

HALSNEAD FARM

TRANSPORT ASSESSMENT

Curtins Ref: 087052-CUR-00-XX-T-TP-00001

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Client Names: Starship
Onward Homes

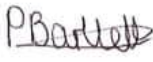
Client Address: Starship Hub, Hythe, Tower Road, CH41 1AA.

Site Address: Halsnead Farm, Fox's Bank Lane.

Control Sheet

Rev	Description	Checked	Issued	Date
P01	Client review	DJ	DJ	24 September 2025
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Table of Contents

1.0	Introduction	1
1.1	Proposed Development Overview.....	1
1.2	Planning Background – Halsnead Garden Village Masterplan	1
1.3	Scoping Discussions	3
1.4	Purpose and Scope of this Report	4
1.5	Structure of the Report	4
2.0	Site Location and Highway Layout	5
2.1	Site Location.....	5
2.2	Existing Use	6
2.3	Existing Access Arrangements	6
2.4	Surrounding Highway Network.....	6
2.5	Collision Data Analysis.....	6
3.0	Development Proposals	7
3.1	Introduction.....	7
3.2	Proposed Access	7
3.3	Proposed Parking Provision.....	8
4.0	Accessibility by Sustainable Modes of Transport	10
4.1	Introduction.....	10
4.2	Pedestrian Accessibility	11
4.3	Accessibility by Cycle	13
4.4	Accessibility by Public Transport.....	13
4.5	Summary	14
5.0	Traffic Forecasting and Highway Impact	15
5.1	Introduction.....	15
5.2	TRICS Trip Generation	15
5.3	Highway Impact.....	16
5.4	Additional Assessment Information – Proposed Development Traffic Figures.....	16
5.5	Additional Assessment Information – Site Access Model	17
5.6	Additional Assessment Information – Impact on the SRN	18
6.0	Transport Planning Policy	20
6.1	Introduction.....	20
6.2	National Planning Policy Framework (2024).....	20
6.3	Knowsley Local Plan Core Strategy 2016.....	21
6.4	Merseyside Local Transport Plan.....	23
6.5	‘Ensuring a Choice of Travel’ SPD	24
6.6	Conclusions	24
7.0	Summary and Conclusions	25
7.1	Summary	25
7.2	Conclusions	25

Figures

Figure 2.1 – Site Location.....5
Figure 4.1 – Masterplan Connectivity 10
Figure 4.2 – Local Amenities c.2,600m from the Site..... 12

Tables

Table 1.1 – Halsnead Garden Village Masterplan: Off-site Improvements2
Table 3.1 – Knowsley Parking Standards.....8
Table 3.2 – Car Ownership.....9
Table 4.1 – Summary of Bus Services 13
Table 5.1 – Proposed Development Trip Rates and Trips 15
Table 5.2 – Unadjusted TEMPro Growth Factors 16
Table 5.3 – Site Access Junctions 9 Results – Regular Assessment 17
Table 5.4 – Site Access Junctions 9 Results – Sensitivity Test 18

Drawings

- Drawing 087052-CUR-XX-XX-DR-TP-05001-P03 – Swept Path Analysis – Refuse Vehicle
- Drawing 087052-CUR-XX-XX-DR-TP-05002-P01 – Swept Path Analysis – Large Car
- Drawing 087052-CUR-XX-XX-DR-TP-05002-P01 – Swept Path Analysis – Emergency Fire Tender
- Drawing 087052-CUR-XX-XX-DR-TP-06001-P01 – Walking Catchment
- Drawing 087052-CUR-XX-XX-DR-TP-06002-P01 – Cycling Catchment
- Drawing 087052-CUR-XX-XX-DR-TP-06003-P01 – Public Transport Catchment
- Drawing 087052-CUR-XX-XX-DR-TP-75004-P02 – Access Arrangement

Traffic Figures

Figures 01 - 11

Appendices

- Appendix A – Proposed Site Layout
- Appendix B – Halsnead Garden Village Masterplan
- Appendix C – CrashMap Data
- Appendix D – TRICS Outputs
- Appendix E – Census Distribution
- Appendix F – Model Outputs
- Appendix G – Fox Wood Garden Village Traffic Flows

1.0 Introduction

1.1 Proposed Development Overview

- 1.1.1 Curtins has been appointed by Starship Hub to provide transport planning advice in relation to proposals for up to 90no. affordable houses in Whiston, Knowsley. The site is situated within the boundary of Knowsley Metropolitan Borough Council.
- 1.1.2 The site layout is provided in **Appendix A**.

1.2 Planning Background – Halsnead Garden Village Masterplan

- 1.2.1 The site is situated within the Masterplan area of the Halsnead Garden Village Masterplan. The Masterplan provides a comprehensive framework and guide planning decisions in the area and is formally allocated for development in Knowsley's Local Plan Core Strategy (adopted in 2016). The original Masterplan is provided in **Appendix B**.
- 1.2.2 The Masterplan aims to deliver approximately 1,600 new homes, a country park, new school places, employment and warehouse opportunities, as well as new roads and supporting infrastructure. A supporting preliminary Transport Assessment for the Masterplan identified the following issues and opportunities:
- Vehicular site access is achievable from several points within the adjacent highway network; there is an opportunity for new junctions to accommodate pedestrian and cycle movements.
 - Pedestrian routes can enhance the connectivity to the existing urban area and facilities of Whiston, especially on Windy Arbor Road and Lickers Lane.
 - There is a major role for internal circulation routes to make the site as permeable as possible, including making allowance for bus penetration into the residential site. The layout should ensure that the site is as permeable as possible at all stages of development.
 - Whiston Rail Station is a key asset to the development. There is a major opportunity to connect the new development to the station by sustainable travel modes.
 - There is a significant opportunity to use the former mineral railway line to link the two sites together for pedestrians, cyclists and equestrian uses as well as the potential to support a link to Sustrans route 56.
 - Off-site highways works have been identified as being needed to mitigate the impacts of development.
- 1.2.3 A series of off-site highway improvements to the surrounding road network were identified. It is understood these works are funded by the Liverpool City Region Strategic Investment Fund (LCR SIF). A summary is provided in **Table 1.1**:

Junction		Requirement
A	Windy Arbor Road/Lickers Lane	Widening to the north and south to facilitate: - A two-lane approach on Lickers Lane - A separate right and through lane on Windy Arbor Road northbound, and - The introduction of controlled pedestrian crossing facilities across two arms of the junction. The works would require the reconstruction of the sandstone boundary wall around the recreation ground, and the relocation of a bus stop on Lickers Lane further to the east.
B	Lickers Lane/Fox's Bank Lane	Introduction of traffic signals to allow the controlled movement of traffic out of the Lickers Lane, and also the controlled movement of pedestrians over all arms of the junctions.
C	Windy Arbour Road/Dragon Lane	Windy Arbour Road approach to Dragon Lane widened to allow for a two-lane approach.
D	Stoney Lane/Dragon Lane/ Meadway	Improved designation of the right turn from Dragon Lane to Stoney Lane and improved through alignment on Dragon Lane.
E	Stoney Lane/Cumber Lane	Provision of traffic signals and controlled pedestrian crossing facilities on all arms of the junction.
F	Cronton Road/Fox's Bank Lane	Realignment of Prescott Road to the south to opposite Fox's Bank Road to provide a crossroads arrangement; and widening of Cronton Road to enable the provision of right turn pockets for vehicles turning to the north and south. Relocation of the existing bus stops to the west of the junction into new laybys. Advanced cycle stop lines with lead in lanes to be provided on Cronton Road.
G	Tarbock Island (M62/M57 Junction 6)	Widening to internal quadrants and certain entry slip roads, together with further signalisation of nodes.

Table 1.1 – Halsnead Garden Village Masterplan: Off-site Improvements

- 1.2.4 Two sites adjacent to the proposed development site and within the Masterplan boundary have recently undergone construction; 'Fox Wood Garden Village' to the north, and 'Tritax Symmetry' to the south. In line with the Masterplan principles, these sites and the proposed development sites are required to link to one-another:

Fox Wood Garden Village

- 1.2.5 The Fox Wood Garden Village site was approved in February 2022 under planning application number: 20/00417/FUL. The development is described as the following:

"Residential development comprising of the erection of 350 no.dwellings together with the construction of vehicular access of Fox Bank Lane (comprising signalised junction), SUDs ponds, landscaping, boundary treatments and other associated works (including demolition of existing farm buildings)".

- 1.2.6 The planning application was accompanied by a Transport Assessment, produced in April 2020. Following a site visit, it is clear a number of units have been constructed and occupied.

Tritax Symmetry

- 1.2.7 The Tritax Symmetry site was approved in March 2022 under application reference: 20/00494/HYB. The development is described as the following:

“Hybrid Planning Application comprising: Full application for the development of 161,900 SQ FT of storage and distribution floorspace (Use class B8), including ancillary offices (Use Class B1), security gatehouse, site access road, engineering earthworks, to form a part county park, public car park to serve county park, and associated works; and outline application with details of point access (details of part-access, landscaping, appearance, scale and layout are reserved) for the development of up to 838,100 SQ FT of storage and distribution floorspace (Use class B8), with ancillary offices and light industrial (Use class B1); engineering earthworks to form county park and drainage attenuation ponds; pedestrian/cycle/equestrian route connecting existing M62 footbridge with proposed county park; and associated works”.

1.3 Scoping Discussions

- 1.3.1 Curtins attended a pre-application meeting (via Microsoft Teams) with Highways Officers from Knowsley Council on 30th July 2025 to discuss the latest development proposals and scope of planning documentation. The bullets below provide a summary of discussions:

- **Access:** It was agreed a priority T-junction would be a suitable arrangement to accommodate the development. Notwithstanding, Knowsley Highways indicated a preference for futureproofing by providing dedicated right-turn provision.
- **Car Parking:** Highways officers explained that they have accepted a lower car parking provision in the past for affordable housing sites and was therefore agreed that the same principal would apply for our site. It was also noted that there is a preference for good quality cycle storage facilities for those choosing to cycle.
- **Pedestrian Connectivity (north):** As the site forms part of the wider Halsnead Masterplan, the site will provide connections north into the consented Fox Wood Garden Village site. It was agreed the Fox Wood Garden Village site is expected to deliver onwards connections throughout the wider masterplan area, and that this will be reviewed by the Knowsley S38/S278 team. It was also agreed that other Masterplan users would benefit from this connection through the proposed development site.
- **Pedestrian Connectivity (south):** There will be pedestrian links to the south via the Tritax Symmetry site. This will facilitate a pedestrian route from the proposed development site into Symmetry Park (an industrial unit being brought forwards by Tritax Symmetry). From here, the footpaths will continue south into County Park and the A5080 Cronton Road. Again, it was agreed the Tritax Symmetry site is expected to deliver onwards connections, and that this will be reviewed by the Knowsley S38/S278 team. It was also again agreed that other Masterplan users would benefit from this connection through the proposed development site.

- 1.3.2 A key agreed item was in relation to accessibility. It was agreed during Curtins' discussions with Knowsley Council that the site is accessible in principle, providing it delivers its 'share' of the pedestrian connections.
- 1.3.3 The Fox Wood Garden Village and Tritax Symmetry sites are required to deliver connections onwards through the Masterplan; and the Proposed Development site benefits from confirmed connections via the Tritax Symmetry site (albeit these are subject to other consents/agreements outside of the planning process).

1.4 Purpose and Scope of this Report

- 1.4.1 This Transport Assessment (TA) has been written in order to consider the proposals and their potential impact on the surrounding area from a traffic and transportation perspective. On this basis, this TA contains the following:
- Details of the existing use and the proposals, together with the proposed site plan;
 - A review of highway safety within the vicinity of the site for the most recent five years;
 - An audit of accessibility by all modes of travel including walking, cycling, and public transport;
 - Details regarding the proposed parking levels and access arrangements;
 - Information regarding the impact on trip generation and anticipated highway impact forecast; and
 - A review of the relevant local and national transport planning policy.

1.5 Structure of the Report

- 1.5.1 Following this introduction, **Section 2** of the report provides a comprehensive description of the existing site and its location. This includes the local highway network and facilities for pedestrians, cyclists and public transport users.
- 1.5.2 **Section 2** also reviews the local area in terms of highways safety by way of obtaining records of accidents adjacent to the site over the most recent five-year period available.
- 1.5.3 The proposals summarised in **Section 3**, including the proposed access, parking provision and servicing arrangements.
- 1.5.4 The accessibility of the site by sustainable modes of travel is assessed in **Section 4**.
- 1.5.5 **Section 5** outlines the traffic forecasting methodology used to establish the likely traffic generation associated with the development proposals, and provides commentary on anticipated highway impact.
- 1.5.6 Relevant local and national transport policy is summarised in **Section 6**, and the report is summarised and concluded in **Section 7**.

2.0 Site Location and Highway Layout

2.1 Site Location

2.1.1 The proposed site is located in Whiston, Knowsley, c.1.5km south of Whiston town centre. The site is bounded by Fox's Bank Lane to the east, the M62 to the north, agricultural land to the west and south.

2.1.2 **Figure 2.1** below shows the site location.

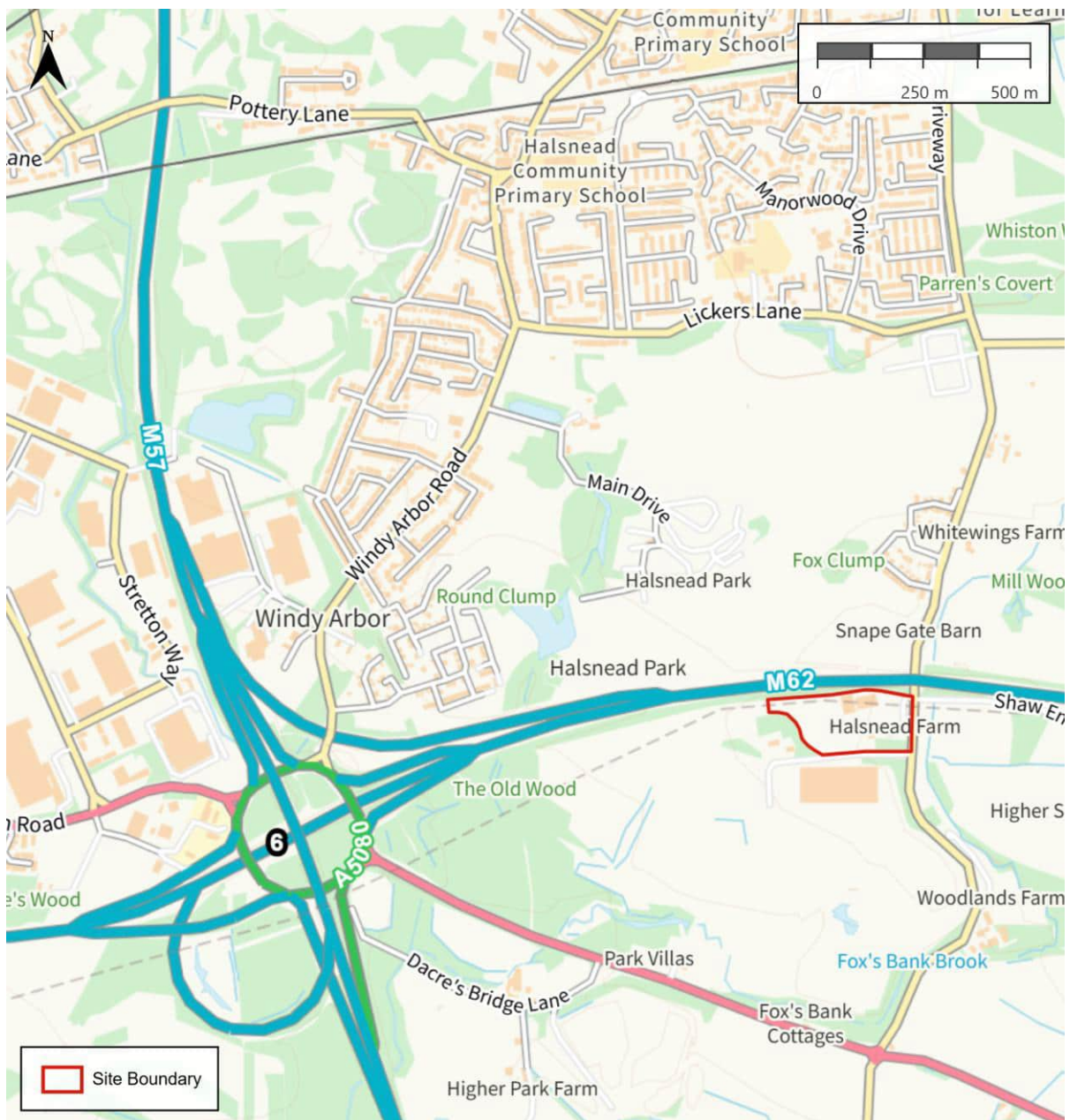


Figure 2.1 – Site Location

(Source: Ordnance Survey, 2025)

2.2 Existing Use

- 2.2.1 The site is currently used as farmland/agricultural land, with a horse boarding stables.

2.3 Existing Access Arrangements

- 2.3.1 The site is currently accessed via a priority-controlled T-junction from Fox's Bank Lane, c.25m south of M62.

2.4 Surrounding Highway Network

Fox's Bank Lane

- 2.4.1 Fox's Bank Lane is a two-directional single lane road, with a typical carriageway width of c.6m and c.2m footways on the eastern side of the carriageway, supported by streetlighting.
- 2.4.2 There is a 60mph to 30mph speed limit change, approximately 60m south of the M62 as it bridges over Fox's Bank Lane

Cronton Road (A5080)

- 2.4.3 Cronton Road is located to the south of the development site and forms the western and eastern roundabout arms with Fox Bank Lane. Cronton Road is a two-directional single lane road with a typical carriageway width of c.7m and operates at a 40mph speed limit. Footways are present along both sides of Cronton Road, supported by street lighting.
- 2.4.4 There is pedestrian infrastructure in the form of tactile paving at the roundabout junction, as well as footway provision, although this does not extend for the entirety of Cronton Road

2.5 Collision Data Analysis

- 2.5.1 Personal Injury Accident (PIA) data for the highway network adjacent to the site has been obtained from CrashMap for the most recent five years, and included to the rear of this report in **Appendix C**.
- 2.5.1 The records show that there have been 2 recorded accidents in the study area over a five-year assessment period. A total of 1 accident resulted in slight severity injuries, with the remaining accident resulted in a serious injury. No fatal accidents were recorded. This number of accidents over a 5-year period is not considered to be of high value for the study area considered in this review. Additionally, there have been no recorded accidents within the vicinity of the site access point within the accident data study period.
- 2.5.2 Following a review of the records, it is not considered that there is an existing safety issue that is likely to be exacerbated by the proposed development.

3.0 Development Proposals

3.1 Introduction

- 3.1.1 Curtins has been appointed by Starship Hub to provide transport planning advice in relation to proposals for affordable houses in Whiston, Knowsley.
- 3.1.2 The application is for 88 units. However, it is understood the modular nature of the scheme could result in a slight variation to this, and so, whilst the technical elements of this report reference an upper ceiling of 90 houses, this section considers proposals for a total of 88 units comprising:
- 33no. one-bedroom units;
 - 21no. two-bedroom units;
 - 20no. three-bedroom units; and
 - 14no. four-bedroom units.
- 3.1.3 The site is situated within the boundary of Knowsley Metropolitan Borough Council.
- 3.1.4 The proposals are provided in **Appendix A**. The layout indicates a mix of detached and semi-detached residential dwellings, alongside a purpose-built block containing apartment units.

3.2 Proposed Access

Vehicular Access

- 3.2.1 **Drawing 087052-CUR-XX-XX-D-T-75004-P02** illustrates the proposed vehicular access, comprising a priority T-junction with GIRT facility. The drawing also shows the 30mph visibility splays at the site access.
- 3.2.2 **Drawings 087052-CUR-XX-XX-D-T-05001-P03** and **087052-CUR-XX-XX-D-T-05002-P01** show how the junction would be negotiated by a refuse vehicle and large car respectively.

