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Fareham Local Plan

Strategic Transport Assessment

Fareham Borough Council

18 September 2020

5190502 Fareham Local Plan STA

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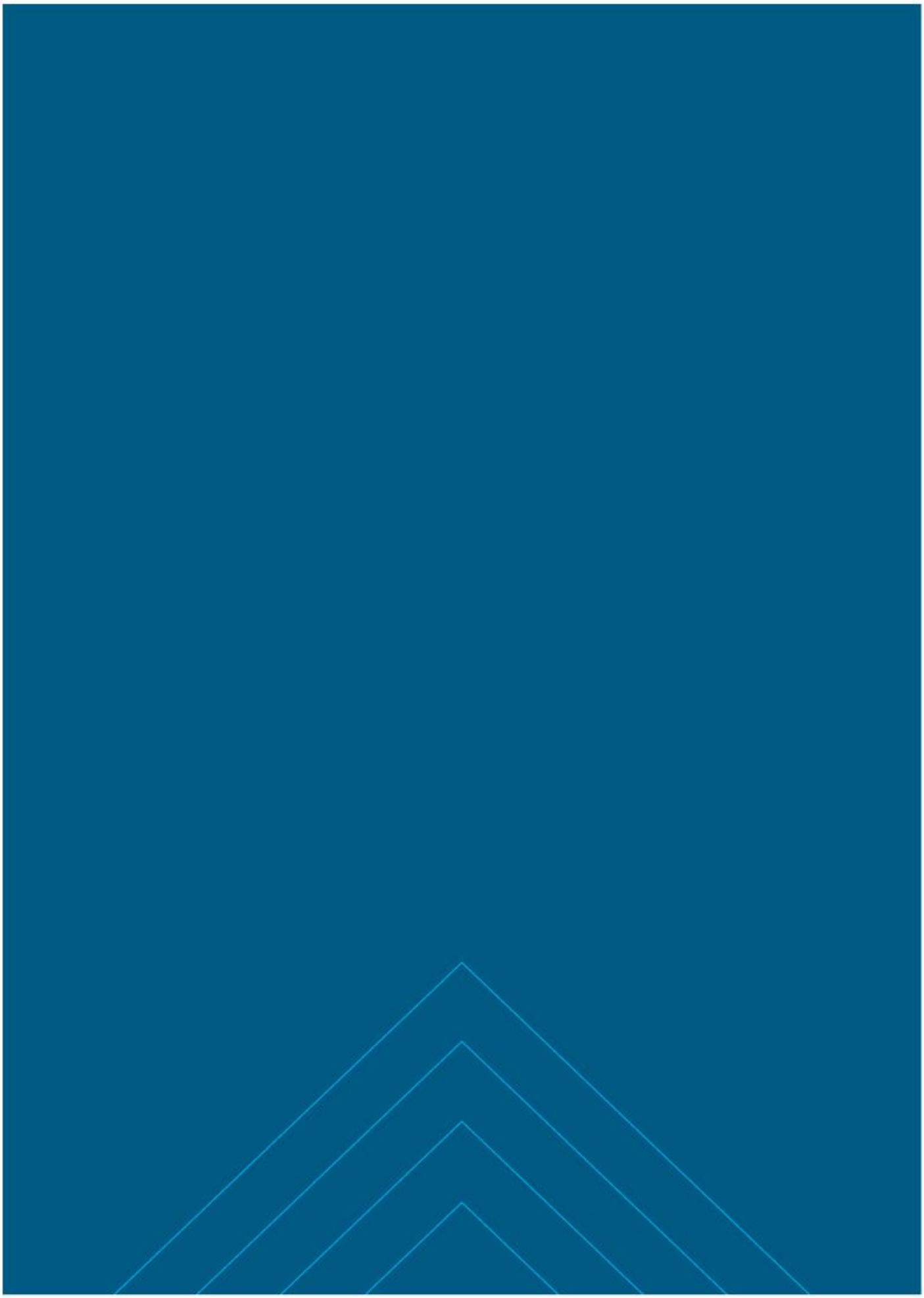


Glossary

Term	Definition
AM peak	The busiest hour on the highway network between 07:00 and 10:00
AQMA	Air Quality Management Area
ARCADY	A standard junction modelling package used in this Transport Assessment for assessing roundabout layouts
BRT	Bus Rapid Transit
CIL	Community Infrastructure Levy
Core Model Area	Fareham Borough is fully modelled within the Core Model Area (the most detailed region of the model).
COVID-19	Coronavirus disease 2019 (COVID-19) is an infectious disease that resulted in an ongoing pandemic across the world in 2019/20
DfT	Department for Transport
Do Minimum	Do-Minimum scenario, providing the impacts on the highway network of the proposed Local Plan developments before any mitigation is considered
DoS or Degree of Saturation	Degree of Saturation (term used for signalised junction modelling output) - ratio of demand to capacity on each approach to a junction, with a value of greater than 100% represents a junction operating at or over theoretical capacity
Do Something	Do something scenario, includes Local Plan development and mitigation measures
Duty to Cooperate	The duty to cooperate is a legal test that requires cooperation between local planning authorities and other public bodies to maximise the effectiveness of policies for strategic matters in Local Plans
FBC	Fareham Borough Council
Hampshire Services	Hampshire Services from Hampshire County Council offer professional services to partner organisations.
HCC	Hampshire County Council - the highways authority
HE	Highways England - responsible for operating, maintaining, and improving England's motorways and major A roads
IDP	Infrastructure Development Plan
Junctions 9	Industry standard package for modelling roundabouts, priority junctions and simple signalised junctions.
LCWIP	Local Cycling Walking Investment Plan
LEIM	The Local Economic Impact Model makes up part of the Sub Regional Transport Model and uses inputs including transport costs to forecast the quantum and location of households, populations, and jobs
LEP	Local Enterprise Partnership
LinSig	A standard junction modelling package used in this Transport Assessment for assessing signalised junctions
LTP	Local Transport Plan
MDA	Major Development Area
MRN	Major Road Network
MSOA	Middle Super Output Area - geographic area within the Census
NCN	National Cycle Network - a network of signed paths and routes promoted by the charity Sustrans
NPPF	National Planning Policy Framework - the framework within which locally prepared plans for housing and development should be produced
NTEM	The National Trip End Model forecasts the growth in trip origin-destinations (or productions-attractions) up to 2051 for use in transport modelling.
PCT	Propensity to Cycle Tool - an evidence-based tool for planning for cycling
PCU	Highway impacts are measures in terms of Passenger Car Units or PCUs. A PCU is a measure of the effect that each type of vehicle has on road network capacity. For example, a car has a PCU value 1. A Heavy Commercial Vehicle has a PCU value of up to 2.4 as typically these vehicles have an impact on capacity equivalent to more than two cars
Person Trips	Person trips means the total number of discrete trips by individuals using any mode of travel

Term	Definition
PfSH (formally PUSH)	Partnership for Urban South Hampshire - a voluntary partnership of all the local authorities in South Hampshire together with Hampshire County Council to support the sustainable economic growth of the sub region and to facilitate the strategic planning functions necessary to support that growth
PICADY	A standard junction modelling package used in this Transport Assessment for assessing priority junction layouts
PM peak	The busiest hour on the highway network between 16:00 and 19:00
PRoW	Public Right of Way
RFC	Ratio of Flow to Capacity - term used for priority junction and roundabout modelling outputs whereby a ratio of less than 0.85 represents a junction performing below its practical capacity
SEHRT	South East Hants Rapid Transit
SUP	A shared-use path (SUP) is an off road path shared by pedestrians and cyclists
Site Allocation	Site allocations are sites for housing, employment, retail, and greenspace to ensure that enough land is available in appropriate locations to meet the growth targets set out in the Core Strategy.
Social Distancing	Set of measures intended to prevent the spread of a contagious disease (COVID-19) by reducing interactions between individuals in order to slow down the spread of the virus.
Solent Transport	A partnership of the four Transport Authorities in the South Hampshire Sub-Region (Hampshire County Council, Portsmouth and Southampton City Councils and the Isle of Wight Council
SRN	Strategic Road Network managed and maintained by Highways England
SRTM	Sub Regional Transport Model - a multi-modal transport model and is compliant with Department for Transport WebTAG guidance
STA	Transport Assessment
TCF	The Transforming Cities Fund aims to improve productivity and spread prosperity through investment in public and sustainable transport in some of the largest English city regions.
TEMPro	TEMPro (Trip End Model Presentation Program) software allows users to view the NTEM dataset and provides forecasts of trip ends and associated documentation
TRICS	TRICS (Trip Rate Information Computer System) is a database of trip rates for developments used in the United Kingdom for transport planning purposes specifically to estimate the trip generation of new developments.
Trip distribution	Trip distribution is a model of the number of trips that occur between each origin zone and each destination zone. It uses the predicted number of trips originating in each origin zone (trip production model) and the predicted number of trips ending in each destination zone (trip attraction model).
Trip Generation	Trip Generation is the first step in the conventional four-step transportation forecasting process (followed by Destination Choice, Mode Choice, and Route Choice), widely used for forecasting travel demands
Modal Share	Modal share is the percentage of travellers using a particular type of transportation or number of trips using said type
Route assignment	Route assignment concerns the selection of routes between origins and destinations in transportation networks. It is the fourth step in the conventional transportation forecasting model, following trip generation, trip distribution, and mode choice.
WebTAG	The Government's Transport Analysis Guidance which provides information on the role of transport modelling and appraisal, and how the transport appraisal process supports the development of investment decisions to support a business case
Windfall Sites	Sites which have not been specifically identified as available in the Local Plan process. They normally comprise previously developed sites that have unexpectedly become available

1. Introduction

1.1. This Strategic Transport Assessment (STA) has been prepared by Atkins on behalf of Fareham Borough Council (FBC) to provide the evidence base for the emerging FBC Local Plan on transport related matters.

1.2. Local Plans are overarching development plans prepared by local authorities detailing the policies and proposals that will shape developments and land use in the local area over a set period. Local Plans are used to guide decision making at all scales regarding future land use planning and development in the local area, including identifying the interventions necessary to support sustainable development that facilitates economic and population growth.

1.3. Fareham Borough Council's currently adopted Local Plan comprises of the following three parts:

- Local Plan Part 1: Core Strategy (August 2011);
- Local Plan Part 2: Development Sites and Policies (June 2015); and
- Local Plan Part 3: The Welborne Plan (June 2015).

1.4. Local Plan Parts 1 and 2 will be replaced in due course by the new Fareham Local Plan which will inform development within the Borough until 2037. Local Plan Part 3, The Welborne Plan, is a specific plan which sets out how Welborne should be developed over the period up to 2041.

1.5. The Department for Transport (DfT) requires all Local Plans to be supported by a robust transport evidence base. This is normally produced in the form of a STA, comprising a cumulative assessment of the transport implications of all development proposed in the Local Plan.

1.6. This STA supports the development of the new Local Plan, covering the period up to 2037. It describes the availability and operation of the transport infrastructure and networks within the Borough of Fareham and considers the potential transport related impacts of the proposed Local Plan growth. This STA does not consider the impacts of the Welborne Garden Village as these have already been assessed through the Welborne Plan. This STA assumes this development will bring forward the proposed M27 Junction 10 capacity improvements. The STA also considers what potential interventions may be required to address any identified incremental impacts specifically resulting from the Local Plan growth that may have significant or severe transport related adverse effects.

Outline Methodology

1.7. Atkins attended an Inception Meeting on 12 March 2019 with FBC and Hampshire Services where the study constraints and thus, the scope of works for the STA were established. This included the methodology to be adopted for the assessment of the cumulative impacts on the highway network, which were also subsequently agreed with Highways England (HE) and HCC Highways Authority. The adopted methodology is akin to other Local Plan Transport Assessments prepared across Hampshire and utilises HCC's strategic Sub-Regional Transport Model (SRTM), to specifically evaluate potential traffic impacts. The key stages of assessment and the agreed methodology are summarised below. More detail specifically regarding the approach to traffic modelling is provided in Chapter 5.29.

Stage 1: Baseline Conditions

1.8. Establish and analyse the existing transport conditions considering policy, stakeholder aspirations and development principles. This stage is based on the existing datasets and information as provided by FBC/HCC. The key topics discussed in this Stage cover the following areas:

- A policy review of key national, regional, and local planning and transport policy;
- Study of existing transport infrastructure (all modes) including, where possible, usage and capacity;
- Collision analysis along key corridors and junctions within the borough;
- High level travel behaviour and demographic analysis of residents and employees at both borough and local level;
- Assessment of the existing traffic conditions on the highway network; and
- Summary of anticipated development during the Local Plan period.

Stage 2: Transport Capacity Assessment

1.9. An assessment of the impact of the preferred growth strategy on the transport networks and infrastructure (all modes) based on an analysis of:

- Anticipated level of development, especially housing;
- The locational strategy for distribution of new development around the borough;
- Estimate of multi-modal trip rates arising from new residential and commercial development using TRICS trip rate data;
- Modal share, trip distribution and route assignment assessment taking account of localised travel characteristics and patterns established from Census 2011 data;
- Identification of areas of traffic growth, arising from development within the Local Plan;
- TEMPRO future year trip rates to account for neighbouring district growth; and
- Utilising SRTM to assess the traffic impacts on the Core Model Area and Fareham. The methodology for the model runs is provided later in Chapter 5.29.

Stage 3: Mitigation Measures

1.10. A comprehensive list of transport interventions has been identified and developed based on the assessments undertaken, liaison with key stakeholders and the application of specialist knowledge and analysis.

- Building on the aim to reduce the need to travel at the outset, the transport interventions focus on the promotion and enablement of sustainable and active modes;
- All options considered, mainly including small scale improvements to address identified impacts; and
- Transport modelling methods assess potential highway interventions, where possible.

Stage 4: Final Transport Assessment and Next Steps

1.11. This STA report and associated Systra Strategic Modelling Report and Hampshire Services Junction Modelling Report represent the outcomes of Stage 4. The STA uses the Sub-Regional Transport Model (SRTM), a strategic model capable of forecasting the impacts of transport and land use decisions over a wide area and several decades. In comparison, local junction models give an indication of the expected level of queuing, capacity and delay at a single junction or several junctions linked together.

1.12. The SRTM is used in this STA to assess the impacts of the Local Plan growth and the benefits of transport schemes as explained further in Chapter 5.29. This model was updated in early 2017, with a 2015 base year. This base year reflects most recent traffic conditions providing a platform from which future traffic levels and patterns of movement can be assessed[1]. The STRM also sets out the outcomes of the study including mitigation measures required to support the preferred development growth.

Limitations and Exclusions of the STA

1.13. This STA considers traffic in Fareham in future scenarios. It uses data provided by the DfT to understand how traffic will grow in other neighbouring boroughs and how this will impact Fareham and, in turn to some degree, how traffic growth in Fareham will impact neighbouring local authorities. The Government data uses housing projections from adopted Local Plans. However, neighbouring areas are also updating their plans and are likely to include higher housing levels than contained within the data.

1.14. The performance assessment within the SRTM adopt a 'worst case scenario' approach which is based on unconstrained traffic growth on the highway network, and at individual junctions. In the SRTM unconstrained demand means that the decision to travel by car will not be constrained by other factors such as cost of travel (fuel, parking, time) comfort and safety factors or road quality. This does not imply capacity constraints along the network will not affect route choice but simply that any road users wishing to access the local highway network during a specific time can do so unconstrained.

1.15. The SRTM used in this STA allows for re-assignment of traffic. It assumes that some drivers may divert to alternative routes if there is increased congestion on their intended route.

1.16. It should be noted that impacts resulting from background growth in traffic over the Local Plan period, which is unrelated to the Fareham Local Plan, are not considered in this STA.

1.17. This STA identifies junctions on the road network that are most likely to require capacity improvements to accommodate Local Plan growth at the strategic level, based on the outputs of the strategic traffic modelling. It should be noted that the list of junctions which may require mitigation is not exhaustive. Site specific transport assessment may identify other junctions and links within the modelled area as requiring improvement as the Local Plan is taken forward. The potential junction improvements have been developed to demonstrate that the traffic impacts from the proposed level of development are capable of mitigation but does not necessarily advocate a preferred junction design. In fact, by far the preferred approach of the Highway Authority is to consider active travel and public transport options first, with the addition of highway capacity a 'worst case' option.

1.18. This STA assesses the cumulative impact of all the proposed development in the Local Plan. It demonstrates that the overall Local Plan growth, if accompanied by the appropriate mitigation measures, can be accommodated on the network without causing severe traffic impacts within the Borough. It is not designed to test or propose site specific mitigation to deal with the effects of individual development sites.

[1] These strategic models take several years to update, and therefore the data in them is sometimes older than the finally updated model year.

1.19. The SRTM only assesses the impact of the Local Plan growth in 2036. It does not assess impacts in the intervening years and does not therefore consider the potential delivery phasing of the development sites. The 2036 Do Something model only assesses the impact of the mitigation as a single package of works. Consequently, it is not possible to specifically identify with any accuracy the appropriate phasing of mitigation measures, or to link individual schemes to specific developments. The transport impacts of each of the Local Plan development will still have to be assessed through Transport Assessments accompanying planning applications in accordance with NPPF guidance.

Report Structure

1.20. The remainder of this report is structured as follows:

- **Chapter 2:** summaries the policy and strategic context for the FBC Local Plan and this STA;
- **Chapter 3:** describes the provision and operation of existing transport infrastructure within the Borough;
- **Chapter 4:** provides a commentary on current transport related issues;
- **Chapter 5:** assesses sustainable transport infrastructure and mitigation in the emerging Local Plan;
- **Chapter 6:** describes the scope and use of the Sub Regional Transport Model and discusses the modelling methodology used for the assessments;
- **Chapter 7:** discusses the forecast population and economic growth both within FBC and beyond and the land use assumptions used in the model;
- **Chapter 8:** provides a comparative assessment between the 2015 Base and 2036 Baseline, which excludes proposed Local Plan growth, i.e. how conditions are forecast to change without the proposed Local Plan development;
- **Chapter 9:** provides a comparative assessment between the 2036 Baseline model scenario, providing the modelled future level of congestion without any further Local Plan development and the Do-Minimum (Do Minimum) scenario, providing the impacts on the highway network of the proposed Local Plan developments before any mitigation is considered;
- **Chapter 10:** sensitivity test of a scenario without the M27 Junction 10 improvements and Welborne development size capped, to understand the difference on the highway network should the scheme not be delivered;
- **Chapter 11:** identifies and describes schemes to mitigate identified “significant or severe” impacts from the Do Minimum scenario;
- **Chapter 12:** describes the results of a final “Do Something” model run, which includes potential mitigation scheme and discusses any residual impacts;
- **Chapter 13:** explains how the identified potential mitigation schemes would be funded and delivered; and
- **Chapter 14**: summarises the FBC Local Plan STA.

2. Policy and Strategic Context

2.1. This section describes the national, sub-regional and local transport related policies and strategic context relevant to this STA. Broadly these are all aimed at facilitating sustainable development to support population and economic growth, with an emphasis on promoting travel by public transport, walking and cycling to lessen the impact of road traffic and realise the wider benefits offered by these alternative modes, for example, air quality improvements, and benefits to public health.

National

Ministry of Housing, Communities and Local Government, National Planning Policy Framework 2019

2.2. The National Planning Policy Framework (NPPF[2]) was most recently updated in February 2019. The framework sets out the national policy expectations relating to transport, its place within the planning process, and its contribution to the achievement of sustainable development. It outlines the requirements of the transport evidence base in relation to Local Plans, all of which is included through this strategic transport assessment and other documents in support of Fareham's emerging Local Plan.

2.3. Paragraph 102 of the NPPF details the transport issues that should be considered in plan making:

- the potential impacts of development on transport networks;
- opportunities to promote walking, cycling and public transport use;
- the environmental impacts of traffic and transport infrastructure; and
- patterns of movement, streets, parking, and other transport considerations.

2.4. Furthermore, the NPPF identifies that significant development should be focused at locations which are, or can be made, sustainable for example by reducing the need to travel. Paragraph 104 states that the planning policies should:

"support an appropriate mix of uses across an area, and within larger scale sites, to minimise the number and length of journeys needed for employment, shopping, leisure, education and other activities;

be prepared with the active involvement of local highways authorities, other transport infrastructure providers and operators and neighbouring councils, so that strategies and investments for supporting sustainable transport and development patterns are aligned;

identify and protect, where there is robust evidence, sites and routes which could be critical in developing infrastructure to widen transport choice and realise opportunities for large scale development;

provide for high quality walking and cycling networks and supporting facilities such as cycle parking (drawing on Local Cycling and Walking Infrastructure Plans);

provide for any large-scale transport facilities that need to be located in the area, and the infrastructure and wider development required to support their operation, expansion, and contribution to the wider economy. In doing so they should take into account whether such development is likely to be a nationally significant infrastructure project and any relevant national policy statements; and

recognise the importance of maintaining a national network of general aviation airfields, and their need to adapt and change over time – taking into account their economic value in serving business, leisure, training and emergency service needs, and the Government's General Aviation Strategy."

2.5. Paragraph 105 also provides guidance on the setting of local parking standards for residential and non-residential development, and recommends local planning authorities should consider

[2] https://www.gov.uk/government/publications/national-planning-policy-framework--2

accessibility; type, mix and use of development; availability of and opportunities for public transport; car ownership levels; and an overall need to reduce the use of high-emission vehicles.

2.6. In allocating sites for development plans, NPPF Section 108 states it should be ensured that:

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

2.7. The Government's guidance on 'Transport evidence bases in plan making and decision taking'[3] (PPG) sets out the requirements of what information should be included within a Local Plan in Transport and Highways terms.

2.8. The following documents set out the context within which this STA is being developed.

Ministry of Housing, Communities and Local Government, Infrastructure Act 2015

2.9. Parliament introduced the Infrastructure Act in 2015[4]. This act enabled the creation of Highways England, who are a key consultee for the plan, and set out measures to streamline delivery of transport schemes. It also provided the mandate for a new Cycling and Walking Investment Strategy.

DfT Cycling and Walking Investment Strategy 2017

2.10. The DfT's Cycling and Walking Investment Strategy[5] outlines the Government's ambition to make cycling and walking the natural choice for shorter journeys, or as part of a longer journey.

2.11. The strategy sets out that the Government aims to double cycling activity by 2025 and each year reduce the rate of cyclists killed or seriously injured on English roads. It highlights the need for cycling or walking to be perceived as safe, normal, and enjoyable ways to travel. Over 30% of commuting trips made by Fareham residents are under 5km, a distance that can easily be cycled in around 20-30 minutes. Over 70% of these short trips are currently made by car or van.

2.12. The longer ambition for 2040 is focused around:

- A safe and reliable way to travel for short journeys (better safety);
- More people cycling and walking - easy, normal, and enjoyable (better mobility); and
- Places that have cycling and walking at their heart (better streets).

2.13. In July 2020, the Government announced its new Gear Change policy which strengthens the CWIS ambitions through the replacement of existing design guidance and a review of the Highway Code. A revised CWIS is expected soon.

DfT Decarbonising Transport: Setting the Challenge 2020

2.14. The Plan[6] outlines plans to work with those in the transport sector to develop a Transport Decarbonisation Plan (TDP). The TDP will put forward a credible implementation plan of how to put the UK's entire transport system on a pathway to deliver the necessary greenhouse gas emissions reduction.

[3] https://www.gov.uk/guidance/transport-evidence-bases-in-plan-making-and-decision-taking
http://www.legislation.gov.uk/ukpga/2015/7/contents/enacted
[5] https://www.gov.uk/government/publications/cycling-and-walking-investment-strategy
[6] https://www.gov.uk/government/publications/creating-the-transport-decarbonisation-plan

2.15. The Ministerial Foreword outlines the basis for a vision for how a net zero transport system will benefit us all, including lowering reliance on cars through cost-effective and coherent public transport networks and providing clean place-based solutions to meet the needs of local people.

DfT Road Investment Strategy 2 (RIS2): 2020-2025

2.16. RIS2[7] sets out the long-term vision for the Strategic Road Network (SRN) which in Fareham includes the M27. It specifies the planned road enhancement schemes; and states the funding that we will make available during the five-year period. Within Fareham the following scheme is included:

- M27 Junctions 4–11 scheme - upgrading the M27 to smart motorway between junction 4 (M3 interchange) and junction 11 (Fareham), linking with the smart motorway scheme on the M3. This scheme is currently under construction.

DfT Future of Mobility: Urban Strategy 2019

2.17. The strategy[8] outlines the government's approach to maximising the benefits from transport innovation in cities and towns, setting out its thinking and priorities for the Future of Mobility Grand Challenge (identified in the UK Industrial Strategy).

2.18. Solent Transport was successful in obtaining DfT funding for the Solent Future Mobility Transport Zone. The £28.75 million programme will see a range of innovative projects be delivered across the Solent area ranging from the development of a Mobility-as-a-Service platform and bike sharing schemes through to developing solutions to tackle last mile deliveries and using drones for local logistics.

DfT The Transport Investment Strategy 2017

2.19. As part of this Strategy[9] the Government committed to creating a Major Road Network (MRN) across England to cover the busiest and most economically important local authority A roads. In creating this network, the Government has five central policy objectives: reduce congestion; support economic growth and rebalancing; support housing delivery; support all road users; support the SRN. In December 2017 DfT published its proposals for this network for consultation. The proposals comprised the A32 in Fareham. The MCN will receive dedicated funding from the National Roads Fund of £3.5 billion (about 12% of the total fund).

Regional and Sub-Regional

2.20. Regionally, Fareham Borough Council works with several other organisations involved in delivery and management of transport networks, these include:

- Hampshire County Council -the Highway Authority for the road network in Fareham Borough. All liaison with neighbouring local planning authorities such as East Hampshire, Gosport, Eastleigh, Winchester, Portsmouth, and Havant are directed via the Local Highway Authorities of Hampshire County Council or Portsmouth City Council;

- Highways England- responsible for maintaining, operating, and improving the Strategic Road Network (SRN), which includes the M27, from Cadnam to Cosham and intersecting the north of the Borough, with access via Junctions 9,10, and 11;

- Partnership for Urban South Hampshire (PUSH) - voluntary partnership of all the local authorities in South Hampshire together with Hampshire County Council to support the sustainable economic growth of the sub region and to facilitate the strategic planning functions necessary to support that growth;

[7] https://www.gov.uk/government/publications/draft-road-investment-strategy-2-government-objectives

[8] https://www.gov.uk/government/publications/future-of-mobility-urban-strategy

[9] https://www.gov.uk/government/publications/transport-investment-strategy

- Solent Transport - coordinates strategic transport planning in the PUSH area on behalf of HCC, Portsmouth City Council (PCC), Southampton City Council (SCC), and The Isle of Wight Council (IoWC), following the inclusion of The Isle of Wight in PUSH;
- Solent Enterprise Partnership (LEP) - a private/public partnership working with local partners to promote economic growth across the region; and
- Public Transport Operators and Network Rail.

2.21. Policies developed by or with these organisations relevant to the Local Plan are set out below:

HCC Climate Change Strategy 2020-2025

2.22. Hampshire County Council (HCC) declared a Climate Emergency in the summer of 2019. HCC set a target to be carbon neutral by 2050, in line with national government and set a target to build resilience to the impacts of a two-degree Celsius rise in temperature. Hampshire's carbon emissions come from Industry and Commercial (39%) Transport (37%) and Domestic (24%).

2.23. As transport is a top contributor of carbon emissions, the priority for transport is to reduce the need to travel, increase the uptake of walking, cycling and public transport, alongside promoting the electrification agenda. This stance is supported by numerous existing policies and strategies but will be important in shaping the future delivery of transport and policy particularly the LTP4.

Hampshire Local Transport Plan 2011-2031 (LTP3)

2.24. The LTP3 contains the long-term strategy for the South Hampshire area, covering the period 2011-2036. The Hampshire LTP focuses on the need to maximise the efficiencies of the existing infrastructure network and therefore focuses its policies on five main themes; highway resilience, traffic management, public transport, quality of life, and place and transport growth areas. It should be noted that this will be updated over the coming year and will focus more strongly on responding to climate change and sustainable transport.

2.25. Chapter 7 within the Hampshire LTP covers the Joint Strategy for South Hampshire, in which Fareham is located. The chapter was developed jointly by Hampshire County Council, Portsmouth City Council, and Southampton City Council; working together as Solent Transport.

2.26. LTP3 focuses on seven key transport outcomes for the South Hampshire area, which contribute to the policies set out within LTP3; the desired outcomes are detailed below:

- Reduced dependence on the private car through an increased number of people choosing public transport and the 'active travel' modes of walking and cycling;
- Improved awareness of the different travel options available to people for their journeys, enabling informed choices about whether people travel, and how;
- Improved journey time reliability for all modes;
- Improved road safety within the sub-region;
- Improved accessibility within and beyond the sub-region;
- Improved air quality and environment, and reduced greenhouse gas emissions; and
- Promoting a higher quality of life.

2.27. The LTP3 document Joint Strategy for South Hampshire is also accompanied by an implementation plan, the Transport Delivery Plan 2012-2026[10], finalised in February 2013. This includes a detailed

[10] http://documents.hants.gov.uk/transport-for-south-hampshire/TransportDeliveryPlan.pdf

analysis of transport movements by all modes within South Hampshire and the related problems and barriers, concluding that there is a need for transport interventions to support economic growth.

2.28. HCC is currently developing a new Local Transport Plan, LTP4, to replace LTP3.

HCC Walking and Cycling Strategies 2016

2.29. These Walking and Cycling Strategies[11] are two separate documents introduced in late 2015 and early 2016, to outline HCC's aspirations for walking and cycling for the period to 2025.

2.30. The cycling strategy sets five clear objectives in line with the vision statement, "In 2025, cycling will be a convenient, safe, healthy, affordable, and popular means of transportation and recreation within Hampshire". The objectives are to make cycling a daily travel choice, reduce cyclist casualties and safety concerns, encourage regular cycling as part of a healthy lifestyle, enable more people to enjoy Hampshire by cycling, and ensure an appropriate balance between the needs of all road users.

2.31. The walking strategy states that the county vision is "By 2025, walking will be the travel mode of choice for short trips and the most popular and accessible means of recreation". The five objectives are to make walking the modal choice for short trips, improve the quality and usability of the main walking routes within settlements, promote walking for a healthy lifestyle, improve the safety and security of pedestrians; and improve the quality of rural walking routes.

HCC Local Cycling and Walking Infrastructure Plan (LCWIPS)

2.32. Fareham is working with Hampshire County Council and Sustrans to produce a Local Cycling and Walking Infrastructure Plan (LCWIP). LCWIPs are a new approach to identifying cycling and walking improvements required at the local level. They enable a long-term approach to developing local cycling and walking networks, ideally over a 10-year period, and form a vital part of the Government's strategy to increase the number of trips made on foot or by cycle. A draft of the LCWIP was produced to support the County Council's bid to the DfT for funding from the Transforming Cities Fund (TCF). More information on LCWIPs is included in Paragraph 3.18.

HCC A27 Corridor Study 2020

2.33. In April 2020 HCC commissioned a study of the A27 corridor. The aim of the study is to develop a multi-modal transport strategy for the A27 corridor in Fareham district. The first stage of the study is to collate information to support the strategy which includes classifying the previous types of measures and aspirations proposed along the A27 corridor and carrying out a link and place assessment to characterise the corridor. The second stage will develop strategy options and potential schemes for a phased programme of delivery. Development sites will need to account for this study in their site-specific transport assessments.

HCC Highways and Asset Management Policy and Strategy 2018

2.34. This Strategy[12] sets out Hampshire's priorities towards asset management of the highway network to ensure that roads are safe and accessible, and that maintenance provides good value for money.

HCC Traffic Management Policy 2014

2.35. This Policy explains how traffic and safety issues are investigated and when traffic management measures may be appropriate. Traffic Management measures can include on-street parking controls, speed limits, HGV restrictions, direction signing, traffic calming, movement restrictions and pedestrian crossing facilities.

HCC Developer Travel Plan Guidance

2.36. A travel plan is a long-term strategy for improving and managing access to a site focusing on promoting sustainable modes, and minimising single occupancy car trips. This guidance shows that

[11] https://www.hants.gov.uk/transport/strategies/transportstrategies

[12] http://www3.hants.gov.uk/local-transport-plan-strategy-south-hampshire

travel plans are required for all planning applications where a Transport Assessment is required, or for any residential application of more than 100 dwellings. They may also be required for some smaller scale developments that have significant transport impacts. HCC assesses, monitors, and enforces travel plans.

Site-specific Transport Assessments

2.37. This STA assesses cumulative impacts, whereas more detailed impacts are examined in site-specific transport assessments required by the Highway Authority for all developments of more than 50 dwellings, or 2,500m^2 floor area for commercial purposes[13]. This applies even if the site is allocated as part of the Local Plan. Where site specific TAs exist for sites in the baseline, any mitigation solutions agreed are included in the STA.

2.38. These site-specific Transport Assessments should address the following issues:

- Reducing the need to travel, particularly minimising the use of cars;
- Ensuring sustainable accessibility for all modes of travel, focusing on public transport and active modes;
- Residual trip management and measure to manage these; and
- Mitigation measures designed to minimise any impacts on the highway network.

[13] https://www.hants.gov.uk/transport/developers/transportassessments

Highways England Solent to Midlands Route Strategy 2017

2.39. Highways England (HE) introduced a strategic plan[14] for the modernisation of the SRN connecting the Solent to the Midlands. This includes sections of the M27 in and close to Fareham Borough. The strategy evaluates both current and forecast performance of the route to identify specific future challenges, and potential opportunities to address the challenges, to inform a plan for future investment.

2.40. The strategy states that the main problems on the route are traffic congestion and queuing due to high volumes of traffic. This is a similar situation to many other sections of the SRN. The current constraints and challenges on the route, specifically around Fareham Borough, include road safety with identified clusters of collisions on the M27 and a concentration of congestion on the M27 between Junctions 4 and 11. There are no specific concerns noted on the M27 within Fareham Borough. The Route Strategy did not identify any future challenges and opportunities for the SRN within Fareham Borough.

