



Transport & Movement Annex

Lidsing Garden Community

24-095-006 Rev A

August 2025



Charles & Associates

Document Control Sheet

Project Name:	Lidsing Garden Community
Project Number:	24-095
Report Title:	Transport & Movement Annex
Report Number:	006

Rev	Issue Purpose	Author	Checked	Reviewed	Approved	Date
-	Draft	CG/AT	AT	JW	JW	30/07/25
A	Planning	CG	CG	JW	JW	15/08/25

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Vision for Sustainable Accessibility at Lidsing

1. Once complete, there will be an established, mixed-use development at Lidsing, that has minimised the need to travel beyond the site boundary – with walkable neighbourhoods within the development and connections to the surrounding areas where active modes are the natural choice for local mobility.
2. The development has maximised the opportunity for off-site trips to use sustainable modes, leveraging and enhancing the existing transport network and providing residents and employees with genuine choice of travel modes.
3. Residual traffic generation from the development is accommodated through a pragmatic approach to highway infrastructure provision, securing trips by safe and appropriate routes to both the local and strategic road networks and mitigating the most severe impacts.
4. Key infrastructure delivered as part of the development has derived wider benefits, alleviating former network constraints particularly on the rural road network, and having improved connectivity between Lordswood, Hempstead, Wigmore and Bredhurst through better sustainable travel opportunities.

1 Overview

1.1 Introduction

1.1.1 Charles & Associates have prepared this Annex to the Supplementary Planning Document (SPD) produced by Maidstone Borough Council in respect of the proposed Lidsing Garden Community. The SPD is a requirement of the site allocation policy within the Adopted Local Plan and will provide additional the site-specific guidance and parameters against which a future Outline Planning Application (OPA) will be defined.

1.1.2 This Transport & Movement Annex provides a framework for a comprehensive Transport Assessment that will necessarily support that SPD. It builds on the extensive technical work undertaken during the evidence gathering exercise for the Local Plan preparation, now with a particular focus on setting a framework for how the development and its assessment will respond to contemporary national planning policy with respect to transport planning. Most notably, this means embracing the 'vision-led' principles now enshrined within the National Planning Policy Framework (NPPF), in particular paragraphs 115 to 118.

1.1.3 While these principles were already emerging at the time of the LP adoption, for instance through the Department for Transport's Planning Circular 01/2022, it remains for the assessment within the LPA to fully embrace and implement the approach. Fundamental to 'vision-led' planning is the need to embed the principles in the development from the outset and it is therefore critical that it is considered from this early SPD stage.

1.1.4 The primary purposes of this Transport & Movement Annex are:

1. To ensure that parameters for the development to be enshrined within the SPD, including those which define and constrain the masterplan, fully embrace the objective of being vision-led with respect to sustainable transport. This requires that, for instance, the development's access strategy and masterplanning principles are defined in a manner that is consistent with a vision for sustainable travel.
2. To provide a framework for the Transport Assessment and its assumptions, methodology and approach that will support the OPA, ensuring that it also embraces the principles of vision-led planning as set out in the NPPF.

1.1.5 In this regard it is prepared in a manner that is proportionate to the requirements of the SPD and is a precursor to the comprehensive Transport Assessment will support the OPA.

1.2 Stakeholder Engagement

1.2.1 This Annex has been produced through a process of engagement with relevant stakeholders. A summary of that process is outlined below.

Public Engagement

1.2.2 MBC and the promoter hosted an Informal Consultation using in-person events in Bredhurst and online consultation to inform the SPD. As part of this the C&A presented specific options for local connections between the site and surrounding settlements including Bredhurst and Boxley.

Figure 1.1: Informal Consultation in Bredhurst



1.2.3 Both MBC and C&A surveyed residents to understand their preferences on these options and this work has informed the SPD as well as the requirements of this Annex. This is covered in more detail in Chapter 5.

Highway Authority Scoping

1.2.4 An initial scoping report, prepared by the promoter, was submitted to all relevant highway authorities as an appendix to a broader SPD scoping letter from MBC.

1.2.5 Following this a series of topic specific meetings coordinated by MBC and the promoters took place with the relevant highway authorities including Kent County Council Highways (KCCH), National Highways and Medway Council. These covered:

- Topic 1 – Vision and Active Travel;
- Topic 2 – Access and Public Transport;
- Topic 3 – Transport Modelling;
- Topic 4 – Monitor and Manage.

1.2.6 The meetings were conducted on the basis of the topic-specific agenda, with the promoters setting out a proposed approach to addressing each matter. This was followed by topic-specific technical notes circulated to the relevant parties and discussed/commented on in the subsequent meeting.

1.2.7 The content of this Transport and Movement Annex is substantially based on the original scoping report and the technical notes discussed and shared with the highway authorities.

Stakeholder Steering Group

1.2.8 As part of the wider and on-going Stakeholder Steering Group engagement, an update session took place on the nature of this annex, setting the scope, expectations and timescale for delivery. A further engagement exercise is to take place prior to formal publication of the SPD.

1.3 Annex Scope

1.3.1 Following this introduction the report initially sets out an explanation of the concept of vision-led planning and transport assessment, with a relevant policy context.

1.3.2 Thereafter, the report sets out the framework for the delivery of active travel connectivity; public transport accessibility and how this will be secured through the access framework to be enshrined within the SPD to prioritise sustainable modes.

1.3.3 The report goes on to define the methodology to be adopted in assessing the impact of the development through the OPA and how this will respond to the requirements of a vision-led approach. Most notably this considers a contemporary and policy-consistent approach to dealing with uncertainty in forecasting. The most apparent consequence of this to ensure that a pessimistic approach to forecasting does not undermine the vision for the development; but necessarily providing a clear and robust mean of post scheme implementation monitoring and management to effectively mitigate any residual severe impacts.

2 Vision for Sustainable Accessibility

2.1 Introduction

2.1.1 The Lidsing development Outline Planning Application (OPA) will be supported by a vision-led Transport Assessment to meet the requirements of National Planning Policy Framework (NPPF) paragraphs 115-118 and the adopted site policy. This chapter introduces the vision-led approach which has emerged in UK transport planning in recent years.

2.1.2 From the 1990s to the 2010s, transport planners would typically estimate the trip generation from a proposed development site, largely after the specifics of the proposal itself have been fixed, through the use of historic traffic data at similar sites within the TRICS database to establish average trip rates ('Predict & Provide'). This approach inherently assumes that historical traffic growth and trends will continue into the future and uses this assumption to determine forecast network conditions and the future need for transport infrastructure. While perceptually a precautionary approach, it has consistently given rise to unwanted outcomes. Historic responses to uncertainty in forecasting have been to err on the side of caution and use robust forecasts. Rather than infrastructure provision being based on what we want to happen (more sustainable travel patterns) – it has been based on the fear of what could happen (the robust forecasts). Provision of infrastructure to support this pessimistic forecast has, historically, simply given rise to that unwanted outcome materialising.

2.1.3 Contemporary transport planning guidance advises a shift away from this Predict & Provide towards a 'vision-led' approach to development. Fundamentally this means setting a vision for what we 'want' from the very outset and bringing forward the development to deliver that. This does not eliminate the need for forecasting of demand to inform decision making. However, forecasting must be more pragmatic about uncertainty and mindful of the implications of simple adopting a robust approach. Rather than being simply an output of the process the determines residual mitigation of impact, forecasting should be a tool to informs decisions at the planning stage to best achieve sustainable vision; only thereafter to inform decisions about mitigation of residual impact and then only again with a pragmatic view of the uncertainty in forecasting.

2.1.4 Fundamentally this means that forecasting should move from a single, definitive, prediction of the future to a more reasonable range of potential outcomes informed by, but not bound by, historic data. Where traditionally 'evidence' to inform such forecasts has been largely limited to data of what has happened before – projected in to the future – there is now a need to look at a broader suite of evidence in particular the vision itself and the means to achieve this.

2.2 National Policy

2.2.1 The DfT Circular 01/2022 'The Strategic Road Network and the Delivery of Sustainable Development' promotes and references the use of vision-led approaches in paragraph 15:

"15. ... 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'). The company will support local authorities in achieving this aim through its engagement with their plan-making and decision-taking stages..."

2.2.2 The NPPF as updated in December 2024 also endorses the vision-led approach:

109. 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.

118. 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 vision-led transport statement or transport assessment so that the likely impacts of the proposal can be assessed and monitored.

2.2.3 Annex 2: Glossary of the NPPF (ref. page 80) provides a critical explanation of what a 'Vision-Led Approach' is, noting succinctly that it is:

'...an approach to transport planning based on setting the outcomes for a development based on achieved well-designed, sustainable and popular places, and providing the transport solutions to deliver those outcomes as opposed to predicting future demand and provide capacity (often referred to as 'predict and provide').'

2.2.4 Also supporting this change is the creation of 'Active Travel England' (ATE), which is the government's executive agency responsible for making walking, wheeling and cycling the preferred choice for everyday travel in England. ATE have become a statutory consultee on major planning applications outside of London since 2023 and will therefore be consulted on the Lidsing proposals when an application is submitted.

2.3 Local Policy

2.3.1 KCC Highways have supported the vision-led approach in an advisory note to local planning authorities which reaffirms KCC's role and involvement in the highway aspects of planning applications, including the following:

"KCC Highways, where possible, are not now looking to amend the network to accommodate more cars. Instead, they are looking to see how people could travel more sustainably from new development sites and are asking developers to provide the infrastructure to make this happen. This is known as "vision and validate" or "decide and provide" as opposed to the former use of "predict and provide" which always looked at the worst-case future year scenario and tried to adjust the network to cope with it. The hope is that in the future it will be more inviting and easier to walk and cycle short trips than to use the private car and that public transport will be more accessible with reliable journey times."

2.3.2 While the site is in Maidstone Borough, it is useful to note that in the neighbouring Medway unitary authority the emerging Medway Local Plan¹ places similar emphasis on walkable neighbourhoods, active travel and public transport:

Vision for Access and Movement in Medway:

By 2041, Medway is an accessible place where people can meet most of their daily needs in their local area, such as schools, grocery shopping and places to socialise and exercise. Co-working spaces have reduced the need to travel for people who are more likely to be able to work remotely.

A growing network for active travel converges on urban centres following the successful implementation of a Local Cycling and Walking Infrastructure Plan (LCWIP) and a Rights of Way Improvement Plan (ROWIP).

...

An improved public transport offer provides for medium and longer distance journeys and supports a thriving cultural, evening and leisure economy.

Car clubs, demand responsive transport and e-scooters provide other credible transport choices.

¹ Medway Local Plan Regulation 19 document – page 163

2.3.3 Finally the adopted Lidsing site policy also endorses the Vision and Validate approach:

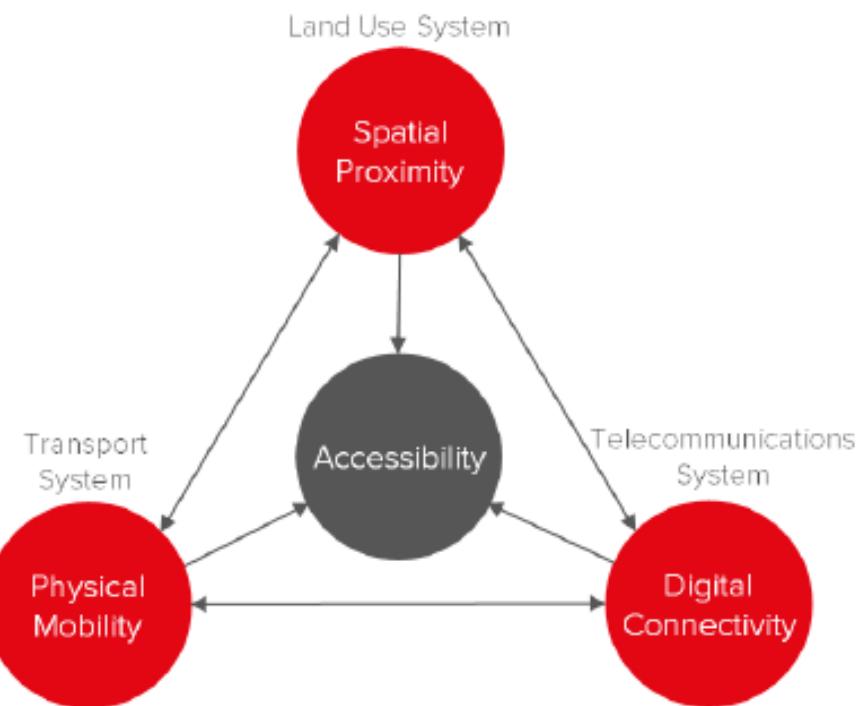
6 – Transport Connections

Prior to the first occupation of any floorspace or units on the development of a ‘Vision and Validate’ and ‘Monitor and Manage Strategy’ shall be submitted to and approved by the Local Planning Authority, in consultation with National Highways and KCC Highways.

Thereafter, the approved framework shall be implemented until full completion of the development unless otherwise agreed by the Local Planning Authority, in consultation with National Highways and KCC Highways.

2.4 What is Sustainable Accessibility?

2.4.1 Section 1.8 of the SPD shows the Vision for the site which includes an objective of ‘Securing Integrated Sustainable Accessibility’. This will be achieved through three broad means as shown below², drawing a contrast between sustainable ‘mobility’; the means by which people move; and sustainable ‘accessibility’, which is a broader topic embracing access to services that do not necessarily involve movement. This approach seeks to maximise the scope to reduce the need to travel at all, which represents the most sustainable and lowest impact form of sustainable accessibility.



² Guidance for transport planning and policymaking in the face of an uncertain future
<https://doi.org/10.1016/j.tra.2016.03.012>

2.4.2 **Digital Connectivity** will be provided through high-speed broadband to all properties on the development, as per Chapter 1 of the SPD. This enables many residents to work or study at home either in a hybrid arrangement or fully remotely, in many cases reducing travelling at peak times.³ This connectivity also allows residents to order goods and services online, resulting in a more efficient combined delivery round to the community than individual trips to off-site retailers. Further opportunities will arise to secure quality digital-based services such as telemedicine, thus reducing both the need for residents to travel and the need for vehicle trips to support daily activities. Wherever possible and appropriate, further measures to support this agenda will be integrated in to the development, including but not limited to delivery collection hubs.

2.4.3 **Spatial Proximity** has been a key aim of the Lidsing proposals since the Local Plan stage and is reflected in the emerging site masterplan as explained in more detail in SPD Chapter 4. The colocation of residential and a range of employment spaces will make the community more self-sustaining by allowing some residents to live and work on the site, with the time and cost benefits of a minimal commute. Similarly the provision of a comprehensive Local Centre means that everyday needs such as primary education, healthcare and retail can be met within a walkable neighbourhood of 800 metres or 15 minutes' walk.⁴ The Local Centre has been positioned carefully within the site to avoid unduly competing with the existing clusters at the Kestrel in Lordswood and Hempstead Valley Shopping Centre, and at the same time to provide walkable amenities for Bredhurst which are not currently available there. These approaches look to maximise the scope for what is often referred to as internalisation; keeping journeys within the development, maximising the scope for these to be sustainable and in particular active travel modes and thus placing no burden on the wider transport network.

2.4.4 Finally, it is recognised that residents will need and want to travel beyond the site boundary for other purposes. Therefore, **Physical Mobility** will be facilitated by a range of sustainable transport connections as highlighted in SPD Chapter 4 with further details in this Annex. These connections follow the hierarchy of NPPF paragraph 117a, prioritising first active travel and then high-quality public transport. It is recognised that a settlement of garden village scale will continue to generate some residual vehicle trips. These will be managed and facilitated by appropriate connections to the existing highway network, notably including a new spur from M2 Junction 4.