Active Travel (Pedestrian and Cycle) and Equestrian Access

- 3.2.3 **Drawing 087052-CUR-XX-XX-D-T-75004-P02** provides pedestrian connectivity into Fox's Bank Lane. This will connect pedestrians to the north, through Fox Wood Garden Village. Once here, pedestrians will then be able to connect into the existing pedestrian infrastructure for onwards pedestrian connectivity to Whiston.
- 3.2.4 New pedestrian routes are also to be provided to the south, offering connectivity into the Tritax Symmetry site. These routes will link to the existing access road south of the site, allowing pedestrians to connect directly into Symmetry Park (the industrial development being brought forward by Tritax Symmetry) and the new Country Park. For the avoidance of doubt, these connections achieve:

- A through-route aligned with the Tritax Symmetry site planning requirements;
- A safeguarded connection that links Fox's Bank Road through to the Country Park corridor; and
- Surface treatment, width, and gradient appropriate for pedestrians, cyclists, (and horses).

3.2.5 The site will retain its existing equestrian heritage by providing its part in an equestrian link between existing riding schools to the south and popular riding routes to the north.

3.2.6 Discussions were undertaken with the owners of the land adjacent to the development site, relating to the Tritax Symmetry Park site, following the receipt of the pre-application advice from the LPA. The aim of these discussions was to facilitate a dedicated footpath through the Symmetry Park site to provide future occupants of the development with a secure link to the bus stops on Cronton Road. These discussions have resulted in an agreement in principle.

3.2.7 Combined with the direct access to the Taylor Wimpey site to the north which provides further connectivity to the wider masterplan area, it is concluded that the proposed development in its amended form achieves the necessary connectivity required of Sustainable Urban Extensions and as such aligns with the aims of Policy SUE2c of the Local Plan. Furthermore, the scheme contributes to the overall aim of the Halsnead Garden Village Masterplan SPD Strategic Objective SO4 "Enhancing Connectivity".

Servicing and Emergency Access

3.2.8 It is anticipated that refuse collection will be carried out from the roadside, with refuse looping round the site. **Drawing 087052-CUR-XX-XX-D-T-05001-P03** demonstrates how a large refuse vehicle would navigate and turn on-site.

3.2.9 It is envisaged any emergency vehicles would undertake similar manoeuvres, and **Drawing 087052-CUR-XX-XX-D-T-05003-P01** demonstrates how a fire tender can access all units in case of emergency.

3.3 Proposed Parking Provision

3.3.1 **Table 3.1** reproduces the Knowsley Council SPD car parking standards:

Number of Bedrooms	Car Parking Max Standards	Disabled Parking	Cycle Parking* Minimum Standards
1 Bedroom	1 space	Case by Case Basis	1 (allocated) 1 (Communal)
2-3 Bedrooms	2 spaces	Case by Case Basis	2 (allocated) 1 (Communal)
4+Bedroom	3 spaces	Case by Case Basis	4 (allocated) 2 (Communal)

*cycle parking need not be provided if garages are available

Table 3.1 – Knowsley Parking Standards

3.3.2 Based on the above, the proposed development can provide a maximum of 157 car parking spaces across the site.

3.3.3 However, given the nature of the development proposals and as discussed with Knowsley Highways, it would not be appropriate to meet the maximum levels of car parking. On this basis, a total of 150 car parking spaces are proposed as follows:

- Houses: 111 spaces;
- Apartments: 37 spaces; and
- Visitor spaces: 2 spaces.

3.3.4 There are 7no. accessible parking bays within the above (associated with the 7no. M4(3) units).

3.3.5 EV charging will be provided in accordance with building regulations; at one point per new dwelling.

3.3.6 Each apartment is allocated a cycle space in a purpose built secure and covered cycle store in close proximity to each block. A minimum of two cycle storage spaces per house are located within secure sheds located in rear gardens.

Local Car Ownership Levels

3.3.7 The level of car parking provision has further been informed by Dataset QS416EW of the 2011 Census, titled 'Car or van availability', centred around the Knowsley 017 Middle Super Output Area (MSOA) where the site is located, for all dwelling types.

Knowsley 017 MSOA Car/Van Ownership	Percent
No cars or vans in household	11%
1 car or van in household	43%
2 cars or vans in household	36%
3 cars or vans in household	8%
4 or more cars or vans in household	2%
Total	100%

Table 3.2 – Car Ownership

3.3.8 At 90%, the vast majority of households have access to two or fewer cars/vans, and more than half (54%) have access to one or no cars/vans.

3.3.9 The average car ownership per household equates to 1.47 cars. Assuming such a level of ownership across 88 units, there could be a total car parking demand of 129 spaces which compares well with the proposed total of 150 spaces on site.

4.0 Accessibility by Sustainable Modes of Transport

4.1 Introduction

4.1.1 The site forms part of the “Sustainable Urban Extension – South of Whiston and South of the M62” allocation within the Knowsley Local Plan Core Strategy (covered by Policies SUE1 and SUE2). The land is therefore designated for development, and the principle of person trips (including by sustainable modes) to and from the site is established.

4.1.2 **Figure 4.1** illustrates how the site is situated in relation to the Fox Wood Garden Village and Tritax Symmetry sites, with the arrows demonstrating how onwards connectivity will be achieved:

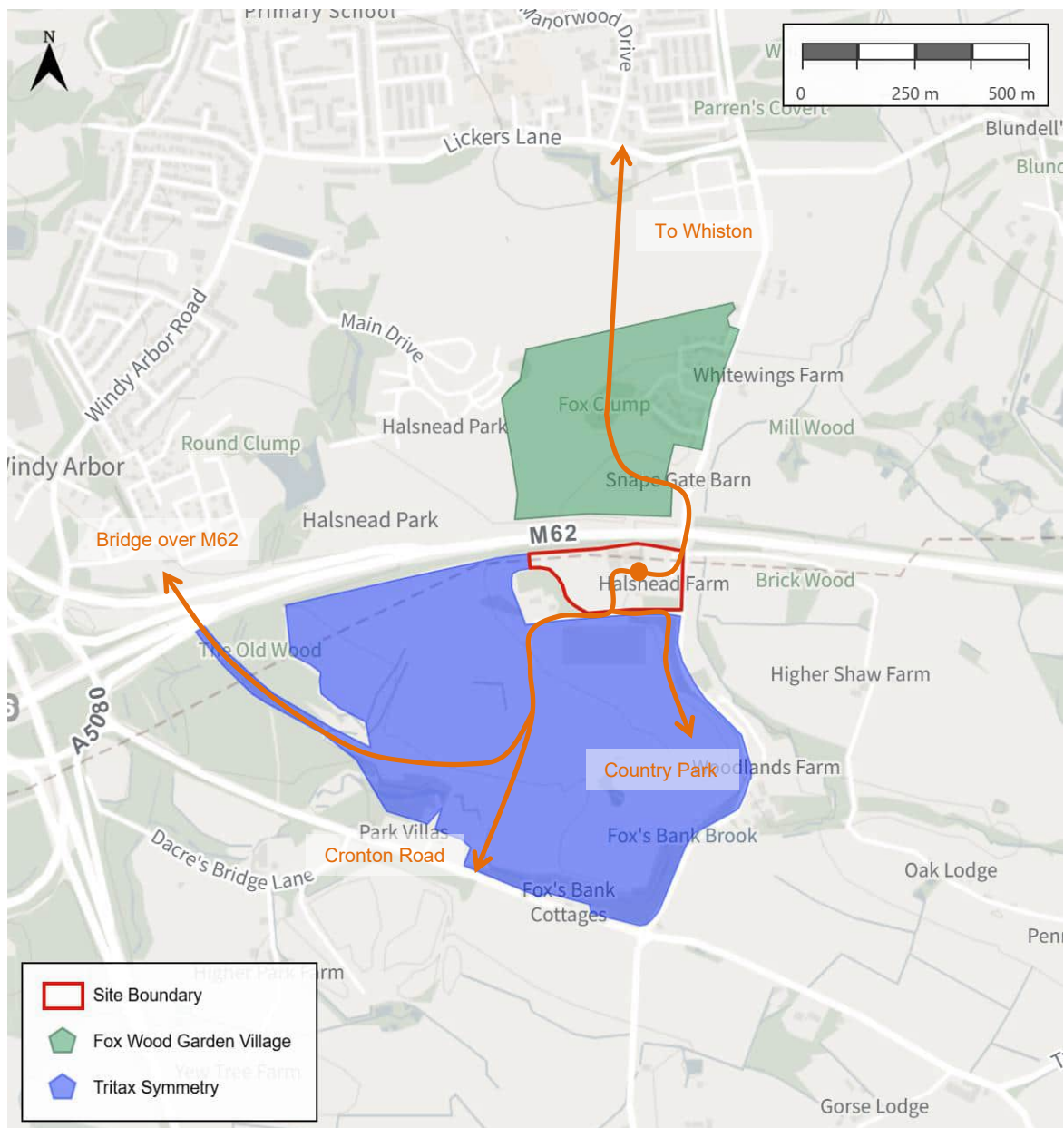


Figure 4.1 – Masterplan Connectivity

(Source: Ordnance Survey, 2025)

4.1.3 This onwards connectivity would be achieved for pedestrians, cyclists and equestrians. However, within such context, this section focuses on:

- Pedestrian Accessibility;
- Accessibility by Cycle; and
- Accessibility by Public Transport.

4.2 Pedestrian Accessibility

4.2.1 From the site, pedestrian access to Fox Wood Garden Village is provided via a dedicated pedestrian footway along the western side of Fox's Bank Lane of at least 2m in width. Here, a dedicated attractive pedestrian link provides access to the internal road network of Fox Wood Garden Village; with a variety of dedicated off-road footways and shared surface streets provided throughout. The internal road network connects to future development phases in the north and west.

4.2.2 Additionally, there will be pedestrian links to the south from the proposed site, which are being brought forward by Tritax. This will involve a pedestrian route from the site, which connects to the existing access road to the south to provide pedestrian connectivity into Symmetry Park (the industrial unit being brought forwards by Tritax Symmetry). From here, residents will be able join onto the footpaths which will continue south into County Park. It is envisioned this footway link will be used by those in the Taylor Wimpey development to the north as well.

4.2.3 This route is proposed as part of the approved proposals for a Country Park on the Land South of the M62 (15/00191/FUL) and also is included in the Core Strategy policy for the wider Masterplan. Once again, the various sites are reliant on one-another to deliver the wider Masterplan pedestrian accessibility.

4.2.4 To assist in summarising the accessibility of the site by foot, an indicative pedestrian catchment plan has been prepared. **Drawing 087052-CUR-00-XX-DR-TP-06001** shows distances of 500m, 1,000m and 2,000m which are termed 'Desirable', 'Acceptable' and the 'Preferred Maximum' by the CIHT for commuting/school trips and are considered representative of a typical residential pedestrian trip.

4.2.5 Lickers Lane is accessible c.1,400m from the centre of the site (via Fox Wood Garden Village and future development phases). From Lickers Lane, various facilities and amenities are accessible throughout Whiston Cross within c.2,600m including the following as presented in **Figure 4.2**:

- Sandfield Natural Play Centre (c.1,500m);
- Go Local Convenience Store (c.1,600m);
- St Leos and Southmead Catholic Primary School (c.1,800m);
- St Leo Church (c.1,800m);
- Halsnead Primary School (c.2,400m);
- Tesco Express (c.2,600m); and

- A variety of local shops and food/drink/takeaway establishments off Windy Arbour Road/ Dragons Lane/Greenes Road (c.2,600m).

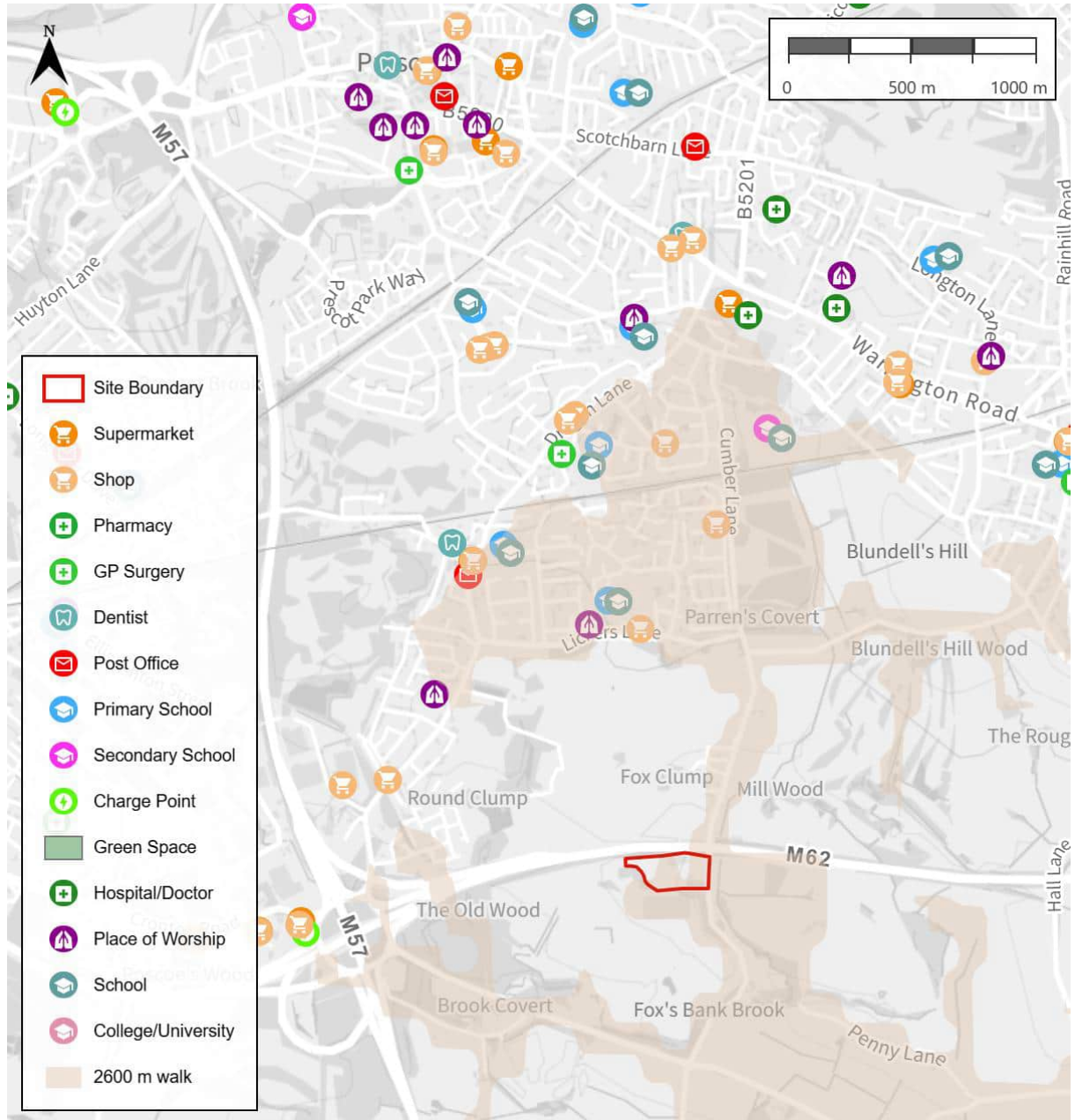


Figure 4.2 – Local Amenities c.2,600m from the Site

- 4.2.6 Furthermore, additional amenities, facilities and employment opportunities will come forward as part of the Halsnead Garden Village Masterplan; including the New Country Park and various B8 employment uses.
- 4.2.7 In summary, as part of the wider Sustainable Urban Extension allocation within the Local Plan Core Strategy, the site benefits from various amenities and facilities within the local area.

4.3 Accessibility by Cycle

4.3.1 In order to assist in assessing the accessibility of the site by cycle, **Drawing 087052-CUR-00-XX-DR-TP-06002** presents an 8km cycle catchment for the site. The 8km catchment extends as far as Eccleston in the north, St Helens in the north-east, Widnes in the south and Broadgreen in the west. These areas incorporate a variety of employment, retail and leisure uses. More locally, the following are accessible:

- Whiston Railway Station (c.2.3km);
- Whiston Hospital (c.2.5km);
- Rainhill (c.2.8km); and
- Various employment uses in Tarbock Green (as close as 3.2km).

4.3.2 The nearest National Cycle Route (NCR) is route 56 which is situated approximately 1.8km northwest of the site. There are opportunities for prospective residents to access key amenities, facilities and employment opportunities by cycle.

4.4 Accessibility by Public Transport

4.4.1 **Drawing 087052-CUR-00-XX-DR-TP-06003** demonstrates those areas accessible via public transport within 20-, 40- and 60-minute journey from the site. Accessibility by bus and rail are considered in further detail within the subsections below.

Bus Accessibility

4.4.2 The nearest bus stops are located to the south of the site on the A5080 Cronton Road; approximately 800m walk from the centre of the site via the Tritax Symmetry site. The stops on Cronton Road both comprise a flagpole arrangement with timetable information and DDA kerbs.

4.4.3 Additionally, north of the site on Fox's Bank Lane/Cumber Lane or Lickers Lane, there are bus stops accessible within c.1,200m – 1,400m walk from the centre of the site via the wider allocation. The stops on Fox's Bank Lane and Cumber Lane are both complete with shelters and timetable information.

4.4.4 **Table 4.1** details the services that call at these stops, and the associated frequencies:

Bus Service	Route	Typical Frequency		
		Mon – Fri	Sat	Sun/Hols
Cronton Road				
7	Liverpool – Huyton or Warrington	30mins	30mins	30mins
Fox's Bank Lane/Cumber Lane or Lickers Lane				
99	Whiston Station – Prescot Circular	Hourly	Hourly	-
239	Prescot – Broadgreen Hospital	40mins	40mins	-
248	Huyton Bus Station – Prescot Bus Station	Early/Late Services	Early/Late Services	Hourly

Table 4.1 – Summary of Bus Services

- 4.4.5 Whilst the bus stops are outside a typical walking catchment, the attractiveness of service number 7 in particular (which provides a regular connection into Liverpool city centre and Huyton Bus Station or Warrington Bus Interchange) would offer a genuine option for prospective residents as it offers early and late running services. The walking route is also an attractive route away from roads with high volumes of traffic and via the Country Park if the user wishes to walk slightly further.
- 4.4.6 Alternative services are available to the north which serve key destinations such as Broadgreen Hospital and various local centres. There are opportunities for prospective residents to access key amenities, facilities and employment opportunities by bus.

Rail Accessibility

- 4.4.7 The nearest Railway Station is Whiston Railway Station, c.2.3km walk north of the site via the wider allocation. The station is managed by Northern Rail and offers services to destinations including Warrington Bank Quay, Liverpool Lime Street, Crewe and Manchester Piccadilly.
- 4.4.8 Due to the attractive destinations, it is considered some prospective residents may choose to walk to the station via the wider Masterplan which offers attractive route away from roads with high volumes of traffic. Alternatively, the station provides car parking, with 42 standard spaces and 2 accessible spaces (making park-and-ride a feasible option), or the station is within a 10minute leisurely cycle.
- 4.4.9 There are opportunities for prospective residents to access key amenities, facilities and employment opportunities by rail as part of a multi-modal journey.

4.5 Summary

- 4.5.1 It is noted the site forms part of the “Sustainable Urban Extension – South of Whiston and South of the M62” allocation within the Knowsley Local Plan Core Strategy (covered by Policies SUE1 and SUE2). The land is therefore designated for development, and the principle of person trips (including by sustainable modes) to and from the site is established.
- 4.5.2 There are pedestrian connections into the north (Fox Wood Garden Village) and south (Tritax Symmetry). Onwards connections are secured via the wider allocation.
- 4.5.3 There are opportunities for uptake in sustainable modes of travel including on foot, by cycle and by public transport.

5.0 Traffic Forecasting and Highway Impact

5.1 Introduction

- 5.1.1 Firstly, this section considers the traffic-generating potential of the proposed development site. In order to undertake the assessment, the TRICS database has been used.
- 5.1.2 TRICS is the industry recognised tool for calculating the anticipated future trip demand of a proposed development. The database contains multi-modal surveys of varying land uses in multiple destinations across the UK, including residential land uses.
- 5.1.3 The forthcoming TRICS assessment demonstrates any highway impact would be negligible. Notwithstanding this, to provide additional comfort for Highways Officers at Knowsley and to provide additional information regarding the Strategic Road Network (SRN), this section also discusses a model of the site access and the levels of traffic distributed to M62 Junctions 6 and 7.

