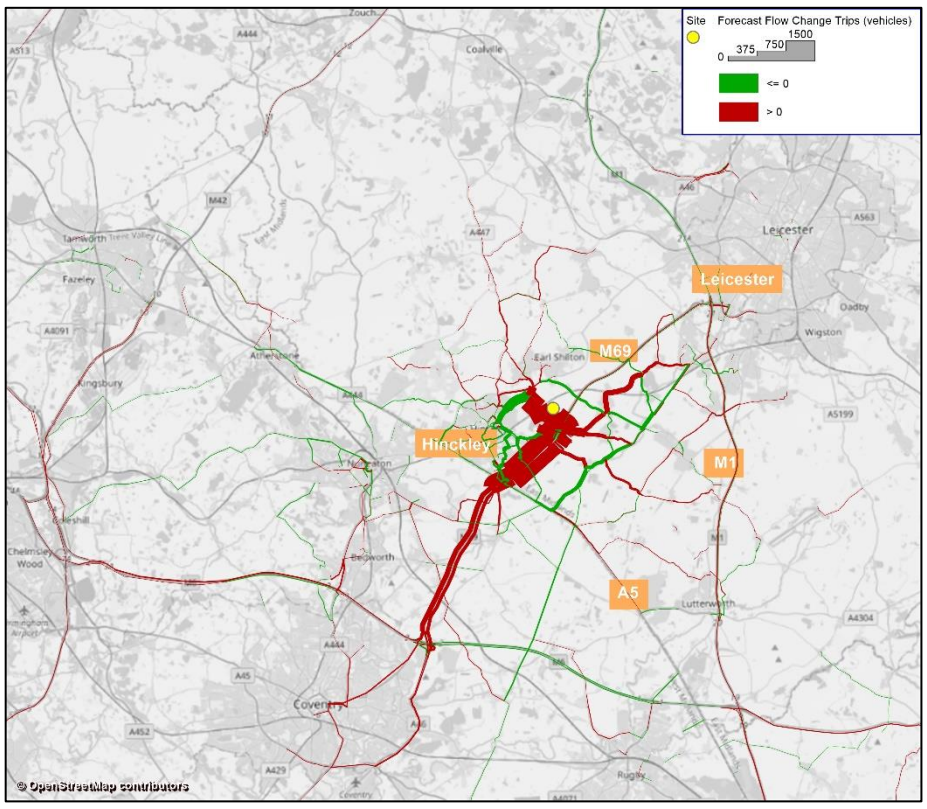
2026 'With Development' minus 'Without Development' (PM)



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2036 'With Development' minus 'Without Development' (PM)

