



Barratt & David Wilson Homes North West

Cherryfield Drive, Kirkby Transport Assessment

October 2023



Barratt & David Wilson Homes North West

Cherryfield Drive, Kirkby

Transport Assessment

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PROJECT NO:
326949

DATE:
October 2023

REPORT No:	FILE NAME	PREPARED:	DATE OF ISSUE:	STATUS:	CHECKED:	AUTHORISED:
1	231020 J326949 TA v1.4.docx	RW	20 October 2023	Draft	LJ	MA

CHANGE LOG

VERSION	DATE:	CHECKED BY:	REASON FOR CHANGE:
1.0	11 November 2022	MA	Draft version for project team review
1.1	25 November 2022	MA	Updated with interim modelling results
1.2	02 December 2022	MA	Updated following project team comments
1.3	29 September 2023	ME	Updated with latest site layout and modelling results
1.4	20 October 2023	MA	Updated layout

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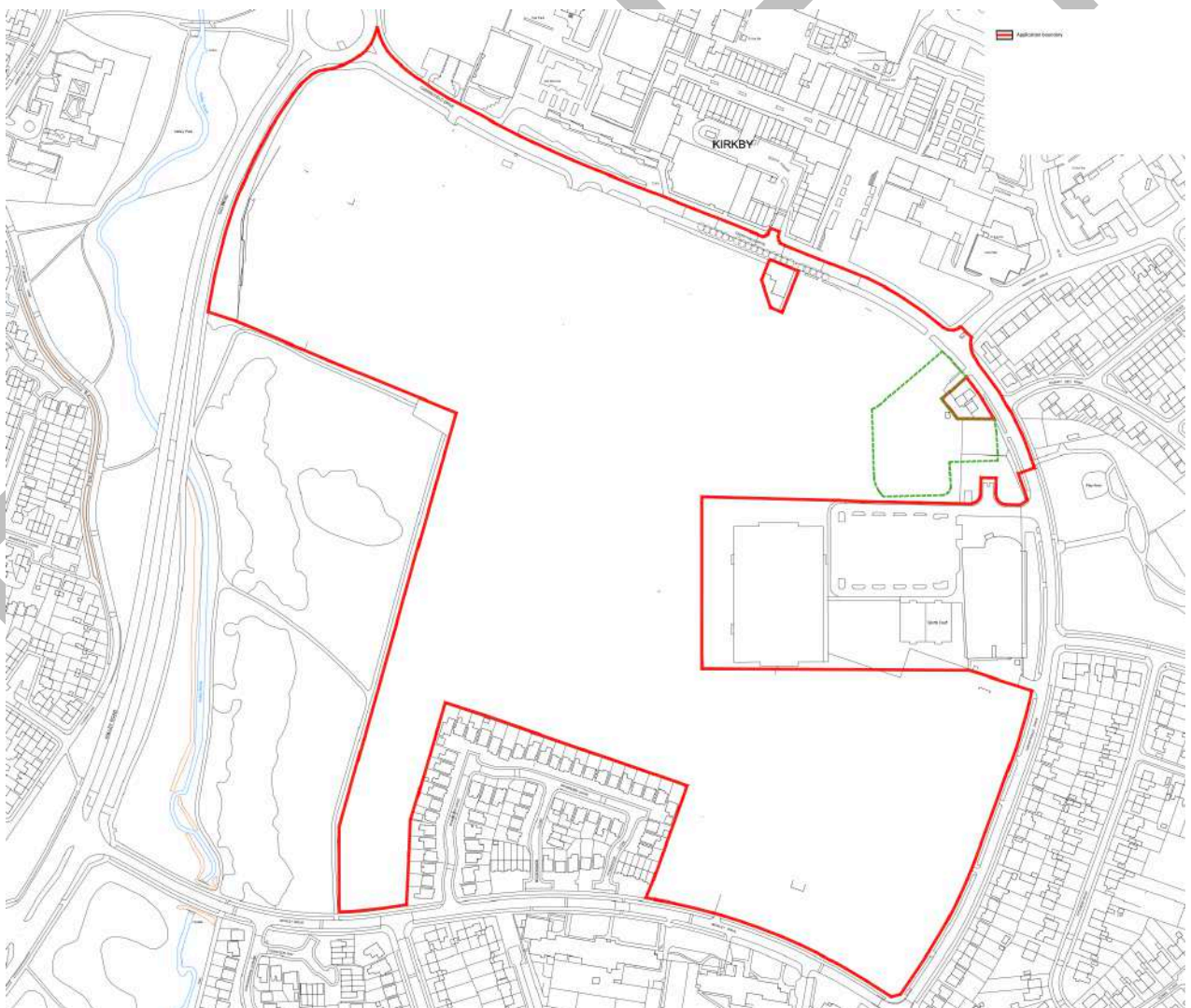
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1. Introduction

1.1 Preamble

- 1.1.1 Mode Transport Planning ('Mode') has been appointed by Barratt and David Wilson Homes North West (the 'Applicant') to provide transport planning and highways advice in relation to a full planning application for a residential development on Cherryfield Drive in Kirkby, Knowsley.
- 1.1.2 The proposed development includes 781no. residential dwellings, with vehicular access proposed via 3no. new access junctions and 1no. existing access on the local highway network. The proposed development also includes changes to the existing Cherryfield Drive Car Park.
- 1.1.3 The indicative site boundary is shown in [Figure 1.1](#).

Figure 1.1 : Indicative Site Boundary (source: BDW)



- 1.1.4 This Transport Assessment (TA) has been prepared to assess the development proposals, with consideration to vehicular and pedestrian access, expected trip generation and traffic impact, accessibility by sustainable modes of travel, parking provision and servicing arrangements.

1.2 Methodology

- 1.2.1 The methodology for the TA adopts the guidance set out within the Ministry of Housing, Communities & Local Government document, '*Transport Evidence Bases in Plan Making and Decision Taking*' (2014), which superseded the Department for Transport's (DfT) '*Guidance on Transport Assessment*' (2007). Whilst the 2014 guidance places a focus on agreeing a scope of works with the Local Highway Authority, the 2007 guidance remains instructive and has been used to inform the overall structure of the TA.
- 1.2.2 The TA has been produced following pre-application scoping discussions with the Local Highway Authority, Knowsley Metropolitan Borough Council (KMBC) Highways and National Highways (NH). The pre-application scoping response from KMBC Highways is attached in [Appendix A](#).
- 1.2.3 A separate Interim Travel Plan (ITP) has also been produced to accompany the planning application, which sets out a framework to encourage sustainable travel and reduce single occupancy vehicle trips.

1.3 Report Structure

- 1.3.1 Following this introduction, this TA will be structured as follows:
- [Chapter 2](#) sets out the relevant national, regional and local transport policy context;
 - [Chapter 3](#) describes the site location, local highway network and collision data;
 - [Chapter 4](#) outlines the development proposals, vehicular access, servicing and parking;
 - [Chapter 5](#) details accessibility by non-car modes, including public transport, cycle and on foot;
 - [Chapter 6](#) details the expected trip generation and distribution;
 - [Chapter 7](#) assesses the traffic impact of the development proposals; and
 - [Chapter 8](#) summarise and concludes the findings of the report.

2. Policy Consideration

2.1 Introduction

2.1.1 This chapter of the TA considers key current national and local transport policy as they relate to the development proposals. The following relevant documents have been reviewed:

- National Planning Policy Framework (2023);
- Merseyside Local Transport Plan (LTP3 (2011);
- Knowsley Local Plan Core Strategy (2016); and
- KMBC Ensuring a Choice of Travel SPD (2006).

2.1.2 Legislation and policy play an important role in shaping and guiding a new development. As such, the purpose of this chapter is to outline the relevant transport related policies which influence the proposed development from a national and local level.

2.2 National Transport Planning Policy

National Planning Policy Framework

2.2.1 The revised National Planning Policy Framework (NPPF) was published in September 2023 and sets out the government's planning policies for England and how these should be applied. It provides a framework within which locally prepared plans for development can be produced. The revised NPPF replaces the previous NPPF published in February 2019.

2.2.2 Paragraph 2 of the NPPF states *"Planning law requires that application for planning permission be determined in accordance with the development plan, unless material considerations indicate otherwise. The National Planning Policy Framework must be taken into account in preparing the development plan and is a material consideration in planning decisions."*

2.2.3 Paragraph 7 of the NPPF states "The purpose of the planning system is to contribute to the achievement of sustainable development."

2.2.4 Achieving sustainable development means that the planning system has three overarching objectives, which are interdependent and need to be pursued in mutually supportive ways (so that opportunities can be taken to secure net gains across each of the different objectives), as detailed in paragraph 8 of the NPPF:

- *"an economic objective – to help build a strong, responsive and competitive economy, by ensuring that sufficient land of the right types is available in the right places and at the right time to support growth, innovation and improved productivity; and by identifying and coordinating the provision of infrastructure;*

- *social objective – to support strong, vibrant and healthy communities, by ensuring that a sufficient number and range of homes can be provided to meet the needs of present and future generations... and support communities' health, social and cultural well-being; and*
- *an environmental objective – to contribute to protecting and enhancing our natural, built and historic environment; including making effective use of land... and mitigating and adapting to climate change, including moving to a low carbon economy."*
- *an environmental objective – to protect and enhance our natural, built and historic environment; including making effective use of land, improving biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy."*

2.2.5 Chapter 9 of the NPPF, 'Promoting Sustainable Transport', sets out the important role that transport issues and policies have in facilitating sustainable development. Paragraph 105 states that:

"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. This can help to reduce congestion and emissions and improve air quality and public health. However, opportunities to maximise sustainable transport solutions will vary between urban and rural areas, and this should be taken into account in both plan-making and decision-making."

2.2.6 Specifically, Paragraph 110 states that when assessing applications for development, it should be ensured that:

- Appropriate opportunities to promote sustainable transport modes can be – or have been – taken up, given the type of development and its location;
- Safe and suitable access to the site can be achieved for all users;
- 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
- Any significant impacts from the development on the transport network (in terms of capacity and congestion), or on highway safety, can be cost effectively mitigated to an acceptable degree.

2.2.7 In terms of highways impact and safety, Paragraph 111 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 impact on the road network would be severe."

2.2.8 Within this context, Paragraph 112 goes on to state that applications for development should:

- *"give priority first to pedestrian and cycle movements, both within the scheme and with neighbouring areas; and second – so far as possible – to facilitating access to high quality public transport, with layouts that maximise the catchment area for bus or other public transport services, and appropriate facilities that encourage public transport use;*

- *Address the needs of people with disabilities and reduced mobility in relation to all modes of transport;*
- *Create places that are safe, secure and attractive—which minimise the scope for conflicts between pedestrians, cyclists and vehicles, avoid unnecessary street clutter, and respond to local character and design standards;*
- *allow for the efficient delivery of goods, and access by service and emergency vehicles; and*
- *be designed to enable charging of plug-in and other ultra-low emission vehicles in safe, accessible, and convenient locations.”*

2.3 Regional Transport Planning Policy

Merseyside Local Transport Plan (LTP3)

2.3.1 The Merseyside Local Transport Plan (LTP3) is a statutory plan prepared by the five Metropolitan Councils on Merseyside.

2.3.2 The LTP3 for Merseyside became active from 1st April 2011. The plan sets out the implementation plans in the short term to 2015 and looks to the long-term strategy for 2024 on how to improve transport in Merseyside. The LTP3 has the following vision;

“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”.

2.3.3 The LTP3 has six goals:

- ☐ One - 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.
- ☐ Two - Provide and promote a clean, low emission transport system which is resilient to changes to climate and oil availability.
- ☐ Three - Ensure the transport system promotes and enables improved health and wellbeing and road safety.
- ☐ Four - 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.
- ☐ Five - Ensure the transport network supports the economic success of the city region by the efficient movement of people and goods.
- ☐ Six - Maintain our assets to a high standard. (Please note all goals have equal status).

2.4 Local Transport Planning Policy

Knowsley Local Plan Core Strategy

2.4.1 The 'Knowsley Local Plan Core Strategy' written in 2016 sets out the vision, objectives and policy that will guide development in Knowsley until 2028.

2.4.2 Policy CS7 focuses on the Knowsley transport network, with the Local Plan aiming to:

'support a sustainable transport system and geographical pattern of development which minimises the need to travel and will help grow the borough's economy, ensuring that jobs, shops and services are accessible to all, leading to a lesser reliance on the car for travel. This will help to improve the environment and the health and wellbeing of residents.'

2.4.3 Policy CS7 states that all new developments will be required to be:

- *'Located and designed to prioritise accessibility and sustainable modes of travel through a choice of walking, cycling, public transport, and incorporate access for private vehicles. Where deficiencies are identified, developer contributions will be required to improve the accessibility of the location;*
- *Located and designed to ensure that larger scale proposals (attracting a lot of visitors, customers and/or employees) are located in the most accessible locations;*
- *Where subject to a planning application, accompanied (except in the case of smaller scale proposals) by Transport Assessments and/or Travel Plans;*
- *In compliance with adopted cycle, car, disabled and service vehicle parking standards for different types and scales of new development;*
- *Inclusive of measures that will mitigate carbon emissions and improve air quality where appropriate; and*
- *Consistent with safeguarding arrangements that secure the operational integrity and safety of Liverpool John Lennon Airport.'*

KMBC Ensuring a Choice of Travel SPD

2.4.4 The 'Ensuring a Choice of Travel' SPD for Knowsley was adopted in 2006 in advance of the Local Plan, and supplements the policies outlined in the Knowsley Replacement Unitary Development Plan (UDP).

2.4.5 The SPD's aim is to encourage the location of larger developments in areas that are accessible via sustainable transport methods including walking, cycling, and public transport.

2.4.6 Policy T6 in the UDP highlights the need for appropriate accessibility via a range of transport methods, with larger developments expected to be more accessible. New developments should be provided with:

- *'Well lit, safe, convenient and clearly sign-posted footways and cycle routes both within the site and linking to the surrounding area and to public transport facilities*
- *Cycle parking facilities in accordance with the Council's minimum standards*
- *Car parking facilities which do not exceed the Council's maximum standards*
- *Parking facilities for the less mobile, delivery and other service vehicles within the site in accordance with the Council's minimum standards*
- *Safe and convenient vehicular access to and from the highway and within the site*
- *Good provision of public transport to the site. In the case of major developments, and any other developments likely to generate a significant amount of travel demand, the provision of additional public transport facilities such as bus stops, bus layover bays, taxi bays or other facilities may be required within or adjacent to the site.'*

2.4.7 Similarly, Policy T7 states that *'new development should preserve and where possible enhance the walking and cycling network.'*

2.4.8 Merseyside authorities have developed a standardised accessibility assessment scoring system for large or major developments. Assessment scores are compared to minimum accessibility scores, with scores expected to exceed the minimum before a planning application is submitted. Points are awarded in relation to walking, cycling, public transport and vehicular access/ parking.

