Hampshire Planning and Transport

Building a Better Future Plan

Havant Local Plan 2025-2043

Strategic Transport Assessment

Havant Borough Council

May 2026

CONTROL SHEET

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Hampshire County Council
Third Floor, EII Court South,
The Castle,
Winchester,
SO23 8UL

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1 Introduction

1.1 Purpose

1.1.1 This document is the Havant Local Plan Strategic Transport Assessment (STA 2025), produced by Hampshire Planning and Transport, (Hampshire County Council's trading name) contracted to coordinate the STA on behalf of Havant Borough Council (HBC). The STA forms part of the evidence base for the emerging Havant Local Plan (2025-2043), also known as the 'Building a Better Future Plan'. The STA provides an assessment of the potential implications and opportunities of the proposed site allocations on transport networks. It considers how the proposed developments will align with national, regional, and local policy goals, including the National Planning Policy Framework, and Hampshire County Council's adopted Local Transport Plan 4.

1.1.2 Both Havant Borough Council and Hampshire County Council are members of the Partnership for South Hampshire (PfSH) and through this partnership, are able to work collaboratively with neighbouring authorities on strategic planning matters.

1.1.3 This STA has been positively prepared with involvement from both Highway Authorities (Hampshire County Council, and National Highways) and has had regard to the non-statutory Spatial Position Statement[1] setting out how the PfSH authorities will collectively address the need for housing into the medium term.

1.1.4 Local Plans are at the heart of the planning system and every local authority in England is required by Government to prepare one. They are used to guide decision making at all scales and identify the interventions necessary to support sustainable development that facilitates economic and population growth while protecting the natural environment and the health of the population. Once finalised, the Plan will carry great weight in making decisions on planning applications.

1.1.5 The Havant Local Plan sets out how much, what type and where development will take place over at least a 15-year period in Havant Borough. The Building a Better Future Plan will fully replace the Council's local planning policies set out in the Local Plan (Core Strategy) (2011) and the Local Plan (Allocations) (2014) and will apply to all of Havant Borough.

1.1.6 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

[1] http://www.push.gov.uk/work/planning-and-infrastructure/push-position-statement. The Spatial Position Statement is not an upper tier plan with which future local plans will need to conform. It does not have the status of a development plan document. It does however help inform the preparation of and strategic co-ordination of local plans.

proposed development in the Local Plan across the borough's various transport networks.

1.1.7 This STA describes the availability and operation of the transport infrastructure and networks within Havant Borough and considers the potential transport related impacts of the proposed Local Plan growth. It is important to note that consultation on the Regulation 18 draft Building a Better Future Plan closed in July 2025 and that HBC is still working on the next stage of the plan, including reporting on the findings from the separate consultations on the Waterlooville Town Centre Supplementary Planning Document (SPD) and on the St. Faith's Conservation Area Review. All references to the Local Plan allocations in this STA and in the strategic transport model refer to the Regulation 18 version of the Local Plan; a review of the proposed changes to the Regulation 19 version in development terms as assessed in this STA has also been undertaken (see paras 5.2.29 to 5.2.31). This review concluded that the changes to development yield would be minimal and that the assessments presented in this STA remain valid.

1.1.8 In total, around 6,830 dwellings and over 36,500sqm of employment space are proposed; of which the largest individual site with 2,100 dwellings is at Southleigh (Allocation Site 1) and the largest non-residential site is at Dunsbury Hill Farm (Allocation Site 27), with a total of 18,000sqm of mixed use development.[2]

1.1.9 There are no highway works planned on the sections of Strategic Road Network (SRN) that pass through the borough (the A3(M) and A27 corridors), but the strategic transport model assumes that National Highways (NH) committed improvement schemes elsewhere in the South East, mainly the M27 Junction 10 improvements, will be completed within the Local Plan period.

1.1.10 The STA considers what potential interventions may be required to address any identified cumulative impacts specifically resulting from the Local Plan growth that may have unacceptable impact on highway safety, or severe residual cumulative impacts on the road network. Any recommended interventions will be incorporated in the Havant Infrastructure Delivery Plan (IDP) to be delivered alongside proposed development.

[2] Note: there is a minor discrepancy between the figures presented in the Regulation 18 Local Plan and those used in the STA modelling. This is largely due to differences in how and where extant permissions and small sites within the urban area are accounted for in the STA and the Local Plan.

1.2 Background

1.2.1 Reflecting growing recognition of the impacts of transport on our health and environment, there have been a significant number of changes to national, regional, and local transport related policies in recent years. Specifically, there has been a drive towards net zero emissions and while action is being taken to decarbonise transport, the proposed location of growth and whether new developments would genuinely be sustainable are now important factors in demonstrating that a local authority area is on a pathway to net zero and therefore compliant with the requirements of the Climate Change Act 2008.

1.2.2 The National Planning Policy Framework (NPPF)'s approach to spatial planning reflects this and requires strategic policy-making authorities and community groups responsible for preparing local and neighbourhood plans to only promote development at locations that are or can be made sustainable and where opportunities to maximise walking, wheeling, cycling, public transport and shared travel have been identified.

1.2.3 This approach seeks to make the most efficient use of capacity within the overall transport network, improve health and wellbeing, and support government policies, strategies, policies, and guidance which aim to reduce the negative environmental impacts of development. These strategies, policies and guidance at a national level include:

A. National Planning Policy Framework;

B. Transport Decarbonisation Plan;

C. Future of Freight Plan;

D. Clean Growth Strategy;

E. Clean Air Strategy;

F. Net Zero Strategy;

G. National Design Guide;

H. National Model Design Code;

I. Local Authority Toolkit;

J. Inclusive Mobility;

K. Local Transport Note 1/20 Cycle Infrastructure Design;

L. Cycling and Walking Investment Strategy; and

M. Better Connected: A Strategy for Integrated Transport (April 2026).

Further details are set out in Appendix A.

1.2.4 In terms of transport assessment methodology, these changes include a move away from transport planning based on predicting future demand to and providing capacity for motor vehicles ('predict and provide') and towards planning that sets an outcome communities want to achieve and provides the

transport solutions to deliver those outcomes (vision-led approaches including 'decide and provide', 'vision and validate', and 'monitor and manage'). In December 2024, Para 116 of NPPF, which defines highway grounds for refusal was updated to include specific reference to testing of "*all reasonable future scenarios*". The glossary to NPPF defines *'reasonable future scenarios'* as *'a range of realistic transport scenarios tested in agreement with the local planning authority and other relevant bodies (including statutory consultees where appropriate), to assess potential impacts and determine the optimum transport infrastructure required to mitigate any adverse impacts, promote sustainable modes of travel and realise the vision for the site'*.

1.2.5 Transport assessment guidance is currently largely provided in government's 'Transport evidence bases in plan making and decision taking' Planning Practice Guidance published in 2014, but it is widely accepted that the guidance has not kept abreast of the recent policy changes in the NPPF. The current Transport Assessment (TA) guidance remains in support of transport assessment methodology that follows the 'Predict and Provide' approach, which delivers more road capacity at the detriment of other modes as well as reducing, which in turn reduced overall transport choice. All relevant guidance is outlined in Chapter 2. It is understood that TA guidance is currently under review.

1.2.6 In the absence of updated transport assessment guidance but in line with NPPF recommendations, a vision-led approach to assessments has been taken in this STA that aligns with National Highway's approach in Circular 01/2022. Although this comprises of the use of a demand forecasting model that accounts for the effect of possible interventions to the highway network, the approach to mitigation in a vision-led approach is to move away from focussing on capacity enhancements to the highway network for motor vehicles, including to the SRN to meet the worst-case demand. Scenario testing, in line with NPPF, has also been undertaken as part of this STA in agreement with HBC and the highway authorities with further details in Section 6.

1.3 Report Structure

1.3.1 The remainder of this report is structured as follows:

- Chapter 2: summarises the policy and strategic context for the HBC Local Plan and this STA;
- Chapter 3: provides an overview of the vision-led approach for this STA;
- Chapter 4: describes the provision and operation of the existing transport infrastructure and provides a commentary on current transport related issues within the borough as a whole;
- Chapter 5: discusses the assessment methodology, namely the use of the Sub Regional Transport Model (SRTM) and of the DfT's Connectivity Tool;
- Chapter 6: presents an overview of the assessments including a comparative analysis of the SRTM 2046 Baseline and 2046 Do-Minimum scenarios, i.e. an assessment of the modelled future level of transport

impacts of the proposed Local plan developments before any mitigation is considered and of the Connectivity Tool;

- Chapter 7: identifies and describes the proposed mitigation package including connectivity improvements and schemes to mitigate the identified ‘significant or severe’ impacts from the SRTM Do-Minimum scenario.
- Chapter 8: describes the assessment of the mitigation package including the results of the SRTM 2046 Do-Something scenario and discusses any residual impacts and the Monitor & Manage approach to further mitigation;
- Chapter 9: explains how the mitigation package could be funded and delivered; and
- Chapter 10: summarises the findings of the HBC Local Plan STA.

2 Policy and Strategic Context

2.1.1 The detailed review of the national, sub-regional and local transport related policies and strategic context relevant to this STA policies is provided in Appendix A which considers the following documents:

- Ministry of Housing, Communities and Local Government, 'National Planning Policy Framework' (2024)
- Ministry of Housing, Communities and Local Government, 'Transport evidence bases in plan making and decision taking' (2014)
- National Highways and Department for Transport, Circular 01/2022 Strategic road network and the delivery of sustainable development, and Planning for the future: a guide to working with National Highways on planning matters (October 2023)
- Department for Transport, 'Decarbonising Transport: a better, greener Britain' (2021)
- DfT, 'Road Investment Strategy 2 (RIS2): 2020-2025' including interim settlement for 2025-2026
- DfT, 'The Transport Investment Strategy' (2017)
- Transport for the South East (TfSE), 'Transport Strategy for the South East' (2025)
- Transport for the South East (TfSE), 'Strategic Investment Plan' (2023)
- Hampshire County Council - Local Transport Plan 4 (2024)
- HCC – Enhanced Partnership Plan (Bus Service Improvement Plan BSIP) (2023)
- HCC – Interchange Improvement Plan (2024)
- HCC - Local Cycling and Walking Infrastructure Plans (LCWIPs)
- HCC – Transforming Cities Fund (TCF)

2.1.2 Planning in England has been transformed by successive changes to local governance and planning legislation over the past decade. Changes have also happened in terms of people's working patterns and travel habits as a result of the global Covid-19 pandemic. Broadly, the more recent policies are all aimed at facilitating sustainable development to support population and economic growth while preserving the natural environment (Figure 1). This has transcribed into local-plan making guidance to consider planning and transport matters in a more cohesive way by ensuring every opportunity for reducing travel demand and enabling healthier travel choices is available at the onset of any new development. This means interventions to the transport system should no longer be reactive to address specific impacts of a development but should form an integral part of any a wider strategy for communities at a local level.

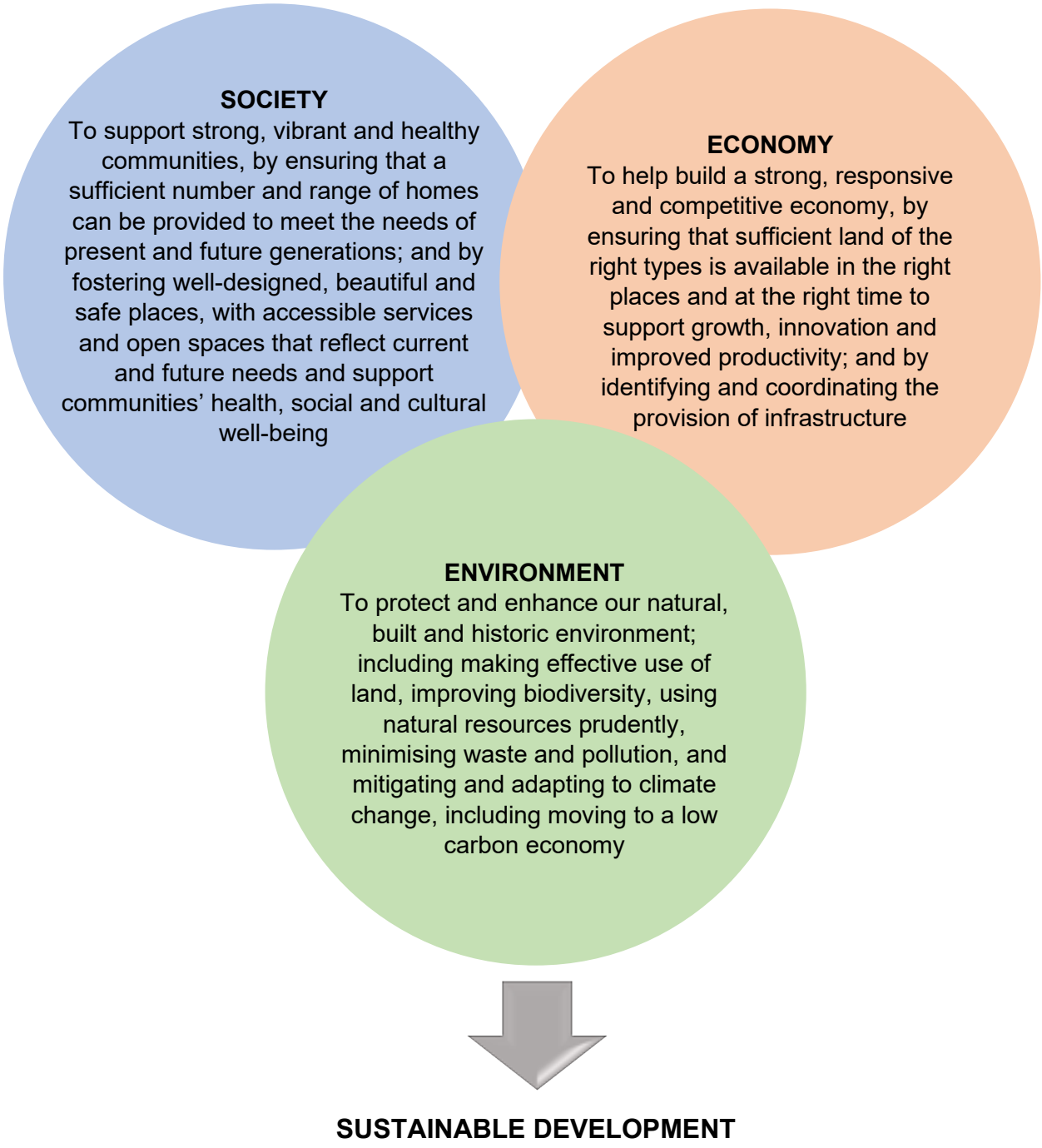

Figure 1: NPPF objectives to achieving sustainable development

2.1.3 Nationally and locally, the emphasis is now on sustainable development rather than capacity improvements. This can be achieved by focussing mitigation on connectivity improvements that give people genuine and attractive options to travel by public transport, walking and cycling and realise the wider benefits offered by these more sustainable modes.

2.1.4 In addition to the above policies and strategies, the development of appropriate improvements/mitigation considered in this STA has considered updated design guidance including:

- National Design Guide and the National Model Design Code
- Manual for Streets
- Design Manual for Roads and Bridges where relevant
- Inclusive Mobility – a guide to best practice on access to pedestrian and transport infrastructure
- Local Transport Note (LTN) 1/20 Cycle infrastructure design
- Hampshire County Council's Technical Guidance Notes
- A Healthy Streets approach, in line with HCC's LTP4 Healthy Streets Framework
- The emerging Movement and Place Framework outlined in HCC's LTP4

3 Vision

3.1.1. Transport assessments have traditionally been firmly rooted around a traffic focused 'predict and provide' approach, whereby a prediction was made as to how many people would likely drive, an acceptable level of convenience was set for commuters during peak hours, and the road network was designed to accommodate that. Since the publication of DfT's 'decarbonising transport' strategy, the focus for assessing transport has been shifting towards a 'vision' led approach which focusses more on providing genuine transport choice, including public transport and active travel. The focus has also changed to consider a wider range of journey purposes, recognising that the commute is likely to be the longest trip most people take regularly, and only represents up around 16% of all trips. The aim of a vision-led approach is to decide on what we want to see in future and design accordingly so that the primary objective of decarbonisation is achieved.

3.1.2. This approach means a fundamental shift in both engagement with stakeholders and transport analysis. It means working more closely with relevant statutory stakeholders, including Highway Authorities, to ensure the Local Plan strongly supports delivery of national and local transport policies and guidance. It also means changing how transport assessment is undertaken. This change is already present in some areas of planning policy and is just starting to find its way into the methodology of transport assessments. Although updated national guidance on transport assessments has yet to be published, HCC recognises that "*the only certainty about 2050 is that the world, and our part in it, will be very different from how it is today*" (Hampshire 2050, Vision for the Future).

3.1.3. Change, however, means a great deal more than simply reducing the predicted trips by an amount and still providing for the residual demand. In some circumstances, it may mean using road capacity as a tool to limit or reduce traffic volumes. While this STA will continue to use a traditional strategic transport model, (the Sub Regional Transport Model - SRTM), to inform and quantify the potential future travel characteristics on the highway network, the outputs will not be used as the 'pass or fail' arbiters of the 'predict and provide' world. Instead, the model outputs will help to identify potential sustainable travel interventions to mitigate the impacts of the proposed allocations on the transport networks and provide a monitoring framework against the following vision and objectives:

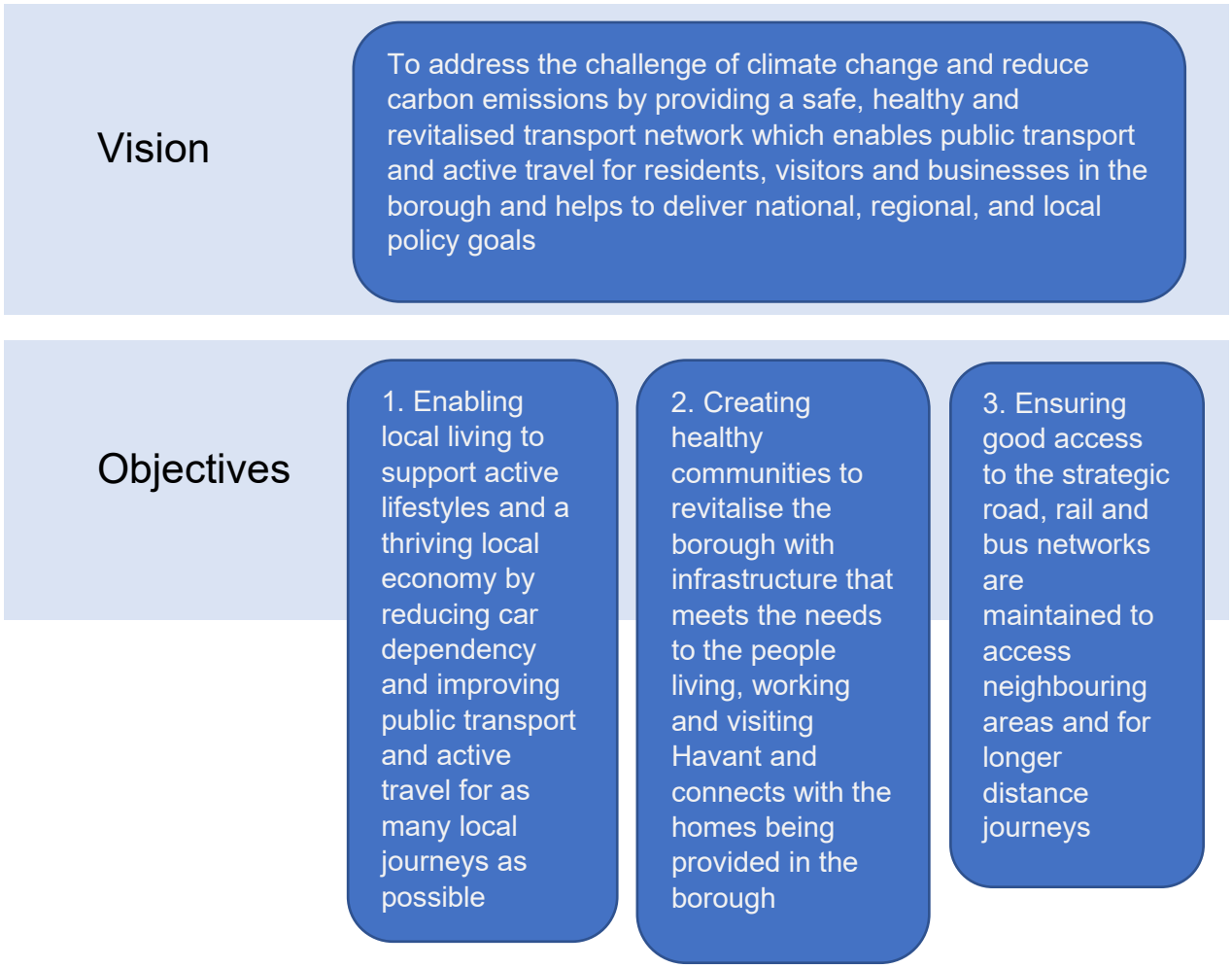

Figure 2: HBC Local Plan Strategic Transport Assessment Vision and Objectives

3.1.4. The vision and objectives interpret and seek to deliver HCC's new Local Transport Plan. and HBC has agreed the vision and associated objectives with the highway authorities (HCC and NH).

3.1.5. The first objective is about maximising local living, by ensuring that the community has access to the facilities that satisfy day to day living and that there are genuine alternative options to reach them without overreliance on the private car. These facilities include schools, leisure facilities, jobs, day to day shopping, health facilities, means of receiving deliveries, and means of working 'from home'.

3.1.6. The second objective supports creating places where local living is possible by a good choice of means of access, in order of priority and following HCC's road user utility framework, with opportunities to reduce the need to travel first (including digital connectivity), followed by prioritising the needs of disabled people, then walking, cycling, public and shared transport, delivery of goods, and lastly, other private motor vehicles. The primary movement networks for local day-to-day trips in some areas may well be active travel and public transport networks, with private cars used for longer journeys, or even consideration of shared ownership models like car clubs.

3.1.7. It is still recognised that the strategic road, rail and bus networks are an important part of Havant's infrastructure, and the third objective is about connectivity, by which we mean beyond the local area, through a good choice of means across the day, but still in order of priority; active travel, public transport, then shared travel followed by single occupancy private vehicle travel. This also considers strategic freight travel as well as private travel.

3.1.8. The approach to mitigation to address the transport impacts of the Local Plan growth has been developed in line with the above vision and objectives and with cooperation from both highway authorities. This means that the transport interventions considered include a wider range of measures than simply relying on traditional highway capacity improvements. This is discussed further in Section 8.

4 Transport Baseline

4.1 Overview

4.1.1 The following sections provide details of the current transport baseline and infrastructure across the borough. They also present a review of the potential for sustainable travel across and how travel patterns can be harnessed to increase accessibility and mode choice in future.

4.1.2 The town of Havant is at the heart of the borough, although through its growth almost half of the borough's population live to the west of the A3(M) corridor in the Waterlooville settlement. The character of the borough is largely urban, with few undeveloped and lightly developed areas remaining. Given its location on the coastal plains between the South Downs National Park and the Solent, the borough's development growth is also putting pressure on these natural assets. As a result, the emerging Local Plan focusses as much as possible on development in the borough's existing urban areas, brownfield sites and regeneration areas, mainly in the town centres. Nonetheless, brownfield sites by themselves are not sufficient and so sustainable greenfield urban extensions are also allocated in line with the development strategy.

4.1.3 Flood risk is a key constraint given the borough's coastal location and evidence of climate change and sea level rise. On this basis, greenfield development is only considered suitable on less constrained land on the mainland. Greenfield land on Hayling Island is not being put forward for development, primarily based on the flood risk to the single access road on and off the island. The pattern of development proposed as a result also aligns with the strategic aim to ensure good accessibility by non-car modes.

4.1.4 The borough of Havant is well connected through a variety of transport networks, with connections to the national Strategic Road Network (SRN) and routes of both regional and sub-regional importance. Alongside the three smaller railway stations at Bedhampton, Warblington and Emsworth, Havant station provides the main rail access within the borough. It is served by the main London Waterloo to Portsmouth line and is a key junction connecting the Coastway Line and the Portsmouth Direct Line, extending services to London Victoria (via Gatwick Airport), Brighton and Southampton. The town of Havant is served by a comprehensive bus network linking to surrounding areas such as Portsmouth, Petersfield and Chichester as well as to the Hayling Ferry that provides direct connection between Hayling Island and Eastney in Portsmouth.

4.1.5 The borough has a network of cycling routes of varying quality and accessibility and there is a significant disparity of opportunity to travel by sustainable modes across the borough, with, unsurprisingly, the greatest opportunities for sustainable travel focussed in and out of the town of Havant and to some degree Waterlooville.

4.1.6 The major road and rail networks in relation to the spatial areas of the borough are shown in Figure 3.

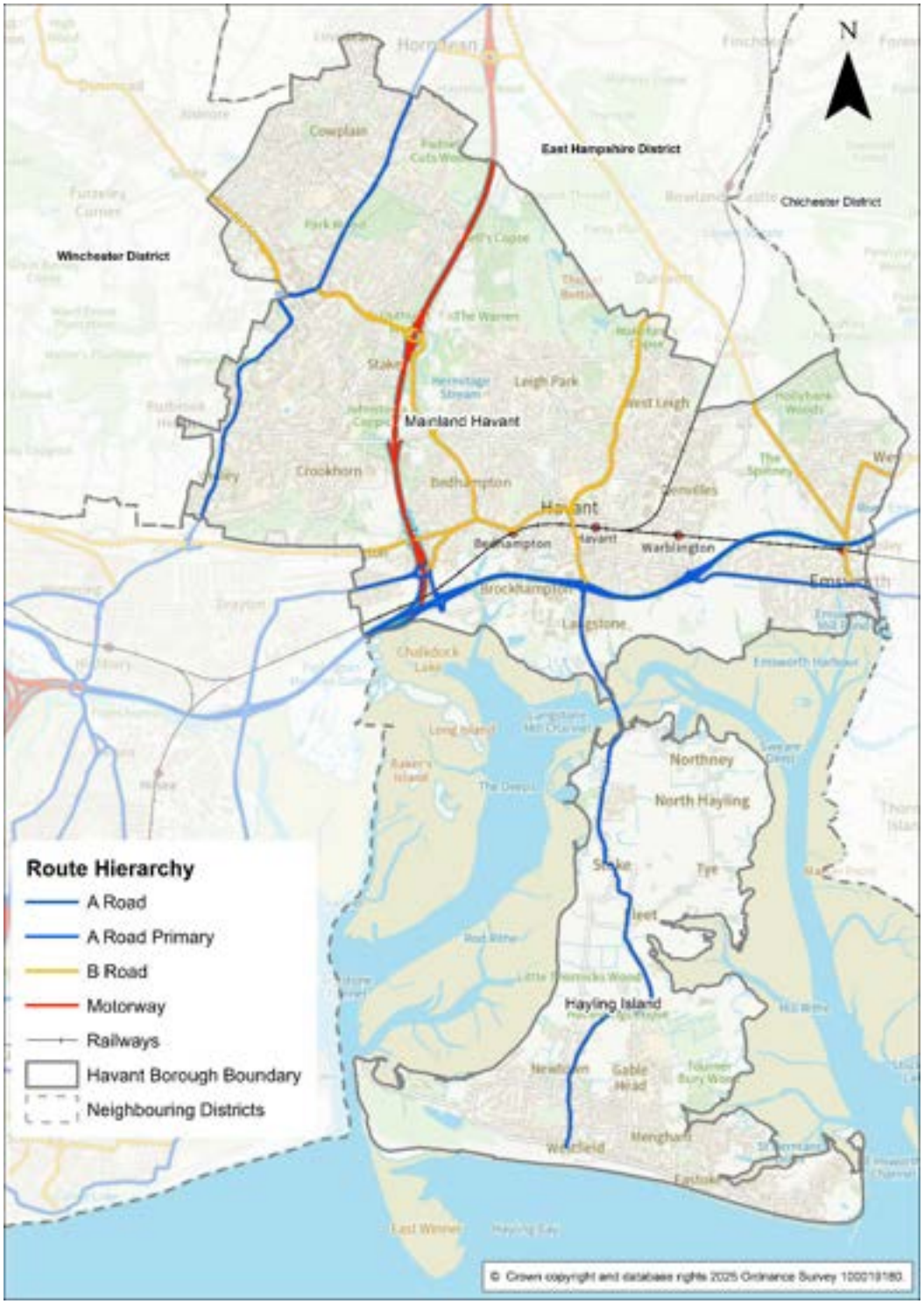

Figure 3: Major road and rail networks across Havant Borough

4.1.7 When considering accessibility and connectivity for new residents within the borough, key local trip generators have been identified. Havant town centre is a major destination for employment and shopping. Other large employment areas include Langstone Technology Park, Brambles Business Park, the Havant Borough Civic Campus, Dunsbury Park, Brockhampton and New Lane industrial and other major employment areas. In addition, a number of local educational and healthcare facilities are also among other key trip generators within the borough. These include seven primary schools, eight secondary schools and the further education provider Havant & South Downs College, and

the local health hub formed of Havant Health Centre, Oak Park Community Clinic and the Parkway Centre as well as the private Spire Portsmouth Hospital.

4.1.8 As a borough, Havant is the 15th most densely populated area of the South East's 62 local authority areas and most of its residents live on the 'mainland', mainly comprised of the wards/settlements of Stakes (8.34%), St Faith's (8.30%) Emsworth (8.27%), Havant (30%) and Waterlooville (8.15% of the borough)[3].

4.1.9 The percentage of adults that achieve at least 150 minutes physical activity per week in Havant borough is 54.3%, compared to 63.7% nationally[4]. Across the borough, 22.1% of adults walked for travel (not leisure) and 6.4% cycled for travel. The percentage of people cycling is higher than the Hampshire average of 4.6%[5].

4.1.10 The number of cars and vans owned per household is a useful indicator of the travel needs of the current population. While statistics on vehicle ownership do not indicate how frequently they are used, the proportion of the population who do not own a vehicle can indicate whether people's travel needs are either being met by non-car modes or affected by economic and demographic factors, such as earning levels, age, etc. Almost 1 in 5 households within the borough have no cars or vans (18%) while 82% have one or two cars or vans[6]. This suggests that most people in these areas perceive car or van travel to be essential for mobility, but many do not have this option. This is perhaps suggestive of the existing good connections by road for people living, working or visiting the borough, despite this being largely urban in character and well served by rail and bus services.

4.1.11 It should however be noted that the above data includes Hayling Island, whose only terrestrial connection to the mainland is via Langstone Bridge, that carries a single carriageway between its junction with the A27 into the heart of the island. While urban mainland environments such as the larger settlements of Havant and Waterlooville may have lower levels of open green space and coastal access than Hayling Island, the compact, higher density and mixed-use patterns of development present can enable people to incorporate active travel into their daily journeys and commutes. For this to be encouraged however, the public realm needs to be attractive to people travelling without a car, with wide, level pavements and crossings, good quality cycle routes and environments able to cater for all levels of accessibility.

[3] Table TS001 - Number of usual residents in households and communal establishments Nomisweb.co.uk – Census 2021
[4] Active Lives I Results (sportengland.org) – 2023/24
[5] Active Lives I Results (sportengland.org) – 2023/24
[6] 2021 Census

4.2 Transport Related Issues

Road Safety

4.2.1 Collision and casualty data for the borough has been assessed for the most recent five-year period, from 2020 to 2024.This identified a total of 910 collisions (all modes), equating to an average of 182 collisions per year, 9 of which resulted in fatalities (1%), 211 in serious injuries (23%) with the vast majority 690 (76%) resulting in slight injuries.

4.2.2 Where there are treatable patterns of casualties in one location, or a serious or fatal incident is recorded, measures for casualty reduction are investigated. Similarly, where casualty patterns occur over longer stretches of road, Route Studies can be considered.

4.2.3 Figure 4 shows the locations of casualties over the last five full years (2020 to 2024) as well as locations of targeted casualty reductions schemes delivered and planned. Table 1 provides more details as to the location of these schemes, and the timeframe for delivery.

Figure 4: Casualty clusters (2020-2024) and locations of targeted casualty reduction schemes

Table 1: Road Safety Schemes: delivered and planned

Ref no	Scheme No	Location	Year of delivery
Schemes being progressed/completed			
1	13LCP1800	B2148 Bartons Road Emsworth Common Road Emsworth	2019/2020
2	13RAP53	A259 Havant Rd (Selangor Ave to Bath Rd) Emsworth	2019/2020
3	SC0318	Southleigh Rd/Southleigh Farm Havant	2019/2020
4	13LCP1830	B2149 New Rd j/w Stockheath Ln, Havant	2020/2021
5	13LCP1831	A3 London Rd j/w Highbank Avenue and Bushy Mead	2020/2021
6	13RAP84	Park House Farm Way	2020/2021
7	13S2007	A3 London Road at j/w King's Road	2020/2021
8	13RAP90	Milton Road (Tennyson Crescent North to Longwood Avenue), Cowplain	2021/2022
9	13R2069	A3023 Manor Rd (Hollow Ln to Newtown Lane) Hayling	2021/2022
10	13S2073	Purbrook Way j/w Riders Ln Havant	2021/2022
11	13S2074	A3023 Beach Rd j/w Sea Front Rbt Hayling	2021/2022
12	SF0622	B2149 Petersfield Road j/w The Drive Havant	2022/2023
13	13S2124	Crookhorn Ln (Trojan Way to Perseus Pl) Havant	2024/2025
14	13S2162	C422 Stockheath Rd/Somborne Dr Mini Roundabout Havant	2024/2025
15	13S2135	B2177 Portsdown Hill Rd j/w B2177 Bedhampton Hill Rd Rbt Havant	2024/2025
16	13S2211	Middle Park Way (Toucan Xing N of Keyhaven Dr to Finchdean Rd) Leigh Park Havant	2024/2025
17	13R2184	A3 London Road Waterlooville Milk Lane to Maurepas Way Rbt	2025/2026
18	13S2219	A3 London Road j/w Ladybridge Road Rbt Havant	2025/2026
19	13S2198	C428 East St/Beechworth Rd/Townhall Rd Havant	2025/2026
20	13S2103	A3(M)/B2150 Hulbert Rd Rbt, Havant (Waterlooville approach to rbt)	2025/2026
21	13S2276	A3023 Havant Rd (Hayling Billy Car Park to Northney Rd) Hayling	2025/2026
Schemes planned for completion in 2025/26			
22	13S2033	New Ln j/w Crossland Dr Havant (H727)	2025/2026
23	13S2209	B2150 Hulbert Rd j/w Park Ln Havant	2025/2026
24	13S2275	Brockhampton Rd/Harts Farm Way/Southmoor Ln Rbt Havant	2025/2026
25	13S2262	A3(M)/A2030 Forty Acres Rbt Havant	2025/2026
26	13S2266	B2149 Petersfield Rd j/w C422 Stockheath Rd Havant	2025/2026
27	13S2100	B2149 Petersfield Rd/Middle Park Way, Havant	2025/2026
Potential schemes			
28	13S2076	B2150 Hulbert Rd/Purbrook Way Rbt (Asda rbt), Havant	potential
29	-	Hart Plain Ave o/s Cowplain School Havant	potential
30	-	B2149 Petersfield Rd j/w Bedhampton Way Havant	potential
31	-	B2149 Petersfield Rd j/w Wakefords Way Havant	potential
32	-	A259 Havant Rd, Emsworth	potential

4.2.4 The programme as set out above demonstrates that casualty patterns are actively monitored and feed directly into assessing and prioritising of the programme schemes.

Pollution, Air Quality and Carbon Reduction

4.2.5 Transport has significant impacts on population health, and the quality and nature of transport networks can be used to improve health outcomes. For example, active lifestyles and active travel are recognised as beneficial to reducing the risk of chronic health conditions and improving mental health and wellbeing. Safer transport networks can reduce traffic related injuries and lower transport pollution (e.g. from a reduction in car use and higher public transport use) can improve local air quality. Good local transport networks can provide a wider range of mode choice in accessing medical services, particularly for older people or people with disabilities. Spatial planning can affect how easily and frequently people incorporate physical activity to their daily lives.

4.2.6 Air pollution is associated with a number of adverse health impacts and screening assessments for the Havant area have consistently suggested that Nitrogen Dioxide (NO_2) levels were likely to challenge compliance with its respective air quality objective. The primary source of NO_2 emissions in most locations is from conventionally fuelled motor vehicles.

4.2.7 The 2024 Annual Status Report[7] for Havant shows that the statutory air quality objectives are likely to be achieved for NO_2 at all relevant locations throughout the borough, with many residential areas likely to enjoy excellent air quality. No Air Quality Management Areas (AQMAs) have been declared in the borough[8] and trends suggest that all future statutory targets will be met well ahead of the 2040 compliance date. Nevertheless, HBC recognises that current levels of air pollution do not meet the latest epidemiological recommendations, including in respect of particulate matters, and so further improvements to health outcomes could be achieved by seeking further improvements in local air quality. Additional motorised trips from new developments could also exacerbate levels if not managed appropriately.

4.2.8 Although no specific actions to improve local air quality are currently required, the approach that HBC takes to improving local air quality largely consists of a strategy of seeking to achieve modest incremental improvements and mitigations through the effective and diligent application of planning policy in the emerging Local Plan to secure:

- Sustainable development with low energy demand, and a reduced need for local (within borough) combustion of fuels,

[7] Havant Borough Council, (September 2024), *2024 Air Quality Annual Status Report (ASR) In fulfilment of Part IV of the Environment Act 1995 Local Air Quality Management, as amended by the Environment Act 2021*

[8] https://uk-air.defra.gov.uk/aqma/maps/

- The implementation of travel plans and securing of local infrastructure which enables modal-shift from travel by private motor vehicles to more sustainable and active forms of transport,
- High quality development in sustainable locations which reduce the need to travel and revitalises town centres where possible, and;
- Innovative developments which support new vehicle technology, new vehicle access models, Low or Zero Carbon (LZC) energy or heating solutions, and landscape features which assist with the interception and destruction of air pollutants.

4.3 Traffic Conditions

4.3.1 With travel to work representing the second highest trip purpose overall and the highest during highway peak hours, journey to work data is also a key indicator to how Havant residents working both within or outside of the borough and people from elsewhere in the borough travel for work. The latest available census is the 2021 Census but as this is a snapshot of travel patterns during the Covid-19 pandemic, results from the previous censuses have also been reviewed (2001 and 2011 census).

4.3.2 As shown on Figure 5 and Table 2, the main mode of travel to work across the borough remains the private car and the increased trend suggests that this is expected to continue unless measures are put in place to offer more attractive modes of travel in future. On the other hand, the data also suggests that residents of the borough were changing their travel behaviour with increasing use of home working.

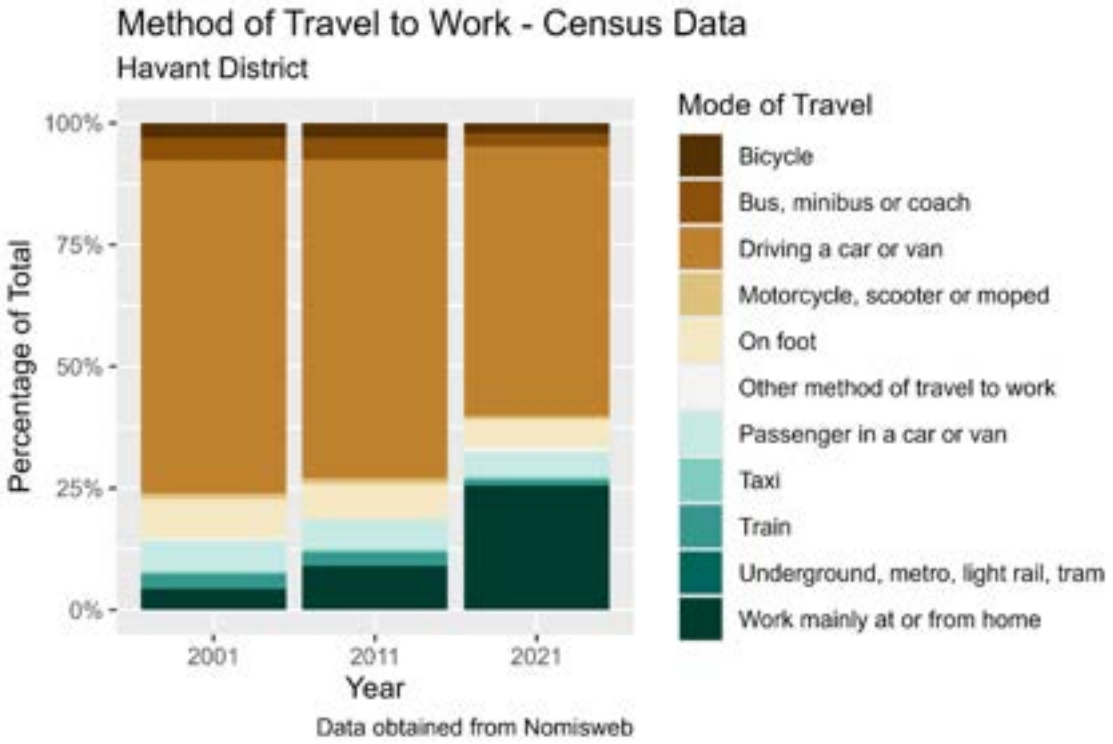

Figure 5: Travel to Work Modal Trends for Havant Borough 2001, 2011 and 2021

Table 2: 2021 Travel to Work Modes Data (Havant Borough)

Method of travel to workplace	Usual number of Residents	% Usual Residents
Work mainly at or from home	14,413	25.6
Underground, metro, light rail, tram	18	0.0
Train	624	1.1
Bus, minibus or coach	1,555	2.8
Taxi	408	0.7
Motorcycle, scooter or moped	406	0.7
Driving a car or van	31,164	55.3
Passenger in a car or van	2,827	5.0
Bicycle	1,181	2.1
On foot	3,215	5.7
Other method of travel to work	557	1.0

4.3.3 Whilst the 2021 census reflected travel behaviour during the pandemic, some changes in travel habits such as homeworking (to varying degrees), online shopping and socialising are here to stay and there is a significant opportunity for these modal trends affecting commuting to continue in future. These changes should also be viewed in the context of overall reductions in the number of trips during traditional commuting peaks. This is reflected in the National Travel Survey data for 2023, which suggests that while there were increases in use by many public transport modes in 2023, overall travel demand since the end of the pandemic had not yet reverted back to 2019 levels.

4.3.4 As stated above, the 2021 census data is not representative of current travel patterns, particularly in relation to commuter travel, but the significant patterns of in and out commuting (Figure 6), is expected to have continued post-pandemic.

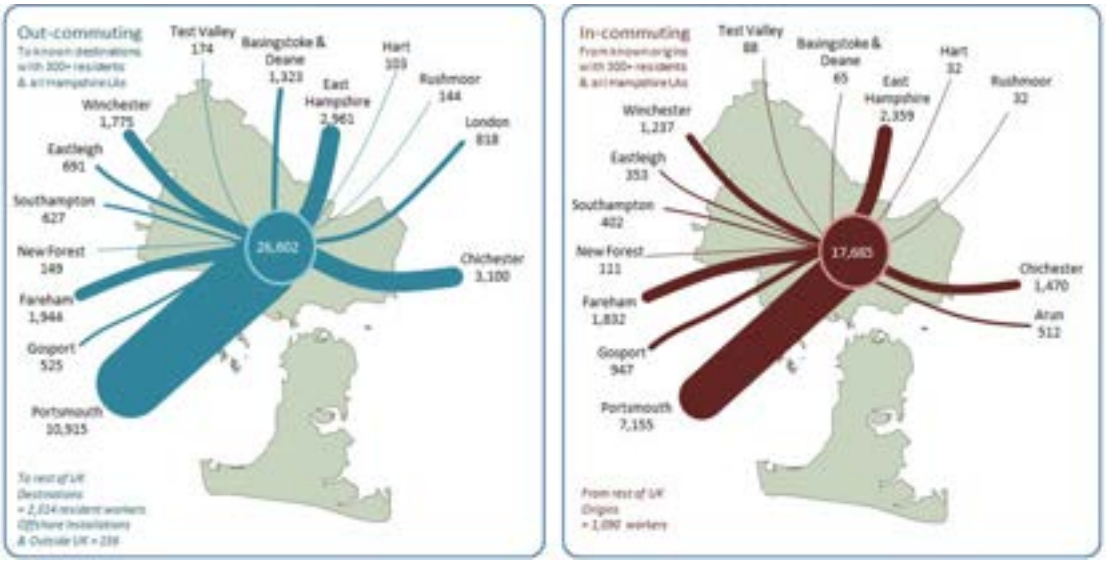

Figure 6: Havant Borough 2011 Commuter Flows (Source: 2011 Census)

4.3.5 Overall, up to 60% of traffic into or from within the borough travels to destinations outside of the administrative boundary. When combined with cross-boundary commuter traffic from neighbouring authorities travelling on the Strategic Road Network (SRN) corridors through the borough and with the large number of commuters travelling by car to Havant railway station for onward commuter journeys further afield, this translates in congestion on the local network and within Havant town centre in particular. This level of congestion is more pronounced during the peak hours as a result of commuter travel but is also experienced throughout the day reflecting Havant and Waterlooville as key employment and retail centres in the region.

4.3.6 The analysis of the current transport networks, car ownership and parking data in the borough indicate that driving is ingrained in the travel behaviour of most residents and the employment base working in this spatial area. Fundamental shifts to how and where people work, and the method of travels taken to access workplaces, are therefore likely to be necessary.

4.3.7 Larger residential allocations within the borough present strong opportunities for communities to develop which are more self-sufficient, as well as incorporating measures for encouraging sustainable and active travel behaviour into site masterplans. Other developments in existing areas will require different approaches, such as maximising and improving the options for people to travel by alternative modes to common destinations such as workplaces, encouraging car sharing and hire cars, and forming good public transport and safe active travel networks to key destinations.

