

TRANSPORT & ACCESSIBILITY PLANNING

Hargreaves Land Limited
Planning Application 1 at Lincolnshire Lakes (North),
Scunthorpe, North Lincolnshire
Transport Assessment

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1. INTRODUCTION & NON-TECHNICAL SUMMARY

Instruction

- 1.1 BWB Consulting Limited (BWB) has been appointed by Hargreaves Land Limited ('the Client') to provide highways and transport advice to support a hybrid planning application for a proposed residential-led mixed use development ('the Proposed Development') located on land to the east of the M181/A1077(M) in Scunthorpe, North Lincolnshire, known as 'Lincolnshire Lakes – Planning Application 1' ('the Site').
- 1.2 This report presents the Transport Assessment (TA) for the development and should be read in conjunction with the Framework Travel Plan (report reference: **LLP1-BWB-GEN-XX-RP-TR-0005-S2-P3**) which has been produced separately to accompany the hybrid planning application.
- 1.3 The Site falls under the jurisdiction of North Lincolnshire Council (NLC), who is both the planning and highway authority for the Site. A copy of the indicative site layout is included within **Appendix 1**.

Background

- 1.4 The Site sits within the wider Lincolnshire Lakes allocation, specifically sitting within 'Village 1' as set out in the Lincolnshire Lakes Area Action Plan (AAP), which was adopted in 2016. Further information on the AAP is presented in **Section 2**.
- 1.5 The Site has not been subjected to a planning application since the adoption of the AAP.
- 1.6 To the south of the Site, a section of the AAP was subjected to a planning application for 2,500 dwellings in 2015 (application reference) PA/2015/0396. The application was granted permission for the following:

'Outline planning permission for the development of up to 2500 new homes including a village centre (Use Classes A1, A2, A3, A4, A5, B1 and D1), a health care facility (Use Class D1), community facilities (Use Class D1), a 3 form of entry primary school (Use Class D1), new roads and footpaths, informal areas of open space, play spaces and new wildlife habitats, water bodies and wetlands, with all matters reserved for subsequent approval at Lincolnshire Lakes, M181 from M180 to A18, Burringham'.
- 1.7 The above permission (granted in 2021) required the first phase Reserved Matters Application (RMA) to be submitted within 3 years of permission granted, and thus the permission has expired. A new application was submitted in 2023 (under reference: PA/2023/1124), The new application is seeking permission for the following:

'Development of 593 dwellings, 200 sqm commercial unit (use class E) and lake, along with associated infrastructure, including landscaping, public open space and play area, pedestrian and cycle links, pumping station and sub-station'.
- 1.8 At the time of writing this report, the above application (hereby known as the 'Keepmoat Planning Application') is still to be determined.

Summary of Proposals

1.9 The Proposed Development comprises of a hybrid planning application for a residential-led mixed use development located on land to the east of the M181/A1077(M) in Scunthorpe, North Lincolnshire. The description of the outline element is provided below:

'Outline planning application, with all matters reserved, for the development of up to 550 residential dwellings (Use Class C3), a local centre (Use Class E) and associated 'on-plot' landscaping, drainage and other infrastructure works'.

1.10 The outline element to be provided at the Site includes:

- Up to 550 dwellings.
- Up to 3,999sqm (gross external area (GEA)) of Use Class E within the Local Centre. Split as follows
 - Up to 2,499 sq.m (GEA) of 'main town centre uses' including retail, pub/family restaurant and gym (with a limit of up to 500sq.m (GEA) of Food Retail use).
 - Up to 1,500sqm of 'non-town centre uses' (including a Creche, Doctors Surgery GP with ancillary Pharmacy use).

1.11 The description of the detailed element is provided below:

'Full planning application for the construction of a new vehicular access off the M181/A1077(M) roundabout, a pedestrian and cycle link to Scotter Road, a foul pumping station, earthworks and 'off-plot' drainage, ecological and associated landscaping and infrastructure works'.

1.12 The full application will facilitate the access to the Proposed Development which in turn will enable access and delivery to the outline elements. Detailed access to the first housing plot will be provided as part of the full planning application.

1.13 Vehicular access will be via the A1077(M)/M181 roundabout along the Site's western boundary. The 7.3m wide spine road will provide the single point of access to the development parcels within the Phase 1 application. The layout does not inhibit the ability for the spine road to connect with Scotter Road to the east should this come forward as part of a future development phase.

1.14 A bus service will route through the Site (likely to be the diversion of the number 35 service) utilising the bus stops that will be installed on the spine road. The proposed service will be complimented by the ability for residents to make use of the North Lincolnshire Demand Responsive Transport service.

1.15 The Proposed Development will include a network of high-quality active travel infrastructure, including a wide Active Travel corridor alongside the northern side of Brumby Common Lane, linking walkers, wheelers and cyclists with Scunthorpe via a proposed segregated signalised crossing facility that is to be installed on Scotter Road.

- 1.16 The multi-modal access proposals are to be subjected to a Stage 1 Road Safety Audit, of which the audit and associated designer's response will be submitted during the application determination period.

Scoping Discussions

- 1.17 BWB initially engaged in pre-application scoping discussions with NLC and National Highways (NH) to agree key parameters of the TA (and Travel Plan) in 2023, for a development quantum of up to 450 dwellings.
- 1.18 NLC and NH provided a response to the initial scoping exercise in January 2024 and May 2024 respectively.
- 1.19 Ultimately, residential trip rates were agreed, with NH suggesting using AAP vehicle trip rates provided in the planning application referenced: PA/2015/0396.
- 1.20 In September 2024, BWB re-engaged with NLC and NH in advance of the submission of the hybrid planning application for up to 550 dwellings and associated non-residential land use.
- 1.21 Correspondence with NLC and NH (which includes BWB's scoping note, as well as NLC & NH's latest responses), is included in **Appendix 2**.
- 1.22 NLC is in the process of considering de-trunking the A1077(M), a stretch of motorway between the access roundabout and the Frodingham Grange roundabout to the north. The A1077(M) will facilitate vehicle access to the Site .
- 1.23 This Transport Assessment is structured as follows:
- **Section 2: Policy Context** – summarises the key national and local planning policies relating to transport within the context of the scale and location of the proposed development.
 - **Section 3: Existing Conditions** – describes the local highway network and the existing sustainable travel facilities.
 - **Section 4: Development Proposals** – provides details of the proposed development, access arrangements, parking provision and how the site will be serviced.
 - **Section 5: Trip Generation, Distribution and Assignment** – Quantifies the estimated multi-modal trip generation of the development proposals.
 - **Section 6: Accessibility to Key Services** – presents an assessment of access to key amenities and facilities within the local area, based on relevant design guidance criteria, is presented in Section 5.
 - **Section 7: Assessment Parameters** – Summarises the key assumptions relating to background traffic growth, committed developments and assessment year that have been accounted for as part of the TA.
 - **Section 8: Highway Impact Assessment** – Quantifies the traffic impact of the proposed development on the operation of the local highway network, and highlights that a sensitivity test will be provided as part of a TA Addendum.

- **Section 9: North Lincolnshire Area Action Plan Review** – Provides a review of the Proposed Development's adherence to the policies set out in the Lincolnshire Lakes Area Action Plan (adopted in 2016).
- **Section 10: Summary and Conclusions** – Summarises the findings of the report and offers conclusions in relation to the proposed development impact.

Summary of Assessment Findings and Conclusions

- 1.24 Vehicle trip generation has been derived via the use of residential trip rates used in the original AAP assessment (confirmed as acceptable by NLC and NH) and trip rates generated using the TRICS database for the non-residential elements. Appropriate non-primary trip proportions have been applied to the non-residential elements and multi-modal trips have been derived via a combination of local journey to work modal split and TRICS multi-modal trip data.
- 1.25 A modal split that aligns with NH's Vision and Validate approach targets a 20% reduction in Proposed Development vehicle trips. The high-quality network of active travel infrastructure, including the segregated wide corridor to Scotter Road and the segregated signalised crossing facilities will help to achieve the Vision and Validate scenario, along with the implementation of the Framework Travel Plan. The active travel infrastructure proposed will also aid ATE's ambitions target of 50% of short trips to be via walking, wheeling or cycling by 2030.
- 1.26 The active travel proposals will be supported by a bus route (likely to be the number 35 service) serving the Proposed Development upon occupation of the 200th dwelling, which will complement the ability for residents to make use of the North Lincolnshire DRT service, an on-demand service that site users will be able to make use of via an app to request trips from the Site to surrounding areas (including Scunthorpe Town Centre).
- 1.27 A review of the scheme's performance against ATE's 10 criteria within the planning application toolkit assessment demonstrates that the Proposed Development is committed to encouraging active travel to and from the Site, with a set of infrastructure proposed to be included as conditions within a forthcoming planning permission.
- 1.28 A review of PICs recorded within vicinity of the Site, at and the junctions assessed as part of the highway impact assessment demonstrates that there are no existing highway safety concerns that could be exacerbated by the Proposed Development.
- 1.29 A review of the Site's adherence to the policies set out in the Lincolnshire Lakes AAP has been provided, and demonstrates that scheme includes the multi-modal access requirements, and does not inhibit the ability for connections (including a vehicular connection to Scotter Road) to come forward as part of potential future phases. The Proposed Development's adherence to Policy T12: off-site highway improvements will be confirmed in a forthcoming TA Addendum given the below.
- 1.30 The impact of the Proposed Development has been assessed in 2027 (opening year) and 2036 (end of local plan) assessment scenarios. The assessment results highlighted that the proposed development could have an impact on the operation of the Frodingham Grange and Berkeley roundabouts. It is noted however that Berkeley roundabout is a junction that is already operating over capacity prior to the addition of

the development flows so any potential mitigation and / or contribution will be considered if required based on the percentage impact of the Proposed Development.

- 1.31 The highway assessment presented does not consider the 20% reduction in vehicle trips presented in the Vision and Validate scenario, therefore a forthcoming TA Addendum will present the Proposed Development's impact at the junctions within the highway study area where Proposed Development vehicle trips have been reduced by 20%.
- 1.32 Additionally, it is noted that the installation of the Burringham Road / M181 roundabout to the south of the Site could have an impact on routing choices for both base and Proposed Development traffic. A scenario that includes an operational Burringham Road / M181 roundabout and associated implementation of the 2500 dwellings associated with the Maltgrade committed scheme will be assessed as part of a sensitivity test, of which the findings will be provided within a forthcoming TA Addendum note.
- 1.33 Given the above, highway mitigation will be considered (if required) as part of the sensitivity test exercise and presented in a forthcoming TA Addendum.
- 1.34 Notwithstanding the above, subject to a positive outcome of the Vision and Validate and sensitivity test highway assessments the proposals accord to national and local policies and hence should be acceptable in highway terms to NLC and NH.

2. POLICY CONTEXT

Introduction

- 2.1 This section of the TA examines the context of the site and how this relates to the relevant transport and development planning policies and guidelines. It provides an overall spatial and planning context for the proposed development.
- 2.2 Policies have been adopted in national guidelines such as the Transport White Paper (2011) that seek to encourage more sustainable modes than the car and a planning system which places greater emphasis on the link between transport and land use planning policies to encourage transport decisions at a local level that are compatible with environmental and community goals and best reflect local circumstances and requirements.
- 2.3 The following national and local planning documents have been reviewed:
- The Transport White Paper (2011).
 - The National Planning Policy Framework (NPPF).
 - Circular 01/2022.
 - ATE.
 - CIHT "Better Planning, Better Transport, Better Places".
 - Local Transport Note 1/20.
 - Planning Practice Guidance (PPG).
 - The North Lincolnshire Local Plan.
 - North Lincolnshire Council Local Transport Plan 2011-2026.
 - North Lincolnshire Council Residential Roads Design Guide.
 - Lincolnshire Lakes Area Action Plan.

National Planning Policy

National Planning Policy Framework (NPPF)

- 2.4 The Government's National Planning Policy Framework (NPPF) replaced the majority of previous Planning Policy Statements (PPS) and Planning Policy Guidance Notes (PPG) documents on 27 March 2012 and was updated in December 2024. It sets out the Government's expectations and requirements from the planning system. It provides guidance for local councils to use when defining their own personal local and neighbourhood plans. This approach allows the planning system to be customised to reflect the needs and priorities of individual communities.
- 2.5 The NPPF defines the delivery of sustainable development through three roles:
- an economic objective.
 - a social objective; and

- an environmental objective.
- 2.6 These objectives should be delivered through the preparation and implementation of plans and the application of the policies in this Framework; they are not criteria against which every decision can or should be judged. Planning policies and decisions should play an active role in guiding development towards sustainable solutions, but in doing so should take local circumstances into account, to reflect the character, needs and opportunities of each area.
- 2.7 The NPPF states that *“Transport issues should be considered from the earliest stages of plan-making and development proposals, using a vision-led approach to identify transport solutions that deliver well-designed, sustainable and popular places. This should involve:*
- a) making transport considerations an important part of early engagement with local communities*
 - b) ensuring patterns of movement, streets, parking and other transport considerations are integral to the design of schemes and contribute to making high quality places*
 - c) understanding and addressing the potential impacts of development on transport networks*
 - d) realising opportunities from existing or proposed transport infrastructure and changing transport technology and usage – for example in relation to the scale, location or density of development that can be accommodated*
 - e) identifying and pursuing opportunities to promote walking, cycling and public transport use; and*
 - f) identifying, assessing and taking into account the environmental impacts of traffic and transport infrastructure – including appropriate opportunities for avoiding and mitigating any adverse effects, and for net environmental gains”.*
- 2.8 Paragraph 110 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”.*
- 2.9 The NPPF requires planning policies to:
- a) “Support an appropriate mix of uses across an area, and within larger scale sites, to minimise the number and length of journeys needed for employment, shopping, leisure, education, and other activities.*
 - b) be prepared with the active involvement of local highways authorities, other transport infrastructure providers and operators and neighbouring councils, so that strategies and investments for supporting sustainable transport and development patterns are aligned.*

- c) *identify and protect, where there is robust evidence, sites and routes which could be critical in developing infrastructure to widen transport choice and realise opportunities for large scale development.*
 - d) *provide for high quality walking and cycling networks and supporting facilities such as cycle parking (drawing on Local Cycling and Walking Infrastructure Plans).*
 - e) *provide for any large-scale transport facilities that need to be located in the area, and the infrastructure and wider development required to support their operation, expansion and contribution to the wider economy".*
- 2.10 In assessing sites that may be allocated for development in plans, or specific applications for development, NPPF paragraph 115 states that *"it should be ensured that:*
- a) *sustainable transport modes are prioritised taking account of the vision for the site, the type of development and its location.*
 - b) *safe and suitable access to the site can be achieved for all users.*
 - c) *the design of streets, parking areas, other transport elements and the content of associated standards reflects current national guidance, including the National Design Guide and the National Model Design Code; and*
 - d) *any significant impacts from the development on the transport network (in terms of capacity and congestion), or on highway safety, can be cost effectively mitigated to an acceptable degree through a vision-led approach".*
- 2.11 Paragraph 116 of the NPPF goes on to state that *"Development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network, following mitigation, would be severe, taking into account all reasonable future scenarios"*
- 2.12 Within the context of the NPPF, paragraph 117 sets out that *"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.*
 - b) *address the needs of people with disabilities and reduced mobility in relation to all modes of transport.*
 - c) *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.*
 - d) *allow for the efficient delivery of goods, and access by service and emergency vehicles; and*

e) *be designed to enable charging of plug-in and other ultra-low emission vehicles in safe, accessible, and convenient locations*".

2.13 Paragraph 118 seeks to ensure that, *"All developments that will generate significant amounts of movement should be required to provide a travel plan, and the application should be supported by a transport statement or transport assessment so that the likely impacts of the proposal can be assessed and monitored"*.

Circular 01/2022

2.14 On 23 December 2022, the Department for Transport (DfT) issued new policy on how the National Highways (NH) will engage with development industries, public bodies, and communities to assist the deliver sustainable development whilst safeguarding the primary function and purpose of the strategic road network in England.

2.15 Circular 01/2022 'The Strategic Road Network and the Delivery of Sustainable Development' replaces the policies set out in the DfT Circular 02/2013 of the same title. The purpose of the Circular is:

"To enable safe, reliable, predictable, efficient, often long-distance journeys of both people (whether as drivers or passengers) and goods in England between our:

- *Main centres of population.*
- *Major ports airports and rail terminals.*
- *Geographically peripheral regions of England; and*
- *Chief cross-border routes to Scotland and Wales"*.

2.16 The principles of sustainable development section highlight the importance of locating developments in sustainable locations and prioritising modes other than the private car to make efficient use of the overall transport network without the need for significant highway infrastructure improvements.

2.17 Paragraph 11 defines sustainable development as *"encouraging economic growth while protecting the environment and improving safety and quality of life for current and future generations"*. Paragraph 11 goes on to state that NH *"has an important role to play in the drive towards zero emission transport through its commitment to net zero maintenance and construction emissions by 2040 and net zero road user emissions by 2050, and its role as a statutory consultee in the planning system"*.

2.18 Paragraph 12 states that *"New development should be facilitating a reduction in the need to travel by private car and focused on locations that are or can be made sustainable. In this regard, recent research on the location of development found that walking times between new homes and a range of key amenities regularly exceeded 30 minutes, reinforcing car dependency. Development in the right places and served by the right sustainable infrastructure delivered alongside or ahead of occupancy Must be a key consideration when planning for growth in all local authority areas"*.

2.19 Paragraph 13 goes on to state: *"As set out in the Transport Decarbonisation Plan, Gear Change, Bus Back Better and the second Cycling and Walking Investment Strategy,*

walking, wheeling, cycling and public transport must be the natural first choice for all who can take it. However, where developments are located, how they are designed and how well delivery and public transport services are integrated has a huge impact on people's mode of travel for short journeys". It goes on to state that NH "will therefore expect strategic policy-making authorities and community groups responsible for preparing local and neighbourhood plans to only promote development at locations that are or can be made sustainable and where opportunities to maximise walking, wheeling, cycling, public transport and shared travel use have been identified".

- 2.20 Paragraph 15 states: "The Transport Decarbonisation Plan and the Future of Freight Plan also recognise that local planning and highway authorities need help when planning for sustainable transport and developing innovative policies to reduce car dependency. This includes moving away from transport planning based on predicting future demand to provide capacity ('predict and provide') to planning that sets an outcome communities want to achieve and provides the transport solutions to deliver those outcomes (vision-led approaches including 'vision and validate,' 'decide and provide' or 'monitor and manage)". It goes on to state that NH "will support local authorities in achieving this aim through its engagement with their plan-making and decision-taking stages, while recognising the varying challenges that will be presented by certain sites based on their land use, scale and/or location".
- 2.21 In terms of 'Assessment of Development Proposals', paragraph 47 states that NH will "engage with local planning authorities and development promoters at the pre-application stage on the scope of transport assessments/statements and travel plans. This process should determine the inputs and methodology relevant to establishing the potential impacts on the SRN and net zero principles that will inform the design and use of the scheme. Development promoters are strongly encouraged to engage with the company to resolve any potential issues and maximise opportunities for walking, wheeling, cycling, public transport and shared travel, as early as possible".
- 2.22 Paragraph 48 advises that "where a transport assessment is required, this should start with a vision of what the development is seeking to achieve and then test a set of scenarios to determine the optimum design and transport infrastructure to realise this vision. Where such development has not been identified in an up-to-date development plan (or an emerging plan that is at an advanced stage [footnote 19]), developers should demonstrate that the development would be located in an area of high accessibility by sustainable transport modes [footnote 20] and would not create a significant constraint to the delivery of any planned improvements to the transport network or allocated sites".
- 2.23 Paragraph 49 goes on to advise that "a transport assessment for consideration by the company must also consider existing and forecast levels of traffic on the SRN, alongside any additional trips from committed developments that would impact on the same sections (link or junction) as the proposed development. Assumptions underpinning projected levels of traffic should be clearly stated to avoid the default factoring up of baseline traffic. The scenario(s) to be assessed, which depending on the development and local circumstances may include sensitivity testing, should be agreed with the company; where a scenario with particularly high or low growth is proposed, this should be supported by appropriate evidence. Planned improvements to the SRN or local road

network should also be considered in any assessment where there is a high degree of certainty that this will be delivered”.

- 2.24 Paragraph 50 sets out the assessment period and states: *“An opening year assessment to include trips generated by the proposed development, forecasted growth, and committed development shall be carried out to establish the residual transport impacts of a proposed development. For multi-phase developments, additional assessments shall be provided based on the opening of each phase”.*
- 2.25 Paragraph 51 goes on to set out that *“where a transport assessment indicates that a development would have an unacceptable safety impact or the residual cumulative impacts on the SRN would be severe, the developer must identify when, in relation to the occupation of the development, transport improvements become necessary”.*

Planning Practice Guidance (PPG): Travel Plans, Transport Assessments and Statements in Decision Making

- 2.26 Guidance on Transport Assessments (GTA) was published in March 2007 but as of October 2014, has been achieved and replaced with Planning Practice Guidance (PPG).
- 2.27 PPG sets out when Travel Plans, Transport Assessments and Statements for developments are required and was published in March 2014. PPG was produced to assist stakeholders in determining whether an assessment may be required and, if so, what the level and scope of that assessment should be. It provides guidance on the content and preparation of Transport Assessments and Transport Statements and the promotion of smarter choices via Travel Plans.
- 2.28 Planning Practice Guidance (PPG) suggests that the Transport assessment should be:
- Proportionate to the size and scope of the proposed development to which they relate and build on existing information wherever possible.
 - Established at the earliest practicable possible stage of a development proposal.
 - Tailored to particular local circumstances (other locally determined factors and information beyond those which are set out in this guidance may need to be considered in these studies provided there is robust evidence for doing so locally).
- 2.29 In determining whether a Travel Plan will be needed for a proposed development, PPG states that local planning authorities should take into account the following considerations:
- The Travel Plan policies (if any) of the Local Plan.
 - The scale of the proposed development and its potential for additional trip generation (smaller applications with limited impacts may not need a Travel Plan).
 - Existing intensity of transport use and the availability of public transport.
 - Proximity to nearby environmental designations or sensitive areas.
 - Impact on other priorities/ strategies (such as promoting walking and cycling).

- The cumulative impacts of multiple developments within a particular area.
- Whether there are particular types of impacts around which to focus the Travel Plan (e.g., minimising traffic generated at peak times); and
- Relevant national policies.

Active Travel England

2.30 (ATE is a government body in England that plays a crucial role in promoting and supporting walking, cycling, and other forms of active travel. Its primary aim is to encourage healthier, greener, and more sustainable modes of transportation. Below is an overview of its main responsibilities and objectives:

2.31 Funding and Investment in Active Travel:

- **Allocating Funding:** ATE oversees and distributes government funding for walking and cycling infrastructure projects.
- **Monitoring Outcomes:** It ensures that investments lead to meaningful improvements in active travel rates and public health.

2.32 Designing and Approving Infrastructure:

- **Standards Enforcement:** ATE sets and enforces high design standards for active travel infrastructure, ensuring that projects prioritize safety, accessibility, and user-friendliness.
- **Project Oversight:** It approves or rejects local authority plans for cycling and walking infrastructure based on compliance with these standards.

2.33 Local Authority Support:

- **Guidance and Training:** ATE provides guidance to local councils on designing effective active travel projects.
- **Encouraging Best Practices:** It works with local authorities to share knowledge and promote successful models for active travel.

2.34 Advocacy for Sustainable Transport:

- **Policy Influence:** ATE advises the government on active travel policy to ensure it aligns with broader goals like reducing carbon emissions, improving public health, and cutting congestion.
- **Raising Awareness:** The body promotes the benefits of active travel to the public and organizations, advocating for its integration into everyday life.

2.35 Monitoring and Reporting:

- **Assessing Impact:** ATE monitors the success of projects and evaluates their contributions to increasing active travel, reducing car dependency, and achieving climate goals.
- **Accountability:** It reports progress to the government and ensures transparency in how funding is used.

2.36 Climate and Health Goals:

- ATE is aligned with England's broader goals to tackle climate change by reducing emissions from transport and improving public health through increased physical activity.

2.37 Vision:

- Active Travel England envisions creating an environment where walking and cycling are practical, safe, and attractive choices for people of all ages and abilities, helping to create cleaner, healthier, and more connected communities.

2.38 It supports the UK Government's broader agenda to:

- Achieve net-zero carbon emissions.
- Improve urban design and public spaces.
- Reduce reliance on cars, particularly for short trips.

ATE Planning Application Assessment Toolkit

2.39 The ATE Planning Application Assessment Toolkit is a framework used to assess the extent to which new development proposals align with active travel principles. This toolkit ensures that developments prioritize walking, cycling, and sustainable transport, contributing to healthier, greener, and more accessible communities. Key elements include:

2.40 Assessment Criteria: The toolkit evaluates planning applications based on:

- **Connectivity:** How well the development links to existing walking and cycling networks.
- **Safety:** Measures to ensure safe infrastructure for pedestrians and cyclists.
- **Accessibility:** Inclusive design catering to people of all ages and abilities.
- **Integration with Public Transport:** Proximity to and seamless connection with public transit options.
- **Reduction in Car Dependency:** Encouragement of active and sustainable transport over car usage.

2.41 **Design Standards:** Applications are assessed against national design standards, such as the Department for Transport's Cycle Infrastructure Design (LTN 1/20), which prioritizes safe, direct, and coherent cycling infrastructure (and assesses the quality of local cycle provision using the Cycle Level of Service (Clos) and Junction Assessment Tool (JAT) toolkits.

2.42 Scoring System:

- The toolkit uses a scoring system to identify:
- Strengths and weaknesses in proposals.
- Necessary improvements to comply with active travel goals.

2.43 Recommendations and Conditions:

- ATE may suggest adjustments to improve active travel provisions in plans.
- It can recommend conditions for approval, requiring specific active travel measures before granting consent.

2.44 Role in Decision-Making: ATE's assessment influences planning decisions, ensuring developments align with national active travel and sustainability objectives.

2.45 By integrating this toolkit, ATE ensures that new developments actively support walking and cycling, reduce emissions, and enhance quality of life.

2.46 The ATE toolkit has been used to review the proposed development's active and sustainable travel opportunities, and a summary is presented in this TA.

CIHT "Better Planning, Better Transport, Better Places" (2019)

2.47 The CIHT published the "Better Planning, Better Transport, Better Places" guidance document in 2019, which highlights the need for development to "Decide and Provide" when it comes to assessing the impact of a proposed development on the local multi-modal highway network.

2.48 Government transport policies have traditionally focused on predicting future demand to provide capacity ('predict and provide') but in recent years have contemplated new approaches which may provide the opportunity for change by seeking to consider uncertainty more explicitly.

2.49 The work carried out by CIHT under the FUTURES banner, for example, has suggested a better approach would be to 'decide and provide', with the use of scenario modelling as a technique to decide what sort of outcomes should be set and provide the transport solutions to deliver those outcomes.

Local Transport Note 1/20 (2020)

2.50 The Local Transport Note (LTN) 1/20 guidance is intended to support the delivery of high-quality cycle infrastructure to deliver the ambition of making cycling and walking the natural choices for short journeys or as part of a longer journey to increase cycling and walking levels. The document states the following:

"The design of all new cycle infrastructure in Peterborough shall comply with the standards set out in LTN 1/20, 'Cycle Infrastructure Design', published by the Department for Transport. If the standards laid out in LTN 1/20 cannot be met the scheme will not proceed without the agreement from group leaders and key stakeholder."

2.51 LTN 1/20 states that:

"There are opportunities to specify and enforce the requirement for a good standard of cycle provision to developers and contractors through planning briefs and supplementary planning guidance. The requirements should include the provision of new cycle routes connecting to and through developments and enhance the provision

for cycling when altering existing highway links and junctions. It is generally not acceptable to maintain an existing poor level of service when undertaking highway improvement schemes.

- 2.52 The planning and design of site access, internal network, and any off-site highway improvements for new development will be considered within a TA. It is expected that smaller developments that do not require a TA should still provide and / or contribute towards new and improved cycle infrastructure.
- 2.53 Developments that do not adequately make provision for cycling should not be approved. Larger sites should provide a densely spaced network with around 250m between designated cycle routes.
- 2.54 Proposed cycle infrastructure should align with the five Core Design Principles of being demonstrably Coherent, Direct, Safe, Comfortable, and Attractive”.
- 2.55 This TA considers the site's connectivity from a cycling perspective and provides a review of access to / from Scunthorpe Town Centre and the ASDA superstore to the south.
- 2.56 Accessibility analysis should consider the thresholds contained within the following guidance documents as a starting point:
- CIHT Planning for Walking (2015) – walking neighbourhoods are typically characterised as having a range of facilities within a 10-minute walk or around 800m.
 - (ATE Planning Toolkit (2023) – there should be a sufficient number and variety of local amenities within an 800m or 10-minute walk of all areas of the site via an accessible walking route.
 - All locations within the site should be within a 400m walk of a public transport station or stop. There should be at least one public transport route secured or proposed for larger sites that can be fully operational on the first day of occupation or in accordance with the phasing plan.
 - LTN 1/20 (2020) – two out of three personal trips are less than 5 miles (8 kilometres) in length, which is an achievable distance to cycle for most people. Three quarters of children live within a 15- minute cycle ride of a secondary school and 90% of children live within a 15-minute walk or public transport ride of a primary school.
- 2.57 CIHT Buses in Urban Developments (2018) sets out the recommended maximum walking distances to bus stops, which are shown in **Table 1**.

Table 1: Recommended Maximum Walking Distances to Bus Stops

Route Type	Maximum Walking Distance (m)
Core bus corridors with two or more high-frequency services.	500
Single high-frequency routes (every 12 minutes or better)	400
Less frequent routes	300
Town / city centres	250

- 2.58 The site has been assessed against the accessibility analysis thresholds described above. It should be noted that the propensity to walk or cycle is not influenced by distance alone and other factors such as journey quality, attractiveness of surroundings, landscaping, and safety should also be considered. It is therefore expected that there is commentary on how conducive the surrounding environment is for walking and cycling.
- 2.59 LTN 1/20 Cycle Level of Service (CLoS) and Junction Assessment Tool (JAT) assessments and ATE Area Check, Route Check, and Design Assistance Tools should be undertaken to determine whether the study area conforms to good practice and is safe and accessible for pedestrians and cyclists. These assessments provide a simple checklist for considering the issues facing cyclists within the study area and can help demonstrate whether active travel related mitigations can sufficiently improve conditions for local pedestrians and cyclists.
- 2.60 A review of the CLoS and JAT assessment tools has been undertaken as part of the TA, and the tools utilised where deemed required.

Local Planning Policy

North Lincolnshire Council Core Strategy (June 2011)

- 2.61 The Core Strategy, which was adopted in June 2011, sets out the long-term vision for North Lincolnshire and provides a plan for managing growth and development in the area up to 2026. The document states the following:

'The council will support and promote a sustainable transport system in North Lincolnshire that offers a choice of transport modes and reduces the need to travel through spatial planning and design and by utilising a range of demand and network management tools.

Transport Demand Management:

- *Reduce the need to travel and improve accessibility for all as part of all future spatial design within North Lincolnshire.*
- *Introduce appropriate demand management measures, to reduce car-based travel by ensuring highway safety, improving and encouraging walking and cycling and integrate such measures with a high-quality public transport network.*
- *Require that transport provision is integrated into the design of all development from the start of any development project.*
- *Apply maximum car parking standards and a car parking charging regime within the context of urban and rural renaissance.*
- *Support the progressive improvements of a high-quality public transport network by working in partnership with public transport operators and community transport providers to ensure a cohesive, flexible approach to improve the public transport network in North Lincolnshire and public transport connections beyond its boundaries.*

Transport Network Management:

- Support and encourage a Rural Transport Strategy for the rural parts of North Lincolnshire.
- Support the improvement and enhancement (significant upgrades) of transport inter-changes (relating to high quality facilities) in North Lincolnshire, principally at Scunthorpe, Barton upon Humber, Brigg and Humberside Airport.
- Integrate and enhance the whole spectrum of local transport services to feed into, and be complementary with, a high-quality public transport network.
- Support the development of a freight strategy to include lorry parking sites, HGV route management and provision of facilities for (and promote the benefits of) transferring freight delivery from road to rail and/or water transport, wherever practical, particularly in relation to the movement of freight to and from the South Humber Ports and Trent Wharves.
- Support the progressive introduction of network management technology to maximise existing and future capacity and investment across all transport modes, and to reduce congestion and delay for the benefit of both business and domestic travellers in North Lincolnshire.
- Establish local, regional and national priorities for transport infrastructure investment.
- Promote the continuation and improvement of North Lincolnshire's network of safe walking and cycling routes, including the Viking Way, the Public Rights of Way network and the National Cycle Route, as well as the local footway and cycleway network and linking them to key locations in the urban and rural areas of North Lincolnshire (communities, recreational and tourist areas).

