

6. Traffic and Transport

Introduction

- 6.1 This chapter assesses the effects of the proposed development on traffic and transport. In particular, it considers the anticipated effects of the proposed development on existing traffic conditions in the local area.
- 6.2 The chapter describes the methods used to assess the likely significant effects, the baseline conditions currently existing at the site and surroundings, the potential direct and indirect effects of the proposed development arising from Traffic and Transport, the mitigation measures required to prevent, reduce, or offset the identified significant effects and the residual effects. It has been written by Mode Transport Planning.
- 6.3 This Chapter is supported by the following figures and appendices:
- Appendix 6.1 – Transport Assessment
 - Appendix 6.2 – Interim Travel Plan

Planning Policy Context

National Planning Policy

National Planning Policy Framework

- 6.4 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.
- 6.5 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."

6.6 Paragraph 7 of the NPPF states “The purpose of the planning system is to contribute to the achievement of sustainable development.”

6.7 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.”

6.8 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.”

6.9 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.

6.10 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.”

6.11 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.”*

Regional Planning Policy

Merseyside Local Transport Plan

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

6.13 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”.*

6.14 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).

Local Planning Policy

Knowsley Local Plan Core Strategy

- 6.15 The 'Knowsley Local Plan Core Strategy' written in 2016 sets out the vision, objectives and policy that will guide development in Knowsley until 2028.
- 6.16 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."*
- 6.17 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

- 6.18 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).
- 6.19 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.
- 6.20 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."*
- 6.21 Similarly, Policy T7 states that 'new development should preserve and where possible enhance the walking and cycling network.'
- 6.22 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.
- 6.23 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.

Assessment Methodology and Significance Criteria

Guidance and Best Practice

6.24 The assessment has been based on the following guidance:

- Institute of Environmental Management and Assessment (IEMA) Guidelines – Environmental Assessment of Traffic and Movement (July 2023)
- Design Manual for Roads and Bridges (DMRB) – Volume 11 (Environmental Assessment)iv;
- National Planning Policy Framework (NPPF) as well as other relevant local planning policy & guidance documents, aforementioned within the Local Planning Policy section; and,
- Manual for Street (MfS) – Volumes 1 & 2.

Overview of Potential Effects

6.25 There are a number of environmental effects that can potentially be significant when considering traffic changes in relation to a new development. These are summarised below and are considered and analysed for any road links that exceed the IEMA significance criteria for changes in traffic flow volume or composition:

- Severance;
- Driver Delay;
- Pedestrian, Cycle & Public Transport User Delay;
- Pedestrian & Cycle Amenity;
- Fear & Intimidation;
- Accidents & Safety; and,
- Abnormal/Hazardous load.

6.26 The construction of the proposed development is anticipated to utilise standard techniques and is unlikely to attract abnormal or hazardous load movements and accordingly these are scoped out of any subsequent assessment. Chapter 5 of this ES outlines the indicative construction methodology and phasing.

- 6.27 Given the nature of the proposed development, it is considered unlikely that abnormal or hazardous load movements will be required during the occupation phase and accordingly these are scoped out of any subsequent assessment.
- 6.28 With regards to these effects, the IEMA guidelines states that the following rules should be used as a screening process to delimit the scale and extent of the assessment:
- 6.29 Rule 1 - Include highway links where traffic flows will increase by more than 30% (or the number of heavy goods vehicles will increase by more than 30%)
- 6.30 Rule 2 – Include highway links of high sensitivity where traffic flows have increased by 10% or More.
- 6.31 The IEMA guidelines state that any increases in traffic flows of less than 10% are generally accepted as having no discernible environmental effects as daily variance in traffic flows can be of equal magnitude.
- 6.32 It is recommended that, as a starting point, a 30% change in traffic flow represents a reasonable threshold for including a highway link within an environmental assessment.
- 6.33 Any links (receptors) where daily traffic flow is not expected to increase by more than 30% will be considered as having a negligible impact.

Potential Receptors

- 6.34 The methodology used in this chapter (adopting that advocated by the IEMA guidelines) includes evaluating:
- Potential effects on local roads and the users of these roads; and,
 - Potential effects on land uses and environmental resources fronting those roads.
- 6.35 Table 6.1 provides a summary for determining the impact sensitivity a receptor (link).