4.4 Active Travel and Connectivity

Accessibility by walking and cycling

4.4.1 Walking and cycling distances and times[9] from the following town and district centres have been identified and mapped (Figure 7 and Figure 8):

- Havant
- Waterlooville
- Leigh Park
- Cowplain
- Emsworth

4.4.2 While there are a number of town and district centres providing a range of goods and services within the borough, access by foot (defined as a 10-minute walk) only covers a relatively small number of the population within Havant. However, local centres offering a smaller range of goods and services have not been mapped but will offer an enhanced level of accessibility to the remaining areas. On the other hand, aside from Hayling Island, all residential areas within the

[9] Walking and cycling maps are based on the road network, and relevant urban paths identified by the Ordnance Survey. Walking speed is plotted at 3mph and cycling at 12mph

borough can access the town and district centres within a ten to fifteen-minute cycle.

4.4.3 The Department for Transport (DfT) released its Connectivity Tool, a web-based mapping tool for England and Wales, in late 2025. This tool can evaluate how well locations connect to services (jobs, education, healthcare) via by walking, cycling, public transport, and driving. This online resource complements the above analysis by allocating a connectivity score to each of the 100sqm areas making up England and Wales. Further details relating to the Connectivity Tool and how the scores have been used as part of this STA are presented in Section 5.3.

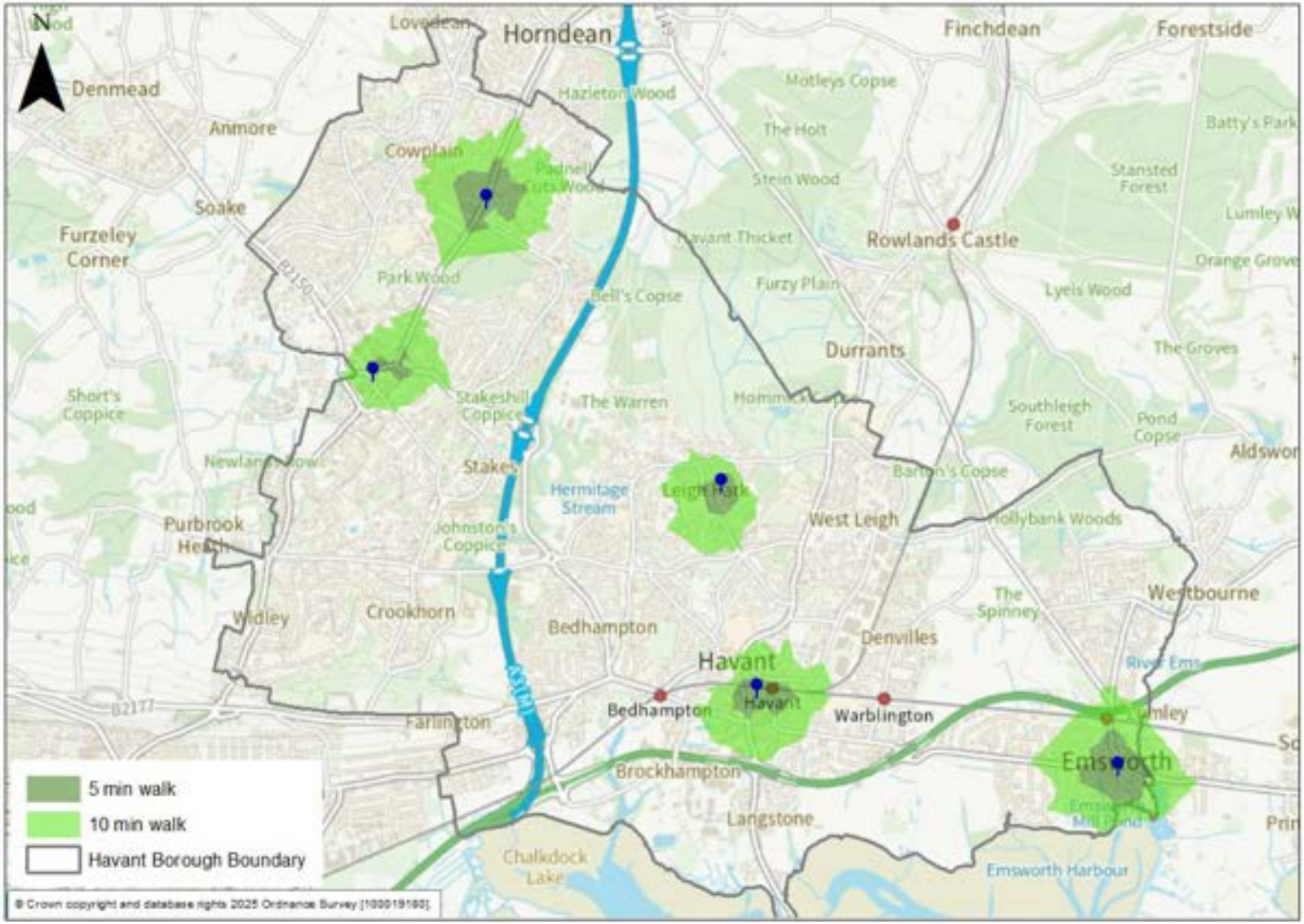

Figure 7: Walking times from town and district centres

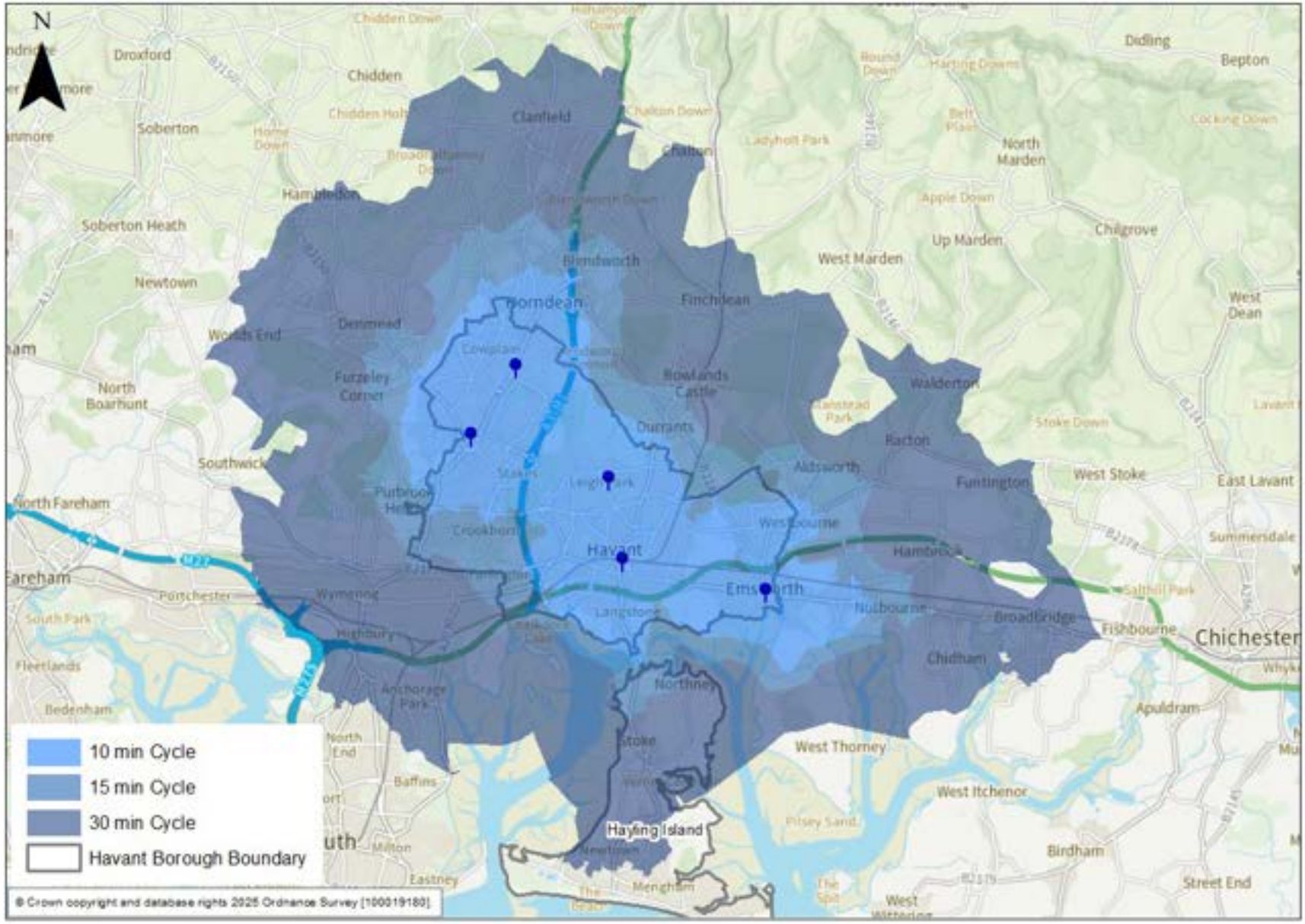

Figure 8: Cycling times from town and district centres

4.5 Infrastructure for Walking, Wheeling and Cycling

4.5.1 The provision of infrastructure for walking, wheeling and cycling in the borough is varied, with main roads and areas surrounding newer residential developments having relatively good walking networks. The developed areas within the Borough are relatively compact, making it possible for most people to choose walking for part, if not all of many regular local journeys. Most roads and streets in densely populated areas are reflective of an urban environment and are fronted by pavements with crossings providing safe facilities on key desire lines. However, the infrastructure, including the presence of guardrails and street furniture was originally provided on the basis of past highway engineering guidance that promoted motorised traffic ahead of active travel users.

4.5.2 The A3(M) and differences in levels adjacent to the South Downs are major barriers for active travel links between Havant and Waterlooville. Similarly, the distances involved and the need to cross both Langstone Harbour and the A27 corridor, also part of the SRN, and the poor quality of much of the active travel infrastructure all act as barriers for non-motorised trips between Havant and Hayling Island. These barriers have normalised car driving within the borough to the detriment of active travel and this is reflected in the relatively low proportion of people (7.8%)[10] who live and work in these areas currently walking or cycling to work.

4.5.3 Nevertheless, the borough is covered by an extensive network of Public Right of Ways (PRoWs), which are typically more prominent in less densely populated areas and coastal areas where the walking network infrastructure is more limited (Figure 9). This network is most appropriate to accommodate the demand for leisure walking activities in those areas but does not necessarily provide high quality or direct utility routes.

4.5.4 Despite the A3(M) and A27 corridors being key barriers for accessibility to the west and south, these PRoWs include a number of bridleways across the corridor that provide important links for people choosing to walk (and cycle) to Havant town centre facilities and services. Similarly, the bridleway running parallel to Langstone Bridge, is highlighted as a long-distance route between the mainland areas and Hayling Island in the borough.

4.5.5 Elsewhere in the borough the presence of other obstacles, such on-street parking reducing pavements widths and side roads which lack dropped kerbs, may present difficulties to people with reduced mobility or wheeling.

4.5.6 Routes from new developments to key destinations will need to be assessed through the planning process to ensure they are of good quality and are likely to be used by occupants.

[10] 2021 Census, Table **TS061 - Method used to travel to work**

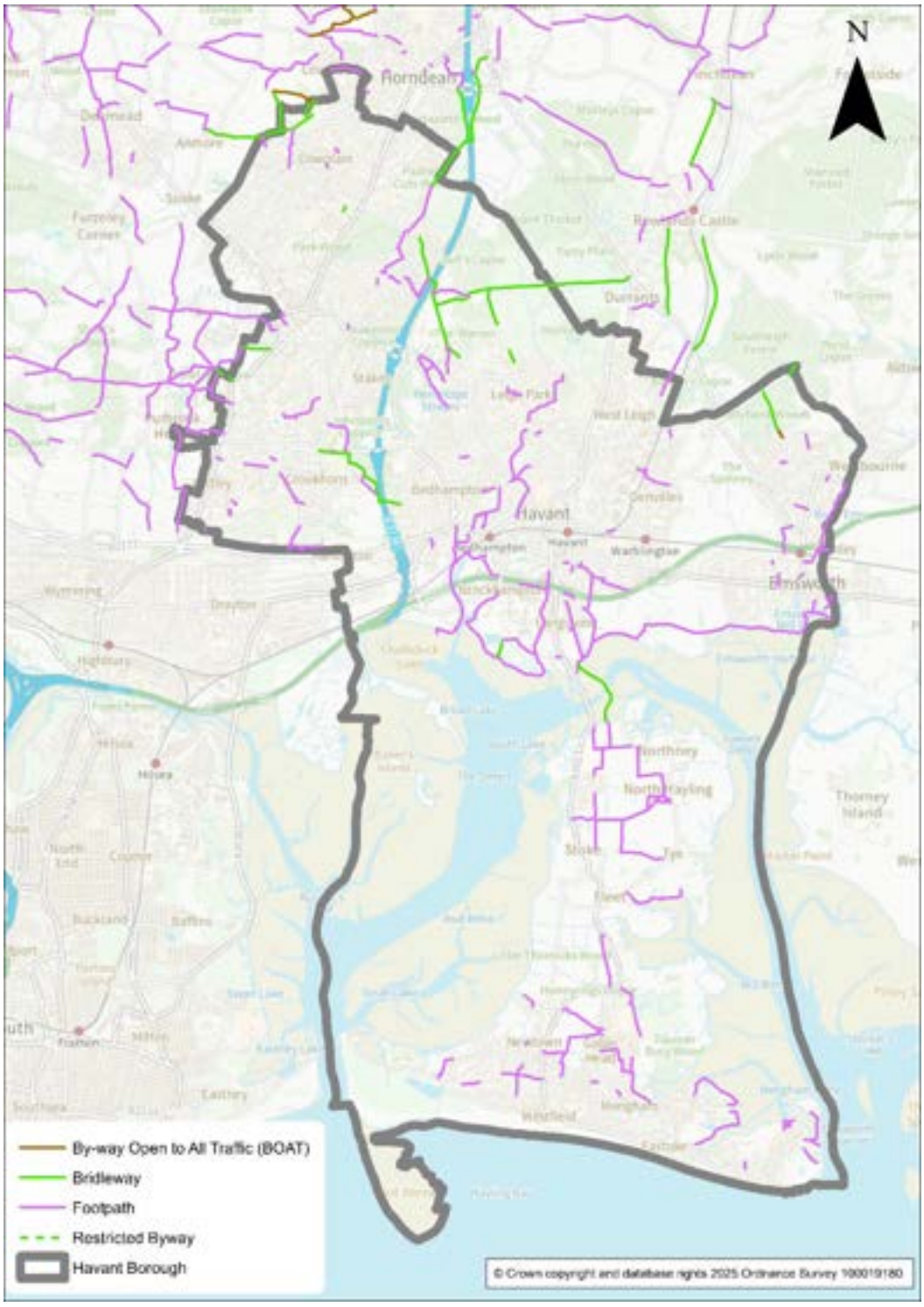

Figure 9: Rights of Way in the Havant Borough

4.6 Cycling Infrastructure

4.6.1 There is a variety of infrastructure for cycling in place in the borough, from cycling in mixed traffic on very busy roads, to on-road painted cycle tracks, and from shared use paths to small sections of brand new segregated cycle infrastructure of high quality. Despite recent upgrades for a segregated stepped

cycle track on Elmleigh Road in Havant Town Centre and a planned two-way segregated cycle track along the A27 corridor near the Delme Roundabout, most of the cycling infrastructure in the borough will not meet current design requirements and will not feel safe to use for most users.

4.6.2 Three National Cycle Network routes pass through the Havant Borough: NCN2, NCN 22 and NCN 222 (Figure 10).

4.6.3 When completed, Route 2 will provide a cycle link from Dover in Kent to St Austell in Cornwall. The only major gaps in this route are between Dawlish and Totnes, and Plymouth and St Austell but the route is complete within the borough. NCN 2 follows the south coast including the west coast of Hayling Island (Hayling Billy Trail).

4.6.4 Route 22 will connect London with Portsmouth through mostly on-road cycling then Brockenhurst via the Isle of Wight. Of relevance to the borough of Havant, the route is currently open between Bordon and Portsmouth with NCN 22 running parallel to the A27 along the top of Langstone Harbour / Farlington Marshes, towards Havant town centre, heading northwards to Rowlands Castle.

4.6.5 In addition, National Cycle Route 222 is known as the Sussex Downs Link and includes a cycle friendly section of route from Petersfield station to the Queen Elizabeth Country Park visitor centre. NCN 222 runs from Portsmouth northwards to Horndean through Purbrook and Waterlooville but Sustrans is working with HCC to improve the route along Stakes Hill Road, Waterlooville. The scheme is currently under consultation with the public, and the project will aim to design improvements that create high quality facilities for walking, wheeling and cycling, between the Stakes Hill junction with Frendstaple Road, and the town centre. This may include improvements to footways, places to rest, improved crossings, cycle space, biodiversity, managing traffic volumes, and reducing through-traffic in the wider area.

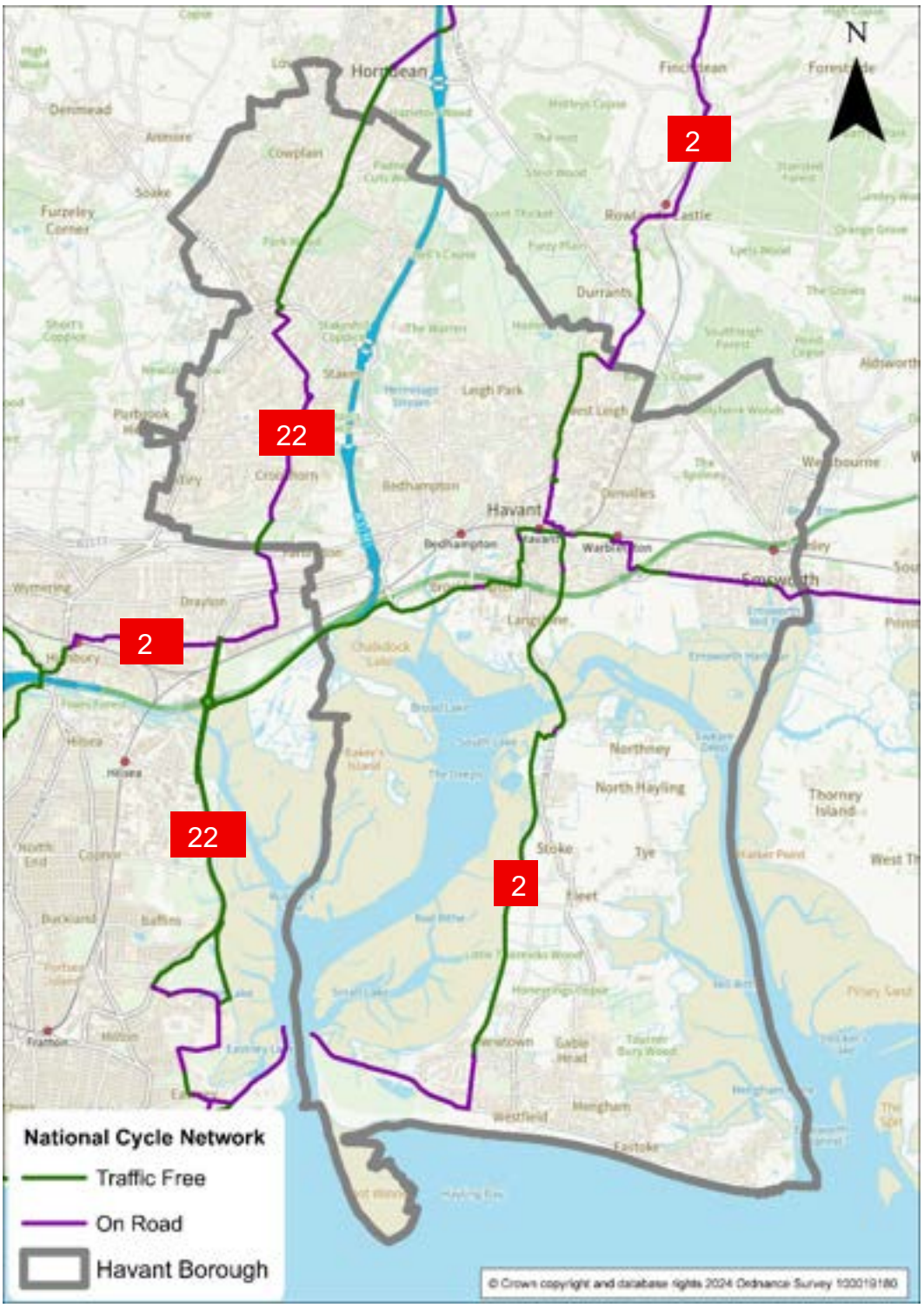

Figure 10: National Cycle Network Map for Havant Borough

4.7 Public Transport

Rail services

4.7.1 The borough benefits from four railway stations at Bedhampton, Havant, Warblington and Emsworth (Figure 11).

Figure 11: Rail stations in Havant Borough

4.7.2 With just under two million passenger entries and exits between April 2023 and March 2024, Havant is the busiest station within the borough (Table 3) and was ranked as Hampshire's 4th busiest station in 2022/23. Almost 18% of those trips start or end at London Waterloo, reflecting the strategic nature of the station in the South East. Comparatively, passenger numbers at the other three stations are much lower, with the key destinations being Chichester or Fratton, suggesting that these are mainly used for short-distance trips for commuting, travel to school or leisure.

Table 3: Station Usage April 2023-March 2024

Station	Entries and Exits	Main origin or destination station	No of journeys to/from main O/D station
Havant	1,889,510	London Waterloo	342,996
Emsworth	317,680	Chichester	74,616
Bedhampton	101,194	Fratton	23,884
Warblington	28,036	Chichester	4,930

Source: https://dataportal.orr.gov.uk/statistics/usage/estimates-of-station-usage

4.7.3 Unsurprisingly, Havant railway station includes a wider range of facilities than the other stations, including two long-stay car parks (one at each entrance to the station) that together can accommodate over 600 vehicles. A Kiss & Ride facility for up to 9 vehicles is also available on the southern forecourt (with a maximum stay of 20 minutes), while on the northern side, there are 3 further

short stay parking spaces. Compound and wheel rack bicycle parking is provided at three locations at this station for around 160 bicycles. The station is wheelchair accessible from Leigh Road or North Street. The footbridge connecting the two platforms is currently closed while works are carried out to replace the unsafe and neglected structure as part of an £11.5 million project that will restore a vital pedestrian route between the town and Leigh Park and improve accessibility for disabled users and cyclists to the station with step-free access. Being located in the town centre, the railway station is easily accessible by foot.

4.7.4 A Station Travel Plan (STP) survey was undertaken at Havant station in December 2021 to understand how passengers travel to the station and interestingly noted that while all the modes were represented, walking and Kiss & Ride represented almost three quarter of the access modes (Figure 12).

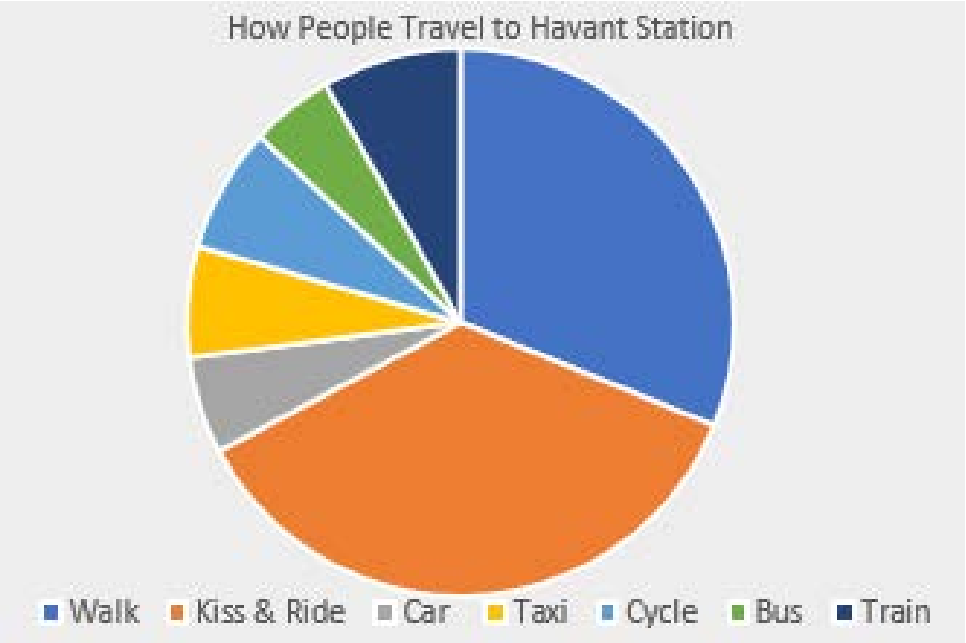

Figure 12: How People travel to Havant Station (2021 STP)[11]

4.7.5 Emsworth station is located approximately 3km east of Havant railway station. The station is accessible on foot from North Street and Sultan Road, the latter also providing access to the station car park. There are 15 cycle storage spaces available with CCTV security. Both platforms are wheelchair accessible, and staff help are available for boarding trains.

4.7.6 Bedhampton station is located approximately 1km west of Havant railway station, and south of most residential areas in Bedhampton. The station can be accessed via pavements from the rest of Bedhampton. There are no car parking facilities on site but wheel racks for up to 20 bicycles are provided on site, with CCTV security. Although both platforms are wheelchair accessible via ramps, there are no staff help available for boarding trains alighting at this station.

[11] HCC (October 2024) Station Interchange Improvement Plan Issue 1, p25

4.7.7 Finally, Warblington station is situated approximately 1km east of Havant railway station. The station is accessible by foot from Southleigh Road but there is no footbridge at the station itself. There are no car parking facilities at Warblington Station, but bicycle storage is available for up to 30 cycles with CCTV security. Both platforms are wheelchair accessible, and staff help is available for boarding trains.

Bus services

4.7.8 Journeys by public transport can be an attractive and viable alternative to driving, providing that journey times (including walk times at each end of the journey) are comparable to trips made by car and the cost of using public transport is similar to or a cheaper alternative than using the private motor vehicle. Bus travel is a particularly important means of accessing employment, education and services for the 27% of households without access to a car (2021 Census).

4.7.9 Havant has a good network of high frequency bus routes, most of which provide access to the town centre using the main arterial routes There are frequent bus services from Havant to Portsmouth, the QA Hospital, Cosham, Waterlooville and Emsworth that operate 7 days a week. There are two bus routes to/from Hayling Island operating every half an hour and less frequent bus links to Rowlands Castle and Petersfield (Figure 13). Waterlooville has frequent bus services to Purbrook, the QA Hospital, Cosham and Portsmouth. The majority of bus routes in the Borough are operated by Stagecoach and the services from Waterlooville into Portsmouth are operated by First Bus. Owned by HBC and operated by Stagecoach, Havant Bus Station provides modern facilities with convenient bus access in one central location in Elm Lane, in Havant town centre. Bus services on Service 23 currently run from the bus station up to 24 hours a day into Portsmouth.

4.7.10 Buses to/from Havant bus station operate at a frequency of up to five services per hour in the peak periods, with most services operating at weekends and Bank Holidays. Traffic volumes within the town centre and on radial roads and limited priority infrastructure on these routes however mean that the punctuality and reliability of local bus services can be adversely affected, making them less attractive travel options to the car.

4.7.11 In addition to these public services, seven different school pupils-only bus routes operate that provide term access from Havant to the local catchment secondary schools and colleges including Portsmouth College, Chichester College and South Downs College.

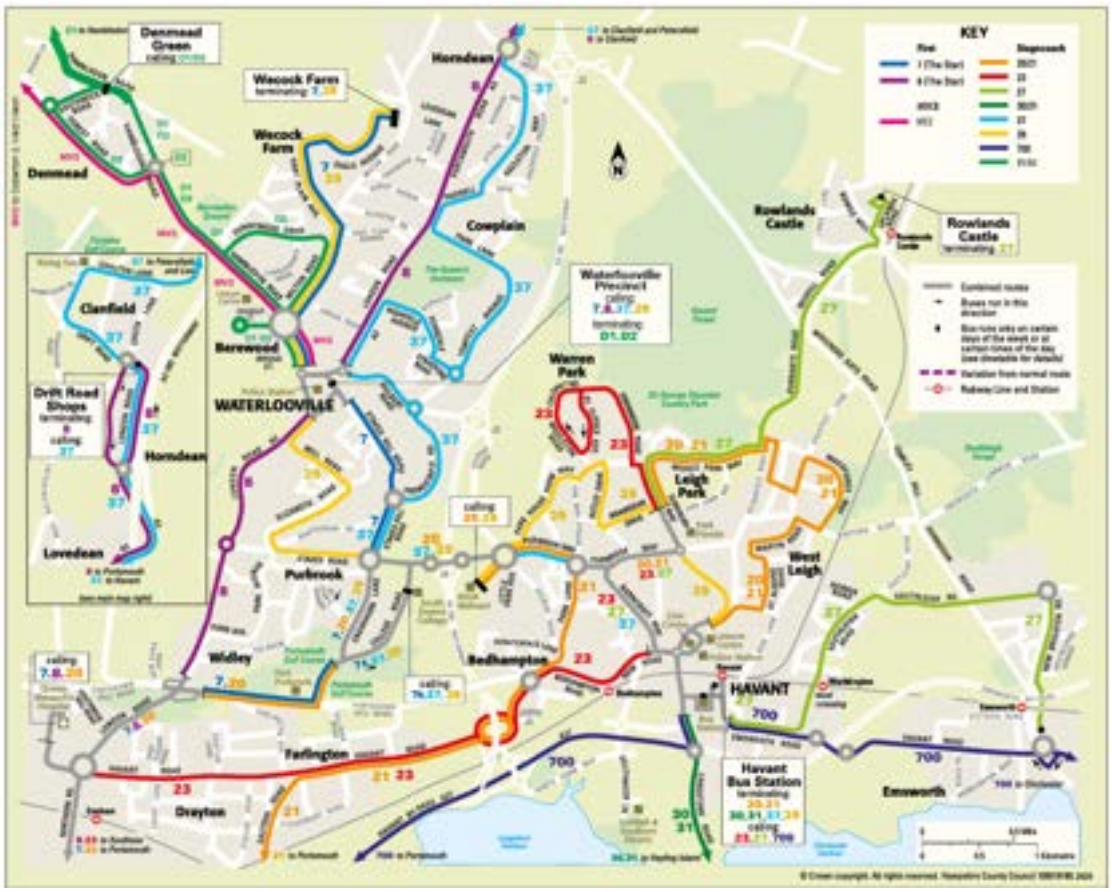

Figure 13: Bus Routes and Services in the Havant/Waterlooville Area (September 2024)

Source: https://documents.hants.gov.uk/passenger-transport/Havant-TravelGuide.pdf

Hayling Ferry

4.7.12 The Hayling Ferry operates across the entrance to Langstone Harbour between Eastney Point in Portsmouth and Ferry Point on Hayling Island. The ferry provides a vital link for foot passengers and cyclists between the borough and Portsmouth. The service runs year-round, seven days a week, with winter, spring and summer timetables.

4.7.13 Although no public data is available, it is understood that the ferry is primarily used by commuters with the published crossing times reflecting this demand during the peak hours.

4.8 Other Infrastructure Enabling Sustainable Travel

4.8.1 The opportunity for increasing levels of sustainable travel by residents from the towns of Havant and Waterlooville is likely to be higher than the rest of the borough due to the existing services available and the concentration of development (particularly workplaces) in this area being higher, meaning the amount of people for which taking the bus is viable is also higher.

4.8.2 The ability to enable active travel (e.g. walking and cycling) is also potentially high due to residents of the area being likely to also work within a relatively short distance, meaning journey times may be viable, although this is less likely

to be the case for areas further from the district centres west of Havant town centre due to the current lack of infrastructure and the barrier that is the A3(M) corridor reducing the attractiveness of active travel. This could be maximised by providing improved routes into the central area for people walking and cycling. More detail is provided in Chapter 5 regarding the Local Cycling and Walking Infrastructure Plan.

EV Charging

4.8.3 There is very limited public Electric Vehicle Charging Infrastructure (EVCI) in the borough at present enabling residents and visitors to charge their vehicles quickly and efficiently on the go (Figure 14). Three 50KW rapid charge points are currently available in Leigh Park, Emsworth and Waterlooville and HBC is working with HCC on plans to expand this provision. In addition, a number of other charging facilities are available across the borough in privately operated car parks (such as office, supermarket, etc. car parks) to supplement this provision.

Figure 14: Public EVCIs within Havant Borough

5 STA Methodology

5.1 Moving away from a Predict and Provide approach

5.1.1 Transport policy and the way and frequency society choses to travel, especially since Covid, are in a state of flux, and this brings into question the traditional methods of planning and transport assessments that have been centred on a forecast-led concept of Predict and Provide (P&P). This P&P methodology is akin to a 'business as usual' approach, where transport practitioners and modellers replicate past trends associated with developments and traffic levels, reinforcing the status quo: doing what we always did and getting what we always got. There is also evidence that serious shortcomings in the traffic forecasts applied to decision-making in highway network development since 1989 have encouraged erroneous expectations of traffic growth[12]. The possible consequences of a P&P approach that perpetuates car-led development include:

- the potential over-provision of highway capacity which, in turn, can induce motorised traffic (exacerbating efforts to reduce direct CO_2 emissions from the transport sector);
- the potential under-provision or erosion of walking and cycling infrastructure or public transport services; and
- the risk of planning and developing underutilised or even stranded developments that become overly dependent on car-based travel.

5.1.2 Traditionally, transport assessments of developments have followed the principles of assessing the impact of motorised trips on the highway network in terms of how many additional trips each person will be made to and from a specific land use, based on a historical data and surveys. In 2019, the Chartered Institution of Highways and Transportation (CIHT) recognised these "outdated assessment methodologies" as a barrier to better planning[13].

5.1.3 Transport assessments of development in a Local Plan area are still predicated on the use of trip rates and census data to estimate what **will** happen rather than to focus on what **could** happen. As evidenced since the Covid-19 pandemic, transport related policy and other societal factors outside of the highway and planning authorities' control can have a huge impact on people's travel habits and behaviour. This is the essence of the 'Decide and Provide' (or Vision-led) approach to modelling, which involves developing future scenarios that draw upon insights on:

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[12] Prof. Phil Goodwin, *National Road Traffic Forecasts 1965-2025: Why did they become so inaccurate, and how can they be Improved?* TAPAS.network (25 June 2025), Commentary
[13] Para 3.1, *Better planning, better transport, better places*, CIHT (2019) https://www.ciht.org.uk/knowledge-resource-centre/resources/better-planning-better-transport-better-places/

- **Past changes in trip rates** (from use of the TRICS Historic Trends Analysis Tool (see further below) as well as consideration of wider observed changes over time, such as those apparent from the National Travel Survey);
- **Critical uncertainties for society that could influence future trip rates**, as explored by, and reflected in the Department for Transport's 2018 Road Traffic Forecasts and latterly in its seven Common Analytical Scenarios set out in its Uncertainty Toolkit (and in turn accounted for in the National Trip End Model); and
- **Development design features with the capacity to shape change e.g.** (and affect the number of person trips and the share of those undertaken by motor vehicles)"[14], such as quantum and mix of the development to increase the opportunity for internalisation of trips including social infrastructure enhancements (community areas, schools, local shopping, etc.), movement-based street hierarchy based on Manual for Streets and LTN1/20 guidance, application of 5-minutes' walk principle, etc.

5.1.4 This approach relies on evidence-based judgment and scenario-testing, which would normally involve a detailed understanding of site-specific development proposals. In this case, the highway authorities (HCC and NH) have required the use of the strategic transport model (SRTM). As a result, applying the full principles of scenario testing to the Local Plan STA would be prohibitively expensive. Instead, one scenario was agreed for testing with the Highway Authorities before modelling commenced.

5.1.5 This STA has followed the methodology illustrated in Figure 15, which includes the use of two key assessment tools:

- The SRTM strategic transport model to establish the worst-case transport impacts of motorised traffic (including public transport) on the highway network, and;
- The DfT Connectivity Tool to measure how well allocations are connected to essential services and to identify opportunities for active travel and public transport infrastructure enhancements.

[14] TRICS Decide and Provide Guidance Summary (November 2022)

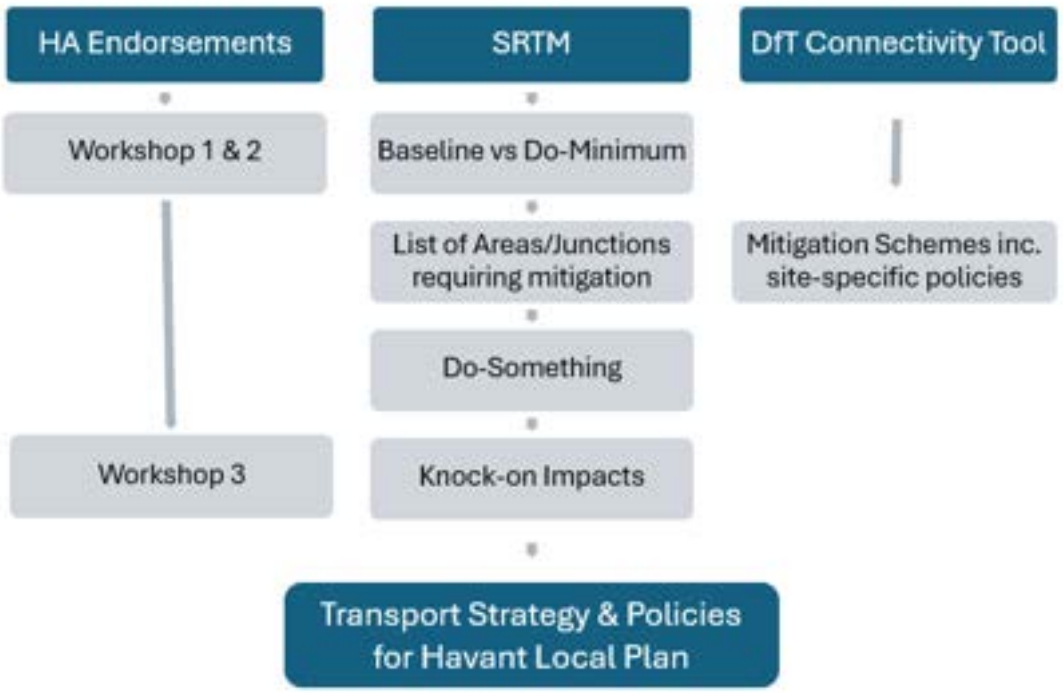

Figure 15: STA Assessment Methodology

5.2 The Sub Regional Transport Model (SRTM)

Background to the SRTM

5.2.1 A full description of the SRTM's functions and components, model assumptions for the Havant Borough Local Plan and results of the model scenarios is presented in SYSTRA's SRTM Strategic Modelling report for the Havant Borough Local Plan, attached as Appendix B. The following paragraphs present a summary of the report and should be read in conjunction with the SYSTRA report.

5.2.2 The SRTM is a multi-modal transport model and is compliant with DfT Transport Appraisal Guidance (TAG). It is a suite of linked models comprising the following components:

- The Main Demand Model (MDM) which predicts when (time of day), where (destination choice) and how (choice of mode) journeys are made;
- The Gateway Demand Model (GDM) which predicts demand for travel from ports and airports;
- The Road Traffic Model (RTM) which determines the routes taken by vehicles through the road network and journey times, accounting for congestion;
- The Public Transport Model (PTM) which determines routes and services chosen by public transport passengers; and

- A Local Economic Impact Model (LEIM) which uses inputs including transport costs to forecast the quantum and location of households, populations, and jobs.

5.2.3 The current model includes a revalidated 2019 base year, which was developed in early 2021 and has been used to assess the projected impact of traffic growth and additional travel demands associated with proposed development in Havant borough to the end of the plan period (2043). It should be noted that the model has not been adjusted to reflect post-Covid traffic levels. Although no analysis is available to determine any divergence between the traffic levels recorded in 2019 and those post-covid within Havant Borough, there is evidence elsewhere across the UK of overall reduction of up to 10% in the number of movements being made[15]. The model therefore potentially presents a higher baseline in terms of traffic levels across the borough (and region).

Limitations of the SRTM

5.2.4 There are limitations to a strategic traffic model which restrict measurable impacts to those of delays and highway capacity on the highway network. Although active modes (walking and cycling) are represented in the SRTM, the demand is not assigned to a network unlike those for car/van and public transport trips. This is because there are multiple similar route options available to people walking and cycling including travel via links considered too minor to be included in the SRTM network, which was primarily designed for motorised modes at a strategic scale.

5.2.5 While the SRTM already reflects realistic travel behaviour and policy impacts through its forecasting process, manual intervention in mode share to reflect additional changes to Active Travel infrastructure would undermine this approach and reduce confidence in the results. This is because of the way the SRTM estimates travel demand and assigns it to the modelled network. The model uses population and employment information that comes from local authority development data. It models all trips over a full day and across all modes (car, public transport and active travel), rather than looking at a single peak or mode in isolation. Trips are generated based on who people are, where they live, what type of trip they are making (for example, work, education or leisure), and whether they have access to a car. This means that travel behaviour is already built into the model in a detailed and consistent way, rather than relying on a single average trip rate or fixed mode split.

5.2.6 Once trips are created, the model decides when, where, and how people travel based on evidence from national travel data and observed real-world travel patterns. Changes in travel costs, such as journey time or fares, automatically influence route choice, time of travel, and mode choice. This ensures that mode share responds logically to transport conditions rather than being forced to change.

[15] Department for Transport (December 2023) National Travel Survey 2022 'Introduction and main findings'

5.2.7 Because of this structure, manually manipulating mode share would cut across the model's internal logic. Adjusting mode split by hand would break the links between population characteristics, travel costs, trip distribution and observed behaviour, leading to results that are not evidence-based or internally consistent. The model is designed so that mode share is an output of changing conditions, not an input that can be safely altered in isolation.

5.2.8 Another issue affecting the assessments of transport impacts at a detailed and site-specific level is linked to the strategic and simplified representations of the road network and zone structure of the SRTM. The modelled area of the SRTM is divided into four '*regions'* (Figure 15), which differ by zone size and modelling detail. While Havant Borough sits within the Core Fully Modelled Area of the SRTM (where the network and demand are represented in greatest detail), it lies at the boundary with a 'marginal' modelling area covering parts of neighbouring West Sussex. In this marginal area, the road network and the way traffic demand is estimated and assigned are less detailed. As a result, trips originating in or passing through these neighbouring areas may be represented less accurately as they enter Havant, which can affect the precision of predicted traffic flows at the borough boundary. This limitation is explored further in the following paragraphs.

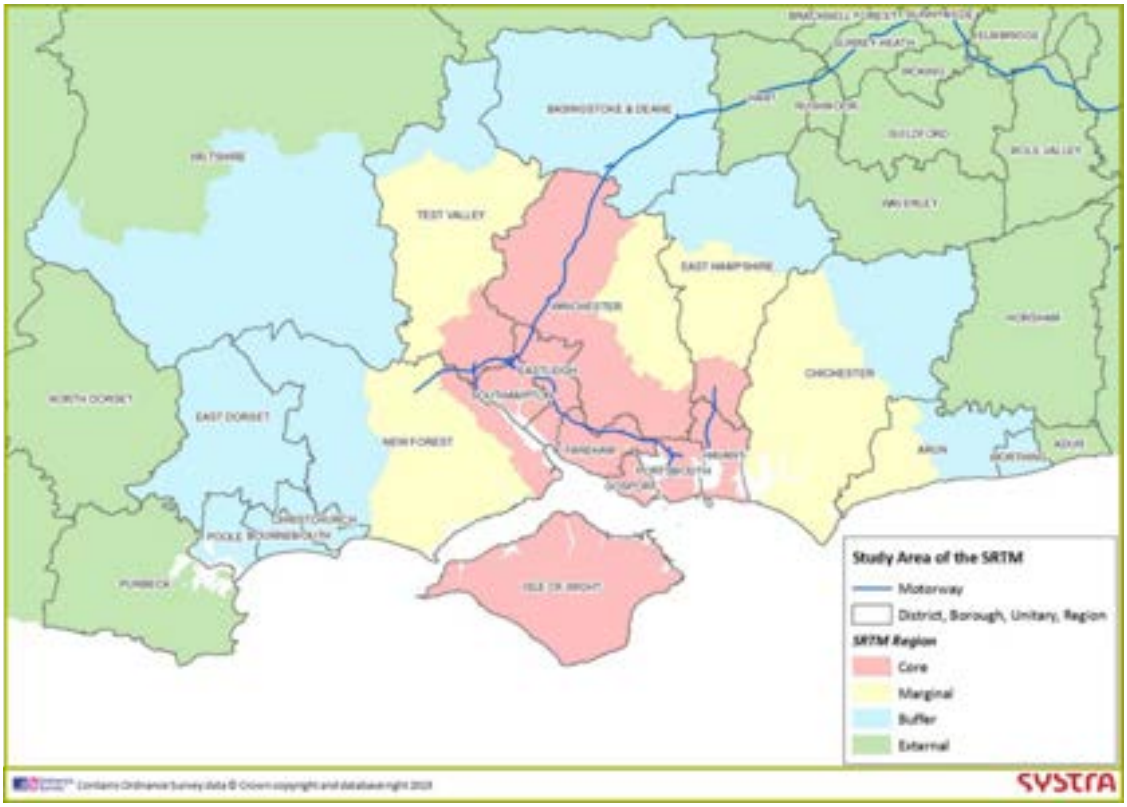

Figure 16: Regions of the SRTM

5.2.9 The Core Fully Modelled Area is divided into zones, with the zone boundaries developed in accordance with Census output areas and boundaries (Figure 17). This results in the vast majority of LP allocation sites being assigned to zones that already generate their own travel demand, as the cost of adding new zones to reflect each LP allocation site is not proportionate to the scale of

development. While this applies to the vast majority of the LP allocations, it is noted however that both the largest Local Plan residential and non-residential allocation sites at Southleigh (LP Allocation 1) and Dunsbury Hill Farm (LP Allocation Site 27) are effectively represented by their 'own' zones in this case, i.e. by zones reflecting areas of the borough which are currently undeveloped and thus generating limited, if any, existing travel demand.