2.4.9 It is evident that the primary aim of the 'Ensuring a Choice of Travel' SPD for Knowsley is to encourage a range of sustainable transport methods.

2.5 Summary

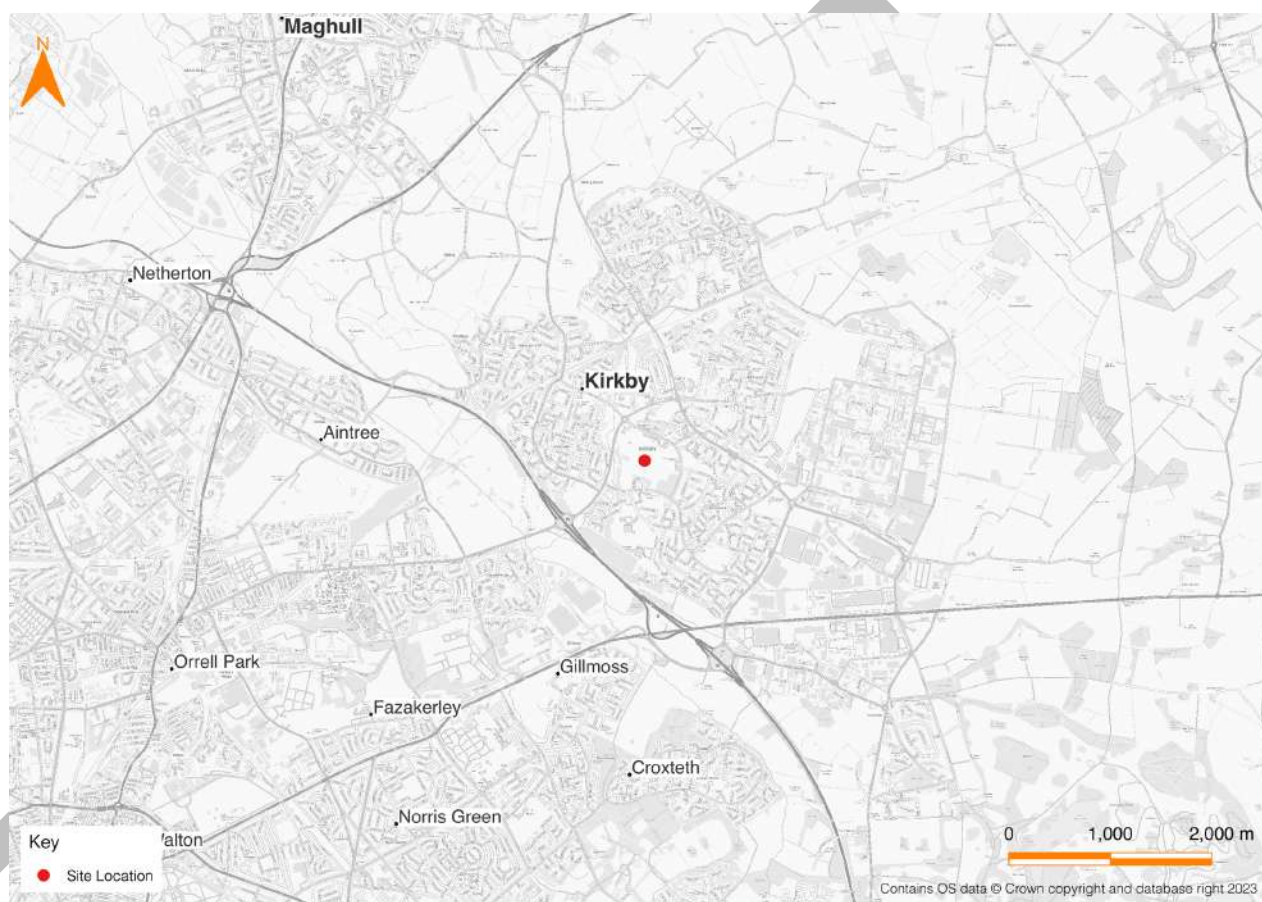
2.5.1 In accordance with the national and local policy, this planning application is supported by a TA which details the site's accessibility by sustainable modes of travel ([Chapter 5](#)) and assesses the impact of the proposed development of the local highway network ([Chapter 7](#)).

3. Existing Conditions

3.1 Site Location

- 3.1.1 The development site is located c.1km north of Junction 6 of the M57 motorway, c.350m south of Kirkby Town Centre and 5.5km southeast of Maghull, as shown in [Figure 3.1](#).

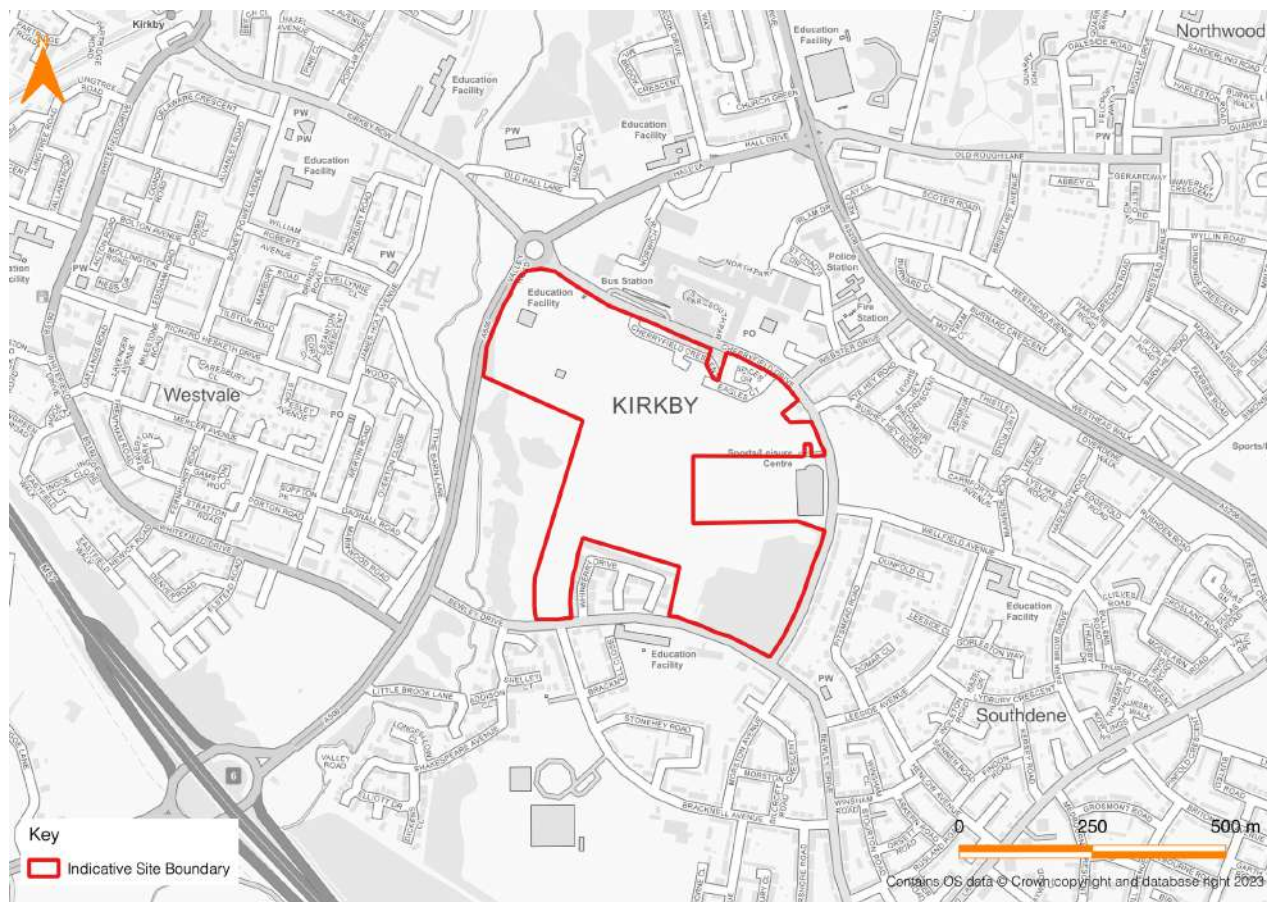
Figure 3.1 : Site Location Plan



3.2 Local Highway Network

- 3.2.1 The development site is bound to the west by the A506 (Valley Road) and a parcel of urban green space. To the north and east, the development site is bound by Cherryfield Drive, with the eastern boundary also including Kirkby Leisure Centre. To the south, the site is bounded by Bewley Drive as well as an existing residential development.
- 3.2.2 The location of the development site in the context of the local highway network is shown in [Figure 3.2](#).

Figure 3.2 : Local Highway Network



3.2.3 To the immediate north of the site beyond Cherryfield Drive is Kirkby Bus Station and Kirkby Town Centre. They are shown in Photograph 3.1 and Photograph 3.2.

Photograph 3.1 : Kirkby Bus Station



Photograph 3.2 : Kirkby Town Centre - Newtown Gardens



Cherryfield Drive

- 3.2.4 Cherryfield Drive is a two-way single carriageway running in a circular alignment around the northern and eastern boundaries of the site. The carriageway is c.6.4m wide, with c.2.2m wide footways on both sides of the carriageway. Cherryfield Drive is c.1.1km long and is subject to 20mph speed limits. Cherryfield Drive is shown in [Photograph 3.3](#) and [Photograph 3.4](#).

Photograph 3.3 : Cherryfield Drive (eastbound)



Photograph 3.4 : Cherryfield Drive (westbound) – Speed Limit



3.2.5 Cherryfield Drive benefits from a network of streetlighting and bus stops, as well as 5no. signalised pedestrian crossing points, mainly within the vicinity of Kirkby Town Centre. Double yellow lines are present on Cherryfield Drive, extending from A506 / Cherryfield Drive / Kirkby Row roundabout junction to c. 90m south of Wellfield Avenue. Loading is also prohibited along the section of Cherryfield Drive closest to Kirkby Town Centre.

3.2.6 On the north-west corner of the development site, Cherryfield Drive forms a roundabout junction with the A506 and Kirkby Row.

Photograph 3.5 : Cherryfield Drive – Toucan Crossing



- 3.2.7 As shown on [Photograph 3.5](#), the Cherryfield Drive / A506 roundabout junction includes Toucan crossings with tactile paving, dropped kerbs and pedestrian refuge islands.
- 3.2.8 On the southeast corner of the site, Cherryfield Drive joins Bewley Drive at a priority junction, with Cherryfield Drive forming the minor arm and Bewley Drive forming the major.
- 3.2.9 To the north of the site, a 248no. space car park is available, with 156no. spaces for long parking, and 92no. spaces for short stay parking. Vehicular and pedestrian access to the car park is taken from Cherryfield Drive, with the footways at the junction featuring dropped kerbs to allow for pedestrian mobility. This can be seen in [Photograph 3.6](#).

Photograph 3.6 : Cherryfield Drive Long and Short Stay Car Park – Access



Bewley Drive

- 3.2.10 Bewley Drive is a two-way single carriageway, running in a broadly east-to-west alignment along the southern boundary of the site. Bewley Drive is subject to 30mph speed limits.
- 3.2.11 Bewley Drive consists of a c.6.4m carriageway, with c.2.5m footways available on both sides, separated from the carriageway by grass verges along most of the section fronting the development site. Bewley Drive includes several traffic calming features, a network of streetlighting columns and bus stops. The road also includes a pedestrian crossing, comprising a raised table, dropped kerbs and tactile paving, as shown in [Photograph 3.7](#).

Photograph 3.7 : Bewley Drive – Pedestrian Crossing



3.2.12 At the south-west corner of the development site, Bewley Drive joins the A506 (Valley Road) at a signalised junction, with Bewley Drive forming the minor arm and the A506 forming the major arm. Cherryfield Drive joins Bewley Drive at a priority junction, as shown in Photograph 3.8.

Photograph 3.8 : Bewley Drive / Cherryfield Drive



3.2.13 Bewley Drive extends in a south-easterly direction through existing residential developments, where it joins the A5207 (Moorgate Road North) at a signalised junction. The A5207 forms the major arm, whilst Bewley Drive forms the minor arm.

A506 (Valley Road)

3.2.14 Valley Road is a four-lane dual-carriageway, travelling in both directions, running in a broadly north-to-south alignment along the western boundary of the site.

3.2.15 Valley Road has a total carriageway width of c.21.1m, with a c.5m grass verge separating the carriageway in each direction. A shared pedestrian/ cycle way is provided on the eastern side of Valley Road travelling north at c.4.2m wide, as shown on [Photograph 3.9](#) and [Photograph 3.10](#).

Photograph 3.9 : Valley Road – Shared Pedestrian/ Cycle Route



Photograph 3.10 : Valley Road – Shared Pedestrian/ Cycle Route



3.2.16 To the south, the A506 forms the minor arm of a roundabout junction with the M57 Motorway at Junction 6.

Wider Highway Network

3.2.17 The M57 motorway is accessible from the site via Bewley Drive and the A506 (Valley Road). The M57 runs in a broadly northwest-to-southeast alignment and is considered as the Liverpool Outer Ring Road. It is c.16km long and provides access between Tarbock and Aintree.