North Lincolnshire Council Local Transport Plan 2011-2026

2.62 The North Lincolnshire Council Local Transport Plan 2011-2026 sets out a 15-year vision from 2011 – 2026 for local transport goals that will shape the future direction of transport in across the region.

2.63 The long-term vision for transport in North Lincolnshire is:

“A well-maintained transport system that supports sustainable communities within a safe and prosperous environment and which contributes to the wider environmental, economic and social wellbeing of the people who live and work in North Lincolnshire”.

2.64 The LTP Strategy has five Local Transport Goals, set out below:

- *‘Facilitate economic growth by targeting transport improvements in key development areas and along key strategic network corridors.*
- *Reduce transport related carbon dioxide emissions and protect and enhance the natural and built environment through sustainable transport solutions.*
- *Improve transport safety and security relating to death or injury from transport, in order to contribute towards safer and stronger communities.*
- *Provide equal opportunities through improvements in accessibility to key local hubs and services by sustainable modes of transport; and*

- *Enhance people's health and wellbeing through the promotion of healthy modes of travel and provision of a high-quality integrated transport system that contributes towards long term sustainable regeneration.'*

North Lincolnshire Area Action Plan

- 2.65 Adopted in May 2016, the Lincolnshire Lakes AAP sets out the following vision for Lincolnshire Lakes.

'The vision for Lincolnshire Lakes is to create an environment that will attract and retain skilled residents and investment in the sub-region and place North Lincolnshire on a new economic trajectory. The vision will create a major new sustainable waterside setting, with a strong network of linked blue and green spaces, high quality new social infrastructure, and a new commercial and leisure park, forming an urban fringe of national importance, providing a gateway entrance to the town and a focus for sustainable development'.

- 2.66 The purpose of the AAP is to establish a policy and delivery framework which provides clear and firm guidance to ensure that NLC's aims set out for the Lincolnshire Lakes are achieved and that the AAP is consistent with the established approach in the adopted Core Strategy. It does this by providing planning policy guidance on a number of important issues that go to the heart of good place-making.
- 2.67 The Proposed Development sits within what has been identified in the AAP as 'Village 1', one of six proposed villages identified within the Lincolnshire Lakes AAP that is to comprise up to 6,300 dwellings in total.
- 2.68 The AAP includes a set of policies that any future development should consider and adhere to. The highways and transport related policies are included in **Section 9**, and a response on how the Proposed Development has considered each policy is presented.

North Lincolnshire Council Residential Roads Design Guide

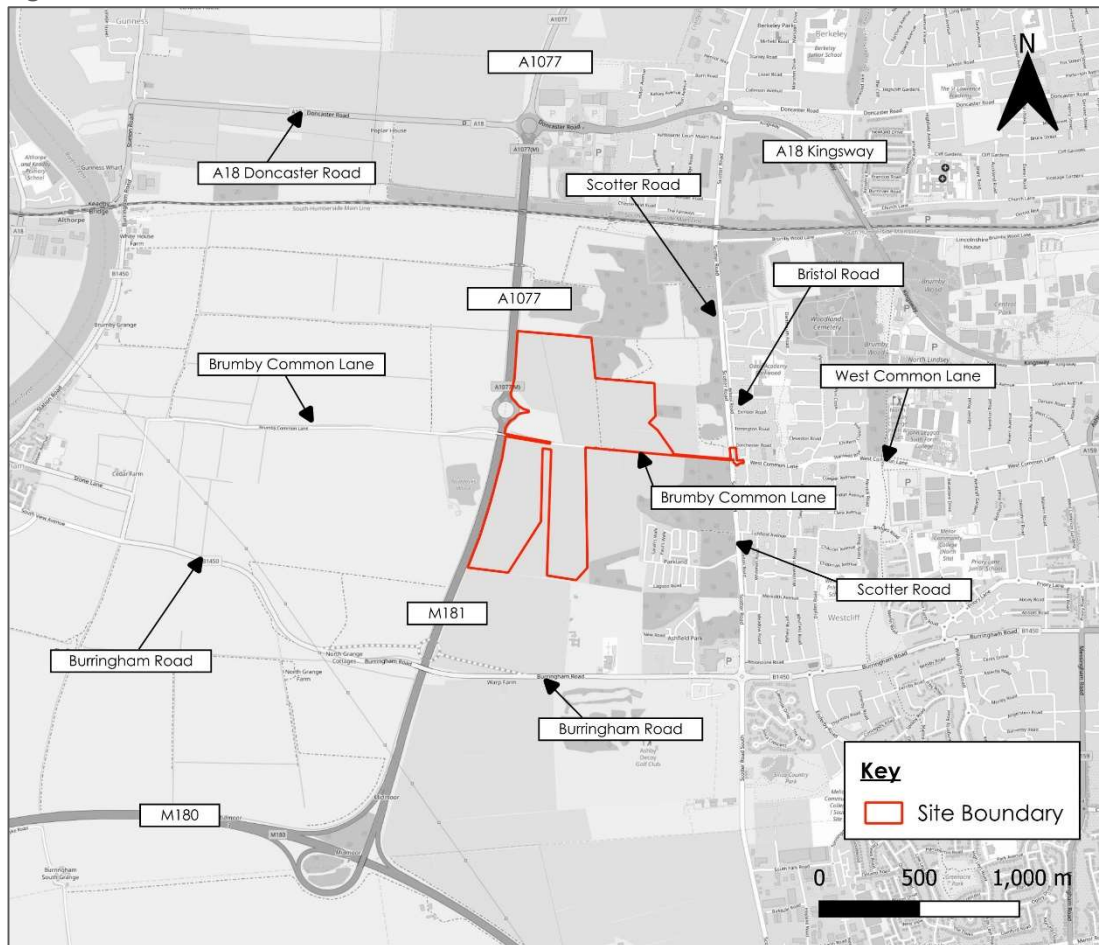
- 2.69 The NLC Residential Roads Design Guide was published in July 2018 and provides comprehensive guidance for designing residential road layouts. The guide emphasises early collaboration with the Highway Authority during the initial design stages to ensure that developments are safe, sustainable, and well-integrated into their surroundings.
- 2.70 The guide also aims *'to produce highway standards that enable designers to create safe, convenient, nuisance free, visually attractive and secure environments that are economic to construct and maintain'.*

3. EXISTING CONDITIONS

Site Location

- 3.1 The Site is located approximately 3.7km to the west of Scunthorpe Town Centre. The entirety of the Site falls within the NLC area.
- 3.2 **Figure 1** below displays the indicative location of the Proposed Development within the context of Scunthorpe and the surrounding area.

Figure 1: Indicative Site Location Plan – Extend red line



Existing Use

- 3.3 The Site is currently greenfield agricultural land and is bound by agricultural land to the north of the Site. Scotter Road is located to the east of the Site, and the M181/A1077(M), which routes along the west of the Site. Brumby Common Lane routes through the centre of the Site, connecting the B1450 with Scotter Road via a bridge of the M181.
- 3.4 As described previously, directly to the south of the Site is a residential development that is currently pending consideration under planning application PA/2023/1124 (The Keepmoat Planning Application' is seeking permission for the following:

'Development of 593 dwellings, 200 sqm commercial unit (use class E) and lake, along with associated infrastructure, including landscaping, public open space and play area, pedestrian and cycle links, pumping station and sub-station'.

Local Highway Network

M180

- 3.5 M180 is a key motorway which connects the North Lincolnshire region to the national motorway network, routing from the M18 in Doncaster to the A180 in Grimsby in a west / east direction. The M180 is predominately a two-way three-lane carriageway road, which is subject to a national speed limit of 70mph. Within the vicinity of the Site, the M181 connects M180 at Junction 3.

M181

- 3.6 M181 provides access from the M180 motorway to A1077 at the Site access roundabout. M181 is a two-lane dual carriageway which routes in a north / south direction and is subject to the national speed limit of 70mph. The M181 integrates with the A1077 at the Site access roundabout.

A1077(M)

- 3.7 A1077(M) provides access to M181 at the Site access roundabout and to the A18 to the north, routing in a north / south direction. A1077 is subject to a 50mph speed limit within the vicinity of the Site and is currently a dual carriageway between the Site access roundabout and Frodingham Grange roundabout to the north. The A1077(M) is currently classified as a motorway.

A18 Doncaster Road

- 3.8 The A18 routes east / west to the north of the Site routing from Scunthorpe Town Centre, heading west over the River Trent and onwards towards Doncaster. The A18 links with the A1077 via the 4-arm Frodingham Grange roundabout. The A18 provides access to Gallagher Retail Park, a key retail facility in the local area.

Scotter Road

- 3.9 To the east of the Site, Scotter Road routes from the south of Luneburg Way / Ferry Road / Scotter Road roundabout to North Moor Lane and routes in a north / south direction. Scotter Road is subject to a 30mph speed limit and is a single two-way carriageway road. The road connects with Brumby Common Lane and West Common Lane via a crossroads junction at the eastern edge of the Site. There is an existing pedestrian refuge island crossing on Scotter Road approximately 30m north of Brumby Common Lane.

Brumby Common Lane

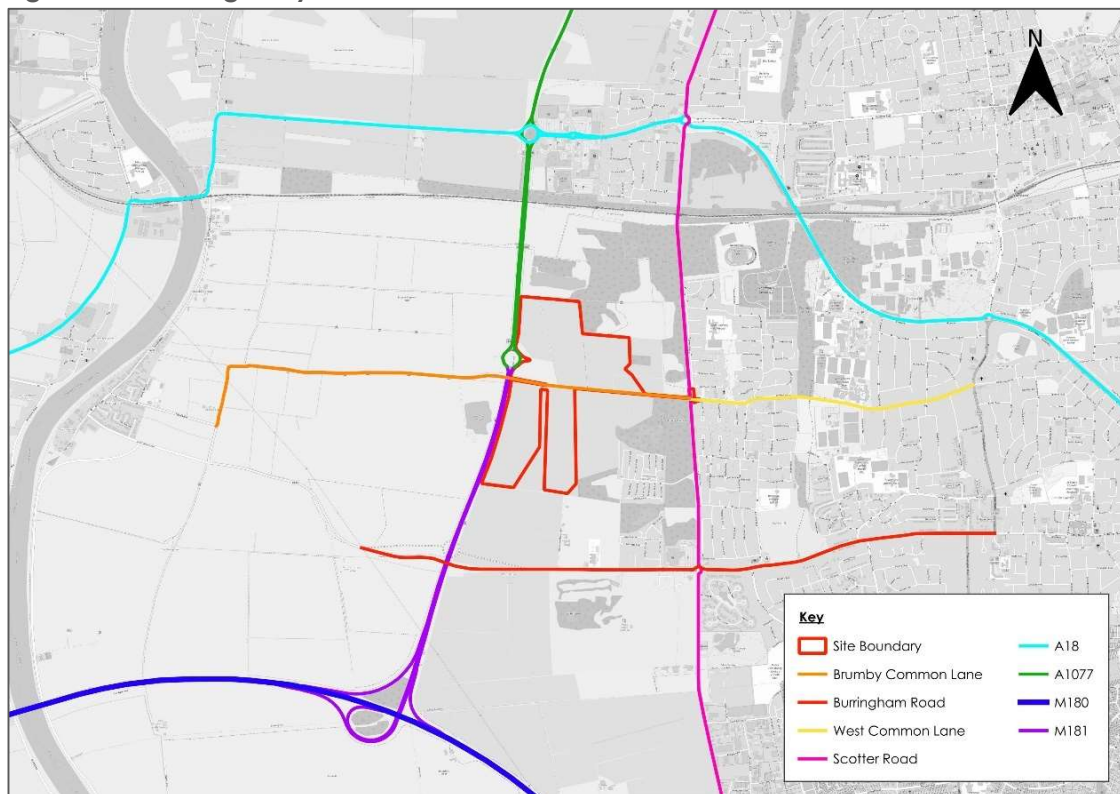
- 3.10 Brumby Common Lane runs in an east / west direction through the centre of the Site, connecting to the village of Burringham to the east and to the Scotter Road / West Common Lane / Brumby Common Lane priority crossroads to the west. Brumby

Common Lane varies in width between 4m and 5m and is subject to a national speed limit of 60mph, albeit given the nature of the road vehicle speeds are much lower. Brumby Common Lane currently provides access several agricultural fields and is lightly trafficked.

West Common Lane

- 3.11 West Common Lane connects to Scotter Road at the Scotter Road/West Common Lane/Brumby Common Lane priority crossroads. West Common Lane is subject to a 30mph speed limit and is approximately 9m wide, with central hatching narrowing the through lane widths.
- 3.12 There are 2.0m wide footways provided on both sides of the carriageway, with a segregated cycle path provided along the northern side of the carriageway and an on-street cycleway provided on the southern side of the carriageway.
- 3.13 A detailed plan of the local highway network is shown in **Figure 2**.

Figure 2: Local Highway Network



Pedestrian Infrastructure

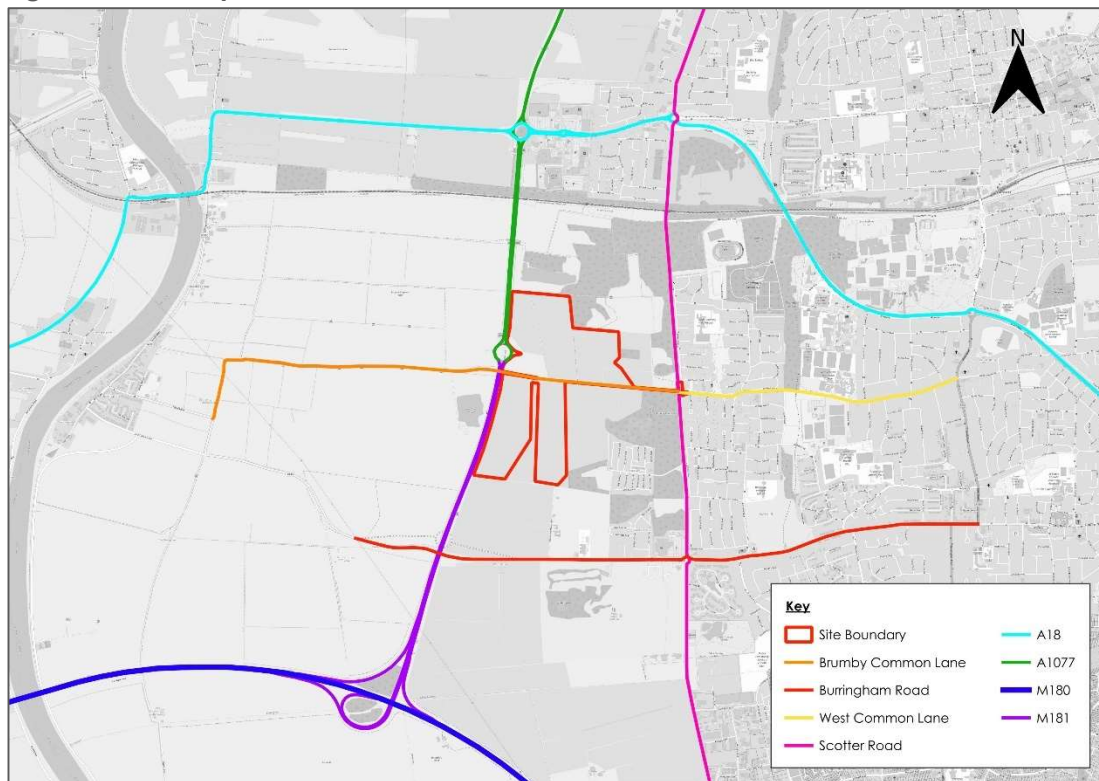
- 3.14 In relation to pedestrian travel within the vicinity of the Site, there is a footway on the western side of Scotter Road, to the north of the Scotter Road/Brumby Common Lane/West Common Lane junction.

- 3.15 This pedestrian footway connects into the pedestrian crossing provided on Scotter Road, which ties into the pedestrian footway/cycleway provided on the northern side of West Common Lane.
- 3.16 There are no footways provided on the western boundary of the Site, with neither the A1077 or M181 currently providing pedestrian access to the north or south of the Site.

Cycle Infrastructure

- 3.17 The local cycle routes in the immediate vicinity of the Site are shown below in **Figure 3**.

Figure 3: Local Cycle Routes



- 3.18 As shown above in **Figure 3**, there is a segregated pedestrian footway/cycleway provided along Scotter Road to the south-east of the Site, with this provision continuing to Scotter Road/Burringham Road roundabout. Furthermore, there is also a segregated cycle path provided along the northern side of the carriageway on West Common Lane, as well as an on-street cycleway provided on the southern side of the carriageway.
- 3.19 Additionally, to the east of the Site, there are on-street cycle paths provided on Bristol Road and West Common Lane which provide access to a pedestrian footway/cycleway on Scotter Road to the north of the Site.
- 3.20 Whilst there is a pedestrian refuge island located on the eastern boundary of the existing site, there is currently no formal off-road cycle crossing provision, cyclists are required to cross Scotter Road on-carriageway as part of the existing ghost island right turn lane arrangement.

Cycle Level of Service

- 3.21 As mentioned previously, the use of LTN 1/20 Cycle Level of Service (CLoS) assessment tool provides the ability to determine whether the local cycle network to key destinations is suitable for cyclists. These assessments provide a simple checklist for considering the issues facing cyclists within the study area and can help demonstrate whether active travel related mitigations can sufficiently improve conditions for cyclists.
- 3.22 BWB has used the LTN 1/20 CLoS tool to consider the suitability of the main cycle trips from the Site to Scunthorpe Town Centre to the east, and Asda Superstore to the south (the closest supermarket to the Site). The current CLoS score of both routes is shown below in **Table 2**.
- 3.23 Cycle Level of Service assessments are contained within **Appendix 5**.

Table 2: CLoS Summary

Overall	Cohesion	Directness	Safety	Comfort	Attractiveness	Overall
Site to Scunthorpe Town Centre	50%	60%	56%	75%	50%	58%
Site to ASDA Superstore	50%	90%	81%	75%	70%	76%

The quality of a route is reviewed against the following scoring bands:

- < 50% - low.
- 50% – 70%: Intermediate.
- >70% High.

- 3.24 **Table 2** shows that the current CLoS to Scunthorpe Town Centre from the existing site on Brumby Common Lane is 58%, sitting within the intermediate quality score, whilst the current CLoS to Asda Superstore from the existing site on Brumby Common Lane achieves a high score.
- 3.25 The majority of the route to Scunthorpe Town Centre (illustrated in **Appendix 5**) includes off-road cycle provision (on West Common Lane and A18 Kingsway) and along National Cycle Route 169, whilst sections of the route do require cyclists to share the carriageway with vehicles (i.e. along Church Lane and Exeter Road). It should be noted however that these streets are low vehicle residential streets that are suitable for on-carriageway cycling, and the streets with highway speeds (such as the A18 Kingsway) include suitable off-road cycle provision and crossing facilities.
- 3.26 The route to ASDA achieves a higher score overall given that the route between the Site's connection with Scotter Road, and the entrance to ASDA (via the Toucan crossing on Scotter Road to the east of ASDA) is an unbroken 3m shared off-street footway/cycleway.

- 3.27 Both assessments however highlighted that there is a fundamental connection issue directly outside the Site at the Brumby Common Lane / Scotter Road / West Common Lane junction, where cyclists are required to cross 3 lanes of traffic on-carriageway to access the shared footway/cycleway provision on West Common Lane.
- 3.28 The above constraint is addressed as part of the Proposed Development infrastructure proposals via the implementation of segregated pedestrian and cycle signalised crossing facilities. Details of the proposal are set out in **Section 4**.

Bus Services

- 3.29 In relation to bus accessibility, the Chartered Institute of Highways and Transportation's (CIHT) 'Buses in Urban Developments, January 2018' publication, recommends that the maximum walking distance to 'single high-frequency routes (every 12 minutes or better)' should be 400m. For less frequent bus routes, the maximum recommended walking distance is 300m, as displayed in **Table 3**.

Table 3: Recommended Maximum Walking Distances to Bus Stops

Situation	Maximum Walking Distance
Core bus corridors with two or more high-frequency services	500m
Single high-frequency routes (every 12 minutes or better)	400m
Less frequent routes	300m
Town/city centres	250m

- 3.30 **Figure 4** below shows the bus stops located within a 500m walking distance from the centre of the Site.

Figure 4: Existing Bus Services within 500m of Proposed Site



- 3.31 As shown above in **Figure 4** there are no bus stops located within 500m of the centre of the Site. The Dorchester Lodge bus stops on West Common Lane to the east of the Site are the closest in use bus stops, however the stops are over 800m from the centre of the Site.
- 3.32 The eastbound bus stop at Dorchester Lodge comprises of bus box marking, a bus shelter with seating and a flag post. The westbound bus stop has no facilities.
- 3.33 The following tables set out the typical weekday and weekend bus services as appropriate.

Table 4: Summary of Weekday Bus Services

Service Number and Route	First Service		Last Service		Daytime Frequency
	'Inbound' Route	'Outbound' Route	'Inbound' Route	'Outbound' Route	
3 – Scunthorpe Bus Station to Scunthorpe Bus Station	09:34	08:30	17:34	17:30	Hourly

Note: Timetable information obtained (January 2024), first/last service based on time service arrives/leaves the nearest bus stop to the development site.

Table 5: Summary of Saturday Bus Services

Service Number and Route	First Service		Last Service		Daytime Frequency
	'Inbound' Route	'Outbound' Route	'Inbound' Route	'Outbound' Route	
3 – Scunthorpe Bus Station to Scunthorpe Bus Station	09:34	08:30	17:34	17:30	Hourly

Note: Timetable information obtained (January 2024), first/last service based on time service arrives/leaves the nearest bus stop to the development site.

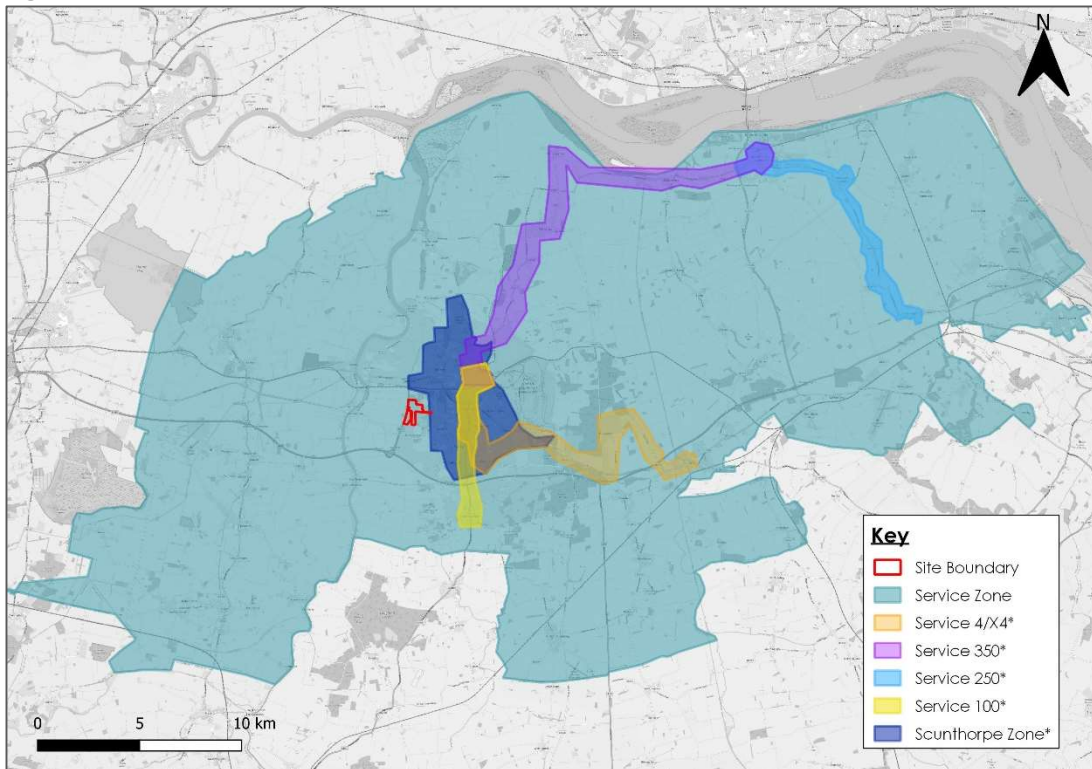
Table 6: Summary of Sunday Bus Services

Service Number and Route	First Service		Last Service		Daytime Frequency
	'Inbound' Route	'Outbound' Route	'Inbound' Route	'Outbound' Route	
3 – Scunthorpe Bus Station to Scunthorpe Bus Station	No Service	No Service	No Service	No Service	Hourly

Note: Timetable information obtained (January 2024), first/last service based on time service arrives/leaves the nearest bus stop to the development site.

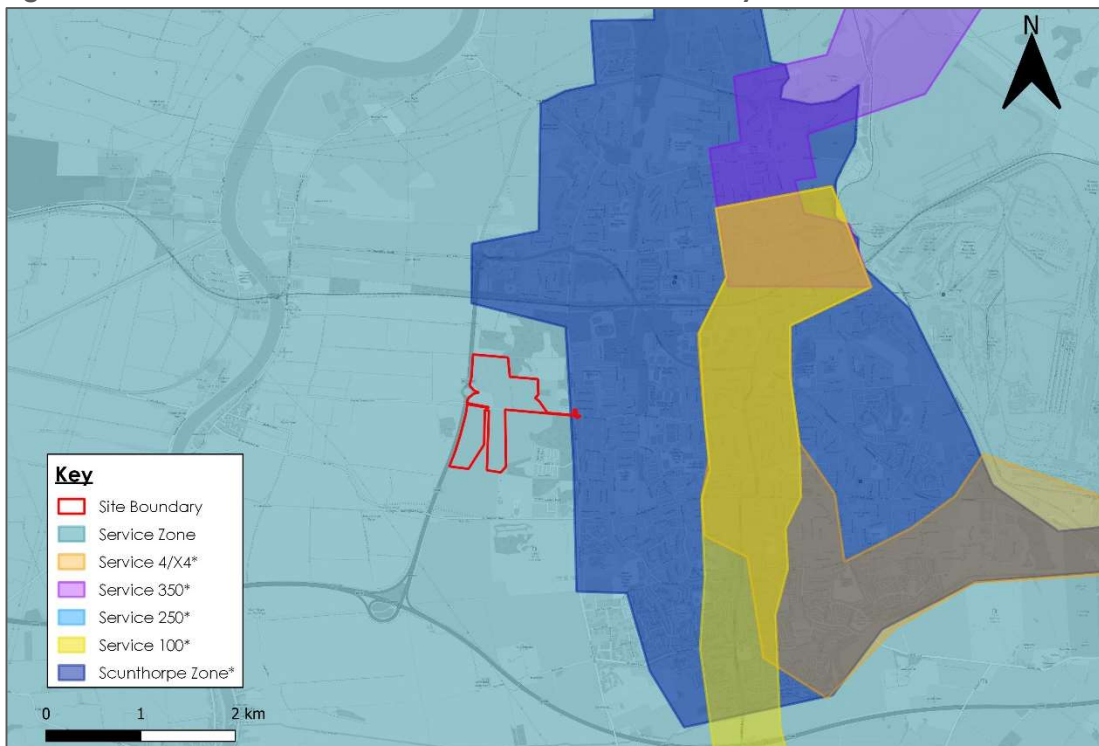
- 3.34 The above tables demonstrate that (notwithstanding the distance to the bus stop) the existing public transport services surrounding the Site are of poor quality.
- 3.35 It is noted however that Site sits within the North Lincolnshire Demand Responsive Transport (DRT) bus service catchment area. A flexible, on-demand public transport service that provides residents with the ability to use public transport to access Scunthorpe from rural and less-connected areas. The service covers 876sq. kilometres in total.
- 3.36 Launched in September 2020, the service is operated by Go-Ahead Group, in partnership with North Lincolnshire Council and technology provider Liftango. There are a total of seven vehicles which provide service between the hours of 7am-7pm on weekdays and between 8am-6pm on Saturdays. The dedicated app for the service provides 24-hour booking, live bus tracking and updates about the passenger's journey. The app also lets users know where regular bus services would be more suited for their journey, taking them to the relevant operator's website for timetable and ticketing information.
- 3.37 As there are many regular buses in and around Scunthorpe, the DRT cannot be used to travel between two meeting points in the Scunthorpe or specific route zones shown on the zone map in **Figure 5**. Passengers can travel into and out of the Scunthorpe area from the wider service area where there is no regular bus service.

Figure 5: JustGo North Lincolnshire DRT Total Catchment Area



3.38 **Figure 6** below shows that the Proposed Development does not site within the Scunthorpe Zone and therefore the DRT is available for residents to use to access Scunthorpe Town Centre and the surrounding areas.

Figure 6: JustGo North Lincolnshire DRT Areas within vicinity of the site



3.39 There have been 275,000 trip requests made to date, with 6,999 unique users. 10% of users have mobility issues, with some requiring a wheelchair. The service also aims to provide transport for elderly residents who struggle to access conventional bus services or require assistance.

3.40 **Figure 7** below shows the fleet vehicle used, which includes free WiFi, USB charging ports and luxury seating.

Figure 7: JustGo North Lincolnshire DRT Vehicle



3.41 Proposed Development residents will be able to make use of the DRT upon 1st occupation of a dwelling and will complement the proposed bus service (described in further detail later in this report) that is to be routed through the Site by the occupation of the 200th dwelling.

Rail Services

3.42 The nearest railway station to the Site is Scunthorpe Railway Service, which is approximately 4.2km to the north-west of the Site (16-minute cycle ride).

3.43 There are waiting rooms and seating provided on both sides of the platform at Scunthorpe Train Station, with a ticket office and self-service, step free access to both platforms and parking and cycle storage facilities.

3.44 Scunthorpe Rail Station is served by a multitude of frequent rail services, and the destinations of these services are detailed in **Table 7**.

Table 7: Local Rail Services

Destination	Approx. Weekday Daytime Frequency	Approx. Journey Time
Doncaster	Hourly	34 minutes

Destination	Approx. Weekday Daytime Frequency	Approx. Journey Time
Cleethorpes	Hourly	48 minutes
Sheffield	Hourly	57 minutes
Manchester Piccadilly	Hourly	1 hour 59 minutes
Liverpool Lime Street	Hourly	2 hours 52 minutes

Note: Timetable information obtained (January 2024).