5.2 TRICS Trip Generation

- 5.2.1 The following section contains trip generation analysis based on the proposed development during the weekday AM and PM peak hours. The full TRICS outputs are included within **Appendix D** to the rear of this report. The applied selection criteria are set out below:

- TRICS category “Residential – Affordable/Local Authority Houses”;
- Weekday surveys;
- Edge of Town Centre and Suburban Areas;
- Vehicle surveys only (insufficient multi-modal surveys available on TRICS).

Consideration has been given to the traditional highway network peak hours of 08:00 – 09:00 and 17:00 – 18:00 to understand development impact at peak times. The trip rates and subsequent vehicular trips associated with the ‘up to 90’ units are summarised in **Table 5.1** below:

TRICS Trip Rates	Trip Generation AM (08:00 – 09:00)			Trip Generation PM (17:00 – 18:00)		
	Arrive	Depart	Total	Arrive	Depart	Total
Vehicles	0.124	0.255	<u>0.379</u>	0.265	0.199	<u>0.464</u>
Trip Generation	11	23	<u>34</u>	24	18	<u>42</u>

Table 5.1 – Proposed Development Trip Rates and Trips

- 5.2.2 The above table demonstrates the proposed development could generate approximately 34 and 42 two-way vehicular trips in the traditional AM and PM peak hours respectively. Volumetrically, this translates to an average of 4-5 vehicles every 4-6 minutes in the peak hours.

5.3 Highway Impact

- 5.3.1 The above trip generation exercise should provide comfort that the proposed development would not have a perceptible impact on the surrounding highway network. It is therefore clear the development would not have a “severe” impact on the surrounding highway network.
- 5.3.2 As part of a vision-led approach to transport planning, the development of the site would also promote the use of sustainable modes across the wider Masterplan by providing the missing link across the M62 between the land to the north and south of the motorway. This, in turn, connects:
- The Fox Wood Garden Village (and significant planned residential-led development to the north) with employment uses at Tritax Symmetry and the new Country Park (and vice versa); and
 - Existing users of the wider equestrian network including nearby livery yards and riding centres (such as Lodge Riding Centre on Dacres Bridge Lane) with Whiston Woods and Rainhill.
- 5.3.3 On this basis, and in the context of a minimal increase in vehicular movements, the development of the site could be viewed as mitigating any of its adverse impacts by virtue of the role it plays in the context of connecting the wider Masterplan.

5.4 Additional Assessment Information – Proposed Development Traffic Figures

Baseline Data Collection

- 5.4.1 An independent ATC was undertaken by an independent survey company on 9th January 2025. The surveyed flows are provided to the rear of this report in **Traffic Figures 01** and **02**.

Assessment Years and Traffic Growth

- 5.4.2 TEMPro is commonly used to generate a suitable future year traffic growth factor, however, a blanket growth factor is not reflective of historical trends.
- 5.4.3 Notwithstanding this, to ensure a robust assessment of off-site junctions on the surrounding highway network and to provide an additional level of comfort to Highways Officers, growth factors have been taken from the National Trip End Model (‘NTEM’) with TEMPro for the Knowsley area 011.
- 5.4.4 **Table 5.2** provides the factors from a base year of 2025 to 2030:

Peak Time	Level		2025-2030
AM Peak	Authority	Knowsley 011	1.0337
PM Peak	Authority	Knowsley 011	1.0343

Table 5.2 – Unadjusted TEMPro Growth Factors

- 5.4.5 The 2030 Future Year flows are provided to the rear of this report in **Traffic Figures 03** and **04**.

Trip Distribution and Assignment

- 5.4.6 Trip distribution has been calculated using information provided by the Census 2011 Origin-Destination information for the place of work at an MSOA (Middle Super Output Area) level. A summary of the projected traffic Census distribution is provided in **Appendix E**, whereas **Traffic Figure 05** included at the rear of this report illustrates the percentages of the traffic that passes through the assessed junctions, assigning traffic to each of the arms.
- 5.4.7 **Traffic Figures 06** and **07** included at the rear of this report provide the Proposed Development trip assignment for the AM and PM peak periods.

Assessment Traffic Flows

- 5.4.8 The development traffic flows have been added to the 2025 Application Year scenario to form the '2025 Base + Development' traffic flows. The resultant figures are set out in **Traffic Figures 08** and **09**.
- 5.4.9 In addition, the development traffic has been added to the 2030 Future Year scenario to form the '2030 Base + Development' traffic flows. The resultant figures are set out in **Traffic Figures 10** and **11**.

5.5 Additional Assessment Information – Site Access Model***Regular Assessment***

- 5.5.1 The Site Access has been assessed using the Junctions 9 modelling package using the flows presented in **Traffic Figures 08 – 11**.
- 5.5.2 Results refer to the Ratio of Flow to Capacity ('RFC') and queue length predicted on each arm of the junction. An RFC of 1.00 indicates that the arm in question is operating at its theoretical capacity, whilst an RFC of 0.85 or less indicates that the arm is operating within its practical capacity.

The full outputs are provided in **Appendix F** and the results are summarised in **Table 5.3** below:

Arm		2025 With Development		2030 With Development	
		RFC	Queue	RFC	Queue
AM Peak					
1	Site Access left right	0.06	0.1	0.06	0.1
2	Fox's Bank Lane ahead right	0.00	0.0	0.00	0.0
PM Peak					
1	Site Access left right	0.04	0.0	0.05	0.0
2	Fox's Bank Lane ahead right	0.10	0.0	0.01	0.0

Table 5.3 – Site Access Junctions 9 Results – Regular Assessment

- 5.5.3 It is clear from the results shown in **Table 5.3** demonstrate the proposed site access junction is predicted to operate well within capacity in the future year with development scenarios.

Sensitivity Test

- 5.5.4 Referring to the Fox Wood Garden Village scheme, the associated Transport Assessment presented two-way committed development and development flows totalling 105 in the AM peak, and 116 in the PM peak. The relevant figures taken from the Fox Wood Garden Village Scheme can be found in **Appendix G**.
- 5.5.5 To incorporate these flows and provide additional comfort, as a sensitivity test, the 2030 Base flows along Fox's Bank Lane have been doubled to represent a potential future increase in traffic flow. This results in an additional traffic load of c.450 two-way trips in the AM peak, and c.370 two-way trips in the PM peak; levels of traffic significantly above those forecasted in the Fox Wood Garden Village Transport Assessment.
- 5.5.6 In doubling the 2030 main line flows, Curtins has provided a very robust assessment of a future year; just to demonstrate resilience in the access strategy. The full modelling outputs of the subsequent assessment are provided in **Appendix F** and the results are summarised in **Table 5.4** below:

Arm		2030 With Development (Sensitivity Test)	
		RFC	Queue
AM Peak			
1	Site Access left right	0.15	0.2
2	Fox's Bank Lane ahead right	0.01	0.0
PM Peak			
1	Site Access left right	0.11	0.1
2	Fox's Bank Lane ahead right	0.02	0.0

Table 5.4 – Site Access Junctions 9 Results – Sensitivity Test

- 5.5.7 It is clear from the results shown in **Table 5.4** demonstrate the proposed site access junction continues to operate well within capacity in the future year with development scenarios despite the loading of significant additional traffic as a sensitivity test.

5.6 Additional Assessment Information – Impact on the SRN

- 5.6.1 Referring to the **Traffic Figures 06** and **07** contained to the rear of this report, it is clear the proposed development would have a negligible impact on the SRN, comprising:
- Approximately 17 and 21 two-way trips to the M62 Junction 6 in the AM and PM peak periods respectively; and
 - Approximately 9 and 11 two-way trips distribute north of the site access in the AM and PM peak periods respectively; of which some would go onwards to the M62 Junction 7.
- 5.6.2 Taking the worst-case impact (this being the PM peak at Junction 6) there could be approximately one additional vehicle through the junction every 3mins. This would not translate to any perceptible impact.

- 5.6.3 Notwithstanding, and at the time of writing, there is an existing improvement scheme underway at Junction 6 which includes improvements to capacity (specifically carriageway widening on the circulatory).
- 5.6.4 Finally it should also be noted that, due to the proposed development site status being allocated in the Knowsley Local Plan, the proposed development trips should be accounted for within the most recent modelling analysis provided for the Local Plan and as part of the assessment works for the upgrade of Junction 6.

6.0 Transport Planning Policy

6.1 Introduction

- 6.1.1 When developing scheme proposals, it is important to review the national and local transport related planning policies. This section aims to outline the key policies throughout relevant policy and guidance documents.

6.2 National Planning Policy Framework (2024)

- 6.2.1 The National Planning Policy Framework (NPPF) sets out the current national transport planning policy and outlines the important role that transport policies have to play in facilitating sustainable development.

- 6.2.2 Paragraph 11 states that:

“Plans and decisions should apply a presumption in favour of sustainable development.”

- 6.2.3 For decision taking this means granting permission unless:

“...any adverse impacts of doing so would significantly and demonstrably outweigh the benefits, when assessed against the policies.”

- 6.2.4 Section 9 of the NPPF is entitled *Promoting Sustainable Transport* and outlines the important role that transport policies have to play in facilitating sustainable development. The section states that:

“The planning system should actively manage patterns of growth ...Significant development should be focused on locations which are or can be made sustainable, through limiting the need to travel and offering a genuine choice of transport modes.”

- 6.2.5 The document emphasises the need for developments to offer a choice of sustainable modes of transport to *“reduce congestion and emissions and improve air quality and public health”* and provide *“safe and suitable access”* for all users.

- 6.2.6 Paragraph 115 of the NPPF states that in assessing sites that may be allocated for development in plans, or specific applications in development, it should be ensured that:

- a) *“sustainable transport modes are prioritised taking account of the vision for the site, the type of development and its location;*
- b) *safe and suitable access to the site can be achieved for all users;*
- c) *the design of streets, parking areas, other transport elements and the content of associated standards reflects current national guidance, including the National Design Guide and the National Model Design Code; and*

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

6.2.7 The development proposals have shown that safe and suitable access to the site will be achieved. Additionally, as part of the wider Halsnead Garden Village Masterplan and by virtue of the Masterplan forming an allocation in the Local Plan, the site has been is an accessible site in accordance with national policy.

6.2.8 Paragraph 116 of the NPPF states that:

"Development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network, following mitigation, would be severe, taking into account all reasonable future scenarios."

6.2.9 This report has demonstrated any impact on the surrounding road network would not be "severe" and that the development would not result in an unacceptable impact on safety. The proposed development accords with the general principles of the NPPF.

6.3 Knowsley Local Plan Core Strategy 2016

6.3.1 The Knowsley Local Plan comprises sets out the strategic framework of development for Knowsley up to 2028 and beyond. The document provides guidance for development and regeneration for the Borough. The Local Plan outlines 9 strategic objectives as part of its vision:

- **Sustainable Economic and Employment Growth-** *To encourage and maintain sustainable economic and employment growth in Knowsley, complementary to that within the wider Liverpool City Region, by accommodating employment related development, improving skills within the workforce, and promoting enterprise, entrepreneurship and innovation.*
- **Well-balanced Housing Market-** *To promote a well-balanced housing market throughout Knowsley by providing a sufficient quantity and mix of high quality sustainable housing in appropriate locations to meet needs and demand (including for market, affordable and supported housing).*
- **Regenerate and Transform-** *To regenerate and transform areas of social and economic deprivation so they become more sustainable, safer, healthier and more cohesive communities, thus narrowing the gap between the richest and poorest communities in Knowsley.*
- **Distinctive, Viable and Sustainable Town Centres-** *To promote distinctive, viable and sustainable town centres in Huyton, Kirkby and Prescott, by improving choice, variety and quality in their range of retail, leisure and other town centre uses, together with thriving district centres, including enhancement of those in Halewood and Stockbridge Village, and a more sustainable pattern of local centres.*
- **Quality of Place-** *To promote the quality of place within Knowsley by protecting historically important features and enhancing the character, quality and diversity of Knowsley's built*

environment, including town centres, key employment areas, residential neighbourhoods, green spaces, conservation areas, rural areas and villages, key gateways and transport routes.

- **Sustainable Transport-** *To ensure new development in Knowsley encourages a reduction in the overall need to travel, and prioritises sustainable transport such as walking, cycling and public transport. This will help to ensure accessibility and linkage between housing areas and employment locations, shopping, leisure, culture, health care, education, community and sporting facilities, green spaces and other services.*
- **Manage Environmental Resources-** *To manage environmental resources in Knowsley prudently by focusing on sustainable development, recycling and renewable technologies, minimising pollution, reducing carbon emissions and responding to the impacts of climate change.*
- **Green Infrastructure in Rural Areas-** *To support and strengthen the role of Knowsley's Green Infrastructure (in rural and urban areas), promote biodiversity, and maintain the character of rural settlements including Cronton, Tarbock and Knowsley Village.*
- **Promote Health and Wellbeing in Knowsley-** *To address existing health inequalities and encourage enhancements to the health and wellbeing of Knowsley's residents by ensuring a health promoting environment and provision of healthy lifestyle options for those living and working in the borough.*

6.3.2 It is considered that the proposed development is in accordance with the above objectives, and it has been demonstrated that the site is accessible by sustainable modes of transport including walking, cycling and public transport.

6.3.3 Also as covered throughout this TA, the proposed development site sits within the wider "Sustainable Urban Extension – South of Whiston and South of the M62" allocation within the Knowsley Local Plan Core Strategy (covered by Policies SUE1 and SUE2). Policy SUE2 requires the site to:

"a) deliver sustainable development;

b) demonstrate a comprehensive approach to the development of the relevant Sustainable Urban Extension and to infrastructure provision (including, subject to the requirements of Policy CS27: Planning and Paying for Infrastructure, provision of an appropriate proportion of financial and/or 'in kind' contributions towards strategic and/or local infrastructure required to enable the comprehensive development of the sites);

c) be of a high design quality which enhances local distinctiveness and identity (incorporating localised design features where appropriate) and provides high levels of physical and visual integration and connectivity with adjacent urban development (see Policy CS19: Design Quality and Accessibility in New Development);

d) be carried out in accordance with the development principles and using any appropriate development assessment tools as required by Policy CS2: Development Principles;

e) deliver development (including the principal uses defined in Policy SUE1: Sustainable Urban Extensions) which will help to meet borough-wide and local needs;

f) include appropriate provision for public open space (POS), walking and cycling routes as part of the Green Infrastructure network integrating with existing POS, recreational assets and areas of ecological value (see Policy CS8: Green Infrastructure and Policy CS21: Greenspaces and Trees);

g) provide good transport linkages within the relevant Sustainable Urban Extension and with surrounding areas (see Policy CS7: Transport Networks);

h) Protect or enhance historic and architectural assets where appropriate (see Policy CS20: Managing the Borough's Historic Environment);

i) Address flood risk by locating development in areas of low probability of flooding and including flood mitigation measures where necessary (see Policy CS24: Flood Risk); and

j) Provide a clearly defined edge to the developed area."

6.3.4 This TA demonstrates the proposed development meets the above policy objectives. The proposed development can be considered to be in accordance with the relevant Local Plan Policy from a traffic and transport perspective.

6.4 Merseyside Local Transport Plan

6.4.1 The Local Transport Plan sets out implementation plans for the medium and long term and aims to improve transport within the Merseyside region. The Third Local Transport Plan envisions the following;

"A city region committed to a low carbon future, which has a transport network and mobility culture that positively contributes to a thriving economy and the health and wellbeing of its citizens and where sustainable travel is the option of choice".

6.4.2 The Local Transport Plan has six goals;

- *"Help create the right conditions for sustainable economic growth by supporting the priorities of the Liverpool City Region, the Local Enterprise Partnership and the Local Strategic Partnerships.*
- *Provide and promote a clean, low emission transport system which is resilient to changes to climate and oil availability.*
- *Ensure the transport system promotes and enables improved health and wellbeing and road safety.*
- *Ensure equality of travel opportunity for all, through a transport system that allows people to connect easily with employment, education, healthcare, other essential services and leisure and recreational opportunities.*
- *Ensure the transport network supports the economic success of the city region by the efficient movement of people and goods.*
- *Maintain our assets to a high standard."*

6.4.3 The proposed development is in line with the LTP goals.

6.5 'Ensuring a Choice of Travel' SPD

6.5.1 The 'Ensuring a Choice of Travel' SPD was developed in partnership with the Merseyside Local Authorities and Merseytravel in order to provide consistent guidance to developers on access and transport requirements for new development across the wider Merseyside area. Its overall objectives are:

- *Ensure a reasonable choice of access by all modes of transport to new development;*
- *Reduce the environmental impact of travel choices, by reducing pollution, and improving the local environment;*
- *Improving road safety;*
- *Promote healthier lifestyles by providing opportunities for people to walk or cycle for work or leisure purposes;*
- *Reduce the level of traffic growth and congestion on the strategic and local road network; and*
- *Encourage opportunities to improve the quality of development proposals by better use of space through the provision of less car parking spaces where appropriate.*

6.5.2 This TA has demonstrated the proposed development is in accordance with the SPD. Full reasoning as to why the maximum car parking standards have not been met is provided.

6.6 Conclusions

6.6.1 The proposed development meets the sustainable objectives of the National Planning Policy Framework and its residual traffic impacts are not severe. The proposals are also in accordance with regional and local transport planning policies, providing a suitable level of parking and encouraging uptake in sustainable modes.

6.6.2 From a traffic and transportation perspective there are no reasons why the development proposals should not be granted planning approval.

7.0 Summary and Conclusions

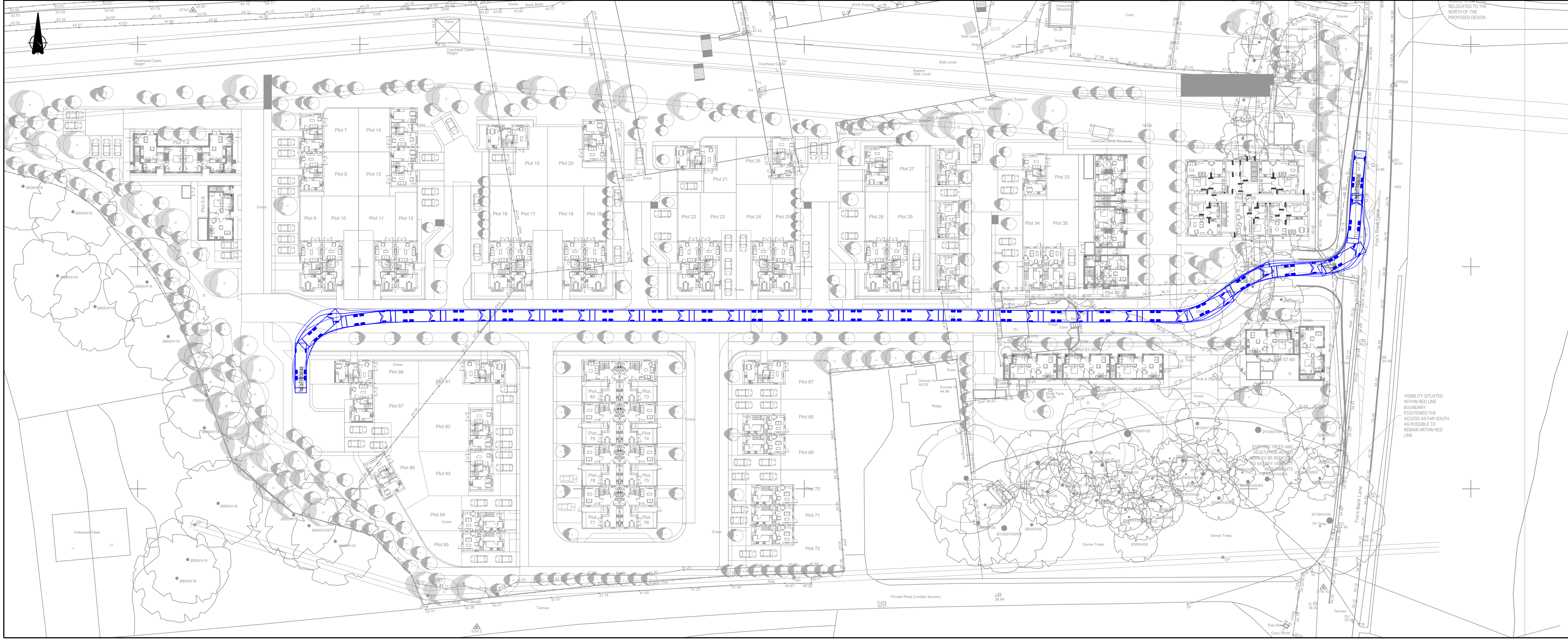
7.1 Summary

- 7.1.1 Curtins has been appointed by Starship Hub to provide transport planning advice in relation to proposals for up to 90no. affordable houses in Whiston, Knowsley. The site layout is provided in **Appendix A**.
- 7.1.2 A review of baseline conditions in the vicinity of the site has been undertaken. It is noted the site forms part of the “Sustainable Urban Extension – South of Whiston and South of the M62” allocation within the Knowsley Local Plan Core Strategy (covered by Policies SUE1 and SUE2). The land is therefore designated for development, and the principle of person trips (including by sustainable modes) to and from the site is established. The wider Masterplan is provided in **Appendix B**.
- 7.1.3 Following a review of road collision statistics, it is considered that there are no existing safety issues that would be exacerbated by the proposed development.
- 7.1.4 Details on the site access and parking proposals have been provided. Pedestrian access is to be provided along Fox’s Bank Lane to the north (and onwards towards Whiston via the Fox Wood Garden Village development and wider Masterplan), and into the Tritax Symmetry development in the south (and onwards into the wider Masterplan including the Country Park). Justification for the proposed levels of car parking has been provided.
- 7.1.5 There are opportunities for uptake in sustainable modes of travel including on foot, by cycle and by public transport.
- 7.1.6 Robust traffic modelling demonstrates the proposed access operates with significant spare capacity. Traffic associated with proposed development would not have a perceptible impact on the surrounding highway network from the perspective of both highway capacity and safety. Additional sensitivity testing considering the site access and the M62 Junction 6 and 7 are provided.
- 7.1.7 A review of relevant local and national transport planning guidance has been undertaken. It is considered that the proposed development is in general accordance with such policies and guidance.