3.3 Road Safety

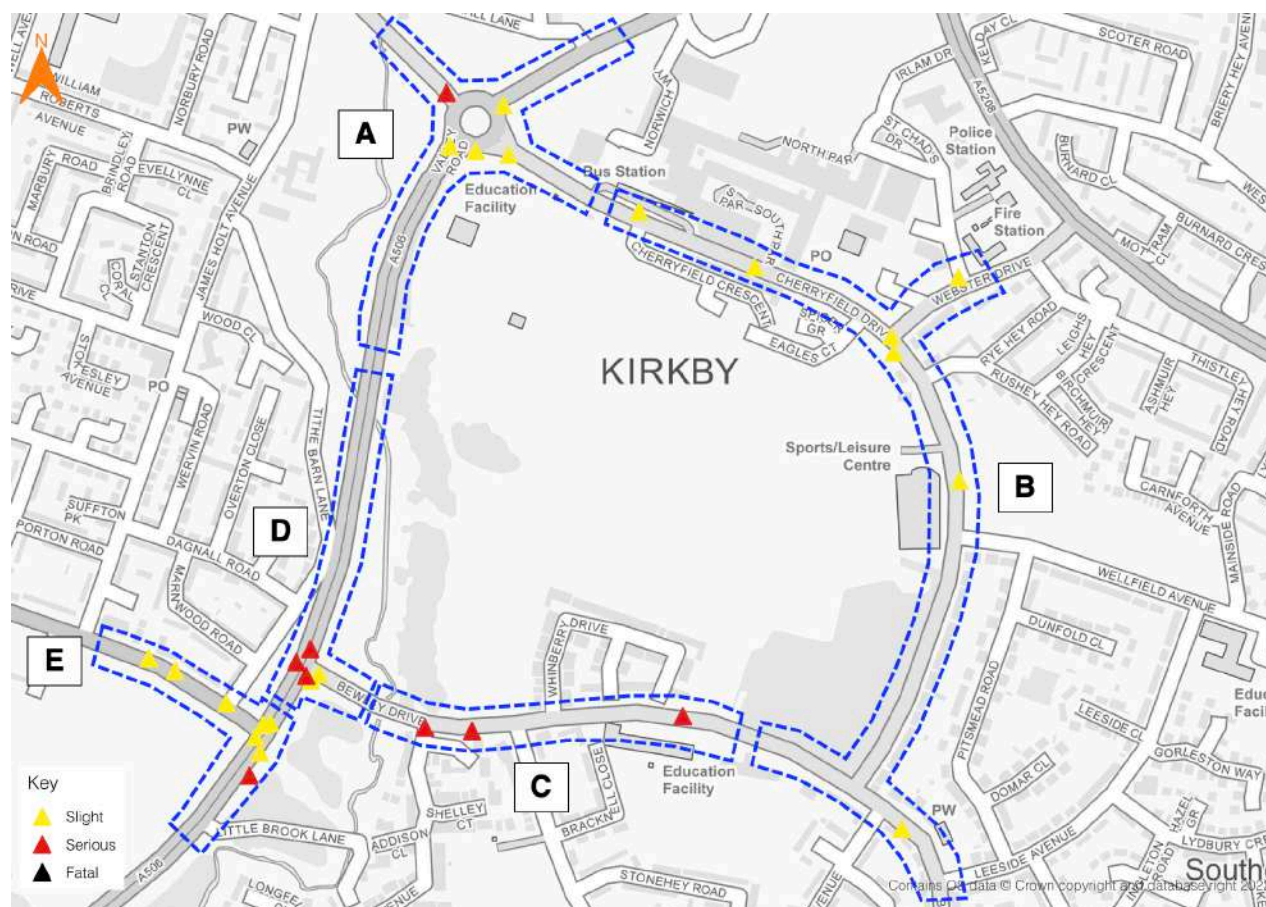
3.3.1 Personal Injury Collision (PIC) data in vicinity of the development site has been obtained from KMBC for the most recent available five-year period between 2018 and 2022. The full road safety data is attached in [Appendix B](#).

3.3.2 The study area includes Cherryfield Drive, Bewley Drive and the A506 (Valley Road) in vicinity of the site, as well as the following junctions:

- A506 (Valley Road) / Cherryfield Drive / Kirkby Row roundabout
- Cherryfield Drive / Webster Drive priority junction
- Cherryfield Drive / Bewley Drive priority junction
- A506 (Valley Road) / Bewley Drive signalised junction
- A506 (Valley Road) / Whitefield Drive signalised junction

3.3.3 [Figure 3.3](#) shows a map of the collisions within the vicinity of the site on the local highway network that have occurred within the past five years.

Figure 3.3 : Road Safety Data – Local Highway Network (source: KMBC)



3.3.4 Table 3.1 provides a breakdown of the PICs reported at the A506 (Valley Road)/ Cherryfield Drive/ Kirkby Row roundabout junction (Area A).

Table 3.1 : PIC Data Analysis – A: A506 (Valley Road)/ Cherryfield Drive/ Kirkby Row Junction

Date	Location	Severity	Vehicles	Weather
May 2019	Cherryfield Drive	Slight	2 cars	Dry
Aug 2019	Cherryfield Drive	Slight	1 car, 1 cyclist	Dry
Nov 2019	Valley Road/ Kirkby Row	Serious	1 car, 1 pedestrian	Dry
Dec 2019	Valley Road/ Cherryfield Drive	Slight	2 cars	Dry
April 2020	Valley Road	Slight	1 car, 1 cyclist	Dry

3.3.5 Table 3.2 provides a breakdown of the PICS reported on Cherryfield Drive, including collisions at the Cherryfield Drive/ Webster Drive junction (Area B).

Table 3.2 : PIC Data Analysis – B: Cherryfield Dr, inc. Cherryfield Dr/ Webster Dr Junction

Date	Location	Severity	Vehicles	Weather
Jan 2020	Bewley Drive	Slight	1 car, 1 pedestrian	Dry
March 2020	Cherryfield Drive	Slight	2 buses/ coaches	Dry
April 2020	Cherryfield Drive	Slight	1 car, 1 cyclist	Dry
July 2020	Cherryfield Drive	Slight	1 car, 1 cyclist	Wet
Aug 2021	Cherryfield Drive/ Webster Drive	Slight	1 bus/ coach, 1 pedestrian	Dry
Jan 2022	Webster Drive	Slight	2 cars	Dry
March 2022	Cherryfield Drive/ Webster Drive	Slight	1 car, 1 pedestrian	Dry

3.3.6 Table 3.3 provides a breakdown of the PICS reported on Bewley Drive, including collisions at the Cherryfield Drive/ Bewley Drive junction (Area C).

Table 3.3 : PIC Data Analysis – C: Bewley Drive, inc. Cherryfield Drive/ Bewley Drive Junction

Date	Location	Severity	Vehicles	Weather
March 2020	Bewley Drive	Serious	1 car, 1 pedestrian	Dry
July 2021	Bewley Drive	Serious	1 car, 1 pedestrian	Rain, wet
Feb 2022	Bewley Drive	Serious	1 car, 1 pedestrian	Dry

3.3.7 Table 3.4 provides a breakdown of the PICS reported at the A506 (Valley Road)/ Bewley Drive junction (Area D).

Table 3.4 : PIC Data Analysis – D: A506 (Valley Road)/ Bewley Drive Junction

Date	Location	Severity	Vehicles	Weather
Dec 2017	Valley Road	Serious	1 car, 1 motorcycle	Wet
Nov 2018	Valley Road/ Bewley Drive	Slight	1 car, 1 cyclist	Wet
March 2019	Valley Road/ Bewley Drive	Serious	2 cars	Dry
July 2020	Valley Road/ Bewley Drive	Slight	1 car, 1 pedestrian	Rain, wet
July 2020	Valley Road/ Bewley Drive	Serious	1 car, 1 HGV	Dry

3.3.8 Table 3.5 provides a breakdown of the PICS reported at the A506 (Valley Road)/ Whitefield Drive junction (Area E).

Table 3.5 : PIC Data Analysis – E: A506 (Valley Road)/ Whitefield Drive Junction

Date	Location	Severity	Vehicles	Weather
July 2018	Whitefield Drive	Slight	2 cars, 1 parked	Fine wind, dry
July 2019	Valley Road/ Whitefield Drive	Slight	2 cars, 1 HGV	Dry
March 2020	Valley Road/ Whitefield Drive	Slight	1 car (taxi), 1 HGV	Dry
June 2020	Valley Road/ Whitefield Drive	Slight	1 car, 1 cyclist	Dry
July 2020	Whitefield Drive	Serious	1 cyclist	Dry
Sept 2020	Whitefield Drive	Slight	1 HGV, 1 cyclist	Rain, wet
April 2021	Whitefield Drive	Slight	2 cars	Dry
March 2022	Valley Road	Slight	1 HGV, 1 cyclist	Dry

3.3.9 A review of the PIC data shows that 5no. collisions occurred at the A506 (Valley Road)/ Cherryfield Drive/ Kirkby Row roundabout junction, including 1no. 'serious' collision and 4no. 'slight' collisions.

3.3.10 7no. collisions were recorded on Cherryfield Drive, including 2no. collisions at the Cherryfield Drive/ Webster Drive junction. All 7no. collisions were considered 'slight'.

3.3.11 3no. collisions were recorded on Bewley Drive, all of which were considered as 'serious' collisions. All collisions occurred between a car and a pedestrian, with 1no. collision occurring in a car park between the car and a person exiting the car.

3.3.12 5no. collisions were recorded at the A506 (Valley Road)/ Bewley Drive junction, with 3no. considered as 'serious' and two considered 'slight'. Of the 3no. serious collisions, 1no. included 2no. cars, 1no. included a car and an HGV and 1no. included a car and a motorcycle.

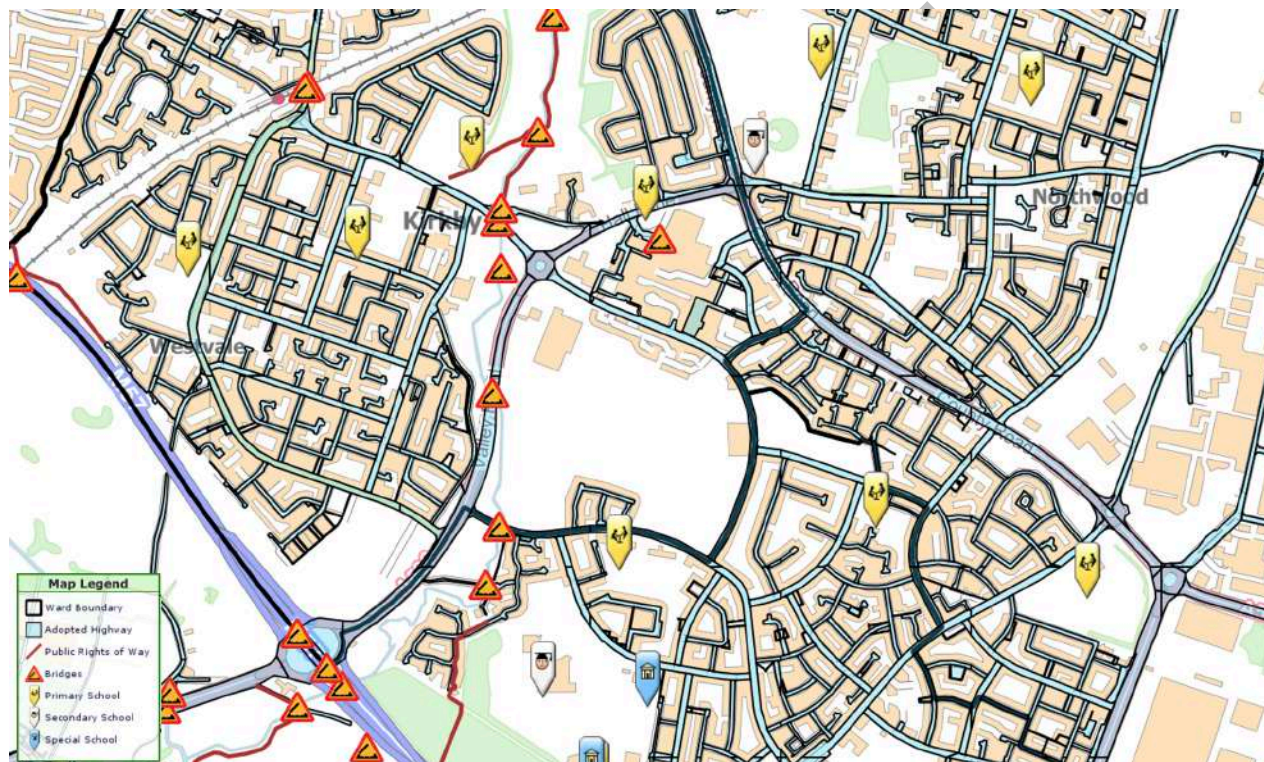
3.3.13 To the south, at the A506 (Valley Road)/ Whitefield Drive junction, 8no. collisions were recorded including 1no. 'serious' collision and 7no. 'slight' collisions. The 'serious' collision included a lone cyclist who fell from the pedal cycle due to a suspected heart attack.

3.3.14 Although it is recognised that 29no. collisions occurred on the local highway network within the most recent 5-year period, it is a large network that has been considered and therefore the recorded collision data does not suggest that the proposed development would have a detrimental impact on highway safety.

3.4 Public Right of Way

- 3.4.1 The Public Rights of Way (PRoW) within the vicinity of the development are site are shown in Figure 3.4.

Figure 3.4 : Existing Public Rights of Way (source: KMBC)



- 3.4.2 As shown in Figure 3.4, there are no PRoW within the development site. There are several PRoWs are present within the vicinity of the site, including routes KB/7/3, KB/8/1 and KB/8/2 to the south of the site, KB/4/1 is to the west, and KB/2/1, KB/2/2 and KB/2a/2 to the north of the site.