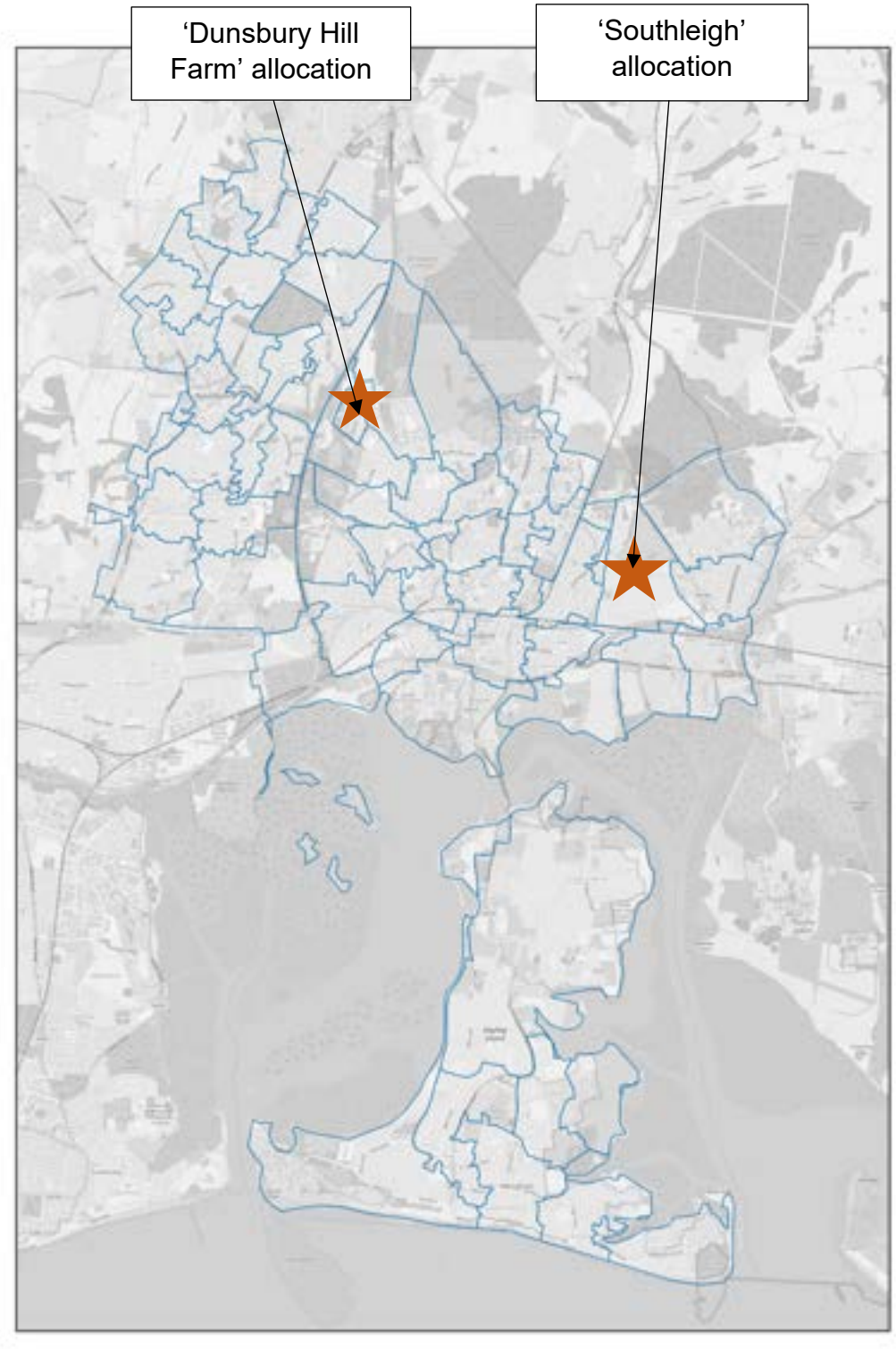

Figure 17: SRTM Havant Borough Zone Structure

5.2.10 Zone loading and routing for each of the Local Plan sites from each zone has been thoroughly checked and while this does not allow analysis of impacts from individual Local Plan developments, it is considered that the SRTM accurately represents the existing and future conditions on the local highway network across Havant when taken as a whole, and specifically the potential re-assignment of traffic onto less congested routes. It is also noted that the use of the SRTM has recently been found sound by the Inspector of the Examination in Public for the Winchester District Local Plan.

5.2.11 In summary, due to the model's limited ability to account for the full range of transport measures and policies and due to its strategic nature, the SRTM assessments presented in the following sections should be interpreted as representing a worst-case scenario of the cumulative impacts of Local Plan growth on the borough's transport networks.

Overview of SRTM modelling scenarios for the Havant Local Plan

5.2.12 In accordance with TAG guidance, three weekday periods are modelled in the SRTM:

- 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)

5.2.13 The SRTM has a base year of 2019, and forecast years of 2026, 2031, 2036, 2041 and 2046. The Havant Local Plan period ends in 2043 and the transport modelling has used the most suitable available model forecast year of 2046. The extra three years mean growth outside of Havant will be slightly higher than in 2043 and therefore provide a more robust basis for assessment in terms of any mitigation measures that might be required, including those measures that reduce the need to travel on the highway.

5.2.14 The Baseline adds all completed development and infrastructure within Havant Borough (as of April 2025) since the 2019 base year of the model, in addition to all committed development (i.e. planning permissions) and infrastructure as of April 2024. In the Baseline, no allowance is made for Local Plan allocations in Havant.

5.2.15 Outside of Havant, development growth is assumed to continue as normal and in line with the adopted Local Plans for the respective Neighbouring Authorities (with one exception, see below) and in accordance with an adapted version of Department for Transport's (DfT) TEMPRO[16] v8.0 growth projections. The

[16] TEMPRO is a piece of software owned by Department for Transport (DfT) and used to access the National Trip End Model (NTEM) datasets forecasting future year growth for use in

adapted version of TEMPRO v8.0 was specified by HCC and agreed for application in the SRTM by the Solent Transport Authorities and has also been endorsed by the DfT and is supported by National Highways (NH). It was adopted for use from August 2023. The adapted version of TEMPRO v8.0 used in the Havant Local Plan application of SRTM includes the following assumptions:

- Within the Hampshire County boundary, residential growth delivery rates are assumed in line with adopted local plans. Beyond the end of Local Plan periods, growth delivery rates are assumed to continue at the rates from the preceding Local Plan. Employment growth rates are assumed in-line with TEMPRO v8.0.
- Outside of the County boundary residential and employment growth is assumed to be in line with TEMPRO v8.0 projections (with one exception).

5.2.16 As well as adopted local plans, at the time of running the baseline and DM modelling, the bordering land use for the Havant Local Plan STA also includes one exception for local plan assumptions in Chichester that was not part of the adopted Local Plan but was included in the emerging document. Specifically, the largest site bordering Havant, Southbourne was included in the Baseline modelling exercise in order to ensure that the full quantum of likely housing is included in the boroughs surrounding Havant. This site has since been formally allocated in the approved Chichester District Council's Local Plan (2025).

5.2.17 A number of model runs have been undertaken to assess the projected impact of the Local Plan growth:

- Scenario 1 – 2046 Baseline, no Havant Local Plan development except for sites already committed.
- Scenario 2 – 2046 Do Minimum, full Havant Local Plan development without transport mitigation/connectivity improvements.
- Scenario 3 – 2046 Do Something, full Havant Local Plan development with transport mitigation/connectivity improvements.

Scenario 1: 2046 Baseline

Highway and PT network

5.2.18 As a starting point, the Baseline scenario uses standard SRTM reference case networks for all modelled years. The SRTM has a base year of 2019 and represents forecast conditions up to the year 2046. Known developments and committed highway schemes are included within the model's reference case scenarios to provide the most accurate representation of future year conditions.

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transport modelling. The forecasts take account of national projections of population, employment, housing, car ownership and trip rates. TEMPRO provides for a common approach for accounting for growth in transport modelling within England but, as with all forecasts, the data is subject to uncertainty especially when disaggregated to local zones or travel modes.

A list of the highway schemes (committed and funded) included in the Reference Case is provided as Appendix A of the SYSTRA's report (Appendix B of this STA).

Non-Havant Borough Land Use Assumptions

5.2.19 In this study, the SRTM Reference Case inputs populate the Baseline scenario for all model areas except Havant Borough.

5.2.20 Within the Reference Case land use, in addition to committed sites, "permissible" sites are included. These refer to allocations identified in the adopted Local Plans but that have not yet been subject to planning approval. The locations and maximum land use quantum of the permissible sites are based on the inputs collated up to April 2025 in accordance with adopted Local Plans at that time.

Havant Borough Completions and Committed Development Land Use Assumptions

5.2.21 The starting point in the Baseline is to update all the standard reference case inputs beyond the base year of 2019 for SRTM model zones within Havant Borough. In place of these, the actual site completions through to April 2024 have been added plus hard committed future developments (i.e. planning permissions). In addition to the completions, undecided major applications as of February 2025 have also been included so that any sites not included within the Local Plan but that have the potential to be developed are included in the modelled land use for both scenarios. Baseline growth to 2046 for Havant Borough for all land use categories has also been applied.

5.2.22 Within the Baseline there is one large residential development that is currently under construction or has planning permission. The site is:

- West of Waterlooville development, approximately 2,100 dwellings across Havant and Winchester local authority areas

Scenario 2: 2046 Do-Minimum

Highway and Public Transport network

5.2.23 All elements of the highway and public transport networks remain unchanged between the Baseline and Do Minimum scenarios.

Non- Havant Borough Land Use Assumption

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

Havant Borough Completions and Committed Development Land Use Assumptions

5.2.25 The Havant Borough Local Plan development allocations are included within the Do Minimum scenario. All totals account for full growth in the Local Plan period (i.e., the totals also include for the Baseline growth).

5.2.26 For residential growth there is an increase of 6,809 dwellings between the Baseline and Do Minimum in 2046. From that total, the largest individual residential development site is at Southleigh (LP Allocation 1) between Denvilles in the east of Havant and Emsworth, north of the A27. The proposed site includes 2,100 dwellings and demand from the relevant model zone has been assigned to the road network from a single point of access onto Southleigh Road near its junction with Eastleigh Road).

5.2.27 There will also be an increase of 36,553sqm of employment space (inc. office and industrial/warehousing) between the Baseline and Do Minimum in 2046. The largest individual non-residential site is at Dunsbury Hill Farm (LP Allocation 27) by the A3(M) junction 3 with a total of approximately 18,000sqm of mixed used development. Although this is an extension of the existing Dunsbury Park, with Phase 1 largely completed and Phases 2 and 3 to be developed, it is also represented in the SRTM by its own zone. Access to the zone (and therefore routing for the associated development traffic) will be through the existing road network currently serving Dunsbury Park. All vehicular traffic from this zone will be via Fitzwygram Way but the model recognises that access onto Fitzwygram Way from its junction with Freeley Road/Calshot Road and Woolston Road will be restricted to buses only.

Local Plan Allocations

5.2.28 At the time of the SRTM modelling, the Havant Local Plan allocations to be assessed were agreed with HBC and reflect the Regulation 18 version of the Local Plan. Details of these allocations can be found on the Council's website[17].

5.2.29 It is noted, however, that the Regulation 19 pre-submission Havant Local Plan will include minor amendments to a number of the residential allocations. There will be no change to the employment site allocations. The list of changes is summarised in Table 4.

[17] https://www.havant.gov.uk/planning-services/planning-policy/local-plan/building-better-future-plan

Table 4: Summary of changes to Havant Local Plan Residential Allocations – Regulation 19 document

Site Allocation Ref. (Reg18)	Site name	Reg 19 Change	
2	Long Copse Lane	Increase of 65 residential dwellings	+65
3	Coldharbour Farm	Removed as under construction (44 dwellings)	Removed
-	Land south of Havant Road (Horse's Field)	New site – 85 residential dwellings	+85
4	Hemsley House	Amended to reflect partially under construction (78-bed care home and 30 dwellings or 73 dwellings[18] equivalent) – no change to development yield in transport terms	No change
7	Former Oak Park School	Removal of 60 extra care units from allocation - decrease of 33 dwellings equivalent	-33
17	Former Dairy Crest Depot	Removed as under construction (73 dwellings)	Removed
20	Land at Cowplain School	Removed as under construction (64-bed care home and 6 dwellings or 42 dwellings equivalent)	Removed
24	South Downs College Car Park	Decrease of 6 dwellings	-6

5.2.30 Critically, there are no changes to the largest residential and non-residential allocations at Southleigh and Dunsbury Hill Farm in the Reg19 document. The proposed changes to Reg 19 allocations would in effect result in a total increase of 111 dwellings to the proposed development taken forward in the SRTM modelling for the 2041 Do-Minimum. However, a total equivalent 159 dwellings have now been removed from the site allocations list as they are now under construction. This means that transport demand from these sites would now be added to the 2046 Baseline and the net change to the DM from changes to the Reg19 document would be a reduction of 48 dwellings. This level of change in residential development is unlikely to affect the modelled development traffic levels across the network and as it represents a decrease in overall development across the borough, it is considered that the SRTM 2046 Do-Minimum scenario represents a worst-case.

[18] Ratio of 1:1.8 applied between care home bed to residential dwelling (i.e. 10 care home bed are equivalent to 6 dwellings)

Scenario 3: 2046 Do Something

5.2.31 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.

5.2.32 The highway network for the Do Something scenario includes bus priority measures at three locations within Havant. More information on the location and type of mitigation for each of the schemes can be found Section 8, with the modelling results in Section 9.

5.2.33 In addition, the mitigation modelled in this STA seeks to address the impact of the Local Plan developments only, as opposed to addressing the wider impacts resulting from background growth in traffic across the network over the Local Plan period, as assessed in the Baseline scenario.

5.3 DfT Connectivity Tool

5.3.1 As stated earlier, the impact of active travel interventions on mode share cannot be assessed using the SRTM. Instead, a qualitative assessment using the DfT's Connectivity Tool has been undertaken to assess the current level of connectivity of allocations and identify opportunities for new or enhanced infrastructure to the Active Travel and public transport networks.

5.3.2 The aim of the tool is to support appraisal of Local Plans, transport strategies, site-specific applications and infrastructure schemes by demonstrating how proposed development or interventions may improve or worsen access to jobs and services.

5.3.3 The connectivity scores are shown on maps to compare how accessible different zones are, either overall or by transport mode. The scores are scaled so that the best-connected location is scored at 100, with all other locations measured relative to it. A score of 50 therefore indicates a location that is half as well connected as the best location in England and Wales.

5.3.4 For the purpose of this STA, scores have been extracted for the borough as a whole and for the largest residential and non-residential site allocations at Southleigh and Dunsbury Hill Farm to identify opportunities for accessibility enhancements for inclusion in the mitigation package for the Local Plan. However, this high-level analysis, particularly for the smaller allocation sites within the borough, where limited information on the proposals is available, will need to be revisited at a more detailed and site-specific level, as appropriate, as part of any Transport Assessment report prepared in support of the relevant planning application for the site allocations. The full methodology used for this STA is further explained in Section 6.3.

Limitations of the Dft Connectivity Tool

5.3.5 The tool combines transport and land-use data to create a consistent, evidence-based score for each of the c.15million 100 square metre zones across England and Wales. At this stage of the tool's development, it is not possible to deduce an aggregate score per allocation, so this assessment looks at the range of

scores across each of the allocations; and does this by mode for the largest two sites.

5.3.6 Other limitations of the tool include:

- Quality of route. For instance, there is insufficient data on route quality across the whole of England and Wales for active travel. This could include the quality of pavements or available lighting, safety of cycling etc.
- Different people's mobility needs. It assumes that people have a uniform ability/preference to walk certain distances, can access all available bus stops, etc.
- Demographic differences in area. For instance, when estimating education connectivity, it does not consider that in certain areas, more children may need access to schools than in others.
- Travel cost, including cost of parking.
- Opening times or quality of destinations.
- Multi-modal journeys, other than combined trips by walking and public transport.
- Journey planning behaviour or actual use of infrastructure or the network.

5.3.7 The tool also assumes that the preferences of individuals and willingness to travel is not location-dependent: i.e., it is uniform across all of England and Wales. This is a deliberate choice to avoid feedback loops of poor public transport uptake in areas, resulting in reduced impact of transport improvements in propositional scenario testing. Similarly, the preferences of individuals and willingness to travel various distances is assumed to not have been impacted by the COVID-19 pandemic.

6 Impact Assessments of Local Plan Allocations

6.1 Introduction

6.1.1 This chapter presents the results of the comparative analysis of the 2046 Baseline and 2046 Do-Minimum (DM) scenarios from the SRTM and of the DfT Connectivity Tool.

6.1.2 Full details of the SRTM model assumptions, inputs and outputs are provided in the technical modelling report included in Appendix B. The following sections do not replicate those results in full; instead, they present an analysis of the key outputs from the assessments and explain how these have been interpreted to understand the cumulative transport impacts of the Local Plan.

6.1.3 Alongside the analysis from the Connectivity Tool, the SRTM DM scenario modelling output has been used to identify and refine an appropriate package of mitigation measures, focusing on where intervention is required and the form that mitigation is most likely to take, in line with the vision and objectives set out in this STA.

6.2 SRTM Modelling Results – DM scenario

6.2.1 The cumulative impact of the Havant Local Plan allocations on the highway network has been taken from comparing the 2046 Baseline model scenario with the 2046 Do-Minimum (DM) scenarios from the SRTM. It is important to note that this represents a worst case analysis as it only presents traffic impacts, themselves based on replicating historical travel behaviours and patterns of existing and future travel-generating land uses.

6.2.2 At the time of the SRTM modelling, the Havant Borough Local Plan allocations to be assessed were agreed with HBC and reflect the Regulation 18 version of the Local Plan. Details of these allocations can be found on the Council's website[19].

Additional Travel Demand

6.2.3 As illustrated in Figure 18, the Local Plan will result in approximately 6,800 new households by 2046. The additional employment land use included in the Local Plan would result in an increase of approximately 37,000sqm in employment floorspace in the borough during the same period.

6.2.4 When translated into total person trips (represented in the model as a journey between an Origin-Destination pair), and percentage mode share to, and from, Havant Borough for a 24-hour period, as summarised in Table 5, this would equate to additional 22,000 trips by cars added to the network (each way).

[19] https://www.havant.gov.uk/planning-services/planning-policy/local-plan/building-better-future-plan

However, it is noted that the capacity constraints on the highway network identified in the Baseline scenario (i.e. even in the absence of further Local Plan development) will encourage some people to switch modes of transport, as reflected by the slight decrease (-1.1%) in car-based mode share.

Table 5: Person Trip to/from Havant Borough – 2046 DM vs Baseline

Scenario		From Havant			To Havant		
		Highway	Public Transport	Active modes	Highway	Public Transport	Active modes
Absolute	2046 Baseline	341,940	17,594	67,906	351,679	17,401	67,864
	2046 DM	363,956	19,803	77,542	373,777	19,544	77,502
	Difference	**22,016**	**2,209**	**9,637**	**22,097**	**2,143**	**9,638**
Mode Share (%)	2046 Baseline	80.0%	4.1%	15.9%	80.5%	4.0%	15.5%
	2046 DM	78.9%	4.3%	16.8%	79.4%	4.2%	16.5%
	Difference	**-1.1%**	**0.2%**	**0.9%**	**-1.1%**	**0.2%**	**0.9%**

6.2.5 Overall, the difference of 44,113 in vehicle trips across the network when compared with the total 693,619 vehicle trips generated in the Baseline represents a 6.3% increase. This is considered a minimal increase overall, well below typical daily variations in traffic flows[20] and unlikely to be noticeable to existing road users on a day-to-day basis on an unconstrained highway network. However, it is accepted that any increase from development traffic will contribute to worsening existing pressures on the Havant network, particularly to the bus services, as reflected by the negligible change in forecast passenger numbers. To affect meaningful changes to travel demand in future, in line with this STA vision, any highway mitigation associated with this Local Plan will therefore prioritise measures that reduce delays to bus services across the borough and offer safe and high quality Active Travel routes across the network as a whole rather than focus exclusively on the highway capacity of immediate local areas.

6.2.6 Despite this minor reduction in car-based mode share, the change in vehicle-based emission forecasts for Havant Borough between the Baseline and Do-Minimum scenarios highlights a general increase in emissions in the order of 3 to 4% (Table 6). However, this is not unexpected on an unmitigated network, as it reflects the overall increase in vehicle trips from Local Plan growth.

[20] In the UK, traffic flows fluctuate on a daily basis generally up to 10%. As such, changes within -10% to 10% are considered statistically insignificant (i.e. no change) (Department for Transport (DfT) Road Traffic Statistics)

Table 6: Impact of Local Plan (pre-mitigation) on vehicle-based emissions in Havant Borough

Emissions (kg/12hr)	NOX	NO2	PM10	PM2.5	HC	Carbon Monoxide	Carbon Dioxide	Benzene	Methane	13 Butadiene
DM - Baseline	64.13	14.76	0.53	0.50	5.83	128	68,715	0.09	1.43	0.08
% difference	4%	4%	3%	3%	3%	3%	3%	4%	4%	4%

6.2.7 Similarly, the highway traffic growth within Havant Borough, arising from the introduction of the Local Plan allocations, generates a forecast increase in total vehicle hours driven in both the AM and PM peak hours of approximately 7%.

6.2.8 Total vehicle kilometres driven in Havant Borough are forecast to increase by approximately 2.4% in both the AM and PM peak hours, whilst average speed is forecast to decrease by approximately 4.6% in the AM and PM peaks due to the associated increase in network delays. These outputs are consistent with the highway network within Havant accommodating a greater level of trips and experiencing increasing congestion.

6.2.9 Overall, the impact on the wider, full core model area is considered small/negligible as land use changes between the scenarios are focussed solely on Havant Borough.

Impact on Highway Traffic Conditions

6.2.10 As a starting point to identify locations requiring potential mitigation, a more detailed analysis of the outputs of the Road Traffic Model (RTM) has been undertaken to compare localised changes to highway volume of traffic (link flow), delay and capacity on the highway network. Locations (junctions or links) exceeding the following thresholds have been taken forward for further consideration:

- Junction approach links where the ratio of traffic volume to capacity of the road (V/C) is greater than 85% in either 2046 AM or PM peak hour;
- 'Significant' increase in V/C is where the V/C is greater than 85% and has increased by more than 5% on any approach arm; between the 2046 Baseline and 2046 Do Minimum; and
- 'Severe' increase in V/C is either where the V/C 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 on any approach arm, between the 2046 Do Minimum and 2046 Baseline.

6.2.11 These thresholds were developed and agreed with both HCC and National Highways, as Highway Authorities, as providing a meaningful indication of impacts from additional development flows on a network. They are not the only measure by which junction/ network performance or scale of impact associated to transport growth can be classified but are taken as a starting point (consistent with other SRTM commissions) for comparison of network performance from which subsequent more detailed assessment may refine those locations considered most impacted.

6.2.12 The largest changes in traffic flows in the AM peak are in the vicinity of the Southleigh development. As a mainly residential development with some mixed uses (i.e primary school), the outbound flows (almost 570 PCUs[21]) are highest in the AM peak with inbound flows still more than 130 PCUs. The flows leaving the Southleigh site are split between those travelling west and south (approximately 160 PCUs) on Southleigh Road and those travelling east (approximately 470 PCUs) towards Horndean Road.

6.2.13 Elsewhere, traffic flows within the main Havant area are seen to increase, as do flows on the A27 to the west of the junction with Emsworth Road, commonly known as the Warblington Interchange. There is a reduction in both eastbound and westbound traffic on the A27 to the east of the Warblington Interchange. This interchange junction is operating close to or over capacity for traffic joining and leaving via Emsworth Road resulting in users choosing an alternative route. Limited flow changes are expected on the A3 (M) which is again due to the road operating close to or at capacity with the junctions accessing the A3 (M) also close to or over capacity.

6.2.14 The change in traffic flows in the PM peak is like the AM peak with flows generally increasing across the network, particularly around Havant town centre and Waterlooville. The Southleigh development site is expected to result in an additional 500 inbound PCUs and 200 outbound PCUs. The route along Woodberry Lane is once again used by additional traffic.

6.2.15 In the PM peak there are some minor increases in northbound flows on the southern section of the A3(M) between junction 5 and 4 with decreases in flows to the north of junction 4. The A27 only shows a decrease in eastbound traffic (east of the Warblington Interchange) in the PM peak.

6.2.16 As illustrated on Figure 18, there is a total of seven junctions that meet the ‘severe’ criteria and 12 that are classed as ‘significant’ as defined above.

[21] PCU – Passenger Car Unit

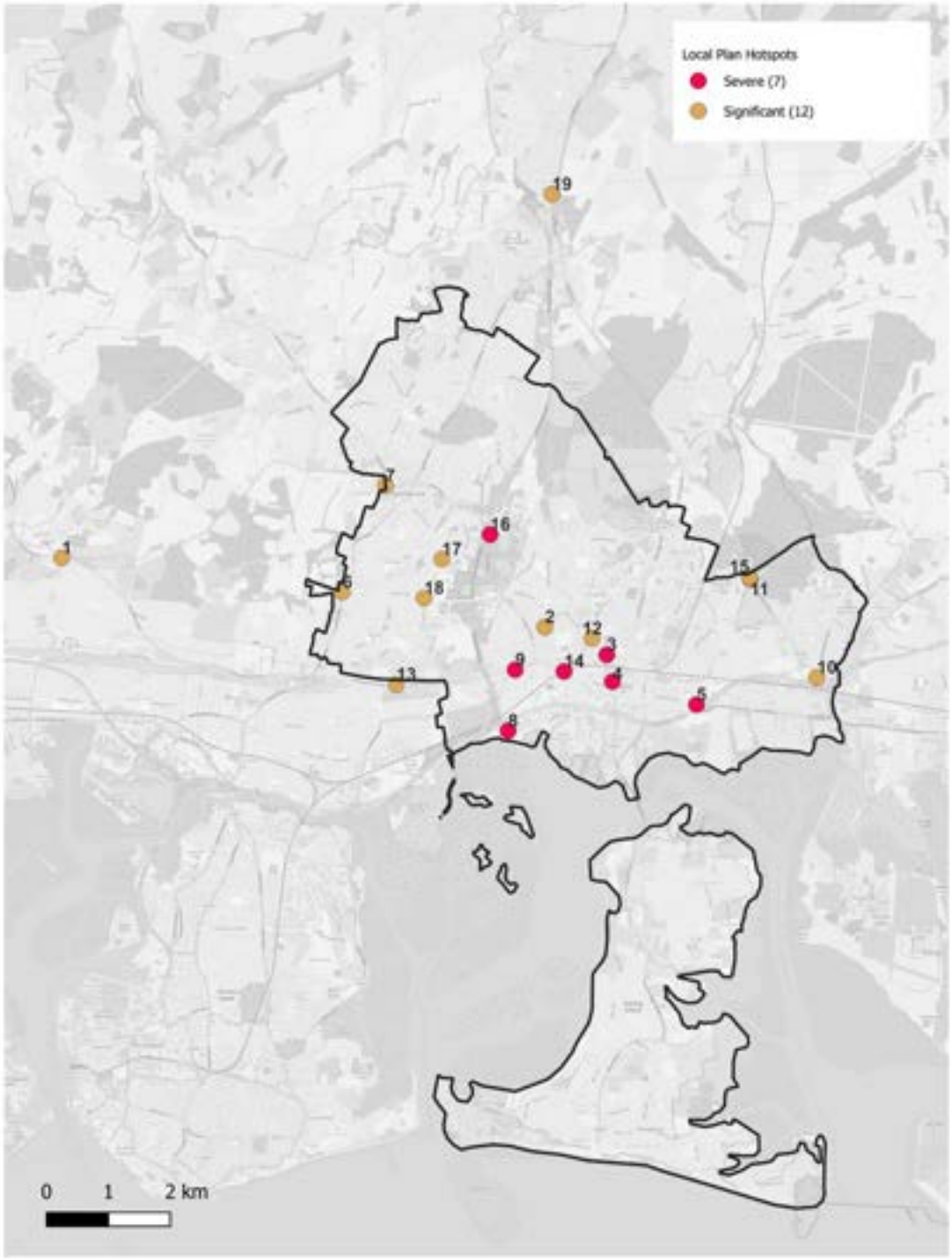

Figure 18: 2046 DM vs 2046 Baseline 'Significant' and 'Severe' Impacted Junction Locations

6.2.17 To provide context on the number of junctions with high V/C ratios, regardless of whether they are significantly affected by Local Plan traffic, the SRTM identified 57 junctions in the 2046 Baseline scenario that meet this criterion. This indicates that these junctions would be approaching capacity even without Local Plan growth and reflects the existing constrained nature of the local highway network within the borough.

6.2.18 In comparison, the 2046 Do Minimum forecast identifies 63 junctions meeting the same criterion once Local Plan growth is included. Of these, six are additional junctions that did not meet the criterion in the Baseline scenario, while the remaining 57 are the same locations previously identified. This is consistent with the findings that the LP allocations will generate limited additional cumulative levels of traffic across the network (cf 6.2.5).

6.2.19 Table 7 summarises the modelled performance of the 'long list' of 19 junctions that met the 'severe' and 'significant' criteria in either peak in 2046. Observations have been given to outline which approach(es) resulted in the respective junction being selected for further mitigation investigations. It should be noted that observations presented in Table 6 represent a 'first pass' analysis of the initial modelling results from the SRTM. The sole purpose of this exercise is to identify the requirement for further assessment and mitigation. The approach used for identifying appropriate mitigation and the impact of the Local Plan development on the junctions taken forward for mitigation in the SRTM is presented in Sections 8 and 9 of this STA.

Table 7: Junctions for Potential Mitigation Assessment List

ID	Junction	Impact [1]	Type [2]	Observations (Baseline vs DM)					
				Baseline			Do-Minimum		
				RFC	Queue (PCUs)	Delay (s)	RFC	Queue (PCUs)	Delay (s)
1	Southwick Road / High Street	s	P	Flagged due to minor increase in RFC in AM on Southwick Rd WB approach but same approach operating over capacity but with no queues and minor delays in both scenarios.					
				92	0	5	100	1	10
2	Park Lane/Hazelholt Drive	s	P	Flagged due to minor increase in RFC in AM for Hazelholt Dr approach but no queues in both scenarios.					
				73	0	5	87	1	6
3	New Road/Park Rd North/ Petersfield Rd/ Elmleigh Rd	S	R	Flagged due to minor increase in RFC in PM on Park Road North approach. Junction already operating well over capacity in baseline and limited additional traffic from LP (22 extra in queue) - adding to existing queue. Baseline queue length cannot be accommodated. Junction on very frequent bus routes.					
				111	75	230	115	97	297
4	Elm Lane/Park Road North	S	S	Flagged due to minor increase in RFC in PM on Elm Lane primarily and Park Road North SB approaches but same approaches operating over capacity in both scenarios. Junction on very frequent bus routes (adjacent to Havant Bus Station access)					
				87	7	38	92	8	45
5	A27 EB off/on slip/Emsworth Road	S	R	Flagged due to increase in RFC in AM on Emsworth Rd EB approach with associated increased delays on approaches used by flagship 700 bus service					
				97	5	33	108	31	187
6	London Road/Purbrook Heath Road	s	P	See comments in para 6.2.22					
7	Maurepas Way/Hambledon Road roundabout	s	R	Flagged due to minor increase in RFC in AM for Maurepas Way WB approach but limited queues and delays in both scenarios. Junction on high frequency bus routes					
				79	1	14	85	1	15

ID	Junction	Impact [1]	Type [2]	Observations (Baseline vs DM)					
				Baseline			Do-Minimum		
				RFC	Queue (PCUs)	Delay (s)	RFC	Queue (PCUs)	Delay (s)
8	Tear Drop - A27/A2030/Harts Farm Way	S	R	Flagged due to increase in RFC on Harts Farm Way WB approach					
				108	24pcus	190s	112	34pcus	260s
9	Belmont Junction (Bedhampton Hill/ Bedhampton Rd/Maylands Rd/B2177)	S	R	Flagged due to increase in RFC in PM on Portsdown Hill Rd EB approach. Approach operating over capacity in both baseline and DM but not a bus route (flagship bus routes (19 and 23) using junction not affected)					
				102	13pcus	77s	106	25pcus	140s
10	B2148 Horndean Road/New Brighton Road	s	P	Flagged due to increase in RFC in PM on New Brighton Rd NB approach but with no queues and minor delays in both scenarios					
				81	0	7s	92	1pcu	13s
11	Horndean Road/Emsworth Common Road	s	P	Flagged due to minor increase in RFC in PM on Emsworth Common Rd approach but same approach operating over capacity in both scenarios. Junction on an infrequent bus route.					
				90	2	18s	100	7pcu	54s
12	Barncroft Way/ Stockheath Lane	s	P	Flagged due to increase in RFC in AM for Stockheath Lane SB approach but no queues and minor delays in both scenarios. No bus routes along Stockheath Lane.					
				73	1	10s	95	3pcu	23s
13	B2177 Portsdown Hill Road/Crookhorn Lane	s	P	Flagged due to increase in RFC in AM on Crookhorn Lane SB approach but limited queues and delays in both scenarios.					
				69	1pcu	10s	86	3pcus	17s
14	Bedhampton Level Crossing	S	L	Flagged due to increase in RFC in PM for West St WB approach but junction over capacity in both scenarios. West Street not a bus route.					
				92	22pcus	284s	101	26pcus	350s
15	Bartons Road/Horndean Road	s	P	Flagged due to increase in RFC in AM on Bartons Rd EB approach but junction over capacity in both scenarios and limited impact on queues and delays					
				94	4pcus	22s	101	7pcus	36s

ID	Junction	Impact [1]	Type [2]	Observations (Baseline vs DM)					
				Baseline			Do-Minimum		
				RFC	Queue (PCUs)	Delay (s)	RFC	Queue (PCUs)	Delay (s)
16	Hulbert Road/Fitzwygram Way roundabout	S	R	Flagged due to increase in RFC in PM for Fitzwygram Way WB approach. Junction already operating well over capacity in baseline and additional traffic from LP adding to existing queue. Fitzwygram Way will be used as a frequent bus route once bus gate at Freeley Rd roundabout is open.					
				104	16pcus	125s	116	47pcus	338s
17	Stakes Hill Road/Frendstaple Road	s	R	Flagged due to minor increase in RFC in PM for Stakes Hill Rd NB approach but no queues and limited delays in both scenarios.					
				84	0	0	89	0	8s
18	Stakes Road/Purbrook Way	s	R	Flagged due to minor increase in RFC in AM (and PM) on Crookhorn Lane NB approach but limited queues and delays in both scenarios. Junction on bus route.					
				82	1pcu	16s	89	2pcus	22s
19	Downwood Way / London Road	s	R	Flagged due to increase in RFC in AM for London Rd NB approach but junction operates over capacity with no queues or delays in both scenarios.					
				92	0	4s	100	0	4s

S- Severe; s – significant;

P – Priority junction; S – Signalised junction; R – Roundabout; L- level crossing

6.2.20 Of those junctions classified as ‘severe’ one is located close to the Southleigh development site – 5 A27 EB off/on slip / Emsworth Road. There are also three junctions classified as ‘significant’ close to this site (numbers 10, 11 and 15). These are likely associated with the Southleigh development. Four of the remaining six ‘severe’ locations are located around Havant and Bedhampton and are likely associated with the local plan developments in these areas, with the Southleigh site a likely contributor. The last two ‘severe’ locations are the tear drop junction on the A27 / A2030 and at the Dunsbury Hill Farm roundabout access.

6.2.21 It should be noted that junction 1 Southwick Road / High Street and junction 19 Downwood Way / London Road roundabout lie beyond the Havant Borough boundary, with the latter also lying outside of Hampshire County Council boundary. Both trigger the “significant” criteria and are therefore included within the information presented in the report.

6.2.22 Finally, it is noted that the Purbrook Heath Road approach at its junction with London Road (ID 6 in Table 6) was recently closed with traffic from the corridor now diverted to route via the upstream Ladybridge Road roundabout. This change was not included in the SRTM but a review of the additional diverted traffic movements at the Ladybridge Roundabout is unlikely to trigger the threshold for the latter in either the Baseline or DM scenarios. As a result, junction ID 6 has been excluded from further assessments.

Impact on Public Transport Passenger Demand

6.2.23 The public transport (PT) passenger flow difference plots (the change in passenger volumes on PT services - rail and bus) follow a similar format to the highway flow difference plots with the value identified adjacent to the appropriate link.

6.2.24 For rail, passenger flow increases are forecast on both the Portsmouth mainline and the line to and from Chichester. The maximum AM increase, where the two lines converge is approximately 100 passengers. Of these, approximately 50 additional passengers are travelling southbound towards Portsmouth and Southsea with almost 60 additional passengers continuing in the Southampton direction via Cosham. In the PM peak hour, there are approximately 80 additional passengers making the reverse journey (eastbound) on this section of the line with the proportions similarly split between the Portsmouth and Southampton branches.

6.2.25 For bus, there is relatively little change in patronage with some additional passengers travelling to and from the Waterlooville area as well as increases in patronage north of Havant town centre area in the AM peak. The AM increases are around 5 to 10 additional bus passengers. During the PM peak the increase in patronage is similar and covers a similar selection of bus routes.

Impact on Road Safety

6.2.26 Traditionally, forecasting road casualty impacts of new road schemes has been based on a review of historical data and derivation of casualty rates with or

without development at various locations on the network using the DfT Transport Analysis Guidance (TAG)[22] and the COBALT (Cost and Benefit to Accidents – Light Touch) software. This cost benefit analysis however is predicated on changes to vehicle kilometres travelled across a road network and does not reflect or quantify the potential impacts (beneficial or adverse) on other road users, such as people walking or cycling, or public transport passengers and their infrastructure networks.

6.2.27 As discussed elsewhere in this section the proposed allocations are predicted to increase traffic flows at a number of locations, identified on Figure 19. These increased flows could potentially have an adverse impact on road safety at these locations.

6.2.28 While it would be simple to assume that an increase or decrease in motorised movements from a specific development would result in an equivalent increase or decrease in casualty rates, this would fail to take account of the specific contributory factors of casualties at a particular location. Some will relate to human behaviour (driving under the influence, etc.) whilst others may relate to road conditions or layout. It would also be difficult to attribute any change in road safety conditions to individual sites given that the SRTM assesses the cumulative impact of the Local Plan growth, including re-assignment of traffic between corridors based on estimated delay in the highway peak periods. A more in-depth analysis would be required to correlate a specific environment to casualty types.

6.2.29 The standard process to review and address any such impacts will therefore be through future site-specific transport assessments through the planning process and cross-referenced with any relevant enhancement schemes identified in the IDP and/or LCWIP/BSIP.

6.3 Connectivity Assessment

Methodology

6.3.1 The following methodology has been used to review each of the Havant Local Plan site allocations to understand how well they are connected to a range of key destinations, including education, healthcare, leisure, retail and employment:

- The allocations themselves are not directly represented within the connectivity tool and it is not possible to generate a single overall connectivity score for each allocation. Instead, the assessment identifies the cells within each allocation area with the highest and lowest connectivity scores and presents these as a range, alongside an average score for the site as a whole
- Connectivity has been assessed by destination type. As a result, some sites may perform well in relation to access to certain destinations, such

[22] Department for Transport TAG Unit A4.1 Social Impact Appraisal https://www.gov.uk/government/publications/tag-unit-a4-1-social-impact-appraisal)

as education, but less well in relation to others, such as retail or healthcare, depending on their location. The purpose of this analysis is to highlight which sites are already relatively well connected and which sites are likely to require further intervention to improve connectivity either through this STA (where there are cumulative or larger individual impacts) or through the site-specific Transport Assessment process.

- The Connectivity Tool identifies likely routes taken to access destinations by walking, cycling and public transport but does not assess the quality of those routes. While improvements to route quality may not change connectivity scores directly, they are likely to increase the attractiveness and use of sustainable travel modes. For this reason, route quality has been considered separately when developing the Local Cycling and Walking Improvement Plan for the borough (see section 7.4 of this STA).
- Mapping has been used to illustrate where routes overlap between allocations and destinations. These maps show indicative routes only and do not represent forecast volumes of users.
- The mapping indicates areas where multiple developments are likely to generate cumulative walking and cycling movements, particularly along key corridors. These routes have been cross-referenced against the Havant LCWIP to identify where improvements are already planned and where additional measures may be required. Where routes are not currently identified within the LCWIP, the STA highlights those links that should be prioritised. Improvements along these routes would be expected to be funded through CIL and proportionate contributions from relevant site-specific development proposals

6.3.2 The outcomes of this analysis are presented in the following sections.

Connectivity Scores for Havant LP Allocations

6.3.3 Figure 19 illustrates the connectivity scores of all 100 sqm cells within Havant borough with the location of each of the Local Plan allocation sites overlaid. A tabular version of the scores for the allocation sites is provided in Appendix C.

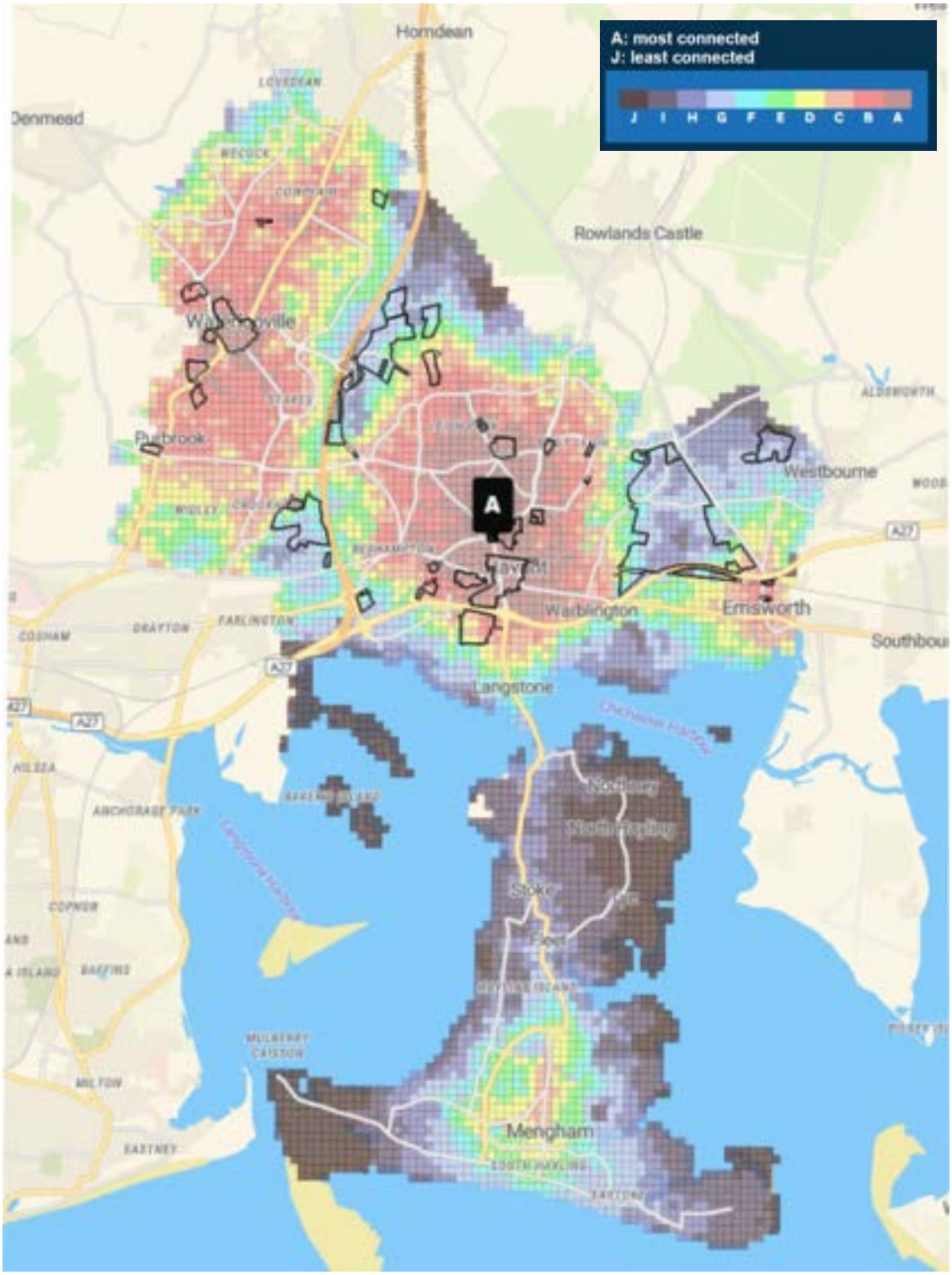

Figure 19: Connectivity Scores within Havant Borough

6.3.4 The Connectivity Tool outputs provide an indicative, comparable set of connectivity scores for Havant Local Plan allocation sites. The spreadsheet in Appendix C summarises, for each allocation, a site average ('mean') connectivity score, alongside the maximum and minimum scores recorded within the site area and the resulting variance (the difference between the max and min). Scores are also disaggregated by mode (walking, cycling, driving,

public transport) and by destination type (education, leisure, health, shopping, residential, workplaces).