Existing Sustainable Travel Options Summary

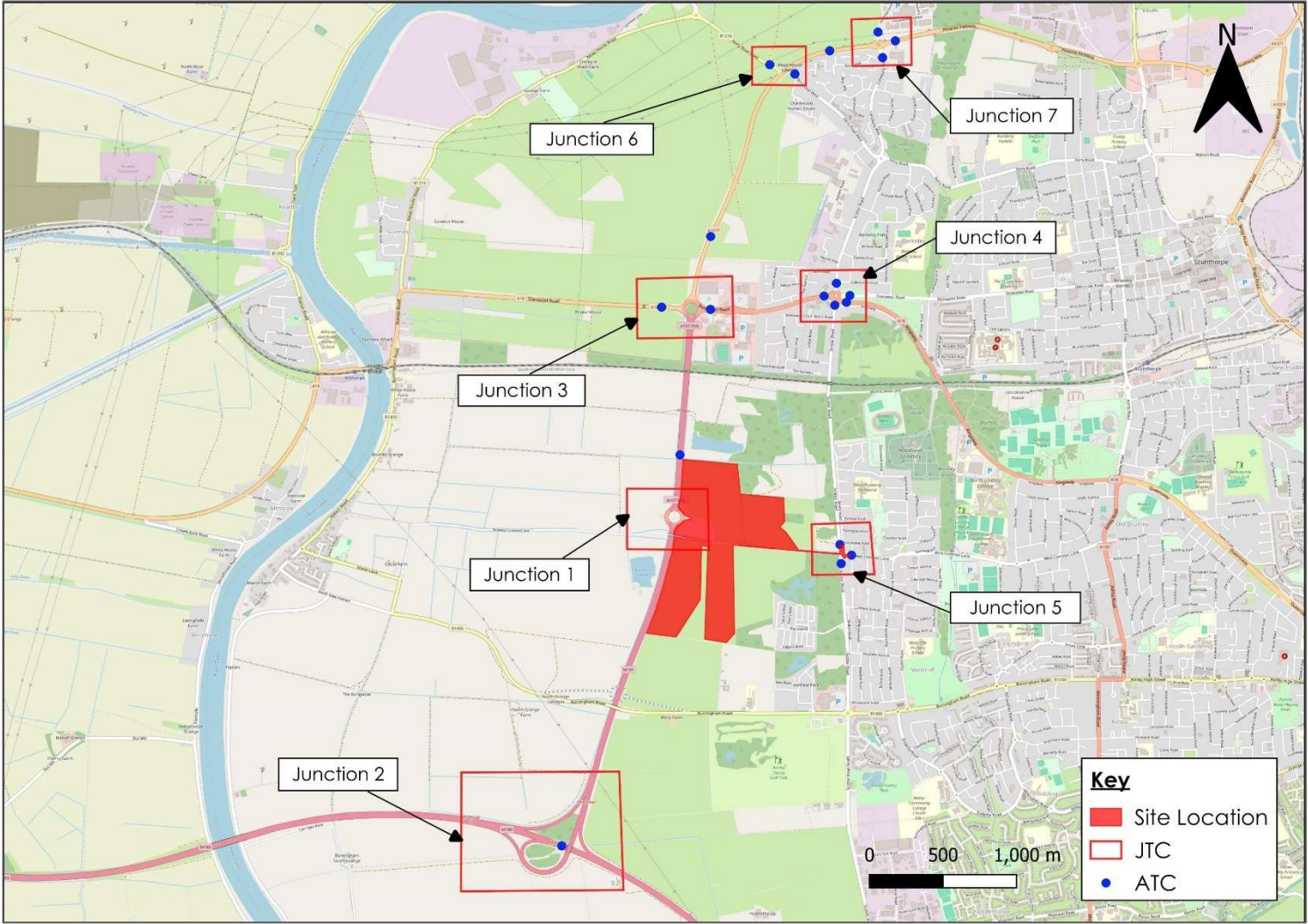
- 3.45 To summarise, there is limited opportunity for sustainable travel to and from the Site currently, given the closest public transport stop is over the 500m distance and situated approximately 800m to the east of the existing centre of the site. Furthermore, there is no formal cycle crossing facility on Scotter Road.
- 3.46 The proposals provided in Section 4 are set address the current issues provided above.

Baseline Traffic Flows / Traffic Surveys

- 3.47 To establish baseline traffic conditions surrounding the Site, junction turning counts (JTC) with Mean Max Queues (MMQ) recorded, and Automatic Traffic Counts (ATC) traffic surveys were undertaken. The traffic surveys were undertaken by MHC Traffic Ltd between Sunday 16th June 2024 and Saturday 22nd June 2024.
- 3.48 The study area of the traffic surveys is shown in **Figure 8**.



Figure 8: Traffic Survey Locations



3.49 The key junctions which have been surveyed and shown in **Figure 8** above and are listed below:

- Junction 1: Site Access (M181/A1077 roundabout).
- Junction 2: M180 Junction 3.
- Junction 3: M181/A1077/A18 Roundabout (Frodingham Grange roundabout).
- Junction 4: Scotter Road/Doncaster Road/A18 Roundabout (Berkeley roundabout).
- Junction 5: Scotter Road/Brumby Common Lane/West Common Lane junction.
- Junction 6: A1077/B1216 signalised junction.
- Junction 7: A1077/Scotter Road/Holyrood Drive roundabout (Skippingdale roundabout).

Assessment Periods

3.50 The peak hours for Junctions 1 to 7 extracted from the Junction Turning Counts are shown below in **Table 8**.

Table 8: AM and PM Peak Hour

AM Peak Hour	PM Peak Hour
07:30-08:30	16:00-17:00

3.51 The above peak hours have been used alongside the peak hours identified for the proposed land uses, which are 08:00 – 09:00 and 17:00 – 18:00. Therefore, going forward within this TA, the peak hours are labelled at 08:00 – 09:00 and 17:00 – 18:00 but for the avoidance of doubt the actual base traffic flows used are the periods 07:30 – 08:30 and 16:00 – 17:00. This therefore provides a worst-case assessment.

3.52 A copy of the JTC data and the calculations used to identify the peak hours is included at **Appendix 3**.

Queue Lengths

3.53 Alongside the JTCs, max queues recorded in each 2-minute period with the total survey period were obtained

3.54 The observed MMQs for Junctions 3 to 7 are shown below in **Table 9** to **Table 13**.

Table 9: Junction 3 AM and PM Queue Lengths

Junction	Arm	Lane	AM Peak Queue			PM Peak Queue		
			Min	Max	Average	Min	Max	Average
Junction 3 - M181/A1077/ A18 Roundabout	A1077	Lane A	1	8	3	1	21	6
		Lane B	0	5	1	0	4	2
	A18 Doncaster Road (East)	Lane A	0	7	3	1	19	9
		Lane B	0	2	1	0	3	1
	A1077 (M)	Lane A	0	5	2	0	4	2
		Lane B	0	6	3	1	10	4
	A18 Doncaster Road (West)	Lane A	1	12	5	0	5	2
		Lane B	1	9	3	0	6	1

Table 10: Junction 4 AM and PM Queue Lengths

Junction	Arm	Lane	AM Peak Queue			PM Peak Queue		
			Min	Max	Average	Min	Max	Average
Junction 4 - Scotter Road/ Doncaster Road/A18 Roundabout	Scotter Road (N)	Lane A	0	1	0	0	1	0
		Lane B	2	12	5	5	16	13
	Doncaster Road	Lane A	0	6	3	5	28	18
		Lane B	0	2	0	0	6	2
	A18 Kingsway	Lane A	0	9	3	2	20	12
		Lane B	0	4	1	0	6	2
	Scotter Road (S)	Lane A	2	12	6	3	12	6
		Lane B	0	4	1	0	4	1
	A18 Doncaster Road	Lane A	1	11	3	1	8	3
		Lane B	2	17	8	3	20	8

Table 11: Junction 5 AM and PM Queue Lengths

Junction	Arm	Lane	AM Peak Queue			PM Peak Queue		
			Min	Max	Average	Min	Max	Average
Junction 5 - Scotter Road/Brumby Common Lane/West Common Lane Junction	Scotter Road (N)	-	0	1	0	0	1	0
	West Common Lane	Lane A	0	3	1	1	6	2
		Lane B	0	4	1	0	5	2
	Scotter Road (S)	-	0	5	1	0	4	2
	Brumby Common Lane	-	0	1	0	0	1	0

Table 12: Junction 6 AM and PM Queue Lengths

Junction	Arm	Lane	AM Peak Queue			PM Peak Queue		
			Min	Max	Average	Min	Max	Average
Junction 6 - A1077/B1216 signalised junction	A1077 Phoenix Parkway	-	0	10	3	3	13	7
	Ferry Road West	-	0	7	2	1	7	3
	A1077 Phoenix Parkway (Between Signals)	Lane A	0	4	1	0	6	3
		Lane B	0	6	2	0	5	1
	A1077 (S)	Lane A	0	5	1	0	1	0
		Lane B	2	17	7	1	8	4
	B1216 Ferry Road West	Lane A	0	3	1	0	6	2
		Lane B	0	8	2	0	9	3
	A1077 Phoenix Parkway (Between Signals)	Lane A	0	3	1	0	3	1
		Lane B	0	3	1	0	5	2

Table 13: Junction 7 AM and PM Queue Lengths

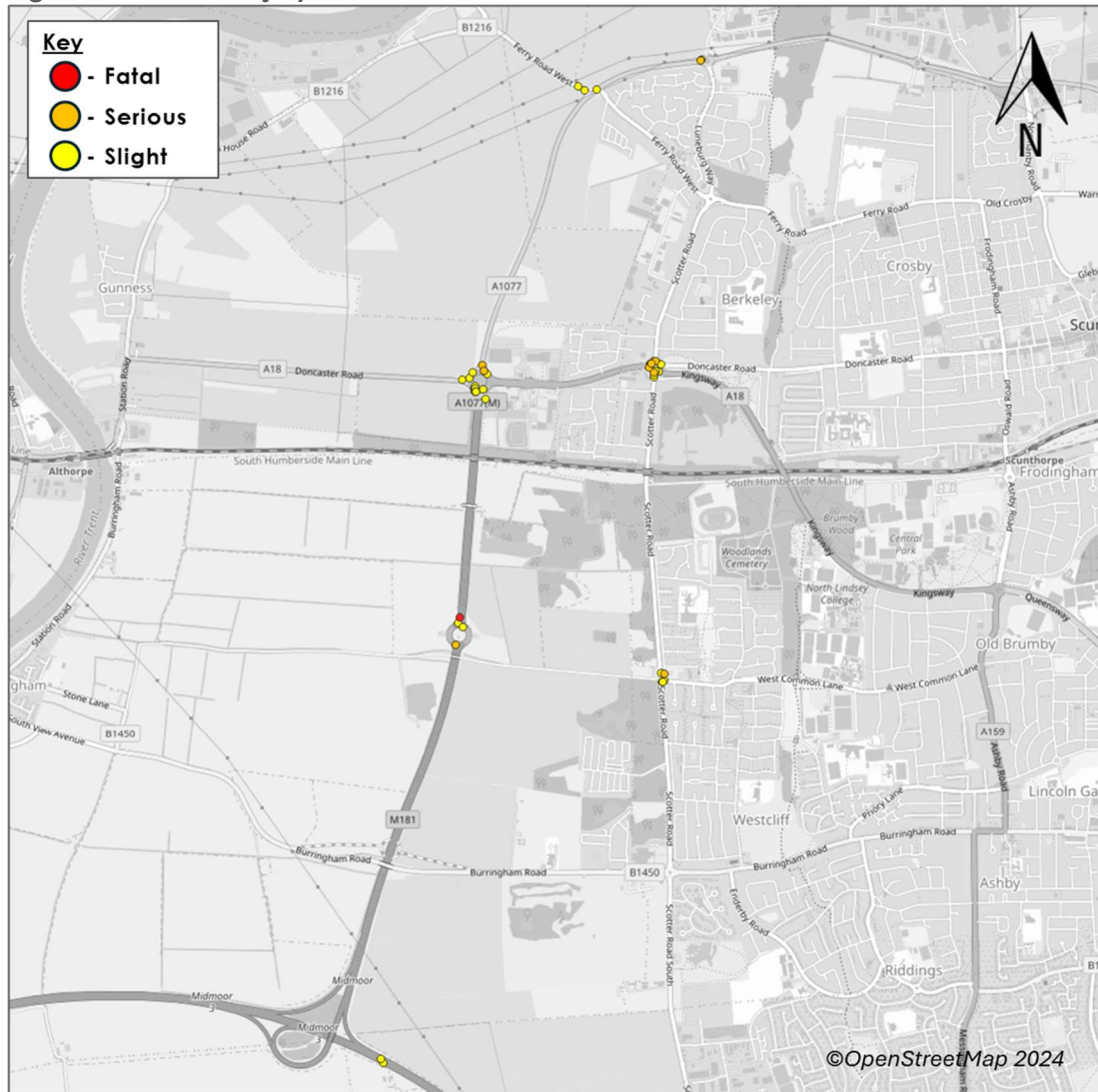
Junction	Arm	Lane	AM Peak Queue			PM Peak Queue		
			Min	Max	Average	Min	Max	Average
Junction 3 - M181/A1077/ A18 Roundabout	Holyrood Drive	Lane A	0	2	1	0	8	2
		Lane B	0	1	0	0	2	1
	A1077 Phoenix Parkway (E)	Lane A	0	3	0	0	7	2
		Lane B	0	1	0	0	2	0
	Lunenburg Way	Lane A	0	4	1	0	3	1
		Lane B	0	6	1	0	6	2
	A1077 Phoenix Parkway (W)	Lane A	0	8	4	0	6	2
		Lane B	0	1	0	0	1	0

3.55 The above MMQ lengths have been used (and replicated) to validate the junction models used in the highway assessment presented later in this report.

Road Safety

3.56 Personal Injury Collision (PIC) data has been reviewed for the most recently available 5-year time period covering 2019 to 2024, using data provided by NLC for the highway network within the wider vicinity of the Site (matching the highway assessment study area). The recorded collisions are illustrated in **Figure 9**, with full details provided at **Appendix 4**.

Figure 9: Personal Injury Collision Records 2019-2024



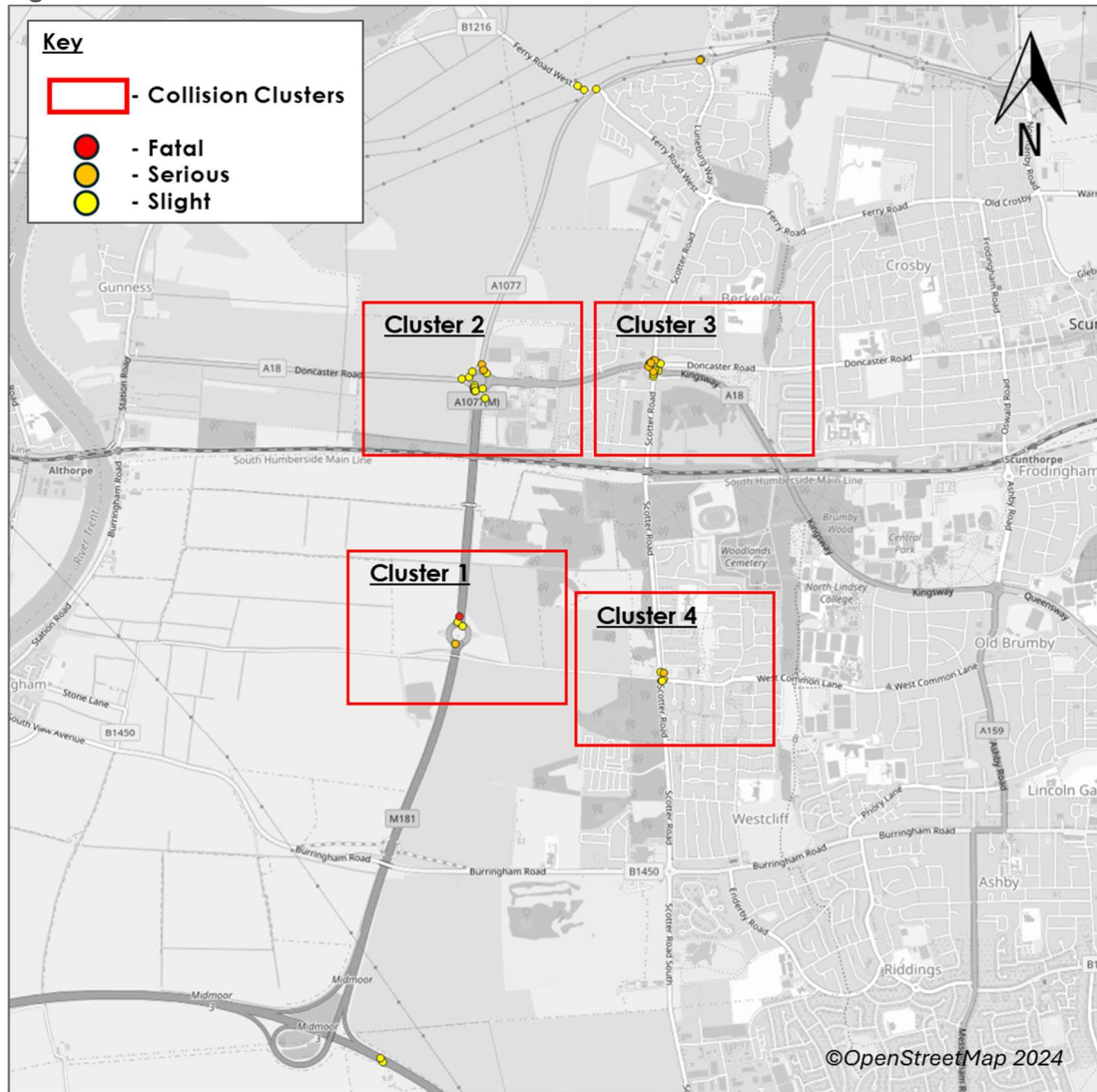
3.57 One fatal collision was recorded in the local area which have been reviewed below:

- 1282316 – NLC – This collision took place on the Friday 24th February 2023 at 21:45 during evening hours, with wet/damp road surface noted. The collision took place at the M181/A1077 roundabout, within the vicinity of the site access. The collision involved a car, who lost control and crashed into the barrier, due to what was reported as aggressive driving and careless/reckless/in a hurry. There were two casualties, with one fatal and one serious. This indicates that the road geometry and layout did not directly contribute to the collision and was likely as a result of driver impairment.

3.58 In summary, there are no obvious road geometry/layout factors which resulted in fatalities at any of the collisions identified within the wider vicinity of the Site, with all of the PIC's appearing to be as a result of driver error/impairment.

3.59 Further analysis of the recorded collisions has identified four collision clusters (as per the figure below), which are defined as a group of 3 or more collisions within the same junction or road link location.

Figure 10: Collision Clusters

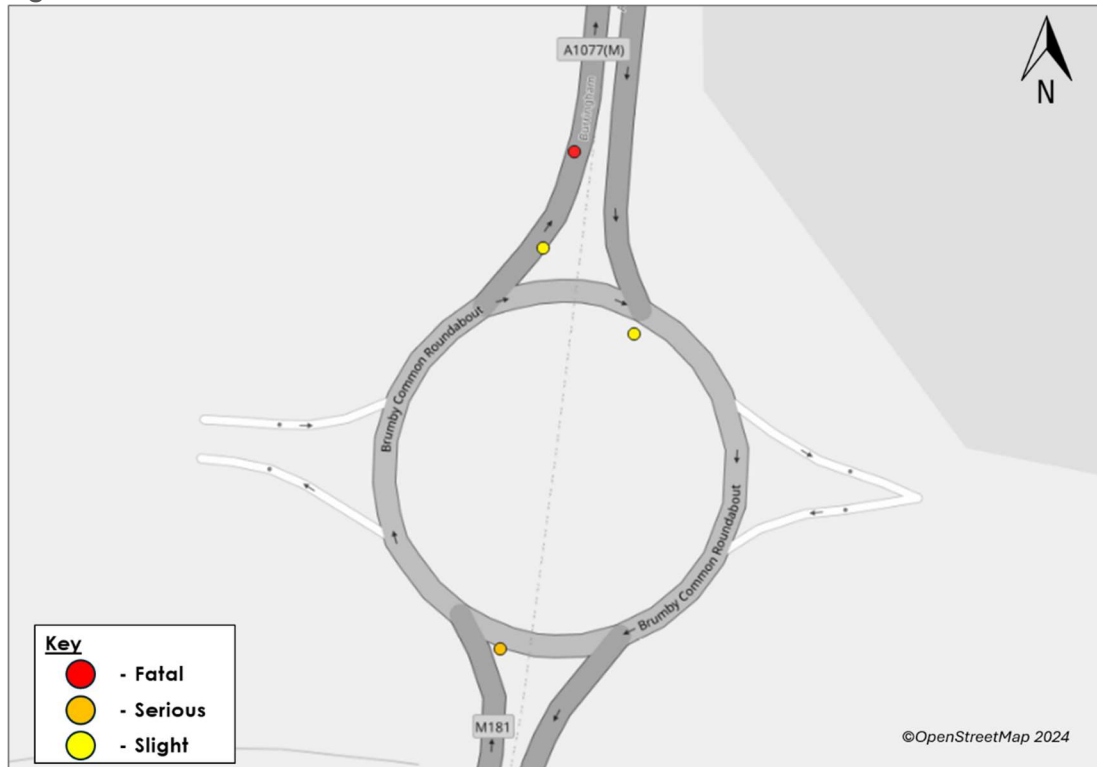


3.60 Each of these clusters have been reviewed further below which list the contributory factors relating to each of the collisions (where available).

Collision Cluster 1

3.61 This is located at the M181/A1077 roundabout. There are four collisions located at this junction, with one classified as fatal, one as serious and two as slight.

Figure 11: Collision Cluster 1



- 3.62 The fatal collision has been previously mentioned in Section 3.57, with a serious collision also occurring at this junction.
- 3.63 This serious collision involved an HGV and a car, which resulted in the car driver being a serious casualty. A car failed to look properly out of M181 (northbound), lost control and collided with an HGV. The car driver lost control and hit an object off the carriageway. The car driver was given the two contributory factors of “Failed to look properly” and “Loss of control”. All vehicles involved in these collisions were motorised.
- 3.64 The factors for all recorded collisions are shown in **Table 14** below:

Table 14: Contributory Factors for Cluster 1

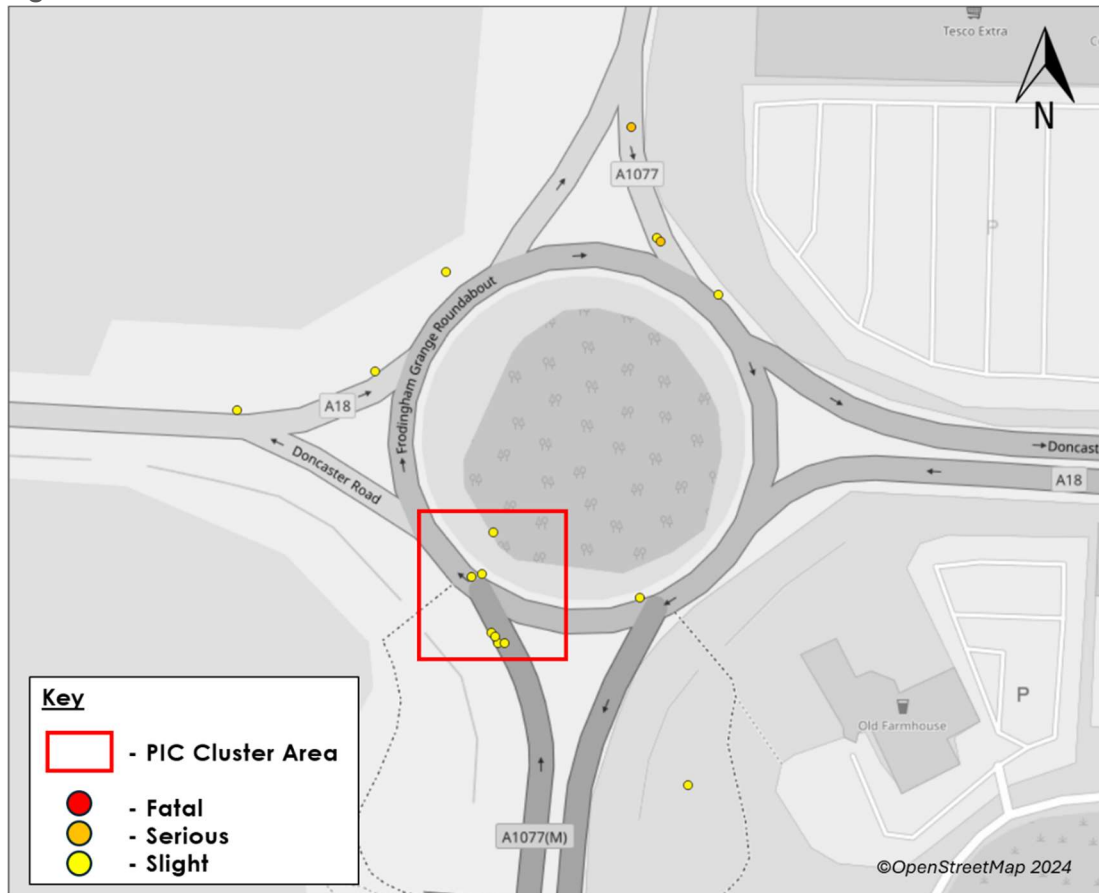
Contributory Factors	Tally
Aggressive driving (601)	1
Careless/Reckless/In a hurry (602)	1
Exceeding speed limit (306)	1
Failed to look properly (405)	1
Slippery road (due to weather) (103)	1
Impaired by drugs (illicit or medicinal) (502)	2
Loss of control (410)	3
Emergency vehicle on call (903)	1

3.65 As shown above, the vast majority of factors indicate driver error rather the road layout/geometry at this location.

Collision Cluster 2

3.66 This is located at the A18 Doncaster Road/A1077 roundabout. There were 16 collisions recorded at this junction, with two classified as serious and 14 as slight. Within the cluster located on the A1077 (S) arm of the roundabout, there were 6 collisions classified as slight.

Figure 12: Collision Cluster 2



3.67 The contributing factors at cluster identified are listed below in **Table 15**.

Table 15: Contributory Factors for Cluster 2

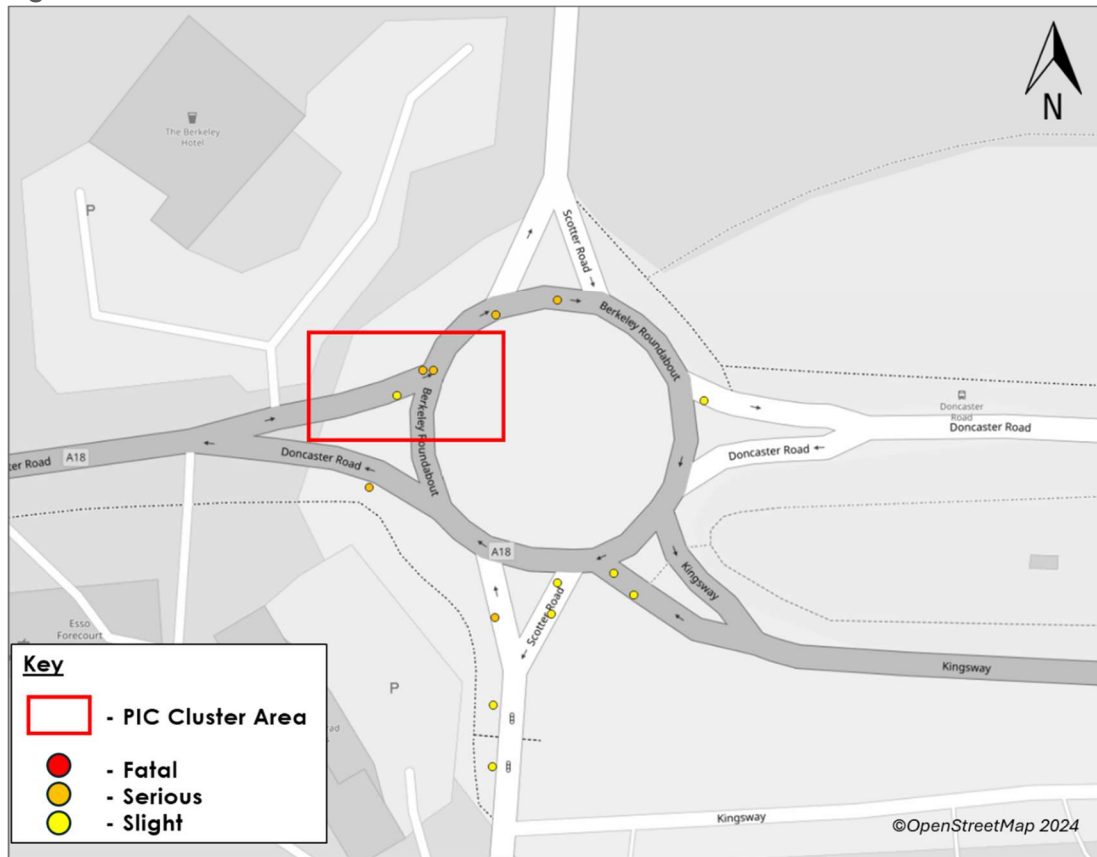
Contributory Factors	Tally
Careless/Reckless/In a hurry (602)	1
Failed to look properly (405)	3
Failed to judge other persons path or speed (406)	2
Following too close (308)	1
Fatigue (503)	1
Other (999)	1

3.68 As shown above, the vast majority of factors indicate driver error rather the road layout/geometry at this location.

Collision Cluster 3

3.69 This is located at the A18 Doncaster Road/Scotter Road/Doncaster Road/A18 roundabout. There are 14 collisions located at this junction, with six classified as serious and eight as slight. Within the cluster located on the A18 Doncaster Road (W) arm of the roundabout, there are two collisions classified as serious and one as slight.

Figure 13: Collision Cluster 3



3.70 The contributing factors at cluster identified are listed below in **Table 16**.

Table 16: Contributory Factors for Cluster 3

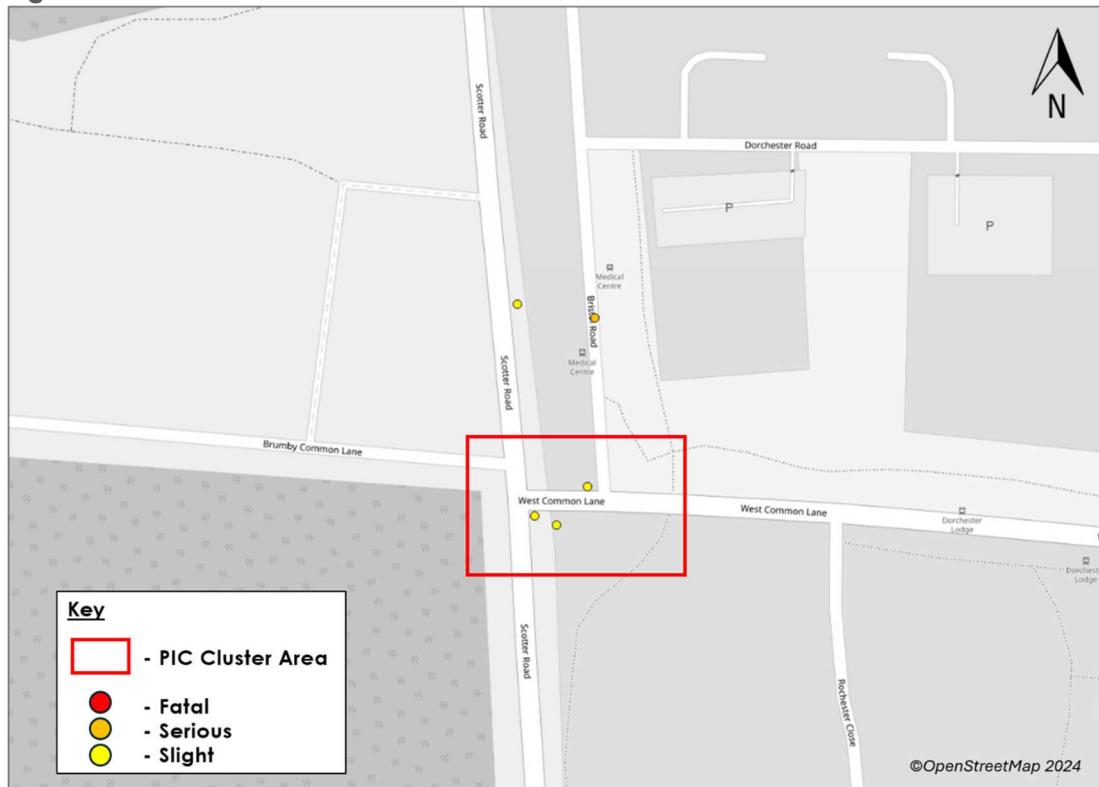
Contributory Factors	Tally
Careless/Reckless/In a hurry (602)	1
Failed to judge other persons path or speed (406)	1
Failed to look properly (405)	1
Passing too close to cyclist, horse rider or pedestrian (407)	1
Disobeyed Give Way or Stop sign or markings (302)	1

3.71 As shown above, the vast majority of factors indicate driver error rather the road layout/geometry at this location.

Collision Cluster 4

3.72 This is located at the Scotter Road/West Common Lane/Brumby Common Lane junction. There are 5 collisions located at this junction, with one classified as serious and four as slight. Within the cluster located on the West Common Lane arm of the junction, there are three collisions classified as slight.

Figure 14: Collision Cluster 4



3.73 The contributing factors at cluster identified are listed below in **Table 17**.

Table 17: Contributory Factors for Cluster 4

Contributory Factors	Tally
Impaired by alcohol (501)	1
Animal or object in carriageway (109)	1
Careless/Reckless/In a hurry (602)	1
Failed to signal/Misleading signal (404)	1

3.74 As shown above, the vast majority of factors indicate driver error rather the road layout/geometry at this location.