Table 6.1: Receptor Sensitivity Criteria

Receptors Sensitivity	Description
High	The receptor/resource has little ability to absorb change without fundamentally altering its present character or is of international or national importance. Receptors of greatest sensitivity to traffic flow: schools, colleges, playgrounds, accident blackspots, retirement homes, urban/residential roads without footways that are used by pedestrians. (Paragraph 2.5 IEMA Guidelines, 1993)
Moderate	The receptor/resource has moderate capacity to absorb change without significantly altering its present character or is of high importance. Traffic flow sensitive receptors including congested junctions, doctors' surgeries, hospitals, shopping areas with roadside frontage, roads with narrow footways, un-segregated cycleways, community centres, parks, recreation facilities.
Minor / Negligible	The receptor/resource is tolerant of change without detriment to its character, is of low or local importance. Receptors with some sensitivity to traffic flow: places of worship, public open space, nature conservation areas, listed buildings, tourist attractions and residential areas with adequate footway provision. Receptors with low sensitivity to traffic flows and those sufficiently distant from affected roads and junctions.

- 6.36 The trip generation and distribution for the proposed development has been approved by Knowsley Metropolitan Borough Council (KMBC) Highways.
- 6.37 The locations and volumes of the development traffic have been identified and it has been possible to identify those links (receptors) that have experienced increases in traffic as a result of the proposed development. This has been done by identifying the percentage increase in vehicular activity along key highway links above flows generated by committed development and background traffic growth.

- 6.38 The highway links (receptors) identified below in Table 6.2 are anticipated to experience increases in traffic as a result of the proposed development during the construction and operational phases.

Table 6.2: Highway Links / Receptors

Reference	Link / Receptor	Start	End
1	M57 NB Off	n/a	n/a
2	M57 NB On	n/a	n/a
3	M57 SB Off	n/a	n/a
4	M57 SB On	n/a	n/a
5	A506 Valley Road S	Field Lane	M57 Roundabout
6	A506 Valley Road	Bewley Drive	M57 Roundabout
7	A506 Valley Road	Bewley Drive	Cherryfield Drive
8	Whitefield Drive	James Holt Ave	A506 Valley Road
9	Kirkby Row	James Holt Ave	A506 Valley Road
10	A506	Cherryfield Drive	A5208
11	A5208	A506	Irlam Drive
12	A5208 County Road	Irlam Drive	Webster Drive
13	A5208 County Road	Webster Drive	Simonswood Lane
14	A5208 County Road	Simonswood Lane	Arbour Lane
15	A5208	Arbour Lane	Moorgate Road North
16	Cherryfield Drive	Access 1	A506 Valley Road
17	Cherryfield Drive	Access 1	Webster Drive
18	Cherryfield Drive	Webster Drive	Wellfield Avenue
19	Cherryfield Drive	Wellfield Avenue	Bewley Drive
20	Bewley Drive	Cherryfield Drive	A506 Valley Road
21	Bewley Drive	Cherryfield Drive	Moorgate Road North
22	Old Rough Lane	Roughwood Drive	A5208 County Road
23	Webster Drive	A5208 County Road	Cherryfield Drive
24	Moorgate Road North	A580	A5208 County Road
25	M57	M57 J6	M57 J5
26	M57	M57 J6	M57 J7
27	J6 M57 Circulatory	SB ON	NB OFF
28	J6 M57 Circulatory	NB ON	SB OFF
29	J6 M57 Circulatory	NB OFF	NB ON
30	J6 M57 Circulatory	SB OFF	SB ON

- 6.39 These links (receptors) have been assigned an average sensitivity based on the presence of the following receptors shown in Table 6.3.

Table 6.3: Receptor / Highway Link Sensitivity

Receptor	Sensitivity
Schools, colleges, playgrounds, hospitals, retirement homes	Major
Congested junctions, shops/ businesses, pedestrian/ cyclists, areas of ecological/ nature conservation value, residential properties close to the carriageway	Moderate
Sites of tourist/ visitor attraction, places of worship, residential areas set back from the highway with screening	Minor
Those people and places located away from the affected highway link	Negligible

Magnitude Criteria and Significance of Effects

- 6.40 There are a number of environmental effects that can be potentially significant when considering traffic changes in relation to a new development. These effects are consistent whether assessed in relation to the construction or occupation phases.
- 6.41 The assessments typically rely upon the relative change in traffic flow between the future year baseline and the development scenario in relation to effect specific criteria in order to gauge the requirement for mitigation or otherwise. The assessment of each environmental effect will be considered in both the construction and operational phases.
- 6.42 The change in Annual Average Daily Traffic (AADT) will be used to determine the magnitude of impact.