6.3.5 Across the allocations, the results show that connectivity is not uniform within sites. Many sites have a moderate site-wide mean score but a wider spread between their best and worst performing areas, indicating that connectivity can vary significantly depending on where within a site trips originate. This is reflected in the range of variances observed. For example, Southleigh has a mean score of 51 but a max of 65 and a min of 33 (variance 32). In contrast, some smaller or more centrally located sites show a tighter range, such as Former Dairy Crest Depot (mean 72, max 74, min 71, variance 3) and Blue Star (mean 73, max 74, min 72, variance 2).

6.3.6 Mode-specific scores indicate that, for many allocations, walking and public transport scores are lower than cycling or driving, though the pattern varies by site. For instance, Southleigh shows mode scores of walking 45, cycling 55, public transport 55, and driving 76. By comparison, Dunsbury Park (phase 1 and 2) has a mean of 54, with mode scores of cycling 62, walking 48, public transport 56, and driving 80. These differences reinforce that the same site can perform differently depending on mode, and that interpretation of overall connectivity should be considered alongside the modal breakdown. The aim of mitigation measures should be to increase the scores for active modes and public transport, in order to meet the vision of the STA.

6.3.7 Destination-specific scores also vary notably by location. For example, Southleigh records destination scores of education 45 (although this does not reflect that the site will deliver a new primary school), leisure 49, health 43, shopping 49, residential 63 (again, the tool does not reflect the new housing), and workplaces 54, indicating stronger relative connectivity to residential destinations than to health or education. This variation across destination types supports the STA's use of the Connectivity Tool as a way to identify where site-specific measures may be needed to strengthen access to particular services or opportunities, depending on the site's context.

6.3.8 Overall, the outputs provide a consistent evidence base for comparing allocations and identifying where connectivity is already relatively strong and where it is weaker or more variable across a site. The inclusion of max/min scores is particularly helpful in highlighting sites where targeted internal permeability measures or improved links to nearby destinations may have greatest value, as these are the locations where the lowest-scoring areas may be pulling down the site-wide mean.

Highest and Lowest Average Connectivity Scores

6.3.9 Reviewing the mean site-average connectivity scores across all allocations, the spreadsheet shows a clear range between the most and least connected sites. The highest average scores are recorded for small, generally more central brownfield sites, including Portsmouth Water HQ and Blue Star, both of which have a mean connectivity score of 73, with narrow ranges between minimum and maximum scores (variance of 9 and 2 respectively). Other high-scoring

sites include the Former Dairy Crest Depot and Former Electricity Board, Bartons Road, each with a mean score of 72 and very limited internal variation.

6.3.10 At the other end of the scale, the lowest average connectivity score is recorded at Long Copse Lane (main site), which has a mean score of 45, alongside a wider spread between its best- and worst-performing areas (maximum 52, minimum 29). Southleigh Park House also scores relatively low, with a mean of 48, while Southleigh itself has a mean score of 51, placing it towards the lower end of the overall range when compared with other allocations.

6.3.11 Overall, the distribution of mean scores highlights a clear distinction between smaller, well-located urban sites, which consistently achieve higher average connectivity, and larger or more peripheral allocations, which tend to have lower mean scores and greater internal variation. This reinforces the importance of considering both average performance and within-site variation when using connectivity outputs to inform the STA and site-specific transport assessment requirements.

Connectivity Scores for Southleigh Allocation

6.3.12 Given the scale of the proposed residential development at Southleigh, a more detailed analysis of the scores has been undertaken for this site. Figures C1 to C3 in Appendix C provide the connectivity scores for each of the zones making the Southleigh site relative to Havant area for walking, cycling and public transport. Unsurprisingly, this highlights the disparity between existing opportunities for sustainable travel of the central areas of the site when compared with those on the edges of the site.

6.3.13 Southleigh is recorded as a residential allocation of 2,100 dwellings with a mean connectivity score of 51. The site shows a maximum score of 65 and a minimum score of 33, giving a variance of 32, which indicates substantial variation in connectivity across the site.

6.3.14 By mode, Southleigh scores 55 for cycling, 45 for walking, 76 for driving, and 55 for public transport. This profile suggests that the site's connectivity is currently relatively stronger for driving than for other modes, with walking scoring lowest of the modal measures presented.

6.3.15 By destination type, Southleigh scores 45 for education, 49 for leisure, 43 for health, 49 for shopping, 63 for residential, and 54 for workplaces. The site therefore performs more strongly for access to residential destinations and workplaces than it does for health and education, which are the lowest scoring destination categories for Southleigh in the spreadsheet, although the site is intended to bring forward a new primary school which is likely to significantly increase the score for education.

6.3.16 Taken together, the combination of (a) a moderate mean score, (b) a relatively low minimum score (33), and (c) a large variance (32) indicates that parts of the Southleigh allocation are currently less well connected than others. This supports the approach that assessment and mitigation should pay particular attention to improving connectivity for the lowest-scoring areas, and to

strengthening access (especially by walking) to key services where destination scores are lower (notably health and education).

6.3.17 The analysis specifically supports connectivity enhancements by foot, cycle and public transport for access to:

- Key employment areas south of the A27 and railway line
- Warblington School (identified as the secondary catchment school for the area)
- Key services and employment areas in Havant Town Centre

Connectivity Scores for Dunsbury Hill Farm Allocation

6.3.18 The spreadsheet lists Dunsbury Park as an employment allocation split into phases, with separate entries for “Dunsbury Park Site phase 1 and 2” and “Dunsbury Park Site phase 3”. Both entries show floorspace of 42,600 m² and have similar overall connectivity levels. Figures C4 to C6 in Appendix C provide the connectivity scores for each of the zones making the Dunsbury Park relative to Havant area for walking, cycling and public transport.

6.3.19 For phase 1 and 2, the mean score is 54, with max 62 and min 46 (variance 16). For phase 3, the mean score is 52, with max 57 and min 47 (variance 10). This suggests that phase 1 and 2 has slightly higher average connectivity but also a wider spread of connectivity across the site area than phase 3.

6.3.20 By mode, phase 1 and 2 scores cycling 62, walking 48, driving 80, public transport 56. Phase 3 scores cycling 61, walking 47, driving 79, public transport 54. In both cases, driving has the highest modal score (79–80), with walking the lowest (47–48). Cycling and public transport sit between these, with cycling marginally higher than public transport in both phases.

6.3.21 These results show that the Dunsbury Park employment site is moderately well connected overall (mean scores 52–54), its walking connectivity is notably lower than its driving connectivity, and there remains measurable variation across the site (particularly in phase 1 and 2, variance 16). This supports the approach of using site-specific transport assessment to address internal and external connections to improve non-car access, especially for the lowest-scoring areas within the wider Dunsbury Park allocation.

7 Mitigation Package

7.1 Approach to mitigation

7.1.1 This section provides a summary of the approach to mitigation and identifies the measures that may be required to address the identified impacts resulting from the proposed Local Plan growth i.e. the difference between the baseline and Do-Minimum scenarios. The mitigation package also considers enhancements to the active travel networks and other interventions based on the opportunities identified by the Connectivity Tool and local mapping exercise detailed in the previous section.

7.1.2 As detailed in Section 3, the approach taken in this STA has been to decide on what the transport provision within the borough will look like so that the objectives of the STA, to encourage local living, create healthy places and streets and develop strategic connectivity (Figure 2), are achieved. This means that the transport interventions considered to mitigate the cumulative impacts of the Local Plan allocations have been broadened to a wider range of measures than traditional highway capacity improvements.

7.1.3 Sustainable transport measures will form the main part of any mitigation/connectivity improvement required to provide additional mobility capacity within the system as well as addressing any safety issues on any of the transport networks. Although the demand forecasts in the transport model are unconstrained it is likely that in practice, other factors (new schemes outside the scope of the Local Plan mitigation, national policies, changes in fuel and vehicle excise duty, etc.) 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 would be quickly eroded as suppressed traffic demand is unlocked. Therefore, investment in providing good public transport and active travel options is important.

7.1.4 In the first instance, any transport mitigation should seek to reduce the need to travel and enable the uptake of active travel and public transport, in line with HCC's LTP4 vision and objectives. Increases in highway capacity will only be considered as a last resort to further mitigate any residual impacts, but the focus will be on improving the network for road users in line with the LTP4 road user utility framework; i.e. people walking and wheeling first, then public transport users, and lastly, single car-occupiers. These measures are required because levels of traffic congestion on many parts of the borough's road network are such that they prevent the achievement of the above STA objectives, and there is insufficient physical space to overcome these problems through simple engineering efforts such as increased capacity.

7.1.5 The approach to mitigation detailed in Figure 20 is based on HCC's LTP4 priority framework. Developers will be expected to consider this process when finalising their proposals and while the first step clearly relates to site-specific measures, the approach to mitigation for this STA has followed the second and third steps of the framework when considering appropriate measures to

address the cumulative impact of the LP at each of the locations identified as requiring further consideration in Table 6.

Figure 20: Mitigation Priorities

7.1.6 Notwithstanding the above priority framework, it is also important to understand from a planning perspective that a balanced view will need to be taken between mitigation measures that will be specifically required to address the localised impacts of Local Plan development and those that will affect travel behaviours and patterns as a whole across the wider networks.

7.2 Analysis of DM SRTM Scenario

7.2.1 As a starting point, the 'long list' of 19 locations in Table 6 that exceeded the impact thresholds previously defined was reviewed at a workshop with Havant Borough Council, Hampshire County Council (as the Highway and Public Transport Authority), National Highways and the lead SRTM modeller present. The workshop drew together a localised understanding of the functioning of these junctions, as well as in depth knowledge of traffic schemes previously investigated, planned and/or delivered in the Borough. Through the workshop and a review of the impact on journey delay to road users (rather than highway capacity), the potential for mitigation was identified at each location.

7.2.2 Table 8 summarises the outcome of those discussions and provides an indication of the type of mitigation interventions to be considered at each

location along with reasons why some locations have been excluded from further consideration.

7.2.3 The table shows that 16 of the 19 locations exceeded the impact thresholds in both the Baseline and DM SRTM scenarios, i.e. as a result of existing capacity issues in the Baseline. While it is accepted that the LP allocations will cumulatively exacerbate these issues in future, the level of highway capacity mitigation required to address these issues would largely be disproportionate to the level of impacts from the LP allocations. Furthermore, LTP4 no longer promotes highway capacity as the primary solution to accommodate demand by motorised traffic, whether this is existing or forecast. Instead, LTP4 focuses on managing travel demand and promoting use of active modes and public transport.

7.2.4 Although the majority of transport impact from the LP allocations will be minimal at most locations identified above, two locations adjacent to the largest residential and non-residential sites have been identified as requiring specific intervention. The two proposed interventions comprise of bus priority schemes at the Warblington Interchange and at the Hulbert Road/Fitzwygram Way roundabout, as detailed later in this chapter.

7.2.5 In other areas, such as Havant Town Centre, Bedhampton level crossing and the Tear Drop Junction, existing transport issues are not solely attributable to traffic demand but arise from a combination of constrained network capacity, competing movements and broader place-based considerations. In these areas, addressing transport impacts requires an integrated and holistic approach rather than isolated junction-specific interventions. Where appropriate, Local Plan allocation sites will therefore be expected to contribute proportionately towards the delivery of wider, area-based solutions that respond to these complex and cumulative pressures.

7.2.6 Specifically, these will need to include any measures or actions identified in the emerging Havant Area Strategy, LCWIPs, BSIPs or other strategies.

7.2.7 The following paragraphs go through in more details the various mitigations identified to address the cumulative impacts of the Havant LP.

Table 8: Review of Mitigation at the 19 Locations Identified through the SRTM for Further Consideration

Key to mitigation colour code:

No mitigation required through the STA (site specific TAs will assess relevant impacts through the planning process)
Contribution towards existing or emerging schemes (LCWIP/BSIP/IDP/Other Strategies)
Mitigation scheme required specifically to address LP impacts

ID	Junction	Impact (1)	Impact Significance Review	Mitigation Type	
1	Southwick Road / High Street	s	Junction flagged as significant based on the thresholds but difference between Baseline and DM impact is negligible. Impact forecasts not affecting PT route or LCWIP scheme.	None considered as part of the STA but may need review for site-specific TAs	
2	Park Lane/Hazelholt Drive	s	Junction flagged as significant based on the thresholds but difference between Baseline and DM impact is negligible. An LCWIP scheme has been identified but is linked to a different approach not directly related to LP proposals.	None considered as part of the STA but may need review for site-specific TAs	
3	New Road Roundabout	S	This is operating well over capacity in Baseline. Additional impacts from LP (DM vs Baseline) would not support delivery of any meaningful mitigation, particularly given HBC policy of no-car development in TC centre. Mitigations arising from a BSIP feasibility study to improve accessibility to Havant bus station and reliability of bus services has been considered but early indication is that the scope of the options needs to be widened. An Area Strategy for Havant Town Centre has subsequently been commissioned to address conflicting demands in this area but is in early stages of development.	To meet STA vision and LTP4 objectives, mitigation in the form of contribution towards delivery and actions of emerging Area Strategy will be required. Low and no car policy will also form part of the mitigation approach for town centre sites.	
4	Elm Lane/Park Road North	S	Reviewed in conjunction with ID 3 as corridor improvements rather than standalone junction mitigation.		

ID	Junction	Impact (1)	Impact Significance Review	Mitigation Type	
5	A27 EB off/on slip/Emsworth Road	S	Junction operating at capacity in Baseline with LP impact (from Southleigh mainly) exacerbating situation and requiring mitigation. Need to consider bus priority on (main) Emsworth Road EB approach.	Bus priority mitigation scheme on Emsworth Rd EB approach to address delays to flagship bus route Mitigation scheme also needs to consider the existing commitment to ban right turn to Emsworth Rd side road.	
6	London Road/Purbrook Heath Road	s	Granular review of SRTM model confirms issue with right turning vehicles from London Rd (SB) - side road unaffected. Diversion of flow from side road to upstream roundabout will resolve this issue. Additional level of traffic movements at the roundabout unlikely to trigger threshold for this location.	None considered as part of the STA but may need review for site-specific TAs	
7	Maurepas Way/Hambledon Road roundabout	s	This junction flagged as significant based on the thresholds but diff. btw Baseline and DM is negligible and difficult to justify any meaningful capacity mitigation in planning terms. Signalisation to improve bus priority/AT would be disproportionate to LP impact. Bus operators have flagged that a study to improve bus reliability at this location is being undertaken but not as mitigation of LP impact specifically	To meet STA vision and LTP4 objectives, mitigation in the form of contribution towards delivery of relevant BSIP/LCWIP schemes will be required.	
8	Tear Drop - A27/A2030/Harts Farm Way	S	Impact of LP allocations at this location is minimal in terms of delay/Qs as the junction is operating well over capacity in Baseline. Existing LCWIP scheme identified to improve accessibility on Hart Farm Way and enable mode shift from car to AT modes.	To meet STA vision and LTP4 objectives, mitigation in the form of contribution towards delivery of relevant LCWIP schemes will be required.	

ID	Junction	Impact (1)	Impact Significance Review	Mitigation Type	
9	Belmont Junction (Bedhampton Hill/ Bedhampton Rd/Maylands Rd/B2177)	S	Improvement schemes have already been investigated by HCC at this junction, but no appropriate solution found to date. This junction has flagged as severe based on the thresholds but the LP impact significance is minimal.	To meet STA vision and LTP4 objectives, mitigation in the form of contribution towards delivery of emerging improvement schemes will be required.	
10	B2148 Horndean Road/New Brighton Road	s	Junction approaching capacity in both baseline and DM. Impact of LP (DM vs Baseline) is minimal and meaningful capacity mitigation would be disproportionate to LP impacts.	To meet STA vision and LTP4 objectives, mitigation in the form of contribution towards delivery of relevant LCWIP schemes will be required.	
11	Horndean Road/Emsworth Common Road	s	Reviewed in conjunction with ID 10 as corridor improvements rather than standalone junction mitigation. Junction approaching capacity in both Baseline and DM. Impact of LP (DM vs Baseline) is minimal and meaningful capacity mitigation would be disproportionate to LP impacts.		
12	Barncroft Way/ Stockheath Lane	s	Junction flagged as significant based on the thresholds but difference between Baseline and DM impact is negligible. Impact forecasts not affecting PT route or LCWIP scheme	None considered as part of the STA but may need review for site-specific TAs	
13	B2177 Portsdown Hill Road/Crookhorn Lane	s	Junction approaching capacity in DM but difference between Baseline and DM impact is negligible and meaningful capacity mitigation would be disproportionate to LP impacts	None considered as part of the STA but may need review for site-specific TAs	
14	Bedhampton Level Crossing	S	Junction operating at or above capacity in both Baseline and DM. Impact of LP (DM vs Baseline) is minimal and meaningful capacity mitigation would be disproportionate to LP impacts.	None considered as part of the STA but may need review for site-specific TAs	
15	Bartons Road/Horndean Road	s	Reviewed in conjunction with ID 11 as corridor improvements rather than standalone junction mitigation.	To meet STA vision and LTP4 objectives, mitigation in the form of	

ID	Junction	Impact (1)	Impact Significance Review	Mitigation Type	
			Junction at capacity in both baseline and DM. Impact of LP (DM vs Baseline) is minimal and meaningful capacity mitigation would be disproportionate to LP impacts.	contribution towards delivery of relevant LCWIP schemes will be required.	
16	Hulbert Road/Fitzwygram Way roundabout	S	LP impacts (mainly from Dunsbury Hill Farm site) are significant, but issue mainly relates to additional delays to bus services existing Fitzwygram Way.	Bus priority mitigation scheme	
17	Stakes Hill Road/Frendstaple Road	s	Junction at capacity in both baseline and DM. Impact of LP (DM vs Baseline) is minimal and meaningful capacity mitigation would be disproportionate to LP impacts.	To meet STA vision and LTP4 objectives, mitigation in the form of contribution towards delivery of relevant LCWIP schemes will be required.	
18	Stakes Road/Purbrook Way	s	Junction at capacity in both baseline and DM. Impact of LP (DM vs Baseline) is minimal and meaningful capacity mitigation would be disproportionate to LP impacts.	To meet STA vision and LTP4 objectives, mitigation in the form of contribution towards delivery of relevant LCWIP schemes will be required.	
19	Downwood Way / London Road	s	Junction flagged as significant based on the thresholds but difference between Baseline and DM impact is negligible. Impact forecasts not affecting PT route or LCWIP scheme.	None considered as part of the STA but may need review for site-specific TAs	

7.3 Havant Area Strategy

7.3.1 Measures to address the impacts at the New Road Roundabout and at the Elm Lane/Park Road North junction were investigated. Mitigation at these locations were initially considered individually but no solution was deemed appropriate for the following reasons:

- New Road Roundabout – the impact of the LP at this location was identified on the Park Road North approach in the PM peak hour, with the Baseline queue of 75PCUs on this approach increasing to 97PCUs for the DM. The Havant LP includes a no or low car policy for town centre site allocations and the additional traffic routing through the corridor is unlikely to be directly related to these sites. Instead, the additional traffic forecast routing along the corridor in the DM scenario is likely to be from LP development traffic elsewhere within the borough or from background traffic displaced onto this corridor as a result of increased congestion at other junctions within the borough. A number of bus services route through this roundabout and options to provide bus priority on the Park Road North approach were investigated but found to result in significant worsening of congestion on all other approaches. This would also have a significant knock-on impact to the upstream junction between Elm Lane and Park Road North and access to and from the bus station on Elm Lane in particular. In all cases, although it is clear that the LP will result in significant impact at the New Road roundabout, this appears to be largely due to the addition of new traffic onto existing baseline congestion at this location. Any significant mitigation scheme, including full signalisation and/or provision of bus lanes where possible would be disproportionate to the impact of the LP allocations alone.

- Elm Lane/Park Road North/ Parkway/Park Road South signalised cross-roads - similarly to the above, this junction suffers from significant levels of congestion in the baseline, reflecting its significance on the local highway network, and the addition of LP development flows at this location, while limited, would exacerbate the situation. Given that Havant bus station is located on Elm Lane immediately east of the junction and that the road also serves Havant railway station, various options have been investigated by HCC to improve access to these key public transport interchanges. However, due to the conflicting functions of the road network in the area, with Park Road (N and S) providing a link between the south of the borough including Hayling Island and the A27 corridor and the north of the borough including Waterlooville and the A3(M) corridor beyond, these options have highlighted the need for a comprehensive and potentially more radical strategy for Havant and the Town Centre specifically.

7.3.2 As a result, an Area Strategy for Havant has recently been commissioned by HCC and, although this was not yet available at the time of writing, it is expected that proportionate contributions to its eventual delivery and actions will be required from each of the LP allocations.

7.4 Interventions to the Active Travel Network

7.4.1 In parallel to the analysis of the STRM model outputs above, an analysis of walking and cycling routes within Havant has been undertaken to determine which routes are most likely to experience increased demand from the Local Plan allocations. The methodology used to prepare this updated analysis follows that of the Havant Local Cycling and Walking Infrastructure Plan (LCWIP), which was prepared by HCC and adopted in 2023[23].

7.4.2 In practical terms, the analysis undertaken as part of this STA predicts the most plausible movement routes people would take between new development sites and everyday destinations (schools, shops, stations, bus stops, etc.) and identifies suitable interventions to a network of cycling corridors and core walking zones in line with LTN1/20 guidance. These interventions also incorporate the Healthy Streets principles set out in HCC's LTP4. The Havant LCWIP identifies the top five cycling and walking zone (WCZ) priorities in Havant Town Centre while the top five route priorities are in the northern area of Havant and between the centres of Waterlooville and Purbrook (Figure 21)[24].

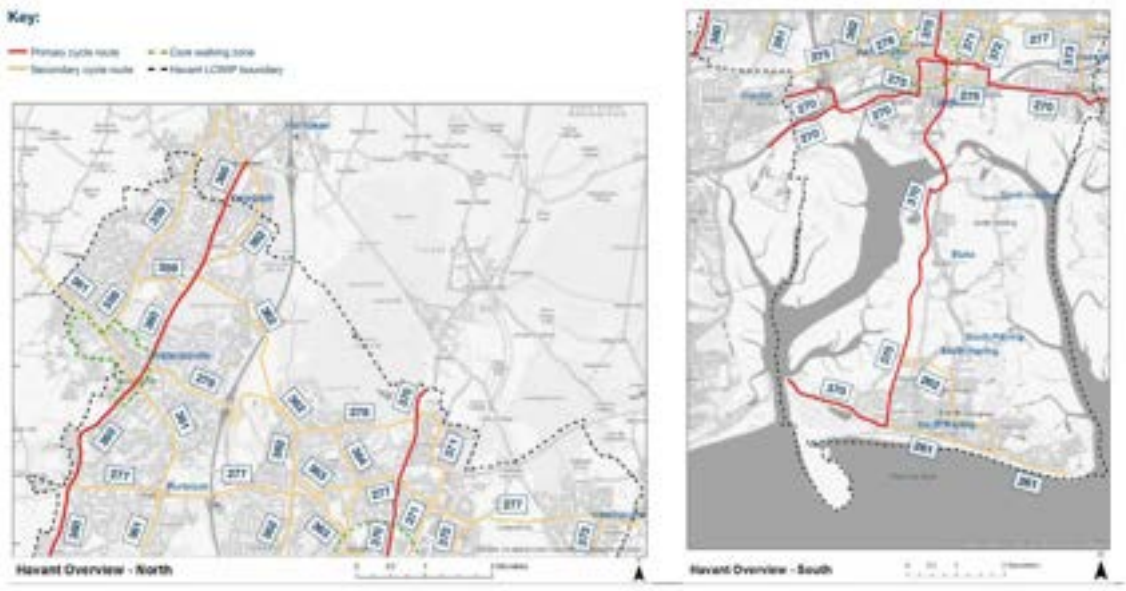

Figure 21: LCWIP Routes - Havant Overview North and South

7.4.3 The methodology and results of this STA review are attached in Appendix D and are summarised on Figure 22 and Figure 23. Figure D5 of Appendix D in particular highlights the sections of highway that are both on the LCWIP network and have more than 2000 overlapping routes between the proposed site allocations and trip attractors. It is noted that this does not reflect levels of use, but cumulative connections between origins and destinations. As a minimum, this STA has therefore identified the following routes for which the

[23] https://documents.hants.gov.uk/transport/transportschemes/Havant-LCWIP-report.pdf
[24] For higher resolution and interactive use of the map, visit page 11 of Havant Local Cycling and Walking Infrastructure Plan

proposed interventions identified in the LCWIP will need to be considered and delivered in priority to address the Local Plan growth:

- LCWIP Route 270.1 Emsworth to Havant – A259 Havant Road
- LCWIP Route 270.2 Havant to Portsmouth border – Park Road South and North corridor
- LCWIP Route 275.3 North Street to Warblington railway station
- LCWIP Route 275.2 Bedhampton Railway Station to St Faith Church – West St, Emsworth Rd, Southleigh Road
- LCWIP Route 277.3 Petersfield Road (B2149) to Westbourne – Southleigh Road
- LCWIP Route 363.1 Leigh Park – Havant and South Downs College – Barncroft Way
- LCWIP 372.1 Southleigh Road – Warblington Railway Station

7.4.4 Where interventions have already been identified in the Havant LCWIP, this has been highlighted to allow prioritisation of delivery and to ensure proportionate contributions funding from the LP allocations. However, for walking and cycle routes identified by the STA analysis not covered by the LCWIP, additional recommendations focussing on proportionate improvements that support safe and continuous cycle movement will also be required. This includes cycling and walking measures at the following locations:

- West Street, Havant
- Leigh Road, Havant
- Civic Centre Road
- Boundary Way, Havant
- Market Parade, Havant
- St Georges Walk, Waterlooville
- Elettra Avenue, Waterlooville
- South of and under Havant bypass, Emsworth
- North Street, Emsworth
- Church Path, Emsworth

7.4.5 As the largest residential site in the borough, specific regards have been given to Southleigh. Given that the site is located on the fringe of the existing built-up areas of Havant and that it lies on undeveloped land, It is unsurprising that demand along the existing local roads surrounding the allocation site will be most likely to be used for walking and cycling. For walking, these include Horndean Road and North Street for access to Emsworth town centre and

Southleigh Road for access to Havant Town Centre. For cycling, the same routes as walking will be affected but will also include the A259 Havant Road and A27 Warblington Interchange as well as Emsworth Road to Havant town centre.

7.4.6 Similarly, with regards to the largest employment allocation at Dunsbury Hill Farm, given that this will be an extension to the existing Dunsbury Park Phase 1, the walking and cycling routes most likely to be used will be those linking the residential areas north of Havant and those in Waterlooville; principally, Hulbert Road and Fitwygram Way.

7.4.7 The pace at which progress is made in delivering the LCWIP route priorities will depend entirely upon the level of funding secured and this is discussed in more detail in Section 9 of this STA.

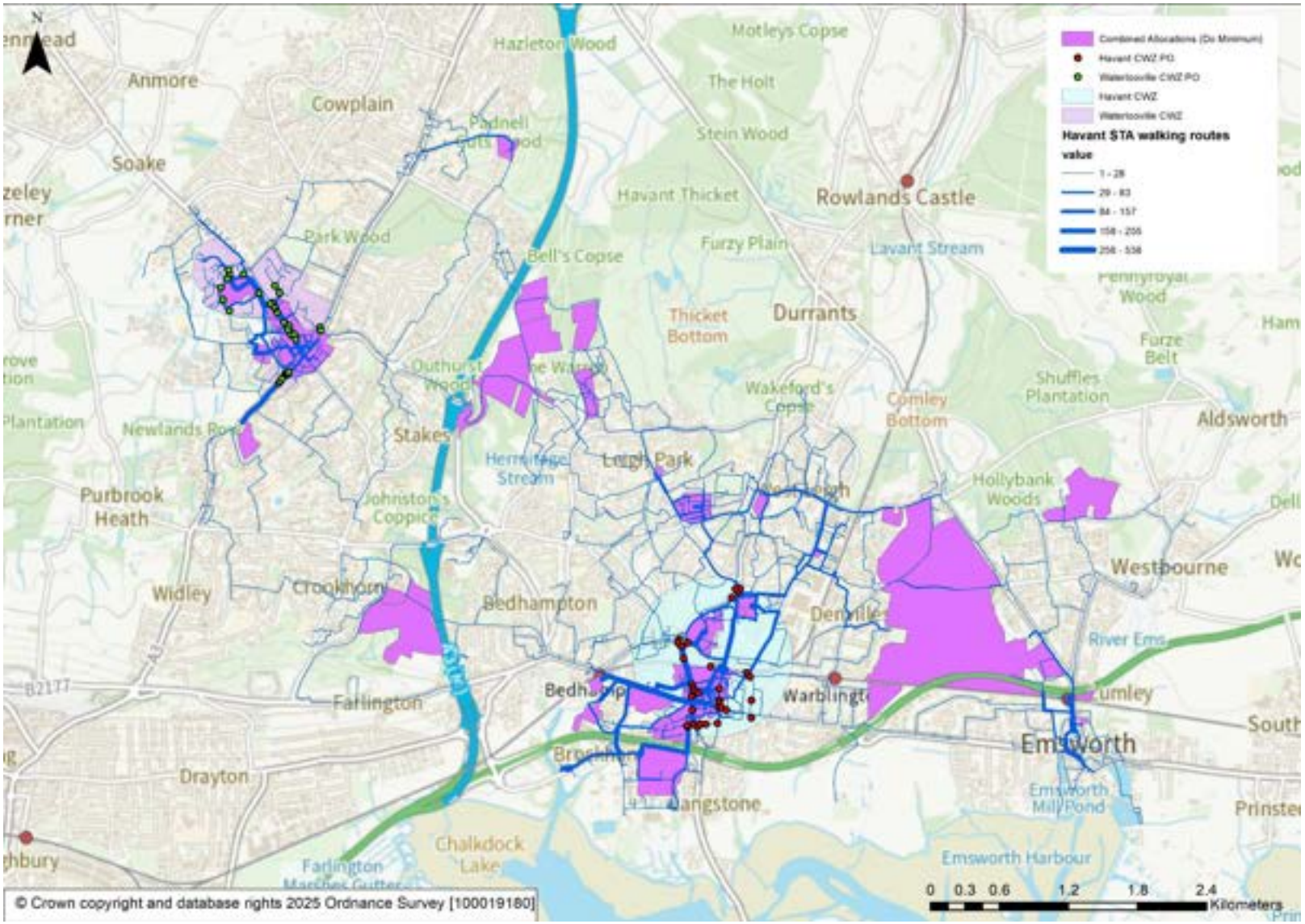

Figure 22: Havant Walking Routes

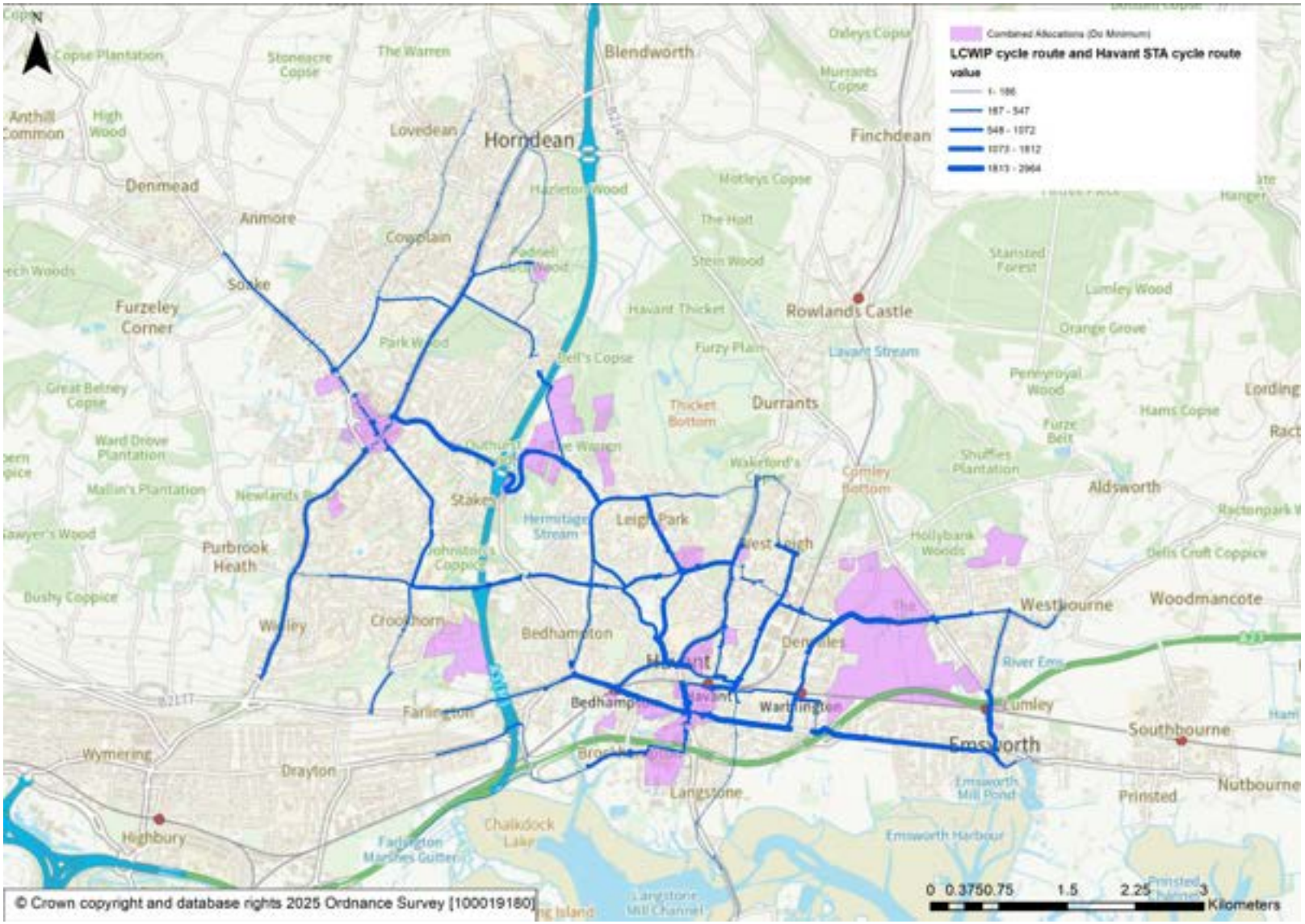

Figure 23: Havant Cycle Routes

7.5 Interventions to the Public Transport Network

7.5.1 The latest version of the Hampshire Bus Service Improvement Plan (BSIP) was published in June 2024. It sets out a high-level vision for improving Hampshire's bus network, with a focus on growing bus passenger numbers on the strongest parts of the commercial bus network (that makes up over 90% of bus mileage in the county) which include "high frequency urban" and "main inter-urban" bus routes. Investment will be geared towards making these routes more appealing, faster and improving punctuality and reliability. This will be achieved by delivery of bus priority measures, investment in bus shelters and bus stops, improving safety and security for bus users, marketing, promotional fares initiatives, funding service enhancements for an initial period until these become self-sustaining and working with operators to invest in electric buses

7.5.2 The Stagecoach Service 23 and First Bus 7/8 services form part of the planned SE Hampshire Rapid Transit (SEHRT) network. The next stages of work on SEHRT will see proposals for bus priority measures developed on key commuter corridors from Fareham, Havant and Waterlooville and Portsmouth in the Portsmouth Travel to Work Area. The measures completed so far relevant to the borough include:

- Bus stop improvements in Leigh Park, completed in 2023, and;
- Improvements on Park Road South, Havant between Solent Road and A27 Langstone Roundabout, completed in December 2023 have added an additional approach lane on the approach to the roundabout, helping to speed up buses on the 700 route travelling towards Portsmouth.

7.5.3 A feasibility study is also underway to consider a number of potential options for further changes to traffic signal phasing in Havant town centre, including the Park Road North/ Park Road South/ Elm Lane junction and the Solent Road/ Park Road South junction.

7.5.4 In addition to the above, Stagecoach introduced 22 new double decker buses on their 700 Coastliner high frequency inter-urban bus route between Portsmouth, Havant, Emsworth and Chichester.

7.5.5 In terms of future bus-related infrastructure schemes in the Havant borough area, the following have been identified:

- Refurbishing and repairing some of the existing stock of bus stops and shelters that are in the worst structural condition, including along the A3 London Road corridor.
- Implementation of new Real Time Passenger Information systems at busier bus stops.
- Refurbishment of Havant Bus Station to modernise and bring up to a higher standard of passenger experience.

7.5.6 In addition, a scheme to replace the existing footbridge at Havant Railway Station has recently received funding from various sources including DfT funds, Havant Borough Council's Community Infrastructure Levy (CIL) fund, and Section 106 developer contributions. Construction is expected to commence in Autumn 2026. The new, modern bridge will deliver significant improvements. It will be twice as wide as the existing structure and include gentler ramps to improve accessibility, providing more space for cyclists – who currently need to dismount – as well as wheelchair users, mobility scooter users, and those with prams or strollers.

7.5.7 In addition to the above BSIP schemes, interventions in the form of bus priority measures are proposed at the Hulbert Road/Fitwygram way Roundabout and at the A27 Warblington Interchange to address the identified impacts from the SRTM DM scenario.

Mitigation at Hulbert Road/ Fitzwygram Way

7.5.8 In the PM peak, the c.2-minute delay per vehicle in the Baseline along the Fitwygram Way approach to this roundabout would increase by over 3 and half additional minutes per vehicle in the DM scenario. Although Phase 1 of Dunsbury Park Phase 1 makes provision for a bus gate on Fitwygram Way at its junction with Woolston Road in the east, all vehicular access to the existing and future phases at Dunsbury Hill Farm will be from the Hulbert Road/Fitwygram Way roundabout. Given its close proximity with the A3(M) Junction 3 interchange to the north (locally known as the ASDA roundabout), large volumes of traffic, presumably Havant residents returning home at the end of the day, currently travel southbound on Hulbert Road in the evening commuting peak hour (Figure 24). Exiting traffic from Dunsbury Park including bus services has to give way to this Hulbert Road traffic resulting in the large delays and queues on Fitwygram Way approach.

Figure 24: Existing Hulbert Road/Fitwygram Way Roundabout

7.5.9 A bus priority scheme comprising of the signalisation of the roundabout is therefore proposed to allow traffic from Dunsbury Park to exit more easily, as illustrated on Drawing R.J510632-ITS-HGN-17026216-DR-TS-00001 attached in Appendix E. There are aspirations to provide a segregated cycle route and crossing between Hulbert Road and the A3(M) interchange, and the design at the Hulbert Road Roundabout includes the provision of a segregated crossing to link the existing segregated cycle/footway on Fitwygram Way to this future route.

7.5.10 The proposal for signalisation has been modelled using the forecast flows from the SRTM DM run and the results are also included in Appendix E. This shows that, despite signalisation of the Hulbert Road north approach, the queues would not extend to the A3(M) Junction 3 interchange and therefore would not result in any impact to the Strategic Road Network. On the other hand, delays for traffic from Fitwygram Way would be significantly reduced to just 35 seconds per vehicle in the PM peak.

7.5.11 Mitigation at A27 Warblington Interchange

7.5.12 The A27 Warblington Interchange operates at capacity in the baseline and in the DM scenario. The queue on the Emsworth Road eastbound approach to the dumbbell interchange is predicted to increase from 4 PCUs to 6 PCUs. This is not considered significant in planning terms; however the Emsworth Road/Havant Road corridor carries the flagship bus route 700, providing a key public transport link between Havant and Emsworth and the associated impact on delay to this key route will require mitigation to promote public transport uptake, notably from the largest residential allocation at Southleigh (Figure 25).

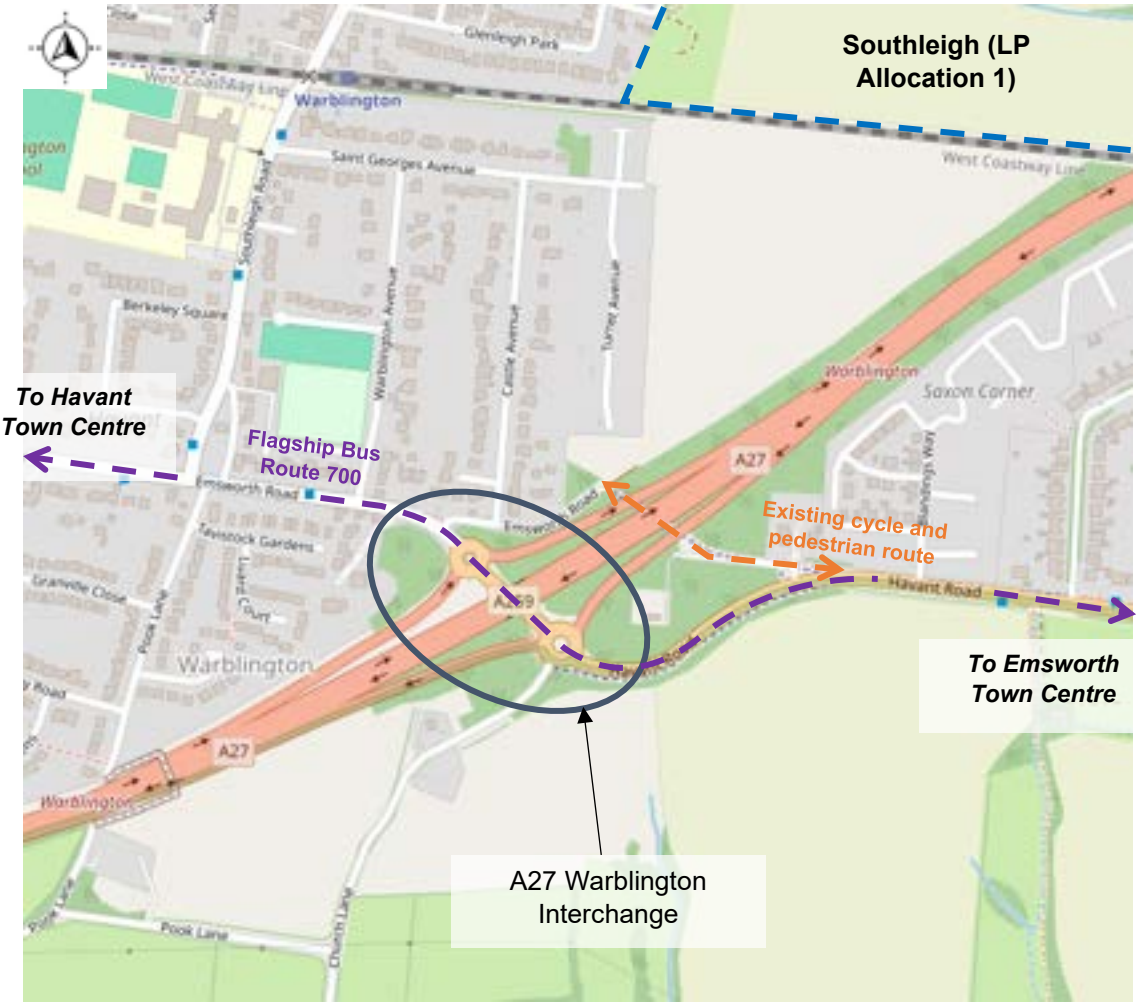

Figure 25: A27 Warblington Interchange

7.5.13 There are limited opportunities to provide a bus lane along the approaches to the bus route but there are proposals to close the existing right turn for traffic from the interchange junction to the short section of Emsworth Road which was severed for the construction of the A27 corridor. The severed section of Emsworth Road also provides a key active travel across the A27 and there are aspirations to enhance the existing infrastructure along this road to enable its use as an alternative for local journeys by the private car.

7.5.14 Options have been considered for improving connectivity for both bus services and active travel across the Warblington Interchange and a bus priority scheme comprising of the signalisation of the dumbbell arrangement is proposed, as

illustrated on Drawing RJ510632-ITS-HGN-17026216-DR-TS-00004 attached in Appendix F. While the drawing has been produced to allow modelling within the SRTM, additional active travel enhancements, specifically connections to the A259 via the underpass and to Emsworth via the Washington Road underpass (including pedestrian/cycle crossings and upgrading of the existing cycle lanes along the A259 Havant Road) would also need to be considered as part of this mitigation scheme and alongside other relevant LWCIP interventions.

7.5.15 The proposal for signalisation has been modelled using the forecast flows from the SRTM DM run and the results are also included in Appendix F. This shows that despite signalisation; there would be no negative impact on the A27 slip roads themselves and therefore no impact to the SRN. On the other hand, the signalisation would be beneficial to the flagship bus service and the closure of the right turn from the northern dumbbell to the Emsworth Road side road would allow the opportunity to enhance the quality of the side road corridor for active travel.

7.6 Summary

7.6.1 In summary, the transport mitigation package to support the Havant Local Plan will comprise of the following interventions, which developments within the borough will be expected to either deliver or contribute towards depending on the outcome of their respective site-specific transport assessments:

- Walking, cycling and public transport schemes identified in HCC's adopted strategies (LCWIP, BSIP, Station Improvement Plans)
- Additional walking and cycling interventions at the following locations:
    - West Street, Havant
    - Leigh Road, Havant
    - Civic Centre Road
    - Boundary Way, Havant
    - Market Parade, Havant
    - St Georges Walk, Waterlooville
    - Elettra Avenue, Waterlooville
    - South of and under Havant bypass, Emsworth
    - North Street, Emsworth
    - Church Path, Emsworth
- Emerging Area Strategy for Havant Borough
- Town Centre sites parking policy
- Bus priority and active travel infrastructure schemes at:
    - Warblington Interchange (A27/Emsworth Road junction)
    - Hulbert Road / Fitzwygram Way roundabout
- Improvements to Active Travel and Public Transport links from Southleigh to Havant town centre and across the railway line to Warblington School

specifically and towards Emsworth, specifically along the A259 Havant Road and at the A27 Warblington Interchange

- Travel Plans, including “monitor and manage” obligations

7.6.2 Although the above interventions have been identified to address the cumulative impacts of the Local Plan allocations on the transport network, the above list is not exhaustive. It is expected that some of the schemes identified in the LCWIP, BSIP or Area Strategies in particular will need to be refined either in line with or alongside additional mitigation measures, such as service improvements to existing bus routes serving an allocation site, to address site-specific transport impacts identified as part of the planning application process.