7.2 Conclusions

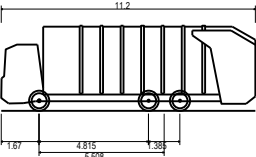
- 7.2.1 Based on the above, it is considered that there are no highways and transportation reasons to refuse planning permission for the proposed development.

Drawings



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P03	UPDATED LAYOUT	11/11/25	HD	DJ
Rev:	Description:	Date:	By:	Chkd:

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Status: PRELIMINARY S0

Project:

HALSNEAD FARM

Drg Title:

SWEPT PATH ANALYSIS
11.2m REFUSE

Drawn By P	Designed By PB	Checked By DJ
Project No 087052	Date 08/10/25	Scales @ A1 1:500

087052 - CUR - XX - XX- D - T- 05001 | P03



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4.00m

2.00m

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Audi A6 (2018)

Overall Length

4.950m

Overall Width

2.110m

Overall Body Height

1.510m

Min. Body Ground Clearance

0.110m

Max. Road Width

4.00m

Look ahead time

4.000m

Kerb to Kerb Turning Radius

9.950m

P02

UPDATED LAYOUT

11/11/25

HD

DJ

Rev:

Description:

Date:

By:

Chkd:

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Status:

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Project:

HALSNEAD FARM

Dwg Title:

SWEPT PATH ANALYSIS
LARGE CAR

Drawn By

HD

Designed By

HD

Checked By

DJ

Project No

087052

Date

08/10/25

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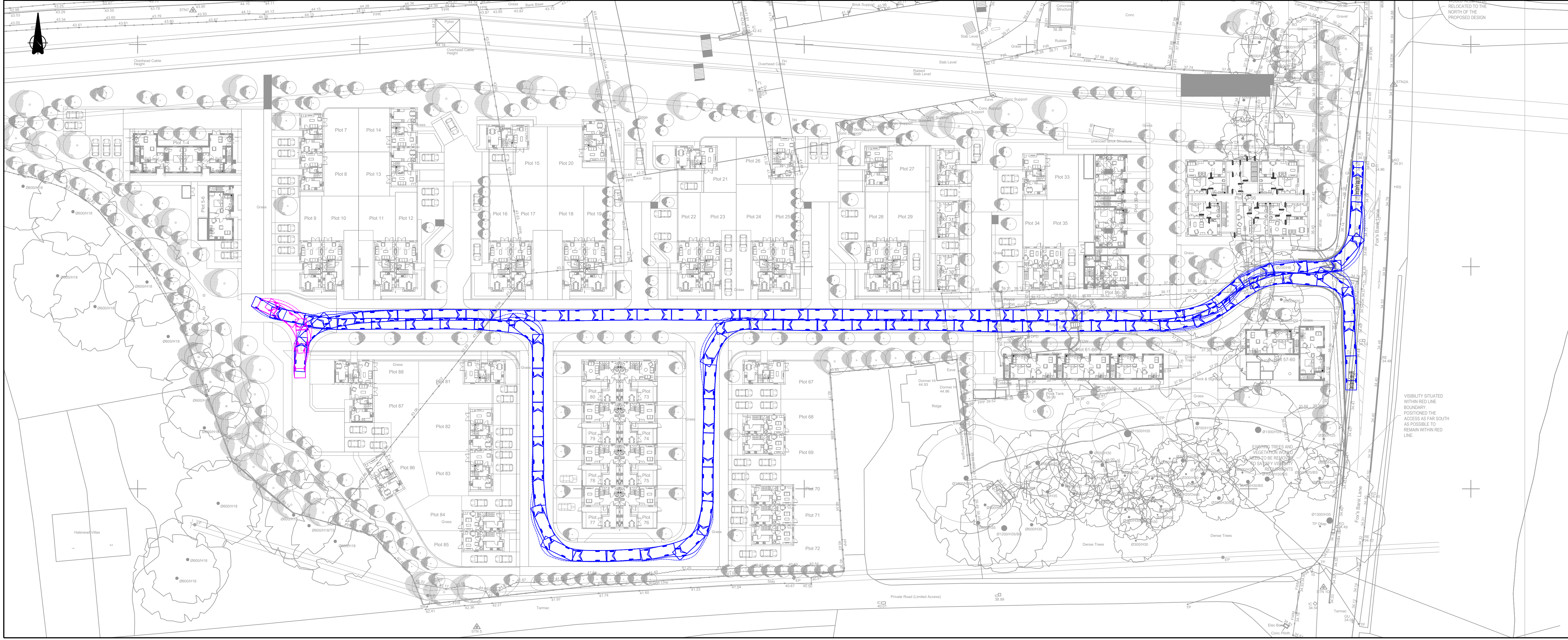
Project Code - Originator - Function - Spatial - Form - Discipline - Number

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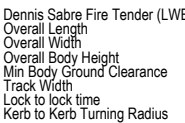
Revision

P02

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700m
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Project:

HALSNEAD FARM

Drg Title:

SWEPT PATH ANALYSIS FIRE TENDER

Project Code * Originator * Function * Special * Form * Discipline * Number	Revision
087052 - CUR - XX - XX - D - T - 05003	P02

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Project:

HALSNEAD FARM

Status:

PRELIMINARY

Drg Title:

ACCESSIBILITY
INDICATIVE WALKING CATCHMENT

Drawn By: PB

Checked By: DJ

Designed By: PB

Date: 24/07/25

Scale: NTS

Project No:

Originator:

Volume:

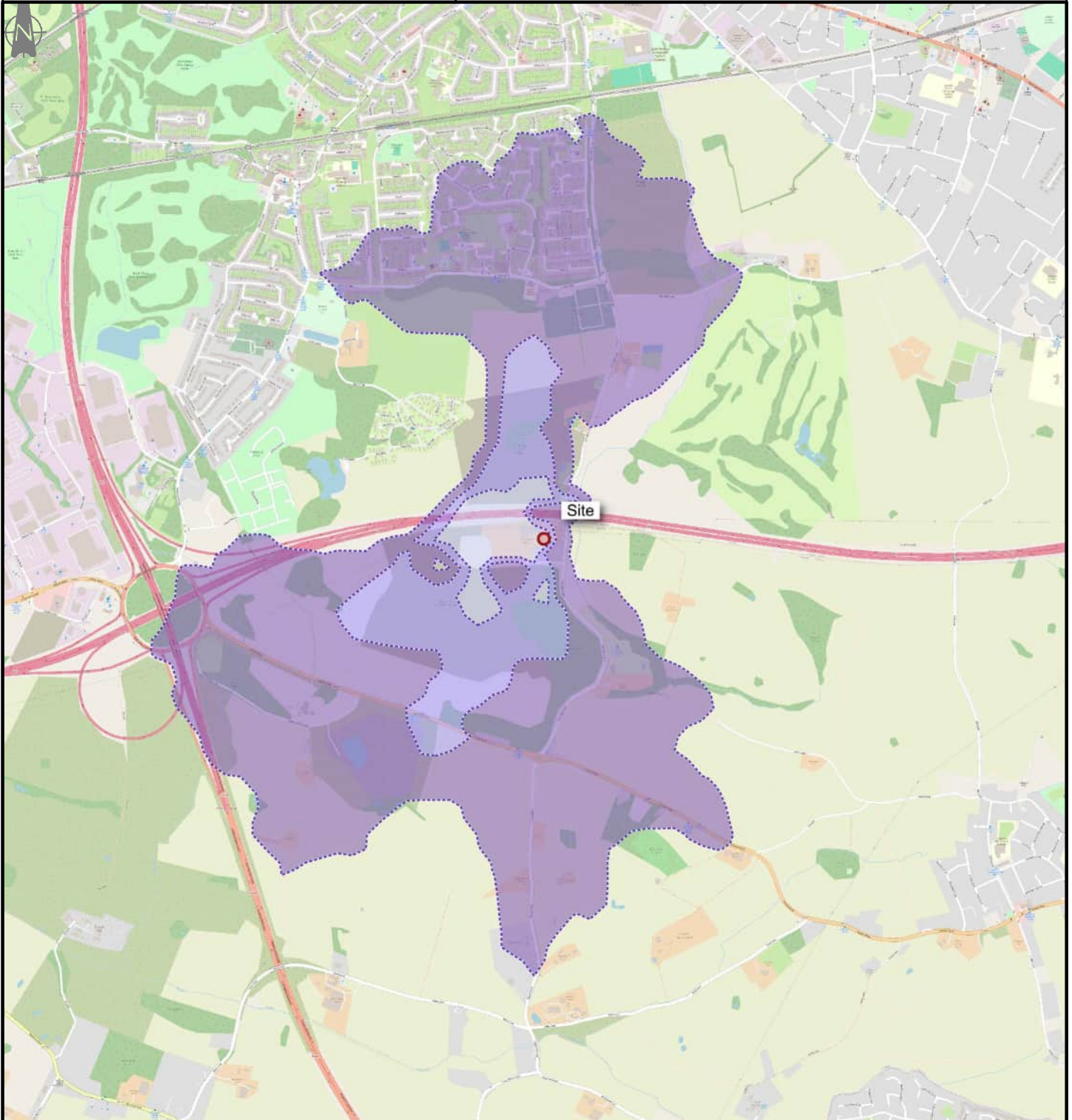
Level:

Type:

Role:

Category / Number: Rev:

087052- CUR - XX - XX - G -TP - 06001 - P01



KEY:  Site

Walking Catchment

-  2000m
-  1000m
-  500m

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Project:

HALSNEAD FARM

Status:

PRELIMINARY

Drg Title:

ACCESSIBILITY
INDICATIVE CYCLE CATCHMENT

Drawn By: PB

Checked By: DJ

Designed By: PB

Date: 24/07/25

Scale: NTS

Project No:

Originator:

Volume:

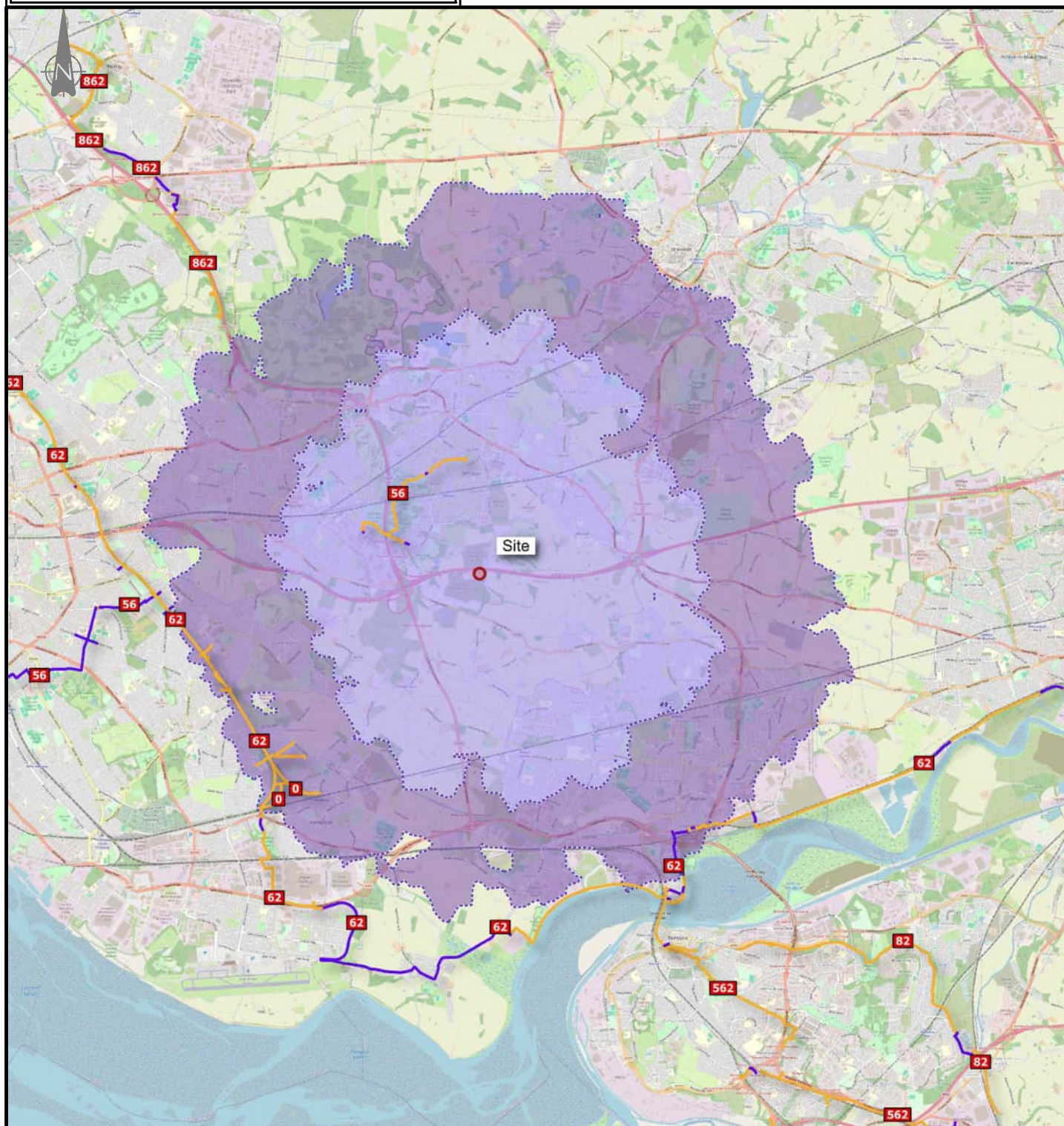
Level:

Type:

Role:

Category / Number: Rev:

087052- CUR - XX - XX - G -TP - 06002 - P01



KEY: Site

Cycling Catchment
 8000m
 5500m

National Cycle Network Public
 On Road Cycle Route
 Traffic-free Cycle Route



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Project:

HALSNEAD FARM

Status:

PRELIMINARY

Drg Title:

ACCESSIBILITY
INDICATIVE PUBLIC
TRANSPORT CATCHMENT

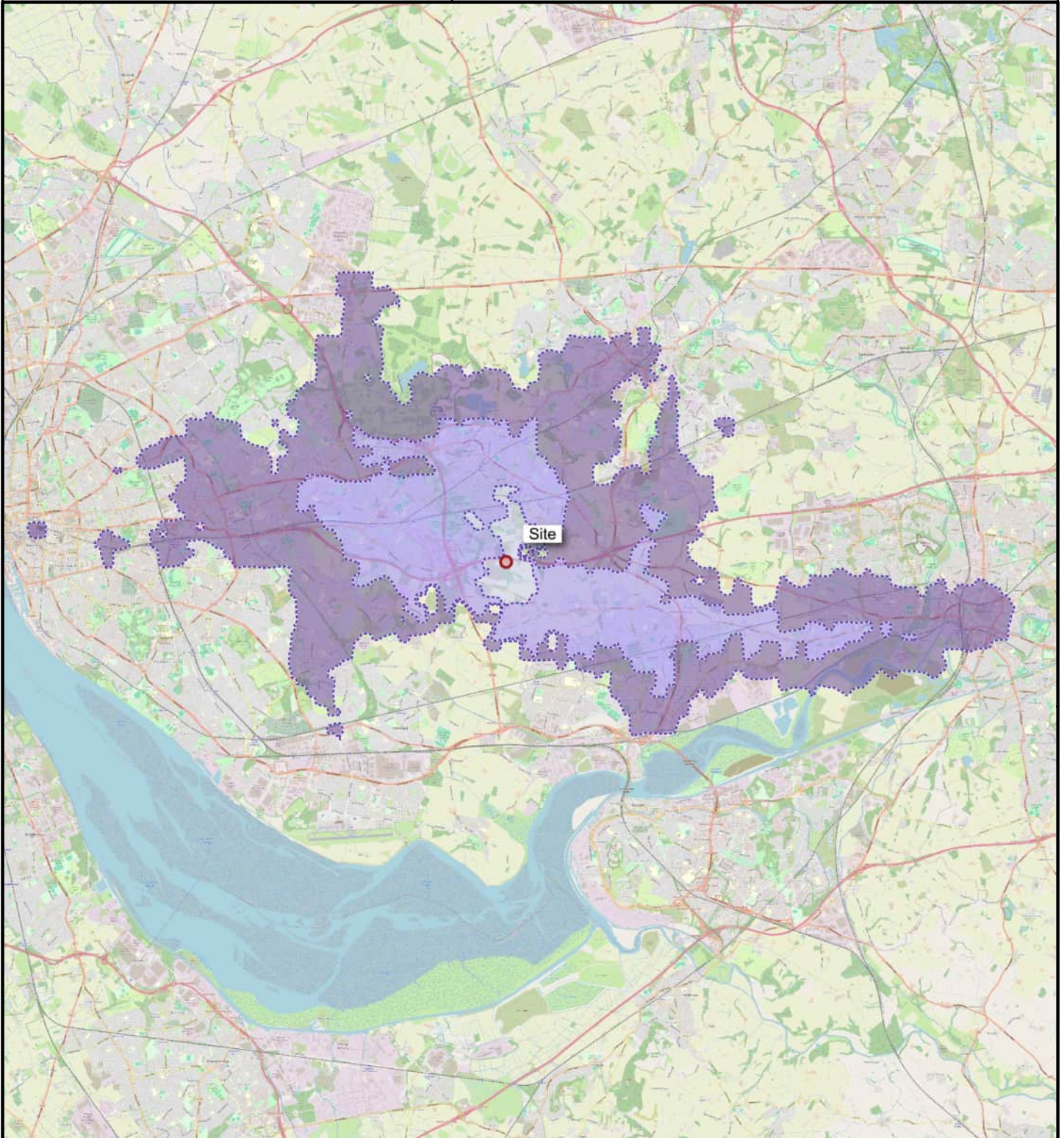
Drawn By: PB Checked By: DJ

Designed By: PB Date: 24/07/25

Scale: NTS

Project No: Originator: Volume: Level: Type: Role: Category / Number: Rev:

087052- CUR - XX - XX - G -TP - 06003 - P01

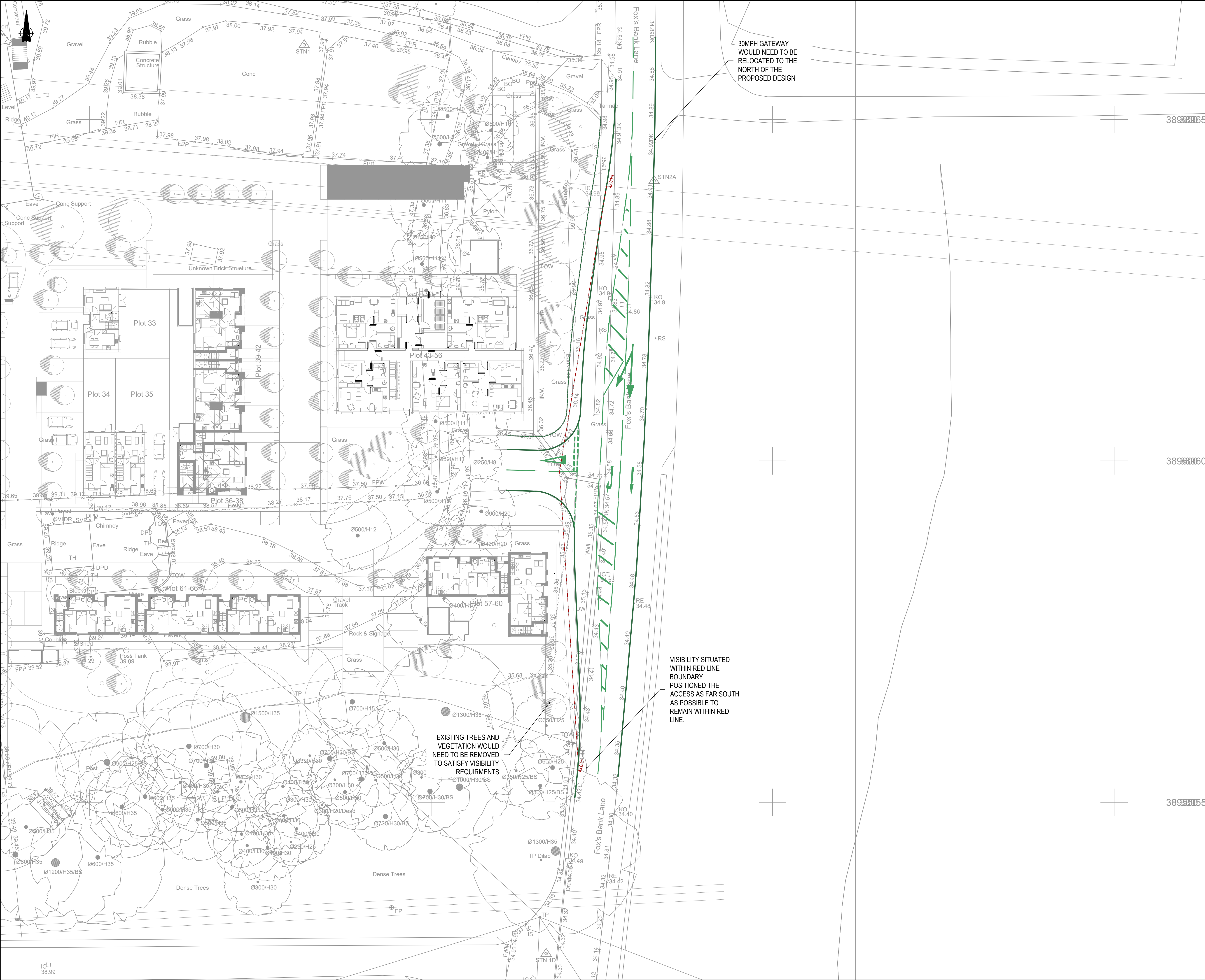


KEY: Site

Public Transport Catchment

- 60 minutes
- 40 minutes
- 20 minutes

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GENERAL NOTES:

1. THIS DRAWING IS TO BE READ IN CONJUNCTION WITH ALL RELEVANT ARCHITECTS AND ENGINEERS DRAWINGS AND SPECIFICATIONS.

2. DO NOT SCALE THIS DRAWING. ANY AMBIGUITIES, OMISSIONS AND ERRORS ON DRAWINGS SHALL BE BROUGHT TO THE ENGINEERS ATTENTION IMMEDIATELY. ALL DIMENSIONS MUST BE CHECKED / VERIFIED ON SITE.

3. ALL DIMENSIONS ARE IN METRES UNLESS NOTED OTHERWISE.

4. FOR GENERAL NOTES REFER TO DRAWING.

KEY:

PROPOSED RAISED KERB

PROPOSED FLUSH KERB / BACK OF FOOTWAY

PROPOSED ROAD MARKINGS

PROPOSED VISIBILITY SPLAYS (30mph)

RED LINE BOUNDARY

P02

UPDATED LAYOUT

11/11/25

HD

DJ

Rev:

Description:

Date:

By:

Chkd:

Curtins

Office 51-55 Tithebarn Street Liverpool L2 2SB
Telephone 0151 726 2000
Email Liverpool@curtins.com
Web https://www.curtins.com/

Curtins & Structures - Transport Planning - Environmental - Infrastructure - Geotechnical - Conservation & Heritage - Principal Designer
Birmingham - Bristol - Cambridge - Cardiff - Douglas - Dublin - Edinburgh - Glasgow - Kendal - Liverpool - London - Manchester - Nottingham

Status:

PRELIMINARY

S0

Project:

HALSNEAD FARM

Dwg Title:

ACCESS ARRANGEMENT

Drawn By

Designed By

Checked By

PB

PB

JA

Project No

Date

Scales @ A1

087052

22/07/25

1:250

Project Code - Originator - Function - Spatial - Form - Discipline - Number

Revision

087052 - CUR - XX - XX - D - T - 75004

P02

30MPH GATEWAY WOULD NEED TO BE RELOCATED TO THE NORTH OF THE PROPOSED DESIGN

EXISTING TREES AND VEGETATION WOULD NEED TO BE REMOVED TO SATISFY VISIBILITY REQUIREMENTS

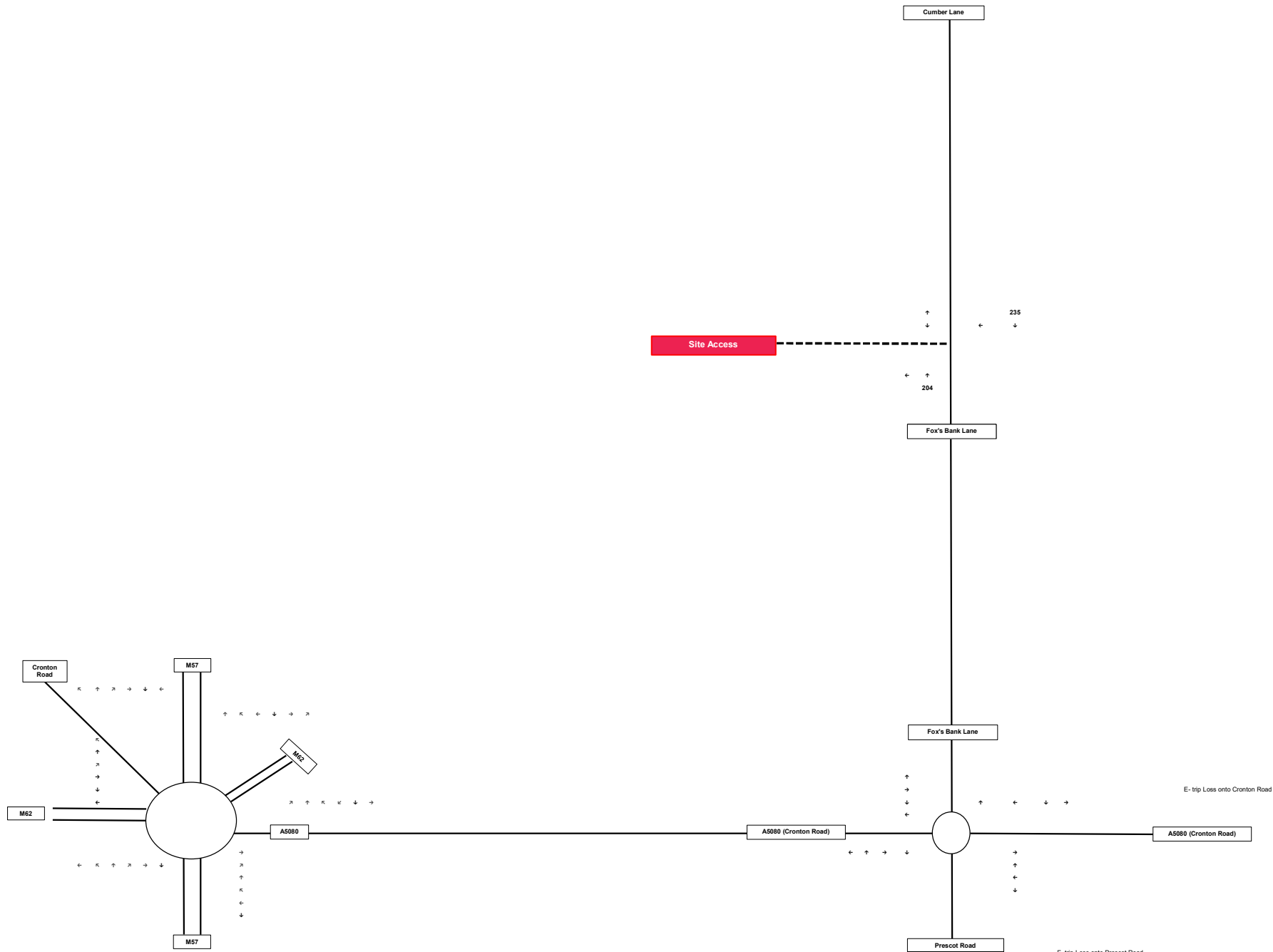
VISIBILITY SITUATED WITHIN RED LINE BOUNDARY. POSITIONED THE ACCESS AS FAR SOUTH AS POSSIBLE TO REMAIN WITHIN RED LINE.