- 6.43 The trip generation and distribution for the proposed development has been approved by Knowsley Metropolitan Borough Council (KMBC) Highways.
- 6.44 The locations and volumes of development traffic have been identified and it has been possible to identify those links (receptors) that have experienced increases in traffic as a result of the proposed development. This has been done by calculating the percentage increase in vehicular flows above flows generated by committed development and background traffic growth along key highway links
- 6.45 In order to ensure a relative assessment of potential increases in road traffic in environmental terms, the magnitude criteria for each impact are detailed in Table 6.4.

Table 6.4: Magnitude Criteria

	Magnitude			
Impact	Negligible	Minor	Moderate	Major
Severance	Increase in total traffic flows of 29% or under (or increase in HGV flows under 30%)	Increase in total traffic flows of 30-59% or under (or increase in HGV flows under 10-39%)	Increase in total traffic flows of 60-89% or under (or increase in HGV flows under 40-89%)	Increase in total traffic flows or HGV flows of 90% and above
Pedestrian Delay (Incorporating delay to all non-motorised users)	Total traffic flows under 1,400 per hour	Where traffic flows exceed 1,400 vehicles per hour as a result of the proposed development, the severity of the impact will be determined on a case-by-case basis based on receptor sensitivity		
Non - motorised user Amenity	Increase in total traffic	Increase in total traffic	Increase in total traffic	Increase in total traffic flows of 100% or above

	Magnitude			
Impact	Negligible	Minor	Moderate	Major
	flows of 49% or under	flows of 50-69%	flows of 70-99%	
Fear and intimidation	Increase in total traffic flows of 29% or under (or increase in HGV flows under 10%)	Magnitude of impact for fear and intimidation assessed on a case by case basis for each link where total flows are likely to exceed the 29% threshold or HGV flows increase by more than 10%		
Driver delay	Assessed as part of the capacity assessment included within the TA			
Highway safety	Assessed within the TA			

- 6.46 The significance of the effect on each link based on sensitivity and magnitude of traffic impact can then be established using Table 6.5.

Table 6.5: Significance of Effects

Sensitivity of receptor	Magnitude			
	Major	Moderate	Minor	Negligible
Major	Major Adverse - Significant	Major Adverse - Significant	Moderate Adverse - Significant	Minor Adverse - Not Significant
Moderate	Major Adverse - Significant	Moderate Adverse - Significant	Minor Adverse - Not Significant	Negligible - Not Significant
Minor	Moderate Adverse - Significant	Minor Adverse - Not Significant	Negligible - Not Significant	Negligible - Not Significant
Negligible	Minor Adverse - Not Significant	Negligible - Not Significant	Negligible - Not Significant	Negligible - Not Significant

- 6.47 Any links with significant effects will require mitigation measures to be implemented. Once the mitigation measures have been identified and considered, the residual effect on the link can be determined.
- 6.48 The methodology outlined above will be applied to both the construction and operational phases.

Assessment Scenarios

Construction Phase

- 6.49 The assessment of the construction phase of the proposed development will consider the impacts of construction traffic on the surrounding highway network.
- 6.50 Construction traffic has been generated using first principles / 'ready-reckoner' technique and will be considered in relation to the anticipated average daily movements generated during the peak year of construction. It is assumed that this would be 2025.

Operational Phase

- 6.51 The assessment of the operational phase of the proposed development will consider the traffic impacts of the site once constructed on the surrounding highway network once each of the phases is built out. The TA (Appendix 6.1) includes the methodology for forecasting daily increases operational traffic.
- 6.52 The operational assessment year is 2028 as this represents a period of 5 years post registration of the planning application.
- 6.53 In addition to the above, there may be a period where some phases are being constructed and others are operational. This has been considered within the Cumulative Effects section.

Assumptions/Limitations

- 6.54 The calculation of the operational traffic generation used within this chapter (and TA, Appendix 6.1) is based upon a series of assumptions, relating to traffic generation and distribution forecasts

for the proposed development. The assumptions are those that are typically applied within the industry and are considered to be fit for purpose for traffic forecasting.