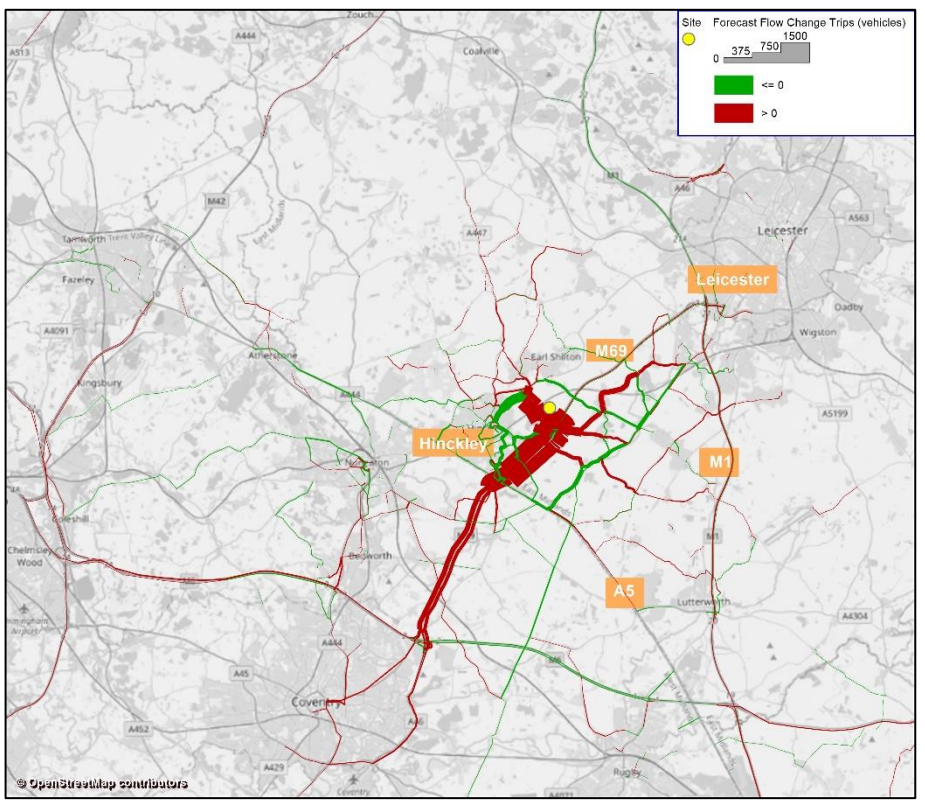

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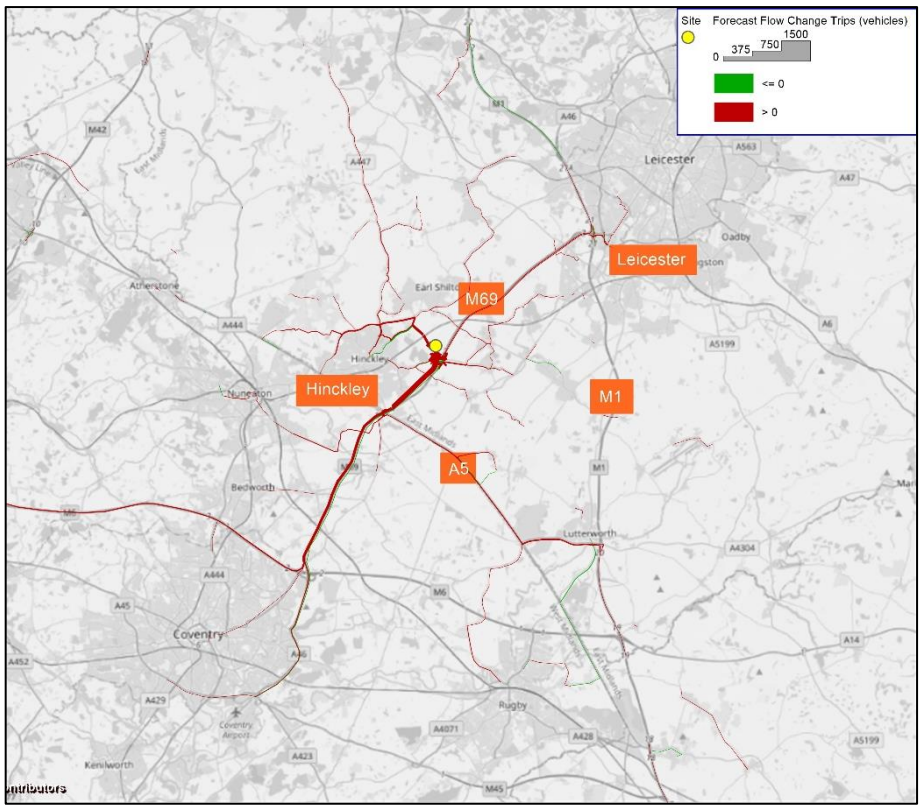
Figure D.3: Forecast Flow Change for the 2026 and 2036 'With Development' minus 'Without Development With Infrastructure' Scenarios (in Veh)

2026 'With Development' minus 'Without Development With Infrastructure' (AM)