³ Images source – Wikimedia Commons
https://commons.wikimedia.org/wiki/File:Family_Cargo_Electric_Bike.png

⁴ National Design Guide 2021: "Local facilities are within walking distance, generally considered to be no more than a 10 minute walk (800m radius)."

2.5 Response in Masterplanning

- 2.5.1 As NPPF paragraph 109 makes clear, transport issues should be considered from the earliest stage of plan-making, as they were through the Local Plan process and now continue to be in this SPD exercise, and that a 'vision-led' approach should be adopted. This inherently requires a response in the masterplanning process and this is effectively demonstrated elsewhere within the main SPD document.
- 2.5.2 This will however be an on-going process, through the development planning process, with increasing levels of detail building on the core principles established and enshrined in the SPD.

3 Active Travel

3.1 Definition and Purpose

3.1.1 Active Travel can be broadly defined to be any mode whereby the individual provides the energy to move. At the most basic level this means walking. However, it also includes wheeling (those with disabilities whose mobility is assisted, such as by means of wheelchair) and conventional cycling. In the latter cases there is increasing opportunity for electrically assisted forms of wheeled mobility, most apparently electrically assisted bikes (e-bikes) or e-scooters. These latter modes are generally considered as part of active travel where the mechanical propulsion is complementary assistance to the human power, as is the case in all street legal e-bikes. Critically active travel does not include fully mechanically propelled vehicles, such as motorbikes and obviously not cars or vans.

Figure 3.1: E-bikes are an example of technology-assisted active travel



3.1.2 Active Travel is considered a higher order sustainable mode as it derives all of the key benefits of the broader 'sustainable development' objectives set out in NPPF Section 2, namely:

- It will generally be the cheapest form of mobility for the user and will generally have the lowest costs infrastructure burden, supporting the overall **economic objective**.
- There are clear and demonstrable health and social benefits to Active Travel, supporting the **social objective** of achieving sustainable development.
- Active Travel presents the lower burden on natural resources, generating the least waste and having the lowest **environmental impact**, in particular with respect to climate change.

3.1.3 It is therefore critical that Active Travel is embedded in development from the outset and that it is prioritised in the design and implementation. This is made clear in NPPF paragraph 117, which states that '*applications for development should give priority first to pedestrian and cycle movements, both within the scheme and with neighbouring areas*'.

3.2 Active Travel Zone

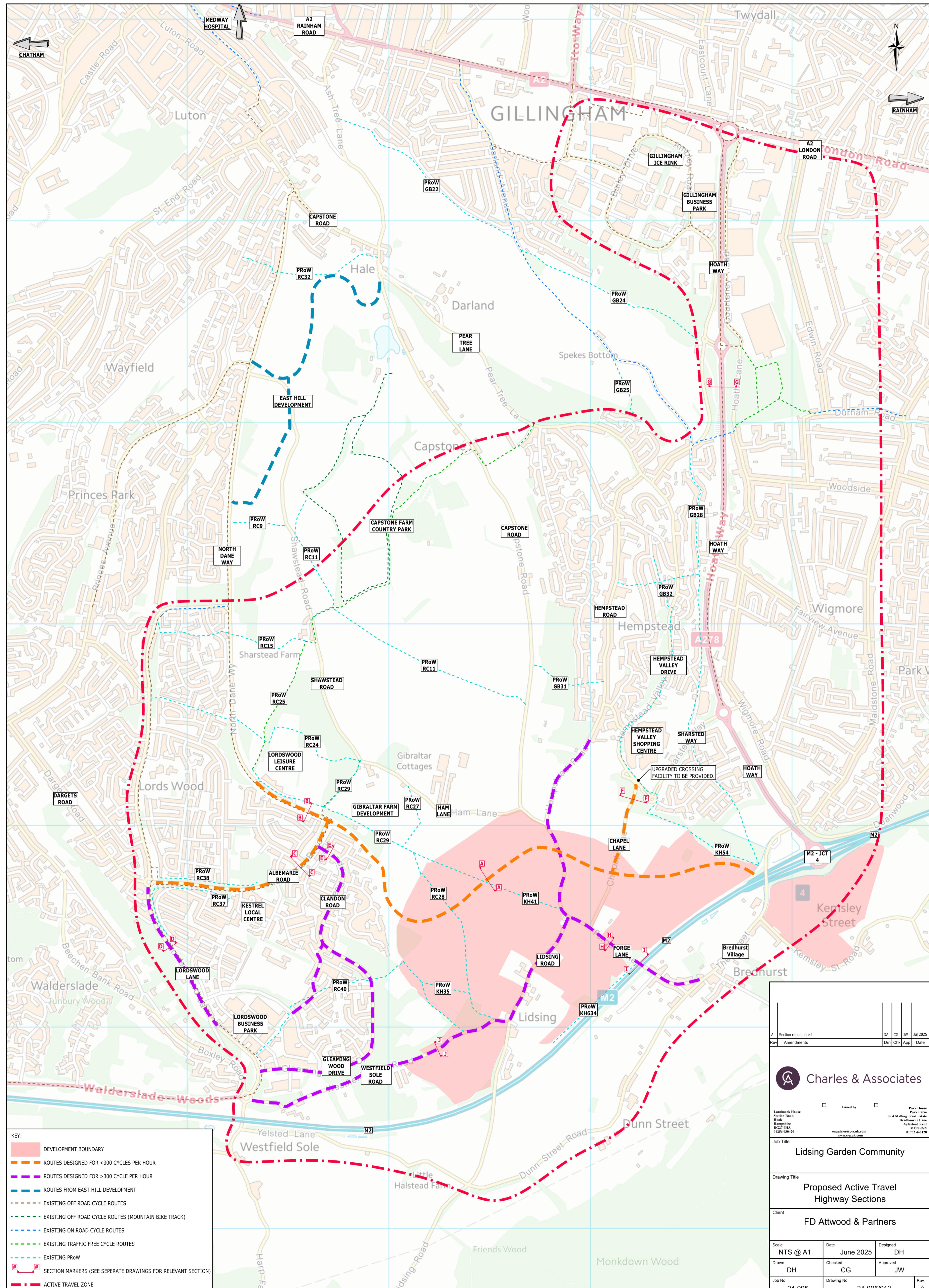
3.2.1 Active Travel is subject to practical limitation, primarily the distances over which it can be expected to make a notable contribution. In order to inform the process of Active Travel intervention and assessment this report has sought to define an Active Travel Zone. This Active Travel Zone is the catchment which has the greatest potential for active travel to be used for everyday trips.

3.2.2 For most people, cycling for up to 20 minutes covers journeys up to 5km, so this has been used as the starting point for the Active Travel Zone as shown overleaf. Walking and other wheeling zones will also fall within this, albeit generally over shorter distances. However some areas to the north and west within the 5km catchment area have significant topographical challenges, so these have been excluded as they would not be attractive routes for most people to walk or cycle. Similarly, the rural area beyond Bredhurst has very few trip attractors so this has also been excluded.

3.2.3 As shown overleaf the Active Travel Zone includes the following trip attractors:

- Lordswood Business Park – significant employment area,
- Kestrel local centre,
- Lordswood Leisure Centre,
- Capstone Country Park,
- Gillingham Business Park – significant employment area,
- Gillingham Ice Rink,
- Hempstead Valley Shopping Centre – retail, leisure and hospitality,
- Abbotts Court Farm - Medway Council proposed site for secondary school and
- the Lidsing site as an attractor for residents in Lordswood, Hempstead, Wigmore and Bredhurst.

Overleaf - Figure 3.2: Active Travel Zone



3.2.4 To fully realise the opportunities presented by the Active Travel Zone the development must establish effective connection through its access strategy. This is covered later in this report and elsewhere in the SPD. However, to secure an effective access strategy it is appropriate to refine this broader zone for active travel, in to key corridors to which the development can connect and, wherever possible, enhance.

3.3 Active Travel Corridors and Targeted Interventions

3.3.1 Encouragingly, Medway Council have already developed a network of cycle routes on some corridors within the Active Travel Zone. C&A have carried out firsthand cycling audits to assess local corridors and suggested improvements in accordance with the current LTN 1/20 guidance where these are likely to be most effective.

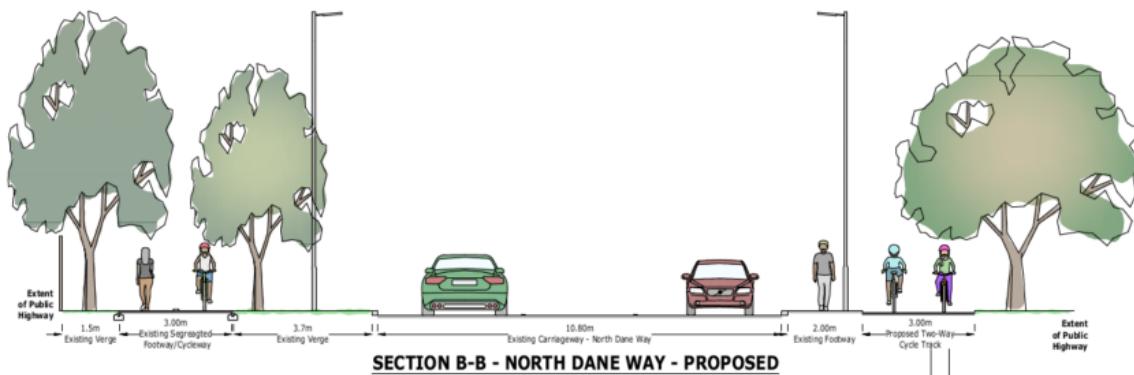
3.3.2 As well as the corridors identified below, local PROW connections would also be retained and improved where necessary to encourage walking and wheeling.

3.3.3 At this stage, these are shown as indicative cross-sections and discussed below, with further design to be provided at planning application stage which will be audited by Active Travel England (ATE).

Lordswood

3.3.4 North Dane Way can be upgraded to provide access to Lordswood Leisure Centre which would also benefit the forthcoming Gibraltar Farm development.

Figure 3.3: North Dane Way proposed corridor

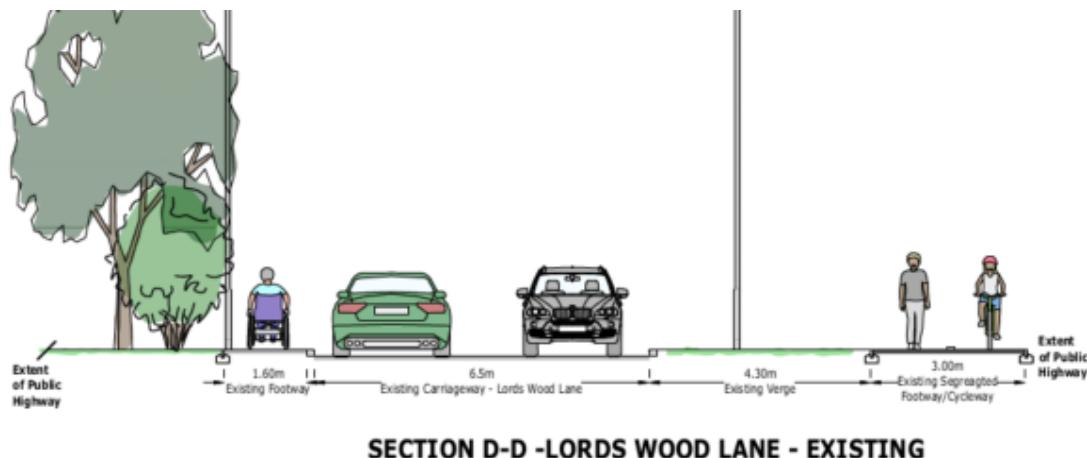


3.3.5 To the west of the site, Albemarle Road and Lordswood Lane have existing facilities which are considered appropriate as shown below. These routes will connect to employment and local amenities in Lordswood.

Figure 3.4: Existing Facilities on Albemarle Road

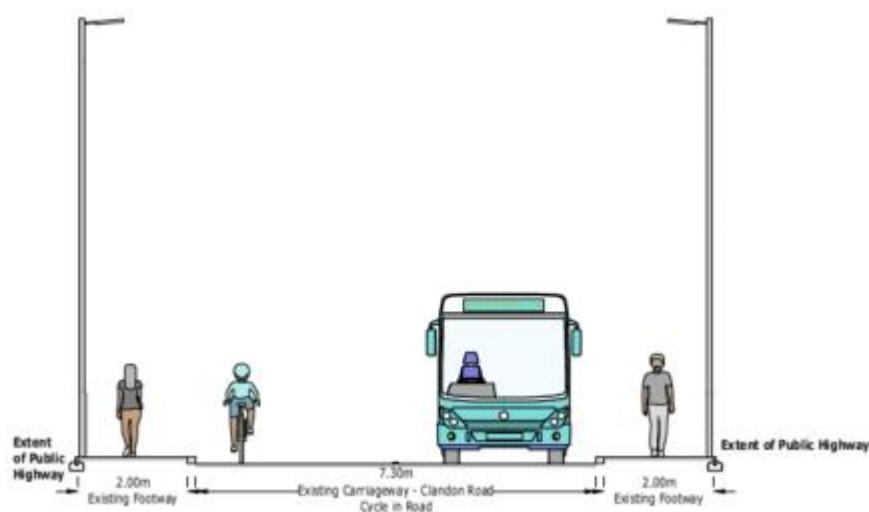


Figure 3.5: Lordswood Lane retaining existing facilities



3.3.6 Clandon Road is an estate road where the vehicle volumes are considered suitable for cycling on the carriageway.

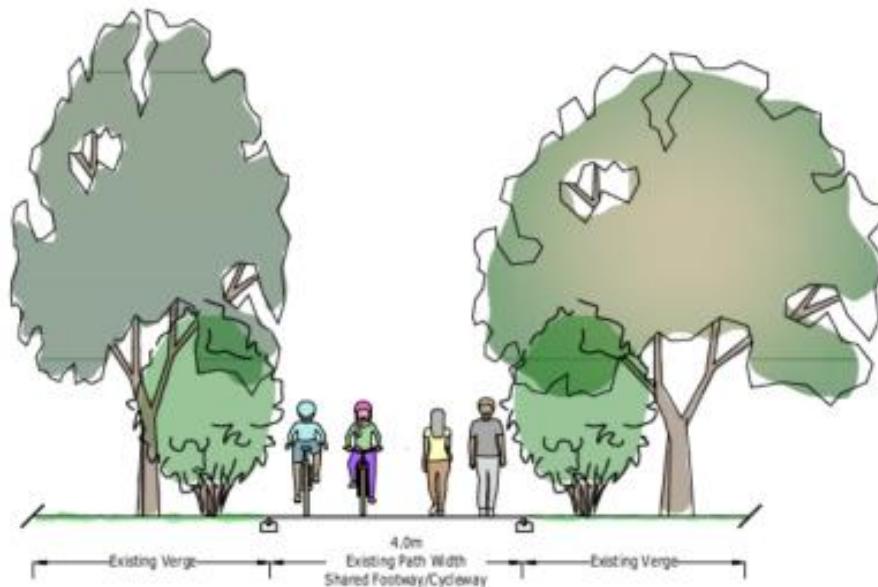
Figure 3.6: Clandon Road



Hempstead, Wigmore and Gillingham

3.3.7 Chapel Lane is already closed to motor vehicles and can provide a high-quality connection to Hempstead Valley Shopping Centre (HVSC). This will be an Active Travel Priority route as shown below.

