OTTERPOOL PARK

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DOCUMENTS SUBMITTED IN SUPPORT

OP5 APPENDIX 16.4 – **TRANSPORT ASSESSMENT**

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APPLICATION CONTENTS

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Transport Assessment

CONTENTS

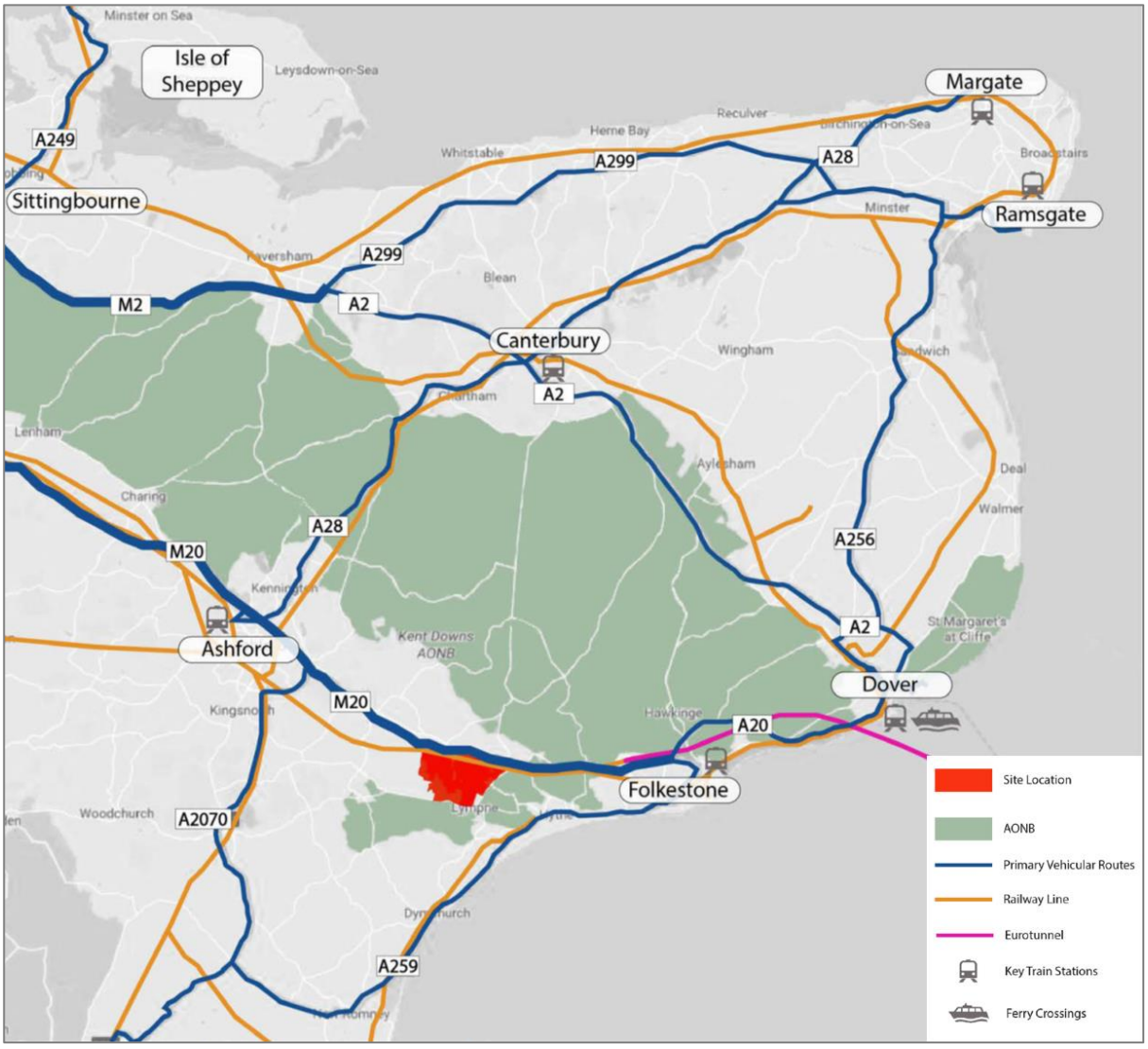
FIGURES

TABLES

Executive Summary

ES1. This Transport Assessment (TA) has been prepared in support of an amended outline planning application seeking permission for the redevelopment of the Otterpool Park site through the demolition of identified existing buildings and erection of a residential led mixed use development comprising up to 8,500 residential homes including market and affordable homes; age restricted homes, assisted living homes, extra care facilities, care homes, sheltered housing and care villages; a range of community uses including primary and secondary schools, health centres and nursery facilities; retail and related uses; leisure facilities; business and commercial uses; open space and public realm; sustainable urban drainage systems; utility and energy facilities and infrastructure; waste water infrastructure and management facilities; vehicular bridge links; undercroft, surface and multi-storey car parking; creation of new vehicular and pedestrian accesses into the site, and creation of a new vehicular, pedestrian and cycle network within the site; improvements to the existing highway and local road network; lighting; engineering works, infrastructure and associated facilities; together with interim works or temporary structures required by the development and other associated works including temporary meanwhile uses. Layout, scale, appearance, landscaping and means of access are reserved for approval.

ES2. In addition to the outline application development, a wider Otterpool Park Framework Masterplan Area (OPFM) includes for up to 10,000 homes has been considered as a sensitivity assessment scenario.



ES3. Otterpool Park is located in the Folkestone & Hythe district. The villages of Westenhanger and Newingreen lie within the application site boundary, while the villages of Lympne, Barrow Hill and Sellindge are located just outside it. Link Park, a distribution and industrial centre, lies just outside the application boundary and within the boundary of the OPFM. The Kent Downs Area of Outstanding Natural Beauty (AONB) bounds the area along its eastern and southern edges.

ES4. In February 2019, the original outline planning application was submitted for the Otterpool Park development supported by a TA. The scope of assessment required for the application was discussed with Kent County Council (KCC), Folkestone & Hythe District Council (FHDC) and Highways England (HE), (now National Highways (NH)), during discussions between July 2017 and July 2018 for the 2019 TA. Following the submission, further comments were raised, by KCC, FHDC and HE. These have been discussed and addressed where appropriate.

ES5. The originally agreed approach for the TA is the traditional approach reflective of the 'predict and provide' methodology derived from historic trip rate patterns. This approach is based on various sources of data including 2011 Census, TRICS surveys and the National Travel Survey. As the data is up to 10 years old and does not consider any step changes to the derived mode shares of the latest travel patterns and sustainable travel choices to be promoted by the development, the trips generated via this methodology are considered a worst case for car trips. The highway capacity assessment has therefore been undertaken based on this approach to demonstrate that even in such a scenario, there will be highway mitigation options.

ES6. However, this is not the desired approach and although key highway mitigation options have been identified to accommodate the worst-case car trips, the car trips generated by the site are not expected to reach the levels forecast, due to the proposed sustainable infrastructure to be implemented as part of the development. The Otterpool Park development and associated transport strategies will provide residents, employees and visitors with an attractive and comprehensive network of sustainable travel options that will be a feasible alternative to the use of the private car and promote active travel modes.

ES7. A Transport Strategy (ES Appendix 16.5) has been introduced to provide more progressive mobility interventions for Otterpool Park. The future of travel and the movement of goods is changing. Advances to technology, changes to the way we work and a shift in the way we access services and buy goods are influencing the way we travel. The vision is to promote sustainable and active travel modes through the offer at Otterpool Park such that the need for long distance travel and reliance on the private vehicle is reduced. This is consistent with the Folkestone and Hythe District Council's aim to achieve the net-zero emissions target by 2030 and the Government's Ten Point Plan for a Green Industrial Revolution, of which Point Five is Green public transport, cycling and walking.

ES8. The Transport Strategy for Otterpool Park is founded on the following principles:

- Create walkable neighbourhoods and a high street highly accessible by walking and cycling
- Provide strong walking, cycling and bus connections to rail station, employment, high street, local centres and schools from residential areas
- Provide wider connectivity by walking, cycling and bridleways into surrounding countryside and existing communities
- Ensure a high level of connectivity to and from Otterpool Park within the sub-region by frequent high-quality public transport
- Minimise and manage the impacts of traffic on existing road network particularly through existing communities and other sensitive areas
- Provide appropriate levels of parking for cars and bicycles
- Implement a range of sustainable travel behavioral measures to encourage use of sustainable modes

- Provide for future needs for electric vehicles and flexibility to adapt to innovative future mobility solutions
- Reduce the need to travel by providing relevant on-site facilities.

ES9. An alternative method to estimating the future trip generation has therefore been undertaken, the User Centric approach, and puts the mobility needs of the users first. This method takes into account the propensity of users to take up more active and sustainable travel options compared to the private car should there be a reasonable alternative. This has been determined by carrying out an online survey of 2,600 respondents in London and Kent who meet the demographic characteristics of future residents of Otterpool Park and asking questions relating to their travel behaviours. The consideration for travel behaviours prior to the Covid-19 pandemic, but also recognising the 'new normal' of travel behaviour in the future, was made clear to the respondents for each question. Based on the results of these surveys two scenarios for an ambitious mode share have been derived, on which the sustainable modes have been assessed. These scenarios are:

- Best Case Scenario: This scenario takes the user survey results a step further by applying a more ambitious mode share target. The comprehensive range of transport measures proposed at the development would be required to support the ambitious mode share target. This target is intended for the north east area of the development, where accessibility levels are expected to be highest with Westenhanger rail station being within this plot, however, it could also be used as an aspiration for the wider site. The mode share for this scenario has originated from WSP's "Otterpool Park – Phase 1 Access and Movement Strategy" with some minor amendments.
- User Survey Scenario: Directly based on the likely travel behaviour of future Otterpool Park users based on survey responses and are only applied to the external trip Mode Share, the internal trips reflect those in the best-case scenario.

Sustainable Modes

ES10. The existing situation for sustainable modes and the proposed mitigation are summarised in the following table.

Existing Situation	Mitigation
The only signal-controlled crossing is located on Otterpool Lane at the junction with the A20 Ashford Road. No infrastructure is provided for cyclists and road alignments on the A20 and the A261 Hythe Road create difficult environments for cyclists on these heavily-trafficked roads.	Provision of a number of new junctions along the A20 Ashford Road and B2067 Otterpool Lane. Proposed junctions are shown in **Error! Reference source not found.** as part of the Highway Capacity Study Area.
PRoW within the study area are of mixed condition. Overall, there are existing issues with north-south permeability and lack of wider connections and links over the railway line and M20.	Improvements to the following walking and cycling routes as part of an ongoing dialogue with KCC, to be secured and detailed with the supporting Section 106 legal agreement following planning submission. • HE/359 and HE371footpath - Improve the connection to Public Right of Way (PROW) and cycle network from Westenhanger Station to the north • HE/281 footpath - Improvements to the route between Stone Street and heading south east through Sandling Park towards Hythe and Saltwood. • HE/293 footpath – links to the proposed pedestrian network and connects eastwards to Hythe.

Existing Situation	Mitigation
	• HE/343 byway – Improving this link will make it more attractive as a pedestrian route to Hythe. • Aldington Road between Otterpool Lane and Stone Street – improvements to the pedestrian provision such as formalised crossing points and consideration for traffic calming measures close to key pedestrian desire lines. • Harringe Lane - proposal to close this road for vehicle traffic halfway down the road. This will prevent any through traffic generated by the development and create a more attractive route for walking and cycling in the north – south direction
The accessibility of the site to bus services is limited, with bus stop locations limited to the locations of the existing settlements at Barrow Hill, Newingreen, Link Park and Lympne. The majority of the site is more than the desirable distance of 400m from a bus stop. Service frequency is low with only two hourly services operating on a weekday.	The Otterpool Park Transport Strategy proposes an overall bus service frequency enhancement (including all services) to 4 to 6 buses per hour, which is expected to be sufficient to meet the demand estimated using the User Centric Approach. The proposed level of provision would provide greater capacity that the expected increase in demand.
Westenhanger railway station offers a sustainable gateway to the site from within Kent and offers the opportunity to connect to high speed services at Ashford International or Folkestone.	The effect on rail patronage that the proposed development and the Transport Strategy would have been difficult to quantify. Further detailed assessment work is required and changes to rail patronage would be monitored over time as the development phases are built out. The Core Strategy Review (2020, with 2021 Main Modifications) references upgrades to Westenhanger Station being necessary to provide the capacity to enable a high speed service ready and integrated transport hub. This will be in partnership with Network Rail, the rail operator and KCC.

Highway Capacity Assessment

ES11. The highway capacity study undertaken includes local modelling of a number of agreed existing and committed junctions as well as proposed junctions that connect into the existing highway network. Junctions have been assessed using the appropriate LinSig, Arcady or Picady software. A VISSIM model has also been produced at the request of KCC, and the base model has been shared and discussed with HE. Merge/diverge assessments have been undertaken within the study area on the M20 and at the A20 slip roads near Alkham Valley.

ES12. The following forecast years have been assessed for the highway capacity study:

- 2018 Base Year: pre-construction 'no scheme' baseline
- 2037: the end of the Folkestone & Hythe District Council Local Plan period
- 2044 Main Assessment (2044 8.5k): the forecast year of full build-out for the 8,500 homes and associated land uses. The Otterpool Masterplan assumes the completion of 8,500 homes in 2042, however, assessing the year 2044 provides a worst-case assessment in terms of transport assessment for vehicles with the inclusion of two additional years of traffic growth. This represents the main assessment for the Outline Planning Application
- 2044 Sensitivity Assessment (2044 10k): representing the year of full build-out for OPFM, including 10,000 homes.

- 2044 Quantum for Approval (2044 8.5k) Sensitivity Test: There is a necessity within the transport assessment main assessment to use the Illustrative Accommodation Schedule and Illustrative Masterplan due to the requirement to identify the trip origin and destinations. The quantum of development set out within the Illustrative Accommodation Schedule is lower than that for which approval is requested within the Development. This test compares the vehicle trips generated by this uplifted quantum to the 2044 Main Assessment (2044 8.5k) and the 2044 Sensitivity Assessment (2044 10k).

ES13. Each future year assessment includes two scenarios:

1) **Do-Minimum (DM)**, which includes:
    - committed highway improvement schemes; and
    - forecast baseline traffic flows.
2) **Do-Something (DS)**, which includes:
    - committed highway improvement schemes;
    - highway schemes proposed for the Otterpool Park Development;
    - forecast baseline traffic flows; and
    - Otterpool Park development traffic flows.

ES14. A weekday morning peak hour (0800 to 0900) and a weekday evening peak hour (1700 to 1800) have been assessed for each assessment year. These time periods align with the local highway network peak periods as determined from analysis of traffic survey data.

ES15. A Monitor and Manage Framework is proposed as part of the Core Strategy to provide mitigation for the Strategic Road Network. There is a strong emphasis on this approach in the bringing forward of the Otterpool Park development. Given the worst-case nature of the trip generation exercise, it is inappropriate to bring forward infrastructure which provides excessive capacity and encourages additional private vehicle trips on the network.

ES16. The capacity assessments identified that the following junctions would operate within capacity in the DM scenarios, but over capacity in one or more DS scenarios:

- M20 Junction 11;
- A20 Ashford Road Left-In Left-Out;
- A261 London Road / Barrack Hill;
- Aldington Road / Lympne Hill;
- A20 Hythe Road / The Street; and
- A20 Ashford Road small roundabout.

ES17. Given the considerable uncertainty surrounding the worst-case trip generation and the promotion of a user centric approach, as well as a move away from ‘predict and provide’ style mitigation, it is not appropriate to consider capacity improvements for all these junctions. Where suitable, mitigation measures have been identified at specific junctions, however the monitor and manage approach to establish whether conditions warrant mitigation is being promoted as the most suitable approach to promote sustainability and the use of non-car modes. The highway mitigation summary is presented in the following table:

Location	Mitigation
A20 between M20 Junction 11 and its junction with Stone Street and A261 Hythe Road	Enhancement of the /upgrade of existing single lane carriageway, including two signalised junctions with pedestrian crossing facilities.
A20 Junction with Stone Street and A261 Hythe Road (Newingreen Junction)	New Signalised junction
M20 Junction 11 roundabout	Partial signalisation
M20 Junction 11, 12 and 13	Monitor and Manage Approach to consider the need for mitigation
A20 Ashford Road Left-In Left-Out junction	
A261 London Road / Barrack Hill junction	
Aldington Road / Lympne Hill junction	
A20 Hythe Road / The Street junction	
A20 Ashford Road small roundabout junction	

ES18. Discussions regarding suitable mitigation and any potential trigger points is ongoing with FHDC, NH and KCC.

ES19. The proposals for Otterpool Park represent a new garden settlement based on sustainable living and sustainable travel and would accord with the requirements of local, regional and national policy requirements and guidance.

ES20. Current conditions on parts of the existing walking and cycling networks would be insufficient to accommodate significant future growth. Service frequency on the local bus network as well as accessibility to bus and rail services is poor. Several parts of the highway network currently operate with capacity constraints with conditions expected to worsen in future while many other parts of the network are predicted to require capacity enhancements without the Otterpool Park development.

ES21. Proposals to provide pedestrian and cycle priority on key desire lines inside the site and at locations linking to existing external walk/cycle routes would significantly improve conditions for vulnerable road users at these locations. Improvements to bus and rail accessibility and services along with the Transport Strategy (ES Appendix 16.5) and Framework Travel Plan (ES Appendix 16.6) measures would encourage a shift to travel by sustainable modes as estimated for the Best Case and User Survey scenarios using the User Centric approach.

ES22. Based upon the junction capacity assessments and the proposed interventions, it is considered that the Otterpool development traffic can be mitigated so as to not have a severe impact on the network. This will be facilitated by the Monitor and Manage Framework proposed as part of the Core Strategy to provide mitigation for the Strategic Road Network.

ES23. It is anticipated that further discussions regarding the proposed mitigation will be held with Kent County Council, Folkestone & Hythe District Council and National Highways following submission of the Otterpool Park planning application. However, it is concluded that there are no transport reasons why planning permission should not be granted for the proposed development.

1 Introduction

1.1 Overview

1.1.1 Arcadis Consulting (UK) Ltd ('Arcadis') has prepared this Transport Assessment in support of an amended outline planning application seeking permission for the redevelopment of the site through the demolition or conversion of identified existing buildings and erection of a residential-led mixed-use development comprising up to 8,500 residential homes including market and affordable homes; age restricted homes, assisted living homes, extra care facilities, care homes, sheltered housing and care villages; a range of community uses including primary and secondary schools, health centres and nursery facilities; retail and related uses; leisure facilities; business and commercial uses; open space and public realm; burial ground, sustainable urban drainage systems; utility and energy facilities and infrastructure; waste and waste water infrastructure and management facilities; vehicular bridge links; undercroft, surface and multi-storey car parking; creation of new vehicular and pedestrian accesses into the site, and creation of a new vehicular, pedestrian and cycle network within the site; improvements to the existing highway and local road network; lighting; engineering works, infrastructure and associated facilities; together with interim works or temporary structures required by the development and other associated works including temporary meanwhile uses. Layout, scale, appearance, landscaping and means of access are reserved for approval.

1.1.2 The Otterpool Park development is located south-west of Junction 11 of the M20 motorway, and south of the HS1 and local rail link including Westenhanger Station in the administrative area of Folkestone & Hythe District Council in Kent.

1.1.3 The Transport Assessment sets out the baseline conditions for transport, the proposed access and travel strategy and assesses the impact of the proposals on all transport networks. Following the assessment, the measures to mitigate impacts are outlined.

1.1.4 In addition to the outline application development, a wider Otterpool Park Framework Masterplan Area (OPFM) includes for up to 10,000 homes, which has also been assessed within this Transport Assessment as a sensitivity assessment scenario, and included in the Environmental Statement as a cumulative effect. Full details of the development proposals are set out in the Development Specification and summarised in Chapter 5 of this document.

1.2 Site Location and Existing Land Uses

1.2.1 Otterpool Park is located on 589ha of land in the west of the Folkestone & Hythe district. The town of Hythe is located approximately 4.5km to the south-east with Folkestone located around 10km to the east. Ashford lies approximately 11km to the north-west. The area is broadly bounded by the M20 and HS1 and Ashford-Folkestone railway line to the north, the A20 Ashford Road/Stone Street and Sandling Park to the east, Harringe Lane to the west and Aldington Road to the south.

1.2.2 The Kent Downs Area of Outstanding Natural Beauty (AONB) bounds the area along its eastern and southern edges. The AONB also lies approximately 1.25km to the north.

1.2.3 A number of villages are within or adjacent to the development site. Westenhanger lies within the north of the site where, aside from the castle and station, existing buildings are primarily in residential use. Lympne is a residential settlement which lies just outside the site to the south-east. Barrow Hill lies to the north-west. Newingreen is adjacent to the A20 in the centre of the development area.

1.2.4 Lympne Distribution and Industrial Park (known as Link Park) lies in the south-west within the development boundary of the OPFM area. A large portion of the remainder of the development site area is used as agricultural land with small farmsteads.

1.2.5 Beyond lie a number of settlements including Stanford to the north, Sellindge to the north-west, Sandling to the north east, Pedlinge to the east and West Hythe to the south.

1.2.6 A regional context plan is shown in **Figure 1**.

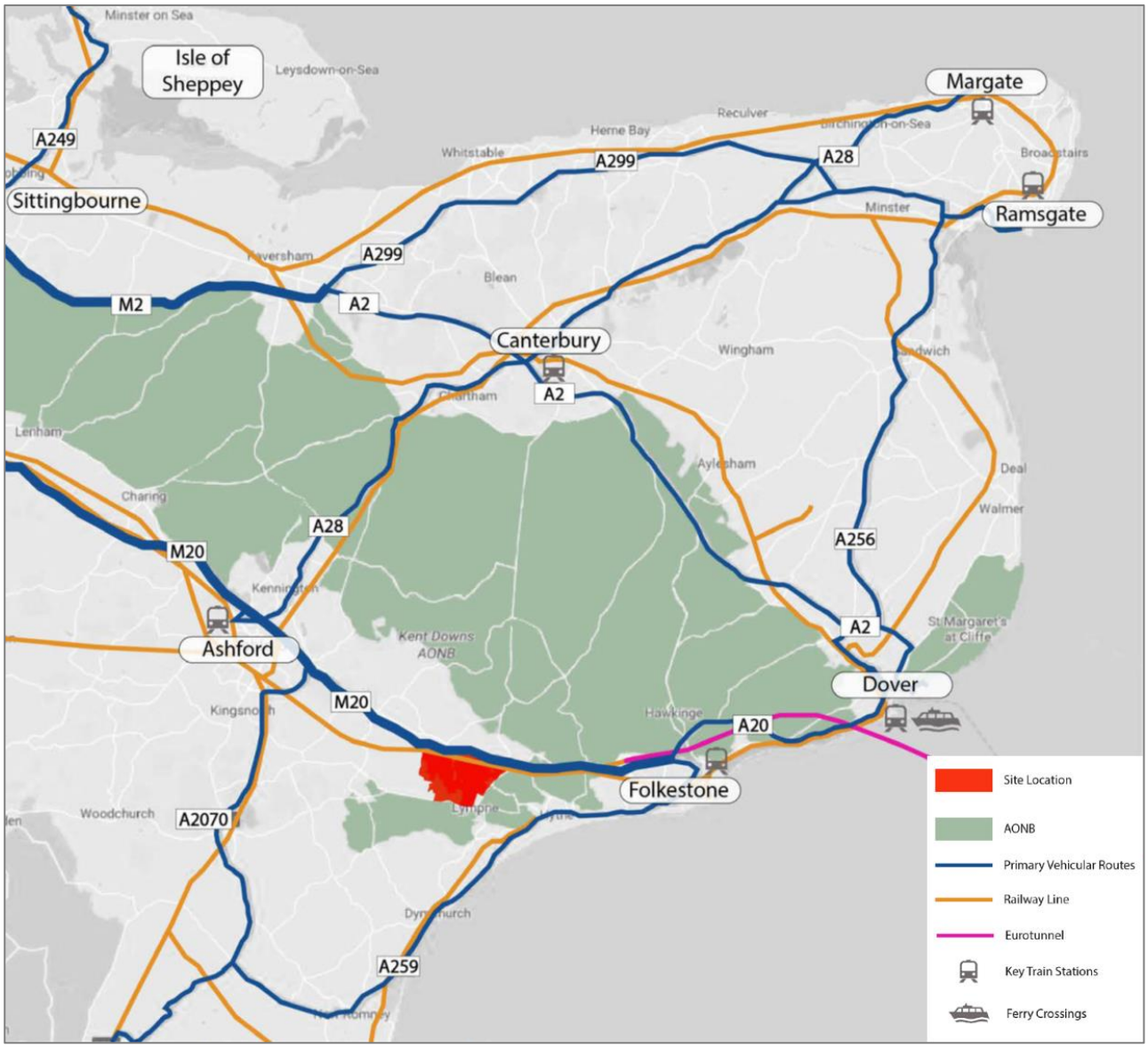


Figure 1 Regional Context Plan

1.3 Transport Assessment Scope

1.3.1 In February 2019, an outline planning application was submitted for the Otterpool Park development. The scoping discussions for the 2019 Transport Assessment (TA) submission as well as for this TA are set out below.

2019 Submission Scoping Discussions

1.3.2 The scope of the transport assessment for the Otterpool Park development was first discussed and agreed with Kent County Council, Folkestone & Hythe District Council and Highways England (now National Highways (NH)) during discussions between July 2017 and July 2018. A scoping note was issued in March 2018 and was subsequently updated to reflect the conclusion of the scoping discussions. Appendix A contains this updated scoping note.

1.3.3 The extent of the assessment study area for each mode was defined by the routes people will travel using each mode between the site and off-site locations across the UK. The study area for Walk and Cycle trips includes all existing and proposed pedestrian routes within the site boundary and

destinations within walking distance of the site; Sellindge and Stanford, east towards Hythe, west along Aldington Road and south along Lympne Hill. The assessment of these trips considers the scale of increase of trips and the current and proposed condition of the routes.

1.3.4 The effect of the development on public transport was considered on the routes and services that provide access to the on- and off-site locations between which residents of and visitors to the site are expected to travel. For bus services, this included services that route to the site and other connecting services. The scale of impact on existing services that are expected to experience an increase in patronage is considered. It is acknowledged that further investigation of the effects of impacts on these services and mitigation required would be undertaken by Kent County Council and discussed with the County and local service providers.

1.3.5 Figure 2 presents the extent of the highway capacity study area agreed with Kent County Council, Folkestone & Hythe District Council and Highways England (now NH). Existing and committed junctions are indicated by solid black circles while junctions proposed as part of the development proposals are coloured yellow. Each of these junctions has been assessed using the appropriate LinSig, Arcady or Picady software.

1.3.6 Kent County Council requested that a VISSIM model be produced to assess the local junctions most likely to be impacted by the development, as indicated in Figure 2. At the time of submission of this application, the base VISSIM model has been agreed with Kent County Council, but discussions are ongoing with Highways England (now NH). The results of the VISSIM will therefore be reported separately from this Transport Assessment and will inform ongoing discussions regarding highway impact mitigation.

1.3.7 Merge/diverge assessments have been undertaken within the study area on the M20 and at the A20 slip roads near Alkham Valley.

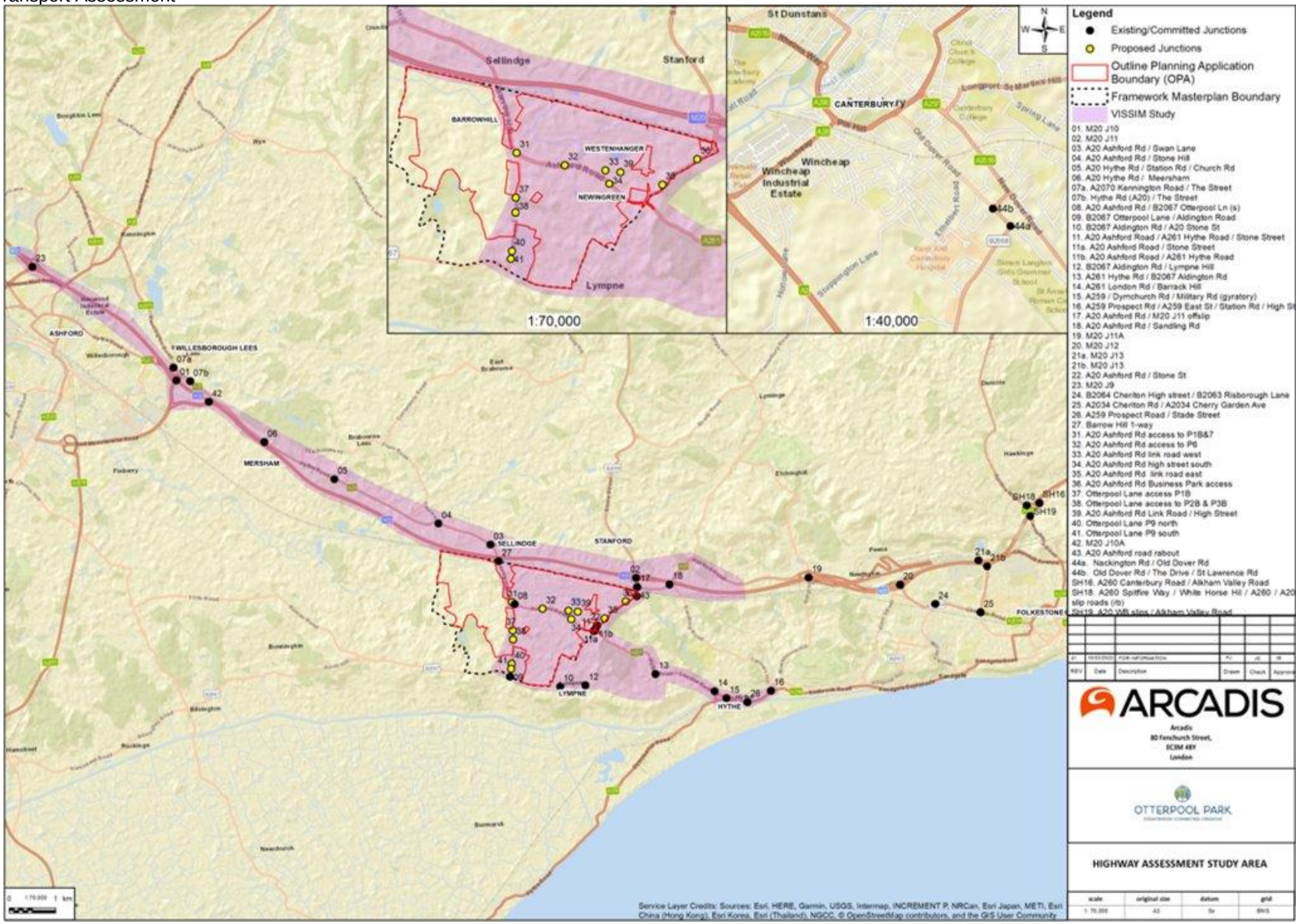


Figure 2 Highway Capacity Study Area

Scoping Discussions Post 2019 Submission

1.3.8 Since the 2019 TA submission, there have been comments raised by stakeholders including from KCC and HE, these have been addressed through further scoping discussions. The main topics discussed are summarised below. An updated Trip Generation Technical Note contained within Appendix N to this updated TA and an updated Mode Split Technical Note contained within Appendix O provide a more detailed summary of these discussions:

- Following discussions held with KCC in April 2020, updates were made to how trip rates were calculated for extra care housing (C2) and business park land uses within the TRICS database. Additionally, clarification was provided regarding comments made in relation to multi-modal trip rates, with further information regarding trip rates by mode and by land use being outlined in a separate note contained within Appendix P.
- A more updated version of the TRICS database was used compared with the 2019 TA, resulting in changes to C3 Residential and C1 hotel calculated trip rates.

Assessment Years and Scenarios

1.3.9 The following forecast years have been assessed:

- 2018 Base Year: pre-construction 'no scheme' baseline
- 2037: the end of the Folkestone & Hythe District Council Local Plan period
- 2044 Main Assessment (2044 8.5k): the forecast year of full build-out for the 8,500 homes and associated land uses. The Otterpool Masterplan assumes the completion of 8,500 homes in 2042, however, assessing the year 2044 provides a worst case assessment in terms of transport assessment for vehicles with the inclusion of two additional years of traffic growth. This represents the main assessment for the Outline Planning Application
- 2044 Sensitivity Assessment (2044 10k): representing the year of full build-out for OPFM, including 10,000 homes.
- 2044 Quantum for Approval (2044 8.5k) Sensitivity Test: There is a necessity within the transport assessment main assessment to use the Illustrative Accommodation Schedule and Illustrative Masterplan due to the requirement to identify the trip origin and destinations. The quantum of development set out within the Illustrative Accommodation Schedule is lower than that for which approval is requested within the Development. This test compares the vehicle trips generated by this uplifted quantum to the 2044 Main Assessment (2044 8.5k) and the 2044 Sensitivity Assessment (2044 10k).

1.3.10 The future year assessments include two scenarios:

1) **Do-Minimum (DM)**, which includes:
    - committed highway improvement schemes
    - forecast baseline traffic flows.
2) **Do-Something (DS)**, which includes:
    - committed highway improvement schemes
    - highway schemes proposed for the Otterpool Park Development
    - forecast baseline traffic flows
    - Otterpool Park development traffic flows.

1.3.11 For each assessment year a weekday morning peak hour (0800 to 0900) and a weekday evening peak hour (1700 to 1800) has been assessed. These time periods align with the local highway network peak periods as determined from analysis of traffic survey data, as described in Chapter 4.

1.3.12 A Permitted Waste Facility (PWF), comprising an anaerobic digestion plant and associated office and parking facilities at Otterpool Quarry, Ashford Road Sellindge, was granted planning permission in 2011 (planning reference SH/08/124). Given that KCC consider that this permission has been

implemented, the scenario where the PWF is included as part of the assessment of the site is reported in Section 8.6.

1.4 Transport Assessment Approach

1.4.1 This Transport Assessment has been undertaken using the traditional approach, agreed with the highway authorities, of a 'predict and provide' methodology derived from historic trip rate patterns. This approach relies on various sources of data including 2011 Census, TRICS surveys and the National Travel Survey. This will generate a worst case for car trips as it is based on data that is up to 10 years old and does not consider any step changes to the derived mode shares based on current travel patterns and more sustainable travel choices to be promoted by the development.

1.4.2 This approach has been used to provide a robust assessment for vehicle trips to demonstrate that even in such a scenario that the transport impacts can be mitigated through key improvement measures across the highway network.

1.4.3 However, this is not the desired approach and although key highway mitigation options have been identified to accommodate the worst-case car trips, the car trips generated by the site are not expected to reach the levels forecast, due to the proposed sustainable transport strategy and associated infrastructure to be implemented as part of the development. The Otterpool Park development and associated transport strategies will provide residents, employees and visitors with an attractive and comprehensive network of sustainable travel options that will be an attractive alternative to the use of the private car and promote active travel modes.

1.4.4 The future of travel, the way we work and the way in which we access services and buy goods is changing and influencing the way we travel. An alternative method to estimating the future trip generation has therefore been undertaken referred to as the User Centric approach, and puts the mobility needs of the users first. This approach is set out in Chapter 12.

1.5 Contents of Transport Assessment

1.5.1 The remaining Chapters of this Transport Assessment are comprised as follows:

- Chapter Two: sets out the relevant transport policy and guidance
- Chapter Three: provides an overview of the baseline conditions for sustainable travel
- Chapter Four: establishes the baseline conditions for the highway network and traffic
- Chapter Five: contains a summary of development proposals with particular emphasis on transport
- Chapter Six: provides details of the future traffic flow and highway network conditions
- Chapter Seven: presents the all-mode trip generation of the Otterpool Park development for the assessment years
- Chapter Eight: specifies the forecast trips by mode generated by the development
- Chapter Nine: explains the distribution of development trips on the transport networks
- Chapter Ten: presents the results of the junction capacity assessments undertaken on the agreed study area
- Chapter Eleven: examines the effects of the development on the M20 and A20 slip roads
- Chapter Twelve: explains the User Centric Approach
- Chapter Thirteen: studies the effects of the development proposals on the sustainable transport networks
- Chapter Fourteen: summarises and concludes the assessment

2 Transport Policy and Guidance

2.1 Background

2.1.1 This Chapter provides a review of relevant national, regional and local policy and guidance documents that has influenced the development proposals and the Transport Assessment.

2.1.2 As agreed with Kent County Council during scoping, the policy documents reviewed in this Chapter are as follows:

- National Planning Policy Framework (NPPF), 2021
- The Strategic Road Network and the Delivery of Sustainable Development – Department for Transport Circular 02/13
- Kent Local Transport Plan 4: Delivering Growth without Gridlock 2016-2031 (2016)
- Folkestone & Hythe District Council Transport Strategy, 2011
- Core Strategy Review, 2022
- Places and Policies Local Plan, 2020.

2.1.3 Figure 3 below provides a summary of key documents listed above. A full review of these and other documents is included in Appendix B.

2.1.4 Of the documents in the above list, one of the most relevant is the Core Strategy Review, and hence further detail is provided below.

Core Strategy Review, 2022

2.1.5 The Core Strategy Review has been published for consultation under Regulation 19 of the Planning and Compulsory Purchase Act 2004 (Ref 16-9). In March 2020 the Core Strategy Review was submitted to the Secretary of State for Communities and Local Government for examination by a planning inspector. The purpose of the document is to allocate sufficient land to meet the identified development needs of the district for the period up to 2037.

2.1.6 This draft follows the submission draft with 2021 Main Modifications. It is an update of the adopted Core Strategy Local Plan (2013) and continues to include policies for strategic development sites. Proposed policies include the provision for a garden settlement within the North Downs character area, comprising the Otterpool Park development.

2.1.7 Policy SS1 District Spatial Strategy states:

"Housing will be delivered through a new sustainable, landscape-led settlement, with supporting town centre and community uses, based on garden town principles in the North Downs Area, in accordance with policies SS6-SS9. The garden town will maximise opportunities arising from the location, access to London and continental Europe and strategic infrastructure. Housing and supporting community uses will also be delivered through growth in Sellindge (policy CSD9)"

2.1.8 In addition, Policy SS6 finds that the Development would present the major opportunity to secure a high-speed rail service between Westenhanger and London St Pancras. The council is pursuing this with train operating companies, infrastructure providers and stakeholders. A transport hub could potentially be provided at the existing Westenhanger station, allowing easy transfer between walking, cycling, bus and train journeys.

2.1.9 The railway station upgrade and hub will potentially deliver:

- Lengthening of the existing platforms;
- New and refurbished station buildings with improved customer facilities;
- A new footbridge between platforms; and
- Car parking to meet the needs of the new town and nearby villages.

2.1.10 Policy SS7 outlines the place shaping principles for sustainable access and movement for the new Otterpool Park settlement:

- *"The development shall be underpinned by a movement strategy which prioritises walking, cycling and access to public transport and demonstrates how this priority has informed the design of the new settlement. All homes shall be within 800 metres/10 minutes' walk of a local neighbourhood centre with an aspiration that all homes are within 400 metres/5 minutes' walk of such facilities;*
- *Development shall incorporate smart infrastructure to provide real-time and mobile-enabled public transport information in accordance with smart town principles (Policy SS9 (2));*
- *A permeable network of tree-lined streets, lanes, pathways, bridleways, cycleways and spaces will be created that provides connections between neighbourhoods, the town centre, employment opportunities and public transport facilities. Footpaths, cycleways and bridleways should link to existing public rights of way, nearby villages and the wider countryside, including the North Downs Way and the SUSTRANS national cycle route network, taking account of the findings of the access strategy (Policy SS7 (1)) on sensitive habitats;*
- *Road infrastructure should be designed for a low speed environment, with priority given to pedestrians and cyclists through the use of shared space in ultra-low speed environments and dedicated cycle routes and separate pedestrian walkways where appropriate. The use of grade separations, roundabouts, highway furniture and highway signage should be minimised;*
- *A parking strategy shall be developed that balances the necessity of car ownership with the need to avoid car parking that dominates the street scene to the detriment of local amenity. The parking strategy shall deliver well-designed and accessibly-located cycle parking facilities within the town and neighbourhood centres, at Westenhanger Station and transport hub, as well as at employment developments;*
- *Westenhanger Station shall be upgraded at the earliest opportunity to provide a high-speed service ready integrated transport hub, in partnership with Network Rail, the rail operator and Kent County Council, which gives priority to pedestrians, cyclists, bus and train users. The council will continue to work with Network Rail to introduce high-speed rail services from Westenhanger to central London, subject to discussions with stakeholders; and*
- *The existing bus network that serves the surrounding towns and villages will be upgraded and new services provided as an integral element of the transport hub and settlement. All new homes shall be within a five-minute walk of a bus stop."*

2.1.11 Policy SS9 sets out the infrastructure, delivery and management requirements of a new garden settlement:

- *A smart town – New dwellings shall provide adaptable space suitable for home working and other buildings (including shops, cafes, commercial buildings and community facilities) shall provide facilities for working on the move; and*
- *Long-term management and governance – Infrastructure, the urban realm, open spaces including informal pedestrian and cycle pathways, and facilities shall be designed to take into account long-term management and maintenance requirements.*

National Planning Policy

National Planning Policy Framework 2021

Chapter 9 Promoting Sustainable Transport has been reviewed and used as a guide in the making of the Otterpool Park Transport Strategy.

The Strategic Road Network and the Delivery of Sustainable Development – Department for Transport Circular 02/13

Highways England expects the promoters of development to put forward initiatives that manage down the traffic impact of proposals to support the promotion of sustainable transport and the development of accessible sites.

Other Guidance

- A Charter for Otterpool Park, 2017 - Although not planning policy, Folkestone & Hythe District Council has produced a Charter setting out its aspirations for Otterpool Park (2017). The Charter included principles focusing on creating a place that is environmentally, socially and economically sustainable.
- The Kent Design Guide (Kent Design Initiative, December 2005), adopted by FHDC in 2007
- Kent County Council Interim Guidance Notes 1, 2 and 3 (2008)
- Decarbonising Transport, (DfT, 2021)
- Kent Rail Strategy (2021)
- The Design Manual for Roads and Bridges, (DfT, various dates)
- The Manual for Streets, (Department for Communities and Local Government (DCLG) / DfT, 2007)
- The Manual for Streets 2, CIHT, 2010 – a companion guide to Manual for Streets (DCLG / DfT, 2010)
- Travel Plan Guidelines, (DfT, various dates).

Regional Planning Policy

Transport for the South East – Transport Strategy June 2020

The over-arching regional strategy seeks to move away from traditional methods of planning based on current practise to an approach that actively chooses a preferred future and formulating a plan to get there as a community. It seeks to move away from 'planning for vehicles' towards a focus surrounding 'planning for people' and 'planning for places.'

Kent Local Transport Plan 4: Delivering Growth without Gridlock 2016-2031 (2016)

Relevant to this development the LTP states:

"There is substantial future housing growth in the district, including the proposed Otterpool Park garden town, which will require considerable infrastructure investment to support this new town, including upgrading Westenhanger Station."

Local Plan Written Statement – Appendix 6: Kent County Council Vehicle Parking Standards, 2009

Appendix 6, of the full Local Plan Review written statement sets out the parking standards which were saved under the March 2009 Direction from the Secretary of State following the adoption of the Core Strategy Local Plan 2013. Policy TR12 states that:

"New development, redevelopment or a change of use will only be permitted if it makes provision for off street parking on or near the site in accordance with the current maximum vehicle parking standards, as set out in Appendix 6."

Local Planning Policy

Folkestone & Hythe District Council Transport Strategy, 2011

The strategy considers both transport matters which relate to the existing district area, as well as those relating to the potential Strategic Site allocations which have been made for future development.

It sets out requirement to improve walking, cycling and managing parking provision.

Core Strategy Review 2022

Policy SS1 District Spatial Strategy states:

"The potential for significant sustainable development in the district is focused on maximising strategic infrastructure where landscape capacity exists, with the creation of a new settlement in the North Downs Area. This will be a major, long-term growth opportunity, developed on garden town principles during the plan period and beyond. Policies SS6-SS9 set out rigorous design requirements and ambitious environmental and sustainability targets that the new settlement must meet to ensure its potential is realised."

Policy SS6 finds that the Development would present the major opportunity to secure a high-speed rail service between Westenhanger and London St Pancras.

Policy SS7 outlines the place shaping principles for sustainable access and movement for the new Otterpool Park settlement, including:

- The development shall be underpinned by a movement strategy which prioritises walking, cycling and access to public transport
- The development shall incorporate smart infrastructure to provide real-time transport information
- A permeable network of tree-lined streets, lanes, pathways, bridleways, cycleways and spaces will be created that provides connections throughout the development as appropriate
- Road infrastructure should be designed for a low speed environment, with priority given to pedestrians and cyclists
- A parking strategy shall be developed that balances the necessity of car ownership with the need to avoid car parking that dominates the street scene to the detriment of local amenity.
- The existing bus network that serves the surrounding towns and villages will be upgraded and new services provided.

Places and Policies Local Plan, Adopted September 2020

The Places and Policies Local Plan identifies specific sites considered suitable for development throughout the district to provide up to 2,500 new homes and land for offices, community uses and other types of development.

Transport Policies sets out the car and cycle parking standards and requirements for electric vehicle charging points.

Figure 3 Policy and Guidance Documents that influence Otterpool Park Transport Assessment

2.2 Summary

2.2.1 The policies and guidance in place seek an emphasis on providing development in locations where sustainable travel modes can be encouraged and to facilitate access by all modes.

2.2.2 The location for the Otterpool Park development is defined by its excellent existing transport connections: by road (M20); by rail (High Speed 1 and local lines); and by air (London Ashford Airport at Lydd). The District is also home to the Channel Tunnel and Eurostar services at Folkestone and is just a short distance from the UK's busiest ferry port at Dover.

2.2.3 The masterplan for Otterpool Park has been developed, through consultation with Folkestone & Hythe District Council, Kent County Council and other key stakeholders, to create a highly-sustainable garden settlement. The Otterpool Park development and associated access and travel strategy will provide residents, employees and visitors with an attractive and comprehensive network of sustainable travel opportunities to provide viable alternatives to travel by private car. This will be balanced against ensuring that the highway access arrangements are robust enough to sustain additional traffic movements, provide connectivity to existing routes and allow the existing network to function within reasonable limits without causing significant issues for Otterpool Park and existing local residents. Further information regarding development proposals and the Transport Strategy are described in Chapter 5.

2.2.4 The Transport Assessment and associated Transport Strategy (ES Appendix 16.5) and Framework Travel Plan (ES Appendix 16.6) have been developed to accord with the key policies summarised in this section.

3 Baseline Conditions for Sustainable Modes

3.1 Introduction

3.1.1 This Chapter describes the existing conditions on the walking, cycling and public transport networks within the study area. The information in this Chapter has been informed by site observations and audits, client liaison meetings and desktop-based analysis and, along with the baseline highway information in Chapter 4, has informed the development of the masterplan and the Transport Strategy for Otterpool Park.

3.2 Walking and Cycling

3.2.1 Figure 4 presents the existing walking and cycling networks and bridleways across the site and in the local area. The following sections provide an outline of the key walking and cycling routes and current aspirations for enhancement. These sections also make reference to the findings of the Walking and Cycling Study[1] commissioned by Folkestone & Hythe District Council to investigate the current walking and cycling environment in the area and consider improvements that would complement the Otterpool Park masterplan proposals.

Walking and Cycling Environment

3.2.2 Otterpool Park is located in a rural setting and benefits from various public footpaths and byways located largely to the outskirts of the site, connecting residential areas with their surrounding areas. However, walking accessibility through the site is limited with many areas lacking a coherent network for pedestrians to navigate across the site and connect into external links.

3.2.3 A description of the walking and cycling environment on existing highway routes within and surrounding the site is provided in the following sections.

A20 Ashford Road

3.2.4 The A20 Ashford Road routes through the site and links it to Barrow Hill, Sellindge and, further afield, Ashford to the west and Newingreen, Sandling Park and the M20 Junction 11 to the east.

3.2.5 Footway provision along the A20 varies. Along its eastern boundary adjacent to Sandling Park, a footway of around 1-1.5m in width is located on the western side only, separated from the carriageway by a narrow grass verge and bollards spaced between 4.5-5.5m apart, as shown in Photograph 1. As the A20 turns west, footpaths of between 1.5m and 2m in width are located on both sides of the road for a distance of around 150m from the junction with the A261 Hythe Road and Stone Street, as shown in Photograph 2. West of this section, the footpath on the north side is replaced by a grass verge and hedgerows. The southern footpath extends through the junction with Otterpool Lane through Barrow Hill and Sellindge, as shown in Photograph 3. A footpath is regained on the northern/eastern side as it routes north through Barrow Hill to Sellindge, as seen in Photograph 4. The A20 narrows to one lane under the railway bridge north of Barrow Hill but maintains footpaths on both sides of the road, as shown in Photograph 5.

3.2.6 There is a lack of formal pedestrian crossing facilities along the length of the route with the exception of a signalised pedestrian crossing on the southern arm of the junction with Otterpool Lane. However, there appears to be some evidence of the verges being used as informal pedestrian routes particularly where public rights of way (PRoW) cross the A20, described in more detail later in this section.

[1] Otterpool Park Garden Town, Kent Walking and Cycling Study (Mott Macdonald, August 2018).

3.2.7 No infrastructure is provided for cyclists and the alignment of the A20, particularly on the section south of the junction with the M20, poses a particularly challenging environment for all but the most experienced cyclists.

3.2.8 The Folkestone & Hythe District Council Walking and Cycling Study (footnote 3) considered a number of possibilities for enhancement of the walking and cycling networks was identified for this route:

- Introducing a shared footway and cycleway on the southern side of the A20 to connect with a possible cycle route to Folkestone along the A20;
- Introducing cycle and pedestrian crossing phases at the Otterpool Lane signals in order to facilitate walking and cycling movements to Lympne Industrial Park;
- Provision of safe crossing points over the A20, between A261 and M20 to the existing HE/281 footpath; and
- Provision of a re-aligned A20 through the development.

Photograph 1 Footway separated by grass verge and bollards north of Sandling Park entrance

Photograph 2 Footways along both sides of the A20 at A20/A261/Stone Street junction

Photograph 3 Footway along southern edge of A20 through junction with Otterpool Lane

Photograph 4 Footways on both sides of the A20 through Barrow Hill

Photograph 5 Footway along both sides of A20 under rail bridge towards Sellindge

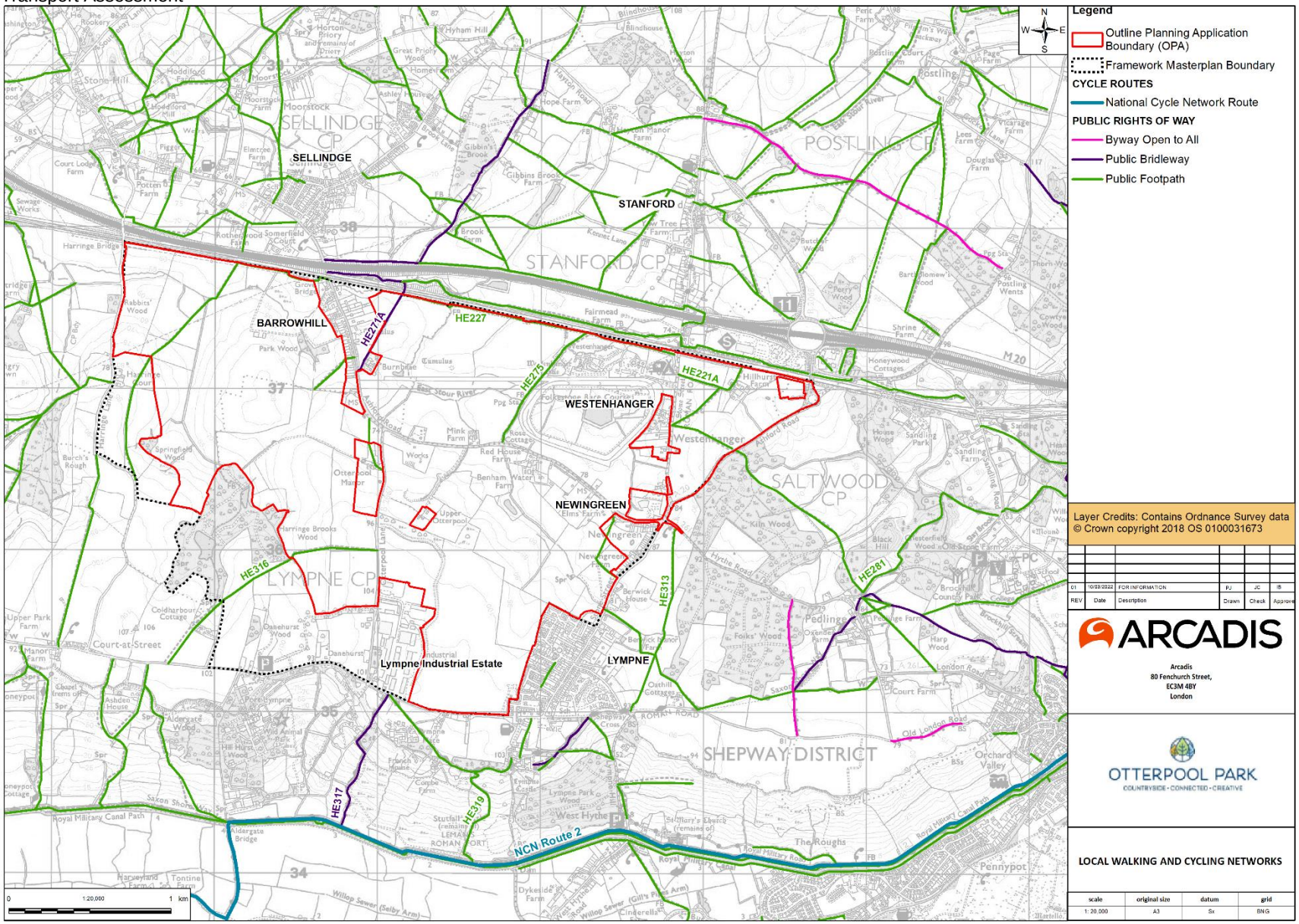


Figure 4 Local Walking and Cycling Network

Otterpool Lane

3.2.9 Otterpool Lane routes south of the A20 from a location east of Barrow Hill through the heart of the southern section of the Otterpool Park site and provides access to the Link Park industrial estate and thus provides access for large vehicles. There are no formal footpaths on either side of the road, although it is possible to traverse part of the length of the road on a grass verge on the western side of the road.

3.2.10 With the exception of the signal-controlled pedestrian crossing at the junction with the A20, there are also no pedestrian crossing facilities or traffic calming measures along the length of the road, with most of the road subject to the national speed limit. Pedestrian facilities at the junction with the A20 is shown in Photograph 6.

Photograph 6 Pedestrian crossing facilities at A20/Otterpool Lane signalised junction

Stone Street

3.2.11 Routing south from the junction with the A20 and the A261 Hythe Road, Stone Street provides access for pedestrians and cyclists to Lympne. A footpath is provided on at least one side of the road for its entire length, averaging between 1.5m and 2m in width, as shown in Photograph 7.

3.2.12 Stone Street provides no formal pedestrian crossing or cycling facilities or traffic calming features.

Photograph 7 Footway along one side of Stone Street, south of junction with A20 and A261

Aldington Road

3.2.13 Aldington Road routes west-east from Aldington in the west to a junction with the A261 Hythe Road in the east, forming junctions with both Otterpool Lane and Stone Street.

3.2.14 West of the junction with Otterpool Lane, the carriageway is flanked by hedgerows making it impossible for pedestrians to traverse it other than on the carriageway, as shown in Photograph 8. The high hedgerows make visibility difficult.

3.2.15 The section between Otterpool Lane and Octavian Drive offers a footpath on the northern side for most of its length, as shown in Photograph 9. East of the junction with Octavian Drive, Aldington Road offers no off-road route for pedestrians towards the junction with A261 Hythe Road.

Photograph 8 No footways along Aldington Road west of junction with Otterpool Lane

Photograph 9 Footways along northern side of Aldington Road between Otterpool Lane and Octavian Drive

A261 Hythe Road

3.2.16 The A261 Hythe Road junction with the A20 is heavily-trafficked and congested at peak periods. This junction, and the one adjacent to the west between the A20 and Stone Street, offer no pedestrian or cycle crossing facilities.

3.2.17 There is no footway provision along the length of the A261 Hythe Road until it meets Aldington Road. East of this junction, a narrow footpath is provided on the southern side, as shown in Photograph 10 below.

3.2.18 This heavily-trafficked road is not currently a suitable route for pedestrians, while cyclists would find its narrow and winding nature a challenging environment. The Folkestone & Hythe District Council Walking and Cycling Study identifies this route as a priority for improvement with regard to cycle linkages.

Photograph 10 Narrow footway along southern side of A261 Hythe Road to the east of the junction with Aldington Road

Public Rights of Way

3.2.19 The network of public rights of way (PROW), as well as other footpaths and bridleways, within close proximity to the site are shown within Figure 4.

3.2.20 There are 11 PRoW that route internally within the site area, providing connections between the villages of Sellindge, Newingreen, Lympne and Westenhanger. Arcadis has undertaken a detailed access and patronage survey of these routes as part of the socioeconomic assessment contained in Chapter 14 of the Environmental Statement (ES). This section provides details of a selection these existing routes.

3.2.21 Photograph 11 presents public footpath HE/275, which routes through the site between the railway line and the A20 within the vicinity of the Racecourse. Photograph 12 illustrates the condition of Bridleway HE/271A north of the site which routes from A20 Barrow Hill passing under the Railway line and M20. There are existing issues with north-south permeability and lack of wider connections and links over the railway line and M20.

3.2.22 Photographs 13 and 14 show the mixed condition of existing public footways in both the northern and eastern vicinity of Westenhanger Station.

Photograph 11 Access to footpath from the A20 (HE/275)

Photograph 12 Bridleway (HE/271A) underpasses rail line and M20, north-bound

Photograph 13 Footpath (HE/227) Routing parallel to the Railway line, Westenhanger

Photograph 14 Footpath (HE/221A) routing eastwards from Westenhanger

3.2.23 Footpaths HE/281 and HE/313 provide connections to the east into Hythe. There are currently no controlled crossing facilities on the A20 allowing pedestrians to cross safely, and the alignment of the A20 does not provide ideal visibility for drivers. As a result, there are some issues with east -west severance. A Walking and Cycling Study commissioned by Folkestone & Hythe District Council identifies the A20 and A261 as two key severance features within the study area which will need to be addressed. The A20 in particular dissects the study area which could have a severe impact on the wider permeability of the site.

3.2.24 There are also a number of nearby recreational areas including:

- Harringe Brooke Wood situated on the western boundary of the site comprising an area of woodland adjacent footpath HE/316; and
- Royal Military Canal is accessed at West Hythe approximately 1km from the site via an existing footpath HE/319 and bridleway HE/317.

3.2.25 The Walking and Cycling Study (footnote 3) commissioned by Folkestone & Hythe District Council also identified a number of opportunities for improving cycling and walking connections to the surrounding area of Otterpool Park. In summary these comprise:

- Cycle linkages to the Hythe area;

- Cycle linkages to the Folkestone area;
- Connections with Westenhanger Railway Station, particularly to the north; and
- Integration of internal road network and surrounding PRoW.

Designated Cycle Routes

3.2.26 At present there are no dedicated cycle routes in the immediate vicinity of the site. However, the coastal National Cycle Network Route 2 lies approximately 1km south of the southern boundary of the site and is a popular long-distance recreational route following the English Channel coastline.

3.2.27 The section closest to Otterpool Park is traffic free and runs between West Hythe and Folkestone to the east and towards Romney Marsh in the west. The route runs along the canal towpath through West Hythe, Hythe and Folkestone. Cyclists can access the route via Royal Military Road which is located at the southern point of Lympne Hill, the nearest connection to the site. These routes are shown in Figure 4.

3.2.28 Regional on-road cycle route 17, also runs to the east of Otterpool Park providing connections to Canterbury and Dover.

3.2.29 Other than the designated cycle routes it would be considered that there very little existing cycle infrastructure within the vicinity of Otterpool Park. The Mott Macdonald; Walking and Cycling Strategy identified the presence of painted west and eastbound cycle lanes on the carriageway between the A20/ M20 roundabout junction and Sandling Road.

Walking and Cycle Accessibility

3.2.30 The accessibility of Otterpool Park on foot and bicycle has been assessed using TRACC software, by considering distances reached by walking and cycling modes for appropriate timescales from the centre of the site.

3.2.31 It is considered that journeys of up to 1200m (which equates to approximately 15-minutes) represent the preferred maximum acceptable walking distance (Guidelines for Providing Journeys on Foot, IHT, 2000). Figure 5 shows that the majority of the Otterpool Park site is within a 20-minute walk (approximately 1.6km) and areas of Sellindge and Lympne within a 30-minute walk (approximately 2.4km) of a node.

3.2.32 It is widely regarded that cycling has potential to substitute for short car trips, particularly those less than 5km, as well as forming part of a longer journey by public transport. At a speed of 15km/h (the default standard cycling speed within TRACC software) a 5km distance equates to a journey time of around 20 minutes. Figure 6 illustrates that the majority of Otterpool Park is accessible within a 15-minute cycle. A threshold of up to 30 minutes is shown to extend to Folkestone and Hythe, including National Cycle Network Route 2. Whilst, a 45-minute cycle accesses National Cycle Network Route 18 and the regional network to Canterbury.