7.6.3 Specifically, it is expected that, as part of any planning application, new developments, including those allocated sites will need to consider a package of transport measures in accordance with the above mitigation priorities approach (Figure 19) and the Policies of the Local Plan. Developers will be required to prepare site specific transport assessments to consider how best 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, and walking and cycling networks. Because the package of interventions detailed in this STA considers the cumulative impacts of the Local Plan allocations, this may result in site-specific additional and/or alternative targeted schemes than those assessed by this STA.

8 Assessments of Local Plan Mitigation Package

8.1 Introduction

8.1.1 Two mitigation measures could be modelled in the SRTM to provide the 2046 Do Something (DS) scenario. These are the two bus priority schemes at Hulbert Road/Fitwygram way roundabout and at the A27 Warblington Interchange. Full details of the modelling and residual impacts of the mitigation measures are presented in the next section and in the SYSTRA SRTM Modelling Report, in Appendix B. As agreed with the local highway authorities, these mitigation measures are presented as worst-case options with further trip reductions resulting from the implementation of the full mitigation package not being fully represented by the strategic model.

8.1.2 The nature of the SRTM means that where changes to the highway network are introduced on a modelled network that is operating under unconstrained demand, traffic flows are likely to displace at other locations within the network. This can reduce the benefits of mitigation schemes in terms of overall junction performance. Equally any benefits to driver delay resulting from mitigation at one location may attract vehicles from other locations. This re-assignment can result in congestion points elsewhere on the network that were not forecast in the earlier DM model. 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.

8.1.3 Details of knock-on effects resulting from the potential mitigation measures elsewhere on the network are explored later in this section and the results from the SRTM DS scenario summarised in the following paragraphs should not be taken in isolation but in context of the wider STA.

8.2 SRTM Modelling Results – DS scenario

8.2.1 The results of the 2046 Do-Something (DS) SRTM scenario have been assessed primarily against the 2046 Baseline scenario, to establish the extent to which the proposed mitigation package changes forecast network performance relative to the future year without Local Plan development. However, to provide continuity with the earlier modelling reported in Chapter 6, the DS outcomes have also been reviewed alongside the previously presented Do-Minimum (DM) versus Baseline analysis, to confirm that the direction and scale of change are consistent and that the interpretation of impacts remains robust.

8.2.2 As with the DM scenario, the full details of the SRTM model assumptions, inputs and outputs are provided in the technical modelling report included in Appendix B. The following sections do not replicate those results in full; instead, they present an analysis of the key outputs from the assessments and explain how

these have been interpreted to understand the cumulative transport impacts of the Local Plan, with mitigation.

Changes to Travel Demand including Impact on Public Transport Passenger Flow

8.2.3 The highway traffic growth within Havant, arising from the introduction of the Local Plan development with the added mitigation measures, generates a forecast increase in total vehicle hours in both the AM and PM peak hours of approximately 6.5-7.5%.

8.2.4 A review of the changes in Public Transport passenger numbers provides an indication of the potential impacts of the bus priority schemes. The 2046 DS scenario does not materially change public transport demand patterns versus the 2046 Baseline:

- PT flow changes are small and localised (largest shifts are +94 passengers in the AM peak westbound from Havant Station and +71 passengers in the PM peak eastbound into Havant from Bedhampton).
- The pattern is consistent with the DM comparison, indicating the mitigation measures have had minimal impact on PT flows.
- At the wider/strategic level, the PT network remains largely unchanged, with only negligible reductions on a few routes, even though bus priority measures have been introduced at two key locations.

8.2.5 However, this is partially due to the nature of the SRTM, which applies the same value of time benefits from the reduction in delays and queues following signalisation of a particular approach to all motorised road users (i.e. to car and bus passengers alike). Alongside the fact that any released capacity in an unconstrained demand model will be taken up by re-assigned traffic from elsewhere on the network or by suppressed demand, any additional impact on travel costs for these modes, which would be translated into further increases in mode share towards PT, will be limited.

Impact on Highway Traffic Conditions

8.2.6 As with the DM scenario, the outputs of the Road Traffic Model (RTM) have been analysed with respect to highway volume of traffic (link flow), delay and capacity using the same impact thresholds as before. In addition to the LP development traffic added to the model, the outputs presented as diagrams also highlight any re-routing of traffic that may result from localised congestion or redistribution of existing trips.

8.2.7 The network in the immediate vicinity of the Southleigh development site continues to show the highest flow increases but this highlights a reduction of almost 100 trips in traffic turning right onto Southleigh Road in the morning peak as traffic redistributes towards the A27 Warblington Interchange instead, following the mitigation works proposed at this location. This pattern is reflected in the increased traffic flows turning left out of the Southleigh site and travelling

southwards along Southleigh Road. In the PM peak, changes in the flows are less pronounced.

8.2.8 Elsewhere, flow increases are reduced in both AM and PM peaks on Bartons Road, north of the Southleigh site, due to traffic redistribution as a result of the mitigation measures to the south of the development.

8.2.9 Throughout the town centre, the network largely reflects flow changes consistent with the DM vs Baseline analysis, with some minimal differences due to minor traffic rerouting. This is a similar observation to that for the area surrounding the Hulbert Road / Fitzwygram Way roundabout, where mitigation measures have not significantly impacted traffic flow differences in the AM or PM peaks.

8.2.10 Nevertheless, the bus priority schemes at the A27 Warblington Interchange and at the Hulbert Road/Fitwygram Way have resulted in significant reductions in delays at these locations.

8.2.11 The comparative analysis between the DS model and the Baseline model result in 15 junctions exceeding the impact thresholds. This compares to the 19 junctions identified in the DM vs Baseline analysis, showing that the mitigation measures have led to an improvement in network performance compared with the no mitigation option.

8.2.12 Changes to impact significance has also resulted from the mitigation schemes with only two junctions meeting the 'severe' criteria in the DS analysis compared with the seven junctions identified in the DM analysis. Similarly, the number of junctions that meet the 'significant' criteria in the DS analysis are broadly the same as the DM analysis (13 compared with 12 respectively), as shown on Figure 23.

8.2.13 Of those junctions that were previously classified as 'severe' three have been re-classified as 'significant' with the mitigation measures implemented leading to re-distribution of traffic flows. A further three junctions are no longer flagging as either 'significant' or 'severe.' These include:

- The Hulbert Road /Fitzwygram Way roundabout where mitigation measures have led to an improvement in the junction performance.
- The Belmont junction of Bedhampton Road and Portsdown Hill Road also no longer flags as 'severe' or 'significant' with a small reduction in traffic travelling northeast on Bedhampton Hill onto Bedhampton Road resulting in reduced delay for traffic entering the roundabout from Portsdown Hill Road.
- The A27 Warblington Interchange is no longer flagged as 'significant' or 'severe' from a position of 'severe' in the Do Minimum. The mitigation measures have improved the performance of this junction, although the westbound circulating section between the off slip and Havant Road now flags as 'severe' as a result of this approach having been signalised. The forecast queue however can be accommodated without

impact on the A27 off-slips and performance of the junction could potentially be mitigated further with the use of signal optimisation software, particularly for buses, although this cannot be modelled by the SRTM.

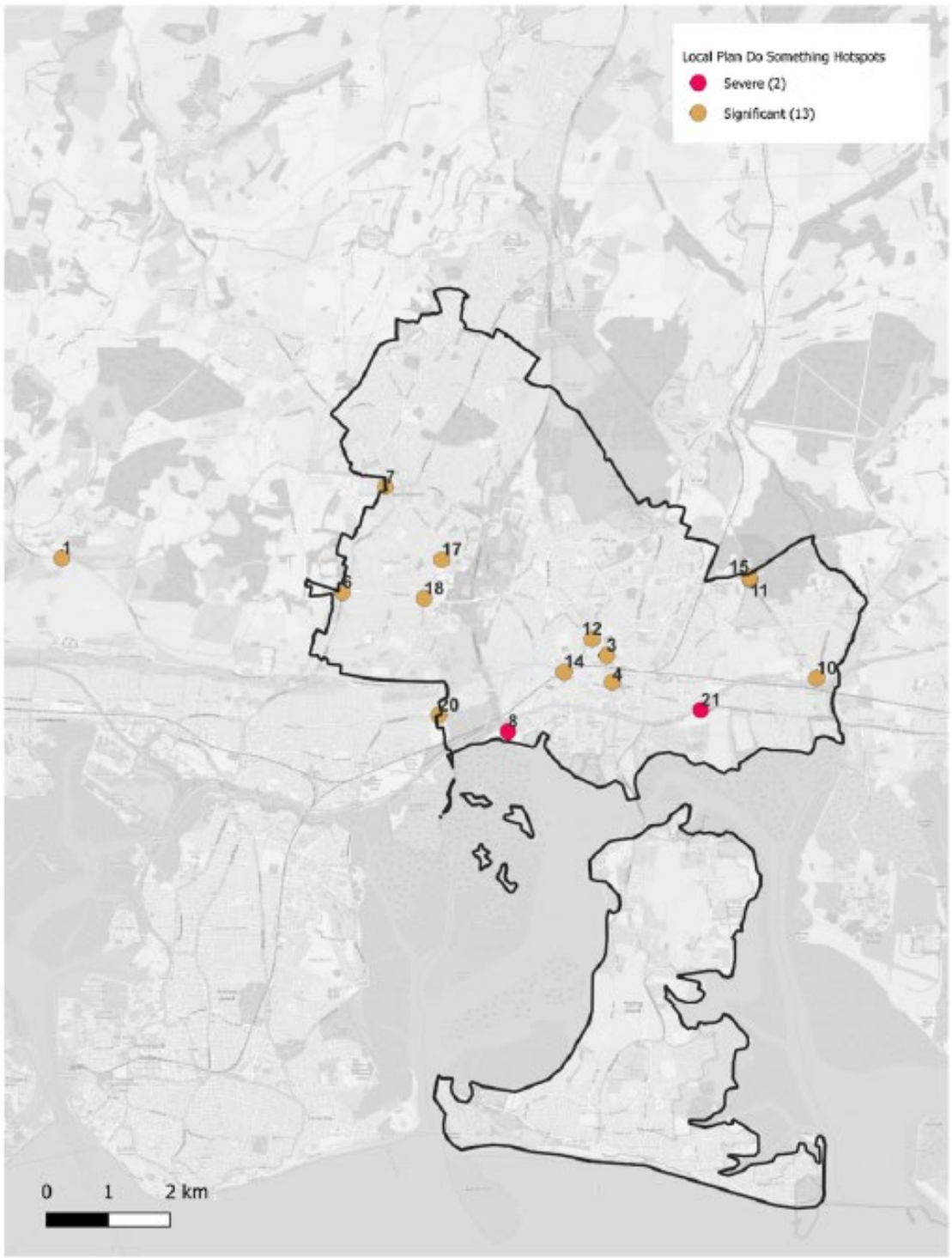

Figure 26: 2046 DS vs 2046 Baseline 'Significant' and 'Severe' Impacted Junction Locations

Road Safety

8.2.14 The standard process to review and address post-mitigation impacts on road safety would be through future site-specific transport assessments through the planning process.

8.3 Residual Impacts

8.3.1 As noted with the DM scenario, the SRTM is not able to assess the full impact of the mitigation package proposed and only measures network performance from a highway capacity perspective. Nevertheless, comparison between the DM and DS SRTM scenarios provides a good indication of whether there will be any residual cumulative impacts of the LP that would require additional mitigation.

8.3.2 The initial assessment to identify junctions with a capacity ratio greater than 85% shows a total of 62 junctions that would approach operational capacity in the 2046 DS scenario. This is broadly the same as the DM scenario (63 junctions) but still only seven additional locations when compared with the 2046 Baseline.

8.3.3 The main impact of the mitigation measures modelled in the SRTM relate to changes in the significance of impacts on the network. With a reduction in the number of junctions exceeding the 'severe' thresholds from seven to two and an overall improvement in network performance compared with the no mitigation (DM) option.

8.3.4 Specifically, the A27 Warblington Interchange and Hulbert Road/Fitwygram Way Roundabout junctions no longer flag in the DS, evidencing that the proposed mitigation measures at these locations have been effective. The overall impact on the network also shows that the mitigation measures have not resulted in any significant re-assignment of traffic in the immediate vicinity.

8.3.5 The only notable change from the modelling is at the Tear Drop junction in the morning peak, with the Harts Farm Way westbound approach flagging from a position of 'significant' to 'severe'. There is no evidence that this is a result of significant levels of displaced traffic from congestion elsewhere on the network as the impact on junction performance between the DM and DS scenarios is negligible (DM RFC of 112 and DS RFC of 113). Given that the junction will already operate well over capacity (RFC of 108) in the 2046 Baseline (ID8 in Table 8), no additional mitigation beyond the proposed AT infrastructure upgrades identified for the LCWIP Route 270.2 (Havant – Portsmouth Border) is considered necessary to address this residual impact.

8.4 Monitor and Manage

8.4.1 It is acknowledged that the above conclusions are drawn based on unconstrained[25] traffic growth to 2046 to reflect a worst-case scenario. It is entirely 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. Additionally, the modelling does not take account of any of the proposed off site active travel measures, or detail within allocation policies. The modelling undertaken, and therefore the conclusions drawn also do not take account of the impact of HCC's LTP4 Vision and Objectives that seek to increase active travel and public transport use in future as well as other national and local interventions and strategies, including new technology, to reduce carbon emissions from transport. The long-term impact on travel demand of these and other policies and decisions at national level is currently unknown.

8.4.2 In addition, the assessment considers all travel demand (demand flows in traffic modelling terms) that intend 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.

8.4.3 The mitigation suggested in this STA will therefore require further refinement or investigation in close liaison with HCC and NH when developments in the Local Plan come forward in the future. Whilst suggestions have been made in this STA, the final design and implementation of mitigation measures outside of traditional highway capacity improvements will be determined by HCC as the Highway Authority as part of any review of Transport Assessments to be submitted in support of planning applications.

8.4.4 Specifically, and as detailed previously, although this STA has relied on the SRTM strategic traffic model to assess the cumulative impact of the Havant Local Plan, a 'Monitor and Manage' approach will need to be taken to mitigation in order to direct investment into public transport and active travel first, and to only consider new highway capacity, when no other options are available and when an increase in capacity would not negatively impact on other modes. This will require the local planning and highway authorities to work together in responding to planning application submissions.

8.4.5 This will be secured through Section 106 obligations relating to site-specific Travel Plans as appropriate.

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[25] 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.

9 Funding and delivery of mitigation

9.1 High-level cost estimates of mitigation

9.1.1 The implementation costs for the mitigation detailed in Chapter 7 have been estimated based on preliminary designs with basic detail to indicate the likely costs of delivery.

9.1.2 The estimate for the bus priority measures is built up using recent tendered rates from HCC's GEN-5-2 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. An optimism bias has also been applied to the costs at 46% 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.

9.1.3 The estimates of cost for all LCWIP mitigations, on the other hand, have been calculated based on the LCWIP guidance document and figures from similar schemes implemented by other local authorities. As a result, this is provided as a range for the purpose of the STA.

9.1.4 Table 9 provides an indication of costs (rounded to the nearest £5,000) to implement the targeted mitigation schemes detailed in Chapter 7.

Table 9: Indicative Costs of targeted mitigation schemes

Mitigation	Estimates (£M)	
A27 Warblington Interchange	£12.38	
Hulbert Road/Fitwygram Way Roundabout	£7.655	
	Low	High
LCWIP Route 270.1 Emsworth - Havant (Primary)	£1.083	£2.068
LCWIP Route 270.2 Havant – Portsmouth border (Primary)	£1.924	£3.680
LCWIP Route 275.2 Bedhampton Railway Station to St Faith Church (Secondary)	£1.572	£1.628
LCWIP Route 275.3 North Street to Warblington Railway Station (Secondary)	£3.242	£3.449
LCWIP Route 277.3 Petersfield Road (B2149) - Westbourne (Secondary)	£3.546	£4.025
LCWIP Route 363.1 Leigh Park – Havant and South Downs College (Secondary)	£0.863	£1.885
LCWIP Route 372.1 Southleigh Road - Warblington Railway Station (Secondary)	£0.009	£0.014

9.1.5 Mitigation of the cumulative impact of the Local Plan is not solely limited to the above targeted schemes and is likely to include the implementation of the measures identified in BSIP and the LCWIPs. In addition, the outcomes of the Havant Area Strategy and therefore the associated costs of delivering the strategy are not yet known. Indicative costs for these measures, and for any resulting actions, will be provided once further details are available and will be shared with developers through discussions with HCC as part of the planning application process.

9.2 Funding

9.2.1 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. 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.

9.2.2 Where needed, and following review through later planning applications, the mitigation works in this STA will be funded in part through Section 106 contributions. Contributions will be proportionate to each site's impact, based on the Transport Assessment/Statement submitted with the relevant planning application. However, it is likely that the impacts in the immediate vicinity of the largest residential and non-residential sites at Southleigh and Dunsbury Hill Farm will largely be as a result of those developments and that the mitigation identified at the A27 Warblington Interchange and at Hulbert Road/ Fitwygram way Roundabout, as well as to the LCWIP schemes listed in Table 9 in particular will be delivered by those developments respectively.

9.3 Phasing

9.3.1 The potential infrastructure improvements modelled in this STA are based on assessments of the junction performance in the 2046 DS compared to the 2046 Baseline. However, the Local Plan is looking at development growth up to 2043 and mitigation is anticipated to be required prior to 2046.

9.3.2 As the SRTM has not assessed the impact of the Local Plan growth in other years than 2046, it does not reflect the potential delivery phasing of the development sites. Furthermore, the DS model only assesses the impact of the mitigation as a single package of works, and, other than mitigation measures that can be directly attributed to the largest residential and non-residential allocations (at Southleigh and Dunsbury Hill Farm), it is not possible to specifically identify with any accuracy phasing of the mitigation or links to specific developments.

9.3.3 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 the performance of junctions with and without the Local Plan development growth and their location on the network.

9.3.4 As a result, short-medium term implementation of the connectivity improvement mitigation (e.g. BSIP and LCWIP schemes) would be required to affect changes in travel habits and behaviour as soon as possible. By the same token, given that in this case, the two local highway improvement mitigation modelled in the SRTM relate to bus priority measures, these would be required in the associated early phases of delivery of the Southleigh and Dunsbury Hill Farm developments.

9.3.5 Notwithstanding the above phasing recommendations, it should be noted that, as detailed earlier in this chapter, 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 in line with the 'Monitor and Manage' approach. This may mean that as developments come forward, some junctions may require mitigation at an earlier stage than the end of the Local Plan period.

10 Summary and conclusions

10.1 Approach to the STA

10.1.1 This Strategic Transport Assessment (STA) has been prepared to identify and describe the cumulative transport related impacts of the proposed Havant Local Plan.

10.1.2 Following a comprehensive review of national, regional and local policy, and positive engagement with the Highway Authorities, a Vision-led approach has been taken in the preparation of this STA. This approach aligns with policy at all levels, which is aimed at facilitating sustainable development to support population and economic growth, with an emphasis on reducing travel demand and enabling travel by public transport, walking, and cycling to lessen road traffic growth and its associated negative outcomes for society and the environment.

10.1.3 Specifically, the mitigation package that has been identified in this STA has focussed on solutions that will achieve the STA's objectives of encouraging local living, creating healthy places and streets and developing strategic connectivity. Highway improvements have only been considered with the specific aim of improving conditions for public transport and active travel modes to address the cumulative impact of Havant Local Plan. However, it is recognised that, with a network already operating at or over capacity, contributions towards additional improvements to the local highway network or alternative schemes may need to be considered if other measures to reduce travel demand and increase active travel and public transport use fail.

10.2 STA Methodology

10.2.1 This STA moves away from a purely forecast-led 'Predict and Provide' approach, recognising that travel behaviour and policy are in flux (particularly since Covid) and that traditional trip-rate methods risk reinforcing car-led outcomes. Instead, the assessment applies a more vision-led 'Decide and Provide' perspective by drawing on evidence of historic change, key uncertainties affecting future travel, and the role of development design in shaping trip-making and mode share.

10.2.2 Given the scale and cost of running multiple model tests, a single scenario was agreed with the highway authorities for strategic modelling. The methodology therefore combines use of: (i) the Strategic Regional Traffic Model (SRTM) to establish a robust, worst-case view of motorised traffic impacts on the highway network (Do-Minimum), and (ii) the DfT Connectivity Tool to assess how well allocations are connected to essential services and to identify opportunities to strengthen active travel and public transport provision.

10.2.3 Mitigation has been developed to support the vision of the STA by prioritising public transport and active travel improvements.

10.3 Spatial Strategy of Local Plan Allocations

10.3.1 Havant is the borough's main centre, but around half the population lives west of the A3(M) in Waterlooville.

10.3.2 Overall, Havant Borough benefits from strong strategic rail and highway connections and a relatively compact pattern of development around key centres, but travel demand remains dominated by the private car and a large proportion of trips are cross-boundary. Congestion, severance (notably from the A3(M) and A27), variable quality active travel provision, and vulnerability to disruptive events such as accidents, infrastructure failure and flooding (particularly affecting Hayling Island's single access) constrain network performance and future growth. The baseline evidence therefore indicates that accommodating new development will depend on reducing the need to travel, prioritising mode shift to walking, wheeling, cycling and public transport, improving safety and accessibility to key trip generators and interchanges, and supporting decarbonisation through measures such as better public transport reliability, high-quality active travel corridors and expanded EV charging provision.

10.3.3 The development strategy seeks to accommodate as much development as possible within existing built up area, through brownfield development, regeneration and higher densities. Development capacity outside the urban area is constrained by limited undeveloped land and environmental assets (South Downs/Solent). Flood risk and pressures mean no greenfield development is proposed on Hayling Island, partly due to vulnerability of the single access route.

10.3.4 The Havant Local Plan proposes around 6,100 residential dwellings and around 40,000 sqm of employment uses. From that total, with 2,100 dwellings, the largest individual residential development site is at Southleigh between Denvilles in the east of Havant and Emsworth, north of the A27, while the largest individual non-residential site is at Dunsbury Hill Farm by the A3(M) junction 3 with a total of approximately 18,000sqm of mixed used development.

10.3.5 At the time of modelling, the Havant Local Plan allocations to be assessed were agreed with HBC and reflect the Regulation 18 version of the Local Plan. The Regulation 19 Havant Local Plan submission includes minor amendments to a number of residential site allocations; employment site allocations are unchanged. The scale of change between the Regulation 18 and Regulation 19 residential allocations is modest and, critically, does not alter the major growth locations. On this basis, the SRTM 2046 Do-Minimum is expected to remain a robust benchmark for assessing network conditions, and the Regulation 19 allocation amendments are unlikely to change the overall transport conclusions.

10.4 Summary of Transport Impact Assessments

10.4.1 The forecast transport implications of the Havant Local Plan allocations have initially been determined by comparing the SRTM 2046 Baseline and 2046 Do-

Minimum (unmitigated) scenarios, alongside an interpretation of the DfT Connectivity Tool outputs. Together, these strands provide a strategic, cumulative picture of where growth is expected to add pressure to the network, where impacts are likely to be most noticeable, and where mitigation and place-based interventions should be focused.

10.4.2 At a strategic level, the Do-Minimum scenario indicates an increase in person trips and travel demand associated with the planned LP growth, including an estimated additional c.22,000 highway trips each way to/from Havant across a 24-hour period, whilst also showing a small reduction in car mode share (around -1.1%) consistent with capacity constraints encouraging some mode shift.

10.4.3 Across the wider network, the SRTM indicates a 6.3% increase in vehicle trips relative to the Baseline (an uplift of 44,113 vehicle trips compared with 693,619 in the Baseline). In isolation, this level of change is described as small in the context of typical day-to-day traffic variability; however, the borough's highway network is already forecast to be constrained in the Baseline, meaning that even modest additional demand can contribute to delay and reliability impacts at specific locations and during peak periods.

10.4.4 Consistent with the increase in vehicle trips on an unmitigated network, the assessment forecasts an overall increase in vehicle-based emissions in Havant Borough in the order of 3-4%. Peak-period performance metrics also indicate growing pressure: total vehicle hours driven are forecast to rise by around 7% in both AM and PM peaks, vehicle kilometres by around 2.4%, and average speeds to decrease by around 4.6%, reflecting additional delay and congestion.

10.4.5 While borough-wide effects are generally modest, the analysis identifies a set of localised 'significant' and 'severe' capacity and delay hotspots that warrant targeted mitigation. Using agreed screening thresholds, seven junctions meet the 'severe' criteria and 12 meet the 'significant' criteria in at least one peak, against a backdrop where 57 junctions are already forecast to be at or near capacity in the Baseline (rising to 63 in the Do-Minimum). The largest flow changes are associated with the Southleigh allocation and its connecting corridors, with additional pressure also evident around Havant/Bedhampton and at key strategic junctions; these findings reinforce that mitigation should be location-specific and focussed on the most affected approaches and corridors.

10.4.6 Importantly, the evidence suggests that addressing future travel demand in line with the STA vision requires more than capacity-led highway solutions. Given existing constraints and the need to support sustainable travel, mitigation is best prioritised towards measures that reduce delays and improve reliability for bus services, alongside safe, high-quality walking and cycling routes that strengthen network-wide permeability and provide realistic alternatives to car travel, rather than focusing solely on increasing highway capacity in immediate local areas.

10.4.7 Public transport demand changes are forecast to be comparatively limited in scale, with small increases on the rail corridors through Havant (tens of

passengers in the peak direction on the busiest sections) and modest changes on bus routes (generally around 5–10 additional passengers on affected services in the peaks). In relation to road safety, the assessment recognises that traffic increases could heighten risk at some locations, but also that casualty outcomes are driven by site-specific contributory factors; accordingly, the appropriate mechanism for managing road safety impacts will be through future site-level transport assessments aligned with planned safety interventions and wider programmes (e.g., IDP/LCWIP/BSIP).

10.4.8 The Connectivity Tool analysis complements the modelling by highlighting that connectivity performance varies substantially between and within allocations, and by mode and destination type. Smaller, central brownfield sites tend to achieve higher average connectivity scores with limited internal variation, while larger or more peripheral sites typically show lower mean scores and wider spreads between best and worst performing areas. For Southleigh in particular, a moderate mean score alongside a low minimum score and high variance indicates that targeted interventions - especially to improve walk and cycle access to key services, schools and employment areas - will be necessary to ensure that all parts of the site can support sustainable travel choices.

10.4.9 Overall, the combined evidence indicates that Local Plan growth is expected to add incremental pressure to an already constrained network, with impacts that are most material at specific junctions and corridors rather than across the whole model area. The conclusions therefore point to a mitigation approach that is targeted, proportionate and aligned to the STA objectives: addressing identified hotspots, protecting bus journey time and reliability, and improving the continuity and quality of active travel connections so that planned development can be accommodated with reduced reliance on the private car.

10.4.10 As a minimum, the transport mitigation package to support the Havant Local Plan will comprise of the following interventions, which any development within the borough will be expected to either deliver or contribute towards depending on the outcome of their respective site-specific transport assessments:

- Walking, cycling and public transport schemes identified in HCC's adopted strategies (LCWIP, BSIP, Station Improvement Plans)
- Additional walking and cycling interventions at the following locations:
    - West Street, Havant
    - Leigh Road, Havant
    - Civic Centre Road
    - Boundary Way, Havant
    - Market Parade, Havant
    - St Georges Walk, Waterlooville
    - Elettra Avenue, Waterlooville
    - South of and under Havant bypass, Emsworth
    - North Street, Emsworth
    - Church Path, Emsworth
- Emerging Area Strategy for Havant Borough

- Town Centre sites parking policy
- Bus priority and active travel infrastructure schemes at:
    - Warblington Interchange (A27/Emsworth Road junction)
    - Hulbert Road / Fitzwygram Way roundabout
- Improvements to Active Travel and Public Transport links from Southleigh to Havant town centre and across the railway line to Warblington School specifically and towards Emsworth, specifically along the A259 Havant Road and at the A27 Warblington Interchange
- Travel Plans, including “monitor and manage” obligations

10.4.11 Overall, the 2046 Do Something scenario indicates that the two bus priority schemes modelled in the SRTM provide a measurable improvement in network performance when compared with the Do Minimum, although wider strategic demand patterns remain broadly unchanged. Total vehicle hours are forecast to increase by around 6.5–7.5% in the peak hours versus the 2046 Baseline, which is slightly lower than the Do Minimum, and the model continues to show redistribution of traffic around key corridors rather than a step-change in demand.

10.4.12 The mitigation measures reduce the severity and extent of highway impacts: junctions exceeding the impact thresholds fall from 19 (DM) to 15 (DS), and ‘severe’ impacts reduce from seven to two. In particular, the A27 Warblington Interchange and the Hulbert Road/Fitzwygram Way roundabout no longer flag as ‘significant’ or ‘severe’, evidencing improved operation at these locations, albeit with some localised changes in delay and circulating performance that may require further design refinement and signal optimisation at the next stage.

10.4.13 Public transport passenger flow changes in the DS are small and localised, reflecting the SRTM’s representation of time benefits across motorised users and the effects of unconstrained demand. Residual impacts are therefore primarily associated with locations that are already forecast to be over capacity in the 2046 Baseline, with the main notable change being the Tear Drop junction (Harts Farm Way westbound) in the AM peak. Given the model limitations and the reliance on worst-case unconstrained growth, mitigation should be progressed through a ‘Monitor and Manage’ approach, with refinement in liaison with HCC and NH as allocations come forward, and with delivery secured through site-specific Travel Plans and Section 106 obligations where appropriate.

10.5 Highway Authorities Endorsement

10.5.1 Throughout the preparation of this STA, there has been positive engagement with both Highways Authorities (HCC and National Highways). The methodology, criteria and outputs of model runs contained within this STA have been shared with both Highway Authorities (Hampshire County Council and National Highways) throughout the development of the STA. Feedback has

been sought and additional sensitivity tests were carried out to address the concerns of both authorities.

10.5.2 It is recommended that HBC continues to engage with the authorities following their response to this document, and the associated transport evidence base.

10.6 Conclusion

10.6.1 In conclusion, based on the work of this Strategic Transport Assessment, it is considered that the quantum and distribution of the development proposed in the Havant 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 – Policy Context

National

Ministry of Housing, Communities and Local Government, 'National Planning Policy Framework' (2024)

The National Planning Policy Framework (NPPF) was most recently fully updated in December 2024 (with small amendments made in February 2025). 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 STA and other documents in support of Winchester's emerging Local Plan.

Paragraph 109 of the NPPF details the transport issues that should be considered in plan making:

- the potential impacts of development on transport networks;
- opportunities from existing or proposed transport infrastructure, and changing transport technology and usage;
- 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.

Furthermore, the NPPF identifies that significant development should be focused on locations which are, or can be made, sustainable, through limiting the need to travel and offering a genuine choice of transport modes. This can help to reduce congestion and emissions and improve air quality and public health. However, opportunities to maximise sustainable transport solutions will vary between urban and rural areas, and this should be taken into account in both plan-making and planning applications. This is a particularly important point as accessibility and the choice of transport modes in Winchester Town is completely different from the rural area and market towns that make up a large part of the district.

Paragraph 111 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 attractive and well-designed walking and cycling networks with 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."

Paragraphs 112 to 114 also provide guidance on the setting of local parking standards for residential and non-residential development and recommend local planning authorities to consider 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. In town centres, local authorities should seek to improve the quality of parking so that it is convenient, safe, and secure, alongside measures to promote accessibility for pedestrians and cyclists.

The consideration of mitigation of a development's transport impacts on the transport networks has also been re-prioritised as set out in para 117 to:

- give priority first to pedestrian and cycle movements, both within the scheme and with neighbouring areas; and second – so far as possible – to facilitating access to high quality public transport, with layouts that maximise the catchment area for bus or other public transport services, and appropriate facilities that encourage public transport use;
- address the needs of people with disabilities and reduced mobility in relation to all modes of transport;
- create places that are safe, secure, and attractive – which minimise the scope for conflicts between people walking, cycling, and driving, avoid unnecessary street clutter, and respond to local character and design standards;
- allow for the efficient delivery of goods, and access by service and emergency vehicles; and
- be designed to enable charging of plug-in and other ultra-low emission vehicles in safe, accessible, and convenient locations.

Within this context, enhancements to highway capacity will be considered as a last resort and one which should not be considered until all opportunities to maximise sustainable transport options have been exhausted. The methodology used within this STA reflects the above approach to mitigation.

Ministry of Housing, Communities and Local Government, 'Transport evidence bases in plan making and decision taking' (2015)

NPPF is accompanied by a suite of Planning Policy Guidance (PPG) to support the framework. This Guidance Note was published in March 2015 and sets out how strategic Transport Assessments should be undertaken to support Local Plans. The Note states that the key issues the transport evidence bases should seek to consider are:

- The existing situation and likely generation of trips over time by all modes and the impact on the locality in economic, social, and environmental terms;
- The opportunities to support a pattern of development that, where reasonable to do so, facilitates the use of sustainable modes of transport;
- The promotion of opportunities to reduce the need for travel where appropriate;
- Identification of opportunities to prioritise the use of alternative modes in both existing and new development locations if appropriate;
- Consideration of the cumulative impacts of existing and proposed development on transport networks;
- Assessment of the quality and capacity of transport infrastructure and its ability to meet forecast demands; and
- Identification of the short, medium, and long-term transport proposals across all modes.
- The baseline information required to inform the Transport Assessment includes:
- All current transport issues as they affect all modes and freight covering, for example, accessibility, congestion, mobility, safety, pollution, affordability, carbon reduction across the whole Plan area and, within relevant areas of the Plan, including existing settlements and proposed land allocations;
- The potential options to address the issues identified and any gaps in the networks in the short, medium, and longer term covering, for example, accessibility, congestion, mobility, safety, pollution, carbon reduction;
- The locations of proposed land allocations and areas/corridors of development and potential options for the provision of sustainable transport and transport networks to serve them;

- The scope and options for maximising travel planning and behavioural change; and
- Accessibility of transport nodes such as rail/bus stations to facilitate integrated solutions.

It is recommended that the Transport Assessment should identify any significant highway safety issues and provide an analysis of the recent personal injury accident history of the affected/impacted areas. The extent of the safety issue considerations and casualty analysis will depend on the scale and type of developments in the context of the character of the affected Strategic Road Network. The need to minimise conflicts between vehicles and other road user groups should be adequately addressed.

Critical locations on the road network with poor accident records should be identified. This is to determine if the proposed land allocations will exacerbate existing problems and whether highway mitigation works, or traffic management measures will be required to alleviate such problems.

Although as stated above, it is understood that the guidance is undergoing a review, the need to establish a suitably comprehensive baseline which will allow full analysis to take place in accordance with all assessment elements remains valid.

National Highways and The Department for Transport, Circular 01/2022 Strategic road network and the delivery of sustainable development, and Planning for the future: a guide to working with National Highways on planning matters (October 2023)

This circular explains how the Highways Agency (National Highways) engages with the planning system and was revised in December 2022 to align with the latest amendments to NPPF and with the National Design Guide, National Model Design Code, Manual for Streets (MfS), Local Transport Note (LTN) 1/20. In October 2023, NH published their planning guide 'Planning for the Future' which provides further advice for development promoters, strategic policy-making and local highway authorities and other organisations involved in development proposals that may result in any impact on the Strategic Road Network (SRN).

The circular and guide apply to the whole of the SRN but not to the Major Road Network (MRN), except in relation to its junctions with the SRN. In Winchester, this relates to the M3 and A34.With regards to plan making, National Highways will engage in the Local Plan process to ensure safety and to reduce the potential for creating congestion on the SRN, to make most efficient use of the limited available capacity. Within this context, National Highways will be supporting developments that facilitate a reduction in the need to travel by private car and focused on locations that are or can be sustainable. This approach seeks to make the most efficient use of capacity within the overall transport network, improve health and wellbeing, and support government policies, strategies and guidance that aim to reduce the negative environmental impacts of development.

In framing its contribution to the development of Local Plans, National Highways will therefore expect strategic policy-making authorities and community groups responsible for preparing local and neighbourhood plans to only promote development at locations that are or can be made sustainable and where opportunities to maximise walking, wheeling, cycling, public transport and shared travel have been identified.

Capacity enhancements and infrastructure required to deliver strategic growth should be identified at the Local Plan stage, which provides the best opportunity to consider development aspirations alongside the associated strategic infrastructure needs. New connections (for example, new junctions or direct accesses) on the SRN lead to more weaving and turning manoeuvres, which in turn create additional risk to safety and reduce the reliability and efficiency of journeys, resulting in a negative impact on overall national economic activity and performance. On this basis the principle of creating new connections on the SRN should be identified at the plan-making stage in circumstances where an assessment of the potential impacts on the SRN can be considered alongside whether such new infrastructure is essential for the delivery of strategic growth. Moreover, National Highways will need to be satisfied that all reasonable options to deliver modal shift, promote walking, wheeling, and cycling, public transport and shared travel to assist in reducing car dependency, and locate development in areas of high accessibility by sustainable transport modes (or areas that can be made more accessible) have been exhausted before considering options for new connections to the SRN.

Department for Transport, 'Decarbonising Transport: a better, greener Britain' (2021)

The document follows on from 'Decarbonising transport: setting the challenge', published in March 2020, which laid out the scale of additional reductions needed to deliver transport's contribution to legally binding carbon budgets and delivering net zero by 2050.

The Plan outlines strategic priorities to achieve net zero; to accelerate mode shift to public and active transport; decarbonise road transport and how we deliver goods. The plan sets out how the government will improve public transport and increase support for active travel to make these the natural first choice for all who can take them. It sets out government's commitments and the actions needed to decarbonise the entire transport system in the UK.

The document focuses on increasing cycling and walking by delivering the Prime Minister's bold vision for cycling and walking investing £2 billion over five years with the aim that half of all journeys in towns and cities will be cycled or walked by 2030.

In addition, the document focuses on commitments for zero emission buses and coaches by delivering 4,000 new zero emission buses and the infrastructure needed to support them, as well as the first All-Electric Bus Town or City and a phasing of new non-zero emission buses.

The Plan also focuses on decarbonising the railways by delivering a net zero railway network by 2050, with sustained carbon reductions in rail along the way. This would include the aim to remove all diesel-only trains (passenger and freight) from the network by 2040.

DfT, Better Connected: a strategy for integrated transport

Better Connected: A Strategy for Integrated Transport" is the UK government's new national plan to create a more joined-up, user-focused transport system across England. The strategy responds to a fragmented system and aims to deliver simpler, more reliable, and seamless door-to-door journeys across different transport modes (bus, rail, tram, road, active travel). Its overall vision includes the following guiding principles:

1. Put people first – design transport around user needs
2. Create better-connected places – support communities and economic growth
3. Work in partnership – especially with local authorities and stakeholders

In the short-term, the strategy is not about massive new infrastructure but mostly about making the system feel easier and more joined-up using what already exists. In practice this will involve:

- Easier paying: contactless payment rolled out more widely beyond big cities
- Better real-time information particularly in respect of journey information and disruption updates
- Small but visible local improvements such as adjusted bus routes to better connect with train times, coordinated timetables and simpler, more unified local transport branding
- More consistent fares and simpler tickets
- Incremental reliability fixes with maintenance and new schemes focussed on performance rather than expansion
- Early steps on accessibility, again focussing on gradual improvements in usability of existing systems

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

RIS2 sets out the long-term vision for the Strategic Road Network (SRN) which in Havant Borough includes the A3(M) and A27. It specifies the planned road enhancement schemes; and states the funding that we will make available during the five-year period. Within the borough, the following scheme is included:

- M27 Junction 10 – A package of highway upgrades needed to help bring forward the development of Welborne Garden Village to the north of Fareham

DfT is currently developing RIS3 which will cover investments to the SRN between April 2025 to March 2030 and the pipeline of projects identified in RIS2 for funding as part of RIS3 are being reviewed. Given that the status for these projects is unknown at the time of producing this STA, these projects have been excluded from the baseline, in agreement with the highway authorities.

DfT, 'The Transport Investment Strategy' (2017)

As part of this Strategy, 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 Havant Borough, the MRN comprises of the section of the A3020 Havant Road within the borough boundary up to and including the A3(M)/A3020/A27 Bedhampton Roundabout.

Regional and sub-regional

Regionally, Havant Borough Council (HBC) works with several other organisations involved in delivery and management of transport networks, these include:

- Hampshire County Council - the Highway Authority for the highway network in Havant Borough, and relevant Rights of Way authority. All liaison with neighbouring local planning authorities such as East Hampshire, Winchester, Portsmouth, and Chichester in West Sussex are directed via the Local Highway Authorities of Hampshire County Council;
- National Highways - responsible for maintaining, operating, and improving the Strategic Road Network (SRN), which includes the sections of A3(M) and A27 corridors that are within the borough boundaries;
- Partnership for South Hampshire (PfSH) - 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;
- Transport for the South East (TfSE) – a partnership bringing together local authorities, local enterprise partnerships (LEPs), transport providers and other stakeholders to speak with one voice on the south-east's strategic transport needs. The area covers the six Berkshire authorities, Kent, Medway, Hampshire, Portsmouth, Southampton, the Isle of Wight, Surrey, East and West Sussex and Brighton and Hove.
- Public Transport Operators and Network Rail.

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

Transport Strategy for the South East (2025)

Transport for the South East (TfSE) recently published an updated version of its 2020 transport strategy for the South East reflecting on how the transport landscape has evolved since its first publication shortly before the Covid pandemic. The strategy presents a shift away from traditional approaches of transport planning - one based on planning for a future based on recent trends and forecasts – to an approach of actively choosing a preferred future and setting out a plan to get there, together. In doing so, TfSE recognised that there needs to be a transition from the current focus on 'planning for vehicles' towards more 'planning for people' and more 'planning for places.'

The transport strategy has since been complemented by five area studies which identify and prioritise the specific interventions required across the South East. The outputs from these area studies have also been fed into a Strategic Investment Plan (SIP), a blueprint for investment which will be delivered with government and national bodies such as Network Rail and National Highways. The final Strategic Investment plan was submitted to government in March 2023 and Transport for the South East is shifting its focus towards implementation.

The Strategic Investment Plan for Havant, Portsmouth North and Portsmouth South is summarised on Figure A-1, noting the particular relevance of intervention:

- F1 - West Coastway Strategic Study, including increased service frequencies and timetable optimisation for local and strategic movements between Southampton, Havant, Chichester and Brighton to reduce wait times and the effective journey times of rail users
- B7 – a new Havant Rail Freight Hub to support efficient rail freight operations
- O15 - Portsmouth Direct Line - Line Speed Enhancements to reduce journey times between Portsmouth and London
- C11 - Improved Gosport - Portsmouth and Portsmouth - Hayling Island Ferries to provide faster, more frequent and reliable services for residents accessing Portsea Island

Figure 1: Havant; Portsmouth North; Portsmouth South schemes from TfSE's Strategic Investment Plan

In addition to place-specific schemes, a number of wider policy interventions have been identified. These include:

- **Decarbonisation:** faster delivery on net zero carbon, including through the use and adoption of green technologies
- **Public transport fares:** support for public transport, including subsidies for reduced fares
- **New mobility:** capturing the benefits for new modes of travel, new ways of paying for our travel, and new technologies
- **Road user charging:** support for a national scheme, and one that local areas can integrate with for additional measures (e.g. Clean Air Zones)
- **Virtual access:** making best use of technology to reduce the need to travel and help plan better, more sustainable journeys
- **Better integration:** at stations, hubs and between modes, but also better integration with spatial planning and service delivery

Figure A-1– Havant, Portsmouth North and Portsmouth South schemes from TfSE's Strategic Investment Plan

Hampshire County Council - Local Transport Plan 4 (2024)

Hampshire County Council (HCC) adopted a new Local Transport Plan in February 2024. The new Plan states that it;

- describes our transport vision for 2050, the key transport outcomes we are seeking to achieve, and the principles that would guide future investment and decision making in relation to transport and travel;
- sets out transport polices covering all aspects of transport planning, delivery, and operation (i.e. the 'rules' about how we would do things and how we want others to do things);

- presents our approach to delivering the Plan – 'making it happen', setting out a roadmap to 2050 and how we would prioritise, fund, and deliver interventions, and monitor our progress; and
- supports the County Council's wider strategies, plans and priorities.

HCC's LTP4 sets out transformational changes which:

- shift away from planning for vehicles, towards planning for people and places;
- meet national priorities to decarbonise the transport system;
- reduce reliance on private car travel;
- gives people a choice of high-quality travel options;
- support sustainable economic development and regeneration; and promote active lifestyles.

LTP4 has the following vision for transport:

"A carbon neutral, resilient and inclusive transport system designed around – and with - people, which: supports health, wellbeing and quality of life for all; supports a connected economy and creates successful and prosperous places; and respects and seeks to enhance Hampshire's unique natural and built environment".