\\LFS-1\Projects\087052-Halsnead_Farm\04-Production\A4-Models\Drawings\PCAD\05

Traffic Figures



Notes: PCUs in Black
HGVs in Red
Vehicles in Green



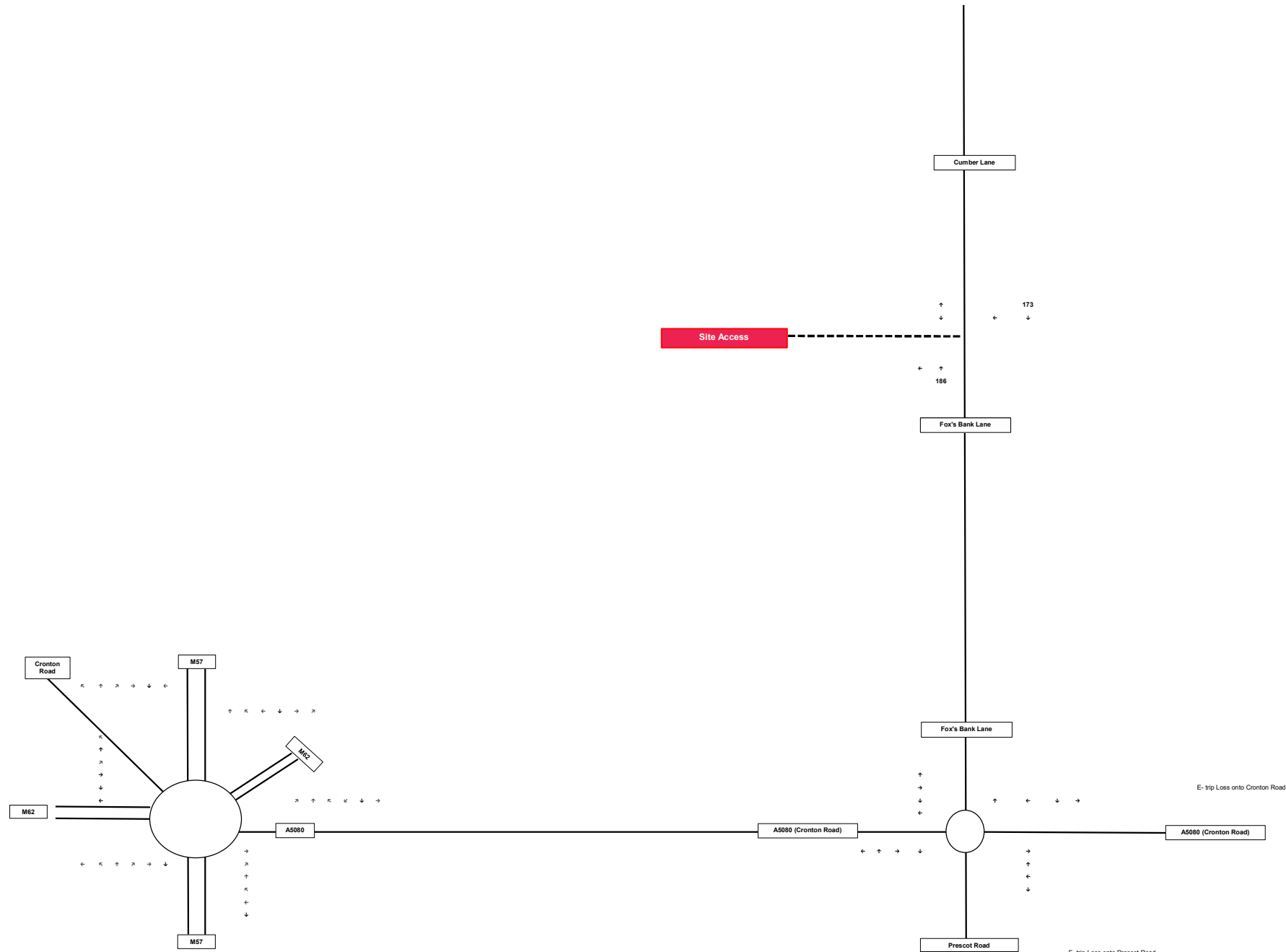
Curtins

2025 Base Flows AM
Halsnead Farm

11 November 2025 087052
Traffic Figure 01



Notes: PCUs in Black
HGVs in Red
Vehicles in Green



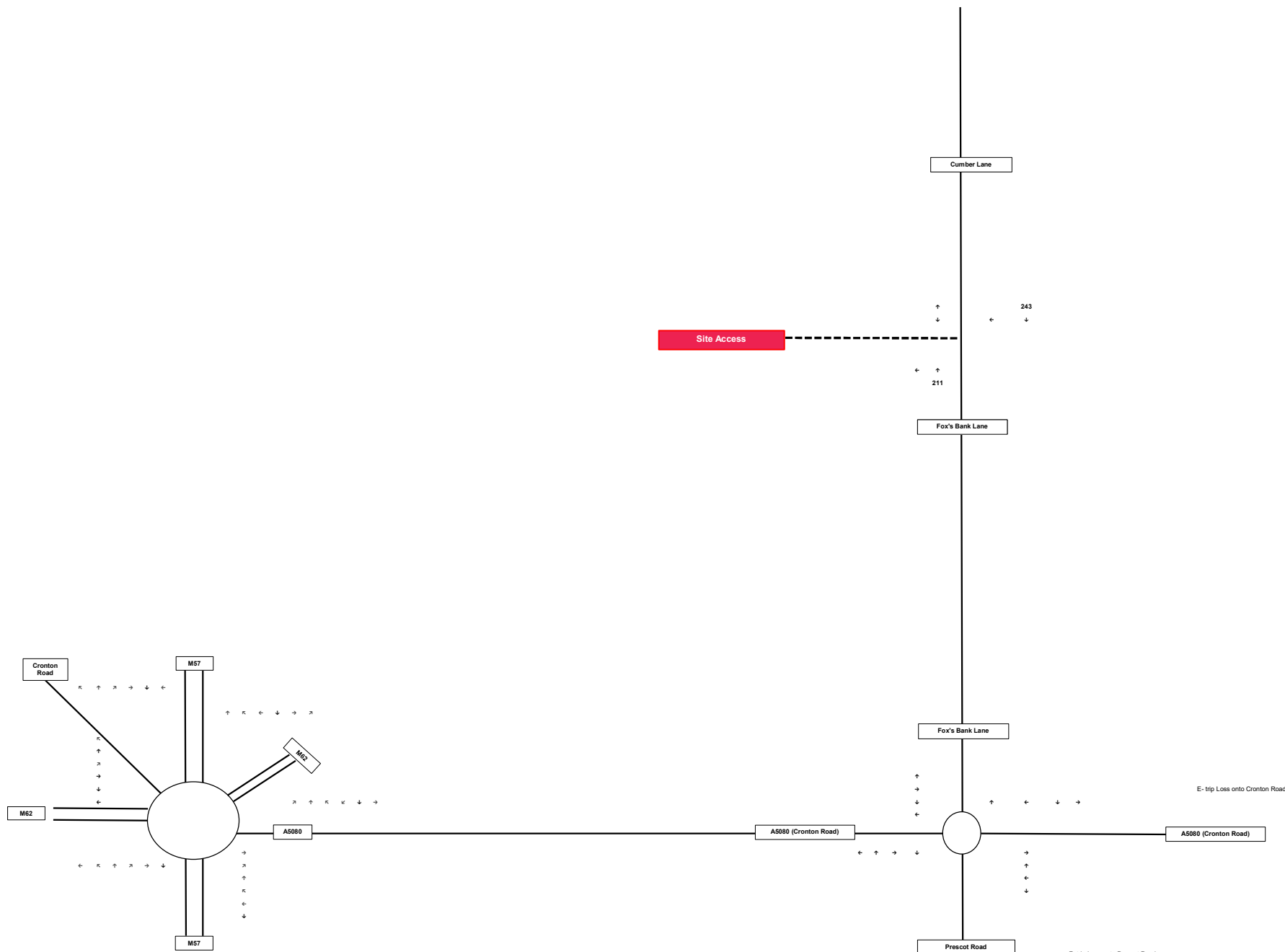
Curtins

2025 Base Flows PM
Halsnead Farm

11 November 2025 087052
Traffic Figure 02



Notes: PCUs in Black
HGVs in Red
Vehicles in Green



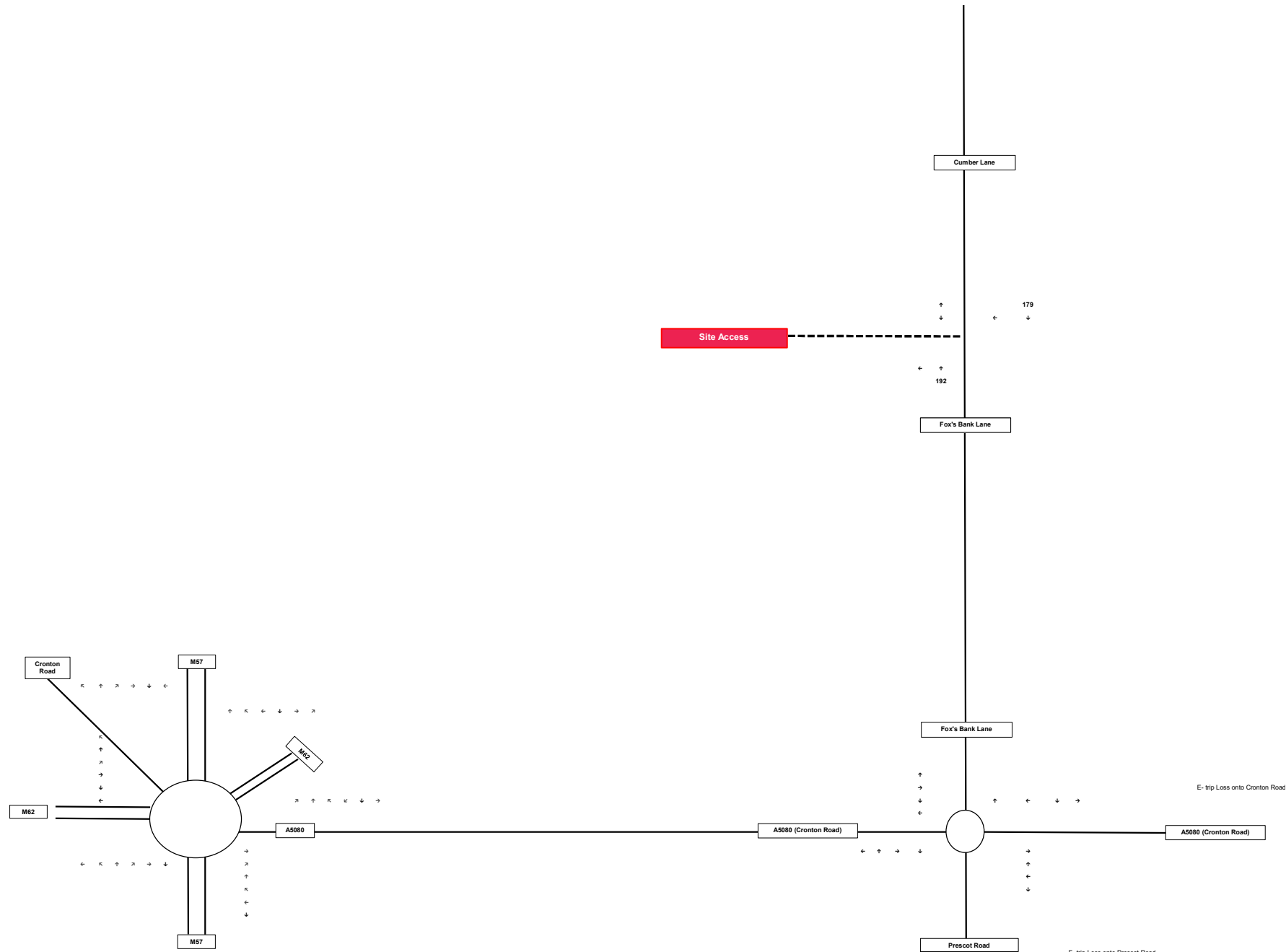
Curtins

2030 Base Flows AM
Halsnead Farm

11 November 2025 087052
Traffic Figure 03



Notes: PCUs in Black
HGVs in Red
Vehicles in Green



Curtins

2030 Base Flows PM
Halsnead Farm

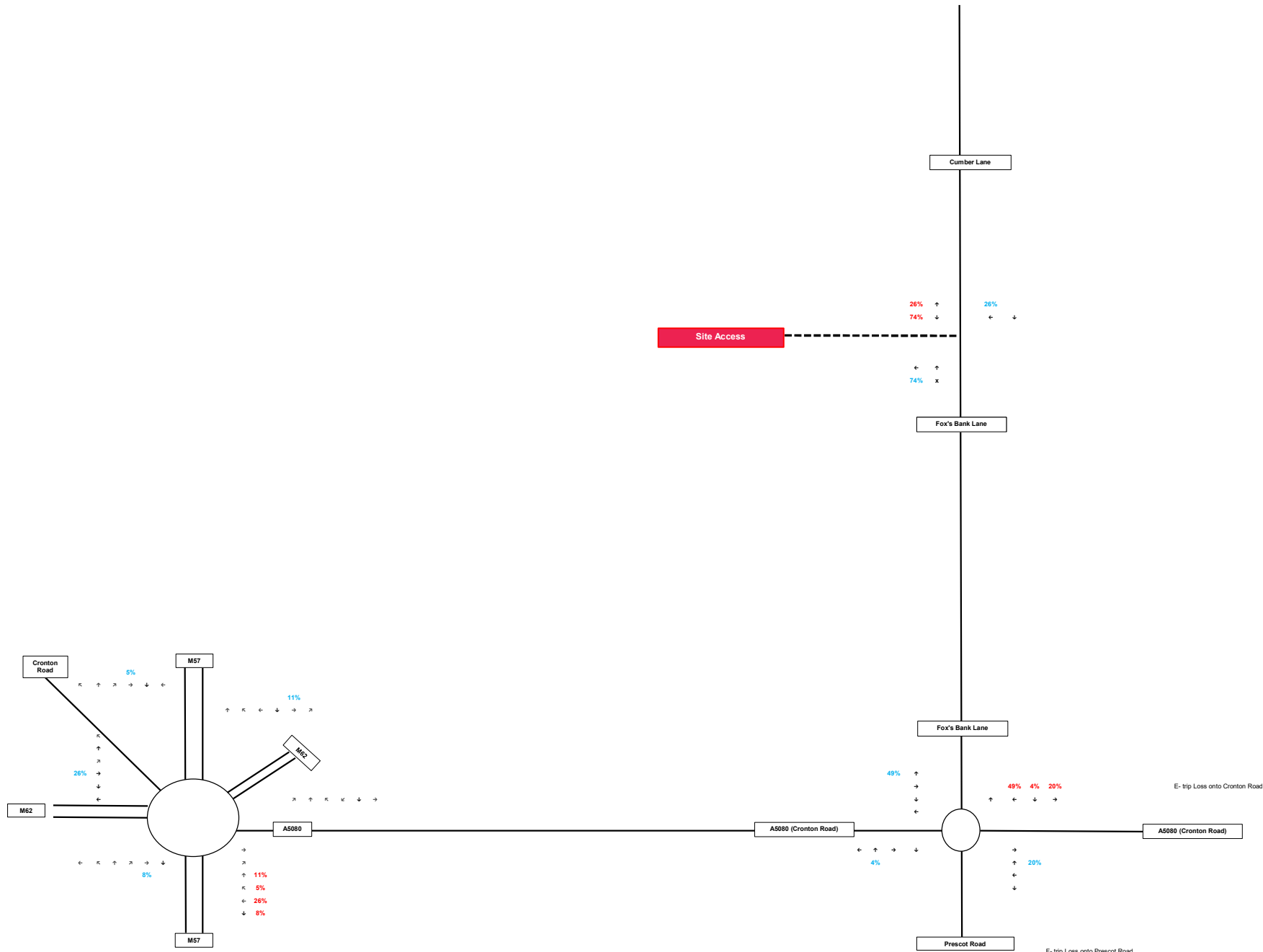
11 November 2025

087052

Traffic Figure 04



Arrivals
Departures



Curtins

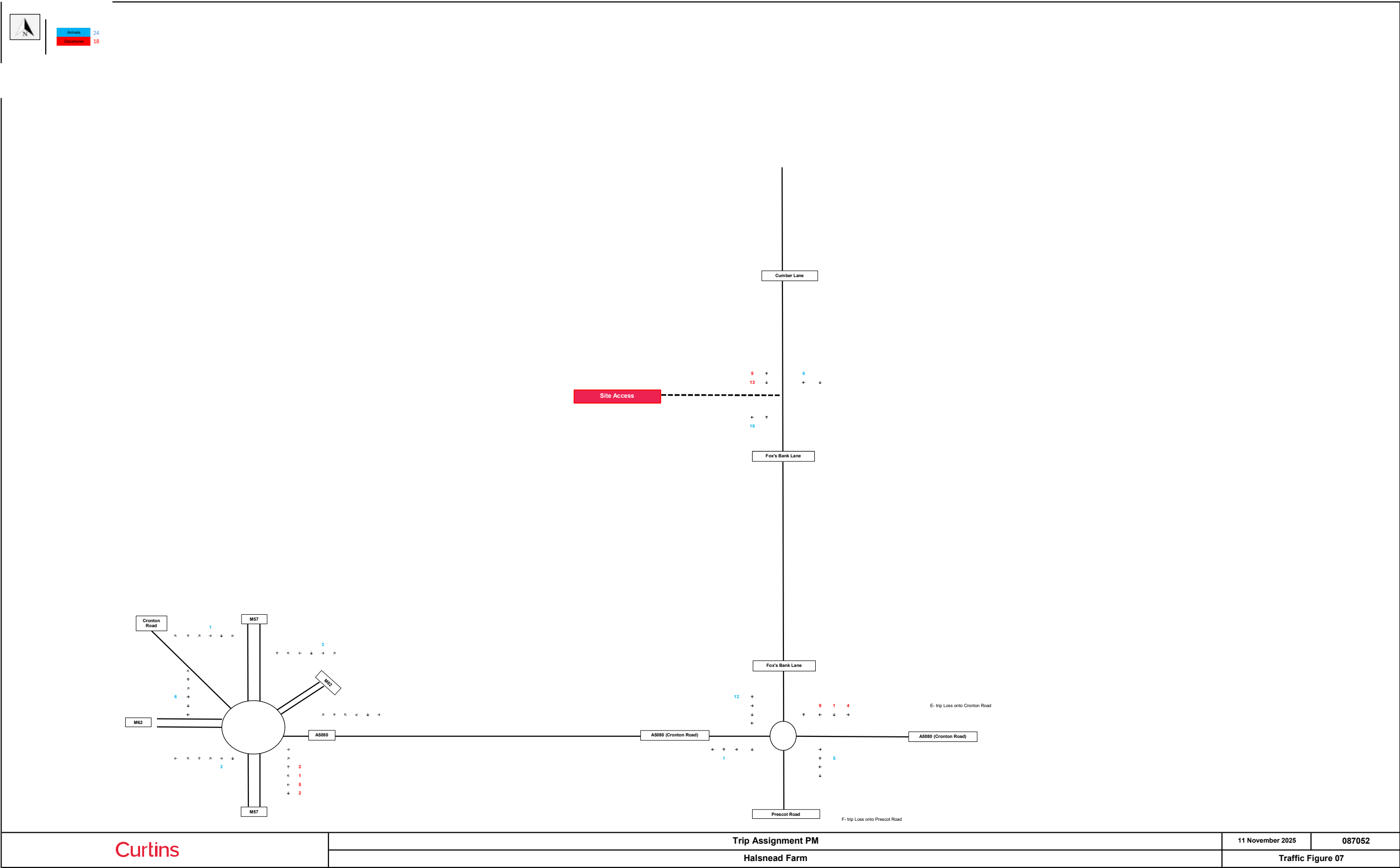
Proposed Development Traffic Distribution

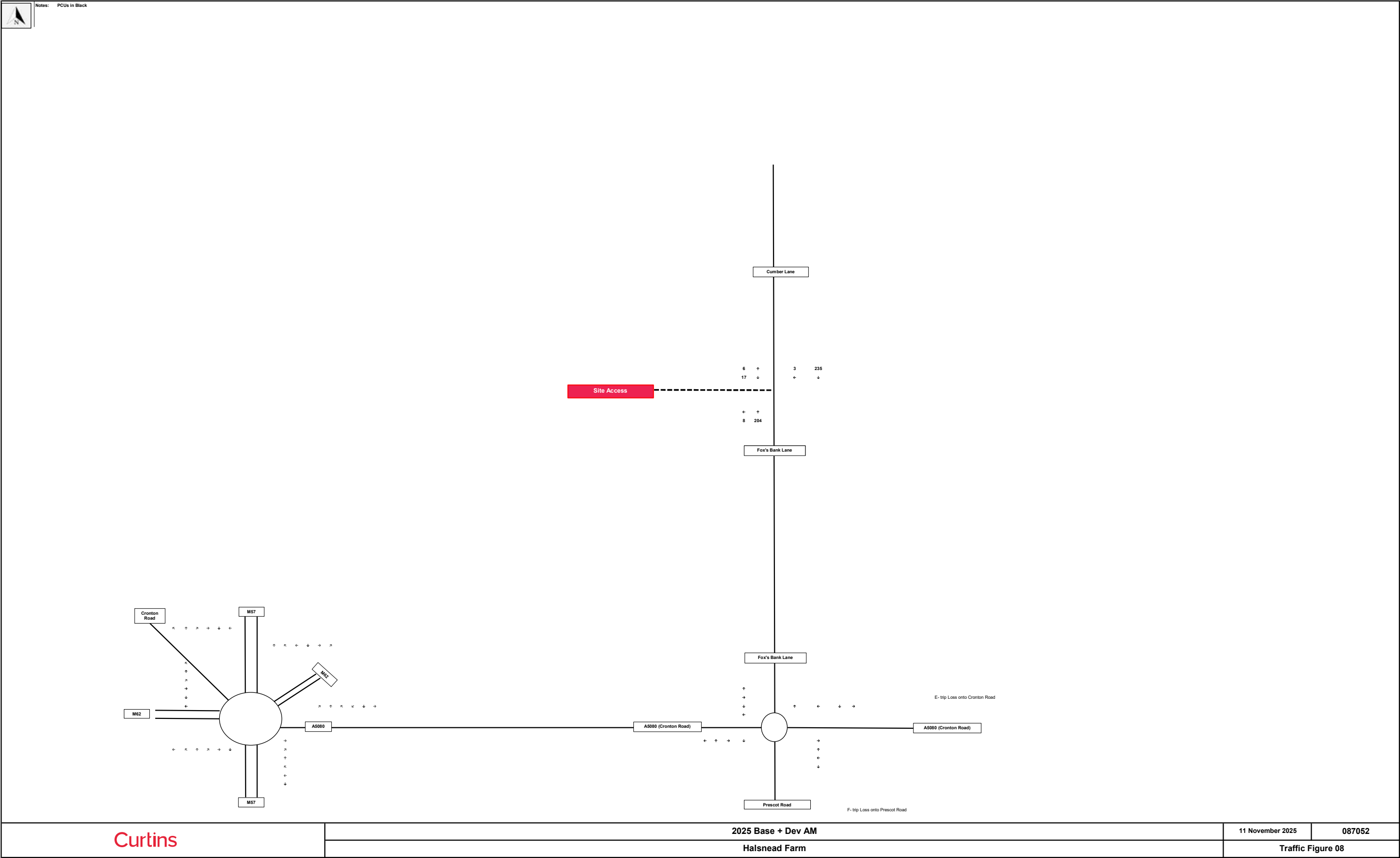
11 November 2025

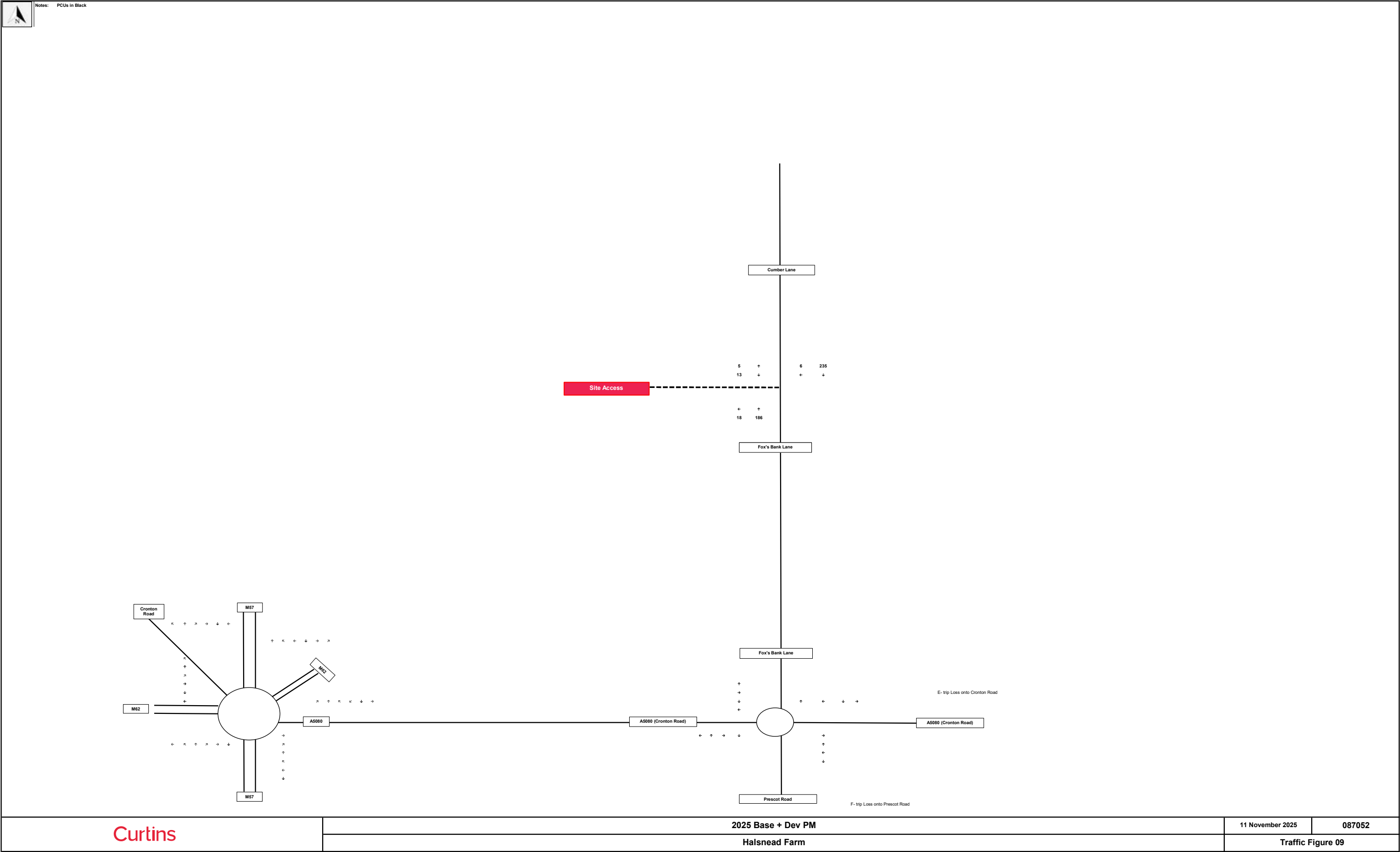
087052

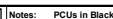
Halsnead Farm

Traffic Figure 05









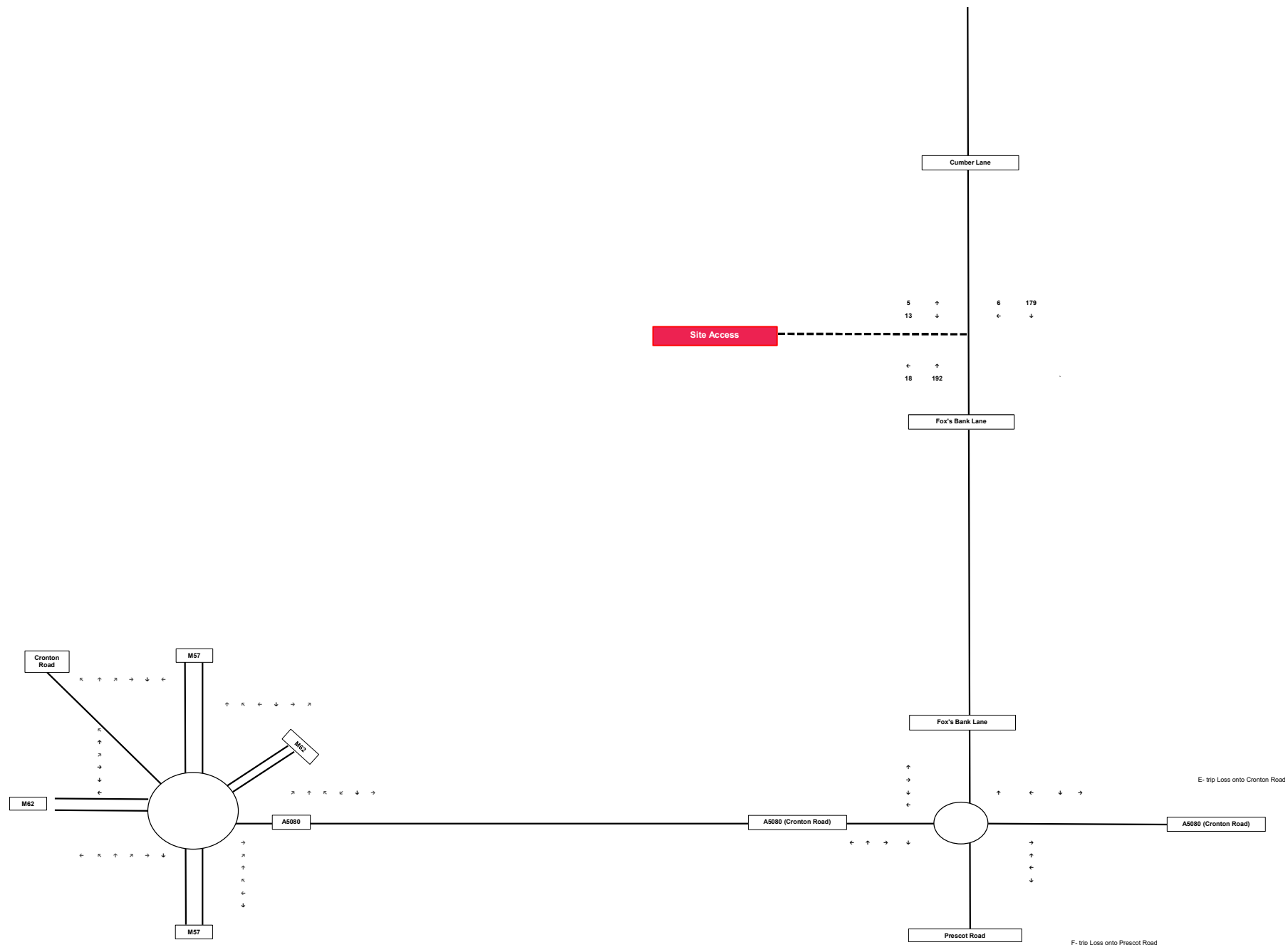
Halsnead Farm

087052

Traffic Figure 10



Notes: PCUs in Black



Curtins

2030 Base + Dev PM
Halsnead Farm

11 November 2025
087052
Traffic Figure 11

Appendix A – Proposed Site Layout



Appendix B – Halsnead Garden Village Masterplan

Illustrative Masterplan



Appendix C – CrashMap Data



Appendix D – TRICS Outputs



Audit Code: b3be24a9-24d5-411c-aaa9-96a3db4fccfb

Filtering Summary:

Land Use: 03/B RESIDENTIAL/AFFORDABLE/LOCAL AUTHORITY HOUSES

Selected Trip Rate Calculation Parameter Range: 8 - 516 DWELLS

Actual Trip Rate Calculation Parameter Range: 10 - 228 DWELLS

Date Range: Minimum: 1/1/2016 Maximum: 9/5/2023

Parking Spaces Range: All Surveys Selected

Parking Spaces Per Dwelling Range: All Surveys Selected

Bedrooms Per Dwelling Range: All Surveys Selected

Percentage of Dwellings Privately Owned: All Surveys Selected

Population Within 500m Range:



Audit Code: b3be24a9-24d5-411c-aaa9-96a3db4fccfb



Audit Code: b3be24a9-24d5-411c-aaa9-96a3db4fccfb

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use: 03 - Site area

Category: B - Number of dwellings

Total Vehicles

Selected regions and areas:

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

Audit Code: b3be24a9-24d5-411c-aaa9-96a3db4fccfb

Primary Filtering Selection:

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

Parameter:	DWELLS
Actual Range:	to (units:*****)
Range Selected by User:	8 to 516 (units:*****)
Parking Spaces Range:	11 - 220

Public Transport Provision:	
Selection by:	All Surveys Included
Date Range:	01/01/16 to 05/09/23

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

Selected survey days:

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

Selected survey types:	
Manual count	0
Direction ATC Count	0

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

Selected Locations:

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

Selected Location Sub Categories:

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

Inclusion of Servicing Vehicle Counts:

Audit Code: b3be24a9-24d5-411c-aaa9-96a3db4fccfb

Secondary Filtering Selection:

Use Class:

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

Population within 500m Range:

859 - 5500

Population within 1 mile:

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

Population within 5 miles:

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

Car ownership within 5 miles:

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

Audit Code: b3be24a9-24d5-411c-aaa9-96a3db4fccfb

Petrol filling station:

This data displays the number of surveys within the selected set that include petrol filling station activity, and the number of surveys that do not.