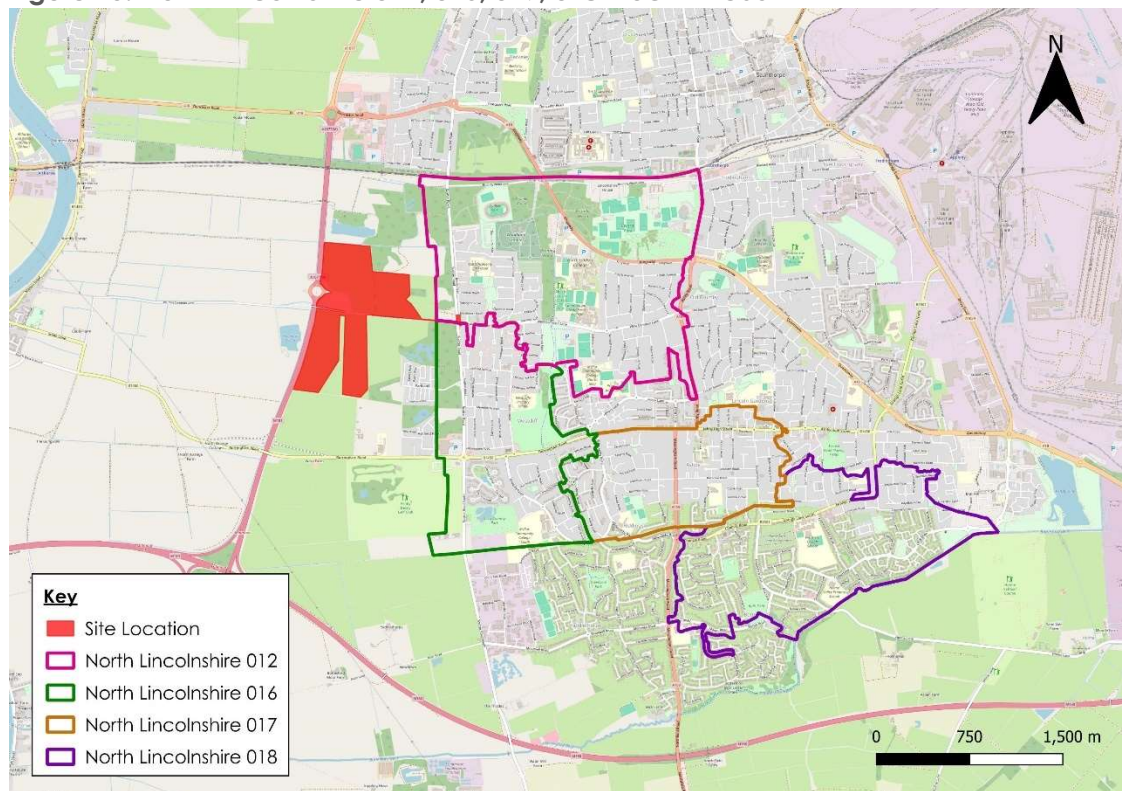
Summary

- 3.75 The collision analysis has shown where there are cluster locations of three or more collisions, the overwhelming majority indicate driver error/impairment as the primary cause and therefore there is not likely to be any inherent road safety issues at these locations.
- 3.76 On this basis, no highway safety specific mitigation measures should be required to any off-site junctions to accommodate the additional demand of the traffic generated by the Site. Hence no further consideration of PICs is given in the remainder of this TA as a result.

Existing Local “Travel to Work” Transport Modes

- 3.77 To provide a baseline reference for “typical” commuter transport modes in the local area, 2011 Census “Method of Travel to Work” data has been obtained for the Mid Layer Super Output Areas (MSOA) North Lincolnshire 012, 016, 017 and 018). The selected MSOAs are chosen as they are considered to hold representative land uses to the proposed development, i.e. predominantly larger residential areas on the edge of Scunthorpe. Other nearby MSOAs were not considered due to the large scale of industrial/employment land uses within them, and/or a closer proximity to the town centre.
- 3.78 2021 census data has not been used as it is widely considered to not accurately reflect typical conditions given the impact of Covid-19 on working patterns at the time. The MSOA boundaries used are presented in **Figure 15**.

Figure 15: North Lincolnshire 012, 016, 017, 018 MSOA Areas



3.79 The method of travel to work data for the 4 MSOAs has been examined and modal splits calculated, the results are summarised below in **Table 18**. The average of the 4 has been used as the baseline modal split for the Site.

Table 18: Modal Splits

Method of Travel to Work	Modal Split				Average
	E02002760: North Lincolnshire 012	E02002764: North Lincolnshire 016	E02002765: North Lincolnshire 017	E02002766: North Lincolnshire 018	
Car Driver	72.4%	65.3%	68.3%	76.6%	71.7%
Car Passenger	7.6%	11.3%	8.3%	7.2%	8.3%
Motorcycle	1.6%	2.0%	2.0%	1.6%	1.8%
Bus	4.2%	6.6%	5.0%	3.8%	4.6%
Train	0.2%	0.6%	0.2%	0.2%	0.3%
On Foot	7.1%	7.9%	8.1%	4.8%	6.6%
Bicycle	6.5%	5.7%	7.4%	5.5%	6.2%
Other	0.5%	0.8%	0.8%	0.3%	0.5%

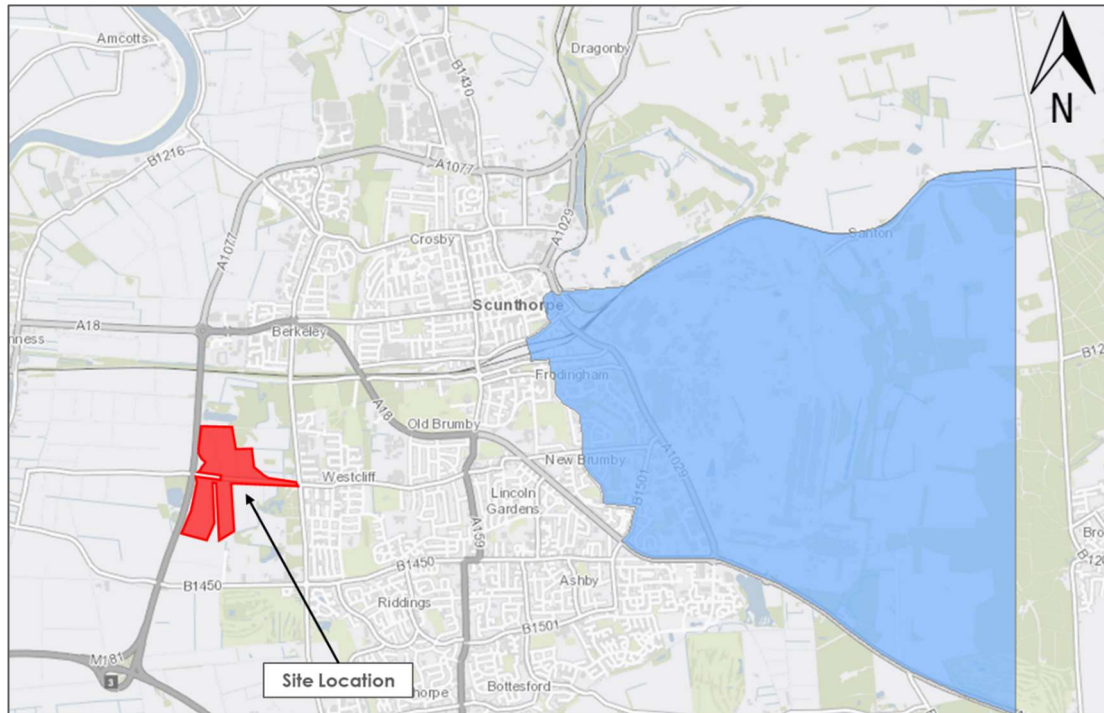
Source: Nomis – Office for National Statistics.

3.80 The mode share data indicates that approximately 71.7% of residents in the vicinity of the Site travel to work by car either as a driver or a passenger, 4.9% travel by public transport and 12.8% travel on foot or cycle. This is therefore considered in further detail later on in this TA.

Local Air Quality Management Area

3.81 The site does not sit within an Air Quality Management Area (AQMA) as shown in **Figure 16** below. It is noted that the Scunthorpe Steelworks site is covered by an AQMA, however the highway assessment does not include links within the AQMA area illustrated.

Figure 16: Local AQMAs



4. DEVELOPMENT PROPOSALS

General Description

- 4.1 The Proposed Development comprises of a hybrid planning application for a residential-led mixed use development located on land to the east of the M181/A1077(M) in Scunthorpe, North Lincolnshire. The description of the outline element is provided below:

'Outline planning application, with all matters reserved, for the development of up to 550 residential dwellings (Use Class C3), a local centre (Use Class E) and associated 'on-plot' landscaping, drainage and other infrastructure works'.

- 4.2 The outline element to be provided at the Site includes:

- Up to 550 dwellings.
- Up to 3,999sqm (gross external area (GEA)) of Use Class E within the Local Centre. Split as follows
 - Up to 2,499 sq.m (GEA) of 'main town centre uses' including retail, pub/family restaurant and gym (with a limit of up to 500sq.m (GEA) of Food Retail use).
- Up to 1,500sqm of 'non-town centre uses' (including a Creche, Doctors Surgery GP with ancillary Pharmacy use).

- 4.3 The description of the detailed element is provided below:

'Full planning application for the construction of a new vehicular access off the M181 roundabout, a pedestrian and cycle link to Scotter Road, a foul pumping station and 'off plot' earthworks, drainage, utilities and other infrastructure works'.

- 4.4 The above full planning application will facilitate access to the Proposed Development that is to be secured under the outline application permission. A copy of the indicative Site layout is included within **Appendix 1**.

Vehicular Site Access

- 4.5 As described previously, full planning permission is sought for the construction of the new vehicular access off the M181 roundabout. The access will operate as a single point of vehicular access for the proposed development and will form an extension to the existing carriageway stub on the eastern arm of the M181 roundabout.

- 4.6 The vehicular access arrangement is illustrated on drawing **LIN-BWB-HWY-XX-DR-C-0110_S8-P4**. The swept paths of relevant vehicles making use of the proposed highway network (16.5m HGV travelling along the spine road, 12m rigid bus making use of the bus turning loops, 11.2m refuse vehicle entering and exiting the dwelling development accesses etc) are illustrated on drawings **LIN-BWB-HWY-XX-DR-C-0105-S8-P01** and **LIN-BWB-HWY-XX-DR-C-S8-P01**.

- 4.7 The access carriageway will form a main spine road through the development (7.3m wide), which will include a number of parcel accesses, including access to the local centre area. The route will also include a bus turning loop to facilitate access and egress by a bus in a forward gear.
- 4.8 Grass verges will be provided either side of the main spine road to accommodate future carriageway widening (for e.g. right turn lanes) if the main spine road connects with Scotter Road to the east as part of a future application phase.
- 4.9 The highway layout has been designed so that a vehicular connection to Scotter Road can be provided as part of a planning permission associated with a future phase of development.
- 4.10 The proposal also includes a north to south connection that will provide the ability to connect into future development plots and to the Keepmoat scheme to the south.
- 4.11 The Highway arrangement will come forward in 2 phases. Phase 1 will include vehicular access to the first phase of residential development. The highway works associated with Phase 1 are presented on drawings **Phase 1, LIN-BWB-HWY-XX-DR-C-0110_S8-P04** and **LIN-BWB-HWY-XX-DR-C-0111_S8-P04**.
- 4.12 Phase 2 will come forward once the second phase of residential development and the local centre comes forward. Phase 2 highway works will form an extension to phase 1. The highway arrangement for the phase 2 element of the Proposed Development is presented on drawing **LIN-BWB-HWY-XX-DR-C-0112_S8-P04**.

Pedestrian and Cycle Access

- 4.13 The proposal includes a high-quality network of active travel infrastructure, with segregated pedestrian and cycle links alongside the main spine road and the section of carriageway that will route along the eastern side of the local centre.
- 4.14 Pedestrians and cyclists will be able to access the internal network of footways and cycleways via the active travel corridor proposed adjacent to Brumby Common Lane. The 5m wide corridor will provide an attractive non-motorised user connection from the Site to Scotter Road (and onwards into areas of Scunthorpe to the east, north and south). A signalised tiger crossing is proposed to route pedestrians and cyclists across Scotter Road and linking into the existing shared footway/cycleway provision on Scotter Road and West Common Lane.
- 4.15 The non-motorised user strategy proposed within the Site is presented on drawings **LIN-BWB-HWY-XX-DR-C-0120_S1_P01** and **LIN-BWB-HWY-XX-DR-C-0121_S1_P01**.
- 4.16 An illustration of the proposed Scotter Road crossing facility (of which the implementation is to be secured via condition) is included in drawing **LIN-BWB-HWY-XX-DR-C-100_S8-P4**. **Figure 17** illustrates the Scotter Road crossing facility over google imagery and presents how the proposed pedestrian and cycle proposals ties into existing infrastructure.

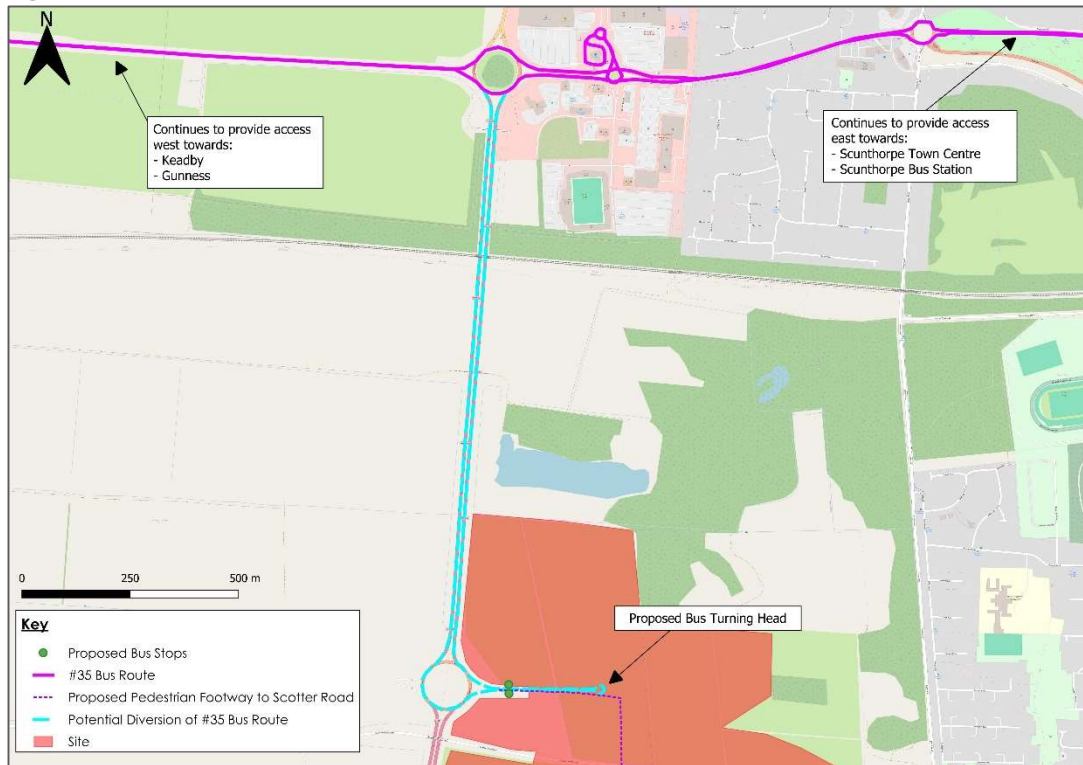
Figure 17: Proposed Scotter Road Crossing Facility



Public Transport Access

- 4.17 A public transport strategy has been proposed so as to maximise accessibility to key destinations for future residents, whilst providing access for future visitors and staff working within the Site.
- 4.18 Following discussions with NLC's public transport team (see correspondence in **Appendix 2**), the most suitable option is to reroute bus service number 35 into the site. An illustration of the service (and the rerouting proposals into the Site) is illustrated on **Figure 18**.

Figure 18: Bus Service Proposals



- 4.19 A bus service will serve the site no later than by the occupation of the 200th dwelling. Rerouting the bus earlier than the occupation of the 200th dwelling will likely result in the service making unnecessary journeys due to limited demand during the early phase of development and could impact future usage. Therefore, the above service should be provided once an appropriate number of dwellings are occupied to ensure the likely success of the service on encouraging patronage is maximised.
- 4.20 As mentioned in **Section 3**, Prior to the implementation of the rerouted service, Site users will be able to make use of the North Lincolnshire DRT Service described in detail in **Section 3**, the flexible, on-demand public transport service that provides residents with the greater access to Scunthorpe from rural and less-connected areas.

Servicing

- 4.21 A balance will be struck to ensure the design of the Site layout caters for the turning and manoeuvring requirements of refuse and other service vehicles, whilst at the same time not being overly obtrusive. It is therefore proposed that these types of vehicles will utilise all the available road space to turn and manoeuvre within the Site.
- 4.22 In relation to refuse collection vehicles, the internal road layout will seek to ensure that all dwellings are located within 30 metres of bin storage facilities and that refuse vehicles will be able to reach within 25 metres of bin store. Extract details of this will be agreed at the RMA stage.

Stage 1 Road Safety Audit

- 4.23 A Stage 1 Road Safety Audit (S1RSA) will be commissioned to audit the full application element of the multi-modal access proposals, and a designer's response (with updated designs if required) will be provided during the application determination period.

Parking Provision

- 4.24 NLC set out parking requirements for new development within the 'Parking Provision Guidelines for New & Change of Use Developments' document. The residential and non-residential parking standards prescribed by NLC are summarised in **Table 19**.

Table 19: Parking Guidance

Residential/ Use Class	Maximum Car Parking Standards	Cycle Parking Standards	Disabled Parking Standards	EV Parking Standards
Residential				
2 or 3 bed dwellings	1 space per dwelling within curtilage plus 0.5 space communal	1 stand per 5 units		1 EVCP per dwelling
4 bed or greater dwellings	2 space per dwelling within curtilage plus 0.5 space communal	1 stand per 5 units		1 EVCP per dwelling
Non-Residential				
Local Centre	1 space per 30 sq.m GFA outside pedestrian areas	1 stand per 4 staff	Less than 20 spaces in total - 1 space (minimum). More than 20 spaces - 2 spaces or 5% whichever is greater	5% of all parking provision on commercial developments.
Food Retail & Non-Food Retail	1 space per 14sq.m GFA	1 stand per 4 staff	Less than 20 spaces in total - 1 space (minimum). More than 20 spaces - 2 spaces or 5% whichever is greater	5% of all parking provision on commercial developments.
Doctors Surgery GP with Pharmacy	1 space per 4 staff plus 3 spaces per consulting room	1 stand per 4 staff	Less than 20 spaces in total - 1 space (minimum). More than 20 spaces - 2 spaces or 5% whichever is greater	5% of all parking provision on commercial developments.
Creche	1 space per 4 staff, plus 1 space per 3 pupils but will be assessed individually.	1 stand per 4 staff	Less than 20 spaces in total - 1 space (minimum). More than 20 spaces - 2 spaces or 5% whichever is greater	5% of all parking provision on commercial developments.

- 4.25 The quantum of parking provided will be confirmed at the RMA stage as each development plot comes forward.

Draft Construction Environmental Management Plan

- 4.26 Details of construction of the proposed development are yet to be finalised. The hours of construction operation will be agreed at the discharge of condition stage for each phase of development.
- 4.27 The number of HGV construction vehicle movements and the access routes to be used can be agreed with NLC prior to construction works commencing on site.
- 4.28 In order to encourage efficient use of HGV's associated with the construction phase of the development, backloading of waste materials onto delivery vehicles leaving the construction site and re-use of onsite aggregates will be encouraged.
- 4.29 As part of any conditional approval, a Construction Environmental Management Plan (CEMP) can be conditioned and produced for the site which would detail how construction traffic will access the development ensuring any impacts associated within construction traffic such as, noise, dirt and congestion will be minimised. The contractor for the site, once appointed, will be responsible for the CEMP. The CEMP would be submitted to the local highway and planning authority for approval prior to construction commencing.
- 4.30 The CEMP is likely to cover the following:
- Construction Times – Times would be agreed to ensure there is minimal impact to the surrounding areas..
 - Vehicle Cleaning – wheel washing would be implemented to ensure dirt and dust from the site is contained within the site and not distributed on surrounding roads.
 - Vehicle Size – maximum vehicle size to access the site would be agreed.
 - Vehicle routing – a routing strategy for construction vehicles will be provided.
 - Parking – Details of parking provision for contractors would be identified and agreed; and
 - Number of Vehicles – an agreement would be in place to limit the number of vehicles travelling to site per day, to ensure limited impact of the surrounding areas.

5. TRIP GENERATION

Introduction

5.1 The impacts of the proposed development will be assessed against overarching policy contained within Paragraph 116 of the NPPF, which states:

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

5.2 The above policy confirms that there is no longer a presumption that developments must achieve ‘nil detriment’ when compared to background traffic conditions. The current approach is to test the severity of any impacts and only refuse developments where the residual cumulative impacts are severe, or if they could lead to an unacceptable impact on highway safety.

5.3 In order to predict the traffic generation by the proposed development for each land use proposed, the industry standard Trip Rate Information Computer System (TRICS) has been utilised.

5.4 The following TRICS land use criteria have been used for each of the proposed land uses:

- 550 dwellings – (03 – Residential/A – Houses Privately Owned).
- 2,499 sq.m Local Centre (including up to 500sq.m of Food Retail use) – (01 – Retail/I – Shopping Centre – Local Shops).
- 1,000 sq.m Doctors Surgery GP with Pharmacy use (05 – Health/G – GP Surgeries); and
- 500 sq.m Creche – (04 – Education/D – Nursery).

5.5 ‘Local Centre (Local Shops)’ has been considered appropriate for the local centre with food retail, as the sites extracted from the TRICS database include a proportion of food retail use, as described in more detail in the following sections.

5.6 All TRICS outputs are contained within **Appendix 6**.

Trip Generation

Residential

5.7 BWB has used the AAP trip rates provided within planning application ‘PA/2015/0396’ as suggested by NH in the ‘Lincolnshire Lakes Phase 1 Scoping Note Technical Memorandum’ dated 13th May 2024. Within the document it is stated that:

‘We would, therefore, be inclined to consider the AAP vehicle trip rates to be more appropriate; hence, we do not consider BWB’s TRICS trip rates to be appropriate

considering the larger variance compared to the JSJV's analysis during the AM peak period'

5.8 A summary of the vehicle trip rates and forecast trip generation for the proposed residential element of the development is given in **Table 20**:

Table 20: Proposed Residential Vehicle Trip Generation (550 dwellings)

Time Period	Trip Rates			Trip Generation		
	Arrive	Depart	Two-Way	Arrive	Depart	Two-Way
08:00 – 09:00	0.130	0.552	0.682	72	304	375
17:00 – 18:00	0.354	0.211	0.566	195	116	311
Total	1.899	2.994	4.897	1045	1647	2693

5.9 As can be seen in **Table 20**, the proposed residential development is forecasted to generate 375 two-way trips in the AM Peak and 311 two-way trips in the PM Peak.

Local Centre

5.10 The following criteria was applied to the TRICS Main Land Use "Retail" and Sub Land Use "Shopping Centre – Local Shops" for Local Centre trip rates.

- Regions: all, excluding London and Ireland sites.
- Range: 580sq.m to 8,310sq.m.
- Location: Suburban Area, Edge of Town and Neighbourhood Centre.
- Period: Weekday survey sites only.

5.11 Within each of the local centre sites included in the TRICS analysis of the Local Centre trip rates, there are food retail sites included within the 6 sites chosen. Therefore, the analysis is deemed appropriate, as the proposed 2,499sq.m of local centre use, provides an allowance of up to 500sq.m of food retail.

5.12 A summary of the vehicle trip rates and forecast trip generation for the proposed local centre development is given in **Table 21**.

Table 21: Proposed Local Centre Vehicle Trip Generation (2,499sqm)

Time Period	Trip Rates			Trip Generation		
	Arrive	Depart	Two-Way	Arrive	Depart	Two-Way
08:00 – 09:00	4.644	3.900	8.544	116	97	214
17:00 – 18:00	6.045	6.447	12.492	151	161	312
Total	76.003	75.774	151.777	1899	1894	3793

5.13 As can be seen in **Table 21**, the proposed local centre development is forecasted to generate 214 two-way trips in the AM Peak and 312 two-way trips in the PM Peak.

GP Surgery

5.14 The following criteria was applied to the TRICS Main Land Use “Health” and Sub Land Use “GP Surgeries” for GP Surgery trip rates.

- Regions: all, excluding London and Ireland sites.
- Range: 143sq.m to 2,900sq.m.
- Location: Suburban Area, Edge of Town and Neighbourhood Centre.
- Period: Weekday survey sites only.

5.15 A summary of the vehicle trip rates and forecast trip generation for the proposed GP Surgery development is given in **Table 22**:

Table 22: Proposed GP Surgery Vehicle Trip Generation (1,000sqm)

Time Period	Trip Rates			Trip Generation		
	Arrive	Depart	Two-Way	Arrive	Depart	Two-Way
08:00 – 09:00	3.118	1.559	4.677	31	16	47
17:00 – 18:00	1.216	2.174	3.390	12	22	34
Total	27.832	26.300	54.132	278	263	541

5.16 As can be seen in **Table 22**, the proposed local centre development is forecasted to generate 47 two-way trips in the AM Peak and 34 two-way trips in the PM Peak.

Creche

5.17 The following criteria was applied to the TRICS Main Land Use “Education” and Sub Land Use “Nursery” for Creche trip rates.

- Regions: all, excluding London and Ireland sites.
- Range: 150sq.m to 800sq.m.
- Location: Suburban Area, Edge of Town and Neighbourhood Centre.
- Period: Weekday survey sites only.

5.18 A summary of the vehicle trip rates and forecast trip generation for the proposed Creche is given in **Table 23**:

Table 23: Proposed Creche Vehicle Trip Generation (500sqm)

Time Period	Trip Rates			Trip Generation		
	Arrive	Depart	Two-Way	Arrive	Depart	Two-Way
08:00 – 09:00	3.453	2.952	6.405	17	15	32
17:00 – 18:00	2.866	3.505	6.371	14	18	32
Total	16.448	17.986	34.434	82	90	172

5.19 Based on the trips generated by each land use, as set out in the above four tables, the proposed development is predicted to generate the following vehicle trips: as set out in **Table 24**.

Table 24: Proposed Site Vehicle Trip Generation

Time Period	Trip Generation		
	Arrive	Depart	Two-Way
08:00 – 09:00	236	431	667
17:00 – 18:00	372	316	689
Total	3304	3893	7200

5.20 The above shows that the proposed development could generate up to 667 and 689 2-way trips in the AM and PM peak respectively, and 7,200 2-way trips across a typical weekday.

Non-Primary Trip Calculations

5.21 In order to ensure that a robust, yet realistic, appraisal of the Proposed Development's impact on the local highway network is assessed, it is necessary to consider the vehicle type of trips that will be generated and attracted by the proposals.

5.22 Given the range of land uses proposed within the development, it is considered that a proportion of the trip generation figures presented previously in this TA will not be primary or totally "new" trips on the local highway network. On that basis, the initial trip generation figures have been adjusted to reflect assumptions relating to non-primary trips.

5.23 For example, residents in existing housing adjacent to the development may change their food retail destination to the proposed local centre (that is to include an element of food retail) and therefore divert their existing food shopping trip away from their previous food store. Furthermore, a proportion trips to and from the creche will likely be "pass-by" or "linked" non-primary trips i.e. traffic already on the network such as a commuter from the new residential units dropping their child off at the creche on their way to and from work.

5.24 The types of non-primary trips considered are described below:

Linked With Site Residential

5.25 The trips associated with the non-residential land uses in the AM and PM peaks will in part be linked to Site residents stopping at the non-residential elements on their way to and from work respectively. For example, a resident will drop their child off at the creche, or stop at the local shop, or the doctors in the AM peak on their way to work.

Pass-By

- 5.26 A proportion of trips associated with the non-residential elements in the AM and PM peak will be made by vehicles that are already travelling along the M181 and A1077(M). Drivers who are already on the network, and travelling along the M181 and A1077(M) could make use of the proposed creche, local centre and GP surgery.

Internal

- 5.27 Albeit likely only to form a small proportion given the short distance to / from the dwellings to the non-residential uses, a handful of users on-site will drive to the non-residential uses in the AM and PM peaks. For example, a resident will drive to pick up their child from the creche at the start and end of the day, a resident could drive to the GP surgery if too unfit to walk, and a resident could drive to the local centre should they be getting a large food shop etc.

Residential Primary Trips

- 5.28 For the purpose of this highway assessment, whilst trips to all land uses proposed will include an element of non-primary trips, all trips generated by the proposed residential dwellings have been assessed as primary trips. National Travel Survey (NTS) data shows that only 37% and 43% of trips in the AM and PM peak hours were associated with commuting and business travel between the years of 2015 and 2019. The breakdown of trip purpose of the two peak hours is presented below in **Table 25** (extracted from NTS table NTSQ03017 'Trip start time by trip purpose for car/van drivers only (Monday to Friday only) England, 2015/2019', which is included as **Appendix 7**:

Table 25: Trip Purpose for car/van drivers only during AM and PM peak hours (NTS Table NTSQ03017)

Trip Purpose	AM Peak (08:00 – 09:00)	PM Peak (17:00 – 18:00)	Average
Commuting	31%	38%	34%
Business	6%	5%	5%
Education	1%	0%	0%
Escort Education	28%	3%	15%
Shopping	5%	13%	9%
Other work, other escort and personal business*	23%	23%	23%
Visiting friends / entertainment / sport	5%	15%	10%
Holiday / Day trip / other	2%	3%	2%

*Includes personal errand trips such as grocery shopping, doctors, post office etc.

- 5.29 **Table 25** shows that a significant proportion of vehicle trips generated by the proposed residential element of the scheme would not be associated with commuting, 28% (in the AM) and 36% (in the PM) would be associated with shopping or other work, escort and personal trips.

5.30 The above demonstrates that a proportion of the vehicle trips generated by the Proposed Development dwellings will likely be for the purpose of accessing the proposed local centre and creche / doctor uses (other work, other escort and personal business & shopping categories). **However, to ensure a robust assessment on the off-site highway network, all vehicle trips generated by the residential element of the Proposed Development have been assumed to be primary trips, and therefore all route off-site.**

5.31 The residential element of the scheme forms a significant proportion of the vehicle trips generated by the Proposed Development, therefore notwithstanding the non-primary trip proportions allocated to the non-residential trips, the highway assessment is considered robust given all of the Proposed Development dwelling vehicle trips will start or end off-site.

TRICS Research Report 14/1

5.32 With regards to allocating non-primary trip proportions to the non-residential land uses, TRICS Research Report 14/1, titled 'Pass-by and Diverted Trips' provides guidance and evidence on how best to predict a site's anticipated pass-by and diverted trip proportions.

5.33 The TRICS Research Report 1/14 investigates the role of pass-by and diverted trips in trip generation studies, particularly for new developments. It aims to improve accuracy in traffic impact assessments by analysing real-world trip behaviours.

5.34 Key Findings Include:

- Pass-by trips can account for 20%-50% of total site trips, depending on land use and location.
- High pass-by rates are common for convenience stores, fast food outlets, and retail parks near major roads.
- Peak periods show higher pass-by shares. Pass-by trips are more frequent during commuting peak hours when drivers are already on the road.
- Apply differentiated pass-by rates for different land uses.
- The report emphasizes the need for better data collection and context-based adjustments in trip generation analysis. By incorporating pass-by trip factors, planners can produce more realistic traffic forecasts and avoid overestimating new development impacts.
- The gross floor area of a store should be noted. Two store categories have been devised based on GFA; retail stores with a GFA of 4,000sqm or less are more likely to act as convenience stores, whilst those with a GFA higher than 4,000sqm are more likely to act as comparison stores.
- Convenience stores are more likely to produce pass-by trips, whilst comparison stores are more likely to produce diverted trips.
- People are prepared to travel further to access a comparison store than a convenience store (20 minutes for a comparison store, compared to 10 minutes for convenience).