Partnership for South Hampshire (PfSH), Spatial Position Statement (SPS) 2016

2.41. In 2016 Partnership for South Hampshire (PfSH) published a Spatial Position Statement (SPS) to help inform Local Plans and assist individual Councils in meeting the Duty to Cooperate. It was developed as a non-statutory document to inform long-term decisions about the level and distribution of development across South Hampshire. The assessed housing needs as per the October Joint Committee Report 2019[15] sets out the need to deliver 107,520 homes across South Hampshire over the period 2016- 2036, which includes 10,400 in Fareham Borough. The SPS is currently being reviewed to produce a new Joint Strategy which will cover the period beyond 2034[16] and update the housing requirement in line with the Standard Methodology for determining housing need.

Solent Transport

2.42. The Solent Transport authorities will seek to address the challenges of achieving the desired outcomes through a policy framework consisting of 14 policies. The Solent Transport philosophy of *Reduce-Manage-Invest*[17] is central for each proposed policy. Solent Transport authorities will work to reduce the need to travel, maximise the use of existing transport infrastructure, and delivery targeted improvements. The policies seek to *"safeguard and enable the delivery of a limited range of transport improvements within the area"* – those relating to Fareham Borough include the proposed strategic routes for western access to Gosport.

Strategic Access to Gosport study (StAG)

2.43. The Strategic Access to Gosport study (StAG) was undertaken by Solent Transport on behalf of PfSH with the aim to improve strategic access to the Gosport Peninsula. The study has been a key component for transport planning in Fareham and the wider region since 2008. Access to Gosport is through Fareham, so considerable movement between the two boroughs for employment and education takes place. For this reason, the study includes the proposed Welborne development as it will be an important source of employment for Gosport residents.

2.44. Solent Transport defined the overall focus for this study as deliverable measures which could contribute to the management of issues related to journey delays and accessibility of all modes, within the context of combatting climate change, supporting the economy, and accommodating the planned growth up to 2026.

2.45. The study set the overall aim as to define a set of high-level deliverable measures, which would contribute to:

[14] https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/600330/Solent_to_Midlands_Final.pdf

[15] https://www.push.gov.uk/wp-content/uploads/2019/10/Combined-14-October-Agenda-Pack-v1.1.pdf

[16] https://www.push.gov.uk/wp-content/uploads/2019/10/ITEM-9-Statement-of-Common-Ground.pdf

[17] http://www3.hants.gov.uk/reduce_strategy.pdf

- Managing existing and predicted future access issues, including safety and environment, for the Gosport Peninsula; and

- Supporting the local economy and growth agenda proposed for the Gosport Peninsula.

2.46. A number of schemes can be found in the study, some of which are already delivered and are therefore already in the SRTM, others, planned for future delivery, are included in the baseline SRTM model and are summarised in Appendix A.

South Hampshire Rapid Transit

2.47. There are longer term proposals for a step change on public transport provision in South Hampshire as part of the South East Hampshire Rapid Transit (SEHRT) project, developed through Solent Transport. This would have significant potential to reduce the number of car-based trips within the local area, including the number of trips from new developments. The proposals, including schemes in the Fareham area, are included in a funding proposal to the DfT under the Transforming Cities Fund.

2.48. The DfT released two waves of funding for the TCF. First, shortlisted cities could bid for 'quick wins' – projects that can begin in the financial year 2018/19 and support the overall bid. The Portsmouth and South East Hampshire bid was successful and received the full ask of £4 million of the initial fund.

2.49. From this 'Tranche 1' funding £2.6 million will be spent on improving three main junctions in Portsmouth and Real Time Information installation at bus stops across Portsmouth, Havant, and Waterlooville. A further £1.4 million will be used to support the extension of the existing Eclipse bus route in Gosport.

2.50. In the March 2020 budget announcement, funding was allocated from the TCF to nine city regions. The Portsmouth and SEHRT bid were unsuccessful in this first round but were invited to bid for a share of £117 million with Norwich and Stoke-on-Trent. HCC and Portsmouth submitted a rebid to the DfT in July 2020[18].

2.51. There following schemes within Fareham are included in the TCF bid, albeit there is no funding commitment at this stage.

- Enhanced multi-modal Corridor - Delme to Downend Bus and Cycle –Scheme comprising of a bus lane and bus priority signals on eastbound approach to Delme Roundabout, a dual direction segregated cycle lane on southern kerb line, improved southern footway with SUP at either end of segregated cycle lane, improved northern footway widened to create SUP between St Catherines Way and Downend Road signalised junction, facility for eastbound cyclists to access Cams Hill Service Road for safe and quiet cycle and pedestrian route on northern side of scheme, and upgrade existing Cams Hill Estate crossing to Toucan.

- Local Transport Hub - A27 Enhanced Safety Scheme – Portchester - Improvements to walking and cycling facilities in the form of an at-grade toucan crossing over the A27. The crossing is to the west of Castle Street roundabout in Fareham enhancing the route between the district centre and the rail station/residential areas to the north.

2.52. There are also schemes included in the TCF bid in the wider Solent area including Gosport and Havant.

2.53. The Fareham LCWIP is being developed alongside this TCF bid for the Portsmouth and South East Hampshire City Region and is expected to be published for consultation later this year.

Network Rail Route Studies

2.54. The Solent Continuous Modular Strategic Planning (CMSP) 2020 sets out potential interventions required to unlock a significantly improved level of intra-Solent rail service over the next 30 years. One of the key interventions identified is creation of a third through-line at Fareham (turning platform

[18] https://www.sehrt.org.uk/2020/07/06/portsmouth-city-region-tranche-2-rebid/

two into a bi-directional through-line). This would require replacement of the bridge over the A27 at Fareham station. Redoubling parts of the Botley-Fareham line are also identified as being necessary, at least for some service pattern options, together with several interventions at the Portsmouth and Southampton ends of the route. The study recommends taking these into the DfT Rail Network Enhancements Pipeline.

2.55. The Wessex Route Study 2015[19] is the current strategic planning document for the development of the rail network on the Wessex Route, which incorporates most lines/services within Fareham Borough. This document has a planning horizon of 2043 and as such covers the period of the new Local Plan. This study supersedes the 2011 Rail Utilisation Strategy (2011) and sets out the following:

- Existing capability and demand on the rail network;
- Projected changes in future demand and known gaps in connectivity and capability; and
- Options for infrastructure and service changes to meet these capacity challenges/connectivity gaps.

2.56. The route study does not commit to any specific enhancements, but instead sets out and, in some cases, recommends options for funders (DfT and in some areas devolved authorities) and train operators to implement through Network Rail's capital investment programme and through the rail franchising process.

2.57. For the Fareham area, the Wessex Route study contains relatively little in the way of proposals which would significantly improve local rail connectivity and be of relevance to local travel within the Borough and to nearby key destinations. The study is primarily concerned with improving journey times, mainline frequency, and peak capacity (for commuting) into London Waterloo from Southampton and other destinations on this route.

Solent Local Enterprise Partnership, Transforming Solent Strategic Economic Plan 2014- 20

2.58. The Solent LEP secured £124.8 million from the Government's Local Growth Fund to support economic growth in the area including enhancing transport connectivity and enabling key housing and employment sites. The Strategic Economic Plan[20] outlines the strategic priorities for investment which include the A27 corridor improvements at Fareham and transport infrastructure to improve strategic connectivity to employment sites such as the Solent Enterprise Zone at Daedalus; and to enable access to strategic housing sites such as Welborne in Fareham and North Whiteley in Winchester District.

Local

Fareham Borough Council Draft Local Plan

2.59. The vision for Fareham as outlined in the draft Fareham Local Plan includes several transport-related themes including accessibility and significant road improvements such as changes at Junction 10 on the M27, and the Stubbington bypass. The Strategic Priorities namely 4 and 7 outlined in the draft Fareham Local Plan also have a transport focus. In addition, Policies TIN1, TIN2, TIN3 and TIN4 in Chapter 10 detail the measures associated with transport such as infrastructure delivery, sustainable transport, and road network improvements.

Fareham Borough Council Transport Statement 2012

2.60. HCC has produced local transport statements for all districts and boroughs in Hampshire. The Transport Statement for Fareham Borough was adopted in 2012 and updated in December 2013. The

[19] https://www.networkrail.co.uk/wp-content/uploads/2016/11/Wessex-Route-Study-Final-210815-1.pdf

[20] https://solentlep.org.uk/media/1121/solent_strategic_economic_plan.pdf

Transport Statement is an HCC document and has been developed in consultation with FBC. The Statement covers the period up to 2026 in line with the adopted Local Plan.

2.61. Fareham Borough Transport Statement 2013[21] is intended to provide:

- A comprehensive local transport policy framework for the Borough;
- A framework to assist with the prioritisation of transport investment;
- A sound basis for land use and development planning; and
- Assistance to the local planning authority with infrastructure planning in support of the FBC Local Plan process.

Fareham Borough Council Infrastructure Delivery Plan 2020

2.62. The draft Infrastructure Delivery Plan sets out the types of infrastructure – facilities, installations, and services – needed to ensure that the development being planned can be delivered and support the new and expanding communities. It sets out details of the current transport infrastructure, and planned provision/anticipated needs for the Local Plan period. An updated IDP is published alongside the Local Plan and reflects the findings of this STA.

[21] https://documents.hants.gov.uk/transport/FBCTransportStatementDecember2013.pdf

3. Existing Transport Network and Operation

Overview

3.1. This section of the document outlines the existing transport networks; walking, cycling, rail, bus, and road, as well as details on existing levels of accessibility, travel patterns, and current operation. This section supports national planning policy specifically Chapter 9 of the NPPF, which outlines that planning should actively manage patterns of growth to maximise the use of public transport, walking and cycling, and focus significant development in locations which are or can be made sustainable.

3.2. It should be noted that the current operation reported in this document describes conditions prior to the COVID-19 pandemic. However, as a result of the pandemic, it is anticipated that in the future walking and cycling, home working and flexible working will increase. This would reduce the number of single occupancy car trips during the peaks on the Fareham network. Equally fewer trips being made every day may result in a reduction in public transport trips, particularly in and out of major towns and cities. Although the anecdotal evidence such as an increase in bicycle sales suggests an increase in sustainable travel, it is important to note that this could be a short-term response to the pandemic.

3.3. Fareham Borough is well connected in transport terms, with connections to the National Strategic Road Network and routes of both regional and sub-regional importance. It is served by three rail stations and has a comprehensive bus network, with services connecting all the key settlements. The Borough also has a network of cycling routes. The rest of this section provides more detail on each mode, and the potential for a shift towards sustainable transport in the Borough.

3.4. Figure 3-1 shows the current transport infrastructure including the main railway links, Eclipse Busway, and the strategic roads.

Figure 3-1 - Main transport links in Fareham Borough

Potential for Sustainable Travel

3.5. The National Travel Survey identifies the average number of trips (trip rates) by journey purpose and main mode for England in 2018. As can be seen in Table 3-1 commuting only accounts for approximately 14% of trips, however the survey only collects the main mode of travel to work, not the first and last mile. Consequently, walking, cycling and other multi-modal trips are underrepresented as is the importance of these networks. These active mode and public transport trips play a vital role in mitigating the impacts of the local plan development on the highway network.

Table 3-1 - NTS Journey Purpose 2018

Journey Purpose	On Foot	Bicycle	Car/Van driver	Car/Van passenger	Bus	Rail	All modes
Commuting	7%	34%	20%	6%	18%	47%	14%
Business	1%	2%	5%	1%	1%	8%	3%
Education/escort education	20%	12%	7%	14%	20%	7%	13%
Shopping	19%	8%	21%	17%	25%	5%	19%
Other escort	4%	2%	12%	12%	3%	1%	9%
Personal business	8%	6%	10%	11%	10%	5%	9%
Leisure	17%	35%	24%	40%	22%	26%	26%
Other including just walk	23%	0%	0%	0%	0%	0%	7%
All purposes	100%	100%	100%	100%	100%	100%	100%

Source: Table NTS0409a

Journey to Work data

3.6. The 2011 Census[22] is used to extract the journey to work data by mode for Fareham residents working both within and outside the Borough, and people who travel from elsewhere and work in Fareham. The data is summarised in Table 3-2 below.

3.7. Table 3-2 shows that the most common method of travel was by driving a car or van at 75% of which 5% people are passengers. The second highest mode is walking at 8% with cycling and train both at 4%. Although not included in the modal split, a considerable percentage also work at or from home.

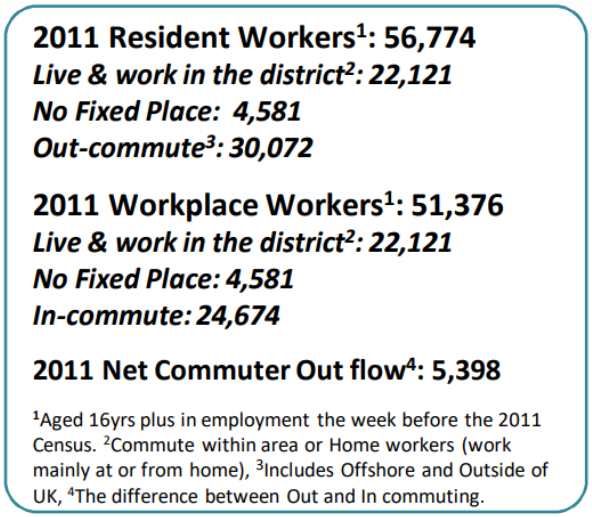
[22] 2011 Census is now nine years old, but it is still the most representative survey for journey to work data.

Table 3-2 - 2011 Census (Table QS701EW) Method of Travel to work for Fareham Borough

Mode of Travel	Value
Train	2,113
Bus, minibus, or coach	1,083
Taxi	153
Motorcycle, scooter or moped	739
Driving a car or van	40,036
Passenger in a car or van	2,632
Bicycle	2,095
On foot	4,014
Other method of travel to work	577
Work mainly at or from home	3,003
All categories: Method of travel to work	56,445

3.8. Figure 3-2 demonstrates that there were 56,774 Fareham residents in employment (resident workers). Of these, 30,072 residents commute out the Borough for work and 22,121 remain. In total 51,376 worked in the Borough (workplace workers) commuting in from other locations.

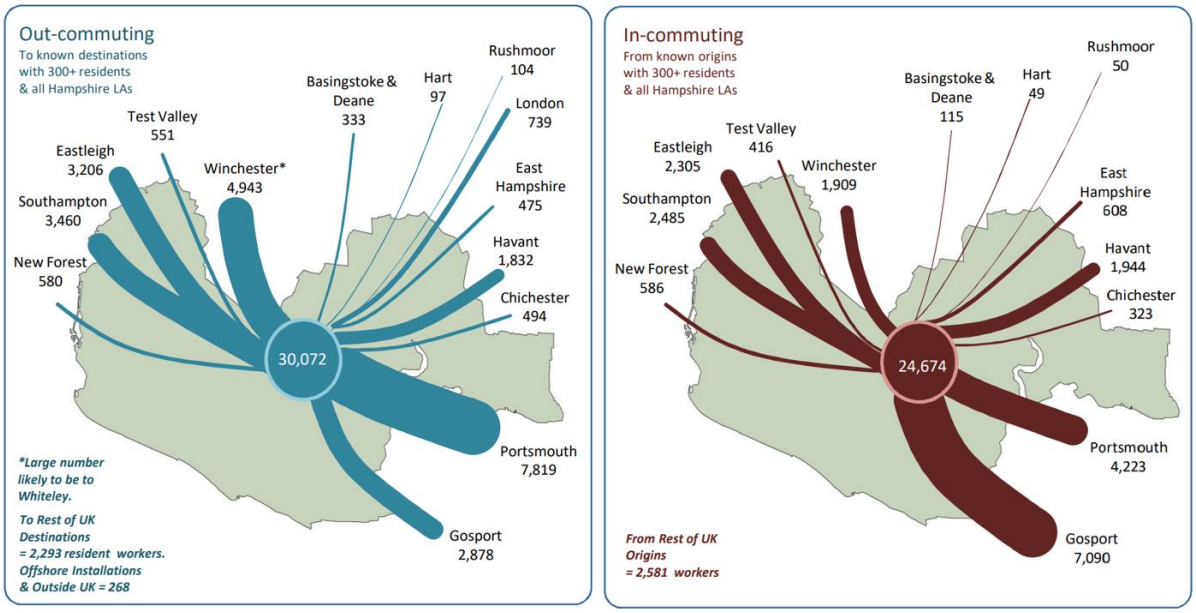
Figure 3-2 - Residents and Workers



3.9. The 2011 Census is used to determine the approximate number of cars/vans that are driven to a place of work, and the approximate number of passengers. In Fareham there were 68,844 cars/vans available with 46,579 (87%) of households owning one or more car/van[23]. This equates to 1.21 motor vehicles per head of the resident workers (56,774).

[23]K2011 Census KS404UK - Car or van availability: Fareham Borough

Figure 3-3 - Commuter Flows[24]



3.10. Figure 3-3 shows that Portsmouth attracts the most workers from Fareham followed by Winchester. Although Fareham sees the most in-commuting from Gosport. Overall, the Borough see higher "out-commuting" than "in-commuting". The commuting between Fareham and Rushmoor and Hart is very low.

Walking and Cycling

3.11. It is well recognised and evidenced that walking and cycling are a key part of the transport solution to many of today's challenges including climate change, air pollution, inequalities related to access, public health crisis and economic issues.

3.12. Walking and cycling schemes frequently achieve better value for money than schemes aimed at relieving congestion, and have wider benefits such as improved public health, air quality, reduced community severance and congestion relief. This is further supported in the DfT Walking and Cycling strategy which aims to double cycling activity by 2025.

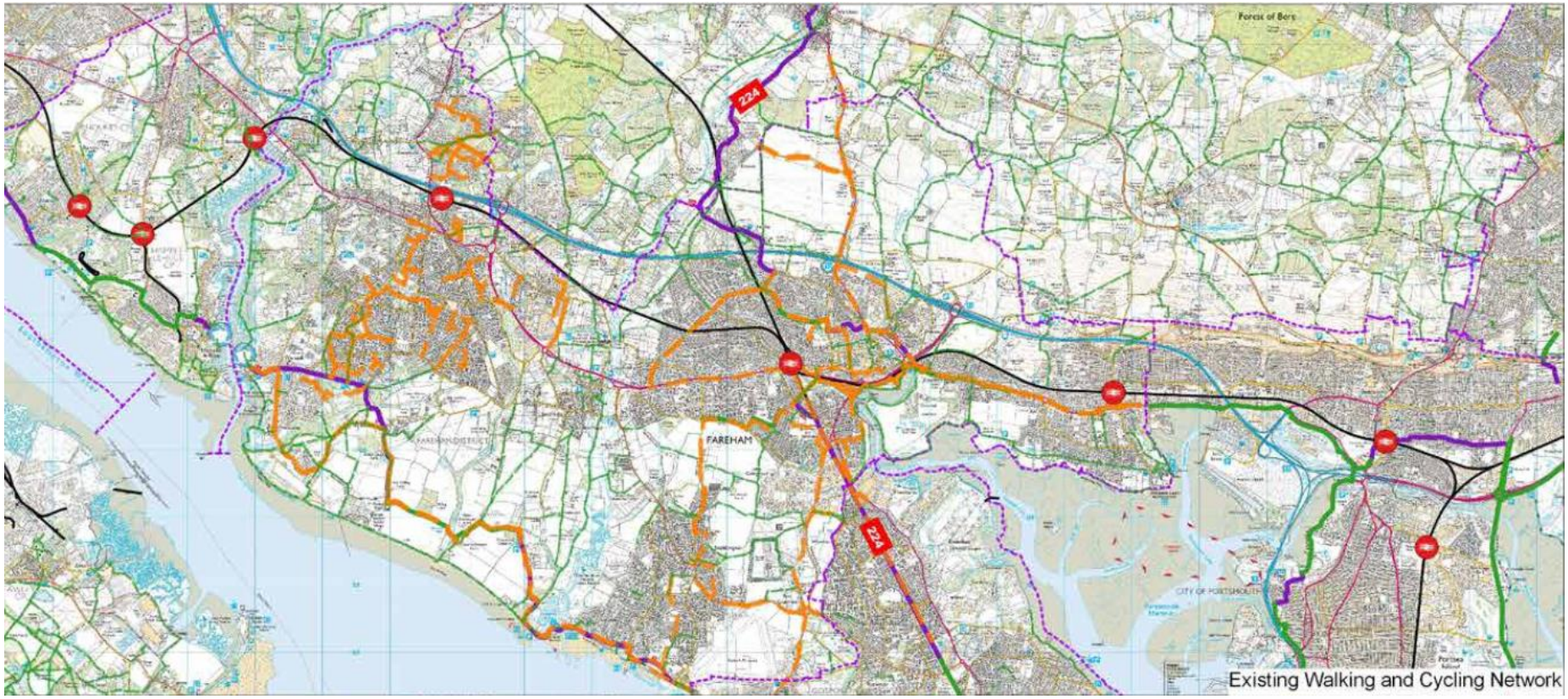
3.13. Trips under 2km are very walkable for most people within around 30 minutes. The 2011 Census reported that, around 13% of commuting trips in Fareham are under 2km. Of these around 55% are driven, and only 13% are on foot. Over 30% of commuting trips made by Fareham residents are under 5km, a distance that can easily be cycled in around 20-30 minutes. Over 70% of these short trips are currently made by car or van and only 7% by bicycle.

3.14. Other trips such as leisure, education and shopping can easily be made within 5km of most homes and workplaces. This means the Borough is ideally suited to having a high number of active travel users, but the road network and lack of dedicated cycling facilities make this an undesirable option for many people.

3.15. The existing walking and cycling network is shown against the proposed LCWIP network in Figure 3-4 and Figure 3-5 indicating the aspiration for significant improvements to the network connectivity. More information on the LCWIP proposals is included in Paragraph 3.18.

[24] https://documents.hants.gov.uk/Economy/FarehamCommuterFlows.pdf

Figure 3-4 - Existing cycle network



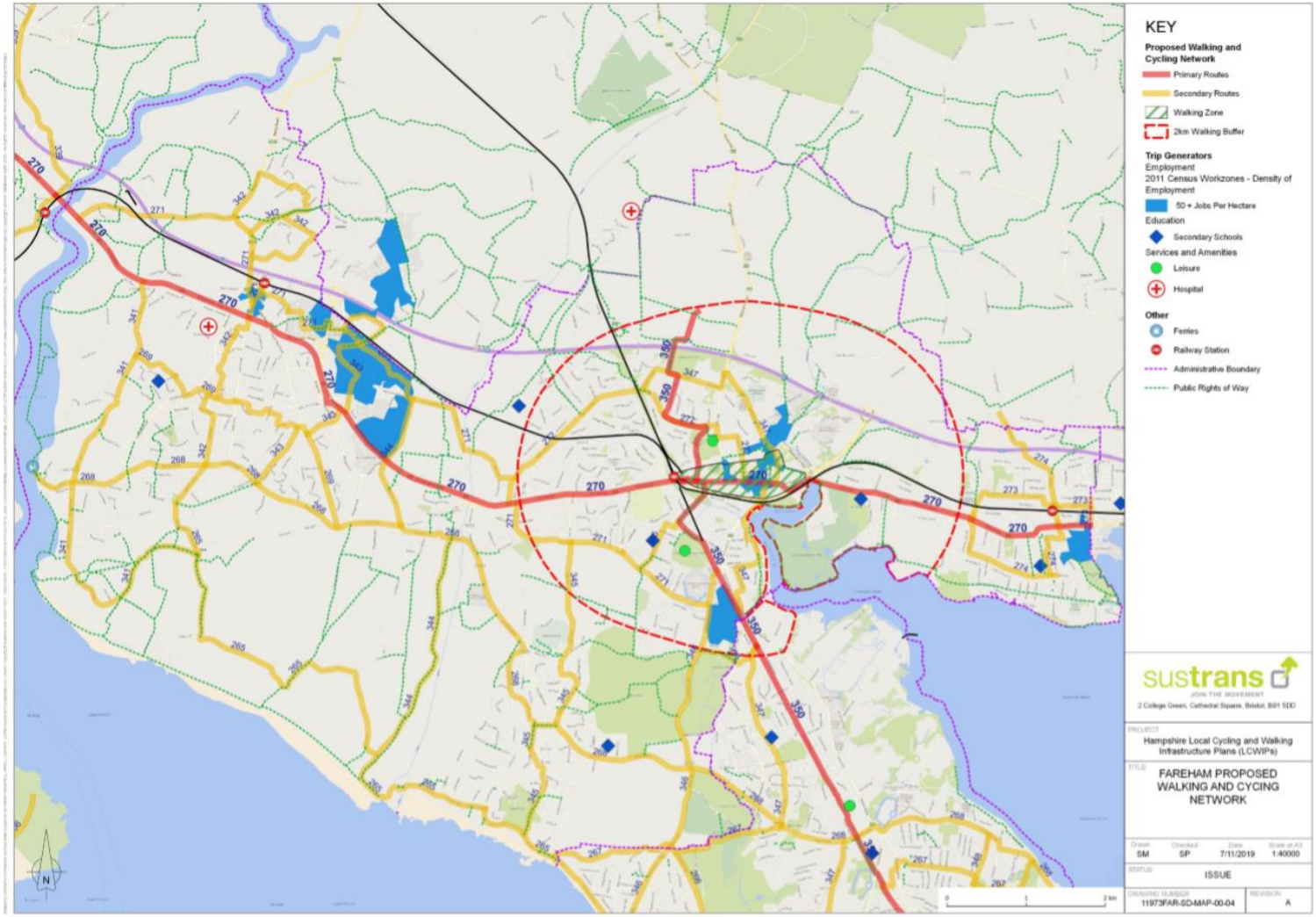
KEY -
EXISTING NETWORK

WALKING AND CYCLING NETWORK
National Cycle Network
- Traffic Free
- On-road
- Fareham Cycle Network
- Public Rights of Way

OTHER
- Administrative Boundary
- Railway Station
- Ferries

Source: HCC

Figure 3-5 - Draft LCWIP proposed cycle network



Source: HCC/Sustrans

Cycle network

3.16. The main existing routes comprise National Cycle Network (NCN) Route 2 along the seafront between Warsash and Gosport and the Eclipse busway (NCN Route 224) on the former railway line between Fareham and Gosport. Route 236 runs west-east through Fareham town and Portchester. Details of the routes can be seen on the Sustrans website[25].

3.17. There is an extensive network of existing cycle routes of variable quality, particularly in Locks Heath, Fareham Town and Stubbington. These routes have been installed either as on-road advisory routes or shared use footways throughout the Borough and many are standalone short distances and therefore do not link to other routes. The Eclipse Busway is also open for cyclists (but closed outside of bus operating hours). Fareham Cycle Map can be accessed via https://www.fareham.gov.uk/pdf/planning/cyclemap.pdf.

LCWIP

3.18. There is a desire to provide upgraded and comprehensive walking and cycling networks through the LCWIPs (more information in Chapter 13) which will contribute to the ambition to reduce reliance on motor vehicles within the Borough. Fareham LCWIP will contain the evidence base for potential use of the walking and cycling networks, maps of proposed primary, secondary routes and pedestrian zones. Currently HCC are at stage five of six of the LCWIP process (prioritisation), due to go to consultation later this year 2020[26].

Public Rights of Way

3.19. The Borough's Public Rights of Way are a collection of paths, bridleways, and tracks that can be used to cross private land. These are all maintained and managed by HCC's Countryside Service[27]. As shown in Figure 3-6 within the Borough there are:

- 100km of footpaths;
- 7.8km of bridleways;
- 72m of restricted byways; and
- 4.1km of byways open to all traffic.

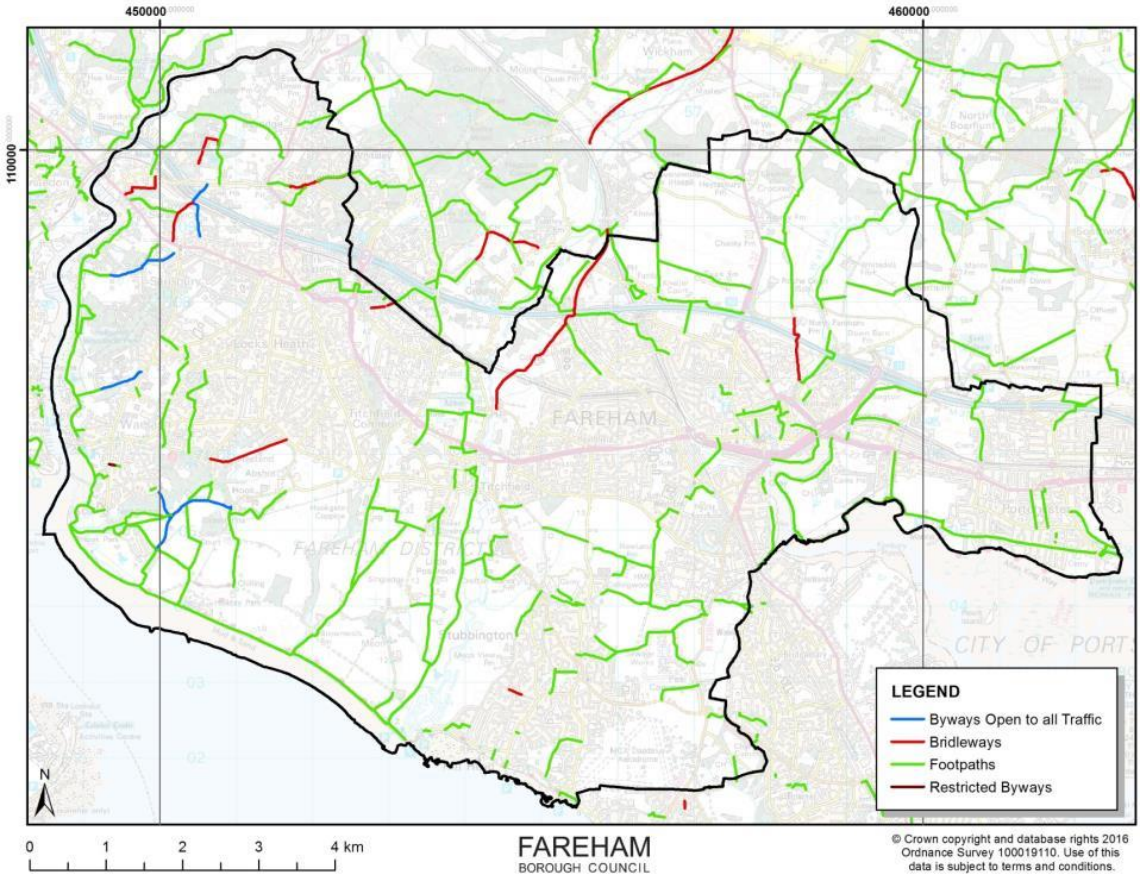
3.20. There is a limited Rights of Way network, most notably in the southern rural part of the Borough. The urban public footpaths do not comprise a comprehensive joined-up walking network, although they will be locally useful for trips on foot. With the exception of the Titchfield Canal path, the urban Rights of Way have limited value for cycling as they do not serve everyday journeys.

[25] https://www.sustrans.org.uk/national-cycle-network/

[26] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/883082/cycling-walking-infrastructure-technical-guidance.pdf

[27] https://www.hants.gov.uk/landplanningandenvironment/rightsofway

Figure 3-6 - Public Rights of Way in Fareham Borough



Accessibility

3.21. Walking distances and times from the Town, District, Local Centres and Retail Hubs have been identified in and Figure 3-7 and Figure 3-8 using 2011 Census data, and the road network and relevant urban paths identified by Ordnance Survey. From this it is seen that most residential areas can access the local centres within a reasonable period (fifteen to thirty minutes' walk). The towns and district centres included were:

- Town Centre- Fareham;
- District Centres - Locks Heath, Portchester, and;
- Local Centres - Stubbington, Broadlaw Walk, Highlands Road, Whiteley (Gull Coppice), Titchfield, Warsash, Park Gate.

3.22. Figure 3-9 depicts the accessibility of the Town, District, and Local Centres when driving based on the road network only, with turn restrictions applied. The speeds of roads were taken as the posted speed limits. It is noted that most residential areas are within five to ten minutes' drive to the nearest centre.