Travel Plan:

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

PTAL Rating:

This data displays the number of surveys within the selected set that include petrol filling station activity, and the number of surveys that do not.

COVID-19 Restrictions:

No

This data displays the number of surveys within the selected set that include petrol filling station activity, and the number of surveys that do not.



Audit Code: b3be24a9-24d5-411c-aaa9-96a3db4fccfb

LIST OF SITES relevant to selection parameters:

Audit Code: b3be24a9-24d5-411c-aaa9-96a3db4fccfb

TRIP RATE for Land Use 03 - RESIDENTIAL/B - AFFORDABLE/LOCAL AUTHORITY HOUSES

Total Vehicles

Calculation factor: 1 DWELLS

*BOLD print indicates peak (busiest) period

Time Range	No. Days	Ave. DWELLS	Arrivals	Departures	Totals
00:00-01:00					
01:00-02:00					
02:00-03:00					
03:00-04:00					
04:00-05:00					
05:00-06:00					
06:00-07:00					
07:00-08:00	11	48	0.060	0.195	0.255
08:00-09:00	11	48	0.124	0.255	0.379
09:00-10:00	11	48	0.118	0.158	0.276
10:00-11:00	11	48	0.105	0.128	0.233
11:00-12:00	11	48	0.109	0.113	0.222
12:00-13:00	11	48	0.122	0.101	0.223
13:00-14:00	11	48	0.113	0.126	0.239
14:00-15:00	11	48	0.143	0.152	0.295
15:00-16:00	11	48	0.221	0.135	0.356
16:00-17:00	11	48	0.218	0.111	0.329
17:00-18:00	11	48	0.265	0.199	0.464
18:00-19:00	11	48	0.197	0.143	0.340
19:00-20:00	1	19	0.316	0.158	0.474
20:00-21:00	1	19	0.158	0.105	0.263
21:00-22:00					
22:00-23:00					
23:00-00:00					
Totals Rates:			2.269	2.079	4.348

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

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

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Audit Code: b3be24a9-24d5-411c-aaa9-96a3db4fccfb

Parameter Summary:

Trip rate parameter range selected:	8 - 516 (units: DWELLS)
Survey date date range:	N/A - N/A
Number of weekdays (Monday-Friday):	0
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are show. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

Appendix E – Census Distribution

Distribution Summary

TABLE 1		Distribution						
Knowsley	26.0%	←						
Halton	9.4%	E						
Warrington	4.9%	E						
Cheshire East	0.5%	A						
Cheshire West	1.1%	F	G					
Bolton	0.2%	A						
Salford	1.0%	A						
Rochdale	0.2%	A						
Stockport	0.2%	A						
Wigan	1.0%	A						
Trafford	0.7%	A						
Manchester	1.3%	A						
Preston	0.2%	A						
South Ribble	0.3%	A						
West Lancashire	1.0%	A						
Liverpool	39.4%	←						
Sefton	3.7%	B						
St Helens	6.2%	A						
Wirral	2.3%	B	D					
Other	0.4%	A	B	C	D	E	F	
		G						
Total	100.0%							
Route	DIST							
A	26%							
B	11%							
C	5%							
D	26%							
E	20%							
F	4%							
G	8%							
Total	100%							

TABLE 2					
E02001327 : Knowsley 001	0.4%	A			
E02001329 : Knowsley 003	0.6%	A			
E02001330 : Knowsley 004	0.2%	A			
E02001331 : Knowsley 005	2.4%	A			
E02001332 : Knowsley 006	0.1%	B	C		
E02001333 : Knowsley 007	2.3%	A			
E02001334 : Knowsley 008	0.4%	D	B		
E02001335 : Knowsley 009	3.9%	A			
E02001336 : Knowsley 010	0.3%	B	C		
E02001337 : Knowsley 011	0.7%	A			
E02001338 : Knowsley 012	0.5%	B	D	C	
E02001339 : Knowsley 013	0.9%	A			
E02001340 : Knowsley 014	0.4%	D			
E02001341 : Knowsley 015	3.67%	A	C		
E02001342 : Knowsley 016	2.09%	C	D		
E02001343 : Knowsley 017	4.49%	E			
E02001344 : Knowsley 018	0.31%	F			
E02001345 : Knowsley 019	0.51%	F			
E02001346 : Knowsley 020	1.85%	F			
Total	26.0%				

TABLE 3					
E02001347 : Liverpool 001	0.9%	B			
E02001348 : Liverpool 002	0.1%	B			
E02001350 : Liverpool 004	0.2%	B	D		
E02001351 : Liverpool 005	0.4%	B			
E02001352 : Liverpool 006	0.3%	D	B		
E02001354 : Liverpool 008	0.2%	D	B		
E02001355 : Liverpool 009	0.1%	D	B		
E02001356 : Liverpool 010	0.2%	D	B		
E02001357 : Liverpool 011	0.1%	D	B		
E02001358 : Liverpool 012	0.0%	D	B		
E02001359 : Liverpool 013	0.1%	D	B		
E02001360 : Liverpool 014	0.4%	D	B		
E02001362 : Liverpool 016	0.1%	D	B		
E02001364 : Liverpool 018	0.1%	D	B		
E02001366 : Liverpool 020	0.3%	D	B		
E02001367 : Liverpool 021	0.2%	D	B		
E02001368 : Liverpool 022	0.5%	D			
E02001369 : Liverpool 023	0.5%	D	B		
E02001370 : Liverpool 024	0.4%	D	B		
E02001372 : Liverpool 026	2.2%	D	B		
E02001373 : Liverpool 027	0.7%	D	B		
E02001374 : Liverpool 028	0.8%	D			
E02001375 : Liverpool 029	0.2%	D	B		
E02001376 : Liverpool 030	0.2%	D			
E02001377 : Liverpool 031	1.9%	D			
E02001378 : Liverpool 032	0.2%	D			
E02001380 : Liverpool 034	0.2%	D			
E02001381 : Liverpool 035	0.7%	D			
E02001382 : Liverpool 036	0.2%	D			
E02001383 : Liverpool 037	0.3%	D			
E02001384 : Liverpool 038	0.2%	D			
E02001385 : Liverpool 039	0.2%	D			
E02001386 : Liverpool 040	0.7%	D	B		
E02001387 : Liverpool 041	0.6%	D			
E02001388 : Liverpool 042	0.5%	D			
E02001389 : Liverpool 043	0.2%	D			
E02001390 : Liverpool 044	0.2%	D			
E02001391 : Liverpool 045	0.4%	F	C		
E02001392 : Liverpool 046	0.3%	F	C		
E02001393 : Liverpool 047	0.9%	F	C		
E02001394 : Liverpool 048	0.6%	D			
E02001395 : Liverpool 049	0.5%	D			
E02001396 : Liverpool 050	0.4%	D	G		
E02001397 : Liverpool 051	0.8%	F	C		
E02001398 : Liverpool 052	0.3%	D	G		
E02001399 : Liverpool 053	0.1%	D	G		
E02001400 : Liverpool 054	0.2%	E	G		
E02001401 : Liverpool 055	1.7%	G	E		
E02001402 : Liverpool 056	0.3%	G	C		
E02001403 : Liverpool 057	0.4%	G			
E02001404 : Liverpool 058	5.7%	G			
E02001405 : Liverpool 059	0.5%	G	E		
E02006932 : Liverpool 060	3.6%	D			
E02006933 : Liverpool 061	3.3%	D			
E02006934 : Liverpool 062	4.1%	D			
Total	39.4%				

Appendix F – Model Outputs

Junctions 9									
PICADY 9 - Priority Intersection Module									
Version: 9.5.1.7462 © Copyright TRL Limited, 2019									
For sales and distribution information, program advice and maintenance, contact TRL: +44 (0)1344 379777 software@trl.co.uk www.trlsoftware.co.uk									
The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution									

Filename: Site Access-Fox's Bank Lane.j9

Path: \\LI-FS-1\Projects\087052-Halsnead_Farm\Q3-Design\3B-Models\TP

Report generation date: 11/11/2025 13:23:17

- »2025 Base + Dev, AM
- »2025 Base + Dev, PM
- »2030 Base + Dev , AM
- »2030 Base + Dev, PM
- »2030 Sensitivity Test + Dev, AM
- »2030 Sensitivity Test + Dev, PM

Summary of junction performance

	AM					PM				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
	2025 Base + Dev									
Stream B-AC	D3	0.1	8.68	0.06	A	D4	0.0	8.46	0.04	A
Stream C-AB		0.0	5.44	0.00	A		0.0	5.45	0.01	A
	2030 Base + Dev									
Stream B-AC	D7	0.1	8.74	0.06	A	D8	0.0	8.41	0.05	A
Stream C-AB		0.0	5.46	0.00	A		0.0	5.46	0.01	A
	2030 Sensitivity Test + Dev									
Stream B-AC	D9	0.2	12.10	0.15	B	D10	0.1	10.88	0.11	B
Stream C-AB		0.0	6.11	0.01	A		0.0	6.11	0.02	A

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

File summary

File Description

Title	
Location	
Site number	
Date	04/09/2025
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	CURTINS\Jonathan.Ashcroft
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin

Analysis Options

Calculate Queue Percentiles	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
		0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	2025 Base + Dev	AM	ONE HOUR	00:00	01:30	15
D4	2025 Base + Dev	PM	ONE HOUR	00:00	01:30	15
D7	2030 Base + Dev	AM	ONE HOUR	00:00	01:30	15
D8	2030 Base + Dev	PM	ONE HOUR	00:00	01:30	15
D9	2030 Sensitivity Test + Dev	AM	ONE HOUR	00:00	01:30	15
D10	2030 Sensitivity Test + Dev	PM	ONE HOUR	00:00	01:30	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2025 Base + Dev, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.46	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	Fox's Bank Lane (South)		Major
B	Site Access		Minor
C	Fox's Bank Lane (North)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Width for right turn (m)	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C - Fox's Bank Lane (North)	6.50		✓	3.00	168.0	✓	2.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B - Site Access	One lane	3.00	22	18

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
B-A	493	0.088	0.222	0.140	0.317
B-C	635	0.095	0.241	-	-
C-B	730	0.277	0.277	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	2025 Base + Dev	AM	ONE HOUR	00:00	01:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Fox's Bank Lane (South)		✓	212	100.000
B - Site Access		✓	23	100.000
C - Fox's Bank Lane (North)		✓	238	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A - Fox's Bank Lane (South)	B - Site Access	C - Fox's Bank Lane (North)
	A - Fox's Bank Lane (South)	0	8	204
	B - Site Access	17	0	6
	C - Fox's Bank Lane (North)	235	3	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A - Fox's Bank Lane (South)	B - Site Access	C - Fox's Bank Lane (North)
	A - Fox's Bank Lane (South)	0	0	0
	B - Site Access	0	0	0
	C - Fox's Bank Lane (North)	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.06	8.68	0.1	A
C-AB	0.00	5.44	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

00:00 - 00:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	17	467	0.037	17	0.0	8.003	A
C-AB	2	686	0.003	2	0.0	5.268	A
C-A	177			177			
A-B	6			6			
A-C	154			154			

00:15 - 00:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	21	456	0.045	21	0.0	8.276	A
C-AB	3	677	0.004	3	0.0	5.338	A
C-A	211			211			
A-B	7			7			
A-C	183			183			

00:30 - 00:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	25	440	0.058	25	0.1	8.676	A
C-AB	3	665	0.005	3	0.0	5.438	A
C-A	259			259			
A-B	9			9			
A-C	225			225			

00:45 - 01:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	25	440	0.058	25	0.1	8.678	A
C-AB	3	665	0.005	3	0.0	5.438	A
C-A	259			259			
A-B	9			9			
A-C	225			225			

01:00 - 01:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	21	456	0.045	21	0.0	8.279	A
C-AB	3	677	0.004	3	0.0	5.340	A
C-A	211			211			
A-B	7			7			
A-C	183			183			

01:15 - 01:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	17	467	0.037	17	0.0	8.011	A
C-AB	2	686	0.003	2	0.0	5.268	A
C-A	177			177			
A-B	6			6			
A-C	154			154			

2025 Base + Dev, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.40	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D4	2025 Base + Dev	PM	ONE HOUR	00:00	01:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Fox's Bank Lane (South)		✓	204	100.000
B - Site Access		✓	18	100.000
C - Fox's Bank Lane (North)		✓	241	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A - Fox's Bank Lane (South)	B - Site Access	C - Fox's Bank Lane (North)
From	A - Fox's Bank Lane (South)	0	18	186
	B - Site Access	13	0	5
	C - Fox's Bank Lane (North)	235	6	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A - Fox's Bank Lane (South)	B - Site Access	C - Fox's Bank Lane (North)
From	A - Fox's Bank Lane (South)	0	0	0
	B - Site Access	0	0	0
	C - Fox's Bank Lane (North)	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.04	8.46	0.0	A
C-AB	0.01	5.45	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

00:00 - 00:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	14	471	0.029	13	0.0	7.866	A
C-AB	5	687	0.007	4	0.0	5.272	A
C-A	177			177			
A-B	14			14			
A-C	140			140			

00:15 - 00:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	16	460	0.035	16	0.0	8.107	A
C-AB	5	679	0.008	5	0.0	5.343	A
C-A	211			211			
A-B	16			16			
A-C	167			167			

00:30 - 00:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	20	445	0.045	20	0.0	8.462	A
C-AB	7	668	0.010	7	0.0	5.445	A
C-A	259			259			
A-B	20			20			
A-C	205			205			

00:45 - 01:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	20	445	0.045	20	0.0	8.462	A
C-AB	7	668	0.010	7	0.0	5.445	A
C-A	259			259			
A-B	20			20			
A-C	205			205			

01:00 - 01:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	16	460	0.035	16	0.0	8.110	A
C-AB	5	679	0.008	5	0.0	5.344	A
C-A	211			211			
A-B	16			16			
A-C	167			167			

01:15 - 01:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	14	471	0.029	14	0.0	7.870	A
C-AB	5	687	0.007	5	0.0	5.272	A
C-A	177			177			
A-B	14			14			
A-C	140			140			

2030 Base + Dev , AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.45	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D7	2030 Base + Dev	AM	ONE HOUR	00:00	01:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Fox's Bank Lane (South)		✓	219	100.000
B - Site Access		✓	23	100.000
C - Fox's Bank Lane (North)		✓	246	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A - Fox's Bank Lane (South)	B - Site Access	C - Fox's Bank Lane (North)
From	A - Fox's Bank Lane (South)	0	8	211
	B - Site Access	17	0	6
	C - Fox's Bank Lane (North)	243	3	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A - Fox's Bank Lane (South)	B - Site Access	C - Fox's Bank Lane (North)
From	A - Fox's Bank Lane (South)	0	0	0
	B - Site Access	0	0	0
	C - Fox's Bank Lane (North)	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.06	8.74	0.1	A
C-AB	0.00	5.46	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

00:00 - 00:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	17	465	0.037	17	0.0	8.038	A
C-AB	2	684	0.003	2	0.0	5.279	A
C-A	183			183			
A-B	6			6			
A-C	159			159			

00:15 - 00:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	21	453	0.046	21	0.0	8.320	A
C-AB	3	675	0.004	3	0.0	5.352	A
C-A	218			218			
A-B	7			7			
A-C	190			190			

00:30 - 00:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	25	437	0.058	25	0.1	8.736	A
C-AB	3	663	0.005	3	0.0	5.456	A
C-A	268			268			
A-B	9			9			
A-C	232			232			

00:45 - 01:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	25	437	0.058	25	0.1	8.738	A
C-AB	3	663	0.005	3	0.0	5.456	A
C-A	268			268			
A-B	9			9			
A-C	232			232			

01:00 - 01:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	21	453	0.046	21	0.0	8.324	A
C-AB	3	675	0.004	3	0.0	5.352	A
C-A	218			218			
A-B	7			7			
A-C	190			190			

01:15 - 01:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	17	465	0.037	17	0.0	8.045	A
C-AB	2	684	0.003	2	0.0	5.281	A
C-A	183			183			
A-B	6			6			
A-C	159			159			

2030 Base + Dev, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.47	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D8	2030 Base + Dev	PM	ONE HOUR	00:00	01:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Fox's Bank Lane (South)		✓	210	100.000
B - Site Access		✓	19	100.000
C - Fox's Bank Lane (North)		✓	185	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A - Fox's Bank Lane (South)	B - Site Access	C - Fox's Bank Lane (North)
From	A - Fox's Bank Lane (South)	0	18	192
	B - Site Access	14	0	5
	C - Fox's Bank Lane (North)	179	6	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A - Fox's Bank Lane (South)	B - Site Access	C - Fox's Bank Lane (North)
From	A - Fox's Bank Lane (South)	0	0	0
	B - Site Access	0	0	0
	C - Fox's Bank Lane (North)	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.05	8.41	0.0	A
C-AB	0.01	5.46	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

00:00 - 00:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	14	473	0.030	14	0.0	7.845	A
C-AB	5	686	0.007	4	0.0	5.282	A
C-A	135			135			
A-B	14			14			
A-C	145			145			

00:15 - 00:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	17	463	0.037	17	0.0	8.074	A
C-AB	5	677	0.008	5	0.0	5.355	A
C-A	161			161			
A-B	16			16			
A-C	173			173			

00:30 - 00:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	21	449	0.047	21	0.0	8.406	A
C-AB	7	666	0.010	7	0.0	5.460	A
C-A	197			197			
A-B	20			20			
A-C	211			211			

00:45 - 01:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	21	449	0.047	21	0.0	8.408	A
C-AB	7	666	0.010	7	0.0	5.460	A
C-A	197			197			
A-B	20			20			
A-C	211			211			