- 5.35 The TRICS 14/1 report also reports on Ghezawi et al. (1998)'s findings, which highlight limitations in traffic impact analysis, particularly for convenience stores, due to insufficient data in standard references like the ITE Trip Generation Manual.
- 5.36 The study therefore developed mathematical models using data from 26 convenience stores, with separate equations for total trips and pass-by trips. A questionnaire survey at 13 retail stores (571 interviews) found that pass-by trips averaged 72%, ranging from 61% to 85% across different locations.
- 5.37 The study concludes that pass-by trips should be carefully accounted for in traffic impact assessments, as they do not add new vehicles to the network but rather redistribute existing traffic.
- 5.38 **Table 26** presents the non-primary trip proportions used as part of the highway assessment based on the TRICS guidance information above and the review of the NTS data.

Table 26: Non-Primary Trip Proportions

Land Use	Trip Type			
	Linked With Site Residential	Pass-By	Internal	Primary
Residential	0%	0%	0%	100%
Local Centre	30%	30%	10%	30%
GP Surgery	20%	20%	10%	50%
Creche	35%	35%	10%	20%

- 5.39 Given the purpose of the GP surgery, creche and local centre are to serve the Proposed Development (and the wider Lincolnshire Lakes development as it comes forward in future phases) as a primary focus, and given that it is inevitable a small proportion of trips to / from the non-residential land uses from the proposed dwellings will be via the car (age of individual, illness, dropping small child off at Creche etc), 10% of the non-residential land use trips have been allocated as internal trips.
- 5.40 With regards to pass-by, the evidence suggests that that anywhere between 20% and 72% of trips could be allocated as pass-by for the different land uses. For the local centre, given up to 32% of trip purposes in the peak hours are for the purpose of shopping / other, it has been assumed that 40% of trips to the local centre will be primary trips (of which 10% will be internal given residents within the Proposed Development will be the most likely users of the local centre). Given that the TRICS study suggests 72% off trips are pass-by for convenience store type use (which a proportion of the local centre will form) 60% have been allocated as pass-by type trips (30% 'pass-by' through the access roundabout and 30% linked within on-site residential (and therefore 'passing' the local centre as they travel to / from the Site).
- 5.41 With regards to the GP surgery, it is anticipated that a significant proportion (60%) will be primary trips (10% of which is allocated to internal). The remaining 40% has been distributed evenly across pass-by and linked with site residential and is considered appropriate given a significant proportion of trips will be existing users on the highway

network accessing the GP and associated pharmacy on their way to / from the workplace or other purposes. The 'pass-by' trip proportion of 40% sits within the 20% to 50% range set out in TRICS 14/1 report.

- 5.42 It is likely that a large proportion of Creche trips in the peak hour will be residents who are commuting to / from their workplace, with the trip either originating from within the Site (i.e. linked with site residential) or passing the site on the M181 (pass-by), 35% of trips have been allocated to both 'linked with site residential' and 'pass-by' trip types. It should be noted that the Creche trip generation is only 32 in each peak hour, therefore changes to the non-primary trip proportions from the Creche will have an insignificant impact on the primary vehicle trip numbers.
- 5.43 As described previously, trips generated by the Proposed Development dwellings have all been classed as primary trips (i.e. all route through the site access junction) to ensure the highway assessment is considered robust.
- 5.44 The above non-primary trip factors have been applied to the land use factors to generate the different trip type generation values that will be used as the development traffic flows in the highway assessment. **Table 27** presents the proposed vehicle trip generation by trip type.

Table 27: Proposed Vehicle Trip Generation by Trip Type

Trip Type	%	AM	PM	Daily
Residential				
Primary	100%	375	311	2,693
Pass By	0%	0	0	0
Linked with Resi	0%	0	0	0
Internal	0%	0	0	0
Total	100%	375	311	2,693
Local Centre (Including up to 1000sqm of Food Retail)				
Primary	30%	64	94	1,138
Pass By	30%	64	94	1,138
Linked with Resi	30%	64	94	1,138
Internal	10%	21	31	379
Total	100%	214	312	3,793
Doctors/Pharmacy				
Primary	50%	23	17	271
Pass By	20%	9	7	108
Linked with Resi	20%	9	7	108
Internal	10%	5	3	54
Total	100%	47	34	541
Creche				
Primary	20%	6	6	34
Pass By	35%	11	11	60
Linked with Resi	35%	11	11	60
Internal	10%	3	3	17
Total	100%	32	32	172
Total				
Primary	53%	469	428	4,136
Pass By	20%	85	112	1,306
Linked with Resi	20%	85	112	1,306
Internal	7%	29	38	451
Total	100%	667	689	7,200

Multi-Modal Trip Generation

Residential Person Trip Generation

- 5.45 The travel to work modal splits outlined in **Table 18** have been combined with the vehicle trip generation in **Table 24** to calculate the two-way person trips associated with the proposed development, shown in **Table 28**.

Table 28: Multi-Modal Trip Generation – 550 Dwellings

Mode	AM Peak	PM Peak	Two-Way
Car Driver	375	311	2693
Car Passenger	43	36	312
Motorcycle	9	8	68
Public Transport	26	21	184
On Foot	35	29	248
Bicycle	32	27	233
Other	3	2	19
Total	523	434	3756

- 5.46 The above shows that the 550 dwellings could generate circa 523, 434 and 3756 two-way trips in the AM Peak, PM Peak and across a typical day respectively.

Non-Residential Modal Split

- 5.47 **Table 29** shows the vehicle trip generation for the non-residential elements of the Proposed Development.

Table 29: Summary of Vehicle Trips for Non-Residential Use Class

Mode	AM Peak	PM Peak	Two-Way
Local Centre (Food Retail and Non-Food Retail)	214	312	3793
Doctors Surgery GP with Pharmacy	43	34	541
Creche	32	32	172
Total	289	378	4506

- 5.48 The method of travel to work modal split data used to calculate the residential modal split is not considered representative for the non-residential elements given the majority of the trips are not work related.

- 5.49 The TRICS criteria for local centre/local shops has 2 surveys that provide multi-modal trip rates. TRICS site survey reference DR-01-I-01 is considered appropriate to represent a

multi-modal split for the proposed local centre given its size and location within a residential area within Doncaster is similar to area which the Proposed Development is located. A copy of the TRICS output is attached in **Appendix 7. Table 30** presents the Doncaster site's modal split.

Table 30: Non-Residential Modal Split

Mode	Percentage Share (Not Including LGVs/OGVs)
Car Driver	79.2%
Car Passenger	7.9%
Motorcycle, Scooter or Moped	0%
Public Transport	4.5%
Taxi	0.3%
Cycle	0.3%
Walk	7.8%
Total (Not Including LGVs/OGVs)	100%
LGVs	0.7%

5.50 The above shows that based on the TRICS output, the majority of trips to the local centre would be via driving a car (79.2%) with a small proportion by active travel modes: Bus (4.5%), cycle (0.3%) and walk (7.8%).

5.51 The above land use splits results in the following AM, PM and Daily multi-modal trips presented in **Table 31**.

Table 31: Non-Residential Multi-Modal Trips - TRICS Approach

Mode	AM Peak	PM Peak	Two-Way
Car Driver	286	374	4456
Car Passenger	26	34	403
LGVs/OGVs	0	0	33
Motorcycle	0	0	0
Taxi	1	1	17
Public Transport	16	21	256
On Foot	28	37	437
Bicycle	1	1	17
Total People (Not Including LGVs/OGVs)	361	472	5618

5.52 The above suggests that based on a TRICS approach, the development would generate circa 5618 person trips per day, of which the vast majority (4456) would be via the car, 437 by pedestrians, 256 by public transport, and 17 via the bicycle.

Vision & Validate Modal Split Targets

5.53 ATE's ambition focuses on generating an environment that results in 50% of all 'short' trips be made via walking, wheeling or cycling by 2030. The scheme's active travel proposals (complemented by the implementation of the Framework Travel Plan) will help ATE to achieve the said target.

5.54 It is not however possible to quantify the number of predicted trips to the proposed development that would be short trips, and data will need to be captured to monitor active travel use during the Travel Plan process to understand what mode of travel Site users typically use for their 'short trips'.

5.55 Notwithstanding the above, a 'Vision and Validate' approach, based on NH highway assessment requirements, is presented below that sets out modal split scenarios where a 20% reduction in single occupancy private car use is achieved.

5.56 In transport planning, 'Vision and Validate' is an approach that contrasts with the "Predict and Provide" model. It focuses on setting a long-term goal (vision) and then designing transport systems to achieve that vision, rather than simply reacting to projected traffic demand. In this instance, trips have been generated based on historical TRICS data, and in the Vision and Validate scenario, the car trips have been reduced by 20%, with 20% reallocated to active and sustainable travel modes.

Vision and Validate – Residential Modal Split Trips

5.57 **Table 32** presents a modal split for the residential element of the Proposed Development based on a 20% reduction in car driver trips. The car driver mode share percentage would reduce by 14.3% (20% of 71.7%), from 71.7% to 57.4%, with the 14.3% redistributed across the other mode types.

Table 32: Residential Modal Split Vision and Validate Targets

Mode	Census Modal Split	Vision and Validate Modal Split	% Change
Car Driver	71.7%	57.4%	-14.3%
Car Passenger	8.3%	12.5%	4.2%
Motorcycle	1.8%	2.7%	0.9%
Public Transport	4.9%	7.4%	2.5%
On Foot	6.6%	9.9%	3.3%
Bicycle	6.2%	9.3%	3.1%
Other	0.5%	0.8%	0.3%

5.58 The amended modal splits presented in **Table 29** generates the multi-modal trip generation values presented in **Table 33**.

Table 33: Residential Vision & Validate Trip Generation Scenario

Mode	AM Peak	PM Peak	Daily
Car Driver	300	249	2154
Car Passenger	65	54	470
Motorcycle	14	12	102
Public Transport	39	32	277
On Foot	52	43	374
Bicycle	49	41	351
Other	4	3	28
Total	523	434	3756

5.59 **Table 33** shows that in a scenario where car driver trips are reduced by 20%, the residential element of the Proposed Development would generate 300 and 249 two-way car driver trips in the AM and PM peaks respectively (includes both primary and non-primary trips).

5.60 The above Vision and Validate scenario residential car driver trips will be used in the Vision and Validate highway assessment that is to be presented in the TA Addendum.

Vision and Validate – Non-Residential Modal Split Targets

5.61 **Table 34** presents a modal split for the non-residential element of the Proposed Development based on a 20% reduction in car driver trips. The car driver mode share percentage would reduce by 15.8% (20% of 79.2%), from 79.2% to 63.4%, with the 15.8% redistributed across the other mode types.

Table 34: Non-Residential Modal Split Vision and Validate Targets

Mode	TRICS Modal Split	Vision and Validate Modal Split	% Change
Car Driver	79.2%	63.4%	-15.8%
Car Passenger	7.9%	13.9%	+6%
Motorcycle	0.0%	0.0%	0%
Taxi	0.3%	0.5%	+0.2%
Public Transport	4.5%	8.0%	+3.5%
On Foot	7.8%	13.7%	+5.9%
Bicycle	0.3%	0.5%	+0.2%
Total People (Not Including LGVs/OGVs)	100%	100%	

5.62 The amended modal splits presented in **Table 34** generates the multi-modal trip generation values presented in **Table 35**.

Table 35: Non-Residential Vision and Validate Trip Generation Scenario

Mode	AM Peak	PM Peak	Daily
Car Driver	229	299	3,565
Car Passenger	46	61	721
LGVs/OGVs	2	2	33
Motorcycle	0	0	0
Taxi	2	2	30
Public Transport	29	38	458
On Foot	50	66	782
Bicycle	2	2	30
Total People (Not Including LGVs/OGVs)	361	472	5618

- 5.63 **Table 35** shows that in a scenario where car driver trips are reduced by 20%, the non-residential element of the Proposed Development would generate 229 and 299 two-way car driver trips in the AM and PM peaks respectively (includes both primary and non-primary trips).
- 5.64 As well as aiming to ensure that as many 'short' trips are carried out by walking, wheeling and cycling where possible, the development is committed to promoting sustainable travel and the 20% reduction in single occupancy driver car use presented in the Vision and Validate scenario will be the target modal split change for the Site (as set out in the Framework Travel Plan). The active travel infrastructure proposed and the implementation of a bus service through the Site (as well as the ability for users to make use of the North Lincolnshire DRT service) will promote and encourage sustainable travel, along with measures proposed in the Framework Travel Plan.
- 5.65 The above Vision and Validate scenario non-residential car driver trips will be used in the Vision and Validate highway assessment that is to be presented in the TA Addendum.

6. ACCESSIBILITY TO KEY SERVICES

Definition and Context

- 6.1 Accessibility can be defined as the extent to which the surrounding multi-modal transport system enables individuals to access day-to-day facilities and services, the most important of which are considered to include employment, education, healthcare, food retail and town centres.
- 6.2 The provision of residential development that enables its residents to utilise sustainable transport modes to access the aforementioned key facilities and services helps to minimise the number of single occupancy vehicular trips generated by the new development. The distances and travel times between a site and these key services and amenities play a key role in determining the site's capability to encourage sustainable trips and therefore determine its overall sustainable accessibility.
- 6.3 The Guidelines for Providing for Journeys on Foot (GPJF) document describes acceptable walking distances for pedestrians without mobility impairment. GPJF suggests that the maximum walking distance for town centres is approximately 800m, commuting / schools is approximately 2km and for other facilities is approximately 1.2km.
- 6.4 GPJF states that an average walking speed of approximately 1.4m/s (5km's/hr) can be assumed. The walking distance thresholds for commuting and other facilities set out in the GPJF document (within table 3.2) are summarised below in **Table 36**.

Table 36: GPJF Acceptable Walking Distances Guidance Table

Journey Purpose	Suggested Acceptable Walking Distance (Metres)		
	Town Centres	Commuting / School / Sight-seeing	Elsewhere
Desirable	200	500	400
Acceptable	400	1,000	800
Preferred Maximum	800	2,000	1,200

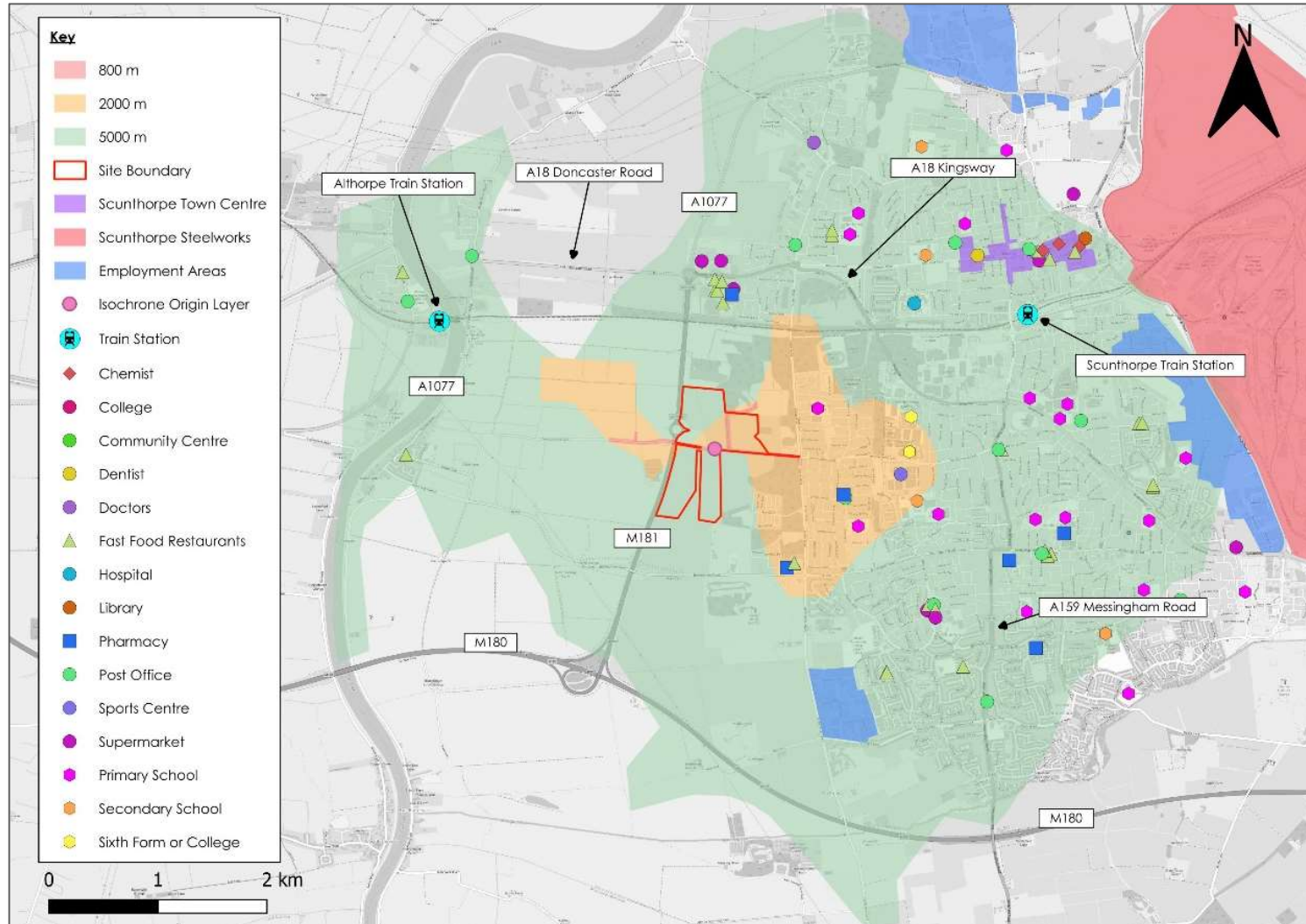
- 6.5 In relation to cycling, it is generally accepted that cycling has the potential to substitute short car trips, particularly those under 5km, and to form part of a longer journey by public transport.
- 6.6 More recently further guidance on suitable distances has been provided within the following guidance documents:
- CIHT Planning for Walking (2015) – walking neighbourhoods are typically characterised as having a range of facilities within a 10-minute walk or around 800m.
 - Active Travel England (ATE) Planning Toolkit (2023) – there should be a sufficient number and variety of local amenities within an 800m or 10-minute walk of all areas of the site via an accessible walking route.

- All locations within the site should be within a 400m walk of a public transport station or stop. There should be at least one public transport route secured or proposed for larger sites that can be fully operational on the first day of occupation or in accordance with the phasing plan.
- LTN 1/20 (2020) – two out of three personal trips are less than five miles (eight kilometres) in length, which is an achievable distance to cycle for most people. Three quarters of children live within a 15- minute cycle ride of a secondary school and 90% of children live within a 15-minute walk or public transport ride of a primary school.

Accessibility

- 6.7 Based on the above, **Figure 19** illustrates 2km and 5km catchments from the north western corner of the residential element of the development (to ensure robustness), alongside a range of amenities and facilities located within the catchments. The 800m catchment captures the Proposed Development amenities proposed only.

Figure 19: Accessibility Review



6.8 **Table 37** presents walking and cycling journey times to amenities within proximity of the proposed development. The walking and cycling journey times referenced in green indicate that the associated walking or cycle time is distance is within the 2km and 5km catchment respectively.

Table 37: Key Local Amenities

Amenity type	Amenity	Approximate Walking Distance: metres (minutes)	Approximate Cycling time: metres (minutes)
Local Centre	Local Centre	On Site	On Site
Local Centre	Food Shop	On Site	On Site
Local Centre	Non-Food Shop	On Site	On Site
Health	Doctor's Surgery	On Site	On Site
Health	Pharmacy	On Site	On Site
Education	Creche	On Site	On Site
Health	West Common Lane Teaching Practice	1.2km (16 min)	1.2km (5 min)
Religion	The Haven Church of Reconciliation	1.4km (19 min)	1.4km (5 min)
Education	Oasis Academy Parkwood	2.0km (27 min)	2.0km (7 min)
Community Centre	Westcliff Community Association	1.7km (22 min)	1.7km (6 min)
Food Shop	Tesco Express	1.8km (24 min)	1.8km (7 min)
Takeaway	Sam's Plaice Westcliff	1.8km (24 min)	1.8km (7 min)
Takeaway	Pizza Plaza	1.8km (24 min)	1.8km (7 min)
Health	Co-op Pharmacy	1.8km (24 min)	1.8km (7 min)
Post Office	Westcliff Post Office	1.8km (24 min)	1.8km (7 min)
Education	Trent View Specialist College	2.0km (31 min)	2.0km (10 min)
Education	Westcliff Primary School	2.1km (28 min)	2.1km (8 min)
Shops	Asda Scunthorpe S'store & Subway	2.1km (27 min)	2.1km (7 min)
Education	John Leggot College	2.1km (30 min)	2.1km (10 min)
Shops	North Lincolnshire Shopping Park	3.4km (45 min)	3.4km (11 min)
Shops	Gallagher Retail Park	3.5km (46 min)	3.5km (12 min)
Place of Interest	Central Park	3.6km (47 min)	3.6km (15 min)
Health	Scunthorpe General Hospital	3.6km (49 min)	3.6km (15 min)
Shops	Ashby High Street	4.3km (59 min)	4.3km (17 min)
Transport	Scunthorpe Train Station	4.9km (1hr 4 min)	4.9km (19 min)
Town Centre	Scunthorpe Town Centre	4.9km (1hr 6 min)	4.9km (19 min)
Shops	Scunthorpe Retail Park	5.0km (1hr 7 min)	5.0km (17 min)

6.9 Whilst the inclusion of the local centre will ensure that a range of amenities are within an 800m catchment, there are a large number of amenities within a 2km walking and 5km cycle distance, including Scunthorpe Transport Station and Town Centre, which will be able to be accessed via the proposed segregated crossing facility on Scotter Road.

ATE Planning Application Assessment Toolkit

6.10 The ATE Planning Application Assessment Toolkit is a framework used to assess the extent to which new development proposals align with active travel principles. This toolkit ensures that developments prioritize walking, cycling and sustainable transport, contributing to healthier, greener, and more accessible communities.

6.11 **Table 38** below provides a summary of the scheme's performance against the 10 criteria in the ATE toolkit:

Table 38: ATE Planning Application Assessment Toolkit Summary

Criterion	Description	Rating	Appraiser Comments
Trip generation & assignment	Does the application appropriately forecast all day trips to, from and within the site by walking, wheeling and cycling?	Pass	Walking and cycling trips predicted using MSOA 2011 Census travel to work data for residential element and TRICS multi-modal info for non-residential element. All active travel trips will be heading east via the single point of active travel access (along 5m wide street lit active travel corridor), and all will need to cross Scotter Road to access the existing shared footway/cycleway.
Active travel route audit	Has an appropriate assessment on the design and accessibility of existing active travel routes in the locality of the site been presented?	Condition / Obligation to make acceptable	Cycle level of service assessment provided for links to: Scunthorpe Town Centre and ASDA Scunthorpe Superstore. Lack of suitable crossing identified on Scotter Road (which has been addressed as part of the infrastructure proposals).
Pedestrian access to local amenities	Are most buildings within 800m from a range of amenities (such as primary schools, parks, play areas, food shops, cafes and community buildings) using well-designed routes?	Condition / Obligation to make acceptable	Local centre uses proposed which will provide a range of amenities within an 800m catchment of the site. The site is to include suitable segregated walking and cycling infrastructure that will provide high quality connectivity within the Site (and areas within Scunthorpe to the east) to access the local centre amenities.
Cycling accessibility	Are a range of local amenities, and town centres, railway stations, employment areas and the National Cycle Network as appropriate,	Condition / Obligation to make acceptable	Connection to the existing shared footway/cycleway on W Common Lane, and Scotter Road north/south required (and proposed as part of the infrastructure proposals).

Criterion	Description	Rating	Appraiser Comments
	accessible for cyclists using well-designed routes?		
Access to public transport	Are all buildings within 400m of a high-frequency bus stop or 800m of a rail/light rail station or tram stop, with appropriate facilities, using well-designed routes?	Condition / Obligation to make acceptable	Proposal will include a bus serving the site via the proposed spine road (and stopping at the proposed bus stops that will include high quality bus stop infrastructure). Development dwellings will also have the option of making use of the North Lincolnshire Demand Responsive Transport Service, a well established service that was introduced in 2020.
Off-site transport infrastructure	Does the application include proposals to enhance local active travel and public transport infrastructure?	Condition / Obligation to make acceptable	A bus service will route through the Site. A condition will cover the improvements to the crossing facilities on Scotter Road that will tie the proposed segregated cycle and walking infrastructure with existing walking and cycling provision on Scotter Road and West Common Lane.
Site permeability	Does the development prioritise pedestrian and cycle movements within the site?	Condition / Obligation to make acceptable	Internal layout includes segregated cycle facilities, including a 5m wide lit active travel corridor connecting onto Scotter Road. The Scotter Road crossing facility will have segregated signalised crossing facilities for pedestrians and cyclists, tying into existing shared footway/cycleway provision on W Common Lane (towards Scunthorpe centre and the rail station) and Scotter Road south (towards ASDA).
Placemaking	Does the development establish a strong sense of place, with well-designed streets, public spaces that feel safe and key amenities provided?	Condition / Obligation to make acceptable	Development includes a network of active travel infrastructure, that will provide access to each phase of development as RMAs come forward which will confirm placemaking details.
Cycle parking and trip-end facilities	Does the application provide the requisite amount and quality of cycle parking and trip-end facilities?	Condition / Obligation to make acceptable	Each dwelling, and the local centre land uses will adhere to LTN 1/20 cycle parking requirements. The non-residential elements will also include suitable cycle parking, to be confirmed at the RMA stage.
Travel Planning	Does the travel plan outline ambitious mode	Pass	A Framework Travel Plan has been prepared and submitted to support

Criterion	Description	Rating	Appraiser Comments
	share targets and measures to embed active travel, alongside appropriate monitoring and remedial strategies?		the hybrid planning application. The targets align with local and national targets (including half of all short journeys to be walked, wheel or cycled by 2030).

6.12 The above shows that the proposed development achieves a positive score for all criteria reviewed subject to the implementation of a set of conditions that will accompany a forthcoming planning application.

6.13 A copy of the toolkit inputs and summary output is included as **Appendix 8**.

Sustainable Transport Strategy Summary

6.14 Whilst it is acknowledged that the Site currently has relatively poor connectivity from a sustainable and active travel perspective, the following will ensure that active and sustainable travel are encouraged and attractive for all Site users:

- Network of segregated pedestrian and cycle infrastructure within the Proposed Development.
- A segregated pedestrian and cycle crossing facility on Scotter Road that will tie in the proposed network of highway quality pedestrian and cycle infrastructure on site with the existing provision on Scotter Road and West Common Lane.
- A bus service utilising the bus stops on the Proposed Development spine road.
- Site users will have the option to make use of the North Lincolnshire Demand Responsive Transport Service.
- Implementation of a Travel Plan that will encourage active and sustainable travel to / from the Proposed Development from day 1.

7. HIGHWAY ASSESSMENT PARAMETERS

Introduction

7.1 The following paragraphs set out the highway assessment parameters used to assess the impact of the Proposed Development on the operation of the highway network within vicinity of the Site.

Committed Developments

7.2 In order to provide a realistic baseline traffic scenario, sites that have planning permission, but have not yet been built out (or only partially built out) need to be taken into account.

7.3 Committed developments have been considered based on information provided by NLC as part of the initial scoping exercise in late 2023.

7.4 Additionally, in December 2024 NLC advised BWB that the following two committed developments also needed considering:

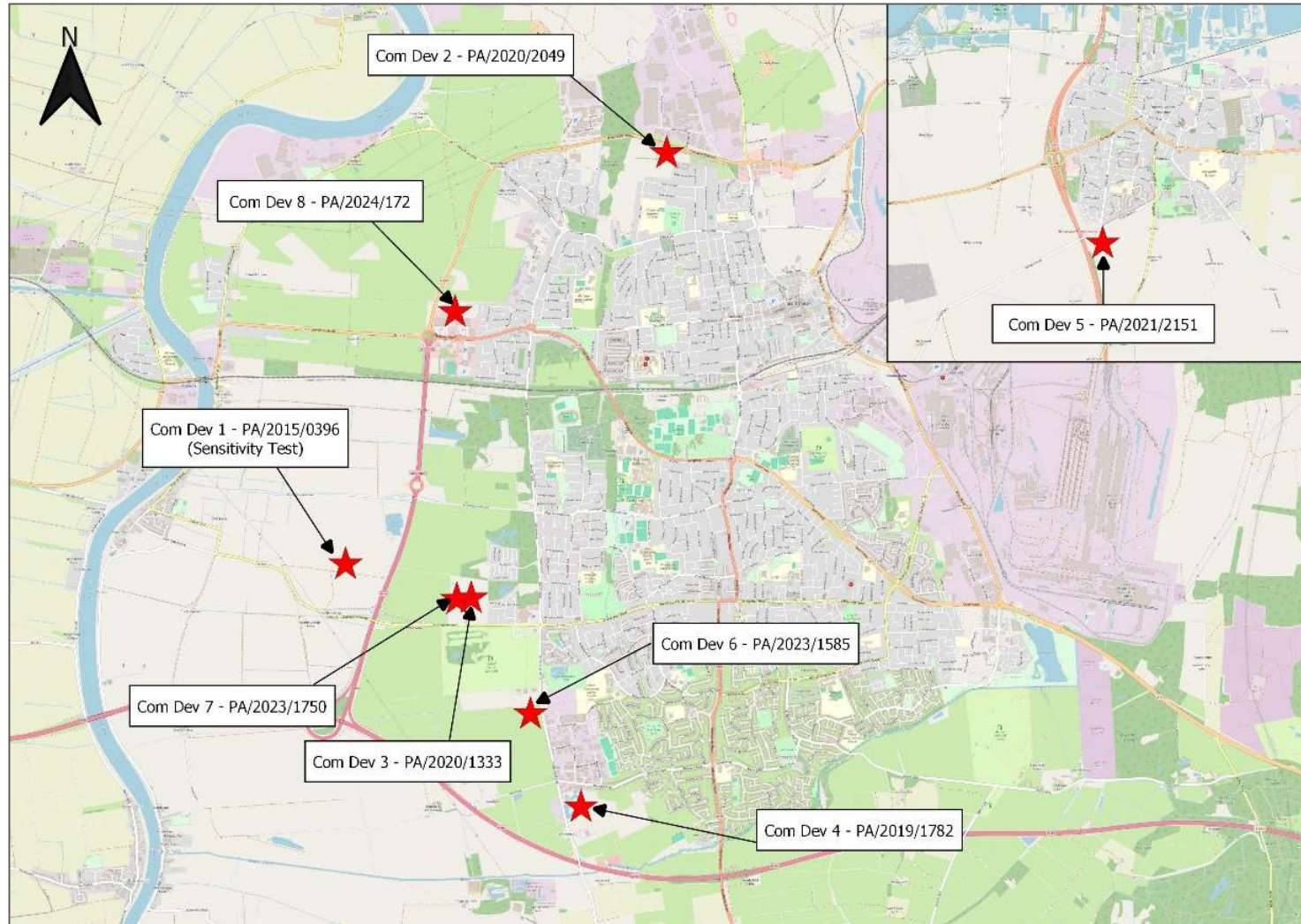
- PA/2024/172 - Outline planning for up to 19,000sq m of employment. Land to the north of Gallagher Retail Park, Scunthorpe
- PA/2023/1750 - 158 dwellings. Land to the north of Burringham Road, Scunthorpe

7.5 Given the above, the following committed development traffic flows have been extracted from the relevant associated TA's and included in the highway impact assessment:

- 1) PA/2015/0396 - Outline planning permission for the development of up to 2500 new homes (it is noted that this permission has expired).
- 2) PA/2020/2049 - Planning permission for the construction of 158 two, three and four bedroomed, 2 storey traditional residential homes with associated garages and access infrastructure.
- 3) PA/2020/1333 - Outline planning permission to erect up to 144 dwellings with appearance, landscaping, layout and scale reserved for subsequent consideration.
- 4) PA/2019/1782 - Outline planning permission for up to 200 dwellings with appearance, landscaping, layout and scale reserved for subsequent consideration.
- 5) PA/2021/2151 - Outline planning permission for a residential development of up to 390 dwellings with associated infrastructure, and with appearance, landscaping, layout and scale reserved for subsequent consideration.
- 6) PA/2023/1585 - Planning permission for 81 dwellings.
- 7) PA/2023/1750 – Planning permission for 158 dwellings.
- 8) PA/2024/172 - Outline planning for up to 19,000sq m of employment.