Figure 3.7: Proposed upgrade of Chapel Lane



SECTION F-F - CHAPEL LANE - PROPOSED

3.3.8 The immediate areas of Hempstead can be accessed to the north via Hempstead Valley Drive, which benefits from footway provision on both sides for the majority of the route, with at least one side significantly segregated from the carriageway by large, grassed verges. There would be scope to introduce enhanced cycle facilities here. However, the accessibility and connectivity options to the development area are limited beyond the shopping centre. Onwards travel north of Hempstead through this section is subject to notable topographical constraints. Most notably to the north, Hempstead Valley Drive joins Hempstead Road and drops sharply in to the Darland Valley, before rising again steeply towards the Ambley Road/Hoath Way roundabout.

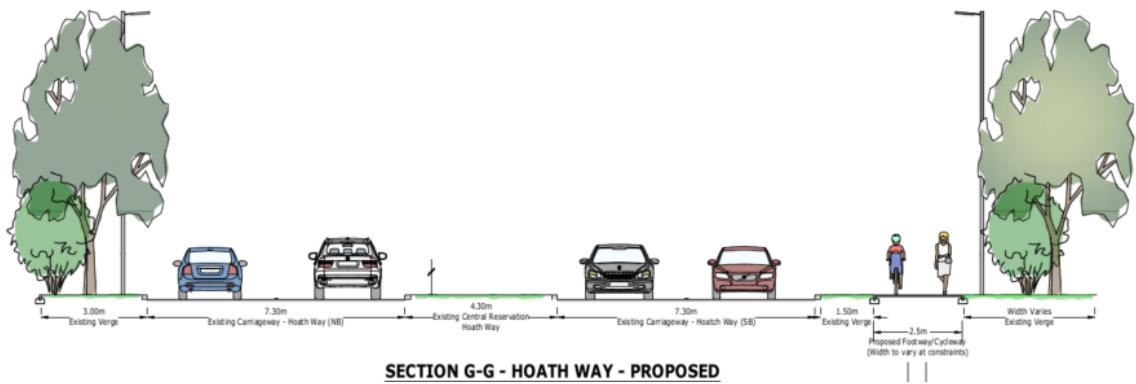
3.3.9 In contrast, by continuing east through the HVSC site to Hoath Way, a route north via Hoath Way overcomes many of these topographical constraints, instead rising gently.

Figure 3.8: Hoath Way pedestrian/cycle route



3.3.10 There is already a shared pedestrian/cycle track alongside Hoath Way as shown above; this would be upgraded as far as possible to provide access to Wigmore and the cluster of employment at Gillingham Business Park. This will be subject to a suitable design intervention around the Hoath Way / Ambley Road roundabout to be developed at OPA stage.

Figure 3.9: Proposed upgrade of Hoath Way



Bredhurst

3.3.11 Forge Lane is a key connection between the development and the village of Bredhurst. Whilst Bredhurst itself is unlikely to be a key trip attractor for residents of the development, the interconnectivity here is a key consideration, particularly so that Bredhurst residents can access employment and amenities in the new development.

3.3.12 The adopted site policy requires 'priority for vulnerable road users and active travel modes' and 'measures to prevent rat-running through Bredhurst and Boxley'. For the purposes of this Annex, this would be supported by reconfiguring the function of the Forge Lane bridge while retaining access to all existing properties along Forge Lane itself. This is also supported by recent engagement by MBC and the site promoter as explained in Chapter 5 of this report. .

3.3.13 In the context of Active Travel, the sections below show the opportunities to promote walking, cycling and bus services on Forge Lane north of the M2 bridge, and on the bridge itself.

Figure 3.10: Forge Lane north of the M2

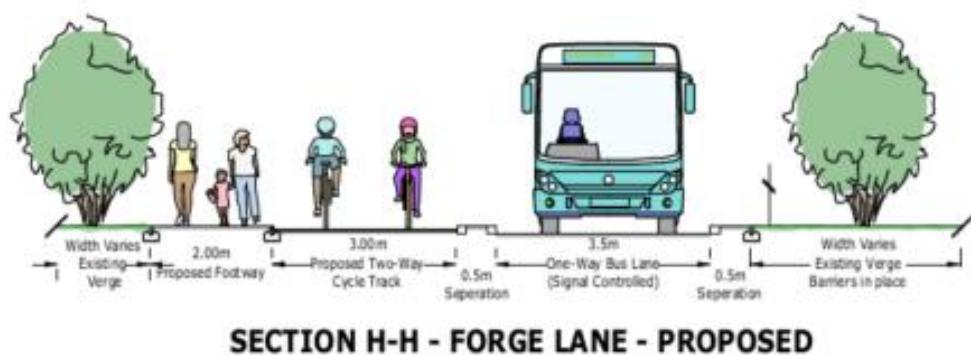
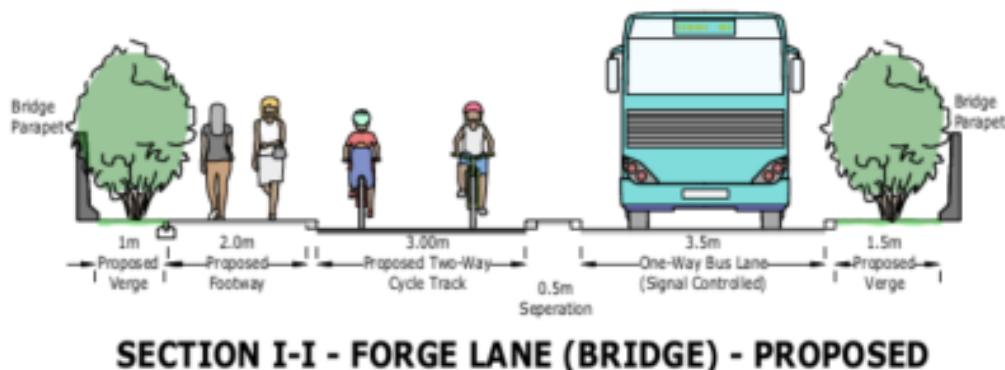


Figure 3.11: Forge Lane M2 bridge



Walderslade

3.3.14 Westfield Sole Road currently experiences high traffic volumes which are expected to reduce following the completion of the Lidsing west-east link road. This will form part of the 'Monitor and Manage' arrangements, with the possibility to introduce traffic calming measures, such as modal filtering, to reduce motor vehicle flows sufficiently to encourage on-carriageway cycling.

Figure 3.12: Westfield Sole Road



3.4 Other Areas Considered

3.4.1 Some corridors have been discounted from potential interventions following the site audit. The north part of North Dane Way has a designated cycle route towards Chatham town centre, and this will remain available for site users. However, there are some steep sections, and the route is isolated and elevated above the carriageway, thus limiting the scope for improvement. As part of the public transport strategy, the Lidsing site will have a direct bus to Chatham which will represent a more effective transport intervention on this corridor.

3.4.2 Similarly, Dargets Road towards the secondary schools in Walderslade has a 15% gradient which would discourage most cyclists, so this corridor and the onward route to schools has not been considered suitable for Active Travel. However, there are already dedicated school bus services to the Walderslade schools which would be extended to include the Lidsing site in consultation with Medway Council.

3.5 Movement Through the Site

3.5.1 As is made clear in the vision for the development, a key objective is securing new sustainable travel linkage through the development site, linking existing areas. In this regard, the main link through the site becomes a key corridor for active travel. This link through the development will be designed to accommodate high volumes of walking and cycling for all three of the earlier types of movement, as well as public transport and private vehicle trips. It is to be designed to leverage the lack of constraints to deliver an exemplar sustainable corridor, fully compliant with the highest expectations of LTN1/20. This is illustrated below.

Figure 3.13: Proposed Link Road including active travel



3.6 Summary

3.6.1 The Active Travel Zone includes areas where active travel can make the greatest contribution to movement to, from and through the site, based on a realistic approach to local conditions including topography.

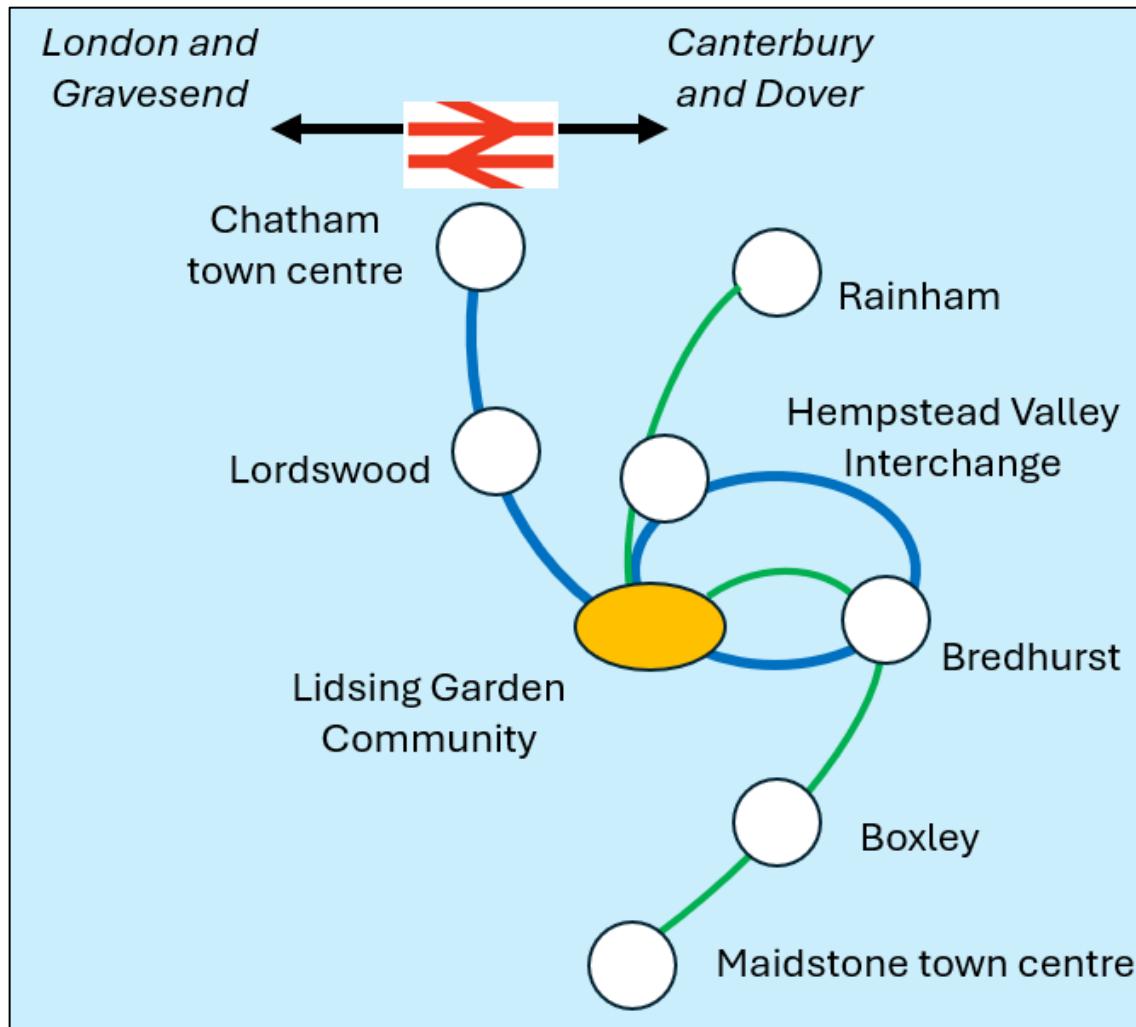
3.6.2 There are already some useful cycling facilities in the Zone and the development will make further improvements to maximise the use of active travel modes as part of the Transport Vision.

4 Public Transport

4.1 Overview

- 4.1.1 Well-developed and attractive public transport allows the mass movement of people in a space-efficient and energy-efficient manner and is required by NPPF paragraph 117a.
- 4.1.2 For most residential areas in Medway the bus network provides the primary form of public transport. The rail network also plays an important role, with five stations in Medway on the North Kent corridor between Central London and the Kent Coast.
- 4.1.3 One of the key benefits of the proposed link road is the creation of orbital public transport connections between Lordswood, Hempstead and Wigmore, as outlined in the site policy. This is initially specified in the form of conventional bus routes. However, as the site will be developed over 20+ years from commencement to completion, it is important that it allows for new technologies and public transport opportunities, not yet available, to be considered, rather than being constrained by those already available today.
- 4.1.4 To ensure that these opportunities will not be missed and the public transport connections will be optimised, the development will need to strike a balance between short-term connections using existing technology and the flexibility to embrace new technologies as they mature.
- 4.1.5 For Section 106 purposes, this could be phrased as a 'minimum service agreement' which states, for example, that **each dwelling will be within X metres of a service frequency of Y minutes to destination Z** (likely to be Chatham town centre). This would allow operation of the optimal service for each year and phase of the development.
- 4.1.6 From Chatham station there are frequent services across the North Kent corridor to Gravesend, Dartford, Central London, Sittingbourne, Faversham and other destinations. A strong integrated bus-rail connection from Lidsing will maximise the opportunity for public transport use on this broader corridor which would serve as an alternative to vehicle traffic on the M2 motorway.
- 4.1.7 The overall public transport connections are shown below and explained in the following sections.

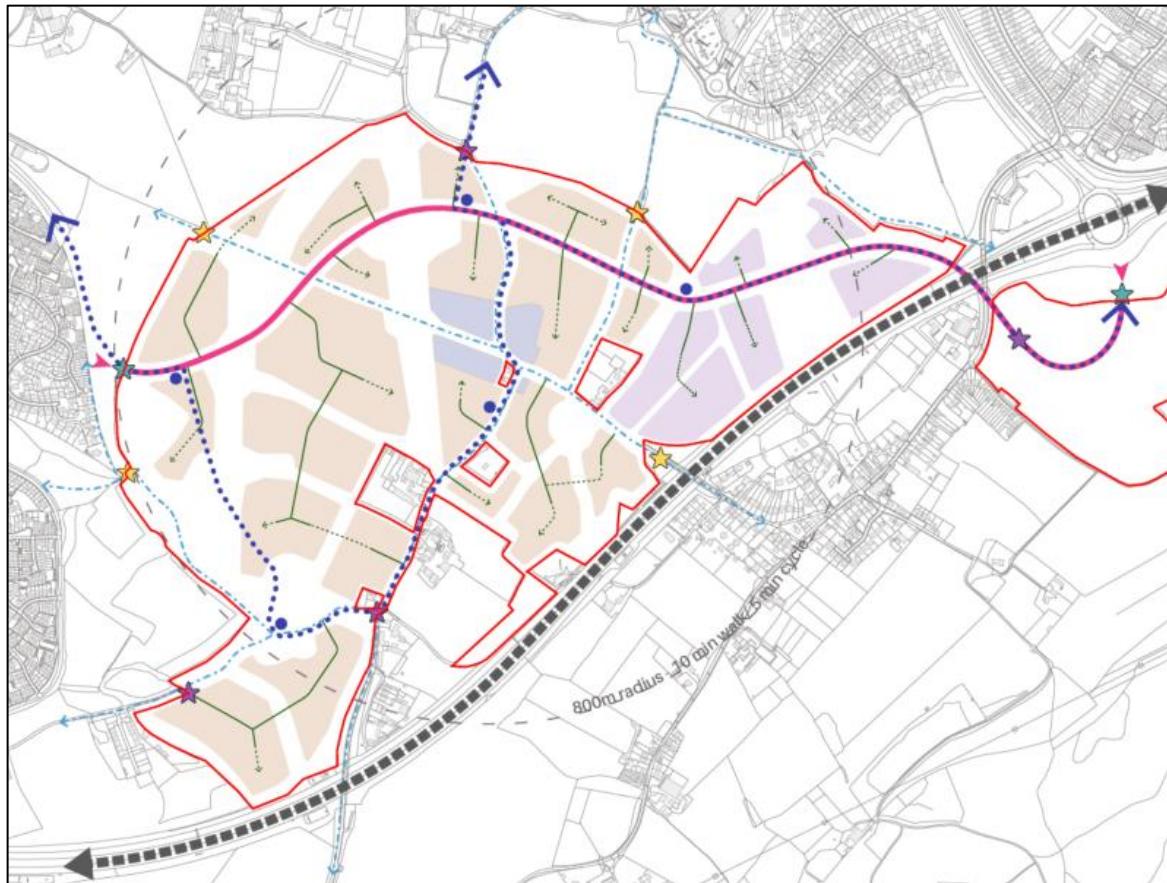
Figure 4.1: Public Transport Overview



4.2 Initial Bus Services

4.2.1 In the short term, C&A's previous engagement with KCC, Medway Council and local bus operators has suggested that the following 'traditional' bus services would be appropriate and in line with the expected development phasing. These services align with the SPD Movement Framework diagram which is reproduced below.