Figure 3-7 - Walking Distances to Town District and Local Centres

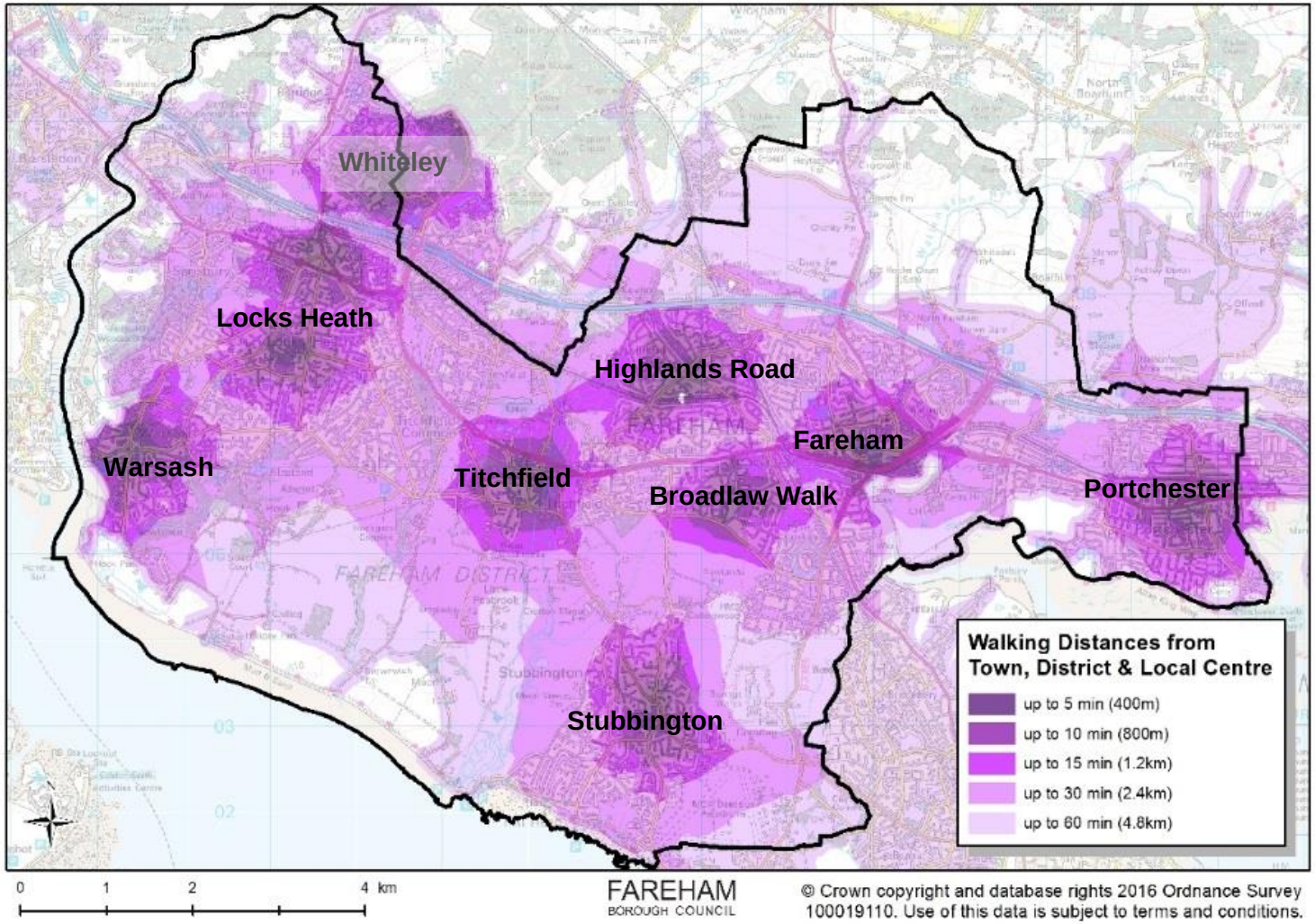


Figure 3-8 – Walk from Retail Hubs

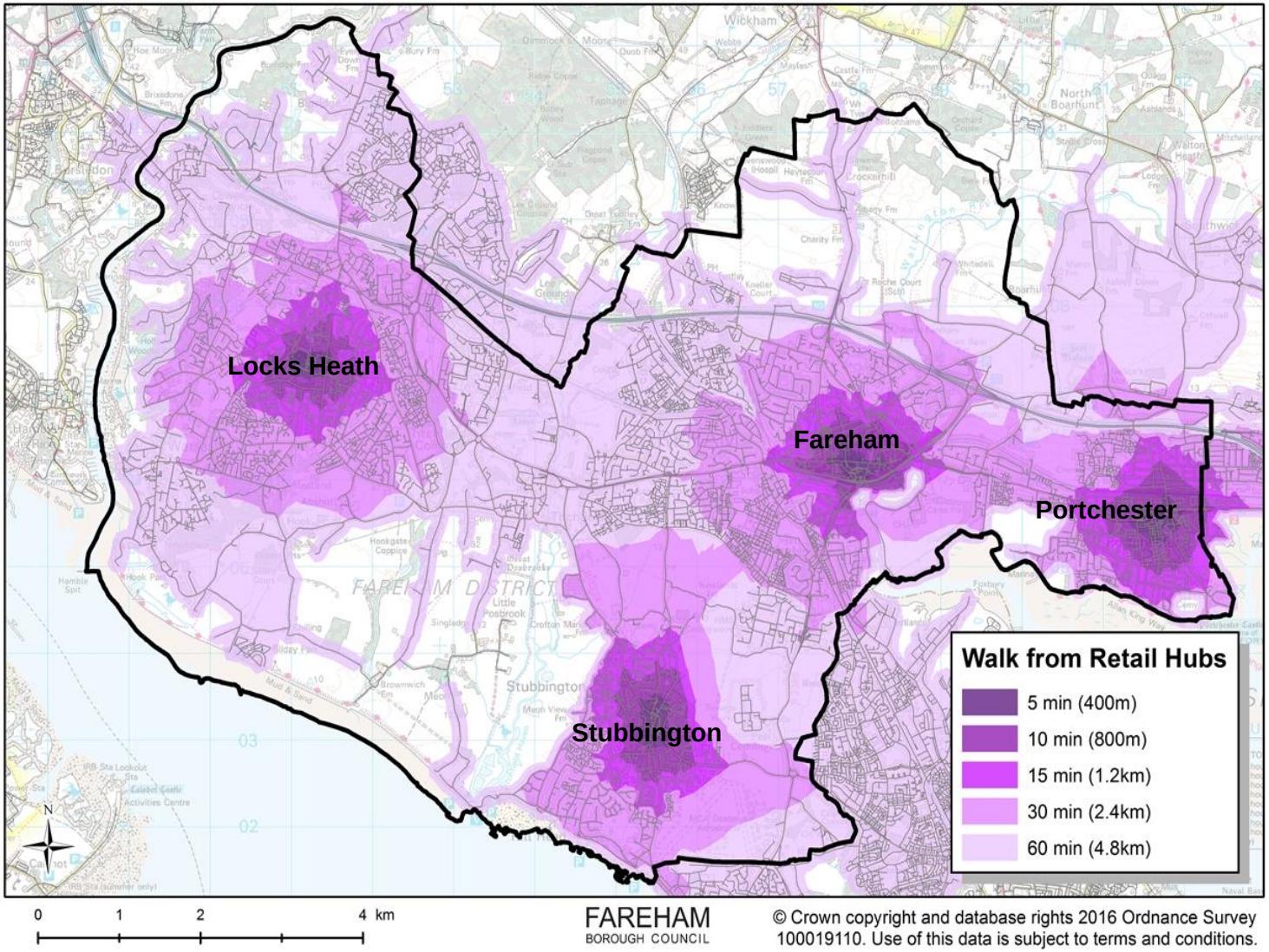
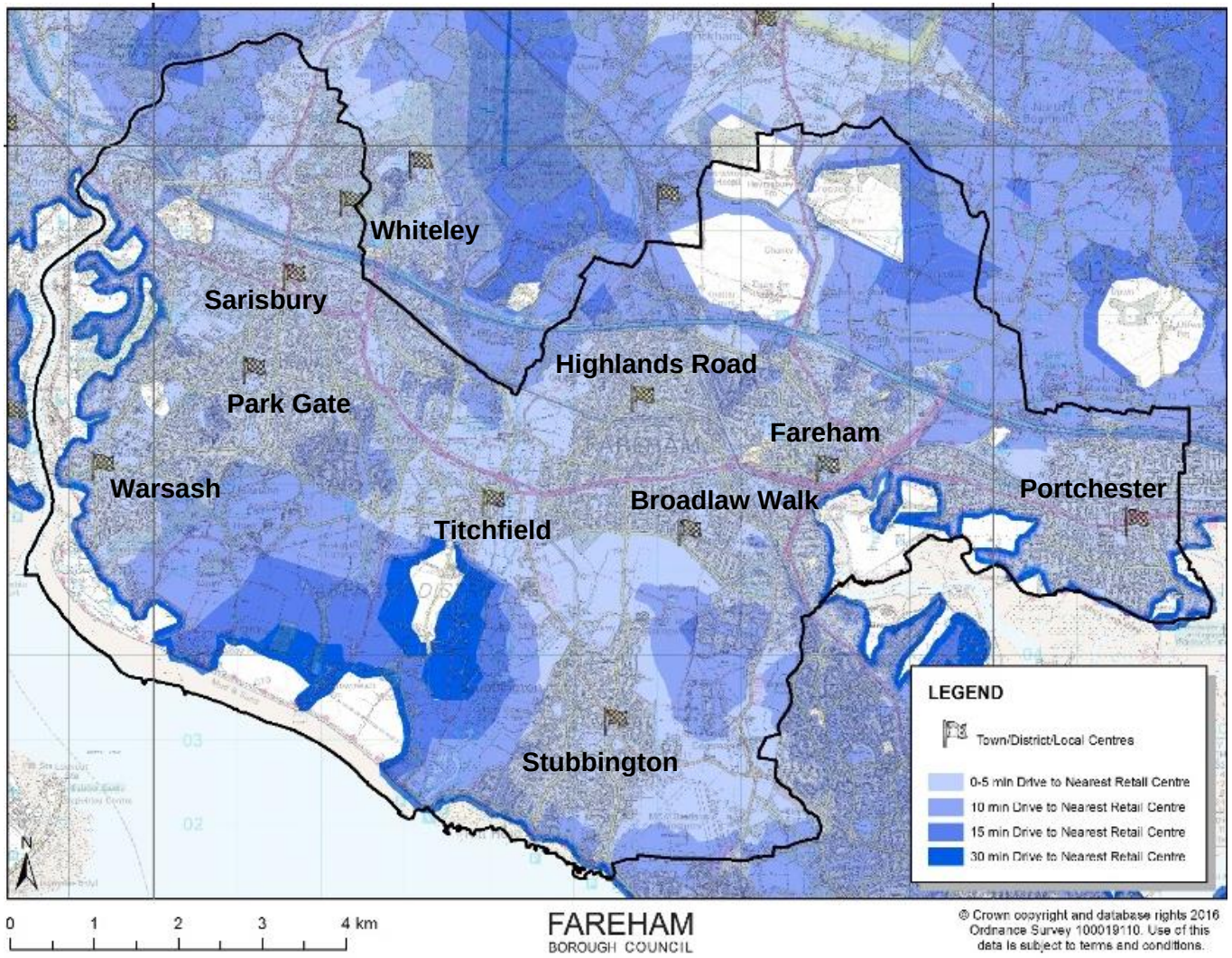


Figure 3-9 - Drive times to Town, District, and Local Centres



Public Transport

Rail Services

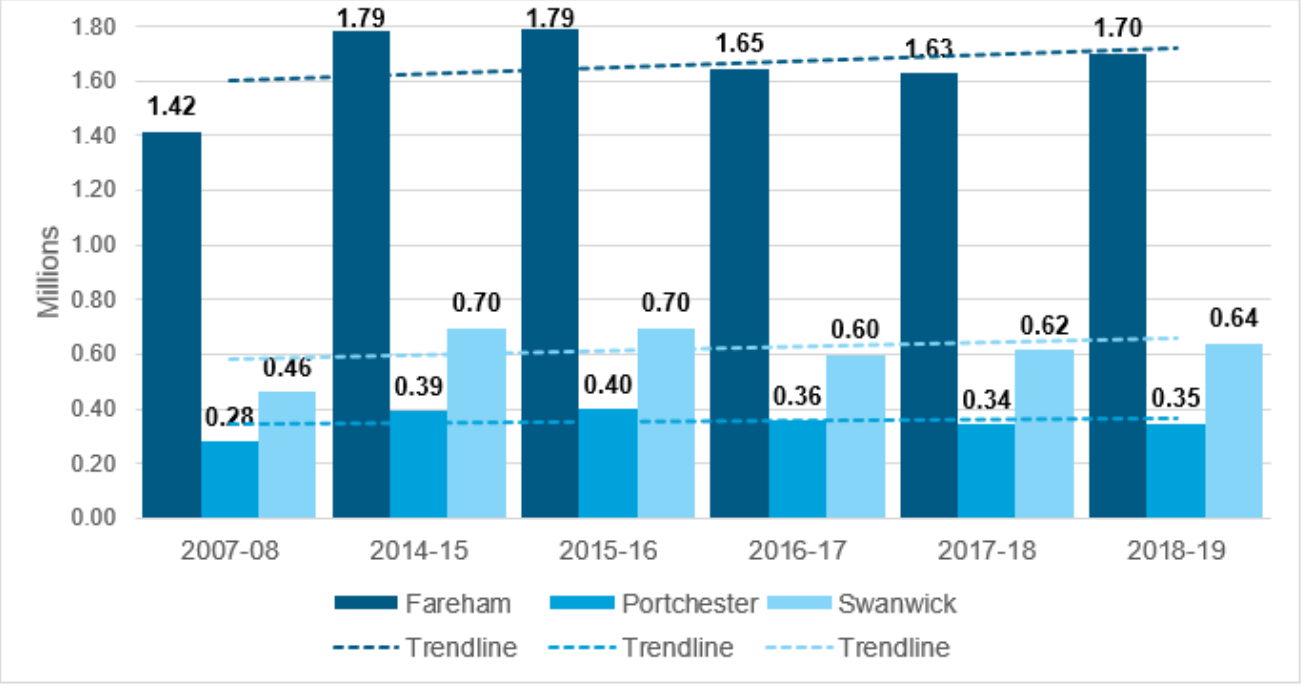
3.23. Fareham Borough is served by three rail stations; Fareham Station in the centre, Portchester Station in the east and Swanwick Station to the west. All three stations are currently operated by South Western Railways.

3.24. Fareham station serves as an interchange between the Southampton, Portsmouth, Brighton, and London lines, allowing onward connections to a wide range of destinations and longer distance commuting.

3.25. The railway station at Swanwick provides access to the residential areas at Whiteley, Park Gate, the Warsash peninsular, and the major employment areas at Segensworth and Whiteley and connecting bus and cycleway facilities. The railway station at Portchester provides access to the residential areas around Portchester and Paulsgrove and opportunities for interchange with bus services and many of the east west rail services that also stop at Fareham.

3.26. Rail use within the borough has increased over the last decade. From 2007 to 2019 there was an increase of 0.53 million passengers entering and exiting the three stations, as shown in Figure 3-10.

Figure 3-10 - Total number of entries/exits at Fareham, Portchester and Swanwick Stations



Bus Services

3.27. The Borough has a comprehensive bus network, with services in Fareham providing connections to and from the Town Centre, local centres, and other major destinations including Fareham Railway Station and Gosport Ferry Terminal. Fareham Bus Station is located within the town centre and caters for most bus services including the BRT and National Express.

3.28. First Bus operate most of the services in Fareham, Portsmouth, and Gosport, but Stagecoach also operate a service to Winchester.

3.29. National Express operate various daily coach services to London, Poole, Southampton Winchester, and Portsmouth as well as Heathrow and Gatwick airports. Alongside scheduled bus services there are several privately contracted services operated by business organisations, educational establishments, and other institutions in the Borough that have been procured to provide a public transport alternative for site access. Due to the dedicated nature of these routes, their potential integration with scheduled bus routes is not considered. Contractual arrangements have meant that only in selected cases has there been agreement to make these private services available to fare paying passengers.

South East Hampshire Rapid Transit (SEHRT)

3.30. BRT is a broad term given to a variety of bus-based transportation systems that, through improvements to infrastructure, vehicles, and scheduling use buses to provide a service that is a higher quality than an ordinary bus service. SEHRT relates to the aspirations for BRT within South East Hampshire.

3.31. The first phase of the Eclipse Busway follows a 4.5km stretch of disused railway between Redlands Lane in Fareham and Tichborne Way in Gosport. The BRT utilises both highways and a traffic-free busway along the former rail line. It provides services up to every six minutes. The scheme has been judged a great success since completion in 2012 and funding was sought for an extension.

3.32. Hampshire County Council successfully bid for funding from the National Productivity Investment Fund (NPIF) to complete the Eclipse Busway in Summer 2017 and a further £1.4 million of additional funding for the alternative southern junction that retains Rowner Road bridge, was secured in partnership with Portsmouth City Council from the DfT's TCF in March 2019.

3.33. The 1km southern extension will follow the disused railway corridor between Tichborne Way/Hutfield Link and Rowner Road in Gosport.

3.34. In addition, the TCF bid includes a number of highway interventions associated with the delivery of the South East Hampshire Rapid Transit which are referenced in Paragraph 2.51.

Water Services

Gosport Ferry

3.35. Fareham and Gosport are linked by a network of bus routes as previously mentioned, most of which run between Fareham Bus Station and Gosport Bus/Ferry Interchange in Gosport Town Centre. The Gosport Ferry provides an important pedestrian, bus, and cycle link to and from The Hard Interchange, Portsmouth for commuting. The ferry services are well used by Fareham and Gosport residents for travelling to Portsmouth as it is only a four-minute journey and operates every 15 minutes. Census 2011 data is likely to underestimate the use of the ferry as it is based on main mode.

Hamble Ferry

3.36. Warsash and Hamble are linked by the Hamble Ferry. This is a small, on-demand service which runs during the day.

Airports

Solent Airport at Daedalus

3.37. Solent airport is located on the Solent shoreline between the villages of Stubbington and Lee-on-the-Solent, Daedalus Airfield remains a functioning airfield. Its primary role is as a key employment site for aviation-based employment. In 2014, £1.5 million of runway improvements were carried out.

3.38. FBC's vision for Daedalus as a whole is for it to create many skilled employment opportunities for local people.

3.39. The airport is accessible via Newgate Lane by car a journey of 15 minutes, bus 35 minutes or by cycle a journey of 25 minutes. It is likely that most commuting trips to the airport are by road as there is no station. Therefore, it is vital to encourage sustainable methods of transport to reduce reliance on commuting by private car.

Southampton Airport

3.40. Southampton Airport is located 21km north west of Fareham and an important factor in the consideration of journey planning in Fareham. It provides short haul; national and international flights to over 30 destinations. It is a major trip attractor in Hampshire, with some 1.9 million passengers per year. The Southampton Airport Master Plan 2037 indicates passenger forecasts at 5 million per year by 2037[28]. Southampton International Airport Ltd submitted a planning application in 2019, which if approved, would see construction of 164-metre runway and associated works in line with their masterplan. An expansion to the airport will create employment opportunities and encourage commuting to/from Fareham.

3.41. The airport is accessible by road via the M27 a journey of 25 minutes or by rail via Southampton Airport Parkway with a change at Eastleigh Station a journey of 45-60 minutes.

Road Network

3.42. The Borough of Fareham has significant connections to both the National Strategic Route Network (under the control of Highways England), and routes of sub-regional importance. These routes include:

- The M27 connects Portsmouth to Southampton, transecting the Borough. It offers connections to the A27 and Fareham at Junctions 9, 10, and 11. The M27 in the Fareham region caters to approximately 120,500 vehicles per day in 2018[29];
- The M27 Junction 10 currently has restricted access, only allowing partial movements for traffic westbound off and eastbound on. The proposed improvements for M27 Junction 10 include the provision of a new underpass underneath the M27 west of the existing junction; the provision of two new slip west facing roads and a replacement for the existing west-bound off-slip to create an all moves junction. It is essential that Junction 10 is upgraded to cater for the predicted new traffic movements which will be generated by Welborne Garden Village. Welborne is located to the north of Fareham and adjacent to the A32 and around the existing M27 Junction 10;
- The A27 connects Fareham to Portsmouth and Chichester to the east, and to Southampton and Eastleigh in the west. It provides direct access to the M27 at Junction 9 and 11. It is also subject to significant infrastructure works to improve traffic flows;
- The A32 Gosport Road links Fareham to Wickham in the north and Gosport in the south;
- The B3334 Gosport Road/Titchfield Road is not a strategic route however it connects Gosport and Stubbington to the Titchfield Gyratory, providing access to the M27; Anecdotally, the route is heavily used by commuters at peak times as an alternative to Newgate Lane;
- The Stubbington Bypass scheme will connect the B3334 Gosport Road and the B3334 Titchfield Road, avoiding the need to route through the centre of Stubbington Village. As part of the plan some schemes have already been delivered including at the Newgate Lane corridor, the Peel Common roundabout, sections of the A27 between Segensworth to Titchfield and at The Avenue/Station Roundabout/Western Way. Delivery of the Bypass itself has now commenced;

[28] https://www.southamptonairport.com/media/fwnh31wg/sou-a-vision-for-sustainable-growth.pdf

[29] https://data.gov.uk/dataset/208c0e7b-353f-4e2d-8b7a-1a7118467acc/gb-road-traffic-counts

- The B3385 Newgate Lane is one of three principle routes giving access to and from the Gosport peninsula and the Solent Enterprise Zone at Solent Airport. The route has undergone significant improvements to ease congestion and improve journey time reliability; and

- Peel Common Roundabout links Newgate Lane with B3334 Rowner Road and has recently become signalised to improve congestion and facilities for people walking and cycling.

3.43. A number of other schemes are coming forward and have been included in the 2036 Baseline, see Appendix A for scheme

4. Transport Related Issues

Current Congestion

4.1. Locations within Fareham Borough where existing traffic demand for the 2015 Base year is causing significant congestion include the following roads:

- M27 Junctions 9 and 11 off slips joining the A27;
- M27 between Junction 8 and 9;
- A27 Portchester Road, westbound at Delme Roundabout;
- A27 Eastern Way between M27 Junction 11 and Quay Street Roundabout;
- A27 between Fareham and Segensworth on single lane carriageway areas and at roundabout junctions;
- A27 Segensworth areas;
- A32 Gosport Road; and
- B3334 Titchfield Road.

4.2. Minor roads nearing capacity in either the AM or PM peaks include; Castle Street, Yew Tree Drive, Botley Road, Southampton Road, Bridge Road, Warsash Road, Lower Church Road, Cartwright Drive, Barnes Wallis Road, Gosport Road, Whiteley Way, The Avenue, and Newgate Lane.

4.3. It should be noted that this STA considers, but does not necessarily seek to mitigate, background growth in traffic. Growth in background traffic can be from changes in car ownership, income, and fuel prices. This STA, in line with NPPF and DfT guidance, seeks to mitigate against the impacts from Local Plan growth only, for example resulting increased congestion and delay at specific junctions as a direct result of new development.

4.4. Transport schemes to alleviate traffic congestion and to mitigate the effect of new developments will undoubtedly impact on the above locations. Investment from Highways England will alleviate congestion on the Strategic Road Network during the peaks. The full list of committed schemes included in the baseline modelling is included in Appendix A.

Road Safety

4.5. Hampshire County Council continuously monitor Fareham Borough's road network for safety though collecting Personal Injury Collisions (PIC) data, with engagement from Fareham Borough Council. Collisions are classified by location and severity to inform the Council of locations that may require works to improve road safety.

4.6. The intervention level for casualty reduction schemes is set at four or more injury collisions over a five-year period. This is reduced when there are collisions with a similar pattern, or where serious injuries are involved. In these cases, the intervention level is set at three or more injury collisions over a five-year period.

4.7.

4.8. Table 4-1 below details the locations of some roads some site-specific casualty reduction schemes, many of which have been completed. Generally, this shows the locations where personal injury collisions are happening.

Table 4-1- Casualty Reduction Schemes in Fareham Borough

Year	Ref.	Location
2020/21	1	C369 Barnes Lane junction with Barnes Close Sarisbury
	2	A27 Bridge Road/Coldeast Way/Ironbridge Cres ATS Fareham
2019/20	3	Locks Road junction with Church Road Roundabout Locks Heath
	4	C361 Longfield Ave/Bishopsfield Road Fareham
	5	B3385 Broom Way junction with Brune Lane, Fareham
	6	C366 West Street (Grove Road to Kings Road)
	7	C361 Longfield Avenue - From Fort Fareham Road to 60 metres northwest of Cheviot Walk
2018/19	8	A27 Bridge Road/Coldeast Way/Ironbridge Cres ATS Fareham
	9	B3385 Broom Way junction with Brune Lane, Fareham
	10	A27, Park Gate (Brook Lane Roundabout to B3051 Botley Road Roundabout)
	11	Brook Lane, Park Gate
	12	B3385 Newgate Lane junction with Palmerston Drive, Fareham
2017/18	13	Peak Lane junction with Longmynd Drive, Fareham
2016/17	14	A27/Dore Ave/Cornaway Lane Roundabout, Portchester
	15	Longfield Avenue junction with Bishopsfield Road, Fareham
	16	High Street/Osborne Road/Wallington Hill, Fareham.
	17	A27 Delme Roundabout South West exit to Pedestrian crossing
2015/16	18	A27 Bridge Road/Brook Lane Roundabout Park Gate
	19	B3334 Titchfield Road/Cuckoo Lane Stubbington

4.9. The Safer Roads Fund was established to treat the 50 highest risk local A-road sections in England with remedial road safety engineering interventions. As a result, £100 million has been committed by the Department for Transport across 48 schemes. Two of these highest risk locations are routes in Fareham:

- A27 Delme Roundabout to Boundary with Portsmouth; and
- A32 from M27 Junction 10 to Gosport boundary.

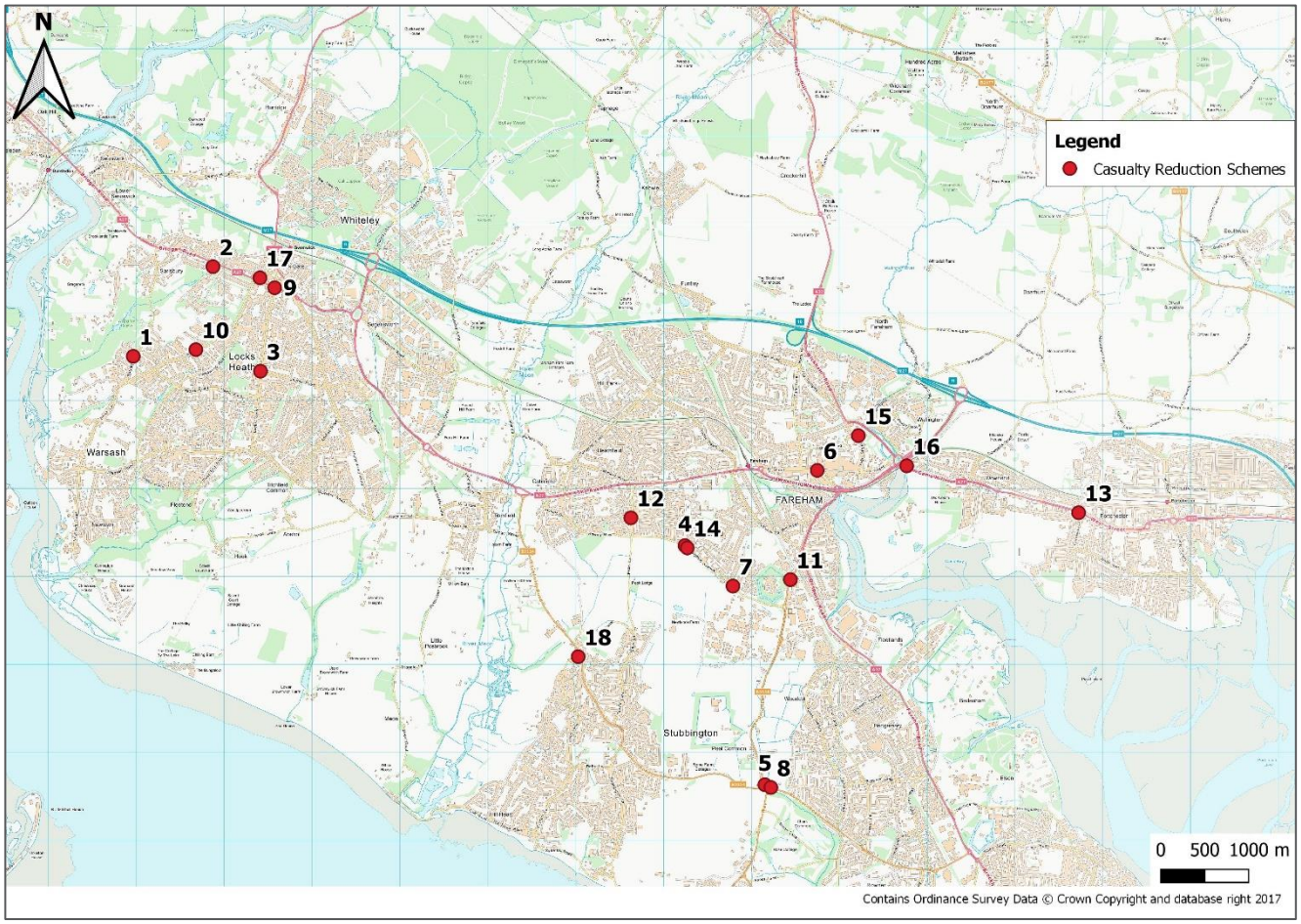
4.10. The A27 scheme forms the basis of the 'Enhanced Multi-Modal Corridor - Delme to Downend Bus and Cycle scheme' which is subject to a TCF bid.

4.11. Along the A27 Delme Roundabout to Portsmouth route, nearly half (47%) of all collisions involved pedal cyclists which is the highest road safety risk category. These collisions were concentrated at the four roundabouts along the route. Generally, collisions involving motorcyclists and car occupants are spread out along the route with each representing approximately a quarter of all casualties.

4.12. These locations of completed and planned schemes from

4.13. Table 4-1 are shown by reference number in Figure 4-1.

Figure 4-1 - Casualty Reduction Schemes in Fareham Borough



Air Quality Management

4.14. The Environment Act 1995 gives FBC statutory duties to manage local air quality. This includes carrying out regular reviews and assessments such as monitoring on busy roads and junctions for emissions of nitrogen dioxide and particulates from vehicle exhausts. Where pollution levels exceed Fareham's air quality strategy objective levels, they designate Air Quality Management Areas (AQMAs) to tackle it. Their latest annual Air Quality Annual Status Report[30] was submitted and approved by DEFRA in 2019.

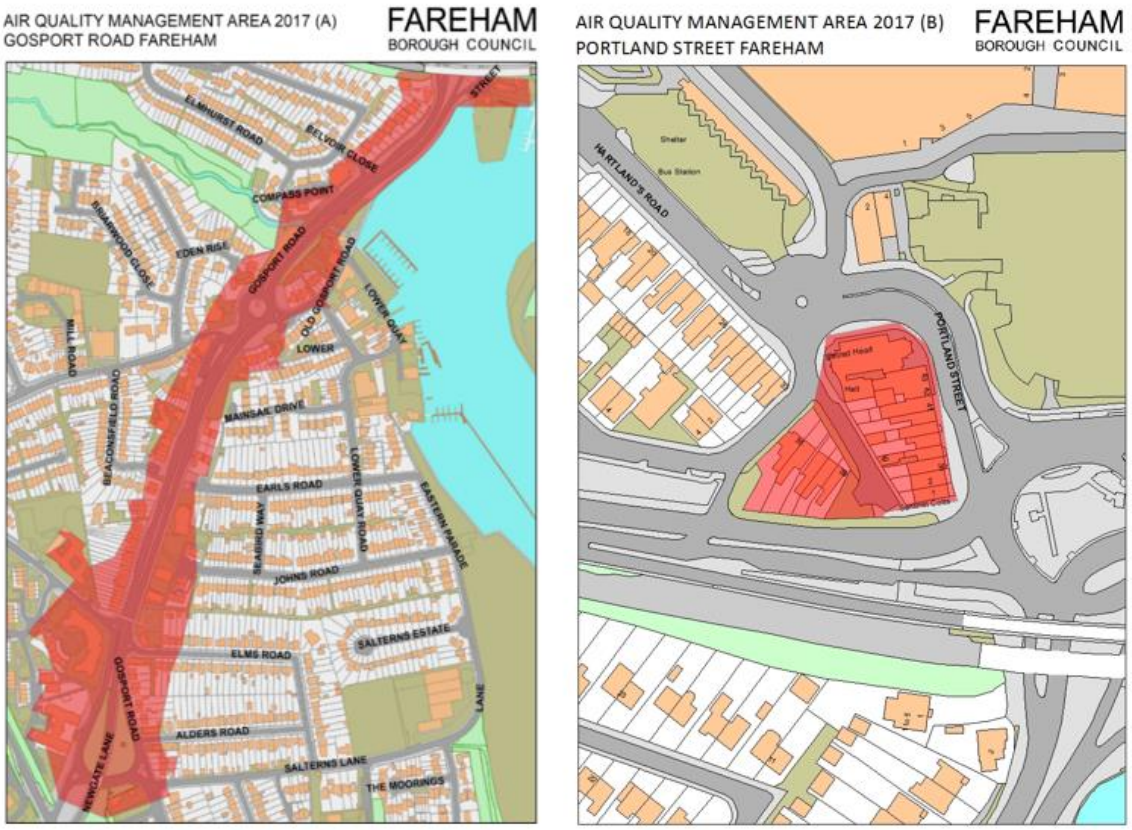
4.15. FBC has more than 40 nitrogen dioxide monitoring sites throughout the Borough. Sites include building facades and kerbsides, reflecting the locations where people may be exposed to the maximum concentration of nitrogen dioxide.

4.16. The Borough also currently has two Air Quality Management Areas (AQMAs).The first was declared in 2006 for part of the Gosport Road and the second was declared in 2007 for Portland Street, as shown in Figure 4-2. Air quality testing was undertaken and led to an Air Quality Action Plan (AQAP) being developed to improve air quality in the affected areas[31]. Both AQMAs have been extended over time since their initial designation.

[30] https://www.fareham.gov.uk/PDF/licencing_and_inspections/AirQualityReport2019.pdf

[31] http://www.fareham.gov.uk/PDF/licencing_and_inspections/aqap-gosportrd-portlandst.pdf

Figure 4-2 - Gosport Road and Portland Street AQMAs



4.17. In response to a directive from Government to reduce an air quality exceedance in Fareham (close to Quay Street Roundabout) to within the acceptable limit "in the shortest possible time", an Local Cycling and Walking Infrastructure Plan (LCWIP)[32] was developed relating to the specific geographic scope for the air quality management area.

4.18. In addition, the AQAP outlined numerous improvement actions

- Implementing the Eclipse BRT system between Fareham and Gosport;
- Improving emission standards of FBC's Council vehicle fleet;
- Seeking to reduce emissions from the local bus fleet. All 17 buses on the Fareham to Gosport BRT route are fitted with the latest Euro VI engines, producing 95% less nitrogen emissions compared to buses with Euro V engines;
- Pursuing emission testing in the AQMAs;
- Providing "turn off your engine" signs at the bus station/taxi ranks;
- Erecting signs on Gosport Road, Fareham to let vehicle drivers know about areas of poor air quality and encouraging them to share cars etc.;
- Providing bus/rail interchange facility at Fareham rail station;
- Improving the Quay Street roundabout in conjunction with the Tesco retail development of the old foundry site;

[32] This "air quality" LCWIP proceeds the Fareham LCWIP currently under development.

- Providing real time bus information at bus stops; and
- Promoting walking by introducing Walking for Health[33], a scheme which features a series of walks around the Borough which are suitable for all and are graded for different abilities.

4.19. In 2017 the UK government published a national plan for tackling roadside nitrogen dioxide concentrations. The plan identified 28 local authorities including Fareham as having predicted exceedances of the statutory annual mean EU limit value for nitrogen dioxide (NO_2) within their areas. These authorities were required to take urgent action and were directed by the Secretary for State to undertake local modelling and develop costed plans to bring NO_2 concentrations to within legal limits 'in the shortest possible time'. Following approval of the joint plan by FBC and HCC, approximately £1.4 million of funding was granted to deliver four sustainable measures aimed at achieving compliance at one specific location adjacent to the A27 at the Bath Lane underpass in the shortest possible time.

4.20. Modelling indicated that without further action, this location in Fareham would be likely to exceed EU nitrogen dioxide levels by 0.55ug/m3 above the 40ug/m3 limit during 2020, but with the funded package of measures in place, that location had a modelled annual average of 39.99ug/m3 in 2020, so within legal limits.