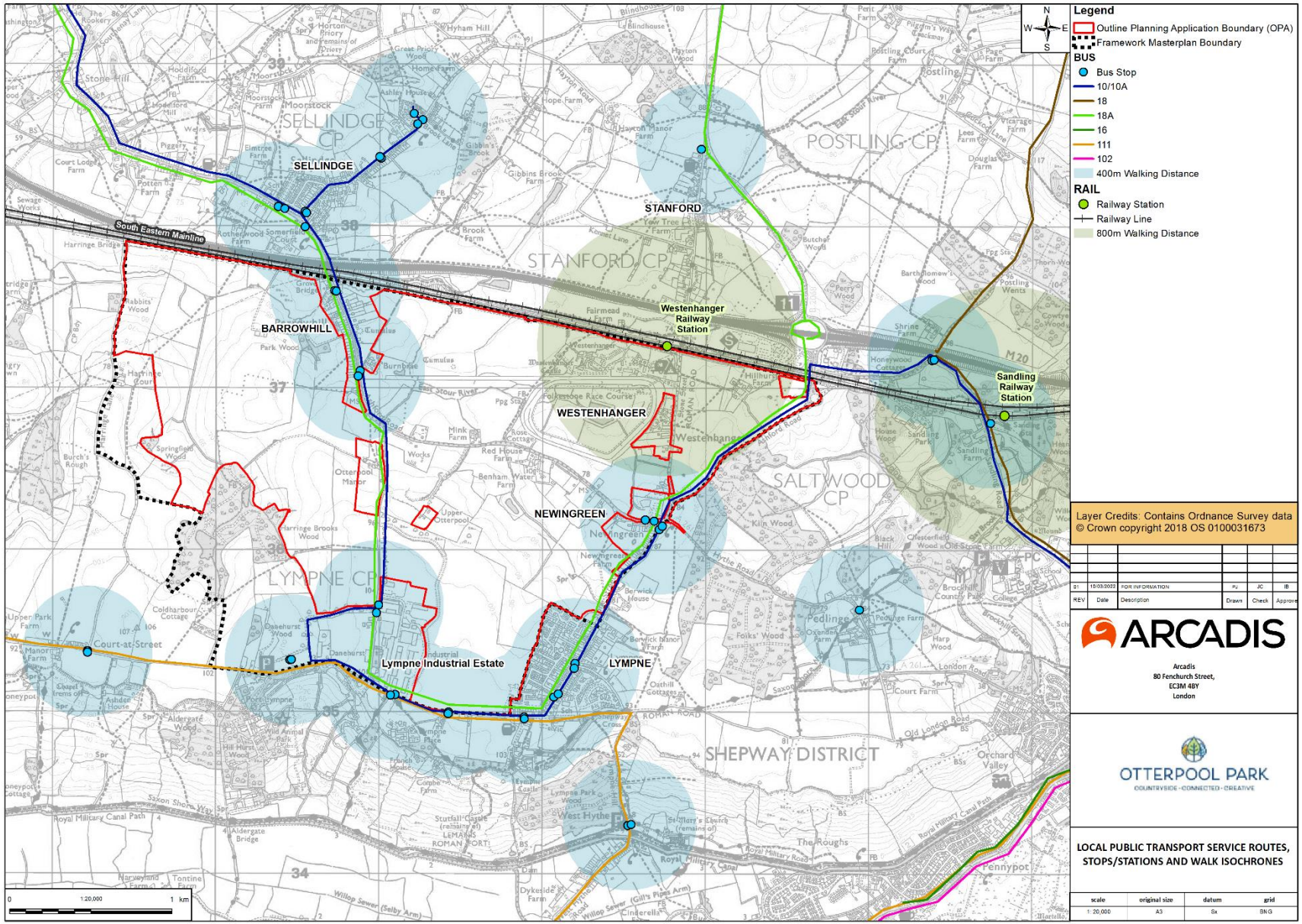


Figure 5 Existing Public Transport Provision and Walk Isochrones

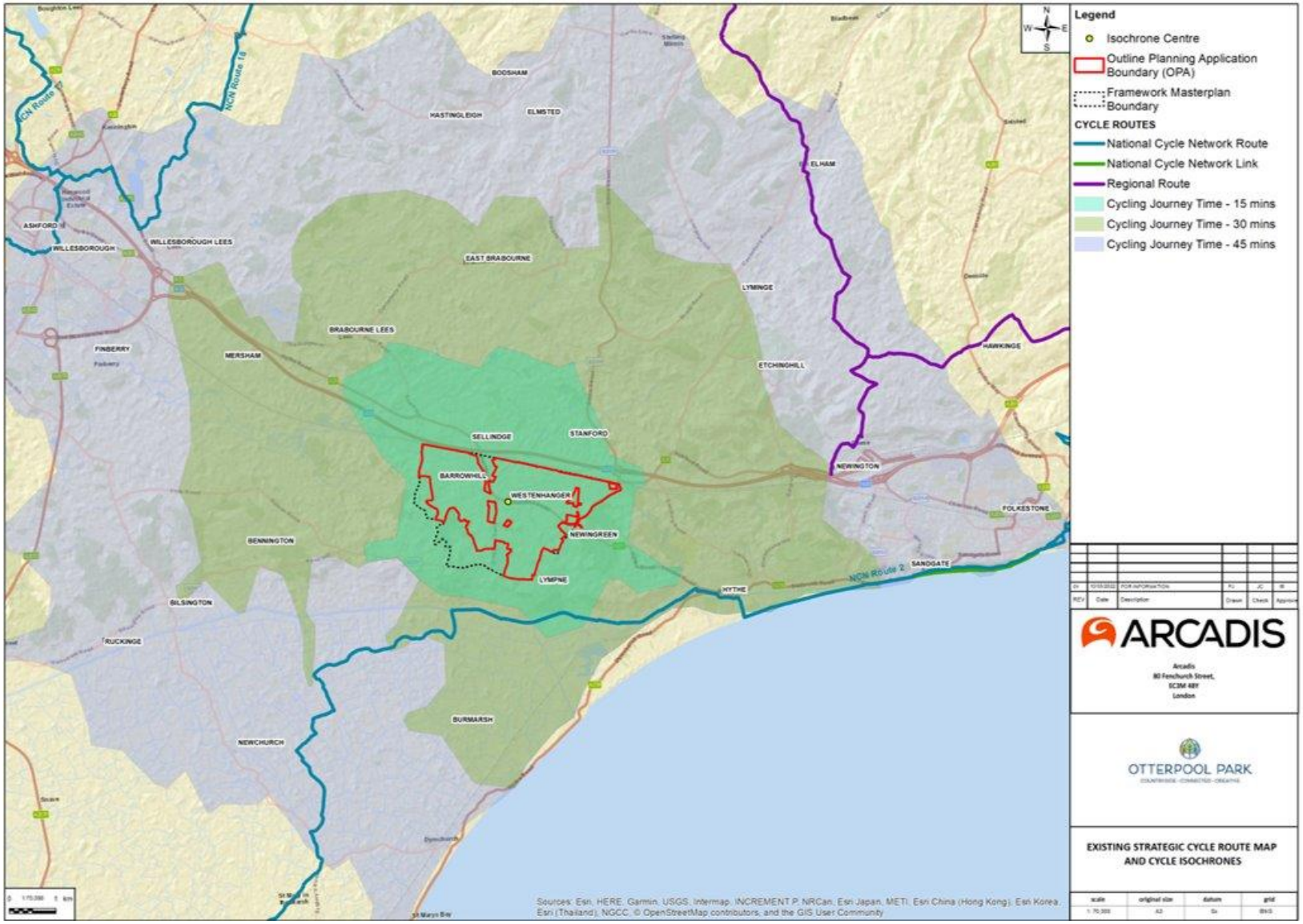


Figure 6 Existing Cycle Route Map and Isochrones

Access to Local Amenities

3.2.33 The proposed Otterpool Park development will provide a new town centre and include local centres, schools, health facilities, community facilities, retail, leisure and employment (see Table 1). In terms of the baseline of local amenities, there are also a number of existing local facilities and services which are accessible within a reasonable walking and cycling distance (within 5km 'crow flies' distance) of the site. The location of these facilities and services is presented in **Error! Reference source not found.**.

Table 1 Existing Accessible Facilities and Services via Walking and Cycling

Ref.	Name	Location	Ref.	Name	Location
Child Care Facilities					
1	Badgers Bridge, Folkstone	Postling	9	Lyminge Pre-school	Lyminge
2	Badgers Bridge, Hythe	Lyminge	10	Mershams Little Stars	Mersham
3	Hythe Bay	Hythe	11	Punch and Judy Playgroup	Lympne
4	Kaleidoscope Childcare	Aldington	12	Rising Fives Nursery	Ashford
5	Little Cubs Palmarsh Pre-school	Palmarsh	13	Saltwood Play and Learning Centre	Saltwood
6	Little Explorers Hythe	Hythe	14	Smeeth Play Club	Smeeth
7	Little Learners at Sellindge Pre-school	Sellindge	15	Stepping Stones Nursery	Hythe
8	Lullabies	Hythe	-	-	-
Primary Schools					
16	Aldington Primary School	Aldington	22	Palmarsh Primary School	Palmarsh
17	Brabourne Church of England Primary School	Brabourne	23	Saltwood Church of England Primary School	Saltwood
18	Hythe Bay Church of England Primary School	Hythe	24	Sellindge Primary School	Sellindge
19	Lyminge Church of England Primary School	Lyminge	25	Smeeth Community Primary School	Smeeth
20	Lympne Church of England Primary School	Lympne	26	St. Augustine's Catholic Primary School	Hythe
21	Mersham Primary School	Mersham	27	Stowting Church of England Primary School	Stowting
Secondary Schools					
28	Brockhill Park Performing Arts College	Saltwood	35	The Marsh Academy	New Romney
29	Folkestone Academy	Folkestone	36	The North School	Ashford
30	Highworth Grammar School	Ashford	37	The Norton Knatchbull School	Ashford
31	Homewood School and Sixth Form Centre	Tenterden	38	Towers School and Sixth Form Centre	Kennington
32	The Folkestone School for Girls	Folkestone	39	Turner Free School	Folkestone
33	The Harvey Grammar School	Folkestone	40	Wye School	Wye

Ref.	Name	Location	Ref.	Name	Location
34	The John Wallis Church of England Academy	Ashford	-	-	-
Primary Healthcare					
41	Sellindge Surgery	Sellindge	44	New Lyminge Surgery	Lyminge
42	Oaklands Health Centre	Hythe	45	Dr Zaw Thike (Church Road)	Lyminge
43	Sun Lane Surgery	Hythe	-	-	-
Community Halls					
46	Palmarsh Village Hall	Palmarsh	54	The Tin Tabernacle	Hythe
47	Saltwood Lad's Club	Saltwood	55	Hythe Royal British Legion Hall	Hythe
48	Saltwood Village Hall	Saltwood	56	Mountbatten Hall	Mersham
49	Sellindge Village Hall	Sellindge	57	Brabourne and Smeeth Village Hall	Brabourbe Lees
50	Lyminge Village Hall	Lyminge	58	Smeeth Scout and Guide Hall	Smeeth
51	Tayne Centre	Lyminge	59	Lympne Village Hall	Lympne
52	Village Hall, Newington	Newington	60	Postling Village Hall	Postling
53	The Saltwood Club	Saltwood	-	-	-
Places of Worship					
61	All Saints Church, Stanford	Stanford	75	Brabourne Baptist Church	Brabourne
62	St Stephen's Church, Lympne	Lympne	76	St Mary the Virgin Church, Smeeth	Smeeth
63	St Peter and St Paul's Church, Saltwood	Saltwood	77	St John the Baptist	Mersham
64	Holy Cross Church	Palmarsh	78	Aldington Evangelical Mission	Aldington
65	St Leonard's Church	Hythe	79	St Martin's Church, Aldington	Aldington
66	Hythe Spiritualist Church	Hythe	80	St Rumwold's Church, Bonnington	Bonnington
67	St. Michael's Church	Hythe	81	All Saints Church, Burmarsh	Burmarsh
68	Hythe United Reformed Church	Hythe	82	St Mary and St Radegund, Postling	Postling
69	Virgin Mother of Good Counsel	Hythe	83	Sellindge Methodist Church	Sellindge
70	Saint Nicholas Church, Newington	Newington	84	St Mary the Virgin Church, Sellindge	Sellindge
71	St Mary & St Ethelburga Church, Lyminge	Lyminge	85	St Peter's Church, Monks Horton	Monks Horton
72	Lyminge Methodist Church	Lyminge	86	Hythe Salvation Army Church	Hythe
73	St Mary the Blessed Virgin Church, Brabourne	Brabourne	87	Kingdom Hall of Jehovah's Witnesses, Hythe	Hythe
74	St Mary the Virgin Church, Stowting	Stowting	88	Zion Strict Baptist Chapel, Brabourne Lees	Brabourne Lees

Source: Quod; Draft Community Facilities Delivery Strategy (February 2019)

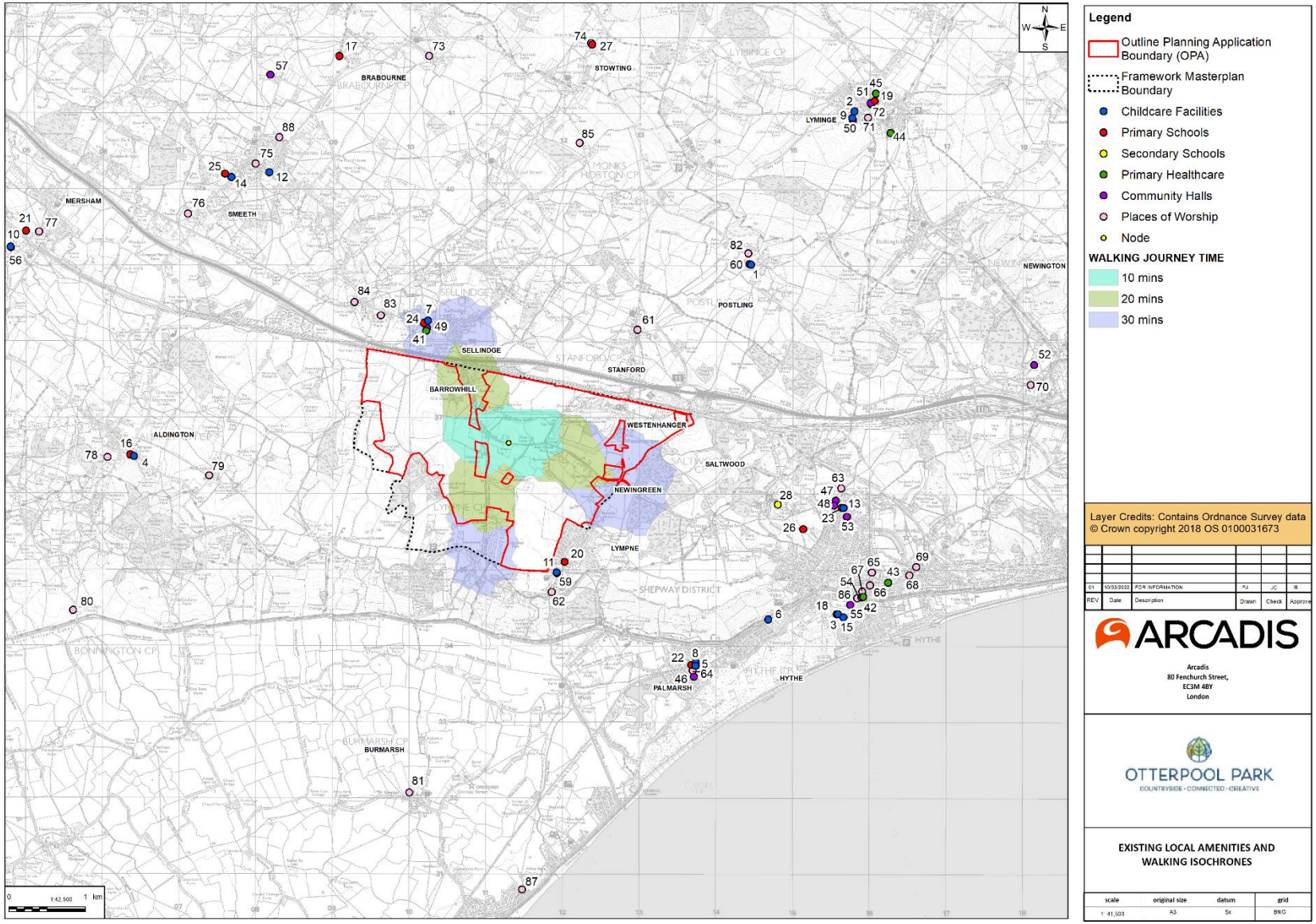


Figure 7 Existing Local Amenities and Walking Isochrone

3.3 Public Transport Network and Services

Bus Services and Infrastructure

3.3.1 The following range of walking distances in order to access a bus stop on foot for individuals without mobility impairment are set out by the Chartered Institution of Highways & Transportation[2]:

- Desirable (400m);
- Acceptable (800m); and
- Preferred maximum (1.2km).

3.3.2 Although the existing site for Otterpool Park predominantly comprises agricultural land, there are in total 22 existing bus stops located within the study area. Bus stops are located on the strategic and local routes within the area, namely along the A20 Ashford Road, B2067 Aldington Road and Stone Street between Aldington Road and Ashford Road. Within the Otterpool Park area, bus services currently route along the A20 Barrow Hill/ Ashford Road, B2067 Otterpool Lane, Stone Street and Aldington Road. A plan showing existing bus service routes is provided in Figure 5. Table 2 summarises the services which serve the bus stops along these routes. Figure 5 presents the location of bus stops in the vicinity of the site and a 400m walk distance isochrone around each bus stop.

3.3.3 The 10/ 10A bus service provides a regular bus service between Folkestone and Ashford and has the highest frequency (hourly, Monday to Friday) of all the bus services in the Otterpool Park area. The 111 operates on a Thursday only, between Ashford and Folkestone via Aldington and Burmarsh. The 18A runs daily, once in the morning and returns in the afternoon, taking local children to and from schools in Folkestone and Canterbury and only operates on school days. As of 20th July 2021, services are as shown in Table 2.

Table 2 Summary of Local Bus Services (One-way Frequency)

Bus Number	Route	Frequency (One-way)		
		Monday - Friday	Saturday	Sunday
10/10A	Ashford – Folkestone	Hourly	Hourly	2 hours (No.10 only)
16	Hythe - Canterbury	School Service		
18	Hythe - Canterbury	5 Services per day		
18A	Ashford – Canterbury	School Service	-	-
111	Ashford – Folkestone	Once on Thursday only	-	-

Source: Traveline South and East (20th July 2021)

Rail Station and Services

3.3.4 Westenhanger Railway Station is located in the north-eastern corner of the Otterpool Park area. The station is strategically located on the Mainland Railway route connecting Ashford and Dover. All trains serving Westenhanger are operated by South-eastern. Facilities at the station are limited and include outdoor seating and limited free car parking. The station is unstaffed,

[2] Guidelines for Providing for Journey on Foot (Institution of Highways & Transportation, 2000)

there is no waiting room or cycle parking facilities and there is a general lack of accessibility for the mobility impaired.

3.3.5 Table 3 presents a summary of key destinations and the frequency of services from the station, which includes hourly (two trains an hour at peak times) eastbound services into Folkestone. Westbound, there is an hourly service to Ashford (half hourly at peak times), where high speed (HS1) services to Stratford International and London depart from.

Table 3 Summary of Rail Services from Westenhanger Railway Station

Destination	Journey Time	Frequency (approx.)
Ashford International	9 minutes	30 mins (peak) / 60 mins (off-peak)
Folkestone Central	11 minutes	30 mins (peak) / 60 mins (off-peak)
Dover Priory	24 minutes	30 mins (peak) / 60 mins (off-peak)
London St Pancras	1 hour	30 mins (peak: change at Ashford)
London Charing Cross	1 hour 33 minutes	30 mins (peak)/ 60 mins (off-peak)

Source: National Rail Enquiries (20th July 2021)

3.4 Summary

3.4.1 The local transport network and walking and cycling environment has been assessed, describing the site's accessibility and environmental surroundings, including the existing extensive network of PRoW. Walking accessibility through the site is currently restricted and there are no designated cycle routes in the immediate vicinity.

3.4.2 The highway network and railway line surrounding the site provides severance for pedestrian and cyclists connecting to the surrounding areas with a lack of existing formal and safe crossing opportunities on a number of roads.

3.4.3 The public transport network is relatively limited in terms of bus services, with infrequent hourly services between Folkestone and Ashford as well as a number of school services routing through the study area. However, the existing bus service does pass through the central part of the Otterpool Park site, presenting opportunities to enhance existing services to serve future residents.

3.4.4 The local area is well connected to the rail network, with hourly services running to Ashford International (with onward connections to London), Folkestone Central and Dover Priory. However, there are inadequate facilities at Westenhanger Station comprising lack of car parking, no cycle parking provision and limited mobility access.

4 Baseline Local Highway Conditions

4.1 Introduction

4.1.1 This Chapter describes the existing conditions on the highway network within the highway capacity modelling study area, as shown in Figure 2 and has been informed by site observations and audits, survey data collection, client liaison meetings, as well as desktop-based analysis.

4.1.2 The information in this Chapter has been used to inform the development of the masterplan and provided the foundation on which the Otterpool Park Transport Strategy described in Chapter 5 has been developed.

4.2 Key Links within the Study Area

4.2.1 Figure 8 presents the local highway network within the vicinity of the site. The following sections describe the nature of the key links within the study area.

M20 Corridor

4.2.2 The M20 motorway connects Kent with the M25 and London. It terminates in the east at Junction 13, on the northern outskirts of Folkestone. The M20 within the vicinity of Otterpool Park comprises three lanes in either direction, subject to the national motorway speed limit.

4.2.3 Junction 11 is a grade-separated five-arm junction which lies directly adjacent to the north-east corner of the site and is the main gateway to the site from the motorway. Junction 11 connects with the A20 (south), B2068 (north) and the STOP 24 Service Station via a five-arm roundabout. Junction 11 gives access to the M20 westbound (Ashford and London) and eastbound (Folkestone, Dover and continental Europe via ferry or Eurotunnel). Junction 11 serves as the main gateway highway access to the Otterpool Park site from the wider area.

4.2.4 Junction 11A to the east provides eastbound on-slips (from the A20) and westbound off-slips (from the Eurostar terminal) to the M20. Junction 12 consists of a grade-separated four-arm roundabout, with two arms providing on/off slips to the M20. The roundabout links to the A20 Ashford Road in the north and Cheriton Approach to the south, which provides access into Folkestone along Cheriton Road.

4.2.5 Junction 13 provides on- and off-slips linking to two mini-roundabouts; one to the north on the A20 and one to the south linking the A20 to the A259, which routes to/from the east, and the A2034 Cherry Garden Avenue routing south towards Cheriton Road. Just east of Junction 13, the M20 becomes the A20.

4.2.6 Junctions 9 and 10 provide access to Ashford. Both are four-arm grade-separated junctions, of which two arms consist of east- and westbound on/off slips to the M20. Junction 9 provides access to Ashford north of the M20 via Trinity Road and south via Fougeres Way. Junction 10 provides access to north Ashford via Kennington Road and south via Bad Munstereifel Road. Junction 10A and a link road to the A2070 is currently under construction and due to be completed by summer 2020.

4.2.7 Nationals Highways constructed a new Junction 10A on the M20 and link road to the A2070 at Ashford in Kent, completed on 31st October 2019. A Transport Assessment[3] has been produced, assessing the associated impact of the proposed improvement scheme. This scheme is not part of the 2018 Base Year assessment, as it was not implemented in that year,

[3] *M20 Junction 10A TR010006 7.2 Transport Assessment Report*

but is included on the subsequent assessment scenarios. The key features of the scheme include:

- A new interchange junction approximately 700m east of Junction 10 over the M20;
- New dual carriageway link road to the existing A2070 Southern Orbital Road;
- A20 Hythe Road connection;
- New footway linking the A20 Hythe Road to the Church Road Footbridge across the A2070;
- New Kingsford Street footbridge across the M20 and a new Church Road footbridge; and
- New Kingsford Street retaining wall.

4.2.8 The key features of the M20 Junction 10A gyratory are:

- A new three lane gyratory roundabout connected to a new southern link road and the existing A20 Hythe Road. Partially signalised with new east and west facing slip roads;
- Street lighting proposed on the gyratory carriageway and on the four slip roads;
- New Kingsford Street footbridge/ cycleway to allow safe access over the motorway for non-motorists; and
- Kingsford Street improvements to include a new safety barrier, 350m footway, acoustic barrier and planting.

4.2.9 The A2070 Southern Orbital Road features:

- A new dual carriageway link road with a 40mph speed limit located between the proposed new Junction 10A and the A2070;
- A new three-armed roundabout joining the new link road to the existing A2070;
- A realignment of the existing A2070 where it joins the link road;
- New Church Road footbridge/ cycleway replacing the old bridge; and
- Minor improvements to the A2070/ Barrey Road junction.

A20 Ashford Road / Barrow Hill / Hythe Road

4.2.10 The A20 is a major distributor road in Kent and crosses the Otterpool Park area from east to west and also forms the north-eastern boundary of the area. The A20 Ashford Road provides access to the M20, via Junction 11. The road consists of a single carriageway subject to a 50mph limit through the site, reverting to 40mph limit through Barrow Hill and 30mph through Sellindge village.

4.2.11 The existing road alignment of the A20 Ashford Road leading to Junction 11, comprises a sub-standard section resulting in poor driver visibility and potential road safety performance, assessed later in the Chapter. In addition, the typical daily flow capacity of a rural road of this current character (Rural S2 Road in TA 46/97), the A20 at this location appears to be operating slightly above capacity with the existing flows. This is discussed in more detail in Chapter 5.

4.2.12 The A20 Barrow Hill is constrained by a single lane section, controlled by traffic signals, where the road passes under the high-speed and Network Rail lines south of Sellindge. Underneath the railway bridge there is a height restriction of 4.7m. North of Barrow Hill, the A20 Hythe Road provides a route to/from Ashford. A number of residential premises are accessed from the A20 within the Otterpool Park area. Photographs 5 and 6 present two locations on the A20.

Photograph 5 A20 Ashford Road Northbound towards M20 Junction 11

Photograph 6 A20 Ashford Road west of Newingreen

B2067 Otterpool Lane

4.2.13 The B2067 Otterpool Lane comprises a single carriageway road with a north - south alignment routing through the site. The road is predominantly subject to the national speed limit, which reduces to 50mph at the northern extent within the vicinity of the signalised junction with the A20 Ashford Road. The southern end of Otterpool Lane forms a priority junction with Aldington Road.

4.2.14 The road provides access to Lympne Industrial Park, Lympne Animal Park and Gardens, and a farm. Otterpool Lane is bounded by hedgerows and rural land. There are no footways present along the road (Photograph 7).

Photograph 7 Ashford Road leading to Otterpool Lane

Photograph 8 Hythe Road approaching Newingreen junction

A261 Hythe Road

4.2.15 The A261 Hythe Road connects the A20 at Newingreen with the A529 within Hythe, comprising a single carriageway road with no footway provision. The road is predominantly subject to the national speed limit, which reduces to 30mph on approach to the built-up area of Hythe.

4.2.16 It should be noted that there is a sharp double curve in the road alignment through the village of Pedlinge. Photograph 6 presents Hythe Road northbound approaching the junction with the A20 Ashford Road.

Aldington Road

4.2.17 Aldington Road forms the southern boundary of the Otterpool Park area. It has an approximate east-west alignment, extending from the A261 Hythe Road in the east past Lympne Hill and Otterpool Lane to form a priority junction with Roman Road and Knoll Hill in the west.

4.2.18 Aldington Road is a narrow single carriageway road. There is a 2m width restriction (except for access) east of the junction with Lympne Hill. These width restrictions are sign-posted to the east of the Aldington Road/ Stone Street junction and on the east side of the Lympne Hill junction. Aldington Road becomes narrow to the west of the Otterpool Lane junction where it becomes the B2067, potentially allowing only one vehicle at a time to pass through.

4.2.19 The road is subject to the national speed limit, which reduces to 30mph within Lympne. A footway is provided along the northern side of the carriageway between Lympne Distribution Park and Octavian Drive, within Lympne. In addition, the route has a hilly terrain sloping in a westerly direction (Photographs 9 and 10).

Photograph 9 Aldington Road West-bound

Photograph 10 Aldington Road West-bound

Harringe Lane

4.2.20 Harringe Lane has an approximate north-south alignment extending between the A20 and B2067, located at the north-western boundary of the Otterpool Park area. The road provides access to a limited number of residential properties and farmland.

4.2.21 The narrow country lane is bounded with hedgerows and can only accommodate one-way traffic movements with regular passing points. Harringe Lane is subject to width restrictions with signage restricting vehicles of a width greater than 1.98m (except for access). There is no footway provision along the road.

Stone Street

4.2.22 Stone Street was a Roman road between Lympne and near to Canterbury. In the study area it extends northwards from Aldington Road to the junction with the A20 Ashford Road and the A261 Hythe Road. Stone Street also extends further north from the A20 providing access to Westenhanger Railway Station. The road is separated by a small section of the A20 Ashford Road and as such has been split into the following two sections for this study; Stone Street south (between Aldington Road and Hythe Road) and Stone Street north (north of the A20).

4.2.23 The southern section comprises a single lane carriageway allowing for two-way movements, with the exception of one-way priority traffic calming measures in place north of Lympne built up area. At the Aldington Road junction, signage states that Stone Street is 'Unsuitable for heavy goods vehicles. The road is subject to a 40mph speed limit, which reduces further within the settlement boundary to 30mph. Footways are predominantly provided along at least one side of the carriageway.

4.2.24 The northern section, which provides access to Westenhanger Rail Station and a number of residential properties, comprises a narrow single carriageway road, subject to a speed limit of 30mph.

4.2.25 North of Westenhanger Railway Station, Stone Street narrows to a single-track road on a bridge over the railway line before coming to an end by the M20 motorway. There is also a section of Stone Street north of M20 motorway, beyond the study area (Photographs 11 and 12).

Photograph 11 Stone Street South-bound, approaching Aldington Road

Photograph 12 Stone Street North-bound, through Lympne

Figure 8 Local Highway Network

4.3 Baseline Traffic Flows

4.3.1 Traffic flow data from the following sources has been used in this assessment:

- Folkestone & Hythe District Council survey data collected in the district in October 2016;
- Corinthian Mountfield Ltd survey data collected in Canterbury in March 2014 and March 2018;
- Arcadis survey data collected in June 2017; and
- TRADS database survey data collected in October 2016 and June 2017.

4.3.2 The data collected in Canterbury in March 2014 was validated against data collected in March 2018, as described in the data validation report in Appendix C. The comparison indicated that there has been little change in traffic flows along Old Dover Road and Nackington Road between 2014 and 2018, with results indicating a net decrease in traffic demand of 3.4% and 5.7% in the AM and PM peak hours respectively. It was agreed with Kent County Council that the 2014 traffic data would be used to represent the 2018 baseline traffic flow for the two junctions in Canterbury included in the assessment.

4.3.3 The data collected in June 2017 was validated against the October 2016 data as described in the data validation report. The AM and PM peak network peak hours were observed to be 08:00 to 09:00 and 17:00 to 18:00, as described in the data validation reports in Appendix D. The 2017 data was growthed to 2018 to provide the baseline for assessment using TEMPro growth factors presented in Chapter 6. Table 4 presents AM and PM peak baseline flows on the key links within the study area.

4.3.4 Due to the Covid Pandemic that started in March 2019, there have not been opportunities to undertake any more recent traffic surveys. It was agreed with KCC that the data described above could be used as the baseline for this assessment.

Table 4 Summary of AM and PM Peak Hour 2018 Baseline Traffic Flows

Link Name	Number of Vehicles					
	AM Peak Hour			PM Peak Hour		
	Nb / Eb	Sb / Wb	2-Way	Nb / Eb	Sb / Wb	2-Way
B2067 Otterpool Lane	239	230	**469**	349	118	**467**
A20 Ashford Road b/w Otterpool Lane & Newingreen	245	309	**554**	496	173	**669**
A20 Ashford Road at Newingreen	231	398	**629**	523	197	**720**
A20 Ashford Road b/w Newingreen & M20	723	659	**1,382**	712	692	**1,404**
A20 Ashford Road at Barrow Hill	341	262	**603**	282	394	**676**
Aldington Road b/w Otterpool Lane & Stone Street	86	139	**225**	140	97	**237**
Stone Street	305	109	**414**	97	193	**290**
B2067 Aldington Road west of Otterpool Lane	160	113	**273**	111	97	**208**
Lympne Hill	240	119	**359**	90	248	**338**
B2068 Stone Street	368	334	**702**	327	363	**690**
M20 east of J11	2,432	2,116	**4,548**	2,062	2,608	**4,670**
M20 west of J11	2,144	2,528	**4,672**	2,668	2,079	**4,747**
Cheriton Road	562	343	**905**	597	342	**939**

Link Name	Number of Vehicles					
	AM Peak Hour			PM Peak Hour		
	Nb / Eb	Sb / Wb	2-Way	Nb / Eb	Sb / Wb	2-Way
A261 Hythe Road	280	328	**608**	484	244	**728**
A259 Military Road	1,076	-	**1,076**	1,019	-	**1,019**
A259 Prospect Road	849	496	**1,345**	800	731	**1,531**
Swan Lane	100	142	**242**	188	103	**291**
A20 Hythe Road west of Swan Lane	418	298	**716**	293	490	**783**
A2070 Kennington Road	776	393	**1,169**	456	631	**1,087**
A262 Hythe Road	353	348	**701**	563	400	**963**
A260 Spitfire Way	594	1,043	**1,637**	1,059	683	**1,742**
A260 Canterbury Road	479	1,566	**2,045**	811	1,245	**2,056**
Alkham Valley Road	1,080	227	**1,307**	1,055	125	**1,180**
Nackington Road	518	360	**878**	311	506	**817**
Old Dover Road	314	593	**907**	527	279	**806**

4.4 Baseline Highway Capacity

Summary of Results

4.4.1 Figure 2 presents the junctions within the study area that were agreed to be included within the capacity assessment. This section presents a summary of the results of the 2018 Baseline junction modelling for all existing junctions within the study area using the latest available software versions, Junctions 9 for the non-signalised junctions and LinSig 3.2.39.0 for signalised junctions. The modelling validation reports for Canterbury are contained in Appendix C and Appendix D contains the Survey Data Analysis Report. Appendix E presents baseline traffic flows through all existing junctions within the highway capacity assessment study area.

4.4.2 Table 5 presents a summary of the results of the highway capacity modelling for the existing junctions within the study area. The outputs from the modelling software are contained in Appendix F. The table presents the highest degree of saturation (DoS) or the maximum ratio of flow to capacity (RFC) on any arm of the junction.

4.4.3 DoS provides an indication of the level of spare capacity on a signalised lane. This is based on the total demand, lane saturation flow and green time available to the lane. Any value greater than 90% but within 100% is considered to be over practical capacity and any value above 100% is considered to be over theoretical capacity. Junctions using sophisticated methods of control such as MOVA or SCOOT can still operate efficiently with a DoS above 90%. RFC is the ratio of flow to capacity which is used for non-signalised junctions. The RFC provides a basis for judging the acceptability of junction designs and typically an RFC of less than 0.85 is considered to indicate satisfactory performance. It takes into account the geometric capacity, traffic demand and available gaps for traffic based upon opposing flow.

4.4.4 Junctions that operate over capacity, i.e., with a DoS above 90% or an RFC above 85%, in either the AM or PM peak hour, are highlighted red in Table 5. The results for all junctions are presented in more detail in Section 10.3.

Table 5 Summary of 2018 Baseline AM and PM Peak Hour Highway Capacity

Junction ID / Name		Maximum DoS / RFC	
		AM Peak	PM Peak
J1	M20 J10	84.5%	83.2%
J2	M20 J11	0.40	0.45
J3	Ashford Road (A20) / Swan Lane	0.40	0.29
J4	Ashford Road (A20) / Stone Hill	0.24	0.14
J5	Hythe Road (A20) / Station Road / Church Road	0.36	0.42
J6	Hythe Road (A20) / Meersham	0.31	0.20
J7a	A2070 Kennington Road / The Street	0.26	0.32
J7b	Hythe Road (A20) / The Street	0.68	0.56
J8	A20 Ashford Road / B2067 Otterpool Lane	47.4%	35%
J9	B2067 Otterpool Lane / Aldington Road	0.22	0.34
J10	Aldington Road / Stone Street	0.39	0.61
J11a	A20 Ashford Road / A261 Hythe Road	0.87	0.72
J11b	A20 Ashford Road / Stone Street	0.72	0.37
J12	Aldington Road / Lympne Hill	0.47	0.47
J13	A261 Hythe Road / Aldington Road	0.42	0.32
J14	A261 London Road / Barrack Hill	0.43	0.31
J15	A259 / Dymchurch Road / Military Road	81%	85%
J16	A259 Prospect Road / A259 East Road / Station Road / High Street	0.69	0.72
J17	A20 Ashford Road / A20 J11 off slip	0.56	0.34
J18	Ashford Road (A20) / Sandling Road	0.49	0.36
J19	M20 J11A	0.28	0.32
J20	M20 J12	0.55	0.47
J21a	M20 J13	0.51	0.51
J21b	M20 J13	0.48	0.51
J22	A20 Ashford Road / Stone Street	0.11	0.28
J23	M20 J9	75.3%	92.0%
J24	B2064 Cheriton High Street / B2063 Risborough Lane	77.0%	87.2%
J25	B2064 Cheriton High Street / A2034 Cherry Garden Avenue	91.0%	94.0%
J26	A259 Prospect Road / Stade Street	0.57	0.72
J27	Barrow Hill 1-way	53.4%	49.4%
SH18	A260 Spitfire Way / White Horse Hill / A20 Slip Roads	0.70	0.73
SH19	Alkham Valley Road / A20 slip roads	0.84	0.74
SH16	A260 Canterbury Road / Alkham Valley Road	0.61	0.46
J44	Nackington Road / Old Dover Road / St Lawrence Road / The Drive	99.4%	100.7%

4.5 M20 Freight Traffic Management

4.5.1 Freight parking at the Port of Dover is limited and demand can sometimes exceed capacity. Industrial action can also disrupt operations at the port. As a consequence, freight queues that cannot be accommodated at the port or Eurotunnel can form on the M20. On the M20 eastbound towards Eurotunnel and Dover, Junction 11 off-ramp sometimes has to be closed for safety reasons due to blocking back queues from Eurotunnel and occasionally Dover.

4.5.2 There are several traffic management measures in place on the M20 corridor, including Operation Brock. Lorry parks are also expected to be a long-term component of the operation of the Channel Crossing.

Operation Brock

4.5.3 Operation Brock is a management system design to keep Kent's roads open if there is disruption at the Port of Dover and Eurotunnel and includes a series of escalating traffic systems, the different phases of the system can be implanted depending on the scale of disruption. The overall plan includes:

- A20 Dover TAP - "Traffic Assessment Project" which is a queueing system that holds HGVs until space is available at the port.
- M20 Moveable barrier – physical concrete barrier that can be deployed between M20 junctions 8 and 9 to install a contraflow. HGVs heading for the Port of Dover or Eurotunnel will be held on the coastbound carriageway.
- Manston Airfield – This is an off-road site used to hold traffic bound for the Port of Dover and border readiness checks will be undertaken here to ensure the correct paperwork is in place.
- Ashford Sevington inland border facility – This is an off-road site next to M20 junction 10A and is likely to be used if the M20 contraflow approaches capacity.

A map of the Operation Brock traffic management sites is shown in Figure 9.

Lorry Parks

4.5.4 Further to the lorry park of Ashford Sevington inland border facility, the Phase 1 of the Waterbrook Park located south of the M20 junction 10 also in Ashford has now been completed.

4.5.5 In addition, the planning application for a 53 space 24-hour lorry park facility was approved at the end of August 2021. This will be located on the Lympne Industrial Estate which borders on the Otterpool Park development site in the south. It is not expected that this facility will generate an uplift of vehicles on the estate as a lorry wash business already exists on the site.

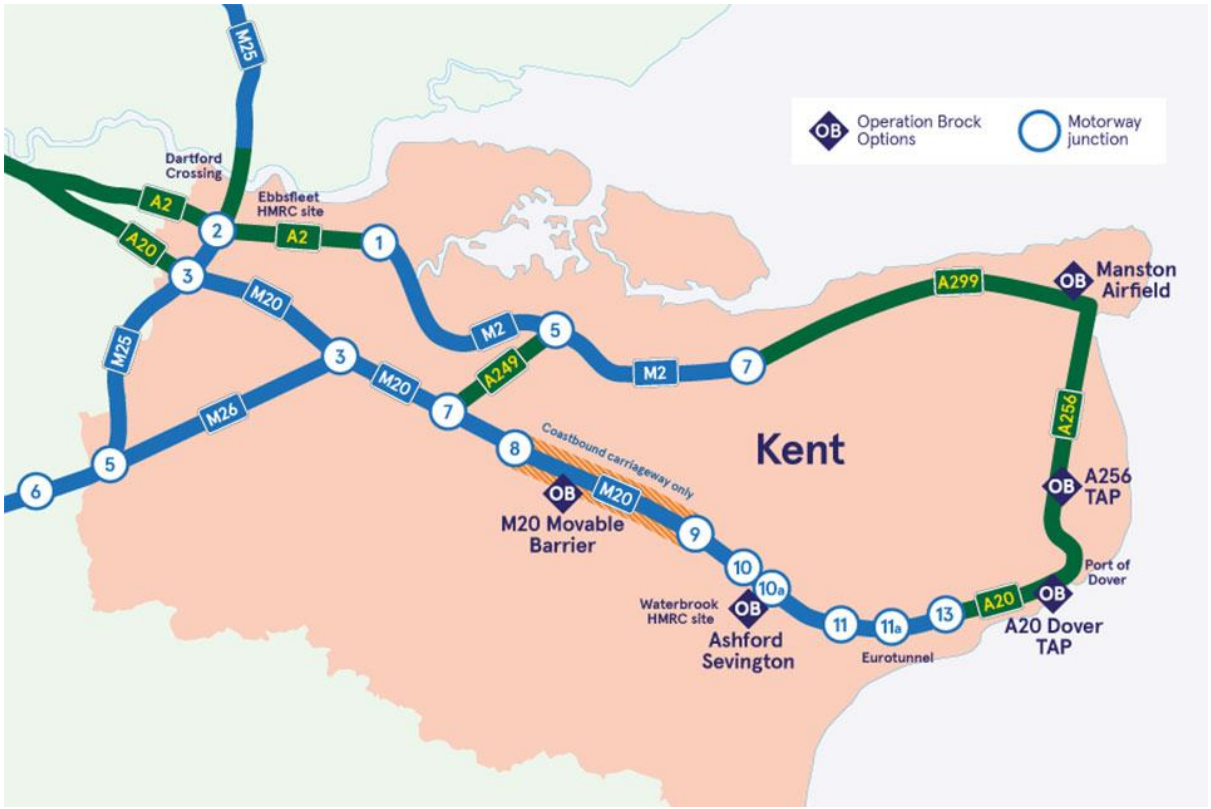


Figure 9 Map of Operation Brock Traffic Management Sites (Source – Department for Transport and Highways England)

4.6 Road Safety

Collision Analysis

4.6.1 Personal injury collision (PIC) data for the study area has been obtained from Kent County Council, supplied by Kent Police and has been analysed for the five-year period to the end of December 2019 to identify collision clusters, trends and potential opportunity for collision reduction. Any more recent data would be impacted by the Covid pandemic, therefore this data is considered to provide an appropriate basis for the assessment. A detailed analysis is reported in a technical note contained within Appendix G.

4.6.2 The total collisions in within the study area are shown in Figure 10. In total, 255 collisions occurred along the study area and these are highlighted by year and severity in the below Table 6.

Table 6 Total Collisions within Study Area by Year and Severity

Year	Number of Collisions			
	Slight	Serious	Fatal	Total
2015	47	8	1	56
2016	48	12	2	62
2017	45	11	1	57
2018	33	12	1	46
2019	25	9	0	34
Total	**198**	**52**	**5**	**255**

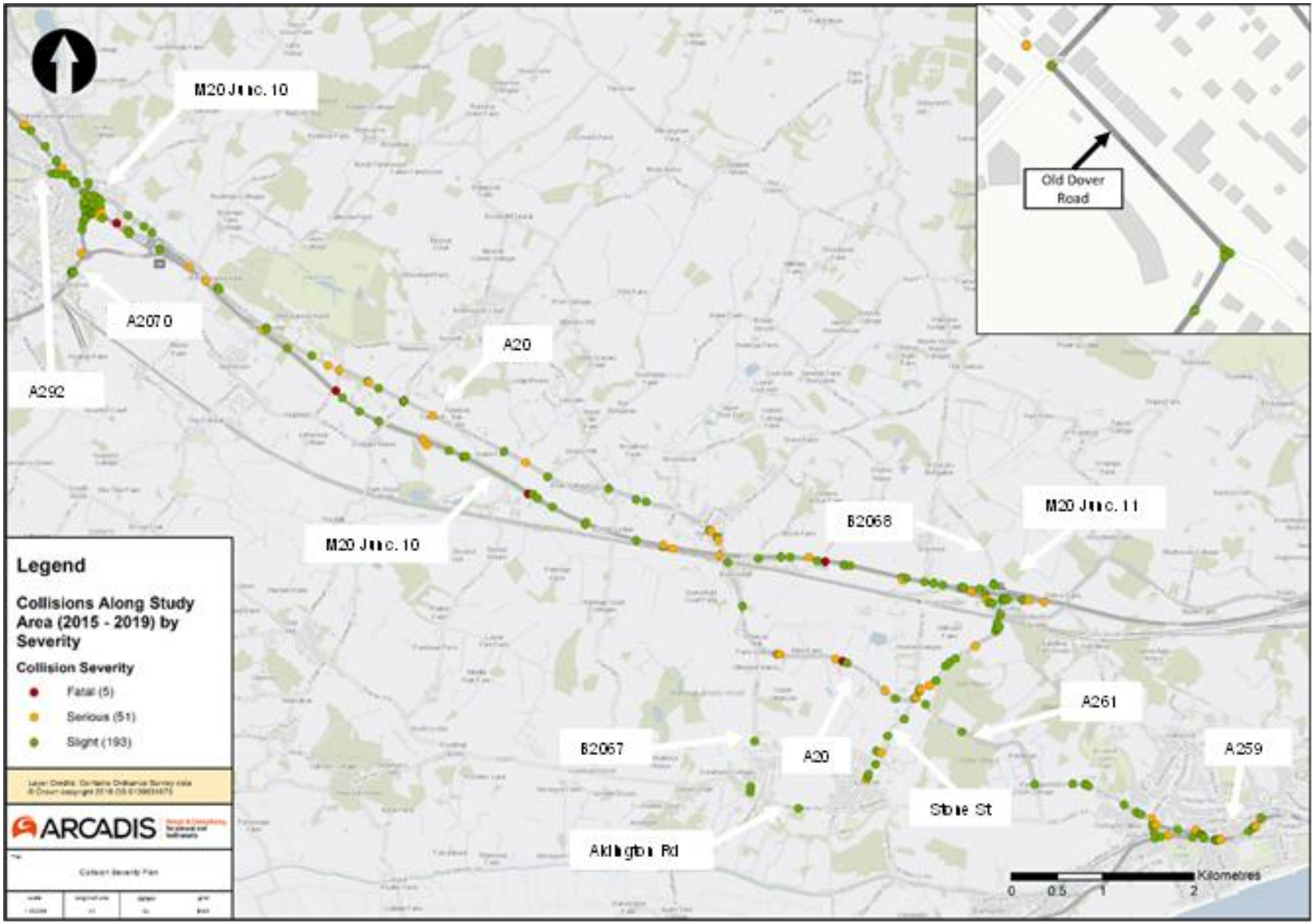


Figure 10 Total Collisions within Study Area

Collisions by Year and by Road Users

4.6.3 A summary of total collisions within the study area over the five-year period by year and road user is provided in Table 7. A total of 10 collisions resulted in injuries to pedestrians (4%), 11 collisions (4%) resulted in injuries to pedal cyclists and 39 collisions (15%) resulted in injuries to motorcyclists.

Table 7 Total Collisions within Study Area by Year and Road User

Year	Number of Collisions				
	Pedestrians	Cycle	P2W	Others (Cars, HGV's etc)	Total
2015	3	3	9	41	56
2016	2	2	12	46	62
2017	2	3	9	43	57
2018	1	3	5	37	46
2019	2	0	4	28	34
Total	**10**	**11**	**39**	**195**	**255**

Collisions by Severity and by Road Users

4.6.4 A summary of total collisions within the study area over the five-year period by severity and road user is provided in Table 8. The majority of injuries sustained by road users involved in the collisions were of a slight severity.

Table 8 Total Collisions within Study Area by Severity and Road User

Year	Number of Collisions			
	Fatal	Serious	Slight	Total
Pedestrian	1	3	6	10
Cycle	0	2	9	11
P2W	2	10	27	39
Others	2	37	156	195
Total	**5**	**52**	**198**	**255**

Collisions by Route

4.6.5 The study area consisted of ten study routes and the number of collisions within those routes have been identified in Table 9.

Table 9 Total Collisions within Study Area by Route

Route	Number of Collisions for 5-year period up to end of 2019
A20 Barrow Hill, Ashford Road & Hythe Road	70
M20 Junction 9-Junction 11 (excluding Junction 10A) Corridor	85

Route	Number of Collisions for 5-year period up to end of 2019
A261 Hythe Road	11
A259 Dymchurch Road & Seabrook Road	31
B2067 Otterpool Lane	3
Aldington Road	1
Stone Street	8
A2070 Bad Munstereifel Road & Lacton Interchange	35
A292	2
B2068	3
Old Dover Road, Canterbury	6
Total	**255**

4.6.6 The majority of collisions occurred along the M20 Corridor (Junction 9 - Junction 11 [excluding Junction 10A]) with 85 collisions (34% of total collisions).

4.6.7 This was followed by notable collision totals along A20 (Barrow Hill, Ashford Road & Hythe Road with 70 collisions – 28% of total collisions), A2070 (Bad Munstereifel Road & Lacton Interchange with 35 collisions – 14% of total collisions) and A259 (Dymchurch Road & Seabrook Road with 31 collisions – 12% of total collisions).

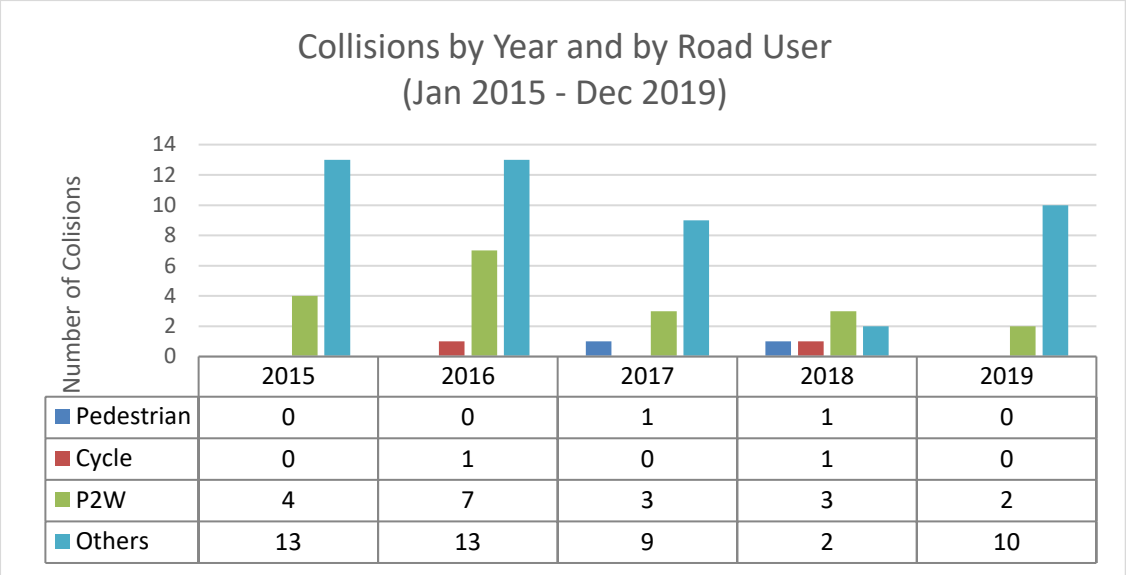
4.6.8 Four out of five of the recorded fatal collisions occurred along the M20 motorway, while the majority of serious collisions (40) were split equally along the M20 and A20 respectively.

4.6.9 In terms of vulnerable road users, it can be seen that during the five-year period the highest number of pedestrian collisions (seven) occurred along the A259 carriageway, and that 19 motorcycle collisions along the A20 carriageway.

4.6.10 The highest number of collisions involving cyclist were also recorded along the A259 carriageway and totalled six collisions.

A20 Barrow Hill, Ashford Road and Hythe Road

4.6.11 As indicated in Table 9, 70 collisions occurred along the A20 Study Route which runs through the Otterpool Park development. The collisions by year and roads users are shown in Figure 10, and by year and severity in Figure 12. The locations of the incidents that occurred along A20 are presented in Figure 13. The number of PICs appear to be more frequent along the A20 between M20 Junction 11 and its junction with A261 Hythe Road. There are proposals as part of the Otterpool development to realign and improve the quality of this section of road and are described in Section 5.4.5.



	2015	2016	2017	2018	2019
Pedestrian	0	0	1	1	0
Cycle	0	1	0	1	0
P2W	4	7	3	3	2
Others	13	13	9	2	10

Figure 11 A20 Collisions by Year and by Road User

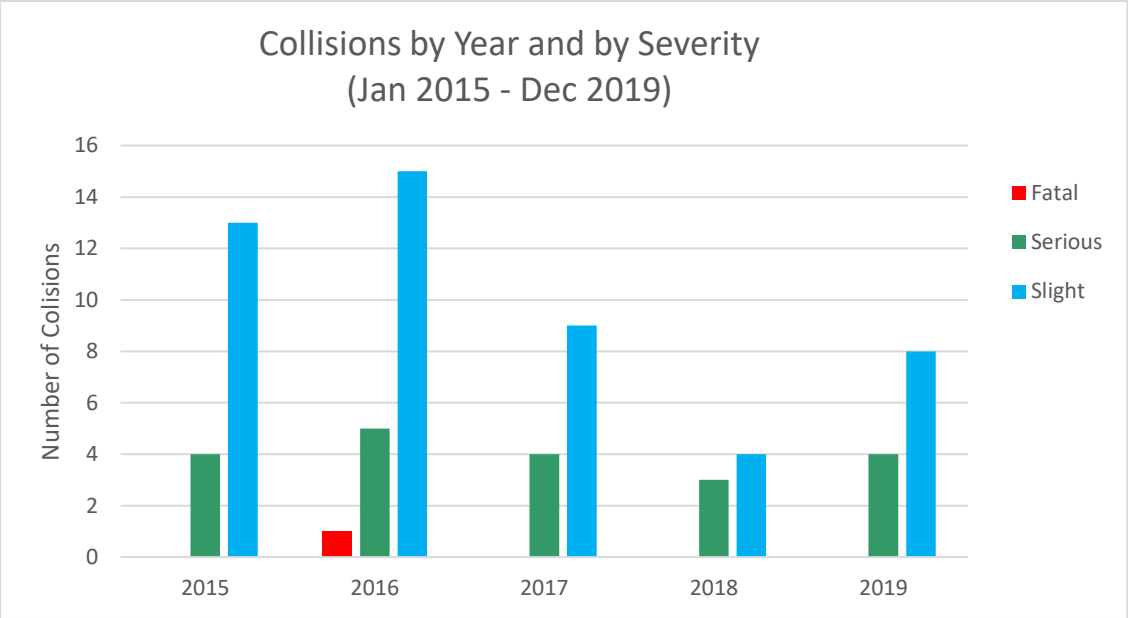


Figure 12 A20 Collisions by Year and by Severity

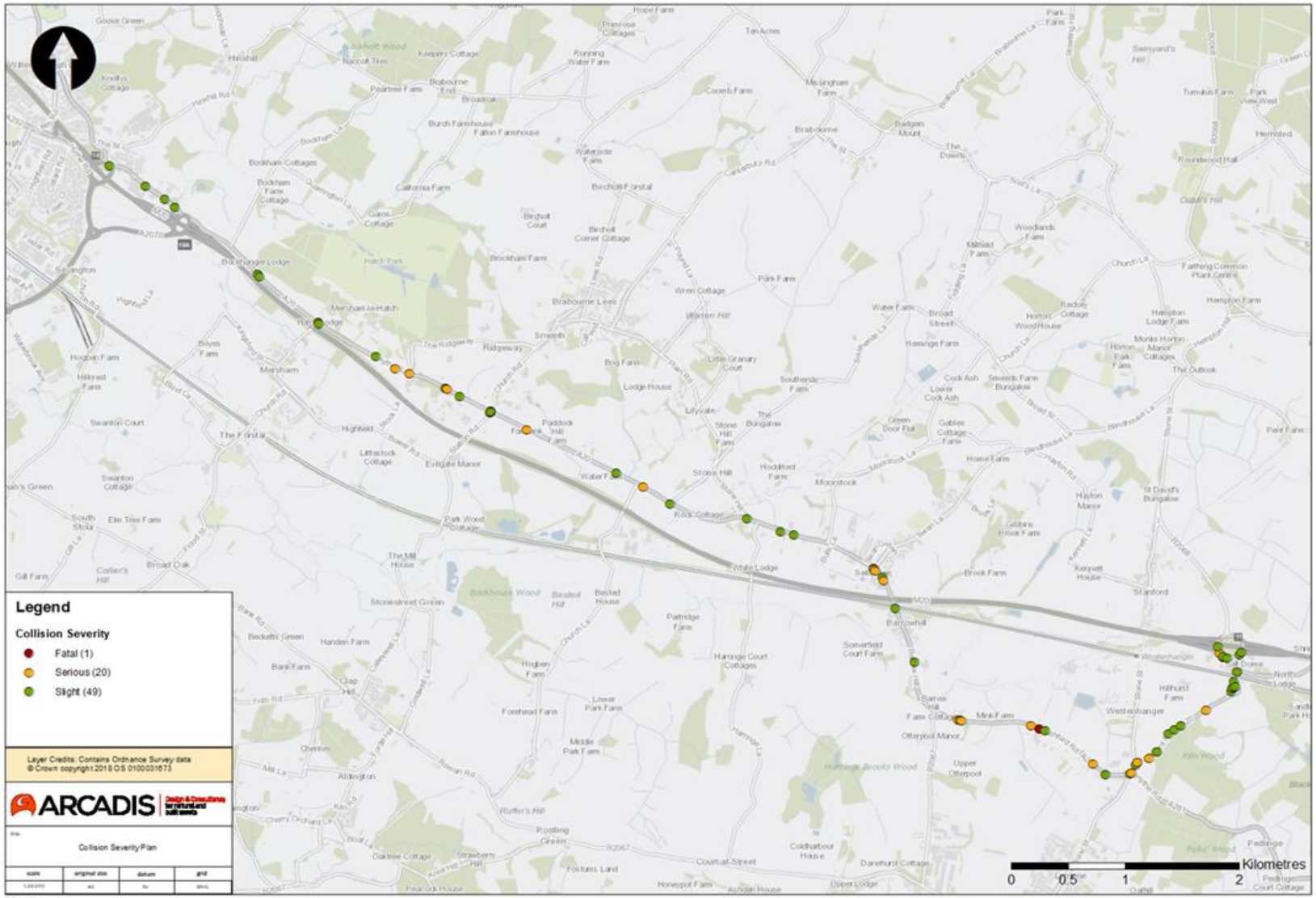


Figure 13 A20 Study Route Collisions

Road Safety Summary

4.6.12 Whilst all PICs are regrettable, the overall collision record in the entire study area over a five-year period does not give undue cause for concern. Based on the number and frequency of collisions at the location, it is considered that may be potential issues on the A20 Ashford Road on the section between the A261 Hythe Road north along the dualled section to M20 Junction 11. This section of road is due to be improved as part of the Otterpool Park development, this is described in Section 5.4.

4.6.13 As shown within Table 9, the collisions are spread across the network with these categorised into ten Study Routes.

4.6.14 Several accidents have occurred due to poor weather conditions. Aside from the above noted issues, the evidence does not suggest specific safety deficiencies on the local highway network in the vicinity of the development site.

4.7 Westenhanger Station Vehicle Parking

4.7.1 Westenhanger Rail Station represents the main generator of parking demand within the development site, which is predominantly rural and of a low parking demand. As such, a parking beat survey was undertaken on Thursday 19th April 2018 within school term time, to determine the current levels of associated parking at Westenhanger Rail Station. In agreement with Kent County Council, parking beats were carried out at three-hour intervals between 07:00, 10:00, 13:00, 16:00 and 19:00.

4.7.2 The parking within the areas surrounding the station is predominantly unmarked, unrestricted kerbside parking with a small provision (eight spaces) at the station car park. There is also an adjoining private car park comprising approximately 18 spaces serving a local Auctioneers. The parking survey included the following areas:

- Westenhanger Station car park: hardstanding area directly to the east of the Westenhanger Station building;
- Auctioneers private car park: hardstanding area directly to the west of the Westenhanger Station building;
- Westenhanger Station access road: road linking the Westenhanger Station car park to Stone Street; and
- Stone Street between Westenhanger Station car park access road and Meadow Court to the south.

4.7.3 The parking survey results and Photographs illustrating the surveyed conditions, are provided in Appendix H.

4.7.4 Table 10 presents the number of parking spaces at each location and the number of vehicles parked in the spaces at the time of each beat survey.

Table 10 Parking Beat Survey Results

Location	Number of Spaces	Number of Vehicles Parked by Time Period				
		07:00	10:00	13:00	16:00	19:00
Westenhanger Station car park *unmarked, unrestricted*	7	7	7	5	5	1
Westenhanger Station car park *Blue Badge only*	1	0	0	0	1	0
Auctioneers private car park *private*	18	2	3	4	3	1
Westenhanger Station access road *unmarked, unrestricted*	20	17	20	19	18	10
Stone Street *unmarked, unrestricted*	38	14	25	24	23	11
Total	**84**	**40**	**55**	**52**	**50**	**12**

4.7.5 The Westenhanger Station car park was found to have high parking utilisation (100%) during the AM periods with the car park fully occupied and just two spaces available throughout the daytime (71.4% stress levels), which lowered significantly at the final beat (see Photograph 13).

Photograph 13 Westenhanger Station Car Park

Photograph 14 Westenhanger Station Access Road

4.7.6 The Auctioneers private car park was observed to have low parking stress levels during the time of the surveys (daily average of 14.4%, approximately 3 spaces). The parking demand would be considerably higher during the day of an Auction.

4.7.7 The access road was observed to have high levels of parking stress (ranging between 85-100% for the three central beats), which typically make up a working day. Vehicles are shown to park along both sides of the carriageway (see Photograph 1). This is not adequate as two-way vehicle movements are obstructed by the parked vehicles.

4.7.8 There is no designated station parking on Stone Street, which experienced low to medium levels of parking demand throughout the day. The road is narrow and not supposed to be parked on. All vehicles shown to park on it, are inappropriate unless associated with the neighbouring housing.

4.7.9 In summary, the parking provision at the station is found to provide insufficient capacity to accommodate demand.

5 Proposed Development

5.1 Introduction

5.1.1 This Chapter sets out the quantum of proposed development assessed in each scenario for Otterpool Park and establishes the strategy for access and travel for the development. This has informed the Illustrative Masterplan and the Movement and Access Parameter Plans (Drawing OPM(P)1010L) and forms the basis of the assessment of impacts.

5.2 Development Quantum

5.2.1 The proposed development quantum and mix of land uses is such that the site will provide a sufficient scale and range of services that will meet the demands of the local population that means the need to travel long distances by non-sustainable modes of transport will be minimised, with a high level of contained trips. It is also anticipated that the services provided will not be of a type that will attract significant trips from people living external to Otterpool Park.

5.2.2 Table 11 to Table 13 represent the development schedules for each of the future year assessment scenarios based on the development schedules provided by the project team at the time of undertaking the assessment. This includes:

- 2037 - the scenario by the end of the emerging Core Strategy period;
- 2044 - 8,500 homes scenario, the main assessment of the application, although recognising that this is planned to be complete by 2042, assessing the year 2044 provides a worst case assessment in terms of transport assessment for vehicles with the inclusion of two additional years of traffic growth; and
- 2044 – 10,000 homes sensitivity assessment of Framework Masterplan.

Table 11 Otterpool Park Development Schedule (2037)

Land Use	Development Quantum			
	GIA (sqm)	Homes	Rooms	Schools
C3 Residential		5,769		
C2 Extra Care Housing	20,930	328		
C1 Hotel	7,000		117	
B1 Commercial business in hubs	13,900			
B1 Commercial business park	15,625			
B2 Light Industrial business park	2,222			
A1 Retail	15,000			
A2 Business	9,750			
A3 Café / Restaurant				
A4 Pub / Takeaway				
D1 Secondary schools	10,050			1
D1 Primary School	18,465			6
D1 Nursery	3,150			9
D1 Community Centre	5,800			
D1 Health	5,000			
D2 Sports pavilion	1,500			
D2 Indoor sports hall	3,250			

Land Use	Development Quantum			
	GIA (sqm)	Homes	Rooms	Schools
		6,097		

Source: ES Appendix 4.4 Illustrative Accommodation Schedule

Table 12 Otterpool Park Development Schedule (2044 8.5k)

Land Use	Development Quantum			
	GIA (sqm)	Homes	Rooms	Schools
C3 Residential		7,855		
C2 Extra Care Housing	41,708	645		
C1 Hotel	7,000		117	
B1 Commercial business in hubs	13,900			
B1 Commercial business park	50,460			
B2 Light Industrial business park	8,266			
A1 Retail	15,750			
A2 Business	10,500			
A3 Café / Restaurant				
A4 Pub / Takeaway				
D1 Secondary schools	20,100			2
D1 Primary School	20,755			7
D1 Nursery	4,200			12
D1 Community Centre	6,300			
D1 Health	5,600			
D2 Sports pavilion	1,500			
D2 Indoor sports hall	5,250			
		8,500		

Source: ES Appendix 4.4 Illustrative Accommodation Schedule

Table 13 Otterpool Park Development Schedule (2044 10k)

Land Use	Development Quantum			
	GIA (sqm)	Homes	Rooms	Schools
C3 Residential		8,704		
C2 Extra Care Housing	84,408	1,296		
C1 Hotel	7,000		117	
B1 Commercial business in hubs	13,900			
B1 Commercial business park	50,460			
B2 Light Industrial business park	8,266			
A1 Retail	15,750			

Land Use	Development Quantum			
	GIA (sqm)	Homes	Rooms	Schools
A2 Business	10,500			
A3 Café / Restaurant				
A4 Pub / Takeaway				
D1 Secondary schools	20,100			2
D1 Primary School	23,045			8
D1 Nursery	4,550			13
D1 Community Centre	6,300			
D1 Health	5,600			
D2 Sports pavilion	1,500			
D2 Indoor sports hall	5,250			
		10,000		

Source: ES Appendix 4.4 Illustrative Accommodation Schedule

5.3 Otterpool Park Transport Strategy

5.3.1 The full Transport Strategy can be found as the Environmental Statement Appendix 16.5, whilst this section provides a summary of this document.

5.3.2 Otterpool Park will be influenced by the travel needs of the existing and future communities. The aim is to strike the right balance between ensuring the Garden Town is a great place to live and work with all the amenities its population needs, while also providing easy connections to and from neighbouring communities. There will be a high proportion of local trips made within Otterpool Park as the development incorporates a range of schools, healthcare, community and sports facilities to meet as many of the needs of residents as possible and minimise travel to other locations. There will be local shopping and services and on-site employment locations together with the infrastructure for home working.

5.3.3 The Otterpool Park development and associated Transport Strategy will provide residents, employees and visitors with an attractive and comprehensive network of sustainable travel opportunities to provide viable alternatives to travel by private car. This will be balanced against ensuring that the highway access arrangements are robust enough to sustain additional traffic movements, provide connectivity to existing routes and allow the existing network to function within reasonable limits without causing significant issues for Otterpool Park and existing local residents.

5.3.4 As explained above, the Transport Assessment has been undertaken using the traditional approach, agreed with the highway authorities, of 'predict and provide' methodology derived from historic trip rate patterns. This results in a worst-case scenario for vehicle trips generated by the development, and the Assessment provides confidence that even in this scenario there are appropriate highway infrastructure proposals that can mitigate the effects. Nevertheless, this is not the desired approach for the development.