- 6.55 It should be noted that the forecast development traffic is based on a worst-case trip generation assessment; assuming that all vehicular traffic is new to the local highway network.
- 6.56 Furthermore, no vehicular trip reductions have been implemented that would typically be associated with Travel Planning targets and measures as they would be considered as additional mitigation.
- 6.57 The trip generation of committed developments (described in Chapter 2 EIA Methodology) have been considered by reviewing the TA's submitted in support of each planning application and are publicly available on the planning portal.

Consultation

- 6.58 The following stakeholders presented in Table 6.6 have been consulted as part of the TA and EIA process.

Table 6.6: Consultation

Consultee	Date and Time	Comments	Actions
Knowsley Metropolitan Borough Council Highways	August 2022	Preparation of TA scoping note	Updated scope of TA to reflect comments received from KMBC
National Highways	August 2022	Preparation of TA scoping note	Updated scope of TA to reflect comments received from NH unless otherwise agreed with KMBC

Baseline Conditions

- 6.59 This section describes the baseline conditions at the site and surrounding area.

Local Highway Network

- 6.60 The baseline conditions associated with the local highway network have been described and detailed in full within the TA (Appendix 6.1).
- 6.61 The 2022 baseline traffic flows for each of the links considered within the assessment are included in Table 6.7 along with the assigned sensitivity based on the presence of receptors.

Table 6.7: Baseline Traffic Flows

Ref	Link	Start	End	Sensitivity	2022 Base Flows	
					AADT	HGVs
1	M57 NB Off	n/a	n/a	Minor	13,665	1,093
2	M57 NB On	n/a	n/a	Minor	5,969	478
3	M57 SB Off	n/a	n/a	Minor	5,332	427
4	M57 SB On	n/a	n/a	Minor	14,686	1,175
5	A506 Valley Road S	Field Lane	M57 Roundabout	Minor	40,056	3,204
6	A506 Valley Road	Bewley Drive	M57 Roundabout	Minor	36,218	2,897
7	A506 Valley Road	Bewley Drive	Cherryfield Drive	Minor	21,731	1,738
8	Whitefield Drive	James Holt Ave	A506 Valley Road	Moderate	12,527	1,002
9	Kirkby Row	James Holt Ave	A506 Valley Road	Moderate	13,219	1,058
10	A506	Cherryfield Drive	A5208	Moderate	20,470	1,638
11	A5208	A506	Irlam Drive	Moderate	19,819	1,586
12	A5208 County Road	Irlam Drive	Webster Drive	Moderate	15,913	1,273
13	A5208 County Road	Webster Drive	Simonswood Lane	Moderate	16,153	1,292
14	A5208 County Road	Simonswood Lane	Arbour Lane	Moderate	18,462	1,477
15	A5208	Arbour Lane	Moorgate Road North	Moderate	20,826	1,666
16	Cherryfield Drive	Access 1	A506 Valley Road	Moderate	10,423	834
17	Cherryfield Drive	Access 1	Webster Drive	Moderate	10,067	805

Ref	Link	Start	End	Sensitivity	2022 Base Flows	
					AADT	HGVs
18	Cherryfield Drive	Webster Drive	Wellfield Avenue	Moderate	7,799	363
19	Cherryfield Drive	Wellfield Avenue	Bewley Drive	Moderate	4,530	362
20	Bewley Drive	Cherryfield Drive	A506 Valley Road	Moderate	9,183	735
21	Bewley Drive	Cherryfield Drive	Moorgate Road North	Moderate	9,183	735
22	Old Rough Lane	Roughwood Drive	A5208 County Road	Moderate	12,431	995
23	Webster Drive	A5208 County Road	Cherryfield Drive	Moderate	7,196	564
24	Moorgate Road North	A580	A5208 County Road	Moderate	16,740	2,246
25	M57	M57 J6	M57 J5	Minor	64,416	6,377
26	M57	M57 J6	M57 J7	Minor	59,942	5,694
27	J6 M57 Circulatory	SB ON	NB OFF	Minor	16,228	1,298
28	J6 M57 Circulatory	NB ON	SB OFF	Minor	21,313	1,705
29	J6 M57 Circulatory	NB OFF	NB ON	Minor	8,559	685
30	J6 M57 Circulatory	SB OFF	SB ON	Minor	10,608	849

6.62 It is anticipated that the peak construction year would occur in 2025 and the future year operational year would be 2028. As such, an average day TEMPRO traffic growth factor for both future years has been applied to the baseline AADT data derived for the links where traffic flows are forecast to increase as a result of the proposed development.