4.21. The four measures were:

- To provide better infrastructure and enable residents to walk and cycle;
- Provide real time information (RTI) on bus stops to encourage greater use of buses;
- Make improvements to traffic signals on Market Quay; and
- Introduce a scheme to encourage Fareham taxi drivers to upgrade from older diesel vehicles to newer cleaner ones. The revised taxi scheme was delivered by Fareham Borough Council and the other three measures co-ordinated and delivered by Hampshire County Council as the Highway Authority.

4.22. In June 2019 Fareham and Gosport Environmental Health Partnership issued the Annual Status Report 2019[34], which concluded that most sites in 2018 showed a decline in annual mean NO_2 concentrations. DEFRA feedback on the previous year's Annual Status Report (2018) noted that FBC may wish to consider revoking both AQMAs, due to consecutive years of results being below the annual air quality objective for NO_2. This situation will be monitored over the next few years, following implementation of the measures within the Local NO_2 Plan.

4.23. The impacts of Local Plan traffic on air quality are measured through the Strategic Environmental Assessment and Habitats Regulations Assessment which are part of the Local Plan Evidence Base documents.

[33] https://www.walkingforhealth.org.uk/walkfinder/fareham-walking-4-health
[34] https://www.fareham.gov.uk/PDF/licencing_and_inspections/AirQualityReport2019.pdf

5. Sustainable Transport Infrastructure Assessment

Introduction

5.1. The SRTM includes a proportion of trips by active modes and public transport trips and allows for a modal shift away from private car in line with current national policy.

5.2. Alterations to mode choice as a result of congestion have been accounted for in the SRTM by applying a reduction to the number of trips representing a 2% modal shift. This represents drivers changing from car/van travel to more sustainable actives modes of transport.

5.3. Sustainable transport measures will form the main part of any mitigation required to provide additional mobility capacity within the system. Although the demand forecasts are unconstrained it is likely that in practice, other factors (new schemes outside the scope of the Local Plan mitigation) could affect the overall demand for and routing of travel on the network. It is recognised that providing additional highway capacity is only likely to provide a short-term benefit, that may be eroded as suppressed traffic demand is unlocked. Therefore, investment in providing alternatives is important. In addition, the SRTM has not accounted for the impact that changes in mode choice, distribution and/or increased costs of travel may have on overall traffic demand.

5.4. This section considers potential sustainable transport measures that could be implemented within the local area to assist in reducing the traffic impact of the Local Plan. Whilst encouraging modal shift and healthier choices because of reduction in car usage, some measures should also be considered as alternatives or supporting physical improvements to highway mitigation. A qualitative desktop study has been undertaken to identify where possible any measures that could be developed regarding bus routes and improvements to cycling and pedestrian accesses.

5.5. Census travel to work data for Fareham indicates that currently 75% of travel to work trips are by car drivers, of which around 30% of these car commute trips made by residents of Fareham, take place within the Fareham area. These trips are likely to be well under two kilometres walk or five kilometres cycle distance, which demonstrates that there is potential for removing quite a few short distance trips from the network, through promotion of sustainable travel.

5.6. It should also be noted that car use for travel to work by Fareham residents within Fareham, is relatively high when compared to the Hampshire boroughs and districts. The figures for Test Valley are the highest at 82%, Fareham, East Hampshire, and Eastleigh all at 64%, Rushmoor at 55%, Winchester at 54% and Gosport at 51%. This higher car use leaves a greater potential for modal shift to more sustainable modes. The lower car use is mainly a reflection of higher walking, cycling, ferry, and rail use, which is discussed later in this section.

Propensity to Cycle Tool

5.7. The Propensity to Cycle Tool (PCT) developed with support from the DfT enables evidence -based planning for cycling. It can be used to explore cycling potential at difference geographical scales – from county to potential route corridor.

5.8. The PCT is currently being used by most local authorities in the production of LCWIPs. It is used to test different scenarios and to help identify changes in demand between origins and destinations where improvements to cycling infrastructure are needed and to help identify which improvements would provide the best outcomes.

5.9. One of the scenarios available to test is called the ‘Government Target’, which is described as: a doubling of cycling nationally, corresponding to the proposed target in the DfT draft Cycling Delivery Plan to double cycling in England between 2013 to 2025. The result is that cycling overall doubles at the national level, but at the local level this growth is not uniform, in absolute or relative terms. Areas with many short, flat trips and a below-average current rate of cycling are projected to more than

double. Conversely, areas with above-average levels of cycling and many long-distance hilly commuter routes will experience less than a doubling"[35].

5.10. Table 5-1 shows the comparison between the Government Target and the 2011 Census data using the PCT tool for middle super output areas in Fareham.

Table 5-1 - Propensity to Cycle Tool Output applied to Fareham Middle Super Output Areas (MSOAs)

MSOA	Total commuters 2011 baseline	Cycle commuters 2011 baseline	Cycle commuters % of total commuters 2011	Cyclists (Gov target scenario) no.	Cyclists (Gov target scenario) %	Change in cycle commuters	Change in drivers
001	4205	127	3	227	5	100	-78
002	4178	133	3	261	6	128	-95
003	3436	132	4	235	7	103	-70
004	3793	133	4	237	6	104	-77
005	3791	119	3	229	6	110	-88
006	3694	127	3	230	6	103	-81
007	3481	126	4	238	7	112	-86
008	4783	208	4	374	8	166	-104
009	3380	154	5	268	8	114	-87
010	3700	130	4	261	7	131	-98
011	3430	168	5	300	9	132	-78
012	3320	133	4	258	8	125	-89

5.11. The results show that almost all the MSOAs have the potential to meet or exceed the Government target to double cycling activity in this scenario. It also highlights the potential to achieve modal share of up to 9%. These can be seen in Figure 5-1 and Figure 5-2.

[35] https://www.pct.bike/

Figure 5-1 - PCT MSOA 2011 Census

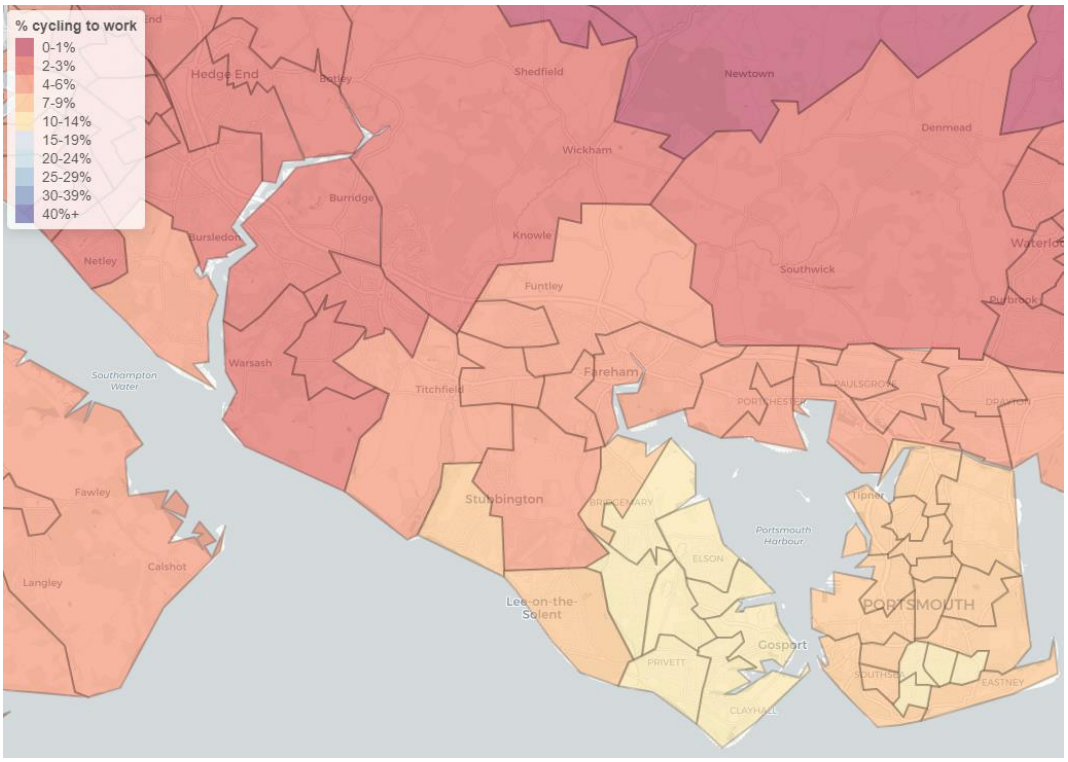
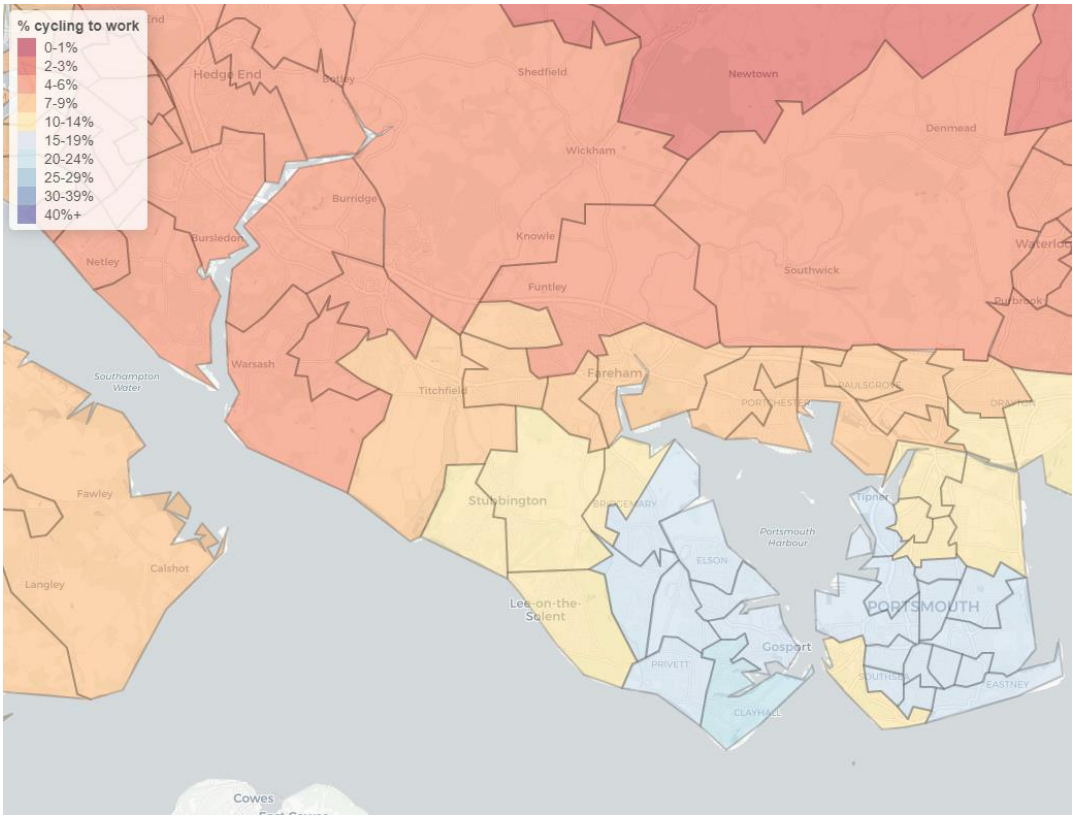


Figure 5-2 - PCT Government Target for MSOA areas



5.12. One weakness of the PCT cycle commute model is that it is based on existing trips by bike and will tend to emphasis those routes that are already being used. The target market for new cycle trips is people currently driving short distances to work.

5.13. The LCWIP will undertake a more in-depth assessment of both walking and cycling in the Borough and identify a prioritised list of schemes aimed at increasing use of these modes. Developers will be asked to consider these schemes through their own site-specific transport assessments.

Local Cycling and Walking Infrastructure Plan

5.14. A Local Cycling and Walking Infrastructure Plan (LCWIP) to cover the entirety of Fareham Borough is currently under preparation by HCC. The routes including some of the junctions they route through are listed in Figure 5-3.

5.15. Table 5-2 and included below in Figure 5-3.

Table 5-2 - Propensity to Cycle Tool Output applied to Fareham Middle Super Output Areas (MSOAs)

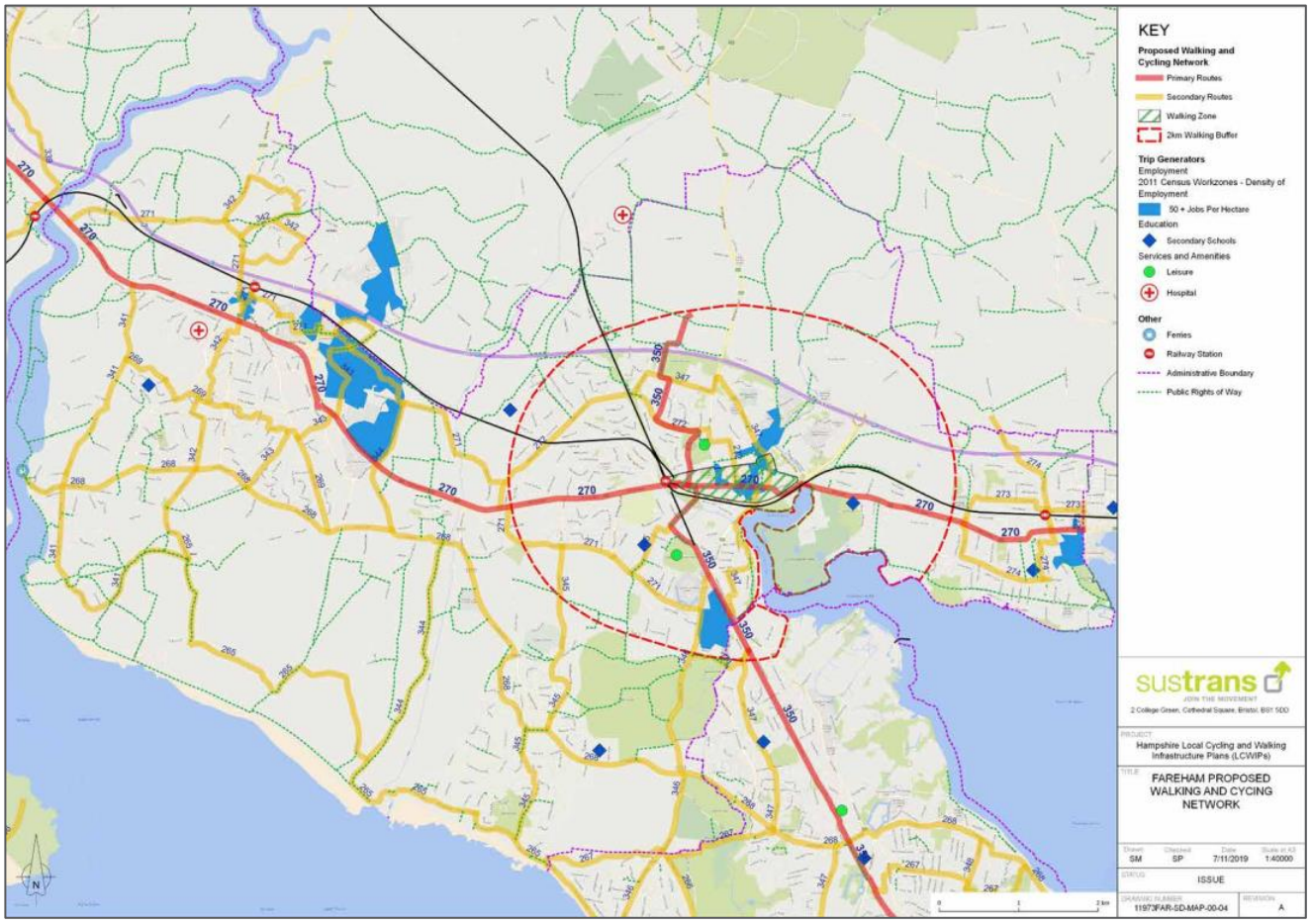
Route Number	Route Name
Route 270	River Hamble – Portchester
Route 265	Warsash - Gosport
Route 268	Warsash – Peel Common
Route 269	Titchfield – Sarisbury
Route 271	Bridgemary – Lower Swanwick
Route 272	Fareham Shopping Centre – Catisfield
Route 273	North of A27 through Portchester
Route 274	Cornaway Roundabout – Portsdown Hill
Route 350	Welborne – Gosport
Route 341	Sarisbury – Hook
Route 342	Swanwick – Fleet End
Route 343	Segensworth –Titchfield Common
Route 344	Segensworth – Titchfield Haven
Route 345	Fareham – Stubbington
Route 346	Fort Fareham – Pier Street
Route 347	Fareham Common –Rowner

5.16. The scheme costs were estimated for the above routes. Most of them were estimated as low (up to £30,000) or medium (£30,000 to £150,000). Route 270 is likely to be the most expensive to deliver due to its length and the constraints of delivery along the A27.

5.17. These are very broad values and not intended as a precise guide to final costs. More work is needed to provide detailed cost estimates, which is beyond the scope of both the LCWIP and this STA. These costs would be further assessed through future design stages. Many of the proposed schemes interact with the aspirations for the SEHRT and as such, could continue to be developed together.

5.18. It is intended that LCWIPs will be used to inform developers of the level of ambition for the walking and cycling network, so that they may make a financial contribution towards the works. This is reflected in Local Plan policy TIN1 and TIN4.

Figure 5-3 - LCWIP Fareham proposed walking and cycling network



South East Hampshire Bus Rapid Transit

5.19. There is strong support for a Bus Rapid Transit proposition in the strategic positions of Solent Transport, Solent Local Enterprise Partnership, Partnership for Urban South Hampshire, the four key planning authorities and the bus operators. The SEHRT board are currently progressing an Outline Business Case for Rapid Transit in South East Hampshire to submit to the DfT's Transforming Cities Fund. The fund will enable the next phase of the South East Hampshire Rapid Transit network, over the four-year funding period. The network aims to better connect communities and five main travel to work areas including Fareham to Portsmouth. This work follows the successful delivery of the BRT corridor between Fareham and Gosport, supporting the high-quality Eclipse-branded service.

5.20. While the work supporting a BRT proposition is ongoing, it is not possible to quantify the expected level of impact and thus to model the potential impact on mode share in the Do Something scenario. However, it is expected that the BRT proposition would result in a significant modal shift towards bus use, which would help to reduce the reliance on the private car and thereby. This would alleviate the residual traffic impacts of the Local Plan. Developers will be asked to consider related schemes through their own site-specific transport assessments, and this is reflected in Local Plan Policy TIN1, TIN3 and TIN4.

Smarter Choices

5.21. It should be noted that the forecast trip generation for the local plan growth is based on typical trip rates and does not therefore take account of any reduction in traffic generation that may be achieved through the delivery of Travel Plan measures aimed at reducing sole occupancy car trips for these developments by promoting journeys by public transport, walking and cycling.

5.22. In order to reduce the number of single occupancy vehicle journeys, smarter choices measures could also be considered. The initiative is based around several simple concepts intended to encourage and incentivise the uptake of either sustainable transport where a journey is essential, or the utilisation of modern technology or working practices. The use of sustainable transport will only work where infrastructure is currently located or can be made available in order that informed choices can be made by individuals. For Fareham, the use of these initiatives could assist in reducing the number of single-occupancy vehicles on the network. 'Smarter Choices' is an established approach which includes a range of measures such as:

- Workplace and School Travel Plans;
- Personalised Travel Planning;
- Teleworking, teleconferencing, and home shopping;
- Travel Awareness campaigns;
- Public Transport Information and Marketing;
- Local Collection Points; and
- Car Clubs and car sharing schemes.

5.23. The DfT undertook research regarding Smarter Choices that indicated that at suitable sites (with a good range of viable alternatives to driving) and adequate promotion, a modal shift away from single occupancy car use of approximately 10% can be achieved[36].

5.24. Given 75% of resident's workers undertake single occupancy vehicle trips, as a broad estimate, implementation of smarter choices could look to reduce this by 10%. If implemented this could reduce the 68,844 households with one or more car/van available to 61,960 households.

5.25. Smarter Choices initiatives could potentially reduce the 2036 Scenario 2 Do Minimum highway trips from Fareham (Table 7-2) from 304,967 to a 274,470 reduction of approximately 30,497 vehicle trips (10%).

Travel Planning

5.26. Travel Plans are a requirement of the validation of certain planning applications where development has significant transport implications. HCC as the Local Education Authority also requires all schools to subscribe to Travel Plans.

5.27. HCC and FBC have worked together on several Travel Planning projects with various partners to try and achieve Smarter Choices initiatives. Travel Plans have had a notable impact on reducing single occupancy car trips at some locations in the Borough, such as the following:

- The Innovation Centre at Solent Airport implemented a travel plan through the national Local Sustainable Transport Fund (LSTF) "My Journey" project, allowing all businesses and operations on the site, whether airside or in the enterprise zone to access, promote and encourage sustainable transport.
- Fareham College actively promotes their Travel Plan which focuses on seven measures to reduce the dependency on cars across two sites, using various incentives to encourage modal shift. Fareham College offer bus services to the Bishopsfield Road and Centre of Excellence in Engineering, Manufacturing and Advanced Skills Training, (CEMAST) campuses from Whiteley, Locks Heath, Warsash, and surrounding areas. First Buses use a Hail and Ride principle at bus stops along the route, accounting for demand. In addition to current services, Fareham College and CEMAST students can travel on St. Vincent College's buses from September 2016. The use of the bus services is also incentivised by allowing

[36] https://www.gov.uk/government/publications/smarter-choices-main-report-about-changing-the-way-we-travel

seven days' unlimited bus travel on all First Bus services, during term time, with a student travel ticket.

5.28. Other significant employers in the Borough implementing Travel Plans, include:

- Fareham Borough Council;
- The Enterprise Zone at Daedalus, including a generic, site-wide Travel Plan and individual Travel Plans for larger employers such as the Innovation Centre; and
- Welborne will also be required to deliver a travel plan.

5.29. The spread of the COVID-19 virus has resulted in unprecedented measures restricting travel and activity participation. The effect of social distancing measures reduced travel demand and the use of public transport. As a result, many people worked from home, worked flexibly, or travelled to work by foot or cycle. This change in behaviour may encourage a long- term change in travel patterns, although it is not possible to predict to what degree

6. Modelling Methodology

Background to the Sub Regional Transport Model (SRTM)

6.1. This STA utilises an existing strategic transport model, the SRTM, for the area to assess the projected impact of traffic growth and additional travel demands associated with proposed development to the end of the plan period. The model is a multi-modal transport model and is compliant with DfT WebTAG guidance. A number of model runs have been undertaken to assess the projected impact of the Local Plan growth. The results, reflecting the position both with and without development for comparison purposes, are discussed in detail below.

6.2. The SRTM forms the basis of the assessment work for this STA. It is used to identify key transport impacts resulting from the scale and location of the proposals in the Fareham Borough Local Plan and to test potential measures to ensure any impacts could be mitigated.

6.3. Solent Transport originally commissioned the development of the SRTM to support a wide-ranging set of interventions across the Solent Transport area:

- Forecasting changes in travel demand, road traffic, public transport patronage and active mode use over time as a result of changing economic conditions, land-use policies and development, and transport improvement and interventions (schemes);
- Testing the impacts of land-use and transport policies and strategies within a relatively short model run time; and
- Testing the impacts of individual transport interventions at an increased level of detail necessary for preparing submissions for inclusion in funding programmes.

6.4. The modelled area of the SRTM is divided into four ‘regions’, which differ by zone size and modelling detail. Fareham Borough is within the Core Fully Modelled Area (the most detailed region of the model, see Figure 6-1. The SRTM zone structure representing the Borough is shown in Figure 6-2 with the zone boundaries developed in accordance with census output area and boundaries.

Figure 6-1 - SRTM Study Area showing Core Model Area

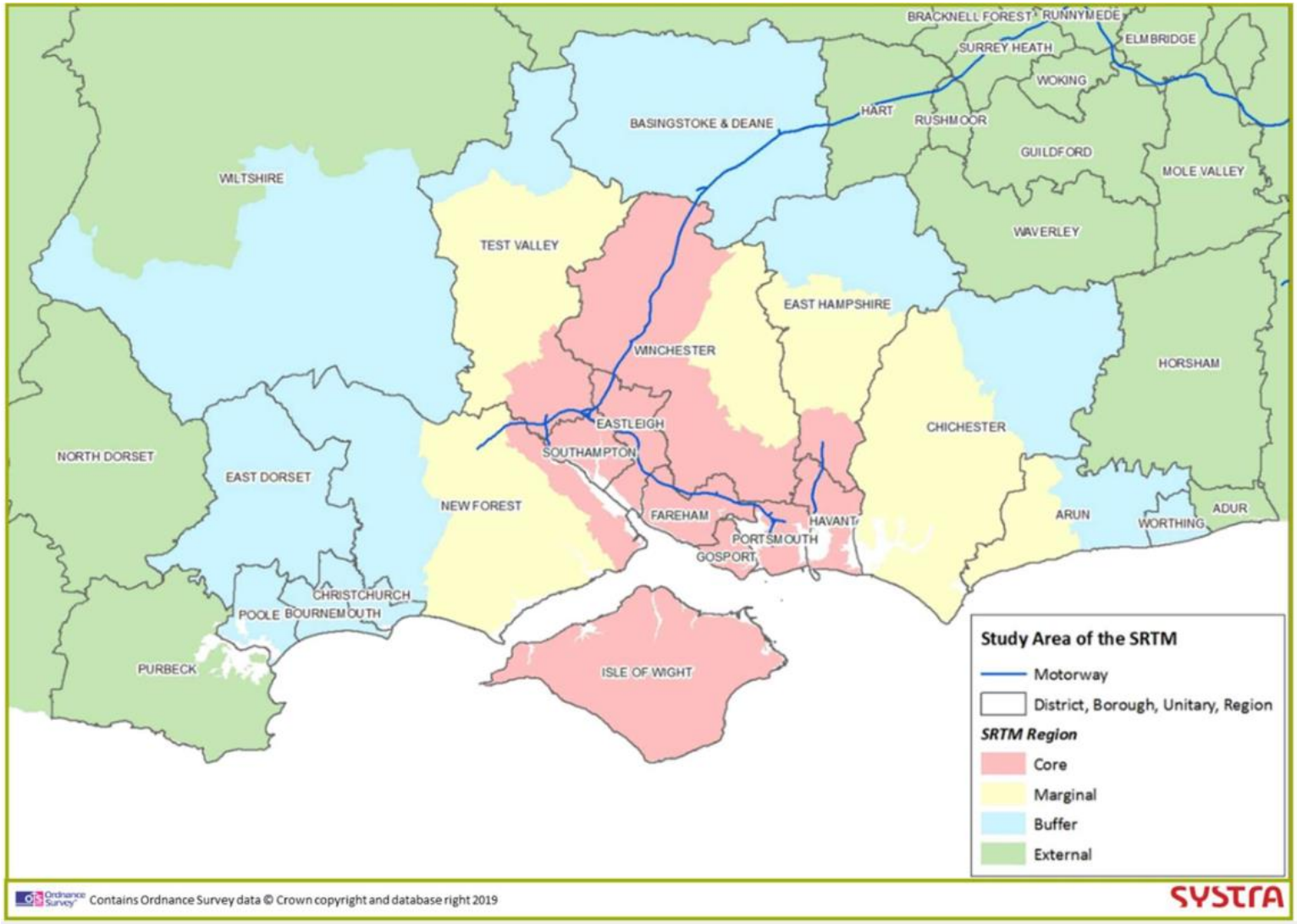
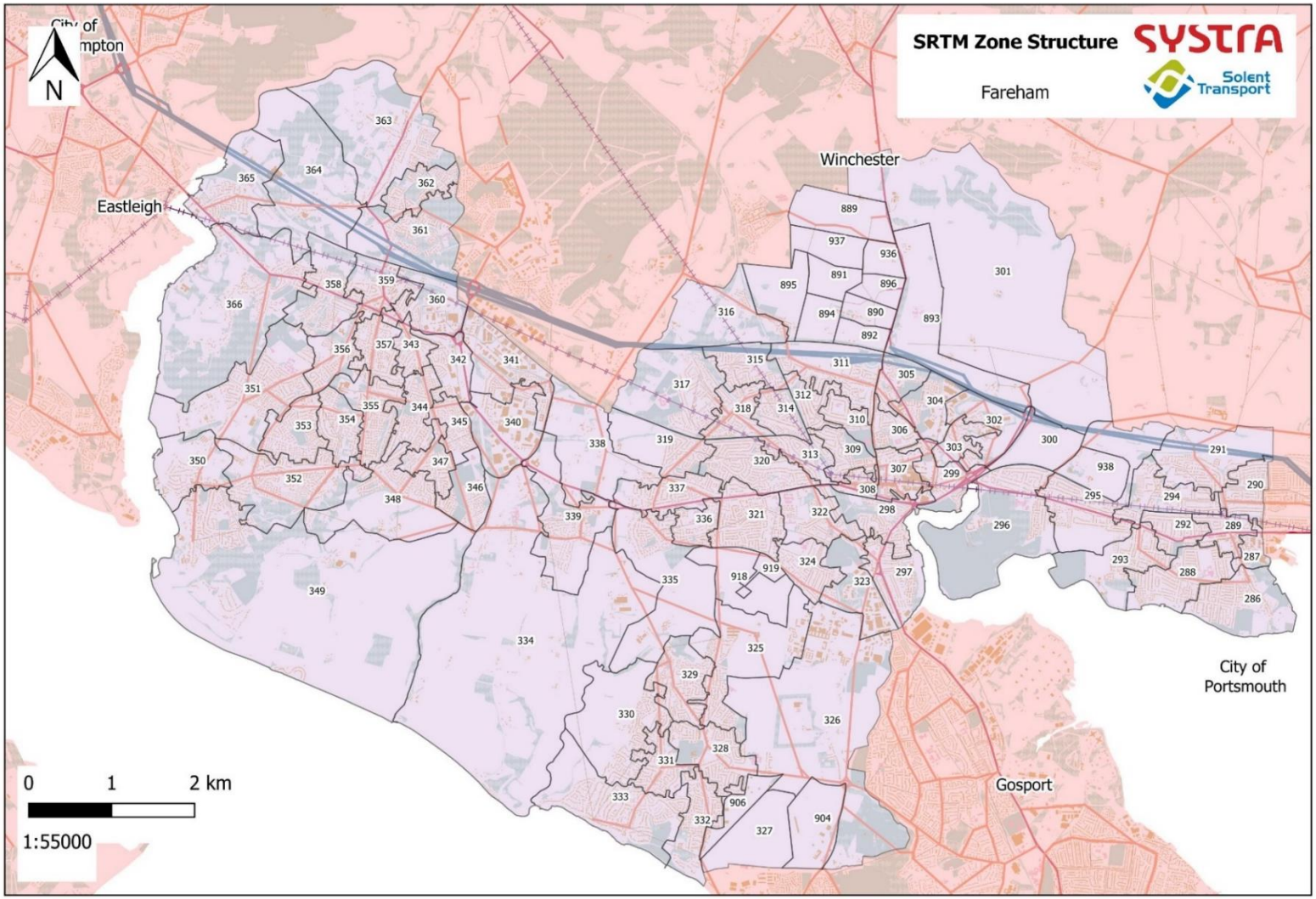


Figure 6-2 - SRTM Modelled Zones



6.5. A Modelling Report has been produced by Systra that presents the results of the SRTM model runs undertaken as part of this STA. It provides details of the scenario assumptions and model results, which are presented in summary in this STA.

Overview of SRTM Modelling

6.6. In accordance with guidance, three weekday periods are modelled in the SRTM, although it should be noted that this STA focusses on the AM and PM peaks.

- AM Peak: busiest hour between 07:00 and 10:00 (defined as 40.5% of the three hours for Highway and 40% for Public Transport);
- Inter peak: average of 10:00 to 16:00 (i.e. 16.7% of the six hours for both modes); and
- PM peak: busiest hour between 16:00 and 19:00, (defined as 36.8% of the three hours for Highway and 40% for Public Transport).

6.7. The SRTM has a base year of 2015, and forecast years of 2019, 2026, 2031, 2036 and 2041. For Fareham Local Plan assessment, scenarios were forecast to 2036 and scenarios have been developed as follows:

- Scenario 1 – 2036 Baseline, no Fareham Local Plan development except committed development and resolution to grant sites and their mitigation. Welborne network and M27 Junction 10 included. For clarity, the development at Welborne is committed and included in the Baseline. This equates to 4,260 (correct at time of modelling) residential units within the Plan period.
- Scenario 1a – 2036 Baseline, no Fareham Local Plan development except committed sites and resolution to grant sites and their mitigation. For clarity, the development at Welborne is capped at the level that can be delivered without the need for reconfiguration of M27 Junction 10 therefore no M27 10 scheme included. This equates to 1,160 residential units within the Plan period.
- Scenario 2 – 2036 Do-Minimum (Do Minimum), full Fareham Local Plan development without transport mitigation measures. The Do Minimum scenario builds on the Scenario 1 2036 Baseline, with the addition of the full quantum of proposed development associated to the Fareham Local Plan.
- Scenario 2a – 2036 Do Minimum, full Fareham Local Plan development without transport mitigation. The Do Minimum scenario builds on the Scenario 1a 2036 Baseline with the full quantum of local plan growth, growth at Welborne unchanged from the Baseline (1,160 residential units) and no M27 Junction 10 scheme.
- Scenario 3 – 2036 Do Something (Do Something) full Fareham Local Plan development with potential mitigation measures. This scenario has incorporated the highway mitigation measures developed as part Hampshire Services local modelling report and included in this STA.

Scenario 1: 2036 Baseline

6.8. The Baseline scenario includes residential (approximately 6,000 dwellings) and employment growth based on committed sites and resolution to grant sites within the Fareham Borough, and any committed highway infrastructure schemes up to a forecast year of 2036.

6.9. Outside Fareham for the neighbouring local authorities, in addition to committed sites “permissible” sites are included. These refer to those locations identified as suitable for future development but that have not yet been subject to planning approval (Resolution to Grant). The locations and maximum land use quantum of the permissible sites are based on the inputs collated up to April 2018 in accordance with adopted Local Plans at that time. The take up of permissible developments is determined by the LEIM module of SRTM and is based on the local conditions (the relative ‘attractiveness’ of the development, e.g. accessibility).