5.3.5 The Transport Strategy has been introduced to provide more progressive mobility interventions for Otterpool Park. The future of travel and the movement of goods is changing. With the advances to technology, changes to the way we work and a shift in the way we access services and buy goods are influencing the way we travel. The vision is to promote sustainable and active travel modes through the offer at Otterpool Park such that the need for long distance travel and reliance on the private vehicle is reduced. This is consistent with the Folkestone and Hythe District Council's aim to achieve the net-zero emissions target by 2030 and the

Government's Ten Point Plan for a Green Industrial Revolution, of which Point Five is Green public transport, cycling and walking.

5.3.6 The Transport Strategy for Otterpool Park is founded on the following principles:

- Create walkable neighbourhoods and a high street highly accessible by walking and cycling
- Provide strong walking, cycling and bus connections to rail station, employment, high street, local centres and schools from residential areas
- Provide wider connectivity by walking, cycling and bridleways into surrounding countryside and existing communities
- Ensure a high level of connectivity to and from Otterpool Park within the sub-region by frequent high-quality public transport
- Minimise and manage the impacts of traffic on existing road network particularly through existing communities and other sensitive areas
- Provide appropriate levels of parking for cars and bicycles
- Implement a range of sustainable travel behavioral measures to encourage use of sustainable modes
- Provide for future needs for electric vehicles and flexibility to adapt to innovative future mobility solutions
- Reduce the need to travel by providing relevant on-site facilities.

5.3.7 There will be a high proportion of local trips made within Otterpool Park as the development incorporates a range of schools, healthcare, community and sports facilities to meet as many of the needs of residents as possible and will minimise the need to travel to other locations. There will be local shopping and services and on-site employment locations together with the infrastructure for home working.

5.3.8 A user-centric approach has been adopted as part of the Future Mobility plan for the development. The principles of this approach are to put the mobility needs of the users first and is described further in Chapter 12.

5.3.9 The outcomes from the user-centric approach have allowed for some ambitious Mode Share targets to be derived. These would be supported by the comprehensive range of transport measures proposed at the development:

- Walking and Cycling Strategy – providing a highly connective and permeable network of routes both within the development and also to link to the wider area of existing footpaths and bridleways.
- Bus Service Enhancements – providing high-quality bus infrastructure that will make this travel mode an attractive option for short and longer journeys.
- Rail Enhancements – Improvements to the Westenhanger Rail Station and supporting proposals of future High-Speed services (subject to wider deliverability) at the Station as outlined in Kent's Rail Strategy 2021.
- Shared Mobility Schemes – Provision of bike and scooter share schemes, including electric options. Car club provision will offer development users who do not require a car on a regular basis the option to drive without the high cost and long-term maintenance associated with the private car.
- Mobility Hubs – facilities that integrate shared, active and public transport modes in one location as well as bringing opportunities create attractive places.
- MaaS (Mobility as a Service) - a single digital application to enable users to plan, book and pay for multiple types of mobility, with a single payment channel instead of multiple ticketing and payment operations.
- Healthy Streets Approach – promoting healthy lifestyle through active travel, sustainable choices, safety and connectivity.

- Parking Strategy – achieving an appropriate balance of parking for overall requirements of the development that accommodates parking but does not unduly encourage car ownership and use.
- EV Strategy - a bespoke EV charging point strategy for each phase of the development to be developed to support electric charging network and emerging technology.
- Delivery and Servicing Strategy - consider how to utilise emerging technologies and deliver a sustainable and efficient freight system that is fit for the future.

5.3.10 These measures will be balanced against ensuring that the highway access arrangements are robust enough to sustain additional traffic movements, provide connectivity to existing routes and allow the existing network to function within reasonable limits without causing congestion and accessibility issues for Otterpool Park and existing local residents.

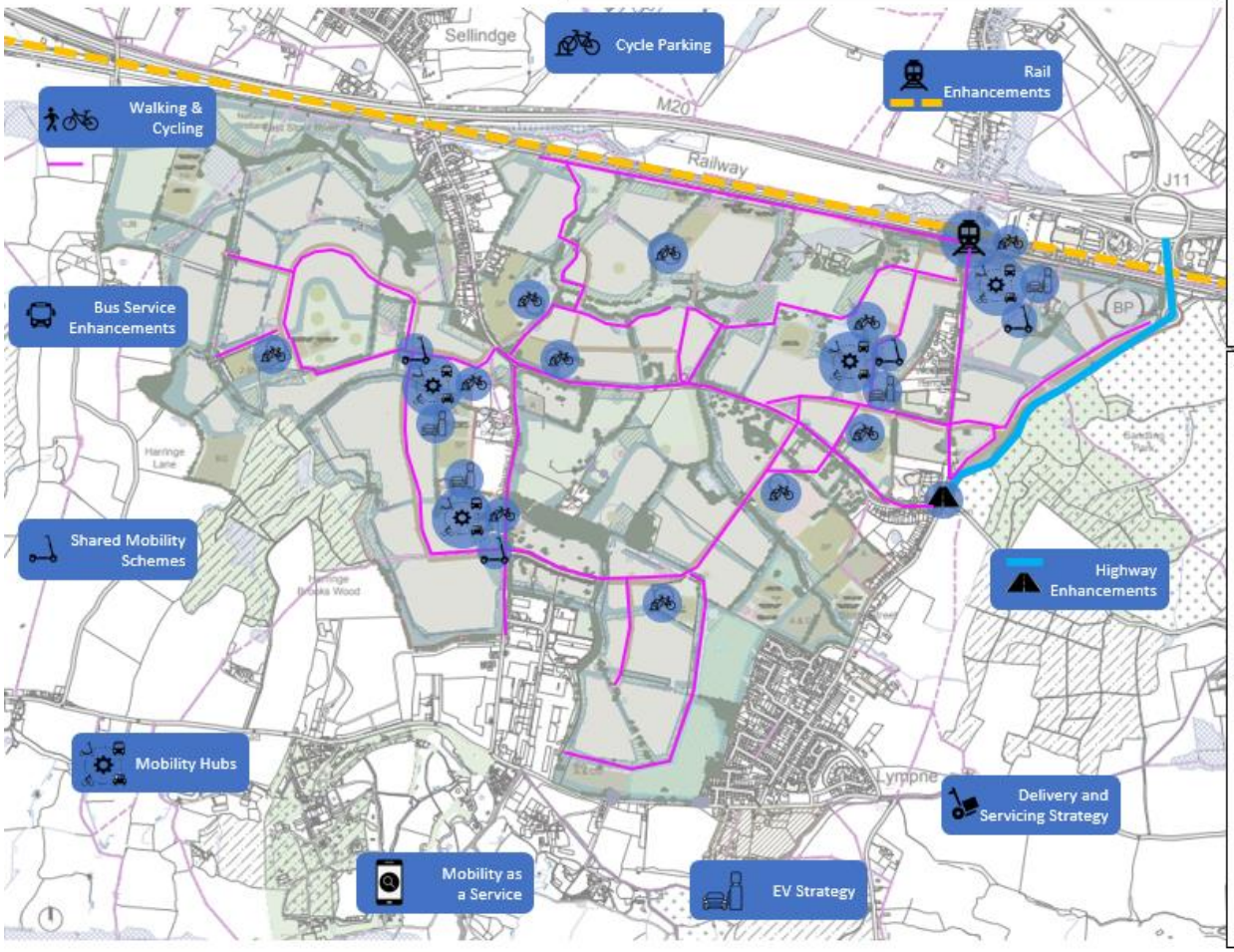
5.3.11 The Otterpool Park development and associated transport strategies will provide residents, employees and visitors with an attractive and comprehensive network of sustainable travel opportunities to provide viable alternatives to travel by private car. The Transport Strategy proposals are summarised in Figure 14.

5.3.12 The proposed approach at Otterpool Park is to go beyond existing policy requirements and it is intended that the worst-case vehicle trip generation scenario forecast in the Transport Assessment will not be reached, because site users will opt to travel using the sustainable alternative modes offered by the development instead.

5.3.13 The infrastructure of the Masterplan will be complemented by bespoke green travel measures, which will build on the opportunities offered by the existing and proposed walking, cycling, equestrian and public transport infrastructure, and promote and develop sustainable travel opportunities as well as support low emissions vehicles and innovative transport solutions.

Otterpool Park – The new Garden Town will be enriched with green spaces that create plentiful opportunities to walk, play, explore and socialise.

Otterpool Park – Transport Strategy - will provide residents, employees and visitors with an attractive and comprehensive network of sustainable travel opportunities to provide viable alternatives to travel by private car.



Transport Strategy Principles

- Walkable neighbourhoods
- Sustainable Mode Connectivity to site facilities
- Wider connectivity to surrounding communities
- External public transport connectivity
- Minimise and manage the impacts of traffic on existing road network
- appropriate levels of parking for cars and bicycles
- a range of sustainable travel behavioural measures
- future needs for electric vehicles
- innovative future mobility solutions

Transport Strategy Outcomes

Environmental Outcomes

Potential 31% reduction of CO_2 based on reduction of daily vehicle trips generated by the site achieving Best Case Mode Share scenario (User Centric Approach) compared to TA approach (worst case for vehicles).

Social and Economic Outcomes

Should the Best Case scenario be achieved, this would reduce the effects of climate change, leading to economic cost to society, health and wellbeing benefits for individuals, such as leading longer healthier lives and reducing the burden on the taxpayer by reducing visits to healthcare services.

Figure 14 Integrated Transport Strategy

5.4 Enabling Infrastructure

5.4.1 The proposals for facilitating the infrastructure off-site of the Otterpool Park development in walking, cycling and highway access are summarised below.

Off-site Walking and Cycling Strategy

5.4.2 The off-site Walking and Cycling Strategy will improve connectivity between Otterpool Park and the wider network. The priorities for improvement proposed that would benefit the future users of the Otterpool Park development have been identified as follows:

- HE/359 and HE371footpath - Improve the connection to Public Right of Way (PRoW) and cycle network from Westenhanger Station to the north.
- HE/281 footpath - Improvements to the route between Stone Street and heading south east through Sandling Park towards Hythe and Saltwood.
- HE/293 footpath – links to the proposed pedestrian network and connects eastwards to Hythe.
- HE/343 byway – Improving this link will make it more attractive as a pedestrian and cycle route to Hythe.
- Aldington Road between Otterpool Lane and Stone Street – improvements to the pedestrian provision such as formalised crossing points and consideration for traffic calming measures close to key pedestrian desire lines.
- Harringe Lane - proposal to close this road for vehicle traffic halfway down the road. This will prevent any through traffic generated by the development and create a more attractive route for walking and cycling in the north – south direction.

5.4.3 The PRoW routes are intended to be provided primarily as leisure routes, although a small number of users may consider these as a commuting route.

5.4.4 The nature of the improvements is part of an ongoing dialogue and connections will be supported through the likely provision of contributions to off-site sustainable transport improvements. However, this will be secured and detailed within the supporting Section 106 legal agreement following planning submission. The proposed walking and cycling routes through the development and also connecting to the wider surrounding area are shown in Figure 15.

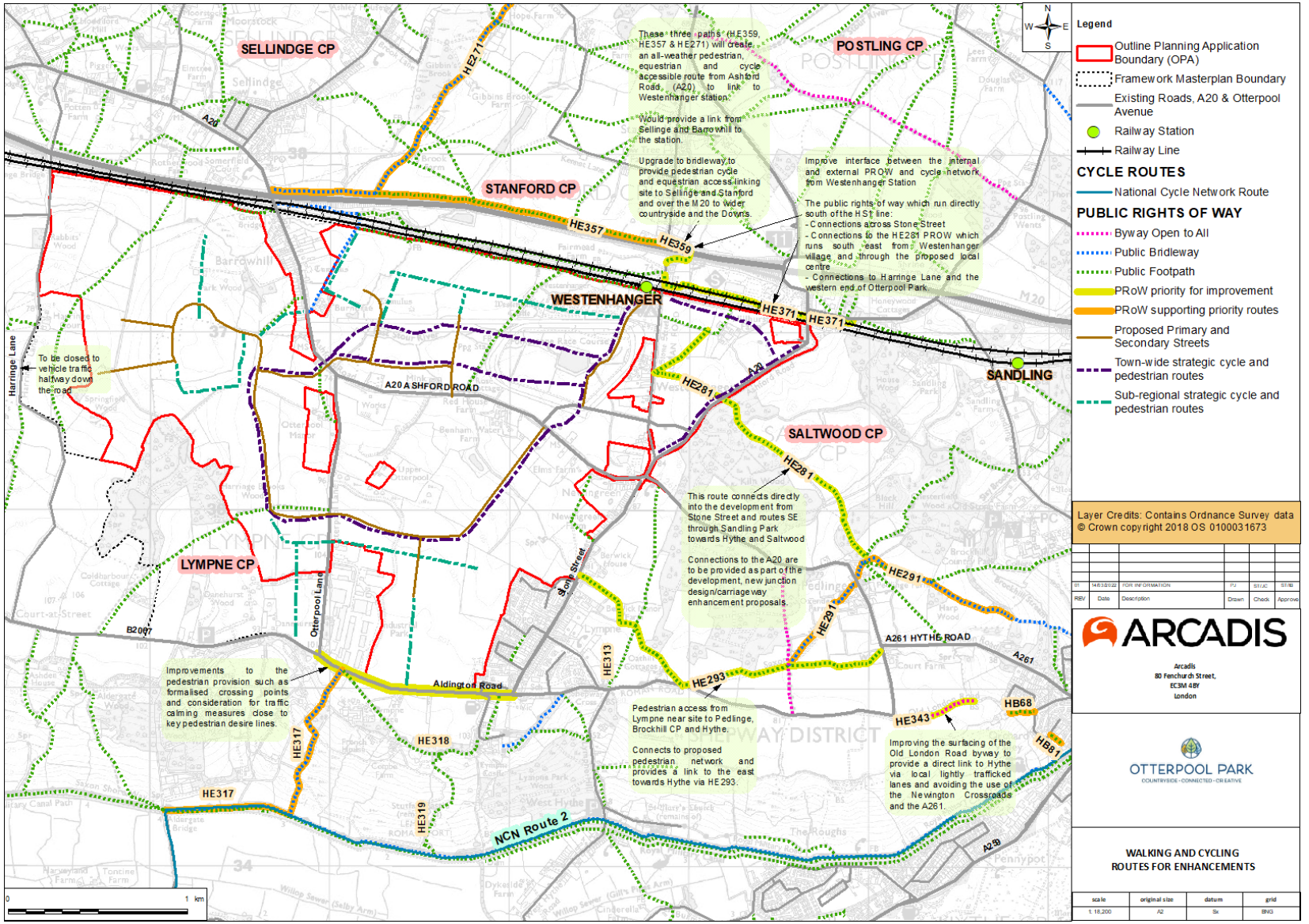


Figure 15 Walking and Cycling Strategy Map

Highway Access Strategy

5.4.5 The highway access strategy is based on the main access to Otterpool Park being from Junction 11 of the M20 via the A20. It is recognised that traffic will also use other routes. However, through upgrading the route from Junction 11 and thus providing high quality linkages, traffic impacts on other routes will be minimised. Furthermore, the approach is to mitigate impacts on the network but not to provide significant capacity increases elsewhere that encourage car use or the use of more sensitive routes.

Newingreen Junction

5.4.6 At the southern end of the A20, there is a proposal to merge the existing A20 Ashford Road priority junctions with Stone Street and Hythe Road into one signalised junction, to be known as Newingreen junction. The mitigation is designed to address the potential impacts and mitigate the predicted delays at this location. The layout of the proposed junction is shown in Drawing number OP-ARC-XXX-DR-T-0007 (Appendix I). The options considered and the design process for the Newingreen Junction is set out in a Technical Note found in Appendix J.

Upgrade of the A20 Ashford Road

5.4.7 The A20 Ashford Road is currently dual carriageway to the south of the motorway junction for a distance of approximately 300 metres. Along this dual carriageway section, to the south of the M20 junction there is an at grade Give Way junction for the A20 Ashford Road. This is a restricted access junction providing for left in and left out movements with Ashford Road to and from the southbound carriageway. A roundabout junction to the south provides for vehicles to make a U-Turn movement and return north to the motorway junction.

5.4.8 South of the roundabout junction, the A20 is single carriageway for around 1,100 metres to a point 145 metres to the north of the Newingreen junction where it is a dual carriageway with a hatched out wide northbound one lane carriageway and a southbound two-lane carriageway. The single carriageway route varies in width, with a section where it is less than 6.5m wide where it traverses through the wooded area to the north of Stone Street (a distance of approximately 700 metres). The existing geometry and road safety performance appear to be below standard in this section.

5.4.9 In relation to existing capacity, as a guide, the Design Manual for Roads and Bridges gives an annual average daily traffic flow (AADT) for this is type of road (Rural S2 road) as up to 13,000 vehicles (TA 46/97[4] paragraph 2.4 & Table 2.1).

5.4.10 Table 14 sets out the peak hour and AADT flows from a 2016 DfT survey, the 2018 baseline situation and indicative forecasts without (DM) and with (DS) Otterpool Park development of 8,500 homes (2044 assessment year). The forecast method to derive peak hour background flows is described in Chapter 6, while Chapters 7 to 9 describe the method for calculating Otterpool Park traffic flows. Daily totals have been derived from peak hour flows by considering existing peak hour to daily flow conversion factors.

[4] This document was withdrawn from the Design Manual for Roads and Bridges (DMRB) in March 2020, however, to maintain consistency with prior assessment on this stretch of road and in the absence of any replacement DMRB guidance the withdrawn standards have been used for the purposes of this report as they still provide useful guidance on link capacity.

Table 14 A20 Ashford Road Base and Future Year Traffic Flows

Assessment Year	Number of Vehicles						
	AM Peak Hour			PM Peak Hour			AADT
	NB	SB	Total	NB	SB	Total	Total
2016 Survey	-	-	-	-	-	-	13,720*
2018 Base Year	762	664	1,426	700	746	1,446	18,061
2044 8.5k DM	1,066	1,092	2,158	1,039	1,232	2,271	27,852
2044 8.5k DS	2,200	1,440	3,640	1,655	2,065	3,718	46,272
2044 10k DM	1,067	1,087	2,144	1,025	1,214	2,239	27,563
2044 10k DS	2,177	1,433	3,610	1,648	2,040	3,688	45,894

* *DfT AADF counter*

5.4.11 Based on the 2016 and 2018 AADT totals, the A20 appears to already be operating above the typical daily flow capacity of 13,000 for a rural road of this current character. The expected future increases in traffic without development will exacerbate capacity issues on this link. The future year DS scenarios that include Otterpool Park development traffic would require the A20 to accommodate a daily flow of 46,272 vehicles for the application scheme. In conclusion, the existing link is not anticipated to have sufficient capacity to deal with the level of future traffic even without Otterpool Park.

5.4.12 Design discussions have taken place with Kent County Council and Folkestone & Hythe District Council as to the future character of the link between the roundabout south of the M20 junction and Newingreen junction. Given the requirement to provide two access junctions into the development from the new link road (Otterpool Avenue) and the changing nature of the land uses to the west of the A20 that would form the development, it has been agreed with Kent County Council and Folkestone & Hythe District Council that the A20 would most appropriately become an urban road with a 40mph speed limit. There has also been the need to minimise land requirements for road infrastructure.

5.4.13 The traffic capacity of urban roads is identified in the Design Manual for Roads and Bridges (DMRB) Vol 5.1 TA 79/99[5] road types. It is considered that in future the A20 in this location would be a UAP1 road which is categorised as a 'High standard single or dual carriageway carrying predominately through traffic with limited access and a 40 to 60mph speed limit'.[6]

5.4.14 The busiest direction capacity of a 7.3mm wide UPA1 single carriageway road is identified in TA 79/99 as 1,590 peak hour vehicles in one direction and a 2,650 two-way flow. The forecast flows With Development in the Table 14 above show that this would not provide sufficient capacity.

5.4.15 The capacity of a dual carriageway (i.e. two 7.3m wide carriageways) UAP1 road is 3,600 vehicles in each direction and a 7,200 two-way flow. The forecast flows With Development (DS) in Table 14 above show that this should provide sufficient capacity.

5.4.16 The A20 link between the roundabout south of the M20 J11 and north of the Newingreen junction is proposed to be improved as a single carriageway road of 40mph speed limit, this will be undertaken prior to the first occupation of the site. Drawing 10029956-ARC-XX-XX-DR-HE-0025 contained in Appendix I shows the proposed A20 improved alignment plan. The new safer route will balance the need to accommodate future traffic with minimising the impacts. The monitor and manage approach

[5] This document was withdrawn from the Design Manual for Roads and Bridges (DMRB) in March 2020, however, to maintain consistency with prior assessment on this stretch of road and in the absence of any replacement DMRB guidance the withdrawn standards have been used for the purposes of this report as they still provide useful guidance on link capacity.

[6] http://www.dft.gov.uk/ha/standards/dmrb/vol5/section1/ta7999.pdf

will determine whether a further upgrade to an urban dual carriageway is required. With the implementation of the Transport Strategy, it is expected that the estimated traffic generated by the site proposed in the Transport Assessment will not be reached, and hence the dualling option may not be required.

5.4.17 As part of the upgrade to the A20 between the Otterpool Avenue and the M20 J11, a significant improvement is proposed for pedestrians to mitigate the expected increase in traffic flow along the A20 at this location. A signalised pedestrian crossing is proposed at the A20/Otterpool Avenue junction and the A20/Business Park access junction to facilitate the connection to HE/281 to the south. With the implementation of the development, there is the option to divert the existing HE/281where it lies within the site to follow the proposed Stone Street and Otterpool Avenue to reach the A20. The signalised pedestrian crossing facilities on the Business Park arm of the access junction to the Business Park as well as across Otterpool Avenue where these two junctions meet the A20 would provide safe passage to the HE/281 to the south. Where the existing A20 is not used as part of the new alignment, it will be retained for pedestrian use to allow connectivity with footpath HE/281 and will form part of the landscape buffer. This will connect the two signalised pedestrian crossings to the east of the A20 to the footpath HE/281, this arrangement is also shown on Drawing 10029956-ARC-XX-XX-DR-HE-0025 contained in Appendix I.

5.4.18 However, if required, the dual layout is also proposed to be provided west of the existing route in the southern section, and in the northern section the existing alignment would be realigned and widened to the west of the existing route as appropriate. And again, where the existing A20 is not used as part of the new alignment, it will be retained for pedestrian use to allow connectivity with footpath HE/281 and will form part of the landscape buffer.

5.4.19 It is expected that the monitor and manage approach would be facilitated by the implementation of traffic counting technology to monitor traffic levels around the development as it is built out. This data can then be used to derive the actual trips generated by the development which can be compared with the values reported in this TA.

Otterpool Avenue

5.4.20 Otterpool Avenue is proposed to serve the development and provide a route for the A20 east-west traffic effectively bypassing the existing Newingreen junction. The new route is proposed as a single carriageway 20mph strategic route with a segregated footway and cycleway alongside. Stone Street will be connected to the new link via a cross road priority junction but there will be no through route to the station or to the Newingreen junction, ensuring Stone Street serves as a quiet access to properties. A new crossroads with traffic signals would be provided to give access to the town centre and railway station to the north, and development to the south.

5.4.21 On the section of the existing A20 from Newingreen junction westwards it is envisaged the speed limit of Ashford Road west of Newingreen would be reduced from 40mph to 30mph. This complements the proposed 20mph Otterpool Avenue speed limit and is likely to enhance road safety. In addition, this will enhance noise and air quality aspects for residents in the vicinity and fit the proposed highway environment which includes a number of proposed junctions, better walking and cycling connectivity and more direct frontages.

5.4.22 There will be a phased approach to any speed limit reductions along the A20 prior to development along the A20 corridor coming forward. It is proposed that speed limits will be reduced appropriately when some development comes forward along with any segregated footway / cycleways that are implemented.

6 Future Baseline Highway Conditions

6.1 Introduction

6.1.1 In order to undertake impact assessments for the required future assessment years, it is necessary to establish the expected changes to background traffic volumes and the highway network for the assessment years.

6.1.2 This Chapter describes the agreed method with Kent County Council and Highways England (now NH) for forecasting background traffic growth to the assessment years of 2037 and 2044. It also describes the changes to the highway network that are expected to influence traffic volumes, as advised by Kent County Council and Highways England (now NH).

6.2 Background Traffic Forecasting

Introduction

6.2.1 Since detailed information of the scale, type and location of new development within the study area between 2018 and the assessment years of 2037 and 2044 is not available at this stage, it was agreed during scoping with Kent County Council and Highways England (now NH) that the primary method for forecasting future traffic growth should be the application of growth factors derived from TEMPro, a program that provides projections of the total number of trips in an area over time based on the forecast number of households and jobs for use in local and regional transport models.

6.2.2 In addition to the use of TEMPro, specific developments for which traffic generation and routing assumptions were available are included in the assessment separately and heavy goods vehicle (HGV) traffic growth on the M20 was calculated using national freight traffic growth data.

6.2.3 The following sections describe the application of this method in detail.

Committed/Planned Developments

6.2.4 This section provides an overview of the committed or planned developments which have been included within the assessment, for which traffic generation and routing information was available. The following developments have been included in this way, as requested by Kent County Council:

- Former Rotunda Amusement Park, Marine Parade, Folkestone;
- Shorncliffe Garrison, Folkestone;
- Street Record, Hurricane Way, Hawkinge;
- Philbeach House, Tanners Hill, Hythe;
- Land Rear Rhodes House, Sellindge;
- Remainder of land at Aerodrome, Hawkinge;
- Nickolls Quarry, Dymchurch Road, Hythe;
- Land adjacent The Surgery, Sellindge;
- Land at Hurricane Way, Hawkinge;
- Land at Cheesemans Green, Kingsnorth;
- Land at Chilmington Green, Ashford Road;
- Former Rowcroft and Templer Barracks, Ashford;
- Waterbrook;
- Land at Willesborough Lees;
- Eureka Park;
- Court Lodge Farm;
- Former Newton Works;

- Former Powergen Site, Ashford;
- Conningbrook, Willesborough;
- Plot 1, Hurricane Way, Hawkinge; and
- Land north-east of Willesborough Road, Kennington.
- Mountfield Park, South Canterbury.

6.2.5 Traffic volume and routing information related to these developments in provided in Appendix K.

Former Rotunda Amusement Park, Folkestone, Kent

6.2.6 A planning application (Planning Ref. Y12/0897/SH), approved in September 2018 and reserved matters approval in January 2019, for the proposed mixed-use development comprising 1000 homes and up to 10,000 square metre commercial floorspace including A1, A3, A4, A5, B1, D1 and D2 uses. Works commenced in 2020 with occupations anticipated to commence from 2021, later than projected in the application Transport Assessment.

Shorncliffe Garrison, Folkestone, Kent

6.2.7 A planning application (Planning Ref. Y14/0300/SH), approved in December 2015, for the proposed mixed-use development comprising 1200 homes and up to 10,000 square metre commercial floorspace including business, retail and commercial uses. The Transport Assessment associated with the planning application anticipated occupation of the site by 2026.

Street Record, Hurricane Way, Hawkinge, Kent

6.2.8 A planning application (Planning Ref. Y14/0341/SH), approved in July 2015, for the proposed development of 21 residential units. While there was no Transport Assessment available, the site appears to be occupied and completed therefore we have assumed built out by 2020.

Philbeach House, Tanners Hill, Hythe, Kent

6.2.9 A planning application (Planning Ref. Y15/0720/SH), approved in May 2015, for a residential development of 84 units. The Transport Assessment associated with the planning application anticipated occupation of the site by 2020.

Land Rear Rhodes House, Sellindge, Kent

6.2.10 An outline planning application (Planning Ref. Y16/1122/SH) with consent granted in January 2019 and Reserved matter approval validated in February 2021, for the proposed mixed-use development comprising 162 homes (including affordable, self-build and retirement housing) and up to 929 square metre B1 business floorspace equivalent to 77 jobs (full time). The Transport Assessment accompanying the application forecast development traffic for a future year of 2022.

Remainder of land at Aerodrome, Hawkinge, Kent

6.2.11 A planning application (Planning Ref. Y15/0030/SH), approved in March 2018, for the remaining 176 residential units. Given no information was available regarding years of completion, build out of 76 units was assumed by 2022, with the remaining 100 units completed by 2030.

Nickolls Quarry, Dymchurch Road, Hythe, Kent

6.2.12 A planning application (Planning Ref. Y06/1079/SH), approves in June 2013 and Reserved Matter Approval validated in May 2020, for the mixed-use development comprising 1,050 homes) and up to 15,000 square metre employment floorspace. While the most recent Transport Assessment takes 2014 as the year of full occupation, only a small proportion of the site appears to have been built out thus far, therefore we have assumed full build-out to occur by 2030.

Land Adjacent The Surgery, Sellindge, Kent

6.2.13 Reserved matters approval granted January 2016, for the Hybrid application (Planning Ref. Y14/0873/SH) comprising the redevelopment of land between the A20 and M20 at Sellindge for the construction of 250 homes at the time of undertaking assessment. It was updated from 250 to 240 homes as per HLS update in January 2021. The indicative build programme within the Transport Assessment proposes a full build-out anticipated for 2019/20.

Land at Hurricane Way, Hawkinge, Kent

6.2.14 A planning application (Planning Ref. Y14/0336/SH) for the proposed retirement development comprising 61 cottages and 50 apartments. It has been updated from 111 at the time of undertaking assessment to 121 as per HLS update in January 2021. The development appears to be approximately 65% complete, for the purposes of this assessment a full build-out by 2022 has been assumed. The increase of 10 dwellings at this development is unlikely to make a significant impact to the overall traffic assessment.

Land at Cheesemans Green, Kingsnorth, Kent

6.2.15 A planning application (Planning Ref. 15/01586/AS) for the mixed-use development comprising 1,167 homes and up to 70,000 square metre B1 business floorspace. Under advice from KCC, we have assumed a build-out rate of 50 residential units per year, as well as a proportionate build out of the employment land uses, resulting in full build-out occurring in 2037.

Land at Chilmington Green, Ashford, Kent

6.2.16 A planning application (Planning Ref. 12/00400/AS), approved in January 2017, for the mixed-use development comprising 5,750 homes and up to 10,000 square metre B1 business floorspace. Under advice from KCC, we have assumed a reduced build-out rate compared to that assumed in the Transport Assessment, with full build-out of the development not occurring by 2044, the final assessment year for the Otterpool Park development.

Former Rowcroft and Templer Barracks, Ashford, Kent

6.2.17 A planning application (Planning Ref. 02/01565/AS), approved in October 2007 with Latest Decision Notice issued for S106 sixth deed of variation May 2013, for the mixed-use development comprising 1,250 homes and up to 12,077 square metre employment floorspace, as well as retail, social and educational land uses. The development appears to have been substantially completed, and full build-out has been assumed by 2022.

Waterbrook, Ashford, Kent

6.2.18 A planning application (Planning Ref. 12/00400/AS) for the mixed-use development comprising 400 residential units and up to 24,474 square metre B1 business floorspace, as well as a number of retail and sui generis land uses. Under advice from KCC, we have assumed a reduced build-out rate compared to that assumed in the Transport Assessment, with full build-out of the development occurring by 2030.

Land at Willesborough Lees, Ashford, Kent

6.2.19 Full planning was granted March 2018 (Planning Ref. 16/01722/AS) for a new link road to the rear of William Harvey Hospital from the A20 and 207 homes at the time of undertaking assessment. It received approval since the 2019, with 192 dwellings, located in Ashford. The supporting Transport Assessment included a 2021 future year.

Eureka Park, Ashford, Kent

6.2.20 A proposed development is currently being scoped for planning permission on an allocated local plan site, comprising 375 residential units and significant employment land. Under advice from KCC, we have assumed full build-out to occur by 2030.

Court Lodge Farm, Ashford, Kent

6.2.21 A planning application (Planning Ref. 18/01822/AS) for the mixed-use development comprising 950 homes and new retail and employment land uses. The supporting Transport Assessment assumes full build-out by 2030.

Former Newton Works, Ashford, Kent

6.2.22 A planning application (Planning Ref. 19/01476/AS), granted in September 2020, for the mixed-use development comprising 303 residential units, a hotel including 62 serviced apartments, film and TV studios as well as a range of retail and commercial land uses. The Transport Assessment associated with the planning application indicates full build-out by 2030.

Former Powergen Site, Ashford, Kent

6.2.23 A planning application (Planning Ref. 15/01671/AS) for the residential development comprising 600 residential units as well as associated works. At the time of undertaking assessment, the application proposed 600 dwellings. It received approval since then, with a total of 674 dwellings. While the Transport Assessment considered a final year of 2020 for build-out, works appear to have not been completed, therefore a final build-out year of 2022 has been assumed. The change in dwellings at this development is unlikely to make a significant impact on the overall traffic assessment.

Conningbrook, Willesborough, Kent

6.2.24 A planning application (Planning Ref. 12/01245/AS), approved in October 2014 with Section 106 Agreement signed in December 2016, for the mixed-use development comprising 300 residential units as well as leisure and retail uses. While the Transport Assessment considered a final year of 2017 for build-out, works appear to have not been completed, therefore a final build-out year of 2022 has been assumed.

Plot 1 Hurricane Way, Hawkinge, Kent

6.2.25 A planning application (Planning Ref. Y15/1035/SH), approved in April 2016, for the mixed-use development comprising 47 residential units as well as 1,800 square metres of B1 employment and a food retail unit at the time of undertakiing the assessment. this was updated to 2366 square metres of commercial space (Class B1/B8). This site appears to have been fully built-out by 2019. The change in quantum at this development is unlikely to make a significant impact on the overall traffic assessment.

Land North-East of Willesborough Road, Kennington, Kent

6.2.26 A planning application (Planning Ref. 19/00025/AS) for the mixed-use development comprising 750 residential units as well as 915 square metres of B1 employment a number of other land uses including a primary school at the time of undertaking assessment. It updated to 700 residential units and a Primary school on 40 ha site. The Transport Assessment indicates that full build-out is planned by 2030.

Mountfield Park, South Canterbury

6.2.27 A planning application pending decision was submitted March 2016 for the proposed South Canterbury urban extension, for up to 4,000 homes and 70,000 square metre commercial floorspace which is equivalent to 5,833 jobs (full time), on land north and south of New Dover Road, Canterbury (Planning Ref. CA/16/00600). The supporting Transport Assessment has assessed a 2031 future year assessment, when the development is anticipated to be fully built out and occupied.

Permitted Waste Facility within the proposed development site

6.2.28 There is an existing planning permission for the Permitted Waste Facility (PWF) (planning reference SH/08/124) to be located on the west of the development application site. In the scenario that the permitted waste facility is delivered, a 250m buffer around the permitted waste facility where no Otterpool Park built development would be provided is assumed. This is considered to be a sensible, appropriate buffer to assume in order to ensure that the future Otterpool Park development wouldn't hinder the operation of the waste facility in line with the 'Agent of Change' principle. When a 250m buffer is drawn onto the illustrative masterplan, the resulting impact would be the loss of approximately 800 residential units and a primary school.

6.2.29 The PWF development proposals include:

- A facility that will manage co-mingled recyclable materials from commercial and industrial producers. The enclosed plant will also have the capacity to deal with possible future waste streams from municipal sources;
- An anaerobic digestion (AD) plant that will be in the form of an enclosed building housing waste reception and feedstock preparation areas, with the digestion tank and gas utilisation plant alongside;
- An external maturation pad for storing saleable product from the AD plant; and
- Associated office, mess and weighbridge facilities.

TEMPro Growth Factors

Household and employment forecasts

6.2.30 TEMPro utilises forecast household and employment numbers within local districts to forecast traffic growth on the network on a district-wide basis. To calculate growth between a base assessment year and a future assessment year, the software calculates the forecast increase in the number of homes and jobs between the two years and applies trip rates to determine the corresponding expected increase in trips the increase in the number of homes and jobs would generate. The increase is represented by a growth rate that can be applied to base year traffic flow information to generate the expected future year traffic flows.

6.2.31 Different growth rates are generated for different classes of road and are generated on a district-or regional-wide scale. Thus, this method of forecasting applies uniform growth across a region and does not take into account localised growth that would occur most prominently around the immediate vicinity of where a development is located.

6.2.32 Highways England (now NH) advised that the household and employment figures contained in TEMPro v7.2 are incomplete and should be updated with forecasts consistent with the development requirements of the relevant local authorities in order to reflect anticipated traffic growth.

6.2.33 Following consultation with Kent County Council and Folkestone & Hythe District Council, most recent housing and job forecasts were obtained for the three areas within the assessment study area; Ashford, Folkestone & Hythe and Canterbury. Table 15 presents the forecast information provided for each assessment year.

Table 15 Forecast Household and Job Numbers for Ashford, Folkestone & Hythe and Canterbury by Year

Year	Ashford		Folkstone & Hythe		Canterbury	
	Households	Jobs	Households	Jobs	Households	Jobs
2017	54,023	62,736	52,311	48,530		73,060
2018	54,600	62,783	52,800	48,860	69,700	72,465
2037	73,934	68,806	66,949	55,130	86,756	77,811

Year	Ashford		Folkstone & Hythe		Canterbury	
	Households	Jobs	Households	Jobs	Households	Jobs
2044	80,150	71,186	71,695	57,440	92,356	80,432

Application of the household and employment forecasts within TEMPro

6.2.34 The use of housing and employment forecasts in this way within TEMPro is intended to provide an indication of the likely growth in traffic on the network across the corresponding regions based on the local authorities meeting their housing and job requirements. For Ashford, Folkestone & Hythe and Canterbury, this requires yearly housing completion rates of 967, 718 and 877 houses per year respectively for 28 consecutive years between 2018 and 2044.

6.2.35 These housing and job forecasts include those that will be provided by already committed developments, including the developments described earlier in this section. As described above, this Transport Assessment takes account of the traffic growth forecast for the committed developments by applying the traffic flow volume and routing information available within the relevant planning applications. Inclusion of traffic from those developments in this way removes the need to forecast traffic growth for these developments within TEMPro. The number of houses and jobs provided by these developments, as detailed in the corresponding planning applications, was therefore deducted from the forecasts in Table 15 according to the location of the developments before the totals were input the TEMPro software.

6.2.36 Since the forecasts for Folkestone & Hythe in Table 15 would include growth that is proposed to be delivered by Otterpool Park, the number of houses and jobs that would be provided by Otterpool Park must also be deducted from the Folkestone & Hythe forecasts for any assessment scenario for which traffic generated by Otterpool Park, as described in Chapter 9, is added. This is the case for all DS scenarios.

6.2.37 For the DM scenarios, it could be assumed that if Otterpool Park did not take place, there would still be corresponding growth in the region, but in yet unspecified sites. By this method, the number of houses and jobs provided by Otterpool Park would not be deducted from the DM scenarios. This means that different TEMPro growth rates would be required for the DM and DS scenarios.

6.2.38 As described in Chapter 5, the Otterpool Park development proposals include significant provision for sustainable travel and sustainable living, with the result that less travel outside of the site on existing transport networks is expected compared to smaller developments that are not able to provide the on-site level of services and infrastructure that is necessary to minimise external travel. It is therefore a fair assumption that Otterpool Park would have a lower external trip rate than these types of small developments.

6.2.39 As a result of the above, and the significant number of homes and jobs proposed for Otterpool Park, the result would be that a significantly lower growth rate would be applied to the DS scenario than to the DM to calculate future baseline traffic flows for each scenario. In the 2037 assessment year, growth factors for the Folkestone & Hythe area would be around 10% greater in the DM case compared to the DS. For the 2044 and assessment year, the DM growth rate would be around 15% greater than for the DS scenario.

6.2.40 Since the assumptions regarding travel for housing and jobs in TEMPro is closer to that which would be expected for the smaller, less sustainable developments than for Otterpool Park, the effect on a region-wide basis in which TEMPro considers traffic growth is likely to be that the DM scenario would have a greater total number of trips on the highway network than the DS scenario once Otterpool Park development traffic is added to the DS scenario.

6.2.41 As the highway impact in this Transport Assessment is undertaken at a local level, the effect this would have on the modelling results should be considered. As mentioned previously, TEMPro applies a uniform growth rate across a region. The assumptions for traffic growth generated by Otterpool Park assume a routing pattern in which growth is greatest in the immediate vicinity of the site at the local access points and less at a distance from the site as traffic dissipates across the network. The effect

on traffic growth in the DM and DS scenarios is therefore likely to be that traffic growth in the area around the Otterpool Park site would be greater in the DS scenario, but traffic growth further from the site, for example in Folkestone, can be expected to be greater in the DM scenario.

6.2.42 There is logic to using a method of forecasting traffic growth that deducts the number of Otterpool Park homes and jobs from TEMPro forecasts for the DS case but not for the DM. This would be applied in order to reflect the unique opportunity the creation of a large garden settlement on the proposed site would have on sustainable growth within Folkestone & Hythe. However, since the emerging Core Strategy for Folkestone & Hythe suggests that alternative sites to Otterpool Park for the provision of such a large number of homes and jobs are limited, it is perhaps more pertinent to consider a DM scenario where Otterpool Park is not developed and the achievable forecast for housing and jobs in the district is reduced. This enables a clear assessment to be undertaken of the impact of Otterpool Park on the surrounding network.

6.2.43 For the purposes of this assessment therefore, the homes and jobs that would be provided by the Otterpool Park development have been deducted when generating baseline traffic growth rates for both the DS and DM scenarios. This means that comparison between the results of DM and DS capacity testing would show an absolute worst case in terms of any increases in highway network delay and queuing in the DS scenario and that the DM scenario results would under-estimate network impacts without Otterpool Park if the housing and job forecasts for Folkestone & Hythe shown in Table 15 are met without Otterpool Park.

6.2.44 Clarifications on the above were provided to Highways England (now NH) when described in the 2019 TA, and can be found in Appendix L.

TEMPro growth rates used in the assessment

6.2.45 TEMPro growth factors have been derived for the following highway capacity modelling purposes:

- **'**All-purpose origin/ destination' factors to be applied to traffic within Ashford and Folkestone & Hythe;
- 'Rural Motorway' factors to represent forecast traffic growth on the M20 within Ashford and Folkestone & Hythe, utilising the NTEM (v7.2) datasets; and
- **'**All road types' factors using the NTEM (v7.2) dataset for traffic in the geographic area of Canterbury.

6.2.46 Table 16 presents the peak period all-purpose growth factors by origin/ destination, applied to the VISUM modelling area, including the operational modelling, for the Ashford and Folkestone & Hythe regions respectively.

Table 16 TEMPro All Purpose Growth factors (Origin/ Destination) for Ashford and Folkestone & Hythe

Period	TEMPro Growth Factors							
	Ashford				Folkestone & Hythe			
	AM Peak		PM Peak		AM Peak		PM Peak	
	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination
2017 to 2018	1.0095	1.0087	1.0085	1.0092	1.0114	1.0141	1.0132	1.0115
2017 to 2037	1.1376	1.1077	1.1185	1.1405	1.0383	1.0903	1.0831	1.0510
2017 to 2044	1.2136	1.1760	1.1862	1.2139	1.0766	1.1066	1.1028	1.0857

Period	TEMPro Growth Factors							
	Ashford				Folkestone & Hythe			
	AM Peak		PM Peak		AM Peak		PM Peak	
	Origin	Destination	Origin	Destination	Origin	Destination	Origin	Destination
(8,500 homes)								
2017 to 2044 (10,000 homes)	1.2136	1.1760	1.1862	1.2139	1.0522	1.0947	1.0876	1.0622

6.2.47 Table 17 sets out the calculated growth factors focused on rural motorways within the geographic areas of Ashford and Folkestone & Hythe, which have been selected to represent the M20 links within the modelling area.

Table 17 Forecast TEMPro Growth factors (Rural Motorway) for Ashford and Folkestone & Hythe

Period	TEMPro Growth Factors			
	Ashford		Folkstone & Hythe	
	AM Peak	PM Peak	AM Peak	PM Peak
2017 to 2018	1.0127	1.0125	1.0164	1.0125
2017 to 2037	1.1994	1.2068	1.1371	1.1400
2017 to 2044 (8,500 homes)	1.2885	1.2942	1.1772	1.1801
2017 to 2044 (10,000 homes)	1.2885	1.2942	1.1577	1.1592

6.2.48 Table 18 presents the growth factors used for the Canterbury junction capacity assessment.

Table 18 Forecast TEMPro Growth factors (All Road Types) for Canterbury

Period	Canterbury	
	AM Peak	PM Peak
2018 to 2037	1.1372	1.1438
2018 to 2044	1.2051	1.2098

6.2.49 At the Old Dover Road / St Lawrence Road / The Drive junction in Canterbury, no growth was applied to The Drive, as agreed with Kent County Council. This is because The Drive is a 'no through' road serving a residential cul-de-sac which is not expected to experience further growth.

Freight on the M20

6.2.50 The Department for Transport recommends the method for determining the growth in HGV traffic is to use the Road Traffic Forecasts 2018 (RTF18).

6.2.51 Based on RTF18, the growth factors were calculated and applied to the base year model, these are shown in Table 19.

Table 19 HGV Traffic Growth Factors applied to Base Year Model

Year	Motorway	Non-Motorway
2017	1.000	1.000
2018	1.005	1.0005
2024	1.033	1.012
2030	1.064	1.034
2037	1.122	1.071
2039	1.139	1.083
2044	1.180	1.111

Forecast Flows on Key Roads

6.2.52 Table 20 to Table 22 present the forecast traffic flows without Otterpool Park development on a number of key roads within the study area that result from the forecasting method described in this chapter.

Table 20 2037 Forecast Traffic Flows on Key Roads without Otterpool Park Development

Link Name	Number of Vehicles					
	AM Peak Hour			PM Peak Hour		
	Nb / Eb	Sb / Wb	2-Way	Nb / Eb	Sb / Wb	2-Way
B2067 Otterpool Lane	261	270	**531**	388	151	**539**
A20 Ashford Road b/w Otterpool Lane & Newingreen	320	392	**712**	471	351	**822**
old A20 Ashford Road at Newingreen	303	490	**793**	497	373	**870**
A20 Ashford Road b/w Newingreen & M20	804	777	**1,581**	789	939	**1,728**
A20 Ashford Road at Barrow Hill	469	400	**869**	486	390	**876**
Aldington Road b/w Otterpool Lane & Stone Street	121	165	**286**	171	106	**277**
Stone Street	329	123	**452**	76	197	**273**
B2067 Aldington Road west of Otterpool Lane	173	125	**298**	123	106	**229**
Lympne Hill	261	141	**402**	102	276	**378**
B2068 Stone Street	329	123	**452**	76	197	**273**
M20 east of J11	2,762	2,593	**5,355**	2,592	3,027	**5,619**
M20 west of J11	2,766	2,624	**5,390**	2,428	3,163	**5,591**
Cheriton Road	679	376	**1,055**	683	391	**1,074**
A261 Hythe Road	345	369	**714**	534	348	**882**
A259 Military Road	1,206	-	**1,206**	1,113	-	**1,113**
A259 Prospect Road	939	542	**1,481**	872	806	**1,678**
Swan Lane	113	153	**266**	206	114	**320**
A20 Hythe Road west of Swan Lane	527	356	**883**	418	453	**871**
A2070 Kennington Road	864	471	**1,335**	493	742	**1,235**
A262 Hythe Road	440	419	**859**	686	481	**1,167**
A260 Spitfire Way	657	1,128	**1,785**	1,152	753	**1,905**
A260 Canterbury Road	506	1,721	**2,227**	873	1,377	**2,250**
Alkham Valley Road	1,170	229	**1,399**	1,174	116	**1,290**
Nackington Road	594	413	**1,008**	359	584	**942**
Old Dover Road	676	357	**1,032**	316	601	**917**

Table 21 2044 Forecast Traffic Flows on Key Roads without Otterpool Park Development

Link Name	Number of Vehicles					
	AM Peak Hour			PM Peak Hour		
	Nb / Eb	Sb / Wb	2-Way	Nb / Eb	Sb / Wb	2-Way
B2067 Otterpool Lane	267	264	**531**	351	149	**500**
A20 Ashford Road b/w Otterpool Lane & Newingreen	321	416	**737**	473	375	**848**
old A20 Ashford Road at Newingreen	307	516	**823**	510	410	**920**
A20 Ashford Road b/w Newingreen & M20	850	779	**1,629**	808	1,003	**1,811**
A20 Ashford Road at Barrow Hill	497	393	**890**	485	402	**887**
Aldington Road b/w Otterpool Lane & Stone Street	116	164	**280**	179	82	**261**
Stone Street	345	126	**471**	111	210	**321**
B2067 Aldington Road west of Otterpool Lane	177	125	**302**	123	108	**231**
Lympne Hill	266	140	**406**	102	282	**384**
B2068 Stone Street	345	126	**471**	111	210	**321**
M20 east of J11	2,939	2,569	**5,508**	2,601	3,181	**5,782**
M20 west of J11	3,002	2,575	**5,577**	2,415	3,374	**5,789**
Cheriton Road	692	381	**1,073**	699	418	**1,117**
A261 Hythe Road	332	406	**738**	570	342	**912**
A259 Military Road	1,192	-	**1,192**	1,144	-	**1,144**
A259 Prospect Road	933	556	**1,489**	890	805	**1,695**
Swan Lane	112	157	**269**	210	114	**324**
A20 Hythe Road west of Swan Lane	561	346	**907**	415	471	**886**
A2070 Kennington Road	921	488	**1,409**	511	785	**1,296**
A262 Hythe Road	468	432	**900**	710	508	**1,218**
A260 Spitfire Way	653	1,153	**1,806**	1,175	752	**1,927**
A260 Canterbury Road	511	1,748	**2,259**	874	1,394	**2,268**
Alkham Valley Road	1,206	220	**1,426**	1,179	119	**1,298**
Nackington Road	619	431	**1,050**	373	607	**981**
Old Dover Road	703	371	**1,073**	327	624	**951**

Table 22 2044 10k Forecast Traffic Flows on Key Roads without Otterpool Park Development

Link Name	Number of Vehicles					
	AM Peak Hour			PM Peak Hour		
	Nb / Eb	Sb / Wb	2-Way	Nb / Eb	Sb / Wb	2-Way
B2067 Otterpool Lane	263	267	**530**	355	147	**502**
A20 Ashford Road b/w Otterpool Lane & Newingreen	325	418	**743**	483	380	**863**
old A20 Ashford Road at Newingreen	310	519	**829**	520	415	**935**
A20 Ashford Road b/w Newingreen & M20	857	791	**1,648**	818	1,007	**1,825**
A20 Ashford Road at Barrow Hill	493	399	**892**	491	408	**899**
Aldington Road b/w Otterpool Lane & Stone Street	117	160	**277**	177	83	**260**
Stone Street	351	128	**479**	112	214	**326**
B2067 Aldington Road west of Otterpool Lane	178	126	**304**	124	109	**233**
Lympne Hill	268	142	**410**	103	283	**386**
B2068 Stone Street	351	128	**479**	112	214	**326**
M20 east of J11	2,954	2,619	**5,573**	2,641	3,204	**5,845**
M20 west of J11	3,013	2,635	**5,648**	2,460	3,388	**5,848**
Cheriton Road	705	384	**1,089**	702	424	**1,126**
A261 Hythe Road	339	404	**743**	569	344	**913**
A259 Military Road	1,207	-	**1,207**	1,148	-	**1,148**
A259 Prospect Road	943	558	**1,501**	894	812	**1,706**
Swan Lane	113	158	**271**	211	115	**326**
A20 Hythe Road west of Swan Lane	556	352	**908**	421	476	**897**
A2070 Kennington Road	930	496	**1,426**	517	792	**1,309**
A262 Hythe Road	472	439	**911**	719	513	**1,232**
A260 Spitfire Way	661	1,159	**1,820**	1,180	759	**1,939**
A260 Canterbury Road	514	1,762	**2,276**	880	1,405	**2,285**
Alkham Valley Road	1,211	222	**1,433**	1,189	116	**1,305**
Nackington Road	627	436	**1,063**	378	615	**993**
Old Dover Road	711	375	**1,086**	331	631	**962**

6.3 Committed Highway Schemes

6.3.1 The following committed transport infrastructure/improvement schemes have been taken into account in the DM and DS road network for the assessment:

- Recent M20 Junction 10A and associated changes to the surrounding road network, including M20 Junction 10;
- New signalised site access junction on A20 Hythe Road for Willesborough Lees development;
- Traffic calming proposals and new site access points through Sellindge Village proposed for the Sellindge residential development;
- Adjustments to the flare length on the A261 Hythe Road at the junction with A20 Ashford Road required for the Land East of Ashford Road development;
- A2034 Cheriton Road/ A20 Cherry Garden Avenue junction and link proposals for the Folkestone Seafront masterplan; and
- Nackington Road/ Old Dover Road and Old Dover Road/ St Lawrence Road/ The Drive proposals for the Mountfield Park development.

6.3.2 An overview of these scheme is provided in the subsequent sections. Further information is provided in Appendix M.

New signalised site access junction on A20 Hythe Road

6.3.3 The Willesborough Lees development proposals (Planning Ref. 16/01722/AS) include provision for a new signalised site access junction on the A20 Hythe Road, located opposite the Tesco service access.

6.3.4 The signalised junction arrangement includes the following design measures:

- A single eastbound carriageway approach for left turning and ahead traffic (3.0m lane width);
- A single westbound carriageway approach with a three PCU right turn storage area to the Tesco service yard and Summer Hill House access (3.5m lane widths);
- A single site access approach with 10 PCU left turn flare (3.5m lane widths); and
- A pedestrian crossing on the western arm of the junction only.

6.3.5 The Transport Assessment report associated with the development application noted that there is also the opportunity for the provision of queue detection loops at the junction arrangement, which would place a hurry call or a stage extension to manage the queue on the eastern approach and afford more protection in the event that occasional queuing extends for the full distance between the stop line and the Tesco roundabout. However, this would be infrequent and only impact the development access arm.

Sellindge Village traffic calming proposals and new site accesses

6.3.6 A number of traffic calming measures have been illustrated within the ‘Site South of A20’ development supporting Transport Assessment, which includes the following improvements to the A20 in Sellindge:

- Narrowing of the carriageway to the specified minimum width of 6.1m;
- Improving footway and crossing facilities;
- Clearly defined parking facilities along A20 Ashford Road;
- Widening footways and the provision of segregates pedestrian/ cycleway between Swan Lane and Primary School; and
- Provision of 30mph gateway to reduce vehicle speeds.

Ashford Road / A261 Hythe Road / Stone Street junction (Newingreen junction)

Committed Scheme

6.3.7 A Technical Note was prepared following post application discussions with Kent County Council in relation to the Land East of Ashford Road (A20) development (Planning Ref. Y16/1122/SH). This considered amendments to the junction mitigation set out in accompanying Transport Assessment.

6.3.8 The proposed amendment to the junction includes extension of the flare length of A261 Hythe Road by realigning the southern kerb edge.

Alternative Schemes

6.3.9 The original Transport Assessment (September 2016) accompanying the Land East of Ashford Road (A20) application (Planning Ref. Y16/1122/SH) concluded that mitigation was required to accommodate the additional development flows. It proposed the redesign of the existing priority layout to a signalised junction arrangement. However, this scheme was subsequently rejected by Kent County Council for the following main reasons:

- The geometry was insufficient to accommodate the abnormal load vehicles used by businesses at Link Park at the southern end of Otterpool Lane;
- It did not provide sufficient capacity to accommodate future traffic growth; and
- Insufficient monetary contributions were available to fund the scheme.

6.3.10 In addition, it is also understood that Kent County Council has considered a further signalised scheme taking account of the issues raised above, to improve the performance of this junction. Enhancement features include:

- Full signalisation of the junction;
- Widening on Stone Street to provide two entry lanes and one exit lane;
- Utilisation of the existing central reservation on A20 Ashford Road southbound arm to provide three entry arms and two exit arms; and
- Widening on Hythe Road.

6.3.11 The scheme is not currently programmed for implementation due to insufficient funds.

A2034 Cheriton Road / A20 Cherry Garden Avenue junction

6.3.12 The Folkestone Seafront development's (Planning Ref.Y12/0897/SH) accompanying S106 Agreement, sets out a package of committed highway measures on A2034 Cheriton Road arm (east). The proposed measures include:

- Removal of the existing pedestrian crossing and extension of right turning lane into Cherry Garden Avenue to improve straight-on movements; and
- Improvements to The Harvey Grammar School access arrangement through implementation of a one-way system with separate entry and exit points and removal of
- The existing hatching and replace with an extended right turning lane; and the existing hatching and replace with an extended right turning lane.

Nackington Road / Old Dover Road and Old Dover Road / St Lawrence Road / The Drive

6.3.13 The Mountfield Park South Canterbury Transport Assessment (Planning Ref. CA/16/00600) sets out a package of proposed junction improvements to Old Dover Road junctions with Nackington Road and St Lawrence Road to increase capacity.

6.3.14 The proposed capacity improvements to increase operational capacity include:

- The provision of a right turn facility from Old Dover Road in St Lawrence Road, mirroring that provided from Old Dover Road into Nackington Road in the opposite direction. The right turn would remove the obstruction caused by vehicles wishing to turn right into St Lawrence;
- Proposed changes to the signal phasing, with The Drive and St Lawrence Road proposed to operate within the same stage as opposing arms;
- Removal of existing on-street parking bays (13 spaces) along the northern extent of Old Dover Road; and
- Realignment of the existing kerb-line to allow a left turn out of Nackington Road to be phased at the same time as the right turn into Nackington Road.

6.4 Folkestone and Hythe District Council Core Strategy

6.4.1 As mentioned in Chapter 2.4, the Folkestone and Hythe District Council Core Strategy Review Local Plan was submitted in March 2020 and Examination Hearings were completed in July 2021. The Planning Inspectors have issued a letter dated 16 July 2021 to state that they

"We are now able to identify the main modifications which we consider are necessary to make the submitted Core Strategy Review sound."

6.4.2 The Core Strategy proposes policies that include the Otterpool Park development as a garden settlement within the North Downs character area.

6.4.3 A Monitor and Manage Framework is proposed as part of the Core Strategy to provide mitigation for the Strategic Road Network. This approach is assumed for this TA.

6.4.4 Separate traffic modelling assessments have been undertaken for the Core Scenario for Folkestone and Hythe District Council to review the future traffic effects of the Core Strategy. The Core Strategy assessment identifies key locations where mitigation is required and also the possible mitigation options.

6.4.5 The traffic assessment undertaken in this TA however does not take into account the Core Strategy assessments and has been carried out independently as:

- The Core Strategy has yet to be adopted
- The Core Strategy assessment was not complete by the time the Otterpool Park assessment commenced
- The Core Strategy assumptions for the Otterpool Park development would not be the same as those used in this TA, as this was not complete at the time.

6.4.6 A Matter 7 Statement dated 18 June 2021, for the Folkestone and Hythe Core Strategy Review was submitted for the Examination in Public on behalf of Otterpool Park LLP. This statement demonstrates that the estimated driver trips assessed in the AM and PM peak hour for the Core Strategy Review is a worst case compared to this TA.

7 Development Trip Generation – Worst Case Assumptions

7.1 Introduction

7.1.1 Discussions relating to the method of calculating trip generation were initially held with Kent County Council, Folkestone & Hythe District Council and Highways England (now NH) between April 2017 and March 2018. Following the submission of the outline planning application in 2019, further comments relating to the trip generation method were received. On 10th February 2020, a meeting was held with Kent County Council and Folkestone & Hythe District Council to agree how to resolve these comments raised.

7.1.2 This Chapter provides an overview of the agreed method and a summary of the number of trips expected to be generated by each land use for each assessment scenario. The trip generation method technical note[7] in Appendix N documents the discussions and describes the agreed method in detail. Please note that the tables presented in this chapter may vary slightly compared to those reported in Appendix N, this is owing to minor amendments to the development quantum since the production of the Technical Note, however the principles and methodology set out remain unchanged.

This agreed method uses the traditional approach reflective of the 'predict and provide' methodology derived from historic trip rate patterns. This approach is based on various sources of data including 2011 Census, TRICS surveys and the National Travel Survey. As the data is up to 10 years old and does not consider any step changes to the derived mode shares of the latest travel patterns and sustainable travel choices to be promoted by the development, the trips generated via this methodology is considered a worst case for car trips.

7.2 Overview of Methodology

Trips by Land Use

7.2.1 The objective for the development is that the site will provide a sufficient scale and range of services that will meet the demands of the local population such that the need to travel long distances by non-sustainable modes of transport will be minimised. It is also anticipated that the services provided will not be of a type that will attract significant trips from people living external to Otterpool Park. The development quantum has therefore been optimised to match on-site supply to on-site demand such that the number of external trips should be minimised.

7.2.2 By this definition, the majority of trips generated by the Retail/ commercial and Community services land uses are expected to originate from the on-site Residential land uses. Along with the employment land use, the residential land use is therefore expected to be the main driver for trip generation. Trip rates for the employment and residential land uses were calculated by deriving trip rates from comparator sites within the TRICS 7.7.1 database.

7.2.3 Since the majority of trips generated by the retail and community land uses are expected to originate from on-site residential land uses, the number of trips generated by the retail and community land uses were calculated by considering the demand for these land uses generated by the on-site Residential land uses. To achieve this, the on-site Residential land use trip generation was disaggregated by trip purpose and each purpose was assigned to an associated land use, e.g., shopping trips were assigned to retail land use, education trips were assigned to education land uses.

7.2.4 This 'internal' demand for retail and community land uses was uplifted by a suitable percentage to account for a small number of trips made to these land uses from outside Otterpool Park (external

[7] Otterpool Park Trip Generation Calculation Method Technical Note (Arcadis, 2020)

trips). This percentage was derived by considering the likely ratio of internal to external trips the land use would generate based on the propensity of each land use to attract trips from off-site locations compared to on-site locations, e.g., for the education land uses, the ratio was derived from the proportion of school spaces likely to be filled by on-site residents compared to the number filled by off-site residents.

7.2.5 Trip rates for all land uses were derived for the local AM and PM peak hours, which have been found to be 8-9am and 5-6pm based on local traffic count data, as described in Chapter 3.

Trip Rates by Land Use

7.2.6 As described previously, the trip generation technical note contained within Appendix N describes the method used to derive the number of all-mode trips generated by the different land uses proposed for the site. Table 23 below presents the AM and PM peak trip rates that result from these trip generation methods. Trip rates are per 100m2 gross internal floor areas except for Extra Care and Residential, which are trip rates per unit. It should be noted that trip rates for Retail, Business, Café/Restaurant, Pub/Takeaway and Education land uses are calculated based on demand and are independent of floor area.

Table 23 All-mode Trip Rates by Land Use

Land Use	AM Peak			PM Peak		
	Arrivals	Departures	Total	Arrivals	Departures	Total
Residential	0.19	0.74	**0.93**	0.59	0.31	**0.90**
Extra Care Housing	0.12	0.13	**0.25**	0.09	0.25	**0.33**
Hotel	0.41	1.07	**1.48**	0.99	0.50	**1.49**
Commercial business in hubs	2.40	0.21	**2.61**	0.17	1.99	**2.17**
Commercial business park	2.75	0.24	**2.98**	0.20	2.28	**2.47**
Light Industrial business park	1.14	0.10	**1.24**	0.08	0.95	**1.03**
Retail	4.22	1.13	**5.35**	4.28	6.73	**11.01**
Business	3.76	0.89	**4.65**	3.40	5.60	**9.00**
Café / Restaurant						
Pub / Takeaway						
Secondary schools	4.03	1.31	**5.34**	0.18	0.52	**0.71**
Primary School	7.21	2.34	**9.55**	0.31	0.95	**1.31**
Nursery	9.60	2.70	**12.30**	0.59	2.53	**3.13**
Community Centre	0.35	0.05	**0.39**	0.24	0.47	**0.71**
Health	1.67	0.34	**2.01**	0.71	1.71	**2.42**

Land Use	AM Peak			PM Peak		
	Arrivals	Departures	Total	Arrivals	Departures	Total
Sports pavilion	1.65	0.19	**1.84**	0.79	2.13	**2.92**
Indoor sports hall						

Trip Rate Reductions

7.2.7 Some of the trips assigned to different land uses will be made by a single person in a single journey as part of a chain of linked trips. For example, a person may leave home and make a trip to the health centre before going to work and then make a trip to the shops after leaving work before arriving home. Using the method described above, each visit to the four land uses – home, the health centre, work and retail – would generate 1 arrival and 1 departure trip for each land use, thus registering a total of 8 one-way trips. However, as each visit is made as part of a chain of linked trips, the actual number of one-way trips made would be 4. When considering the number of trips made by people living externally to the site, this would have the effect of over estimating the number of external trips as some trips would be made internally as linked trips.

7.2.8 In addition, some of the trips originating from external locations are likely to already be present on the transport networks and will in future be transferred to the Otterpool Park site. These trips would have the effect of over estimating the number of external trips if they were counted as new trips on the networks. These trips must therefore be discounted from the trip generation before an impact assessment is undertaken.