3.5 Air Quality

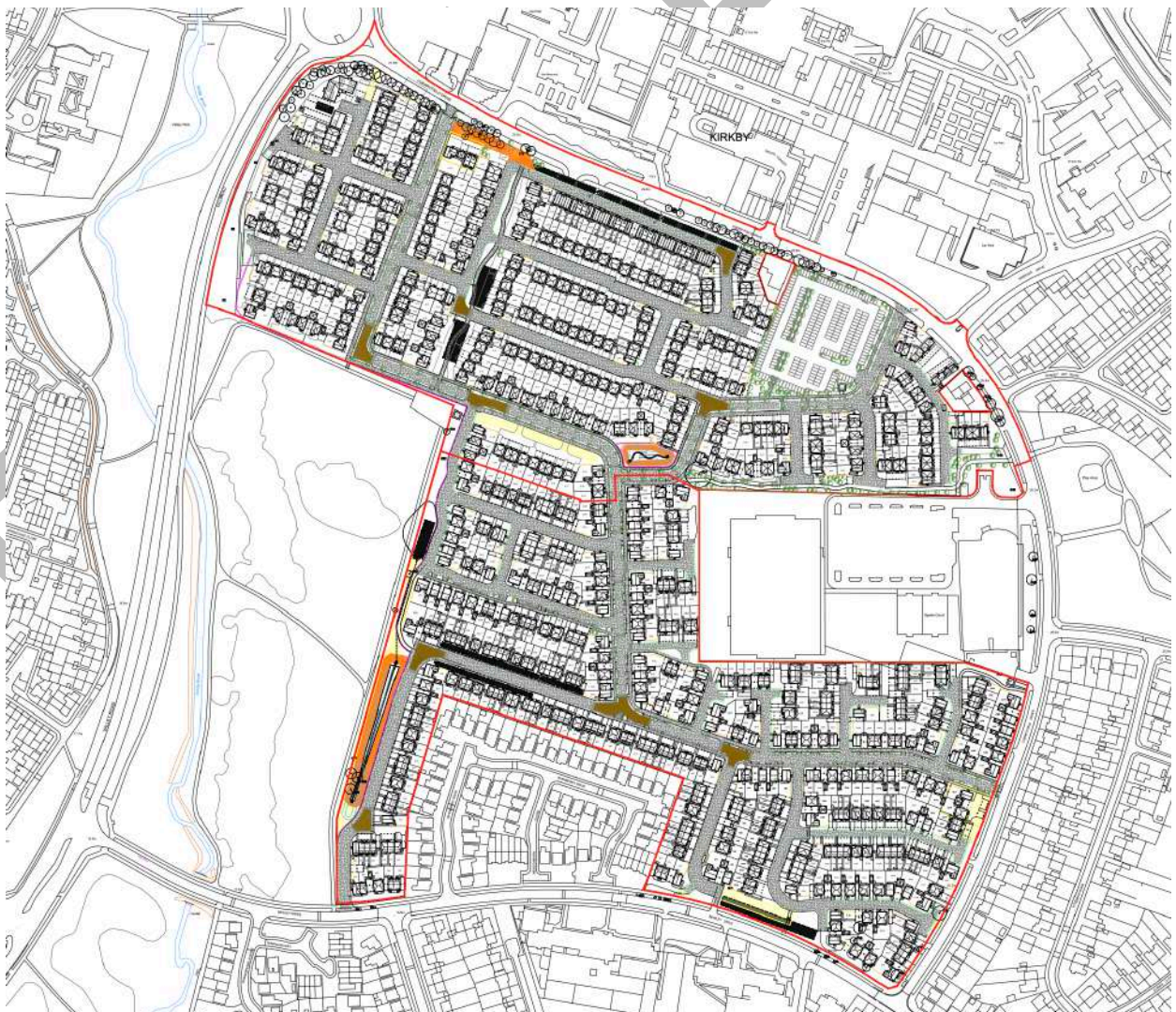
- 3.5.1 According to the Department for Environment, Food and Rural Affairs (DEFRA), the development site is not located in an Air Quality Management Area (AQMA).

4. Development Proposals

4.1 Proposed Use

- 4.1.1 The proposed development comprises 781no. residential dwellings, including two-bed, three-bed and four-bed houses and bungalows. The proposed plans include 10% affordable housing. Vehicular access to the development site is proposed via four new access junctions on the local highway network.
- 4.1.2 The proposed development also includes changes to the existing 248no. space Cherryfield Drive Car Park, resulting in a loss of 9no. spaces, leaving a total of 239no. spaces.
- 4.1.3 The proposed site layout is shown in [Figure 4.1](#). The full site layout plan is attached in [Appendix C](#).

Figure 4.1 : Proposed Site Layout (source : DWH)



4.2 Development Quantum

4.2.1 The development comprises 781no. residential dwellings. The type and mix of properties are set out in Table 4.1.

Table 4.1 : Type and Mix of Residential Dwellings

House Type	Private	Affordable
2 Bedroom	56	48
3 Bedroom	374	27
4 Bedroom	273	3
Total	703	78

4.3 Vehicular Access Arrangements

4.3.1 The development site will be accessed via 4no. new access junctions onto the local highway network, as described below:

Access 1 – Cherryfield Drive

4.3.2 Insert description and analysis of Access 1 on receipt of final site layout.

Access 2 – Cherryfield Drive

4.3.3 Insert description and analysis of Access 2 on receipt of final site layout.

Access 3 – Cherryfield Drive

4.3.4 Insert description and analysis of Access 3 on receipt of final site layout.

Access 4 – Bewley Drive

4.3.5 Insert description and analysis of Access 4 on receipt of final site layout.

4.4 Pedestrian Access Arrangements

4.4.1 Insert description and analysis of pedestrian access on receipt of final site layout.

4.5 Internal Road Network

4.5.1 Insert description and analysis of internal road network.

4.6 Servicing Arrangement

4.6.1 Insert description and analysis of servicing arrangement with SPA on receipt of final site layout.

4.7 Residential Parking Provision

4.7.1 KMBC's parking standards for residential developments are detailed in '*Ensuring a Choice of Travel*' SPD. Table 4.2 shows KMBC's parking standards for Use Class C3 (dwelling houses) in 'District and Local Centres'.

Table 4.2 : KMBC Parking Standards - District and Local Centre

Number of bedrooms	Maximum Car Parking	Minimum Cycle Parking
1 bedroom	1	1 (allocated) & 1 (communal)
2-3 bedrooms	2	2 (allocated) & 1 (communal)
4+ bedrooms	3	4 (allocated) & 2 (communal)

4.7.2 Residential parking provision at the site has been provided in accordance with KMBC's car and cycle parking standards.

5. Sustainable Accessibility

5.1 Introduction

- 5.1.1 Current Government policy and guidance places significant emphasis on the promotion of sustainable transport modes for all new developments. This forms part of a long-term strategy to reduce the reliance on private car trips.
- 5.1.2 The National Planning Policy Framework (NPPF) sets out the Government's planning policies for England and outlines the important role that transport policies have to play in facilitating sustainable development.
- 5.1.3 Paragraph 105 states that *"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. This can help to reduce congestion and emissions and improve air quality and public health. However, opportunities to maximise sustainable transport solutions will vary between urban and rural areas, and this should be taken into account in both plan-making and decision-making"*.
- 5.1.4 The 'Ensuring a Choice of Travel' SPD for Knowsley aims to encourage major developments to be located in areas that are accessible via sustainable transport methods including walking, cycling, and public transport.
- 5.1.5 Similarly, Policy CS7 in the 'Knowsley Local Plan Core Strategy' states that new developments should be: *'located and designed to prioritise accessibility and sustainable modes of travel through a choice of walking, cycling, public transport'*.
- 5.1.6 This chapter considers accessibility via sustainable modes of transport to the proposed development site, including access by public transport, cycle and on foot.

5.2 Pedestrian Accessibility

- 5.2.1 Guideline walking distances provided in the Chartered Institution of Highways and Transportation (CIHT) document 'Guidelines for Providing for Journeys on Foot (2000)' are shown in [Table 5.1](#).

Table 5.1 : CIHT Guideline Acceptable Walking Distances

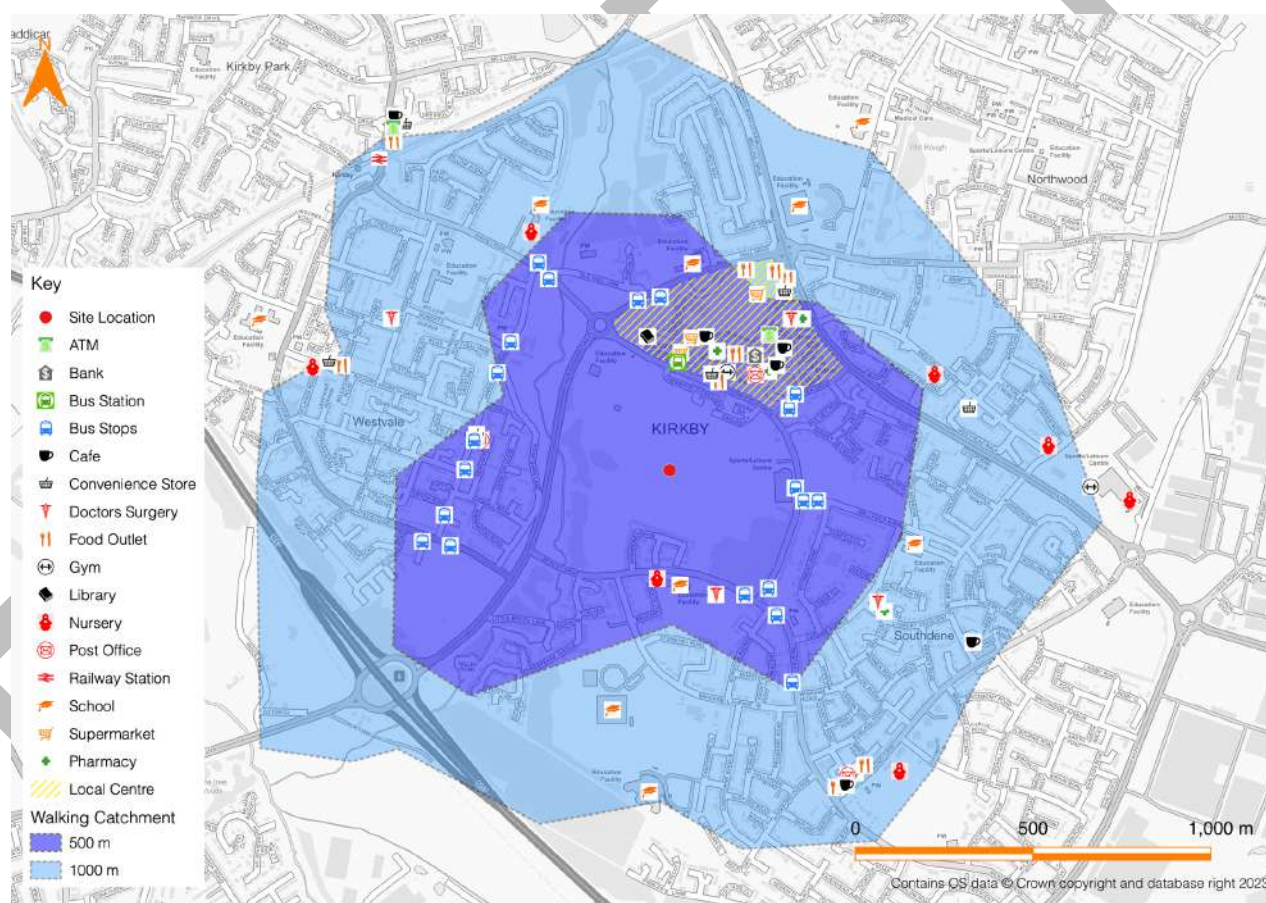
Criteria	Town Centre	Commuting/Sight Seeing	Elsewhere
Desirable	200m	500m	400m
Acceptable	400m	1,000m	800m
Preferred Maximum	800m	2,000m	1,200m

5.2.2 The CIHT guidelines shown in Table 5.1 suggest that, for commuting purposes, up to 500m is a desirable walking distance, up to 1,000m is considered an acceptable walking distance and 1,000m is the preferred maximum walking distance.

5.2.3 Appropriate walking distances are dependent upon the location of the specific development; in more remote locations, people will be more likely to be prepared to walk further to their end destination. Similarly, appropriate walking distances are also dependent upon the standard of existing pedestrian infrastructure provision, with further walking distances achievable in locations with extensive and high-quality pedestrian footways, crossings and pedestrianised areas.

5.2.4 Figure 5.1 presents the local amenities accessible within 500m and 1,000m walking catchments from the site, as specified in CIHT guidance for commuting purposes.

Figure 5.1 : Walking Catchment Area



5.2.5 As shown in Figure 5.1, Kirkby Town Centre is located within a 500m walking catchment from the site, as well as Kirkby Bus Station and numerous bus stops.

5.2.6 Table 5.2 provides an indication of the distances and approximate walking times to a selection of local amenities. The distances have been measured from the access to the site; the times are based on an average walking speed of 1.4 metres per second and do not allow for waiting time to cross junctions. All distances were measured from the centre of the site.

Table 5.2 : Local Amenities – Distances and Walking Times

Amenity	Distance	Average Walking Time
St. Joseph the Worker Primary School	260m	3 minutes
Kirkby Bus Station	340m	3 minutes
Kirkby Town Centre	350m	4 minutes
Bus Stop on Cherryfield Drive s/b	350m	4 minutes
Bus Stop on Cherryfield Drive s/b	375m	4 minutes
Morrisons Supermarket	490m	6 minutes
Kirkby Retail Park	600m	7 minutes
Kirkby High School	625m	7 minutes
Kirkby Rail Station	1km	12 minutes

5.2.7 As shown in Table 5.2, an extensive range of facilities are accessible within a 500m walking catchment from the site. Multiple bus stops are accessible with a 500m walk, including bus stops on Cherryfield Drive providing services in both directions. Kirkby Bus Station is also c.340m (3-minute walk) from the site, providing a wide range of services.

5.2.8 Kirkby Town Centre is located adjacent to the site's northern boundary, and provides various amenities including Rowland's Pharmacy, a Costa Coffee and a Santander Bank.

5.2.9 Kirkby Retail Park, that includes a McDonald's, KFC and Taco Bell, is within c.600m (7-minute walk). A Morrison's supermarket is also accessible within c.490m (6-minute walk).

5.2.10 The site is also located within walking distance from several schools, including St. Joseph the Worker Primary School within c.260m (3-minute walk) and Kirkby High School within c.625m (7-minutes).

5.2.11 Kirkby Rail Station also lies within the 1,000m walking catchment from the site, an approximate 12-minute walk from the site.

5.2.12 The development is connected to local amenities via a network of good quality footways with dropped kerbs, signalised crossing points and good quality surfaces. This provides sufficient access to all uses, including those with various forms of disability. It has therefore been demonstrated that the site is well-placed in terms of pedestrian connectivity, with walking representing a realistic alternative to car trips.