6.10. For clarity, the following larger strategic developments either with permission, resolution to grant or allocated as sites in Fareham Local Plan have been included within the Baseline and all Scenarios as follows:

- Welborne Garden Village is a committed site with resolution to grant outline planning permission, part of an Adopted Local Plan equates to a maximum of 4,260 residential units within the Plan period. Due to the inclusion of Welborne Garden Village in the Baseline scenario, the associated highway and public transport networks have also been represented in this scenario. This includes the addition of the west facing slips at M27 Junction 10, the reconfiguration of Broadway Roundabout (on the A32), and BRT services between Welborne and Fareham rail station.

- North Whiteley in Winchester District is included for 3,500 dwellings with the extension of Whiteley Way such that it links from Whiteley through to A3051 and the highway scheme for the M27 Junction 9.

- There are also a number of larger greenfield residential sites in Warsash, Titchfield Common, Portchester and Peel Common delivering approximately 2,150 dwellings:

- North and South of Greenaway Lane, Warsash which includes 800 dwellings with access on Brook Lane and Lockswood Road with Greenaway Lane only used to provide access for dwellings directly fronting onto Greenaway Lane;

- Southampton Road, Titchfield Common for 400 dwellings access shall be focused on Segensworth Road in the first instance, with Southampton Road to be used where access to/from Segensworth Road is not possible;

- Downend Road East and Romsey Avenue in Portchester for a combined 575 dwellings with access on Downend Road; and Romsey Avenue respectively; and

- Newgate Lane South, Peel Common is included for 475 dwellings access on Newgate Lane South in the first instance, with Brookers Lane having the potential to provide secondary access for a limited number of dwellings

6.11. As detailed in the SRTM Modelling Report, several transport schemes have already been developed to address forecast future deterioration in traffic conditions and these are reflected in the 2036 Baseline, along with Fareham Borough and neighbouring districts completed and currently committed developments. The full list of schemes included in the modelling is included in Appendix A. Outside of Fareham, development growth is assumed to continue as 'normal' and in accordance with the adopted Local Plans for the respective Local Authority planning areas and DfT growth projections (TEMPro v7.2).

6.12. The 2036 Baseline is the scenario against which the scenarios with Fareham Local Plan growth included can be compared against to understand the incremental impact that the Local Plan will have on the transport network. This scenario assumed no development in Fareham over an approximate 20-year period (except for those sites already with planning permission or resolution to grant status). It is a theoretical scenario and one that is unlikely to develop. The full modelling results can be seen in Chapter 8.

Scenario 2: 2036 Do-Minimum Model

6.13. The Do-Minimum (Do Minimum) scenario is the Baseline scenario with the addition of the proposed Fareham Local Plan growth in the shape of proposed allocations and windfall development assumptions. There are no changes to the baseline highway and public transport networks or neighbouring counties' development growth from that included in the 2036 Baseline. As a result, this scenario enables the cumulative incremental impacts of the Local Plan growth to be isolated and quantified.

6.14. All that is known at this stage for each Local Plan site is the overall quantum and mix of proposed development and the site boundary. Details of possible access arrangements are not available. It is likely that in practice, some local improvements, or new connections to specific sections of the road

network may be required to provide suitable access to each of the Local Plan allocations. For the purpose of the modelling, the STRM has assigned the demand from each Local Plan allocation to the respective model zone(s) detailed in Figure 6-2 and assumed Local Plan development traffic to connect to the modelled network from the same connection(s) from these zones as established for the Baseline. The full modelling results can be seen in Chapter 9.

6.15. The overall growth in the model outside of Fareham is linked to TEMPro forecasts, but in terms of larger individual sites (>450 dwellings) in neighbouring boroughs included within the modelling, the FBC LP runs include the following sites Eastleigh and Winchester:

6.16. Eastleigh

- Land North and East of Boorley (1400 dwellings)
- North Stoneham Park (1131 dwellings)
- Land North West of Boorley Green (680 dwellings)
- Fir Tree Farm (450 dwellings)
- Chalcroft Farm (950 dwellings)

6.17. Winchester

- North Whiteley (3500 dwellings)

6.18. The do minimum run identifies significant and severe impacts from the proposed Local Plan growth and suggests a longlist of junctions to consider for mitigation in the Do Something run.

Scenarios 1a and 2a: 2036 Baseline and Do-Minimum Model

6.19. At the request of HE and HCC, FBC have tested two additional scenarios 'without' the M27 Junction 10 improvements. This was requested as the Resolution to Grant for Welborne includes a condition precluding and more than 1,160 homes without the delivery of Junction 10 improvements. Moreover, the Junction 10 scheme is not fully funded at the time of writing. These additional scenarios establish the impacts of growth within this Local Plan should the Welborne development, or Junction 10 scheme not be delivered. Hence only 1,160 homes would come forward at Welborne, if the Junction 10 improvements were not delivered. It aims to establish that the allocations from this Local Plan could mitigate their own transport impact, without reliance on Junction 10.

6.20. In reality, if Welborne Garden Village development is unable to deliver the full number of houses within the plan period, or the Junction 10 improvements do not come forward, FBC would most likely revisit both local plans (Welborne and the emerging Local Plan) in order to find the additional housing allocations needed to meet their target.

- Scenario 1a – 2036 Baseline, no Fareham Local Plan development except committed sites and resolution to grant sites and their mitigation. For clarity, the development at Welborne is capped at the level that can be delivered without the need for reconfiguration of M27 Junction 10 therefore no M27 10 scheme included. This equates to 1,160 residential units within the Plan period.

- Scenario 2a – 2036 Do Minimum, full Fareham Local Plan development without transport mitigation. The Do Minimum scenario builds on the Scenario 1a 2036 Baseline with the full quantum of local plan growth, growth at Welborne unchanged from the Baseline (1,160 residential units) and no M27 Junction 10 scheme.

6.21. The Baseline includes all current completed development and infrastructure within Fareham, in addition to all committed development and infrastructure in the Plan period. In the Baseline, no allowance is made for Local Plan growth in Fareham, except committed schemes and resolution to grants. The development at Welborne is capped at the level that can be delivered without the need

for reconfiguration of M27 Junction 10. This equates to 1,160 residential units within the Plan period. Further details of the sensitivity test results are provided in Chapter 10 of this STA.

Scenario 3: 2036 Do Something Model

6.22. The Do Something scenario builds on the Do Minimum scenario with the addition of identified potential mitigation measures following the assessment of significant and severe impacts from the proposed Local Plan allocations. The highway network for the Do Something scenario includes changes at five junctions within Fareham Borough in order to mitigate against the predicted impacts of the Fareham Local Plan. More information on the location and type of mitigation and relevant preliminary design drawings for each of the schemes can be found Chapter 11, with the modelling results in Chapter 12. These potential mitigation measures represent the worst-case solution to resolving highway issues, with the preferred approach to start with public transport and active modes. In addition, the mitigation seeks to address the impact of the Local Plan developments only, as opposed to impacts resulting from background growth in traffic over the Local Plan period.

6.23. There are no changes to the public transport network compared to the Do-minimum scenarios, as there were no committed public transport schemes identified at the time of the assessments specifically aimed at mitigating impacts of the Local Plan. Details of the future SEHRT scheme were not available for inclusion in the model runs.

Assessment methodology for projected highway impacts

6.24. A comparative assessment of the results between the 2036 Baseline and the 2036 Do Minimum scenarios has been undertaken (in Chapter 8) to isolate, as far as possible, the cumulative impact of the proposed Local Plan allocations and to identify any requirements for mitigation. The 2036 Do Minimum scenarios have also been compared with the 2036 Do Something to understand the effectiveness of potential mitigation measures and what residual impacts would remain following their introduction.

6.25. In the first instance, a comparison of the differences between the Baseline and Do Minimum scenarios was used to identify junctions and corridors within the Borough where future schemes may be required to mitigate the impact of the proposed Fareham Local Plan developments and thereby, enable its delivery.

6.26. Highways impacts are measured in modelling in terms of Passenger Car Units or PCUs. A PCU is a measure of the effect that each type of vehicle has on highway capacity. For example, a car has a PCU value 1. A Heavy Commercial Vehicle has a PCU value of up to 2.4, as typically these vehicles have an impact on capacity equivalent to more than two cars.

6.27. Capacity hotspots are identified by the RFC which is the ratio of traffic flow (or volume) to available capacity (V/C) on each junction approach, presented as a percentage. A value of 85% is normally taken as the practical capacity value for design purposes. Junctions with a V/C of less than 85% on their approaches are said to be operating ‘within capacity’, with no or limited queues and delays. If the V/C is near or in excess of 85% then the junction is likely to be subject to intermittent queuing and delays and is said to be operating ‘close to or at capacity’. A value greater than 100% means that the junction is ‘over capacity’ and significant queues and delays are likely to occur.

6.28. The key SRTM outputs assessed are:

- Key network statistics for the full SRTM Core Model Area. These have been summarised, including vehicle hours, vehicle kilometres, and average speed. Due to the size of the SRTM, the results for the Fareham Borough in isolation have also been provided;
- Changes in traffic flow in Passenger Car Units (PCUs) between Baseline and Do Minimum scenarios;
- Changes in vehicle delays and journey times between Baseline and Do Minimum scenarios in seconds per PCU; and

- Capacity hotspots have been identified by reviewing junction approaches based on the ratio of flow to capacity (RFC) on each approach – hence identifying links with a high RFC is a proxy for identifying junctions with capacity issues.

6.29. The operational capacity on all links on the approaches to junctions within Fareham Borough, and in the immediate vicinity of Fareham Borough boundaries has been assessed to identify potential congestion hotspots as a result of proposed Local Plan allocations.

6.30. The change in RFC and delay between the scenarios has been calculated to identify locations where the forecast junction performance deterioration is most pronounced. The following criteria has been applied to identify junctions where operational performance worsens either significantly or severely (these criteria have been used on similar SRTM commissions in agreement with HCC and HE):

- "significant" increase in RFC is where the RFC is greater than 85% and has increased by more than 5% on any approach arm; and

- "severe" increase in RFC is where the RFC is greater than 95% and has increased by more than 10%, or where delay is greater than 120 seconds and has increased by more than 60 seconds per vehicle on any approach arm.

6.31. Once the locations where the Local Plan growth is forecast to have a significant or severe impact on highway capacity were identified from a comparison between the SRTM Baseline and Do Minimum scenarios, potential mitigation measures were considered to address them. Concept designs have been prepared for the affected junctions and links. These have been completed to a level sufficient to enable more detailed junction capacity modelling to be undertaken and to allow cost estimates for the works to be prepared.

6.32. It should be noted that this exercise has been undertaken to demonstrate that the adverse traffic impacts due to the proposed Local Plan growth is capable of being satisfactorily mitigated and, thus the Local Plan is deliverable. The designs are indicative and should not be taken to represent a definitive 'solution' for the locality. As above, to allow for modal shift away from driving, the preferred mitigation approach is encouraging active modes, public transport, and reducing the need to travel as evidenced in Local Plan policy. The exact nature and design of any schemes in each of these locations can only be determined at the planning application stage and would be progressed through a detailed Transport Assessment submitted in support of each.

6.33. A more detailed capacity assessment of the identified potential mitigation measures was undertaken using standard, local junction modelling packages (Junctions 9 and LinSig). This was done to evaluate their effectiveness and to allow the refinement of the proposed works with the objectives of achieving the greatest level of congestion relief within the existing constraints, such as highway boundaries. Consideration was also given to limiting any negative impacts to the walking and cycling networks, as well as the affordability and deliverability of all measures proposed.

6.34. Once mitigation measures were identified and local junction models run, these measures were introduced in the SRTM to provide the model results for the Do Something Scenario.

6.35. Chapters 8 to 12 of the STA summarise the results of the SRTM model runs and detail the measures tested to mitigate the incremental traffic impacts of the proposed Local Plan.

7. Local Plan Growth

7.1. This section discusses the likely transport related impacts arising from forecast local plan growth, future population, and economic growth both within Fareham and beyond.

Impact of Growth

7.2. There is a need to provide new housing in Fareham Borough due to a growing and ageing population. National planning policy sets out that Local Planning Authorities should seek to significantly boost the supply of housing and should use their evidence base to ensure that their Local Plan meets the full, objectively assessed needs for market and affordable housing where it is sustainable to do so.

7.3. Developments can have an impact on existing traffic volumes and congestion locations if measures are not implemented to mitigate the increased pressure on road use. Therefore, the real emphasis is on moving away from car dependency towards more sustainable methods of transport such as cycling, walking and public transport, to improve air quality, mitigate climate change and improve health and wellbeing. This requires improvements to access, routes, and investment to support and encourage uptake. Travel Plans, with initiatives around smarter choices, can also reduce car use. The Transforming Cities Fund will finance schemes and LCWIP will be used to enable this modal shift.

7.4. Highway mitigation measures such as junction improvement schemes may however be required in some circumstances to accommodate residual traffic generation that cannot be fully avoided by improvements to sustainable methods of transport. Upgrades to existing infrastructure will be preferred (and if necessary new infrastructure projects) will be used to mitigate existing and future problems in areas experiencing peak hour congestion and junction delays.

Population, Dwellings, Jobs

7.5. The Local Economic Impact Model makes up part of the Sub Regional Transport Model and uses inputs including transport costs to forecast the quantum and location of households, populations, and jobs.

7.6. Table 7-1 summarises the forecasts produced by the LEIM module of the SRTM, for the population, number of dwellings, and number of jobs within the Fareham Borough. In the table the 2036 Do Minimum scenario has been compared against the 2036 Baseline scenario.

7.7. The Local Plan proposes an increase of approximately 6,000 households between 2015 and 2036, over the baseline growth which includes permitted developments not yet built. The additional employment land use included in the Plan provides approximately 3,000 jobs in the Borough during the same period. The SRTM modelling assesses the 'worst case scenario', so has assessed an upper limit of development which is above that set out in Table 7-1.

Table 7-1 - 2036 Do Minimum vs 2036 Baseline outputs

	2036 Scenario 1 Baseline	2036 Scenario 2 Do Minimum Option 1	Difference	% Difference
Population	117,008	131,229	14,221	12
Dwellings	54,255	60,306	6,051	11
Jobs	57,250	60,208	2,958	5

Total Person Trips and Mode Share

7.8. The total person trips by mode of transport to and from, Fareham Borough for a 24-hour period is summarised in Table 7-2. This table shows the new trips associated directly with the Local Plan (Do Minimum scenario) against the 2036 Baseline.

7.9. The Do Minimum scenario includes for an increase in dwellings within Fareham when compared to the Baseline. This is reflected by the number of person trips to/from and within Fareham over a 24-hour period.

7.10. The mode share between the 2036 Baseline and 2036 Do Minimum scenarios remains similar. In the Baseline there are currently 32% by active modes, while in the Do Minimum this increases to 36%. This 4% rise in the active mode share, shows the importance of investment in sustainable transport measures and infrastructure throughout the local plan period. Particularly as this increase is at the expense of the highway trips. There are small increases in active mode share at the expense of highway in the Do Minimum scenario. The Do Something scenario is not expected to have a significant impact on mode share or distribution of trips compared to the Do Minimum.

Table 7-2 - Person Trips to/from Fareham 2036 Do Minimum versus 2036 Baseline outputs

		From Fareham			To Fareham		
	Scenario	**Highway**	**Public Transport**	**Active modes**	**Highway**	**Public Transport**	**Active modes**
Absolute trip numbers	2036 Scenario 1 Baseline	280,328	10,389	55,641	282,055	10,531	55,554
	2036 Scenario 2 Do Minimum	304,967	11,966	68,361	307,364	12,138	68,273
	Difference	24,639	1,577	12,720	25,309	1,607	12,719
Mode Share (%)	2036 Scenario 1 Baseline	81%	3%	16%	81%	3%	16%
	2036 Scenario 2 Do Minimum	79%	3%	18%	79%	3%	18%
	Difference	-2%	0%	2%	-2%	0%	2%

Land Use Modelling Assumptions

2036 Scenario 1 Baseline

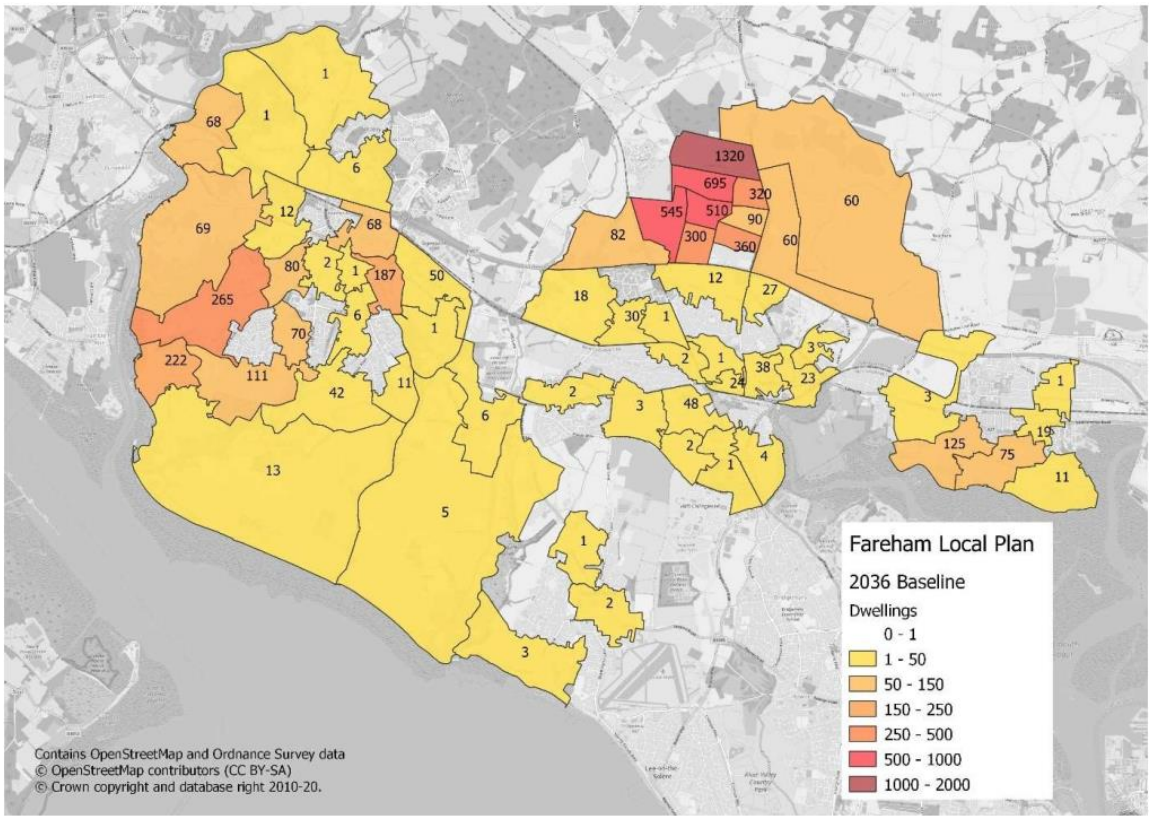
Land Use Assumptions

7.11. The model works on the basis of assumed change in land use on sites across Fareham, and the anticipated travel implications of that change. The total completions and total development, those with permission or resolution to grant, for Fareham Borough are summarised in Table 7-3 below. Figure 7-1 shows the location of the residential developments within the Borough.

Table 7-3 - Baseline Fareham Land Use Inputs 2015-2036

	Land Use	Input
Residential	Dwellings	6118
Employment (m^2)	Retail	-1264
	Office	11427
	Industrial	999
	Warehousing	779
	Primary & Secondary Education	7008
	Hotel & other accommodation	0
	Healthcare	0
	Leisure	1319

Figure 7-1 - 2036 Scenario 1 Baseline: Modelled Residential Growth for Fareham



Land Use Assumptions outside Fareham Borough

7.12. This section outlines the land use impacts outside Fareham which may have an impact within the Borough such as population and employment. The SRTM inputs populate the Baseline scenario for all model areas except Fareham Borough, where the inputs have been revised as detailed in the above Table 7-3.

7.13. As outlined in Paragraph 6.9, the LEIM module of the SRTM determines the level of overall development growth within the model in accordance with TEMPro (v7.2) employment and population trajectories for the sub-region. This is equivalent to allowing for background traffic growth within the modelling process.

2036 Scenario 2 Do Minimum

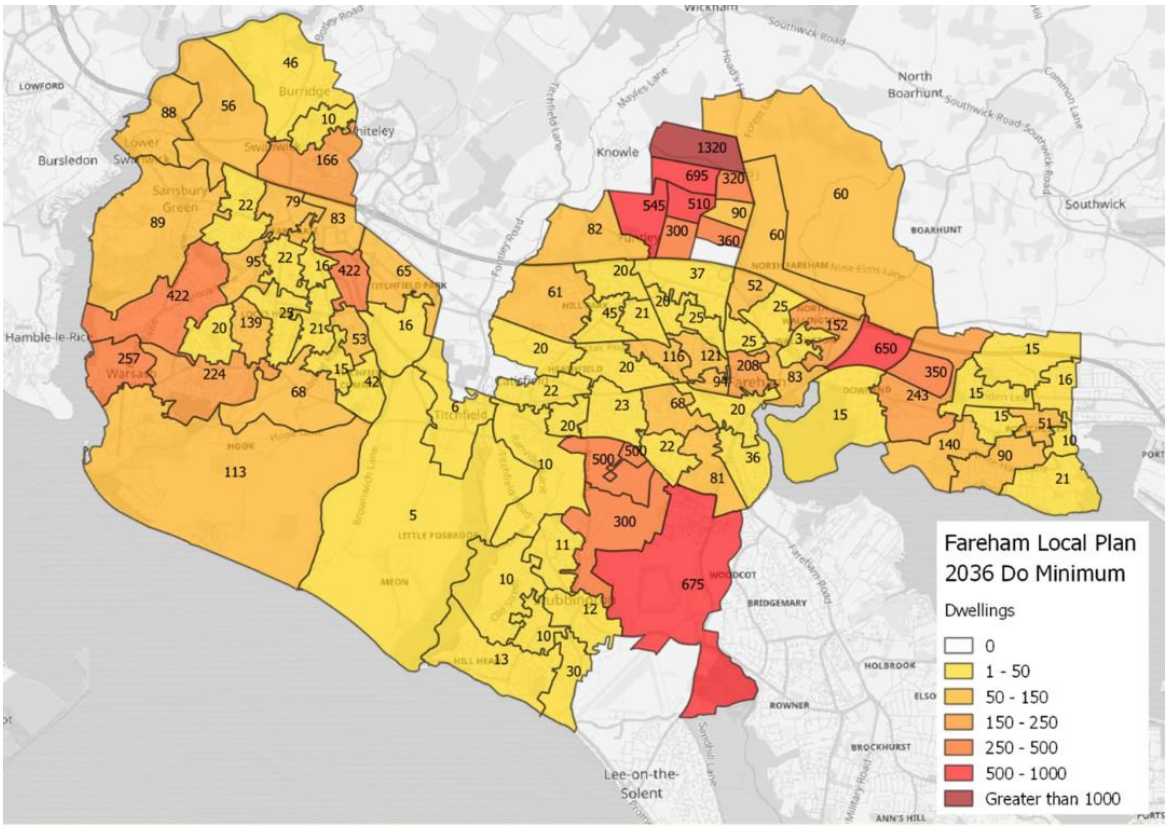
Land Use Assumptions

7.14. The Fareham Borough Local Plan development growth is included within the Do Minimum scenario as 'exogenous' development meaning that they will be built in their specified location, regardless of local conditions (such as changes in employment, population, income, other modes of transport). The Fareham Local Plan development totals for the Do Minimum scenario are shown in Table 7-4 which includes Baseline figures and summarised by model zone in Figure 7-2. It is important to note that the figures may have changed slightly as sites have been refined and tested through the Local Plan process.

Table 7-4 - Do Minimum: Fareham Land Use Assumptions 2015 - 2036

	Land Use	Input
Residential	Dwellings	12,169
Employment (m^2)	Retail	4,736
	Office	41,427
	Industrial	87,999
	Warehousing	40,779
	Primary & Secondary Education	16,524
	Hotel & other accommodation	1,000
	Healthcare	3,491
	Leisure	3,819

Figure 7-2 - 2036 Scenario 2 Do Minimum: Modelled Residential Growth for Fareham



Non-Fareham Borough Land Use Assumptions

7.15. In the Do Minimum, the land use outside of the Fareham Borough is the same as in the Scenario 1 Baseline. By assessing the Local Plan in this way, there are no changes to the number of households, jobs, or population outside of Fareham. By ensuring land use inputs outside of Fareham are unchanged, the cumulative impacts of the Local Plan development can be isolated.

2036 Scenario 3 Do Something

7.16. The 'Do Something' scenario includes potential infrastructure measures identified to help mitigate the transport impacts associated with the Fareham Local Plan. Details of these measures are included in Chapter 11.

Land Use Assumptions

7.17. Land use assumptions between Scenario 2 Do Minimum and Scenario 3 Do Something are unchanged.

Housing and Employment Sites

7.18. The sites have been selected using the following process to ensure sustainable development that meets the needs of Fareham Borough.

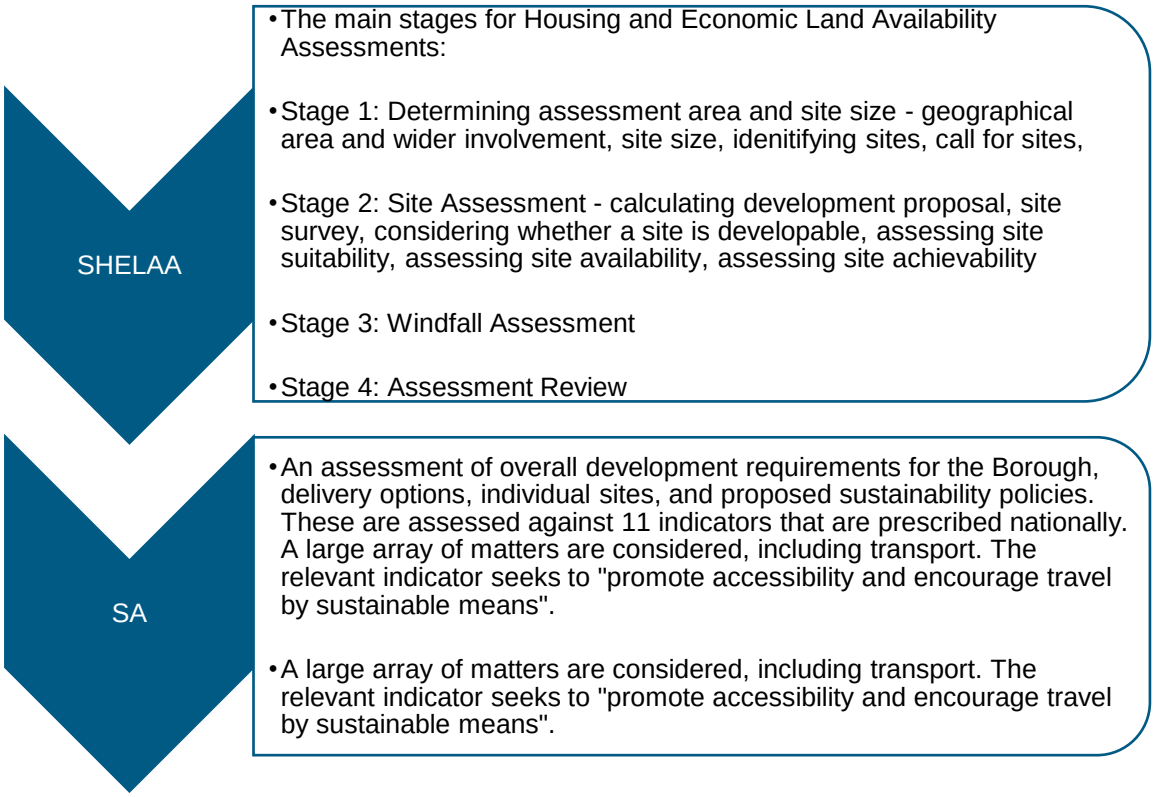
7.19. The two main stages that inform the selection of sites are:

- The Strategic Housing and Employment Land Availability Assessment (SHELAA)[37]; and
- The Sustainability Appraisal (SA)[38]

[37] https://www.fareham.gov.uk/planning/localplan2036evidence.aspx
[38] http://www.fareham.gov.uk/PDF/planning/local_plan/SEAFarehamLPRScoping.pdf

7.20. These stages are examined in more detail in Figure 7-3. Transport is taken into consideration through ongoing dialogue with the Highway Authority and Highways England, as well as the modelling described in Chapter 5.29.

Figure 7-3 - Fareham Borough Council Site Allocation Selection Process



7.21. The identified housing supply identified to meet the requirement in the Local Plan is summarised in Table 7-5. This is a lower figure than was used for the modelling in the Do Minimum runs as a result of further refinement through the Local Plan process and proposed changes to the standard methodology for assessing housing need.

Table 7-5 - Draft Local Plan Housing Supply in Fareham Borough 2021 – 2037

		Supply Identified in the Local Plan
2036 Baseline	Outstanding permissions (small)	94
	Outstanding full planning permissions (large)	373
	Outstanding outline planning permissions (large)	85
	Resolution to grant planning permission (including Welborne)	4,858
2036 Do Minimum	Allocations made in the Local Plan	1,755
	Windfall Development	1,224
	Total	**8,389**

7.22. The employment sites are listed in Table 7-6 below, these are can mainly concentrated at the Daedalus Business Parks.

Table 7-6 - Draft Local Plan Employment Allocations in Fareham Borough*

Site	Office (m^2)	Mixed Industrial (m^2)	Storage and Distribution (m^2)	Total
Faraday Business Park, Daedalus		52,080	13,020	**65,100**
Swordfish Business Park, Daedalus		10,250	2,550	**12,100**
Solent 2, Whiteley	11,800	5,850	5,850	**23,500**
Total	**11,750**	**68,205**	**24,445**	**100,700**

*Excluding retail

7.23. The site allocations have been included in the model but are not assessed individually, the growth in the model is cumulative. The impacts of each individual site would be assessed through transport assessments related to the planning application for each site, as it comes forward.

Strategic Growth Areas

7.24. The modelling includes two potential Strategic Growth Areas (SGAs)[39] North of Downend and South of Fareham. These are not proposed to be allocated in the new Local Plan. The inclusion of these sites in the modelling follows the development of the Plan and the need to understand the impacts of such at the time of undertaking the modelling.

7.25. The site at East of Downend Road is a proposed allocation for 350 homes. An application for up to 350 homes east of Downend Road was recently dismissed at appeal (P/18/0005/OA Land to East of Downend Road). This site is one of the sites included as a draft Local Plan allocation in the Draft Local Plan that the Council consulted upon in 2017. The Appeal Inspector dismissed the appeal but regarded the site to be in a sustainable location. Therefore, the Council are continuing to support development in this area as part of the North of Downend Strategic Growth Area.

[39] https://www.fareham.gov.uk/PDF/planning/local_plan/Reg18DraftLocalPlanSupplement.pdf

8. Baseline Modelling Results

2015 Base versus 2036 Scenario 1 Baseline

Highway Network Performance

8.1. This section summarises the highway network statistics for the AM and PM peak periods for the 2015 Base and 2036 Scenario 1 Baseline, before any Local Plan allocations are tested in Scenario 2. These results are those predicted to happen by 2036 even without additional growth proposed in the emerging Local Plan. Full details of all model outputs can be found in the Systra SRTM Modelling Report.

8.2. Total motor vehicle hours increase by 30% in Fareham during both the AM and PM peak periods between the two scenarios. Total motor vehicle kilometres increase by smaller volumes, with a 22% increase in both the AM and PM peak periods.

8.3. The average speed for motor vehicles in the Borough decreases by 7% in the AM and PM peak periods. The impact seen in Fareham is comparable with that seen in the SRTM Core Model Area as a whole and is consistent with a network containing higher traffic volumes and increasing delay. Note Fareham Borough is within the Core Fully Modelled Area (the most detailed region of the model) as seen in Figure 6-1.

Traffic Flow Difference

8.4. This section describes the change in traffic flow, in passenger car units (PCUs), for AM and PM peak hours respectively between the 2036 Scenario 1 Baseline and 2015 Base scenarios. The geographic extent of the figures is Borough wide to give an overview of the full Core Model Area.

8.5. The M27 sees the greatest forecast flow increase during both periods (approximately 1,900 additional PCUs in both directions during the AM peak, with 1,700 westbound and 1,650 eastbound during the PM peak). This is followed by the A27 between M27 Junction 9 and Stubbington Bypass and on the Bypass itself. As expected, the new Stubbington Bypass is forecast to attract traffic away from the existing road network which predominantly routes through Stubbington village. The increase in flows forecast on Stubbington Bypass exceeds 1,100 PCUs in each direction during both the AM and PM peaks.

8.6. Development traffic at Welborne is impacting to the north of the M27 Junction 10. It is forecast that development traffic will contribute to a reduction in flows travelling adjacent to Welborne via A32 Wickham Road and may affect the wider Borough flow. This is predominantly due to the network configuration within Welborne linking to the west facing slips at M27 Junction 10.

Highway Delays

8.7. The section outlines the forecast change in link delay, in seconds, per PCU, for the AM and PM peak hours respectively between the 2036 Scenario 1 Baseline and 2015 Base.

8.8. The changes in delay are most prominent in this comparison due to the additional traffic forecast in 2036 when compared to 2015. As such, several junctions both within Fareham and model wide are forecast to experience an increase in delay.

8.9. It is forecast that there will be changes in delays at M27 Junction 11 in both the AM and PM periods, with a mixture of increases and reductions at approach arms to the junction. Forecast traffic flow (and amended traffic signal timings) at this location not only account for general growth between 2015 and 2036 but also redistribution of traffic due to the provision of west facing slips at M27 Junction 10.

8.10. The change in delay during the AM peak shows a neutral impact along the length of the A27 between the M27 Junction 9 and the A32 with a mixture of increases and decreases.

8.11. The location with the biggest increase in delay is on Bridge Street to the east of Titchfield and is due to the increases in traffic using the new Stubbington Bypass in this area. During the AM peak the

westbound delay is forecast to be 101 seconds with a 50 second delay eastbound. During the PM peak the forecast delays are smaller at 24 seconds westbound and 38 seconds eastbound.