Figure 4.2: SPD Movement Framework



Stage 1

4.2.2 The Chatham-Lordswood service would be extended via North Dane Way, the west part of the site link road, Hempstead Road and Chapel Lane (north) to terminate at Hempstead Valley Shopping Centre which allows for interchange with other services. Bus priority measures would be introduced on North Dane Way and elsewhere to minimise the journey time to Chatham town centre and railway station.

4.2.3 High quality bus stops with shelter, lighting and real-time information would be provided from the outset and the link road through the site has been designed to facilitate this.

4.2.4 If the Abbots Court Farm site comes forward in due course, then the bus route could run via this site instead of Chapel Lane, providing mutual benefits for both sites.

Stage 2

- 4.2.5 The completion of the link road and the proposed filtering of Forge Lane allow for further bus routes to penetrate the site. A loop could be created using the eastern part of the link road to serve the on-site employment, then returning through Bredhurst south along The Street and turning right into Forge Lane to reach the bridge. Due to existing constraints it is not envisaged that buses would turn left from The Street into Forge Lane or vice versa.
- 4.2.6 As shown in Chapter 3, it is envisaged that the reconfigured bridge will maximise space for active travel modes and so a single lane would be provided for buses. The bus service could operate as a one-way loop around Bredhurst given the relatively short distances to Lidsing and Hempstead Valley; alternatively the bus lane over the bridge could be signal-controlled and allow buses in either direction.
- 4.2.7 In addition, the existing route which serves Rainham, Twydall, Wigmore, Bredhurst, Boxley and Maidstone could be diverted through the Lidsing site while retaining all existing stops through Bredhurst and Boxley. This would remove a lengthy double-back on the existing route and provide a further connection from Lidsing to Maidstone town centre. It could also be extended the short distance to Rainham railway station which would provide further connectivity for the site.
- 4.2.8 Specifications and funding for all of the above services will be agreed between the applicant, KCC and Medway Council.
- 4.2.9 As set out in the Local Plan, the development would pursue maximum integration with rail services at Chatham station including through combined ticketing so that longer-distance journeys to and from the site could be made by a combination of Southeastern rail services and the proposed bus routes.

4.3 Future of Connectivity

- 4.3.1 The transport industry will need to evolve to respond to advancements in technology – electric cars, e-scooters and automated vehicles are only some examples of how technological advancements have transformed the way we move in the last decade. Therefore, it is only appropriate to expect that further mobility innovation will come forward during the trajectory of the Lidsing development. For this reason, any forthcoming large-scale proposals like the Lidsing development should encompass enough flexibility that would allow space for future opportunities in mobility to be seized, while at the same time making optimal use of existing technology with short-term connections.

4.3.2 This could include smaller, battery-electric automated vehicles which have already been trialled elsewhere and would be permitted by the Automated Vehicles Act which is expected to come forward during the current Parliament. In the site context, this could provide a connection over the relatively short distance between the Lidsing development and Hempstead Valley Shopping Centre, and similarly northwards into the Capstone Valley if development is allocated here in the Medway Local Plan.

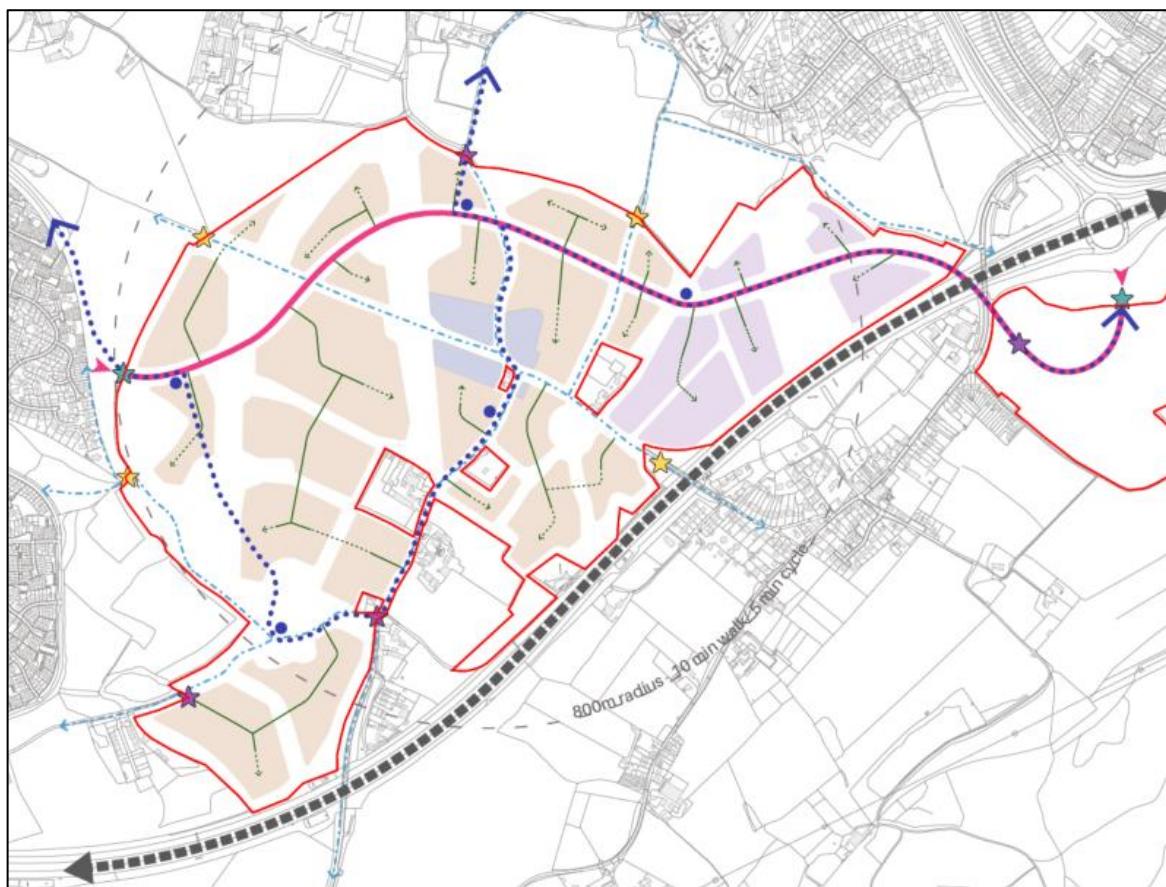
5 Multimodal Site Access

5.1 Overview

5.1.1 Having considered the inherent opportunities for the Active Travel and Public Transport connectivity beyond the site; this section of the report focus on how the access strategy can leverage these opportunities to maximise use of sustainable travel modes while also making appropriate provision for residual car based travel – along with the objective of deriving significant wider benefits.

5.1.2 The proposals will be designed to ensure safe and suitable access for all users in accordance with NPPF paragraph 115b and 117c. The site access points are shown below (*for the full-scale plan please see SPD Movement Framework*).

Figure 5.1: SPD Movement Framework

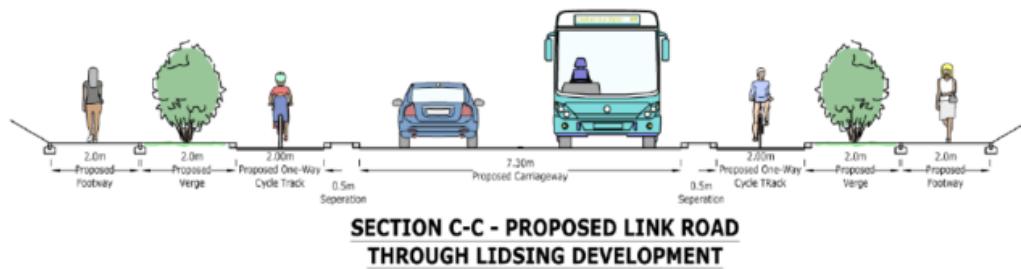


5.1.3 In addition to the key connections below, there are numerous public rights of way (PROW) connections around the perimeter of the site. These would be upgraded and incorporated into the development to ensure maximum permeability for active travel modes. Upgrades will be designed as part of the OPA with appropriate consideration for ecology and user amenity.

5.2 North Dane Way

5.2.1 North Dane Way is an existing distributor road at the edge of Lordswood, which will be extended to serve the Gibraltar Farm development (in the Medway unitary area) and then continue into the site to form the west-east link road. An indicative section is shown below.

Figure 5.2: West-east link road through the site



5.3 M2 Junction 4

5.3.1 C&A have engaged with National Highways in relation to the new spur to the M2 motorway throughout the Local Plan Review. Paragraphs 18-19 of Circular 01/2022 relate to new connections onto the SRN. While the proposed connection makes use of an existing junction and is therefore not considered a 'new' connection, it is nevertheless noted that this proposal was considered throughout the plan-making stage to the satisfaction of NH. This would be subject to further details to be provided at OPA stage including: a full preliminary design drawing; independent Road Safety Audit⁵; Walking Cycling and Horse-Riding Assessment and Review⁶; and identification and justification of any Departures / Relaxations.

5.3.2 At the M2 Junction 4 roundabout, a new fourth arm would form the other end of the link road, with a broadly semicircular spur from the roundabout including a replacement of the Maidstone Road overbridge. Connections with Bredhurst and Wigmore would be retained as set out in the following section.

⁵ As per GG 119

⁶ As per GG 142

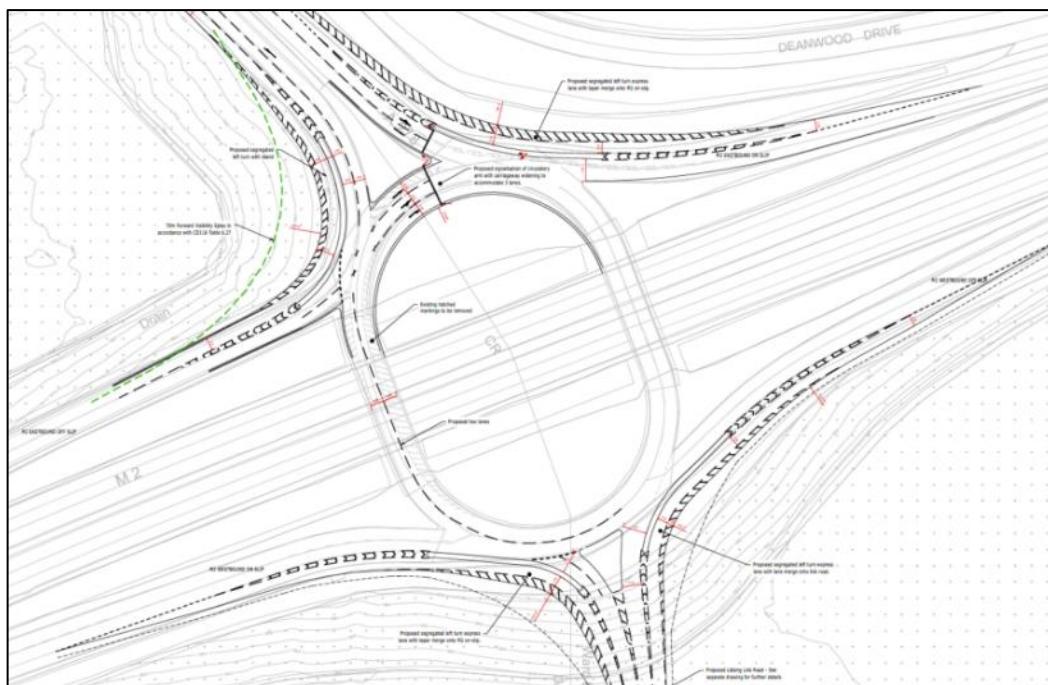
Figure 5.3: M2 Junction 4 and Maidstone Road changes



5.3.3 Completion of the spur to M2 Junction 4 may follow an interim west-east connection through the site to be confirmed through highway modelling as part of the OPA.

5.3.4 Further enhancements would be provided for the existing arms at M2 Junction 4 including part-signallisation and the creation of express lanes to increase the overall capacity of the junction. The indicative design from the Local Plan making stage is shown below, with further design development to be informed by traffic modelling at OPA stage.

Figure 5.4: Indicative Overall Changes at M2 Junction 4



5.3.5 It is noted that the opening of the M2 spur will create the possibility for new north-south journeys across the roundabout, so there may need to be measures preventing non-motorised users from making these movements including appropriate signage as illustrated below. This would be addressed through a comprehensive RSA and WCHAR at OPA stage.

Figure 5.5: Example signage to prohibit NMUs



5.4 Maidstone Road and The Street

5.4.1 The link road and replacement bridge will include connections to Maidstone Road and The Street so that residents can continue to make existing north-south journeys, such as from Bredhurst to Wigmore. The form of these connecting junctions will be determined following traffic modelling for the OPA to prevent excess levels of traffic using these local routes.

5.5 Hempstead Road

5.5.1 Hempstead Road will provide secondary access to the development. adjoins Medway Council's Abbotts Court Farm site which is a draft allocation in the emerging Medway Local Plan; there are opportunities for the two sites to work together to achieve greater overall connectivity and this will be considered as the Medway Local Plan progresses.

5.6 Chapel Lane (section from Forge Lane)

5.6.1 As shown above in Section 3.3, this is already a traffic-free route and it would form a useful sustainable access corridor between the development and the cluster of amenities at Hempstead Valley Shopping Centre.

5.7 Forge Lane corridor

5.7.1 The adopted site policy includes requirements for 'provision of cycle and pedestrian facilities to encourage sustainable modes of transport via Boxley and Bredhurst' .

5.7.2 With these requirements in mind, the promoter and MBC carried out an Informal Consultation in spring 2025 focused on local access connections. This included three high-level options to close roads around Bredhurst to general traffic, namely Forge Lane, The Street or Dunn Street Road, which could be implemented as single closures or pairs of closures (for example, closing both Forge Lane and The Street).

5.7.3 As part of the consultation MBC and C&A carried out a quantitative survey to identify which options had most support among local residents. Due to the format of the survey it is understood that some respondents completed both surveys.