7.2.9 The level of trip reduction applied was determined using linked trip information from National Travel Survey (NTS) data, which considers what is the next trip purpose for a traveller having completed their main trip purpose. If the next trip purpose is to travel home, then the trip is not considered to be linked to other trips. To calculate the trip reductions that this data suggests is applicable, we have considered what trip reduction is applicable to other trip purposes for each main trip purpose. For example, the NTS data suggests that 5% of all trips where the main trip purpose is Commuting / Business includes a linked Shopping trip. The number of Shopping trips linked to Commuting trips is therefore equal to 5% of the total number of Commuting trips. A reduction in Shopping trips to the value of 5% of the total number of Commuting trips is therefore applicable.

7.2.10 This calculation was applied to all trip purposes to derive the applicable trip reduction numbers for each trip purpose. Since the percentage trip reduction for each trip purpose is influenced by the type and scale of land use provision, and since the scale of land use provision varies in each assessment year, the trip reductions for each assessment year also vary.

7.2.11 Table 24 below details the linked trip reductions applied to incoming external trips by purpose. The high reductions for Shopping, Leisure and Personal business trips reflect the fact that these land uses are not expected to attract trips from off-site locations for the sole purpose of those land uses.

Table 24 Linked Trip Reductions applied to Incoming External Trips by Purpose

Trip Purpose	AM Peak			PM Peak		
	Arrivals	Departures	Combined	Arrivals	Departures	Combined
Commuting	16%	36%	**18%**	23%	11%	**12%**
Education	8%	7%	**8%**	100%	49%	**55%**
Education escort	22%	14%	**20%**	100%	100%	**100%**
Shopping	100%	100%	**100%**	100%	100%	**100%**
Leisure	100%	56%	**100%**	54%	100%	**100%**
Personal Business	100%	100%	**100%**	27%	100%	**72%**
Other escort	100%	100%	**100%**	0%	100%	**100%**
TOTAL	**15%**	**25%**	**17%**	**36%**	**15%**	**21%**

7.3 Trip Generation by Land Use

7.3.1 Table 25 to Table Table 27 present the total all-mode trip generation by land use for the three assessment years.

Table 25 Total All-Mode Trip Generation by Land Use (2037)

Land Use	Total Trips (All Modes)					
	AM Peak Hour			PM Peak Hour		
	Arr	Dep	Total	Arr	Dep	Total
Residential	363	1,680	2,043	1,538	722	2,259
Extra Care Housing	56	16	72	11	63	73
Hotel	16	41	57	39	16	55
Commercial business in hubs	207	10	216	13	213	226
Commercial business park	265	12	278	16	273	290
Light Industrial business park	152	7	159	5	84	89
Retail	296	58	355	373	618	991
Business	208	38	246	218	369	587
Café / Restaurant						
Pub / Takeaway						
Secondary schools	371	121	492	13	34	47
Primary School	1,149	376	1,525	24	103	127
Nursery	259	74	333	8	56	64
Community Centre	12	0	12	0	12	12

Land Use	Total Trips (All Modes)					
	AM Peak Hour			PM Peak Hour		
	Arr	Dep	Total	Arr	Dep	Total
Health	54	8	61	24	64	88
Sports pavilion	10	0	10	1	14	16
Indoor sports hall						
Total	**3,417**	**2,442**	**5,859**	**2,284**	**2,641**	**4,925**

Table 26 Total All-Mode Trip Generation by Land Use (2044 8.5k)

Land Use	Total Trips (All Modes)					
	AM Peak Hour			PM Peak Hour		
	Arr	Dep	Total	Arr	Dep	Total
Residential	488	2,286	2,773	2,109	983	3,092
Extra Care Housing	109	32	141	22	123	144
Hotel	15	32	48	31	16	47
Commercial business in hubs	211	13	224	15	214	228
Commercial business park	877	54	930	61	886	947
Light Industrial business park	381	23	404	15	217	232
Retail	353	80	433	511	789	1,301
Business	247	51	297	298	465	763
Café / Restaurant						
Pub / Takeaway						
Secondary schools	726	241	967	19	65	83
Primary School	1,331	441	1,772	33	121	153
Nursery	344	98	442	10	74	85
Community Centre	13	0	13	0	13	13
Health	64	11	75	33	78	110
Sports pavilion	13	0	14	2	20	22
Indoor sports hall						
Total	**5,172**	**3,361**	**8,533**	**3,158**	**4,063**	**7,221**

Table 27 Total All-Mode Trip Generation by Land Use (2044 10k)

Land Use	Total Trips (All Modes)					
	AM Peak Hour			PM Peak Hour		
	Arr	Dep	Total	Arr	Dep	Total
Residential	539	2,496	3,036	2,301	1,087	3,387
Extra Care Housing	213	63	276	43	244	287
Hotel	15	31	46	30	15	45
Commercial business in hubs	210	13	223	14	213	228
Commercial business park	872	53	925	60	884	944
Light Industrial business park	379	23	402	15	217	231
Retail	386	89	475	578	865	1,443
Business	261	56	317	334	503	837
Café / Restaurant						
Pub / Takeaway						
Secondary schools	728	240	968	20	66	86
Primary School	1,514	502	2,016	36	137	173
Nursery	370	106	476	11	80	91
Community Centre	12	0	12	0	13	13
Health	67	11	78	36	82	118
Sports pavilion	13	0	13	2	21	22
Indoor sports hall						
Total	**5,579**	**3,685**	**9,263**	**3,480**	**4,425**	**7,906**

7.4 Construction Vehicles Trip Generation

7.4.1 The construction trips generated by the development have been estimated based on the Illustrative Accommodation Schedule (ES Appendix 4.4). Although the specific development build out sequence is currently undetermined, this schedule provides an indicative plan.

7.4.2 From the yearly phases schedule for each of the assessment years, the estimated annual number of HGVs generated by the development has been determined based on assumed waste generated and materials required. This estimation assumes that each HGV has a capacity of 6.1m3.

7.4.3 The daily number of HGVs generated by the site is determined based on the assumption of 252 working days in the year. As a worst case, it is assumed that between 20% and 25% of the daily HGV trips will occur during the AM and PM peak hours. The resulting HGVs trips considered for the VISUM modelling are summarised in Table 28. It has been assumed that the HGVs will be using the M20 to arrive and depart the development site, with a 50% split between the west and east direction.

Table 28 Development Construction Vehicle Trips

Year	Number of HGVs			
	Total Annual	Average Daily	Average Peak Hour	Movements
2037	17,765	71	21	42
2044 (8.5k)	818	4	1	2
2044 (10k)	1,738	7	1	2

7.5 Trip Generation Summary

7.5.1 Table 29 presents a summary of the total, internal and external all-mode trip generation for each assessment year.

Table 29 Summary of Trip Generation by Assessment Year

Assessment Year	Total Trips (All Modes)					
	AM Peak Hour			PM Peak Hour		
	Total	External	Internal	Total	External	Internal
2037	5,859	3,531	2,328	4,925	3,102	1,822
2044 (8.5k)	8,533	5,380	3,154	7,221	4,746	2,475
2044 (10k)	9,263	5,745	3,518	7,906	5,112	2,793

8 Development Trips by Mode – Worst Case Assumptions

8.1 Introduction

8.1.1 This Chapter describes how mode split information has been applied to the trip generation in Chapter 7 to calculate trip generation by mode.

8.1.2 The method used has required separate mode splits to be derived for internal and external trips as well as for each trip purpose, in acknowledgement that people are likely to travel using different modes for different trip purposes.

8.1.3 Appendix O contains a technical note[8] describing the method of derivation of the mode splits in detail. The method described was initially agreed with Kent County Council, Folkestone & Hythe District Council and Highways England (now NH) during discussions held between May 2017 and November 2017. Further comments relating to the derivation of mode splits were received following the submission of the outline planning application in 2019 and subsequent updates to the method of derivation have been made to incorporate these.

8.1.4 As mentioned previously, the approach to this Transport Assessment uses the traditional 'predict and provide' methodology and results in a worst case scenario for car trips as it is based on historical trip data that does not take into account step changes to the latest travel patterns and sustainable travel choices promoted by the development.

8.2 Overview of Methodology

8.2.1 A summary of the method is presented below:

Work Related Trips:

a) The mode split for work related trips is based on Census 2011 travel to work data for Shepway (the mid-layer Super Output Area (SOA) that represents the district of Folkestone & Hythe);

b) For internal trips: Census travel to work data for trips made over distances up to 2km has been used. The distance of 2km is the shortest distance for which mode split information is presented within Census data. It is also approximately the distance from the centre of the Otterpool Park site to the nearest settlements outside the site boundary. It is therefore assumed that trips made up to 2km in distance are likely to be internal to the site, while trips that are over 2km in distance would be external to the site;

c) For external trips: Census travel to work data for trips made over distances greater than 2km was used.

Non-Work Related Trips:

a) Non-work related mode splits from the National Travel Survey (NTS) were used;

b) The national average mode splits provided by the NTS were adjusted to reflect travel conditions in Folkestone & Hythe by considering the difference between the Census 2011 travel to work mode split for Folkestone & Hythe and the NTS Commuter mode split. An 'NTS to Census' adjustment factor was derived and applied to the NTS mode splits;

c) For internal trips: the adjustment factor was derived using Census travel to work data for trips made over distances up to 2km;

[8] Otterpool Park Method for deriving Mode Splits (October 2018)

d) For external Education trips: Census travel to work data for trips made over distances between 2km and 10km was used to derive the adjustment factor. Up to 10km is expected to represent the maximum distance most people are likely to travel for education purposes;

e) For all other external trips: Census travel to work data for trips made over distances greater than 2km was used to derive the adjustment factor.

8.3 Internal and External Trip Mode Splits by Trip Purpose

8.3.1 Table 30 and Table 31 present the mode splits by trip purpose for internal and external trips respectively used in this assessment, derived from the Census and NTS data as described in the technical note in Appendix O.

Table 30 Mode Splits by Trip Purpose for Internal Trips

Period	Mode Split					
	Commuting	Education	Shopping	Personal Business	Leisure	Education escort
Driver	24%	5%	10%	21%	9%	5%
Passenger	3%	2%	7%	13%	9%	2%
Taxi	0%	0%	0%	0%	0%	0%
Motorcycle	1%	0%	0%	0%	0%	0%
Train	0%	0%	0%	0%	0%	0%
Bus / Minibus / Coach	5%	2%	3%	2%	3%	2%
Light Rail	0%	0%	0%	0%	0%	0%
Bicycle	11%	3%	3%	2%	5%	3%
Walk	56%	87%	76%	62%	75%	87%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Table 31 Mode Splits by Trip Purpose for External Trips

Period	Mode Split					
	Commuting	Education	Shopping	Personal Business	Leisure	Education escort
Driver	78%	50%	62%	69%	53%	50%
Passenger	6%	17%	23%	26%	32%	17%
Taxi	0%	0%	0%	0%	0%	0%
Motorcycle	1%	1%	1%	0%	1%	1%
Train	4%	1%	1%	0%	1%	1%
Bus / Minibus / Coach	5%	10%	6%	2%	5%	10%
Light Rail	0%	0%	0%	0%	0%	0%
Bicycle	2%	3%	1%	0%	1%	3%
Walk	3%	18%	7%	3%	7%	18%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

8.4 Allocation of Mode Splits

8.4.1 In Chapter 7 we described how the residential trip purposes were allocated to on- and of-site land uses to determine the number of AM and PM peak trips each land use is expected to generate. In Table 32 we have combined the land uses, trip purposes and mode split categories to show how the mode splits in Table 30 and Table 31 were applied to the trips generated by each land use to determine the number of trips by mode generated by each land use. A Technical Note on the Trip Rates by Mode by Land Use summarises the values used and is found in Appendix P.

Table 32 Allocation of Mode Splits by Trip Purpose to Land Uses

Land Use	Trip Purpose	Mode Split Allocation
Residential	Commuting	Commuting
	Business	Commuting
	Education	Education
	Escort Education	Education escort
	Shopping	Shopping
	Other escort	Other escort
	Personal business	Personal business
	Visiting friends at private home	Leisure
	Visiting friends elsewhere	Leisure
	Entertainment / public activity	Leisure
	Sport: participate	Leisure
	Holiday: base	Leisure
	Day trip	Leisure
	Other including just walk	Leisure
Hotel	Holiday: base	Leisure
Commercial business in hubs	Commuting / Business	Commuting
Commercial business park	Commuting / Business	Commuting
Light industrial business park	Commuting / Business	Commuting
Retail	Shopping	Shopping
Business	Personal business	Personal business
Café / Restaurant	Entertainment / public activity	Leisure
Pub / Takeaway	Entertainment / public activity	Leisure
Secondary schools	Education	Education
Primary schools	Education	Education
Nursery	Education	Education
All Non-Residential Land Uses	Commuting (staff)	Commuting
	Escort Education	Education escort
Community Centre	Entertainment / public activity	Leisure
Health	Personal business	Personal business
Sports pavilion	Sport: participate	Leisure
Indoor sports hall	Sport: participate	Leisure
All Non-Residential Land Uses	Commuting (staff)	Commuting
	Other escort	Other escort

8.5 Total Internal and External Trips by Mode

8.5.1 The mode splits in Table 30 and Table 31 were applied to the trips by purpose by land use as shown in Table 32. The resulting number of internal and external trips by mode for each assessment scenario are presented in Table 33 to Table 35. Please note that this presents the worst case trip generation scenario in terms of vehicle trips. Table 36 to Table 38 present the corresponding mode splits by assessment scenario.

8.6 Permitted Waste Facility Scenario

8.6.1 As mentioned in the committed/planned developments section, there is a permitted waste facility that has planning permission to be built within the west of the development site. Should this development go ahead, this would result in reduction of 800 residential homes and a primary school of the development. As a sensitivity test, the trip generation for such a scenario has been derived for the year 2044 to compare with the 8,500 homes scenario, this is shown in Table 39.

8.6.2 The permitted waste facility scenario would generate 3,636 and 3,354 driver trips in the AM and PM peak respectively. This compares to 3,923 and 3,649 driver trips for the 2044 8.5k homes scenario (Table 34). There is a driver trip reduction of 7% and 9% respectively for the AM and PM peak when comparing the permitted waste facility scenario to the 2044 8.5k homes scenario. This indicates that the waste facility scenario would be no worse than the 2044 8.5k scenario. No further assessment will be undertaken with regards to the permitted waste facility scenario.

Table 33 Internal, External and Combined Trips by Mode (2037)

Period	Internal Trips						External Trips						Combined					
	AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour		
	Arr	Dep	A + D	Arr	Dep	A + D	Arr	Dep	A + D	Arr	Dep	A + D	Arr	Dep	A + D	Arr	Dep	A + D
Driver	196	36	**232**	85	209	**294**	1,052	1,258	**2,310**	1,105	978	**2,083**	1,248	1,294	**2,542**	1,190	1,187	**2,377**
Passenger	59	18	**76**	53	78	**130**	186	259	**445**	300	243	**544**	245	277	**522**	353	321	**674**
Taxi	1	0	**1**	0	1	**1**	6	7	**12**	5	4	**9**	6	7	**13**	5	5	**10**
Motorcycle	6	1	**7**	1	5	**6**	22	25	**47**	19	17	**36**	28	26	**55**	20	22	**42**
Train	0	0	**0**	0	0	**0**	45	51	**96**	41	39	**80**	45	51	**96**	41	39	**80**
Bus	56	13	**69**	17	42	**59**	106	124	**230**	78	69	**147**	161	137	**298**	96	111	**207**
Light Rail	0	0	**0**	0	0	**0**	1	1	**1**	1	1	**1**	1	1	**1**	1	1	**1**
Bicycle	93	16	**109**	18	72	**90**	34	39	**73**	26	23	**49**	127	55	**182**	44	95	**139**
Walk	1,411	423	**1,834**	452	791	**1,242**	146	171	**317**	82	70	**152**	1,556	594	**2,150**	534	861	**1,395**
Total	**1,821**	**507**	**2,328**	**626**	**1,196**	**1,822**	**1,596**	**1,935**	**3,531**	**1,658**	**1,445**	**3,102**	**3,417**	**2,442**	**5,859**	**2,284**	**2,641**	**4,925**

Table 34 Internal, External and Combined Trips by Mode (2044 8.5k)

Period	Internal Trips						External Trips						Combined					
	AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour		
	Arr	Dep	A + D	Arr	Dep	A + D	Arr	Dep	A + D	Arr	Dep	A + D	Arr	Dep	A + D	Arr	Dep	A + D
Driver	261	49	**309**	116	281	**397**	1,861	1,753	**3,614**	1,545	1,706	**3,251**	2,122	1,801	**3,923**	1,661	1,987	**3,649**
Passenger	80	24	**104**	72	106	**178**	283	348	**630**	406	360	**766**	363	372	**734**	478	465	**944**
Taxi	1	0	**1**	0	1	**1**	10	9	**19**	7	8	**15**	11	9	**20**	7	9	**16**
Motorcycle	8	2	**10**	2	7	**8**	37	35	**72**	27	30	**57**	46	37	**82**	28	37	**65**
Train	0	0	**0**	0	0	**0**	86	72	**158**	59	74	**133**	86	72	**158**	59	74	**133**
Bus	74	18	**92**	24	56	**80**	167	169	**336**	109	116	**224**	241	187	**428**	132	172	**305**
Light Rail	0	0	**0**	0	0	**0**	1	1	**2**	1	1	**2**	1	1	**2**	1	1	**2**
Bicycle	123	22	**145**	24	96	**120**	56	54	**110**	36	41	**76**	179	76	**255**	60	136	**197**
Walk	1,915	577	**2,492**	618	1,072	**1,691**	209	230	**438**	112	109	**221**	2,124	807	**2,930**	730	1,181	**1,911**
Total	**2,463**	**691**	**3,154**	**857**	**1,618**	**2,475**	**2,709**	**2,670**	**5,380**	**2,301**	**2,444**	**4,746**	**5,172**	**3,361**	**8,533**	**3,158**	**4,063**	**7,221**

Table 35 Internal, External and Combined Trips by Mode (2044 10k)

Period	Internal Trips						External Trips						Combined					
	AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour		
	Arr	Dep	A + D	Arr	Dep	A + D	Arr	Dep	A + D	Arr	Dep	A + D	Arr	Dep	A + D	Arr	Dep	A + D
Driver	293	54	**346**	131	318	**449**	1,933	1,911	**3,843**	1,686	1,798	**3,484**	2,225	1,964	**4,189**	1,816	2,117	**3,933**
Passenger	91	27	**118**	81	119	**200**	299	385	**685**	450	394	**844**	390	412	**802**	531	513	**1,044**
Taxi	1	0	**1**	0	1	**1**	10	10	**20**	8	8	**16**	11	10	**21**	8	9	**17**
Motorcycle	9	2	**11**	2	7	**9**	39	38	**77**	29	32	**61**	48	40	**88**	31	39	**70**
Train	0	0	**0**	0	0	**0**	88	78	**166**	64	77	**140**	88	78	**166**	64	77	**140**
Bus	83	20	**103**	27	64	**91**	175	186	**361**	119	123	**242**	258	205	**464**	146	187	**333**
Light Rail	0	0	**0**	0	0	**0**	1	1	**2**	1	1	**2**	1	1	**2**	1	1	**2**
Bicycle	137	24	**162**	27	109	**136**	58	59	**117**	39	43	**82**	196	83	**279**	66	151	**218**
Walk	2,139	638	**2,777**	694	1,213	**1,907**	221	253	**475**	124	118	**241**	2,360	891	**3,251**	818	1,330	**2,148**
Total	**2,754**	**764**	**3,518**	**962**	**1,831**	**2,793**	**2,825**	**2,921**	**5,745**	**2,518**	**2,594**	**5,112**	**5,579**	**3,685**	**9,263**	**3,480**	**4,425**	**7,906**

Table 36 Internal, External and Combined AM and PM Peak Mode Splits (2037)

Period	Mode Split					
	Internal Trip		External Trips		Combined	
	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
Driver	10%	16%	65%	67%	43%	48%
Passenger	3%	7%	13%	18%	9%	14%
Taxi	0%	0%	0%	0%	0%	0%
Motorcycle	0%	0%	1%	1%	1%	1%
Train	0%	0%	3%	3%	2%	2%
Bus	3%	3%	7%	5%	5%	4%
Light Rail	0%	0%	0%	0%	0%	0%
Bicycle	5%	5%	2%	2%	3%	3%
Walk	79%	68%	9%	5%	37%	28%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Table 37 Internal, External and Combined AM and PM Peak Mode Splits (2044 8.5k)

Period	Mode Split					
	Internal Trip		External Trips		Combined	
	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
Driver	10%	16%	67%	69%	46%	51%
Passenger	3%	7%	12%	16%	9%	13%
Taxi	0%	0%	0%	0%	0%	0%
Motorcycle	0%	0%	1%	1%	1%	1%
Train	0%	0%	3%	3%	2%	2%
Bus	3%	3%	6%	5%	5%	4%
Light Rail	0%	0%	0%	0%	0%	0%
Bicycle	5%	5%	2%	2%	3%	3%
Walk	79%	68%	8%	5%	34%	26%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Table 38 Internal, External and Combined AM and PM Peak Mode Splits (2044 10k)

Period	Mode Split					
	Internal Trip		External Trips		Combined	
	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
Driver	10%	16%	67%	68%	45%	50%
Passenger	3%	7%	12%	17%	9%	13%
Taxi	0%	0%	0%	0%	0%	0%
Motorcycle	0%	0%	1%	1%	1%	1%
Train	0%	0%	3%	3%	2%	2%
Bus	3%	3%	6%	5%	5%	4%
Light Rail	0%	0%	0%	0%	0%	0%
Bicycle	5%	5%	2%	2%	3%	3%
Walk	79%	68%	8%	5%	35%	27%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Table 39 Internal, External and Combined Trips by Mode (2044 – Permitted Waste Facility Scenario)

Period	Internal Trips						External Trips						Combined					
	AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour		
	Arr	Dep	A + D	Arr	Dep	A + D	Arr	Dep	A + D	Arr	Dep	A + D	Arr	Dep	A + D	Arr	Dep	A + D
Driver	252	44	**295**	105	267	**372**	1,814	1,527	**3,341**	1,343	1,639	**2,982**	2,065	1,570	**3,636**	1,448	1,907	**3,354**
Passenger	74	22	**95**	65	97	**161**	270	312	**582**	363	332	**695**	344	334	**678**	428	428	**856**
Taxi	1	0	**1**	0	1	**1**	9	8	**17**	6	8	**14**	10	8	**19**	6	8	**14**
Motorcycle	8	1	**10**	2	6	**8**	36	31	**67**	23	29	**52**	44	32	**76**	25	35	**60**
Train	0	0	**0**	0	0	**0**	84	62	**146**	50	73	**123**	84	62	**146**	50	73	**123**
Bus	70	16	**86**	22	53	**75**	161	151	**312**	95	110	**205**	231	166	**398**	116	164	**280**
Light Rail	0	0	**0**	0	0	**0**	1	1	**2**	1	1	**2**	1	1	**2**	1	1	**2**
Bicycle	119	20	**139**	22	93	**115**	54	48	**102**	31	39	**70**	173	67	**241**	53	132	**185**
Walk	1,757	517	**2,274**	556	996	**1,552**	199	207	**407**	99	102	**201**	1,956	725	**2,681**	655	1,097	**1,753**
Total	**2,281**	**620**	**2,900**	**771**	**1,513**	**2,284**	**2,629**	**2,346**	**4,975**	**2,012**	**2,332**	**4,344**	**4,910**	**2,965**	**7,876**	**2,782**	**3,846**	**6,628**

9 Development Trip Distribution

9.1 Introduction

9.1.1 Discussions relating to the method for the distribution of trips were held with Kent County Council, Folkestone & Hythe District Council and Highways England (now NH) between July 2017 and March 2018. The approved method utilises a combination of gravity modelling and a VISUM model. This Chapter summarises the method used for the distribution of internal and external trips.

9.2 Vehicle Trip Distribution

External vehicle trip distribution

9.2.1 External vehicle trips generated by the Otterpool Park development have been distributed by identifying off-site origins and destinations (ODs) that are expected to attract/generate trips and then using a gravity modelling approach to determine the number of trips that are expected to route to/from the ODs from each of the on-site development zones. The route the trips are expected to take on the network is then determined through use of a VISUM model.

9.2.2 The gravity model method assumes that the number of trips routing to/from an OD declines with increasing distances and time of travel (deterrence functions) but is positively correlated with the size of the attractor/generator at the OD.

9.2.3 Separate gravity models have been developed to distribute work-related and non-work trips between the site and primary off-site locations. A total of four gravity distribution models were developed, as follows:

1. Distribution of non-work trips made by Otterpool Park residents to/from off-site ODs and off-site residents to/from on-site non-work land uses;
2. Distribution of commuter trips made by Otterpool Park residents to/from off-site ODs;
3. Distribution of commuter trips made by off-site residents to/from the Otterpool Park Business park; and
4. Distribution of commuter trips made by off-site residents to/from the Otterpool Park Business hubs and other employment land uses.

9.2.4 For the work trip gravity models, the activity is represented by Census 2011 origin/destination data (i.e., the number of incoming/outgoing commuter vehicle trips), while the activity for non-work trips is represented by the resident population of the location. For the purposes of the gravity model, the relationship between the number of trips attracted to a location and the scale of activity is linear assuming all other factors (i.e., distance, cost) are equal.

9.2.5 All gravity models also utilise a value of time which represents the travel time between the site and the location on the highway network. The method for calculating the deterrence function by which the gravity models were created along with the input assumptions proposed is described in more detail in the technical note[9] contained in Appendix Q.

9.2.6 The distribution of development vehicle flows between the site and a number of off-site ODs from the gravity models has been input to a VISUM model, which has been used to assign the development flow on the network and identify the likely future routing of traffic taking into account background traffic growth as well as Otterpool Park development traffic. The VISUM model area covers a variety of route

[9] Otterpool Park Method for the Distribution of External Vehicle Trips

choice, including the choice between the M20 or other A-class roads to the east and west, and has been validated against the observed turning counts and journey time captured on site. The VISUM analysis will determine the volume of traffic on the route network within the modelling study area. The proposed extent of the VISUM model is shown in the technical note in Appendix Q.

9.2.7 Table 40 to Table 42 present the resulting number of AM and PM peak development trips on the key roads in the study area.

Table 40 AM and PM Peak Otterpool Park Development Trips on Key Roads in the Study Area (2037)

Link Name	Number of Vehicles					
	AM Peak Hour			PM Peak Hour		
	Nb / Eb	Sb / Wb	2-Way	Nb / Eb	Sb / Wb	2-Way
B2067 Otterpool Lane	45	47	**92**	47	49	**96**
A20 Ashford Road b/w Otterpool Lane & Newingreen	201	142	**343**	172	118	**290**
Otterpool Avenue	212	441	**653**	297	381	**678**
old A20 Ashford Road at Newingreen	244	137	**381**	74	331	**405**
A20 Ashford Road b/w Newingreen & M20	628	292	**920**	386	587	**973**
A20 Ashford Road at Barrow Hill	176	149	**325**	117	204	**321**
Aldington Road b/w Otterpool Lane & Stone Street	81	44	**125**	38	87	**125**
Stone Street	58	36	**94**	43	61	**104**
B2067 Aldington Road west of Otterpool Lane	4	5	**9**	4	4	**8**
Lympne Hill	92	115	**207**	106	97	**203**
B2068 Stone Street	22	18	**40**	19	21	**40**
M20 east of J11	354	450	**804**	428	381	**809**
M20 west of J11	83	39	**122**	104	70	**174**
Cheriton Road	107	59	**166**	91	75	**166**
A261 Hythe Road	68	45	**113**	54	45	**99**
A259 Military Road	61	-	**61**	50	-	**50**
A259 Prospect Road	29	24	**53**	23	32	**55**
Swan Lane	6	5	**11**	5	5	**10**
A20 Hythe Road west of Swan Lane	170	144	**314**	112	199	**311**
A2070 Kennington Road	27	19	**46**	23	29	**52**
A262 Hythe Road	25	18	**43**	22	28	**50**
A260 Spitfire Way	7	6	**13**	6	6	**12**
A260 Canterbury Road	0	42	**42**	0	47	**47**
Alkham Valley Road	42	0	**42**	47	0	**47**
Nackington Road	19	8	**27**	10	18	**28**
Old Dover Road	4	7	**11**	7	4	**11**

Table 41 AM and PM Peak Otterpool Park Development Trips on Key Roads in the Study Area (2044 8.5k)

Link Name	Number of Vehicles					
	AM Peak Hour			PM Peak Hour		
	Nb / Eb	Sb / Wb	2-Way	Nb / Eb	Sb / Wb	2-Way
B2067 Otterpool Lane	75	67	**142**	76	80	**156**
A20 Ashford Road b/w Otterpool Lane & Newingreen	300	154	**454**	233	196	**429**
Otterpool Avenue	278	623	**901**	388	469	**857**
old A20 Ashford Road at Newingreen	285	158	**443**	92	413	**505**
A20 Ashford Road b/w Newingreen & M20	925	382	**1,307**	482	848	**1,330**
A20 Ashford Road at Barrow Hill	274	194	**468**	177	329	**506**
Aldington Road b/w Otterpool Lane & Stone Street	127	62	**189**	48	146	**194**
Stone Street	131	41	**172**	47	138	**185**
B2067 Aldington Road west of Otterpool Lane	8	7	**15**	6	8	**14**
Lympne Hill	175	162	**337**	150	180	**330**
B2068 Stone Street	31	33	**64**	34	29	**63**
M20 east of J11	658	632	**1,290**	602	690	**1,292**
M20 west of J11	81	118	**199**	181	48	**229**
Cheriton Road	151	107	**258**	161	105	**266**
A261 Hythe Road	97	79	**176**	92	57	**149**
A259 Military Road	87	-	**87**	88	-	**88**
A259 Prospect Road	43	41	**84**	42	47	**89**
Swan Lane	9	10	**19**	10	8	**18**
A20 Hythe Road west of Swan Lane	265	184	**449**	166	321	**487**
A2070 Kennington Road	36	30	**66**	35	40	**75**
A262 Hythe Road	34	28	**62**	33	38	**71**
A260 Spitfire Way	10	12	**22**	12	9	**21**
A260 Canterbury Road	0	80	**80**	0	67	**67**
Alkham Valley Road	80	0	**80**	67	0	**67**
Nackington Road	26	14	**40**	16	25	**41**
Old Dover Road	6	10	**16**	10	7	**16**

Table 42 AM and PM Peak Otterpool Park Development Trips on Key Roads in the Study Area (2044 10k)

Link Name	Number of Vehicles					
	AM Peak Hour			PM Peak Hour		
	Nb / Eb	Sb / Wb	2-Way	Nb / Eb	Sb / Wb	2-Way
B2067 Otterpool Lane	78	75	**153**	81	89	**170**
A20 Ashford Road b/w Otterpool Lane & Newingreen	296	159	**455**	233	211	**444**
Otterpool Avenue	274	611	**885**	384	469	**853**
old A20 Ashford Road at Newingreen	280	154	**434**	92	406	**498**
A20 Ashford Road b/w Newingreen & M20	911	379	**1,290**	482	839	**1,321**
A20 Ashford Road at Barrow Hill	267	192	**459**	176	323	**499**
Aldington Road b/w Otterpool Lane & Stone Street	124	66	**190**	48	144	**193**
Stone Street	131	43	**174**	48	140	**188**
B2067 Aldington Road west of Otterpool Lane	8	7	**15**	6	8	**13**
Lympne Hill	174	158	**332**	147	180	**327**
B2068 Stone Street	30	33	**63**	34	29	**63**
M20 east of J11	654	618	**1,272**	590	689	**1,280**
M20 west of J11	83	117	**200**	181	51	**232**
Cheriton Road	148	103	**251**	161	103	**264**
A261 Hythe Road	95	76	**171**	93	56	**149**
A259 Military Road	86	-	**86**	88	-	**88**
A259 Prospect Road	42	41	**83**	41	45	**86**
Swan Lane	9	10	**19**	10	7	**18**
A20 Hythe Road west of Swan Lane	258	182	**440**	166	315	**482**
A2070 Kennington Road	36	29	**65**	35	40	**75**
A262 Hythe Road	34	27	**61**	33	38	**71**
A260 Spitfire Way	10	12	**22**	12	9	**21**
A260 Canterbury Road	0	79	**79**	0	65	**65**
Alkham Valley Road	79	0	**79**	65	0	**65**
Nackington Road	28	15	**43**	17	27	**44**
Old Dover Road	6	11	**17**	11	7	**18**

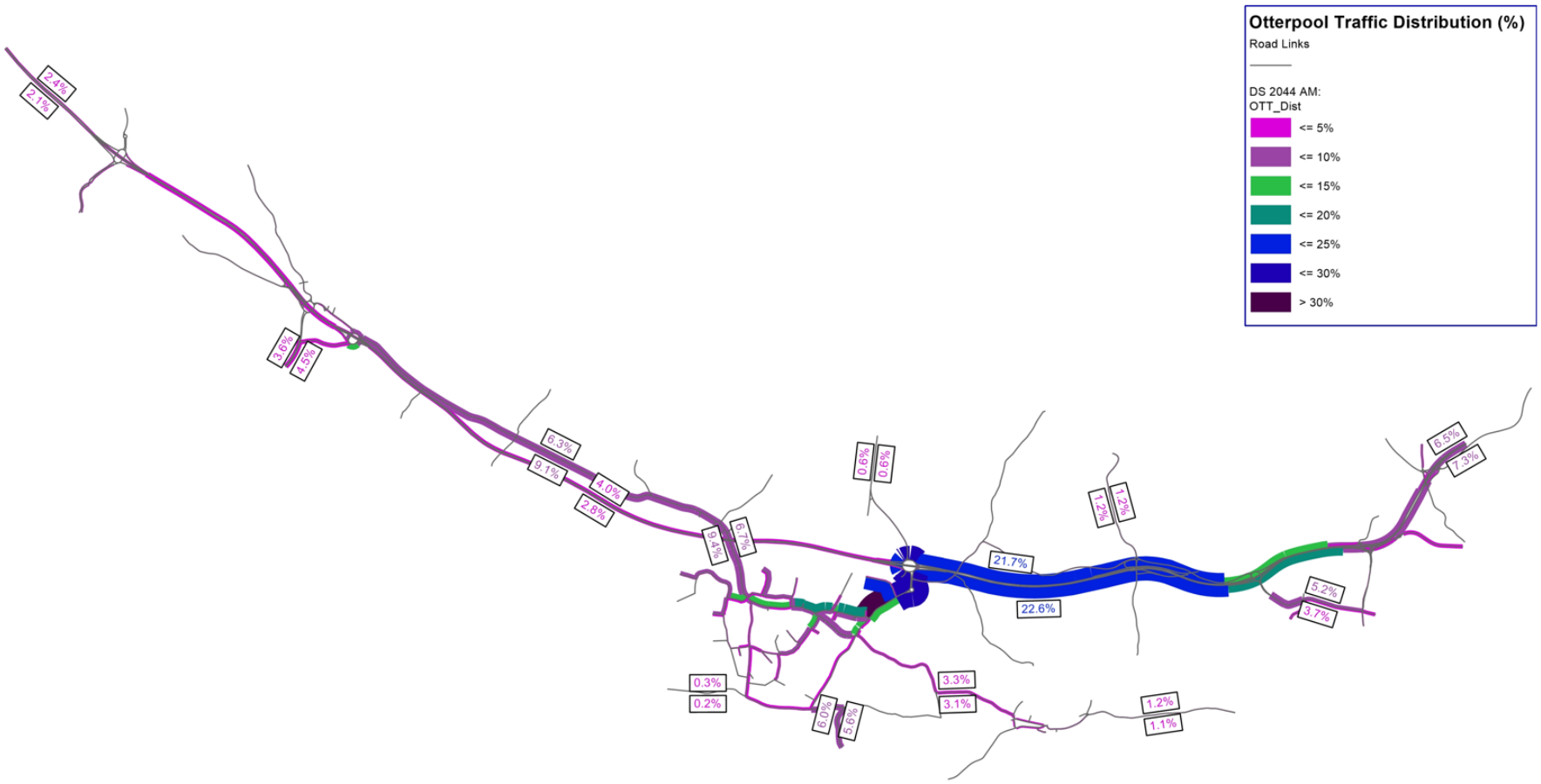


Figure 16 Otterpool Traffic Distribution on the Wider Highway Network – AM Peak (2044 8.5k)

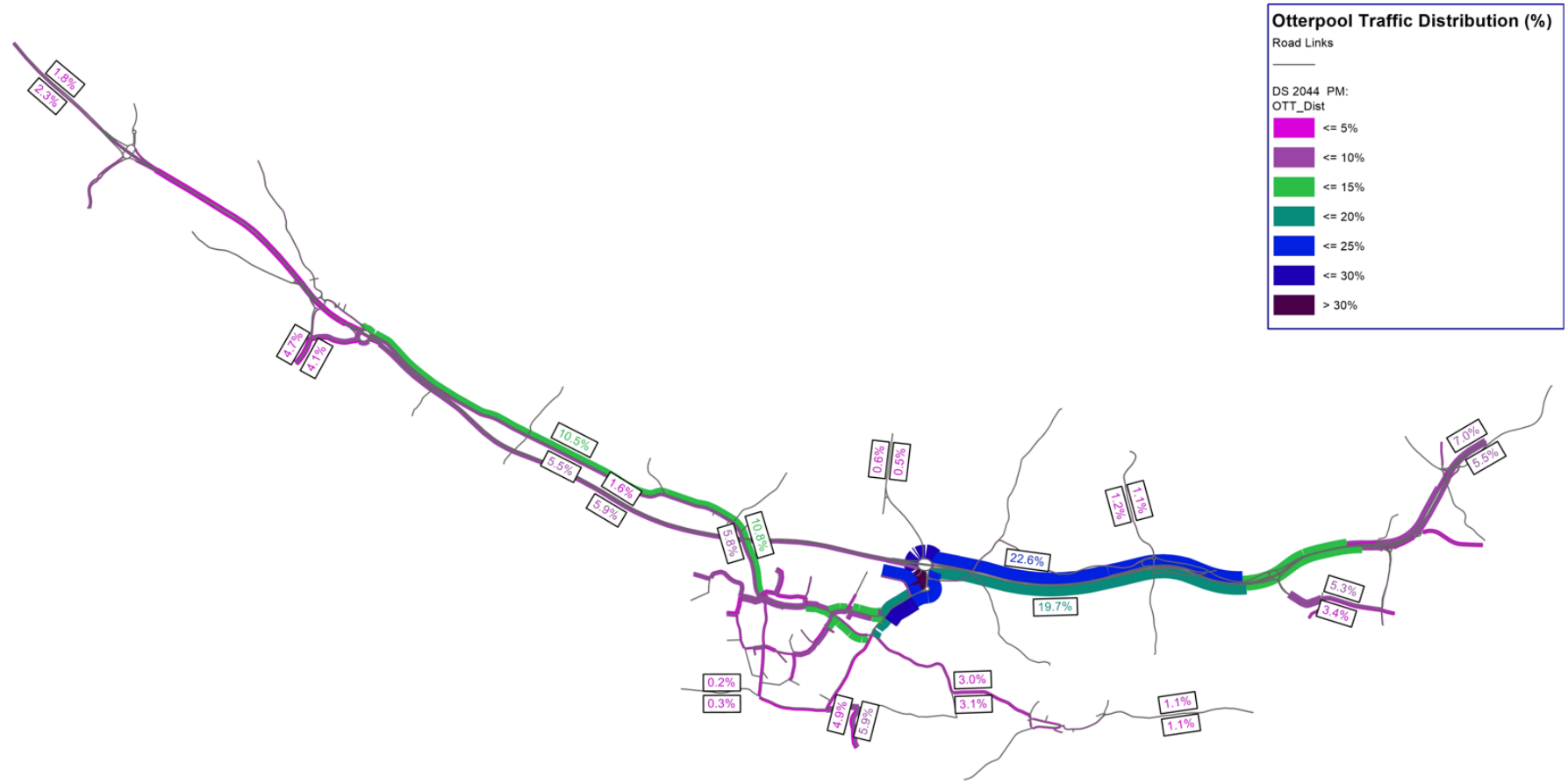


Figure 17 Otterpool Traffic Distribution on the Wider Highway Network – PM Peak (2044 8.5k)

Internal vehicle trip distribution

9.2.8 Internal vehicle trips are defined as vehicle trips between on-site development zones. The number of internal vehicle trips generated by each development zone was calculated as described in Chapters 7 and 8.

9.2.9 Internal vehicle trip generation by purpose was calculated for each development zone. The distribution of these trips was then determined by considering the likely origin/destination of trips routing into and out of each development zone. This was achieved by considering each trip purpose individually. For example, primary school education trips were distributed only to development zones that contained a primary school. The proportion of primary school trips attracted to a development zone was considered to be proportional to the number of primary schools within the development zone. Likewise, the distribution of commuting vehicle trips from one development zone was distributed to other development zones by proportion according to the number of jobs available in each development zone.

9.2.10 Once the number of vehicle trips between each development zone was calculated, the VISUM model was used to distribute the trips on the highway network, including the proposed internal access roads to each zone. Each development zone was represented by a zone within the VISUM and the trips between each zone was assigned to the highway network.

9.3 Trip Distribution of Non-Car Modes

External Trips

9.3.1 The distribution of trips made by Bus, Train, Cycle and Walk modes on the associated networks was calculated by considering the likely distribution of these trips in three categories:

- Distribution of non-work trips made by Otterpool Park residents to/from off-site ODs and off-site residents to/from on-site non-work land uses;
- Distribution of commuter trips made by Otterpool Park residents to/from off-site ODs;
- Distribution of commuter trips made by off-site residents to/from Otterpool Park employment land uses.

9.3.2 The distribution of non-work trips was calculated using a gravity model using a similar method as was used in the gravity modelling for non-work vehicle trips. The attractor/generator function was assumed to be the population at the OD, as used in the vehicle trip gravity models. A deterrence function was calculated by considering journey time to/from the same ODs used in the assessment of vehicle trips. The journey time for Bus trips was determined using the bus journey planner on the Stagecoach website[10]. Journey time for Train trips was calculated using the National Rail Enquires journey planner[11]. Where journeys required changes between services and/or modes, additional time was added to the overall journey time to account for interchange/wait times. The journey times for Walk and Cycle trips were calculated by considering the distance of the most likely direct route between ODs and calculating journey time using an average walk speed of 1.4 metres/second and Cycle speed of 15 km/hour.

[10] https://www.stagecoachbus.com/

[11] http://www.nationalrail.co.uk/

Internal Trips

9.3.3 The distribution of internal trips by non-car modes between each development zone was calculated by first determining the likely origin/destination of trips routing into and out of each development zone using the same method as described in the distribution of internal vehicle trips. The trips where then manually assigned to the most appropriate cycle/pedestrian network and bus service that provides the most direct route between each development zone.

10 Junction Capacity Assessments

10.1 Introduction

10.1.1 This section presents the results of local junction capacity assessments for the three assessment years requested during scoping, as follows:

- **2037**: the end of the Folkestone & Hythe District Council Local Plan period;
- **2044**: the forecast year of full build-out for the 8,500 homes and associated development. This represents the main assessment for the Outline Planning Application; and
- **2044** Sensitivity Assessment: representing the year of full build-out for the 10,000 homes and associated development for the OPFM.

10.1.2 Two scenarios have been considered for each of the assessment years:

1) **Do-Minimum**, which includes:
    - committed highway improvement schemes; and
    - forecast baseline traffic flows.
2) **Do-Something**, which includes:
    - committed highway improvement schemes;
    - highway schemes proposed for the Otterpool Park Development;
    - forecast baseline traffic flows; and
    - Otterpool Park development traffic flows.

10.1.3 The results of the two scenarios were compared to determine whether the addition of the Otterpool Park development traffic resulted in a severe impact compared to the DM scenario. A severe impact is classed as occurring when a junction is found to be operating over capacity (i.e., a DoS above 90% or an RFC greater than 0.85).

10.1.4 Where the result of the DS assessment determined that the addition of the Otterpool Park development traffic results in a severe impact, a third scenario is assessed:

3) **Do-Something with mitigation**, which includes:
    - committed highway improvement schemes;
    - highway schemes proposed for the Otterpool Park Development;
    - forecast baseline traffic flows;
    - Otterpool Park development traffic flows; and
    - proposed highway schemes to mitigate Otterpool Park development traffic impacts on the wider highway network.

10.1.5 The committed highway schemes included in the DM and DS scenarios have been described in Chapter 6. These schemes, based on information provided by Kent County Council, Highways England (now NH) and Folkestone & Hythe District Council, are summarised in Table 43.

Table 43 Committed Highway Schemes

Junction		Committed Scheme
J1 & J42	M20 Junction 10 / M20 Junction 10a	The M20 Junction 10a new, large, partially-signalised, grade separated roundabout to the east of the existing M20 Junction 10. The committed scheme involves closing off the M20 eastbound on-slip and westbound off-slip at the M20 J10 and providing them on the M20 J10a.
J11a	A20 Ashford Road / A261 Hythe Road	Minor widening on the A261 Hythe Road to increase the nearside flare length.
J24 & J25	B2064 Cheriton High Street / B2063 Risborough Lane & B2064 Cheriton High Street / A2034 Cherry Garden Avenue	Removal of existing pedestrian crossing and extension of right turning lane into Cherry Garden Avenue; improvements to The Harvey Grammar School access arrangement through implementation of a one-way system with separate entry and exit points and removal of the existing hatching and replace with an extended right turning lane
J44	Nackington Road / Old Dover Road / St Lawrence Road / The Drive	Nackington Road/ Old Dover Road and Old Dover Road/ St Lawrence Road/ The Drive proposals for the Mountfield Park development.

10.1.6 In addition to the committed highway schemes, the DS scenarios include a number of local highway network changes as described in Chapter 5. These are summarised as follows:

- Upgrade of the A20 Ashford Road between the roundabout south of the M20 J11 and north of the Newingreen junction with route re-alignment west of the existing route and a 40 mph speed limit;
- Provision of a new single carriageway 20mph strategic road (Otterpool Avenue) west of the new dual carriageway and north of the existing A20 east-west alignment;
- Diversion of the existing A20 Ashford Road west of Newingreen to tie in to Otterpool Avenue;
- Stopping-up of Stone Street at the junction with the A20 Ashford Road north of the junction with the A261 Hythe Road;
- Reduction in speed limit on the A20 west of the Newingreen junction to 30mph;
- Provision of a hierarchy of new internal access roads within the site boundary; and
- Provision of a number of new junctions along the A20 Ashford Road and B2067 Otterpool Lane.

10.1.7 The locations of the new access junctions are shown in Figure 18 and described in Table 44.

10.1.8 The software output files for the results of the DM modelling for all junctions are contained in Appendix R along with the output files for the DS modelling and the output files for junctions where mitigation measures have been tested.

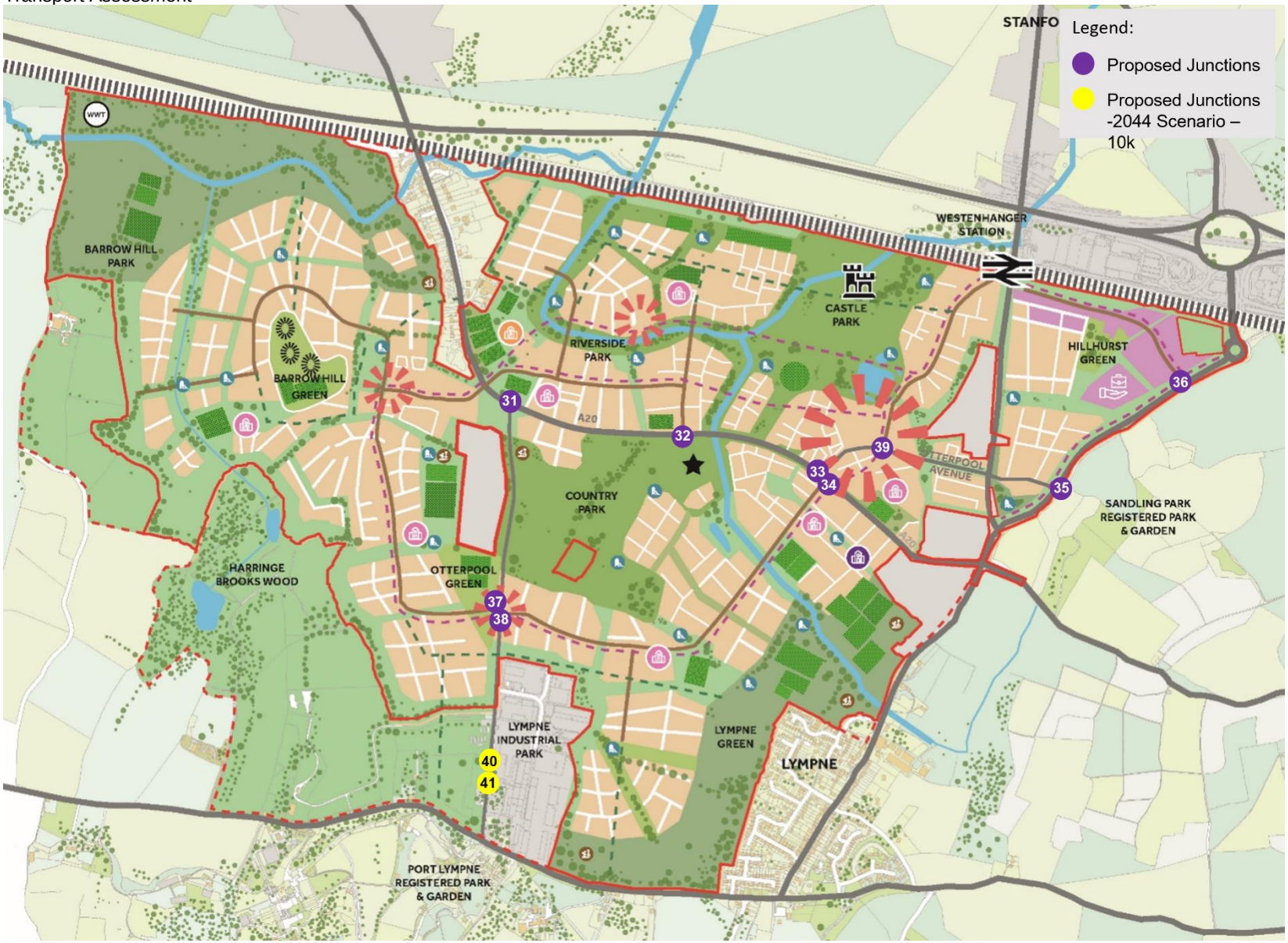


Figure 18 Locations of Proposed Junctions within Masterplan

Table 44 Proposed New Access Junctions

Junction	Assessment Year(s)	Proposed Scheme
J31	All	Signalised crossroads on A20 Ashford Road west of junction with B2067 Otterpool Lane providing access into development zones 1B and 7
J32	All	Priority junction on A20 east of junction with B2067 Otterpool Lane providing access into development zone 6
J33	All	Priority junction between Otterpool Avenue (major arm) and the diverted A20 Ashford Road (minor arm)
J34	All	Signalised crossroads between existing A20 Ashford Road and new High Street south of the Otterpool Avenue
J35	All	Signalised T-junction between Otterpool Avenue and dualled section of A20 Ashford Road
J36	All	Signalised T-junction between dualled section of A20 Ashford Road and access road to the Business Park
J38	All	Priority staggered junction between B2067 Otterpool Lane (major arm) and access into development zones 2B and 3A (minor arms)
J39	All	Signalised crossroads between the Otterpool Avenue and new High Street
J40	2044 10k only	Priority junction between B2067 Otterpool Lane (major arm) and access into development zone 9 (minor arm) to west of B2067 Otterpool Lane
J41	2044 10k only	Priority junction between B2067 Otterpool Lane (major arm) and access into development zone 9 (minor arm) to east of B2067 Otterpool Lane

10.2 Do-Minimum and Do-Something Traffic Flows

10.2.1 AM and PM peak hour DM and DS traffic flows through all junctions within the highway capacity assessment study area for all years of assessment are contained within Appendix U.

10.2.2 The method for forecasting background traffic flows was described in Chapter 0. It is worth reminding that growth rates were derived from TEMPro using the latest housing and job forecasts provided by the local authorities with deductions made to account for the number of homes and jobs that would be provided by Otterpool Park, with the resulting growth rate applied to background traffic in both the DM and DS scenarios, with Otterpool Park development traffic then added to the DS scenario. The DS scenario therefore tests significantly greater household and job growth than the DM scenario, with the assumption that the household and job creation targets for Folkstone & Hythe would not be met if the Otterpool Park development is not permitted. This means that the comparison between the DM and DS traffic flows and the results of DM and DS capacity testing as presented in this Chapter show an absolute worst case in terms of any increases in traffic flow, highway network delay and queuing in the DS scenario.

10.2.3 Table 20 to Table 22 presented the AM and PM peak future base (DM) traffic flows on key roads in the study area. Table 45 to Table 47 present the DM flows alongside the DS flows used in the assessment for key roads and the percentage change in flows between the two scenarios. It should be noted that the total Otterpool Park development traffic flows (previously presented in Table 40 to Table 42) is not equal to the difference between the Tables below and the Tables in Chapter 6 due to an element of dynamic re-routing of background traffic flows in the DS scenario, as calculated in the VISUM model.

Table 45 Summary of Change in AM and PM Peak Traffic Flows between DM and DS Scenarios on Key Roads (2037)

Link Name	Number of Vehicles												Percentage Change in Vehicles (Do-Something – Do-Minimum)					
	Do-Minimum						Do-Something											
	AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour		
	Nb / Eb	Sb / Wb	2-Way	Nb / Eb	Sb / Wb	2-Way	Nb / Eb	Sb / Wb	2-Way	Nb / Eb	Sb / Wb	2-Way	Nb / Eb	Sb / Wb	2-Way	Nb / Eb	Sb / Wb	2-Way
B2067 Otterpool Lane	860	199	**1,059**	1,005	146	**1,151**	259	244	**503**	218	244	**463**	-70%	23%	**-53%**	-78%	67%	**-60%**
A20 Ashford Road b/w Otterpool Lane & Newingreen	749	276	**1,025**	943	248	**1,191**	438	313	**751**	374	363	**738**	-42%	13%	**-27%**	-60%	47%	**-38%**
old A20 Ashford Road at Newingreen	-	-	**-**	-	-	**-**	357	616	**972**	397	745	**1,142**	-	-	**-**	-	-	**-**
A20 Ashford Road b/w Newingreen & M20	719	358	**1,077**	978	279	**1,257**	368	367	**735**	253	599	**852**	-49%	3%	**-32%**	-74%	115%	**-32%**
A20 Ashford Road at Barrow Hill	1,002	1,075	**2,077**	989	1,205	**2,194**	1,908	1,378	**3,286**	1,613	1,846	**3,460**	90%	28%	**58%**	63%	53%	**58%**
Aldington Road b/w Otterpool Lane & Stone Street	681	488	**1,169**	679	535	**1,214**	571	584	**1,155**	541	619	**1,161**	-16%	20%	**-1%**	-20%	16%	**-4%**
Stone Street	60	761	**821**	138	726	**864**	252	258	**510**	271	217	**488**	320%	-66%	**-38%**	96%	-70%	**-44%**
B2067 Aldington Road west of Otterpool Lane	149	251	**400**	106	266	**372**	454	211	**665**	209	275	**483**	205%	-16%	**66%**	97%	3%	**30%**
Lympne Hill	167	122	**289**	120	104	**224**	171	127	**298**	124	107	**232**	2%	4%	**3%**	4%	3%	**3%**
B2068 Stone Street	320	223	**543**	201	346	**547**	412	338	**749**	307	443	**750**	29%	51%	**38%**	53%	28%	**37%**
M20 east of J11	517	433	**950**	441	513	**954**	539	450	**989**	460	533	**993**	4%	4%	**4%**	4%	4%	**4%**
M20 west of J11	3,185	2,889	**6,074**	2,931	3,452	**6,383**	3,556	3,349	**6,905**	3,355	3,844	**7,199**	12%	16%	**14%**	14%	11%	**13%**
Cheriton Road	3,065	2,930	**5,995**	2,694	3,531	**6,225**	3,446	3,033	**6,479**	3,064	3,731	**6,795**	12%	4%	**8%**	14%	6%	**9%**
A261 Hythe Road	860	482	**1,342**	817	557	**1,374**	1,020	545	**1,565**	978	615	**1,592**	19%	13%	**17%**	20%	10%	**16%**
A259 Military Road	693	376	**1,069**	914	127	**1,041**	801	829	**1,630**	974	805	**1,779**	16%	120%	**52%**	7%	534%	**71%**
A259 Prospect Road	1,453	-	**1,453**	1,349	-	**1,349**	1,476	-	**1,476**	1,247	-	**1,247**	2%	-	**2%**	-8%	-	**-8%**
Swan Lane	973	552	**1,525**	883	843	**1,726**	984	597	**1,581**	865	886	**1,751**	1%	8%	**4%**	-2%	5%	**1%**
A20 Hythe Road west of Swan Lane	137	171	**308**	224	140	**364**	143	176	**319**	229	146	**375**	4%	3%	**4%**	2%	4%	**3%**
A2070 Kennington Road	724	421	**1,145**	589	582	**1,171**	607	512	**1,119**	446	661	**1,107**	-16%	22%	**-2%**	-24%	14%	**-5%**
A262 Hythe Road	1,191	978	**2,169**	1,104	1,152	**2,256**	1,218	997	**2,214**	1,127	1,182	**2,309**	2%	2%	**2%**	2%	3%	**2%**
A260 Spitfire Way	588	532	**1,120**	818	630	**1,448**	614	550	**1,163**	828	657	**1,486**	4%	3%	**4%**	1%	4%	**3%**
A260 Canterbury Road	707	1,156	**1,863**	1,180	811	**1,991**	714	1,162	**1,876**	1,186	817	**2,003**	1%	1%	**1%**	0%	1%	**1%**
Alkham Valley Road	556	1,755	**2,311**	902	1,417	**2,319**	556	1,796	**2,353**	900	1,504	**2,404**	0%	2%	**2%**	0%	6%	**4%**
Nackington Road	611	425	**1,036**	368	618	**985**	630	434	**1,064**	377	636	**1,013**	3%	2%	**3%**	3%	3%	**3%**
Old Dover Road	766	467	**1,232**	406	685	**1,091**	773	470	**1,243**	410	692	**1,102**	-42%	13%	**-27%**	-60%	47%	**-38%**

Table 46 Summary of Change in AM and PM Peak Traffic Flows between DM and DS Scenarios on Key Roads (2044 8.5k Scenario)

Link Name	Number of Vehicles												Percentage Change in Vehicles (Do-Something – Do-Minimum)					
	Do-Minimum						Do-Something											
	AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour		
	Nb / Eb	Sb / Wb	2-Way	Nb / Eb	Sb / Wb	2-Way	Nb / Eb	Sb / Wb	2-Way	Nb / Eb	Sb / Wb	2-Way	Nb / Eb	Sb / Wb	2-Way	Nb / Eb	Sb / Wb	2-Way
B2067 Otterpool Lane	860	195	**1,055**	1,003	166	**1,169**	317	267	**584**	299	298	**597**	-63%	37%	**-45%**	-70%	79%	**-49%**
A20 Ashford Road b/w Otterpool Lane & Newingreen	774	280	**1,054**	969	252	**1,221**	535	300	**835**	451	414	**865**	-31%	7%	**-21%**	-53%	64%	**-29%**
old A20 Ashford Road at Newingreen	-	-	**-**	-	-	**-**	402	786	**1,188**	488	847	**1,335**	-	-	**-**	-	-	**-**
A20 Ashford Road b/w Newingreen & M20	745	366	**1,111**	1,003	283	**1,286**	405	397	**802**	272	671	**944**	-46%	9%	**-28%**	-73%	137%	**-27%**
A20 Ashford Road at Barrow Hill	1,066	1,092	**2,158**	1,039	1,232	**2,271**	2,195	1,440	**3,635**	1,652	2,063	**3,716**	106%	32%	**68%**	59%	67%	**64%**
Aldington Road b/w Otterpool Lane & Stone Street	671	493	**1,164**	656	557	**1,213**	673	632	**1,305**	633	783	**1,416**	0%	28%	**12%**	-4%	41%	**17%**
Stone Street	54	758	**812**	156	721	**877**	301	280	**581**	311	324	**636**	457%	-63%	**-28%**	99%	-55%	**-28%**
B2067 Aldington Road west of Otterpool Lane	137	263	**400**	100	259	**359**	522	201	**723**	198	341	**539**	281%	-24%	**81%**	98%	32%	**50%**
Lympne Hill	172	125	**297**	123	106	**229**	180	131	**311**	129	114	**243**	5%	5%	**5%**	5%	8%	**6%**
B2068 Stone Street	329	227	**556**	205	355	**560**	503	389	**893**	355	535	**890**	53%	72%	**61%**	73%	51%	**59%**
M20 east of J11	528	445	**973**	453	524	**977**	553	477	**1,031**	483	553	**1,036**	5%	7%	**6%**	7%	6%	**6%**
M20 west of J11	3,334	2,968	**6,302**	3,019	3,604	**6,623**	3,996	3,601	**7,597**	3,607	4,294	**7,901**	20%	21%	**21%**	19%	19%	**19%**
Cheriton Road	3,276	3,014	**6,290**	2,815	3,707	**6,522**	3,628	3,183	**6,811**	3,197	3,854	**7,051**	11%	6%	**8%**	14%	4%	**8%**
A261 Hythe Road	884	495	**1,379**	886	592	**1,478**	1,095	640	**1,735**	1,152	692	**1,845**	24%	29%	**26%**	30%	17%	**25%**
A259 Military Road	699	434	**1,133**	938	151	**1,089**	838	881	**1,719**	1,059	830	**1,888**	20%	103%	**52%**	13%	450%	**73%**
A259 Prospect Road	1,483	-	**1,483**	1,387	-	**1,387**	1,520	-	**1,520**	1,396	-	**1,396**	3%	-	**3%**	1%	-	**1%**
Swan Lane	997	575	**1,572**	907	864	**1,771**	1,023	626	**1,649**	928	937	**1,865**	3%	9%	**5%**	2%	8%	**5%**
A20 Hythe Road west of Swan Lane	140	176	**316**	230	143	**373**	148	186	**334**	240	151	**391**	6%	6%	**6%**	4%	5%	**5%**
A2070 Kennington Road	717	428	**1,145**	568	609	**1,177**	711	562	**1,273**	534	831	**1,365**	-1%	31%	**11%**	-6%	36%	**16%**
A262 Hythe Road	1,252	1,007	**2,259**	1,137	1,202	**2,339**	1,294	1,037	**2,331**	1,176	1,243	**2,420**	3%	3%	**3%**	3%	3%	**3%**
A260 Spitfire Way	615	555	**1,170**	856	658	**1,514**	649	583	**1,232**	878	696	**1,574**	6%	5%	**5%**	3%	6%	**4%**
A260 Canterbury Road	722	1,191	**1,913**	1,215	828	**2,043**	732	1,202	**1,934**	1,226	837	**2,064**	1%	1%	**1%**	1%	1%	**1%**
Alkham Valley Road	571	1,810	**2,381**	920	1,457	**2,377**	571	1,896	**2,467**	917	1,611	**2,528**	0%	5%	**4%**	0%	11%	**6%**
Nackington Road	646	450	**1,096**	388	651	**1,039**	672	464	**1,136**	404	676	**1,080**	4%	3%	**4%**	4%	4%	**4%**
Old Dover Road	804	486	**1,290**	421	717	**1,139**	814	492	**1,306**	428	727	**1,155**	-42%	13%	**-27%**	-60%	47%	**-38%**

Table 47 Summary of Change in AM and PM Peak Traffic Flows between DM and DS Scenarios on Key Roads (2044 10k Scenario)

Link Name	Number of Vehicles												Percentage Change in Vehicles (Do-Something – Do-Minimum)					
	Do-Minimum						Do-Something											
	AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour		
	Nb / Eb	Sb / Wb	2-Way	Nb / Eb	Sb / Wb	2-Way	Nb / Eb	Sb / Wb	2-Way	Nb / Eb	Sb / Wb	2-Way	Nb / Eb	Sb / Wb	2-Way	Nb / Eb	Sb / Wb	2-Way
B2067 Otterpool Lane	748	363	**1,111**	986	281	**1,267**	441	391	**832**	270	683	**954**	-41%	8%	**-25%**	-73%	143%	**-25%**
A20 Ashford Road b/w Otterpool Lane & Newingreen	1,057	1,087	**2,144**	1,025	1,214	**2,239**	2,237	1,454	**3,691**	1,686	2,115	**3,801**	112%	34%	**72%**	65%	74%	**70%**
old A20 Ashford Road at Newingreen	655	494	**1,149**	657	552	**1,209**	696	643	**1,338**	648	802	**1,449**	6%	30%	**16%**	-1%	45%	**20%**
A20 Ashford Road b/w Newingreen & M20	59	752	**811**	158	716	**874**	330	301	**631**	322	403	**725**	459%	-60%	**-22%**	104%	-44%	**-17%**
A20 Ashford Road at Barrow Hill	139	238	**377**	106	249	**355**	528	208	**736**	202	399	**601**	280%	-13%	**95%**	90%	60%	**69%**
Aldington Road b/w Otterpool Lane & Stone Street	169	123	**292**	121	105	**226**	177	130	**307**	127	112	**240**	5%	6%	**5%**	5%	7%	**6%**
Stone Street	324	225	**549**	203	350	**553**	503	401	**904**	366	537	**903**	55%	78%	**65%**	80%	53%	**63%**
B2067 Aldington Road west of Otterpool Lane	523	438	**961**	446	518	**964**	550	471	**1,021**	477	549	**1,026**	5%	8%	**6%**	7%	6%	**6%**
Lympne Hill	3,290	2,965	**6,255**	3,005	3,561	**6,566**	3,971	3,653	**7,623**	3,647	4,282	**7,928**	21%	23%	**22%**	21%	20%	**21%**
B2068 Stone Street	3,233	3,023	**6,256**	2,811	3,658	**6,469**	3,583	3,190	**6,773**	3,204	3,818	**7,022**	11%	6%	**8%**	14%	4%	**9%**
M20 east of J11	874	487	**1,361**	847	571	**1,418**	1,094	635	**1,730**	1,140	691	**1,831**	25%	30%	**27%**	35%	21%	**29%**
M20 west of J11	715	414	**1,129**	929	146	**1,075**	844	857	**1,701**	1,049	829	**1,878**	18%	107%	**51%**	13%	468%	**75%**
Cheriton Road	1,466	-	**1,466**	1,365	-	**1,365**	1,512	-	**1,512**	1,378	-	**1,378**	3%	-	**3%**	1%	-	**1%**
A261 Hythe Road	983	561	**1,544**	893	849	**1,742**	1,012	610	**1,622**	907	919	**1,826**	3%	9%	**5%**	2%	8%	**5%**
A259 Military Road	138	173	**311**	226	141	**367**	148	184	**331**	236	150	**386**	7%	6%	**7%**	5%	6%	**5%**
A259 Prospect Road	701	429	**1,130**	570	602	**1,172**	732	574	**1,306**	550	848	**1,399**	4%	34%	**16%**	-3%	41%	**19%**
Swan Lane	1,250	1,010	**2,260**	1,139	1,202	**2,341**	1,297	1,040	**2,337**	1,182	1,246	**2,427**	4%	3%	**3%**	4%	4%	**4%**
A20 Hythe Road west of Swan Lane	614	557	**1,171**	858	657	**1,515**	651	585	**1,237**	883	699	**1,582**	6%	5%	**6%**	3%	6%	**4%**
A2070 Kennington Road	713	1,168	**1,881**	1,191	815	**2,006**	724	1,181	**1,904**	1,204	825	**2,029**	1%	1%	**1%**	1%	1%	**1%**
A262 Hythe Road	563	1,782	**2,345**	906	1,433	**2,339**	563	1,863	**2,426**	903	1,601	**2,504**	0%	5%	**3%**	0%	12%	**7%**
A260 Spitfire Way	1,230	212	**1,442**	1,222	157	**1,379**	1,311	212	**1,524**	1,294	126	**1,420**	7%	0%	**6%**	6%	-20%	**3%**
A260 Canterbury Road	748	363	**1,111**	986	281	**1,267**	441	391	**832**	270	683	**954**	-41%	8%	**-25%**	-73%	143%	**-25%**
Alkham Valley Road	1,057	1,087	**2,144**	1,025	1,214	**2,239**	2,237	1,454	**3,691**	1,686	2,115	**3,801**	112%	34%	**72%**	65%	74%	**70%**
Nackington Road	646	450	**1,096**	388	651	**1,039**	675	465	**1,139**	405	678	**1,084**	4%	3%	**4%**	4%	4%	**4%**
Old Dover Road	804	486	**1,290**	421	717	**1,139**	815	492	**1,307**	428	728	**1,156**	-42%	13%	**-27%**	-60%	47%	**-38%**

10.3 Overview of Junction Capacity Assessment Results

10.3.1 An analysis of how existing junctions are operating in the 2018 baseline scenario was provided in Chapter 4.4 Figure 19 - Figure 24 present an overview of the performance of the assessed junction in the future year scenarios.