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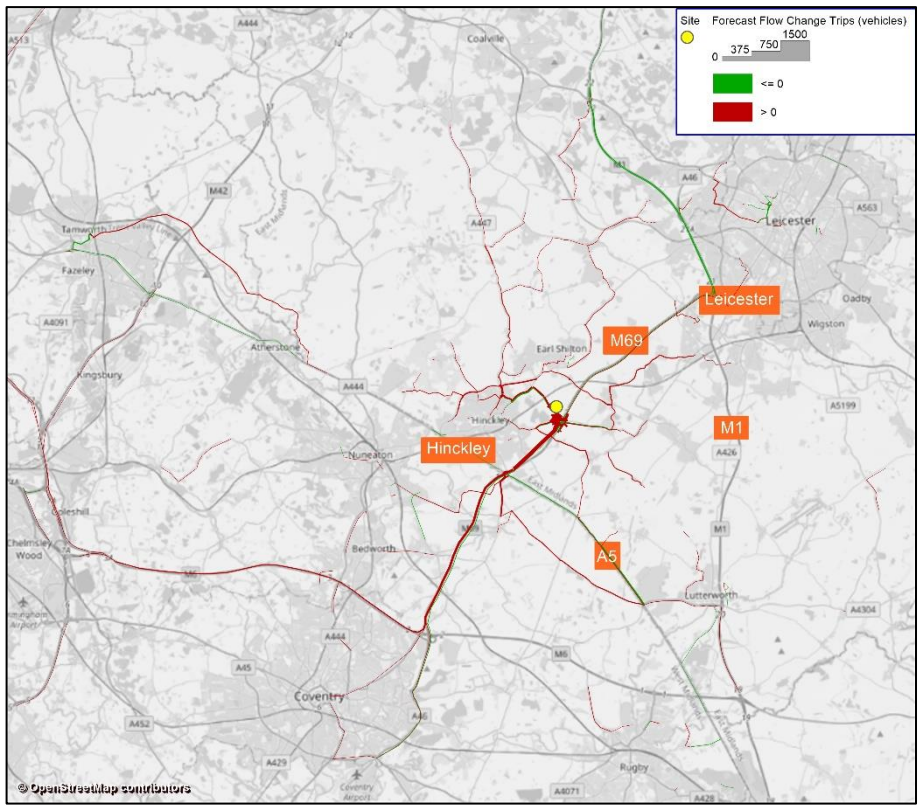
2036 'With Development' minus 'Without Development With Infrastructure' (AM)



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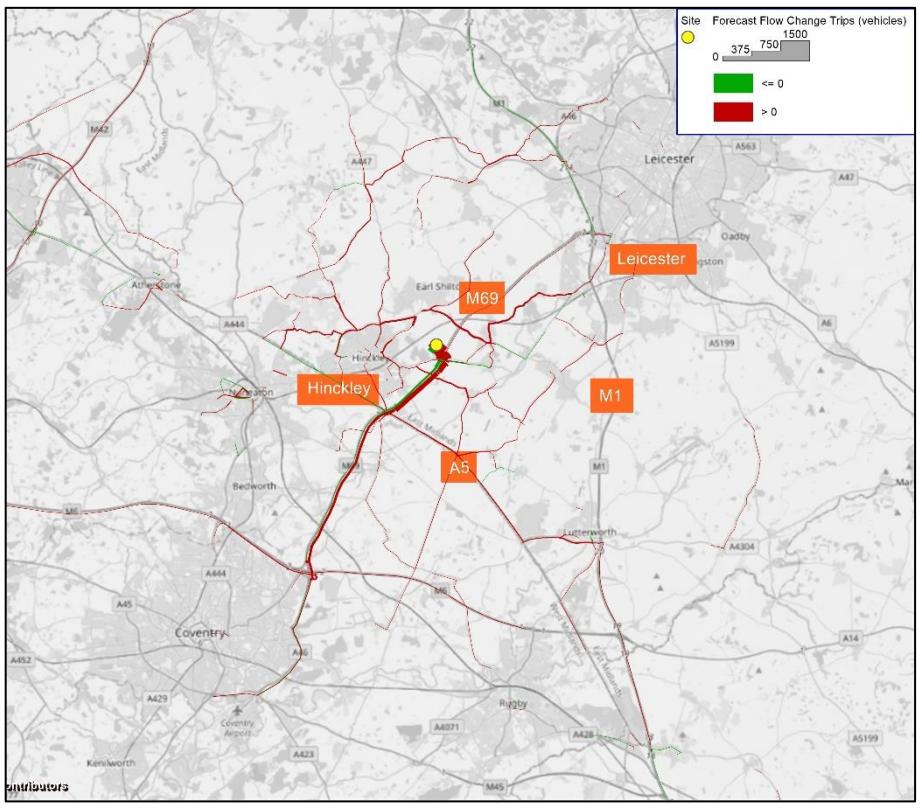
2026 'With Development' minus 'Without Development With Infrastructure' (PM)



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2036 'With Development' minus 'Without Development With Infrastructure' (PM)