5.7.4 The MBC survey found that the Forge Lane closure was the most popular single design option, and that options involving Forge Lane closure attracted a combined majority of support.⁷

5.7.5 For the core village of Bredhurst, closing The Street would remove direct access to Wigmore and Rainham and closing Dunn Street Road would remove direct access towards Maidstone, as was noted by several residents during the consultation events.

5.7.6 It is also worth noting that traffic modelling carried out at the EIP stage showed that Forge Lane would not attract significant volumes of development traffic, and so its closure was not forecast to result in severe impacts on other parts of the network.

5.7.7 Any closure would need to be supported by a Traffic Regulation Order. This would need both an evidenced purpose and public support, and on the evidence currently available only the Forge Lane closure is likely to meet these thresholds. However further options can be considered in the future as part of the development's Monitor and Manage strategy.

5.7.8 Drawing these matters together, the SPD envisages that that the Forge Lane bridge will be reconfigured to prevent general traffic crossing the M2, but retaining connections for active travel, public transport and emergency vehicles. Access to existing properties will be retained and turning heads will be introduced where appropriate. This would support the adopted site policy requirements and those of the NPPF.

⁷ MBC's survey shows 64 responses on the closure options. 22 preferred the Forge Lane closure in isolation, compared to 5 for The Street closure and 10 for Dunn Street Road closure. 45 preferred any option involving the Forge Lane closure, compared to 19 for options not involving Forge Lane closure.

5.8 Lidsing Road / Westfield Sole Road

- 5.8.1 Lidsing Road serves existing properties and so it will remain available as a connection to and from the development, but the site layout will be designed to deprioritise movements on this corridor and towards Boxley.
- 5.8.2 Westfield Sole Road also serves existing properties. Despite its constrained width it is currently used a 'rat run' between Walderslade, Lordswood, Hempstead and Wigmore, but the completion of the Lidsing link road will allow most of this orbital traffic to reassign to this new and more suitable route. If necessary it could be filtered at its eastern end where it meets the development boundary, while retaining access to existing properties and adding turning heads where required.
- 5.8.3 In contrast to Forge Lane above, there is no policy basis for closing these routes upfront, so they will fall under the Monitor and Manage arrangements for the development as set out later in this report. That process will ensure that the future traffic levels on the link are subject to strict monitoring to ascertain if the expected reduction in demand, from the link road, arises and that where not, suitable management takes place such as closure to general traffic.

5.9 Access Phasing

- 5.9.1 The phasing of access will necessarily follow the overall development sequence which is shown in the SPD Phasing Plan. However, in addition to this it will be important to ensure that any phasing strategy maximises the scope for sustainable accessibility to be secured and enhance early. It would be contrary to the vision of this development for an earlier phase access strategy to focus on general traffic movements, at the expense of or in favour to sustainable modes.
- 5.9.2 Accordingly, the access phasing will aim to secure early sustainable accessibility, both for occupiers of the development, but also that necessary to secure the wider sustainable travel objectives embedded within the vision.
- 5.9.3 The current phasing strategy envisages an early delivery of housing in the west. Overall access to this by all modes will be by means of the connection to North Dane Way, via the approved Gibraltar Farm access to the junction with Albermarle Road.

5.9.4 This will be complemented earlier in the first phase by a sustainable travel connection to the east, via the junction between Hempstead Road, Lidsing Road and Capstone Road and taking account of any committed development schemes which may come forward in the meantime. It is anticipated that this would be achieved by means of initial delivery of link road alignment between North Dane Way and Hempstead Road, but with the connection to the east being not initially open to general traffic. Rather – the link would open up an initial east-west connection for active and public transport services, providing early phase priority to non-car modes.

5.9.5 This approach is anticipated to maximise the appeal of travelling between the initial phase of development and Hempstead by active and public transport modes – and ensure early delivery of the wider benefits of linking the wider Lordswood area to Hempstead, again by sustainable modes. This approach will also public transport permeability in to the earlier phases of development, building on service provision to the consented Gibraltar Farm development, to provide the infrastructure for establishing earlier sustainable travel trends for new residents.

5.10 Parking Provision

5.10.1 Parking provision in the broadest sense will be determined at OPA stage and used as a further means to support the vision for sustainable accessibility. This would include cycle parking for each land use on the site, of which some are 'long stay' and others are 'short stay'. Appropriate electric vehicle chargers would be installed for each land use to encourage uptake of zero-emission vehicles, anticipating the phasing out of new petrol and diesel cars by 2030.

5.10.2 The scale of the development would also support the implementation of cycle hire and car club schemes as an alternative to traditional vehicle ownership, noting that car clubs are already operating in Maidstone and elsewhere in Kent.

6 Transport Modelling Methodology

6.1 Overview

6.1.1 A clear vision for the development has been presented in the adopted policy and now the SPD. From this, the development will aim to achieve the transport objectives of that vision with an aspirational forecast of trip generation.

6.1.2 However, to appropriately account for inherent uncertainty in forecasting the future, it is proposed to adopt the 'scenario planning' methodology to forecasting additional potential transport outcomes of the development as defined in the TRICS Consortium 'Guidance Note on the Practical Implementation of the Decide & Provide Approach' (February 2021). The scenario planning approach to forecasting essentially seeks to transparently account for uncertainty in forecasting the future by providing a range of scenarios/outcomes in terms of transport impacts.

6.1.3 The concept of scenario planning is endorsed by the revised NPPF, which has amended paragraph 116 to acknowledge that the assessment of traffic impact should give consideration to all reasonable scenarios – not simply predictive worst case.

6.1.4 KCC have also acknowledged this inherent uncertainty in Local Transport Plan 5⁸ which includes the aim 'to recognise the uncertainty in how occupants of new developments will travel by assessing a range of outcomes and ensuring the right mitigations are implemented in response to observed impacts.'

6.1.5 The methodology and key inputs are set out at this SPD stage in order to provide a clear and agreed framework to be thereafter implemented within the OPA Transport Assessment.

6.2 Uncertainty in Forecasting and Vision-Led Planning

6.2.1 It is beyond the scope of this report to provide a comprehensive discussion on the importance uncertainty plays in forecasting of transport networks and critically within the vision-led approach to planning. For further information reference should be made to the following:

- DfT - Circular 01/2022
- DfT - Transport Assessment Guidance (TAG) Uncertainty Toolkit
- TRICS Consortium - Decide and Provide Guidance Summary

⁸ KCC Local Transport Plan 5 https://www.kent.gov.uk/_data/assets/pdf_file/0006/208545/Local-Transport-Plan-5.pdf

6.2.2 Uncertainty has always been a fundamental component of transport network modelling and forecasting – simply because the future is unknown, for a wide variety of reasons. The purpose of transport network modelling is to attempt to make a forecast of the influence certain changes in parameters may have on the network and to do so with appropriate awareness of the inherent uncertainties.

6.2.3 To embrace uncertainty means to accept the principle of multiple scenario testing, with each scenario being considered plausible. In this regard, ‘plausible’ means to be realistic and supported by reasonable evidence – but not singular – and should be contrasted with ‘possible’ as discussed above. As the future is not predetermined and is inherently unknowable, it would be flawed to assume that any one plausible outcome is more likely than another – so no one scenario is ‘correct’.

6.2.4 This uncertainty is reflected in the long-term trend of reducing vehicle trip rates in the UK, which may represent the ‘peak car’ phenomenon. Contributing societal causes include: a fall in the proportion of young people learning to drive cars⁹, increased rail travel¹⁰ and reopening of railway lines¹¹, roadspace reallocation to enable active travel modes¹², increased online shopping instead of in-person shopping¹³ and more widespread flexible working, particularly since the COVID-19 pandemic.¹⁴

⁹ DfT Young People’s Travel 2018 <https://www.gov.uk/government/publications/young-peoples-travel-whats-changed-and-why>

¹⁰ DfT Rail Factsheet 2019 <https://assets.publishing.service.gov.uk/media/5dee891740f0b64a326343e7/rail-factsheet-2019.pdf>

¹¹ Network Rail <https://www.networkrail.co.uk/stories/your-railway-more-connections/>

¹² Sustrans 2024 <https://www.sustrans.org.uk/for-professionals/infrastructure/an-introductory-guide-to-low-traffic-neighbourhood-design/an-introductory-guide-to-low-traffic-neighbourhood-design-contents/8-a-guide-to-the-evidence-around-low-traffic-neighbourhoods/#trafficreduction>

¹³ ONS 2024 Internet Sales

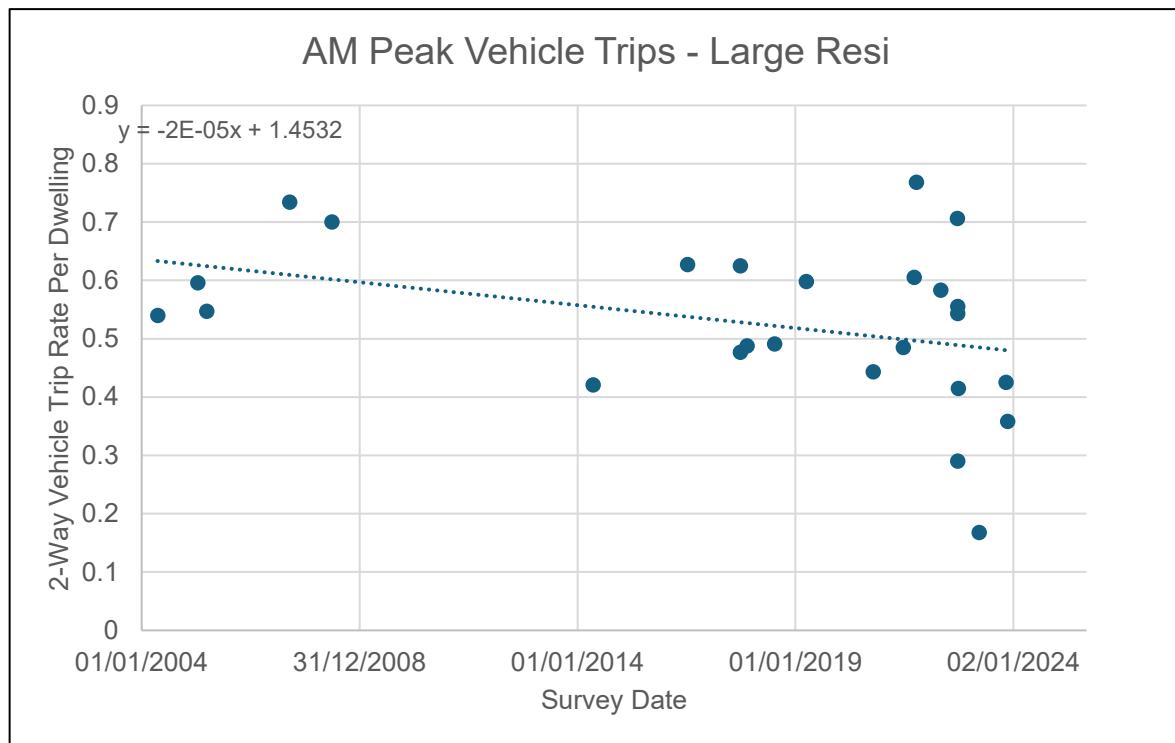
<https://www.ons.gov.uk/businessindustryandtrade/retailindustry/timeseries/j4mc/drsi>

¹⁴ ONS 2023 Characteristics of homeworkers

<https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/articles/characteristicsofhomeworkersgreatbritain/september2022tojanuary2023>

6.2.5 As an illustration the graph below shows TRICS peak hour trip rates for a range of UK suburban residential sites of 200+ units between 2004 and 2023. While individual sites show a range of trip rates reflecting their individual characteristics, the linear trendline shows a reduction of 20-25% over this period.

Figure 6.1: Trip Rates for Large Developments over time



6.2.6 Therefore, the TA trip generation forecasting will follow relevant aspects of the guidance set out in the TRICS D&P Guidance Note¹⁵, whereby historic TRICS surveys selected for the proposed land uses are used to generate a trend which is projected forward to the horizon year. This is intended to reflect recent travel-behaviour changes in the adopted trip rates.

6.3 Strategic Modelling Context

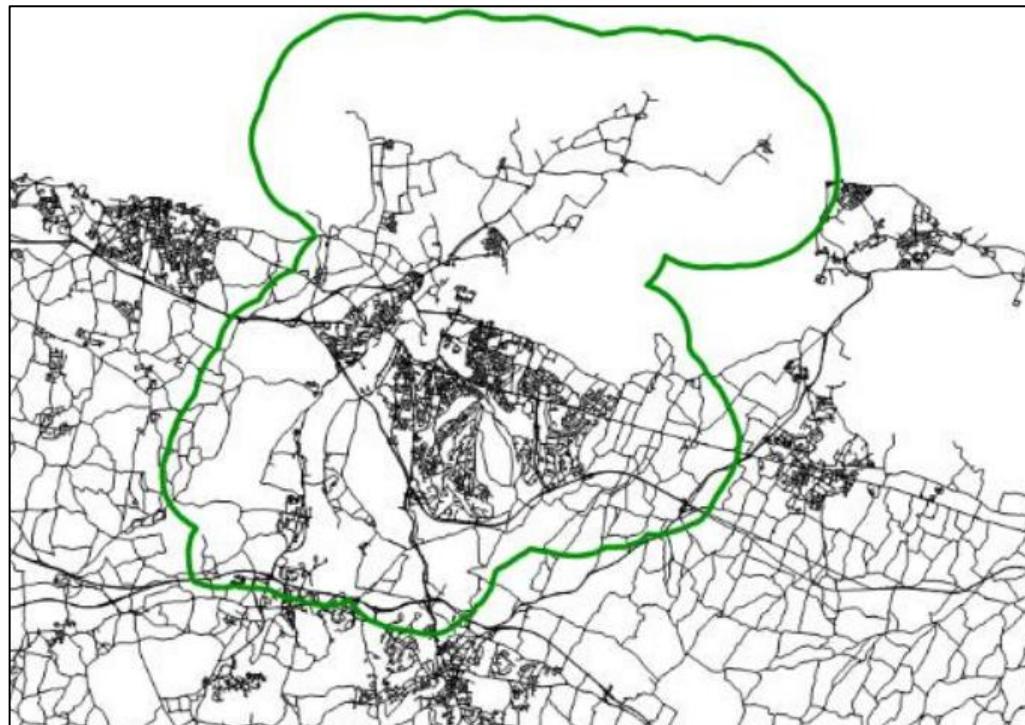
6.3.1 To facilitate the assessment of residual traffic impact arising from the development, based on the different forecast scenarios, it will be appropriate to make use of strategic level network modelling. A similar approach was adopted for Local Plan evidence base. This process will be revisited within the OPA Transport, in the context of scenario planning approach and updating modelling to utilise the most appropriate and relevant strategic model platform.

¹⁵ TRICS Consortium - 'Guidance Note on the Practical Implementation of the Decide & Provide Approach' (February 2021)

6.3.2 The site sits at the border between Maidstone borough and the Medway unitary area, so it will affect the transport networks in both areas. During the EIP stage the proposals were principally modelled using Medway Council's legacy AIMSUN based strategic highway assignment model. This model was utilised as its detailed model area being more appropriate than other tools available at the time; these included a Maidstone cordon of the Kent Transport Model but this model lacked adequate network detail within Medway.