10.3.2 The figures are colour coded to indicate the modelled performance of the junction on a Red – Amber – Green scale, where Red indicates the junction is predicted to be over capacity, Amber is approaching capacity and Green indicates well within capacity, in the relevant scenario.

10.3.3 The subsequent section of this Chapter provides a summary analysis of all junctions modelled as part of the scope of this Transport Assessment.

10.3.4 While some of the differences in the results between the 2044 8.5k scenarios and the 2044 10k scenarios may seem counter-intuitive, as discussed in detailed in Chapter 6, this is due to the agreed assumption that in the 2044 8.5k scenarios a further 1.5k dwellings are provided across FHDC to meet the housing requirements. This has the effect of increasing traffic across a wider area than if all 10k dwellings are provided at Otterpool Park.

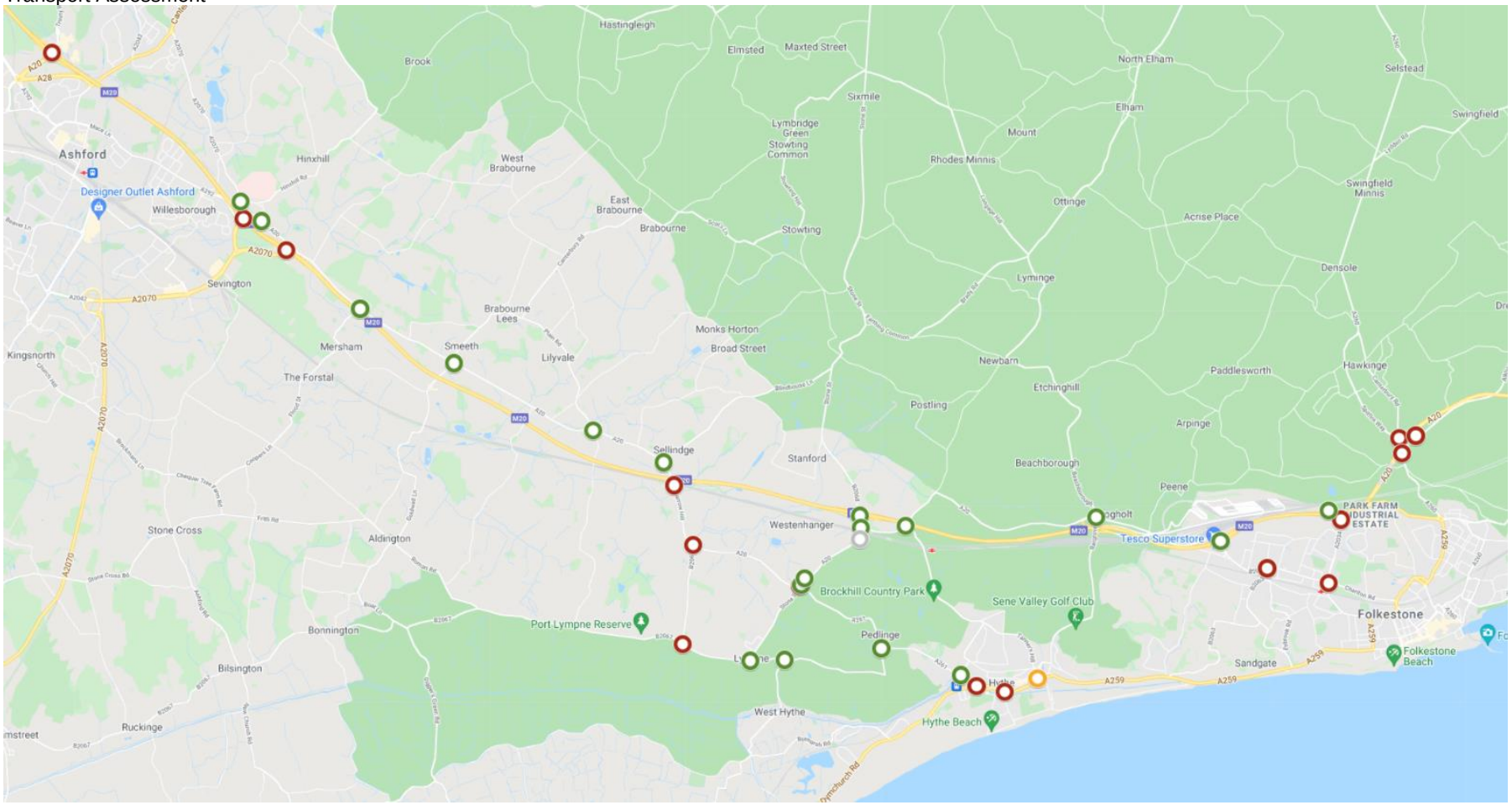


Figure 19 R.A.G. Diagram for 2037 Do-Minimum

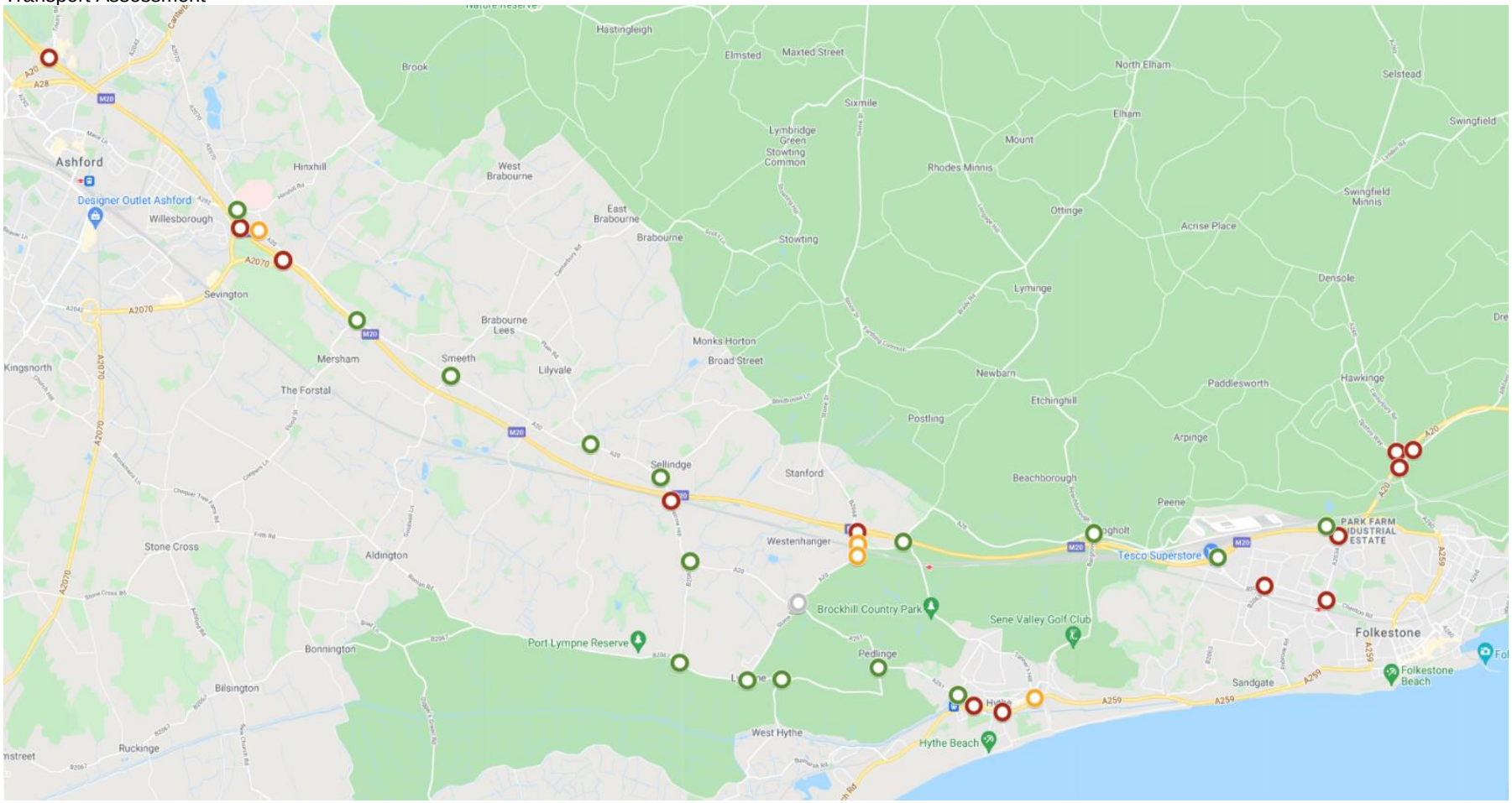


Figure 20 R.A.G Diagram for 2037 Do-Something

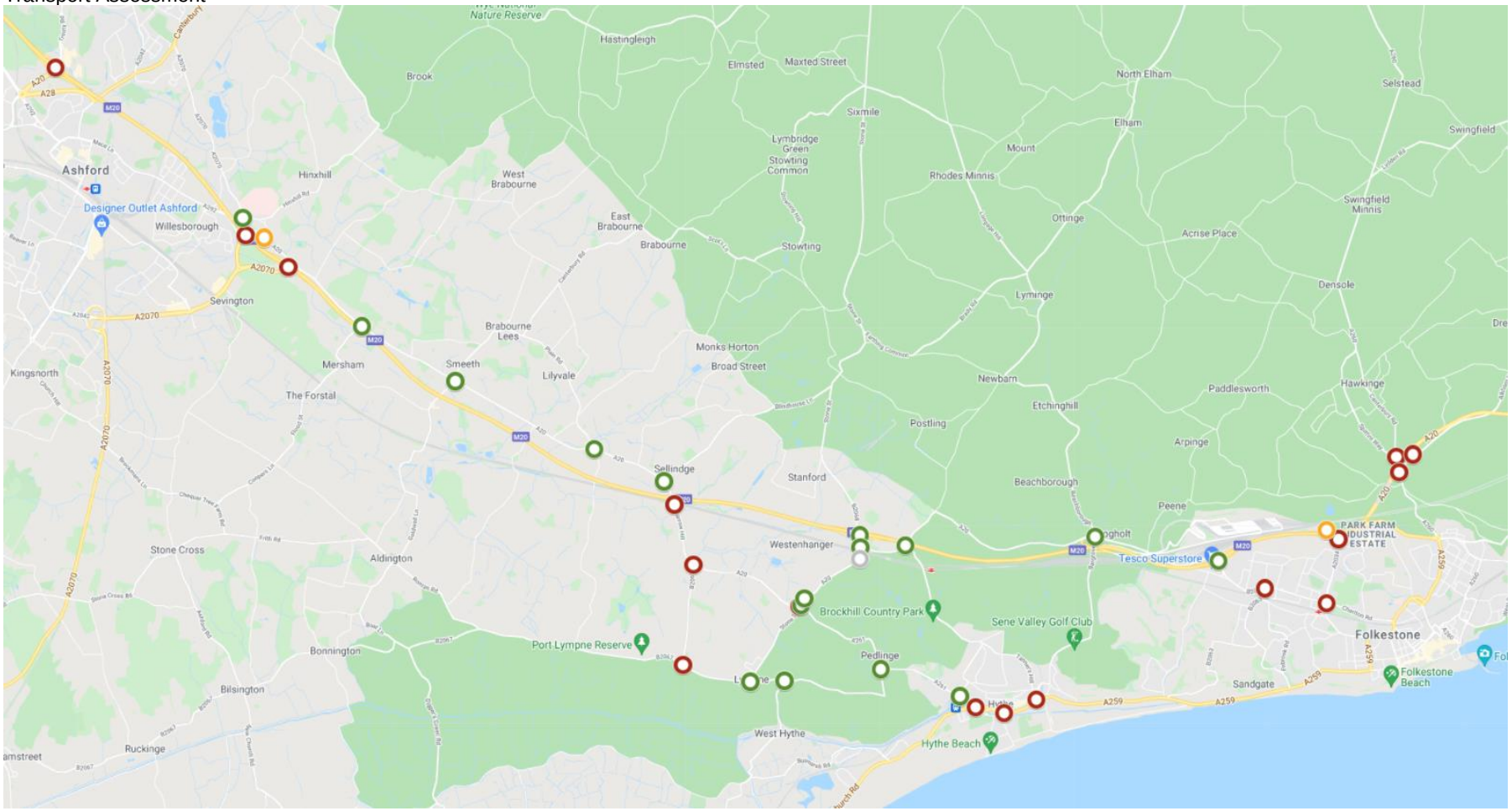


Figure 21 R.A.G. Assessment for 2044 8,500 Homes Do-Minimum Scenario

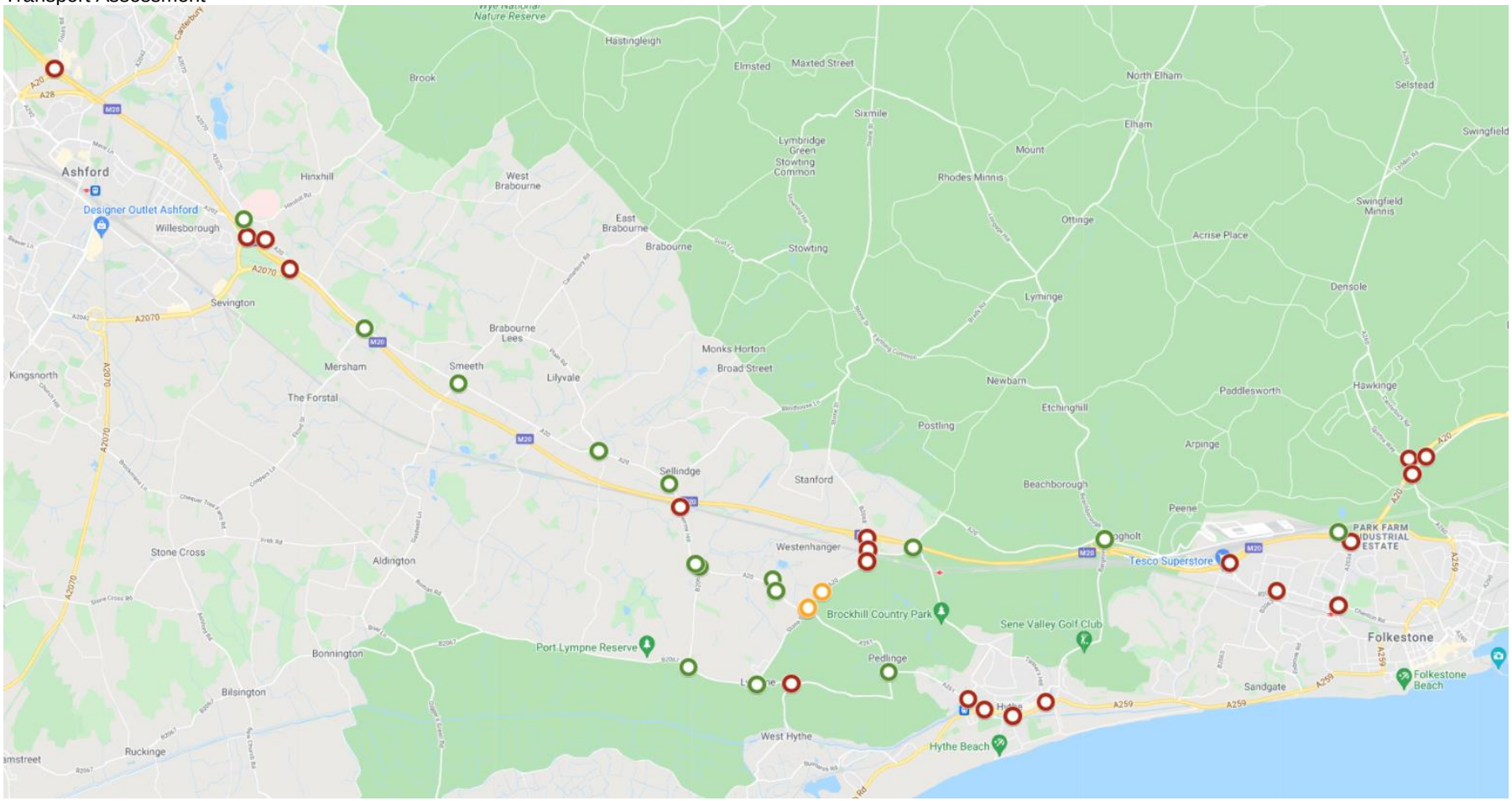


Figure 22 R.A.G. Diagram for 2044 8,500 Homes Do-Something Scenario

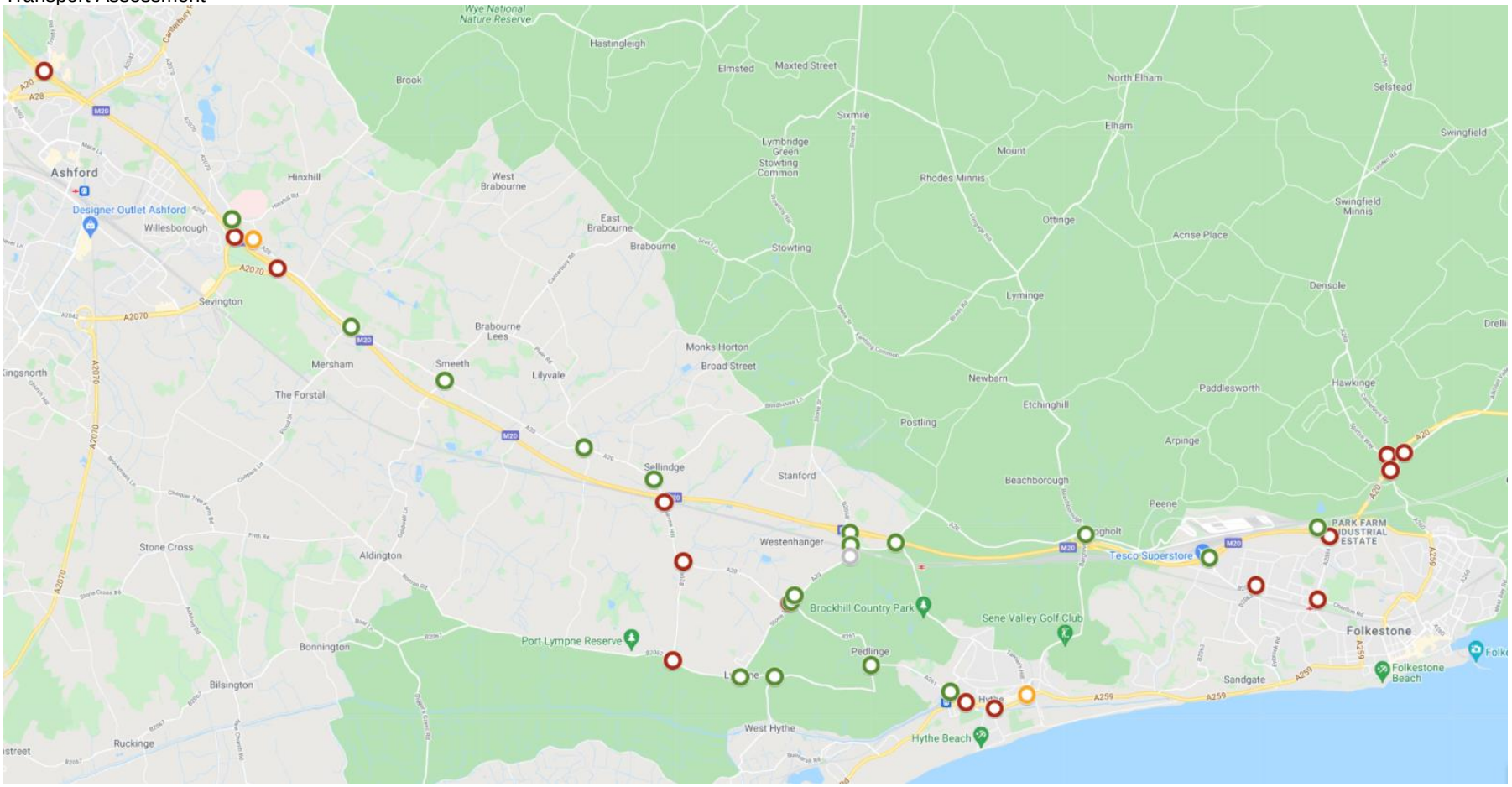


Figure 23 R.A.G. Diagram for 2044 10,000 Homes Do-Minimum Scenario

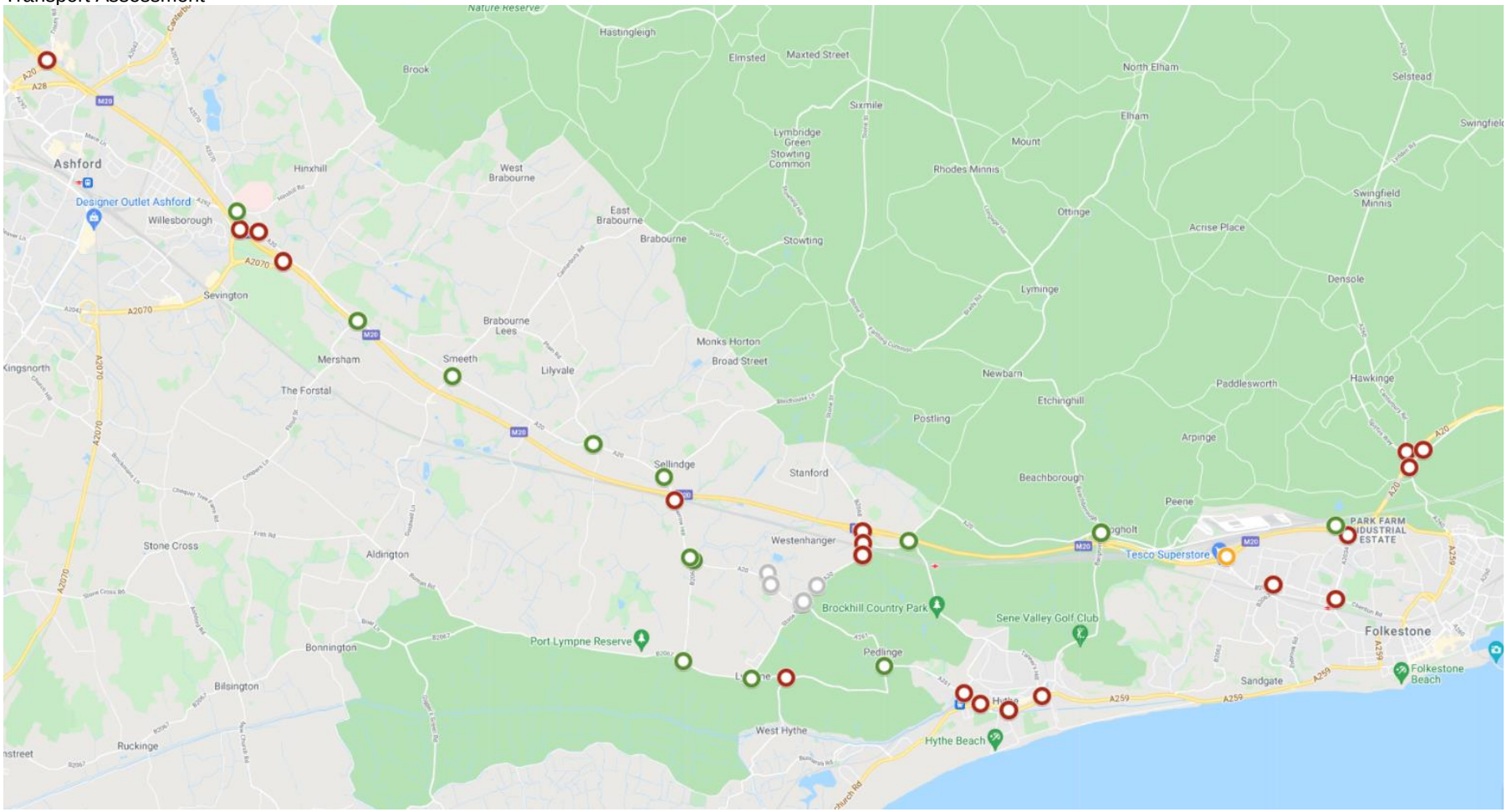


Figure 24 R.A.G Diagram 2044 10,000 Homes Do-Something Scenario

10.3.5 J1: M20 Junction 10

The M20 Junction 10 is a large, signalised junction, forming part of the major Lacton Interchange, providing access to the east of Ashford. To the east of this junction is the new, large, partially signalised junction the M20 Junction 10a (J42).

M20 Junction 10 has recently undergone changes through the removal of the M20 eastbound on-slip and westbound off-slip, which have been implemented on the M20 Junction 10a.

This junction is shown in Figure 25 and has been assessed in LinSig. The capacity assessment results are presented in Table 48.

Figure 25 M20 Junction 10

The junction modelling results indicates that the M20 Junction 10 is within capacity in the base year, and in all the assessed future Do-Minimum and Do-Something scenarios except for 2044 10k Do-Something scenario in the PM peak. The assessment highlights that the highest DoS is 105.4% in the 2044 10k PM in the Do-Something scenario on Bad Munstereifel Road.

Table 48 J1: M20 Junction 10 capacity assessment

Traffic Movement	AM Peak			PM Peak		
	Degree of Saturation	Mean Max Queue (PCUs)	Ave. Delay per PCU (secs)	Degree of Saturation	Mean Max Queue (PCUs)	Ave. Delay per PCU (secs)
2018						
Kennington Road	45.8%	5.5	39.5	57.5%	7.3	42.6
Hythe Road Southbound	61.0%	7.7	33.7	63.4%	7.8	37.7
Hythe Road Eastbound	26.4%	0.3	4.5	31.6%	0.4	4.5
A2070 Bad Munstereifel Road	55.4%	8.2	16.6	64.9%	10.2	19.3
M20 Eastbound Off-Slip	51.5%	6.2	11.8	62.0%	9	13.3
2037 DM						
Kennington Road	53.2%	10.1	18.4	81.9%	16	44.6
Hythe Road Southbound	62.1%	10.8	32.7	82.4%	12.6	57
Hythe Road Eastbound	50.7%	20.7	9.9	61.3%	25.4	10.1
A2070 Bad Munstereifel Road	49.9%	6.7	34.1	52.5%	7.8	23
M20 Eastbound Off-Slip	70.1%	10.8	23.4	65.4%	8.8	15.7
2037 DS						
Kennington Road	59.3%	11.6	22.8	83.2%	17.2	44
Hythe Road Southbound	77.5%	14.3	42	82.3%	12.9	55.7
Hythe Road Eastbound	53.5%	21.5	8.1	63.3%	26.4	10.8
A2070 Bad Munstereifel Road	40.6%	5.7	24.6	54.7%	8.3	23.4
M20 Eastbound Off-Slip	66.8%	10.1	22.7	60.9%	7.9	15.5
2044 8.5K DM						
Kennington Road	55.5%	10.7	18.8	85.9%	18	48.1
Hythe Road Southbound	72.5%	13.5	36.7	84.7%	13.3	60.1
Hythe Road Eastbound	52.3%	21.5	9.9	63.5%	26.5	11
A2070 Bad Munstereifel Road	60.1%	7.5	39.2	55.8%	8.5	25.6
M20 Eastbound Off-Slip	73.4%	11.7	25.1	64.8%	8.7	16.1
2044 8.5K DS						
Kennington Road	60.7%	11.9	23.1	89.1%	19.7	53
Hythe Road Southbound	82.3%	16	45.8	89.7%	16.1	66.4
Hythe Road Eastbound	55.6%	22.1	9.4	62.3%	9.4	23.2
A2070 Bad Munstereifel Road	45.0%	6.5	25.3	65.1%	10.5	30.4
M20 Eastbound Off-Slip	73.3%	11.5	25.6	63.6%	8.6	16.5
2044 10K DM						
Kennington Road	55.5%	10.7	18.8	85.9%	18	48.1
Hythe Road Southbound	72.5%	13.5	36.7	84.7%	13.3	60.1
Hythe Road Eastbound	52.3%	21.5	9.9	63.5%	26.5	11
A2070 Bad Munstereifel Road	60.1%	7.5	39.2	55.8%	8.5	25.6
M20 Eastbound Off-Slip	73.4%	11.7	25.1	64.8%	8.7	16.1
2044 10K DS						
Kennington Road	61.0%	12.1	23.2	85.3%	18.1	46.3
Hythe Road Southbound	81.2%	15.3	45.8	86.1%	12.8	49.8
Hythe Road Eastbound	58.1%	12.2	28.5	62.7%	14	27.6
A2070 Bad Munstereifel Road	66.4%	8.5	41.8	**105.4%**	35.7	147.3
M20 Eastbound Off-Slip	73.3%	11.4	25.6	65.2%	8.8	16.7

The A292 Hythe Road/M20 Westbound On-slip junction is located to the west of the M20 Junction 10. The capacity assessment is in Table 49. The LinSig assessment indicates that the junction operates within capacity in the base year, and 2037 Do-minimum. In all the other assessed scenarios, the junction is over capacity. The highest Dos is 109% in 2044 8.5k Do-Something in the PM peak.

Given the modelling indicating capacity issues in the Do-Something scenarios, this junction is discussed in further detail in Section 10.4.

Table 49 J1: A292 Hythe Road/M20 Westbound On-slip junction capacity assessment

Traffic Movement	AM Peak			PM Peak		
	Degree of Saturation	Mean Max Queue (PCUs)	Ave. Delay per PCU (secs)	Degree of Saturation	Mean Max Queue (PCUs)	Ave. Delay per PCU (secs)
2018						
A292 Hythe Road Road	65.9%	6.6	42.6	69.0%	6	49.2
M20 Westbound On-Slip	67.0%	14.1	11.1	69.3%	13.6	8.3
2037 DM						
A292 Hythe Road Road	80.9%	9.3	48.4	86.1%	10.9	50.2
M20 Westbound On-Slip	81.3%	22.8	18.6	87.3%	23.9	18.6
2037 DS						
A292 Hythe Road Road	84.4%	10.3	49.7	**90.3%**	12.6	55.2
M20 Westbound On-Slip	85.0%	24.4	18.5	**90.5%**	25.6	22.3
2044 8.5K DM						
A292 Hythe Road Road	78.6%	8.8	47.2	89.3%	12.2	53.8
M20 Westbound On-Slip	77.9%	22.1	17.3	**90.7%**	26.9	23.4
2044 8.5K DS						
A292 Hythe Road Road	**92.5%**	13.9	60.6	**109.0%**	69.9	227.9
M20 Westbound On-Slip	**91.8%**	29	25.7	**107.8%**	94.2	183.7
2044 10K DM						
A292 Hythe Road Road	78.6%	8.8	47.2	89.3%	12.2	53.8
M20 Westbound On-Slip	77.9%	22.1	17.3	**90.7%**	26.9	23.4
2044 10K DS						
A292 Hythe Road Road	**92.5%**	13.9	59.5	**109.9%**	70.5	232.2
M20 Westbound On-Slip	**93.4%**	29.8	25.2	**108.3%**	90.7	177.9

10.3.6 J2: M20 Junction 11

M20 Junction 11 is the Westenhanger Interchange and is the main gateway to the Otterpool Park site from the wider highway network. The junction was assessed using the ARCADY module in Junctions9, and modelled as a five-arm roundabout as shown in Figure 26. The assessment results can be found in Table 50.

Figure 26 M20 Junction 11

The junction appears to be within capacity in the 2018 Base Year scenario, as well as in all Do-Minimum scenarios. The assessment indicates that the junction would operate over capacity in all the assessed Do-Something scenarios in both the AM and PM peak hours. The 2044 8.5k Do-Something scenario has the highest RFC value of 1.51 in the PM peak on the M20 Off-slip (eastbound).

Given this junction forms the main access to Otterpool Park from the strategic road network, and the modelling indicating capacity issues in the Do-Something scenarios, this junction and potential mitigation is discussed in further detail in Section10.4.

Table 50 J2: M20 Junction 11 capacity assessment

Approach	AM Peak			PM Peak		
	RFC	Queue Length (vehicles)	Ave. Delay per Vehicle (secs)	RFC	Queue Length (vehicles)	Ave. Delay per Vehicle (secs)
2018						
M20 OffSlip Westbound	0.36	0.5	3.02	0.35	0.35	3.62
A20 Ashford Road	0.44	0.8	2.63	0.36	0.36	2.25
Services	0.15	0.2	4.02	0.13	0.13	3.4
M20 OffSlip Eastbound	0.29	0.4	3.64	0.47	0.47	4.57
B2068	0.25	0.3	3.36	0.32	0.32	4.29
2037 DM						
M20 OffSlip Westbound	0.58	1.40	5.75	0.59	1.40	6.52
A20 Ashford Road	0.44	1.40	3.66	0.51	1.00	3.03
Services	0.15	0.20	5.02	0.16	0.20	4.19
M20 OffSlip Eastbound	0.29	1.60	7.67	0.74	2.70	10.69
B2068	0.25	0.70	5.38	0.57	1.30	8.45
2037 DS						
M20 OffSlip Westbound	**0.88**	6.40	19.82	**0.96**	15.10	46.36
A20 Ashford Road	**0.94**	12.60	20.64	0.84	5.10	9.07
Services	0.31	0.50	10.10	0.24	0.30	7.14
M20 OffSlip Eastbound	**0.95**	11.50	52.51	**1.17**	86.80	244.90
B2068	0.63	1.70	12.42	**0.85**	5.00	32.26
2044 8.5K DM						
M20 OffSlip Westbound	0.60	1.50	6.20	0.62	1.60	7.24
A20 Ashford Road	0.63	1.70	4.08	0.53	1.10	3.22
Services	0.20	0.30	5.38	0.17	0.20	4.36
M20 OffSlip Eastbound	0.64	1.70	8.40	0.78	3.40	12.68
B2068	0.44	0.80	5.70	0.60	1.50	9.39
2044 8.5K DS						
M20 OffSlip Westbound	**1.08**	70.80	146.96	**0.98**	19.10	50.48
A20 Ashford Road	**1.03**	59.80	76.21	**1.00**	33.10	47.98
Services	0.37	0.60	12.48	0.33	0.50	10.57
M20 OffSlip Eastbound	**1.16**	65.80	231.89	**1.51**	193.40	698.91
B2068	0.74	2.70	18.85	**0.96**	11.50	71.90
2044 10K DM						
M20 OffSlip Westbound	0.59	1.50	6.09	0.60	1.50	6.79
A20 Ashford Road	0.62	1.60	3.99	0.53	1.10	3.16
Services	0.19	0.20	5.31	0.16	0.20	4.32
M20 OffSlip Eastbound	0.63	1.70	8.27	0.76	3.00	11.61
B2068	0.43	0.80	5.61	0.58	1.40	8.89
2044 10K DS						
M20 OffSlip Westbound	**1.08**	65.70	138.26	**0.96**	15.50	42.15
A20 Ashford Road	**1.01**	45.60	61.25	**0.99**	30.50	44.82
Services	0.36	0.60	12.32	0.32	0.50	10.47
M20 OffSlip Eastbound	**1.15**	64.80	225.41	**1.48**	184.20	657.17
B2068	0.72	2.50	17.98	**0.95**	10.60	67.65

10.3.7 J3: A20 Ashford Road / Swan Lane

The A20 Ashford Road / Swan Lane junction is a priority crossroads located in Sellindge, approximately 400m north of J27 Barrow Hill. A20 Ashford Road forms the main road through the junction, while Swan Lane to the north and a private access to the south form the give way arms of the junction.

The junction is presented in Figure 27, and has been assessed in the PICADY module of Junctions9. The junction assessment results are shown in Table 51.

Figure 27 A20 Ashford Road / Swan Lane

The assessment of this junction indicates that the junction operates well within capacity in the 2018 Base Year, and will continue to operate within capacity in the assessed Do-Minimum and Do-Something scenarios. The maximum RFC is 0.54 in the 2044 8.5k Do-Something scenario in the AM peak hour. This junction is well within capacity in the scenarios assessed and does not require further discussion.

Table 51 J3: A20 Ashford Road / Swan Lane capacity assessment

Approach	AM Peak			PM Peak		
	RFC	Queue Length (vehicles)	Ave. Delay per Vehicle (secs)	RFC	Queue Length (vehicles)	Ave. Delay per Vehicle (secs)
2018						
Private Access	0.01	0.00	11.77	0.00	0.00	0.00
A20 Ashford Road Westbound	0.06	0.10	5.12	0.14	0.20	6.02
Swan Lane	0.30	0.40	13.42	0.21	0.30	12.30
2037 DM						
Private Access	0.00	0.00	0.00	0.00	0.00	0.00
A20 Ashford Road Westbound	0.14	0.40	4.43	0.25	0.70	5.40
Swan Lane	0.43	0.70	21.27	0.36	0.60	20.23
2037 DS						
Private Access	0.00	0.00	0.00	0.00	0.00	0.00
A20 Ashford Road Westbound	0.16	0.40	4.98	0.25	0.60	6.46
Swan Lane	0.46	0.80	24.07	0.37	0.60	21.20
2044 8.5K DM						
Private Access	0.00	0.00	0.00	0.00	0.00	0.00
A20 Ashford Road Westbound	0.14	0.40	4.47	0.25	0.70	5.54
Swan Lane	0.45	0.80	22.07	0.37	0.60	20.77
2044 8.5K DS						
Private Access	0.00	0.00	0.00	0.00	0.00	0.00
A20 Ashford Road Westbound	0.19	0.60	4.77	0.32	1.00	6.74
Swan Lane	0.54	1.10	31.24	0.47	0.90	31.57
2044 10K DM						
Private Access	0.00	0.00	0.00	0.00	0.00	0.00
A20 Ashford Road Westbound	0.13	0.30	4.50	0.24	0.70	5.49
Swan Lane	0.44	0.80	21.33	0.37	0.60	20.46
2044 10K DS						
Private Access	0.00	0.00	0.00	0.00	0.00	0.00
A20 Ashford Road Westbound	0.19	0.60	4.72	0.33	1.00	6.70
Swan Lane	0.54	1.10	32.54	0.48	0.90	33.29

10.3.8 J4: A20 Ashford Road / Stone Hill

The A20 Ashford Road / Stone Hill is a priority T-junction. It is located to the west of J3 A20 Ashford Road/Swan Lane. The junction is presented in Figure 28, and has been assessed in the PICADY module of Junctions9. The capacity assessments are presented in Table 52.

Figure 28 A20 Ashford Road / Stone Hill

The PICADY assessment of this junction indicates that the junction operates well within capacity in the 2018 Base Year and will continue to operate within capacity in all the assessed Do-Minimum and Do-Something scenarios. The highest RFC is 0.41 on Stone Hill in the 2044 8.5k Do-Something scenario in the AM peak hour. This junction is well within capacity in the scenarios assessed and does not require further discussion.

Table 52 J4: A20 Ashford Road / Stone Hill capacity assessment

Approach	AM Peak			PM Peak		
	RFC	Queue Length (vehicles)	Ave. Delay per Vehicle (secs)	RFC	Queue Length (vehicles)	Ave. Delay per Vehicle (secs)
2018						
Stone Hill	0.24	0.30	12.17	0.14	0.20	11.26
A20 Ashford Road Eastbound	0.00	0.00	5.53	0.01	0.00	4.81
2037 DM						
Stone Hill	0.35	0.5	20.44	0.21	0.3	16.63
A20 Ashford Road Eastbound	0	0	0	0.03	0	4.48
2037 DS						
Stone Hill	0.35	0.5	20.29	0.2	0.2	15.49
A20 Ashford Road Eastbound	0.01	0	6.74	0.03	0	4.21
2044 8.5K DM						
Stone Hill	0.36	0.6	20.58	0.21	0.3	16.62
A20 Ashford Road Eastbound	0	0	0	0.03	0	4.39
2044 8.5K DS						
Stone Hill	0.41	0.7	25.83	0.24	0.3	19.71
A20 Ashford Road Eastbound	0.42	0.7	26.97	0.25	0.3	20.4
2044 10K DM						
Stone Hill	0.35	0.5	20.07	0.21	0.3	16.5
A20 Ashford Road Eastbound	0	0	0	0.03	0	4.41
2044 10K DS						
Stone Hill	0.42	0.7	26.97	0.25	0.3	20.4
A20 Ashford Road Eastbound	0.01	0	6.38	0.05	0.1	3.99

10.3.9 J5: A20 Hythe Road / Station Road / Church Road

The A20 Hythe Road / Station Road / Church Road junction is a priority crossroads in the village Smeeth, mainly surrounded by agricultural land. The junction is presented in Figure 29, and has been assessed in the PICADY module of Junctions9. The capacity assessments are presented in Table 53.

Figure 29 A0 Hythe Road / Station Road / Church Road

The PICADY assessment of this junction indicates that the junction operates well within capacity in the 2018 Base Year and will continue to operate within capacity in all the assessed Do-Minimum and Do-Something scenarios. The maximum RFC is 0.7 on Station Road in the 2044 8.5k Do-Something scenario in the PM peak hour. This junction is well within capacity in the scenarios assessed and does not require further discussion.

Table 53 J5: A20 Hythe Road / Station Road / Church Road capacity assessment

Approach	AM Peak			PM Peak		
	RFC	Queue Length (vehicles)	Ave. Delay per Vehicle (secs)	RFC	Queue Length (vehicles)	Ave. Delay per Vehicle (secs)
2018						
Station Road	0.36	0.60	12.95	0.42	0.70	14.34
A20 Hythe Road Westbound	0.02	0.00	5.78	0.03	0.00	6.31
Church Road	0.25	0.30	13.76	0.17	0.20	13.70
A20 Hythe Road Eastbound	0.18	0.20	6.54	0.16	0.20	6.29
2037 DM						
Station Road	0.57	1.30	25.60	0.62	1.60	29.64
A20 Hythe Road Westbound	0.02	0.00	6.34	0.04	0.00	7.23
Church Road	0.40	0.70	24.64	0.28	0.40	23.68
A20 Hythe Road Eastbound	0.25	0.30	8.73	0.21	0.30	7.88
2037 DS						
Station Road	0.53	1.10	22.44	0.56	1.30	23.51
A20 Hythe Road Westbound	0.01	0.00	6.99	0.03	0.00	7.89
Church Road	0.49	0.90	33.46	0.30	0.40	27.08
A20 Hythe Road Eastbound	0.27	0.40	8.69	0.22	0.30	7.52
2044 8.5K DM						
Station Road	0.59	1.40	27.22	0.66	1.80	32.84
A20 Hythe Road Westbound	0.02	0.00	6.46	0.04	0.00	7.43
Church Road	0.44	0.80	27.05	0.30	0.40	25.57
A20 Hythe Road Eastbound	0.26	0.40	8.86	0.22	0.30	7.93
2044 8.5K DS						
Station Road	0.12	0.10	13.08	0.08	0.10	14.98
A20 Hythe Road Westbound	0.01	0.00	7.45	0.03	0.00	9.13
Church Road	0.67	1.80	64.65	0.51	1.00	59.70
A20 Hythe Road Eastbound	0.32	0.50	9.89	0.26	0.40	8.31
2044 10K DM						
Station Road	0.59	1.40	26.92	0.66	1.80	32.58
A20 Hythe Road Westbound	0.02	0.00	6.46	0.04	0.00	7.41
Church Road	0.44	0.80	26.70	0.30	0.40	25.49
A20 Hythe Road Eastbound	0.26	0.30	8.77	0.22	0.30	7.97
2044 10K DS						
Station Road	0.67	1.90	37.49	0.72	2.40	42.68
A20 Hythe Road Westbound	0.01	0.00	7.52	0.03	0.00	9.31
Church Road	0.70	2.10	74.37	0.56	1.20	71.41
A20 Hythe Road Eastbound	0.33	0.50	10.10	0.27	0.40	8.45

10.3.10 J6: A20 Hythe Road / Mersham

The A20 Hythe Road / Mersham is a priority T-junction located to the north-east of Mersham. The junction is presented in Figure 30, and has been assessed in the PICADY module of Junctions9. The capacity assessments are presented in Table 54.

Figure 30 A20 Hythe Road / Mersham

The PICADY assessment of this junction indicates that the junction operates well within capacity in the 2018 Base Year and will continue to operate within capacity in all the assessed Do-Minimum and Do-Something scenarios. The maximum RFC is 0.37 in the 2044 8.5k Do-Something and 2044 10k Do-Something scenario in the AM peak hour.

This junction is well within capacity in the scenarios assessed and does not require further discussion.

Table 54 J6: A20 Ashford Road / Mersham capacity assessment

Approach	AM Peak			PM Peak		
	RFC	Queue Length (vehicles)	Ave. Delay per Vehicle (secs)	RFC	Queue Length (vehicles)	Ave. Delay per Vehicle (secs)
2018						
Mersham	0.21	0.3	8.19	0.12	0.1	6.92
A20 Hythe Road Eastbound	0.19	0.2	8.25	0.18	0.2	7.56
2037 DM						
Mersham	0.32	0.5	11.85	0.18	0.2	8.59
A20 Hythe Road Eastbound	0.29	0.4	11.62	0.28	0.4	10.1
2037 DS						
Mersham	0.31	0.5	11.64	0.17	0.2	8.19
A20 Hythe Road Eastbound	0.28	0.4	11.32	0.27	0.4	9.55
2044 8.5K DM						
Mersham	0.34	0.5	12.34	0.19	0.2	8.7
A20 Hythe Road Eastbound	0.31	0.4	11.85	0.29	0.4	10.28
2044 8.5K DS						
Mersham	0.37	0.6	14.14	0.2	0.2	9.04
A20 Hythe Road Eastbound	0.33	0.5	13.04	0.3	0.4	10.64
2044 10K DM						
Mersham	0.34	0.5	12.24	0.19	0.2	8.72
A20 Hythe Road Eastbound	0.3	0.4	11.73	0.3	0.4	10.34
2044 10K DS						
Mersham	0.38	0.6	14.56	0.2	0.2	9.19
A20 Hythe Road Eastbound	0.33	0.5	13.24	0.31	0.4	10.85

10.3.11 J7a: A2070 Kennington Road / The Street

The A2070 Kennington Road / The Street is a staggered priority junction. It is located to the north of M20 Junction 10, connected via A2070 Kennington Road. The junction is presented in Figure 31, and has been assessed in the PICADY module of Junctions9. The capacity assessments are presented in Table 55.

Figure 31 A2070 Kennington Road / The Street

The PICADY assessment of this junction indicates that the junction operates well within capacity in the 2018 Base Year and will continue to operate within capacity in all the assessed Do-Minimum and Do-Something scenarios. The maximum RFC is 0.58 on The Street (westbound) in the 2044 8.5k Do-Something scenario in the AM peak hour. This junction is well within capacity in the scenarios assessed and does not require further discussion.

Table 55 J7a: A2070 Kennington Road / The Street capacity assessment

Approach	AM Peak			PM Peak		
	RFC	Queue Length (vehicles)	Ave. Delay per Vehicle (secs)	RFC	Queue Length (vehicles)	Ave. Delay per Vehicle (secs)
2018						
The Street Eastbound	0.00	0.00	0.00	0.01	0.00	7.81
A2070 Kennington Road Northbound	0.24	0.30	8.27	0.29	0.40	9.72
The Street Westbound	0.13	0.10	10.26	0.09	0.10	8.50
A2070 Kennington Road Southbound	0.00	0.00	7.54	0.00	0.00	6.20
2037 DM						
The Street Eastbound	0.06	0.10	43.31	0.03	0.00	19.80
A2070 Kennington Road Northbound	0.24	0.30	11.63	0.34	0.50	14.62
The Street Westbound	0.38	0.60	42.01	0.20	0.20	23.50
A2070 Kennington Road Southbound	0.00	0.00	10.09	0.00	0.00	9.05
2037 DS						
The Street Eastbound	0.07	0.10	49.34	0.03	0.00	21.57
A2070 Kennington Road Northbound	0.25	0.30	11.84	0.35	0.50	15.14
The Street Westbound	0.42	0.70	49.20	0.23	0.40	28.00
A2070 Kennington Road Southbound	0.00	0.00	10.31	0.00	0.00	9.20
2044 8.5K DM						
The Street Eastbound	0.10	0.10	58.09	0.03	0.00	22.39
A2070 Kennington Road Northbound	0.27	0.40	12.32	0.38	0.60	16.13
The Street Westbound	0.49	0.90	61.87	0.29	0.40	36.04
A2070 Kennington Road Southbound	0.00	0.00	10.55	0.00	0.00	9.22
2044 8.5K DS						
The Street Eastbound	0.13	0.10	78.25	0.04	0.00	26.63
A2070 Kennington Road Northbound	0.27	0.40	12.69	0.40	0.70	16.99
The Street Westbound	0.60	1.30	96.35	0.44	0.70	67.96
A2070 Kennington Road Southbound	0.00	0.00	10.94	0.00	0.00	9.49
2044 10K DM						
The Street Eastbound	0.10	0.10	57.91	0.03	0.00	22.42
A2070 Kennington Road Northbound	0.27	0.40	12.34	0.38	0.60	16.11
The Street Westbound	0.49	0.90	62.17	0.29	0.40	35.50
A2070 Kennington Road Southbound	0.00	0.00	10.54	0.00	0.00	9.22
2044 10K DS						
The Street Eastbound	0.12	0.10	75.36	0.04	0.00	26.61
A2070 Kennington Road Northbound	0.27	0.40	12.73	0.40	0.70	17.05
The Street Westbound	0.60	1.30	92.77	0.43	0.70	68.44
A2070 Kennington Road Southbound	0.00	0.00	10.95	0.00	0.00	9.52

10.3.12 **J7b: A20 Hythe Road / The Street**

The A20 Hythe Road / The Street junction is a four-arm roundabout. It is located to the east of the M20 Junction 10, connecting to the interchange via A20 Hythe Road. The junction is presented in Figure 32, and has been assessed in the ARCADY module of Junctions9. The assessment results can be found in Table 56.

Figure 32 A20 Hythe Road / The Street

The ARCADY assessment of this junction indicates that the junction operates well within capacity in the 2018 Base Year, as well as in the assessed Do-Minimum scenarios. The assessment highlights that the junction will be over capacity in 2044 8.5k Do-Something in the AM peak with an RFC of 0.92 on the A20 Hythe Road (westbound) and 2044 10k Do-Something in the AM peak with an RFC of 0.91 on the A20 Hythe Road (westbound).

The modelling indicates there may be a capacity issue in the Do-Something scenarios, for further discussion please see Section 10.4.

Table 56 J7b: A20 Ashford Road / The Street capacity assessment

Approach	AM Peak			PM Peak		
	RFC	Queue Length (vehicles)	Ave. Delay per Vehicle (secs)	RFC	Queue Length (vehicles)	Ave. Delay per Vehicle (secs)
2018						
A20 Hythe Road Westbound	0.68	2.1	10.88	0.56	1.3	8.42
Tesco Access	0.3	0.4	5.03	0.46	0.9	5.83
A20 Hythe Road Eastbound	0.41	0.7	3.51	0.54	1.2	4.56
The Street	0.48	0.9	14.44	0.56	1.3	23.45
2037 DM						
A20 Hythe Road Westbound	0.76	3	14.04	0.62	1.6	9.39
Tesco Access	0.34	0.5	5.53	0.49	1	6.16
A20 Hythe Road Eastbound	0.37	0.6	3.25	0.39	0.6	3.39
The Street	0.6	1.5	17.92	0.37	0.6	12.09
2037 DS						
A20 Hythe Road Westbound	0.84	5.1	21.96	0.66	1.9	10.87
Tesco Access	0.36	0.6	5.97	0.51	1	6.51
A20 Hythe Road Eastbound	0.32	0.5	3.02	0.35	0.5	3.1
The Street	0.56	1.2	14.76	0.34	0.5	10.29
2044 8.5K DM						
A20 Hythe Road Westbound	0.81	4	17.89	0.65	1.8	10.41
Tesco Access	0.37	0.6	5.92	0.53	1.1	6.67
A20 Hythe Road Eastbound	0.39	0.6	3.34	0.38	0.6	3.35
The Street	0.66	1.8	21.11	0.39	0.6	12.33
2044 8.5K DS						
A20 Hythe Road Westbound	**0.92**	9.5	39	0.73	2.6	13.77
Tesco Access	0.39	0.6	6.59	0.55	1.2	7.34
A20 Hythe Road Eastbound	0.33	0.5	3.06	0.34	0.5	3.09
The Street	0.6	1.5	16.6	0.36	0.6	10.59
2044 10K DM						
A20 Hythe Road Westbound	0.8	3.8	17.12	0.65	1.8	10.42
Tesco Access	0.37	0.6	5.9	0.53	1.1	6.66
A20 Hythe Road Eastbound	0.37	0.6	3.27	0.39	0.6	3.38
The Street	0.65	1.8	20.16	0.4	0.7	12.51
2044 10K DS						
A20 Hythe Road Westbound	**0.92**	9.6	39.43	0.74	2.7	14.26
Tesco Access	0.4	0.7	6.62	0.56	1.2	7.42
A20 Hythe Road Eastbound	0.32	0.5	3.02	0.35	0.5	3.09
The Street	0.59	1.4	16.03	0.36	0.5	10.48

10.3.13 J8: A20 Ashford Road / B2067 Otterpool Lane

The A20 Ashford Road / B2067 Otterpool Lane is a signalised T-junction, located to the east of Newingreen. In the Do-Something scenarios, this junction will also provide connections into development zones 1B and 7 (J31).

The junction is presented in Figure 33, and has been assessed in LinSig. The assessment results can be found in Table 57.

Figure 33 A20 Ashford Road / B2067 Otterpool Lane

The LinSig assessment of this junction indicates that the junction operates well within capacity in the 2018 Base Year. The assessment highlights that the junction is over capacity in all of the assessed Do-Minimum scenarios. However, given the rerouting of traffic in the Do-Something scenarios associated with the inclusion of the signalised junction in Newingreen in these scenarios, this junction experiences significantly less congestion in the Do-Something scenarios than in the Do-Minimum scenarios and therefore does not require further discussion.

Table 57 J8: A20 Ashford Road / B2067 Otterpool Lane capacity assessment

Traffic Movement	AM Peak			PM Peak		
	Degree of Saturation	Mean Max Queue (PCUs)	Ave. Delay per PCU (secs)	Degree of Saturation	Mean Max Queue (PCUs)	Ave. Delay per PCU (secs)
2018						
A20 Ashford Road Westbound	47.4%	5.8	34.8	46.1%	5.5	48.4
B2067 Otterpool Lane	47.3%	7.4	47.1	46.4%	9.6	34.5
A20 Ashford Road Eastbound	45.1%	3	28	44.0%	4.4	32
2037 DM						
A20 Ashford Road Westbound	86.5%	8.5	91.3	**103.5%**	19.8	210.8
B2067 Otterpool Lane	91.1%	34.3	45.3	**103.6%**	66.4	136.9
A20 Ashford Road Eastbound	66.8%	13.9	43.9	**100.6%**	24.4	123.5
2037 DS						
A20 Ashford Road Westbound	58.2%	5.8	52.3	57.1%	6.2	45.5
B2067 Otterpool Lane	56.8%	9.7	49.1	57.5%	8	55.8
A20 Ashford Road Eastbound	36.9%	7.9	8.9	28.0%	5.7	5.2
Barrow Hill Cottages	56.9%	9.7	61.1	57.6%	9.9	61.1
2044 8.5K DM						
A20 Ashford Road Westbound	88.1%	9	94.9	**104.5%**	21	224
B2067 Otterpool Lane	**91.4%**	34.6	46.1	**105.2%**	73.2	161.4
A20 Ashford Road Eastbound	67.9%	14.2	44	**104.0%**	30.1	159.9
2044 8.5K DS						
A20 Ashford Road Westbound	62.1%	#N/A	#N/A	67.9%	#N/A	#N/A
B2067 Otterpool Lane	61.1%	11.5	47	67.9%	11.2	57.8
A20 Ashford Road Eastbound	47.6%	10.7	11.5	34.3%	7.9	7.6
Barrow Hill Cottages	60.2%	10.6	61	69.6%	12.2	68.4
2044 10K DM						
A20 Ashford Road Westbound	88.1%	9	94.9	**103.7%**	20.1	213
B2067 Otterpool Lane	**91.0%**	34.2	45.1	**106.1%**	77.2	177.5
A20 Ashford Road Eastbound	67.4%	14	44.1	**95.6%**	18.6	84.3
2044 10K DS						
A20 Ashford Road Westbound	62.1%	5.5	55.4	70.9%	8.5	52.4
B2067 Otterpool Lane	57.7%	10.5	46.8	71.3%	11.9	57.8
A20 Ashford Road Eastbound	43.2%	9.1	10.6	33.4%	7.7	7.9
Barrow Hill Cottages	57.6%	9.8	61.7	71.1%	12.2	70

10.3.14 J9: B2067 Otterpool Lane / Aldington Road

The B2067 Otterpool Lane / Aldington Road is a priority T-junction to the south of the A20 Ashford Road / B2067 Otterpool Lane junction. The junction is presented in Figure 34, and has been assessed in the PICADY module of Junctions9. The assessment results can be found in Table 58.

Figure 34 B2067 Otterpool Lane / Aldington Road

The PICADY assessment of this junction indicates that the junction operates well within capacity in the 2018 Base Year. The assessment highlights that the junction is over capacity all of the assessed Do-Minimum scenarios. However, the VISUM modelling indicates that the proposed signalisation of the Newingreen Junction would reduce traffic seeking alternative routes, given the increase in capacity at that junction, and the modelling results indicate that this junction will operate within capacity in the Do-Something due to the reduced traffic volumes predicted. This junction is well within capacity in the Do-Something scenarios assessed and does not require further discussion.

Table 58 J9: B2067 Otterpool Lane / Aldington Road

Approach	AM Peak			PM Peak		
	RFC	Queue Length (vehicles)	Ave. Delay per Vehicle (secs)	RFC	Queue Length (vehicles)	Ave. Delay per Vehicle (secs)
2018						
B2067 Otterpool Lane	0.11	0.1	6.65	0.21	0.3	9.47
Aldington Road Westbound	0.21	0.3	8	0.11	0.1	6.85
2037 DM						
B2067 Otterpool Lane	0.78	2.3	169.18	0.45	0.8	50.56
Aldington Road Westbound	**1.41**	174.2	1023.26	**1.32**	129.4	742.77
2037 DS						
B2067 Otterpool Lane	0.35	0.5	9.09	0.35	0.5	8.67
Aldington Road Westbound	0.42	0.7	10.89	0.34	0.5	9.6
2044 8.5K DM						
B2067 Otterpool Lane	0.7	1.8	131.12	0.45	0.8	47.87
Aldington Road Westbound	**1.4**	169.6	991.12	**1.31**	123.9	713.69
2044 8.5K DS						
B2067 Otterpool Lane	0.44	0.8	10.7	0.43	0.7	9.92
Aldington Road Westbound	0.46	0.9	11.77	0.54	1.2	13.22
2044 10K DM						
B2067 Otterpool Lane	0.67	1.7	119.65	0.44	0.7	45.1
Aldington Road Westbound	**1.4**	165.8	970.89	**1.3**	119.3	689.53
2044 10K DS						
B2067 Otterpool Lane	0.49	1	11.89	0.45	0.8	10.53
Aldington Road Westbound	0.5	1	12.3	0.69	2.3	19.7

10.3.15 J10: Aldington Road / Stone Street

The Aldington Road / Stone Street is a priority T-junction located in Lympne to the west of J12 Aldington Road / Lympne Hill. The junction is presented in Figure 35, and has been assessed in the PICADY module of Junctions9. The assessment results can be found in Table 59.

Figure 35 Aldington Road / Stone Street

The PICADY assessment of this junction indicates that the junction operates well within capacity in the 2018 Base Year and will continue to operate within capacity in all the assessed Do-Minimum and Do-Something scenarios. The maximum RFC is 0.75 on Aldington Road in both the 2044 8.5k Do-Something and 2044 10k Do-Something scenarios in the AM peak hour.

This junction is well within capacity in the scenarios assessed and does not require further discussion.