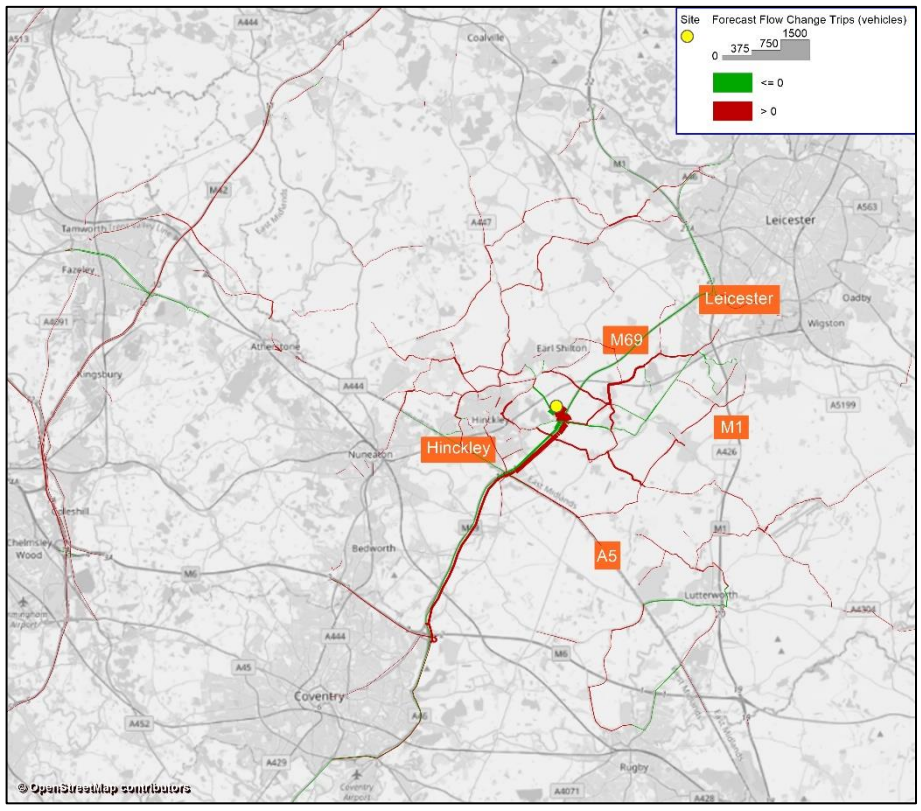

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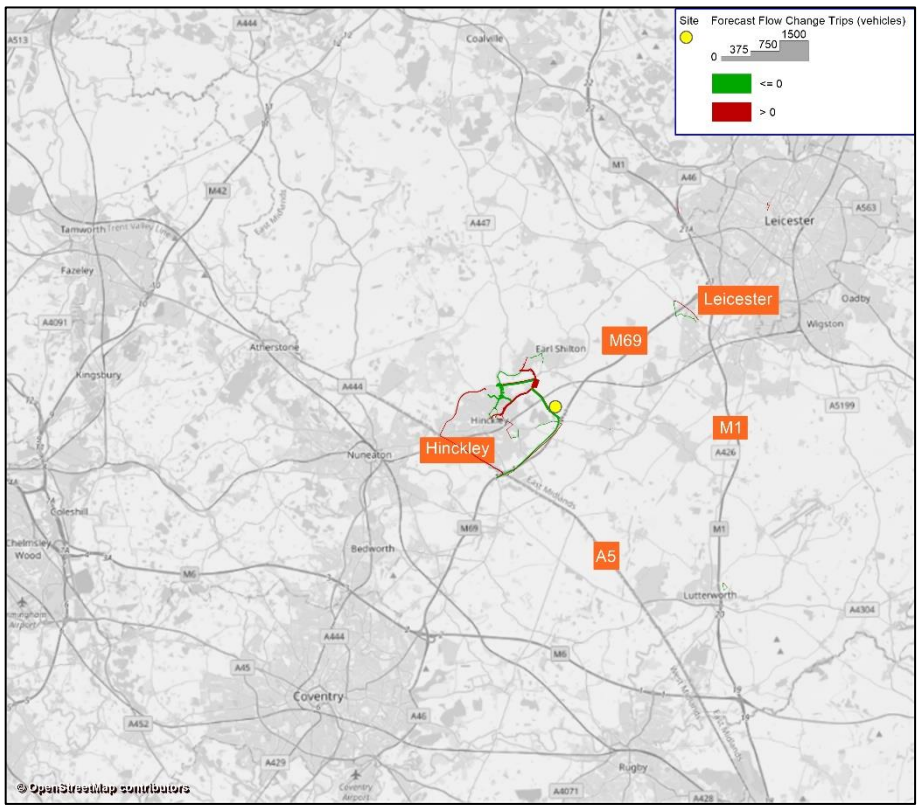
Figure D.4: Forecast Flow Change for the 2036 'With Development (Sensitivity Test)' minus 'With Development' Scenarios (in Veh)