7.6 The locations of the committed developments are illustrated on **Figure 20**.

Figure 20: Committed Development Locations



7.7 The detailed committed development review is included as **Appendix 9**.

Assessment Scenarios

7.8 The following highway assessment scenarios will be used to quantify the development's impact on the highway network:

- 1) 2024 Base
- 2) *2027 (year of opening) Base + Committed
- 3) *2027 (year of opening) Base + Committed + Development
- 4) *2036 (end of local plan) Base + Committed
- 5) *2036 (end of local plan) Base + Committed + Development
- 6) 2027 (year of opening) Base + Committed + Development - 'Sensitivity Test'
- 7) 2036 (end of local plan) Base + Committed + Development - 'Sensitivity Test'

**Scenario does not include Maltgrade 2,500 dwelling development in the set of committed developments considered.*

7.9 The 2,500 dwelling Maltgrade development (application reference: PA/2015/0396) is to be included as a 'sensitivity test' in both the 2027 and 2036 assessment years given that whilst the 2015 application permission has since expired, and that the 593 dwellings of the 2,500 dwelling scheme is currently being considered as part of the live application PA/2023/1124.

7.10 The assessment scenarios have been confirmed as acceptable by NLC and NH.

Trip Distribution

7.11 The proposed development traffic distribution has been based on the 2011 Census 'Location of usual residence and place of work by method of travel to work' data MSOA "North Lincolnshire 005". The origins of all trips to the area were separated from the data and a percentage demand was derived for all the destinations for vehicle driver trips using the most appropriate route to/from each area. As mentioned previously, 2011 census data has been used as 2021 census data is not considered to accurately represent typical conditions given the impact on Covid-19 working patterns at the time of the census.

7.12 The indicative distribution of the development traffic is shown in **Table 39 (Figure 21** illustrating the study area) and the detailed assessment is included as **Appendix 10**.

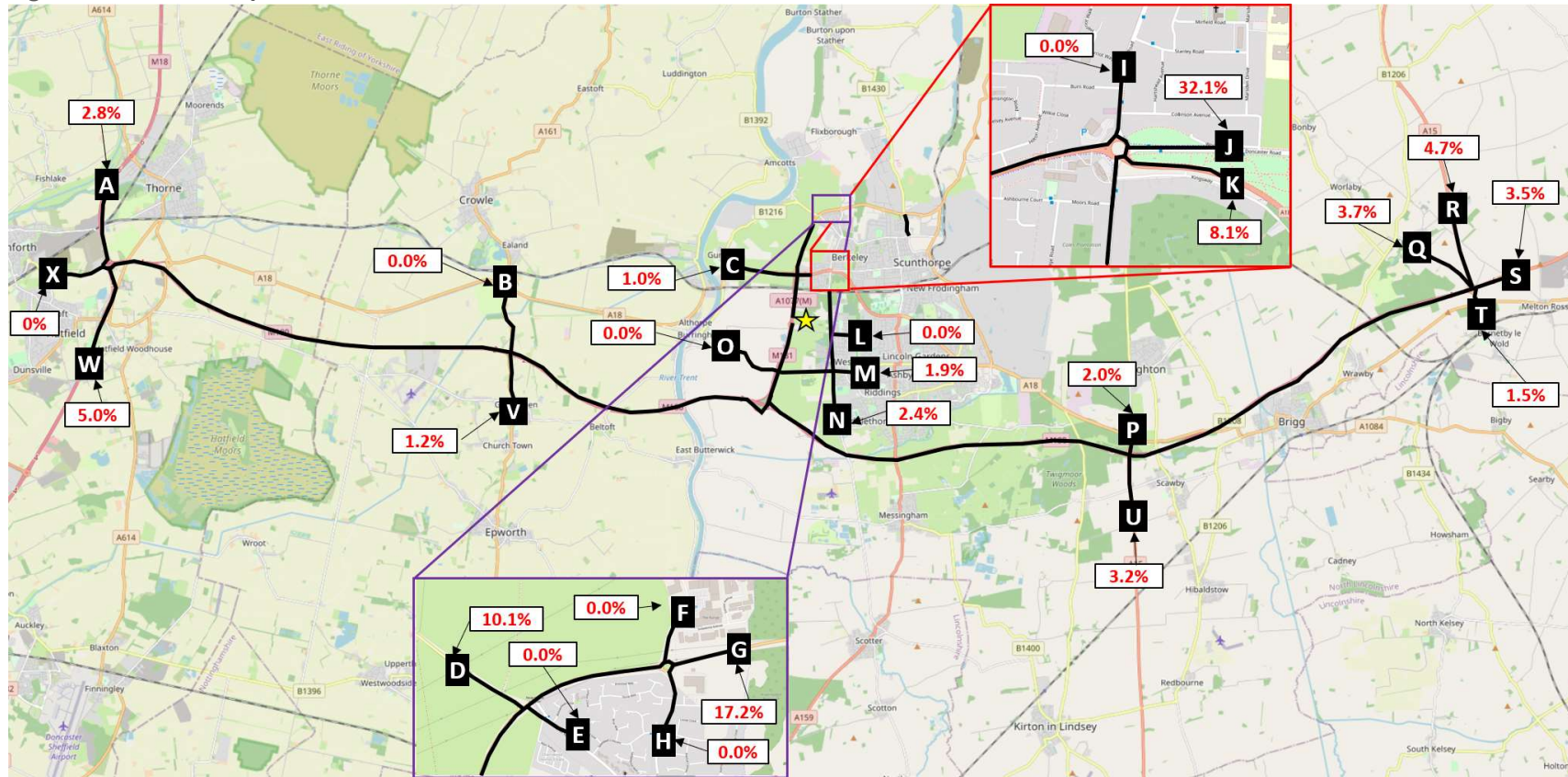
7.13 NLC and NH have agreed that the distribution suitably represents the impact of the 550 dwellings proposed.

7.14 The distribution percentages have been used to distribute the non-residential element primary trips across the network. Only circa 23% of primary trips (210 2-way primary trips across the 2 peak hours out of 897 2-way trips) are predicted to be generated by the non-residential uses so the use of the below distribution for all vehicle trips is considered appropriate.

Table 39: Distribution Route Proportions

Route	Description	%
A	M18 North of Junction 5	2.8%
B	A161 Crowle Bridge	0%
C	A18 Doncaster Road (West of Frodingham Grange Roundabout)	1%
D	Ferry Road W (West of A1077)	10.1%
E	Ferry Road W (East of A1077)	0%
F	Holyrood Drive	0%
G	A1077 Phoenix Parkway (East of Skippingdale Roundabout)	17.2%
H	Luneburg Way (South of Skippingdale Roundabout)	0%
I	Scotter Road (North of Berkeley Roundabout)	0%
J	Doncaster Road (East of Berkeley Roundabout)	32.1%
K	A18 Kingsway (South East of Berkeley Roundabout)	8.1%
L	W Common Lane	0%
M	Burringham Road (East of Scotter Road)	1.9%
N	Scotter Road South	2.4%
O	Burringham Road (West of Scotter Road)	0%
P	Ermine Street (North of M180 Junction 4)	2%
Q	Barnetby Top	3.7%
R	A15 (North of M180 Junction 5)	4.7%
S	M180 East of Junction 5	3.5%
T	Kings Road (South of A18)	1.5%
U	A15 (South of M180 Junction 4)	3.2%

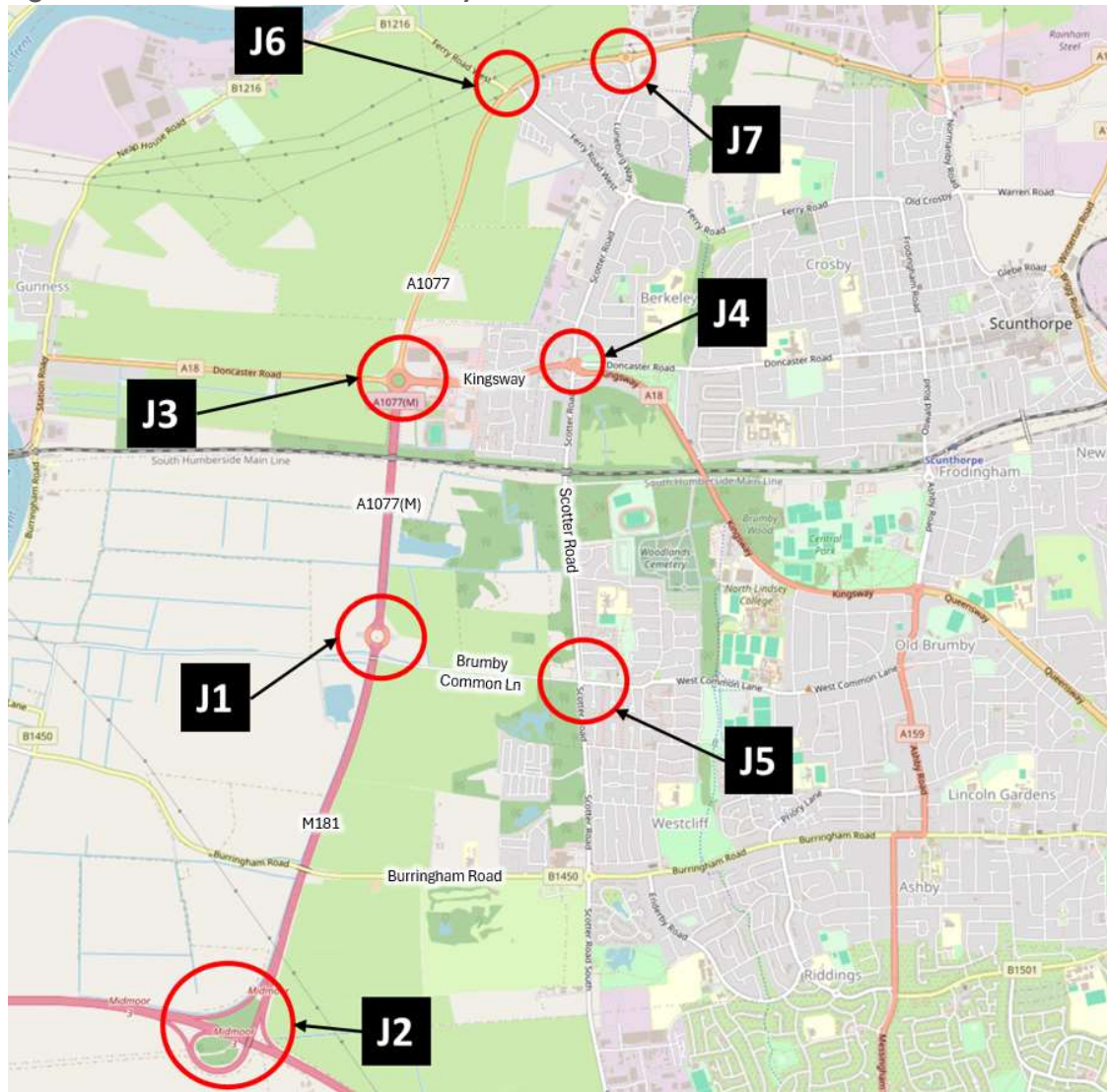
Figure 21; Vehicle Trip Distribution



Study Area

- 7.15 Based on a review of trip generation and distribution presented in the original scoping note that was been reviewed by NLC and NH, the agreed study area comprises of the following 7 off-site junctions.
- Junction 1: Site Access (M181/A1077 Roundabout).
 - Junction 2: M180 Junction 3.
 - Junction 3: M181/A1077/A18 Roundabout.
 - Junction 4: Scotter Road/Doncaster Road/A18 Roundabout.
 - Junction 5: Scotter Road/Brumby Common Lane/West Common Lane Junction.
 - Junction 6: A1077/B1216 signalised junction.
 - Junction 7: A1077/Scotter Road/Holyrood Drive roundabout.
- 7.16 BWB provided by NLC and NH with an update on the development proposals in November 2024 (which included a description of the local centre). The study area was confirmed to be still appropriate by NLC and NH (see correspondence in **Appendix 2**).
- 7.17 **Figure 22** illustrates the location of the 7 junctions.

Figure 22: Junction Assessment Study Area



- 7.18 It has been highlighted as part of the consultation process that there are concerns with the operation of the Burringham Road / Scotter Road roundabout (located to the south of J5).
- 7.19 Given the above, the number of development trips expected to route through the Burringham Road / Scotter Road roundabout is presented below.
- AM Peak: 20 Vehicles:
 - PM Peak: 18 Vehicles.
- 7.20 As shown above, the Proposed Development is predicted to only route 20 and 18 2-way development trips through the Burringham Road / Scotter Road roundabout in the AM and PM peaks respectively. Therefore, for the purpose of the highway assessment provided within this TA, the capacity of the Burringham Road / Scotter Road roundabout has not been considered in any further detail.

7.21 It is noted however that once the Burringham Road / M181 roundabout is open to vehicle traffic, a proportion of Proposed Development traffic is likely to route through the Burringham Road / Scotter Road roundabout. The impact of the above is to be considered as part of the sensitivity test assessment that is to be provided within a forthcoming TA Addendum as a result.

Traffic Growth Factors

7.22 Traffic growth factors have been applied to the surveyed peak hour traffic flows for the aforementioned assessment years to generate base traffic flows for the 2027 and 2036 future year assessments.

7.23 TEMPro 8.0 has been used to determine local traffic growth factors by interrogating National Transport Model (NTM) datasets on traffic along with consideration of local assumptions regarding housing and employment growth. This is the standardised approach to estimating traffic flows in the future.

7.24 The Middle-layer Super Output Area (MSOA) of 'North Lincolnshire 005' was chosen as the geographic area of interest as the application site is located within this.

7.25 For the interrogation of the TEMPro database the growth rates for 'car drivers only' were selected with the trip end type being defined as 'origin/destination'. Trip rates were obtained for the weekday morning and evening peaks (0700-0959 & 1600-1859).

7.26 Unit M4 of the Traffic Analysis Guidance (TAG) indicates in Section 9 that NTM growth forecasts should be adjusted using NTEM (National Trip End Model) data to tailor the published traffic forecast to local circumstances. Subsequently, the North Lincolnshire 005 area and 'Motorway' and 'A Road' road type adjustment have been applied to the resultant TEMPro growth factors produced.

7.27 A full summary of the TEMPro growth factors used is shown in **Table 40**.

Table 40: TEMPro Factors

Period	Road Type	AM Peak (08:00 – 09:00)	PM Peak (17:00 – 18:00)
2024 - 2027	Motorway	1.0373	1.0370
	A Road	1.0230	1.0227
2024 - 2036	Motorway	1.1570	1.1551
	A Road	1.0966	1.0947

Traffic Flow Diagrams

7.28 The above key assumptions and assessment parameters have been applied to the traffic survey flows to predict the base and future year traffic flows, the traffic flow diagrams have been used to inform the junction modelling assessments presented in the following section of this report and can be viewed in **Appendix 11**.

8. HIGHWAY IMPACT ASSESSMENT

Introduction

8.1 This section examines the potential highway impact of the development proposals on the following 7 off-site junctions (locations illustrated on **Figure 22**).

- Junction 1: Site Access (M181/A1077 Roundabout).
- Junction 2: M180 Junction 3.
- Junction 3: Frodingham Grange Roundabout.
- Junction 4: Berkeley Roundabout.
- Junction 5: Scotter Road/Brumby Common Lane/West Common Lane Junction.
- Junction 6: A1077/B1216 signalised junction.
- Junction 7: Skippingdale Roundabout.

Development Percentage Impact Assessment

8.2 The percentage impact of the proposed development traffic flows on the 7 junctions assessed for the 2027 and 2036 assessment years is presented in overleaf.



Table 41: Development Flow Percentage Impact

Jtn no.	Description	2027 Base + Com		2036 Base + Com		Dev Flows		2027 % Impact		2036 % Impact	
		AM	PM	AM	PM	AM	PM	AM	PM	AM	PM
J1	Site Access (M181/A1077 Roundabout).	2153	1883	2308	2016	554	428	25.73%	22.73%	24.00%	21.23%
J2	M180 Junction 3.	6041	5221	6738	5816	129	117	2.13%	2.25%	1.91%	2.02%
J3	Frodingham Grange Roundabout	3378	3298	3617	3529	341	311	10.08%	9.42%	9.41%	8.80%
J4	Berkeley Roundabout.	3034	3272	3247	3498	208	190	6.86%	5.81%	6.41%	5.43%
J5	Scotter Road/Brumby Common Lane/West Common Lane Junction	1458	1800	1560	1923	81	74	5.53%	4.09%	5.17%	3.83%
J6	A1077/B1216 Signalised Junction	1627	1635	1745	1750	128	117	7.87%	7.14%	7.34%	6.67%
J7	Skippingdale Roundabout	1718	1945	1840	2080	20	18	1.17%	0.94%	1.09%	0.88%

- 8.3 **Table 41** shows that when considering the impact at off-site junctions, the development is predicted to have the largest impact at the Frodingham Grange roundabout and the A1077/B1216 signalised junction, with impacts over 7%. The impact at Berkeley Roundabout is predicted to be over 5% in all scenarios assessed.
- 8.4 The impact at the Scotter Road / West Common Lane is predicted to be between 3-5%, whilst the impact at the Skippingdale Roundabout is predicted to be very low at circa 1%. The impact at the M180 junction 3 to the south is predicted to also be very low (circa 2% in all scenarios).
- 8.5 Notwithstanding the above, the capacity of all 7 junctions has been assessed as part of this TA.

Capacity Assessment Modelling Software and Interpretation

- 8.6 The traffic impact of the proposals on the roundabouts within the study area (junctions 1, 3, 4 and 7) have been assessed using the ARCADY module of the TRL industry-standard modelling software JUNCTIONS 10.
- 8.7 The roundabouts have been assessed in Lane Simulation mode given the differing number of entry and exit lanes, and therefore the model provides a more accurate assessment of capacity given the whole entry width cannot be used to make all movements.
- 8.8 The ARCADY model lane simulation mode returns mean maximum queues (MMQ) and delay per vehicle results, measured in passenger car units (PCUs) and seconds respectively.
- 8.9 The traffic impact of the proposals on the priority give-way T-junctions (junction 5) has been assessed using the PICADY module of the TRL industry-standard modelling software JUNCTIONS 10.
- 8.10 PICADY models return results in Ratio to Flow Capacity (RFC) and queueing in each 15-minute time segment, measured in the number of passenger car units (PCUs).
- 8.11 RFC values between 0.00 and 0.85 indicate satisfactory operating conditions, values of between 0.85 and 1.00 represent variable operation (i.e., queues building at the junction resulting in increased vehicle delay moving through the junction). RFC values in excess of 1.00 represent overloaded conditions.
- 8.12 The traffic impact of the proposals has been assessed using JCT industry-standard modelling software LinSig for the A1077/B1216 signalised junction.
- 8.13 The results from LinSig models are expressed in Practical Reserve Capacity (PRC), which is calculated based on a maximum Degree of Saturation (DoS) on each signalised approach and is a measure of how much additional traffic could pass through a junction whilst maintaining a maximum DoS of 90% on all links/streams. Therefore, if the worst link's DoS is 90%, the PRC then would be 0%. Negative numbers indicate that the junction would experience longer delays and overloading.

- 8.14 The DoS is a function of Demand vs Capacity, and the results are interpreted using the following bands:
- 0%-90% - The junction operates within capacity; traffic clears the junction every cycle of the signals.
 - 90%-100% - Traffic will experience some delay it is unlikely as to whether every queued vehicle at the start of the green phase will clear the junction within the same cycle, an arm experiencing a DoS above 90% is considered to be failing.
 - 100%+ - The arm is significantly over capacity; queues may exponentially increase as traffic struggles to clear the junction.
- 8.15 LinSig also illustrates the queuing results as MMQ, which is the estimated mean number of vehicles (or PCUs) which have added onto the back of the queue up to the time when the queue finally clears at the junction stop line.
- 8.16 The impact of the development on M180 Junction 3 has been reviewed based on the merge and diverge requirements for the predicted traffic routing through the two on and off-slips. The merge / diverge assessments are based on guidance set out in Design for Manual Roads and Bridges (DMRB) CD 122 "Design of Grade Separated Junctions".
- 8.17 The LinSig and JUNCTIONS 10 models have been validated against the queue data recorded (and presented in **Table 9** to **Table 13**) where required.
- 8.18 Measurements calculated for input into the capacity assessment models are included on drawings in each respective appendix that includes the capacity model output.

Junction Assessments – 2027 and 2036 Assessment Scenarios (Scenarios 1 to 5)

Junction 1 - Site Access (M181/A1077 Roundabout)

- 8.19 The proposed site access will be via the eastern arm of the existing A1077(M) / M181 4-arm roundabout Junction. The junction's predicted performance has therefore been tested for capacity using Junctions 10 software and a copy of the output data is included as **Appendix 12. Table 42** summarises the operation of the proposed site access junction.

Table 42: Junction 1 Capacity Assessment

	AM					PM				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
[Lane Simulation] - 2027 Base + Committed + Development										
1 - Site Access	D1	0.5	4.27		A	D2	0.2	4.01		A
2 - M181		2.4	5.66		A		1.2	3.90		A
3 - No Arm		0.0	0.00		A		0.0	0.00		A
4 - A1077		1.3	4.04		A		1.7	4.81		A
[Lane Simulation] - 2036 Base + Committed + Development										
1 - Site Access	D3	0.4	4.61		A	D4	0.2	4.14		A
2 - M181		2.3	5.89		A		1.0	3.90		A
3 - No Arm		0.0	0.00		A		0.0	0.00		A
4 - A1077		1.3	4.09		A		2.0	5.03		A

8.20 The results show that the Site Access roundabout junction is predicted to operate within capacity in both the 2027 and 2036 'with development' traffic flow scenarios. There would be no significant queueing or delay on any arm.

Junction 2 – M180 Junction 3

8.21 The M180 Junction 3 merge and diverges have been assessed to identify whether the appropriate merge and diverge arrangements are in place based on the classification required in DMRB CD122.

8.22 The mainline and merge/diverge flows for each location, in the 2027 and 2036 scenarios, is presented in **Table 43** and **Table 44**, along with the classification required.



Table 43: 2027 Base + Com Scenario

Arm	Time Period	Merge / Diverge Flows				Mainline Flow Upstream / Downstream				Classification Required (Mainline and Upstream / Downstream lanes)
		Survey	2027 Base + Com	Dev	Total Merge / Diverge	Survey	2027 Base + Com	Dev	Total Mainline Flow	
Scenario 2 - No Development										
M180 WB Onslip	08:00 – 09:00	578	600	0	600	1347	1397	0	1397	D - Lane Gain (1 & 2)
	17:00 – 18:00	771	800	0	800	1143	1185	0	1185	D - Lane Gain (1 & 2)
M180 WB Offslip	08:00 – 09:00	155	161	0	161	1347	1397	0	1397	A - Taper Diverge (1 & 1)
	17:00 – 18:00	119	123	0	123	1143	1185	0	1185	A - Taper Diverge (1 & 1)
M180 EB Onslip	08:00 – 09:00	143	148	0	148	1341	1391	0	1391	D - Lane Gain (1 & 2)
	17:00 – 18:00	171	177	0	177	1266	1313	0	1313	D - Lane Gain (1 & 2)
M180 EB Offslip	08:00 – 09:00	908	942	0	942	1341	1391	0	1391	A - Taper Diverge (1 & 1)
	17:00 – 18:00	576	597	0	597	1266	1313	0	1313	A - Taper Diverge (1 & 1)
Scenario 3 - With Development										
M180 WB Onslip	08:00 – 09:00	578	600	31	631	1347	1397	0	1397	D - Lane Gain (1 & 2)
	17:00 – 18:00	771	800	16	816	1143	1185	0	1185	D - Lane Gain (1 & 2)
M180 WB Offslip	08:00 – 09:00	155	161	23	184	1347	1397	0	1397	A - Taper Diverge (1 & 1)
	17:00 – 18:00	119	123	46	169	1143	1185	0	1185	A - Taper Diverge (1 & 1)
M180 EB Onslip	08:00 – 09:00	143	148	63	212	1341	1391	0	1391	D - Lane Gain (1 & 2)
	17:00 – 18:00	171	177	33	210	1266	1313	0	1313	D - Lane Gain (1 & 2)
M180 EB Offslip	08:00 – 09:00	908	942	11	953	1341	1391	0	1391	A - Taper Diverge (1 & 1)
	17:00 – 18:00	576	597	22	620	1266	1313	0	1313	A - Taper Diverge (1 & 1)



Table 44: 2036 Base + Com Scenario

Arm	Time Period	Merge / Diverge Flows				Mainline Flow Upstream / Downstream				Classification Required (Mainline and Upstream / Downstream lanes)
		Survey	2027 Base + Com	Dev	Total Merge / Diverge	Survey	2027 Base + Com	Dev	Total Mainline Flow	
Scenario 2 - No Development										
M180 WB Onslip	08:00 – 09:00	578	669	0	669	1347	1556	0	1556	D - Lane Gain (1 & 2)
	17:00 – 18:00	771	892	0	892	1143	1320	0	1320	D - Lane Gain (1 & 2)
M180 WB Offslip	08:00 – 09:00	155	179	0	179	1347	1556	0	1556	A - Taper Diverge (1 & 1)
	17:00 – 18:00	119	138	0	138	1143	1320	0	1320	A - Taper Diverge (1 & 1)
M180 EB Onslip	08:00 – 09:00	143	165	0	165	1341	1549	0	1549	D - Lane Gain (1 & 2)
	17:00 – 18:00	171	198	0	198	1266	1462	0	1462	D - Lane Gain (1 & 2)
M180 EB Offslip	08:00 – 09:00	908	1051	0	1051	1341	1549	0	1549	A - Taper Diverge (1 & 1)
	17:00 – 18:00	576	666	0	666	1266	1462	0	1462	A - Taper Diverge (1 & 1)
Scenario 3 - With Development										
M180 WB Onslip	08:00 – 09:00	578	669	31	700	1347	1556	0	1556	D - Lane Gain (1 & 2)
	17:00 – 18:00	771	892	16	908	1143	1320	0	1320	D - Lane Gain (1 & 2)
M180 WB Offslip	08:00 – 09:00	155	179	23	202	1347	1556	0	1556	A - Taper Diverge (1 & 1)
	17:00 – 18:00	119	138	46	184	1143	1320	0	1320	A - Taper Diverge (1 & 1)
M180 EB Onslip	08:00 – 09:00	143	165	63	229	1341	1549	0	1549	D - Lane Gain (1 & 2)
	17:00 – 18:00	171	198	33	231	1266	1462	0	1462	D - Lane Gain (1 & 2)
M180 EB Offslip	08:00 – 09:00	908	1051	11	1062	1341	1549	0	1549	A - Taper Diverge (1 & 1)
	17:00 – 18:00	576	666	22	689	1266	1462	0	1462	A - Taper Diverge (1 & 1)

- 8.23 As shown in **Table 43** and **Table 44** shows that the addition of the proposed development traffic flows does not result in a change in merge or diverge classification required.
- 8.24 The type of merge and diverge (and the number of lanes currently provided on the mainline and on the merge / diverge) is therefore sufficient to accommodate the future year traffic flows. No further assessment of M180 Junction 3 is therefore deemed required.
- 8.25 The scenarios in the above tables are also illustrated on merge / diverge diagrams contained within **Appendix 13**.

Junction 3 – Frodingham Grange Roundabout

- 8.26 The Frodingham Grange 4-arm Roundabout has been assessed using JUNCTIONS 10 ARCADY module in lane simulation mode. **Table 45** presents the JUNCTIONS 10 capacity assessment results in the 2024, 2027 and 2036 assessment scenarios. A copy of the measurements used in the JUNCTIONS 10 model, and the JUNCTIONS 10 capacity assessment output data is contained within **Appendix 14**.

Table 45: Junction 3 Capacity Assessment

	AM					PM				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
[Lane Simulation] - 2024 Base										
1 - A18 Doncaster Road (E)	D1	2.5	8.85		A	D2	6.7	16.71		C
2 - A1077 (S)		5.7	14.44		B		2.2	8.35		A
3 - A18 Doncaster Road (W)		1.4	6.81		A		0.6	4.38		A
4 - A1077 (N)		1.4	8.09		A		3.1	9.72		A
[Lane Simulation] - 2027 Base + Committed										
1 - A18 Doncaster Road (E)	D3	2.6	8.94		A	D4	7.8	23.21		C
2 - A1077 (S)		6.3	15.96		C		2.6	10.31		B
3 - A18 Doncaster Road (W)		1.6	7.13		A		0.6	4.53		A
4 - A1077 (N)		1.2	8.72		A		4.0	10.88		B
[Lane Simulation] - 2027 Base + Committed + Development										
1 - A18 Doncaster Road (E)	D5	3.4	10.60		B	D6	24.6	60.54		F
2 - A1077 (S)		12.6	24.77		C		3.6	12.99		B
3 - A18 Doncaster Road (W)		1.9	9.10		A		0.7	4.96		A
4 - A1077 (N)		2.0	9.72		A		4.6	13.10		B
[Lane Simulation] - 2036 Base + Committed										
1 - A18 Doncaster Road (E)	D9	3.6	9.94		A	D10	13.3	36.48		E
2 - A1077 (S)		7.6	19.53		C		3.6	11.94		B
3 - A18 Doncaster Road (W)		2.1	8.16		A		0.7	4.82		A
4 - A1077 (N)		1.9	9.23		A		4.6	13.43		B
[Lane Simulation] - 2036 Base + Committed + Development										
1 - A18 Doncaster Road (E)	D11	3.8	11.88		B	D12	36.1	87.19		F
2 - A1077 (S)		17.3	34.92		D		5.2	13.94		B
3 - A18 Doncaster Road (W)		2.7	10.48		B		0.7	4.99		A
4 - A1077 (N)		2.1	10.76		B		5.8	16.27		C

- 8.27 The above shows that the Frodingham Grange Roundabout is predicted to operate over capacity on the Doncaster Road (E) arm in the 'with development' scenarios. In 2027 the queue on Doncaster Road (E) is predicted to increase from 8 to 25 PCU, with the delay increasing from 24 to 60 seconds per vehicle on average. In 2036 the queue is predicted to increase from 14 to 37 PCU, with the delay increasing from 37 to 88 seconds per vehicle on average.
- 8.28 In the AM peak, in 2036 the A1077 (S) arm is predicted to see the MMQ increase from 8 to 18 PCU, and the delay from 20 to 35 seconds, however the model does not flag this up as a capacity constraint.
- 8.29 The A1077 (S) and Doncaster Road (W) arms are predicted to continue to operate well within capacity (with negligible queue or delay predicted).
- 8.30 Given the increase in queue predicted on Doncaster Road (E) following the addition of the development traffic, further assessment of the performance of Junction 3 will be considered as part of the sensitivity test assessments that will be presented in the TA Addendum.

Junction 4 – Berkeley Roundabout

- 8.31 The Berkeley Roundabout has been assessed using JUNCTIONS 10 ARCADY module in lane simulation mode. **Table 46** presents the JUNCTIONS 10 capacity assessment results in the 2024, 2027 and 2036 assessment scenarios. A copy of the Junction 4 capacity assessment output data is contained within **Appendix 15**.