6.63 The traffic growth factor applied between the base, construction and future year for each is shown in Table 6.8.

Table 6.8: TEMPRO Growth Factors

Time Period	2022-2025 TEMPRO Factor	2022-2028 TEMPRO Factor
Average Day	1.029	1.056

Highway Safety

- 6.64 A full assessment of baseline highway safety conditions has been included within the TA (Appendix 6.1).

Walking Links

- 6.65 A full review of the pedestrian and walking environment within the vicinity of the site has been included within the TA (Appendix 6.1).

Cycle Links

- 6.66 A full review of the cycling infrastructure within the vicinity of the site has been included within the TA (Appendix 6.1).

Public Transport Links

- 6.67 A full review of the public transport infrastructure and services within the vicinity of the site has been included within the TA (Appendix 6.1).

Embedded Mitigation

Construction

- 6.68 No embedded mitigation is included within the construction phase.

The Completed and Operational Development

- 6.69 The following embedded design measures will be included as best practice measures to reduce reliance on the private car and promote the uptake of sustainable modes of transport:
- Cycle parking to be provided in line with locally adopted standards;
 - Network of pedestrian and cycle routes throughout the Site and within the immediate local vicinity; and,
 - Provision of electric vehicle charging points.

- 6.70 In addition to the embedded mitigation measures, the proposed development will also implement a Travel Plan (included at Appendix 6.2) which will aim to reduce single occupancy vehicles and help promote a modal shift towards sustainable travel (through a comprehensive package of informative measures and incentives).
- 6.71 It is considered that the above will help reduce the reliance on the private car, and encourage more sustainable choices of travel, including walking and cycling.

Assessment of Likely Significant Effects

Construction

- 6.72 The forecast volume of construction traffic has therefore been calculated using a first principles methodology, in order to provide forecast estimates of construction traffic using the information currently available.
- 6.73 Adopting a 'ready-reckoner' approach, based upon previous construction traffic assessment work for similar scale developments, it has been established that an approximate total of 21 two-way HGV trips can be generated by each dwelling constructed.
- 6.74 The total calculated volume of two-way construction HGV trips forecast to be generated during the entire construction phase is 16,401.
- 6.75 For the purposes of this assessment, it has been assumed that delivery of each element of the various phases is equally divided across the anticipated total construction period of c.4-years. For example, for 781 residential dwellings; the calculation assumes the delivery of c.195 units per-annum.
- 6.76 To relate the calculated annual HGV trips to daily volumes for the purposes of this assessment, the following assumptions have been made:
- 253 working days per year
 - Calculated daily HGV volumes equate to c.16 two-way trips per day

- 6.77 The construction workforce will also generate traffic; however, it is envisaged that these trips will be made by smaller (private) vehicles, with a high proportion of workers car sharing or using sustainable non-car modes. It is estimated that the construction of the proposed development could create approximately c.380 Full Time Equivalent (FTE) jobs on site across the construction phase.
- 6.78 Given that the peak number of FTE's is expected to be c.380, a maximum increase of 760 two-way movements per day would be expected if they all drove in their own private vehicles. However, on the basis that contractors would be arriving in vans, it is reasonable to assume that a fair proportion would car share. As such it has been assumed that 50% would car/van share. Therefore, there be 360 two-way daily car/van trips on average.
- 6.79 It has been assumed that all construction traffic would route via Junction 6 of the M57, with 50% routing to / from the west and 50% to / from the east. The construction traffic was also distributed across each of the 4 access points equally (25% to from each access).
- 6.80 A comparison of forecast AADT and HGV volumes between the 2025 Construction Year + Committed Development and 2025 Construction Year + Committed + Development scenarios has been undertaken and is summarised in Table 6.9.