6.3.3 Medway Council have since moved to the '*Medway Transport Model*' (MTM) which, like the aforementioned Maidstone model, is a cordon of the wider Kent Transport Model. As shown below, the detailed area of this model includes all of Medway, M2 Junctions 1 to 5, M20 Junctions 4 to 6 and north-south links including the A228, A229 and the Bredhurst - Boxley corridor. A 'cordon' in this case takes a larger model (of the wider Kent area in this case) and revisits the detailed coding and validation for a specific study area; making the 'cordon' mode appropriate for the assessment of strategic development planning and individual site assessments.

Figure 6.2: Medway Transport Model – detailed area

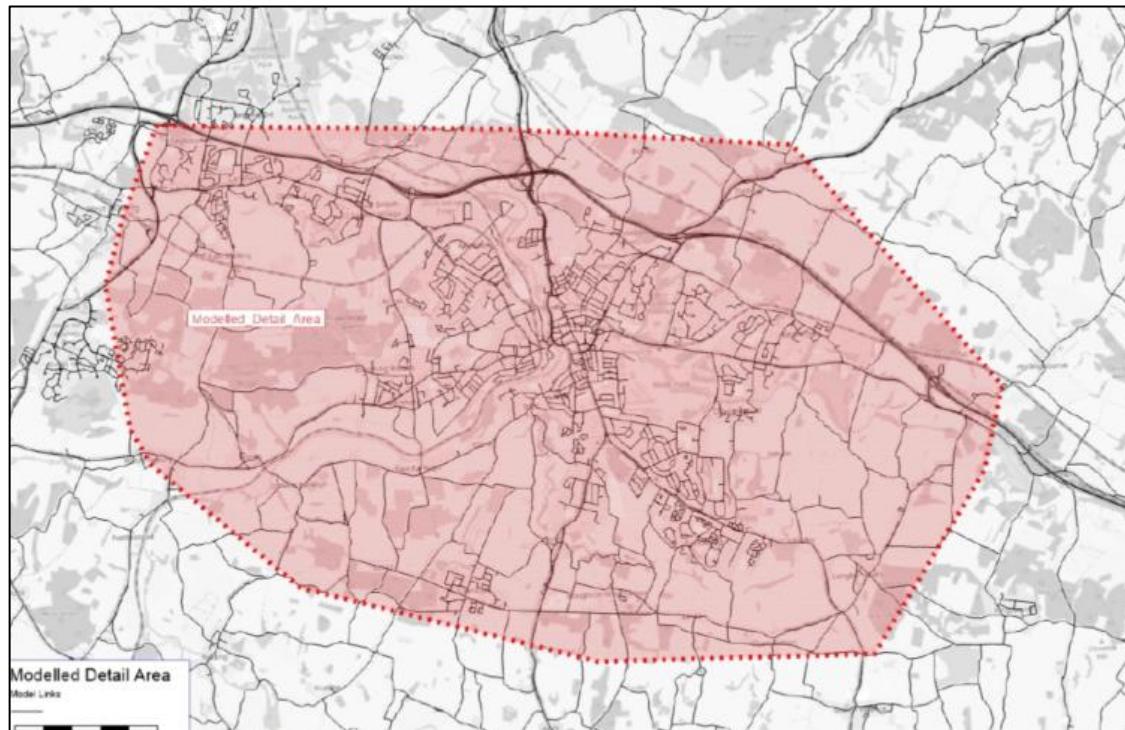


6.3.4 This cordoned model has been calibrated and validated against data collected in 2023¹⁶ and therefore represents a robust and contemporary basis for assessing the Lidsing OPA.

¹⁶ Jacobs ref B2432000 - Local Model Validation Report, January 2024

6.3.5 The detailed area of the *Maidstone Local Model* covers the Maidstone urban area and the Medway Gap settlements, but excludes the Lidsing site itself, Bredhurst and the M2 corridor as shown below.¹⁷

Figure 6.3: Maidstone Transport Model – detailed area

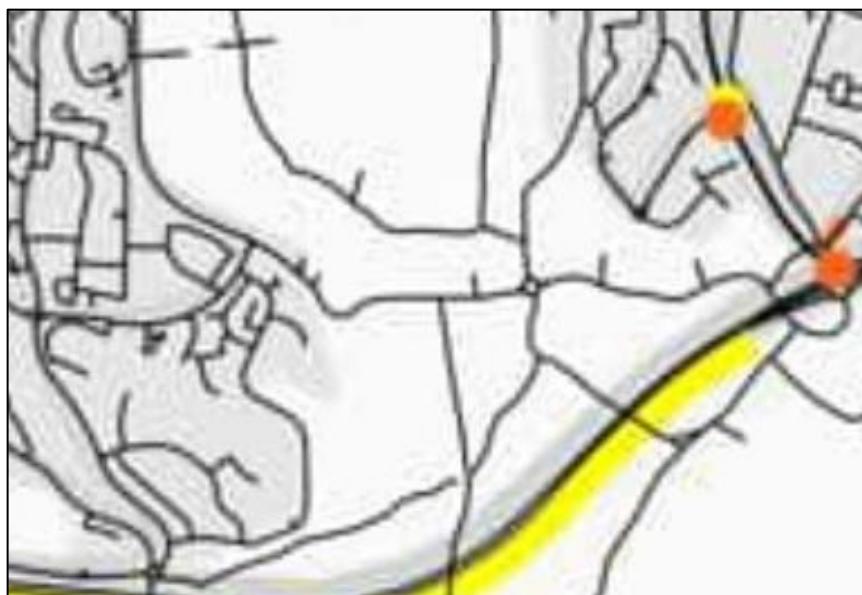


6.3.6 On this basis the Medway Transport Model is considered the most appropriate of the two available platforms to assess Lidsing and the surrounding network and is generally considered fit for that purpose.

6.3.7 It is of note that the Medway Transport Model was developed for the unitary authority's assessment of its emerging Local Plan. As such an initial forecast scenario for that evidence gathering included an indicative quantum of development at Lidsing, as committed development within the adjoining Maidstone borough, with broad access assumptions derived from site allocation policy and based in engagement with the promoter - as shown below. This was included as committed development which would have a material impact on the network so it was modelled site-specifically.

¹⁷ Jacobs ref BESP0030 – April 2021

Figure 6.4: Lidsing Development road network in the MTM



6.3.8 Other growth in Maidstone was generally accounted for through the application of TEMPro with the overall growth assumptions constrained to that forecast by National Trip End Model (NTEM). NTEM is a national forecast of changes in traffic demand across the country developed by the Department for Transport for use in transport modelling. The aforementioned TEMPro is tool for interrogating the NTEM and as appropriate making locally relevant changes to the assumptions. The Medway Transport Model also includes the Lower Thames Crossing, which was recently granted a Development Consent Order and will alter the pattern of traffic flows in North Kent.

6.4 Reference Case

6.4.1 As per the requirements of the NPPF, it is appropriate that consideration is given to all reasonable forecast scenarios when determining the extent of potential highway impact (ref. para. 116 NPPF, December 2024). This includes deriving a reasonable forecast reference case, a scenario representing a reasonable future without the development.

6.4.2 The Lidsing development is forecast to be completed in the year 2042. However, as the Medway Local Plan has a horizon year of 2041, it would be reasonable to model the full delivery of Lidsing by 2041 and thus retain a common assessment year and avoid the need to develop a separate forecast reference case.

6.4.3 The 2041 Reference Case will need to allow for wider growth across Kent and Medway in order to ensure that the assessment appropriately takes account of the cumulative impact of the development and other commitments. This is explored in more detail below for Maidstone and Medway which are the two most relevant districts. For all other districts, the assumptions already included within the MTM will be retained.

6.4.4 Additional Reference Case scenarios will be developed to support interim scenario years as appropriate.

Maidstone Borough

6.4.5 The MTM accounts for growth within Maidstone as committed sites, inclusive of the Lidsing development on a site-specific basis (as discussed above), along with constrained NTEM growth. Constrained in this case means retaining the overall growth assumptions in NTEM, albeit with localised, site-specific changes. In the case of Maidstone this meant replacing general growth from NTEM with site-specific assumption for Lidsing.

6.4.6 The objective the OPA Transport Assessment for the Lidsing scheme will be to model the implications of Lidsing development – therefore it is necessary that the development is not included in the reference case. The Lidsing indicative proposals and infrastructure would therefore be removed and redistributed as generalised growth in order to ensure that the overall growth remains constrained to NTEM forecasts as in the baseline forecast models. These changes to growth will be applied by means of the TEMPro alternative planning assumptions function, essentially undoing the changes made to site specifically account for Lidsing.

Medway Unitary Area

6.4.7 Following discussions with the model custodian, Jacobs, three potential scenarios have been considered:

- Adopting the Medway LP Reference Case, i.e. completed and committed sites only.* This is considered unrealistic as in a scenario without an adopted LP, sites in Medway have and will continue to come forward to meet housing and employment need. As indicated earlier, such an arrangement would fail to provide an adequate cumulative forecast.
- Full modelling of the Medway LP Regulation 19 sites.* This could introduce too much uncertainty given the possibility of changes before LP adoption and at this stage, prior to at least an Inspector's provisional endorsement of such an LP, it should carry limited weight.

- c. *Modelling of completed and committed sites but including further growth up to 2041 constrained to TEMPro (NTEM)*. This approach would be consistent with Transport Analysis Guidance (TAG)¹⁸ in being controlled to TEMPro, only making site specific adjustments for the aforementioned completed or committed developments, already included in the MTM reference case, where there is reasonable certainty.

6.4.8 The latter approach (option c) is consistent with the NPPF paragraph 116 requirements for considering 'reasonable' scenarios in the assessment of development impact and is also considered to remain consistent with requirements in Paragraph 013 of the PPG (Planning Practice Guidance Note) – *Travel Plan, Transport Assessments and Statements* for appropriate consideration to the cumulative impacts.

6.4.9 However, a sensitivity test for some of the Regulation 19 sites is suggested later in this Annex which would consider alternative site-specific assumptions for reasonably foreseeable development close to the Lidsing proposals where is considered likely to have material impact on decision making with respect to proposed infrastructure, principally the proposed Lidsing link road.

6.5 With Development Scenarios

6.5.1 Similarly, the assessment of the Lidsing development residual vehicle trips needs to be vision-led and include complementary reasonable development scenarios to reflect uncertainty as explained above. The proposed method is set out below, building on similar methods already used for other large-scale developments in Kent and to be agreed with the highway authorities.

1. Generate rates using the latest sites in the TRICS database with appropriate parameters for the site context to generate headline person trips for the main land uses on the site.
2. Make assumptions for internalisation of trips between land uses on the site, resulting in headline net external person trips (at this stage, by all transport modes).
3. Use the MTM matrix to identify the origins and destinations of external person trips to/from each model zone. For example, this might show that 2% of site residents would travel to Wigmore.

¹⁸ TAG Unit M4 – Table A2

4. Apply modal split for each origin-destination pair on the locations outside Lidsing – for example, more active travel towards Lordswood and Hempstead and more public transport use to Chatham town centre. These will directly relate to the sustainable transport measures and corridor improvements proposed in the OPA, with due regard given to other data sources such as historic Census trends to inform assumptions.
5. Generate three forecast scenarios which reflect different potential modal shift outcomes. These would be termed Aspirational, Moderate and Pessimistic in descending order of their forecast sustainable mode share.
6. Each scenario will be translated into an origin-destination matrix of vehicle trips that will be used as an input to the MTM to inform the development trip generation and distribution relevant to each scenario. This will give results to compare against the Reference Case.
7. Use the MTM scenario outputs to run local capacity assessments¹⁹ where either there is an increase in any peak hour scenario of 30+ vehicle trips, or where otherwise agreed with the highway authorities.
8. Review the local assessment results to identify locations where highway capacity mitigation could be appropriate – but subject to the caveats set out below.

6.5.2 This evidence-led method avoids an unrealistic ‘top-slicing’ of trip generation to/from all external locations without recognising the geographic context in which these trips are made. ‘Top-slicing’ in contrast would simply reduce overall vehicle trip demand by a percentage – the impact of this being to likely unrealistically discount equally the number of vehicle trips reaching the SRN and vehicles destined to locations within the Active Travel Zone. The suggested method also means that financial contributions from the development can be targeted on the interventions which will be most effective towards modal shift.

6.6 Wider Implications

- 6.6.1 The use of a strategic network assignment model will allow the cumulative implications of both the development and its proposed highway infrastructure to be assessed. However, it is suggested that this will be limited to the traffic reassignment implications of the highway infrastructure.
- 6.6.2 Although a key objective of the development vision is to affect a wider change in sustainable travel patterns, including by means of the sustainable east-west connectivity, it is not considered proportionate or practical to seek to forecast this change.

¹⁹ Using TRL Junctions, Linsig or other appropriate software.

6.6.3 For similar, albeit contrasting reasons, it is not considered proportionate or necessary to forecast any induced demand consequences of the proposed infrastructure. Any such change is anticipated to be within the tolerances indicated in TAG²⁰ of less than 10% at year of opening, particularly when noting that any increase would be substantially off-set by decreases in traffic demand from wider mode shift also not being accounted for.

6.7 Leveraging constraint for behavioural change

6.7.1 As set out in the adopted site policy, the development will include the ‘carrots’ of internalisation to reduce the need to travel off-site, and targeted measures so that residents use active travel or public transport for everyday trips beyond the development boundary wherever this is feasible.

6.7.2 Conversely, existing highway capacity constraint will be an important ‘stick’ in encouraging residents to use sustainable modes instead of private car trips from the outset. The aim of such constraint would be to improve the differential benefits of sustainable modes in order to increase their appeal. Therefore, while highway capacity mitigation may be feasible and ultimately necessary at some locations, it could also undermine modal shift if introduced too soon in the development timeline.

6.7.3 NPPF paragraph 116 includes the twin tests of highway safety and network ‘severe’ impact. While the proposals cannot be allowed to compromise highway safety, it will be advisable to allow some latitude on the ‘severe’ point in the short term to allow good and aspirational travel habits to be established, without undermining the carrot and stick paradigm.

6.7.4 The ‘Monitor and Manage’ arrangements for observing network conditions and agreeing trigger points as the development is built out will be key in this regard, as discussed in the next section. The extent to which any impact can be tolerated to achieve this balance will be subject to engagement and agreement with the relevant authorities and informed by the forecasting modelling and subsequent monitoring.

²⁰ TAG Unit M2.1 paragraph 2.2.8

6.8 Interim phasing tests

6.8.1 While the above process describes modelling of the full development build-out, the OPA TA will also model interim phases with the appropriate access arrangements. The full package of sustainable transport measures will take time to bed in and result in behaviour change, so the interim phase tests would use the Moderate scenario of modal shift. The full sustainability package, with all interventions present, would be tested only for the completed development under the Aspirational scenario. This approach reflects the assumption that travel patterns will take time to bed in, but that when they do, they will be apply to the development cumulatively, not just to the relevant phase.

6.9 Sensitivity testing - Capstone Valley

6.9.1 As explained above, the emerging Medway Local Plan creates some uncertainty in the Reference Case that is carried through to the development scenarios. This uncertainty will be addressed through sensitivity testing of the on-site infrastructure as discussed below.