Table 46: Junction 4 Capacity Assessment

	AM					PM				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
[Lane Simulation] - 2024 Base										
1 - Scotter Road (N)	D1	1.7	13.26		B	D2	4.8	28.67		D
2 - Doncaster Road (E)		1.0	11.50		B		6.0	47.66		E
3 - A18 Kingsway		2.5	15.61		C		6.6	41.07		E
4 - Scotter Road (S)		2.7	11.23		B		2.0	9.08		A
5 - A18 Doncaster Road (W)		4.6	14.61		B		9.9	28.13		D
[Lane Simulation] - 2027 Base + Committed										
1 - Scotter Road (N)	D3	2.6	17.44		C	D4	7.9	43.61		E
2 - Doncaster Road (E)		1.0	12.67		B		8.3	61.59		F
3 - A18 Kingsway		2.7	17.30		C		11.9	64.51		F
4 - Scotter Road (S)		3.7	14.78		B		2.0	10.10		B
5 - A18 Doncaster Road (W)		6.1	18.84		C		12.0	31.88		D
[Lane Simulation] - 2027 Base + Committed + Development										
1 - Scotter Road (N)	D5	3.9	27.10		D	D6	12.0	64.99		F
2 - Doncaster Road (E)		1.5	16.33		C		32.9	205.00		F
3 - A18 Kingsway		3.3	20.38		C		17.3	92.50		F
4 - Scotter Road (S)		4.0	16.77		C		2.5	11.50		B
5 - A18 Doncaster Road (W)		9.1	24.08		C		16.1	42.37		E
[Lane Simulation] - 2036 Base + Committed										
1 - Scotter Road (N)	D7	3.9	27.31		D	D8	16.2	79.05		F
2 - Doncaster Road (E)		1.4	15.26		C		19.4	129.42		F
3 - A18 Kingsway		3.4	21.90		C		20.7	109.99		F
4 - Scotter Road (S)		5.7	20.38		C		2.7	13.10		B
5 - A18 Doncaster Road (W)		11.5	30.58		D		26.5	62.08		F
[Lane Simulation] - 2036 Base + Committed + Development										
1 - Scotter Road (N)	D9	9.3	57.19		F	D10	24.4	122.87		F
2 - Doncaster Road (E)		1.9	19.79		C		53.6	383.09		F
3 - A18 Kingsway		4.2	26.31		D		30.1	146.74		F
4 - Scotter Road (S)		7.8	29.90		D		3.3	15.20		C
5 - A18 Doncaster Road (W)		20.5	47.11		E		34.1	72.65		F

- 8.32 Comparing the 2027 assessment scenarios, the addition of the development traffic has a minimal impact on the operation of the Roundabout in the AM peak. The development traffic is however predicted to result in the MMQ on Doncaster Road increasing from 9 to 33 PCU in the PM peak, and the delay increasing from 68 seconds on average per vehicle to 195 seconds. The addition of the development traffic in the 2027 PM peak scenario also increases the delay on A18 Kingsway from 68 seconds on average per vehicle to 91 seconds.
- 8.33 In the 2036 assessment scenario, the addition of the development traffic does result in the delay increasing from 26 seconds on average per vehicle on Scotter Road (N) to 55 seconds, and on Doncaster Road (W) from 30 seconds to 49 seconds.
- 8.34 It is noted that whilst the Proposed Development will increase queuing and delay at the junction, the junction is predicted to operate over capacity prior to the addition of the

development flows. Further assessment of Junction 4 will be considered as part of the sensitivity test assessments that will be presented in the TA Addendum.

Junction 5 – Scotter Road/Brumby Common Lane/West Common Lane Junction

8.35 The capacity of Junction 5 has been assessed using the JUNCTIONS 10 PICADY module. **Table 47** presents the JUNCTIONS 10 capacity assessment results in the 2024, 2027 and 2036 assessment scenarios. A copy of the Junction 5 capacity assessment output data is contained within **Appendix 16**.

Table 47: Junction 5 Capacity Assessment

	AM					PM				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
2024 Base										
Stream B-CD	D1	0.3	7.89	0.20	A	D2	0.7	14.38	0.42	B
Stream B-AD		0.2	16.59	0.19	C		0.5	27.83	0.32	D
Stream A-BCD		0.0	6.79	0.00	A		0.0	6.17	0.00	A
Stream D-ABC		0.0	0.00	0.00	A		0.0	0.00	0.00	A
Stream C-ABD		0.4	7.43	0.27	A		0.3	9.27	0.26	A
2027 Base + Committed										
Stream B-CD	D3	0.3	8.10	0.21	A	D4	0.8	15.72	0.45	C
Stream B-AD		0.3	18.58	0.21	C		0.6	33.67	0.37	D
Stream A-BCD		0.0	7.10	0.00	A		0.0	6.34	0.00	A
Stream D-ABC		0.0	0.00	0.00	A		0.0	0.00	0.00	A
Stream C-ABD		0.5	8.29	0.34	A		0.5	10.45	0.32	B
2027 Base + Committed + Development										
Stream B-CD	D5	0.3	8.19	0.21	A	D6	0.8	15.99	0.45	C
Stream B-AD		0.3	19.09	0.21	C		0.6	35.04	0.38	E
Stream A-BCD		0.0	7.12	0.00	A		0.0	6.38	0.00	A
Stream D-ABC		0.0	0.00	0.00	A		0.0	0.00	0.00	A
Stream C-ABD		0.5	8.39	0.34	A		0.5	10.54	0.32	B
2036 Base + Committed										
Stream B-CD	D7	0.3	8.55	0.23	A	D8	1.1	19.45	0.52	C
Stream B-AD		0.3	21.39	0.24	C		0.8	47.36	0.47	E
Stream A-BCD		0.0	7.42	0.00	A		0.0	6.54	0.00	A
Stream D-ABC		0.0	0.00	0.00	A		0.0	0.00	0.00	A
Stream C-ABD		0.6	8.82	0.37	A		0.5	11.50	0.35	B
2036 Base + Committed + Development										
Stream B-CD	D9	0.3	8.65	0.24	A	D10	1.1	19.87	0.52	C
Stream B-AD		0.3	22.02	0.25	C		0.9	49.78	0.48	E
Stream A-BCD		0.0	7.45	0.00	A		0.0	6.58	0.00	A
Stream D-ABC		0.0	0.00	0.00	A		0.0	0.00	0.00	A
Stream C-ABD		0.6	8.93	0.37	A		0.5	11.60	0.36	B

Stream A: Scotter Road North
 Stream B: West Common Lane
 Stream C: Scotter Road South
 Stream D: Brumby Common Lane

8.36 The above shows that the Scotter Road/Brumby Common Lane/West Common Lane Junction is predicted to operate well within capacity in all scenarios assessed. It is noted that the delay for vehicles is predicted to increase to almost 50 seconds per vehicle on average, however the queue length is predicted to be minimal, and the RFC is predicted to be well below the 0.85 threshold. As a result, no further assessment is deemed required.

Junction 6 – A1077/B1216 Signalised Junction

8.37 The capacity of Junction 6 has been assessed using LinSig. **Table 48** presents the LinSig capacity assessment results in the 2024, 2027 and 2036 assessment scenarios. A copy of the Junction 6 capacity assessment output data is contained within **Appendix 17**.

Table 48: Junction 6 Capacity Assessment

Arm/Movement	AM Peak		PM Peak	
	DOS	MMQ	DOS	MMQ
2024 Base				
1/1+1/1: A1077 Ahead Left	63.9%	11	37.4%	6
2/2+2/1: B12126 Left Right	60%	4	62.4%	5
3/1: A1077 Ahead	44.1%	2	26.6%	1
3/2: A1077 Right	45.4%	3	52.3%	3
4/1: A1077	24.5%	1	46.4%	1
5/1: A1077 Ahead	23.7%	2	51.2%	5
5/2: A1077 Right	45.4%	3	32.3%	2
7/1: A1077 Left Ahead	33.0%	5	65.8%	14
8/1: Ferry Road W (E) Left Right	54.8%	4	58.6%	5
PRC	40.8%		36.7%	
2027 Base + Committed				
1/1+1/1: A1077 Ahead Left	65.4%	11	38.3%	6
2/2+2/1: B12126 Left Right	61.1%	4	64.0%	5
3/1: A1077 Ahead	45.1%	2	27.2%	1
3/2: A1077 Right	46.0%	3	54.0%	3
4/1: A1077	25.0%	1	47.5%	1
5/1: A1077 Ahead	24.3%	2	52.4%	5
5/2: A1077 Right	46.5%	3	33.4%	2

Arm/Movement	AM Peak		PM Peak	
	DOS	MMQ	DOS	MMQ
7/1: A1077 Left Ahead	33.7%	6	67.3%	15
8/1: Ferry Road W (E) Left Right	56.3%	4	60.0%	5
PRC	37.7%		33.6%	
2027 Base + Committed + Development				
1/1+1/1: A1077 Ahead Left	71.5%	13	42.5%	7
2/2+2/1: B12126 Left Right	67.7%	4	68.9%	6
3/1: A1077 Ahead	48.9%	2	29.8%	2
3/2: A1077 Right	46.0%	3	54.0%	3
4/1: A1077	26.6%	1	50.7%	1
5/1: A1077 Ahead	25.5%	2	55.9%	6
5/2: A1077 Right	46.5%	3	33.4%	2
7/1: A1077 Left Ahead	35.4%	6	72.5%	17
8/1: Ferry Road W (E) Left Right	56.3%	4	56.0%	5
PRC	25.8%		24.1%	
2036 Base + Committed				
1/1+1/1: A1077 Ahead Left	70.1%	12	40.9%	7
2/2+2/1: B12126 Left Right	65.4%	4	68.5%	5
3/1: A1077 Ahead	48.3%	2	29.1%	2
3/2: A1077 Right	49.4%	3	58.0%	4
4/1: A1077	26.8%	1	50.8%	1
5/1: A1077 Ahead	26.0%	2	56.1%	7
5/2: A1077 Right	49.8%	3	35.6%	2
7/1: A1077 Left Ahead	36.2%	6	72.0%	16
8/1: Ferry Road W (E) Left Right	59.8%	4	64.7%	6
PRC	28.5%		25.0%	

Arm/Movement	AM Peak		PM Peak	
	DOS	MMQ	DOS	MMQ
2036 Base + Committed + Development				
1/1+1/1: A1077 Ahead Left	76.2%	15	45.2%	7
2/2+2/1: B12126 Left Right	72.0%	5	73.2%	6
3/1: A1077 Ahead	52.1%	3	31.7%	2
3/2: A1077 Right	49.4%	3	58.0%	3
4/1: A1077	28.5%	1	54.0%	1
5/1: A1077 Ahead	27.3%	2	59.7%	7
5/2: A1077 Right	49.8%	3	35.6%	2
7/1: A1077 Left Ahead	38.0%	6	77.3%	19
8/1: Ferry Road W (E) Left Right	59.8%	4	60.4%	5
PRC	18.1%		16.4%	

8.38 The above shows that in all scenarios assessed, the PRC is predicted to be positive (with the lowest being 16.4% in the 2026 Base + Committed + Development PM peak scenario), all DOS values are below 90%, therefore traffic is predicted to clear in a single cycle and therefore the junction is predicted to operate within capacity, with low MMQs predicted. Given the above, no further assessment is deemed required.

Junction 7 – Skippingdale Roundabout

8.39 The capacity of Junction 7 has been assessed using the JUNCTIONS 10 ARCADY module in lane simulation mode. **Table 49** presents the JUNCTIONS 10 capacity assessment results in the 2024, 2027 and 2036 assessment scenarios. A copy of the Junction 7 capacity assessment output data is contained within **Appendix 18**.

Table 49: Junction 7 Capacity Assessment

	AM					PM				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
[Lane Simulation] - 2024 Base										
1 - A1077 Phoenix Parkway (E)	D1	0.8	5.83		A	D2	4.3	14.95		B
2 - Luneburg Way		0.7	6.42		A		0.6	6.49		A
3 - A1077 Phoenix Parkway (W)		1.9	8.90		A		0.6	4.74		A
4 - Holyrood Drive		0.2	6.03		A		0.8	6.75		A
[Lane Simulation] - 2027 Base + Committed										
1 - A1077 Phoenix Parkway (E)	D3	1.0	5.93		A	D4	5.9	20.27		C
2 - Luneburg Way		0.9	6.47		A		0.7	6.71		A
3 - A1077 Phoenix Parkway (W)		2.3	9.67		A		0.6	4.78		A
4 - Holyrood Drive		0.3	6.86		A		0.9	7.14		A
[Lane Simulation] - 2027 Base + Committed + Development										
1 - A1077 Phoenix Parkway (E)	D5	1.1	6.12		A	D6	7.4	25.63		D
2 - Luneburg Way		0.9	6.66		A		0.6	7.06		A
3 - A1077 Phoenix Parkway (W)		3.0	11.87		B		0.8	4.95		A
4 - Holyrood Drive		0.2	6.54		A		0.8	7.09		A
[Lane Simulation] - 2036 Base + Committed										
1 - A1077 Phoenix Parkway (E)	D7	1.3	6.35		A	D8	8.0	28.13		D
2 - Luneburg Way		0.9	6.72		A		0.7	7.21		A
3 - A1077 Phoenix Parkway (W)		3.3	12.96		B		0.7	5.08		A
4 - Holyrood Drive		0.2	6.88		A		1.0	7.53		A
[Lane Simulation] - 2036 Base + Committed + Development										
1 - A1077 Phoenix Parkway (E)	D9	1.3	6.82		A	D10	11.8	41.59		E
2 - Luneburg Way		0.8	6.96		A		0.7	7.57		A
3 - A1077 Phoenix Parkway (W)		4.0	15.47		C		0.8	5.22		A
4 - Holyrood Drive		0.3	7.04		A		1.0	7.69		A

8.40 The above shows that Skippingdale Roundabout is predicted to continue to operate efficiently in all scenarios assessed. In 2027, the addition of the development traffic has minimal impact on MMQ and delays. The largest queue predicted in the 2027 assessment with development scenario is on Phoenix Parkway at 6 PCU.

8.41 In the 2036 assessment scenario, it is noted that the delay on Phoenix Parkway is predicted to increase from 29 seconds on average per vehicle to 42 seconds. This is a modest increase and the MMQ only increases by 4 (from 8 to 12). All other arms in both the AM and PM peak scenarios in 2036 are predicted to operate with low vehicle MMQs and delays.

Summary & Next Steps

8.42 The assessment of the 7 junctions in the 2027 and 2036 scenarios has identified potential highway capacity issues at Junctions 3 (Frodingham Grange roundabout) and 4 (Berkeley roundabout). Junctions 1, 2, 5, 6 and 7 are predicted to continue to operate within capacity in the 2027 and 2036 With Development assessment scenarios.

8.43 A forthcoming TA Addendum will present the impact of the proposed development in the following highway assessment scenarios:

- Vision and Validate scenario: 20% reduction in Proposed Development vehicle trips.
- The impact of the implementation of the Burringham Road / M181 roundabout and the implementation of the 2,500 dwellings at Maltgrade as a sensitivity test.

8.44 Ultimately the Burringham Road / M181 roundabout will likely impact the quantum of base and Proposed Development traffic routing through the Frodingham Grange and Berkeley Circle roundabouts), and therefore mitigation will be considered (if required) as part of the sensitivity test exercise.

9. NORTH LINCOLNSHIRE AREA ACTION PLAN REVIEW

Introduction

9.1 The following paragraphs provide a review of the Proposed Development's adherence against the policies set out in the Lincolnshire Lakes AAP adopted in 2016.

POLICY T2: STRATEGIC HIGHWAY NORTH (DE-TRUNKDED M181 NORTH)

9.2 Policy T2 states the following:

'The former M181 shall be retained as a key north to south Strategic Route providing a vehicular link for Scunthorpe to the M180. The northern section of this strategic highway will run between the northern roundabout junction and the existing A18/A1077 roundabout. The Strategic Highway North policy covers the stretch of road that runs north of the second new roundabout junction as identified on the AAP Policies Map. The Strategic Highway North will be subject to the following requirements:

- *The speed limit will be 40 mph.*
- *The route will be improved to allow safe use by cyclists and pedestrians.*
- *The route will include safe crossing points for cyclists and pedestrians through signalised junctions north of the northern junction and near Frodingham Grange roundabout.*
- *New planting along the route will soften its appearance and enhance its gateway role to the town while increasing biodiversity enhancement.'*

9.3 The LHA are in the process of formally de-trunking the M181 north (between the proposed site access roundabout and the A18/A1077 roundabout to the north).

POLICY T4: DETRUNKED M181 JUNCTION NORTH

9.4 Policy T4 states the following:

'The new northern roundabout junction as shown on the AAP Policies Map will:

- *Facilitate improved access to Scotter Road and enable improved access between Scunthorpe and the M180 via Lincolnshire Lakes*
- *Form a gateway feature to both Lincolnshire Lakes and Scunthorpe and enable access to the District Centre and Strategic Mixed-Use Area*
- *Need to be designed to Design Manual for Roads and Bridges or equivalent standards*
- *New planting around the new junction will soften its appearance and enhance its gateway role to the town while increasing biodiversity enhancement.'*

9.5 The above roundabout has been constructed by NLC.

POLICY T5: STRATEGIC ROUTE

9.6 Policy T5 states the following:

'The route from the detrunked M181 Junction South (T3) to Scotter Road will provide a Strategic Route for vehicles, as identified on the AAP Policies Map. It will be subject to the following:

- *The speed limit will be 30 - 40 mph.*
- *There will be junction improvements at the junction of Burringham Road and Scotter Road.*
- *Detailed consideration in relation to the role of the Burringham Road bridge will be Required.*
- *A new junction/walking and cycling crossing point will be created to connect Villages 2 and 3.*
- *The road will be designed to Design Manual for Roads and Bridges or equivalent standards.*
- *New planting along the route will soften its appearance and enhance its gateway role to the town while increasing biodiversity enhancement.'*

9.7 The above strategic route is currently under construction (NLC are constructing the M181 Junction South (T3) that will provide a vehicular route between the roundabout and Scotter Road to the east, via Burringham Road). The impact of the implementation of the roundabout will be considered as a 'Sensitivity Test' provided as part of the TA process, which details are to be included in a forthcoming TA Addendum note.

9.8 Policy T5 also discusses the role of primary routes and local roads, highlighting that a primary route will route east-west through Village 1, connecting with Scotter Road. It states that:

'It will also be important that the Primary Route is designed to be sympathetic to its village setting, whilst allowing direct access to the de-trunked M181 and reducing pressure on Berkeley Circle'.

9.9 The Proposed Development does not include a vehicular connection from the M181 (north of the site access roundabout) to Scotter Road, however it does provide a high-quality active travel link, and does not prejudice the ability for the vehicular link to be provided as part of a future phase of development at Lincolnshire Lakes.

9.10 The highway impact of not providing the link as part of the Phase 1 application has been assessed.

POLICY T8: PUBLIC TRANSPORT PROVISION

9.11 Policy T8 states the following:

'The Strategic and Primary Routes will be utilised to provide bus routes for the AAP area. Routes capable of accommodating buses and bus stops shall be provided within 400 metres walking distance of all domestic properties.'

Bus stops of a high quality will be created along the key bus routes, providing shelters, up to date route information and raised kerbs. Real Time Passenger Information will also be incorporated where possible.'

9.12 The Proposed Development includes measures that will ensure the above is adhered to, via the diversion of a local bus service into the site via the M181 access roundabout. The above will be complimented by the ability for residents to make use of the North Lincolnshire DRT service.

9.13 Public transport proposals will be reviewed both as future phases come forward, and as part of the Travel Plan process, and amendments will be made as and when the vehicular connection through to Scotter Road is brought forward.

POLICY T9: PEDESTRIAN, CYCLEWAYS AND BRIDLEWAYS NETWORK

9.14 Policy T9 states the following:

'A network of pedestrian, cycle and bridleways shall be provided throughout and between the villages that are safe, attractive and useable, as shown on the AAP Movement Parameters Plan. This network shall utilise existing routes (particularly Sustrans Route 169) as far as practical and shall enable access between the residential dwellings, lakes, Local Centres, District Centre and Strategic Mixed-Use Area. No further routes will be supported to the north of village 5 and Strategic Mixed-Use Area unless adequate screening of footpaths, cycleways and bridleways is provided'.

'Routes for non-motorised users should be designed in accordance with best practice guidance. A complementary Signing Strategy should also be developed to assist with wayfinding.'

9.15 The Proposed Development includes a network of highway quality walking, wheeling and cycling infrastructure that aligns with requirements within best practice / guidance (LTN 1/20). A signage strategy will be implemented and agreed as part of the detailed design stage.

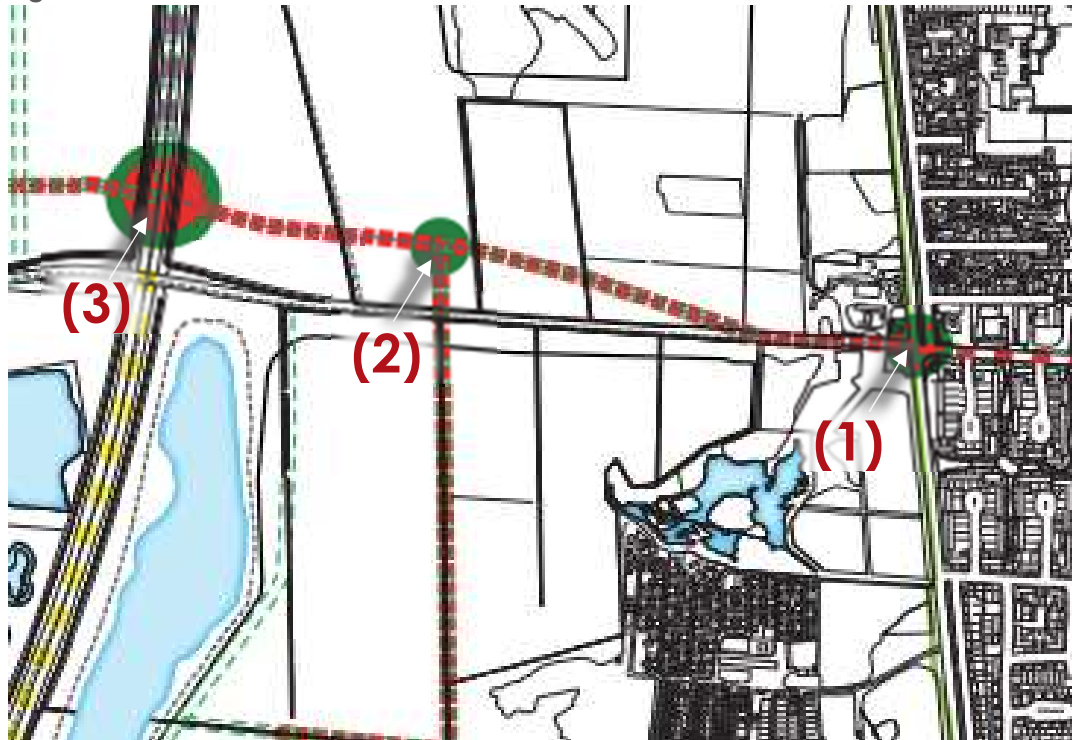
POLICY T10: STRATEGIC CROSSING POINTS

9.16 Policy T10 states the following:

'Strategic crossing points as identified on the AAP Movement Parameters Plan will be developed to ensure safe movement for non-motorised users around the AAP area. No further strategic crossing points will be supported.'

9.17 An extract of the AAP movements plan is presented overleaf.

Figure 23: AAP Movements Plan Extract



9.18 The proposed development includes a high-quality active travel crossing facility at the Brumby Common Lane / Scotter Road junction (green circle number 1 in the above), provides crossing facilities at location number 2, and does not prejudice the ability for the active travel connections to route through location number 3. The Proposed Development also does not inhibit future vehicular connectivity at location number 1.

POLICY T11: TRAVEL PLANNING

9.19 Policy T11 states the following:

'All development proposals in the AAP area for greater than 50 dwellings or greater than the following thresholds for non-residential development must be accompanied by a Travel Plan:

- *Food retail (A1) - 800m²*
- *Non-food retail (A1) - 1,500m²*
- *Offices (B1a) - 1,500m²*
- *Hotel (C1) - 80+ bedrooms*
- *Schools (D1) - all schemes*
- *Health Centre (D1) - 1,000m²*
- *Sports Stadium (D2) - 1,500m²*
- *Other D1 and D2 uses - 1,000m²*

The thresholds are indicative, and each application will be judged on its own merits. The Council reserve the right to request a Travel Plan for any proposed development which is perceived to generate a significant number of vehicle movements. Travel Plan Statements will be expected to accompany all planning applications. The delivery of Travel Plan measures should be linked to development phasing for larger development proposals and agreed via condition or legal agreement related to a planning application.

- 9.20 A Framework Travel Plan (report reference: **LLP1-BWB-GEN-XX-RP-TR-0005-S2-P2**) has been formally submitted as part of the planning application suite of documents. The Framework Travel Plan sets out the basis of measures and actions proposed by the scheme to promote and encourage sustainable travel. Future RMA applications will produce detailed travel plans that will be submitted and approved by the LHA.

POLICY T12: OFF-SITE TRANSPORT IMPROVEMENTS

- 9.21 Policy T12 states the following:

'Off-site transport improvements will be required in the vicinity of the built development areas to connect the on-site Strategic Route and Primary Route network to the existing road network and ensure future capacity. Improvements will be required at the following junctions:

- *Scotter Road/Moorwell Road (junction capacity upgrade)*
- *Scotter Road/South Park Road (junction capacity upgrade)*
- *Scotter Road/B1450 Burringham Road (junction capacity upgrade)*
- *Scotter Road/Brumby Common Lane (junction capacity upgrade)*
- *Scotter Road/Brumby Wood Lane (junction capacity upgrade)*
- *Berkeley Circle roundabout (junction capacity contribution to upgrade)*

The following off-site cycle and car parking improvements will also be required:

- *Enhanced cycle parking facilities to be provided at Scunthorpe and Althorpe railway stations*
- *Improvements to car parking facilities at Scunthorpe and Althorpe railway stations*

Each submitted application should assess the impact of the proposed development on junctions and railway stations, both individually and cumulatively with other Lincolnshire Lakes proposed developments.

Other junction upgrades may be required across the Scunthorpe road network. An assessment of these impacts may be required on an application by application basis in consultation with the Council Highways Authority.'

- 9.22 The Proposed Development has considered the impact of the Proposed Development on the operation of the highway network in its current form, highlighting potential future capacity impacts at two (Frodingham Grange roundabout and Berkeley roundabout) of the seven junctions assessed. It is noted however that the impact of the new

Burringham Road / M181 roundabout, could have an impact on rerouting of traffic, therefore any off-site transport improvements will be considered (if required) and presented in a forthcoming TA Addendum.

Lincolnshire Lakes AAP Adherence Review Summary

- 9.23 A review of the Site's adherence to the policies set out in the Lincolnshire Lakes AAP has been provided, and demonstrates that scheme includes the multi-modal access requirements, and does not inhibit the ability for connections (including a vehicular connection to Scotter Road) to come forward as part of future phases. The Proposed Development's adherence to 'Policy T12: off-site highway improvements' will be presented in a forthcoming TA Addendum.

10. SUMMARY AND CONCLUSIONS

10.1 BWB Consulting Limited (BWB) has been appointed by Hargreaves Land Limited ('the Client') to provide highways and transport advice to support a hybrid planning application for a proposed residential-led mixed use development ('the Proposed Development') located on land to the east of the M181/A1077(M) in Scunthorpe, North Lincolnshire, known as 'Lincolnshire Lakes – Planning Application 1' ('the Site').

10.2 This report presents the Transport Assessment (TA) for the development and should be read in conjunction with the Framework Travel Plan (report reference: **LLP1-BWB-GEN-XX-RP-TR-0005-S2-P3**) which has been produced separately to accompany the planning application.

10.3 The Proposed Development comprises of a hybrid planning application for a residential-led mixed use development located on land to the east of the M181/A1077(M) in Scunthorpe, North Lincolnshire. The description of the outline element is provided below:

'Outline planning application, with all matters reserved, for the development of up to 550 residential dwellings (Use Class C3), a local centre (Use Class E) and associated 'on-plot' landscaping, drainage and other infrastructure works'.

10.4 The outline element to be provided at the Site includes:

- Up to 550 dwellings.
- Up to 3,999sqm (gross external area (GEA)) of Use Class E within the Local Centre. Split as follows
 - Up to 2,499 sq.m (GEA) of 'main town centre uses' including retail, pub/family restaurant and gym (with a limit of up to 500sq.m (GEA) of Food Retail use).
- Up to 1,500sqm of 'non-town centre uses' (including a Creche, Doctors Surgery GP with ancillary Pharmacy use).

10.5 The description of the detailed element is provided below:

'Full planning application for the construction of a new vehicular access off the M181/A1077(M) roundabout, a pedestrian and cycle link to Scotter Road, a foul pumping station, earthworks and 'off-plot' drainage, ecological and associated landscaping and infrastructure works'.

10.6 To facilitate access to the Proposed Development a spine road is to connect to the eastern arm of the A1077(M) / M181 4-arm roundabout, which will include infrastructure that will facilitate public transport provision via the construction of bus stops and bus teardrop turning heads.

10.7 The Proposed Development will also include a network of high-quality active travel (walking, wheeling & cycling) infrastructure in the form of segregated footway and cycleways that adhere to the guidance set out in LTN 1/20. The active travel routes will provide a connection with Scotter Road, via the installation of segregated pedestrian

and cycle signalised crossing facilities, tying into the existing shared footway/cycleway infrastructure on West Common Lane and Scotter Road.

- 10.8 The multi-modal access proposals are to be subjected to a Stage 1 Road Safety Audit, of which the audit and associated designer's response will be submitted during the application determination period.
- 10.9 Vehicle trip generation has been derived via the use of residential trip rates used in the original AAP assessment (confirmed as acceptable by NLC and NH) and trip rates generated using the TRICS database for the non-residential elements. Appropriate non-primary trip proportions have been applied to the non-residential elements and multi-modal trips have been derived via a combination of local journey to work modal split and TRICS multi-modal trip data.
- 10.10 A modal split that aligns with NH's Vision and Validate approach targets a 20% reduction in Proposed Development vehicle trips. The high-quality network of active travel infrastructure, including the segregated wide corridor to Scotter Road and the segregated signalised crossing facilities will help to achieve the Vision and Validate scenario, along with the implementation of the Framework Travel Plan. The active travel infrastructure proposed will also aid ATE in achieving their ambitions target of 50% of short trips to be via walking, wheeling or cycling by 2030.
- 10.11 The active travel proposals will be supported by a bus route (likely to be the number 35 service) serving the Proposed Development no later than by the occupation of the 200th dwelling, which will complement the ability for residents to make use of the North Lincolnshire DRT service, an on-demand service that site users will be able to make use of via an app to request trips from the Site to surrounding areas (including Scunthorpe Town Centre).
- 10.12 A review of the scheme's performance against ATE's 10 criteria within the planning application toolkit assessment demonstrates that the Proposed Development is committed to encouraging active travel to and from the Site, with a set of infrastructure proposed to be included as conditions within a forthcoming planning permission.
- 10.13 A review of PICs recorded within vicinity of the Site, at and the junctions assessed as part of the highway impact assessment demonstrates that there are no existing highway safety concerns that could be exacerbated by the Proposed Development.
- 10.14 A review of the Site's adherence to the policies set out in the Lincolnshire Lakes AAP has been provided, and demonstrates that scheme includes the multi-modal access requirements, and does not inhibit the ability for connections (including a vehicular connection to Scotter Road) to come forward as part of future phases. The Proposed Development's adherence to Policy T12: off-site highway improvements will be confirmed in a forthcoming TA Addendum given the below.
- 10.15 The impact of the Proposed Development has been assessed in 2027 (opening year) and 2036 (end of local plan) assessment scenarios. The assessment results highlighted that the proposed development could have an impact on the operation of the Frodingham Grange and Berkeley roundabouts. It is noted however that Berkeley roundabout is a junction that is already operating over capacity prior to the addition of

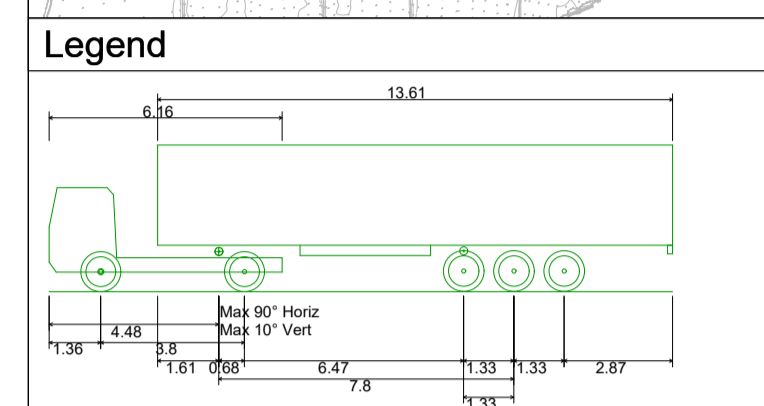
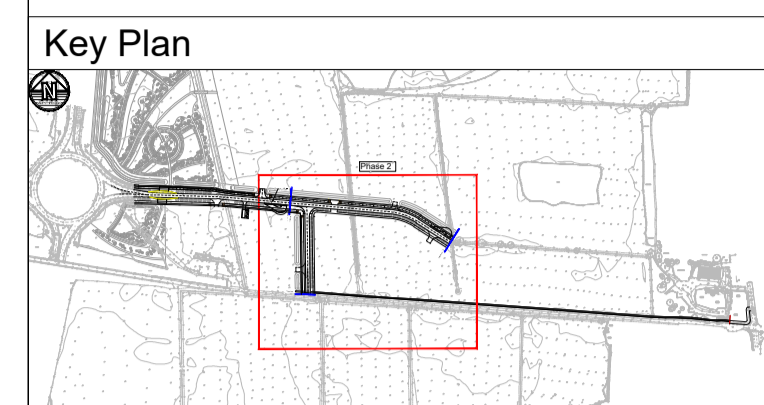
the development flows so any potential mitigation and / or contribution will be considered if required based on the percentage impact of the Proposed Development.