2036 'With Development (Sensitivity Test)' minus 'With Development' (AM)



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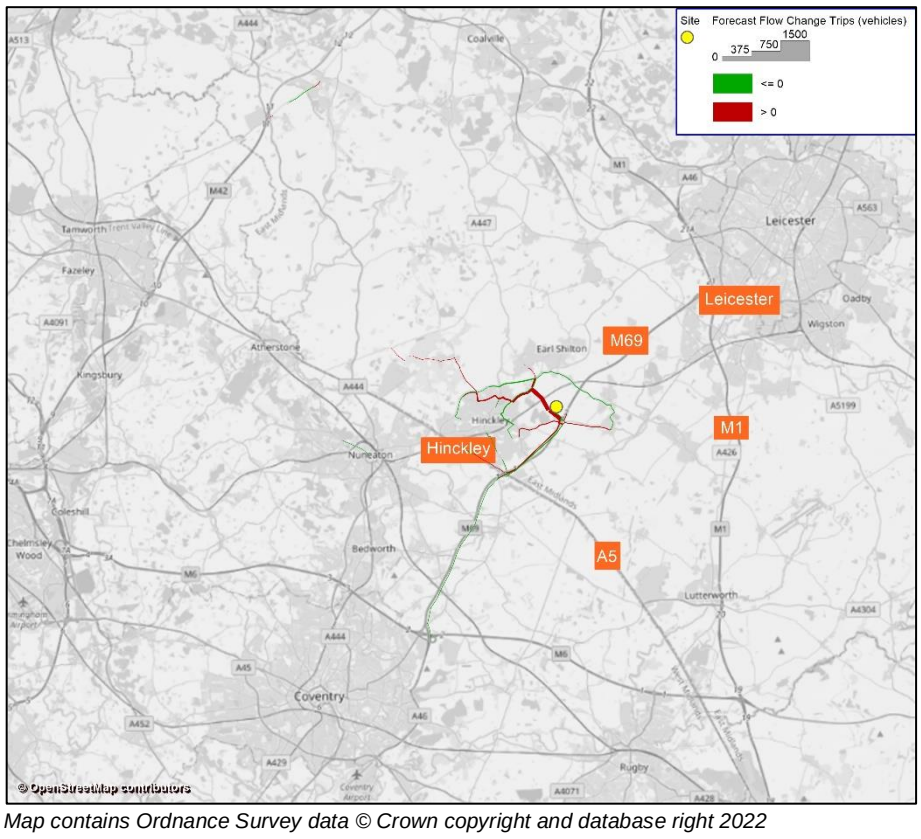
2036 'With Development (Sensitivity Test)' minus 'With Development' (PM)