Table 6.9: 2025 Construction Year Magnitude of Impact

Ref	Link	2025 CY+C AADT	HGVs	2025 CY+C+D AADT	AADT % Increase	HGVs	HGV% Increase	Impact
1	M57 NB Off	14,210	1,125	14,305	1%	1133	1%	Negligible
2	M57 NB On	6,222	491	6,317	2%	499	2%	Negligible
3	M57 SB Off	5,543	439	5,638	2%	447	2%	Negligible
4	M57 SB On	15,322	1,209	15,417	1%	1217	1%	Negligible
5	A506 Valley Road S	41,530	3,298	41,530	0%	3298	0%	Negligible
6	A506 Valley Road	38,068	2,982	38,432	1%	3014	1%	Negligible
7	A506 Valley Road	22,716	1,789	22,906	1%	1805	1%	Negligible

Ref	Link	2025 CY+C AADT	HGVs	2025 CY+C+D AADT	AADT % Increase	HGVs	HGV% Increase	Impact
8	Whitefield Drive	14,112	1,031	14,112	0%	1031	0%	Negligible
9	Kirkby Row	13,615	1,088	13,615	0%	1088	0%	Negligible
10	A506	21,478	1,685	21,478	0%	1685	0%	Negligible
11	A5208	23,820	1,889	23,820	0%	1889	0%	Negligible
12	A5208 County Road	19,702	1,576	19,702	0%	1576	0%	Negligible
13	A5208 County Road	19,949	1,596	19,949	0%	1596	0%	Negligible
14	A5208 County Road	21,062	1,685	21,062	0%	1685	0%	Negligible
15	A5208	23,452	1,868	23,452	0%	1868	0%	Negligible
16	Cherryfield Drive	10,728	858	10,918	2%	874	2%	Negligible
17	Cherryfield Drive	10,361	829	10,456	1%	833	0%	Negligible
18	Cherryfield Drive	8,026	374	8,026	0%	374	0%	Negligible
19	Cherryfield Drive	4,662	373	4,710	1%	377	1%	Negligible
20	Bewley Drive	9,451	756	9,451	0%	756	0%	Negligible
21	Bewley Drive	9,451	756	9,451	0%	756	0%	Negligible
22	Old Rough Lane	12,801	1,024	12,801	0%	1024	0%	Negligible
23	Webster Drive	7,406	564	7,406	0%	564	0%	Negligible
24	Moorgate Road North	17,229	2,312	17,229	0%	2312	0%	Negligible
25	M57	66,650	6,563	66,840	0%	6579	0%	Negligible
26	M57	61,826	5,861	62,016	0%	5877	0%	Negligible
27	J6 M57 Circulatory	16,959	1,336	17,054	1%	1344	1%	Negligible
28	J6 M57 Circulatory	22,207	1,755	22,302	0%	1763	0%	Negligible

Ref	Link	2025 CY+C AADT	HGVs	2025 CY+C+D AADT	AADT % Increase	HGVs	HGV% Increase	Impact
29	J6 M57 Circulatory	9,034	705	9,224	2%	721	2%	Negligible
30	J6 M57 Circulatory	10,918	873	10,918	0%	873	0%	Negligible

- 6.81 Using the magnitude of Impact criteria summarised in Table 6.4, Table 6.9 shows that the level of proportional impact, in terms of construction traffic is 'Negligible' across all links anticipated to experience increases in construction traffic.

The Completed and Operational Development

- 6.82 The methodology adopted for forecasting and distribution of operational traffic generation is described in detail within the TA (Appendix 6.1) and was agreed at scoping with KMBC.
- 6.83 This section assesses the likely environmental effects of transport related to the occupation and operational phase of the proposed development. This assessment is based upon a comparison of traffic conditions when the 2028 Base + Committed and 2028 Base + Committed + Development with scenarios are compared.
- 6.84 The proposed development is unlikely to generate significant volumes of HGV trips given the land uses proposed and accordingly, this analysis has been carried out in relation to changes in total vehicle traffic flows from the 24-hour AADT.
- 6.85 The level of proportionate change in total traffic flow volumes across the study area is summarised in Table 6.10.
- 6.86 Table 6.10: 2028 Future Year Magnitude of Impact

Ref	Link	2028 B + C AADT	2028 B + C + D AADT	AADT % Increase	Impact
1	M57 NB Off	14,575	15191	4%	Negligible
2	M57 NB On	6,381	6608	3%	Negligible
3	M57 SB Off	5,685	5927	4%	Negligible
4	M57 SB On	15,714	16292	3%	Negligible