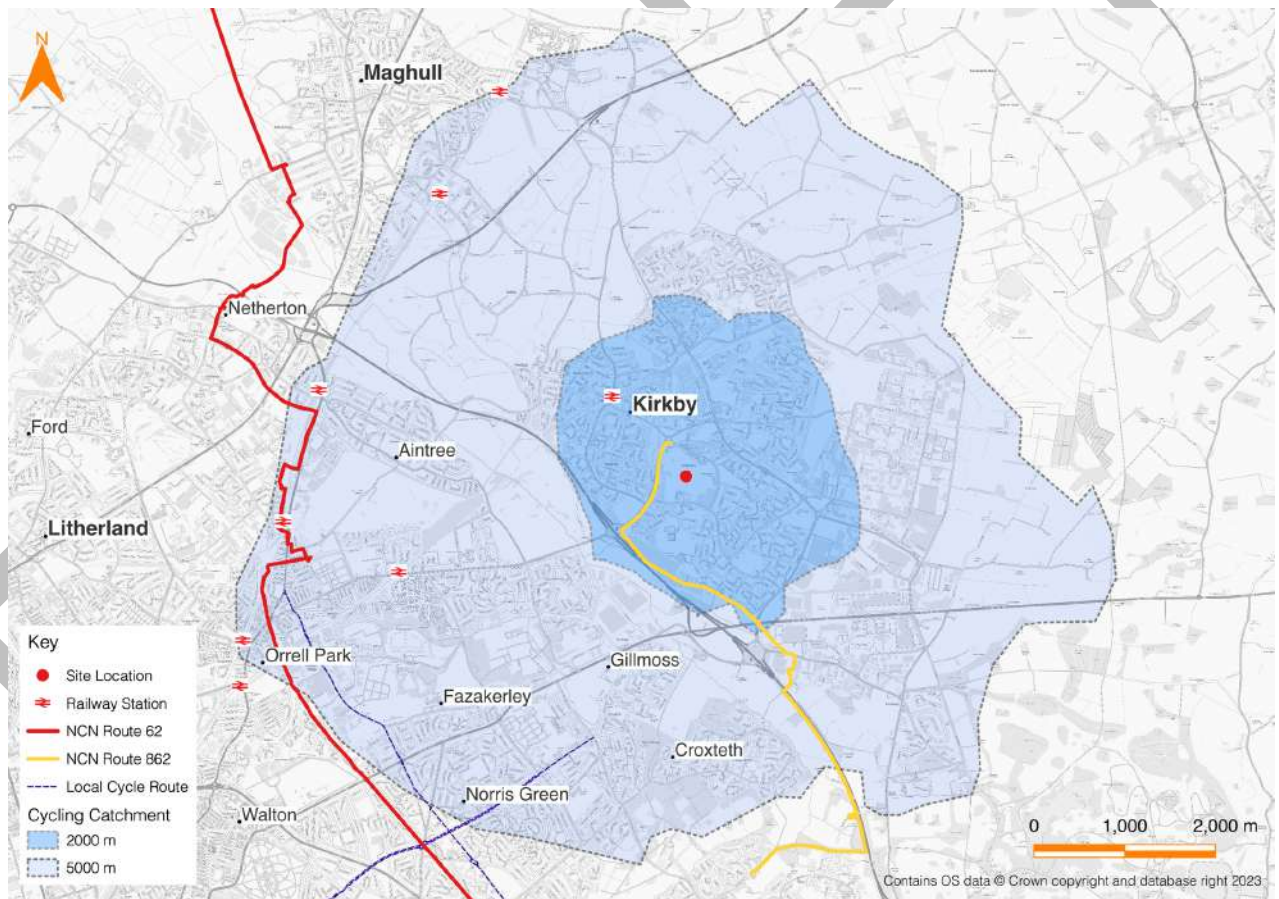
5.3 Cycle Accessibility

5.3.1 As with pedestrian accessibility, the level of a site's cycle accessibility depends upon a combination of the distance from local amenities and the standard of existing cycle infrastructure. It should, however, be noted that that cycle infrastructure can include facilities shared with vehicles and pedestrians as well as dedicated cycle infrastructure.

5.3.2 In respect of acceptable cycle distances, 'Local Transport Note 1/20: Cycle Infrastructure Design', published by DfT, states that *'two out of every three personal trips are less than five miles in length - which is an achievable distance to cycle for most people'*.

5.3.3 Figure 5.2 presents the cycling catchment area around the proposed development site for 2km and 5km.

Figure 5.2 : Cycling Catchment Area



5.3.4 As shown in Figure 5.2, Kirkby Town Centre is located within a 2km cycle catchment. Aintree, Orrell Park and Croxteth are all located within the 5km cycle catchment area.

5.3.5 Kirkby Rail Station also lies within the 2km cycle catchment, c.1km north of the development site.

- 5.3.6 As shown in Figure 5.2, the site has direct access to NCN Route 862 which runs along the A508 (Valley Road) on the western boundary of the development site. It provides access between Kirkby and the Deysbrook / Stockbridge area.
- 5.3.7 NCN Route 62 is accessible within the 5km cycle catchment to the west of the site, providing a cycle route between Fleetwood and Selby via Warrington and Doncaster. A local cycle route is also shown in Figure 5.2 to enter the 5km cycle catchment to the south of the site.
- 5.3.8 The local area also benefits from a network of local cycle routes, as shown in Figure 5.3.

Figure 5.3 : Local Cycle Routes Map (source : KMBC)



- 5.3.9 As shown in Figure 5.3, Cherryfield Drive benefits from a suggested cycle route, with the A508 (Valley Road) benefitting from a traffic-free cycle route with a good surface, as discussed previously.
- 5.3.10 The extensive cycle network, that includes both national cycle routes and local routes, makes cycling a viable and realistic method travel to and from the site, particularly as an alternative to private car trips.

5.4 Public Transport

Local Bus Services

5.4.1 Bus stops are available on Cherryfield Drive on the eastern boundary of the development site, providing services in both directions. The site also benefits from Kirkby Bus Station on Cherryfield Drive on the northern boundary of the site, which provides a wide range of bus services.

5.4.2 Table 5.3 provides a summary of routes and times of local bus services accessible from these bus stops.

Table 5.3 : Local Bus Services – Kirkby Bus Station and Cherryfield Drive

Service No.	Route	Approx. Frequency (buses / hour)				
		AM	Off-Peak	PM	Sat	Sun
3	Huyton Bus Station – Halewood Shopping Centre	<1	No service	No service	<1	No service
3A	Fazakerley / Huyton – Liverpool John Lennon Airport	<1	No service	No service	<1	No service
14/14A /14C	Kirkby - Liverpool	<1	No service	No service	<1	No service
17/17A	Liverpool City Centre – Kirkby / Aintree Hospital	1	1	1	1	1
19	Liverpool City Centre - Kirkby	5	5	2	4	3
20	Liverpool City Centre - Kirkby	4	4	4	3	2
21	Liverpool City Centre - Northwood	4	4	4	3	2
97/97A	Kirkby Circular	2	2	1	2	No service
133	Kirkby – Sefton - Crosby	1	1	1	1	No service
217/217A	Kirkby - Huyton	3	2	2	2	1
289	St Helens - Kirkby	No service	No service	No service	1	No service
297	St Helens – Kirkby	1	1	1	No service	No service
319 Trainlink	Kirkby - Skelmersdale	2	2	1	2	1

5.4.3 As shown in Table 5.3, regular bus services are available from Kirkby Bus Station and Cherryfield Drive, providing access to Liverpool City Centre, Crosby, Huyton, amongst others, as well as around Kirkby, including services to and from the rail station.

5.4.4 The proximity of Kirby Bus Station will provide future residents with convenient access to a wide range of local public bus services. The frequency of services throughout the week and weekend demonstrate that bus travel is a realistic method of travel for future residents, particularly as an alternative to private car trips.

Rail Services

5.4.5 The closest rail station to the site is Kirkby Station c.1km northwest of the site, and within both the 1,000m walking catchment and 2km cycle catchment.

5.4.6 Kirkby Rail Station is also accessible via the local bus route network, including the 20, 21, 97, 217 and 319 Trainlink services from Kirkby Bus Station. This bus journey takes approximately 10 minutes.

5.4.7 A summary of the direct rail services from Kirkby Station is highlighted in [Table 5.4](#).

Table 5.4 : Direct Rail Services – Kirkby Station

Destination	Approx. Frequency	Approx. Journey Time
Liverpool Central via Fazakerley, Rice Lane, Kirkdale, Sandhills and Moorfields	2 services / hour	20 minutes

5.4.8 As shown in [Table 5.4](#), 2 services per hour (a train every 30 minutes) are available from Kirkby Station to Liverpool City Centre. Local stations are also accessible via this route, including Fazakerley and Kirkdale.

5.4.9 This demonstrates the high accessibility of the site via rail, specifically as an alternative to private car trips, for accessing Liverpool City Centre and surrounding suburbs.

5.5 Minimum Accessibility Standard Assessment (MASA)

5.5.1 In accordance with KMBC's '*Ensuring a Choice of Travel*' SPD, a Minimum Accessibility Standard Assessment (MASA) has been undertaken for the site.

5.5.2 The SPG includes a questionnaire to be completed by the Applicant. Based on a review of the SPG the application site is considered to fall under the 'Major' scale category as it comprises over 50no. units.

5.5.3 A summary of the MASA results is shown in [Table 5.5](#) and the full questionnaire is attached in [Appendix D](#).

Table 5.5 : MASA Assessment

Mode	Minimum Score Required	Score Achieved
Access on Foot	4	4
Access by Cycle	5	5
Access by Public Transport	5	5
Vehicle Access and Parking	1	3
Total	15	17

5.6 Promoting Sustainable Travel via Travel Plans

5.6.1 It should be noted that this TA has been produced in parallel with an Interim Travel Plan (ITP) report, which outlines initial strategies and measures for encouraging residents to travel by sustainable modes, rather than single occupancy car trips.

5.7 Summary

5.7.1 In summary, it has been shown that the site is highly accessible via sustainable modes of travel, including walking, cycling and public transport - thereby offering a realistic and convenient alternative to single occupancy car trips. This includes the following:

- Existing footways on the local highway network, providing safe and direct walking routes to local bus services and local amenities;
- The development site is located within close proximity of Kirkby Town Centre, which provides local amenities including food outlets, cafes and supermarkets;
- Access to national and local cycle routes, providing designated routes to a range of local destinations;
- The nearest bus stops are located on Cherryfield Drive adjacent to the site, as well as being served by Kirkby Bus Station also on Cherryfield Drive;
- Regular bus services are accessible from the site, providing services to a range of destinations including Liverpool City Centre, throughout the week and on weekends;
- Kirkby Rail Station is located c.1km (12-minute walk) from the site, providing direct train services to Liverpool City Centre with intermediate stops at local destinations; and
- A MASA score of 17, with scores for sustainable modes meeting or exceeding the minimum requirements.

5.7.2 Overall, the development site benefits from accessibility via a range of sustainable modes of travel, including walking routes, cycle routes and public transport services, which collectively offer an alternative to private car trips.

- 5.7.3 The site is therefore compliant with the NPPF which states in paragraph 110 that: *'in assessing sites that may be allocated for development in plans, or specific application for development, it should be ensured that: a) appropriate opportunities to promote sustainable transport modes can be – or have been – taken up, given the type of development and its location'.*
- 5.7.4 Furthermore, the proposals accord with paragraph 112 of the NPPF which states that: *'applications for development should: a) give priority first to pedestrian and cycle movements, both within the scheme and with neighbouring areas; and second – so far as possible – to facilitating access to high quality public transport, with layouts that maximise the catchment area for bus or other public transport services, and appropriate facilities that encourage public transport use'.*

6. Trip Generation and Distribution

6.1 Residential Trip Generation

- 6.1.1 To quantify the traffic impact of the development on the local highway network, a trip generation exercise has been undertaken for the proposed residential development. Person trip rates have been derived from the TRICS database (v7.9.3) using the '*Residential – Houses Privately Owned*' land use category.
- 6.1.2 TRICS surveys conducted between February 2020 and February 2022 were removed due to the impact of the COVID 19 pandemic on travel behaviour.
- 6.1.3 In line with the '*TRICS Good Practice Guide 2021*', no surveys were excluded on the basis of geographical region. The study undertaken by TRICS revealed that there is a significantly higher correlation between location type and resulting trip rates than there is between region and resulting trip rates.
- 6.1.4 The guidance recommends that regional selection should not be a major consideration when applying trip rate calculation filtering criteria. The guidance also indicates that location type is one of the most influential factors in terms of trip generation, and therefore should be one of the main filtering considerations. For this reason, the following locations were selected:
- Locations : Edge of Town Centre and Suburban Area
 - Sub-Categories : Residential Zone

Modal Share Data

- 6.1.5 To inform the modal split anticipated at the development site, method of travel to work 2011 Census data for residents within the 'Knowsley 003' Middle-Layer Super Output Area (MSOA) was obtained. This is shown in [Table 6.1](#).

Table 6.1 : 'Knowsley 003' Modal Share Data – Census 2011

Mode of Travel	Knowsley 003 – Modal Share
Driving a car or van	49%
On foot	15%
Bus, minibus or coach	12%
Passenger in a car or van	9%
Train	7%
Taxi	4%
Bicycle	2%

Mode of Travel	Knowsley 003 – Modal Share
Work mainly at or from home	2%
Total	100%

6.1.6 Table 6.1 indicates that approximately 49% of residents in 'Knowsley 003' drive to work. The census data also shows that the remaining 51% of work trips are made using sustainable modes, car-sharing or working from home.

TRICS Trip Rates

6.1.7 The person TRICS trip rates during the AM and PM peaks are summarised in Table 6.2. Full TRICS outputs are attached in Appendix E.

Table 6.2 : TRICS Trip Rates (per dwelling) – Person Trips

TRICS Land Use Category	AM Peak Hour (08:00-09:00)			PM Peak Hour (17:00-18:00)		
	Arrive	Depart	Total	Arrive	Depart	Total
Trip Rate						
<i>Residential – Houses Privately Owned</i>	0.194	0.830	1.024	0.648	0.364	1.012
Proposed Development (781no. units)	152	648	800	506	284	790

6.1.8 As shown in Table 6.2, the proposed development is expected to generate **800** two-way person trips during the AM peak hour and **790** two-way person trips during the PM peak hour.

6.1.9 To estimate the number of person trips made by car or van, the modal share percentage of 49% for 'car/van driver' from Table 6.1 has been applied to the total person trips shown in Table 6.2. The resulting car/van trips are for the proposed development are shown in Table 6.3.