01:00 - 01:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	17	463	0.037	17	0.0	8.075	A
C-AB	5	677	0.008	5	0.0	5.355	A
C-A	161			161			
A-B	16			16			
A-C	173			173			

01:15 - 01:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	14	473	0.030	14	0.0	7.849	A
C-AB	5	686	0.007	5	0.0	5.282	A
C-A	135			135			
A-B	14			14			
A-C	145			145			

2030 Sensitivity Test + Dev, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.61	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D9	2030 Sensitivity Test + Dev	AM	ONE HOUR	00:00	01:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Fox's Bank Lane (South)		✓	439	100.000
B - Site Access		✓	46	100.000
C - Fox's Bank Lane (North)		✓	492	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A - Fox's Bank Lane (South)	B - Site Access	C - Fox's Bank Lane (North)
From	A - Fox's Bank Lane (South)	0	16	423
	B - Site Access	34	0	12
	C - Fox's Bank Lane (North)	486	6	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A - Fox's Bank Lane (South)	B - Site Access	C - Fox's Bank Lane (North)
From	A - Fox's Bank Lane (South)	0	0	0
	B - Site Access	0	0	0
	C - Fox's Bank Lane (North)	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.15	12.10	0.2	B
C-AB	0.01	6.11	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

00:00 - 00:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	35	405	0.086	34	0.1	9.706	A
C-AB	5	638	0.007	4	0.0	5.679	A
C-A	366			366			
A-B	12			12			
A-C	318			318			

00:15 - 00:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	41	381	0.109	41	0.1	10.590	B
C-AB	5	621	0.009	5	0.0	5.851	A
C-A	437			437			
A-B	14			14			
A-C	380			380			

00:30 - 00:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	51	348	0.146	50	0.2	12.090	B
C-AB	7	596	0.011	7	0.0	6.106	A
C-A	535			535			
A-B	18			18			
A-C	466			466			

00:45 - 01:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	51	348	0.146	51	0.2	12.104	B
C-AB	7	596	0.011	7	0.0	6.106	A
C-A	535			535			
A-B	18			18			
A-C	466			466			

01:00 - 01:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	41	381	0.109	42	0.1	10.608	B
C-AB	5	621	0.009	5	0.0	5.851	A
C-A	437			437			
A-B	14			14			
A-C	380			380			

01:15 - 01:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	35	405	0.086	35	0.1	9.735	A
C-AB	5	638	0.007	5	0.0	5.681	A
C-A	366			366			
A-B	12			12			
A-C	318			318			

2030 Sensitivity Test + Dev, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.56	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D10	2030 Sensitivity Test + Dev	PM	ONE HOUR	00:00	01:30	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Fox's Bank Lane (South)		✓	419	100.000
B - Site Access		✓	36	100.000
C - Fox's Bank Lane (North)		✓	370	100.000

Origin-Destination Data

Demand (PCU/hr)

	To			
		A - Fox's Bank Lane (South)	B - Site Access	C - Fox's Bank Lane (North)
From	A - Fox's Bank Lane (South)	0	35	384
	B - Site Access	27	0	9
	C - Fox's Bank Lane (North)	358	12	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
		A - Fox's Bank Lane (South)	B - Site Access	C - Fox's Bank Lane (North)
From	A - Fox's Bank Lane (South)	0	0	0
	B - Site Access	0	0	0
	C - Fox's Bank Lane (North)	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.11	10.88	0.1	B
C-AB	0.02	6.11	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

00:00 - 00:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	27	419	0.065	27	0.1	9.167	A
C-AB	9	643	0.014	9	0.0	5.682	A
C-A	270			270			
A-B	26			26			
A-C	289			289			

00:15 - 00:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	32	399	0.081	32	0.1	9.817	A
C-AB	11	626	0.017	11	0.0	5.854	A
C-A	322			322			
A-B	31			31			
A-C	345			345			

00:30 - 00:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	40	371	0.107	40	0.1	10.875	B
C-AB	13	602	0.022	13	0.0	6.110	A
C-A	394			394			
A-B	39			39			
A-C	423			423			

00:45 - 01:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	40	371	0.107	40	0.1	10.879	B
C-AB	13	602	0.022	13	0.0	6.110	A
C-A	394			394			
A-B	39			39			
A-C	423			423			

01:00 - 01:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	32	399	0.081	32	0.1	9.828	A
C-AB	11	626	0.017	11	0.0	5.857	A
C-A	322			322			
A-B	31			31			
A-C	345			345			

01:15 - 01:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	27	419	0.065	27	0.1	9.185	A
C-AB	9	643	0.014	9	0.0	5.684	A
C-A	270			270			
A-B	26			26			
A-C	289			289			

Appendix G – Fox Wood Garden Village Traffic Flows

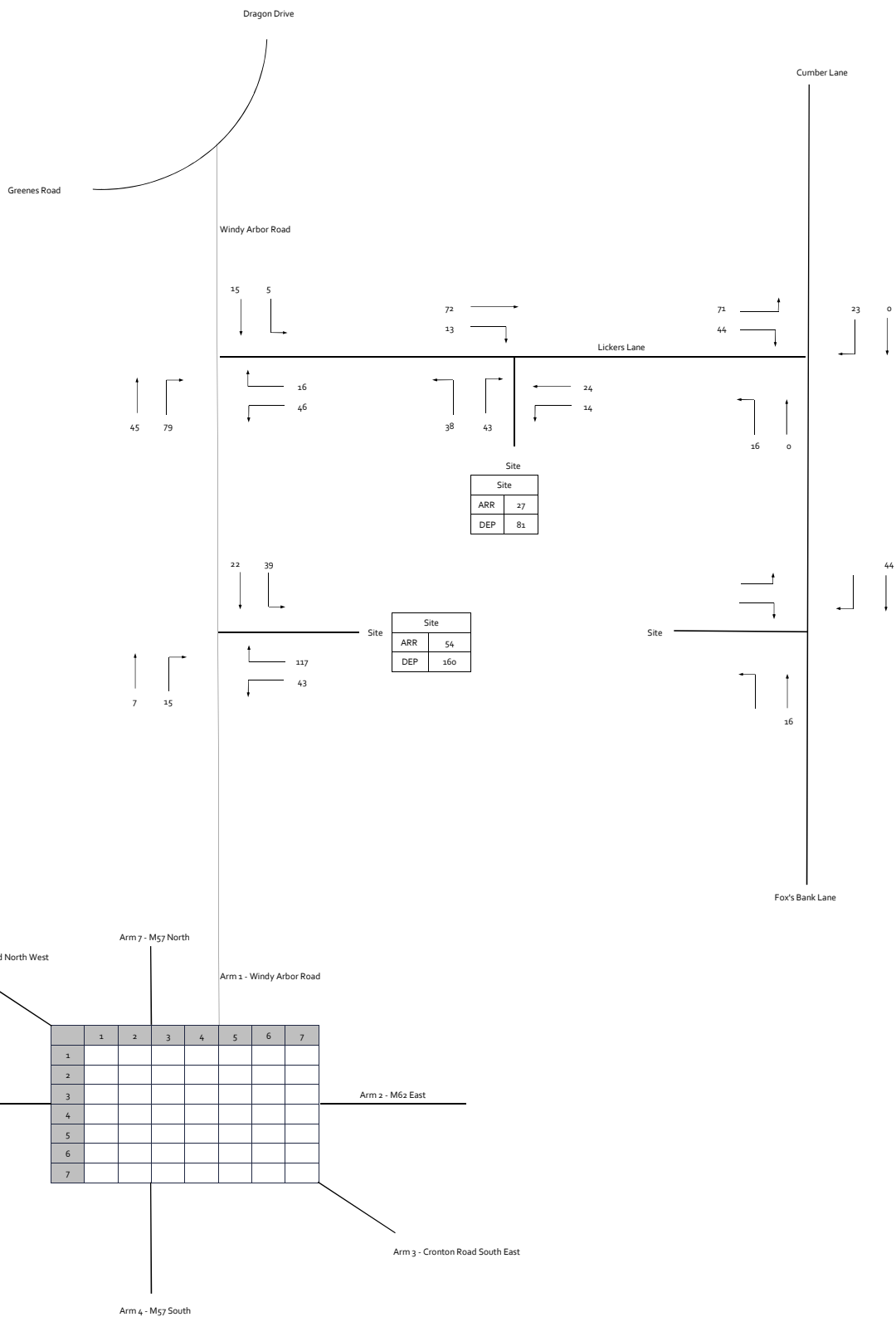


Figure 5 - Total Committed Development - Lickers Lane & Windy Arbor Road - AM Peak (0800 to 0900)



Croft Transport Planning & Design
Hill Quays
9 Jordan Street
Manchester
M15 4PY

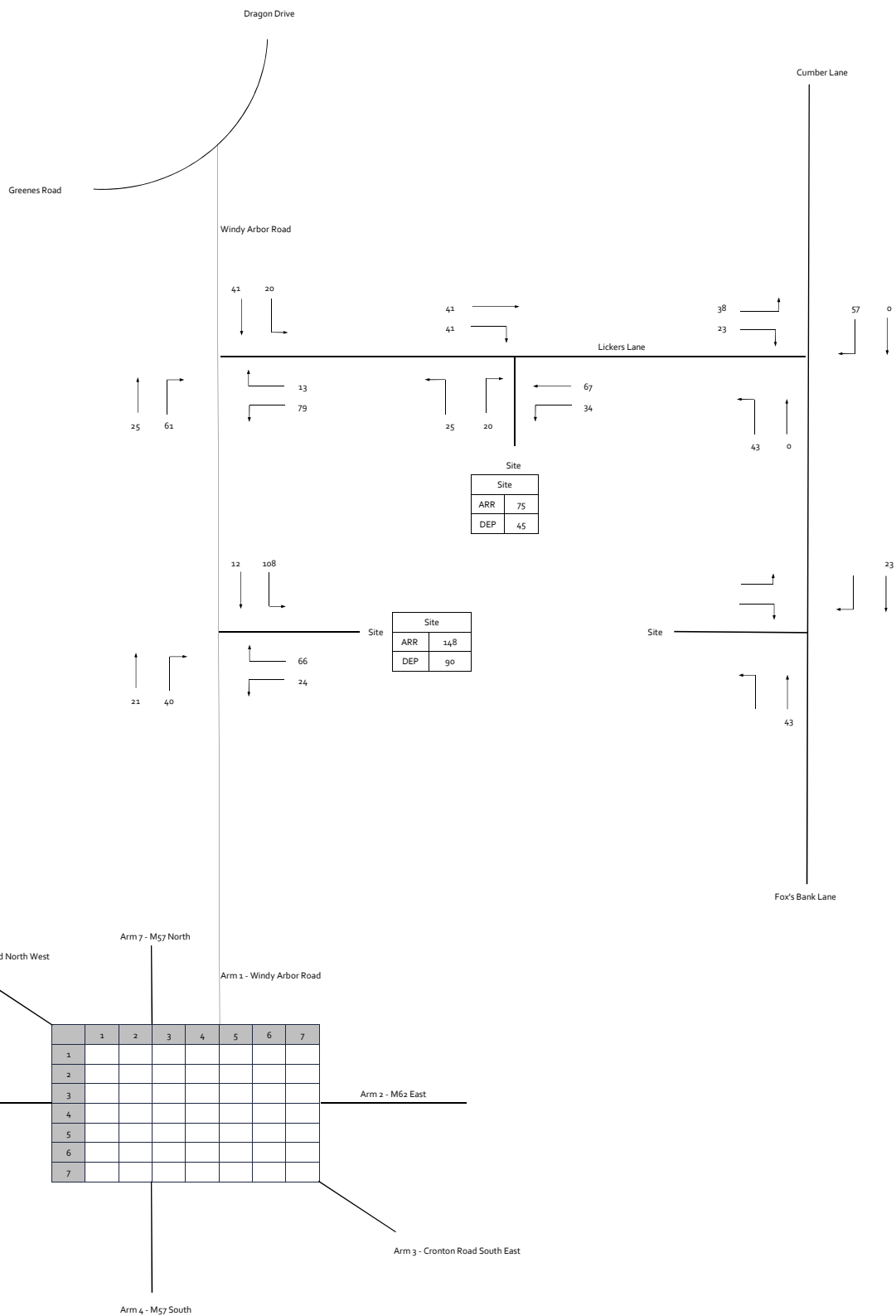


Figure 6 - Total Committed Development - Lickers Lane & Windy Arbor Road - PM Peak (1630 to 1730)



Croft Transport Planning & Design
 Hill Quays
 9 Jordan Street
 Manchester
 M15 4PY

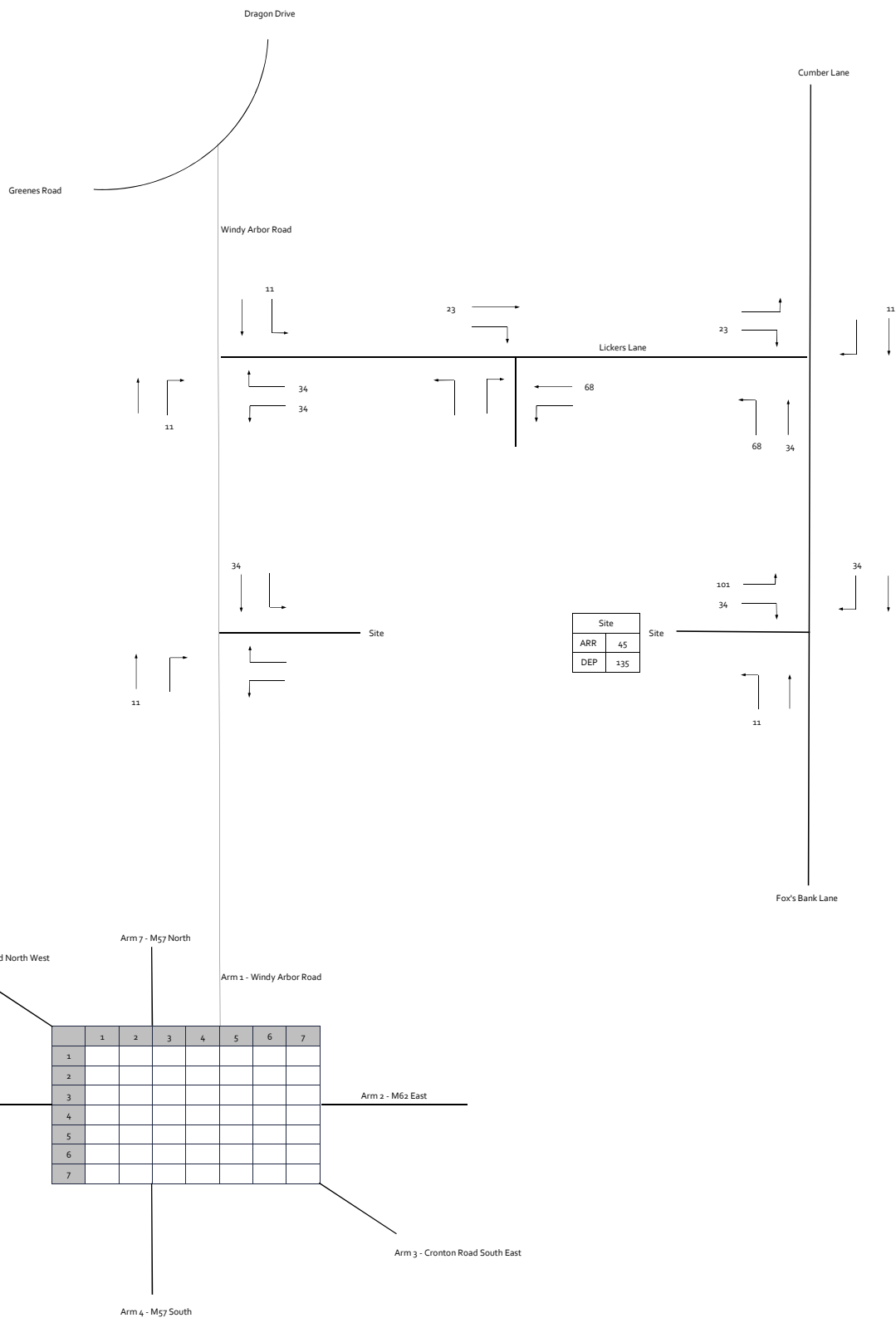


Figure 11 - Proposed Development Flows - AM Peak (0800 to 0900)



Croft Transport Planning & Design
Hill Quays
9 Jordan Street
Manchester
M15 4PY

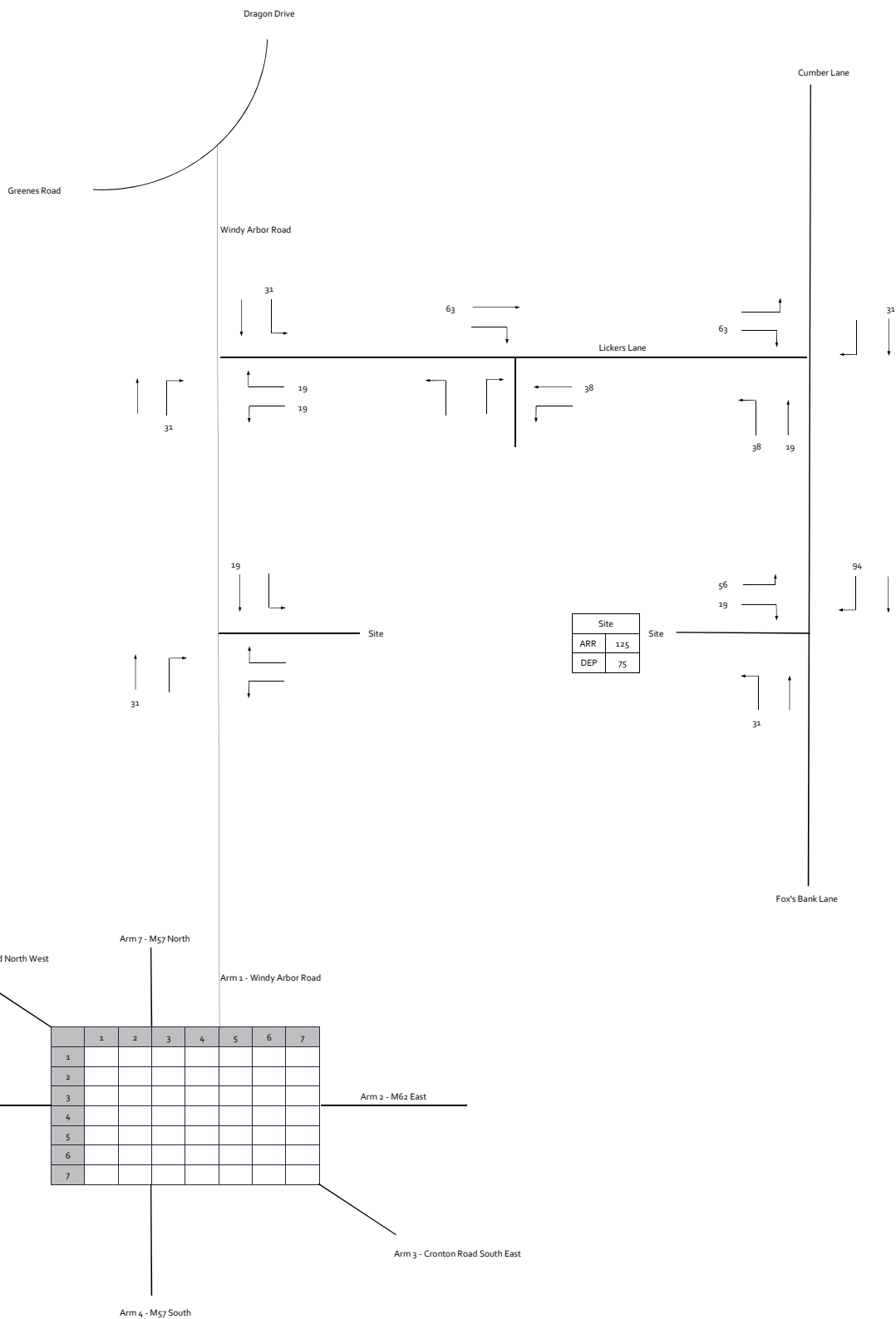


Figure 12 - Proposed Development Flows - PM Peak (1630 to 1730)



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