Ref	Link	2028 B + C AADT	2028 B + C + D AADT	AADT % Increase	Impact
5	A506 Valley Road S	42,600	43,666	2%	Negligible
6	A506 Valley Road	39,035	41,764	6%	Negligible
7	A506 Valley Road	23,296	24,767	6%	Negligible
8	Whitefield Drive	14,446	14,489	0%	Negligible
9	Kirkby Row	13,968	13,990	0%	Negligible
10	A506	22,025	22,345	1%	Negligible
11	A5208	24,349	24,509	1%	Negligible
12	A5208 County Road	20,127	20,267	1%	Negligible
13	A5208 County Road	20,380	21,062	3%	Negligible
14	A5208 County Road	21,555	22,237	3%	Negligible
15	A5208	24,008	24,658	2%	Negligible
16	Cherryfield Drive	11,006	12,648	14%	Negligible
17	Cherryfield Drive	10,630	11,781	10%	Negligible
18	Cherryfield Drive	8,235	8,254	0%	Negligible
19	Cherryfield Drive	4,783	5,539	14%	Negligible
20	Bewley Drive	9,696	9,969	3%	Negligible
21	Bewley Drive	9,696	9,995	3%	Negligible
22	Old Rough Lane	13,133	13,170	0%	Negligible
23	Webster Drive	7,598	8,440	10%	Negligible
24	Moorgate Road North	17,676	17,974	2%	Negligible
25	M57	68,370	69,564	2%	Negligible
26	M57	63,427	63,896	1%	Negligible
27	J6 M57 Circulatory	17,392	18,135	4%	Negligible
28	J6 M57 Circulatory	22,776	23,942	5%	Negligible
29	J6 M57 Circulatory	9,263	10,106	8%	Negligible
30	J6 M57 Circulatory	11,201	11,201	0%	Negligible

- 6.87 Table 6.10 shows that the level of proportional impact, in terms of operational development traffic is 'negligible' across all links when compared to the Magnitude of Impact criteria summarised in Table 6.4.
- 6.88 Reflecting on the above, the operational impact on the highway network is therefore considered to be negligible; accordingly, no further detailed assessment of specific environmental effects is deemed necessary.

Additional Mitigation / Enhancement Measures

Construction Phase

- 6.89 Best practice mitigation measures will be adopted through implementation of a Construction Environmental Management Plan (CEMP) for the proposed development, which will be secured by an appropriate planning condition. The CEMP will set out the full construction methodology including details of HGV routing and hours of operation and will be submitted to SMBC for their approval prior to construction commencement.
- 6.90 It is envisaged that the CEMP will include the following items:
- Construction Travel Plan;
 - Agreed vehicle routing plan;
 - Agreed hours of construction operation;
 - Details of wheel washing facilities; and,
 - Details of road sweeping / cleaning.
- 6.91 In terms of the construction workforce accessing the Site, a Construction Travel Plan (CTP) will be developed minimising the impact of staff travel to the Site during construction. This CTP will be developed to include initiatives such as car sharing and sufficient parking/compound space in order to contain parking on site.

Operational Phase

- 6.92 As the magnitude of effect during the operational phase has been assessed to be negligible, no further mitigation above the embedded mitigation is deemed to be necessary.

Residual Effects

- 6.93 Table 6.9 and Table 6.10 shows that the level of proportional impact, in terms of construction and operational development traffic is 'negligible' across all links when compared to the Magnitude of Impact criteria summarised in Table 6.4.
- 6.94 When considering the embedded mitigation measures, which are likely to further reduce the impact of the traffic and transport effects of the proposed development, it is considered that all residual traffic and transport effects of severance, fear and intimidation, pedestrian delay and pedestrian amenity are all **negligible – not significant**.
- 6.95 Driver delay and highway safety were assessed within the TA (Appendix 6.1).
- 6.96 The highway safety assessment concluded that the proposed development would not have a detrimental impact upon highway safety, therefore the residual effects for highway safety are considered to be **negligible – not significant**. As movements during the construction phase can be managed to avoid peak pedestrian and network periods, the residual highway safety effect is negligible-not significant during this period.
- 6.97 The TA (Appendix 6.1) concludes that the proposed development would not have a detrimental impact upon highway capacity. Therefore, the residual driver delay effect during the operational phase is considered to be **negligible – not significant**. As movements during the construction phase can be managed to avoid network peak periods, the residual driver delay effect during this period is also considered to be **negligible-not significant**.
- 6.98 Table 6.11 provides a summary of the residual environmental effects.