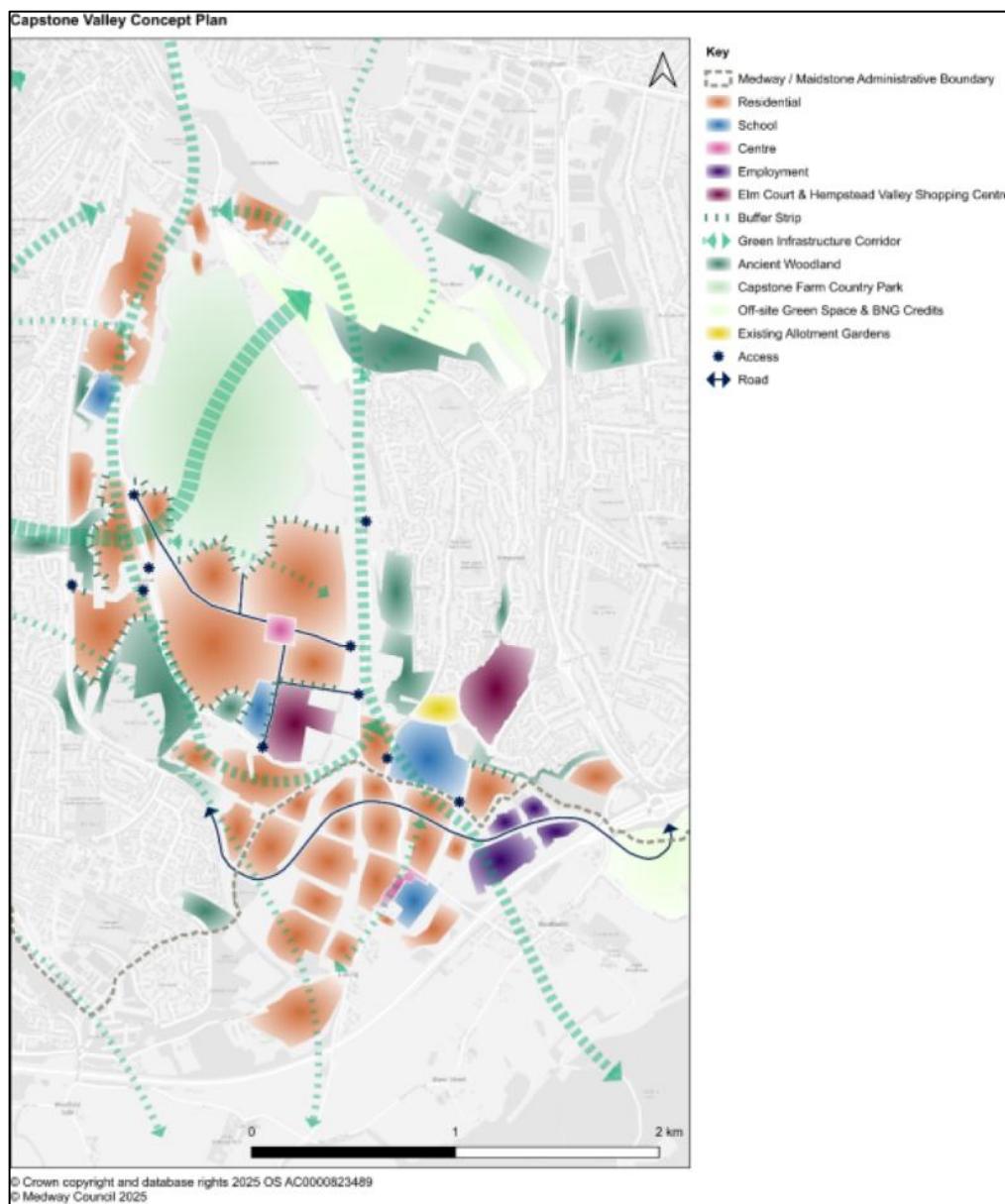
6.9.2 The current Regulation 19 stage of the Medway Local Plan includes planned growth in the Capstone Valley to the north of Lidsing as shown below. This includes consented developments at East Hill and Gibraltar Farm which will already be in all modelled scenarios, plus further emerging large-scale sites at Sharstead Farm (site ref LW4) and Mill Fields (site ref LW8). For the core scenarios discussed above, the latter are only accounted for by means of overall growth constrained to TEMPro (NTEM).

6.9.3 The Medway draft policy suggests that these sites would rely on the Lidsing link road to come forward. For this reason, there is not envisaged to be a scenario in which Sharstead Farm and Mill Fields come forward prior to the Lidsing development; and subsequently, any sensitivity test inclusive of those would consider only the Lidsing Development forecast scenarios and not the Reference Case.

6.9.4 This additional growth will have implications for the road network around Lidsing and it is anticipated that this impact will be more acute when these sites are accounted for site-specifically. For this reason, the OPA will include a localised sensitivity test of the forecast scenarios which will account for the Capstone Valley allocations site-specifically and will recalculate generic TEMPro growth accordingly.

6.9.5 The subsequent development scenarios will be used for localised assessment of the proposed Lidsing on-site infrastructure and associated enabling works only. It will not be applied for the wider assessment of off-site impact and associated determination of need for mitigation. This approach will seek to ensure that the proposed on-site infrastructure will appropriately designed to accommodate wider, but localised, growth.

Figure 6.5: Capstone Valley Concept Plan (Medway Council)



7 Monitoring and Mitigation

7.1 Overview

- 7.1.1 The monitoring approach set out below has evolved from other large-scale sites in Kent where C&A have forecast transport impacts and have developed a strategy to monitor the residual cumulative impacts prior to mitigation, liaison with the relevant highway authorities.
- 7.1.2 The approach suggests a method of defining trigger points for potential mitigation measures that is reflective of the NPPF policies discussed previously. Monitoring specifications are also set out below, defined into two distinct categories – on-site monitoring, that relates to the trips generated by the development, and off-site monitoring for points on the network where the introduction of the development infrastructure could result in changes in traffic levels, separately to the development trip generation.

7.2 Mitigation Trigger Points

- 7.2.1 The use of the strategic and localised modelling as set out in the previous note will provide a forecast assessment for the operation of the network under the ‘Reference Case’ scenario, as well as the ‘Lidsing Development’ Optimistic, Moderate and Pessimistic scenarios.
- 7.2.2 The different forecast scenarios for the development will provide an insight into the range of possible outcomes, as well as the level of mitigation that might be required, under different levels of trip generation.
- 7.2.3 The ‘trigger point’ at which the relative impact of the development becomes severe will be discussed and agreed with the relevant highway authority in terms of development trips through the network. The threshold relates to overall development trip generation because this represents the only practical means to consistently and regularly undertake monitoring.
- 7.2.4 The monitoring of the development traffic will provide information on the progression towards each mitigation’s trigger point, which from now on will be referred to as ‘trip budget’.
- 7.2.5 This approach will provide reassurance to the highway authorities that mitigation will come forward in a timely fashion, while at the same time motivating the site promoters to achieve the site’s sustainability goals and maximise the development’s build-out before the development trips relating to each trigger point are reached or to avoid such mitigation altogether in some cases.

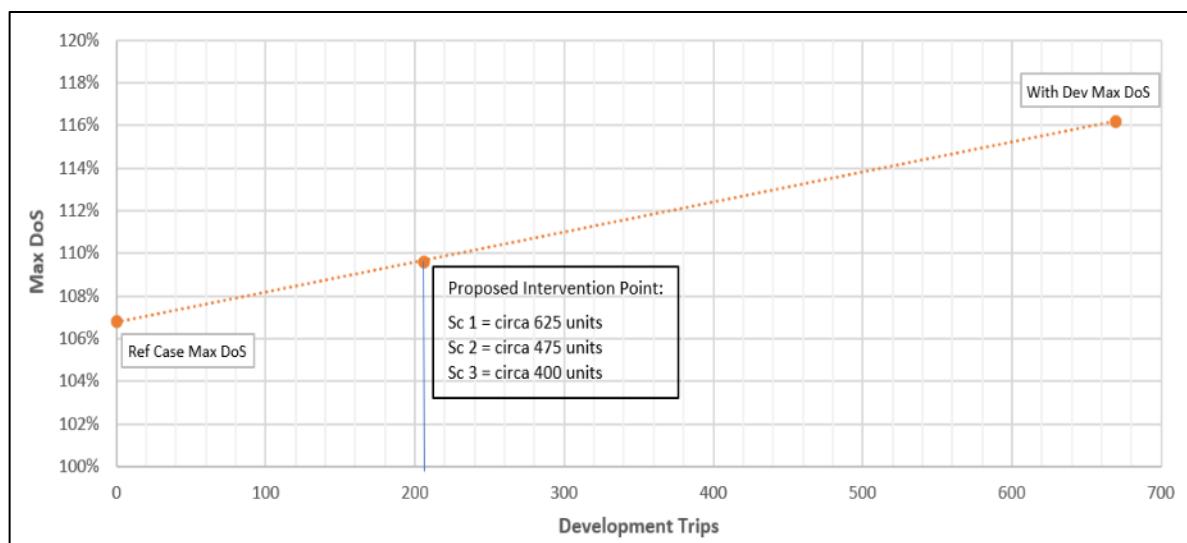
Determination of Impact

7.2.6 A numerical example is provided below that demonstrates the approach suggested in this report. It is important to note that the numbers provided do not reflect the Lidsing Development but only serve as an illustration of what is discussed above.

7.2.7 The example given below relates to a single junction. The graph presents the increasing implications on the junction, in terms of maximum Degree of Saturation (y-axis) against overall development trips. In the Reference Case (left side of graph), where there is no development or development traffic, the RFC is 107%. At the other extreme, when the development is generating its maximum forecast demand (right side of graph), under worst case trip rates and full build out, this is forecast to increase to 116%. In this example, as the assessment suggests that the junction is already operating over capacity in the Reference Case, determination of 'severe' impact cannot reasonably be derived from the conventional 'tipping point' where the junction is pushed over capacity. The severity of impact must therefore be determined on a relative basis. In this example and following engagement with the relevant stakeholders, the point at which the junction is considered to have a severe impact has been judged to be around 110% DoS. For the avoidance of doubt, this is simply an example and it is not suggested that these thresholds are necessarily applicable elsewhere.

7.2.8 In this example - reading down to the x-axis shows that trigger point would be reached when circa 210 vehicle development trips are added to the overall network. This then becomes the 'trip budget' for this junction location.

Figure 7.1: Example 'trip budget' for mitigation of a junction



7.2.9 Importantly, this trip budget can be spent in multiple ways. If the sustainable transport interventions are highly successful, the vehicle trip rate will be low so the budget allows the occupation of circa 625 dwellings. However, if the interventions are less successful, the vehicle trip rate will be higher and the budget only allows the occupation of circa 400 dwellings.

7.2.10 There is thus an incentive for the developer to work hard to prioritise sustainable travel (as per NPPF paragraph 117a) over private car trips, so that the intervention is either required later in the development programme, or, in some cases, may not be needed at all.

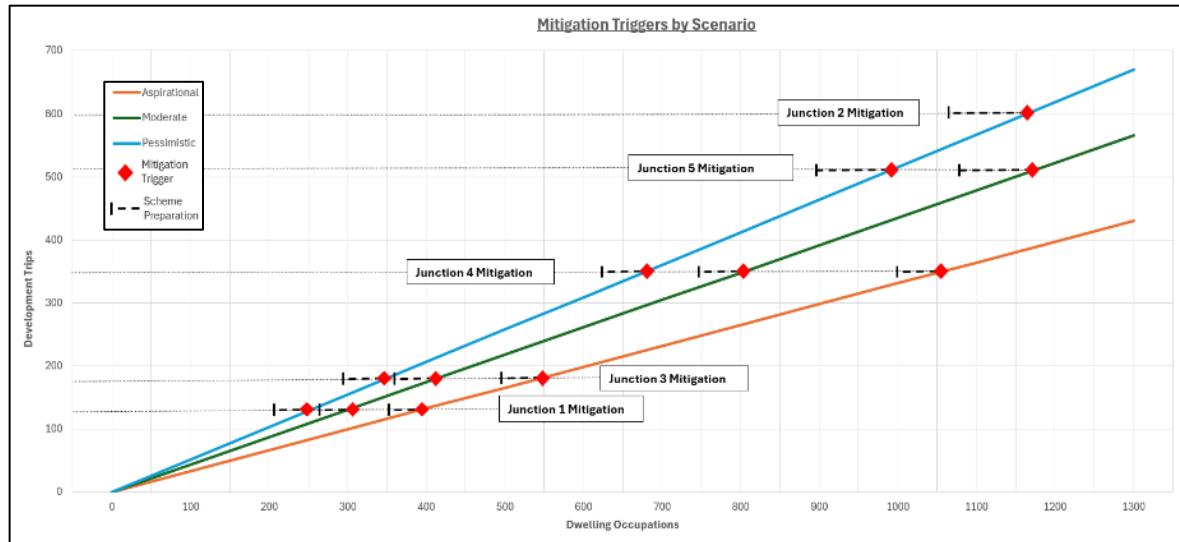
7.2.11 The above example defines 'severity' relative to the maximum Degree of Saturation on the most impacted approach to the junction. This is only one approach. It may be appropriate to use alternative parameters against which to determine impact and thereafter the need for and timing of interventions under different trip budgets

Overall Trigger Strategy

7.2.12 The graph below uses as an example a generic development with mitigation required at multiple locations. The completion of dwellings is shown on the x-axis with vehicle trips on the y-axis. The three coloured lines represent the development trip generation throughout the build-out of the development under the different development scenarios, i.e. Aspirational, Moderate and Pessimistic.

7.2.13 The Pessimistic Scenario reflects a higher trip rate between the different scenarios, with the Aspirational scenario representing the lower trip rate of the three. This means that in the Pessimistic scenario, at a certain point of the build-out the generated trips will be the highest possible, and respectively, in the Aspirational scenario they will be the lowest. Or equally, the Pessimistic scenario will reach a specific number of trips at a lower stage of the build-out, while the Aspirational scenario will achieve a higher buildout before reaching the same number, with the Moderate Scenario sitting somewhere between the two.

Figure 7.2: Mitigation Triggers for each Development Scenario



7.2.14 Each mitigation scheme corresponds to a single trip budget, as discussed above, i.e. a single number of development trips. A notional horizontal line across the graph, representing a single trip budget and the respective mitigation(s) for this budget, meets the coloured lines at different points on the graph, marked with a red diamond. This represents the different build-out levels that each development scenario can achieve before the mitigation is required.

7.2.15 As discussed above, for the Aspirational scenario, mitigation will be required at a later time than for the other two development scenarios.

7.2.16 The dashed line next to each diamond represents the scheme preparation time, which depends on the complexity and location of the proposed measures. This means that a decision will be taken on the need for each mitigation before the point when it would be required.

7.2.17 In the above example, Junction 2 mitigation is only required under the Pessimistic scenario, creating a clear incentive for the developer to invest in other measures so that a trip generation more aligned to the Moderate or Aspirational scenario is achieved.

Practical Observations

7.2.18 The principal aim of this exercise is to determine, by means of forecasting, when and where development impact would be severe and mitigation would be required. The derivation of this will be based on a combination of the prevailing baseline conditions at the network, which itself is based on surveys, forecasting of growth and committed and modelling, along with forecast of development traffic demand.

7.2.19 The monitoring will, as discussed above, generally focus on the latter of these two – the development traffic demand. However, the absolute need for mitigation in any situation may well remain influenced by a wide range of factors beyond the control of the development. For instance, growth or committed development may not emerge as originally forecast or other changes may have taken place to the junction, such as improvements undertaken by the highway authority or others. Such changes may render the mitigation, deemed appropriate at the time of determination based on forecast scenarios, less applicable. There is some scope to undertake minor modifications to mitigation for limited circumstantial changes. However, the appropriateness of implementing such mitigation will ultimately be for the Local Highway Authority to determine, particularly where it is either no longer deemed necessary or wholly appropriate due to changes outside of the developer's control. It would not be appropriate for the developer to be responsible for undertaking a wholly different and more costly mitigation due to such context changes and where unrelated to the development's own impact.