Capacity Hotspots

8.12. The section includes junctions forecast to have an RFC greater than 85% in the 2015 Base and 2036 Scenario 1 Baseline respectively in any time period.

8.13. As detailed in Chapter 5.29, the following criteria has been applied to identify junctions where operational performance worsens either significantly or severely:

- "significant" increase in RFC is where the RFC is greater than 85% and has increased by more than 5% on any approach arm; and
- "severe" increase in RFC is where the RFC is greater than 95% and has increased by more than 10%, or where delay is greater than 120 seconds and has increased by more than 60 seconds per vehicle on any approach arm.

8.14. The above criteria have been applied to identify those junctions within Fareham Borough most impacted by highway growth between the two scenarios. This does not represent a list of sites where mitigation should be considered as part of delivery of the Local Plan, but sites that are likely to require study work, and potential interventions regardless of the Fareham Local Plan growth.

8.15. Hampshire County Council's standard practices of identifying and addressing transport issues are included in Hampshire Local Transport Plan[40] and outlined below:

- **The Capital Programme** for integrated transport details how the block funding provided by Government to local authorities to support the development of small transport improvement schemes is to be spent. The programme includes funding for a number of major schemes that have secured funding through the Local Pinch Point Programme and LEP controlled Growing Places funds.
- **The Revenue Programme** for strategic transport is derived from the analysis of the problems and challenges facing Hampshire. Revenue expenditure is therefore used to fund scheme development, as well as transport studies and feasibility, both across Hampshire and through Transport for South Hampshire, to ensure that this is achieved.

8.16. In total of 23 junctions meet the "severe" change criteria and 16 are classified as "significant" as summarised in Paragraph 8.12 and Figure 8-1.

[40] https://www.hants.gov.uk/transport/strategies/transportstrategies#step-2

Figure 8-1 - 2015 Base vs. 2036 Baseline Impact Junction Locations

Summary

8.17. The Baseline scenario includes residential (approximately 6000 dwellings) and employment growth based on committed sites within the Fareham Borough, and any committed highway infrastructure schemes up to a forecast year of 2036. Outside of Fareham, growth continues in accordance with adopted Local Plans and TEMPro v7.2. This scenario confirms the forecast transport network performance without the proposed Fareham Local Plan allocation site growth.

8.18. In all cases there is a general increase in traffic flows within the Fareham Borough compared to the 2015 model Base year with the most obvious change being related to the Welborne development and its corresponding new network links, including the new west facing slips at Junction 10.

9. Do Minimum Modelling Results

2036 Scenario 2 Do Minimum compared to 2036 Scenario 1 Baseline

Highway Network Performance

9.1. This section outlines the performance of the highway network for the AM and PM peak periods for the 2036 Scenario 1 Baseline and 2036 Scenario 2 Do Minimum scenarios for Fareham and the Core Model Area. The forecast traffic growth within Fareham, arising from the introduction of the Local Plan growth, generates an increase in motor vehicle hours of 4% in the AM and 5% in the PM, in additional to that predicted to occur anyway. Motor vehicle kilometres are forecast to increase by 2% in both peaks. The greater percentage increase in vehicle hours compared to vehicle kilometres is indicative of a network under increasing pressure and higher delays. The average speed is forecast to decrease by 2% in both peaks due to the additional traffic volumes and increased delay from congestion.

9.2. The impact on the full core model study area is negligible as land use changes between the scenarios are focussed solely on Fareham District. As would be expected, the impact across the wider area is diluted; as vehicles move further away from their destination, their impact is spread over a larger area.

Traffic Flow Difference

9.3. The model identifies the change in traffic flows in the AM and PM peak hours between the 2036 Scenario 2 Do Minimum and 2036 Scenario 1 Baseline scenarios in 2036 at an overall Borough level. When comparing the Do Minimum to the Baseline, there is a general increase in motor traffic within the Borough as would be expected with the inclusion of the Local Plan growth.

9.4. In addition to the new traffic directly associated with the Local Plan growth, it highlights any re-routing of traffic that may result from localised congestion or redistribution of existing trips.

9.5. One of the greater changes in forecast flow is at M27 Junction 10 the flow on the westbound off-slip of M27 Junction 10 increases by 70 PCUs in the AM peak and 50 PCUs in the PM peak compared to 2036 Scenario 1 Baseline. The eastbound off slip of M27Junction 10 also sees a 130 PCUs and 80 PCUs increase in the AM and PM, respectively. Additionally, the westbound on-slip of M27Junction 10 has a forecast 40 PCUs increase in the AM and 100 PCUs increase in the PM.

9.6. In the areas of Locks Heath, Stubbington and Portchester there are no major changes in flow differences between the two scenarios other than where traffic is joining the network from the new housing development. The magnitude of flow difference, beyond the zone connectors, is not more than +/-100 PCUs in either direction.

9.7. In areas of Titchfield and Catisfield where the road network is closer to larger development sites, traffic increase is greater. In Mill Lane, northbound traffic is forecast to increase by 180 PCUs in the AM (3 PCUs per minute). This forecast change is in part due to delays at St. Margarets Roundabout which is set to be experience “severe” delays. Vehicles are rerouting along Mill Lane rather than the route previously taken via A27 Southampton Road and Cartwright Drive.

Highway Delay

9.8. The forecast delay changes between the Scenario 2 Do Minimum and 2036 Scenario 1 Baseline scenarios predominantly correspond with those locations where flow changes are also most pronounced.

9.9. There are delay changes to junctions along some sections of the A27 and some sections on the A32, with small increases in delay forecast when compared to 2036 Scenario 1 Baseline. There are minor increases along the M27, namely at junctions providing access to the motorway.

9.10. Along the A27, the northbound approach (B3334 Titchfield Road) to Titchfield Gyratory in the AM and the southbound approach (at Mill Lane) in the PM face forecast delay increases of over 20 seconds.

Delay increases are forecast at the Coach Hill/Bridge Street/South Street roundabout near Titchfield Gyratory, with an increase of 21 seconds in the AM and 10 in the PM. These delays are set to be felt on the Bridge Street approach to the junction. In addition, the Barnes Wallis Road/Whiteley Lane/Cartwright Drive roundabout is forecast to experience an increase in delay of up to 46 seconds in the AM. This is set to be felt along the Barnes Wallis Road approach with a delay increase of over 5 seconds also forecast along the northbound Whiteley Lane approach.

9.11. On the A32 there are delays to the Gosport Road/Mill Road/Old Gosport Road roundabout, which is forecast to experience an increased delay of nine and 26 seconds in the AM and PM, respectively. An increase in delay is forecast at the Kiln Road/Park Lane/North Hill signalized junction with an increase of up to 16 and 6 seconds respectively in AM and PM. Furthermore, there is a delay increase to all arms in this signalised junction in the AM, with only one impacted in the PM.

9.12. There are delays at Leafy Lane/Parkway junction which can be explained by the increase in demand, loading traffic onto Parkway. The increased demand means that vehicles turning right from Leafy Lane to Parkway will struggle to make this movement and delays are incurred.

Capacity Hotspots

9.13. Junctions with an RFC greater than 85% in the 2036 Scenario 2 Do Minimum are operating close to, or at capacity. Applying the criteria set out in Paragraph 8.13, there are a total of 17 junctions that meet the “significant” change criteria and one junction meeting the “severe“ change criteria as seen in Figure 9-1. The severe junction is Parkway/Leafy Lane.

Figure 9-1 - 2036 Baseline vs. 2036 Do Minimum Impacted Junction Locations

9.14. Of those junctions forecast to experience significant delays, many of them are situated along the A27 and Warsash Road.

9.15. The impact of Stubbington Bypass between 2015 and 2036 is to naturally pull vehicles off the B334 and Peak Lane on the bypass. In the preferred scenario, with Junction 10, there is little impact on the network along the B334, with flow changes very low. Looking more specifically to the relevant SGA zones, these are loading additional journeys onto the network. A number of these journeys are looking to travel southbound. It is expected that the natural line movement would be southbound along Peak Lane and onto Stubbington Bypass. However, due to the high delay (113 seconds in AM) on the

southbound approach to the Peak Lane the preferred routing to join the Bypass is by travelling west along Rowan Way before joining the Bypass at its most northern point at Titchfield Rd B334. This results in an additional 82 PCUS on the Bypass; a relatively modest figure that would not flag a need for mitigation to be considered through this STA.

Summary

9.16. The 2036 Scenario 2 Do Minimum builds off the 2036 Scenario 1 Baseline, by including the proposed full Fareham Local Plan growth for residential and employment development. Growth outside of the Borough is unchanged from the Baseline. An additional approximate 6,000 dwellings have been included within the 2036 Scenario 2 Do Minimum scenario over and above the Baseline.

9.17. The highway network tested within the 2036 Scenario 1 Baseline and 2036 Scenario 2 Do Minimum scenario remain consistent to assess the impact of the Local Plan allocations without any new mitigation.

9.18. Based on the SRTM modelling the majority of links within the district are forecast to experience changes no greater than +/-100 PCUs in either direction. The exception to which being M27 Junction 10 slip roads and Mill Lane.

9.19. A total of 16 junctions will experience “significant” impact and one junction “severe” impact in comparison to the 2036 Baseline.

9.20. The list of 17 junctions forecast with either “significant” or “severe” impact within the Systra SRTM modelling report were recommended to form the starting point for more detailed review and development of potential mitigation measures.

Incremental Road Safety Impact

9.21. Chapter 4 above details the current road safety schemes for Fareham Borough.

9.22. The Baseline scenario includes all committed and resolution to grant sites and their associated mitigation measures which includes the transport schemes listed in Appendix A. These schemes will likely include measures which will reduce the road safety risk either directly (for example traffic calming) or indirectly (for example reducing queuing can reduce rear end shunts).

9.23. The traffic impact of the Local Plan growth, without mitigation, could have a potential adverse impact on road safety at the safety risk locations outlined in

9.24. Table 4-1, which will require further assessment through site specific transport assessments.

9.25. It may be appropriate to seek developer contributions towards collision investigation and/or remedial measures at these locations, in addition to, and to compliment any junction capacity improvement proposals.

10. M27 Junction 10 Sensitivity Test (scenarios 1a and 2a)

Context

10.1. At the request of HE and HCC, FBC has tested two additional scenarios to understand how the mitigation for the Welborne development which includes the M27 Junction 10 improvements impacts the rest of the Local Plan growth.

10.2. These additional scenarios establish the impacts of growth within this Local Plan should the Welborne development, or Junction 10 scheme not be delivered. Hence only 1,160 homes would come forward at Welborne, if the Junction 10 improvements were not delivered. It aims to establish that the allocations from this Local Plan could mitigate their own transport impact, without reliance on Junction 10.

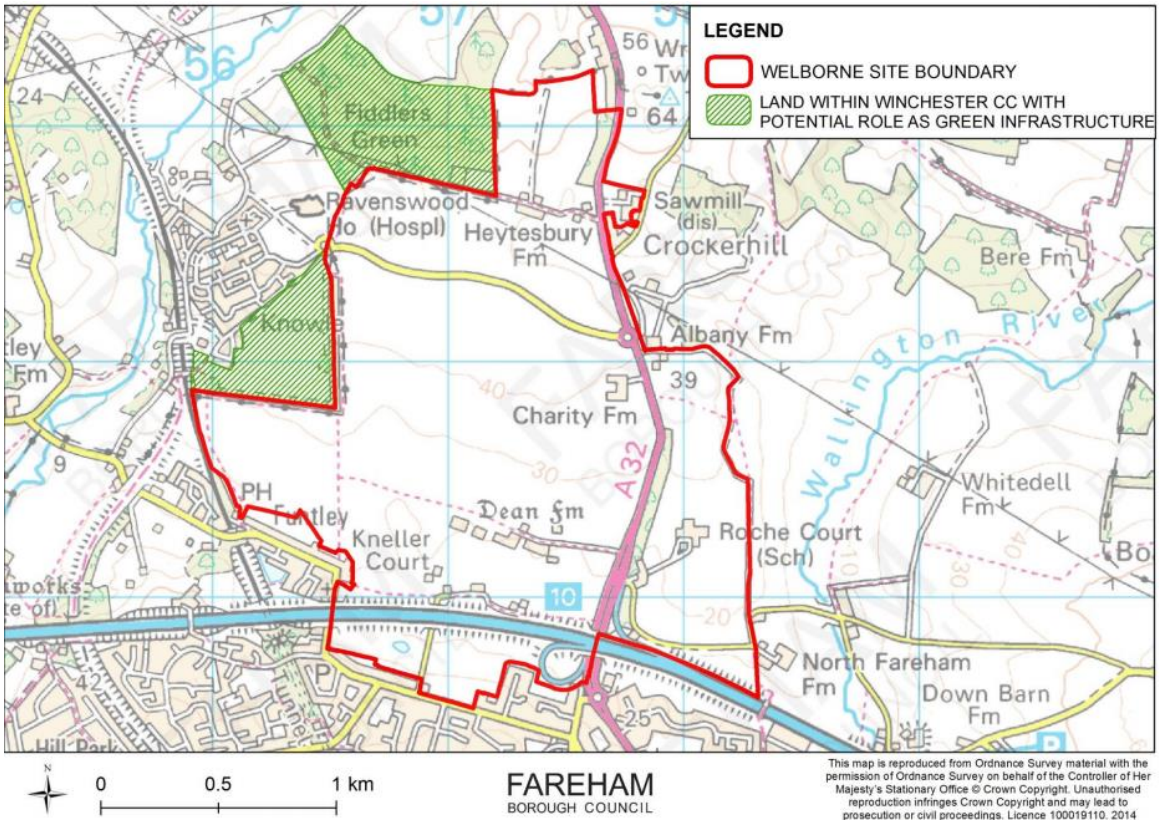
10.3. At the time of writing, the outline planning application for Welborne was determined at Planning Committee resulting in a resolution to grant. The emerging Local Plan assumes that the Welborne development goes ahead in line with the trajectory submitted for the planning application i.e. 4,260 homes to 2036 but will need to be kept under review through the examination process.

Background on Welborne Garden Village

10.4. Welborne Garden Village will be a new community near Fareham town in Hampshire, located north of the M27 as seen in Figure 7-2. A planning application was submitted in 2017. The main proposals in the application are outlined below:

- A new community of up to 6,000 homes and up to 30,000m^2 of commercial and employment space, up to 35,000m^2 of general industrial use and up to 40,000m^2 of warehousing space which aims to create more than 5,700 new jobs;
- A district centre and smaller village centre, with shops and community facilities;
- Commercial, industrial, warehousing and employment space;
- A secondary school and three primary schools;
- Parks, green open spaces, and sports pitches;
- A remodelled M27 Junction 10 to turn it into an all moves junction;
- Works to the A32 including the creation of three highway junctions and new crossing(s); and
- Connections to the surrounding cycleway and pedestrian network.

Figure 10-1 - Welborne Garden Village Site[41]



M27 Junction 10 Improvements

10.5. M27 Junction 10 is a limited moves junction that provides access between the M27 and A32 Wickham Road. There are restricted movements at this junction, with movements allowed from A32 Wickham Road southbound onto the M27 eastbound, and from the M27 westbound onto A32 Wickham Road northbound. The M27 is classified as a Motorway, forming part of the SRN, and A32 Wickham Road is a classified A road.

10.6. At the M27 westbound exit, there is a slip-road provided. For the M27 westbound to A32 Wickham Road northbound movement, a dedicated slip-lane is provided, resulting in no merge required along A32 Wickham Road northbound. For A32 Wickham Road southbound to M27 eastbound movement, a dedicated slip-road is provided off Wickham Road with a merge required at the M27. At the M27 on-slip a merge is required with general motorway lanes.

10.7. There are no pedestrian facilities provided at this junction to and from M27. There is a pedestrian footway along A32 Wickham Road, which is on the eastern side south of the junction and switches to the western side north of the junction via an informal crossing point. Cycle access is restricted.

10.8. As part of the development the following improvements will be made to M27 Junction 10:

- New eastbound off-slip – diverging the motorway east of the Funtley Road overbridge and heading into the development site north of the M27;
- Retained eastbound on-slip – existing slip-road retained with minor alignment improvements;
- Revised westbound off-slip – existing slip-road diverge retained but existing loop replaced with straight slip-road into the development site south of the M27;

[41] https://www.fareham.gov.uk/PDF/planning/LP3WelborneAdopted.pdf

- New westbound on-slip – slip-road commencing in the development site south of the M27 at the same location as the westbound off-slip and merging with the M27 east of the Funtley Road overbridge; and

- Welborne Approach and Broadway – connecting the eastbound off-slip, westbound off-slip, and westbound on-slip to the A32 and eastbound on-slip.

10.9. The provision of all movements (eastbound/westbound) will reduce the need for the existing traffic pattern of performing U-turns at Junction 11 to access the west. Similarly, the relocation of the westbound off-slip will remove the need to perform the U-turn movement at A32 Wickham Road to access Fareham towards the south.

Sensitivity testing

10.10. The SRTM has been utilised to test two scenarios to help inform the development and appraisal of the update to Fareham's Local Plan:

- Scenario 1a – 2036 Baseline, no Fareham Local Plan development except committed sites and resolution to grant sites and their mitigation. For clarity, the development at Welborne is capped at the level that can be delivered without the need for reconfiguration of M27 Junction 10 therefore no M27 10 scheme included. This equates to 1,160 residential units within the Plan period up.

- Scenario 2a – 2036 Do Minimum, full Fareham Local Plan development without transport mitigation. The Do Minimum scenario builds on the Scenario 1a 2036 Baseline with the full quantum of local plan growth, growth at Welborne unchanged from the Baseline (1,160 residential units) and no M27 Junction 10 scheme.

10.11. Modelled development at Welborne Garden Village in both scenarios has been capped at 1,160 residential units as the level of development that can be accommodated without the requirement for reconfiguration of M27 Junction 10. Therefore, M27 Junction 10 is modelled in its existing configuration, without the proposed conversion to an all moves junction

2036 Scenario 1a Baseline versus 2015 Base

Flow Difference

10.12. The M27 sees the greatest forecast flow increase during both periods (approximately 1,300 additional PCUs in both directions during the AM peak, with 1,100 westbound and 1,400 eastbound during the PM peak). This is followed by the A27 on sections both north and south of M27 Junction 9 and on the Stubbington Bypass. Stubbington Bypass is forecast to attract traffic away from the existing road network, predominantly through Stubbington village. The increase in flows forecast on Stubbington Bypass exceeds 1,200 PCUs in each direction during the AM, and at an increase of around 1,100 PCUS in the PM.

Highway Delay

10.13. The section highlights the forecast change in link delay, in seconds, per PCU, for the AM and PM peak hours respectively between the 2036 Scenario 1a Baseline and 2015 Base.

10.14. It is forecast that there will be changes in delays at M27 Junction 11 in both the AM and PM periods, a mixture of increases and reductions at approach arms to the junction.

10.15. The change in delay on the A32 reports a negative impact as a number of junctions are forecast to experience delays, with a greater magnitude of delay experienced in the PM period. This includes the junctions near Newgate Lane, Longfield Avenue and around Gosport Road. However, they do not meet the criteria for significant or severe as set out in Paragraph 8.13.

10.16. The change in delay along the section of the A27 between M27 Junction 9 and the A32 during both peaks show a neutral impact with a mixture of increases and decreases.

10.17. The location with the largest increase in delay is on Bridge Street to the east of Titchfield and is due to the increases in traffic using the new Stubbington Bypass in this area. During the AM peak the westbound delay is forecast to be 103 seconds with a 51 second delay eastbound. During the PM peak the forecast delays are smaller at 24 seconds westbound and 39 seconds eastbound.

Capacity Hotspots

10.18. Junctions with an RFC greater than 85% in the 2036 Scenario 1a Baseline are operating close to, or at capacity. Applying the criteria set out in Paragraph 8.13, there is a total of 12 junctions that meet the "significant" change criteria as well as 29 junctions that meet the "severe" change criteria as seen in Figure 10-2.

Figure 10-2 - 2015 Base vs 2036 Baseline 1a Impacted Junction Locations

Summary

10.19. As in the Scenario 1 Baseline, The Baseline 1a scenario includes residential (approximately 3,000 dwellings) and employment growth within the Fareham Borough, and any committed or related highway infrastructure schemes up to a forecast year of 2036. Outside of Fareham, growth continues in accordance with adopted Local Plans and TEMPro v7.2.

10.20. Development at Welborne is capped at 1,160 residential units. No network changes are included at M27 Junction 10.

10.21. There is a general increase in traffic flows within the Fareham Borough compared to the 2015 model Base year. A total of 41 junctions within Fareham district are forecast to operate with an RFC greater than 85% in the 2036 Baseline Scenario 1a.

2036 Scenario 2a Do Minimum versus 2036 Scenario 1a Baseline

Flow Difference

10.22. This section identifies the change in traffic flow in the AM and PM peak hours between the 2036 Scenario 2a Do Minimum and 2036 Scenario 1a Baseline scenarios, at an overall borough level.

10.23. On the motorway, there is no obvious increase on the M27 west of Junction 10 in the AM, and no obvious increase on the M27 east of Junction 10 in the PM. This means that the impact of the local plan only affects the local Fareham area and local roads.

10.24. In the areas of Locks Heath, Stubbington, Titchfield and Portchester there are no major changes in flow differences between the two scenarios other than where traffic is joining the network from the new housing development sites:

- Newgate Lane East development loads motor vehicle traffic on to Newgate Lane to the south of the junction with Longfield Avenue;
- South of Fareham Strategic Growth Area development loads motor vehicle traffic split equally across two specific development zones (with one connector on to Peak Lane and one on to Longfield Avenue; and
- Downend development traffic is loaded onto Downend Road.

10.25. An increase of motor vehicle traffic is seen on A32 Wickham Road adjacent to the Welborne development area. There is an increase of 80 PCUs to northbound traffic in the AM and close to 200 PCUs increase in the PM. To southbound traffic, there is also an increase of 63 PCUs in the PM. This is likely due to the lack of the amended M27 Junction 10 configuration leaving traffic to use local roads to reach their destinations.

Highway Delay

10.26. Along the A27, there are delay increases at the St Margarets roundabout with the eastbound A27 traffic delayed by 20 seconds in the AM, and in the PM, the westbound A27 traffic is delayed by 12 seconds. The signalised junction at A27/Mill Lane reports a delay of six seconds and 37 seconds in the AM and PM respectively, with delays affecting traffic joining the A27 from Mill Lane only.

10.27. On the A27 there is also a delay increase forecasted at the Coach Hill/Bridge Street/South Street roundabout near Titchfield Gyratory, with an increase of 27 seconds in the AM. In the PM, the delay is reported at the Titchfield Road/Bridge Street signalised junction, with an increase of six seconds. These delays are set to be felt on the Bridge Street approach in both the AM and PM. At the same time there is a delay reduction to the A27/Catisfield Road signalised junction with a reduction of 65 seconds in the AM. This is likely to be due to a reduction in right-turning vehicles from the A27 into Peak Lane resulting in a reduced number of vehicles blocking back at the junction.

10.28. On the A32, there are delay increases forecast at several junctions, such as the Kiln Road/Park Lane/North Hill signalized junction, with an increase of 14 seconds in the AM and six seconds in the PM. To the Mill Road/Gosport Road/Old Gosport Road roundabout, a delay increase of 15 seconds on the Gosport Road northbound traffic is reported in the AM. In the PM, this arm forecasts a delay increase of 18 seconds. In addition, the Mill Lane approach arm to the Mill Road/Gosport Road/Old Gosport Road roundabout is also affected by journey delays in the PM, with an increase of 13 seconds.

10.29. On B3385, to the Longfield Avenue/Newgate Lane roundabout, there is a delay increase of 19 seconds being felt on the Longfield Avenue arm in the AM, and an increase of 17 seconds being felt on Newgate Lane southbound in the PM.

Capacity Hotspots

10.30. Junctions with an RFC greater than 85% in the 2036 Scenario 2a Do Minimum are operating close to, or at capacity. Applying the criteria set out in Paragraph 8.13, there is a total of 16 junctions that meet the “significant” change criteria as well as two junctions that meet the “severe” change criteria as seen in Figure 10-3. These two severe junctions are Segensworth Roundabout and A32 Hoad’s Hill/School Road/A334 Fareham Road roundabout.

10.31. Of those junctions forecast to experience significant delays, many of them are situated along the A27 and on Longfield Avenue.

Figure 10-3 - 2036 Scenario 1a Baseline vs. 2036 Scenario 2a Do Minimum Impacted Junction Locations

Summary

10.32. The 2036 Scenario 2a Do Minimum builds off the 2036 Scenario 1a Baseline, by including the proposed Fareham Local Plan allocations for residential and employment development. Growth outside of the Borough is unchanged from the Baseline. An additional approximate 6,000 dwellings have been included within the 2036 Scenario 2a Do Minimum over and above the 2036 Scenario 1a Baseline. Development at Welborne is unchanged compared to the Baseline.

10.33. The highway network tested within the 2036 Scenario 1a Baseline and 2036 Scenario 2a Do Minimum remain consistent to assess the impact of the Local Plan allocations without any new mitigation in addition to the mitigation at Junction 10 of the M27 for the Welborne development.

10.34. A total of 18 junctions within Fareham Borough are forecast to operate with an RFC greater than 85% in Scenario 2a. It is forecast that 16 will experience “significant” impact and two junctions’ “severe” impact in comparison to the 2036 Scenario 1a Baseline.

10.35. These 18 junctions are very similar to those in the main scenarios 1 and 2, suggesting that if Junction 10 or the capped Welborne development were not to come forward, the impacts on the highway network are very similar to those in the main scenarios, which the next Chapter 11 will demonstrate can be mitigated. As above, should Junction 10 not come forward, it is very likely that Fareham would reconsider growth across the borough. For this reason, no specific mitigation is considered for a scenario without the Junction 10 scheme.

11. Mitigation and Infrastructure Measures

Introduction

11.1. This section identifies potential mitigation measures that may be required to address the identified impacts specifically resulting from the proposed Local Plan Growth i.e. the difference between the main Baseline (1) and Do Minimum (2) scenarios. It is important to note that modelling highway schemes represents the worst-case scenario, as the preferred approach is reducing the need to travel at the outset and encouraging the uptake of active travel and the use of public transport through sustainable transport. Site specific transport assessments should aim to reduce reliance on trips made by private car and assess how their impacts could be mitigated e.g. through contributions to public transport networks including the SEHRT, and walking and cycling networks, as reflected in Policy TIN1, TIN3 and TIN4 of the Local Plan.

11.2. The SRTM has been used to test the cumulative impact of the Do Minimum at a macro-level. From this high-level model, a number of junctions have been identified where the Do Minimum would produce a significant (17 junctions) or severe (1 junction) impact on capacity over the baseline situation.

11.3. Hampshire Services developed a set of criteria in agreement with HCC Highway Authority and Highways England for these 18 junctions based on traffic volume, delay per vehicle, total queues and stacking room to determine the junctions which should be considered for mitigation. Junction approaches with delays of 10 seconds or fewer per vehicle were not suggested for mitigation, unless flows were very high, or queues were blocking the preceding junction. The criteria used to determine very high flows is outlined in Table 11-1. Table 11-2 provides some summary comments on the selection criteria for each junction.

Table 11-1 - Traffic flow criteria used to assess junctions for mitigation

Flow through an arm (vehicles)		Level of flow
300	or under	Low
301	550	Medium
551	850	High
851	or over	Very High

Table 11-2 - Scenario 1 Do Minimum junctions with summary comments

	Junction	Approach Arm	Type	Observations	Taken forward for mitigation
1	Warsash Road/Abshot Road	Warsash Road (West)	R	Very high flow suggests mitigation should be reviewed.	Yes
2	Castle Street Roundabout	Station Road	R	Increase in delay per vehicle low and queue length can be accommodated without blocking back	No
3	Delme Roundabout	A27 Cams Hill	R	Flow and increase in delay per vehicle suggest mitigation should be reviewed.	Yes
4	A27 The Avenue/Redlands Lane/Gudge Heath Lane	A27 The Avenue (West)	SJ	Very high flow suggests mitigation should be reviewed.	Yes
5	Segensworth Roundabout	Little Park Farm Rd	R	Increase in delay per vehicle low and queue length can be	No

	Junction	Approach Arm	Type	Observations	Taken forward for mitigation
				accommodated without blocking back	
6	Peel Common Roundabout	Gosport Road	R	Although there is a very high flow, there is no queue and no increase in delay	No
7	Fleet End Road/Warsash Road/Raley Road	Fleet End Road	PJ	Increase in delay per vehicle low and queue length can be accommodated without blocking back	No
8	Botley Road/A27/Hunts Pond Road/Southampton Road	Hunts Pond Road	R	Increase in delay per vehicle low and queue length can be accommodated without blocking back	No
9	Titchfield Gyratory	A27 The Avenue	G	Although there is a very high flow, there is no queue and a very low increase in delay. Also, only just over capacity	No
10	Station Roundabout	A27 The Avenue	R	Although there is a very high flow, there is no queue and a very low increase in delay. Also, only just over capacity	No
11	Warsash Road/Locks Road	Warsash Road (East)	PJ	Increase in delay per vehicle low and queue length can be accommodated without blocking back	No
12	Station Roundabout	West Street	R	Increase in delay per vehicle low and queue length can be accommodated without blocking back	No
13	Coach Hill/South Street/Bridge Street	Bridge Street	PJ	Increase in delay per vehicle low and queue length can be accommodated without blocking back	No
14	A27 The Avenue/Bishopsfield Road	Bishopsfield Road	SJ	Queue length can be accommodated, however increase in delay is over 10 seconds - medium flow	Yes
15	Rowan Way/Peak Lane/Longfield Avenue	Peak Lane (North)	R	Increase in delay per vehicle low, and queue length can be accommodated without blocking back - note two lanes at entrance to roundabout	No
16	Kiln Road/North Hill/Old Turnpike Lane	Kiln Road	SJ	Increase in delay per vehicle low and queue length can be accommodated without blocking back	No
17	Longfield Avenue/Newgate Lane	Newgate Lane (South)	R	Although there is a very high flow, there is no queue and no increase in delay	No

	Junction	Approach Arm	Type	Observations	Taken forward for mitigation
18	Parkway/Leafy Lane	Leafy Lane	SJ	Blocking back suggests mitigation should be investigated	Yes

SJ- Signalised Junction, PJ- Priority Junction, R-Roundabout, G- Gyratory

Details of Potential Mitigation

11.4. Five junctions as seen in

11.5. Table 11-3 and Figure 11-1 are considered to be critical to the success of the Local Plan. These have been assessed in greater detail with local junction modelling. The findings from the local modelling have been used to determine potential mitigation measures at the junctions, with the aim of achieving nil-detriment to the junction's capacity performance or walking and cycling movements due to the additional traffic forecast to be generated by the Fareham Local Plan. Essentially the measures do not preclude Local Cycling and Walking Infrastructure Plans (LCWIP) or Bus Rapid Transit (BRT) measures being delivered in future.

The potential mitigation measures identified for each of the junctions were included in the SRTM for the 2036 Scenario 3 Do Something and the results outlined in Chapter 12 respectively.

Table 11-3 - Junctions identified for Local Plan Mitigation

Junction Name	Junction arm where capacity is exceeded	Severity
Parkway/Leafy Lane	Leafy Lane	Severe
A27 The Avenue/Redlands Lane/Gudge Heath Lane	A27 The Avenue (W)	Significant
Warsash Road/Abshot Road	Warsash Road (W)	Significant
Delme Roundabout	A27 Cams Hill	Significant
A27 The Avenue/Bishopsfield Road	Bishopsfield Road	Significant

Figure 11-1 - Junction Mitigation Locations

11.6. It should be noted that these concept schemes are not intended to represent a preferred package of works or to advocate specific junction designs. The final design solutions would be developed as and when the individual proposals come forward to take account of any changes in traffic patterns and other infrastructure schemes coming forward in intervening years; and to ensure that inclusion of infrastructure for sustainable modes is considered first.

11.7. The modelling is based on a worst-case scenario as it does not include sustainable transport measures which could reduce the vehicle impact, including those discussed later in Chapter 12. A reduction in vehicle trips should be considered prior to investment in junction improvements to alleviate forecast traffic congestion caused by the local plan growth. This could be achieved through maximising the accessibility of sites by sustainable transport modes (assessed through site-specific TAs); and implementation of robust, site specific travel plans with sustainable transport targets. In addition, developer contributions will be collected towards BRT and LCWIP measures as appropriate. These measures would bring about changes required to help support delivery of the Local Plan.

11.8. The following section outlines the worst-case mitigation measures and the results of local junction modelling, prior to the inclusion of these schemes in the final Do Something SRTM model run. Further details of the local junction modelling can be found in the Hampshire Services Local Junction Modelling Report.

Parkway/Leafy Lane, Whiteley

11.9. This is a three-arm priority junction located in Whiteley to the north of M27 Junction 9 within the Winchester District. FBC has engaged with Winchester City Council regarding the potential mitigation at this junction. The main road is Parkway which runs broadly east west and Leafy Lane forms the side road to the south. There is extensive on-street parking which occurs throughout the working day on both Parkway approaches to the junction. There are parking restrictions on both sides of Parkway for around 40 metres either side of the junction and on both sides of Leafy Lane in this area. The approach to mitigation of this junction will be included in the Statement of Common Ground between the two authorities.

11.10. The SRTM indicates that the Leafy Lane arm would be severely over capacity with the Do Minimum. This report has investigated mitigating the capacity impact on the Leafy Lane approach.

11.11. Two options were considered in the investigation of mitigating the capacity impact on the Leafy Lane Arm:

- Option 1 - Priority junction with two lane flared approach on Leafy Lane; and
- Option 2 - Traffic signal junction.

Option 1 - Priority junction with two lane flared approach on Leafy Lane

11.12. Option 1 tested widening of the side road to provide two lanes on the approach as the SRTM Model indicated Leafy Lane was severely over capacity. Currently Leafy Lane is a single lane approach with a small amount of widening directly at the give way line. This option tested widening Leafy Lane on the east side verge to accommodate a 42 metre two lane flared approach. The existing road layout on Parkway would remain unchanged.

11.13. This option was tested using the PICADY module within Junctions 9 software. The results conclude that the dominance of the very high Parkway traffic flow from the east would cause extensive congestion for the opposing movements. A virtually continuous flow would provide very few opportunities for traffic to cross over this dominant movement.