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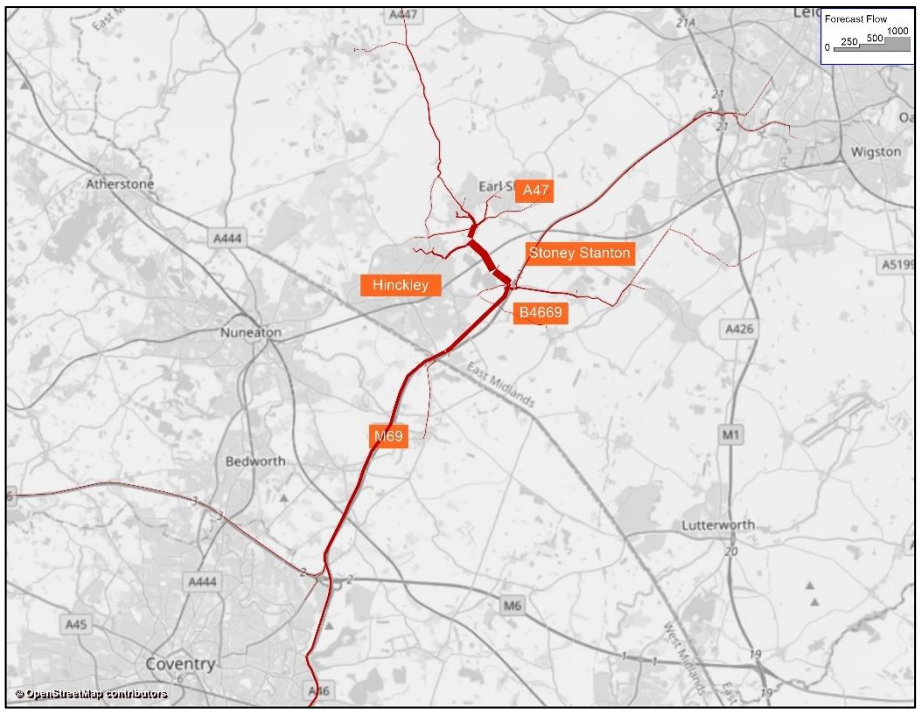
Appendix E Forecast Trip Distribution for the Proposed Link Road (Sensitivity Test)

Figure E.1: Forecast Trip Distribution for the Proposed Link Road for the 2036 'With Development (Sensitivity Test)' Scenarios (in PCUs)

2036 'With Development' - Proposed Link Road (Northbound) (AM)



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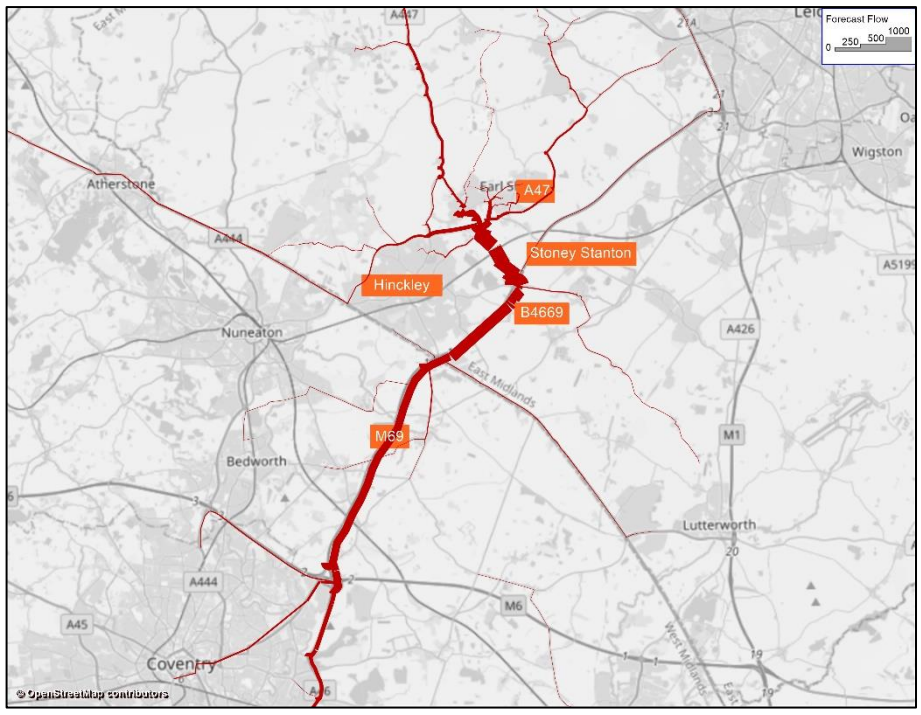
2036 'With Development' - Proposed Link Road (Southbound) (AM)