Table 59 J10: Aldington Road / Stone Street capacity assessment

Approach	AM Peak			PM Peak		
	RFC	Queue Length (vehicles)	Ave. Delay per Vehicle (secs)	RFC	Queue Length (vehicles)	Ave. Delay per Vehicle (secs)
2018						
Stone Street left to Aldington Road Westbound	0.09	0.1	7.27	0.11	0.1	8.24
Stone Street right to Aldington Road Eastbound	0.28	0.4	10.86	0.47	0.9	14.02
Aldington Road Westbound	0.01	0	5.97	0.03	0	5.41
2037 DM						
Stone Street left to Aldington Road Westbound	0.44	0.8	10.66	0.39	0.6	9.71
Stone Street right to Aldington Road Eastbound	0.3	0.4	16.5	0.22	0.3	16.7
Aldington Road Westbound	0.12	0.3	3.92	0.32	1	4.82
2037 DS						
Stone Street left to Aldington Road Westbound	0.26	0.4	8.23	0.41	0.7	10.45
Stone Street right to Aldington Road Eastbound	0.28	0.4	17.59	0.19	0.2	15.74
Aldington Road Westbound	0.58	1.8	11.67	0.32	0.6	7.48
2044 8.5K DM						
Stone Street left to Aldington Road Westbound	0.45	0.8	10.82	0.38	0.6	9.66
Stone Street right to Aldington Road Eastbound	0.29	0.4	16.11	0.23	0.3	16.69
Aldington Road Westbound	0.05	0.1	3.76	0.3	0.9	4.75
2044 8.5K DS						
Stone Street left to Aldington Road Westbound	0.28	0.4	8.41	0.55	1.2	14.21
Stone Street right to Aldington Road Eastbound	0.27	0.4	20.75	0.27	0.4	18.43
Aldington Road Westbound	0.75	3.8	19.59	0.28	0.6	6.56
2044 10K DM						
Stone Street left to Aldington Road Westbound	0.42	0.7	10.46	0.37	0.6	9.58
Stone Street right to Aldington Road Eastbound	0.32	0.5	16.5	0.22	0.3	16.79
Aldington Road Westbound	0.11	0.2	3.93	0.32	1	4.89
2044 10K DS						
Stone Street left to Aldington Road Westbound	0.27	0.4	8.73	0.57	1.3	15.67
Stone Street right to Aldington Road Eastbound	0.31	0.4	20.38	0.47	0.9	23.85
Aldington Road Westbound	0.77	4.2	20.98	0.28	0.6	6.44

10.3.16 J11 A20 Ashford Road / Stone Street / Hythe Road

A20 Ashford Road / Stone Street / Hythe Road is a complex priority controlled junction in Newingreen. The junction is presented in Figure 36, and has been assessed in the PICADY module of Junctions9. The assessment results can be found in Table 60.

Figure 36 A20 Ashford Road / Stone Street / Hythe Road

The PICADY assessment of this junction indicates that the junction operates over capacity in the Base Year, with an RFC of 0.87 in the AM peak on Hythe Road.

The assessment also highlights that this junction will have capacity issues in all future scenarios. However, the implementation of the Otterpool Avenue enables a fresh investigation into the junction in the light of reduced traffic flows. A core element of the Do-Something scenario is the provision of a signalised junction in this location, hence the Do-Something results provided relate to this junction, which is discussed in further detail in Section 10.4.

Table 60 J11: A20 Ashford Road / Stone Street / Hythe Road capacity assessment

Traffic Movement	AM Peak			PM Peak		
	RFC	Queue Length (vehicles)	Ave. Delay per Vehicle (secs)	RFC	Queue Length (vehicles)	Ave. Delay per Vehicle (secs)
2018						
Hythe Road	0.87	5.7	88.64	0.72	2.4	49.08
Stone Street	0.72	2.5	36.54	0.37	0.6	16.48
A20 Ashford Road	0.18	0.2	7.92	0.35	0.5	10.50
2037 DM						
Hythe Road	1.67	99.5	1096.59	0.71	2.2	60.68
Stone Street	0.5	1	22.55	0.38	0.6	19.08
A20 Ashford Road	0.39	0.6	12.45	0.55	1.2	17.15
2037 DS						
A20 Ashford Road Southbound	58.4%	5.5	34.1	82.0%	10.6	36.4
A20 Ashford Road Eastbound	71.8%	5.3	30.7	82.6%	5.6	54.1
Stone Street	78.6%	5.9	41.1	51.7%	2.7	41.3
A261 Hythe Road	80.8%	9.1	29.8	84.7%	10.5	36.3
2044 8.5K DM						
Hythe Road	1.97	161.1	1705.19	0.9	5.3	124.44
Stone Street	0.47	0.9	21.84	0.36	0.6	18.66
A20 Ashford Road	0.4	0.7	12.7	0.58	1.4	18.47
2044 8.5K DS						
A20 Ashford Road Southbound	84.9%	6.1	38.2	87.8%	12	42.2
A20 Ashford Road Eastbound	85.0%	6.7	42.7	87.8%	7.2	65.3
Stone Street	86.0%	7.6	46.3	49.7%	2.5	40.9
A261 Hythe Road	85.8%	10.5	33.1	87.0%	11.4	38.4
2044 10K DM						
Hythe Road	1.9	143.5	1554.88	0.85	4.1	101.32
A292 Hythe Road Road	0.659	6.6	42.6	0.69	6	49.2
A20 Ashford Road	0.42	0.7	13	0.58	1.4	18.12
2044 10K DS						
A20 Ashford Road Southbound	85.2%	6.2	38.8	86.2%	11.5	40.3
A20 Ashford Road Eastbound	83.6%	6.4	40.5	85.7%	6.6	60.2
Stone Street	84.7%	7.3	44.8	47.3%	2.4	40.4
A261 Hythe Road	85.4%	10.3	32.8	86.8%	11.3	38.1

10.3.17 J12: Aldington Road / Lympne Hill

The Aldington Road / Lympne Hill is a priority T-junction is located to the east of Lympne. The junction is presented in Figure 37, and has been assessed in the PICADY module of Junctions9. The assessment results can be found in Table 61.

Figure 37 Aldington Road / Lympne Hill

The PICADY assessment of this junction indicates that the junction operates well within capacity in the 2018 Base Year, and all assessed Do-Minimum scenarios, and 2037 Do-Something. However, the assessment of this junction indicates that the junction will be marginally over capacity in the 2044 8.5k Do-Something with an RFC of 0.91 and 2044 10k Do-Something scenarios with an RFC of 0.9, both in the AM peak hour on Aldington Road (eastbound).

The modelling indicates there may be a capacity issue in the Do-Something scenarios, for further discussion please see Section 10.4.

Table 61 J12: A20 Aldington Road / Lympne Hill capacity assessment

Approach	AM Peak			PM Peak		
	RFC	Queue Length (vehicles)	Ave. Delay per Vehicle (secs)	RFC	Queue Length (vehicles)	Ave. Delay per Vehicle (secs)
2018						
Lympne Hill	0.36	0.6	7.98	0.14	0.2	5.91
Aldington Road Eastbound	0.21	0.3	7.52	0.46	0.9	10.62
2037 DM						
Lympne Hill	0.57	1.3	14.91	0.39	0.6	11.74
Aldington Road Eastbound	0.48	1	13.17	0.73	2.8	28.33
2037 DS						
Lympne Hill	0.62	1.6	13.97	0.46	0.8	9.59
Aldington Road Eastbound	0.62	1.7	15.43	0.73	2.7	21.54
2044 8.5K DM						
Lympne Hill	0.57	1.3	14.98	0.11	0.1	17.81
Aldington Road Eastbound	0.49	1	13.08	0.74	3	29.52
2044 8.5K DS						
Lympne Hill	0.76	3.1	22.07	0.54	1.1	11.42
Aldington Road Eastbound	0.72	2.6	20.74	**0.91**	7.9	55.13
2044 10K DM						
Lympne Hill	0.57	1.3	14.83	0.4	0.6	11.73
Aldington Road Eastbound	0.45	0.9	12.48	0.73	2.8	28.63
2044 10K DS						
Lympne Hill	0.77	3.1	22.45	0.56	1.2	11.97
Aldington Road Eastbound	0.74	2.9	22.21	**0.92**	8.5	58.37

10.3.18 J13: A261 Hythe Road / Aldington Road

The A261 Hythe Road / Aldington Road is a priority T-junction located to the south of Pedlinge. The junction is presented in Figure 38, and has been assessed in the PICADY module of Junctions9. The assessment results can be found in Table 62.

Figure 38 A261 Hythe Road / Aldington Road

The PICADY assessment of this junction indicates that the junction operates well within capacity in the 2018 Base Year and will continue to operate within capacity in all the assessed Do-Minimum and Do-Something scenarios. The maximum RFC is 0.52 on Aldington Road in 2044 8.5k Do-Something in the AM peak hour.

This junction is well within capacity in the scenarios assessed and does not require further discussion.

Table 62 J13: A2610 Hythe Road / Aldington Road capacity assessment

Approach	AM Peak			PM Peak		
	RFC	Queue Length (vehicles)	Ave. Delay per Vehicle (secs)	RFC	Queue Length (vehicles)	Ave. Delay per Vehicle (secs)
2018						
Aldington Road	0.36	0.6	14.94	0.26	0.4	13.32
A261 Hythe Road Eastbound	0.03	0	7.56	0.06	0.1	6.76
2037 DM						
Aldington Road	0.47	0.9	23.73	0.27	0.4	16.68
A261 Hythe Road Eastbound	0.01	0	13.53	0	0	0
2037 DS						
Aldington Road	0.47	0.9	36.03	0.42	0.7	36.06
A261 Hythe Road Eastbound	0.01	0	13.57	0	0	0
2044 8.5K DM						
Aldington Road	0.49	0.9	25.96	0.28	0.4	17.44
A261 Hythe Road Eastbound	0	0	0	0	0	0
2044 8.5K DS						
Aldington Road	0.52	1	43.89	0.37	0.6	38.01
A261 Hythe Road Eastbound	0	0	0	0	0	0
2044 10K DM						
Aldington Road	0.49	0.9	26.12	0.27	0.4	17.14
A261 Hythe Road Eastbound	0.04	0.1	8.61	0	0	0
2044 10K DS						
Aldington Road	0.54	1.1	44.96	0.38	0.6	38.4
A261 Hythe Road Eastbound	0.01	0	9.03	0	0	0

10.3.19 J14: A261 London Road / Barrack Hill

The A261 London Road / Barrack Hill is a priority T-junction immediately to the north of J15 A259 / Dymchurch Road / Military Road signalised junction. The junction is presented in Figure 39, and has been assessed in the PICADY module of Junctions9. The assessment results can be found in Table 63.

Figure 39 A261 London Road / Barrack Hill

The PICADY assessment of this junction indicates that the junction operates well within capacity in the 2018 Base Year, as well as all Do-Minimum scenarios, and 2037 Do-Something. However, in the assessment highlights, that the junction is over capacity in 2044 8.5k Do-Something with a maximum RFC of 1.18, and in 2044 10k Do-Something with a maximum RFC of 1.1, both in the PM peak hour. The capacity issues are present for vehicles exiting Barrack Hill on A261 London Road (in both directions).

The modelling indicates there may be a capacity issue in the Do-Something scenarios, for further discussion please see Section 10.4.

Table 63 J14: A261 London Road / Barrack Hill capacity assessment

Approach	AM Peak			PM Peak		
	RFC	Queue Length (vehicles)	Ave. Delay per Vehicle (secs)	RFC	Queue Length (vehicles)	Ave. Delay per Vehicle (secs)
2018						
Barrack Hill	0.32	0.5	8.68	0.25	0.3	8.28
A261 London Road Westbound	0.37	0.6	9.45	0.23	0.3	8.82
2037 DM						
Barrack Hill	0.41	0.7	12.58	0.36	0.6	12.94
A261 London Road Westbound	0.47	1.2	10.77	0.32	0.6	10.87
2037 DS						
Barrack Hill	0.47	0.8	87.56	0.76	2.4	145.69
A261 London Road Westbound	0.49	1.4	10.92	0.33	0.6	11.03
2044 8.5K DM						
Barrack Hill	0.42	0.7	12.92	0.38	0.6	13.65
A261 London Road Westbound	0.48	1.4	10.78	0.33	0.6	11.02
2044 8.5K DS						
Barrack Hill	0.6	1.3	143.44	**1.18**	12.8	348.38
A261 London Road Westbound	0.51	1.7	10.99	0.35	0.7	11.39
2044 10K DM						
Barrack Hill	0.42	0.7	12.71	0.37	0.6	13.26
A261 London Road Westbound	0.47	1.3	10.75	0.32	0.6	10.93
2044 10K DS						
Barrack Hill	0.58	1.2	132.98	**1.15**	11.5	323.74
A261 London Road Westbound	0.5	1.6	11.03	0.34	0.7	11.32

10.3.20 J15 A259 / Dymchurch Road / Military Road Gyratory

The A259 / Dymchurch Road / Military Road is a signalised junction to the south of J14 A261 London Road / Barrack Hill. The junction is presented in Figure 40, and has been assessed in LinSig. The assessment results can be found in Table 64.

Figure 40 A259 / Dymchurch Road / Military Road Gyratory

The LinSig assessment of this junction indicates that the junction operates well within capacity in the 2018 Base Year. However, the assessment highlights that the junction is over capacity in all future scenarios. Capacity issues have been identified on London Road for all movements, and A259 Military Bridge for right turners in both the AM and PM peak hours.

The highest DoS is predicted to occur in the 2044 8.5k scenario. In the AM peak the maximum DoS is 97.2%, and in the PM peak the highest DoS is 100.5%, both of which are on London Road (for ahead and right turners).

Table 64 J15: A259 / Dymchurch Road / Military Road Gyratory capacity assessment

Traffic Movement	AM Peak			PM Peak		
	Degree of Saturation	Mean Max Queue (PCUs)	Ave. Delay per PCU (secs)	Degree of Saturation	Mean Max Queue (PCUs)	Ave. Delay per PCU (secs)
2018						
London Road	60.3%	4.9	16.6	63.2%	4.8	14.1
St John Moore Avenue	30.4%	0.2	5.3	56.7%	1.7	8.5
Portland Road	46.2%	0.4	5.8	46.1%	0.4	6.3
Dymchurch Road Northbound	67.5%	8	12.4	55.0%	6.1	12.2
Dymchurch Road Westbound	42.9%	4.6	5.5	60.6%	7.9	8
Green Lane	18.0%	0.8	46.3	16.8%	0.7	36.1
Scalons Bridge Road Northbound	64.3%	11	16.1	66.6%	9.1	18.4
Scalons Bridge Road Right Southbound	38.4%	3.1	24.5	52.4%	4.1	29.8
Military Road Ahead	70.9%	11.9	8.6	74.4%	12.1	9.9
2037 DM						
London Road	**95.3%**	19.2	40.9	**97.6%**	22.7	47.8
St John Moore Avenue	35.9%	0.3	6.6	65.5%	3.2	12.3
Portland Road	62.6%	0.8	8.9	70.5%	1.2	12.5
Dymchurch Road Northbound	86.2%	11.9	17.6	70.0%	7.6	15.1
Dymchurch Road Westbound	54.5%	6.5	6.3	76.3%	12.6	11
Green Lane	19.5%	0.8	46.5	17.2%	0.7	36.2
Scalons Bridge Road Northbound	**93.3%**	22.3	47.7	**97.3%**	20.3	71.7
Scalons Bridge Road Right Southbound	57.0%	6.8	18.4	82.1%	11.2	32.2
Military Road Ahead	89.6%	23.5	17.4	86.6%	18.7	15.3
2037 DS						
London Road	**93.9%**	17.5	34.5	**97.8%**	23	48.4
St John Moore Avenue	36.7%	0.3	6.8	65.8%	3.3	12.5
Portland Road	69.2%	1.1	11.1	79.3%	1.8	18
Dymchurch Road Northbound	89.3%	13.5	21.6	71.3%	8	16
Dymchurch Road Westbound	59.7%	7.7	6.8	81.2%	14.9	12.8
Green Lane	19.5%	0.8	46.5	17.2%	0.7	36.2
Scalons Bridge Road Northbound	**95.8%**	24.8	58.3	**97.3%**	20.3	71.7
Scalons Bridge Road Right Southbound	59.0%	7	19.6	82.1%	11.2	32.2
Military Road Ahead	**92.5%**	27.2	21.4	87.2%	19.3	15.8
2044 8.5K DM						
London Road	**96.0%**	20	43.5	**99.6%**	28	61.7
St John Moore Avenue	37.8%	0.3	6.9	68.7%	3.6	14
Portland Road	65.2%	0.9	9.6	73.1%	1.3	13.8
Dymchurch Road Northbound	88.4%	12.8	19.3	71.6%	8	15.4
Dymchurch Road Westbound	56.4%	6.7	6.5	78.2%	13.4	11.6
Green Lane	19.5%	0.8	46.5	17.2%	0.7	36.2
Scalons Bridge Road Northbound	**95.9%**	25.3	57.2	**99.9%**	24.3	91.2
Scalons Bridge Road Right Southbound	57.4%	6.8	18.5	83.7%	11.7	33.6
Military Road Ahead	**91.6%**	26.1	19.9	89.1%	21	17.5

The modelling indicates there may be a capacity issue in the Do-Something scenarios; for further discussion please see Section 10.4 below.

Traffic Movement	AM Peak			PM Peak		
	Degree of Saturation	Mean Max Queue (PCUs)	Ave. Delay per PCU (secs)	Degree of Saturation	Mean Max Queue (PCUs)	Ave. Delay per PCU (secs)
2044 8.5K DS						
London Road	**97.2%**	22.4	47.1	**100.5%**	32	68.2
St John Moore Avenue	39.3%	0.3	7.3	72.5%	4.3	16.7
Portland Road	76.9%	1.6	14.8	87.0%	3	28
Dymchurch Road Northbound	**93.4%**	17.8	28.3	74.7%	8.7	17.6
Dymchurch Road Westbound	63.0%	8.5	7.2	87.2%	18.3	16.3
Green Lane	19.5%	0.8	46.5	17.2%	0.7	36.2
Scalons Bridge Road Northbound	**95.9%**	25.3	57.2	**100.3%**	25.1	94.2
Scalons Bridge Road Right Southbound	61.5%	7.4	21	86.7%	12.5	38.4
Military Road Ahead	**96.3%**	34.5	31.5	**94.0%**	26.7	25.4
2044 10K DM						
London Road	**95.7%**	19.7	42.5	**98.6%**	24.7	53.7
St John Moore Avenue	36.8%	0.3	6.7	66.7%	3.4	12.9
Portland Road	63.7%	0.9	9.2	71.4%	1.2	12.9
Dymchurch Road Northbound	87.0%	12.2	18.2	70.3%	7.7	15.2
Dymchurch Road Westbound	55.4%	6.6	6.3	76.9%	12.7	11.2
Green Lane	19.5%	0.8	46.5	17.2%	0.7	36.2
Scalons Bridge Road Northbound	**94.0%**	22.9	50	**97.9%**	21.2	75.7
Scalons Bridge Road Right Southbound	57.3%	6.8	18.5	82.8%	11.4	32.8
Military Road Ahead	**90.5%**	24.5	18.4	87.6%	19.5	16.1
2044 10K DS						
London Road	**91.3%**	13.5	28.3	**98.1%**	24.1	48.7
St John Moore Avenue	36.9%	0.3	7	69.2%	3.6	14.5
Portland Road	75.2%	1.5	13.7	84.5%	2.5	23.9
Dymchurch Road Northbound	**90.7%**	14.5	24.1	80.3%	10.3	28.4
Dymchurch Road Westbound	61.1%	7.9	6.9	84.9%	16.7	14.7
Green Lane	17.4%	0.8	46.2	16.3%	0.7	36.1
Scalons Bridge Road Northbound	**90.9%**	20.5	40.8	**97.8%**	20.9	74.7
Scalons Bridge Road Right Southbound	56.1%	6.4	19.8	85.0%	11.8	36.3
Military Road Ahead	**94.5%**	30.5	25.7	91.6%	23.4	20.7

10.3.21 J16: A259 Prospect Road / A259 East Road / Station Road / High Street

The A259 Prospect Road/ Station Road/ High Street roundabout is located to the east of the Dymchurch gyratory. It is a four-arm roundabout with the high street arm operating as exit only. The roundabout is presented in Figure 41 and has been assessed in the ARCADY module of Junctions9. The capacity assessments are presented in Table 65.

Figure 41 A259 Prospect Road / A259 East Road / Station Road / High Street

The ARCADY assessment of this junction indicates that the junction operates well within capacity in the 2018 Base Year, as well as 2037 Do-Minimum and So-Something, and 2044 10k Do-Minimum. The assessment predicts that the junction is at full capacity in 2044 8.5k Do-Minimum in the AM peak with an RFC of 0.85, and marginally over capacity in 2044 8.5k Do-Something with an RFC of 0.88 and 10k Do-Something with an RFC of 0.86. These capacity issues are all in the AM peak hour on Prospect Road.

Otterpool Park development traffic does not present a severe impact at this junction and there does not appear to be an existing safety issue, therefore no mitigation is proposed at this location.

Table 65 J16: A259 Prospect Road / A259 East Road / Station Road / High Street capacity assessment

Approach	AM Peak			PM Peak		
	RFC	Queue Length (vehicles)	Ave. Delay per Vehicle (secs)	RFC	Queue Length (vehicles)	Ave. Delay per Vehicle (secs)
2018						
Station Road	0.36	0.6	5.15	0.38	0.6	5.44
A259 Seabrook Road	0.4	0.7	4.1	0.5	1	4.82
Prospect Road	0.69	2.2	8.59	0.72	2.5	9.47
2037 DM						
Station Road	0.4	0.7	5.5	0.45	0.8	6.02
A259 Seabrook Road	0.42	0.7	4.19	0.55	1.2	5.36
Prospect Road	0.83	4.6	16.1	0.72	2.5	9.29
2037 DS						
Station Road	0.43	0.8	5.91	0.47	0.9	6.33
A259 Seabrook Road	0.44	0.8	4.4	0.57	1.3	5.72
Prospect Road	0.84	4.9	17	0.7	2.2	8.63
2044 8.5K DM						
Station Road	0.42	0.7	5.73	0.47	0.9	6.26
A259 Seabrook Road	0.44	0.8	4.35	0.57	1.3	5.57
Prospect Road	0.85	5.5	18.79	0.73	2.7	9.79
2044 8.5K DS						
Station Road	0.45	0.8	6.18	0.51	1	6.97
A259 Seabrook Road	0.47	0.9	4.63	0.6	1.5	6.11
Prospect Road	0.88	6.5	21.73	0.75	2.9	10.57
2044 10K DM						
Station Road	0.4	0.7	5.59	0.46	0.8	6.11
A259 Seabrook Road	0.43	0.8	4.26	0.55	1.2	5.42
Prospect Road	0.84	4.9	17.03	0.72	2.6	9.55
2044 10K DS						
Station Road	0.43	0.8	6	0.49	1	6.72
A259 Seabrook Road	0.46	0.8	4.51	0.59	1.4	5.92
Prospect Road	0.86	5.9	20.02	0.73	2.7	9.86

10.3.22 J17: A20 Ashford Road / A20 Junction 11 LILO

The A20 Ashford Road / A20 J11 offslip is a left-in left-out junction located to the south of M20 Junction 11. The junction is presented in Figure 42, and has been assessed in the PICADY module of Junctions9. The capacity assessments are presented in Table 66.

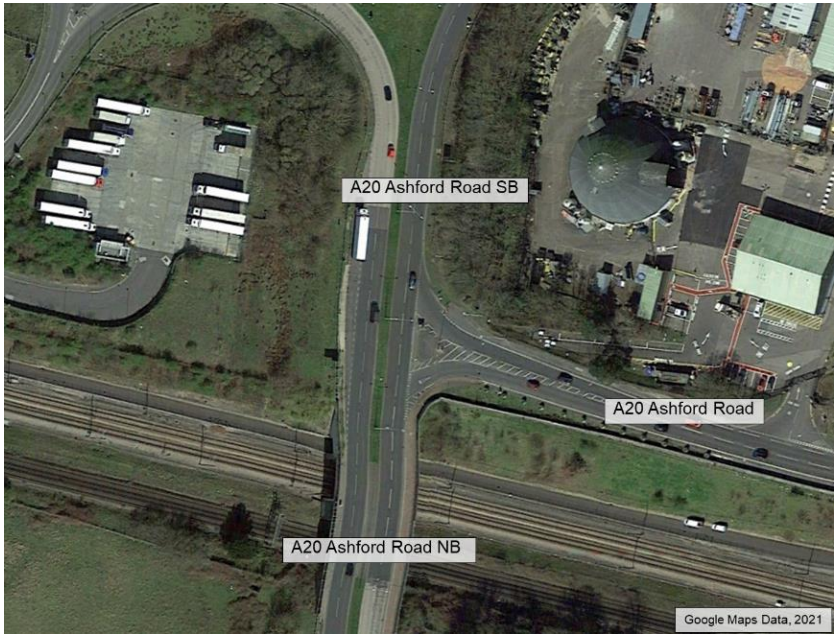


Figure 42 A20 Ashford Road / A20 Junction 11 LILO

The only give-way movement at this junction is the left-out from the A20 to the east. The PICADY assessment of this junction indicates that the junction operates well within capacity in the 2018 Base Year, as well as 2037 Do-Minimum and So-Something, and 2044 10k Do-Minimum. However, the junction is anticipated to be over capacity in 2044 8.5k Do-Something with an RFC of 1.14 and 2044 10k Do-Something with an RFC 1.09 in the AM peak hour.

The modelling indicates there may be a capacity issue in the Do-Something scenarios, for further discussion please see Section 10.4.

Table 66 J17: A20 Ashford Road / A20 Junction 11 LILO capacity assessment

Approach	AM Peak			PM Peak		
	RFC	Queue Length (vehicles)	Ave. Delay per Vehicle (secs)	RFC	Queue Length (vehicles)	Ave. Delay per Vehicle (secs)
2018						
A20 Ashford Road	0.5	1	11.27	0.31	0.4	8.24
2037 DM						
A20 Ashford Road	0.74	2.7	26.09	0.46	0.9	12.45
2037 DS						
A20 Ashford Road	0.82	4.1	43.71	0.54	1.2	19.32
2044 8.5K DM						
A20 Ashford Road	0.77	3.2	30.43	0.48	0.9	13.07
2044 8.5K DS						
A20 Ashford Road	**1.14**	32.6	268.45	0.6	1.5	23.52
2044 10K DM						
A20 Ashford Road	0.76	3	29.04	0.48	0.9	12.8
2044 10K DS						
A20 Ashford Road	**1.15**	34.3	281.61	0.62	1.6	25.56

10.3.23 J18: A20 Ashford Road / Sandling Road

The A20 Ashford Road / Sandling Road is a priority T-junction located to the east of M20 Junction 11. The junction is presented in Figure 43, and has been assessed in the PICADY module of Junctions9. The capacity assessments are presented in Table 67.

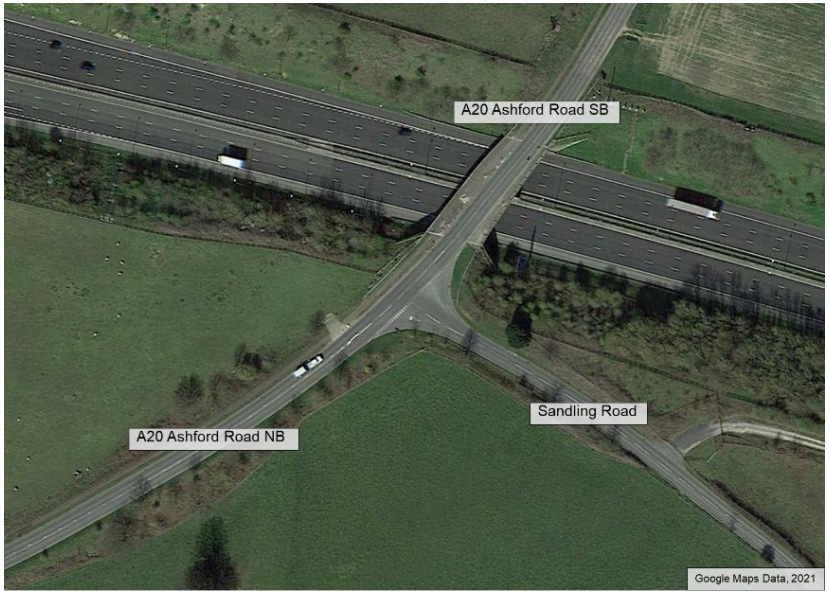


Figure 43 A20 Ashford Road / Sandling Road

The PICADY assessment of this junction indicates that the junction operates well within capacity in the 2018 Base Year and will continue to operate within capacity in all the assessed Do-Minimum and Do-Something scenarios. The highest RFC is 0.51 in 2044 8.5k Do-Something in the PM peak on A20 Ashford Road (northbound). This junction is well within capacity in the scenarios assessed and does not require further discussion.

Table 67 J18: A20 Ashford Road / Sandling Road capacity assessment

Approach	AM Peak			PM Peak		
	RFC	Queue Length (vehicles)	Ave. Delay per Vehicle (secs)	RFC	Queue Length (vehicles)	Ave. Delay per Vehicle (secs)
2018						
Sandling Road	0.28	0.4	7.29	0.23	0.3	6.44
A20 Ashford Rd Northbound	0.23	0.4	6.77	0.36	0.7	7.87
2037 DM						
Sandling Road	0.34	0.5	8.69	0.2	0.2	11.11
A20 Ashford Rd Northbound	0.36	0.7	7.67	0.49	1.1	10
2037 DS						
Sandling Road	0.33	0.5	8.78	0.29	0.4	11.75
A20 Ashford Rd Northbound	0.36	0.8	7.5	0.47	1.1	9.56
2044 8.5K DM						
Sandling Road	0.36	0.6	9.01	0.2	0.3	11.35
A20 Ashford Rd Northbound	0.37	0.8	7.74	0.51	1.2	10.41
2044 8.5K DS						
Sandling Road	0.37	0.6	9.57	0.31	0.4	12.28
A20 Ashford Rd Northbound	0.38	0.8	7.67	0.51	1.3	10.12
2044 10K DM						
Sandling Road	0.35	0.5	8.85	0.2	0.2	11.2
A20 Ashford Rd Northbound	0.37	0.8	7.77	0.5	1.2	10.21
2044 10K DS						
Sandling Road	0.36	0.6	9.39	0.3	0.4	12.12
A20 Ashford Rd Northbound	0.38	0.8	7.7	0.5	1.2	9.96

10.3.24 J19: A20 Ashford Road / Bargrove

The A20 Ashford Road / Bargrove is a four-arm roundabout to the south of Beachborough. The junction is presented in Figure 44, and has been assessed in the ARCADY module of Junctions9. The capacity assessments are presented in Table 68.

Figure 44 A20 Ashford Road / Bargrove

The ARCADY assessment of this junction indicates that the junction operates well within capacity in the 2018 Base Year and will continue to operate within capacity in all the assessed Do-Minimum and Do-Something scenarios. The highest RFC is 0.38 in 2044 8.5k Do-Something in the PM peak on A20 Ashford Road (westbound).

This junction is well within capacity in the scenarios assessed and does not require further discussion.

Table 68 J19: A20 Ashford Road / Bargrove capacity assessment

Approach	AM Peak			PM Peak		
	RFC	Queue Length (vehicles)	Ave. Delay per Vehicle (secs)	RFC	Queue Length (vehicles)	Ave. Delay per Vehicle (secs)
2018						
Beachborough	0.18	0.2	2.69	0.13	0.2	2.47
A20 Ashford Road Westbound	0.28	0.4	3.09	0.32	0.5	3.26
Bargrove	0.22	0.3	3.1	0.19	0.2	3.03
A20 Ashford Road Eastbound	0.07	0.1	2.61	0.06	0.1	2.54
2037 DM						
Beachborough	0.23	0.3	3.02	0.18	0.2	2.65
A20 Ashford Road Westbound	0.32	0.5	3.56	0.35	0.5	3.6
Bargrove	0.26	0.3	3.45	0.24	0.3	3.43
A20 Ashford Road Eastbound	0.19	0.2	3.11	0.1	0.1	2.72
2037 DS						
Beachborough	0.24	0.3	3.1	0.2	0.2	2.77
A20 Ashford Road Westbound	0.32	0.5	3.57	0.37	0.6	3.81
Bargrove	0.24	0.3	3.42	0.23	0.3	3.47
A20 Ashford Road Eastbound	0.22	0.3	3.22	0.15	0.2	2.88
2044 8.5K DM						
Beachborough	0.24	0.3	3.08	0.18	0.2	2.68
A20 Ashford Road Westbound	0.32	0.5	3.6	0.36	0.6	3.67
Bargrove	0.27	0.4	3.52	0.24	0.3	3.46
A20 Ashford Road Eastbound	0.19	0.2	3.15	0.11	0.1	2.75
2044 8.5K DS						
Beachborough	0.26	0.4	3.21	0.21	0.3	2.81
A20 Ashford Road Westbound	0.33	0.5	3.67	0.38	0.6	3.9
Bargrove	0.26	0.4	3.54	0.24	0.3	3.53
A20 Ashford Road Eastbound	0.23	0.3	3.29	0.17	0.2	2.95
2044 10K DM						
Beachborough	0.23	0.3	3.05	0.18	0.2	2.66
A20 Ashford Road Westbound	0.32	0.5	3.58	0.35	0.5	3.63
Bargrove	0.26	0.4	3.48	0.24	0.3	3.44
A20 Ashford Road Eastbound	0.19	0.2	3.14	0.1	0.1	2.73
2044 10K DS						
Beachborough	0.26	0.3	3.18	0.21	0.3	2.8
A20 Ashford Road Westbound	0.32	0.5	3.65	0.37	0.6	3.86
Bargrove	0.26	0.3	3.52	0.24	0.3	3.51
A20 Ashford Road Eastbound	0.23	0.3	3.29	0.17	0.2	2.93

10.3.25 J20: M20 Junction 12 (Cheriton interchange)

M20 Junction 12 is Cheriton Interchange, providing access to Cheriton from the M20. It is a large four-arm priority roundabout. The junction is presented in Figure 45, and has been assessed in the ARCADY module of Junctions9. The capacity assessments are presented in Table 69.

Figure 45 M20 Junction 12 (Cheriton interchange)

The ARCADY assessment of this junction indicates that the junction operates well within capacity in the 2018 Base Year and will continue to operate within capacity in all the assessed Do-Minimum and Do-Something scenarios. The highest RFC is 0.83 in 2044 8.5k Do-Something in the PM peak on the M20 Westbound. This junction is within capacity in the scenarios assessed and does not require further discussion.

Table 69 J20: M20 Junction 12 (Cheriton interchange) capacity assessment

Approach	AM Peak			PM Peak		
	RFC	Queue Length (vehicles)	Ave. Delay per Vehicle (secs)	RFC	Queue Length (vehicles)	Ave. Delay per Vehicle (secs)
2018						
M20 Westbound	0.33	0.5	4.67	0.47	0.9	5.38
B2064 Cheriton	0.37	0.6	2.05	0.42	0.7	2.21
M20 Eastbound	0.56	1.2	4.71	0.37	0.6	3.23
A20 Ashford Road	0.4	0.7	3.98	0.37	0.6	3.41
2037 DM						
M20 Westbound	0.64	1.8	7.48	0.61	1.6	7.74
B2064 Cheriton	0.51	1	2.62	0.49	0.9	2.42
M20 Eastbound	0.46	0.9	4.36	0.61	1.5	6.11
A20 Ashford Road	0.45	0.8	4.19	0.56	1.3	6.34
2037 DS						
M20 Westbound	0.72	2.5	10.79	0.71	2.4	11.78
B2064 Cheriton	0.53	1.1	2.73	0.52	1.1	2.61
M20 Eastbound	0.58	1.3	5.34	0.7	2.3	7.65
A20 Ashford Road	0.49	1	5.01	0.6	1.5	7.23
2044 8.5K DM						
M20 Westbound	0.66	1.9	8.07	0.64	1.7	8.54
B2064 Cheriton	0.52	1.1	2.71	0.49	1	2.45
M20 Eastbound	0.47	0.9	4.48	0.63	1.7	6.41
A20 Ashford Road	0.46	0.9	4.34	0.58	1.4	6.66
2044 8.5K DS						
M20 Westbound	0.75	2.9	13.12	0.83	4.4	21.46
B2064 Cheriton	0.58	1.4	3.07	0.54	1.2	2.73
M20 Eastbound	0.64	1.8	6.33	0.8	3.8	11.21
A20 Ashford Road	0.53	1.1	5.63	0.66	1.9	9.18
2044 10K DM						
M20 Westbound	0.65	1.8	7.8	0.62	1.6	8.13
B2064 Cheriton	0.51	1	2.65	0.49	1	2.43
M20 Eastbound	0.47	0.9	4.43	0.62	1.6	6.25
A20 Ashford Road	0.45	0.8	4.25	0.57	1.3	6.48
2044 10K DS						
M20 Westbound	0.75	2.9	13.26	0.81	4	19.71
B2064 Cheriton	0.57	1.3	3.02	0.54	1.2	2.73
M20 Eastbound	0.65	1.9	6.52	0.79	3.7	10.85
A20 Ashford Road	0.53	1.1	5.65	0.65	1.8	9.1

10.3.26 J21a: M20 Junction 13 (Castle Hill Interchange)

The M20 Junction 13 forms part of the main interchange connecting Folkestone to the M20. This junction is a five-arm roundabout, with a bypass for vehicles travelling from Cherry Garden Avenue to M20 Westbound. The junction is presented in Figure 46, and has been assessed in the ARCADY module of Junctions9. The capacity assessments are presented in Table 70.

Figure 46 M20 Junction 13 (Castle Hill Interchange)

The assessment shows that the junction operates well within capacity in the Base Year, and in 2037 Do-Minimum. The modelling indicates that the junction is over capacity in all future scenarios in the AM peak hour. The assessment highlights that the capacity issues are on Churchill Avenue, with the highest RFC of 0.94 in the 2044 8.5k Do-Something scenario.

The modelling indicates there may be a capacity issue in the Do-Something scenarios; for further discussion please see Section 10.4.

Table 70 J21a: M20 Junction 13 (Castle Hill interchange) capacity assessment

Approach	AM Peak			PM Peak		
	RFC	Queue Length (vehicles)	Ave. Delay per Vehicle (secs)	RFC	Queue Length (vehicles)	Ave. Delay per Vehicle (secs)
2018						
M20 Westbound Entry Only	0.46	0.8	4.68	0.29	0.4	3.35
Churchill Avenue	0.7	2.3	6.75	0.6	1.5	4.4
Cherry Garden Avenue	0.51	1	4.9	0.55	1.2	5.14
A20 Castle Hill Bridge	0.65	1.8	5.57	0.59	1.4	4.57
2037 DM						
M20 Westbound Entry Only	0.57	1.3	6	0.43	0.8	5.04
Churchill Avenue	0.83	4.7	12	0.74	2.8	7.1
Cherry Garden Avenue	0.57	1.3	6.02	0.68	2.1	7.91
A20 Castle Hill Bridge	0.68	2.1	5.96	0.77	3.2	8.25
2037 DS						
M20 Westbound Entry Only	0.59	1.4	6.73	0.45	0.8	5.28
Churchill Avenue	**0.86**	6	14.87	0.79	3.6	8.63
Cherry Garden Avenue	0.63	1.7	7.16	0.77	3.2	11.55
A20 Castle Hill Bridge	0.73	2.7	7.06	0.78	3.5	8.75
2044 8.5K DM						
M20 Westbound Entry Only	0.59	1.5	6.57	0.43	0.7	5.19
Churchill Avenue	**0.87**	6.2	15.7	0.77	3.2	8.04
Cherry Garden Avenue	0.6	1.5	6.65	0.72	2.5	9.09
A20 Castle Hill Bridge	0.7	2.3	6.39	0.79	3.6	9.31
2044 8.5K DS						
M20 Westbound Entry Only	0.64	1.7	7.86	0.45	0.8	5.45
Churchill Avenue	**0.94**	11.9	28.33	0.83	4.8	11.07
Cherry Garden Avenue	0.66	1.9	8.12	0.84	4.8	16.41
A20 Castle Hill Bridge	0.77	3.2	8.08	0.81	4.3	10.37
2044 10K DM						
M20 Westbound Entry Only	0.58	1.4	6.23	0.42	0.7	5
Churchill Avenue	**0.85**	5.3	13.54	0.75	3	7.49
Cherry Garden Avenue	0.58	1.4	6.3	0.69	2.2	8.28
A20 Castle Hill Bridge	0.7	2.3	6.22	0.78	3.4	8.7
2044 10K DS						
M20 Westbound Entry Only	0.62	1.6	7.47	0.45	0.8	5.4
Churchill Avenue	**0.92**	9.5	22.77	0.82	4.4	10.22
Cherry Garden Avenue	0.64	1.8	7.6	0.81	4.2	14.62
A20 Castle Hill Bridge	0.77	3.2	8.07	0.8	4	9.64

10.3.27 **J21b: M20 Junction 13**

M20 Junction 13 is the Castle Hill interchange, to the east of the M20 Junction 12, and to the north of J21a, which also forms parts of this junction/interchange. This junction is a four-arm roundabout. The junction is presented in Figure 47, and has been assessed in the ARCADY module of Junctions9. The capacity assessments are presented in Table 71.

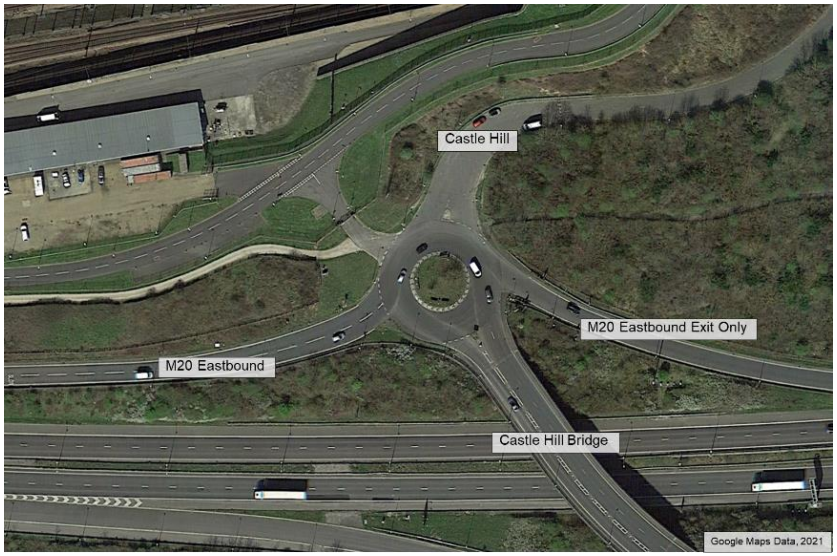


Figure 47 M20 Junction 13

The ARCADY assessment of this junction indicates that the junction operates well within capacity in the 2018 Base Year and will continue to operate within capacity in all the assessed Do-Minimum and Do-Something scenarios. The highest RFC is 0.78 in both the 2044 8.5k Do-Something and 2044 10k Do-Something scenarios in the PM peak hour on the M20 eastbound. This junction is well within capacity in the scenarios assessed and does not require further discussion.

Table 71 J21b: M20 Junction 13 capacity assessment

Approach	AM Peak			PM Peak		
	RFC	Queue Length (vehicles)	Ave. Delay per Vehicle (secs)	RFC	Queue Length (vehicles)	Ave. Delay per Vehicle (secs)
2018						
Castle Hill Bridge	0.27	0.4	4.36	0.43	0.7	5.23
M20 Eastbound	0.48	0.9	3	0.51	1	3.33
Castle Hill	0.01	0	5.2	0.02	0	5.23
2037 DM						
Castle Hill Bridge	0.47	0.9	5.84	0.6	1.5	7.61
M20 Eastbound	0.61	1.5	4.28	0.7	2.3	5.9
Castle Hill	0	0	0	0	0	0
2037 DS						
Castle Hill Bridge	0.51	1	6.33	0.66	2	9.04
M20 Eastbound	0.66	1.9	5.07	0.74	2.7	6.85
Castle Hill	0	0	0	0	0	0
2044 8.5K DM						
Castle Hill Bridge	0.49	1	6.16	0.6	1.5	7.56
M20 Eastbound	0.63	1.7	4.62	0.71	2.4	6.08
Castle Hill	0	0	0	0	0	0
2044 8.5K DS						
Castle Hill Bridge	0.53	1.1	6.66	0.72	2.5	10.65
M20 Eastbound	0.7	2.3	5.77	0.78	3.6	8.64
Castle Hill	0	0	0	0	0	0
2044 10K DM						
Castle Hill Bridge	0.48	0.9	6.03	0.59	1.4	7.44
M20 Eastbound	0.62	1.6	4.5	0.71	2.4	6.09
Castle Hill	0	0	0	0	0	0
2044 10K DS						
Castle Hill Bridge	0.51	1.1	6.43	0.71	2.4	10.55
M20 Eastbound	0.7	2.3	5.67	0.78	3.5	8.45
Castle Hill	0	0	0	0	0	0

10.3.28 **J23: M20 Junction 9**

The M20 Junction 9 is Drovers Interchange serving Ashford from the west. This is a signalised junction. The junction is presented in Figure 48, and has been assessed in LinSig. The capacity assessments are presented in Table 73.

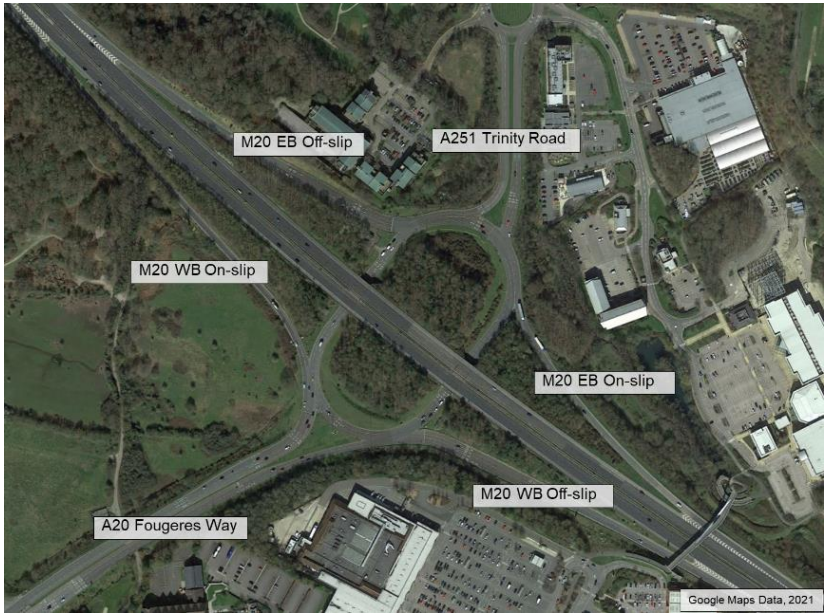


Figure 48 M20 Junction 9

The baseline capacity assessments show that the junction is over capacity with a DoS of 94.2% in the PM peak on A251 Trinity Road. Additionally, the assessment highlights that the junction is predicted to be over capacity in all the assessed future scenarios in both peak hours. The highest DoS is 126.2% in 2044 8.5k Do-Something PM on Trinity Road. In both 2044 8.5k Do-Something and 2044 10k Do-something all arms are over capacity in the AM peak hour.

The modelling indicates there may be a capacity issue in the Do-Something scenarios; for further discussion please see Section 10.4.

Table 72 J23: M20 Junction 9 capacity assessment

Traffic Movement	AM Peak			PM Peak		
	Degree of Saturation	Mean Max Queue (PCUs)	Ave. Delay per PCU (secs)	Degree of Saturation	Mean Max Queue (PCUs)	Ave. Delay per PCU (secs)
2018						
A251 Trinity Road	72.2%	6	29.2	**94.9%**	18.2	57.1
M20 Slip Road Westbound	63.3%	6.5	17.4	75.2%	6.9	28.5
Fougeres Way	71.6%	7	23	77.8%	9.2	28.7
M20 Sliproad Eastbound	63.8%	4.8	20.8	83.7%	9.7	35.3
2037 DM						
A251 Trinity Road	**93.2%**	13.3	50.5	**114.2%**	83.3	273.4
M20 Slip Road Westbound	**90.0%**	10.9	28.9	**104.1%**	20.2	84.8
Fougeres Way	85.2%	12.4	23.3	57.8%	7.1	12.5
M20 Sliproad Eastbound	**94.4%**	10.7	34.1	**93.4%**	16.3	34.9
2037 DS						
A251 Trinity Road	**95.0%**	14.7	57.2	**120.2%**	106.6	356.1
M20 Slip Road Westbound	**93.9%**	12.8	33.5	**119.5%**	46.2	191.2
Fougeres Way	88.2%	13.5	27.6	69.4%	9.7	14.2
M20 Sliproad Eastbound	**100.0%**	15.8	54.6	**99.3%**	27.1	65
2044 8.5K DM						
A251 Trinity Road	**96.0%**	15.6	61.7	**115.1%**	90.4	286
M20 Slip Road Westbound	**94.1%**	13.1	34	**110.8%**	37.3	155.1
Fougeres Way	**93.3%**	16.9	37.2	71.3%	10.2	14.7
M20 Sliproad Eastbound	**100.1%**	16.1	50.4	**92.8%**	17.2	32.7
2044 8.5K DS						
A251 Trinity Road	**98.7%**	19.1	78.8	**126.2%**	132.6	430.3
M20 Slip Road Westbound	**99.6%**	18.8	49.3	**102.1%**	16.6	58.1
Fougeres Way	**92.0%**	16.1	32.7	76.9%	11.8	17.3
M20 Sliproad Eastbound	**103.4%**	32.7	115	**122.2%**	113.2	290.1
2044 10K DM						
A251 Trinity Road	**96.5%**	16.2	64.3	**122.6%**	116.9	386.2
M20 Slip Road Westbound	87.9%	10.7	26.5	**110.8%**	37.3	155.1
Fougeres Way	**89.5%**	13.6	30.7	71.5%	10.3	14.8
M20 Sliproad Eastbound	**100.1%**	16.3	51.3	**116.1%**	87.4	219.6
2044 10K DS						
A251 Trinity Road	**99.0%**	19.5	81.3	**121.2%**	114.4	367
M20 Slip Road Westbound	**98.8%**	17.6	46	**120.6%**	53.6	210.9
Fougeres Way	**92.0%**	16.1	32.7	74.7%	11.1	15.8
M20 Sliproad Eastbound	**103.6%**	33.5	117.7	**96.6%**	21.9	45.6

10.3.29 J24: B2064 Cheriton High Street / B2063 Risborough Lane

The B2064 Cheriton High Street / B2063 Risborough Lane is a signalised junction located in Cheriton to the south-east of the M20 Junction 12. The junction is presented in Figure 49, and has been assessed in LinSig. The capacity assessments are presented in Table 74.

Figure 49 B2064 Cheriton High Street / B2063 Risborough Lane

The assessment indicates that the junction is approaching capacity in the Base Year. The modelling predicts that the junction will be over capacity in all the assessed future scenarios in both peak hours. In both 2044 8.5k Do-Something and 2044 10k Do-Something all arms are over capacity in the AM peak hour except for Cheriton High Street Westbound, which is in capacity in all assessed scenarios.

The junction is predicted to be over capacity in all future years, whether or not the Otterpool Park development proceeds; for further discussion please see Section 10.4 below.

Table 74 J24: B2064 Cheriton High Street / B2063 Risborough Lane capacity assessment

Traffic Movement	AM Peak			PM Peak		
	Degree of Saturation	Mean Max Queue (PCUs)	Ave. Delay per PCU (secs)	Degree of Saturation	Mean Max Queue (PCUs)	Ave. Delay per PCU (secs)
2018						
Stanley Road Soutbound	73.8%	5	78.3	66.6%	3.6	92.5
Cheriton High Street Westbound	56.5%	7.1	33.5	58.2%	8.5	32.8
Risborough Lane	78.0%	12.6	35.8	81.3%	16.1	42.9
Cheriton High Street Eastbound	76.6%	8.2	41.6	81.7%	16	47.5
2037 DM						
Stanley Road Soutbound	**97.6%**	9.2	174	71.8%	4.1	99.2
Cheriton High Street Westbound	67.4%	10.4	28.6	67.8%	12.6	23.2
Risborough Lane	**136.4%**	140.4	568.3	**172.8%**	196.3	901
Cheriton High Street Eastbound	**136.4%**	118.1	503.2	**172.3%**	294.6	837.8
2037 DS						
Stanley Road Soutbound	**103.3%**	12	229.1	81.0%	5.1	117.4
Cheriton High Street Westbound	70.3%	11.6	26.7	70.9%	14.5	22.5
Risborough Lane	**160.3%**	200.3	788	**202.9%**	250.8	1077
Cheriton High Street Eastbound	**161.0%**	222.8	744	**209.7%**	416.6	1049.5
2044 8.5K DM						
Stanley Road Soutbound	**100.3%**	10.4	195.6	73.4%	4.2	101.7
Cheriton High Street Westbound	68.2%	10.6	28.1	69.8%	13.8	22.6
Risborough Lane	**142.9%**	158.7	635.1	**190.2%**	222.5	1009.8
Cheriton High Street Eastbound	**140.6%**	137.6	576.7	**184.7%**	343.4	912.9
2044 8.5K DS						
Stanley Road Soutbound	**111.8%**	17.5	330	85.9%	5.8	132.3
Cheriton High Street Westbound	76.8%	14.5	26.4	73.9%	16.8	20.6
Risborough Lane	**197.9%**	274	1027.3	**242.6%**	300	1243
Cheriton High Street Eastbound	**193.8%**	307.1	944.7	**249.9%**	533.2	1210.7
2044 10K DM						
Stanley Road Soutbound	**98.3%**	9.5	179.4	71.8%	4.1	99.2
Cheriton High Street Westbound	67.2%	10.4	27.8	68.6%	13.1	22.9
Risborough Lane	**141.3%**	152.9	618.7	**181.1%**	208.6	955.8
Cheriton High Street Eastbound	**136.3%**	125.7	528.3	**177.5%**	317.7	870.7
2044 10K DS						
Stanley Road Soutbound	**109.1%**	15.6	297	84.3%	5.6	127
Cheriton High Street Westbound	76.1%	13.8	26.7	71.7%	15.6	19.9
Risborough Lane	**188.4%**	257.4	976	**238.1%**	292.4	1227.2
Cheriton High Street Eastbound	**188.7%**	295	918.4	**230.5%**	492.5	1141.1

10.3.30 J25: B2064 Cheriton Road / A2034 Cherry Garden Avenue

The B2064 Cheriton Road / A2034 Cherry Garden Avenue is a signalised junction located in Cheriton. The junction is presented in Figure 50 and has been assessed in LinSig. The capacity assessments are presented in Table 75.

Figure 50 B2064 Cheriton Road / A2034 Cherry Garden Avenue

The modelling demonstrates that the junction is at capacity in the Base Year with a DoS of 90% in the PM peak on A2034 Cherry Garden Avenue and B2062 Beachborough Road. The assessment predicts that the junction will be over capacity in all the future scenarios in both the peak hours. In both 2044 8.5k Do-Something and 2044 10k Do-Something, all arms are over capacity in the AM peak hour. In all of the Do-Something scenarios, all arms in the PM peak are over capacity. The highest DoS is 152% in 2044 8.5k Do-Something on B2062 Beachborough Road. For further discussion please see Section 10.4.

Table 75 J25: B2064 Cheriton Road / A2034 Cherry Garden Avenue capacity assessment

Traffic Movement	AM Peak			PM Peak		
	Degree of Saturation	Mean Max Queue (PCUs)	Ave. Delay per PCU (secs)	Degree of Saturation	Mean Max Queue (PCUs)	Ave. Delay per PCU (secs)
2018						
A2034 Cherry Garden Avenue	81.5%	15.6	86.2	**90.0%**	14.2	113.3
B2064 Cheriton Road Westbound	84.1%	16.8	84.4	87.0%	12.2	73.4
B2062 Beachborough Road	83.1%	20.6	79.1	**90.0%**	24.6	79.9
A2034 Cheriton Road Eatbound	77.6%	16.8	78	84.5%	18.1	78.1
2037 DM						
A2034 Cherry Garden Avenue	**99.9%**	24.3	166.3	**114.4%**	36.5	374
B2064 Cheriton Road Westbound	**102.7%**	22.2	92.5	**112.6%**	26.3	131.8
B2062 Beachborough Road	**107.4%**	46	246.9	**113.3%**	67.1	314.3
A2034 Cheriton Road Eatbound	**103.1%**	27.1	101.2	**110.9%**	33	145.2
2037 DS						
A2034 Cherry Garden Avenue	**118.4%**	47.7	437.8	**126.8%**	48.6	542.9
B2064 Cheriton Road Westbound	**117.5%**	31	133.1	**123.7%**	34.8	158.4
B2062 Beachborough Road	**122.0%**	75.8	451	**131.5%**	112.1	558.8
A2034 Cheriton Road Eatbound	**116.8%**	47	176	**131.6%**	54.6	233.5
2044 8.5K DM						
A2034 Cherry Garden Avenue	**105.0%**	30.9	234.9	**116.8%**	40	407.4
B2064 Cheriton Road Westbound	**107.2%**	25.6	112.1	87.0%	21	77.7
B2062 Beachborough Road	**110.8%**	53.8	295.5	**121.3%**	86.5	424.9
A2034 Cheriton Road Eatbound	**106.6%**	30	117.7	**115.2%**	36.5	160.1
2044 8.5K DS						
A2034 Cherry Garden Avenue	**134.0%**	66.7	639.2	**150.0%**	69.2	792.1
B2064 Cheriton Road Westbound	**124.1%**	37.5	146	86.7%	25.2	66.8
B2062 Beachborough Road	**136.8%**	107.1	636.6	**152.0%**	155.5	779.2
A2034 Cheriton Road Eatbound	**137.0%**	68.9	268.8	**143.7%**	64.2	242.9
2044 10K DM						
A2034 Cherry Garden Avenue	**100.2%**	24.8	169.7	**114.4%**	36.5	374
B2064 Cheriton Road Westbound	**108.5%**	25.8	118.2	**103.9%**	22.5	96.6
B2062 Beachborough Road	**108.8%**	49.1	266.3	**116.7%**	75.3	363
A2034 Cheriton Road Eatbound	**108.5%**	31.6	129.8	**112.4%**	34.7	151.2
2044 10K DS						
A2034 Cherry Garden Avenue	**131.6%**	63	610.8	**146.8%**	65.5	762.9
B2064 Cheriton Road Westbound	**119.7%**	35	134.3	**109.1%**	28.3	92.9
B2062 Beachborough Road	**134.7%**	102.1	612.8	**145.6%**	142.4	717.7
A2034 Cheriton Road Eatbound	**129.4%**	60.4	228.5	**139.8%**	62	235.6

10.3.31 **J26: A259 Prospect Road / Stade Street**

The A20 Ashford Road / Stone Street is a priority T-junction located in Hythe, to the east of J15 A259 / Dymchurch Road / Military Road. The junction is presented in Figure 51, and has been assessed in the PICADY module of Junctions9. The capacity assessments are presented in Table 76.

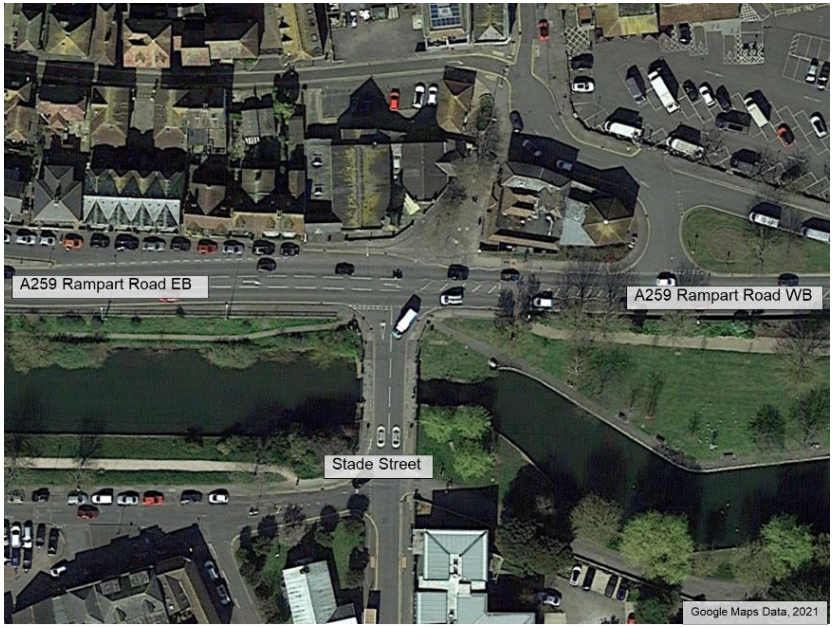


Figure 51 A259 Prospect Road / Stade Street

The PICADY assessment of this junction indicates that the junction operates well within capacity in the 2018 Base Year. The junction is predicted to be over capacity in all the assessed future scenarios in both the Do-Minimum and Do-Something. The highest RFC is 1.82 in 2044 8.5k Do-Something on Stade Street. The capacity issues identified are for vehicles exiting from State Street onto the A259 Prospect Road.

The modelling indicates there are likely to be capacity issues in all future year scenarios, for further discussion please see Section 10.4.

Table 76 J26: A259 Prospect Road / Stade Street capacity assessment

Approach	AM Peak			PM Peak		
	RFC	Queue Length (vehicles)	Ave. Delay per Vehicle (secs)	RFC	Queue Length (vehicles)	Ave. Delay per Vehicle (secs)
2018						
Stade Street	0.57	1.3	31.87	0.72	2.3	64.3
A259 Rampart Road Eastbound	0.34	0.5	10.89	0.58	1.4	18.64
2037 DM						
Stade Street	0.84	3.9	99.25	**1.09**	11.5	271.77
A259 Rampart Road Eastbound	0.51	1	14.73	0.65	1.8	23.66
2037 DS						
Stade Street	**0.92**	5.7	139.93	**1.19**	15.6	356.41
A259 Rampart Road Eastbound	0.52	1.1	15.51	0.67	2	25.49
2044 8.5K DM						
Stade Street	**0.93**	6.1	144.73	**1.26**	19.1	420.89
A259 Rampart Road Eastbound	0.53	1.1	15.47	0.68	2.1	25.96
2044 8.5K DS						
Stade Street	**1.06**	11	243.73	**1.82**	36.1	794.18
A259 Rampart Road Eastbound	0.99	7.9	186.4	1.52	27.7	618.03
2044 10K DM						
Stade Street	**0.87**	4.6	115.27	**1.14**	13.6	313.59
A259 Rampart Road Eastbound	0.52	1.1	15.03	0.66	1.9	24.39
2044 10K DS						
Stade Street	**0.99**	7.9	186.4	**1.52**	27.7	618.03
A259 Rampart Road Eastbound	0.53	1.1	15.94	0.69	2.3	27.97

10.3.32 J27: Barrow Hill Shuttle Signals

The Barrow Hill Shuttle signals are located at a heavily constrained location where the A20 narrows to a single lane under a railway bridge. The junction is quite isolated with the nearest main junction to the north being the A20 Ashford Road/Swan Lane which is approximately 400m away and to the south the A20 Ashford Road/Otterpool Lane junction which is approximately 1km away. The junction location is presented in Figure 52 and has been assessed in LinSig. The capacity assessments are presented in Table 77.

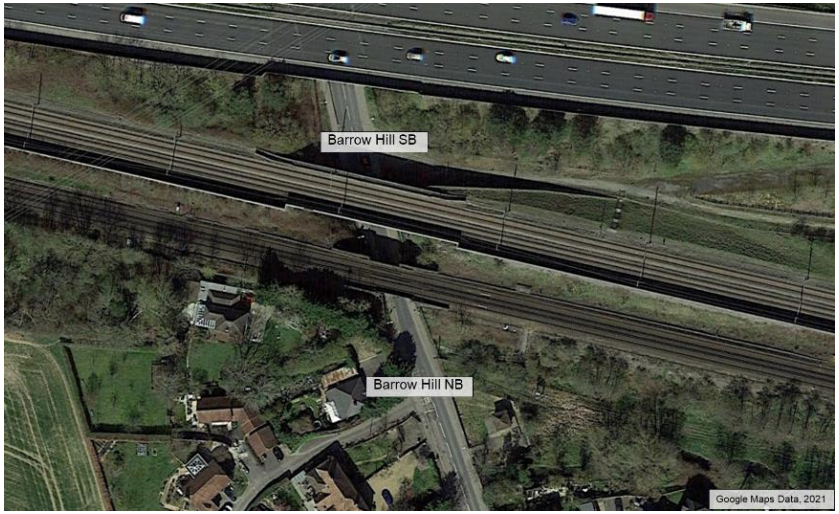


Figure 52 Barrow Hill Shuttle Signals

The LinSig assessment of this junction indicates that the junction operates well within capacity in the 2018 Base Year. The modelling predicts that the junction will be over capacity in all the assessed future scenarios in both the AM and PM peak hours in both the Do-Minimum and Do-Something. The highest DoS is 129.5% on Barrow Hill southbound in 2044 8.5k Do-Something in the PM peak hour.

The modelling indicates there are likely to be capacity issues in all future year scenarios; for further discussion please see Section 10.4 below.