Option 2 - Traffic signal junction

11.14. Option two considered the introduction of signal control to regulate and provide time for the turning movements at the junction. An initial option considered the introduction of traffic signals to the existing junction layout.

11.15. An initial option considered the introduction of traffic signals to the existing junction layout. Outline results indicated that the junction would be over capacity and would not mitigate the impact of the Do Minimum. Therefore, this option was not progressed further, and no further details are provided in this report on this iteration.

11.16. A further signal option was considered which was based on the priority junction layout Option one. This included widening Leafy Lane to a two-lane approach with individual lanes for the left and right turning movements. An incremental approach was taken to the junction design with the existing single lane provided on Parkway (east). The outline results showed an improvement over the initial option above but that it would still be over capacity and not mitigate the Do Minimum. Again, this option was not progressed.

11.17. Further enhancements were made to the signal junction design. These included providing a two-lane approach on the Parkway (east) arm and incorporating a separate right turn lane on the Parkway (west) arm alongside an ahead lane. This option also included a two-lane approach on Leafy Lane which is based on the priority junction layout in option 1.

11.18. The provision of two lanes on both Parkway approaches would require carriageway widening on the north side of Parkway through the junction. This area is currently verge with a footway behind and is believed to be highway land. It would require a minor realignment to the footway. Additionally, it would be essential to remove the extensive on street parking that occurs on both sides of the junction along Parkway. To accommodate the two lane approaches it would be necessary to remove around 220 metres of parking from the west side of the junction. This would need to be applied to both sides of the road and extend beyond the access road to the “Fusion” site and would be within 60 metres of the Whiteley Way roundabout.

11.19. A separate scheme is to be implemented at the Whiteley Way/Parkway roundabout by HCC Highway Authority (included in the Baseline 2036 model). The scheme will fully signalise an enlarged roundabout at the junction. It forms part of the mitigation works to accommodate traffic associated with the North Whiteley Major Development Area and is currently expected to be implemented in 2022. This scheme would require a two-lane exit into Parkway and in combination these schemes would remove all on-street parking between the Whiteley Way roundabout and Leafy Lane junction. On the eastern side of the junction it would be necessary to remove a further 150 metres of on street

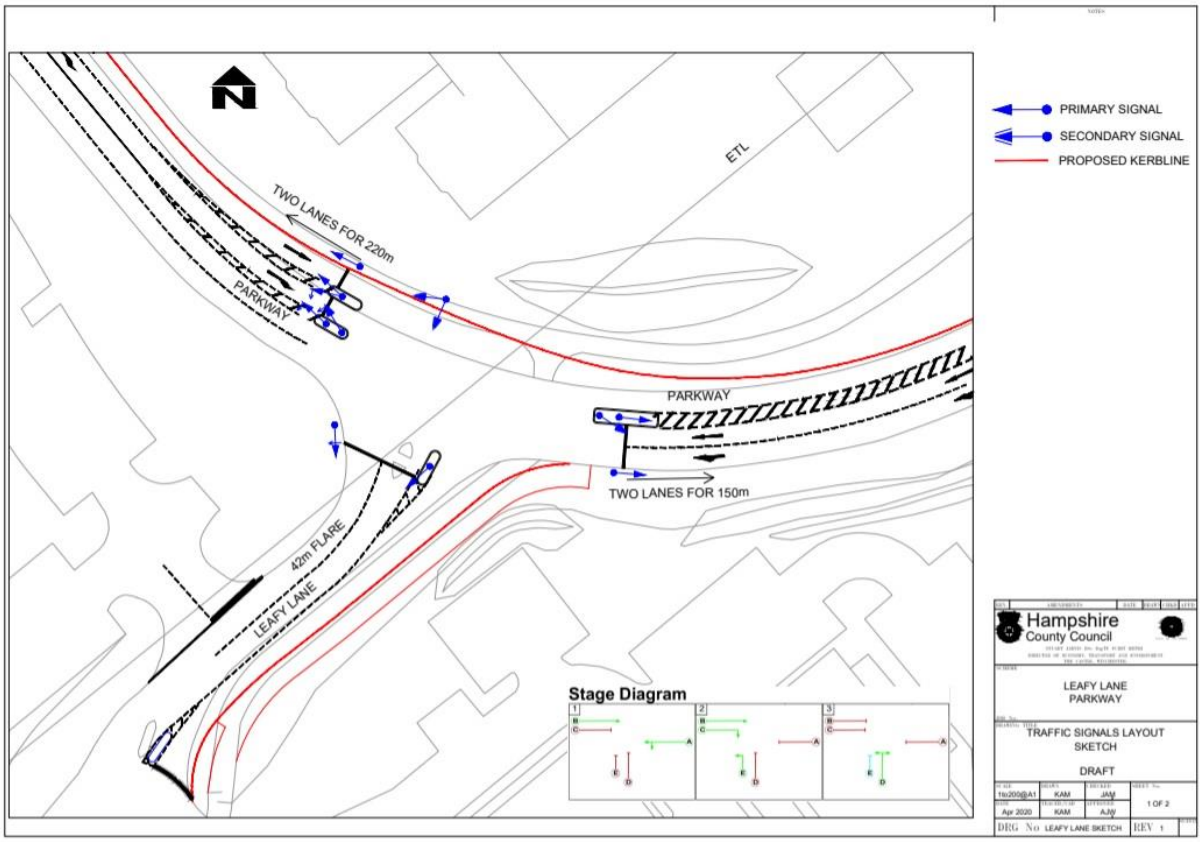
parking on the southern side of Parkway. Central hatching is shown on the proposed layout and it may be possible to remove some of this to reduce the loss of on street parking from the north side of Parkway.

11.20. The results indicate that the junction would operate just within capacity (0.4% reserve capacity) in the 2036 Do Minimum AM peak based on a 90 second cycle time. The option exists to increase the cycle time, if required to increase the spare capacity. This option would be within capacity in the 2036 Do Minimum PM peak based on a slightly longer 100 second cycle time. These results demonstrate that this signal option could successfully mitigate the impact of the 2036 Do Minimum at this location.

11.21. Enhancements to the existing priority junction would fail to mitigate the impact of the either the 2036 Baseline traffic or Do Minimum. A signal option would provide potential mitigation for both the 2036 Baseline and the Do Minimum scenarios. It is recommended that Option three traffic signals could be progressed as the basis for mitigating Do Minimum impacts in the Do Something model run. This mitigation is shown in Figure 11-2.

11.22. In the worst case, where impacts could not be mitigated without additional capacity for motor vehicles, it is recommended that Option 2 traffic signals would need to be progressed.

Figure 11-2 - Indicative layout for mitigation: traffic signal option mitigation



A27 The Avenue/Redlands Lane/Gudge Heath Lane, Fareham

11.23. This is a four-arm traffic signal junction located to the west of Fareham town centre. It is located around 400 metres to the east of the Bishopsfield Road junction. Traffic movements are controlled by signals. The main road is A27 The Avenue which runs west east. To the north is Gudge Heath Lane which links through to a large residential catchment area. Redlands Lane forms the southern arm and sits on the Eclipse rapid bus route. A pedestrian controlled crossing is situated on the western arm across The Avenue.

11.24. Several traffic movements are restricted:

- Gudge Heath Lane left turn only (ahead and right turn movements are banned); and
- The Avenue west right turn is banned.

11.25. In 2016 Hampshire County Council completed a capacity improvement scheme at this location. This increased the number of lanes for ahead traffic on The Avenue east from one to two lanes. The objective was to alleviate the extensive congestion which occurred on this approach during the PM peak. Previously bus priority was introduced to the operation of the traffic signals to reduce waiting times for the Eclipse bus services approaching on Redlands Lane.

11.26. The SRTM modelling indicated that the Redlands Lane arm would be significantly affected in capacity terms by the Do Minimum in 2036.

11.27. The results with 2036 Do Minimum traffic included indicate that the existing junction layout and operation could accommodate this flow. The signal timings have been optimised to achieve this outcome. The AM peak has the least amount of spare capacity (1.8%) although an increase in the cycle time to a maximum 120 seconds may provide a small capacity increase.

11.28. The mitigation measure of adjusting the signal timings demonstrates that this would be sufficient to accommodate the 2036 Do Minimum traffic at this junction. No physical measures would be required.

11.29. In the worst case, where impacts could not be mitigated without additional capacity for motor vehicles, it t is recommended that the existing junction layout and operation can be maintained to accommodate the Do Minimum and that incremental timing changes are made as necessary.

Future pedestrian/cyclist improvements

11.30. There is a reasonable level of crossing movements on the Gudge Heath Lane arm of the junction which is on main route between Fareham railway station/town centre and Fareham College to the west. No formal crossing facilities exist on this arm and users must cross during gaps in the traffic with the aid of a narrow central island. The pedestrian demand across Redlands Lane is much lower. No formal crossing exists across this arm, except for dropped kerbs and a central island. The provision of push button-controlled crossings on the Gudge Heath Lane and Redlands Lane arms would be beneficial to pedestrians and cyclists. Either crossing would require an all red to traffic stage to be included.

11.31. The 2036 Do Minimum results for the AM peak indicate that the junction would operate at approaching capacity. Although the inclusion of an all red to traffic stage has not been tested it is highly likely that this would push the junction performance some way over capacity in the AM peak and to a lesser extent in the PM peak.

Warsash Road/Abshot Road, Locks Heath

11.32. This is a four-arm mini roundabout that is in the southern part of Locks Heath. The main road is Warsash Road which runs broadly east-west. Abshot Road joins from the north with a minor arm, Little Abshot Road, directly opposite. All approaches are single lanes with only marginal carriageway widening directly at the give ways. All arms have a 30mph speed limit except for Little Abshot Road which is derestricted.

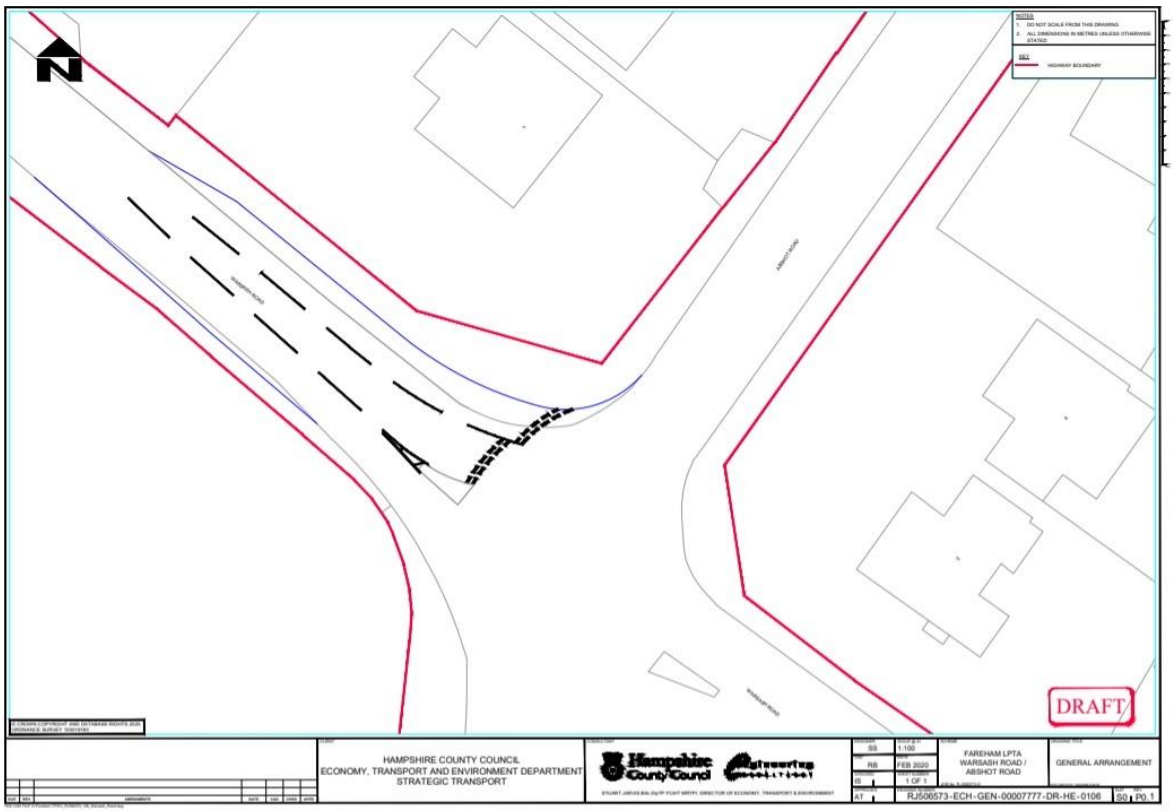
11.33. The SRTM Do Minimum modelling indicated that Warsash Road west approach would be significantly affected by the Do Minimum. This report has investigated capacity improvement measures on this approach.

11.34. The results confirm the findings of the SRTM with the Warsash Road west arm showing to be over capacity during the AM peaks for both the baseline and Local Plan Do Minimum 2036 flows.

Option 1- Retain mini roundabout with localised widening on Warsash Road west approach

11.35. This option investigated the retention of the existing four arm mini roundabout, with the west arm showing a significant capacity increase. A layout which widened this approach to two lanes was investigated. The widening would be accommodated within the existing highway boundary and would narrow the wide footway on the north side of Warsash Road. The layout is shown Figure 11-3.

Figure 11-3 - Indicative layout for mitigation: flared approach to mini-roundabout



11.36. The results indicate that the localised carriageway widening on Warsash Road west would be sufficient to accommodate the Do Minimum traffic in both 2036 AM and PM peaks. The RFC value on Warsash Road west would reduce to comfortably below 0.85 RFC capacity threshold. The remaining arms would also remain well below the RFC capacity threshold.

11.37. The modelling of the existing junction layout with the Do Minimum accords with the Strategic Model which demonstrates that the Warsash Road west arm would be significantly over capacity. The proposal for localised carriageway widening on this arm to form a two lane give way on to the roundabout would be sufficient to accommodate the Do Minimum.

11.38. In the worst case, where impacts could not be mitigated without additional capacity for motor vehicles, it is recommended that the mitigation measures be implemented to accommodate the Do Minimum flows.

Future pedestrian/cyclist improvements

11.39. The existing centre island on the Warsash Road west arm of the roundabout would be retained. Although there are no footways on the southern side of Warsash Road or along Little Abshot Road, the island could be changed to provide a designated crossing point for pedestrians and cyclists. An uncontrolled crossing exists on the Abshot Road arm and separating the traffic movements into individual lanes should make crossing this arm easier.

Delme Roundabout, Fareham

11.40. This is a grade separated roundabout located directly to the east of Fareham town centre. It is a major intersection on the network which has six arms. The main route through is the A32 Eastern Way which is a dual carriageway that runs above the roundabout broadly north south. Slip roads from both carriageways join the roundabout below, which are controlled by traffic signals. There are two major arms which join the roundabout from the northwest and southeast. These are A32 Wallington Way and A27 Cams Hill respectively which are both dual carriageways and operate as give ways. There are two local roads which also join the roundabout. On the west side of the roundabout East Street links with the town centre. Across on the north side Wallington Shore Road accesses a mainly residential area. Both arms join under give way control.

11.41. As a major intersection the roundabout currently suffers from congestion at peak times. Based on existing data and empirical site knowledge, in the morning peak the highest level of congestion occurs on the A27 Cams Hill approach where extensive queuing forms. Wallington Way also incurs significant levels of delay during this period. While the remaining arms also incur delay it is generally at a much lower level. In the evening peak the area suffers even greater levels of congestion and delay. There is a high level of delay on the A27 Eastern Way in the westbound direction on the dual carriageway above the roundabout. This results in traffic from the roundabout being unable to freely exit the roundabout onto Eastern Way which in turn causes congestion on the circulatory areas and the major arms which feed into it. This forms a major contributory factor to the high level of delay and congestion which occurs on the A27 Cams Hill approach. As in the morning peak, this arm suffers from the greatest level of congestion. While delays also occur on Wallington Way and East Street they are to a lesser extent.

11.42. The SRTM Do Minimum scenario indicates that it would have a significant impact on the capacity of the A27 Cams Hill arm of the roundabout. This STA concentrates on addressing the capacity impact on that arm.

Option 1 – Increased signalisation of roundabout

11.43. Currently only the A27 Eastern Way off slips operate under traffic signal control with the remaining arms operating as give way entries to the roundabout. In developing proposals for the Department for Transport Transforming Cities Fund, HCC has identified improvement measures for this roundabout to prioritise bus rapid transit. The design work for the roundabout is at an advanced stage. Should funding not be available on this occasion, bus rapid transit improvements would remain the ambition of HCC at this location.

11.44. The Delme to Downend Bus and Cycle TCF scheme at this location comprises:

- Introduction of Bus Lane and Bus Priority Signals on eastbound approach to Delme Roundabout Pinch Point;
- Implementation of dual direction segregated cycle lane on southern kerb line;
- Improved southern footway with shared use path (SUP);
- Northern footway widened to create SUP between St Catherine's Way and Downend Road signalised junction;
- Facility for people cycling to access Cams Hill Service Road to cycle and pedestrian route on northern side of scheme; and
- Upgrade existing Cams Hill Estate crossing to Toucan.

11.45. Do Minimum scenario has been applied to the TCF Delme to Downend bus and cycle corridor scheme junction layout, provided by the Highway Authority, for modelling. Given that the TCF scheme would be expected to be introduced in advance of 2036 Local Plan modelling year this approach was agreed by the HCC as the Highway Authority.

11.46. This option was modelled using LinSig software. The modelling does not consider the PM peak congestion which occurs on the A27 westbound on-slip which affects parts of the roundabout and some of the entry arms. This has been excluded so that the impact of mitigation measures can be clearly identified, in isolation from peripheral traffic conditions.

11.47. The results indicate that the TCF increased signalisation scheme has enough capacity to accommodate the 2036 Do Minimum in the AM peak showing a healthy 17.7% reserve capacity. Focussing specifically on the A27 Cams Hill arm, both lanes on this approach would be well within capacity operating below 70% Degree of Saturation. The PM peak does demonstrate that the junction capacity is exceeded slightly (-1.2% reserve capacity). Examining the results this can be attributed to the East Street approach which has a Degree of Saturation of 91%. As this is only marginally overcapacity a further enhancement (not included in the design) to the road alignment on this arm would probably be sufficient to draw this arm back within capacity. Widening with the realignment of the kerbs is a feature of the TCF scheme and a further change could be investigated and tested in the future. Looking at the A27 Cams Hill approach this would be within capacity with a Degree of Saturation of 80.3%.

11.48. The 2036 Do Minimum impacts can be accommodated within the proposed TCF scheme in the morning peak. Further investigation would be required to provide a marginal capacity improvement on the East Street arm to bring the overall junction performance within capacity in the 2036 Do Minimum PM peak.

11.49. As the scheme improves public transport and active mode trips as its first priority, it is recommended that the TCF scheme should be implemented to accommodate the 2036 Do Minimum scenario.

Future pedestrian/cyclist improvements

11.50. The TCF features several enhancements to the existing pedestrian and cyclist networks around the roundabout and as such the impact of the Do Minimum would not affect the deliverability of these.

A27 The Avenue/Bishopsfield Road, Fareham

11.51. This is a four-arm junction which is controlled by traffic signals. It is located to the west of Fareham town centre along the A27. The main road, A27 The Avenue, runs west east and carries the highest flows. To the south is the main side road which is Bishopsfield Road. This road links through a residential area. The adjacent St Jude's Catholic Primary School and Fareham College are accessed from this side road. Joining the junction from the north is Veryan which is a cul-de-sac serving a residential area.

11.52. The SRTM Do Minimum scenario would have a significant impact on congestion on the Bishopsfield Road arm. The STA focuses on mitigating the impact on of the Do Minimum scenario on this approach.

11.53. The results indicate that the existing signal junction arrangement would operate within capacity for both 2036 baseline peak periods. This suggests that the existing junction could accommodate additional traffic flows without exceeding capacity.

11.54. On this basis the same existing arrangement has been tested with the 2036 Do Minimum traffic flows applied. The results with the 2036 Do Minimum applied to the model indicates that the junction would remain within capacity in both peak hours. There is a small increase in queuing of up to two vehicles in the AM peak and up to three vehicles in the PM peak when the Do Minimum scenario is introduced. The model has optimised the signal timings to achieve these results.

11.55. The modelling indicates that the existing junction arrangement could accommodate both the 2036 Baseline and Local Plan Do Minimum flows subject to adjustments to the signal timings. Therefore, it is suggested that the existing junction layout and operation can be maintained to accommodate the Do Minimum scenario and that incremental timing changes are made, as necessary.

11.56. In the worst case, where impacts could not be mitigated without additional capacity for motor vehicles, it is recommended that the existing junction layout and operation can be maintained to accommodate the Do Minimum scenario and that incremental timing changes are made as necessary.

Future pedestrian/cyclist improvements

11.57. The junction is located adjacent to St Jude's Catholic Primary School and Fareham College. At the start and end of the day there is likely to be a high level of pedestrian and cyclist activity crossing at the junction associated with these facilities. While the junction currently includes dropped crossings there are no formal facilities within the signal operation to allow users to cross. Historically a school crossing patrol has operated here. Wider aspirations exist to provide a continuous off-road cycle routes east-west alongside The Avenue.

11.58. This report has not specifically investigated enhanced crossing facilities but the provision of push button crossings on each arm within an all red to traffic stage would be beneficial. This would fit into the strategy for east west off road cycle route through this junction. The morning peak model for the 2036 Do Minimum scenario indicates a small amount of reserve capacity (5.1%). The inclusion of an all red to traffic stage would erode into this spare capacity. No modelling has been undertaken corresponding to the school afternoon peak and a low level of crossing activity would be anticipated to coincide with the modelled PM peak. Further modelling would be required to test the capacity impact of providing enhance crossing facilities through an all red to traffic stage.

Summary

11.59. Several junctions have been identified as being potentially significantly or severely impacted by the traffic forecast to be generated by the Fareham Local Plan. The junctions where mitigation is most warranted have been assessed further and their effectiveness evaluated. The potential highway mitigation measures are summarised in Table 11-4.

Table 11-4 - Proposed Highways Mitigation Measures

Junction number	Junction	Severity	Mitigation Measure
80	Parkway/Leafy Lane	Severe	Signalisation with local widening on Parkway and Leafy Lane approaches. Remove on-street parking from Parkway
6	A27 The Avenue/Redlands Lane/Gudge Heath Lane	Significant	Optimise signal timings. No physical measures required
17	Warsash Road/Abshot Road	Significant	Widen Warsash Road west approach to mini roundabout
26	Delme Roundabout	Significant	Partial signalisation of roundabout with widening on Cams Hill approach and circulatory sections (TCF scheme)
46	A27 The Avenue/Bishopsfield Road	Significant	Optimise signal timings. No physical measures required.

11.60. It should be noted that none of the mitigation measures have been subject to a Road Safety Audit at this stage. Following standard processes, the physical mitigation measures should have a stage 1 Road Safety Audit completed before progressing to any further stage of design. As above, the mitigation presented in this report is to demonstrate that the level of development proposed is capable of mitigation – it is not intended to present a preferred package of works or to advocate specific junction designs. The final design solutions would be developed as and when the individual site proposals come forward to take account of any changes in traffic patterns and other infrastructure schemes coming forward in intervening years; and to ensure that inclusion of infrastructure for sustainable modes is considered first.

12. Do Something Modelling Results

2036 Scenario 3 Do Something versus 2036 Scenario 2 Do Minimum

12.1. The above mitigation measures have been included in the SRTM to provide the 2036 Scenario 3 Do Something with full details of the modelling and residual impacts of the mitigation measures presented in the next section and Systra SRTM Modelling Report.

12.2. The nature of the SRTM means that where additional capacity is introduced on a modelled network that is operating under unconstrained demand, re-routing of traffic occurs and released capacity often attracts traffic demand from other routes. This can reduce the mitigation scheme benefits in terms of junction performance. The observed forecast traffic flow increases at the locations where mitigation measures have been implemented to alleviate capacity issues are due to this phenomenon. This can also result in congestion points elsewhere on the network that are not forecast in earlier 2036 Scenario 2 Do Minimum. This re-assignment of traffic is representative of actual changes in driver behaviour when deciding to avoid a congested route and whilst several factors other than driver delay can affect route choice, traffic re-assignment within the network is an expected knock-on effect of the model. Details of knock-on effects resulting from the potential mitigation measures elsewhere on the network are explored later in this section.

Highway Network

12.3. The Highway network for the Do Something scenario includes the following improvements at five junctions within Fareham District in order to mitigate against the impacts of the Fareham Local Plan.

- Delme Roundabout – signalisation of junction, adjustment to signal phasing/green times, additional physical capacity, public transport measures. Same as TCF bid scheme;
- Parkway/Leafy Lane – signalisation of junction, additional physical capacity;
- Warsash Road/Abshot Road/Little Abshot Road - additional physical capacity;
- A27/Redlands Avenue - adjustment to signal phasing/green times; and
- A27/Bishopsfield Road - adjustment to signal phasing/green times.

12.4. It should be noted that where mitigation measures increase capacity, and potentially attract further traffic, the expected reduction in delay from the mitigation may be dampened or absorbed entirely by the impact of the increased traffic volume. In addition, the provision of traffic signals will inherently produce an element of delay due to the red signal periods and this may be greater than the scenario without the signals, particularly in time periods where capacity or congestion issues are not present/forecast.

Highway Network Performance

12.5. The section outlines the performance of the highway network for the AM and PM periods for 2036 Scenario 1 Baseline, 2036 Scenario 2 Do Minimum and 2036 Scenario 3 Do Something.

12.6. Even when focussing at a Borough level, the coverage is very broad with only five mitigated sites and in terms of comparison between the 2036 Scenario 2 Do Minimum and 2036 Scenario 3 Do Something values, the difference is small. The outputs reported in the sections below focus more specifically on the locations where mitigation has been included and provide a better comparison between these scenarios.

Traffic Flow Difference

12.7. This section identifies the change in traffic flow in the AM and PM peak hours between the 2036 Scenario 3 Do Something and 2036 Scenario 2 Do Minimum, at an overall borough level. The sections

that follow focus on the five locations where mitigation is proposed, plus any other notable flow and delay changes.

Leafy Lane/Parkway (and Whiteley Lane/Barnes Wallis Road)

12.8. Leafy Lane/Parkway has been converted from a priority T-junction to a signalised junction in the Do Something scenario. Such a change is typically of benefit to the opposed traffic movements in a priority arrangement (i.e. exiting Leafy Lane or turning right towards it) but normally increases delay to unopposed movements (straight ahead flows on Parkway in this instance).

12.9. Within the strategic model there are forecast delay increases on all movements in the AM peak at the newly signalised junction and, as such, there are forecast reductions in flows on all movements at the junction in the 2036 Scenario 3 Do Something. This flow reduction includes through trips at the junction (Parkway to Leafy Lane and vice-versa) now seeking alternative routes and some switching of flows between access points (to avoid the signal junction) to the zone in the model that represents the Business Park area. This latter point is a result of the zone having more than one access point allowing users to switch and the forecast flow change is considered an overestimate, in this instance, because at an operational level not all users would have a choice in where to access the development (i.e. allocated car parks etc.).

12.10. The flow changes and associated impact at the Cartwright Drive/Whiteley Lane junction are a knock-on effect from the flow changes driven by the mitigation scheme at the Leafy Lane/Parkway junction. It is suspected that the forecast flow changes in this area are an overestimate of potential impact because of necessary simplifications in a strategic model in network coding for zone access points. At the Cartwright Drive/Whiteley Lane junction, an increase in flow towards Barnes Wallis Road is reducing gaps for users from Whiteley Lane northbound to join the roundabout that in turn is significantly increasing the delay on that movement by approximately 60 seconds. However, despite the large delay increase the forecast flow on the Whiteley Lane approach impacted by the delay is less than 10 PCUs. Based on the forecast number of users impacted, and potential uncertainty in scale of impact mitigation is not considered at this location.

12.11. Leafy Lane/Parkway was forecast to suffer “severe” impact in the 2036 Scenario 2 Do Minimum scenario. Following the inclusion of mitigation measures, the Local Plan impact has been successfully mitigated and the junction no longer meets either of the “significant” or “severe” criteria.

A27 Junctions with Redlands Lane and Bishopsfield Road

12.12. The above two junctions are located adjacent to each other and both have been subject to traffic signal optimisation in the model. Due to their proximity, and the forecast impact of the mitigation, they have been considered in combination. Whilst signal optimisation seeks to minimise overall delay at the junction being optimised, it does not necessarily tie with overall traffic management objectives at individual locations. In this instance, the optimisation has reallocated green time away from the A27 to one of the side roads at each of the junctions. It is acknowledged that this may not be a desirable outcome/impact for the Highway Authority.

12.13. In the AM at the Redlands Lane junction, there is a forecast flow reduction on all approach arms except Gudge Heath Lane. At the Bishopsfield Road junction there is a forecast flow reduction on all arms except Bishopsfield Road. The flow reduction on A27 as a result of this is largely offset by a flow increase on Longfield Avenue to the south. The flow increases and reductions correspond with respective delay reductions and increases.

12.14. In the PM at the Redlands junction, there is a forecast flow reduction on all approach arms except A27 eastbound. At the Bishopsfield Road junction there is a forecast flow reduction on all arms except Bishopsfield Road. Bishopsfield Road is drawing a proportion of traffic away from the parallel routes of Redlands Lane and Peak Lane. The is also a small pull of traffic from the Stubbington Bypass (northbound) with traffic using Newgate Lane and Longfield Avenue to then access A27 via Bishopsfield Road. Similarly, to the AM, the flow increases, and reductions correspond with respective delay reductions and increases.

12.15. A27 Redlands Avenue is forecast to experience an RFC capacity greater than 85% in all modelled scenarios.

12.16. The junction triggered the “significant” criteria in the Do Minimum scenario. It is forecast that the mitigation measures will not lower the severity of capacity issues at this junction below the “significant” threshold. In fact, the Do Something scenario is forecast to see A27/Redlands Avenue classified as “severe”. This is due to an increase in RFC on them westbound A27 approach.

12.17. The M27 Junction 9 is triggered into the “significant” criteria due to a forecast flow increase in the PM peak hour on the westbound off-slip. Between the Do Minimum and Do Something, this equates to a flow increase of approximately 25PCUs. From a review of the overall flow difference between these scenarios it is concluded that the flow change is driven by the impact forecasted at the A27 junctions with Redlands Lane and Bishopsfield Road. A proportion of traffic that was previously forecast to utilise A27 westbound through these junctions is now reassigning to M27 westbound. It is expected that any further adjustment to signal timings at the two A27 junctions in favour of A27 movements would pull a proportion of the reassigned traffic back from M27 to the A27 and remove the “significant” assignment from M27 Junction 9.

Warsash Rd/Abshot Rd/Little Abshot Rd

12.18. Following the introduction of a flare on the Warsash Road eastbound approach to the junction, an increase of 40 PCUs is forecast in the AM peak hour and 30 PCUs in the PM.

12.19. Much of the flow increase proceeds northbound on Abshot Road and has reassigned from the parallel route of Locksheath Park Road.

12.20. Warsash Road/Abshot Road/Little Abshot Road was forecast to operate above 85% RFC in both the Baseline and Do Minimum scenarios. Following the introduction of the mitigation measures in the Do Something it is forecast to operate below 85% RFC on all arms.

Delme Roundabout

12.21. The proposed scheme at Delme Roundabout has included for signalisation on the A27 Cams Hill and A32 Wallington Way approaches to the junction and the corresponding circulating movements on the roundabout and some local carriageway widening. This is in addition to the existing signalisation on the approaches from the A27 off slips. As part of the proposed changes, all signals at the junction have been optimised in the model. Although signalisation allows greater regulation of flows, it does also add a component of delay to movements (particularly circulating movements) that did not previously experience this.

12.22. It is both at, and in the vicinity to, Delme Roundabout that forecast flow changes are most pronounced when comparing the 2036 Scenario 2 Do Minimum and 2036 Scenario 3 Do Something scenarios. In the AM, there is a forecast flow reduction eastbound on East Street towards Delme and a comparable increase on the A27 Eastern Way approach to the junction. This represents a switch in routing between the two links between Quay Street roundabout and Delme roundabout and is linked to a delay reduction on the A27 off slip (due to optimised signals) and an increase in delay on the East Street approach. This impact is not forecast to occur in the PM and flows on the eastbound approaches of both A27 Eastern Way and East Street are largely unchanged.

12.23. There is a forecast change to routing from Delme Roundabout; vehicles from the Delme Roundabout would switch from using East Street in order to access High Street and are now forecast to do so via Wallington Way and the Wickham Road roundabout. Based on a comparison to Google Maps data, there is little difference between the two routes in terms of distance and journey time with both confirming route choice is very sensitive to small changes in network performance. The forecast change occurs in both AM and PM peaks.

12.24. On the southbound off-slip of A27 Eastern Way, there is a forecast flow reduction. This relates to traffic from M27 (Junction 11) destined for the northern part of Fareham Town Centre that has switched to Junction 10 to avoid a signal related delay increase on the A27 off-slip at the Delme Roundabout. This is in addition to the increased delay on the roundabout circulating link as a result of the signalisation of the Cams Hill approach to the junction. The forecast flow change occurs in both peaks but is more pronounced in the AM.

12.25. Despite a delay reduction on the A27 Cams Hill approach in the AM there is minimal flow change on this arm in that peak. However, in the PM the model forecasts a delay increase forecast and an associated flow reduction on this approach. In addition, those vehicles joining at Cams Hill and circulating on the roundabout to A27 northbound towards M27 Junction 11 must pass through a further additional set of signals whilst circulating on the roundabout that increase delay on this route. A proportion of vehicles have rerouted away from the Cams Hill approach to the Delme Roundabout to join M27 via Junction 10 having been previously forecast to join the motorway at Junction 11.

12.26. In the PM only, there is a forecast flow reduction (linked to a signal related delay increase) on the southbound Wallington Way approach to the roundabout. Most of this reduction relates to the movement heading towards A27 Cams Hill. There does not appear to be one single route that users would switch to in place of Wallington Way, with instead a combination of smaller changes, depending on the origin of the trip, feeding into the other approaches to the roundabout.

12.27. Following the mitigation measures at the junction, Delme Roundabout is forecast to have an operational RFC below 85% on all arms.