The above vision will be delivered through the following guiding principles and policies (Figure A-2):

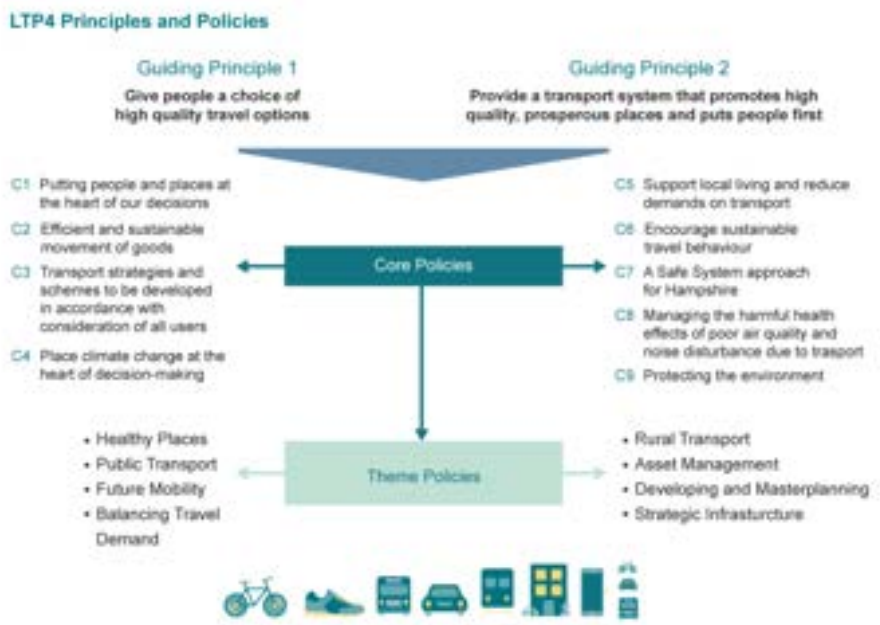

Figure A-2 – HCC LTP4 Principles and Policies

Policy C1 focuses on putting people and places at the heart of HCC's decisions and will shortly develop the following approach to infrastructure improvements,

against which future site-specific applications will need to give due regard (Figure A-3).

We will:

a. develop and apply a **Movement and Place Framework** to manage the transport network in accordance with its function in different locations, i.e. to decide what type of measures are needed where (see also Chapter 7, Healthy Places, Policy HP1 and 2; Balancing Travel Demand, Policy BTD1; Asset Management, Policy AM2; Development and Masterplanning, Policy DM3);

b. prioritise the needs of walking and cycling, public transport users and delivery vehicles, in accordance with the specific function of different types of location (see Core Policy C3: **Road User Utility Framework**);

c. use a **'Healthy Streets' approach** and our **'Hampshire Walking and Cycling Principles'** to plan and design welcoming, comfortable, safe and inclusive networks for everyone regardless of ability, confidence, age and disability (see Healthy Places, Policy HP1.3);

d. seek opportunities to **create or reallocate road space** to create better walking and cycling routes and faster routes for buses (see also Healthy Places, Policy HP1; Balancing Travel Demand, Policy BTD1); and

e. **support targeted highway capacity improvements** where there is a strong economic, safety, health, social or environmental case and where the Movement and Place Framework is achieved.

Figure A-3 – Policy C1 – HCC LTP4

It is recognised that transport issues are considered in the early stages of Local Plan preparation and LTP4 Policy DM1 requires greater integration between transport and strategic land use planning to reduce car dependency, while Policy DM2 supports proactive master planning of new development sites for high quality neighbourhoods.

It is understood that HCC will be developing a suite of companion strategies and action plans to accompany LTP4 including development management plan, parking strategy, and EV strategy. All new developments will also need to assess the needs of all road users using the Hampshire Movement and Place Framework, the Road User Utility Framework and Healthy Street principles.

HCC - Bus Service improvement Plan (2024)

The Bus Service Improvement Plan (BSIP) sets out HCC's high-level vision for Hampshire's bus network, including journey time and reliability targets, and plans to deliver them. The 2024 document presents present a summary of the measures implemented to date since the publication of the first iteration of the document in October 2021.

HCC has delivered several initiatives which have helped to improve the quality and the attractiveness of local bus services which will be built upon through the BSIP.

Appendix 1 of the BSIP sets out the full list of potential bus infrastructure options currently under consideration by HCC. It summarises the bus infrastructure that has been proposed by bus operators and identifies those sections of the highway network where operators know that bus services are currently experiencing regular delays due to queuing traffic and congestion and the infrastructure solutions that operators are proposing should be considered as potential options for addressing these issues.

HCC - Station Interchange Improvement Plan (Issue 1, October 2024)

The Station Interchange Improvement Plan has been prepared by HCC to identify current problems at rail interchanges within the County and target interventions by way of recommendations to achieve desirable, seamless and accessible multi modal transport interchange.

In respect of Havant rail station and interchange, HCC has identified a number of interventions, most of which relating to enhancements to facilities for cycling and walking access in line with the Havant LCWIP.

HCC - Local Cycling and Walking Infrastructure Plans (LCWIPs)

LCWIPs are a relatively 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.

The Havant LCWIP was prepared by HCC and published in 2023. Appendix C of the document also provides Havant's aspirational cycle map.

Appendix B – Havant Local Plan – SRTM Strategic Modelling Report

HAVANT LOCAL PLAN – SRTM STRATEGIC MODELLING BASELINE, DO MINIMUM & DO SOMETHING

HAVANT LOCAL PLAN

HAVANT LOCAL PLAN – SRTM STRATEGIC MODELLING BASELINE, DO MINIMUM & DO SOMETHING

IDENTIFICATION TABLE	
Client/Project owner	Havant Borough Council
Project	Havant Local Plan
Study	Havant Local Plan – SRTM Strategic Modelling Baseline, Do Minimum & Do Something
Type of document	SRTM Model Outputs Summary Report
Date	11/03/2026
File name	SRTM_HavantLocalPlan_SRTM_Report_v2.1.docx
Reference number	GB01T23A93
Number of pages	74

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APPENDICES

1. INTRODUCTION

1.1 Study Background

1.1.1 SYSTRA has been commissioned by Hampshire Planning and Transport on behalf of Havant Borough Council to apply Solent Transport's Sub-Regional Transport Model (SRTM) to inform the update to Havant Local Plan that includes growth through to 2043. The SRTM has been used to model the Local Plan proposed land allocations and identify key transport implications resulting from the scale and location of the development proposed through the Local Plan. The SRTM outputs form inputs to a Strategic Transport Assessment undertaken by Hampshire Planning and Transport and reported in a separate document.

1.1.2 This application of the SRTM was commissioned by Hampshire Planning and Transport in January 2025.

1.2 Havant Borough Council Local Plan Development Scenarios

1.2.1 To assess the transport impacts of the Local Plan, three model scenarios have been developed to date:

- Scenario 1 – 2046 Baseline, no Havant Local Plan development except for committed sites.
- Scenario 2 – 2046 Do Minimum, full Havant Local Plan development without transport mitigation/connectivity improvements.
- Scenario 3 – 2046 Do Something, full Havant Local Plan development with transport mitigation/connectivity improvements

Scenario 1 – 2046 Baseline *No Havant Local Plan Development Except Committed Sites*

1.2.2 The Baseline forms the scenario against which the proposed Local Plan development quantum scenarios are assessed.

1.2.3 In this study the Baseline includes all current (as of April 2024) completed development and infrastructure within Havant Borough, in addition to all committed development and infrastructure through to 2046. In the Baseline, no allowance is made for Local Plan allocations in Havant. The SRTM only has certain pre-defined model years (see Section 2.2.5) and the 2046 year model was used as it was the closest model year available that fell beyond the Local Plan end date. The 2046 model year allows for the full Local Plan development quantum to be included within the model for the proposed 2043 end of plan date.

1.2.4 Outside of Havant, development growth is assumed to continue as 'normal' and in line with the adopted Local Plans for the respective Neighbouring Authorities (with three exceptions, see 1.2.5) and in accordance with an adapted version of Department for Transport's (DfT) TEMPRO[1] v8.0 growth projections. The adapted version of TEMPRO v8.0

[1] TEMPRO is a piece of software owned by Department for Transport (DfT) and used to access the National Trip End Model (NTEM) datasets forecasting future year growth for use in transport modelling. The forecasts take account of national

was specified by Hampshire County Council (HCC) and agreed for application in the SRTM by the Solent Transport Authorities (HCC, Isle of Wight Council, Portsmouth City Council, Southampton City Council). It has also been endorsed by the Department for Transport and supported by National Highways through discussions held during July 2023. The adapted version was developed following concerns by HCC that v8.0 of TEMPRO underrepresented by approximately 80,000 dwellings the residential growth within the County in the period 2019-40. The adapted version of TEMPRO v8.0 used in the Havant Local Plan application of SRTM includes the following assumptions:

- Within the Hampshire County and Solent authorities boundaries, residential growth delivery rates are assumed in line with adopted local plans (with two exceptions; Winchester and Portsmouth). Beyond the end of Local Plan periods, growth delivery rates are assumed to continue at the rates from the preceding Local Plan. Employment growth rates are assumed in-line with TEMPRO v8.0.
- Outside of the County boundary residential and employment growth is assumed to be in line with TEMPRO v8.0 projections (with one exception; Chichester).

1.2.5 As well as adopted local plans, the land use for the Havant Local Plan work also includes exceptions for current (as of February 2025) emerging Local Plan proposals for Chichester, Winchester (has been submitted to the inspector) and Portsmouth. Although not yet adopted, it is considered these proposals are suitably far progressed in the planning process to provide the most likely basis for growth in boroughs bordering or near to Havant.

Scenario 2 – 2046 Do Minimum *with Full Local Plan Development, without Mitigation Measures/Connectivity Improvements*

1.2.6 The Do Minimum scenario builds on the 2046 Baseline with the addition of the full quantum of proposed development associated to the Havant Local Plan. Growth outside the Local Plan area is identical to the Baseline. By comparing the outputs of the Do Minimum scenario with the Baseline, the transport impacts resulting from the Local Plan proposals can be isolated.

Scenario 3 – 2046 Do Something *with Full Local Plan Development, with Mitigation Measures/Connectivity Improvements*

1.2.7 The Do Something scenario builds on the 2046 Do Minimum scenario, incorporating the connectivity improvements/interventions developed by Hampshire Planning and Transport. The scenario captures the impact of these interventions in the wider context of the full borough and surrounding areas.

projections of population, employment, housing, car ownership and trip rates. TEMPRO provides for a common approach for accounting for growth in transport modelling within England but, as with all forecasts, the data is subject to uncertainty especially when disaggregated to local zones or travel modes.

2. SOLENT TRANSPORT – SUB REGIONAL TRANSPORT MODEL (SRTM) BACKGROUND

2.1 SRTM Model Development

2.1.1 SYSTRA was commissioned, as part of a wider team, to support Solent Transport[2] with the development and application of the SRTM for this nationally important area. An update to the original 2010 model was completed in early 2017 to bring the base year forward to 2015. In early 2021, a further update was completed to revalidate the model against a 2019 base year. The current base year for the model pre-dates COVID 19 and therefore no account of the impacts of the pandemic is included for in the Base year modelling. A further update to the model, that would bring the Base Year beyond COVID (and therefore account for its impacts), is under discussion with the Solent Transport client group but not yet commissioned. The trajectory of growth beyond the pandemic means that by 2046 the overall impact on traffic flows with the current approach is minimal (less than 5%). For the Local Plan modelling this is considered a suitable approach since the comparison is being made between the with and without Local Plan development rather than comparing to base traffic levels.

2.1.2 The SRTM has been developed to support a wide-ranging set of interventions across the Solent Transport sub-region, and is specifically required to be capable of:

- 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 in the increased detail necessary for preparing submissions for inclusion in funding programmes.

2.2 Sub Regional Transport Model Context and Scope

2.2.1 The SRTM is a suite of linked models comprising the following components as shown in Figure 2-1:

- The Main Demand Model (MDM) which predicts when (time of day), where (destination choice) and how (choice of mode) journeys are made;
- the Gateway Demand Model (GDM) which predicts demand for travel from ports and airports;
- the Road Traffic Model (RTM) which determines the routes taken by vehicles through the road network and journey times, accounting for congestion;
- the Public Transport Model (PTM) which determines routes and services chosen by public transport passengers; and

[2] Originally established in 2007, Solent Transport is an apolitical partnership between the councils of the Isle of Wight, Hampshire County, Portsmouth and Southampton. In collaboration with the local community, business, government and transport operators, Solent Transport undertakes research; develops transport policy and strategy; submits and supports funding bids; and lobbies for transport improvements (www.solent-transport.com).

- a Local Economic Impact Model (LEIM) which uses inputs including transport costs to forecast the quantum and location of households, populations and jobs.

2.2.1 Active Mode (walking and cycling) demand is represented in the SRTM, but the demand is not assigned to a network. To expand, the active demand matrices are produced in the main demand model (MDM) for each zone pair (origin to destination) in the same manner that highway and public transport (PT) matrices are created. Both walking and cycling active sub-mode demand are generated, although these are reported in combination in mode share outputs. Unlike highway and PT trips, (which are routed and represented on their respective transport networks), the routes which active mode trips would use between the origin and destination pair are not represented. This is because there are generally multiple similar alternatives available to people walking and cycling including options along links considered too minor to be included in the current SRTM network, which was primarily designed for motorised modes. In addition to the network density there are also other factors which may influence active route choice which would need to be considered. In theory some of these influences could be incorporated into the model (such as denser network, levels of segregation, traffic levels, gradients). Other factors may be more subjective, difficult to include and more likely to differ based on personal preferences (route ambience/greenness, perceived safety, access to shops enroute etc).

2.2.2 For all Origin/Destination (OD) pairs the cost of the trip by each mode is represented in the form of a generalised cost that monetises all components of a trip both time-based (waiting time, journey time etc) and financial (PT fare, fuel, etc). Changes to generalised cost drive mode choice changes such as implementation of a scheme to reduce journey time or conversely congestion increasing journey time. For highway and PT, representation of new schemes or the impact of congestion are direct inputs or outputs to the model and are applied at a network level. By default, in the model the generalised cost of travel for active modes does not change but can become more, or less, attractive relative to the other modes depending on the changes to highway and PT generalised costs. It is possible to manually change the generalised cost for Active modes to represent, say a time saving. However, this is applied at a zonal level so would be applied to all trips between the specific OD pairs and is best applied to larger schemes e.g. a corridor-based package of improvements, as opposed to a smaller single scheme.

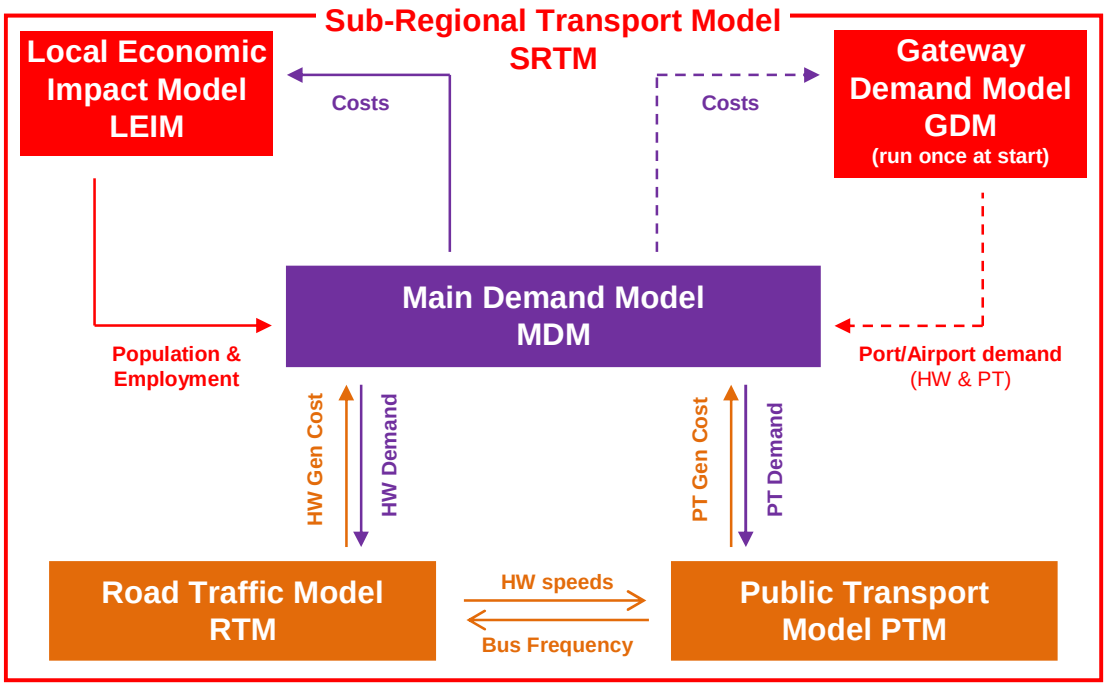

Figure 2-1 Solent Transport Sub-Regional Transport Model

2.2.3 The modelled area of the SRTM is divided into four regions, shown in Figure 2-2, which differ by zone aggregation and modelling detail. The entirety of Havant District is within the Core Fully Modelled Area on the eastern edge of the core area. The SRTM model zone structure for Havant Borough is shown in Figure 2-3. Zones are larger in less densely populated areas with zones in the core area accommodating a population of approximately 1500 persons.

2.2.4 In accordance with guidance, three weekday periods are modelled in the SRTM:

- 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).

2.2.5 The SRTM has a base year of 2019, and forecast years of 2026, 2031, 2036, 2041 and 2046. For the Local Plan assessment, scenarios were forecast to 2046. The Local Plan period ends in 2043 and the transport modelling has used the most suitable available model forecast year of 2046 rather than 2041 which is prior to the end of the plan period. The extra three years mean growth outside of Havant will be slightly higher than in 2043. The impact of the additional growth outside of Havant will be marginal on the traffic levels within Havant. It also allows for the full Local Plan allocation to be built within the model using the most likely trajectory and for the model to allow full occupation of the developments.

2.2.6 The SRTM is a strategic model, and the scope of the model is extensive. As such the analysis of specific localised traffic conditions necessitates a degree of interpretation and a common-sense approach in conjunction with a knowledge of local baseline conditions.

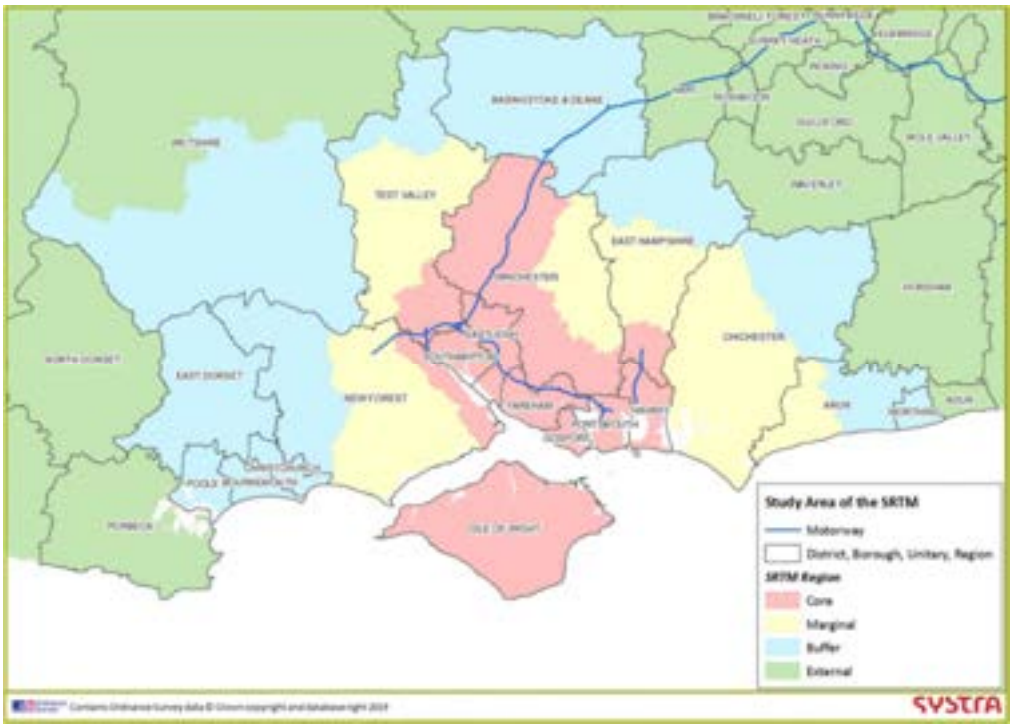

Figure 2-2 SRTM Study Area

Figure 2-3 SRTM Havant Borough SRTM Zone Structure

3. HAVANT BOROUGH MODELLING ASSUMPTIONS

3.1 Introduction

3.1.1 This chapter summarises the development of the model scenarios, and their land use, highway, and public transport (PT) inputs.

3.1.2 The following sections provide a breakdown of the key modelling processes, inputs, and outputs. Committed development, and infrastructure information through to 2046 to be used in this study was provided and confirmed by HBC, HCC, and National Highways Officers in the period January to April 2025.

3.2 Scenario 1 – 2046 Baseline

Highway and PT network

3.2.1 As a starting point, the Baseline scenario uses standard SRTM reference case networks for all modelled years. The SRTM has a base year of 2019 and represents forecast conditions up to the year 2046. Known developments and committed highway schemes are included within the model's reference case scenarios (2026, 2031, 2036, 2041 and 2046) to provide the most accurate representation of future year conditions. A list of the committed (funded) highway schemes included in the Reference Case is provided as **Appendix A.**

3.2.2 The M3 J9-14 Smart Motorway scheme is not included in any model scenario further to the government's decision in early 2023 to cancel any new Smart Motorways schemes.

Non-Havant Borough Land Use Assumptions

3.2.3 In this study, the SRTM Reference Case inputs populate the Baseline scenario for all model areas except Havant Borough. In addition, the inputs for Portsmouth, Winchester and Chichester have been updated to account for the proposed respective Local Plan allocations in those borough (see Section 1.2.5). The proximity of some of the larger proposed development sites within neighbouring local plan proposals, such as West of Waterlooville and in the Southbourne area, was considered sound reasoning to include the proposals within all modelled scenarios.

3.2.4 Within the Reference Case land use, 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. The locations and maximum land use quantum of the permissible sites are based on the inputs collated up to April 2025 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).

3.2.5 LEIM controls the level of overall development growth within the model in accordance with the adapted TEMPro (v8.0) employment and population trajectories for the sub-region as set out in Section 1.2.4. This is equivalent to allowing for background traffic growth within the modelling process.

3.2.6 The starting point in the Baseline is to update all the standard reference case inputs beyond the base year of 2019 for SRTM model zones within Havant Borough. In place of these, the actual site completions through to 2024 have been added plus hard committed future developments (i.e. planning permissions). In addition to the completions, undecided major applications as at February 2025 have also been included so that any sites not included within the Local Plan but that might conceivably be developed are included in the model land use for both scenarios, to ensure their impact is accounted for.

3.2.7 Baseline growth to 2046 for Havant Borough for all land use categories is summarised in Table 3-1. Figure 3-1 shows the location of the Baseline residential development growth sites within the borough by model zone. **Appendix B** includes the Baseline land use inputs by model zone.

3.2.8 Hayling Island includes the permission for 195 dwellings at Sinah Lane as well as the planning application which was outstanding in February 2025 for 300 dwellings at Rook Farm.

3.2.9 Note that the islands within Langstone Harbour show development since they are included within a mainland zone. For clarity, there is no development proposed on these islands.

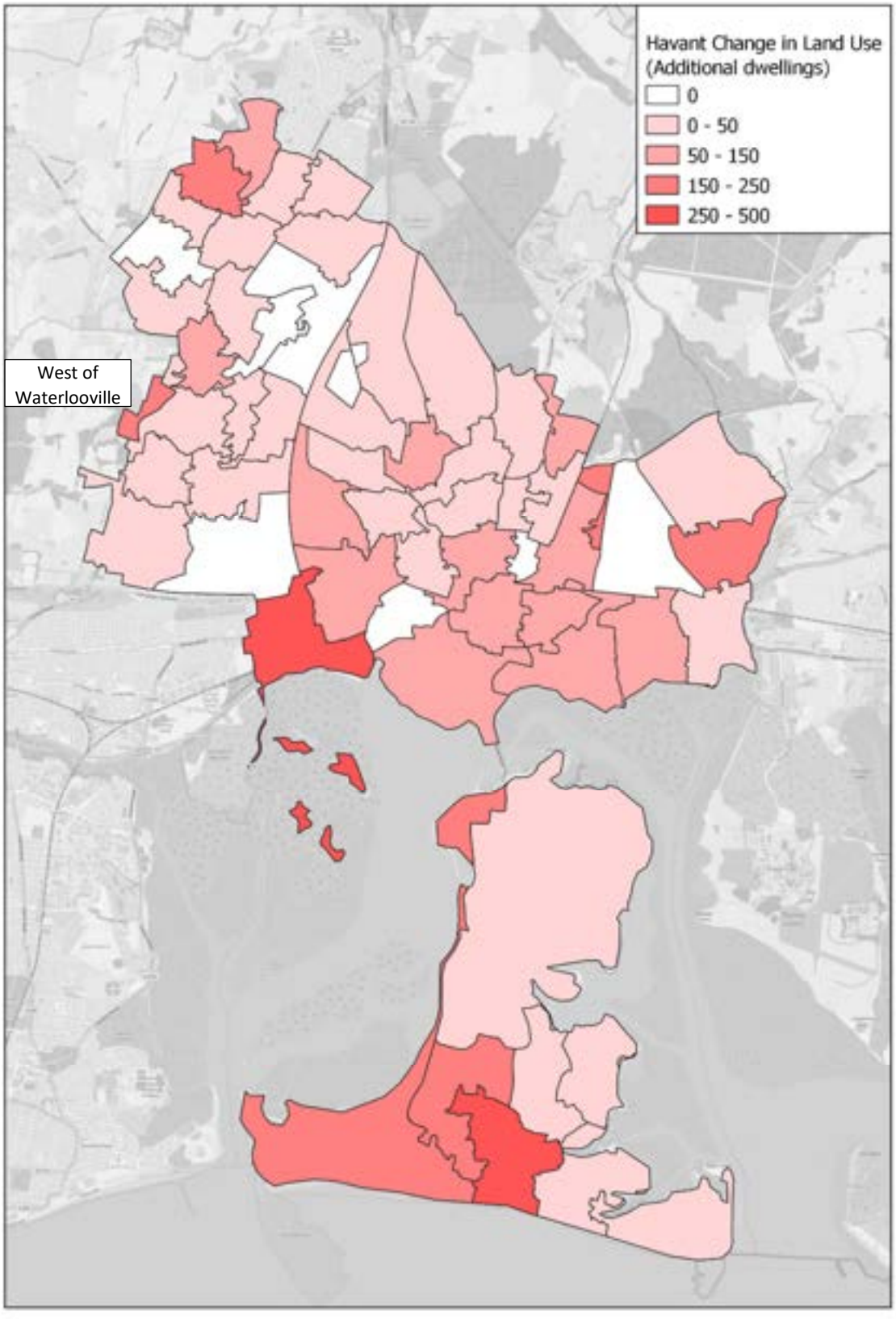

Figure 3-1 2046 Baseline – Residential Growth by model zone for Havant Borough

Table 3-1 Baseline: Havant Borough Land Use Inputs 2019 – 2046

	RESIDENTIAL	EMPLOYMENT (SQM)								
	Dwellings	Retail	Office	Industrial	Warehouse	Primary & Secondary Education	Adult Education	Hotel & Other Accomm	Healthcare	Leisure
SCENARIO 1 BASELINE 2019-2046 (Completions and Committed Developments))	3,615	4,337	32,949	59,325	32,526	0	0	15,680	0	0

3.3 Scenario 2 – 2046 Do Minimum

Highway and PT network

3.3.1 All elements of the highway and PT networks remain unchanged between the Baseline and Do Minimum scenarios for all modelled areas.

Non-Havant Borough Land Use Assumptions

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

Havant Borough Local Plan Land Use Assumptions

3.3.3 The Local Plan development allocations are included within the Do Minimum scenario (and also in the Do Something scenario detailed further in section 3.4). The Havant Local Plan development totals for the Do Minimum scenario are shown in Figure 3-2 and Table 3-2. All totals account for full growth in the Local Plan period (i.e., the totals also include for the Baseline growth). **Appendix B** includes the Do Minimum land use inputs by model zone.

3.3.4 Table 3.3 summarises the difference between the Baseline growth in Table 3-1 and the Do Minimum growth in Table 3-2 for 2046. Figure 3-3 shows the difference in residential growth by zone between the Baseline and Do Minimum. For residential growth there is an increase of 6,809 dwellings between the Baseline and Do Minimum in 2046. From that total, the largest individual residential development site is at Southleigh between Denvilles in the east of Havant and Emsworth, north of the A27. The proposed site includes 2,100 dwellings. The largest individual non-residential site is at Dunsbury Hill Farm (near A3M J3) with a total of approximately 18,000sqm of mixed used development.

3.3.5 The sites within Hayling Island are limited to Windfall sites only. The windfall sites move the additional dwellings totals into the next category in a number of cases when comparing Figure 3-1 and Figure 3-2. The differences shown in Figure 3-3 reflect the small increases in dwellings on Hayling Island.

3.3.6 As with the Baseline scenario, no development is proposed for the islands within Langstone harbour.

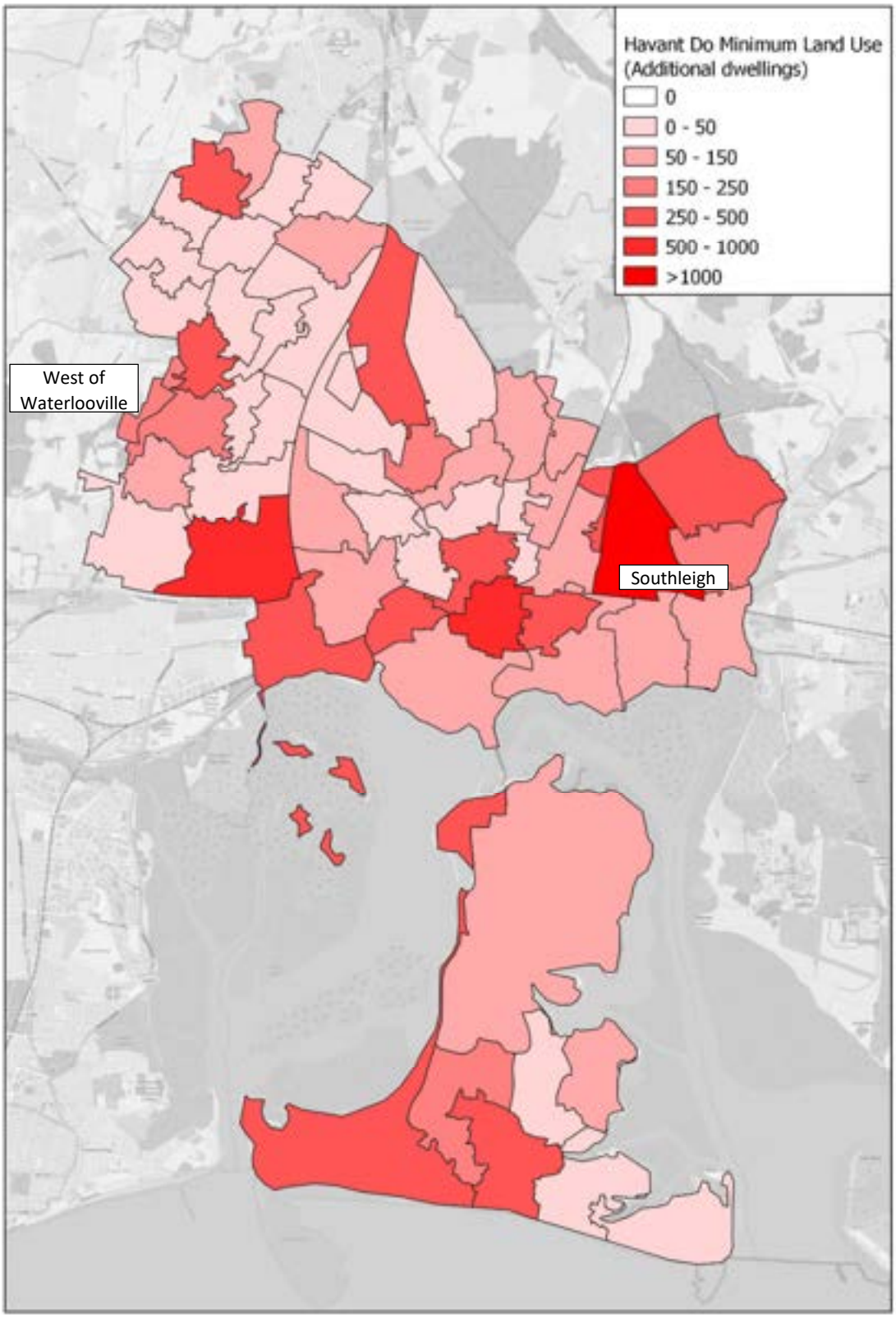

Figure 3-2 2046 Do Minimum Residential Dwelling growth by model zone for Havant Borough

Table 3-2 Do Minimum: Havant Land Use Assumptions 2019 – 2046 (totals include for Baseline values)

	RESIDENTIAL	EMPLOYMENT (SQM)								
	Dwellings	Retail	Office	Industrial	Warehouse	Primary & Secondary Education	Adult Education	Hotel & Other Accomm	Healthcare	Leisure
SCENARIO 2 DO MINIMUM (2046 Local Plan Development)	10,424	4,337	42,593	79,533	39,227	3,030	0	16,480	0	0

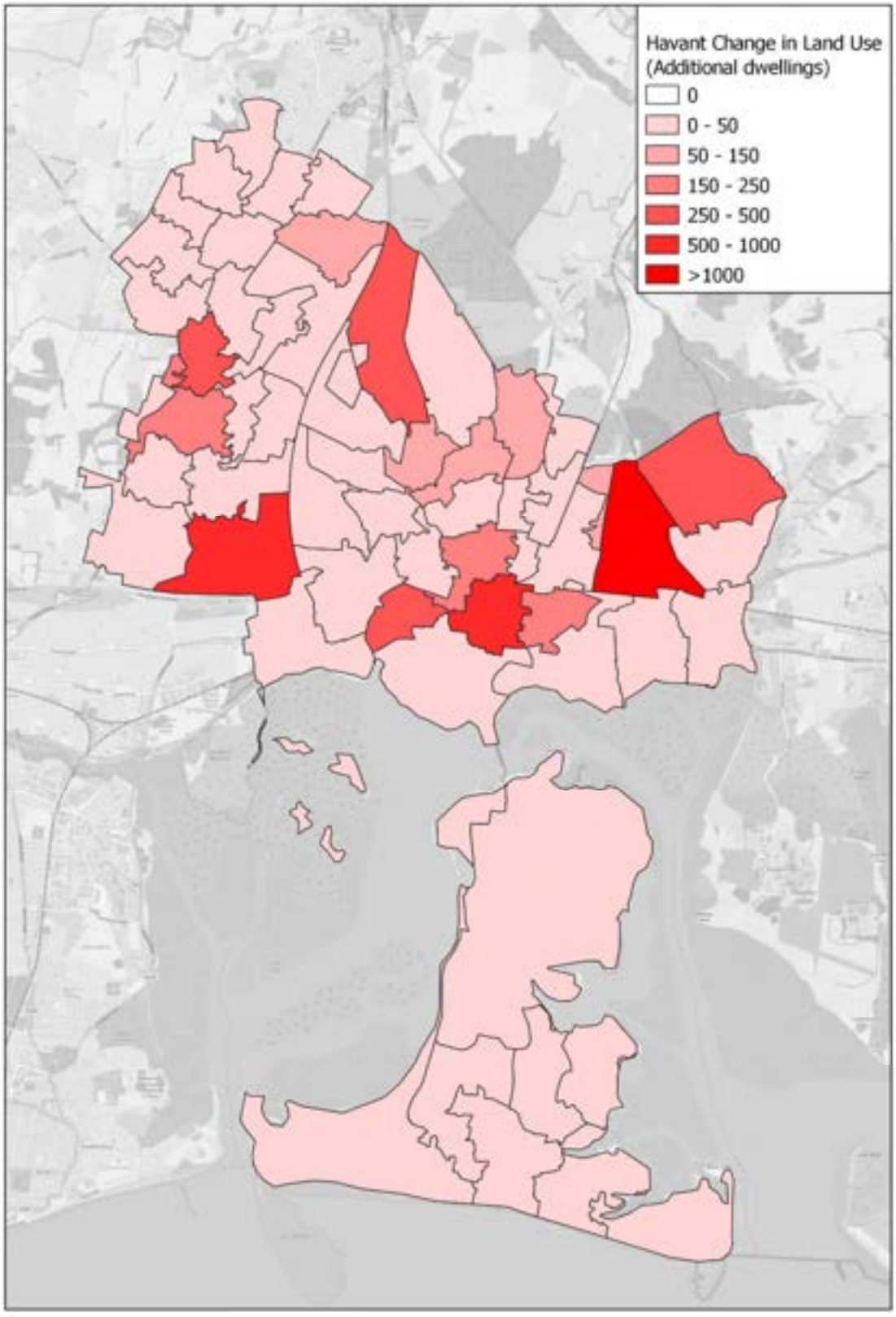

Figure 3-3 Difference in residential dwelling growth 2046 Baseline and 2046 Do Minimum

Table 3-3 Isolated Cumulative Local Plan Growth (Do Minimum minus Baseline), 2019 – 2046

	RESIDENTIAL	EMPLOYMENT (SQM)								
	Dwellings	Retail	Office	Industrial	Warehouse	Primary & Secondary Education	Adult Education	Hotel & Other Accomm	Healthcare	Leisure
SCENARIO 2 DO MINIMUM (2046 Local Plan Development)	6,809	0	9,644	20,208	6,701	3,030	0	800	0	0

3.4 Scenario 3 – 2046 Do Something

Highway and PT network

3.4.1 The Do Something scenario includes the infrastructure measures identified to help mitigate the transport impacts associated with the Havant Local Plan that could be included within the strategic model. The mitigation measures have been identified and prepared by Hampshire Planning and Transport. The Do Something schemes are listed below, and **Appendix D** includes further details and drawings of the schemes. In addition to those schemes listed here, further schemes that could not be modelled within the SRTM are described within the Strategic Transport Assessment (STA).

- A27 Emsworth Road / Havant Road junction roundabouts have been converted to a signalised junction.
- Hulbert Road / Fitzwygram Way roundabout is converted to a signalised roundabout.

3.4.2 It should be noted that where mitigation measures increase the 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 increase traffic volume. In addition, the provision of traffic signals, whilst giving greater control over the movement of vehicles (and can result in more reliable journey times), will inherently produce an element of delay due to the red signal periods and for certain traffic movements this may result in greater delay than observed in the scenario without signals, particularly in time periods where capacity or congestion issues are not present/forecast.

Land Use Assumptions

3.4.3 All land use assumptions in the Do Something are identical to those used in the Do Minimum for all modelled areas and the full build-out of the Havant Local Plan is accounted for. See sections 3.3.3 to 3.3.6 above for full details of the land use used in both the Do Minimum and Do Something scenarios.

4. MAIN DEMAND MODEL (MDM) RESULTS

4.1 Introduction

4.1.1 This section summarises the forecasts produced by the MDM module of the SRTM for the Baseline and Do Minimum scenarios in order to isolate the cumulative impacts of the Local Plan development.

4.2 Person Trip Demand

4.2.1 The total person trips (represented in the model as a journey between an Origin-Destination pair), and percentage mode share to, and from, Havant Borough for a 24-hour period are summarised in Table 4-1 and Table 4-2. Person trips are the standard unit used in the MDM prior to mode of travel being determined.

4.2.2 Table 4-1 shows the trip generation associated directly with the Local Plan (Do Minimum scenario) against the 2046 Baseline. The Do Minimum scenario includes an approximate increase of 15,400 population and 1,200 jobs within Havant Borough when compared to the Baseline and there is an increase in demand across all modes of transport.

4.2.3 The mode share for the Do Minimum scenarios remains similar to the Baseline. For the Do Minimum there is a very small increase in public transport (PT) and Active mode share at the expense of highway most likely because of increased highway congestion in that scenario.

4.2.4 The total trips in the Do Something are very similar to those observed in the Do Minimum scenario. There is a very slight reduction in the trip numbers for highway and PT and a small increase in active trips compared to the Do Minimum. The mode shares for the Do Something are almost identical to those for the Do Minimum.

Table 4-1 Person Trips (24h) to / from Havant (2046)

	SCENARIO	FROM HAVANT			TO HAVANT		
		HIGHWAY	PT	ACTIVE	HIGHWAY	PT	ACTIVE
ABSOLUTE	2046 Baseline	341,940	17,594	67,906	351,679	17,401	67,864
	2046 Do Minimum	363,956	19,803	77,542	373,777	19,544	77,502
	2046 Do Something	363,503	19,794	77,637	372,708	19,544	77,596
	Difference (DM vs Baseline)	*22,016*	*2,209*	*9,637*	*22,097*	*2,143*	*9,638*
	Difference (DS vs Baseline)	*21,563*	*2,200*	*9,731*	*21,028*	*2,143*	*9,732*

Table 4-2 Mode Share (24h) to / from Havant (2046)

	SCENARIO	FROM HAVANT			TO HAVANT		
		HIGHWAY	PT	ACTIVE	HIGHWAY	PT	ACTIVE
MODE SHARE	2046 Baseline	80.0%	4.1%	15.9%	80.5%	4.0%	15.5%
	2046 Do Minimum	78.9%	4.3%	16.8%	79.4%	4.2%	16.5%
	2046 Do Something	78.9%	4.3%	16.8%	79.3%	4.2%	16.5%
	Difference (DM vs Baseline)	*-1.1%*	*0.2%*	*0.9%*	*-1.1%*	*0.2%*	*0.9%*
	Difference (DS vs Baseline)	*-1.1%*	*0.2%*	*1.0%*	*-1.2%*	*0.2%*	*1.0%*

4.3 Emissions Outputs

4.3.1 The SRTM outputs vehicle-based emissions forecasts for 10 emission types as shown in Table 4-3.

4.3.2 Table 4-3 summarises the change in emissions for Havant Borough between the Baseline and Do Minimum. There is a general increase in emissions that is not unexpected on an unmitigated network because of Local Plan growth. Across all the emission types represented there is an approximate increase of 3-4% in the Do Minimum.

4.3.3 Table 4-4 summarises the emissions outputs for the Do Something compared to the Baseline scenario. The emission increases are slightly lower than those expected from the Do Minimum. The mitigation measures in the Do Something scenario result in a reduction in delay compared to the Do Minimum and thus a corresponding reduction in emissions. Overall, across all emission types there is an approximate increase of 2-3% in the Do Something compared to the baseline scenario.

Table 4-3 Vehicle Based Emissions (Havant Borough) – 2046 Do Minimum vs. 2046 Baseline

HAVANT BOROUGH EMISSIONS (2046)	NOX (KG/12HR)	NO2 (KG/12HR)	PM10 (KG/12HR)	PM2.5 (KG/12HR)	HC (KG/12HR)	CARBON MONOXIDE (KG/12HR)	CARBON DIOXIDE (KG/12HR)	BENZENE (KG/12HR)	METHANE (KG/12HR)	1 3-BUTADIENE (KG/12HR)
Do Minimum vs Baseline	64.13	14.76	0.53	0.50	5.83	128	68,715	0.09	1.43	0.08
% Difference	4%	4%	3%	3%	3%	3%	3%	4%	4%	4%

Table 4-4 Vehicle Based Emissions (Havant Borough) – 2046 Do Something vs. 2046 Baseline

HAVANT BOROUGH EMISSIONS (2046)	NOX (KG/12HR)	NO2 (KG/12HR)	PM10 (KG/12HR)	PM2.5 (KG/12HR)	HC (KG/12HR)	CARBON MONOXIDE (KG/12HR)	CARBON DIOXIDE (KG/12HR)	BENZENE (KG/12HR)	METHANE (KG/12HR)	1 3-BUTADIENE (KG/12HR)
Do Minimum vs Baseline	48.75	11.88	0.42	0.40	4.82	110	54,756	0.07	1.13	0.06
% Difference	3%	3%	3%	3%	3%	3%	2%	3%	3%	3%

5. HIGHWAY AND PUBLIC TRANSPORT (PT) MODEL RESULTS

5.1 Introduction

5.1.1 This section summarises the SRTM highway and PT outputs across Havant Borough for the following Scenario:

- 2046 Do Minimum vs. 2046 Baseline.

5.1.2 For the comparison, the following aspects of the modelled highway and PT outputs have been reviewed:

- Highway Network Performance Statistics
- Highway Flow Difference
- Highway Delay Difference
- Highway Junction Capacity Hotspots
- PT passenger Flow Difference

5.2 2046 Do Minimum vs. 2046 Baseline

Highway Network Performance Statistics

5.2.1 The key highway network statistics for Havant Borough and the full SRTM core study area have been summarised, including total travel time on the network (vehicle hours), total travel distance on the network (vehicle kilometres), and average speed. For reference, Figure 2-2 in Chapter 2 identifies the core model area for the SRTM.

5.2.2 The performance of the highway network for the AM and PM periods for 2046 Baseline, and 2046 Do Minimum is shown in Table 5-1 and Table 5-2 . The highway traffic growth **within Havant**, arising from the introduction of the Local Plan development, generates a forecast increase in total vehicle hours driven in both the AM and PM peak hours of approximately 7-8%. Total vehicle kilometres driven **within** Havant Borough are forecast to increase by approximately 2.5% in the AM peak hour and by 2.2% in the PM peak hour, whilst average speed **within Havant** is forecast to decrease by approximately 4.9% in the AM peak and 4.6% in the PM peak due to the increased network delay. These outputs are consistent with the highway network within Havant accommodating greater highway trips and experiencing increasing congestion.

5.2.3 The impact on the wider, full Core model area is considered small/negligible as land use changes between the scenarios are focussed solely on Havant Borough. In Chichester, there are small increases in eastbound flows (approximately 60 PCUs across the A27 and Havant Road) heading from Havant Borough towards Chichester and a small overall reduction (approximately 30 PCUs on A27 and Havant Road) in westbound flows from Chichester towards Havant.