Table 77 J27: Barrow Hill Shuttle Signals capacity assessment

Traffic Movement	AM Peak			PM Peak		
	Degree of Saturation	Mean Max Queue (PCUs)	Ave. Delay per PCU (secs)	Degree of Saturation	Mean Max Queue (PCUs)	Ave. Delay per PCU (secs)
2018						
Barrow Hill SB	50.7%	3.6	21.9	50.1%	3.8	20.7
Barrow Hill NB	54.2%	4.4	20.4	48.6%	3.6	20.4
2037 DM						
Barrow Hill SB	99.2%	16.9	92.6	108.1%	33.4	194.2
Barrow Hill NB	105.7%	35.3	154.4	104.6%	32.4	140.2
2037 DS						
Barrow Hill SB	107.4%	36.1	180.4	105.0%	28.5	151.8
Barrow Hill NB	106.9%	34.8	175	105.4%	32.9	153.3
2044 8.5K DM						
Barrow Hill SB	100.4%	18.7	103.2	104.4%	27.3	144.8
Barrow Hill NB	104.1%	31.2	134.2	107.4%	38.2	179.6
2044 8.5K DS						
Barrow Hill SB	116.8%	62.2	305.3	129.5%	86.7	459.4
Barrow Hill NB	123.1%	81.7	387.6	123.3%	93.2	388.5
2044 10K DM						
Barrow Hill SB	100.4%	18.7	103.2	103.3%	25	131.3
Barrow Hill NB	101.8%	25.6	106.3	107.5%	38.7	181.8
2044 10K DS						
Barrow Hill SB	117.0%	62.7	307.6	120.3%	67.7	350.9
Barrow Hill NB	121.0%	75.4	362.1	128.9%	106	454.3

10.3.33 SH18 A260 Spitfire Way / White Horse Hill / A20 Slip Roads

The A260 Spitfire Way junction is a four-arm roundabout connecting to SH19 Alkham Valley Road roundabout and SH16 A260 Canterbury Road / Alkham Valley Road priority T-junction. The junction is presented in Figure 53, and has been assessed in the ARCADY module of Junctions9. The capacity assessments are presented in Table 78.

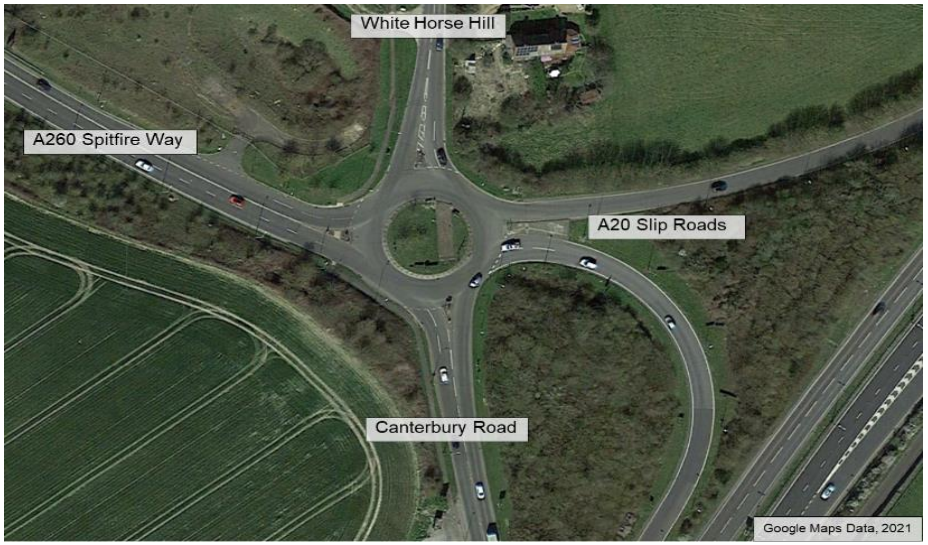


Figure 53 SH18 A260 Spitfire Way / White Horse Hill / A20 Slip Roads

The junction operates at capacity in the Base Year, with an RFC of 0.85 in the PM peak hour on the A20 Slip Road. The capacity assessment predicts that the junction will be over capacity in all the assessed future scenarios in both peak hours in both the Do-Minimum and Do-Something. The A20 Slip Road has capacity issues in the AM and PM for all assessed years, with a maximum RFC of 1.15 in 2044 8.k Do-Something. In the AM peak hour, Spitfire Way is also predicted to experience capacity issues.

Table 78 SH18 A260 Spitfire Way / White Horse Hill / A20 Slip Roads capacity assessment

Approach	AM Peak			PM Peak		
	RFC	Queue Length (vehicles)	Ave. Delay per Vehicle (secs)	RFC	Queue Length (vehicles)	Ave. Delay per Vehicle (secs)
2018						
White House Hill	0.43	0.8	6.85	0.26	0.3	4.1
A20 Slip Roads	0.55	1.2	7.17	**0.85**	5.2	15.89
Canterbury Road	0.37	0.6	3.65	0.61	1.5	6.8
Spitfire Way	0.78	3.4	11.22	0.54	1.2	5.67
2037 DM						
White House Hill	0.57	1.3	10.47	0.33	0.5	5.06
A20 Slip Roads	**0.87**	5.9	26.3	**0.91**	8.5	26.67
Canterbury Road	0.42	0.7	4.27	0.76	3.1	11.62
Spitfire Way	0.92	9.3	28.09	0.67	2	8.26
2037 DS						
White House Hill	0.61	1.6	11.6	0.37	0.6	5.44
A20 Slip Roads	**0.95**	11.6	48.46	**1.01**	26.8	72.43
Canterbury Road	0.43	0.8	4.45	0.77	3.3	12.23
Spitfire Way	**0.94**	11.7	35.23	0.69	2.2	8.83
2044 8.5K DM						
White House Hill	0.61	1.5	11.79	0.34	0.5	5.23
A20 Slip Roads	**0.92**	9.1	39.47	**0.96**	15.2	45.22
Canterbury Road	0.43	0.8	4.4	0.79	3.6	13.35
Spitfire Way	**0.95**	13.2	38.62	0.69	2.2	8.87
2044 8.5K DS						
White House Hill	0.7	2.2	15.17	0.4	0.7	5.82
A20 Slip Roads	**1.06**	36.7	124.54	**1.15**	101.6	223.38
Canterbury Road	0.44	0.8	4.54	0.78	3.4	12.46
Spitfire Way	**0.98**	19.6	55.07	0.71	2.4	9.63
2044 10K DM						
White House Hill	0.58	1.4	10.97	0.33	0.5	5.13
A20 Slip Roads	**0.9**	7.3	32.11	**0.93**	10.9	33.51
Canterbury Road	0.43	0.7	4.34	0.77	3.3	12.2
Spitfire Way	**0.93**	10.5	31.44	0.68	2.1	8.48
2044 10K DS						
White House Hill	0.68	2.1	14.51	0.4	0.7	5.74
A20 Slip Roads	**1.04**	31.6	109.7	**1.13**	91.2	201.46
Canterbury Road	0.44	0.8	4.53	0.77	3.2	11.86
Spitfire Way	**0.96**	15.8	46.02	0.7	2.3	9.29

The modelling indicates there are likely to be capacity issues in all future year scenarios; for further discussion please see Section 10.4 below.

10.3.34 **SH19 Alkham Valley Road / A20 slip roads**

Junction SH19 is a four-arm roundabout connecting to SH18 A260 Spitfire Way roundabout and SH16 A260 Canterbury Road / Alkham Valley Road priority T-junction. The junction is presented in Figure 54, and has been assessed in the ARCADY module of Junctions9. The capacity assessments are presented in Table 79.

Figure 54 SH19 Alkham Valley Road / A20 slip roads

The junction operates at capacity in the Base Year, with an RFC of 0.84 in the AM peak. The capacity assessment predicts that the junction will be over capacity in all the assessed future scenarios in both Do-Minimum and Do-Something. The capacity issues are on Alkam Valley Road (South), with the highest RFC of 1.21 precited to be in 2044 8.5k Do-Something in the AM peak.

Table 79 SH19 Alkham Valley Road / A20 slip roads capacity assessment

Approach	AM Peak			PM Peak		
	RFC	Queue Length (vehicles)	Ave. Delay per Vehicle (secs)	RFC	Queue Length (vehicles)	Ave. Delay per Vehicle (secs)
2018						
A20 Offslip	0.03	0	1.88	0.05	0	2.09
Alkam Valley Road (East)	0.5	1	3.85	0.24	0.3	2.53
Alkam Valley Road (South)	0.84	5.1	17.2	0.74	2.8	8.86
2037 DM						
A20 Offslip	0.02	0	1.95	0.03	0	2.1
Alkam Valley Road (East)	0.53	1.1	4.04	0.25	0.3	2.55
Alkam Valley Road (South)	**1.07**	57.8	141.23	**0.87**	6.3	17.95
2037 DS						
A20 Offslip	0.02	0	1.94	0.02	0	2.12
Alkam Valley Road (East)	0.53	1.1	4.04	0.25	0.3	2.54
Alkam Valley Road (South)	**1.11**	78	182.73	**0.91**	8.6	23.64
2044 8.5K DM						
A20 Offslip	0.02	0	1.95	0.05	0.1	2.13
Alkam Valley Road (East)	0.54	1.2	4.18	0.27	0.4	2.64
Alkam Valley Road (South)	**1.13**	90.1	211.98	**0.9**	8.1	22.52
2044 8.5K DS						
A20 Offslip	0.02	0	1.94	0.05	0.1	2.12
Alkam Valley Road (East)	0.54	1.2	4.17	0.26	0.4	2.62
Alkam Valley Road (South)	**1.21**	135.9	338.37	**0.95**	13.6	36.32
2044 10K DM						
A20 Offslip	0.02	0	1.95	0.05	0	2.11
Alkam Valley Road (East)	0.53	1.1	4.09	0.26	0.4	2.6
Alkam Valley Road (South)	**1.1**	73.4	175.22	**0.88**	7	19.81
2044 10K DS						
A20 Offslip	0.02	0	1.94	0.03	0	2.12
Alkam Valley Road (East)	0.53	1.1	4.09	0.26	0.3	2.56
Alkam Valley Road (South)	**1.18**	117.5	277.14	**0.94**	11.8	31.8

Based on the modelling the Alkham Valley Road/ A20 Slip Road Roundabout will require an intervention to improve the performance of the Alkham Valley Road south approach. This requirement is independent of the Otterpool development as the junction is already forecast to operate above capacity in the DM 2037 scenario. The modelling indicates there are likely to be capacity issues in all future year scenarios; for further discussion please see Section 10.4 below.

10.3.35 SH16 A260 Canterbury Road / Alkham Valley Road

The A260 Canterbury Road / Alkham Valley Road is a priority T-junction connecting to SH18 A260 Spitfire Way / White Horse Hill / A20 Slip Roads roundabout and SH19 Alkham Valley Road / A20 slip roads roundabout. The junction is presented in Figure 55, and has been assessed in the PICADY module of Junctions9 (Junction 9?). The capacity assessments are presented in Table 80.

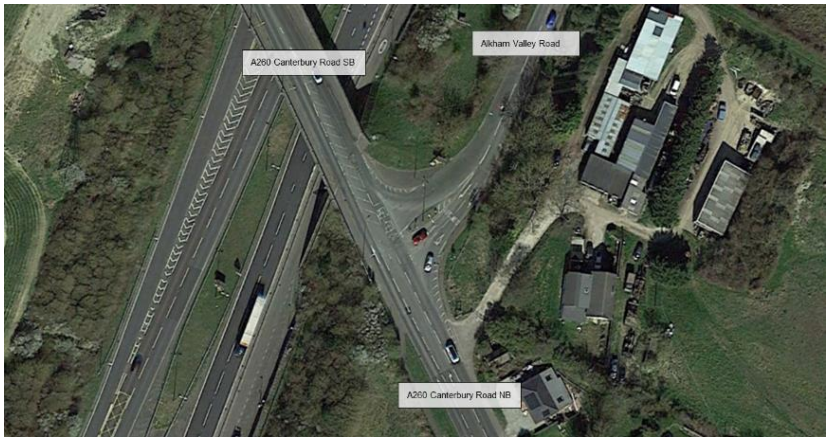


Figure 55 SH16 A260 Canterbury Road / Alkham Valley Road

The PICADY assessment indicates that the junction is within capacity in the Base Year. The capacity assessment predicts that the junction will be over capacity in all the assessed future scenarios in both the AM and PM peak hours in both the Do-Minimum and Do-Something. The RFC values indicated in both 2044 8.5k Do-Something and 2044 10k Do-Something in the PM peak hour on Alkham Valley Road show that the predicted traffic volumes are far in excess of the junction capacity.

Based on the local junction modelling the A260 Canterbury Road / Alkham Valley Road T-junction will require an intervention to improve its performance. This requirement is independent of the Otterpool development as the junction is already forecast to operate above capacity in the DM 2037 scenario.

Table 80 SH16 A260 Canterbury Road / Alkham Valley Road capacity assessment

Approach	AM Peak			PM Peak		
	RFC	Queue Length (vehicles)	Ave. Delay per Vehicle (secs)	RFC	Queue Length (vehicles)	Ave. Delay per Vehicle (secs)
2018						
Alkham Valley Road	0.56	1.3	18.13	0.31	0.4	10.57
Canterbury Road Northbound	0.45	0.8	21.37	0.55	1.2	22.92
2037 DM						
Alkham Valley Road	0.18	0.2	100.18	0.37	0.5	131.43
Canterbury Road Northbound	**1.1**	14.8	257.36	**0.97**	9.6	125.32
2037 DS						
Alkham Valley Road	0.62	1.5	24.9	0.62	1	322.68
Canterbury Road Northbound	**1.18**	19.9	338.26	**1.07**	17.3	209.95
2044 8.5K DM						
Alkham Valley Road	0.62	1.5	24.83	0.4	0.5	219.48
Canterbury Road Northbound	**1.27**	25.9	419.58	**1.04**	15	180.76
2044 8.5K DS						
Alkham Valley Road	**1.11**	10.3	134.48	**9999999999**	49.4	666.25
Canterbury Road Northbound	**1.53**	39	644.75	**1.26**	35	404.72
2044 10K DM						
Alkham Valley Road	0.6	1.4	23.31	0.35	0.5	152.38
Canterbury Road Northbound	**1.17**	19.8	329.02	**1**	11.9	148.55
2044 10K DS						
Alkham Valley Road	0.65	1.7	28.52	**9999999999**	3.1	764.75
Canterbury Road Northbound	**1.38**	31.4	521.06	**1.21**	30.7	358.08

The modelling indicates there are likely to be capacity issues in all future year scenarios; for further discussion please see Section 10.4 below.

10.3.36 J31: A20 Ashford Road access to P1B & P7

Junction 31 is a signalised crossroads on A20 Ashford Road west of junction with B2067 Otterpool Lane providing access into development zones 1B and 7.

The junction has been assessed for the future 2037 DS, 2044 8.5k DS and 2044 10k DS scenarios. The capacity assessments are presented in Table 81. The junction is predicted to operate within capacity in all the assessed scenarios in both the AM and PM peak.

Table 81 J31: A20 Ashford Road access to P1B & P7 capacity assessment

Traffic Movement	AM Peak			PM Peak		
	Degree of Saturation	Mean Max Queue (PCUs)	Av. Delay /PCU	Degree of Saturation	Mean Max Queue (PCUs)	Av. Delay /PCU
2037 DS						
A20 Ashford Road Westbound	46.2%	10.6	12.3	38.9%	7.6	8.8
Access to zone	57.2%	7.7	58.7	51.6%	5.7	62.4
Barrow Hill/Ashford Road North	31.0%	6.6	19.2	30.8%	6.1	18
2044 8.5K DS						
A20 Ashford Road Westbound	56.8%	12.5	14.9	48.3%	9.9	8.1
Access to zone	60.7%	10.4	52.2	60.6%	6.8	66.1
Barrow Hill/Ashford Road North	42.6%	9.4	26.4	42.8%	8.2	21.5
2044 10K DS						
A20 Ashford Road Westbound	53.4%	11.1	13.5	49.2%	9.7	8.4
Access to zone	58.7%	10.2	50.7	60.9%	6.8	65.9
Barrow Hill/Ashford Road North	38.1%	8.1	26.2	44.4%	8.4	23

10.3.37 J32: A20 Ashford Road access to P6

Junction 32 will be a priority junction on A20 east of junction with B2067 Otterpool Lane providing access into development zone 6. The junction has been assessed in the PICADY module of Junction 9.

The junction has been assessed for the future 2044 8.5k DS and 2044 10k DS scenarios. The capacity assessments are presented in Table 82. The junction is predicted to operate within capacity in all the assessed scenarios in both the AM and PM peak.

Table 82 J32: A20 Ashford Road access to P6 capacity assessment

Approach	AM Peak			PM Peak		
	RFC	Queue Length (vehicles)	Ave. Delay per Vehicle (secs)	RFC	Queue Length (vehicles)	Ave. Delay per Vehicle (secs)
2044 8.5K DS						
Access	0.43	0.70	12.65	0.20	0.30	8.58
A20 Ashford Road Eastbound	0.22	0.30	9.28	0.38	0.60	10.89
2044 10K DS						
Access	0.41	0.7	12.2	0.2	0.2	8.43
A20 Ashford Road Eastbound	0.21	0.3	9.07	0.41	0.7	11.34

10.3.38 **J33: A20 Ashford Road Link Road west**

Junction 33 will be a signalised junction between Otterpool Avenue and the A20 Ashford Road to the west of Newingreen. The junction has been assessed in LinSig.

The junction has been assessed for the future 2044 8.5k DS and 2044 10k DS scenarios. The capacity assessments are presented in Table 83. The junction is predicted to operate within capacity in all the assessed scenarios in both the AM and PM peak.

Table 83 J33: A20 Ashford Road Link Road west capacity assessment

Traffic Movement	AM Peak			PM Peak		
	Degree of Saturation	Mean Max Queue (PCUs)	Ave. Delay per PCU (secs)	Degree of Saturation	Mean Max Queue (PCUs)	Ave. Delay per PCU (secs)
2044 8.5K DS						
A20 Ashford Road Westbound	38.7%	1.9	21.8	74.1%	11.7	27.4
A20 Ashford Road Eastbound	64.9%	15.1	21	66.8%	12.1	35
Access to zone P1C	61.2%	7.1	46.5	66.7%	8.1	46.2
2044 10K DS						
A20 Ashford Road Westbound	40.1%	2.1	22.1	75.5%	12.2	27.7
A20 Ashford Road Eastbound	64.3%	15	20.9	64.6%	11.8	33.4
Access to zone P1C	61.0%	6.9	46.6	66.6%	7.9	46.3

10.3.39 **J34 A20 Ashford Road access to P1A & P2A**

Junction 34 will be a non-signalised T-junction between the existing A20 Ashford Road and the new High Street south of Otterpool Avenue. The junction has been assessed in the PICADY module of Junction 9.

The junction has been assessed for the future 2044 8.5k DS and 2044 10k DS scenarios. The capacity assessments are presented in Table 84. The junction is predicted to operate within capacity in all the assessed scenarios in both the AM and PM peak.

Table 84 J34 A20 Ashford Road access to P1A & P2A capacity assessment

Approach	AM Peak			PM Peak		
	RFC	Queue Length (vehicles)	Ave. Delay per Vehicle (secs)	RFC	Queue Length (vehicles)	Ave. Delay per Vehicle (secs)
2044 8.5K DS						
High Street	0.59	1.4	19.55	0.66	1.9	18.86
Ashford Road Eastbound	0.12	0.1	7.42	0.14	0.2	8.84
2044 10K DS						
High Street	0.66	1.9	24.71	0.72	2.5	23.84
Ashford Road Eastbound	0.15	0.2	7.61	0.16	0.2	9.04

10.3.40 **J35 A20 Ashford Road Link Road east**

A20 Ashford Road Link Road east will be a signalised T-junction between Otterpool Avenue and A20 Ashford Road. The junction has been assessed in LinSig.

The junction has been assessed for the future 2044 8.5k DS and 2044 10k DS scenarios. The capacity assessments are presented in Table 85. The junction is predicted to operate within capacity in all of the assessed scenarios. The highest DoS is 89.8% on the access to zone P1C in the 2044 8.5k Do-Something.

Table 85 J35:A20 Ashford Road Link Road east capacity assessment

Traffic Movement	AM Peak			PM Peak		
	Degree of Saturation	Mean Max Queue (PCUs)	Av. Delay /PCU	Degree of Saturation	Mean Max Queue (PCUs)	Av. Delay /PCU
2044 8.5K DS						
A20 Ashford Road North	71.3%	12.3	27.8	81.8%	17	20.1
A20 Ashford Road South	89.5%	27.3	51.6	80.1%	12.7	49.3
Access to zone P1C	89.8%	28.1	46.4	78.0%	18.5	21.1
2044 10K DS						
A20 Ashford Road North	69.2%	11.6	27.5	80.4%	15.7	19.5
A20 Ashford Road South	87.4%	25.9	48.5	79.4%	12.5	48.7
Access to zone P1C	86.7%	25.7	41.9	76.0%	17.7	20.2

10.3.41 **J36 A20 Ashford Road Link Road / High Street**

Junction 36 will be a signalised T-junction between the dualled section of A20 Ashford Road and the access road to the Business Park. The junction has been assessed in LinSig.

The junction has been assessed for the future 2044 8.5k DS and 2044 10k DS scenarios. The capacity assessments are presented in Table 86. The junction is predicted to operate within capacity in all the assessed scenarios in both the AM and PM peak.

Table 86 J36: A20 Ashford Road Link Road / High Street capacity assessment

Traffic Movement	AM Peak			PM Peak		
	Degree of Saturation	Mean Max Queue (PCUs)	Av. Delay /PCU	Degree of Saturation	Mean Max Queue (PCUs)	Av. Delay /PCU
2044 8.5K DS						
A20 Ashford Road Southbound	88.5%	19.4	64.8	64.8%	12.6	9.5
A20 Ashford Road Northbound	89.4%	26.8	38.4	72.3%	15	28.5
Access to Zone P2C	29.0%	1.3	73.7	71.1%	12.5	33
2044 10K DS						
A20 Ashford Road Southbound	88.3%	19.3	64.5	66.4%	13.2	9.8
A20 Ashford Road Northbound	85.3%	25.4	42.6	73.4%	15.6	28.1
Access to Zone P2C	29.8%	1.4	74	72.9%	12.9	34.6

10.3.42 J38: Otterpool Lane Access to Zone P2B & P3B

Junction 38 is a staggered priority junction between B2067 Otterpool Lane (major arm) and access into development zones 2B and 3A (minor arms). The junction has been assessed in PICADY module of Junctions9.

The junction has been assessed for the future 2044 8.5k DS and 2044 10k DS scenarios. The capacity assessments are presented in Table 87. The junction is predicted to operate within capacity in all the assessed scenarios in both the AM and PM peak.

Table 87 J38: Otterpool Lane Access to Zone P2B & P3B capacity assessment

Approach	AM Peak			PM Peak		
	RFC	Queue Length (vehicles)	Ave. Delay per Vehicle (secs)	RFC	Queue Length (vehicles)	Ave. Delay per Vehicle (secs)
2044 8.5K DS						
Access 1	0.42	0.7	12.34	0.42	0.7	18.24
Otterpool Lane Southbound	0.01	0.0	5.57	0.07	0.1	5.91
Access 2	0.33	0.5	12.43	0.16	0.2	10.39
Otterpool Lane Northbound	0.18	0.4	7.3	0.59	2.1	12.08
2044 10K DS						
Access 1	0.36	0.6	11.15	0.41	0.7	17.39
Otterpool Lane Southbound	0.01	0.0	5.51	0.07	0.1	5.87
Access 2	0.20	0.3	10.23	0.18	0.2	10.65
Otterpool Lane Northbound	0.18	0.4	7.41	0.64	2.5	13.37

10.3.43 **J39 Internal link road**

Junction 39 will be a signalised crossroads between Otterpool Avenue and the new High Street. The junction has been assessed in LinSig.

The currently proposed junction arrangement has been assessed for the future 2044 8.5k DS and 2044 10k DS scenarios. The capacity assessments are presented in Table 88. The junction is predicted to operate within capacity in all the assessed scenarios. The highest DoS is 78.0% on the western Link Road.

Table 88 J39: Internal link road capacity assessment

Traffic Movement	AM Peak			PM Peak		
	Degree of Saturation	Mean Max Queue (PCUs)	Av. Delay /PCU	Degree of Saturation	Mean Max Queue (PCUs)	Av. Delay /PCU
2044 8.5K DS						
High Street North	61.9%	3.5	2.0	76.4%	5.7	3.4
Link Road East	22.6%	3.1	0.9	24.2%	3.5	1.0
Link Road West	63.5%	12.9	3.8	76.6%	17.3	5.6
2044 10K DS						
High Street North	60.0%	3.4	1.9	77.3%	5.8	3.5
Link Road East	22.1%	3	0.8	23.7%	3.4	0.9
Link Road West	64.1%	13.2	3.8	78.0%	18	5.8

10.3.44 J42: M20 Junction 10A

The M20 Junction 10A is a large signalised junction, which works in concert with M20 Junction 10 (Lacton Interchange) to provide access to the east of Ashford. The junction is presented in Figure 56, and has been assessed in LinSig. The capacity assessments are presented in Table 89.

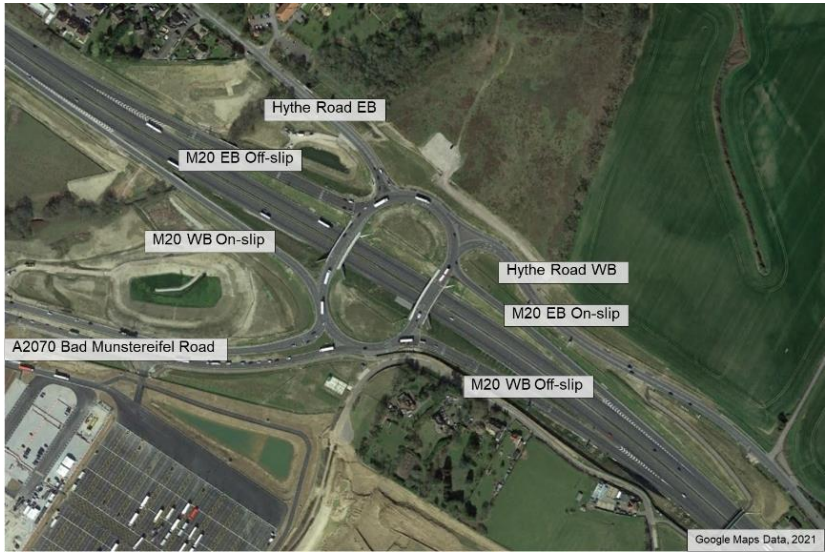


Figure 56 M20 Junction 10A

The junction is predicted to operate over capacity in all future scenarios in the Do-Minimum and Do-Something in the PM peak hour. In the Do-Minimum scenarios, the M20 Eastbound Off-Slip is predicted to be over capacity. In the Do-Something scenarios the M20 Eastbound Off-Slip and A2070 Bad Munstereifel Road are anticipated to experience capacity issues. The highest DoS is 131.1% in 2044 10 Do-Something in the PM on the M20 eastbound off-slip.

The modelling indicates there is likely to be a capacity issue in the Do-Something scenarios, for further discussion and proposed mitigation please see Section 10.4.

Table 89 J42: M20 Junction 10A capacity assessment

Traffic Movement	AM Peak			PM Peak		
	Degree of Saturation	Mean Max Queue (PCUs)	Ave. Delay per PCU (secs)	Degree of Saturation	Mean Max Queue (PCUs)	Ave. Delay per PCU (secs)
2037 DM						
M20 Eastbound Off-Slip	70.6%	5.2	30.6	**104.5%**	31.9	139.1
Hythe Road Eastbound	52.5%	1.8	4	48.9%	2.1	5.8
Hythe Road Westbound	71.0%	1.2	4.1	65.0%	0.9	3.9
M20 Westbound Off-Slip	75.0%	7.6	24.4	61.1%	4.8	23.1
A2070 Bad Munstereifel Road	69.1%	5.7	2.9	81.4%	8.4	4.4
2037 DS						
M20 Eastbound Off-Slip	76.3%	6	33.9	**126.2%**	96.3	423
Hythe Road Eastbound	52.9%	2.2	5.3	39.8%	1.5	6.3
Hythe Road Westbound	71.6%	1.3	4.3	57.8%	0.7	3.2
M20 Westbound Off-Slip	79.9%	9.6	23.6	68.0%	6.2	22.8
A2070 Bad Munstereifel Road	77.3%	8	4	**91.4%**	14.3	9.1
2044 8.5K DM						
M20 Eastbound Off-Slip	77.8%	7	31.4	**120.3%**	82.1	351
Hythe Road Eastbound	56.1%	2.3	4.6	46.9%	2.1	6.1
Hythe Road Westbound	74.4%	1.7	4.8	64.4%	0.9	3.8
M20 Westbound Off-Slip	75.2%	8	23.4	63.0%	5.1	23.6
A2070 Bad Munstereifel Road	79.2%	9.6	4.3	88.7%	13.4	7.1
2044 8.5K DS						
M20 Eastbound Off-Slip	74.8%	5.8	32.9	**130.5%**	103.6	473.1
Hythe Road Eastbound	57.4%	2.7	6.4	42.8%	1.6	8.4
Hythe Road Westbound	83.0%	2.4	7.3	66.6%	1	4
M20 Westbound Off-Slip	86.1%	11.5	28.6	71.8%	6.8	24.2
A2070 Bad Munstereifel Road	84.1%	11.5	6.2	**100.9%**	111.4	48.7
2044 10K DM						
M20 Eastbound Off-Slip	81.8%	8.1	32.9	**115.6%**	66.5	290.9
Hythe Road Eastbound	55.7%	2.4	4.6	47.2%	2.2	6.1
Hythe Road Westbound	75.1%	2.4	5	64.7%	0.9	3.9
M20 Westbound Off-Slip	82.5%	8.9	30.5	62.6%	5.1	23.5
A2070 Bad Munstereifel Road	79.0%	8.6	4.2	87.7%	12.4	6.5
2044 10K DS						
M20 Eastbound Off-Slip	32.8%	1.8	22.8	**130.0%**	68.8	474.5
Hythe Road Eastbound	53.2%	2.2	4.9	36.6%	1.1	5.5
Hythe Road Westbound	84.9%	5.4	8.2	75.7%	5.1	6.7
M20 Westbound Off-Slip	73.8%	6.9	26.3	72.6%	6.1	28.4
A2070 Bad Munstereifel Road	86.9%	11.3	7.2	**102.7%**	136.3	72.5

10.3.45 J43 A20 Ashford Road small roundabout

The A20 Ashford Road small roundabout is located to the south of the M20 Junction 11. The junction effectively operates as a two-arm roundabout, facilitating a u-turn from A20 Ashford Road from Sandling to the north of the junction to access M20 Junction 11.

The junction is presented in Figure 57, and has been assessed in the ARCADY module of Junctions9. The capacity assessments are presented in Table 90.

Figure 57 A20 Ashford Road small roundabout

The ARCADY assessment shows that the junction is within capacity in the Base Year. The capacity assessment highlights that the junction is marginally over capacity in the 2044 8.5k Do-Something AM peak with an RFC of 0.89 and in the 2044 10k Do-Something AM peak with an RFC of 0.88, both on A20 Ashford Road northbound.

The modelling indicates there may be a capacity issue in the Do-Something scenarios, for further discussion please see Section 10.4.

Table 90 J43: A20 Ashford Road small roundabout capacity assessment

Approach	AM Peak			PM Peak		
	RFC	Queue Length (vehicles)	Av. Delay /veh	RFC	Queue Length (vehicles)	Av. Delay /veh
2037 DM						
A20 Ashford Road Southbound	0.51	1.1	2.53	0.48	0.9	2.28
A20 Ashford Road Northbound	0.46	0.8	2.77	0.4	0.7	2.23
2037 DS						
A20 Ashford Road Southbound	0.65	1.9	3.47	0.68	2.2	3.68
A20 Ashford Road Northbound	0.81	4.1	7.43	0.7	2.3	4.39
2044 8.5K DM						
A20 Ashford Road Southbound	0.53	1.1	2.59	0.49	1	2.33
A20 Ashford Road Northbound	0.49	1	2.97	0.42	0.7	2.32
2044 8.5K DS						
A20 Ashford Road Southbound	0.79	3.8	5.74	0.72	2.6	4.17
A20 Ashford Road Northbound	0.89	7.9	13.23	0.84	5.2	8.17
2044 10K DM						
A20 Ashford Road Southbound	0.52	1.1	2.57	0.48	0.9	2.29
A20 Ashford Road Northbound	0.49	0.9	2.93	0.42	0.7	2.3
2044 10K DS						
A20 Ashford Road Southbound	0.79	3.6	5.54	0.71	2.5	4.04
A20 Ashford Road Northbound	0.88	7	11.72	0.84	5.1	7.99

10.3.46 J44: Old Dover Road / St Lawrence Road / The Drive and Nackington Road / Old Dover Road

Old Dover Road / St Lawrence Road / The Drive and Nackington Road / Old Dover Road comprises of two signalised junctions located in Canterbury. The junction is presented in Figure 58, and has been assessed in LinSig. The capacity assessments are presented in Table 91 and Table 92.

Figure 58 Old Dover Road / St Lawrence Road / The Drive and Nackington Road / Old Dover Road

In the base year, the junction is over capacity in both the AM and PM Peak hours, with the highest DoS being 100.7% in the PM peak on Old Dover Road Eastbound on Old Dover Road / St Lawrence Road / The Drive junction.

Table 91 J44: Old Dover Road / St Lawrence Road / The Drive capacity assessment

Traffic Movement	AM Peak			PM Peak		
	Degree of Saturation	Mean Max Queue (PCUs)	Ave. Delay per PCU (secs)	Degree of Saturation	Mean Max Queue (PCUs)	Ave. Delay per PCU (secs)
2018						
B2068 Old Dover Road Westbound	**98.0%**	27.2	85.2	82.1%	6	27.5
The Drive	49.3%	2.5	65.8	89.1%	6.8	133.3
Old Dover Road Eastbound	**95.3%**	14.7	103.4	**100.7%**	29.1	122.3
B2068 St Lawerence Road	**99.4%**	16	142	77.4%	7.5	73.2
2037 DM						
B2068 Old Dover Road Westbound	74.2%	9.9	49.1	69.6%	7.9	57.7
The Drive	75.2%	13.7	31.8	60.5%	7.6	30.5
Old Dover Road Eastbound	21.3%	1.9	35.2	70.4%	4.5	74.6
B2068 St Lawerence Road	52.0%	7.9	25.9	74.2%	16.4	27.9
2037 DS						
B2068 Old Dover Road Westbound	75.0%	10.1	49.6	68.9%	8.1	55.9
The Drive	76.7%	14.3	32.7	70.5%	7.4	34.1
Old Dover Road Eastbound	21.8%	1.9	35.4	71.6%	4.6	75.1
B2068 St Lawerence Road	52.5%	8	26	76.3%	17.1	29.6
2044 8.5K DM						
B2068 Old Dover Road Westbound	78.3%	10.9	52.2	73.3%	8.6	60.3
The Drive	79.8%	15.7	34.3	77.1%	7.2	37.1
Old Dover Road Eastbound	22.1%	1.9	35.5	78.2%	5	88.8
B2068 St Lawerence Road	54.9%	8.5	26.6	78.4%	18.1	30.1
2044 8.5K DS						
B2068 Old Dover Road Westbound	79.9%	11.2	53.6	77.1%	9.3	63.4
The Drive	81.9%	16.4	35.8	87.8%	6.9	44.6
Old Dover Road Eastbound	22.4%	1.9	35.7	89.3%	6.4	126.4
B2068 St Lawerence Road	55.6%	8.8	26.9	79.7%	18.7	30.8
2044 10K DM						
B2068 Old Dover Road Westbound	78.3%	10.9	52.2	73.3%	8.6	60.3
The Drive	79.8%	15.7	34.3	77.1%	7.2	37.1
Old Dover Road Eastbound	22.1%	1.9	35.5	78.2%	5	88.8
B2068 St Lawerence Road	54.9%	8.5	26.6	78.4%	18.1	30.1
2044 10K DS						
B2068 Old Dover Road Westbound	80.3%	11.3	54	77.4%	9.3	63.7
The Drive	82.1%	16.7	35.9	89.1%	7.3	47.4
Old Dover Road Eastbound	22.7%	1.9	35.8	89.3%	6.4	126.4
B2068 St Lawerence Road	55.6%	8.8	26.9	79.8%	18.8	30.8

The future scenarios incorporate committed junction improvements associated with the Mountfield Park development. With the inclusion of these junction improvements, the junctions perform substantially better in the future scenarios than in the base. It can be seen that the junctions operate within capacity in the Do-Something scenarios and therefore do not require further discussion.

Table 92 J44: Nackington Road / Old Dover Road capacity assessment

Traffic Movement	AM Peak			PM Peak		
	Degree of Saturation	Mean Max Queue (PCUs)	Ave. Delay per PCU (secs)	Degree of Saturation	Mean Max Queue (PCUs)	Ave. Delay per PCU (secs)
2018						
Old Dover Road Westbound	63.5%	9.2	53.2	84.7%	10	80.9
B2068 Nackington Road	**96.8%**	24.7	93.9	83.8%	10.4	68
B2068 Old Dover Road Eastbound	64.2%	9.4	40.4	64.6%	6.1	12
2037 DM						
Old Dover Road Westbound	61.3%	9.7	49.3	73.0%	9.4	57.9
B2068 Nackington Road	74.5%	16.6	34.8	72.8%	6.4	36.5
B2068 Old Dover Road Eastbound	62.2%	10.1	33.8	74.6%	11.5	22.3
2037 DS						
Old Dover Road Westbound	63.7%	9.9	51.2	52.8%	7.9	41.2
B2068 Nackington Road	76.6%	17.3	35.3	76.6%	8.2	42.5
B2068 Old Dover Road Eastbound	62.1%	10.2	33.1	76.5%	12	21.7
2044 8.5K DM						
Old Dover Road Westbound	65.2%	10.4	50.8	54.3%	8.4	40.7
B2068 Nackington Road	79.8%	19.6	37.7	80.0%	8.9	45.7
B2068 Old Dover Road Eastbound	67.3%	11.1	36	79.8%	13.1	24.4
2044 8.5K DS						
Old Dover Road Westbound	65.6%	10.6	50.9	34.8%	6.4	23.9
B2068 Nackington Road	81.1%	20.5	38.6	86.7%	13.5	64.3
B2068 Old Dover Road Eastbound	70.1%	11.9	37.4	83.0%	14.6	24.9
2044 10K DM						
Old Dover Road Westbound	65.2%	10.4	50.8	54.3%	8.4	40.7
B2068 Nackington Road	79.8%	19.6	37.7	80.0%	8.9	45.7
B2068 Old Dover Road Eastbound	67.3%	11.1	36	79.8%	13.1	24.4
2044 10K DS						
Old Dover Road Westbound	65.6%	10.6	50.9	34.8%	6.4	23.9
B2068 Nackington Road	81.2%	20.6	38.7	86.8%	13.6	64.4
B2068 Old Dover Road Eastbound	70.3%	11.9	37.5	83.3%	14.7	25.2

10.4 Highway Mitigation

10.4.1 Where highlighted in Section 10.3 above, this section provides additional discussion and where appropriate, proposed mitigation for junctions which are predicted to be over-capacity in the Do-Something scenarios.

10.4.2 As previously discussed, there is a strong emphasis on the Monitor and Manage approach in bringing forward the Otterpool Park development. Given the worst-case nature of the trip generation exercise, it is inappropriate to bring forward infrastructure which provides excessive capacity and encourages additional private vehicle trips on the network.

10.4.3 Ongoing discussions have been held with the Local Authority to determine and agree where mitigation would be suitable and this section reflects these discussions.

J1: M20 Junction 10

10.4.4 M20 Junction 10 has recently been partially replaced and supplemented by the construction of M20 Junction 10a which provides significant additional highway capacity in this location. Junctions 10 and 10a operate together with it being likely that traffic delay would balance across the two junctions.

10.4.5 The modelling reports that the Kennington Road approach to the junction is predicted to go over-capacity in the 2044 10,000 Homes Do-something scenario, while the signalised T-junction to the west of the main junction which provides access to the M20 EB on-slip is predicted to go over-capacity in the 2037 Do-Something scenario, and in all 2044 scenarios.

10.4.6 However, given that M20 Junction 10a has been recently opened, there is significant uncertainty about what the future performance and capacity of this junction and M20 Junction 10 would be like. While there is the potential to mitigate this junction to bring the junction within capacity, how this would impact M20 Junction 10 operation and whether it would relieve the potential capacity issues here requires discussion with National Highways regarding an appropriate way forward.

J2: M20 Junction 11

10.4.7 M20 Junction 11 forms the primary access to the M20 and the wider strategic road network from Otterpool Park. As previously discussed, the modelling indicates that in all Do-Something scenarios this junction is likely to go over capacity.

10.4.8 The proposed mitigation requires the partial signalisation of the roundabout – specifically signalisation of the M20 Eastbound and Westbound offslips, as well as the Northbound entry from the A20, as well as their corresponding circulatory carriageway sections. The proposed layout is shown in drawing 10029956-ARC-XX-XX-DR-HE-0036 (Appendix I). The modelling indicates that partially signalising the junction would result in the junction operating within capacity, as shown in the AM and PM Peak periods, respectively, in Table 93 and Table 94:

Table 93 M20 Junction 11 AM Peak

Traffic Movement	2044 8.5k DS No Mitigation			2044 8.5k DS With Mitigation		
	RFC	Queue Length (vehicles)	Ave. Delay per Vehicle (secs)	Degree of Saturation	Mean Max Queue (PCUs)	Ave. Delay per PCU (secs)
M20 OffSlip Westbound	**1.08**	70.80	146.96	82.1%	11.5	24.4
A20 Ashford Road	**1.03**	59.80	76.21	18.4%	1	5.6
Services	0.37	0.60	12.48	18.4%	1	5.6
M20 OffSlip Eastbound	**1.16**	65.80	231.89	81.4%	8.1	36.6
B2068	0.74	2.70	18.85	57.4%	1.3	7.6

Table 94 M20 Junction 11 PM Peak

Traffic Movement	2044 8.5k DS No Mitigation			2044 8.5k DS With Mitigation		
	RFC	Queue Length (vehicles)	Ave. Delay per Vehicle (secs)	Degree of Saturation	Mean Max Queue (PCUs)	Ave. Delay per PCU (secs)
M20 OffSlip Westbound	**0.98**	19.10	50.48	82.2%	12.5	29.3
A20 Ashford Road	**1.00**	33.10	47.98	80.8%	10.8	11.7
Services	0.33	0.50	10.57	16.6%	1	5.5
M20 OffSlip Eastbound	**1.51**	193.40	698.91	87.1%	11.7	43.3
B2068	**0.96**	11.50	71.90	81.8%	7	24

J7B: A20 Hythe Road / The Street

10.4.9 The roundabout junction between A20 Hythe Road and The Street appears to go over capacity in the 2044 Do-Something scenarios. However, given the junction is a reasonable distance from Otterpool Park, and localised widening of the roundabout entry appears feasible, if necessary, a monitor and manage approach to determine whether mitigation is required in the future is appropriate.

J11: A20 Ashford Road / Stone Street / Hythe Road (Newingreen Junction)

10.4.10 The junction of the A20 Ashford Road with Stone Street and Hythe Road has been the focus of a separate study in order to determine the most appropriate junction arrangement for this location, in the wider context of Otterpool Park.

10.4.11 It has been determined that a fully signalised four arm junction is the most appropriate junction here, as the A20 through Newingreen will retain the bulk of the strategic traffic east-west through the area, while Otterpool Avenue will also provide some east-west capacity. For full details please see Appendix I. The proposals detailed would result in the junction capacity results shown in Table 95 , below.

Table 95 2044 8.5k Do-Something Results for Junction 11 Newingreen Junction

Approach	AM Peak			PM Peak		
	Degree of Saturation	Mean Max Queue (PCUs)	Ave. Delay per PCU (secs)	Degree of Saturation	Mean Max Queue (PCUs)	Ave. Delay per PCU (secs)
Ashford Road Southbound	70.0%	10.9	19.9	79.9%	16.6	21.0
	84.9%	6.1	38.2	87.8%	12.0	42.2
A261 Hythe Road Westbound	85.0%	6.7	42.7	87.8%	7.2	65.3
Stone Street Northbound	86.0%	7.6	46.3	49.7%	2.5	40.9
A20 Ashford Road Eastbound	85.8%	10.5	33.1	87.0%	11.4	38.4

J12: Aldington Road / Lympne Hill

10.4.12 The junction capacity modelling indicates that in the 2044 Do-Something scenarios, in the PM peak, the right-turn movement from Aldington Road into Lympne Hill is potentially over-capacity.

10.4.13 However, given the junction configuration and the dominant right-turn movement it is considered likely that any impact at this location would not be severe. Arcadis also understands that there are ongoing investigations regarding the possibility of closing Adlington Road to the east of this junction. Therefore, including this location in the monitor and manage approach to determine in the future whether mitigation is necessary and appropriate is recommended.

J14: A261 London Road / Barrack Hill

10.4.14 The modelling results for this junction indicate that in the 2044 Do-Something PM peak period the giveway movement from Barrack Hill is likely to go overcapacity.

10.4.15 However, to the south of this junction, there is a signalised junction (Scalons Bridge Road/A259 Military Road) which should aid capacity from Barrack Hill as vehicles should create platoons creating additional gaps for vehicles exiting Barrack Hill. Therefore, it is proposed that the operation of this junction is monitored to establish mitigation if required in the future.

J15: A259 / Dymchurch Road / Military Road Gyratory

10.4.16 The gyratory appears to be overcapacity in all future scenarios including the 2037 Do-Minimum scenario. The traffic associated with Otterpool Park in the Do-Something scenarios does not appear to have a severe impact on the operation of the gyratory over and above the Do-Minimum scenarios.

10.4.17 Arcadis understands that there are currently proposals to introduce additional signalised pedestrian crossing points at the existing traffic signals. Should these be introduced, it would have the effect of reducing vehicular capacity further.

10.4.18 This is a constrained location with limited opportunities for physical interventions to improve capacity for motor vehicles. However, increasing local parking restrictions such as adding double yellow lines in the vicinity of the pedestrian crossing on Military Road outside the Sainsburys would improve the operation of this signalised crossing for vehicles.

10.4.19 Given the limited impact Otterpool Park is having at this location, as well as the constrained location and desirability of improving access for non-car modes, no mitigation beyond that described above is proposed.

J17: A20 Ashford Road / A20 Junction 11 LILO

10.4.20 The proposed mitigation of the M20 Junction 11 located to the north of the junction would involve the approach to this junction being signalised, which may platoon vehicles from the north allowing additional gaps in traffic for vehicles to exit from Ashford Road. Therefore, it is proposed that the operation of this junction is monitored to establish if mitigation if required in the future.

J21a: M20 Junction 13 (Castle Hill Interchange)

10.4.21 The junction modelling results at this junction were discussed with Kent County Council, Folkestone & Hythe District Council and National Highways. It was agreed that the results suggested that the Otterpool Park development would not have a severe impact at this junction and that, subject to further review by all three authorities, no mitigation would be proposed for this junction.

10.4.22 During a period when mitigation options were discussed, a potential improvement at the junction was identified. The Churchill Avenue approach consists of a single long lane that widens to two lanes approximately 75m and then to three lanes approximately 20m before the give way line. The Churchill Avenue exit is two lanes that taper down to one wide 4.5m lane. If the exit lane were to taper down to a standard lane width it would allow for the two-lane section on the Churchill Approach to be extended further back. This could be brought forward if required, and as such the location should be included in the monitor and manage strategy.

J23: M20 Junction 9

10.4.23 M20 Junction 9 is shown to be over capacity in all future scenarios, including the Do-Minimum scenarios.

10.4.24 To mitigate the potential impacts, it is proposed that the exiting flare on Trinity Road is extended by 30m. This would increase the capacity of the approach and provide additional stacking space. It is also proposed that amendments to the lane allocations on the approach are made to allow the middle lane on Trinity Road to be shared for ahead and left movements. This would distribute the capacity enhancements more evenly across all movements on the approach. Additionally, an additional lane

on the southbound exit would assist in catering for the additional traffic. Modelling results for these mitigation proposals for the AM and PM Peak periods, respectively, are shown in Table 96 and Table 97 below.

Table 96 M20 Junction 9 AM Peak

Traffic Movement	2044 8.5k DS No Mitigation			2044 8.5k DS With Mitigation		
	Degree of Saturation	Mean Max Queue (PCUs)	Ave. Delay per PCU (secs)	Degree of Saturation	Mean Max Queue (PCUs)	Ave. Delay per PCU (secs)
A251 Trinity Road	**98.7%**	78.8	13.4	74.3%	18.4	3.1
M20 Slip Road Westbound	**99.6%**	49.3	16	86.3%	28	9.1
Fougeres Way	**92.0%**	32.7	7.9	**91.2%**	22.2	10
M20 Sliproad Eastbound	**103.4%**	115	31.4	**92.4%**	44.3	9.1

Table 97 M20 Junction 9 PM Peak

Traffic Movement	2044 8.5k DS No Mitigation			2044 8.5k DS With Mitigation		
	Degree of Saturation	Mean Max Queue (PCUs)	Ave. Delay per PCU (secs)	Degree of Saturation	Mean Max Queue (PCUs)	Ave. Delay per PCU (secs)
A251 Trinity Road	**126.2%**	132.6	430.3	101.0%	37	82.4
M20 Slip Road Westbound	**102.1%**	16.6	58.1	**96.5%**	12.9	39.3
Fougeres Way	76.9%	11.8	17.3	85.2%	14.3	19.6
M20 Sliproad Eastbound	**122.2%**	113.2	290.1	88.5%	13.8	30

10.4.25 Discussions with National Highways on a suitable level of mitigation and trigger points at this junction are ongoing.

J24: B2064 Cheriton High Street / B2063 Risborough Lane

10.4.26 This junction is expected to be significantly over capacity in the Do-Minimum scenarios, without any development at Otterpool Park. Given the constrained urban environment there is a limit to what physical mitigation would be possible at this location.

10.4.27 Discussions with FDHC and KCC have resulted in an understanding that a contribution to active travel measures in the area would be suitable in-lieu of proposing highway mitigation works. Arcadis understand that active travel measures are already being reviewed in this area and in the area of Junction 25.

J25: B2064 Cheriton Road / A2034 Cherry Garden Avenue

10.4.28 This junction is expected to be significantly over capacity in the Do-Minimum scenarios, without any development at Otterpool Park. Given the constrained urban environment there is a limit to what physical mitigation would be possible at this location.

10.4.29 Discussions with FDHC and KCC have resulted in an understanding that a contribution to active travel measures in the area would be suitable in-lieu of proposing highway mitigation works. Arcadis understand that active travel measures are already being reviewed in this area and in the area of Junction 24.

J26: A259 Prospect Road / Stade Street

10.4.30 This giveway junction is shown to be overcapacity on the Stade Street giveway in all future scenarios, starting in the 2037 Do-Minimum scenario. It is considered likely, however, given that the junction modelling software takes no account of the proximity of the pedestrian crossing to the east of this junction, that the capacity issue at this location is overstated.

10.4.31 The signalised pedestrian crossing point will cause gaps in the traffic along A259 Prospect Road in both directions, allowing vehicles opportunities to exit from Stade Street. Given this, it is recommended

that the situation at this junction is monitored and managed in order to understand what the true future impact of Otterpool Park at this location would be.

J27: Barrow Hill Shuttle Signals

10.4.32 The Barrow Hill Shuttle Signals form a key constraint on the A20 to the west of Otterpool Park, with the shuttle signals going overcapacity in all future scenarios including the 2037 Do-Minimum. Given the physical constraints present, there is not a practical way to significantly increase capacity through this location.

10.4.33 Extensive discussions have been undertaken with the Highway Authority, and while it is possible to improve capacity through this location by increasing the cycle times of the signals, this would have the undesirable impact of increasing queue lengths on the A20. Given the desire to encourage traffic to, where possible, access Otterpool Park via M20 Junction 11, any increase in capacity through this location may have the impact of encouraging drivers to take this undesirable route.

10.4.34 Cognisant of the above, at this time no changes to the operation of this junction are proposed, however a monitor and manage approach is proposed in order to keep the situation at this location under review.

Junctions SH16/SH18/SH19

10.4.35 These three junctions, taken together, form the A260 interchange with the A20. All three junctions as presently configured, are predicted to be overcapacity in all future scenarios, beginning with the 2037 Do-Minimum.

10.4.36 Arcadis understand that discussions have taken place between FDHC and HE regarding the future layout of this junction given the Local Plan ambitions. Discussions are ongoing regarding the level of mitigation required as well as an appropriate funding mechanism. It is considered that the likely level of impact from Otterpool Park is minimal given the trip reduction benefits derived from locating all of the required housing growth in one location, therefore an ongoing understanding of the performance of these junctions under the umbrella of the monitor and manage approach is considered most appropriate.

J42: M20 Junction 10A

10.4.37 M20 Junction 10A is a new junction directly to the east of M20 Junction 10 which is a full access junction from the M20 providing additional capacity at this location. Junctions 10 and 10a operate together with it being likely that traffic delay would balance across the two junctions.

10.4.38 Junction 10a appears to be overcapacity in all future scenarios, in the PM peak period. Providing a third lane northbound on the circulatory carriageway appears to ameliorate the capacity issues, and there is currently hatched out space on the bridge which would allow for a third lane on the northbound carriageway. Results for this proposal for the AM and PM Peak periods, respectively, are shown in Table 98 and Table 99 below:

Table 98 M20 Junction 10A AM Peak

Traffic Movement	2044 8.5k DS No Mitigation			2044 8.5k DS With Mitigation		
	Degree of Saturation	Mean Max Queue (PCUs)	Ave. Delay per PCU (secs)	Degree of Saturation	Mean Max Queue (PCUs)	Ave. Delay per PCU (secs)
M20 Eastbound Off-Slip	74.8%	5.8	32.9	**81.6%**	9.7	43.5
Hythe Road Eastbound	57.4%	2.7	6.4	55.2%	3.4	6.1
Hythe Road Westbound	83.0%	2.4	7.3	83.0%	5.7	7.4
M20 Westbound Off-Slip	86.1%	11.5	28.6	82.4%	9.4	23.8
A2070 Bad Munstereifel Road	84.1%	11.5	6.2	65.8%	1	2

Table 99 M20 Junction 10A PM Peak

Traffic Movement	2044 8.5k DS No Mitigation			2044 8.5k DS With Mitigation		
	Degree of Saturation	Mean Max Queue (PCUs)	Ave. Delay per PCU (secs)	Degree of Saturation	Mean Max Queue (PCUs)	Ave. Delay per PCU (secs)
M20 Eastbound Off-Slip	**130.5%**	103.6	473.1	**92.1%**	14.1	60.3
Hythe Road Eastbound	42.8%	1.6	8.4	51.5%	1.9	9.4
Hythe Road Westbound	66.6%	1	4	80.3%	8.2	9.5
M20 Westbound Off-Slip	71.8%	6.8	24.2	82.3%	8.3	25
A2070 Bad Munstereifel Road	**100.9%**	111.4	48.7	83.2%	2.4	3.9

10.4.39 However, given that M20 Junction 10a has been recently opened, there is significant uncertainty about what the future performance and capacity of this junction and M20 Junction 10 would be like. While there is the potential to mitigate this junction to bring the junction within capacity, how this would impact M20 Junction 10 operation and whether it would relieve the potential capacity issues here requires discussion with National Highways regarding an appropriate way forward.

J43: A20 Ashford Road Small Roundabout

10.4.40 The A20 Ashford Road small roundabout is dominated by the northern and southern arms, with the other two access being minor, infrequently used access points. The main function of the roundabout is to provide a U-turn facility for vehicles travelling westwards along the A20 Ashford Road Left-In Left-Out. The modelling reports that in the 2044 Do-Something scenarios this junction would operate above capacity in the AM peak period. Discussions with TRL have confirmed, however, that in order to accurately model this junction a site-specific adjustment to the modelling values would be required, as due to the nature of the junction with dominant through movements it is likely that the roundabout entries have a higher capacity than the modelling would typically predict.

10.4.41 This site-specific data is not available, however, it is considered appropriate that the junction be included in the monitor and manage approach to determine whether the junction is likely to reach capacity in the future, and consider appropriate mitigation measures at that time.

10.5 Mitigation Summary

10.5.1 As discussed above, the following junctions have been identified through the modelling as being of concern in the 2044 Do-Something scenarios:

- Junction 1 – M20 Junction 10
- Junction 2 – M20 Junction 11
- Junction 7B – A20 Hythe Road / The Street
- Junction 11 – A20 Ashford Road / Stone Street / Hythe Road
- Junction 12 – Aldington Road / Lympne Hill
- Junction 14 – A261 London Road / Barrack Hill
- Junction 15 – A261 / Dymchurch Road / / Military Road Gyratory
- Junction 17 – A20 Ashford Road / A20 Junction 11 LILO
- Junction J21a – M20 Junction 13 (Castle Hill Interchange)
- Junction 23 – M20 Junction 9
- Junction 24 – B2064 Cheriton High Street / B2063 Risborough Lane
- Junction 25 – B2064 Cheriton Road / A2034 Cherry Garden Avenue
- Junction 26 – A259 Prospect Road / Stade Street
- Junction 27 – Barrow Hill Shuttle Signals

- Junctions SH16/SH18/SH19
- Junction 42 – M20 Junction 10a
- Junction 43 – A20 Ashford Road Small Roundabout

10.5.2 Detailed discussions have taken place with KCC in order to understand where mitigation might be appropriate and a full monitor and manage programme is to be developed. While some specific junction mitigation measures have been discussed for local junctions, it has been agreed that mitigation at local junctions should be considered under the umbrella of the monitor and manage approach as it is more suitable than providing additional capacity where it may not be appropriate.

10.5.3 A summary of the highway mitigation is presented in Table 100.

Table 100 Summary of Highway Mitigation

Location	Mitigation
A20 between M20 Junction 11 and its junction with Stone Street and A261 Hythe Road	Enhancement of the /upgrade of existing single lane carriageway, including two signalised junctions with pedestrian crossing facilities.
A20 Junction with Stone Street and A261 Hythe Road (Newingreen Junction)	New Signalised junction
M20 Junction 11 roundabout	Partial signalisation
A259 / Dymchurch Road / Military Road	Double yellow lines on Military Road
M20 Junction 9	Lane amendments and additional lane on southbound exit
A20 Hythe Road / The Street junction	Monitor and Manage Approach to consider the need for mitigation
M20 Junction 13	
Aldington Road / Lympne Hill junction	
A261 London Road / Barrack Hill junction	
A20 Ashford Road Left-In Left-Out junction	
A259 Prospect Road / Stade Street	
Barrow Hill Shuttle Signals	
A20 / Spitfire Way / Alkham Valley Road Interchange	
M20 J10A	
A20 Ashford Road small roundabout junction	
A260 Interchange with the A20 (Junctions SH16/SH18/SH19)	
M20 J10	

10.5.4 Further discussions are required to understand and agree National Highway requirements for mitigation and delivery of their junctions, in particular around the M20 Junction 10 and 10a combined interchange.

10.6 Sensitivity Test (Quantum for Approval)

10.6.1 As mentioned in section 1.3.9, there is a necessity to undertake the transport assessment using the Illustrative Masterplan and Illustrative Accommodation Schedule to identify appropriate origins and destinations of trips. The quantum of development set out in the Illustrative Accommodation Schedule, however, has a lower quantum for which approval is requested (set out in the Development Specification). This sensitivity test has been undertaken to derive the equivalent number of vehicle trips generated by the quantum set out in the Development Specification. The Illustrative Accommodation Schedule which reflects the Development Specification quantum is found in Appendix U.

10.6.2 Furthermore, the sensitivity test accounts for the inclusion of an additional link road in the proposed town centre. This connects the high street by Westenhanger rail station to the road through the business park. The strategic transport model used for the main assessment did not include for this route to be connected for through traffic as it was not proposed at the time.

10.6.3 For this Quantum for Approval sensitivity test, the vehicle trips generated by the Development Specification quantum, on a pro-rata basis for each land use based on the Illustrative masterplan, has been determined. The strategic traffic model has then been run using these inputs to derive the resulting traffic generated at each junction assessed for the main assessment.

10.6.4 The resulting peak hour vehicle trips for the 2044 (8,500 homes) sensitivity test at each junction have been compared to the 2044 (8,500 homes) main assessment. The resulting vehicle changes and corresponding percentage changes can be found in Table 101. The highest percentage increase in Passenger Car Unit (PCU) occurs in the AM peak hour at J33 (Otterpool Avenue (west) junction with A20) and J39 Otterpool Avenue junction with the High Street at 16% and 15% respectively. Aside from J34 A20 Ashford Road junction with the new High Street south of Otterpool Avenue with a percentage increase of 7%, all other junctions have a 4% percentage increase or less.

		AM				PM			
Junction Number	Junction Description	Core Scenario	Sensitivity Test	Difference	% Difference	Core Scenario	Sensitivity Test	Difference	% Difference
1	M20 J10	5488	5481	-7	0%	6116	6119	3	0%
2	M20 J11	5455	5602	147	3%	5413	5510	97	2%
3	Ashford Road (A20) / Swan Lane	1473	1469	-4	0%	1547	1531	-16	-1%
4	Ashford Road (A20) / Stone Hill	1420	1406	-14	-1%	1476	1459	-17	-1%
5	Ashford Road (A20) / Station Road / Church Road	1850	1833	-17	-1%	1938	1919	-19	-1%
6	Hythe Road (A20) / Meersham	2234	2213	-21	-1%	2190	2168	-22	-1%
7A	A2070 Kenniton Road / The Street	2468	2470	2	0%	2509	2511	2	0%
7B	Hythe Road (A20) / The Street	2020	1991	-29	-1%	1928	1939	11	1%
8 and 31	A20 Ashford Road / B2067 Otterpool Lane/Barrow Hill / Access to zone P1B	1740	1733	-7	0%	1905	1891	-14	-1%
9	B2067 Otterpool Lane / Aldington Road	793	759	-34	-4%	772	764	-8	-1%
10	Aldington Road / Stone Street	1107	1112	5	0%	1054	1056	2	0%
11	A20 Ashford Road / A261 Hythe Road / Stone Street	2951	2878	-73	-2%	2939	2937	-2	0%
12	Aldington Road / Lympne Hill	1017	1035	18	2%	984	997	13	1%
13	A261 Hythe Road / Aldington Road	1926	1940	14	1%	2081	2076	-5	0%
14	A261 London Road / Barrack Hill	2285	2299	14	1%	2305	2301	-4	0%
15	A259 / Dymchurch Road / Military Road	3608	3624	16	0%	3894	3897	3	0%
16	A259 Prospect Road / A259 Seabrook Road / Station Road / High Street	2102	2114	12	1%	2216	2215	-1	0%
17	A20 Ashford Road / A20 J11 offslip	2706	2799	93	3%	2513	2530	17	1%
18	Ashford Road (A20) / Sandling Road	968	971	3	0%	811	827	16	2%
19	M20 J11A	1500	1500	0	0%	1391	1397	6	0%
20	M20 J12	3937	3966	29	1%	4006	4026	20	1%
21A	M20 J13	4690	4721	31	1%	4935	4941	6	0%
21B	M20 J14	1927	1924	-3	0%	2170	2171	1	0%
23	M20 J9	8022	8036	14	0%	8202	8206	4	0%
24	B2064 Cheriton High Street / B2063 Risborough Lane	3004	3024	20	1%	3350	3374	24	1%
25	B2064 Cheriton High Street / A2034 Cherry Garden Avenue	1957	1967	10	0%	2193	2194	1	0%
26	A259 Prospect Road / Stade Street	3120	3138	18	1%	3147	3162	15	0%
27	Barrow Hill 1-way	1379	1376	-3	0%	1447	1431	-16	-1%
SH18	A260 Spitfire Way / White Horse Hill / A20 Slip Roads	3224	3232	8	0%	3496	3508	12	0%
SH19	Alkham Valley Road / A20 slip roads	2341	2349	8	0%	1851	1844	-7	0%
SH16	A260 Canterbury Road / Alkham Valley Road	2917	2924	7	0%	2972	2968	-4	0%
32	A20 Ashford Rd / Access to zone P6	1119	1137	18	2%	1104	1097	-7	-1%
33	A20 Ashford Rd / Access to by-pass	1258	1458	200	16%	1537	1532	-5	0%
34	A20 Ashford Rd / Access to zones P1A & P2A	973	1044	71	7%	1268	1284	16	1%
35	A20 Ashford Rd / Access to zone P1C	3755	3386	-369	-10%	3788	3550	-238	-6%
36	A20 Ashford Rd / Access to zone P2C (Business Park)	4266	4342	76	2%	4311	4368	57	1%
38	Otterpool Lane / Access to zone P1B & P2B	1019	1010	-9	-1%	1083	1083	0	0%
39	Newingreen Link Road / High Street	1017	1167	150	15%	1178	1058	-120	-10%
42	M20 J10a	5634	5651	17	0%	5899	5884	-15	0%
43	A20 Small Roundabout	4360	4518	158	4%	4223	4331	108	3%

Table 101 Sensitivity Test Compared to 2044 8.5k homes scenario – Vehicle and Percentage Change

10.6.5 Based on the overall changes in vehicles and corresponding percentage change in traffic at each of the junctions assessed, it has been determined that there are no material changes to the conclusions of the 2044 8.5k homes scenario when taking into account the values from the sensitivity test.