Table 6.3 : Trip Generation – Vehicle Trips Based on Modal Share

TRICS Land Use Category	AM Peak Hour (08:00-09:00)			PM Peak Hour (17:00-18:00)		
	Arrive	Depart	Total	Arrive	Depart	Total
People Trips	152	648	800	506	284	790
Vehicle Trips	74	318	392	248	139	387

6.1.10 On the basis that residents are expected to utilise the closest access junction, the total vehicle trips shown in Table 6.3 have been split equally across the 4no. proposed site accesses. As such it is assumed that each access would serve c.195-196 dwellings.

6.1.11 Table 6.4 shows the forecast AM and PM vehicle trips at each of the site accesses.

Table 6.4 : Access Trip Generation – Vehicle Trips Based on Modal Share

Access	No. of Vehicles	AM Peak Hour (08:00-09:00)			PM Peak Hour (17:00-18:00)		
		Arrive	Depart	Total	Arrive	Depart	Total
1	195	18	78	96	61	34	95
2	195	18	78	96	61	34	95
3	195	18	78	96	61	34	95
4	196	18	78	96	61	34	95

6.1.12 As shown in Table 6.4, it is expected that **96** two-way trips will be made at each site access point during the AM peak hour, and **95** two-way trips will be made via one site access point during the PM peak hour.

6.2 Residential Trip Distribution

6.2.1 A trip distribution exercise has been undertaken based on 2011 Census Data (Location of usual residence and place of work) for 'Car Drivers' residing in Middle Layer Super Output Area (MSOA) 'Knowsley 003'.

6.2.2 The data has been used to inform the pattern of arrivals and departures to / from the site to / from the top 30 MSOAs across the northwest of England. MSOAs that fell outside of the top 30 were grouped together by local authority districts (LADs) and the remaining trips were distributed across a further 24no. LADs. Please note that any MSOA's included within the top 30 were omitted from their corresponding LAD to avoid double counting.

6.2.3 A summary of the trip distribution is shown in Table 6.5 with full calculations attached in Appendix F.

Table 6.5 : 2011 Census – Trip Distribution

MSOA / LAD	Total	Percentage
Knowsley 005	191	17%
Knowsley 003	90	8%
Liverpool 058	39	3%
Liverpool 001	31	3%
Liverpool 062	31	3%
Liverpool 060	27	2%
Knowsley 001	25	2%

MSOA / LAD	Total	Percentage
Liverpool 005	22	2%
Liverpool 004	20	2%
Sefton 037	18	2%
Sefton 027	17	1%
Liverpool 061	16	1%
Knowsley 009	15	1%
Knowsley 015	15	1%
West Lancashire 007	14	1%
Knowsley 016	14	1%
Knowsley 017	14	1%
Knowsley 020	14	1%
Liverpool 026	14	1%
Liverpool 014	13	1%
Knowsley 004	12	1%
Sefton 029	11	1%
West Lancashire 015	10	1%
Liverpool 008	10	1%
Liverpool 037	10	1%
Sefton 020	10	1%
Knowsley 007	9	1%
Liverpool 002	9	1%
Liverpool 028	9	1%
Liverpool 031	9	1%
Bolton	3	0%
Manchester	6	1%
Oldham	2	0%
Rochdale	2	0%
Salford	10	1%
Stockport	1	0%
Trafford	5	0%
Wigan	14	1%
Knowsley	27	2%
Liverpool	115	10%
St. Helens	41	4%

MSOA / LAD	Total	Percentage
Sefton	62	5%
Wirral	30	3%
Halton	18	2%
Warrington	26	2%
Cheshire West and Chester	6	1%
Cheshire East	3	0%
Copeland	1	0%
Eden	1	0%
South Lakeland	1	0%
Chorley	2	0%
Preston	3	0%
South Ribble	1	0%
West Lancashire	21	2%
Total	1,140	100%

6.2.4 The percentage distributions shown in Table 6.5 were assigned to routes across the local highway network based on expected journey times to the above locations.

6.2.5 As shown in Table 6.5, 8% of trips are distributed internally within the Knowsley 003 MSOA. For route assignment purposes, it was assumed that the origin / destination of these trips was Irlam Drive.

6.2.6 Development trips were distributed to the route origin / destinations shown in Table 6.6 and assigned based on expected journey to / from these locations. The full traffic route assignment calculations are attached in Appendix F. The network diagrams attached in Appendix G also present the development trip distribution and route assignment.

Table 6.6 : Origin Destination Assessment

Origin / Destination	Distribution
M57 S	27%
A506 Valley Road S	25%
A5208 County Road E	22%
M57 N	11%
Irlam Drive	8%
A506 County Road N	3%

Origin / Destination	Distribution
Old Rough Lane	1%
Arbour Lane	1%
Kirkby Row	1%
Whitefield Drive	1%
Total	100%

6.2.7 It should be noted that the route assignment exercise was undertaken for each of the 4no. site accesses. The individual trip distribution, route assignment and resulting trips for each of the access junctions is presented on the network diagrams attached in [Appendix G](#).

6.3 Car Park Trip Generation

6.3.1 On the basis that the capacity of proposed car park is to be decreased, forecast trip generation has been calculated based on existing AM and PM peak hour arrivals and departures derived from a manual classified count (MCC) at the existing access.

6.3.2 The existing car park currently provides 248no. spaces accessed off Cherryfield Drive to the west of its junction with Webster Drive. The capacity of the new car park will be decreased to 239no. spaces and the proposed access will remain as existing.

6.3.3 A summary of existing AM and PM peak hour arrivals and departures is shown in [Table 6.7](#), on the basis that the car park capacity will decrease by 9no. spaces from 248no. spaces to 239no. spaces.

Table 6.7 : Existing vs Proposed Car Park Peak Hour Trips

Scenario	AM Peak Hour (08:00-09:00)			PM Peak Hour (17:00-18:00)		
	Arrive	Depart	Total	Arrive	Depart	Total
Existing (248no.)	80	7	87	34	66	100
Proposed (239no.)	77	7	84	33	64	97
Change	-3	0	-3	-1	-2	-4

6.3.4 The proposed alterations to the car park will result in a net decrease of **3no.** two-way trips during the AM peak and a net decrease of **4no.** two-way trips during the PM peak.

6.4 Car Park Trip Distribution

6.4.1 To assess the impact of the reduced trips generated by the expansion to the car park, the existing distribution of arrivals and departures was determined based on the turning proportions derived from the MCC survey undertaken at the car park access.

- 6.4.2 Once the distribution of arrivals and departures was determined, the existing car park trips were re-assigned to the new access. The net decrease in trips generated by the proposed alterations to the car park were then removed from the network using the existing distribution derived from the survey data.
- 6.4.3 The car park trip distribution, route assignment and trip generation is presented on the network diagrams attached in [Appendix G](#).

7. Traffic Impact Assessment

7.1 Introduction

7.1.1 On the basis that the proposed development will result in an increase of 30 or more two-way vehicle movements during the AM or PM peak period, it is proposed to undertake capacity analysis at the following off-site junctions:

- Bewley Drive / Cherryfield Drive
- Bewley Drive / A506 Valley Road / Whitefield Drive
- M57 Junction 6
- Cherryfield Drive / Webster Drive
- Cherryfield Drive / A506 / Kirkby Row
- A5208 County Road / Webster Drive
- A5208 County Road / Park Brow Drive / Simonswood Lane
- A5208 County / Broad Lane / Arbour Lane

7.1.2 All 4no. of the proposed site access junctions will also be assessed.

7.2 Base Traffic Flows

7.2.1 Manual classified count (MCC) and queue length surveys were undertaken at the junctions listed above on Thursday 20th October 2022, which represents a neutral weekday. All raw survey data is attached in [Appendix H](#).

7.2.2 The 2022 base traffic flow data is shown in the network diagrams attached in [Appendix G](#).

7.3 Committed Development

7.3.1 The following committed developments have been considered:

- **20/00193/FUL** – Residential development comprising 266no. dwellings;
- **20/00124/FUL** – Erection of B8 warehousing/distribution centre, c.79,187 sqm; and
- **19/00337/OUT** – Erection of a c.97,000 sqm mixed-use development.

7.3.2 Committed development flows have also been included for the above developments with development flows and distributions taken from the approved Transport Assessments. The resulting committed development flows for each scheme are presented on the network diagrams attached in [Appendix G](#).

7.4 Assessment Scenarios

7.4.1 The assessment periods over which the above flows are considered on the local highway network are based on the AM and PM network peak hours derived for each junction from the traffic survey data.

1.1.1 The junction capacity assessments were undertaken for the following scenarios during the weekday AM and PM peak hours:

- 2022 Base (LRN and SRN)
- 2028 Base + Committed (LRN Only)
- 2028 Base + Committed + Development (LRN Only)
- 2033 Base + Committed (SRN Only)
- 2033 Base + Committed + Development (SRN Only)

7.4.2 The 2028 future year scenario is intended to replicate traffic conditions 5-years post application submission on junctions assessed that form part of the local highway network (LRN).

7.4.3 In accordance with Paragraph 25 of Circular 02/2013 and line with National Highways (NH) requirements for forward planning purposes, the future year assessment of the strategic road network (SRN) junctions will be 10 years post application for a future year of 2033.

7.5 Future Year Traffic Growth

7.5.1 To robustly represent future traffic conditions on the local highway network, TEMPRO v7.2 calibrated with the National Transport (NTM AF15) dataset has been used to generate traffic growth factors based on the site's MSOA, 'Knowsley 003' for the weekday AM and PM peak periods.

7.5.2 Future year growth factors were applied to the 2022 base flows to generate future baseline flows for 2028.

7.5.3 A summary of the AM and PM peak period TEMPRO growth factors is shown in [Table 7.1](#).

Table 7.1 : TEMPRO Growth Factors (Knowsley 003 MSOA)

Day / Time Period	2022 - 2028	2022-2033
Weekday AM Period	1.060	1.113
Weekday PM Period	1.056	1.106

7.5.4 Traffic flow network diagrams for the 2022 base year and 2028 / 2033 future years are attached in **Appendix G**.

7.6 Capacity Assessment Tools

Junctions 9 – ARCADY and PICADY

7.6.1 The industry standard traffic software package Junctions 9 (ARCADY and PICADY) has been used to model roundabouts (ARCADY) and priority junctions (PICADY) across the study area.

7.6.2 As an assessment tool, ARCADY and PICADY results are typically reported for the following performance statistics:

- Ratio of Flow to Capacity (RFC);
- Max Queue in PCUs; and
- Delay in seconds per PCU

7.6.3 A Ratio of Flow to Capacity (RFC) value of 0.85 or less typically demonstrates that a junction arm or turning movement is operating within practical capacity and is therefore unlikely to experience regular queuing. However, junctions that are operating between 0.85 and 1.00 are considered to be operating within theoretical capacity. Any junction operating over 1.00 is considered to be operating outside of typically acceptable thresholds of capacity.

7.6.4 The queue results are measured in Passenger Car Units (PCU) and the delay results are measured in seconds per vehicle.

LinSig

7.6.5 The industry standard traffic software package LinSig (v3) has been used to model signalised junctions across the study area during the AM and PM peak periods. As an assessment tool, LinSig results are typically reported for the following performance statistics:

- Degree of Saturation (DoS) %
- Mean Maximum Queue (MMQ) (PCU); and
- Practical Reserve Capacity (PRC) %

- 7.6.6 DoS is expressed as a percentage and is reported for an individual link. It can be defined as the ratio of flow to capacity for the link. A DoS% value of 90% typically demonstrates that a link is operating within capacity.
- 7.6.7 MMQ is expressed in PCUs and represents the maximum queue within a typical cycle averaged over all the cycles within the modelled time period.
- 7.6.8 PRC is expressed as a percentage and is reported for each stage stream. The PRC % is calculated from the maximum DoS% on a link controlled by the stage stream and is a measure of how much additional traffic could pass through a junction controlled by the stage stream whilst maintaining a maximum DoS of 90% on all links.

7.7 Site Access 1 / Cherryfield Drive

- 7.7.1 A summary of the junction capacity results at the Site Access 1 / Cherryfield Drive junction are summarised in [Table 7.2](#), with the full PICADY outputs included in [Appendix I](#).

Table 7.2 : Site Access / Cherryfield Drive Junction – Capacity Modelling Results

Arm	Weekday AM Peak			Weekday PM Peak		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
2028 Base + Committed + Development						
Site Access 1	0.2	9.58	0.19	0.1	9.19	0.09
Cherryfield Drive W	0.0	4.33	0.03	0.3	7.78	0.12

- 7.7.2 The analysis shows that the proposed site access is expected to operate comfortably within capacity and with negligible levels of queuing and delay in the 2028 base + committed + development scenarios.

7.8 Site Access 3 / Cherryfield Drive

- 7.8.1 A summary of the junction capacity results at the Site Access 3 / Cherryfield Drive junction are summarised in [Table 7.3](#), with the full PICADY outputs included in [Appendix J](#).

Table 7.3 : Site Access / Cherryfield Drive Junction – Capacity Modelling Results

Arm	Weekday AM Peak			Weekday PM Peak		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
2028 Base + Development						
Site Access 1	0.2	10.47	0.20	0.1	9.63	0.09

Arm	Weekday AM Peak			Weekday PM Peak		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
Cherryfield Drive N	0.0	5.02	0.01	0.1	5.16	0.04

7.8.2 The analysis shows that the proposed site access is expected to operate comfortably within capacity and with negligible levels of queuing and delay in the 2028 base + committed + development scenarios.

7.9 Site Access 4 / Bewley Drive

7.9.1 A summary of the junction capacity results at the Site Access 4 / Bewley Drive junction are summarised in [Table 7.4](#), with the full PICADY outputs included in [Appendix K](#).

Table 7.4 : Site Access / Cherryfield Drive Junction – Capacity Modelling Results

Arm	Weekday AM Peak			Weekday PM Peak		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
2028 Base + Development						
Site Access 1	0.2	10.45	0.20	0.1	9.74	0.09
Bewley Drive E	0.0	4.75	0.01	0.1	4.84	0.04

7.9.2 The analysis shows that the proposed site access is expected to operate comfortably within capacity and with negligible levels of queuing and delay in the 2028 base + committed + development scenarios.