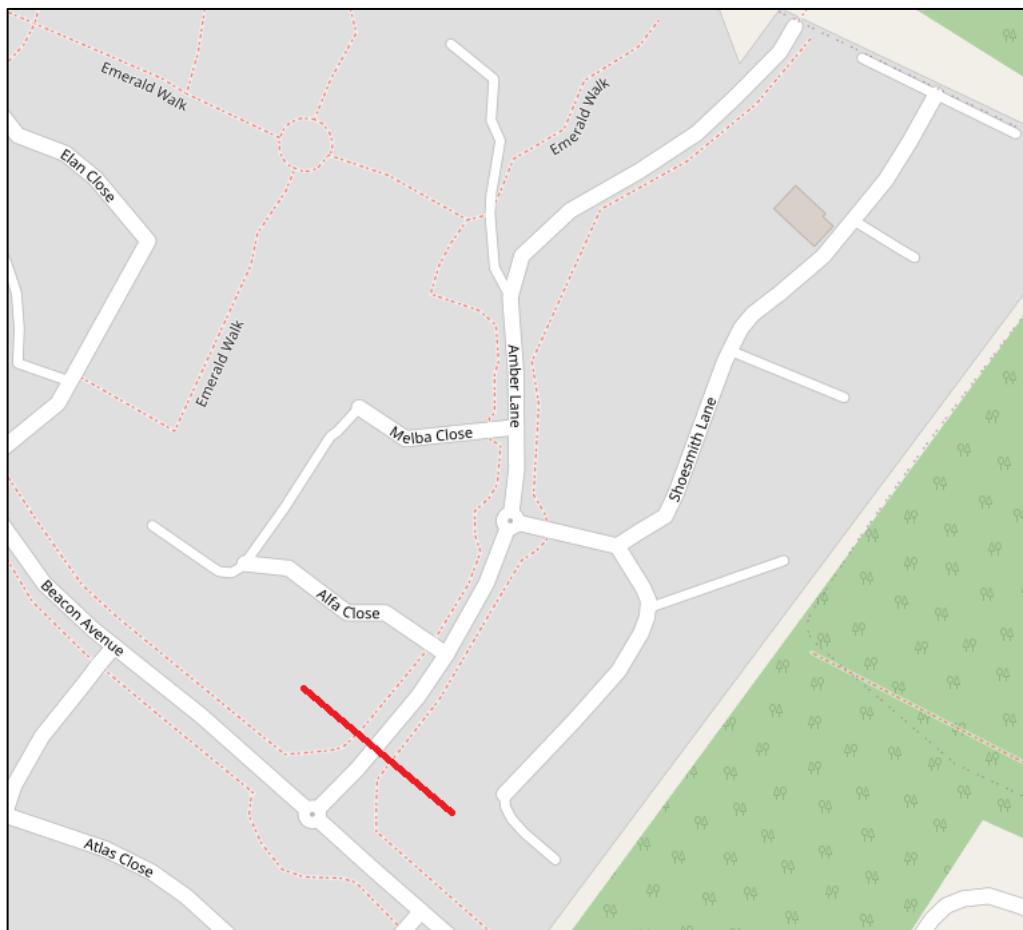
7.2.20 The above is likely to apply to a greater or lesser extent to individual items of mitigation. For instance, smaller interventions further into the future at junctions already known to be operating at or over capacity, may be more susceptible to the above circumstances. In such cases it may be appropriate to undertake a level of monitoring of those junctions – principally to ascertain whether the committed mitigation remains appropriate. It may be appropriate to allow a means for the 'value' of any original proposed mitigation to be determined, monetised and recycled into an alternative mitigation scheme in agreement with the relevant highway authority. It may also be appropriate to recycle such mitigation into alternative sustainable travel interventions.

7.2.21 For the avoidance of doubt, such monitoring of the junctions would not be undertaken to determine the need to bring forward or substantially enhance mitigation beyond that determined at the planning application stage. The trigger of mitigation would remain subject to monitoring of the development's performance.

7.3 Monitoring of Development Trips

7.3.1 The vehicle trips of the development would be monitored at regular intervals, typically annually, using Automatic Traffic Counts or similar methods. These would be located to ensure that a totality of vehicle movements linked to the development land uses are captured and exclude external traffic reassigning over the link road. It will be important to ensure that all development traffic is captured.

Figure 7.3: Example of monitoring location to exclude external trips

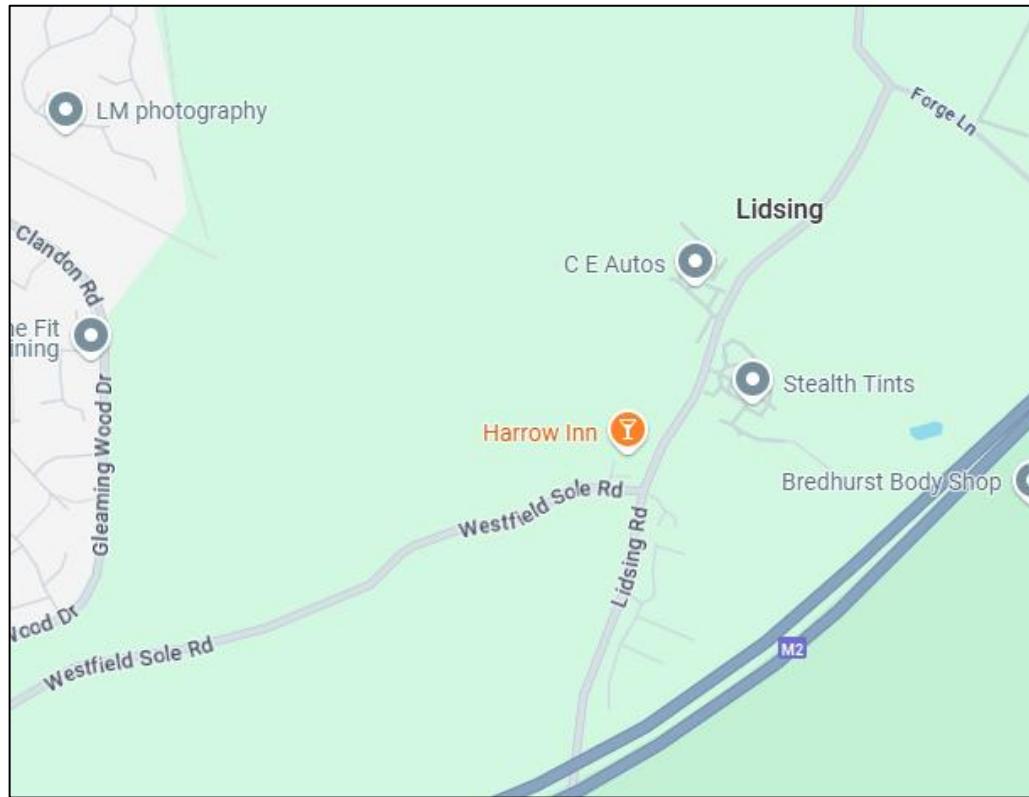


7.3.2 It should be noted that while the focus of the development monitoring, for the purposes of determining triggers for mitigation, will be overall development trip generation – this will come forward alongside wider sustainable travel monitoring through the Travel Plan process. This will include monitoring by means of, for example, travel questionnaires, to derive multi-modal travel demand. This will allow the success or otherwise of certain modal interventions to be assessed and in particular to inform changes to the measures being implemented in the future.

7.4 Off Site Monitoring

7.4.1 While monitoring mostly addresses on-site trip generation, as discussed above some monitoring would also take place on locations where the development infrastructure in particular might impact traffic and give rise to a need for other network changes.

Figure 7.4: Rural Lanes for Monitoring



7.4.2 Volumes on **Westfield Sole Road** are expected to reduce following completion of the link road as it will provide a more optimal route for traffic between Lordswood, Hempstead and Wigmore. This assertion can be verified by comparing observed traffic volumes before and after completion of the link road. If volumes do not reduce as anticipated then appropriate traffic calming measures, such as modal filtering, can be introduced. Monitoring will help avoid the premature introduction of measures that would restrict permeability to existing dwellings and businesses along the route, up until the point that they would be deemed necessary.

7.4.3 Similarly, the access strategy of the development will be designed so as to avoid generating excess vehicle trips on **Lidsing Road** to the south of the site. Again, this would be monitored and, if necessary, further design changes can be introduced to divert development traffic in alternative routes.

7.4.4 In addition to the above, monitoring of villages to the south of M2, most notably Bredhurst and Boxley will be important to determine the need for and nature of any interventions.

7.4.5 It is important to reiterate that, in general, the objective of network monitoring will be determined the implications of infrastructure changes and to seek to differentiate these from development traffic generation impact. In this regard, it is proposed the network monitoring would generally take place immediately before and immediately after opening of infrastructure to traffic. In the case of post opening monitoring it may be appropriate to allow a period for changes in travel patterns to bed in, as awareness of the new route options become more widespread. However, the time elapsed between before and after needs to be limited to avoid other external factors influencing the conclusions drawn. Most apparently it will be important to ensure that neither monitoring period is impacted by factors such as road closures or temporary road works that have wider impacts on overall distribution of traffic.

7.5 Securing Mitigation

7.5.1 Following negotiation with the highway authorities, the above arrangements would be written into a Monitoring and Evaluation Programme secured through a mechanism such as the Section 106 Agreement. As shown above, if the sustainable transport measures are successful then it may be that some mitigation schemes are not required at all. On this basis it is suggested that the S106 wording is sufficiently flexible to allow contributions intended for highways schemes to be recycled into other sustainable transport measures, while remaining compliant with NPPF paragraph 55.

7.5.2 It is recognised that other developments may come forward, such as the Medway Local Plan draft allocations, which could collectively lead to an additional impact on the local network. As discussed earlier, it is suggested that further flexibility is provided to allow monetising and pooling of the costs. While the development will seek to test to some extent the cumulative impact of growth, it will not be responsible for mitigating the impact arising from it.

7.6 Monitoring Period

7.6.1 Monitoring will need to take place over an appropriate time period to ensure that it appropriately informs the necessary management exercise. However, these time periods will vary depending on the nature of the activities being monitored. Fundamentally, monitoring is necessary to inform decision on management and once those decisions have been made, further monitoring will become unnecessary. For instance:

- Network monitoring before and after the opening of new infrastructure will be focused on determining the nature of the influence of the infrastructure. Following this, decision will be made on how best to manage this influence, if at all. Once that decision is made and the management implemented, no further monitoring would be required.

- In the case of overall development trip generation monitoring, this will need to continue until such time as the final decision on triggers for implementation of mitigation have been made, after which further monitoring would become unnecessary.
- In contrast to the above, wider sustainable travel pattern monitoring through the Travel Plan questionnaire will run for a more extended period to ensure that encapsulates all of the developments in the latter phases and for a period after practical completion of the development, likely to be between 2 and 5 years.

7.6.2 Trip monitoring and the Travel Plan will be coordinated by a Transport Steering Group to include the highway authorities.

8 Summary and Next Steps

- 8.1.1 This Annex provides further details on transport and highways matters as part of the Lidsing Garden Community SPD, following consultation with the relevant planning and highways authorities.
- 8.1.2 The application will use a vision-led approach as required by the NPPF, building on digital connectivity and masterplanning already undertaken to date to maximise internalisation. Where residents and employees travel beyond the site, high quality active travel connections and public transport services will become the default modes of transport, including future mobility technology as this becomes available.
- 8.1.3 Safe and suitable access to the development will be provided at a range of scales in line with the requirements of the site policy, supporting sustainable modes wherever possible. The access strategy will also maximise the use of the new M2 spur and give due consideration to the impacts on the rural network.
- 8.1.4 The assessment of movement associated with the development focuses on person trips with appropriate assumptions of relevant sustainable modes between the site and surrounding locations. The Medway Transport Model is the most appropriate and robust framework to assess highways impacts, with a Reference Case covering growth in both Maidstone and Medway and multiple reasonable scenarios for development vehicle trips. Uncertainty relating to the emerging Medway Local Plan will be addressed through a localised sensitivity test.
- 8.1.5 To encourage the highest levels of sustainable travel, existing constraints will be leveraged and where highways mitigation remains appropriate it will form part of a Monitor and Manage process via agreement with the highway authorities. The proposed approach to monitoring and mitigation aligns with the vision-led approach to transport planning set out in the NPPF, testing multiple reasonable scenarios instead of the worst case.
- 8.1.6 Each location for mitigation would be triggered by an agreed budget of gross development vehicle trips, creating a clear incentive for the developer to achieve a lower mode share for private car use.
- 8.1.7 Highway-focused measures and the relevant triggers would be negotiated with the highway authorities in a Monitoring and Evaluation Programme to be linked into a Section 106 Agreement, with the possibility of making partial contributions alongside other developments in some cases.
- 8.1.8 The forthcoming outline planning application will be supported by a vision-led Transport Assessment which will accord with the NPPF and the adopted site policy. The key elements for the TA are tabulated below, although this is not an exhaustive list.



Table 8.1: Transport Assessment Elements

Topic	Included Matters
TA Scoping	Early engagement with KCC, NH, Medway Council, ATE and public transport operators Scope of traffic data collection (informed by initial strategic modelling)
Planning Policy and Guidance	This will include: National guidance including NPPF, DMRB, National Design Guide, Manual for Streets and LTN 1/20 KCC Local Transport Plan 5, Transport Assessment guidance, Kent Design Guide and Parking Standards Maidstone Local Plan Review Medway Council design guidance
Baseline Conditions	Active travel audits as per ATE guidance Review of collision data Traffic data collection to enable calibrated and validated junction models
Development Proposals	Description of development including schedule of all land uses and quantums Appropriate connections for each transport mode including the west-east link road, North Dane Way, Hempstead Road, M2 Junction 4, Chapel Lane, Forge Lane and other locations Further detail of M2 Junction 4 improvements including NH-specific design and assessment requirements Parking and servicing including zero-emission vehicles Development phasing and interim access arrangements

Topic	Included Matters
Sustainable Movement	<p>Active travel corridor improvements to surrounding areas</p> <p>Initial bus service proposals including connection to Chatham town centre / railway station and the west-east orbital connection</p> <p>Bus-rail integration</p> <p>Longer-term opportunities for transport technology and innovation</p>
Traffic Assessment	<p>Vision-led methodology including multiple reasonable scenarios e.g. Aspirational, Moderate and Pessimistic</p> <p>Assumptions for internalisation between land uses</p> <p>Manipulation of vehicle trip origin-destination matrices to reflect the specific proposals under Sustainable Movement</p> <p>Consideration of committed developments</p> <p>Horizon year of 2041 including full delivery of Lidsing</p> <p>Strategic modelling using the Medway Transport Model for multiple reasonable scenarios</p> <p>Modelling of interim phases</p> <p>Local junction models informed by the strategic modelling</p> <p>Sensitivity testing of development in the Capstone Valley</p>
Residual Mitigation	<p>Mitigation schemes (where not already proposed under Sustainable Movement)</p> <p>Impacts on rural lanes – which relates to Monitor and Manage Framework below</p>
Monitoring and Management	<p>Framework Travel Plan for all land uses</p> <p>Monitor and Manage Framework including development trip monitoring, trip budgets and trigger points</p> <p>Draft heads of terms for Section 106 and Section 278 Agreements</p> <p>Cap on financial value of all transport-related mitigation</p>