- 10.16 The highway assessment presented does not consider the 20% reduction in vehicle trips presented in the Vision and Validate scenario, therefore a forthcoming TA Addendum will present the Proposed Development's impact at the junctions within the highway study area where Proposed Development vehicle trips have been reduced by 20%.
- 10.17 Additionally, it is noted that the installation of the Burringham Road / M181 roundabout to the south of the Site could have an impact on routing choices for both base and Proposed Development traffic. A scenario that includes an operational Burringham Road / M181 roundabout and associated implementation of the 2500 dwellings associated with the Maltgrade committed scheme will be assessed as part of a sensitivity test, of which the findings will be provided within a forthcoming TA Addendum note.
- 10.18 Given the above, highway mitigation will be considered (if required) as part of the sensitivity test exercise and presented in a forthcoming TA Addendum.
- 10.19 Notwithstanding the above, subject to a positive outcome of the Vision and Validate and sensitivity test highway assessments the proposals accord to national and local policies and hence should be acceptable in highway terms to NLC and NH.

DRAWINGS

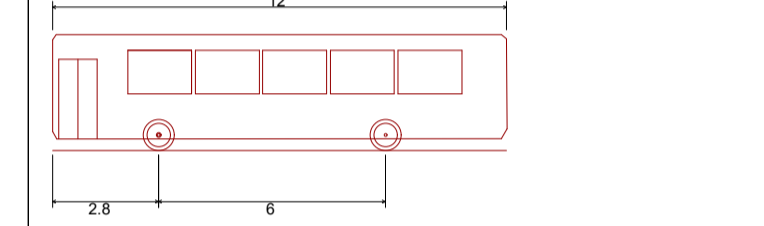


- Notes**
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 5. To be read in conjunction with:
LIN-BWB-HWY-XX-DR-C-0105_Highways Vehicle Tracking Phase 1



FTA Design Articulated Vehicle (2016)

Overall Length	16.480m
Overall Width	2.550m
Overall Body Height	3.870m
Min Body Ground Clearance	0.515m
Max Track Width	2.470m
Lock to lock time	3.00s
Kerb to Kerb Turning Radius	6.600m



'Standard' Rigid Bus

Overall Length	12.000m
Overall Width	2.550m
Overall Body Height	3.060m
Min Body Ground Clearance	0.309m
Track Width	2.350m
Lock to lock time	4.00s
Wall to Wall Turning Radius	10.771m

P01	20.01.25	Planning issue	US	KMJ
Rev	Date	Details of issue / revision	Draw	Rev

Issues & Revisions

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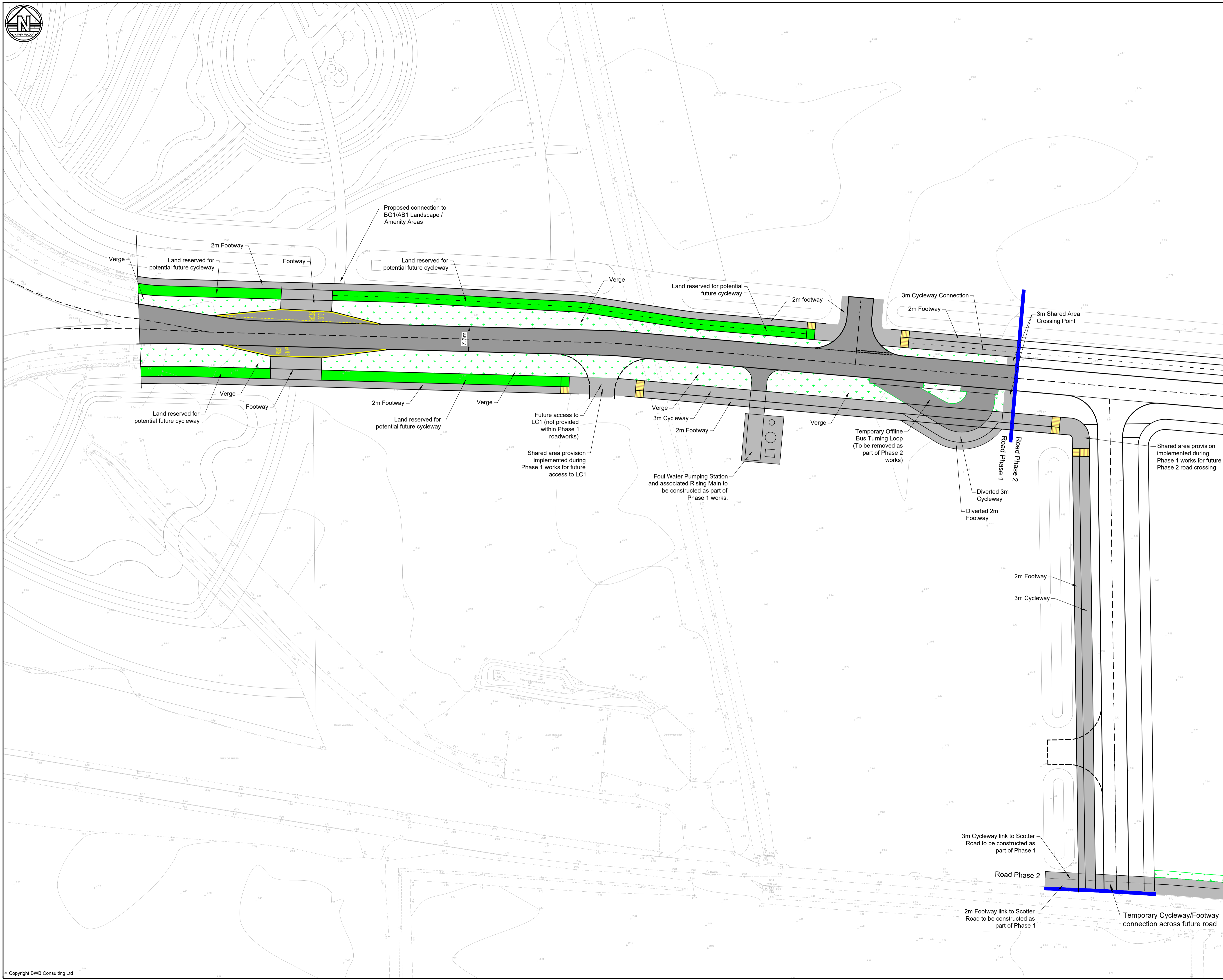
Project Title
Lincolnshire Lakes, Scunthorpe

Drawing Title
Highways Vehicle Tracking Phase 2

Drawn:	U. Shahzad	Reviewed:	K. Jones
BWB Ref:	221638	Date:	Jan '25
Scale@A1:	1:500		

Drawing Status
For Planning

Project - Originator - Zone - Level - Type - Role - Number	Status	Rev
LIN-BWB-HWY-XX-DR-C-0106	S8	P01



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Key Plan

Legend

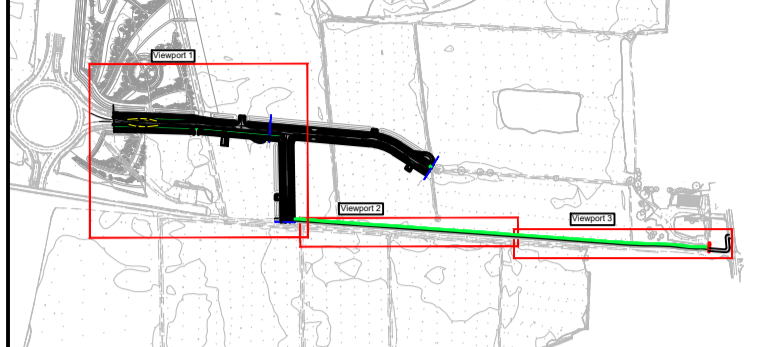
- Planning Boundary
- Phase 1 Works:
 - Proposed Footways, Cycleways or Shared Areas
 - Proposed Carriageway
 - Proposed Verge
 - Proposed Verge (Land Reserved for Potential Future Cycleway)
 - Proposed Shared Warning Paving

P04	24.12.24	Planning Issue	AB	CB
For details of previous issue / revisions, refer to revision P03				
Rev	Date	Details of issue / revision	Drw	Rev
Issues & Revisions				
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Client Hargreaves Land Ltd.				
Project Title Lincolnshire Lakes, Scunthorpe				
Drawing Title Phase 1 Works				
Sheet 1				
Drawn:	A. Biag	Reviewed:	C. Brackley	
BWB Ref:	221638	Date:	Nov '24	Scale@A1: 1:250
Drawing Status For Planning				
Project - Originator - Zone - Level - Type - Role - Number	Status	Rev		
LIN-BWB-HWY-XX-DR-C-110	S8	P04		

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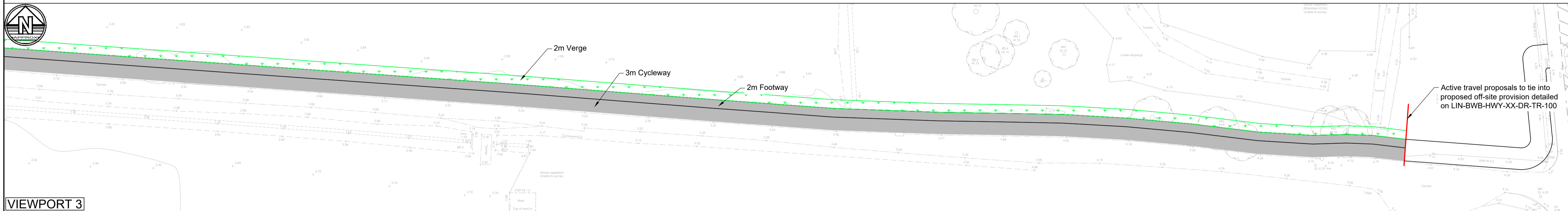
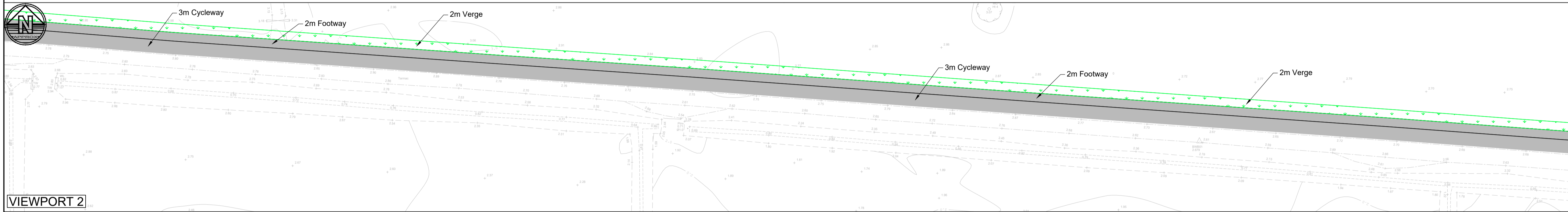
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Key Plan



Legend

- Planning Boundary
- Phase 1 Works:
 - Proposed Footways, Cycleways or Shared Areas
 - Proposed Verge



PO4	24.12.24	Planning Issue	AB	CB
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Project Title
Lincolnshire Lakes, Scunthorpe

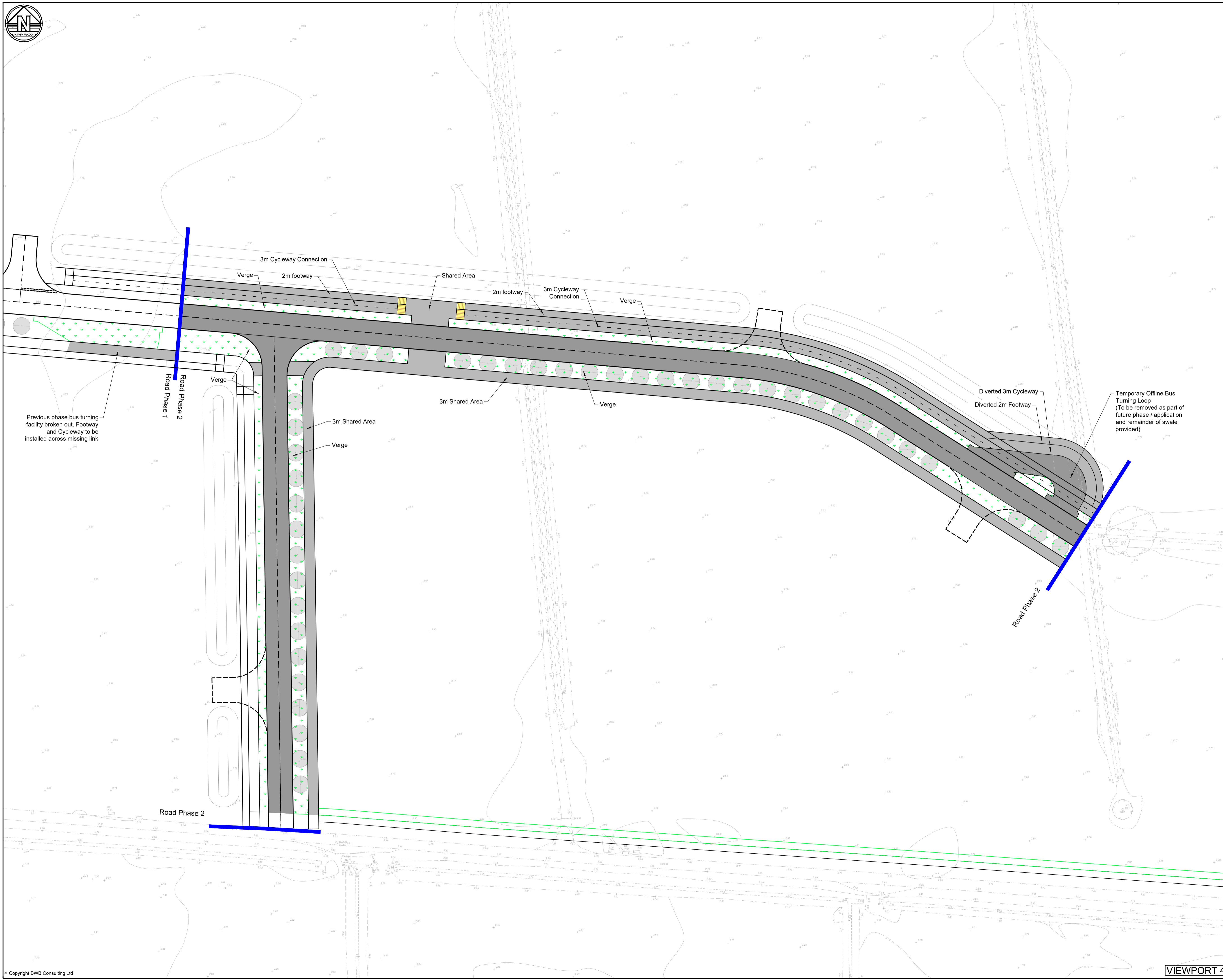
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Phase 1 Works

Sheet 2

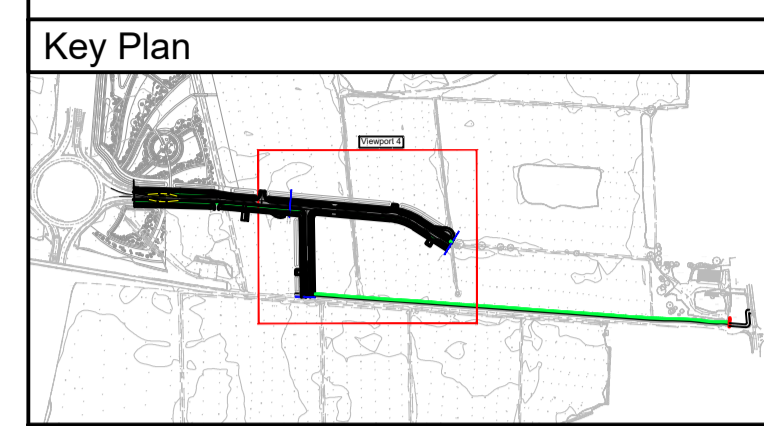
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Project - Originator - Zone - Level - Type - Role - Number	Status	Rev
LIN-BWB-HWY-XX-DR-C-111	S8	P04



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- Legend**
- Proposed Planning Boundary
 - Phase 2 Works:
 - Proposed Footways or Shared Areas
 - Proposed Carriageway
 - Proposed Verge
 - Proposed Shared Warning Paving

Previous phase bus turning facility broken out. Footway and Cycleway to be installed across missing link

Temporary Offline Bus Turning Loop
(To be removed as part of future phase / application and remainder of swale provided)

P04	24.12.24	Planning Issue	AB	CB
For details of previous issue / revisions, refer to revision P03				
Rev	Date	Details of issue / revision	Drawn	Rev

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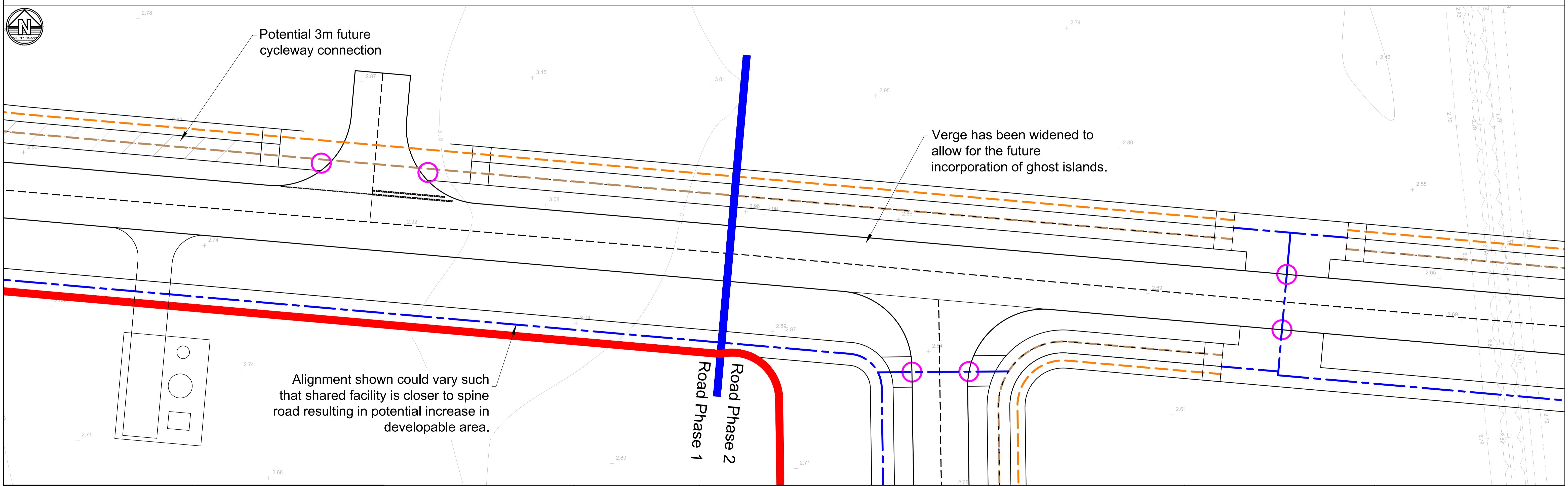
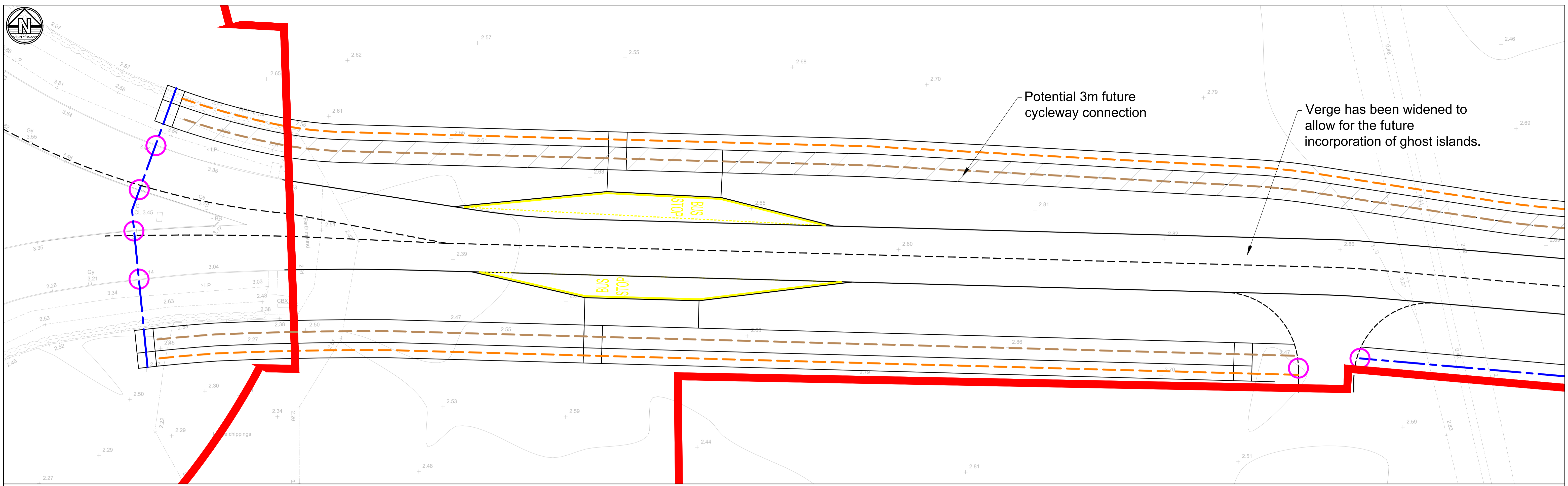
Project Title
Lincolnshire Lakes, Scunthorpe

Drawing Title
Phase 2 Works

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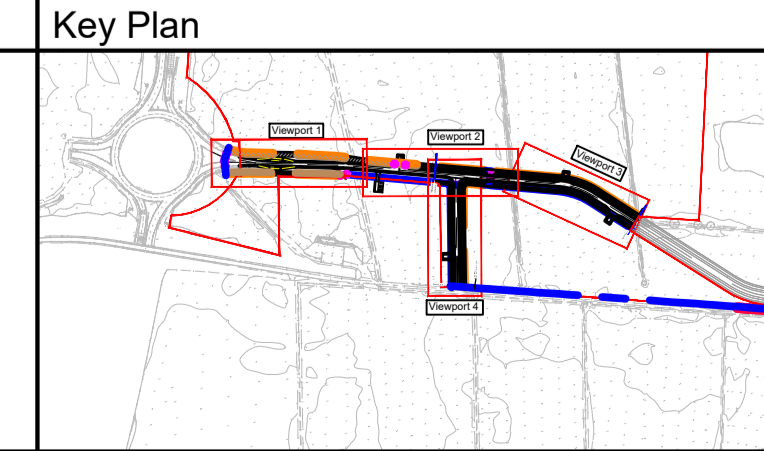
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Project - Originator - Zone - Level - Type - Role - Number	Status	Rev
LIN-BWB-HWY-XX-DR-C-112	S8	P04



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Legend

- Planning boundary
- - - Proposed footway (part of highway)
- - - Proposed shared use footway / cycleway
- - - Proposed cycleway
- - - Proposed future cycleway connection
- Proposed crossing

ISSUES & REVISIONS

Rev	Date	Details of issue / revision	Drw	Rev
P01	19.11.24	Preliminary Issue	AB	CB

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BWB Ref: 221638 Date: Nov '24 Scale@A1: 1:250

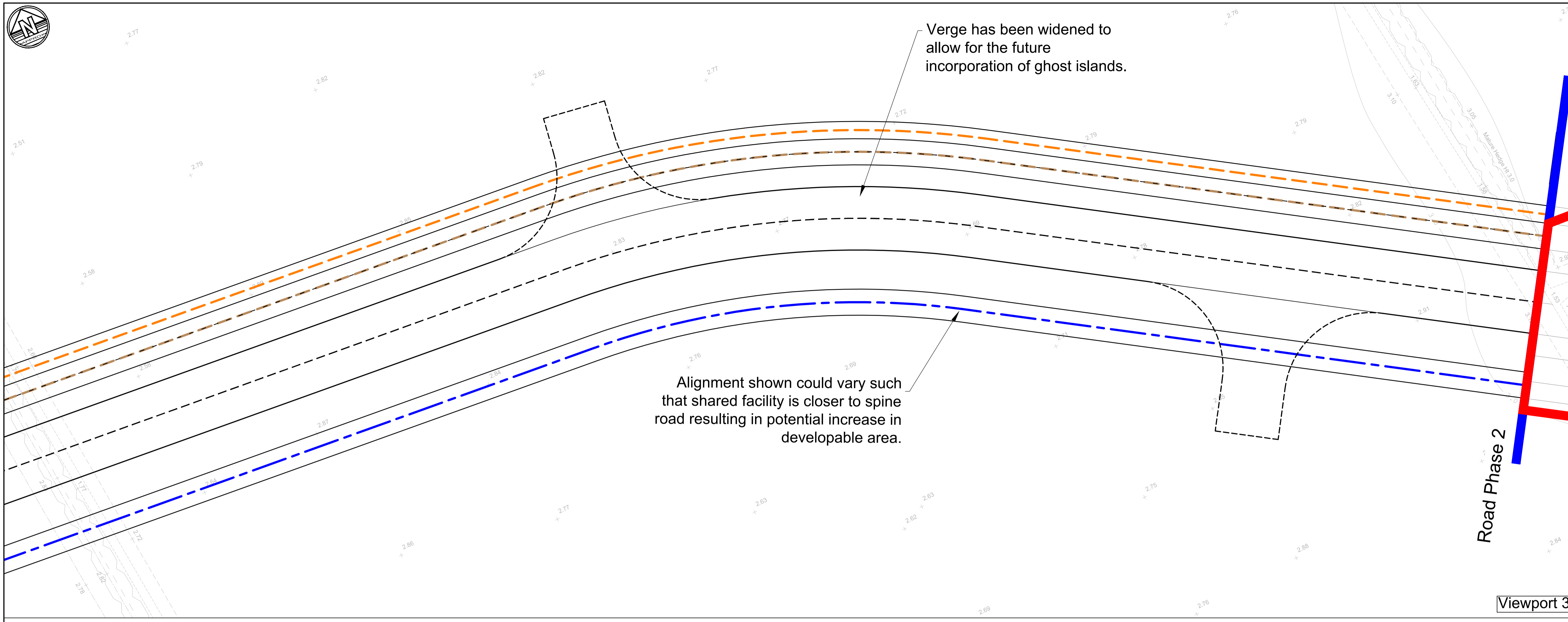
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Lincolnshire Lakes, Scunthorpe

Drawing Status
PRELIMINARY

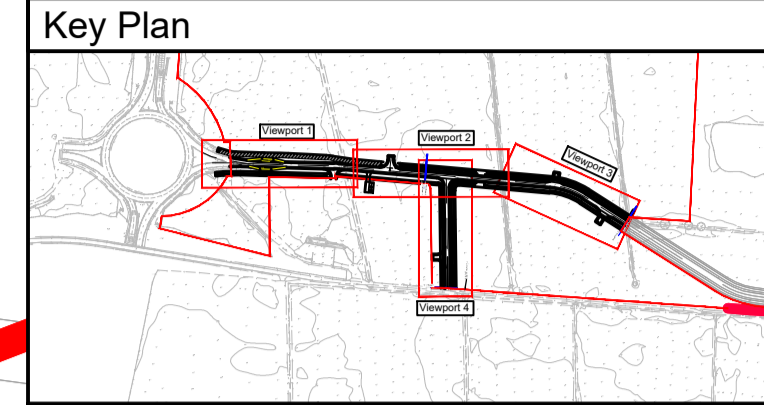
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Non Motorised User Strategy Sheet 1

Project - Originator - Zone - Level - Type - Role - Number Status Rev

LIN-BWB-HWY-XX-DR-C-120 **S1** **P01**

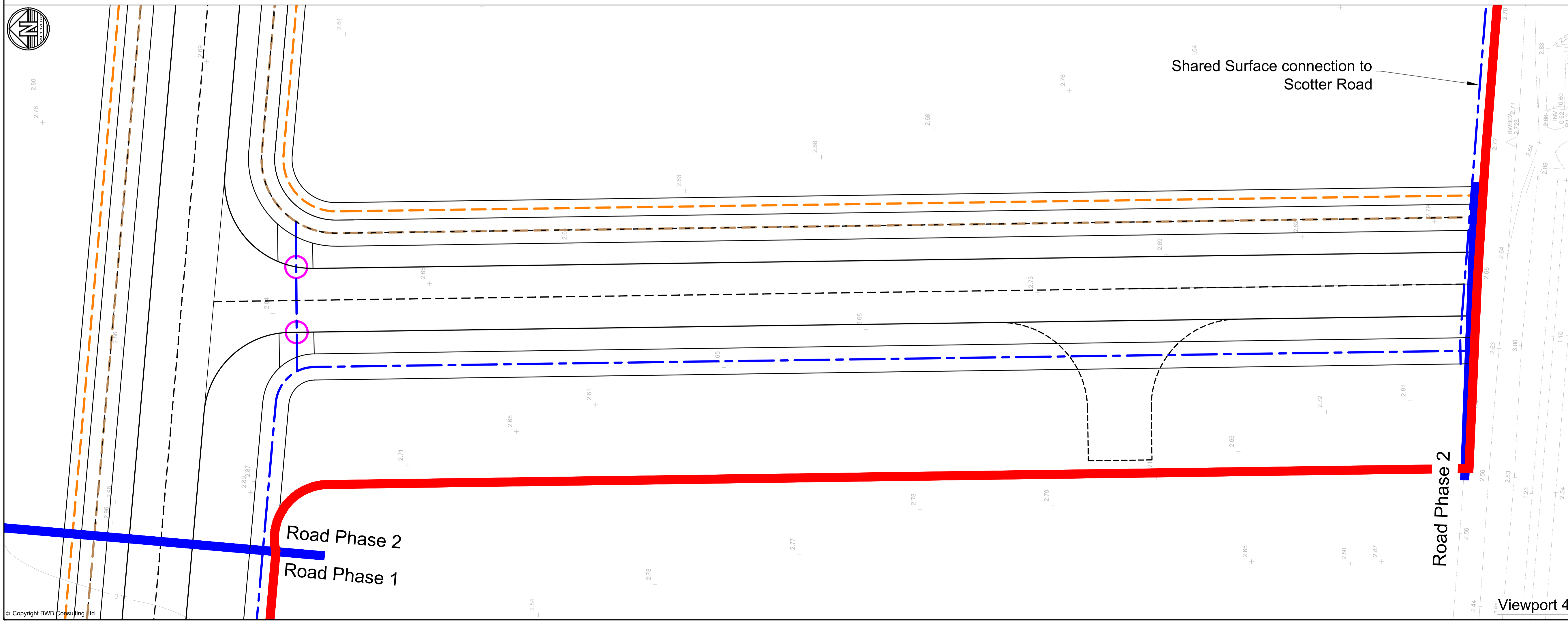
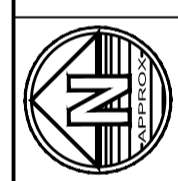


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- Legend**
- Planning boundary
 - - - Proposed footway (part of highway)
 - Proposed shared use footway / cycleway
 - - - Proposed cycleway
 - Proposed crossing

Viewport 3



Rev	Date	Details of issue / revision	AB	CB
P01	19.11.24	Preliminary Issue		

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Project Title
Lincolnshire Lakes,
Scunthorpe

Drawing Title
Non Motorised User
Strategy Sheet 2

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BWB Ref:	221638	Date:	Nov '24
Scale:	@A1:	Scale:	1:250
PRELIMINARY			
Project - Originator - Zone - Level - Type - Role - Number	Status	Rev	
LIN-BWB-HWY-XX-DR-C-121	S1	P01	

Viewport 4