7.10 Bewley Drive / Cherryfield Drive Junction

7.10.1 A summary of the junction capacity results at the Bewley Drive / Cherryfield Drive junction are summarised in [Table 7.5](#), with the full PICADY outputs included in [Appendix L](#).

Table 7.5 : Bewley Drive / Cherryfield Drive Junction – Capacity Modelling Results

Arm	Weekday AM Peak			Weekday PM Peak		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
2022 Base						
Cherryfield Drive	1.1	15.37	0.53	1.2	15.97	0.54
Bewley Drive E	0.5	6.83	0.26	0.7	7.22	0.34

Arm	Weekday AM Peak			Weekday PM Peak		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
2028 Base + Committed						
Cherryfield Drive	1.3	16.91	0.56	1.3	17.61	0.58
Bewley Drive E	0.5	6.96	0.28	0.8	7.44	0.36
2028 Base + Committed + Development						
Cherryfield Drive	2.5	28.05	0.73	2.9	32.44	0.76
Bewley Drive E	0.5	7.05	0.29	0.9	7.67	0.38

7.10.2 The analysis shows that the Bewley Drive / Cherryfield Drive priority junction is expected to operate within capacity and with minor levels of queuing in in all scenarios, including the 2028 base + committed + development scenarios.

7.11 A5208 County Road / Webster Drive Junction

7.11.1 A summary of the junction capacity results at the A5208 County Road / Webster Drive priority junction are summarised in [Table 7.6](#), with the full PICADY outputs included in [Appendix M](#).

Table 7.6 : A5208 County Road / Webster Drive Junction – Capacity Modelling Results

Arm	Weekday AM Peak			Weekday PM Peak		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
2022 Base						
Webster Drive	0.9	15.07	0.47	0.7	14.50	0.41
A5208 County Road W	0.5	10.28	0.33	0.4	11.55	0.29
2028 Base + Committed						
Webster Drive	1.4	22.56	0.58	1.2	23.08	0.54
A5208 County Road W	0.6	11.36	0.37	0.5	13.81	0.34
2028 Base + Committed + Development						
Webster Drive	3.3	43.77	0.79	1.9	33.18	0.67
A5208 County Road W	0.6	11.52	0.37	0.6	14.69	0.37

7.11.2 The analysis shows that the A5208 County Road / Webster Drive priority junction is expected to operate within capacity and with minor levels of queuing in in all scenarios, including the 2028 base + committed + development scenarios.

7.12 A506 / Cherryfield Drive / Kirkby Row Roundabout

7.12.1 A summary of the junction capacity results at the A506 / Cherryfield Drive / Kirkby Row Roundabout junction are summarised in [Table 7.7](#), with the full ARCADY outputs included in [Appendix N](#).

Table 7.7 : A506 / Cherryfield Drive / Kirkby Row Roundabout – Capacity Modelling Results

Arm	Weekday AM Peak			Weekday PM Peak		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
2022 Base						
Cherryfield Drive	0.3	3.49	0.26	0.5	3.41	0.31
A506 Valley Road S	0.6	2.92	0.38	0.9	3.55	0.47
Kirkby Row	0.7	3.59	0.40	0.4	3.19	0.29
A506 Valley Road N	1.7	6.74	0.64	1.0	4.68	0.51
2028 Base + Committed						
Cherryfield Drive	0.4	3.72	0.28	0.5	3.65	0.34
A506 Valley Road S	0.7	3.15	0.42	1.0	3.85	0.51
Kirkby Row	0.8	3.91	0.43	0.4	3.34	0.31
A506 Valley Road N	2.2	7.95	0.69	1.3	5.23	0.56
2028 Base + Committed + Development						
Cherryfield Drive	0.6	4.31	0.38	0.6	3.88	0.38
A506 Valley Road S	0.8	3.28	0.44	1.3	4.30	0.56
Kirkby Row	0.8	4.05	0.44	0.5	3.54	0.32
A506 Valley Road N	2.3	8.33	0.70	1.4	5.82	0.59

7.12.2 The analysis shows that the A506 / Cherryfield Drive / Kirkby Row Roundabout junction is expected to operate within capacity and with minor levels of queuing and delay in all scenarios, including the 2028 base + committed + development scenarios.

7.13 A5208 / Arbour Lane / Broad Lane Roundabout

7.13.1 A summary of the junction capacity results at the A5208 / Arbour Lane / Broad Lane Roundabout junction are summarised in [Table 7.8](#), with the full ARCADY outputs included in [Appendix O](#).

Table 7.8 : A5208 / Arbour Lane / Broad Lane Roundabout – Capacity Modelling Results

Arm	Weekday AM Peak			Weekday PM Peak		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
2022 Base						
Commercial Access	0.1	3.83	0.11	0.1	3.87	0.06
A5208 SE	0.5	2.10	0.32	0.9	2.81	0.47
Broad Lane	0.1	2.62	0.11	0.1	2.96	0.08
A5208 NW	0.4	1.98	0.30	0.3	1.74	0.22
Arbour Lane	0.3	3.75	0.20	0.7	4.79	0.43
2028 Base + Committed						
Commercial Access	0.2	4.32	0.18	0.3	5.03	0.25
A5208 SE	0.6	2.28	0.36	1.2	3.42	0.54
Broad Lane	0.2	2.87	0.15	0.1	3.47	0.13
A5208 NW	0.6	2.21	0.36	0.4	1.94	0.28
Arbour Lane	0.3	4.29	0.26	0.9	5.75	0.49
2028 Base + Committed + Development						
Commercial Access	0.2	4.44	0.19	0.3	5.12	0.25
A5208 SE	0.6	2.31	0.36	1.3	3.56	0.56
Broad Lane	0.2	2.89	0.15	0.1	3.55	0.13
A5208 NW	0.6	2.29	0.38	0.4	1.97	0.29
Arbour Lane	0.4	4.41	0.26	1.0	5.87	0.49

7.13.2 The analysis shows that the A5208 / Arbour Lane / Broad Lane Roundabout junction is expected to operate within capacity and with minor levels of queuing and delay in all scenarios, including the 2028 base + committed + development scenarios.

7.14 A5208 County Road / Simonswood Lane / Park Bow Drive Signal Junction

7.14.1 A summary of the junction capacity results at the A5208 County Road / Simonswood Drive / Park Bow Drive signal junction are summarised in [Table 7.9](#) to [Table 7.11](#), with the full LinSig outputs included in [Appendix P](#).

7.14.2 For the purposes of this assessment, it was assumed that the 'all red pedestrian stage' was called every other cycle during the AM and PM peak hours.

Table 7.9 : 2022 Base – LinSig Results

Arm	AM Peak			PM Peak		
	DoS (%)	Delay (PCU/Hr)	Queue (PCU)	DoS (%)	Delay (PCU/Hr)	Queue (PCU)
A5208 County Road E Ahead / Left	66.3	4.5	10.4	69.2	5.6	15.5
A5208 County Road E Ahead / Right	62.9	3.9	9.0	67.5	5.1	14.0
A5208 County Road W Ahead / Left	67.3	4.6	10.9	69.4	4.2	9.2
A5208 County Road W Ahead / Right	67.3	4.5	10.7	69.1	4.1	8.9
Simonswood Lane	66.7	4.6	11.0	68.7	4.4	9.3
Park Bow Drive	46.4	2.7	6.6	59.6	3.3	7.2
Total Delay (PCU/Hr)		24.92			26.60	
PRC%		33.7			29.7	

Table 7.10 : 2028 Base + Committed – LinSig Results

Arm	AM Peak			PM Peak		
	DoS (%)	Delay (PCU/Hr)	Queue (PCU)	DoS (%)	Delay (PCU/Hr)	Queue (PCU)
A5208 County Road E Ahead / Left	78.9	6.2	13.5	82.3	7.9	20.4
A5208 County Road E Ahead / Right	76.0	5.5	12.0	80.9	7.3	18.7
A5208 County Road W Ahead / Left	78.3	6.3	14.7	81.4	6.0	11.9
A5208 County Road W Ahead / Right	78.4	6.3	14.6	81.2	5.9	11.7
Simonswood Lane	77.8	5.9	13.4	82.4	5.9	11.9
Park Bow Drive	55.1	3.2	7.8	70.3	4.1	8.8
Total Delay (PCU/Hr)		33.40			37.08	
PRC%		14.0			9.2	

Table 7.11 : 2028 Base + Committed + Development – LinSig Results

Arm	AM Peak			PM Peak		
	DoS (%)	Delay (PCU/Hr)	Queue (PCU)	DoS (%)	Delay (PCU/Hr)	Queue (PCU)
A5208 County Road E Ahead / Left	80.2	6.4	13.8	84.0	8.4	22.8
A5208 County Road E Ahead / Right	77.3	5.6	12.2	82.6	7.8	21.0
A5208 County Road W Ahead / Left	80.6	6.8	16.0	84.0	6.6	13.7
A5208 County Road W Ahead / Right	80.7	6.8	15.8	83.8	6.4	13.4
Simonswood Lane	80.6	6.2	13.5	83.1	6.5	12.0
Park Bow Drive	59.4	3.4	7.9	75.0	4.4	9.3
Total Delay (PCU/Hr)		35.37			40.14	
PRC%		11.5			7.1	

7.14.3 The modelling results show that in the worst-case scenario for the 2028 assessment year, all approaches are expected to operate with a DoS below 90%. The modelling results show that in the 2028 with development scenario, both the AM and PM peak period are expected to operate with a PRC% of 11.5% and 7.1% respectively and that the proposed development would result in only minor increases to MMQs and delay.

7.15 Cherryfield Drive / Webster Drive / Site Access Signal Junction (Site Access 2)

7.15.1 A summary of the junction capacity results at the existing Cherryfield Drive / Webster Drive / Site Access 2 junction are summarised in Table 7.12 to Table 7.14, with the full LinSig outputs included in Appendix Q.

Table 7.12 : 2022 Base - LinSig Results

Arm	AM Peak			PM Peak		
	DoS (%)	Delay (PCU/Hr)	Queue (PCU)	DoS (%)	Delay (PCU/Hr)	Queue (PCU)
Cherryfield Drive E	68.6	4.1	10.1	69.3	4.3	10.8
Cherryfield Drive W	44.1	2.8	9.0	41.1	2.6	8.5
Webster Drive	67.0	4.4	10.0	68.1	4.6	10.2
Cherryfield Drive WB	17.3	0.1	0.1	17.5	0.1	0.1
Car Park Access	0.5	0.0	0.0	13.7	0.1	0.1

Arm	AM Peak			PM Peak		
	DoS (%)	Delay (PCU/Hr)	Queue (PCU)	DoS (%)	Delay (PCU/Hr)	Queue (PCU)
Cherryfield Drive WB Ahead Right	24.3	0.2	0.2	19.7	0.1	0.1
Total Delay (PCU/Hr)		11.50			11.67	
PRC%		31.2			29.9	

Table 7.13 : 2028 Base + Committed – LinSig Results

Arm	AM Peak			PM Peak		
	DoS (%)	Delay (PCU/Hr)	Queue (PCU)	DoS (%)	Delay (PCU/Hr)	Queue (PCU)
Cherryfield Drive E	73.5	4.6	11.1	73.7	4.8	11.8
Cherryfield Drive W	45.8	2.9	9.4	42.5	2.6	8.8
Webster Drive	73.2	5.1	11.0	74.5	5.2	11.4
Cherryfield Drive WB	18.2	0.1	0.1	18.4	0.1	0.1
Car Park Access	0.5	0.0	0.0	13.8	0.1	0.1
Cherryfield Drive WB Ahead Right	25.6	0.2	0.2	20.8	0.1	0.1
Total Delay (PCU/Hr)		12.81			12.97	
PRC%		22.4			20.8	

Table 7.14 : 2028 Base + Committed + Development - LinSig Results

Arm	AM Peak			PM Peak		
	DoS (%)	Delay (PCU/Hr)	Queue (PCU)	DoS (%)	Delay (PCU/Hr)	Queue (PCU)
Cherryfield Drive E	82.0	5.8	13.0	80.4	5.7	13.4
Cherryfield Drive W	49.2	3.1	10.4	44.2	2.8	9.3
Webster Drive	82.3	6.3	12.6	80.5	6.1	12.5
Cherryfield Drive WB	19.0	0.1	0.1	19.2	0.1	0.1
Car Park Access	16.6	0.1	0.1	20.3	0.1	0.1
Cherryfield Drive WB Ahead Right	28.2	0.2	0.2	26.6	0.2	0.2
Total Delay (PCU/Hr)		15.57			14.97	
PRC%		9.4			11.7	

7.15.2 The modelling results show that in the worst-case scenario for the 2028 assessment year, all approaches are expected to operate with a DoS below 90%. The modelling results show that in the worst case 2028 with development scenario, both the AM and PM peak period are expected to operate with a PRC% of 9.4% and 11.7% respectively.

7.16 A506 Valley Road / Whitefield Drive / Bewley Drive Signal Junction

7.16.1 A summary of the junction capacity results at the existing A506 Valley Road / Whitefield Drive / Bewley Drive signal junction are summarised in Table 7.15 to Table 7.17, with the full LinSig outputs included in Appendix S.

7.16.2 On review of the MCC survey video footage, it was established that the stage containing the 'all red' pedestrian phase across Bewley drive and across the southbound arm of Valley Road were called less than 5 times on average during each peak hour. As such, all base and future year models were run without these stages. Furthermore, the 2022 base model MMQ queue lengths validated more closely with the observed average queue lengths when these stages were not called.