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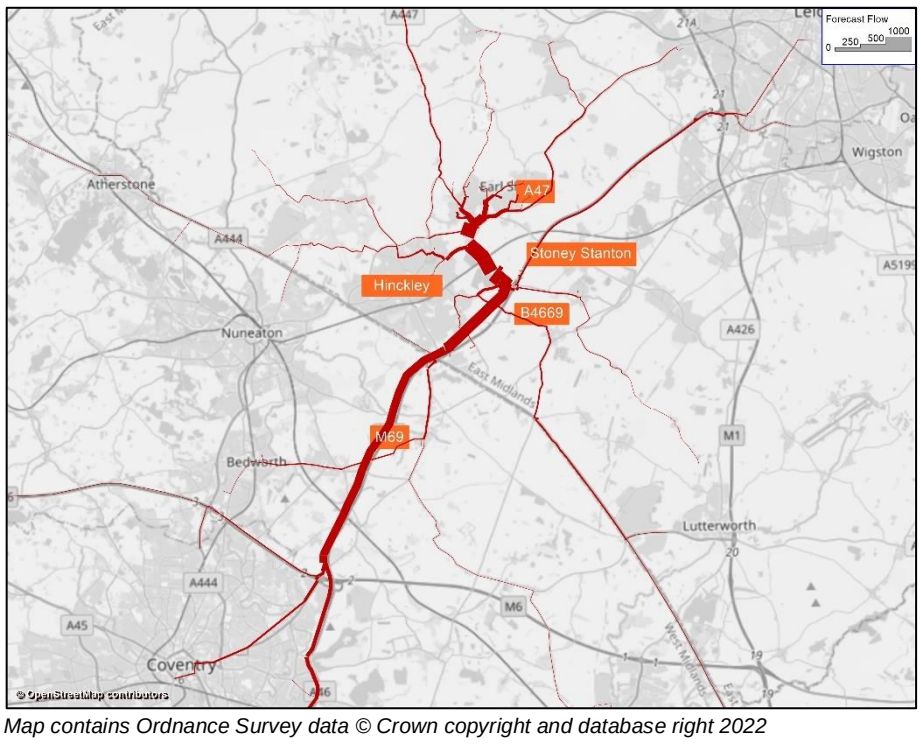
2036 'With Development' - Proposed Link Road (Northbound) (PM)



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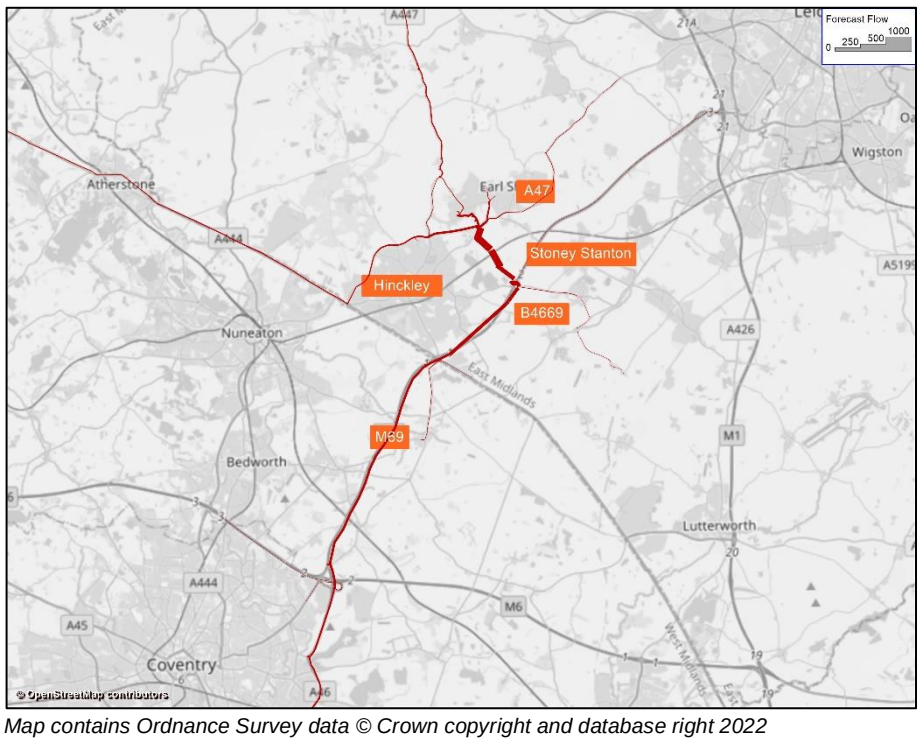
2036 'With Development' - Proposed Link Road (Southbound) (PM)



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