Table 5-1 AM Highway Model Statistics, 2046 Do Minimum vs. 2046 Baseline

		BASELINE 2046	DO MINIMUM 2046	DIFFERENCE	% DIFFERENCE
Vehicle Hours	Core Model Area	192,169	193,694	1,525	0.79%
	Havant	14,083	15,180	1,096	7.79%
Vehicle kms	Core Model Area	7,000,084	7,023,833	23,749	0.34%
	Havant	537,229	550,862	13,633	2.54%
Average Speed (kph)	Core Model Area	36.43	36.26	-0.16	-0.45%
	Havant	38.15	36.29	-1.86	-4.87%

Table 5-2 PM Highway Model Statistics, 2046 Do Minimum vs. 2046 Baseline

		BASELINE 2046	DO MINIMUM 2046	DIFFERENCE	% DIFFERENCE
Vehicle Hours	Core Model Area	203,024	204,941	1,917	0.94%
	Havant	15,286	16,380	1,094	7.16%
Vehicle kms	Core Model Area	7,733,471	7,762,426	28,955	0.37%
	Havant	601,282	614,664	13,382	2.23%
Average Speed (kph)	Core Model Area	38.09	37.88	-0.22	-0.56%
	Havant	39.34	37.53	-1.81	-4.60%

Highway Link Flows, Delays and Capacity Hotspots

5.2.4 The outputs of the Road Traffic Model (RTM) have been analysed with respect to highway volume of traffic (link flow), delay and capacity. For clarity, the outputs shown are for those which exceed a given threshold which is specified in the following appropriate paragraphs. The plots included in the report are an overview of the Havant Borough – with more localised plots of the Havant town area being provided as appropriate.

5.2.5 In addition to the new traffic directly associated with the Local Plan sites, these plots highlight any re-routing of traffic that may result from localised congestion or redistribution of existing trips. These plots identify where the net change to traffic flow is most pronounced.

Change in Highway Traffic Flow

5.2.6 For the flow difference plots the absolute difference in traffic volume (in passenger car units, PCUs[3]) is identified adjacent to the appropriate link. Blue lines identify a reduction against the comparative scenario and green lines an increase in addition, the scale of the change is represented graphically with the coloured lines of varying width. Only flow differences of 20 PCUs (per hour) or greater are displayed in the plots.

5.2.7 Figure 5-1 and Figure 5-2 identify the change in traffic flow in the AM and PM peak hours between the 2046 Do Minimum and 2046 Baseline scenarios, at an overall borough level. Figure 5-3 and Figure 5-4 provide more detail of the flow changes in the Havant town area.

5.2.8 The largest changes in traffic flows in the AM peak are in the vicinity of the Southleigh development. As a residential development the outbound flows (almost 570 PCUs) are highest in the AM peak with inbound flows still more than 130 PCUs. The flows leaving the Southleigh site are split between those travelling west and south (approximately 160 PCUs) on Southleigh Road and those travelling east (approximately 470- PCUs) towards Horndean Road. Approximately 100 PCUs heading east from Southleigh head north along Woodberry Lane. This route avoids significant delays in Durrants, but the nature of Woodberry Lane is a relatively narrow country lane.

5.2.9 Elsewhere, traffic flows within the main Havant area increase, as do flows on the A27 to the west of the Emsworth Road junction. There is a reduction in both eastbound and westbound traffic on the A27 to the east of the A27 Emsworth Road junction. The junction of the A27 and Emsworth Road is expected to operate close to or over capacity for traffic joining and leaving via Emsworth Road resulting in users choosing an alternative route.

5.2.10 There are limited flow changes expected on the A3 (M) which is again due to the road operating close to or at capacity with the junctions accessing the A3 (M) also close to or over capacity in both the Baseline and Do Minimum scenarios.

5.2.11 Traffic flows in the PM peak are also generally increasing across the network, particularly around Havant town centre and Waterlooville. The Southleigh development site is expected to result in an additional 500 inbound PCUs and 200 outbound PCUs. The route along Woodberry Lane is once again utilised by additional traffic.

5.2.12 In the PM peak there are some minor increases in northbound flows on the southern section of the A3(M) between junction 5 and 4 with decreases in flows to the north of junction 4. The A27 only shows a decrease in eastbound traffic (east of the Emsworth junction) in the PM peak.

[3] A PCU is common unit of measurement when reporting traffic volume or queue length in traffic modelling to account for the different size of vehicles. For example, a car typically represents 1 PCU but a larger vehicle such as a bus would have a higher PCU value of (say) 2 PCUs.

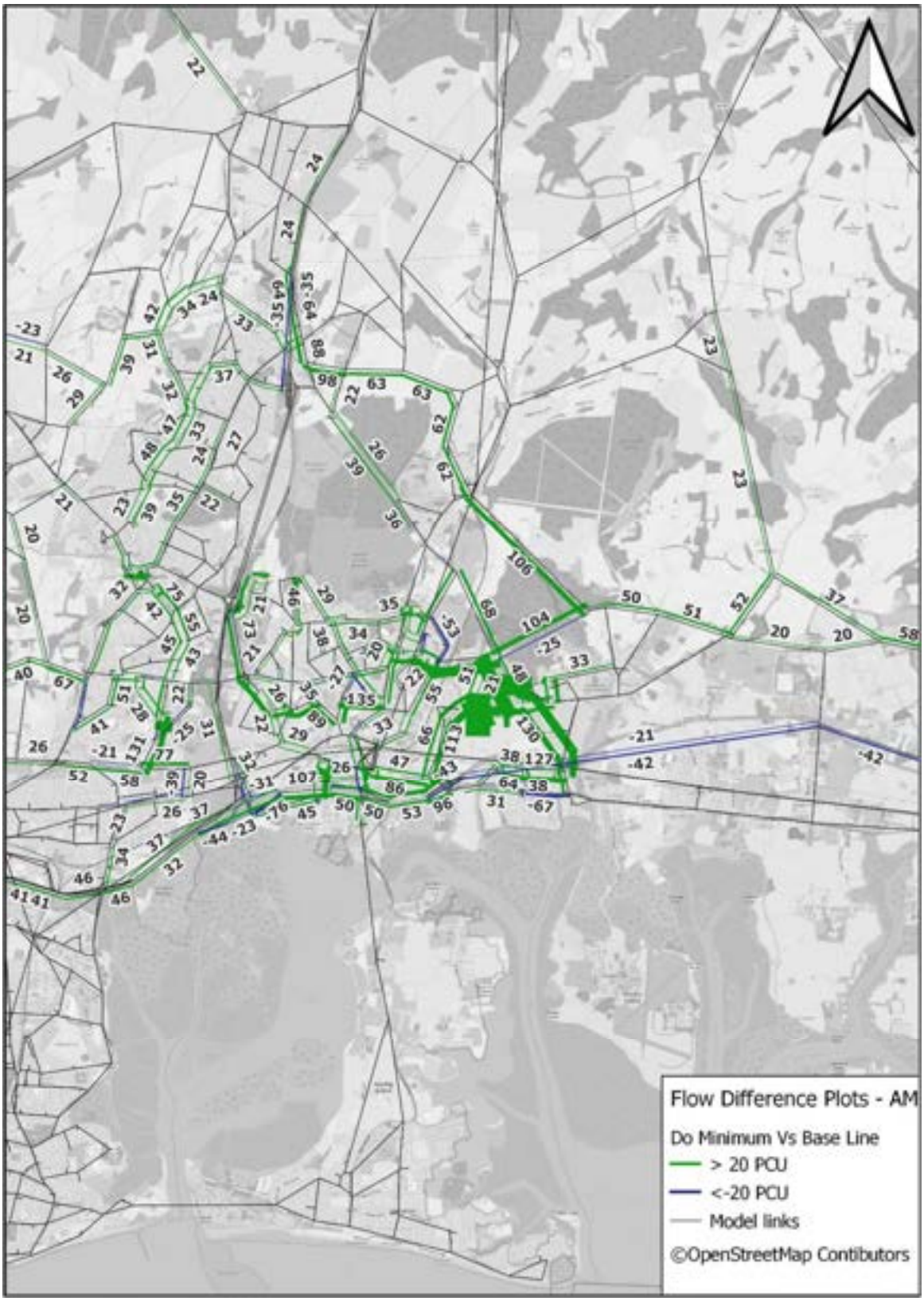

Figure 5-1 Highway Flow Difference – 2046 DM vs. 2046 Baseline (AM) – strategic view

Figure 5-2 Highway Flow Difference – 2046 DM vs. 2046 Baseline (PM) – Strategic View

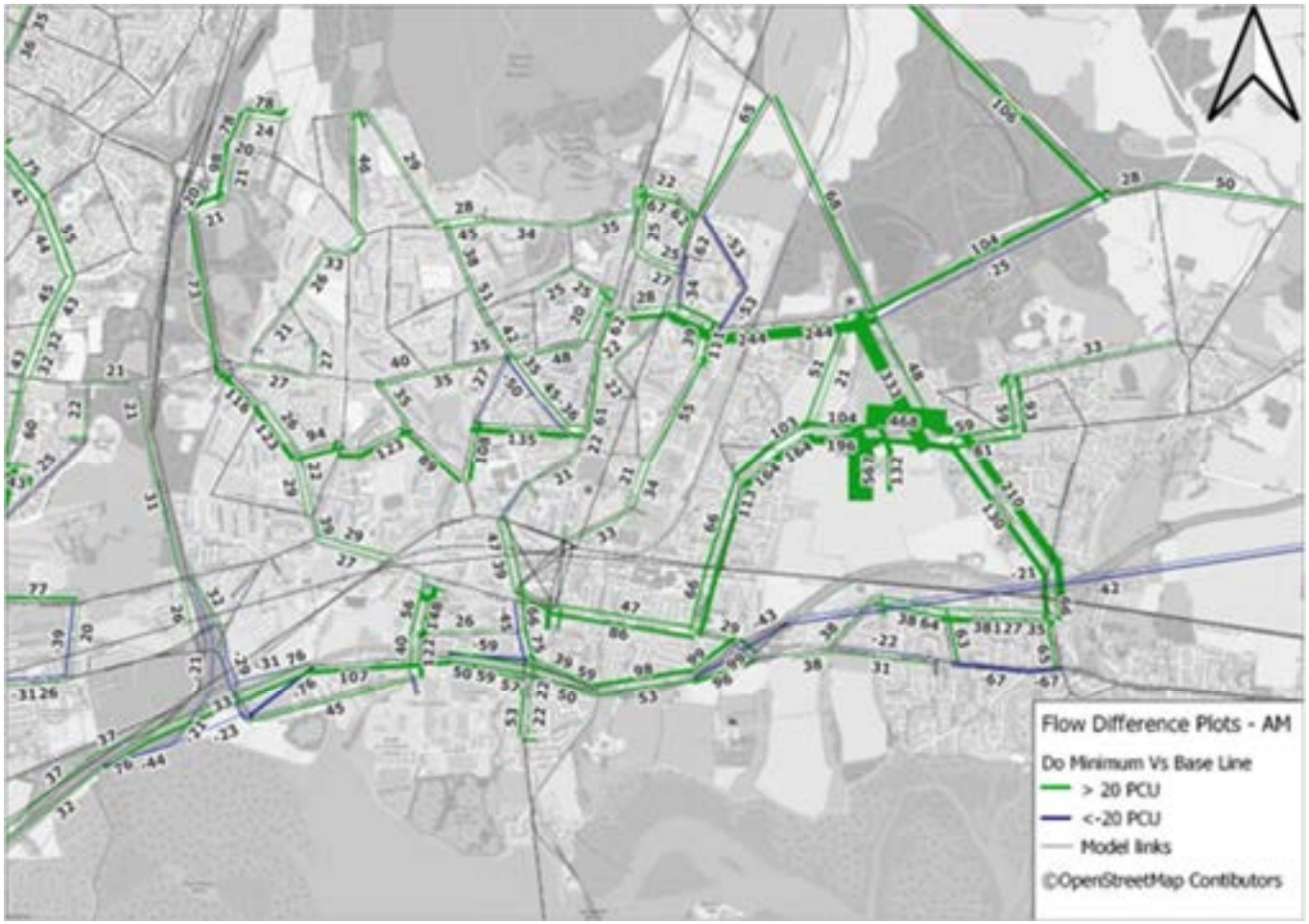

Figure 5-3 Highway Flow Difference – 2046 DM vs. 2046 Baseline (AM) – Havant town centre

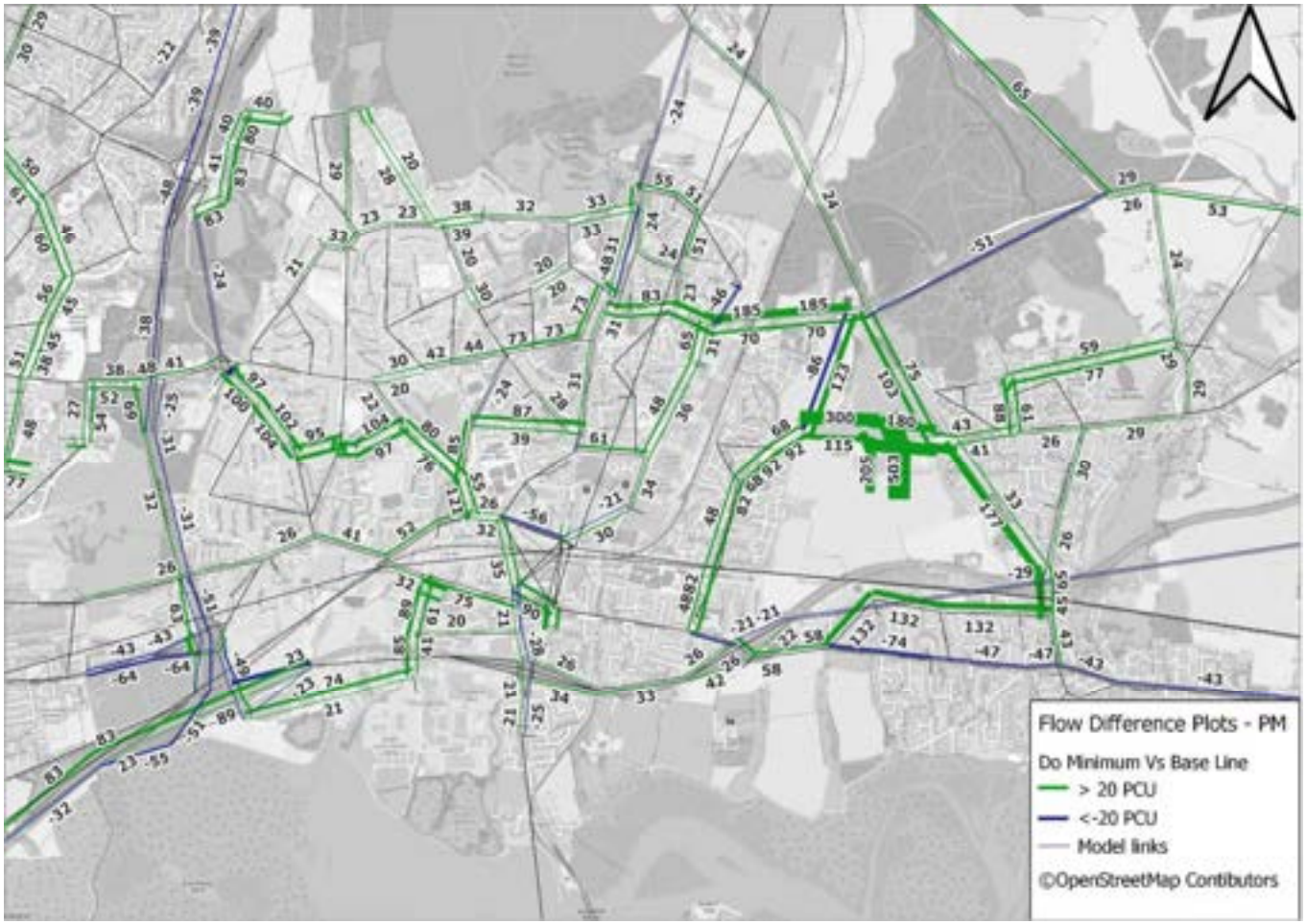

Figure 5-4 Highway Flow Difference – 2046 DM vs. 2046 Baseline (PM) – Havant town centre

Highway Delays

5.2.13 Figure 5-5 and Figure 5-6 identify the change in vehicle delay in the AM and PM peak hours between the 2046 Do Minimum and 2046 Baseline scenarios, at an overall borough level. Figure 5-7 and Figure 5-8 provide more detail of the delay changes in the Havant town area for AM and PM peak hours respectively.

5.2.14 The absolute difference in delay in seconds per PCU is identified adjacent to the appropriate link. Blue lines identify a reduction and green lines an increase. In addition, the scale of the change is represented graphically with the coloured lines of varying width. Only delay differences in excess of 5 seconds per PCU are displayed in the plots.

5.2.15 The largest increase in delay in the AM peak is expected on Emsworth Road (154 seconds) eastbound approaching the A27 eastbound roundabout. The next largest delay is observed on Elm Lane westbound with the Park Road South junction. Additionally, there is an increase in delay observed on Harts Farm Way on the approach to the Tear Drop junction with the A27 and A3(M). Traffic is expected to experience more than a minute (69 seconds) of additional delay. There is a reduction in delay on Main Road (A259) westbound towards Emsworth, as a result of local re-routing. There is also a reduction in delay on both the westbound and southbound approaches to Hulbert Road / Tempest Avenue roundabout (17 seconds).

5.2.16 During the PM peak the largest increase in delay is observed for traffic leaving the Dunsbury Park development on Fitzwygram Way, using the roundabout on the B2150 (213 seconds). Emsworth Road / Southleigh Road junction has nearly one minute of delay in each direction (51 seconds eastbound and 55 seconds westbound). This is due to the additional traffic accessing the Southleigh development site. There is an additional delay of just over one minute for northbound traffic at the New Road / Park Road N / Elmleigh Road roundabout. Delay increases of more than a minute are also expected westbound at the Bedhampton level crossing on West Street and on Portsdown Hill Road eastbound to the roundabout with Bedhampton Hill.

5.2.17 There is a small delay decrease expected at Purbrook Way westbound to the A3(M) SB on slip (18 seconds) and westbound on Hulbert Road to the roundabout with Tempest Avenue (14 seconds). Additionally, there is an increase in delay of 18 seconds on Crookhorn Lane southbound at the junction with B2177 Portsdown Hill Road.

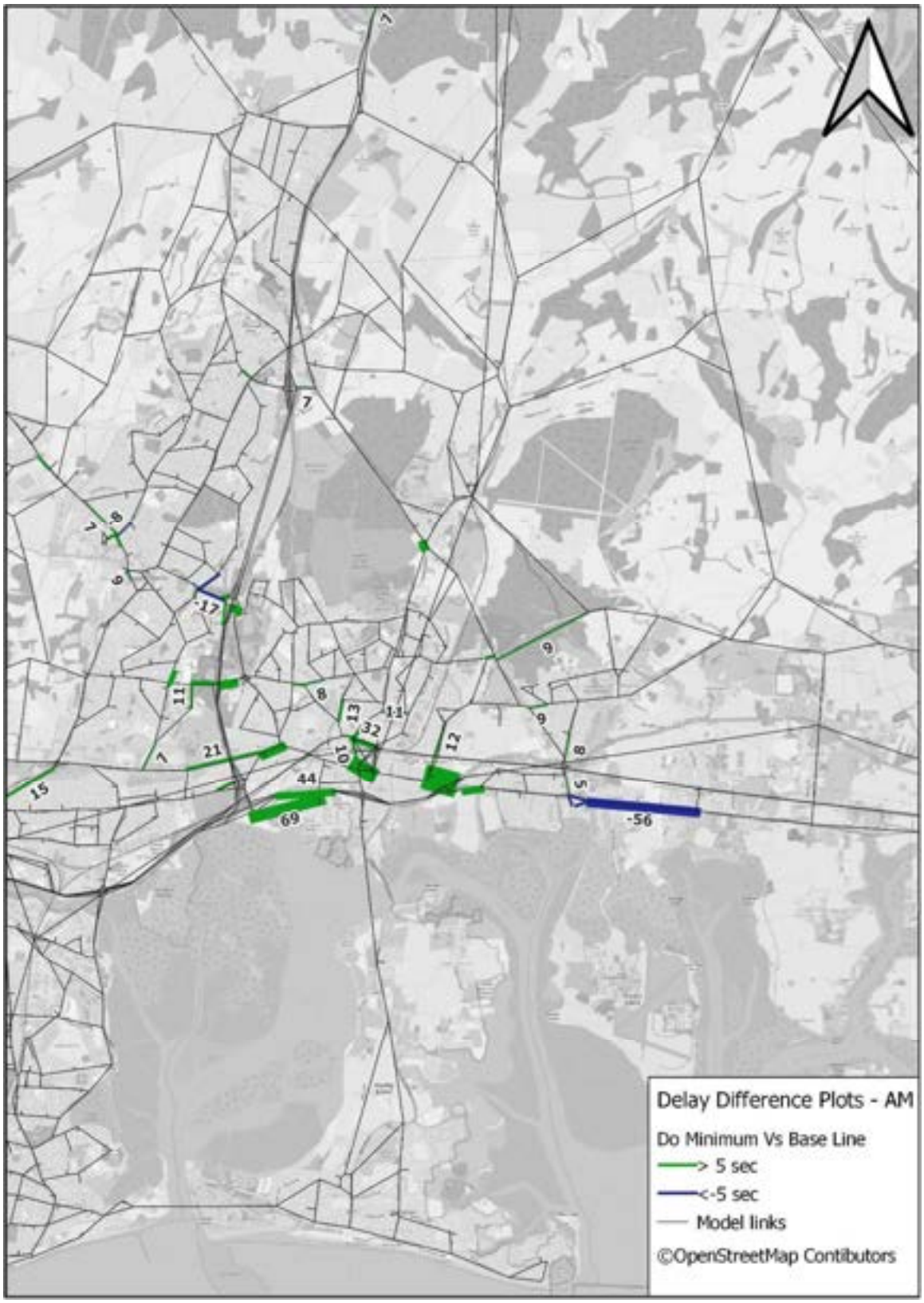

Figure 5-5 Delay Difference 2046 DM vs. 2046 Baseline (AM) – strategic view

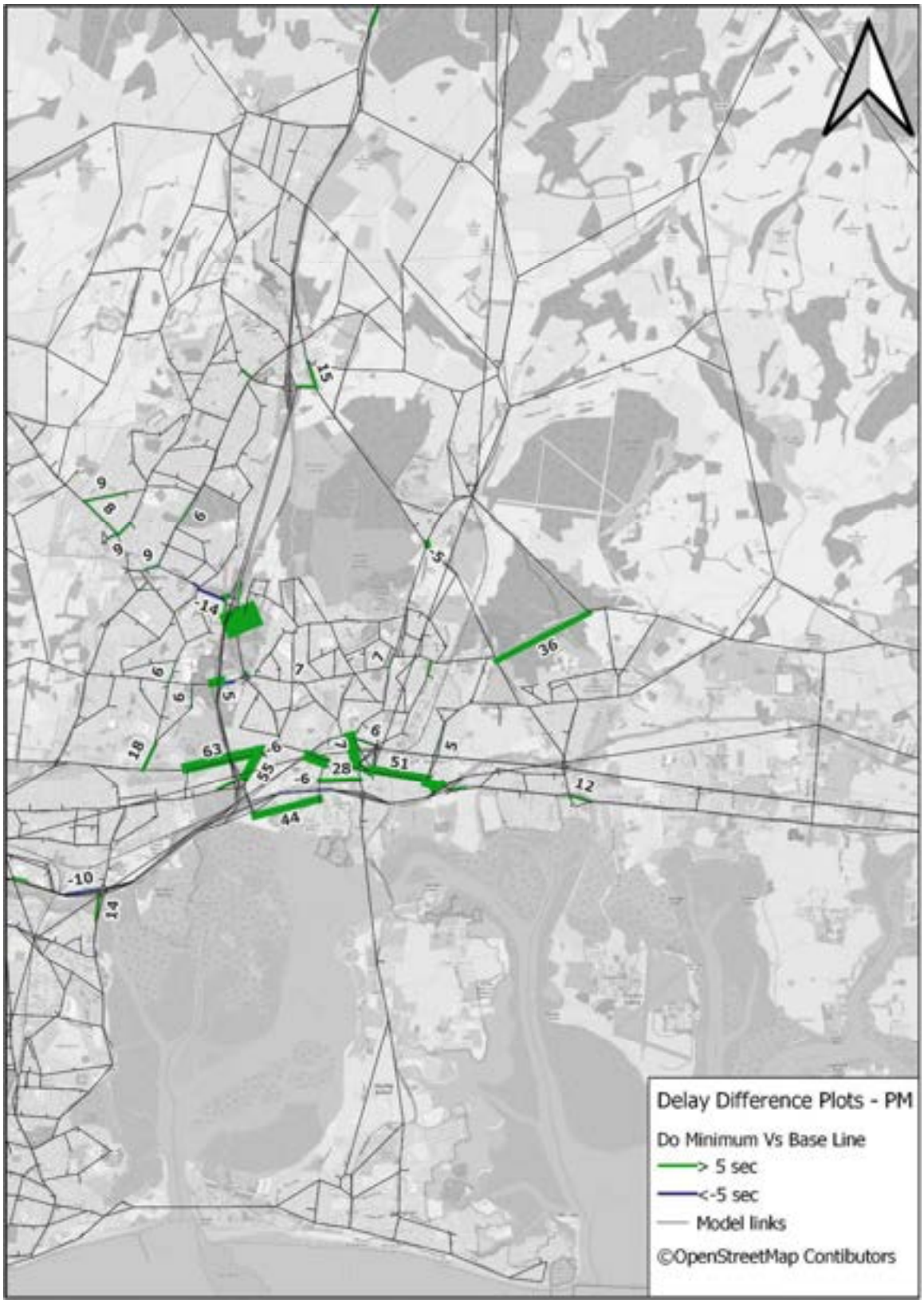

Figure 5-6 Delay difference 2046 DM vs. 2046 Baseline (PM) – strategic view

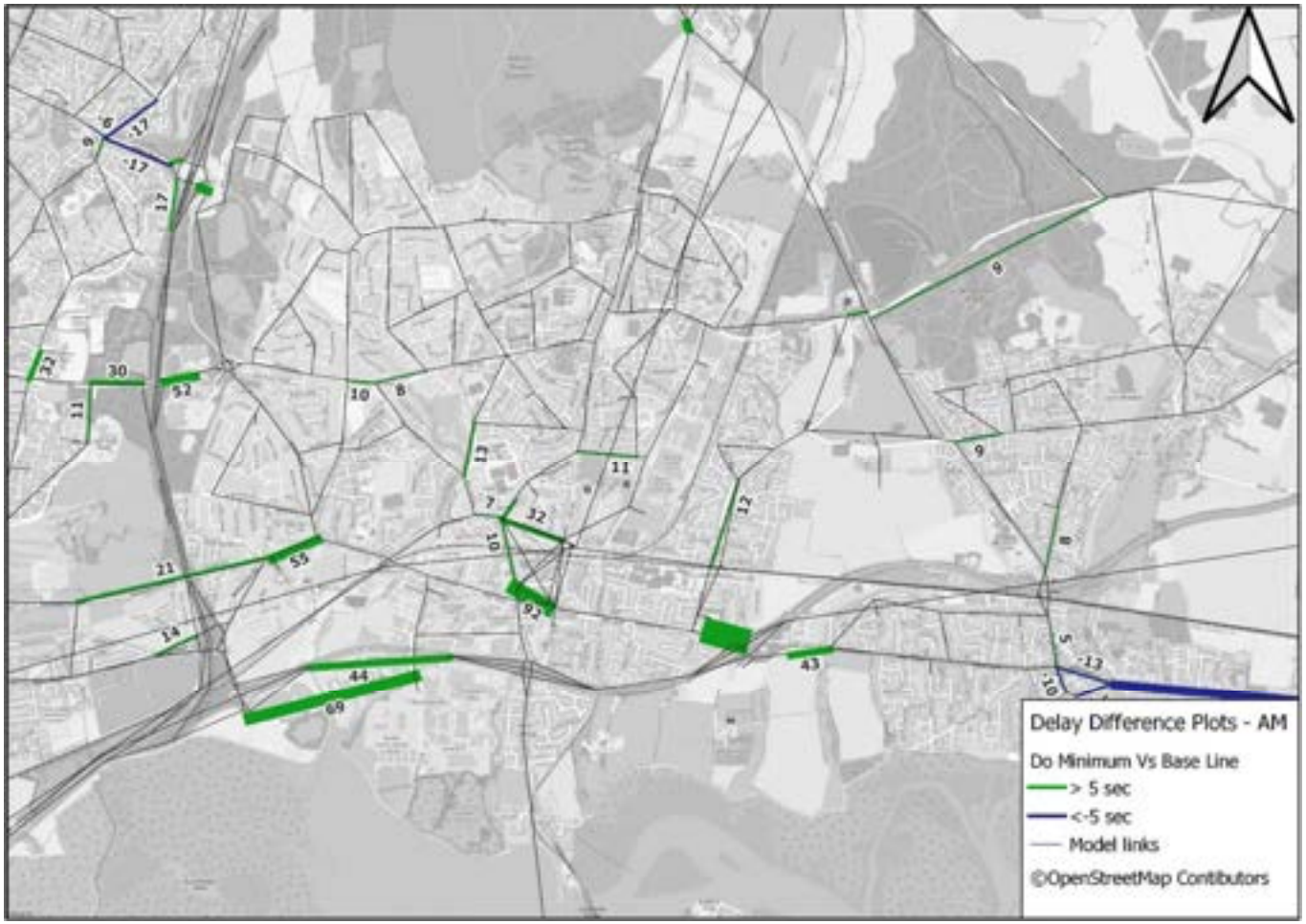

Figure 5-7 Delay difference 2046 DM vs. 2046 Baseline (AM) – Havant town centre area

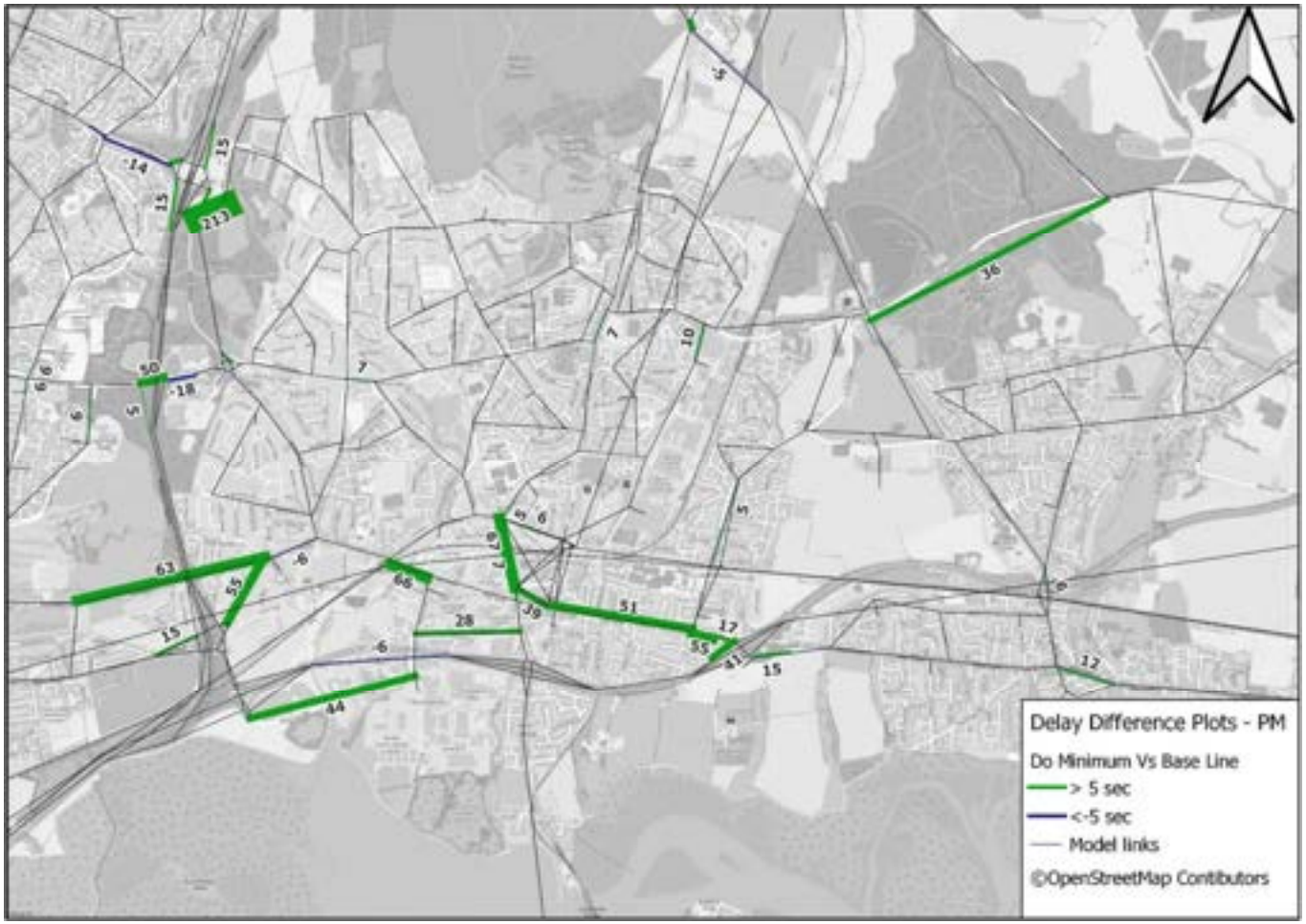

Figure 5-8 Delay difference 2046 DM vs. 2046 Baseline (PM) – Havant town centre area

Highway Junction Capacity Hotspots

5.2.18 In order to identify locations with potential highway capacity issues as a result of proposed cumulative Local Plan allocations, the operating capacity on all links on the approaches to junctions within Havant Borough have been assessed. Capacity is defined as the maximum traffic volume that a road can accommodate in a set time period, typically 1 hour. Junction approaches have been reviewed based on the ratio of traffic volume to the capacity of the road (known as V/C) on each approach – hence identifying links with a high V/C is a proxy for identifying junctions with capacity issues.

5.2.19 The following criteria have been used to identify a long list of junctions with relatively high V/C values for each scenario tested:

- Junction approach links where the V/C is greater than 85% in either 2046 AM or PM peak hour.

5.2.20 If the V/C is near, or in excess of 90%, then the junction may be subject to queuing and delays; a value of 90% is normally taken as the practical capacity value for design purposes. A value of >100% means that the junction is forecast over capacity and significant queues and delay could occur.

5.2.21 In peak hours, it is not unexpected that a relatively high number of junctions have a V/C in excess of 85%. The analysis has been refined further to identify the junctions potentially impacted the most by traffic associated to Local Plan development growth.

5.2.22 The change in V/C and delay between the scenarios has been calculated to identify locations where the forecast highway network performance deterioration is most pronounced in terms of junction performance. 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 for Local Plans and agreed with HCC and National Highways, as the Highway Authorities:

- 'Significant' increase in V/C is where the V/C is greater than 85% and has increased by more than 5% on any approach arm; between the 2046 Baseline and 2046 Do Minimum; and
- 'Severe' increase in V/C is either where the V/C 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 on any approach arm, between the 2046 Do Minimum and 2046 Baseline.

5.2.23 It should be noted that the above criteria are not the only measure by which junction/ network performance or scale of impact associated to transport growth can be classified. They are considered a starting point (consistent with other SRTM commissions) for comparison of network performance from which subsequent more detailed assessment may refine those locations considered most impacted.

5.2.24 A detailed list of junction performance for comparison is provided in **Appendix C**

5.2.25 To provide context with regard to the number of junctions with high V/C irrespective of if they have experienced significant impact from Local Plan traffic, Figure 5-9 and Figure 5-10 display the junctions forecast to have an V/C greater than 85% in the 2046 Baseline

and 2046 Do Minimum respectively (in any time period). A total of 57 junctions meet this criterion in the 2046 Baseline and therefore would be approaching capacity without Local Plan growth, with the 2046 Do Minimum forecast to have 63 junctions meeting the criteria once Local Plan growth is accounted for.

5.2.26 Further to the analysis identifying those junctions with V/C more than 85% in either the Baseline or Do Minimum scenarios, we have applied the threshold detailed in Section 5.2.22 to identify those junctions within Havant Borough most impacted by highway growth between both scenarios.

5.2.27 Applying the criteria there are a total of 7 junctions that meet the 'severe' change criteria and 12 are classified as 'significant' as summarised in Figure 5-11, and Table 5-3

5.2.28 Of those junctions classified as 'severe' one is located close to the Southleigh development site – 5 A27 EB off/on slip / Emsworth Road. There are also three junctions classified as 'significant' close to the development site (numbers 10, 11 and 15). These are likely associated with the Southleigh development. Four of the remaining six 'severe' locations are located around Havant and Bedhampton and are associated with the Local Plan developments in these areas, with the Southleigh site also a likely contributor. The last two 'severe' locations are the tear drop junction on the A27 / A2030 and at the Dunsbury Park roundabout access.

5.2.29 It should be noted that junction 1 Southwick Road / High Street and junction 19 Downwood Way / London Road roundabout lie beyond the Havant borough boundary. Additionally, junction 13 B2177 Portsdown Hill Road / Crookhorn Lane is within Portsmouth City Council's ownership. However, the junctions all trigger the criteria for allocating junctions as 'significantly' impacted by the Local Plan development flows and are therefore included within the information presented in the report.

Table 5-3 2046 Do Minimum vs 2046 Baseline Impacted Junction List

ID	JUNCTION NAME	'SIGNIFICANTLY' IMPACTED	'SEVERELY' IMPACTED
1	Southwick Road / High Street	Y	
2	Park Lane / Hazelholt Drive	Y	
3	New Road roundabout		Y
4	Elm Lane/ Park Road North		Y
5	A27 EB off/on slip / Emsworth Road		Y
6	London Road/Purbrook Heath Road	Y	
7	Maurepas Way/Hambledon Road Roundabout	Y	
8	Tear Drop - A27 / A2030 / Harts Farm Way		Y
9	Belmont Junction – B2177 Portsdown Hill Road / Bedhampton Hill		Y
10	B2148 Horndean Road / New Brighton Road	Y	
11	Horndean Road / Emsworth Common Road	Y	
12	Barncroft Way / Stockheath Lane	Y	
13	B2177 Portsdown Hill Road / Crookhorn Lane	Y	
14	Bedhampton Level Crossing		Y
15	Bartons Road / Horndean Road	Y	
16	Hulbert Road / Fitzwygram Way roundabout		Y
17	Stakes Hill Road / Grendstaple Road Roundabout	Y	
18	Stakes Road / Purbrook Way Roundabout	Y	
19	Downwood Way / London Road Roundabout	Y	

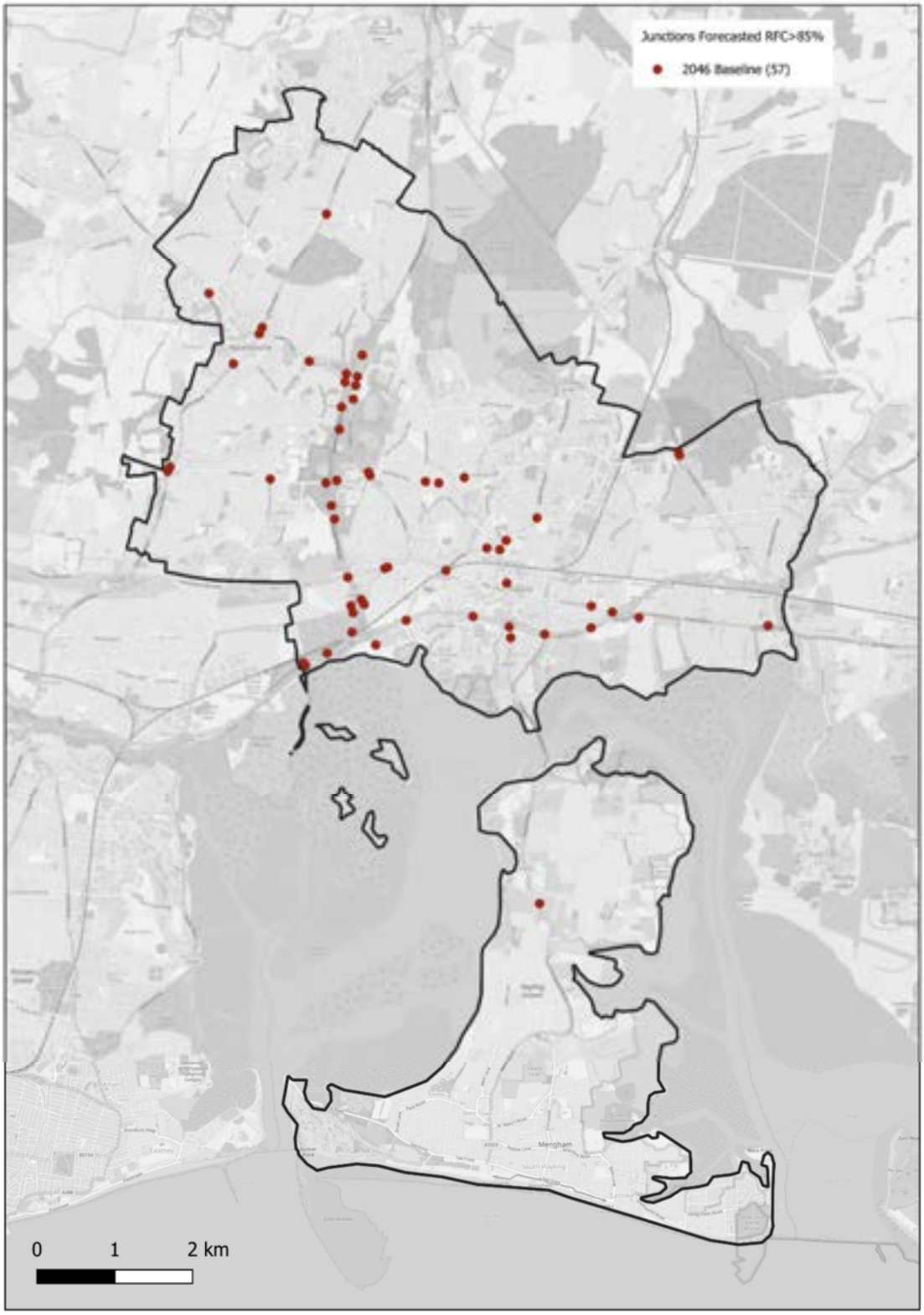

Figure 5-9 Junctions Forecast to have a V/C >85% in 2046 Baseline

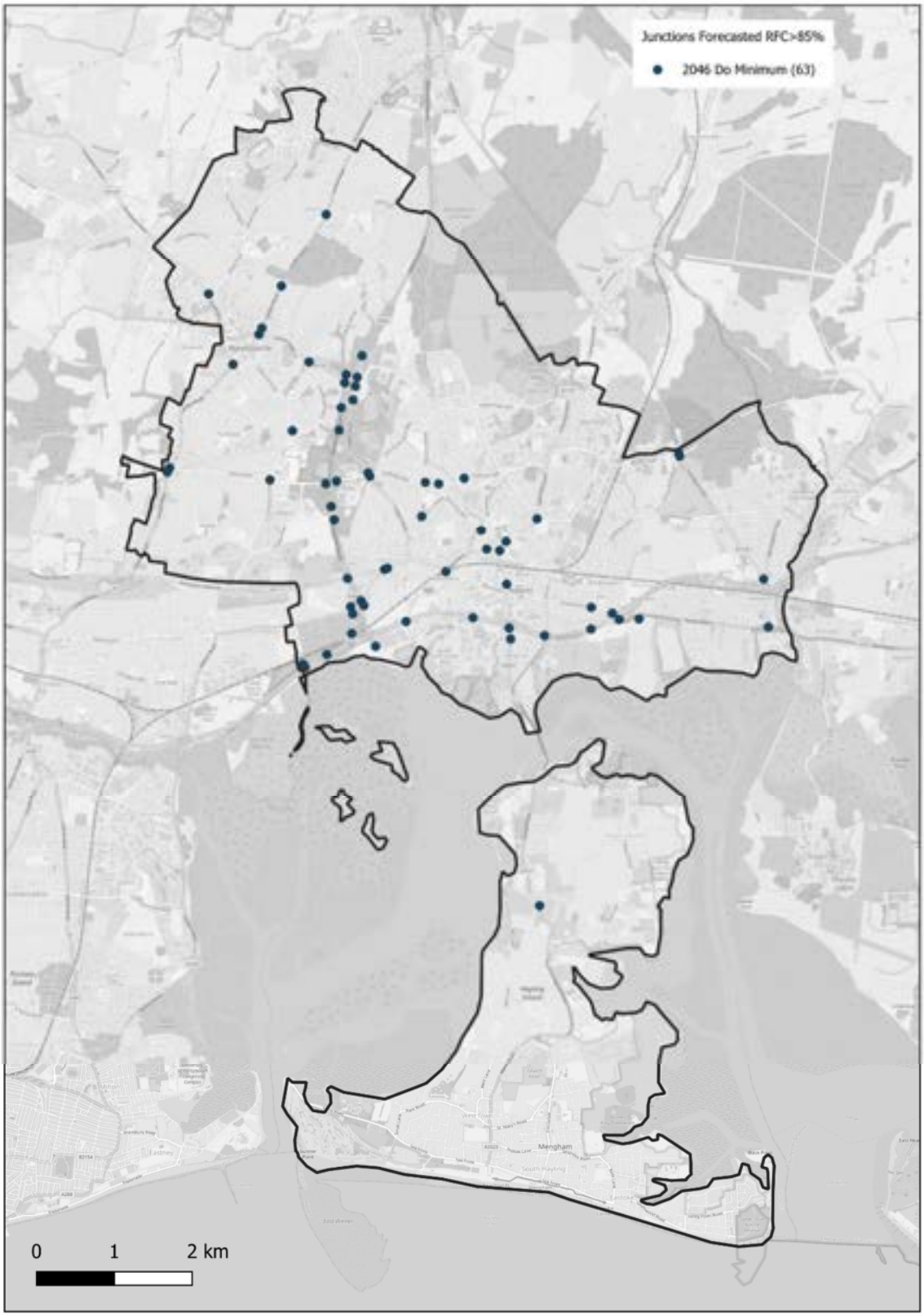

Figure 5-10 Junctions with V/C > 85 % in 2046 Do Minimum

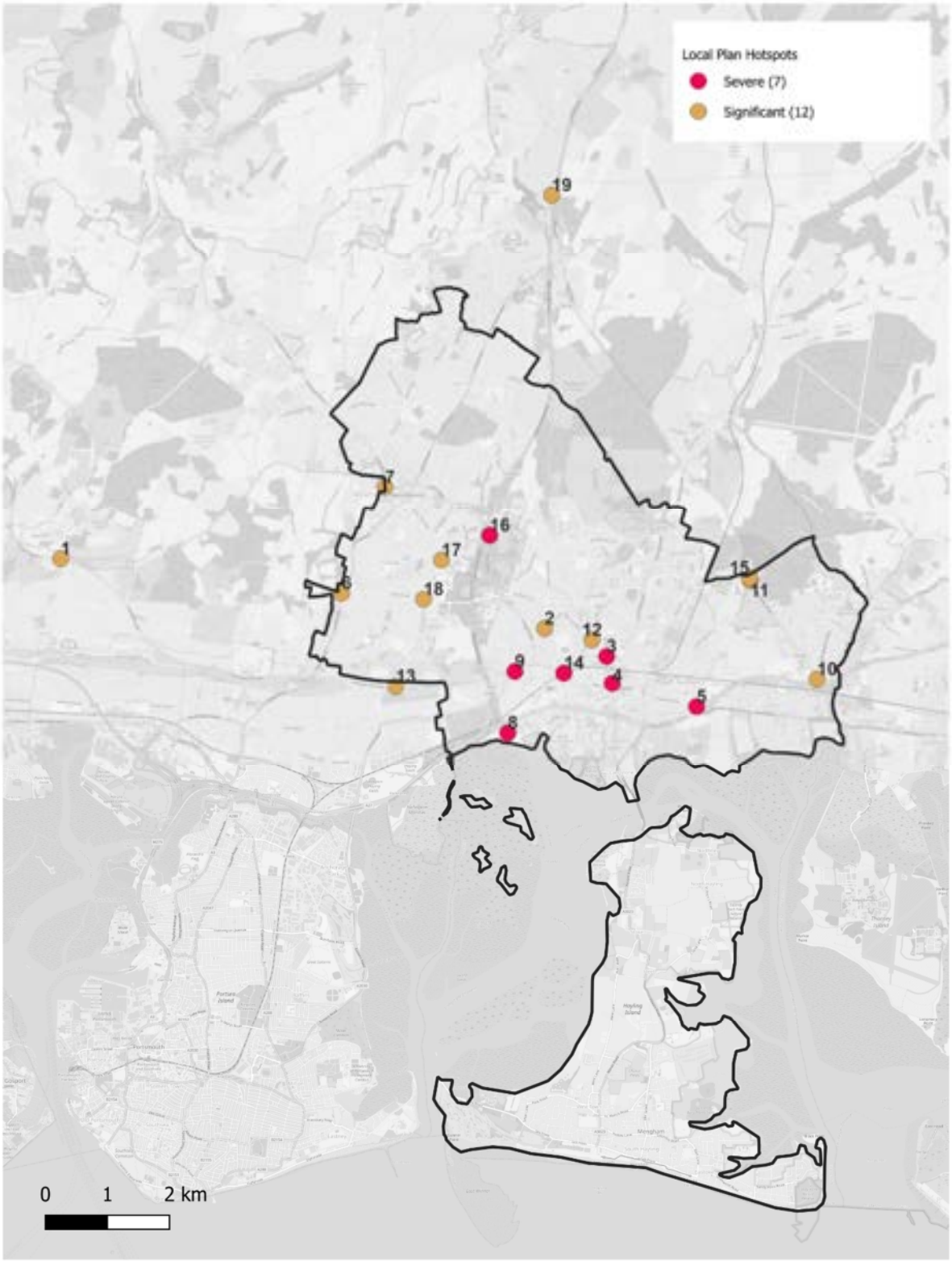

Figure 5-11 2046 Do Minimum Vs 2046 Baseline 'Significant' or 'Severe' Impacted Junctions

Public Transport Passenger Flow Difference

5.2.30 The PT passenger flow difference plots show the change in passenger volumes on PT services (rail and bus). They follow a similar format to the highway flow difference plots with the value identified adjacent to the appropriate link. Blue lines identify a reduction against the comparative scenario and pink/red lines an increase in addition, the scale of the change is represented graphically with the coloured lines of varying width.