12.28. Delme Roundabout was previously classified as forecast to experience “significant” impact; however, the mitigation measures have successfully mitigated the impact of Local Plan growth, and lowered the RFC substantially so that it is no longer classified as meeting either the “significant” or “severe” criteria.

Capacity Hotspots

12.29. This section outlines junctions with an RFC greater than 85% in the 2036 Scenario 3 Do Something. Junctions with an RFC greater than 85% are considered to be operating close to, or at capacity.

12.30. As seen in Table 11-4 and Figure 12-1 applying the criteria set-out in Paragraph 8.13 there is a total of 17 junctions that meet the “significant” change criteria and two junctions meeting the “severe” change criteria when compared against the Baseline in Chapter 8. The two severe junctions are A27/Redlands Lane and Cartwright Drive/Whiteley Lane/Barnes Wallis Road. Overall, there is an increase in one “significant” location and an increase in one “severe” location when compared to Figure 9-1.

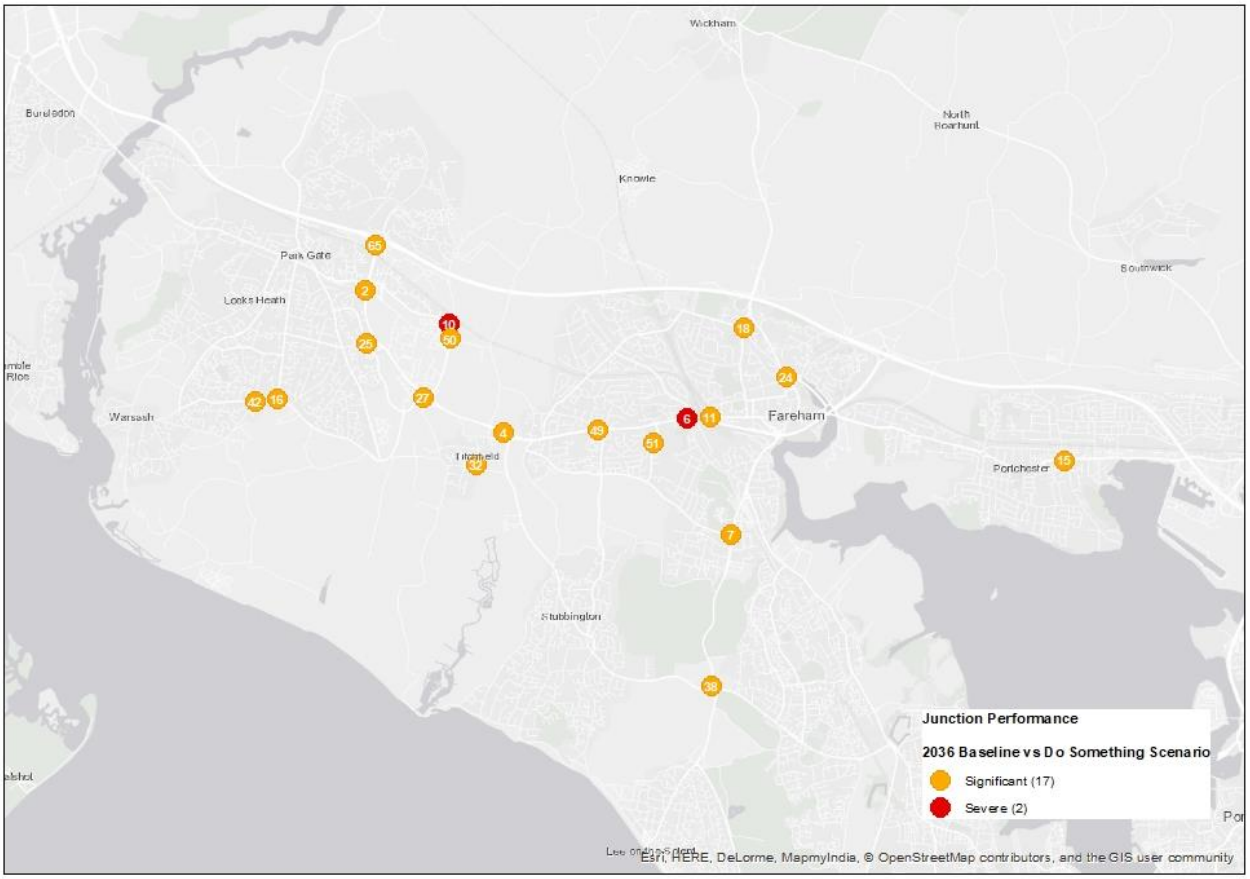
12.31. Given the nature of the strategic model in relation to reallocation of trips, the list does differ from the longlist of junctions in the Do Minimum output; there are seven junctions not previously identified as having “significant” or “severe” impacts in the Do Minimum and these are highlighted in Table 11-4.

12.32. As stated in Paragraph 12.2, new junctions triggering one of the “significant” or “severe” criteria are not entirely unexpected due to the mitigation measures as the nature of the SRTM means that where additional capacity is introduced on a modelled network that is operating under unconstrained demand, re-routing of traffic occurs and released capacity often attracts traffic demand from other routes. This can result in congestion points elsewhere on the network that are not forecast in earlier Do Minimum scenarios. This re-assignment of traffic within the network is an expected knock-on effect of the model. Details of knock-on effects are described in more detail below.

Table 12-1 - 2036 Scenario 3 Do Something Junctions

Junction arm	Junction Approach	Significantly Impacted	Severely Impacted	Junctions not impacted in the Do Minimum scenario
AM				
Segensworth Roundabout	Little Park Farm Rd	Y		
Titchfield Gyratory	A27 The Avenue	Y		
A27 The Avenue/Redlands Lane/Gudge Heath Lane	A27 The Avenue (East)		Y	
Station Roundabout	A27 The Avenue	Y		
Castle Street Roundabout	Station Road	Y		
A32/High Street/Wallington Way	A32 Wickham Road (North)	Y		Y
St Margarets Roundabout	Warsash Road	Y		Y
Peel Common Roundabout	Gosport Road	Y		
Fleet End Road/Warsash Road/Raley Road	Fleet End Road	Y		
A27 The Avenue/Catisfield Road	A27 The Avenue (East)	Y		Y
Segensworth Road East/Cartwright Drive	Segensworth Road East (West)	Y		Y
Bishopsfield Road/Longmynd Drive	Longmynd Drive (East)	Y		Y
Barnes Wallis Road/Whiteley Lane/Cartwright Drive	Whiteley Lane (South)		Y	Y
PM				
Longfield Avenue/Newgate Lane	Newgate Lane (South)	Y		
Warsash Road/Locks Road	Warsash Road (East)	Y		
Kiln Road/North Hill/Old Turnpike Lane	Kiln Road	Y		
Lower Church Road/Primate Road/Longacres	Lower Church Road	Y		Y
Coach Hill/South Street/Bridge Street	Bridge Street	Y		
M27 J9	M27 Westbound off slip	Y		

Figure 12-1 - 2036 Baseline vs. 2036 Do Something Impacted Junction Locations



Further Local Modelling

12.33. Following the outcomes of the Scenario 3 2036 Do Minimum scenario the mitigation measures were fed back into the SRTM to test their impact on the wider highway network. The Hampshire Services criteria detailed in Paragraph 11.3 was applied to identify those junctions within Fareham Borough most impacted by highway growth between the two scenarios.

12.34. The new model run of the SRTM identified that the 2036 Do Something Scenario 3 motor vehicle traffic would produce a significant or severe impact on capacity the junctions shown in Table 12-2. Following the criteria set out in Paragraph 11.3, analysis suggested that mitigation measures were considered and discussed with the Highway Authority or Highways England for four junctions.

Table 12-2 - 2036 Scenario 3 Do Something Junctions Impact Summary

Junction	Junction Approach	Summary	Mitigation Required
AM			
Segensworth Roundabout	Little Park Farm Rd	Increase in delay per vehicle low and queue length can be accommodated without blocking back	N
Titchfield Gyratory	A27 The Avenue	Although flow is very high, increase in delay per vehicle is very low and there is no queue	N
A27 The Avenue/Redlands Lane/Gudge Heath Lane	A27 The Avenue (East)	Flows to be rerun through local model to check issue - reported in Local Modelling report	Y
Station Roundabout	A27 The Avenue	Although flow is very high, RFC is still within practical capacity, increase in delay per vehicle is very low and there is no queue	N
Castle Street Roundabout	Station Road	Delay is 11 seconds but no increase in queue length	N
A32/High Street/Wallington Way	A32 Wickham Road (North)	Although flow is very high, increase in delay per vehicle is very low and there is no increase queue. Queue can be accommodated without blocking back	N
St Margarets Roundabout	Warsash Road	Increase in delay per vehicle low and queue length can be accommodated without blocking back	N
Peel Common Roundabout	Gosport Road	Although flow is very high there is no increase in delay and there is no queue	N
Fleet End Road/Warsash Road/Raley Road	Fleet End Road	Increase in delay per vehicle low and queue length can be accommodated without blocking back	N

Junction	Junction Approach	Summary	Mitigation Required
A27 The Avenue/Catisfield Road	A27 The Avenue (East)	Delay is 18 seconds and queue length increase by 6 PCUS. Offered to develop a mitigation scheme on the basis that the impact is only just over practical capacity, it would not require a model run. Local model created and tested.	Y
Segensworth Road East/Cartwright Drive	Segensworth Road East (West)	Delay is 23 seconds and queue length increases by 2 PCUS. Queue length well within stacking capacity and junction only just reaching practical capacity. Develop high-level concept scheme, not proposed to model.	Y
Bishopsfield Road/Longmynd Drive	Longmynd Drive (East)	Increase in delay per vehicle low and queue length can be accommodated without blocking back	N
Barnes Wallis Road/Whiteley Lane/Cartwright Drive	Whiteley Lane (South)	Increase in delay per vehicle relatively high but affects very few vehicles and RFC remains very low	N
PM			
Longfield Avenue/Newgate Lane	Newgate Lane (South)	Although flow is very high there is no increase in delay and there is no queue	N
Warsash Road/Locks Road	Warsash Road (East)	Increase in delay per vehicle low and queue length can be accommodated without blocking back	N
Kiln Road/North Hill/Old Turnpike Lane	Kiln Road	Increase in delay per vehicle low and queue length can be accommodated without blocking back	N
Lower Church Road/Primate Road/Longacres	Lower Church Road	Increase in delay per vehicle low and there is no queue	N
Coach Hill/South Street/Bridge Street	Bridge Street	Increase in delay per vehicle low and there is no queue	N
M27 J9	M27 Westbound off slip	Discussed with Highways England who are content that the impact be investigated further through site specific TAs, backed by appropriate policies within the STA	Y

12.35. This part of the STA outlines the updated results following the SRTM 2036 Do Minimum scenario model run. The Hampshire Services Local Junction Modelling report outlines these modelling results in more detail.

A27 The Avenue/Redlands Lane/Gudge Heath Lane

12.36. This junction was identified in the original Do Minimum SRTM run where 2036 Do Minimum would have a severe impact on junction capacity. The first tranche of this local modelling identified that these

Local Plan flows could be accommodated by optimising the signal timings. This would require no physical changes to the junction layout or signal operation.

12.37. The SRTM has identified this junction as having significant and severe capacity issues in the AM and PM peak periods, respectively.

12.38. The mitigation measure of adjusting the signal timings demonstrates that this would be sufficient to accommodate the 2036 Do Minimum at this junction. No physical measures would be required to bring the operation of the junction back within capacity.

A27 The Avenue/Peak Lane/Catisfield Road

12.39. This junction did not flag up in the original Scenario 1 and 2 SRTM runs with a significant or severe impact from the Local Plan flows. When the SRTM was run in Scenario 3 with the mitigation measures applied it was identified with a severe impact on junction capacity.

12.40. It should be noted that it is intended to change the junction layout and operation in 2020/21. This work is proposed by Hampshire County Council (HCC) as part of its traffic signal refurbishment programme. The signal equipment has reached the end of its working life and is to be replaced with modern equipment. The opportunity is being taken to provide a pedestrian controlled crossing on the east arm of The Avenue. This facility has been included in response to public requests to improve the currently poor crossing provision across this arm of the A27. The left turn slip lanes into both Peak Lane and Catisfield Road would be removed to accommodate the new crossing. The scheme is not included in the SRTM model runs. For the purposes of the Local Plan modelling the updated 2036 (DM1) flows they have been applied to both the existing and proposed junction layouts.

12.41. Whether the 2036 Do Minimum 1 flows are applied to the existing layout or Do Something proposed layout options by optimising the signal timings the junction would operate within capacity. No physical changes would be required to accommodate the 2036 Do Minimum flows on either option to bring the operation of the junction back within capacity.

A27 Segensworth Road East/Cartwright Drive

12.42. The junction of Segensworth Road East/Cartwright Drive flagged as a significant impact in the Do Something model run. Further analysis showed that the junction was within the threshold of practical capacity at 85% RFC and therefore not something that would require mitigation through the Strategic TA. Nevertheless, to demonstrate that mitigation would be possible, and deliverable through development led travel plans in future, a high-level review of design options was undertaken as follows.

12.43. Segensworth Road is a single lane carriageway, and the traffic data indicates that right turning vehicles are queueing back from the junction blocking access for left turning vehicles. There are wide grass verges along the southbound side of Cartwright Drive either side of the junction, which could be utilised to widen the bell mouth. There is evidence of several statutory undertakers' services around the bell mouth area, including BT chambers and electricity cabinets, which could have an impact on any works around the junction.

12.44. Highway records show that the highway boundary is quite restrictive around the junction, which may inhibit any extensive rerouting options such as installing a roundabout. The only highways solution that is feasible for improving the junction flows involves, widening the carriageway of Segensworth Road along the westbound lane. The available verge is approximately 2.4m wide and if combined with the existing westbound lane could provide two reduced width lanes of 2.7m wide. The additional lane could be developed after the Abbeycroft Nursery entrance which would provide approximately 40m of stacking length for left turning vehicles. There is a mature tree in the verge at the start of the junction bell mouth that will require removal, and an electric cabinet and BT chamber that will require a diversion or protection prior to the kerb realignment necessary to accommodate the widened lane. There is little scope to widen the eastbound carriageway due to the narrow verge of approximately 1m which is backed by a solid line of trees, all of which would require removal.

M27 Junction 9

12.45. The M27 J9 westbound off slip flagged as significant in the Do Something model run taking the RFC from 85 to 90. The average queue length is projected to extend from 8 PCUs to 16. At this location, the two off slip lanes are approximately 1.75km in length each, provided ample room to accommodate the increased queue.

12.46. This information was shared with Highways England who confirmed that no further modelling was required at this location as part of the Strategic Transport Assessment. Highways England expects the Local Plan (through its policies) to ensure that impacts, such as this one, are investigated through more localised and detailed traffic models through the future planning application process for the draft allocation sites i.e. through site specific transport assessments.

13. Funding and Delivery of Mitigation

13.1. This section presents the estimated costs of the identified mitigation schemes, their phasing and how they could be funded.

Cost Estimates of Mitigation

13.2. The implementation costs for the mitigation detailed in Chapter 10 have been estimated based on preliminary designs with rudimentary detail to indicate the likely costs of delivery. The estimate is built up using recent tendered rates from HCC's GEN-3 framework. Fees are estimated as a percentage based on HCC fees for similar sized projects, with £5 million being the threshold for adopting the lower rates.

13.3. An optimism bias has also been applied to the costs at 44% to cover unknowns. This is a mechanism to cover uncertainty and risks throughout design and delivery and is in line with the HM Treasury 'Green Book' guidance for a standard Civil Engineering projecting. This figure may be reduced after a robust project risk analysis and reduction process, as detail and certainty are increased.

13.4. Table 13-1 provides an indication of costs (rounded to nearest £10,000) to implement the mitigation detailed in Chapter 11.

Table 13-1 - Indicative costs of mitigation

Junction	Estimates (£)
Leafy Lane/Parkway	390,000*
A27 The Avenue/Redlands Lane/Gudge Heath Lane	Minimal/no cost
Warsash Road Warsash Road/Abshot Road/Little Abshot Road	60,000
Delme Roundabout	9,350,000
A27 The Avenue/Bishopsfield Road	Minimal/no cost

*This does not include any ITS signals equipment

Funding

13.5. The strategic nature of the modelling does not allow the identification of a link between the potential mitigation and specific Local plan allocation sites, as only the total cumulative impacts of the Local Plan developments and of the mitigation have been assessed at the end of the Plan period. Therefore, it is not possible at this stage to draw conclusions on possible development contributions towards the above mitigation, especially as these are also required to address issues arising from background growth and any contributions would need to be proportionate. It is expected that funding for the works identified in this STA will be secured in parts via Section 106 contributions based on the proportionate impact of individual development sites.

Phasing

13.6. The potential infrastructure improvements modelled in this STA are based on assessments of the junction performance in the 2036 Scenario 3 Do Something compared to 2036 Scenario 1 Baseline. However, in many cases all or part of the Local Plan growth is planned to come forward prior to 2036 and so mitigation may also be required prior to that date.

13.7. As the SRTM has not assessed the impact of the Local Plan growth in other years than 2036 it does not reflect the potential delivery phasing of the development sites. The 2036 Do Something model only assesses the impact of the mitigation as a single package of works, and it is not possible to specifically identify with any accuracy phasing of the mitigation or links to specific developments.

13.8. However, professional judgment has been applied to provide an indication of the relative importance of the successful implementation of the Local Plan. This is based on junction performance with and

without the Local Plan development (i.e. between Do Minimum and Do Something scenarios) and their location on the network. Junctions on strategic links have been prioritised since, if traffic is delayed by congestion at these locations, the predicted performance of junctions nearer the centre of Fareham will not materialise. Implementation of mitigation at central locations will therefore not be required until traffic can pass through strategic junctions without unnecessary delay.

13.9. Table 13-2 presents the mitigation works in terms of delivery.

Table 13-2 - Indicative Phasing of Mitigation Works

Potential Mitigation Sites	Phasing
A27 The Avenue/Redlands Lane/Gudge Heath Lane	Short-medium term
Delme Roundabout	Short-medium term
A27 The Avenue/Bishopsfield Road	Short-medium term
Warsash Road Warsash Road/Abshot Road/Little Abshot Road	Medium-long term
Leafy Lane/Parkway	Medium-long term

13.10. It should also be acknowledged that the above conclusions were drawn based on unconstrained[42] traffic growth to 2036 to reflect a worst-case scenario. It is possible that some of the forecasted demand may not materialise in the modelled time periods due to travellers avoiding congestion by altering their route, travelling at a different time of day ('peak-spreading') or choosing to travel to/from a different location. In addition, the assessment considers all travel demand (demand flows in traffic modelling terms) that intends to go through individual junctions and assumes all this travel demand can reach the specific junction during the modelled time period. It is commonly recognised that some of the travel demand may not materialise in the modelled hours due to congestion elsewhere in the network, which leads to lower actual flows that arrive during a given period. In addition, the impact of new technology, and COVID 19 and their long-term impacts on travel demand is also unknown.

13.11. It is important that all the above considerations are kept under review when assessing the requirements for mitigation and its phasing. Some junctions may require mitigation at an earlier stage than the end of the Local Plan period or the severity of mitigation that is required could be reduced.

13.12. The mitigation suggested in this STA will therefore require further refinement or investigation in close liaison with HCC when developments in the Local Plan come forward in the future. The preference before highway mitigation will be to promote measures to increase active modes, public transport and reducing the need to travel. Whilst suggestions have been made in this STA, the final design and implementation of mitigation measures will be determined by HCC as the Highway Authority and as part of any review of Transport Assessments to be submitted in support of planning applications.

[42] In the SRTM unconstrained demand means that the decision to travel by car will not be constrained by other factors such as cost of travel (fuel, parking, time) comfort and safety factors or road quality. This does not imply capacity constraints along the network will not affect route choice but simply that any road users wishing to access the local highway network during a specific time can do so unconstrained.

14. Summary and Conclusion of the Findings

14.1. This Strategic Transport Assessment has been prepared to identify and describe the transport related impacts due to the proposed Fareham Local Plan. It also considers the potential interventions that may be required to address any identified significant adverse transport related impacts specifically resulting from the Local Plan growth.

14.2. A summary of the national, sub-regional and local policy context relevant to this study has been provided. Broadly these are all aimed at facilitating sustainable development to support population and economic growth, nationally, regionally, and locally within FBC, with an emphasis on promoting travel by public transport, walking, and cycling to lessen road traffic growth.

14.3. Fareham Borough is well connected in transport terms, with connections to the National Strategic Road Network and routes of both regional and sub-regional importance. It is served by three rail stations and has a comprehensive bus network, with services connecting all the key settlements. The Borough also has a network of cycling routes.

14.4. Key transport related issues currently experienced in the Borough include: peak period traffic congestion on several key routes due to high levels of car use and dependency; road safety at specific locations; some lack of connectivity, especially by public transport and for people walking and cycling; areas of poor air quality due to high traffic volumes; and funding constraints to address these issues.

14.5. The proposed growth locations in the Local Plan to accommodate forecast population and economic growth, took a wide range of factors into consideration, including transport and access implications. Most of the Local Plan growth is located either within or on the edge of existing conurbations, providing good opportunities for trips to be made by modes of transport other than the private car. Consequently, the proposed growth in the Local Plan is generally in sustainable locations in terms of transport and access.

14.6. A sub-regional traffic model has been used to assess the current operation of the road network and the traffic impact due to forecast population and economic growth up to 2036, both with and without the Local Plan growth. It should be noted that the forecast trip generation for the Local Plan growth is based on typical trip rates and does not, therefore, take account of any reduction in traffic generation that may be achieved through the delivery of sustainable measures; such as travel plans, walking and cycling infrastructure outlined in the LCWIP, and BRT aimed at reducing single occupancy car trips by promoting journeys by public transport, walking and cycling.

14.7. The traffic modelling has identified that traffic congestion is forecast to increase across the road network, both with and without the Local Plan growth. Demand at several key junctions is forecast to exceed available capacity which will result in significant addition delays during peak periods.

14.8. Consequently, minimising the number of vehicle trips generated by the Local Plan growth through a combination of maximising the accessibility of sites by modes of transport other than the private car and the implementation of robust, site specific travel plans, that have ambitious targets for maximising trips by alternative sustainable modes of travel, should be considered prior to investment in junction improvements to alleviate forecast incremental traffic congestion caused by the Local Plan growth .

14.9. By comparing the 2036 Baseline to the 2036 Do Minimum scenarios, the potential traffic impact of the Fareham Local Plan has been established. It is forecast that 16 will experience “significant” impact and 1 junction “severe” impact. These 17 junctions were taken forward for more detailed review and development of potential mitigation measures.

14.10. An in-depth analysis of each of these junctions was undertaken examining delay per vehicle, queue lengths, level of traffic flow and overall capacity which revealed that mitigation measures at the following five junctions was required:

- Parkway/Leafy Lane, Whiteley
- A27 The Avenue/Redlands Lane/Gudge Heath Lane, Fareham

- Warsash Road/Abshot Road, Locks Heath
- Delme Roundabout, Fareham
- A27 The Avenue/Bishopsfield Road, Fareham

14.11. Concept schemes to mitigate the traffic impact of Local Plan growth at these five junctions have been prepared and evaluated for their effectiveness. Cost estimates for these schemes have also been prepared.

14.12. The SRTM modelling is on a strategic scale, and it is therefore logical to assume that site-specific Transport Assessments submitted with planning applications may identify additional requirements particularly in regard to the junction modelling when looking in more detail. These should be based on the forecast traffic impacts taking into consideration any reduction in vehicle trip generation predicted to be achieved by the implementation of site-specific Travel Plans.

14.13. It is expected that funding for the identified mitigation schemes will be secured in parts developer contributions (s106). It will be a requirement of the Local Plan to seek developer contributions towards the mitigation measures identified in this Strategic Transport Assessment.

14.14. The comparison has also indicated that the Local Plan growth could increase traffic demand in current collision areas, . The standard process to review and address any such impacts would be through future site- specific transport assessments through the planning process. In the case of sites with resolution to grant, this process will already have been undertaken.

14.15. The methodology, criteria and outputs of model runs contained within this STA have been shared with both the Highway Authority and Highways England throughout the development of the STA. Feedback has been sought and additional sensitivity tests carried out to address the concerns of both authorities. To reflect the engagement carried out to date, Statements of Common Ground have been positively prepared in collaboration between both FBC and HCC, and FBC and HE. Reflecting the Duty to Cooperate, FBC will continue to engage with both authorities following their response to this document, and the associated transport evidence base.

14.16. In conclusions, based on the work of this Strategic Transport Assessment, it is considered that the quantum and distribution of the development proposed in the Fareham Local Plan, and the resulting transport impacts, are capable of mitigation at the strategic level, and that the plan is therefore deliverable and sound from a transport perspective.

Appendices

Appendix A. SRTM Committed Schemes (included in Baseline scenarios)

District	Scheme	2019	2026	2031	2036	2041
Eastleigh	Botley Road/Burnetts Lane		✓	✓	✓	✓
Eastleigh	Allington Lane/B3037 Fair Oak Road		✓	✓	✓	✓
Eastleigh	A335 Leigh Road/Passfield Avenue	✓	✓	✓	✓	✓
Eastleigh	Sundays Hill Bypass	✓	✓	✓	✓	✓
Eastleigh	St John's Link Road		✓	✓	✓	✓
Eastleigh	Chestnut Avenue/Stoneham Lane Roundabout	✓	✓	✓	✓	✓
Eastleigh	Chestnut Avenue/Passfield Avenue		✓	✓	✓	✓
Eastleigh	Burnetts Lane/B3037Fair Oak Road/Sandy Lane		✓	✓	✓	✓
Eastleigh	Botley Bypass		✓	✓	✓	✓
Eastleigh	North Stoneham Park Development Access		✓	✓	✓	✓
Eastleigh	B3037 Mortimers Lane/B3354 Winchester Road Junction		✓	✓	✓	✓
Eastleigh	B3037 Eastleigh Road/B3354 Botley Road Stubbington Way Junction		✓	✓	✓	✓
Eastleigh	Botley Green development access	✓	✓	✓	✓	✓
Eastleigh	Botley Gardens development access		✓	✓	✓	✓
Eastleigh	Maypole Roundabout Hedge End	✓	✓	✓	✓	✓
Eastleigh	M27 Junction 7 Improvements		✓	✓	✓	✓
Eastleigh	Winchester Road/Eastleigh Road/Stubbington Way junction, Fair Oak	✓	✓	✓	✓	✓
Fareham	M27 Junction 10			✓	✓	✓
Fareham	Welborne development			✓	✓	✓
Fareham	St Margarets Roundabout	✓	✓	✓	✓	✓
Fareham	Peel Common Roundabout	✓	✓	✓	✓	✓
Fareham	Gudge Heath Lane	✓	✓	✓	✓	✓
Fareham	A27 Southampton Road, Fareham	✓	✓	✓	✓	✓
Fareham	Newgate Lane South, Fareham	✓	✓	✓	✓	✓
Fareham	Station Roundabout (Avenue approach)	✓	✓	✓	✓	✓
Fareham	Stubbington Bypass		✓	✓	✓	✓
Fareham	Peel Common Roundabout		✓	✓	✓	✓
Fareham	A27 Downend Road, Portchester		✓	✓	✓	✓

District	Scheme	2019	2026	2031	2036	2041
Fareham, Gosport	Stubbington Bypass mitigation measures		✓	✓	✓	✓
Fareham, Winchester	M27 Junction 9 and Parkway South Roundabout		✓	✓	✓	✓
Gosport	Privett Road/Bury Road junction	✓	✓	✓	✓	✓
Gosport	Rowner Road/Carisbrooke Road junction	✓	✓	✓	✓	✓
North Whiteley	Whiteley Way Extension and speed limits		✓	✓	✓	✓
Havant	Hulbert Road/Purbrook Way Junction (Dunsbury Hill)	✓	✓	✓	✓	✓
Havant	Dunsbury Hill Farm Business Park	✓	✓	✓	✓	✓
Havant	A3(M) Junction 3		✓	✓	✓	✓
Havant	Purbrook Way/College Road		✓	✓	✓	✓
Havant	Interbridges		✓	✓	✓	✓
Havant	Purbrook Way/Stakes Hill Road		✓	✓	✓	✓
Havant	Purbrook Way f. Stakes Hill Road to College Road		✓	✓	✓	✓
Havant	Hulbert Road/Frendstaple Road/Tempest Avenue		✓	✓	✓	✓
Havant	Harts Farm Way/Southmoor Lane	✓	✓	✓	✓	✓
Havant	Bancroft Way New Road	✓	✓	✓	✓	✓
Havant	Ladybridge Roundabout		✓	✓	✓	✓
Havant	A259 Havant Road east of A27 Warbington Junction		✓	✓	✓	✓
Havant	Eagle Avenue Wecock Farm mini roundabout		✓	✓	✓	✓
Havant	Barton's Road/Horndean Road junction	✓	✓	✓	✓	✓
Havant	Barton's Road right turn	✓	✓	✓	✓	✓
Havant	Hambleton Road/Aston Road junction, Waterlooville	✓	✓	✓	✓	✓
Havant	Park Road South/Solent Road junction	✓	✓	✓	✓	✓
Havant	Park Road South/Elm Road/Parkway junction	✓	✓	✓	✓	✓
Havant/Portsmouth	Hayling Island ferry service	✓	✓	✓	✓	✓
Isle of Wight	Mill Street, Newport	✓	✓	✓	✓	✓
Isle of Wight	St Georges Way, Newport	✓	✓	✓	✓	✓
Isle of Wight	Forest Road/Parkhurst Road, Newport		✓	✓	✓	✓
Isle of Wight	Coppins Bridge – St Georges Approach		✓	✓	✓	✓

District	Scheme	2019	2026	2031	2036	2041
Isle of Wight	Pennyfeathers development network changes			✓	✓	✓
Portsmouth	Havant Road/Eastern Road	✓	✓	✓	✓	✓
Portsmouth	The hard, Queen Street/Wickham Street/Clock Street	✓	✓	✓	✓	✓
Portsmouth	Fratton Way	✓	✓	✓	✓	✓
Portsmouth	Isambard Brunel Road	✓	✓	✓	✓	✓
Portsmouth	Anglesea Road/Park Road	✓	✓	✓	✓	✓
Portsmouth	A27 Southampton Road Compass Road Paulsgrove	✓	✓	✓	✓	✓
Portsmouth	A27 Southampton Road Port Way	✓	✓	✓	✓	✓
Portsmouth	Aldi Store Access/Southampton Road/ Paulsgrove	✓	✓	✓	✓	✓
Portsmouth	Anglesea Road, Queens Street, Alfred Road, Bishop Crispian Way	✓	✓	✓	✓	✓
Portsmouth	Eastney Road/Bransbury Road/Devonshire Avenue	✓	✓	✓	✓	✓
Portsmouth	Fratton Park/Lake Road	✓	✓	✓	✓	✓
Portsmouth	Goldsmith Avenue/Milton Road/Eastney Road	✓	✓	✓	✓	✓
Portsmouth	Goldsmith Avenue Priory Crescent Winter Road	✓	✓	✓	✓	✓
Portsmouth	Kingston Road Kingston Crescent - North End	✓	✓	✓	✓	✓
Portsmouth	M275/A3/A27, Marriott Junction	✓	✓	✓	✓	✓
Portsmouth	Market Way/Alfred Road/Unicorn Road	✓	✓	✓	✓	✓
Portsmouth	Mile End Road Trafalgar Link Road	✓	✓	✓	✓	✓
Portsmouth	Milton Road/Velder Avenue	✓	✓	✓	✓	✓
Portsmouth	Milton Road/Priory Crescent		✓	✓	✓	✓
Portsmouth	Fratton Road/Arundel Street junction	✓	✓	✓	✓	✓
Portsmouth	Copnor Road/Norway Road junction	✓	✓	✓	✓	✓
Portsmouth	London Road/Southwick Hill Road junction	✓	✓	✓	✓	✓
Portsmouth	Copnor Road/Burrfields Road/Stubbington Avenue junction		✓	✓	✓	✓
Portsmouth	Fratton Road/Lake Road/St Marys Road junction		✓	✓	✓	✓
Portsmouth	Eastern Road/Havant Road/Farlington Avenue junction		✓	✓	✓	✓
Southampton	Commercial Road/Morris Road/Wyndham Place	✓	✓	✓	✓	✓

District	Scheme	2019	2026	2031	2036	2041
Southampton	M271 Redbridge Roundabout	✓	✓	✓	✓	✓
Southampton	A33 West Approach/Redbridge Road/Millbrook Road West	✓	✓	✓	✓	✓
Southampton	Woolston- Victoria Road/Woodley Road	✓	✓	✓	✓	✓
Southampton	A3024 Improvements		✓	✓	✓	✓
Southampton	M27 Junction 8		✓	✓	✓	✓
Southampton	Windhover Roundabout		✓	✓	✓	✓
Southampton	Swaythling A335 Junctions scheme	✓	✓	✓	✓	✓
Southampton	Woolston Itchen Riverside development	✓	✓	✓	✓	✓
Southampton	Wide Lane	✓	✓	✓	✓	✓
Southampton	Inner Avenue Southbound	✓	✓	✓	✓	✓
Southampton	A33 Millbrook Roundabout	✓	✓	✓	✓	✓
Southampton	A33 Millbrook Road West/Regents Park	✓	✓	✓	✓	✓
Southampton	A3057 Shirley High Street/Park Street	✓	✓	✓	✓	✓
Southampton	Third Avenue	✓	✓	✓	✓	✓
Southampton	Northern Rad/Union Street/Princes Street	✓	✓	✓	✓	✓
Southampton	Saltmarsh Lane/Central Bridge/Albert Road North/Itchen Bridge	✓	✓	✓	✓	✓
Southampton	A33 West Quay Road Corridor	✓	✓	✓	✓	✓
Test Valley	M27 Junction 3	✓	✓	✓	✓	✓
Test Valley	M271 Junction 1/Brownhill Way	✓	✓	✓	✓	✓
Test Valley	Abbotswood network changes	✓	✓	✓	✓	✓
Test Valley	Winchester Road/Braishfield Road Junction	✓	✓	✓	✓	✓
Test Valley	Ringwood Road/Calmore Road junction	✓	✓	✓	✓	✓
New Forest	Rollestone crossroads, Blackfield	✓	✓	✓	✓	✓
Various	Smart Motorways M27	✓	✓	✓	✓	✓
Various	Smart Motorways M3		✓	✓	✓	✓

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