Table 6.11: Residual Effects Summary

Description of Effect	Embedded Mitigation	Potential Effect (inc. Significance)	Further Mitigation	Residual Effect (inc. Significance)
Construction				
Severance	n/a	Negligible	CEMP	Negligible – Not significant
Pedestrian Delay	n/a	Negligible	CEMP	Negligible – Not significant
Non-Motorised User Amenity	n/a	Negligible	CEMP	Negligible – Not significant
Fear and Intimidation	n/a	Negligible	CEMP	Negligible – Not significant
Driver Delay	n/a	Negligible	CEMP	Negligible – Not significant
Highway Safety	n/a	Negligible	CEMP	Negligible – Not significant
Operation				
Severance	Travel plan, cycle parking, EVCP and internal pedestrian / cycle routes	Negligible	No further mitigation required	Negligible – Not significant

Description of Effect	Embedded Mitigation	Potential Effect (inc. Significance)	Further Mitigation	Residual Effect (inc. Significance)
Pedestrian Delay	Travel plan, cycle parking, EVCP and internal pedestrian / cycle routes	Negligible	No further mitigation required	Negligible – Not significant
Non-Motorised User Amenity	Travel plan, cycle parking, EVCP and internal pedestrian / cycle routes	Negligible	No further mitigation required	Negligible – Not significant
Fear and Intimidation	Travel plan, cycle parking, EVCP and internal pedestrian / cycle routes	Negligible	No further mitigation required	Negligible – Not significant
Driver Delay	Travel plan, cycle parking, EVCP and internal pedestrian / cycle routes	Negligible	Detailed within the TA (Appendix 6.2)	Negligible – Not significant
Highway Safety	Travel plan, cycle parking, EVCP and internal pedestrian / cycle routes	Negligible	No further mitigation required	Negligible – Not significant

Conclusions

- 6.99 The proposed development will not result in any significant adverse effects on any of the highway links assessed within this ES chapter during the construction or operational phases.

Assessment of Cumulative Effects

Approach

- 6.100 The assessment of cumulative impacts has already been completed in this assessment via the inclusion of committed development traffic flows derived from approved / publicly available TAs and TEMPRO traffic growth factors.
- 6.101 Table 6.12 provides a summary of the committed developments considered within the cumulative assessment for traffic and transport.

Table 6.12: Cumulative Sites

Site Ref.	Application No.	Distance and Direction	Proposal	Scoped-in / Scoped-out	Justification
1.	20/00193/FUL	500m southwest	266no. Residential dwellings	Scoped in	Generating traffic on links assessed within the EIA and TA. Requested at scoping with KMBC.
2.	20/00124/FUL	2km northeast	Erection of B8 Warehouse and distribution centre	Scoped in	Generating traffic on links assessed within the EIA and TA. Requested at scoping with KMBC.
3.	19/00337/OUT	1.5km northeast	Industrial led mixed use development	Scoped in	Generating traffic on links assessed within the EIA and TA. Requested at scoping with KMBC.

Likely Residual Cumulative Effects and their Significance

Construction

- 6.102 As the construction traffic assessment described in this chapter will result in a negligible effect, any significant adverse effect could not be attributed to the proposed development.
- 6.103 Given the phased delivery of the proposed development, there is potential for traffic associated with occupation and ongoing construction to affect the local highway network, simultaneously, the operational and construction traffic assessments described in this chapter will both result in environmental effects of **negligible – not significant**.
- 6.104 This demonstrates that the cumulative effects of the construction and operational phases would be **negligible – not significant**.

The Completed and Operational Development

- 6.105 As the operational traffic assessment described in this chapter will result in a negligible effect, any significant adverse effect could not be attributed to the proposed development.
- 6.106 Given the phased delivery of the proposed development, there is potential for traffic associated with occupation and ongoing construction to affect the local highway network, simultaneously, the operational and construction traffic assessments described in this chapter will both result in environmental effects of **negligible – not significant**.
- 6.107 This demonstrates that the cumulative effects of the construction and operational phases would be **negligible – not significant**.

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