10.6.6 The area of influence, due to the additional link road, where traffic would be impacted the most in terms of traffic movement for the surrounding highway network is considered to be the following junctions:

- J11 A20 Ashford Road / Stone Street / Hythe Road (Newingreen Junction)
- J33: A20 Ashford Road Link Road west (Otterpool Avenue - west)
- J34: A20 Ashford Road access to P1A & P2A
- J35: A20 Ashford Road Link Road east (Otterpool Avenue - east)
- J36: A20 Ashford Road Link Road / High Street (access road to business park)
- J39: Internal Link Road / High Street junction

10.6.7 These junctions are located closest to the new link road. The capacity assessment for each of these junctions were re-run with the sensitivity test vehicular flows to provide a comprehensive assessment on this area of influence. The result of this analysis is reported from Table 102 to Table 107.

Traffic Movement	AM Peak			PM Peak		
	Degree of Saturation	Mean Max Queue (PCUs)	Ave. Delay per PCU (secs)	Degree of Saturation	Mean Max Queue (PCUs)	Ave. Delay per PCU (secs)
2044 8.5K DS						
A20 Ashford Road Southbound	85.2%	6.1	37.8	86.8%	11.7	40.6
A20 Ashford Road Eastbound	70.9%	4.1	36.8	88.1%	7.3	65.9
Stone Street	88.3%	8.8	48	49.3%	2.5	40.8
A261 Hythe Road	89.5%	12	38.1	86.4%	11.2	37.8

Table 102 - J11 - Newingreen Junction Sensitivity Test Modelling Results

Traffic Movement	AM Peak			PM Peak		
	Degree of Saturation	Mean Max Queue (PCUs)	Av. Delay /PCU	Degree of Saturation	Mean Max Queue (PCUs)	Av. Delay /PCU
2044 8.5K DS						
A20 Ashford Road Westbound	81.1%	11.1	47.8	76.3%	12.3	28.8
A20 Ashford Road Eastbound	79.5%	19.7	33.8	69.1%	12.5	36.7
Access to Zone P1C	64.2%	7.7	47.5	63.5%	7.5	44.9

Table 103 - J33 - A20 Ashford Link Road West Sensitivity Test Modelling Results

Traffic Movement	AM Peak			PM Peak		
	RFC	Queue Length (vehicles)	Ave. Delay per Vehicle (secs)	RFC	Queue Length (vehicles)	Ave. Delay per Vehicle (secs)
2044 8.5K DS						
High Street	0.63	1.7	23.15	0.5	1	13
A20 Ashford Road Eastbound	0.27	0.4	8.87	0.08	0.1	8.29

Table 104 - J34 - A20 Ashford Road access to P1A & P2A Sensitivity Test Modelling Results

Traffic Movement	AM Peak			PM Peak		
	Degree of Saturation	Mean Max Queue (PCUs)	Ave. Delay per PCU (secs)	Degree of Saturation	Mean Max Queue (PCUs)	Ave. Delay per PCU (secs)
2044 8.5K DS						
A20 Ashford Road North	77.2%	14.3	33.5	78.8%	16.6	20.1
A20 Ashford Road South	76.2%	21	36.3	64.0%	10.6	35.1
Access to Zone P1C	64.9%	14.5	32.6	74.0%	16.1	23.8

Table 105 - J35 - A20 Ashford Road Link Road East Sensitivity Test Modelling Results

Traffic Movement	AM Peak			PM Peak		
	Degree of Saturation	Mean Max Queue (PCUs)	Ave. Delay per PCU (secs)	Degree of Saturation	Mean Max Queue (PCUs)	Ave. Delay per PCU (secs)
2044 8.5K DS						
A20 Ashford Road Northbound	88.3%	33.4	14.2	88.3%	33.4	14.2
A20 Ashford Road Southbound	81.0%	21.4	36.4	82.7%	21.8	38
Access to Zone P2C	55.5%	11.3	31.2	54.5%	11.1	30.3

Table 106 - J36 - Ashford Road Link Road / High Street Sensitivity Test Modelling Results

Traffic Movement	AM Peak			PM Peak		
	Degree of Saturation	Mean Max Queue (PCUs)	Ave. Delay per PCU (secs)	Degree of Saturation	Mean Max Queue (PCUs)	Ave. Delay per PCU (secs)
2044 8.5K DS						
High Street North	25.1%	3.7	10.5	20.0%	2.9	9.6
Link Road East	84.0%	21.4	30	71.5%	15.8	23.1
Link Road West	14.3%	0.6	54.7	54.5%	2.7	68.1

Table 107 - J39 - Internal Link Road / High Street Sensitivity Test Modelling Results

10.6.8 The results indicate that there are no significant changes between the Sensitivity Test and the main 2044 8.5k scenario and does not result in any material change to the current outcomes concluded for the main assessment.

10.6.9 Therefore, the sensitivity test concludes that the main assessment is appropriate and robust.

11 Merge, Diverge and Weaving Assessments

11.1 Introduction

11.1.1 The DMRB Merge / Diverge traffic calculation has been prepared for key M20 Junctions. The reference document corresponds to the latest edition of DMRB (CD 122 Grade separated junctions). A number of existing geometries have been designed using older design standards, meaning geometric discrepancies can originate from a change in the DMRB itself.

11.1.2 Descriptions and illustrations from the DMRB merge and diverge layouts mentioned in the following sections have been provided in Appendix S.

11.1.3 This Transport Assessment has been prepared using a different calculation method than the simplified methodology used for the Local Plan submission. Moreover, the Local Plan submission focused on 6,500 homes being developed for Otterpool.

11.2 Study Area

11.2.1 The Local Plan Statement of Common Ground (SoCG) June 2021 with Highways England (now NH) identified the following M20 Junctions, shown in Figure 59, to be included as part of impact assessment:

- M20 Junction 11;
- M20 Junction 12;
- M20 Junction 13; and
- A20 Alkham Valley Slips.

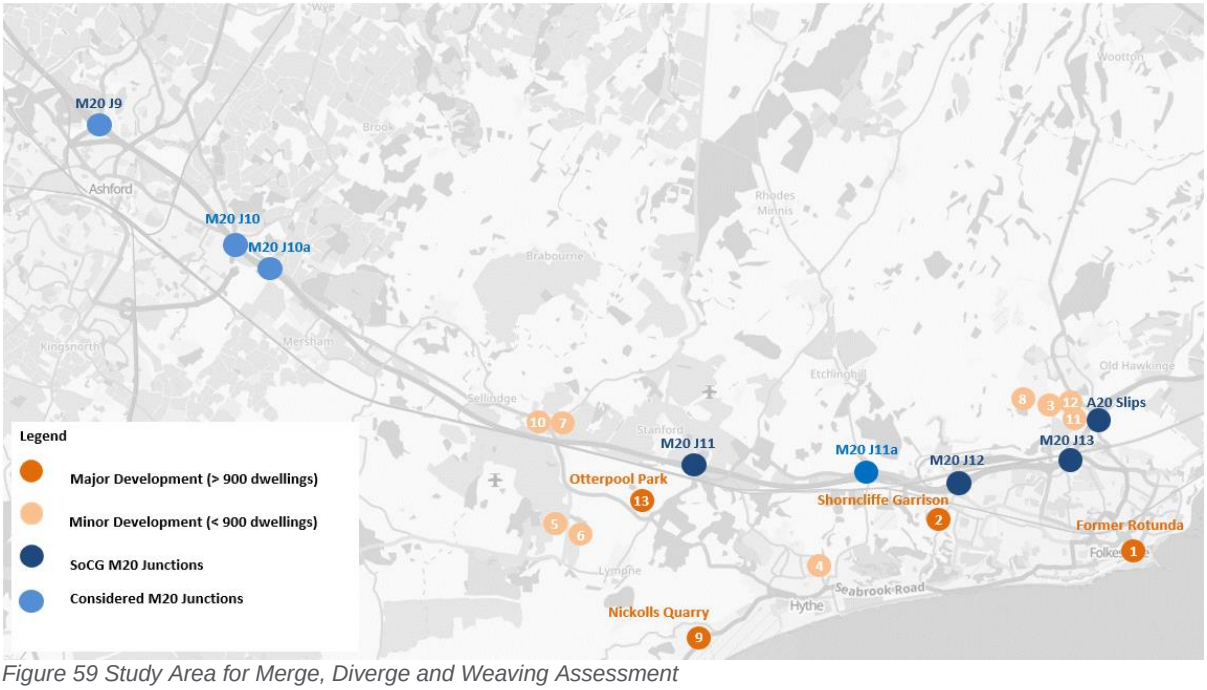


Figure 59 Study Area for Merge, Diverge and Weaving Assessment

11.2.2 The study area was agreed based upon the 2037 forecast development trips at each of the M20 junctions that included Otterpool Park development traffic. The M20 Junctions 9, 10 and 10A were excluded from the study area as the local plan growth on the M20 slips at these locations was not sufficient to be considered a significant impact. Consistent with the Local Plan, the same study area for the merge/diverge analysis has been retained.

11.2.3 A comparison of the proposed design outcome has been included.

11.3 Vehicle Trips and Assessment Scenarios

11.3.1 Chapters 6 and 9 describe how future network flows were derived and then determined through the use of a VISUM model. The model has been applied to develop the following scenarios, with and without Otterpool traffic to compare against the agreed Local Plan mitigation as part of the June 2020 Statement of Common Ground.

- Do Minimum 2037, 2044
- Do Something with Otterpool 8500 homes
- Do Something with Otterpool 10,000 homes sensitivity test

11.3.2 Traffic flows contained in the above scenarios were processed in accordance with DMRB guidance for HGV and gradient factors to assess the merge/diverge layouts.

11.4 Merge / Diverge Result Consistency Analysis

11.4.1 Table 108 summarises and identifies:

- In dark green, situations where the existing merge/diverge type is adequate
- In light green, situations where the Local Plan agree mitigation is sufficient;
- In grey, situations where the Local Plan proposals are not sufficient.

11.4.2 The merge/diverge diagrams for each scenario are provided digitally in Appendix S.

Table 108 Summary of Merge and Diverge Assessment Upgrade Requirements

Junction	Scenario	Merge/ Diverge	Current Type	L. Plan	Upgrade Requirement					
					2037		2044 8.5k		2044 10k	
					AM	PM	AM	PM	AM	PM
M20 Junction 11	DM	EB Diverge	A	D1	A	A	A	C	A	C
		EB Merge	A	D	A	B	A	B	A	B
		WB Diverge	A	C	A	A	A	C	A	C
		WB Merge	A	E1	A	A	B	A	B	A
	DS	EB Diverge	A	D1	A	C	A	C	A	C
		EB Merge	A	D	B	D	B	D*	B	D*
		WB Diverge	A	C	C	A	D	C	D	C
		WB Merge	A	E1	B	A	D	B	D	B
M20 Junction 11A	DM	EB Diverge	B2	-	A	A	A	A	A	A
		WB Merge	C	-	A	A	A	A	A	A
	DS	EB Diverge	B2	-	A	A	A	A	A	A
		WB Merge	C	-	A	A	A	A	A	A
M20 Junction 12	DM	EB Diverge	C	-	A	A	A	A	A	A
		EB Merge	A	B	A	B	A	B	A	B
		WB Diverge	A	A2	A	A	A	A	A	A
		WB Merge	D	-	A	A	A	A	A	A
	DS	EB Diverge	C	-	A	C	A	C	A	C
		EB Merge	A	B	A	B	A	B*	A	B*
		WB Diverge	A	A2	A	A	A	A	A	A

Junction	Scenario	Merge/ Diverge	Current Type	L. Plan	Upgrade Requirement					
					2037		2044 8.5k		2044 10k	
					AM	PM	AM	PM	AM	PM
		WB Merge	D	-	A	B	B	A	B	B
M20 Junction 13	DM	EB Diverge	A	B2	A	A	A	A	A	A
		EB Merge	A	-	A**	A	A**	A	A**	A
		WB Diverge	A2	-	A	A	A	A	A	A
		WB Merge	A	C	A	A	A	A*	A*	A
	DS	EB Diverge	A	B2	A	A	A	A	D	A
		EB Merge	A	-	A**	A	A**	A	A**	A
		WB Diverge	A2	-	A	A	A	A	A	A
		WB Merge	A	C	A	A	A*	A*	A*	A*

Key:

	Existing Layouts correspond with those indicated in CD122
	Local Plan Layout is sufficient for the forecast scenario
	Local Plan Layout is not sufficient for the forecast scenario
*	*CD 122 section E/1. Modifying existing motorways applied*
**	*Number of lanes provided exceeds those that are required*

11.4.3 Based upon the merge/diverge analysis, the Local Plan mitigation proposals at the following locations exceeds the forecasted required layout for the Otterpool DS scenarios:

- M20 Junction 11
  - Eastbound Diverge would require a Type C lane drop diverge rather than the Type D Ghost Island lane drop proposed within the Local Plan.
  - Westbound Merge would require a Type D lane gain rather than Type E1 Ghost Island lane gain proposed within the Local Plan.
- M20 Junction 12
  - The westbound diverge existing provision is sufficient to accommodate the forecast layout requirements therefore the proposed Local Plan upgrades may not be required
- M20 Junction 13
  - The westbound merge existing provision is sufficient to accommodate the forecast layout requirements therefore the proposed Local Plan upgrades may not be required

11.4.4 The merge/diverge analysis for the following locations indicates that the proposed mitigation within the Local Plan may not be sufficient:

- M20 Junction 11
  - Westbound Diverge may require a Type D Ghost Island lane drop rather than the Type C lane drop diverge proposed within the Local Plan. A preliminary layout is shown in drawing 10029956-ARC-XX-XX-DR-HE-0036 (Appendix I).
- M20 Junction 13
  - The eastbound diverge may require a larger provision of a Type D Ghost Island lane drop in the 2044 AM DS 10k scenario. The merge/diverge indicates that a reduction of 1.6% traffic on the ramp would result in no improvements required.

11.4.5 Table 109 below summarises the merge / diverge upgrade requirements for the Otterpool 8500 homes planning application based on the worst case trip generation assumptions.

Table 109 Summary of Merge and Diverge Upgrade Requirements for Otterpool PA 8500 homes

Junction	Merge / Diverge	Current Provision	Local Plan	Otterpool 8500 Dwellings
M20 Junction 11	EB Diverge	A	D1	C
	EB Merge	A	D	E (D*)
	WB Diverge	A	C	D
	WB Merge	A	E1	D
M20 Junction 12	EB Diverge	C	-	-
	EB Merge	A	B	D(B*)
	WB Diverge	A	A2	-
	WB Merge	D	-	-
M20 Junction 13	EB Diverge	A	B2	-
	EB Merge	A	-	-
	WB Diverge	A2	-	-
	WB Merge	A	C	B(A*)

*CD 122 section E/1. Modifying existing motorways applied

- Existing provision no improvement required

11.4.6 With the implementation of the Otterpool site Transport Strategy combined with the estimated User Centric Survey development trips as reasonable mode split target, it is expected that the estimated traffic generated by the site proposed in the Transport Assessment will not be reached, and hence the improvement options may not be required. The need for these improvements will be assessed through the Monitor and Manage Approach.

11.4.7 This proposition is supported, in the future, by the predicted impact of the Lower Thames Crossing scheme, which demonstrates a reduction in flows along the M20 due to the scheme.

11.5 M20 J12 /13 Weaving Assessment

11.5.1 The weaving segment between M20 Junction 12 and Junction 13 is characterised by:

- A Motorway Standard;
- Two lanes in each direction;
- A 70mph speed limit;
- A weaving distance of:
  - 430m eastbound; and
  - 670m westbound.

11.5.2 According to DMRB CD122 Revision 1:

- This section of the M20 is classified as a “Rural road” because the speed limit is 70mph. To be classified as an urban road, the motorway would have to have a speed limit of 60mph or less;
- The minimum length of a weaving section “shall be 2km for motorways; and 1km for all-purpose roads”; and
- If the minimum weaving distance is not possible, a link road should be introduced. A link road is a parallel road enabling traffic to bypass the weaving segment.

11.5.3 Such a technical solution is neither technical practical at this location, nor affordable in the context of the Otterpool Planning Application or the Local Plan.

11.5.4 The M20 at the location of the weaving segment is a 70mph road segment. However, the weaving segment is not to standard and therefore a DMRB calculation cannot be performed. If the speed limit

at the weaving section is 60mph, the road can be classified as 'URBA' and the weaving requirement can be much shorter. Thus, the weaving analysis has been undertaken using an Urban road classification.

11.5.5 Weaving segment analysis for the 2044 DS 8.5k and 10k scenarios is presented below in Tables 165 and 166.

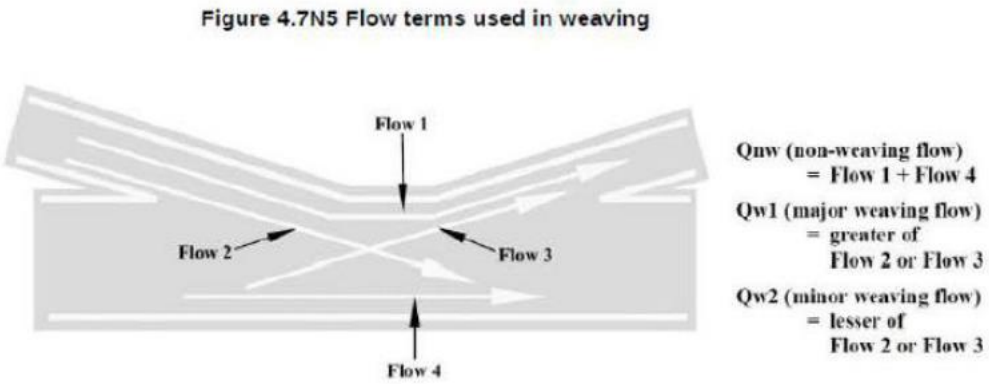


Figure 60 DMRB Weaving Flow Terms

Table 110 2044 DS 8.5k Scenario Number of Lanes Calculation - URBAN

Direction	Period	In vehicles per hour				N	N (Number of Lanes)
		Flow 1	Flow 2	Flow 3	Flow 4		
Eastbound	AM	233	393	1086	1350	1.869	2
Eastbound	PM	225	509	1153	1793	2.262	2
Westbound	AM	150	910	603	1870	2.098	2
Westbound	PM	205	1078	502	1463	1.859	2

Table 111 2044 DS 10k Scenario Number of Lanes Calculation - URBAN

Direction	Period	In vehicles per hour				N	N (Number of Lanes)
		Flow 1	Flow 2	Flow 3	Flow 4		
Eastbound	AM	230	384	1095	1370	1.875	2
Eastbound	PM	240	484	1132	1799	2.237	2
Westbound	AM	147	905	594	1856	2.079	2
Westbound	PM	200	1089	491	1475	1.862	2

11.5.6 The results of the weaving analysis indicate that two lanes on the mainline are sufficient along the M20 for 2044 scenarios.

12 User Centric Approach

12.1 Introduction

12.1.1 The future of travel and the movement of goods is changing. Advances to technology, changes to the way we work and a shift in the way we access services and buy goods are influencing the way we travel. The Otterpool Park development will be able to influence and encourage site users to live and travel in a more sustainable way through the transport options and facilities provided. Additionally, the offer at the development will reduce the need to travel longer distances for certain purposes.

12.1.2 The Transport Assessment has used the traditional 'predict and provide' methodology to estimate a worst-case scenario for vehicle trips generated by the development, as detailed above. However, the Transport Strategy vision is that the actual car trips generated by the development would not reach the levels estimated in the Transport Assessment. This means that the mitigation schemes identified in the highway access strategy could be reduced or would no longer be necessary as the threshold of requirements are not met.

12.1.3 This Chapter sets out the alternative trip generation scenarios that take into account the transport strategies and proposed sustainable infrastructure to be implemented as part of the development.

12.2 User Centric Scenarios

12.2.1 A User Centric Approach that focuses on the mobility needs of users first has been used to estimate an alternative trip generation for the development. This method takes into account the propensity of users to take up more active and sustainable travel options compared to the private car should there be a reasonable alternative. This has been determined by carrying out an online survey of 2,600 respondents in London and Kent who meet the demographic characteristics of future residents of Otterpool Park and asking questions relating to their travel behaviours. The consideration for travel behaviours prior to the Covid-19 pandemic, but also recognising the 'new normal' of travel behaviour in the future, was made clear to the respondents for each question.

12.2.2 The user-centric approach and process is summarised in Figure 61 and the details are set out in the User-Centric Travel (WSP) document, also submitted for information with the Planning Application (OP12). The surveys undertaken (also set out in the User Centric Travel document) have resulted in the identification of opportunities that key future mobility changes would bring, these are summarised in Table 112.

Table 112 Opportunities that Key Future Mobility changes would bring

Key Change	Survey Result	Opportunities
Changing Attitudes	Respondents expect to travel less post Covid 19 than before the Pandemic.	People will be more open to new ways of accessing activities and services.
Cleaner Transport	Over 50% of trips are made using active travel and public transport modes, whilst average car ownership is 70%.	Encourage mode shift and offer alternative options to the private car.
New Modes	Household bicycle ownership is seen to be low on average (50% of respondents.)	Implementation of e-scooter and e-bike schemes for last mile trips.
Data and Connectivity	Shopping and personal business trips are the most likely trip purpose to be replaced with a digital alternative.	Digital connectivity and the resulting movement of data is the golden thread linking all elements of Future Mobility. This includes the real time alerts of journey disruption provided by smart mobility apps, which can inform users on how

Key Change	Survey Result	Opportunities
		best to travel, and whether it is necessary to travel at all.
Automation	More than 50% survey respondents expect no change in their delivery behaviour post Covid 19	Opportunity to implement improved sensing technology, computing power and software engineering to provide more seamless freight and delivery options.
New Business Models	Those living in houses are more than 1.5 times as likely to have at least one car in their household than those living in a flat	Providing new mobility business models, such as on demand transit options, which offer the same level of convenience as a private car but don't have the same high fixed costs.

12.2.3 Two scenarios have been derived based on the results of the survey data:

- Best Case Scenario: This scenario takes the user survey results a step further by applying a more ambitious mode share target than the User Survey scenario. The comprehensive range of transport measures proposed at the development would be required to support the ambitious mode share target. This target is intended for the north east area of the development, where accessibility levels are expected to be highest with Westenhanger rail station being within this plot, however, it could also be used as an aspiration for the wider site. The mode share for this scenario has originated from WSP's "Otterpool Park – Phase 1 Access and Movement Strategy" with some minor amendments.
- User Survey Scenario: Directly based on the likely travel behaviour of future Otterpool Park users based on survey responses and are only applied to the external trip Mode Share, the internal trips reflect those in the best-case scenario.

12.2.4 The derivation of the mode share for these two scenarios are summarised in Figure 62, the elements where adjustments were made were to the passenger mode split for both the best case and user survey data. As none was accounted for in these two scenarios, the proportion of passenger mode split used in the TA worst case was applied, these were reallocated from various other modes dependent on the scenario, as shown in Figure 62.

12.2.5 The resulting mode share for the Best Case and User Survey scenario for the year 2044 (8.5k homes) are shown in Table 113 and Table 114. The subsequent trips generated by mode for each of the two scenarios are illustrated in Table 115 and Table 116.

12.2.6 **Table 117** Table 117 summarises the differences between the driver trips for each of the scenarios. The reduction in driver trips for the user survey and best-case scenario can be up to 35% and 47% in the PM peak hour compared to the TA worst case. This demonstrates that there may not be a need for some of the highway mitigation measures proposed as part of the TA as the thresholds for their requirement may not be reached. This will be assessed through the monitor and manage approach.

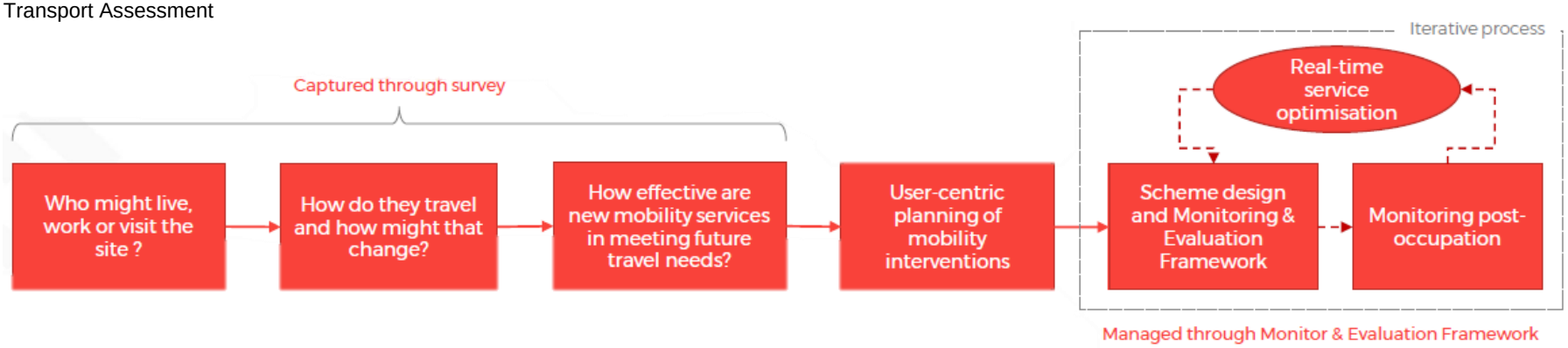


Figure 61 User Centric Approach

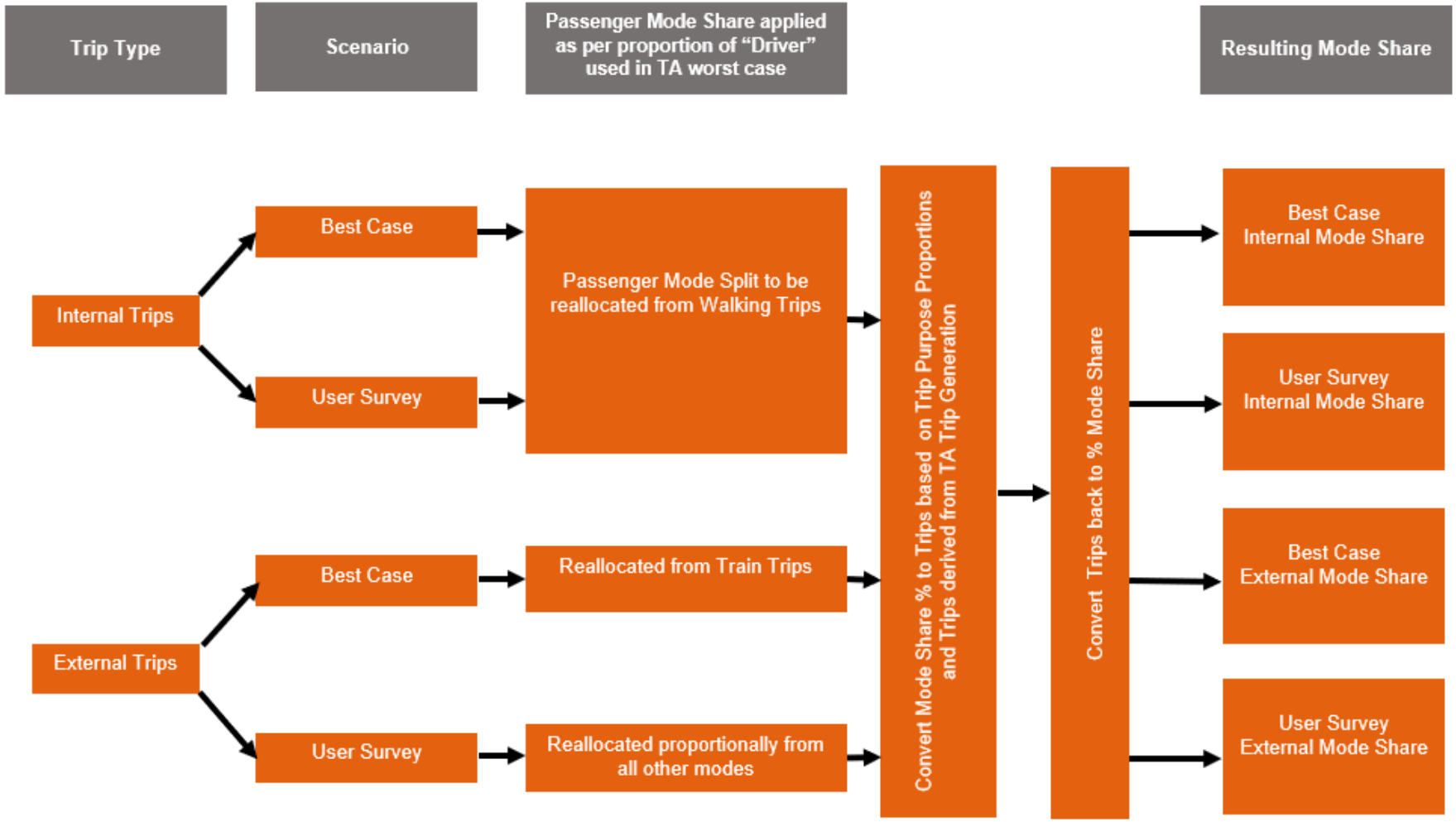


Figure 62 Derivation of Best Case and User Survey Mode Share Flow Diagram

Table 113 Internal, External and Combined AM and PM Peak Mode Splits (2044) – Best Case Scenario

Period	Mode Split					
	Internal Trip		External Trips		Combined	
	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
Driver	8%	15%	21%	25%	16%	22%
Passenger	3%	7%	5%	8%	4%	8%
Taxi	2%	5%	0%	0%	1%	2%
Motorcycle	0%	0%	0%	0%	0%	0%
Train	0%	0%	41%	40%	26%	26%
Bus	5%	5%	16%	13%	12%	10%
Light Rail	0%	0%	0%	0%	0%	0%
Bicycle	7%	11%	7%	7%	7%	8%
Walk	75%	58%	10%	7%	34%	24%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Table 114 Internal, External and Combined AM and PM Peak Mode Splits (2044) – User Survey Scenario

Period	Mode Split					
	Internal Trip		External Trips		Combined	
	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
Driver	8%	15%	31%	36%	23%	29%
Passenger	3%	7%	6%	11%	5%	10%
Taxi	2%	5%	1%	1%	1%	2%
Motorcycle	0%	0%	1%	1%	1%	1%
Train	0%	0%	28%	24%	18%	16%
Bus	5%	5%	14%	11%	11%	9%
Light Rail	0%	0%	0%	0%	0%	0%
Bicycle	7%	11%	3%	3%	5%	6%
Walk	75%	58%	15%	12%	37%	28%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

Table 115 Internal, External and Combined Trips by Mode (2044) – Best Case Scenario

Period	Internal Trips						External Trips						Combined					
	AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour		
	Arr	Dep	A + D	Arr	Dep	A + D	Arr	Dep	A + D	Arr	Dep	A + D	Arr	Dep	A + D	Arr	Dep	A + D
Driver	208	48	256	123	236	359	561	587	1,148	601	597	1,198	769	635	1,404	724	833	1,558
Passenger	72	24	96	76	103	180	104	147	251	211	176	387	177	171	348	287	280	567
Taxi	42	7	49	40	78	118	0	0	0	0	0	0	42	7	49	40	78	118
Motorcycle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Train	0	0	0	0	0	0	1,154	1,031	2,185	875	1,024	1,899	1,154	1,031	2,185	875	1,024	1,899
Bus	123	35	158	43	81	124	442	428	870	293	326	619	565	463	1,028	336	407	743
Light Rail	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycle	194	41	235	83	188	271	181	192	373	158	157	315	375	233	608	241	345	586
Walk	1,824	536	2,360	491	932	1,423	266	286	552	163	163	326	2,090	822	2,912	655	1,095	1,750
Total	**2,463**	**691**	**3,154**	**857**	**1,618**	**2,475**	**2,709**	**2,670**	**5,380**	**2,301**	**2,444**	**4,746**	**5,172**	**3,361**	**8,533**	**3,158**	**4,063**	**7,221**

Table 116 Internal, External and Combined Trips by Mode (2044) – User Survey Scenario

Period	Internal Trips						External Trips						Combined					
	AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour			AM Peak Hour			PM Peak Hour		
	Arr	Dep	A + D	Arr	Dep	A + D	Arr	Dep	A + D	Arr	Dep	A + D	Arr	Dep	A + D	Arr	Dep	A + D
Driver	208	48	256	123	236	359	841	851	1,692	849	868	1,718	1,049	899	1,948	973	1,104	2,077
Passenger	72	24	96	76	103	180	146	200	346	281	238	519	218	224	443	357	341	699
Taxi	42	7	49	40	78	118	25	25	50	23	24	47	68	32	99	63	102	165
Motorcycle	0	0	0	0	0	0	25	25	50	23	24	47	25	25	50	23	24	47
Train	0	0	0	0	0	0	806	719	1,525	519	629	1,148	806	719	1,525	519	629	1,148
Bus	123	35	158	43	81	124	379	364	743	257	287	544	502	398	901	299	368	668
Light Rail	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycle	194	41	235	83	188	271	90	89	179	63	69	132	284	130	414	146	257	403
Walk	1,824	536	2,360	491	932	1,423	397	397	793	286	305	591	2,220	933	3,153	777	1,237	2,014
Total	**2,463**	**691**	**3,154**	**857**	**1,618**	**2,475**	**2,709**	**2,670**	**5,380**	**2,301**	**2,444**	**4,746**	**5,172**	**3,361**	**8,533**	**3,158**	**4,063**	**7,221**

Table 117 2 Way Driver Trips Summary by Scenario (2044)

Period	Scenario					
	Worst Case (TA)		User Survey		Best Case	
	AM Peak	PM Peak	AM Peak	PM Peak	AM Peak	PM Peak
Driver Mode Share	46%	51%	23%	29%	16%	22%
Driver Trips	3,923	3,649	1,948	2,077	1,404	1,558
Trip Difference compared to Worst Case (TA)	-	-	-1,975	-1,572	-2,519	-2,091
% Reduction compared to Worst Case (TA)	-	-	50%	43%	64%	57%

13 Effects on Sustainable Transport Modes

13.1 Introduction

13.1.1 This Chapter describes the effects of the development proposals on the sustainable transport networks. The assessment focuses on the 2044 main assessment scenario, which represents full-build out of the Otterpool Park development for which this application is being submitted.

13.1.2 The non-car trips assessed in this Chapter refer to the User Centric Approach and reports the estimated values for both the Best Case and the User Survey Scenario.

13.1.3 The trip distribution of non-car modes have been described in Chapter 9.3. Applying these principles, the resulting summary of origins and destination proportions for the best case and user survey scenarios are presented in **Table 118**. Appendix T contains the non-work trip gravity model and commuter trip distributions for trips made by non-Car modes utilised in this assessment.

Table 118 Origin/Destination Proportions of Non-Car Mode (2044 8.5k)

Origin/ Destination	Best Case Scenario				User Survey Scenario			
	Bus	Rail	Cycle	Walk	Bus	Rail	Cycle	Walk
Lympne	0%	0%	14%	11%	0%	0%	11%	11%
Stanford	2%	0%	5%	1%	2%	0%	4%	1%
Sellindge	0%	0%	18%	82%	0%	0%	15%	77%
Lyminge	0%	0%	1%	0%	0%	0%	1%	0%
Hythe	14%	1%	13%	5%	14%	1%	13%	9%
Palmarsh (west)	3%	0%	2%	0%	3%	0%	2%	0%
Folkestone	34%	15%	24%	0%	35%	16%	29%	0%
East and north of Otterpool	1%	0%	4%	1%	1%	0%	4%	1%
Old Hawkinge	2%	0%	1%	0%	2%	0%	1%	0%
Dymchurch	1%	0%	1%	0%	1%	0%	1%	0%
Burmarsh	0%	0%	1%	0%	0%	0%	1%	0%
North of Hawkinge	0%	0%	0%	0%	0%	0%	0%	0%
North East Folkestone & Hythe	0%	0%	0%	0%	0%	0%	0%	0%
Central Folkestone & Hythe	1%	0%	1%	0%	1%	0%	1%	0%
North Folkestone & Hythe	0%	0%	0%	0%	0%	0%	0%	0%
New Romney	2%	0%	4%	0%	2%	0%	5%	0%
South East Folkestone & Hythe	0%	0%	0%	0%	0%	0%	0%	0%
Lydd	1%	0%	3%	0%	1%	0%	4%	0%
Ashford	25%	25%	2%	0%	24%	25%	2%	0%
Canterbury	5%	1%	1%	0%	5%	1%	1%	0%

Origin/ Destination	Best Case Scenario				User Survey Scenario			
	Bus	Rail	Cycle	Walk	Bus	Rail	Cycle	Walk
Dover	4%	16%	1%	0%	5%	16%	2%	0%
Maidstone	0%	2%	0%	0%	0%	2%	0%	0%
Rother	0%	0%	0%	0%	0%	0%	0%	0%
Dartford	0%	0%	0%	0%	0%	0%	0%	0%
Tonbridge and Malling	0%	1%	0%	0%	0%	1%	0%	0%
Medway	0%	0%	0%	0%	0%	0%	0%	0%
Tunbridge Wells	0%	0%	0%	0%	0%	0%	0%	0%
Swale	0%	0%	0%	0%	0%	0%	0%	0%
Thanet	1%	4%	0%	0%	1%	4%	1%	0%
London	0%	25%	0%	0%	0%	25%	0%	0%
Other UK	0%	5%	1%	0%	0%	5%	1%	0%
Total	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**	**100%**

13.2 Effects on Pedestrian Network

External network

13.2.1 Table 115 and Table 116 in Chapter 12 presented the total number of Otterpool Park trips by mode in 2044 (8.5k homes) for the Best Case and User Survey Scenario respectively. Table 119 and

13.2.2 Table **120** shows the purposes for which these trips are expected to be made.

Table 119 AM and PM Peak External Walk Trips by Purpose – Best Case Scenario (2044 8.5k)

Link Name	Number of Trips					
	AM Peak Hour			PM Peak Hour		
	Arr	Dep	2-Way	Arr	Dep	2-Way
Commuting	87	68	**154**	57	76	**133**
Education	169	187	**356**	12	11	**23**
Shopping	1	4	**5**	8	6	**14**
Leisure	7	23	**31**	79	64	**144**
Personal Business	2	4	**5**	7	5	**12**
Total	**266**	**286**	**552**	**163**	**163**	**326**

Table 120 AM and PM Peak External Walk Trips by Purpose – User Survey Scenario (2044 8.5k)

Link Name	Number of Trips					
	AM Peak Hour			PM Peak Hour		
	Arr	Dep	2-Way	Arr	Dep	2-Way
Commuting	217	170	**387**	143	191	**334**
Education	163	181	**344**	11	11	**22**
Shopping	4	10	**14**	22	17	**39**
Leisure	8	27	**35**	90	73	**163**
Personal Business	4	10	**14**	20	13	**32**
Total	**397**	**397**	**793**	**286**	**305**	**591**

13.2.3 The number of AM peak hour external Walk trips is expected to be dominated by trips made for Education purposes, with trips for other purposes relatively low in comparison. Education trips include escort trips, for which each trip generates one arrival and one departure in each peak period.

13.2.4 The external Walk trip generation has been based on current travel behaviour patterns and Walk mode shares derived from Census and NTS data, which are influenced by the current conditions on the existing pedestrian network. A cut off for origin/destinations further than the equivalent of a 120-minute walk was applied and the trips redistributed proportionally to the remaining origin/destinations. Since changes to the sustainable transport networks are proposed, together with off-site links and travel behavioural measures, this travel behaviour is expected to change to increase sustainable mode use. Although significant changes are proposed to the internal pedestrian network, in the form of enhancements that can be expected to increase the number of internal walk trips, the most significant change to external transport networks in the very local area in which walk trips are expected to be made is proposed for the bus network. The proposed bus service frequency increases are anticipated to make it much easier to make time savings on local,

short-range journeys by using bus services. Thus, it is anticipated that a number of external trips than would otherwise be made on foot may in future change to Bus mode.

13.2.5 The external Walk trips have been consolidated into five links/directions adjacent to the site which represent the local routing pattern of all the walk trips, the equivalent for the Best Case and the User Survey scenario are shown in Table 121 and Table 122.

Table 121 AM and PM Peak External Walk Trips by Local Routing – Best Case Scenario (2044 8.5k)

Route	Number of Trips					
	AM Peak Hour			PM Peak Hour		
	Arr	Dep	2-Way	Arr	Dep	2-Way
Bridge over M20 at Stone Street	1	1	**3**	1	1	**2**
A261 Hythe Road / PRoWs to Hythe	15	11	**26**	10	15	**25**
A20 Stone Street	15	16	**32**	9	9	**18**
B2067 Otterpool Lane	15	16	**32**	9	9	**18**
A20 Barrow Hill	220	240	**459**	134	129	**263**
Total	**266**	**286**	**552**	**163**	**163**	**326**

Table 122 AM and PM Peak External Walk Trips by Local Routing – User Survey Scenario (2044 8.5k)

Route	Number of Trips					
	AM Peak Hour			PM Peak Hour		
	Arr	Dep	2-Way	Arr	Dep	2-Way
Bridge over M20 at Stone Street	3	2	**5**	2	2	**4**
A261 Hythe Road / PRoWs to Hythe	47	33	**80**	30	47	**78**
A20 Stone Street	21	22	**43**	15	16	**31**
B2067 Otterpool Lane	21	22	**43**	15	16	**31**
A20 Barrow Hill	304	318	**622**	223	224	**447**
Total	**397**	**397**	**793**	**286**	**305**	**591**

13.2.6 Table 121 and Table 122 predicts that the majority of external Walk trips are likely to route along Barrow Hill to/from Sellindge, which is a settlement with the largest population within walking distance, with a peak of 622 trips (PM peak for User Survey scenario), equivalent to around ten trips per minute. This route along the A20 currently has footways on both sides of the road, including on the section under the bridge which narrows to one lane of traffic controlled by traffic signals, which acts as a method of traffic calming. Analysis of the accident records along this route suggests there is not currently an issue with accidents, there have been 2 pedestrian accidents along the whole of the A20 corridor over the five-year period analysed until end of 2019, and no accidents involving pedestrians occurred in 2019.

13.2.7 This route is not currently identified as a priority for improvement in the Walking and Cycling Strategy commissioned by Folkestone & Hythe District Council, but a number of proposals for the Otterpool Park development described in Section 5.4 will provide benefit to pedestrians using this route. There is also a proposed reduction in speed limit to 30mph along the A20 Ashford Road leading up to Barrow Hill from the site, which ties in with the committed traffic calming scheme through Sellindge Village

(which includes a speed reduction to 30mph, additional controlled and uncontrolled crossing points and narrowing of the carriageway). The extension of the 30mph speed limit along Barrow Hill can be expected to have a further positive affect in reducing HGV traffic through Sellindge.

13.2.8 This route may also benefit from re-surfacing with replacement and extension of the existing anti-skid surfacing on approach to the stop-lines at the signalised section under the bridge, which is showing signs of wear. Re-surfacing would also provide some mitigation to the noise issues which, during consultation, some residents of Barrow Hill suggest is currently generated by vehicles routing along this section of the A20.

13.2.9 Table 121 and Table 122 suggests that the routes that would experience the next greatest increase in pedestrian movements are to A20 Stone Street, B2067 Otterpool Lane and also towards Hythe.

13.2.10 Trips to Lympne, would be split along Otterpool Lane and Stone Street, and are expected to generate just over one trip every minute along these two routes. Trips south along Lympne Hill, east along Aldington Road and north on the bridge over the M20 at Stone Street, are expected to be very low.

13.2.11 As a result of transport measures, the number of pedestrian trips between Otterpool Park and Hythe during peak periods is expected to be low, especially with the proposed improvement to bus services, which will provide a frequent, attractive travel option to this destination.

13.2.12 It is estimated that the route to/from Hythe during the peak hours will be around one trip a minute. Chapter 3 shows that there is currently a choice of routes between the site and Hythe:

- Two PRoW;
  - HE/281: routing through Sandling Park in the Kent Downs AONB from the north-eastern boundary of the site; and
  - HE/293: extending from the south-east boundary of the site just north of Lympne.
- The A261 Hythe Road.

13.2.13 At present, the A261 Hythe Road has little or no footway provision along its length, which, along with steep gradients, make this a difficult route for pedestrians. The number of accidents recorded on this road in the five-year period analysed is low, none involving pedestrians. The Folkestone & Hythe Walking and Cycling Study identifies this route as a priority route for improvement for pedestrians and cyclists.

13.2.14 The two PRoWs provide a safer and more attractive route for people wishing to walk the route for to Hythe. However, as described in Chapter 3, PRoW HE/281 currently crosses the A20 Ashford Road without the provision of a designated crossing point. The width of the road prohibits the provision of central refuges, and the road alignment is such that visibility for drivers is below guidance at some locations. As mentioned in 5.4.17, as part of the upgrade to the A20 between the Otterpool Avenue and the M20 J11, a significant improvement is proposed for pedestrians in the form of two signalised pedestrian crossings, located at the A20/Otterpool Avenue junction and the A20/Business Park access junction. This facilitates the connection to HE/281 to the south. There is the option to divert the existing HE/281where it lies within the site to follow the proposed Stone Street and Otterpool Avenue to reach the A20. There is also a proposed foot path provision on the eastern side of the A20 between the two signalised pedestrian crossings to facilitate the movement to the existing HE/281.

Internal Pedestrian Network

13.2.15 Table 115 and Table 116 in Chapter 12 showed that there is expected to be up to just over 2,350 walk trips between internal ODs in the AM peak and just over 1,400 in the PM peak. As with external AM peak hour trips, the predominate source of these walk trips is expected to be Education trips, as around 4,000 school children, some with accompanying escorts, journey to school, with the majority expected to make the journey on foot.

13.2.16 The development proposals for pedestrians described in the Otterpool Park Transport Strategy (ES Appendix 16.5) and the principles described in Chapter 5 are expected to offer attractive, frequent modal alternatives for short-distance travel as well as significantly enhancing the environment in which

pedestrians can travel. The provision of bus services with service frequency of between 4 and 6 buses per hour, which could include a “loop” serving key destinations within the site, is likely to invite a shift to Bus mode from Walk as well as car. The provision of cycle infrastructure may also create a shift from Walk to Cycle mode, especially for Secondary school trips. The mode share for Walk trips may, therefore, reduce from the percentage suggested by current trip patterns.

13.2.17 However, the on-site pedestrian infrastructure would be capable of accommodating such high walk trips as are predicted within the trip generation. The planned walking routes would link residential areas to key destinations, providing a mix of routes that are adjacent to the road network and off-road connections where they are more direct.

13.2.18 The provision of amenities such as schools, shops, play areas, community facilities and employment hubs would be distributed across the site. This means that, rather than focussing Walk trips on just a few locations that provide all amenities for the site, walk trips would be distributed across the site. The footway provisions within the development are expected to be sufficient to accommodate pedestrian flows at a good level of service.

13.2.19 Where pedestrian routes cross the A20 Ashford Road on key desire lines, signal-controlled pedestrian crossings would be provided to facilitate safe passage.

13.3 Effects on Cycle Network

External Cycle Network

13.3.1 Table 113 in Chapter 12 showed that the percentage of total external trips expected to be made by Cycle is up to 7% in the PM peak (Best Case scenario). Table 115 showed that this level of cycling equates to around 252 cycle trips in the AM peak and 313 in the PM peak. Although the severe gradient on most of the external network will always be a barrier to cycling from some people, the significant level of cycling infrastructure proposed on the Otterpool Park site is expected to lead to an increase in peak and off-peak Cycle trips compared to the TA trip generation scenario (Table 34).

13.3.2 The primary trip purpose for external Cycle trips is expected to be Education trips in the AM peak and Leisure trips in the PM peak. Cycle trips for Shopping are expected to be negligible. Table 115 and Table 116 in Chapter 12 presented the total number of Otterpool Park trips by mode in 2044 (8.5k homes) for the Best Case and User Survey Scenario respectively. Table 123 and Table 124 shows the purposes for which the cycle trips are expected to be made.

Table 123 AM and PM Peak External Cycle Trips by Purpose – Best Case Scenario (2044 8.5k)

Link Name	Number of Trips					
	AM Peak Hour			PM Peak Hour		
	Arr	Dep	2-Way	Arr	Dep	2-Way
Commuting	14	43	**57**	38	7	**45**
Education	62	46	**108**	4	6	**10**
Shopping	6	5	**11**	15	23	**38**
Leisure	21	15	**36**	63	95	**158**
Personal Business	23	17	**40**	25	37	**62**
Total	**126**	**126**	**252**	**145**	**168**	**313**

Table 124 AM and PM Peak External Cycle Trips by Purpose – User Survey Scenario (2044 8.5k)

Link Name	Number of Trips					
	AM Peak Hour			PM Peak Hour		
	Arr	Dep	2-Way	Arr	Dep	2-Way
Commuting	8	25	**33**	22	4	**26**
Education	62	46	**108**	4	6	**10**
Shopping	2	1	**3**	4	6	**10**
Leisure	6	5	**11**	19	29	**47**
Personal Business	6	4	**10**	6	10	**16**
Total	**84**	**81**	**165**	**55**	**54**	**109**

13.3.3 Table 125 and Table 126 presents the likely local routing of external Cycle trips to/from the origins and destinations reported earlier in Table 118.

Table 125 AM and PM Peak External Cycle Trips by Local Routing – Best Case Scenario (2044 8.5k)

Route	Number of Trips					
	AM Peak Hour			PM Peak Hour		
	Arr	Dep	2-Way	Arr	Dep	2-Way
A20 Ashford Road s/o M20 J11	26	29	**55**	24	23	**46**
M20 Westbound	2	2	**4**	2	2	**3**
M20 Eastbound	1	1	**2**	0	1	**1**
B2068 Stone Street	12	13	**25**	11	10	**21**
Sandling Road	12	13	**25**	11	10	**21**
A261 Hythe Rd	3	2	**5**	2	3	**5**
Stone Street or B2067 Otterpool Lane	103	105	**208**	86	90	**176**
B2067 Aldington Road	1	1	**2**	1	1	**1**
Lympne Hill	23	21	**44**	17	20	**37**
A20 Barrow Hill	34	44	**77**	36	29	**64**

Table 126 AM and PM Peak External Cycle Trips by Local Routing – User Survey Scenario (2044 8.5k)

Route	Number of Trips					
	AM Peak Hour			PM Peak Hour		
	Arr	Dep	2-Way	Arr	Dep	2-Way
A20 Ashford Road s/o M20 J11	13	13	**26**	9	10	**19**
M20 Westbound	1	1	**2**	1	1	**2**
M20 Eastbound	1	0	**1**	0	1	**1**
B2068 Stone Street	6	6	**11**	4	4	**8**
Sandling Road	6	6	**11**	4	4	**8**
A261 Hythe Rd	2	1	**3**	1	2	**3**
Stone Street or B2067 Otterpool Lane	52	50	**102**	36	41	**77**
B2067 Aldington Road	0	0	**1**	0	0	**1**
Lympne Hill	13	11	**23**	8	11	**19**
A20 Barrow Hill	14	18	**32**	11	9	**20**

13.3.4 The destination of Hythe is expected to attract the greatest number of external Cycle trips, in both the Best Case and User Survey scenarios for both peak periods. As described in Chapter 3, the A261 Hythe Road is currently an unattractive route for cyclists as it is heavily trafficked and is characterised by a winding road alignment with restricted visibility at some locations. The width of carriageway along with the absence of footways and presence of trees and bushes at the side of the road make the provision of cycleways difficult. The PRoW described above in the pedestrian effects section provide routes to Hythe, but the condition of the routes makes them currently unsuitable for practical use by cyclists.

13.3.5 The Otterpool Park proposals offer a measure of improvement for cyclists that would make the future use of an enhanced route for cyclists along the HE/343 Old London Road a more attractive option. From the development site, this route would be made via Stone Street or Otterpool Lane in the southbound direction and then eastbound on Aldington Road. This alternative cycle route towards Hythe will be promoted as the main cycle route to Hythe.

13.3.6 The Otterpool Park proposals would offer many tangible benefits for cyclists and other road users compared to the current arrangement. The proposed Otterpool Avenue would serve to remove a proportion of HGV traffic from the Newingreen junction. By this measure, it would reduce the overall level of traffic routing through the Newingreen junction and reduce the level of traffic on the western arm of the junction. The junction would be signalised, thus providing the opportunity to provide cycle priority measures where capacity allows.

13.3.7 The realignment of the A20 between Newingreen Junction and the M20 junction 11 together with the new signal-controlled junctions at the new Otterpool Avenue and the Business Park access, offer significant safety improvements to all cyclists using this route and can serve to offer encouragement to potential cyclists to switch to cycle mode from other less-sustainable options.

13.3.8 An additional of up to 77 Cycle trips in the AM peak (Best Case scenario) are forecast along the A20 at Barrow Hill. While traffic flows along this route are proposed to increase, the implementation of a speed reduction from 40mph to 30mph along the A20 from the current 30mph zone at Sellindge Village to where the A20 meets the A261 would offer significant safety benefits to cyclists.

13.3.9 Additional Cycle trips on other local routes are expected to be lower.

Internal Cycle Network

13.3.10 Table 34 suggests that the level of internal Cycle trips is expected to be 7% and 11% in the AM and PM peak respectively, equivalent to 235 and 271 internal cycle trips.

13.3.11 The level of cycle infrastructure proposed as part of the development represents a significant upgrade on the current levels across the site and surpasses that provided in other parts of the local area, from which the assessment Cycle mode share is derived. A description of the principles of the proposed cycle infrastructure are in the Transport Strategy Section 5.3 and the Transport Strategy (ES Appendix 16.5).

13.3.12 Segregated cycle routes away from traffic would provide safe routes through green spaces. Cycle routes would link in with existing and proposed cycle routes in the external network. Cycle storage facilities in residences and workplaces and cycle parking in public areas would provide the necessary incentives to increase cycle usage and manage impacts.

13.3.13 In addition to the 'hard' cycle infrastructure, 'soft measures' to promote cycle usage that would be implemented through Residential, School and Workplace Travel Plans, as set out in the Draft Framework Travel Plan, is expected to have a positive influence on cycle usage for residents and visitors.

13.4 Effects on Bus Network

External Bus Network

13.4.1 The trip generation calculations estimate up to around 650 external Bus trips would be created by the site in the 2044 AM peak hour for both the Best Case and User Survey scenario (Table 115 and Table 116). This is based on a more ambitious mode share targets compared to the TA (Table 34) with up to 12% compared to 6% for external AM peak hours Bus trips. Infrequent bus services along with poor bus stop facilities are chiefly responsible for existing low bus usage, for which the TA scenario is based.

13.4.2 With the exception of Sellindge and Lympne, both of which are small residential settlements, the existing population within or directly adjacent to the site boundary is very low. The demand for bus services through this small part of the network is therefore low and it has proven difficult for service providers to sustain a good level of service provision. The introduction of the Otterpool Park development at this location will open up opportunities to support enhanced services that would provide significant benefit to existing local communities as well as support a sustainable Transport Strategy for the new town.

13.4.3 The increases to service provision and improvements to access to services proposed in the Transport Strategy (ES Appendix 16.5) and in the Draft Framework Travel Plan (ES Appendix 16.6) are expected to have a significant positive effect on bus usage and demand. Initial discussions with local service providers have been positive, and further information regarding development phasing has been provided to them to inform future planning and agreement over service provision requirements and potential financial contributions towards their implementation. Further discussions will be held to investigate options that will provide the necessary routing of services such that they serve bus stops across the site that would be located such that the majority of homes are within 400m of a stop.

13.4.4 Table 118 provided a distribution of the predicted proportions of external Bus trips by Origin/Destination. Table 127 and Table 128 presents the estimated distribution of these trips on the current bus services that passengers would be required to use to travel to/from the ODs during the AM and PM peak hours for the Best Case and User Survey scenarios respectively. While it is anticipated that Kent County Council will undertake more detailed analysis of bus service impact, the following two Tables provide an indication of potential impact on each existing service.

Table 127 AM and PM Peak External Bus Trips by Service Number – Best Case scenario (2044 8.5k)

Route Number	Number of Trips					
	AM Peak Hour			PM Peak Hour		
	Arr	Dep	2-Way	Arr	Dep	2-Way
10	391	365	**756**	289	318	**607**
10A	9	4	**13**	4	8	**11**
11	6	3	**8**	2	5	**7**
16	16	26	**42**	22	14	**36**
17	4	6	**10**	5	4	**9**
18A	42	59	**100**	0	0	**0**
73	15	3	**18**	3	13	**16**
102	47	20	**67**	17	41	**59**

Table 128 AM and PM Peak External Bus Trips by Service Number – User Survey scenario (2044 8.5k)

Route Number	Number of Trips					
	AM Peak Hour			PM Peak Hour		
	Arr	Dep	2-Way	Arr	Dep	2-Way
10	318	284	**604**	253	280	**533**
10A	8	4	**12**	3	7	**10**
11	5	2	**8**	2	5	**7**
16	13	21	**34**	20	12	**32**
17	4	5	**9**	4	3	**8**
18A	52	75	**126**	0	0	**0**
73	14	3	**17**	3	12	**15**
102	42	19	**61**	16	37	**53**

13.4.5 The impact on services other than service number 10 is expected to be low based on the agreed method of deriving Bus trip generation. Since service number 10 is the most regular service to route through the site, almost all external Bus trips are expected to need to utilise this route to reach their destination or to connect to other routes. The current level of service frequency of one bus per hour for service number 10 would be insufficient to support this level of demand or encourage an increase in demand. The Otterpool Park Transport Strategy proposes an overall bus service frequency enhancement (including all services) to 4 to 6 buses per hour, which is expected to be sufficient to meet the demand predicted in Table 115 and Table 116. The proposed level of provision would provide greater capacity that would accommodate the expected increase in demand above the level predicted by current travel behaviour patterns on which the above calculations are based. Moreover, with bus services, the higher the frequency the more likely that patronage would be attracted as a 'turn up and go' service can be achieved.

Internal Bus Network

13.4.6 Table 115 and Table 116 in Chapter 12 estimates a total of 158 internal Bus-only trips in the AM peak hour and 124 in the PM peak hour. In addition, a proportion of the external Train trips, could be expected to utilise an internal bus service to access Westenhanger Station. Since the routing required to satisfy this internal demand is not currently met by existing bus services, these trips have not been assigned to existing service numbers.

13.4.7 The significant increase in local resident and working population that would arise from the Otterpool Park development is expected to justify a marked increase is service provision, which corresponds with the proposals in the Otterpool Park Transport Strategy for an increase to between 4 and 6 buses per hour. Most important is the change to existing bus routing to reach all areas of the site, which could be achieved in a number of ways, through diversion of existing services or the provision of new services that route externally or just internally.

13.4.8 Discussions are ongoing with KCC and the bus operator as to the delivery of bus services for the development and various means of provision will be considered including use of demand responsive services.

13.5 Effects on Rail Network

13.5.1 **Error! Reference source not found.**Table 118 provided the estimated distribution of the peak rail t rips according to the agreed method of trip distribution. The distribution of these trips in terms of east/west services is provided in Table 129 and Table 130 for the Best Case and User Survey scenario respectively.

Table 129 AM and PM Peak External Rail Trips by Route Direction – Best Case Scenario (2044 8.5k)

Direction	Number of Trips					
	AM Peak Hour			PM Peak Hour		
	Arr	Dep	2-Way	Arr	Dep	2-Way
East	614	238	**852**	207	547	**754**
West	540	793	**1,333**	668	477	**1,145**
Total	**1,154**	**1,031**	**2,185**	**875**	**1,024**	**1,899**

Table 130 AM and PM Peak External Rail Trips by Route Direction – User Survey Scenario (2044 8.5k)

Direction	Number of Trips					
	AM Peak Hour			PM Peak Hour		
	Arr	Dep	2-Way	Arr	Dep	2-Way
East	422	175	**597**	114	340	**455**
West	384	544	**928**	405	289	**694**
Total	**806**	**719**	**1,525**	**519**	**629**	**1,148**

13.5.2 It is unlikely that the existing service provision would be capable of accommodating the increase in patronage suggested by the Best Case and User Survey scenarios. The current service provision at Westenhanger Station and are constrained by the current poor accessibility to services at the station, which offers limited car parking, no bus service interchange, limited opportunities for cycle parking and restricted walk access for mobility impaired persons.

13.5.3 Even with no change in service provision, the significant improvements to the accessibility of Westenhanger station by all modes would generate an increase in demand. The citing of the Business Park and the highest density of residential housing within walking and cycling distance of the station would provide a large pool of potential passengers that could be encouraged to travel by rail to/from ODs located near stations on the same or connecting routes. This includes Ashford and Dover, which are the two locations from which most commuters currently travel into the area, and London, which currently draws over 60% of all commuters out of the area.

13.5.4 The effect on rail patronage that the proposed development and the Transport Strategy would have is difficult to quantify and the implementation of the aspiration to provide access to high speed rail services from Westenhanger would have wider implications. Further assessment work would be undertaken in discussion with Network Rail and changes to rail patronage would be monitored over time as the development phases are built out. The Transport Strategy recognises the importance of providing a greatly improved level of accessibility to the station for early occupation, depending on the outcome of discussions regarding improvements. Equally important is the necessity to upgrade passenger facilities within the station, including a new station building and information services.

13.5.5 The Core Strategy Review (2020, with 2021 Main Modifications) references upgrades to Westenhanger Station being necessary to provide the capacity to enable a high speed service ready and integrated transport hub. This will be in partnership with Network Rail, the rail operator and KCC. Furthermore, there is support for the provision of High Speed 1 (HS1) services to Westenhanger Station, improved timetable and new rolling stock as included in the Kent Rail Strategy 2021. These potential upgrades would improve the rail provision and capacity at Westenhanger Station and as well as the Otterpool Park development.

13.5.6 The potential rail service enhancements and scope of work for improvements and their phasing envisaged at Westenhanger Station is summarised in the Transport Strategy (ES Appendix 16.5) and could include:

- Upgraded passenger waiting facilities and information
- Platform extensions
- A new pedestrian overbridge between platforms
- Lift access to platforms
- Secure cycle storage
- Bus interchange
- Parking including EV charging spaces
- Potential for commercial provision of café/ retail facilities.

14 Conclusions

14.1.1 This Transport Assessment (TA) is prepared in support of an outline planning application seeking permission for the redevelopment of the site through the demolition of identified existing buildings and erection of a residential led mixed use development comprising up to 8,500 residential homes including market and affordable homes; age restricted homes, assisted living homes, extra care facilities, care homes, sheltered housing and care villages; a range of community uses including primary and secondary schools, health centres and nursery facilities; retail and related uses; leisure facilities; business and commercial uses; open space and public realm; sustainable urban drainage systems; utility and energy facilities and infrastructure; waste water infrastructure and management facilities; vehicular bridge links; undercroft, surface and multi-storey car parking; creation of new vehicular and pedestrian accesses into the site, and creation of a new vehicular, pedestrian and cycle network within the site; improvements to the existing highway and local road network; lighting; engineering works, infrastructure and associated facilities; together with interim works or temporary structures required by the development and other associated works including temporary meanwhile uses. Layout, scale, appearance, landscaping and means of access are reserved for approval.

14.1.2 In addition to the outline application development, a wider Otterpool Park Framework Masterplan Area (OPFM) includes for up to 10,000 homes which has also been assessed.

14.1.3 The proposals for Otterpool Park represent a new garden settlement based on sustainable living and sustainable travel and would accord with the requirements of local, regional and national policy requirements and guidance.

14.1.4 Current conditions on parts of the existing walking and cycling networks would be insufficient to accommodate significant future growth. Service frequency on the local bus network as well as accessibility to bus and rail services is poor. Several parts of the highway network currently operate with capacity constraints with conditions expected to worsen in future while many other parts of the network are predicted to require capacity enhancements without the Otterpool Park development.

14.1.5 Proposals to provide pedestrian/cycle priority on key desire lines inside the site and at locations linking to existing external walk/cycle routes would significantly improve conditions for vulnerable road users at these locations. Improvements to bus and rail accessibility and services along with the Transport Strategy and Framework Travel Plan measures would encourage a shift to travel by sustainable modes as estimated for the Best Case and User Survey scenarios using the User Centric approach.

14.1.6 The highway network has been assessed using the traditional ‘predict and provide’ methodology based on historical data and travel patterns, hence a worst-case scenario for vehicle trips. This approach has been used to determine the potential effect the development would have on key junctions identified by Kent County Council, Folkestone & Hythe District Council and National Highways. The proposed approach at Otterpool Park is to go beyond existing policy requirements and it is intended that the worst-case vehicle trip generation scenario forecast in the TA will not be reached, because site users will opt to travel using the sustainable alternative modes offered by the development instead. Based upon the junction capacity assessments and the proposed interventions It is considered that the Otterpool development traffic can be mitigated so as to not have a severe impact on the network. A Monitor and Manage Framework is proposed as part of the Core Strategy to provide mitigation for the Strategic Road Network.

14.1.7 It is anticipated that further discussions regarding the proposed mitigation will be held with Kent County Council, Folkestone & Hythe District Council and National Highways following submission of the Otterpool Park planning application. It is therefore concluded that there are no transport reasons why planning permission should not be granted for the proposed development.

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