Table 7.15 : 2022 Base –LinSig Results

Arm	AM Peak			PM Peak		
	DoS (%)	Delay (PCU/Hr)	Queue (PCU)	DoS (%)	Delay (PCU/Hr)	Queue (PCU)
A506 Valley Road N Ahead Left	52.2	3.4	11.6	41.0	2.5	8.5
A506 Valley Road N Ahead	51.4	3.3	11.6	40.6	2.5	8.5
Bewley Drive Left Right	74.1	5.6	13.4	68.3	5.1	13.3
A506 Valley Road NB Link Ahead	15.1	0.3	2.9	16.9	0.3	0.7
A506 Valley Road NB Link Ahead	34.1	0.8	9.7	55.9	0.9	3.3
A506 Valley Road NB Link Right	74.1	5.2	10.4	63.8	3.4	5.7
Whitefield Drive Left Right	75.0	6.4	17.8	69.3	5.3	13.0
A506 Valley Road SB Link Ahead	57.6	2.6	7.8	43.8	1.6	5.6
A506 Valley Road SB Link Right Ahead	75.1	4.6	11.4	67.7	4.7	7.4
A506 Valley Road S Ahead Left	43.2	2.6	8.8	56.4	3.4	13.2
A506 Valley Road S Ahead	57.2	4.0	10.0	69.2	4.8	16.9
Total Delay (PCU/Hr)		38.92			34.64	
PRC%		19.9			29.8	

Table 7.16 : 2028 Base + Committed - LinSig Results

Arm	AM Peak			PM Peak		
	DoS (%)	Delay (PCU/Hr)	Queue (PCU)	DoS (%)	Delay (PCU/Hr)	Queue (PCU)
A506 Valley Road N Ahead Left	64.3	4.8	14.6	47.2	2.8	9.1
A506 Valley Road N Ahead	63.5	4.8	14.6	47.0	2.8	9.1
Bewley Drive Left Right	74.3	4.8	14.5	76.3	5.7	13.6
A506 Valley Road NB Link Ahead	17.2	5.8	14.2	16.4	0.3	0.7
A506 Valley Road NB Link Ahead	38.8	0.3	1.1	60.7	1.0	1.5
A506 Valley Road NB Link Right	71.8	0.5	1.2	63.5	3.3	5.4
Whitefield Drive Left Right	84.3	5.0	6.9	75.4	5.8	13.9
A506 Valley Road SB Link Ahead	64.8	8.5	22.8	49.7	1.6	5.5
A506 Valley Road SB Link Right Ahead	84.3	2.6	16.2	78.3	5.3	8.5
A506 Valley Road S Ahead Left	49.1	6.4	23.7	64.9	4.1	14.6
A506 Valley Road S Ahead	64.2	3.2	10.1	78.1	6.1	19.3
Total Delay (PCU/Hr)		47.05			39.04	
PRC%		6.7			14.9	

Table 7.17 : 2028 Base + Committed + Development - LinSig Results

Arm	AM Peak			PM Peak		
	DoS (%)	Delay (PCU/Hr)	Queue (PCU)	DoS (%)	Delay (PCU/Hr)	Queue (PCU)
A506 Valley Road N Ahead Left	73.8	6.2	17.7	53.7	3.5	10.6
A506 Valley Road N Ahead	73.0	6.2	17.6	53.2	3.5	10.5
Bewley Drive Left Right	86.8	8.6	19.9	81.7	6.8	16.1
A506 Valley Road NB Link Ahead	18.9	0.3	1.1	20.2	0.3	1.0
A506 Valley Road NB Link Ahead	41.4	0.6	1.3	65.1	1.3	9.7
A506 Valley Road NB Link Right	84.6	6.8	9.0	80.1	5.4	13.1
Whitefield Drive Left Right	90.6	10.9	25.9	82.9	7.1	15.6
A506 Valley Road SB Link Ahead	71.5	3.3	20.5	50.8	1.6	6.0
A506 Valley Road SB Link Right Ahead	90.1	8.8	30.5	82.3	5.9	9.1
A506 Valley Road S Ahead Left	47.3	2.9	9.9	64.9	4.1	15.2
A506 Valley Road S Ahead	63.6	4.7	12.3	82.8	7.1	23.0

Arm	AM Peak			PM Peak		
	DoS (%)	Delay (PCU/Hr)	Queue (PCU)	DoS (%)	Delay (PCU/Hr)	Queue (PCU)
Total Delay (PCU/Hr)		59.63			46.82	
PRC%		-0.7			8.5	

7.16.3 The modelling results show that in the 2028 with development scenario, both the AM and PM peak period are expected to operate with a PRC% of -0.7% and 8.5% respectively and that the proposed development would result in only minor increases to MMQs and delay above the 2028 base + committed scenario.

7.17 M57 Junction 6 Signalised Roundabout

7.17.1 A summary of the junction capacity results at the existing M57 Junction 6 signalised roundabout junction are summarised in [Table 7.18](#) to [Table 7.20](#), with the full LinSig outputs included in [Appendix T](#).

7.17.2 On review of the MCC survey video footage, it was established that the stage containing the pedestrian stages across the southbound on-slip and the northbound offslip were called very infrequently. As such, all base and future year models were run without these stages. Furthermore, the 2022 base model MMQ queue lengths validated more closely with the observed average queue lengths when these stages were omitted.

Table 7.18 : 2022 Base – LinSig Results

Arm	AM Peak			PM Peak		
	DoS (%)	Delay (PCU/Hr)	Queue (PCU)	DoS (%)	Delay (PCU/Hr)	Queue (PCU)
A506 Valley Road E Left	47.3	1.6	6.8	35.5	1.3	5.7
A506 Valley Road E Left Ahead	62.7	3.2	7	53.1	2.7	6.3
M57 NB Offslip Left	79.8	5.3	13.1	66.3	4.4	12.3
M57 NB Offslip Ahead	45.6	2.1	5.9	68.6	4.8	13.3
A506 Valley Road W Ahead Left	57.5	2.5	9.4	67.4	4.2	15.1
A506 Valley Road W Ahead	56.8	2.5	9.2	66.7	4.2	14.9
M57 SB Offslip Ahead Left	50.5	2	4.3	66.5	3.1	5.9
M57 SB Offslip Ahead	49.7	2	4.3	64.8	3	5.8
NB Off Valley Road E Circ Ahead	78.6	7	7.9	69.6	6.6	8.8
NB Off Valley Road E Circ Right	66.8	1.3	4.9	41.4	0.4	0.4
SB ON Ped Ahead	42.9	0.4	0.4	34.2	0.3	0.3
SB ON Ped Ahead	19.8	0.1	0.1	12.8	0.1	0.1
SB On NB Off Circ Ahead	66.3	3.8	9.3	57.9	2.9	8
SB On NB Off Circ Right Ahead	78.3	5.5	12.8	58.4	2.9	8
NB Off Valley Road W Circ Right Ahead	58.2	2.5	5.3	69	5.3	12.9
NB Off Valley Road W Circ Right	35.1	1.5	4	42.6	2.9	7.9
NB On SB Off Circ Ahead	44.1	1.4	4.7	52	1.8	8.7
NB On SB Off Circ Right Ahead	67.2	2.2	6	70	2.8	9.7
Total Delay (PCU/Hr)		46.98			53.55	
PRC%		12.7			28.7	

Table 7.19 : 2028 Base + Committed – LinSig Results

Arm	DoS (%)	AM Peak		DoS (%)	PM Peak	
		Delay (PCU/Hr)	Queue (PCU)		Delay (PCU/Hr)	Queue (PCU)
A506 Valley Road E Left	54.9	2.8	11.7	40.1	1.5	6.8
A506 Valley Road E Left Ahead	79.8	6.2	12.9	59.5	3.3	7.4
M57 NB Offslip Left	83.9	7.8	20.2	73.3	5.3	14.3
M57 NB Offslip Ahead	48.6	3.0	9.2	78.1	6.2	16.6
A506 Valley Road W Ahead Left	61.1	3.4	14.3	75.3	5.4	18.4
A506 Valley Road W Ahead	60.3	3.4	14.1	74.5	5.3	18.1
M57 SB Offslip Ahead Left	58.0	3.1	6.7	74.6	3.8	7.0
M57 SB Offslip Ahead	57.4	3.1	6.8	72.7	3.7	6.8
NB Off Valley Road E Circ Ahead	84.9	11.6	15.7	77.0	7.6	10.8
NB Off Valley Road E Circ Right	59.7	0.9	8.3	45.8	0.4	0.5
SB ON Ped Ahead	48.6	0.5	0.5	38.3	0.3	0.3
SB ON Ped Ahead	22.3	0.1	0.1	14.1	0.1	0.1
SB On NB Off Circ Ahead	71.5	6.0	16.6	64.5	3.7	10.4
SB On NB Off Circ Right Ahead	84.9	9.0	20.9	65.3	3.8	10.7
NB Off Valley Road W Circ Right Ahead	65.3	4.0	9.2	78.2	6.5	15.2
NB Off Valley Road W Circ Right	37.3	2.3	6.3	48.4	3.3	9.0
NB On SB Off Circ Ahead	45.9	1.8	7.0	58.7	2.2	10.0
NB On SB Off Circ Right Ahead	69.5	2.8	9.2	78.4	3.6	11.5
Total Delay (PCU/Hr)		71.68			65.82	
PRC%		6.0			14.8	

Table 7.20 : 2022 Base + Committed + Development – LinSig Results

Arm	DoS (%)	AM Peak		PM Peak		
		Delay (PCU/Hr)	Queue (PCU)	DoS (%)	Delay (PCU/Hr)	Queue (PCU)
A506 Valley Road E Left	59.7	3.1	13.4	41.8	1.6	7.0
A506 Valley Road E Left Ahead	87.1	8.0	18.3	61.1	3.2	7.5
M57 NB Offslip Left	87.8	8.9	21.6	69.8	4.8	13.8
M57 NB Offslip Ahead	53.4	3.5	10.1	82.5	7.1	18.9
A506 Valley Road W Ahead Left	63.7	3.8	15.2	81.1	6.6	20.7
A506 Valley Road W Ahead	62.9	3.8	15.2	80.3	6.4	20.7
M57 SB Offslip Ahead Left	57.0	3.1	6.8	81.4	4.6	8.1
M57 SB Offslip Ahead	55.4	3.0	6.7	75.4	3.9	7.2
NB Off Valley Road E Circ Ahead	87.0	11.8	16.1	81.5	7.8	11.3
NB Off Valley Road E Circ Right	61.8	0.9	8.3	49.8	0.5	0.5
SB ON Ped Ahead	52.0	0.5	0.5	40.2	0.3	0.3
SB ON Ped Ahead	23.4	0.2	0.2	14.2	0.1	0.1
SB On NB Off Circ Ahead	73.4	6.0	16.9	70.1	4.4	11.8
SB On NB Off Circ Right Ahead	88.6	9.9	22.2	71.0	4.5	12.1
NB Off Valley Road W Circ Right Ahead	68.2	4.5	10.3	80.9	7.4	16.8
NB Off Valley Road W Circ Right	36.7	2.3	6.6	50.7	3.7	10.0
NB On SB Off Circ Ahead	47.9	2.0	7.4	63.2	2.4	11.2
NB On SB Off Circ Right Ahead	71.9	3.1	8.9	83.0	4.4	13.1
Total Delay (PCU/Hr)		78.41			73.91	
PRC%		1.5			8.5	

7.17.3 The modelling results show that in the worst-case scenario for the 2033 assessment year, all approaches are expected to operate with a DoS below 90%. The modelling results show that in the 2033 with development scenario, both the AM and PM peak period are expected to operate with a PRC% of 1.5% and 8.5% respectively and that the proposed development would result in only minor increases to MMQs and delay above the 2033 base + committed scenario.

7.18 Summary

7.18.1 Overall, the junction capacity analysis shows that the proposed development is expected to have a low impact on the local highway network, with low increases in queuing, delay and impact on capacity. The analysis shows that the proposed development will not have a severe impact on the local highway network, which is the threshold stated by NFFP (Paragraph 111) under which development should not be refused on highways grounds.

8. Summary and Conclusion

8.1 Summary

- 8.1.1 Mode Transport Planning has been appointed by Barratt and David Wilson Homes North West to provide transport planning and highways advice in relation to a full planning application for a residential development on Cherryfield Drive in Kirkby, Knowsley.
- 8.1.2 The proposed development includes 781no. residential dwellings, with vehicular access proposed via 4no. new access junctions on the local highway network. The proposed development also includes changes to the existing Cherryfield Drive Car Park.
- 8.1.3 The analysis in this report has been carried out in accordance with current policy, guidance, and best practice. The results demonstrate that:
- Following a review of the most recent Personal Injury Collision records, there is no evidence to show the proposed development will have a detrimental impact on highway safety;
 - In accordance with local and national policy, the site is accessible by a range of sustainable modes of transport, including walking, cycling, bus services and rail. These travel options provide a realistic alternative to single occupancy car travel, particularly for commuting trips;
 - The proposed access arrangements and their visibility splays comply with the relevant highway design standards;
 - Swept path analysis demonstrates that an 11.2m waste collection vehicle can enter and exit the site in a forward gear, and manoeuvre safely within the site;
 - The proposed on-site parking provision complies with Knowsley Metropolitan Borough Council's local parking standards;
 - The junction capacity analysis demonstrates that the proposed development impact on the local and strategic highway network is expected to be low and is not considered 'severe' in the 2028 and 2033 with development scenarios.
- 8.1.4 Overall, it can be concluded that the proposed development will not have a severe impact, which is the threshold stated by NPPF (Paragraph 111) under which development should not be refused on highways grounds.

8.2 Conclusion

- 8.2.1 In conclusion, based on the evidence and analysis within this report, there should be no highways or transport planning reasons that prevent this planning application from being approved.

APPENDICES



APPENDIX A

Scoping Correspondence

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APPENDIX B

Personal Injury Collision Data

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APPENDIX C

Proposed Site Layout Plan

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APPENDIX D

MASA Questionnaire

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APPENDIX E

Full TRICS Outputs

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APPENDIX F

Trip Distribution and Assignment Calculations

APPENDIX G Network Diagrams

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APPENDIX H Traffic Survey Data

APPENDIX I

Site Access 1 / Cherryfield Drive – PICADY Results

APPENDIX J

Site Access 3 / Cherryfield Drive – PICADY Results

APPENDIX K

Site Access 4 / Bewley Drive – PICADY Results

APPENDIX L

Bewley Dive / Cherryfield Drive – PICADY Results

APPENDIX M

A5208 County Road / Webster Road – PICADY

Results

APPENDIX N

A506 / Cherryfield Drive / Kirkby Row – ARCADY

Results

APPENDIX O

A5208 County Road / Arbour Lane / Broad Lane /
Mixed Use Access – ARCADY Results

APPENDIX P

A5208 County Road / Simonswood Lane / Park Bow
Drive – LinSig Results

APPENDIX Q Cherryfield Drive / Webster Drive / Car Park Access – LinSig Results

APPENDIX R Cherryfield Drive / Webster Drive / Site Access 2 – LinSig Results

APPENDIX S

A506 Valley Road / Whitefield Drive / Bewley Drive –
LinSig Results

APPENDIX T

M57 Junction 6 – LinSig Results



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