5.2.31 Figure 5-12 and Figure 5-13 identify the change in passenger volume in the AM and PM peak hours between the 2046 Do Minimum and 2046 Baseline scenarios, at an overall borough level. Figure 5-14 and Figure 5-15 provide more detail of the PT passenger volume changes in the Havant town centre area.

5.2.32 For rail, the main increase in passenger flows is between Havant and Portsmouth. There are a small number of additional passengers on each of the Portsmouth mainline to and from London as well as on the line to and from Chichester. The maximum AM increase, where the two lines converge is approximately 100 passengers. Of these approximately 50 passengers are travelling southbound towards Portsmouth and Southsea with almost 60 passengers continuing in the Southampton direction via Cosham. In the PM peak hour, there are approximately 80 passengers making the reverse journey (eastbound) on this section of the line with the proportions similarly split between the Portsmouth and Southampton branches.

5.2.33 For bus, there is relatively little change in patronage with some additional passengers travelling to and from the Waterlooville area as well as increases in patronage north of Havant town centre area in the AM peak. The AM increases are around 5 to 10 additional bus passengers. During the PM peak the increase in patronage is similar and covers a similar selection of bus routes.

Figure 5-12 PT Passenger Difference – 2046 DM vs. 2046 Baseline (AM) – Strategic view

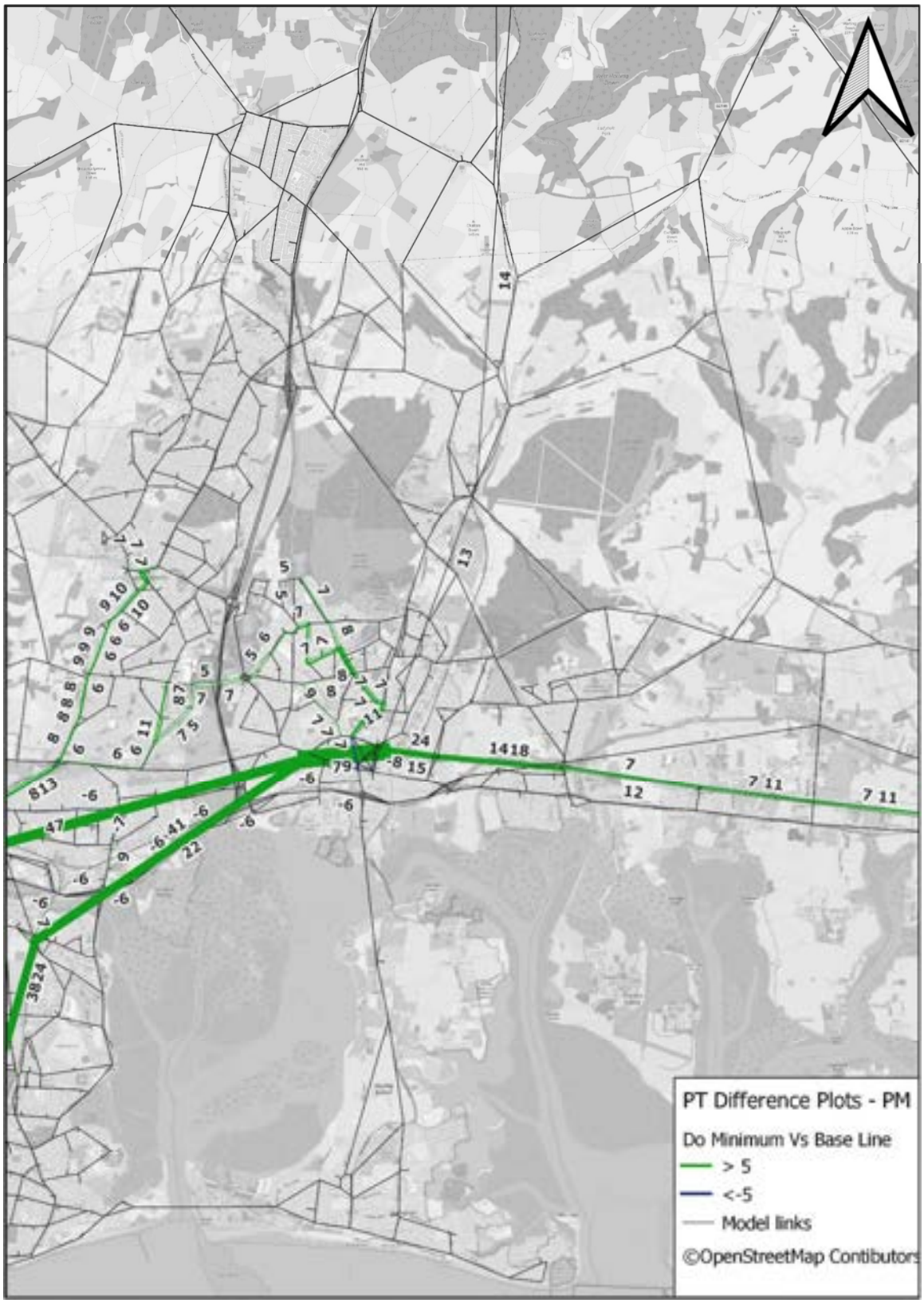

Figure 5-13 PT Passenger Difference – 2046 DM vs. 2046 Baseline (PM) – Strategic view

Figure 5-14 PT Passenger Difference – 2046 DM vs. 2046 Baseline (AM) – Havant town centre

Figure 5-15 PT Passenger Difference – 2046 DM vs. 2046 Baseline (PM) – Havant town centre

5.3 2046 Do Something vs. 2046 Baseline

Highway Network Performance Statistics

5.3.1 The key network statistics for Havant Borough and the full SRTM core study area have been summarised, including the total travel time on the network (vehicle hours), total travel distance on the network (vehicle kilometres), and average speed.

5.3.2 The performance of the highway network for the AM and PM periods for 2046 Baseline, and 2046 Do Something is shown in Table 5-4 and Table 5-5. The highway traffic growth **within Havant**, arising from the introduction of the Local Plan development with the added mitigation measures, generates a forecast increase in total vehicle hours in both the AM and PM peak hours of approximately 6.5-7.5% which is slightly lower than in the Do Minimum. Total vehicle kilometres driven **within** Havant Borough are forecast to increase by approximately 2.1% in both the AM and PM peak hours, whilst average speed **within Havant** is forecast to decrease by approximately 5% in the AM peak and by approximately 4.2% in the PM peak. These outputs are consistent with the highway network within Havant accommodating greater highway trips and experiencing increasing congestion. The increases are slightly lower than those forecast from the Do Minimum scenario as a result of the mitigation measures included. As stated in Section 3.4.1 not all the proposed mitigation measures have been included within the SRTM modelling and are detailed in the STA.

5.3.3 The impact on the wider, full Core model area is considered small/negligible as land use changes between the scenarios are focussed solely on Havant Borough.

Table 5-4 AM Highway Model Statistics, 2046 Do Something vs. 2046 Baseline

		BASELINE 2046	DO SOMETHING 2046	DIFFERENCE	% DIFFERENCE
Vehicle Hours	Core Model Area	192,169	193,718	1,549	0.81%
	Havant	14,083	15,139	1,056	7.50%
Vehicle kms	Core Model Area	7,000,084	7,021,746	21,662	0.31%
	Havant	537,229	548,877	11,648	2.17%
Average Speed (kph)	Core Model Area	36.43	36.25	-0.18	-0.49%
	Havant	38.15	36.26	-1.89	-4.96%

Table 5-5 PM Highway Model Statistics, 2046 Do Something vs. 2046 Baseline

		BASELINE 2046	DO SOMETHING 2046	DIFFERENCE	% DIFFERENCE
Vehicle Hours	Core Model Area	203,024	204,945	1,921	0.95%
	Havant	15,286	16,277	992	6.49%
Vehicle kms	Core Model Area	7,733,471	7,762,518	29,047	0.38%
	Havant	601,282	613,680	12,399	2.06%
Average Speed (kph)	Core Model Area	38.09	37.88	-0.22	-0.57%
	Havant	39.34	37.70	-1.63	-4.16%

Highway Link Flows, Delays and Capacity Hotspots

5.3.4 The outputs of the Road Traffic Model (RTM) have been analysed with respect to highway volume of traffic (link flow), delay and capacity. For clarity, the outputs shown are for those which exceed a given threshold which is specified in the appropriate paragraphs. The plots included in the report are an overview of the Havant Borough – with more localised plots of the Havant town area being provided as appropriate.

5.3.5 In addition to the new traffic directly associated with the Local Plan sites, these plots highlight any re-routing of traffic that may result from localised congestion or redistribution of existing trips. These plots identify where the net change to traffic flow is most pronounced.

Change in Highway Traffic Flow

5.3.6 For the flow difference plots the absolute difference in traffic volume (in passenger car units, PCUs) is identified adjacent to the appropriate link. Blue lines identify a reduction against the comparative scenario and green lines an increase in addition, the scale of the change is represented graphically with the coloured lines of varying width. Only flow differences of 20 PCUs (per hour) or greater are displayed in the plots.

5.3.7 Figure 6-16 and Figure 6-17 identify the change in traffic flow in the AM and PM peak hours between the 2046 Do Something and 2046 Baseline scenarios, at an overall borough level. Figure 5-18 and Figure 5-19 provide more detail of the flow changes in the Havant town area.

5.3.8 The network in the immediate vicinity of the Southleigh development site continues to show the highest flow increases. The greatest flow increase in the existing network during the AM period is 357 vehicles taking the right turn on to Southleigh Road at the north end of the development site. This is down from 468 in the Do Minimum scenario as traffic is redistributed towards the Emsworth Road access on to the A27 due to improvements at the Emsworth Road /Havant Road junction roundabouts. This pattern is reflected in the

increased traffic flow taking the left turn out of the site, with a 261 vehicle increase in the Do Something scenario (AM) relative to the baseline, up from 196 in the Do Minimum. This flow increase continues downstream on the southbound section of Southleigh Road approaching Emsworth Road where there is an AM flow difference of approximately 100 PCUs on the junction approach, putting pressure on this junction. For the northbound route on Southleigh Road there are reductions in the traffic with AM flow increases halved from the Do Minimum Scenario. In the PM period, changes in the flow between the Do Minimum and Do Something scenarios are more minimal.

5.3.9 Elsewhere, flow increases are reduced in both AM and PM peaks on Bartons Road, north of the Southleigh site, due to traffic redistribution as a result of the mitigation measures to the south of the development. Throughout the town centre, the network largely reflects flow changes consistent with the Do Minimum scenario, with some minimal differences due to minor traffic rerouting. This includes the area surrounding the Hulbert Road / Fitzwygram Way roundabout, where mitigation measures have not significantly impacted traffic flow differences in the AM or PM peaks compared to the Do Minimum (although the delays at this junction have improved with the mitigation). However, there is a slightly larger increase in AM northbound flows through the junction with an increase of approximately 80 PCUs in the Do Something compared to the baseline.

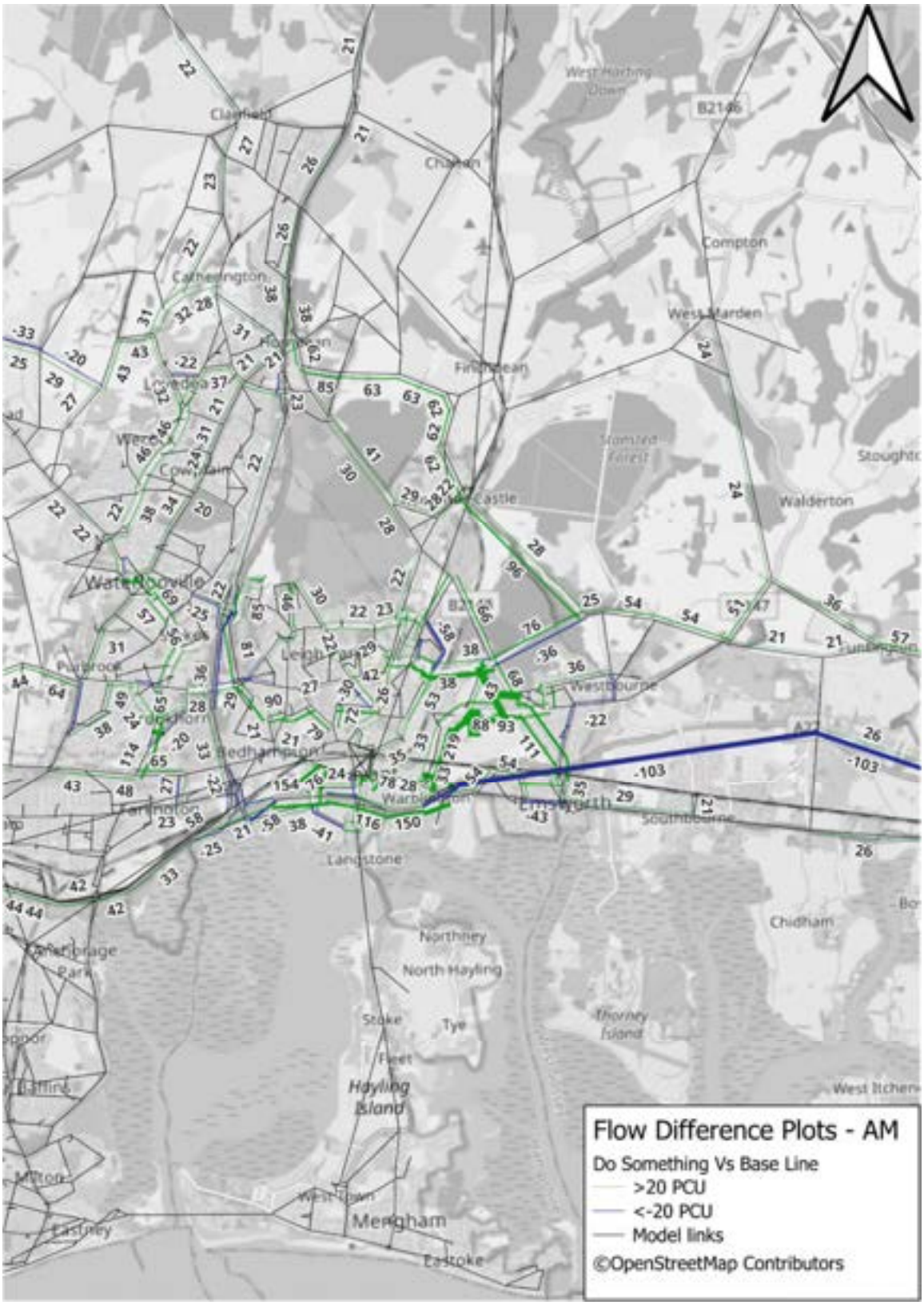

Figure 5-16 Highway Flow Difference – 2046 DS vs. 2046 Baseline (AM) – strategic view

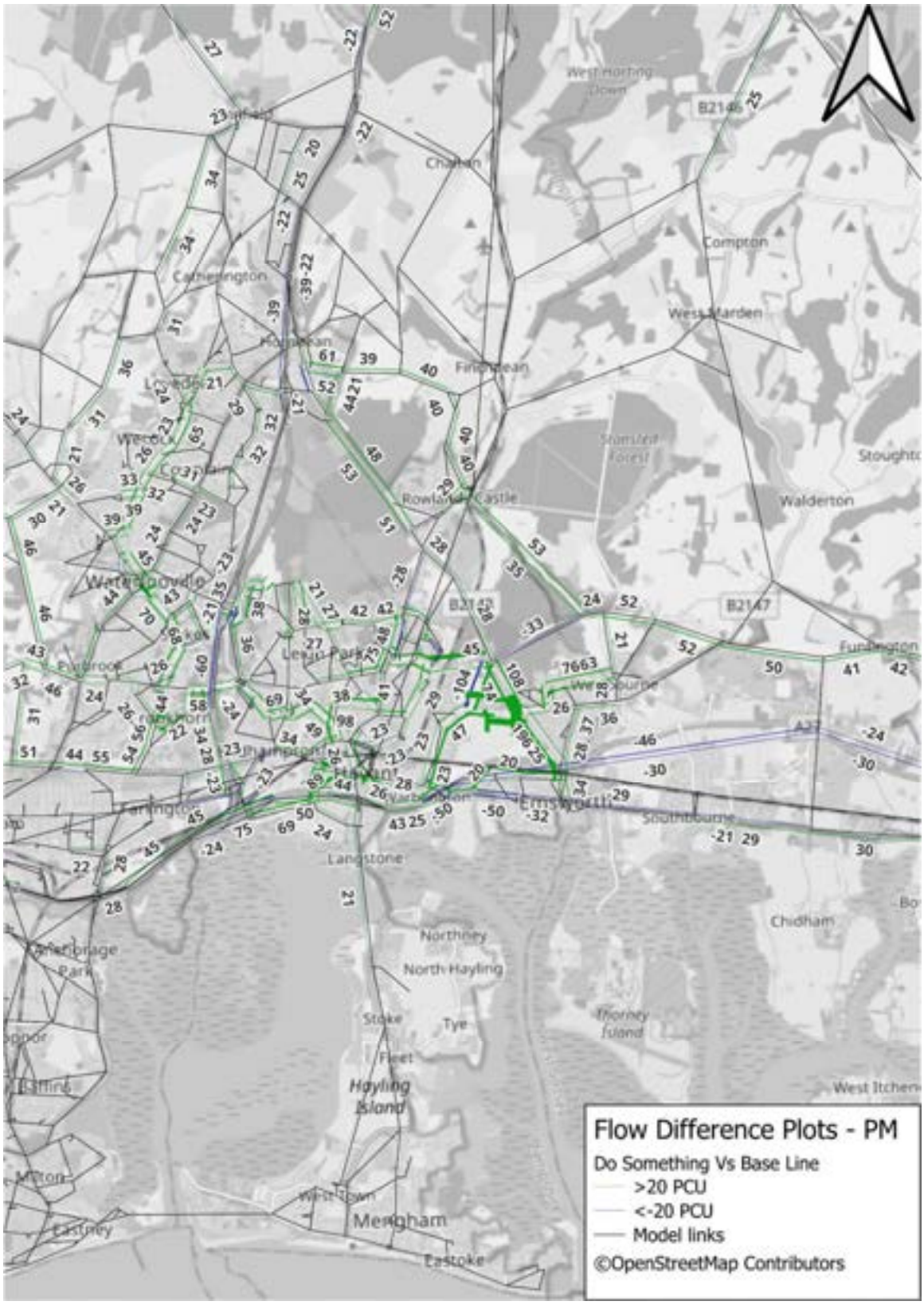

Figure 5-17 Highway Flow Difference – 2046 DS vs. 2046 Baseline (PM) – strategic view

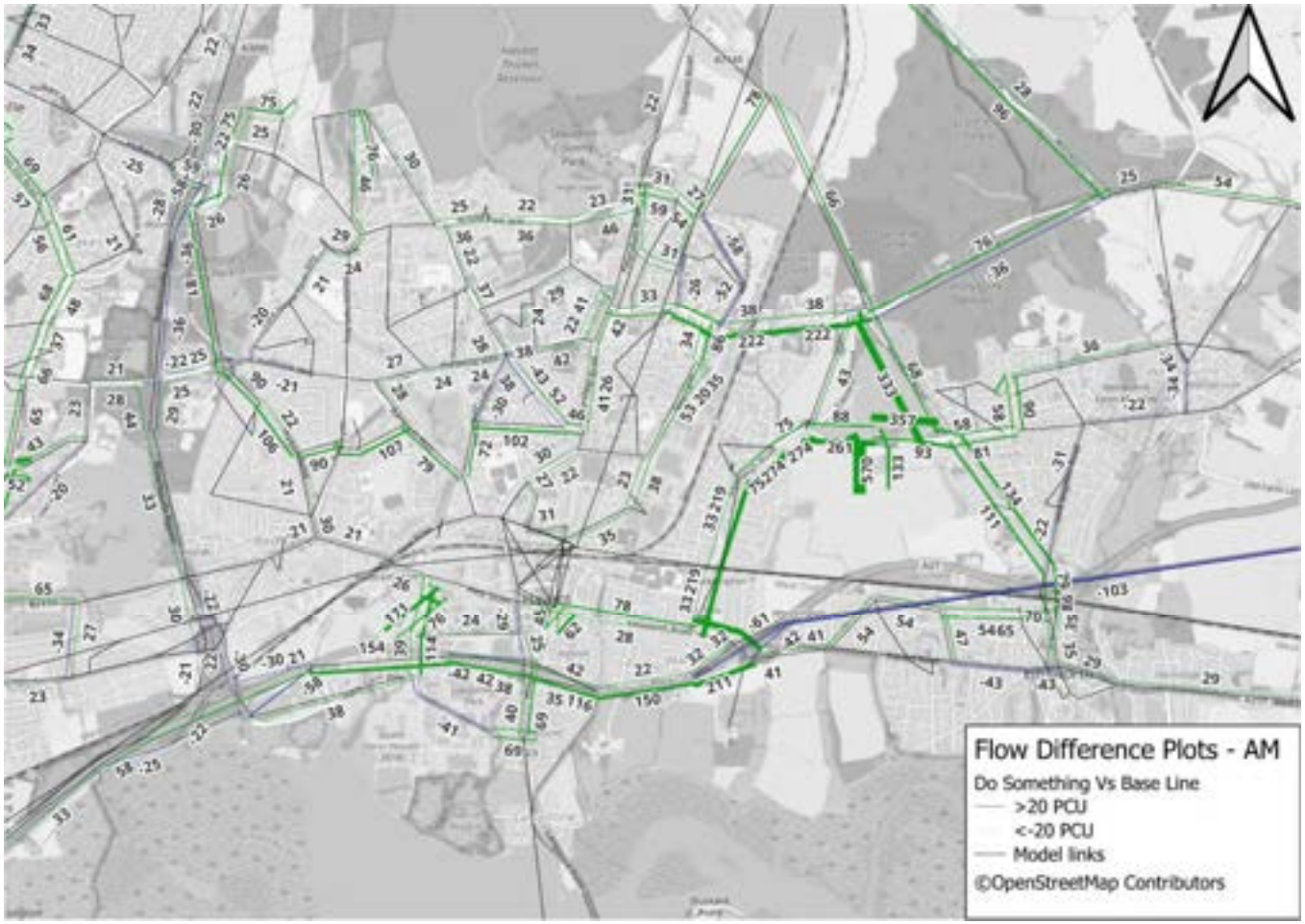

Figure 5-18 Highway Flow Difference – 2046 DS vs. 2046 Baseline (AM) – Havant town centre

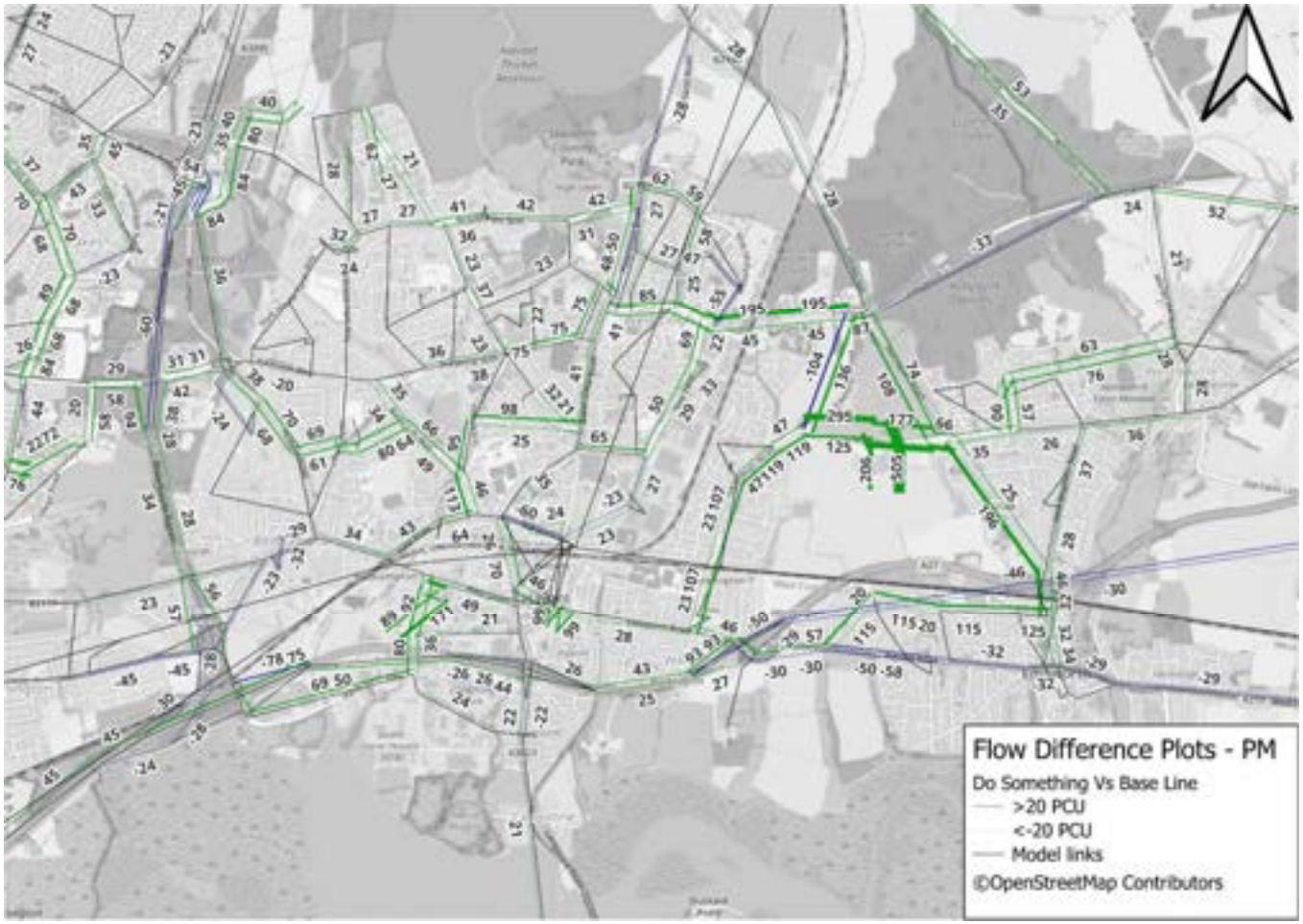

Figure 5-19 Highway Flow Difference – 2046 DS vs. 2046 Baseline (PM) – Havant town centre

Highway Delays

5.3.10 Figure 5-20 and Figure 5-21 identify the change in vehicle delay in the AM and PM peak hours between the 2046 Do Something and 2046 Baseline scenarios, at an overall borough level. Figure 5-22 and Figure 5-23 provide more detail of the delay changes in the Havant town area for AM and PM peak hours respectively.

5.3.11 The absolute difference in delay in seconds per PCU is identified adjacent to the appropriate link. Blue lines identify a reduction and green lines an increase. In addition, the scale of the change is represented graphically with the coloured lines of varying width. Only delay differences in excess of 5 seconds per PCU are displayed in the plots.

5.3.12 The highway mitigation schemes at A27 Emsworth Road / Havant Road junction roundabouts have reduced some of the larger delays present in the Do Minimum scenario, particularly from the Emsworth Road roundabout approach. However, there are increased delays in the PM period on the westbound Emsworth Road approach to the Emsworth Road / Southleigh Road junction coming from the A27 where delays are up by almost a minute from the baseline due to the signalisation of this roundabout.

5.3.13 Changes are also observed at the Hulbert Road / Fitzwygram way roundabout. The largest delay increase in the Do Minimum scheme was 213 seconds on the Fitzwygram Way roundabout approach in the PM peak, this is now down to 34 seconds in the Do Something as a result of the mitigation measures at the roundabout. AM delay times on Purbrook Way coming from the Purbrook Way / Hulbert Road roundabout increase slightly compared the Do Minimum (57s in the Do Something, 52s in the Do Minimum).

5.3.14 Elsewhere, further delay increases are seen in both the AM and PM periods on Harts Farm Way, notably 97 seconds more than the baseline (69 seconds in the Do Minimum) in the AM period in the westbound direction and 60 seconds in the PM period (44 seconds in the Do Minimum). Delays are increased on the section of the A27 which runs parallel to Harts Farm Way, also in the westbound direction with 60 seconds of delay in the AM and 21 seconds in the PM (44 seconds and less than 5 seconds in the Do Minimum respectively).

5.3.15 Some reductions in delay times are observed in the town centre area. Delays have been reduced on Elm Lane and North Street, down to a 53 second increase compared to the baseline from 92 seconds in the Do Minimum. The delay at this location is still more than 2 minutes in the Do Something. This is a downstream effect of mitigation measures implemented on the Emsworth Road / Havant Road junction roundabouts.

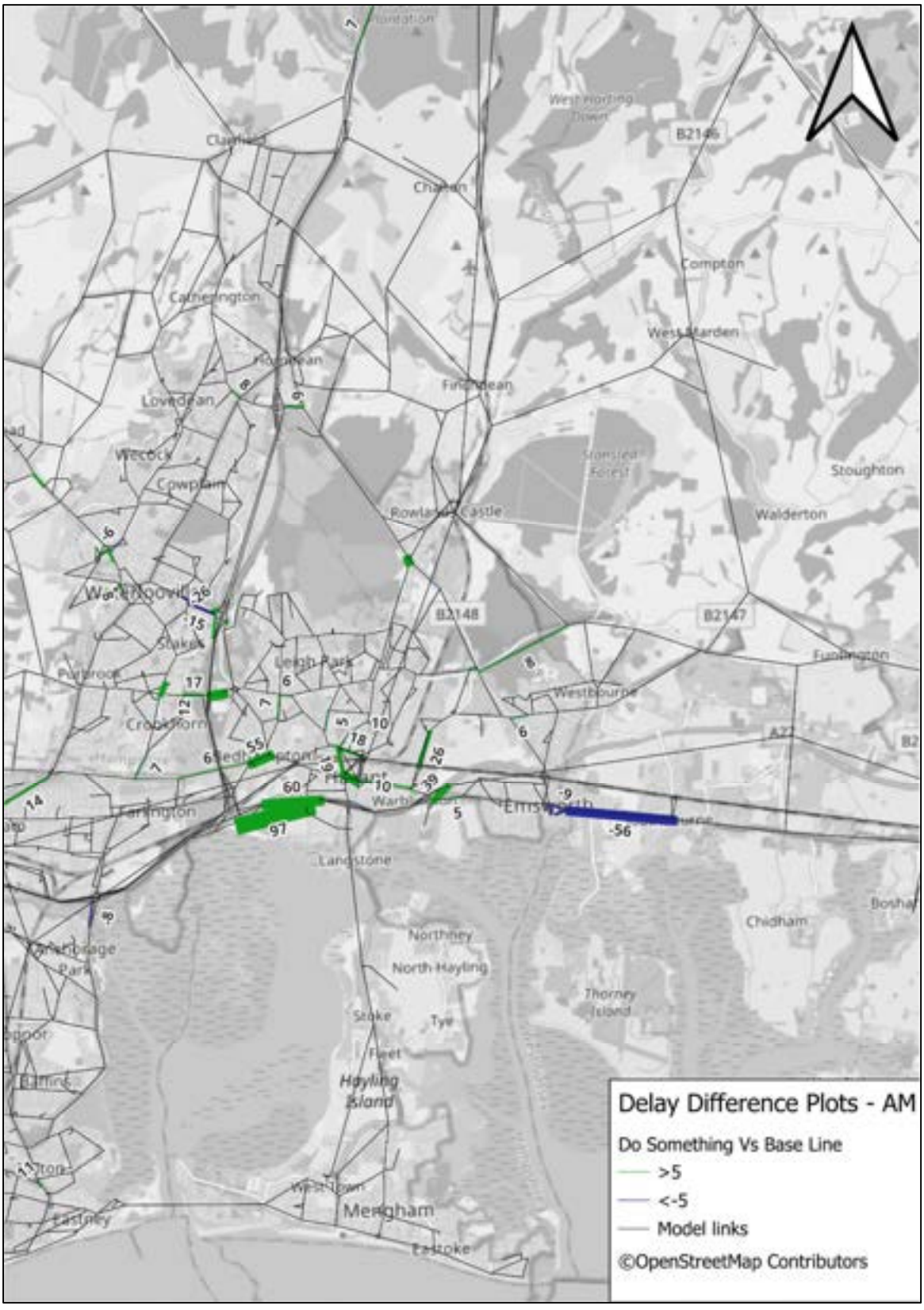

Figure 5-20 Delay Difference – 2046 DS vs. 2046 Baseline (AM) – Strategic View

Figure 5-21 Delay Difference – 2046 DS vs. 2046 Baseline (PM) – Strategic View

Figure 5-22 Delay Difference – 2046 DS vs. 2046 Baseline (AM) – Havant town centre

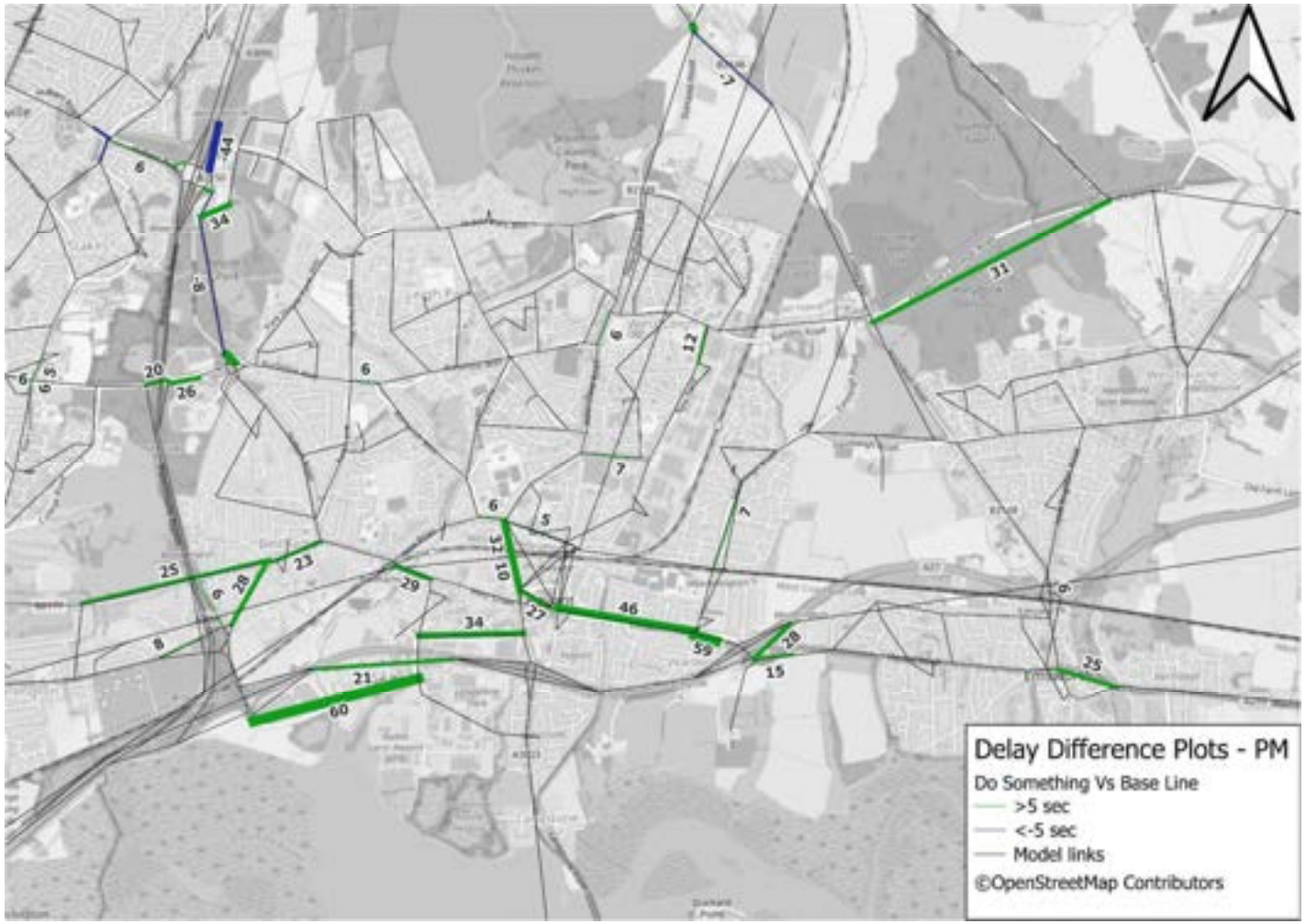

Figure 5-23 Delay Difference – 2046 DS vs. 2046 Baseline (PM) – Havant town centre

Highway Junction Capacity Hotspots

5.3.16 The same approach to identifying highway junction hotspots for the Do Minimum in Section 5.2.22 has been applied to the Do Something. An assessment of junctions exceeding 85% V/C was undertaken and subsequently the hotspot identification process as set out below.

5.3.17 An initial assessment to identify junctions with a V/C greater than 85% was completed. This provides further context with regard to the number of junctions with high V/C irrespective of if they have experienced significant impact from Local Plan traffic, Figure 5-24 displays the junctions forecast to have an V/C greater than 85% in the 2046 Do Something (in any time period) with the Baseline and Do Minimum equivalent plots available in Figure 5-9 and Figure 5-10. As previously stated in paragraph 5.2.25 a total of 57 junctions meet this criterion in the 2046 Baseline and therefore would be approaching capacity without Local Plan growth, with the 2046 Do Minimum forecast to have 63 junctions meeting the criteria once Local Plan growth is accounted for. The inclusion of the mitigation measure in the Do Something scenario results in a total of 62 junctions meeting the criteria.

5.3.18 Further to the analysis identifying junctions with V/C more than 85% in either the Baseline, Do Minimum or Do Something scenarios, we have applied the threshold detailed in paragraph 5.2.22 to identify those junctions within Havant Borough most impacted by highway growth between the Baseline and Do Something scenarios.

5.3.19 The Do Something scenario results in 15 junctions meeting the criteria compared to the 19 junctions that met the criteria in the Do Minimum modelling, showing that the mitigation measures have led to an improvement in network performance compared to the no mitigation option. Based on the hotspot criteria there are a total of 2 junctions that meet the 'severe' criteria and 13 junctions that are classified as 'significant' in the Do Something scenario. This is summarised in Figure 5-25 and Table 5-6. The total 15 junctions include 2 junctions that were not previously flagged as a hotspot in the Do Minimum (junctions 20 and 21). Of those junctions previously flagged in the Do Minimum, 6 are no longer triggering either the Significant or Severe threshold. The same ID has been used to label the junctions as was used for the Do Minimum with the new junctions being given a new ID.

5.3.20 A detailed list of junction performance for comparison is provided in **Appendix D.**

5.3.21 Of those junctions that were previously classified as 'severe' three have been re-classified as 'significant' with the mitigation measures implemented leading to re-distribution of traffic flows. A further three junctions are no longer flagging as either 'significant' or 'severe.' These include the Hulbert Road / Fitzwygram Way roundabout where mitigation measures have led to an improvement in the junction performance. The Belmont junction of Bedhampton Road and Portsdown Hill Road also no longer flags as 'severe' or 'significant' with a small reduction in traffic travelling northeast on Bedhampton Hill onto Bedhampton Road resulting in reduced delay for traffic entering the roundabout from Portsdown Hill Road.

5.3.22 The A27 EB off/on slip junction with Emsworth Road is no longer flagged as 'significant' or 'severe' from a position of 'severe' in the Do Minimum. The mitigation measures have improved the performance of this junction, although the WB circulating section between the off slip and Havant Road now flags as 'severe' due to the scheme (although this can potentially be mitigated further with local junction modelling being used to update the signal timings since the signal timings were created using the Do Minimum model which has variations in traffic flows compared to the final Do Something model).

5.3.23 It should be noted that the capacity hotspot criteria used in this analysis are not the only measure by which junction / network performance or scale of impact associated with Local Plan growth on the highway network. They are considered a starting point (consistent with other SRTM commissions) for comparison of network performance from which subsequent, more detailed, assessment may refine those locations considered most impacted.

Table 5-6 2046 Do Something vs 2046 Baseline Impacted Junction List

ID	JUNCTION NAME	'SIGNIFICANTLY' IMPACTED	'SEVERELY' IMPACTED	NO LONGER 'SIGNIFICANTLY' OR 'SEVERELY' IMPACTED
1	Southwick Road / High Street	Y		
2	Park Lane / Hazelholt Drive			Y
3	New Road roundabout	Y		
4	Elm Lane/ Park Road North	Y		
5	A27 EB off/on slip / Emsworth Road			Y
6	London Road/Purbrook Heath Road	Y		
7	Maurepas Way/Hambledon Road Roundabout	Y		
8	Tear Drop - A27 / A2030 / Harts Farm Way		*Y*	
9	Belmont Junction – B2177 Portsdown Hill Road / Bedhampton Hill			Y
10	B2148 Horndean Road / New Brighton Road	Y		
11	Horndean Road / Emsworth Common Road	Y		
12	Barncroft Way / Stockheath Lane	Y		
13	B2177 Portsdown Hill Road / Crookhorn Lane			Y
14	Bedhampton Level Crossing	Y		
15	Bartons Road / Horndean Road	Y		
16	Hulbert Road / Fitzwygram Way roundabout			Y
17	Stakes Hill Road / Grendstaple Road Roundabout	Y		
18	Stakes Road / Purbrook Way Roundabout	Y		
19	Downwood Way / London Road Roundabout			Y
20	A2030 Havant Road / Rectory Avenue	Y		
21	A27 WB off/on slip / Havant Road		*Y*	

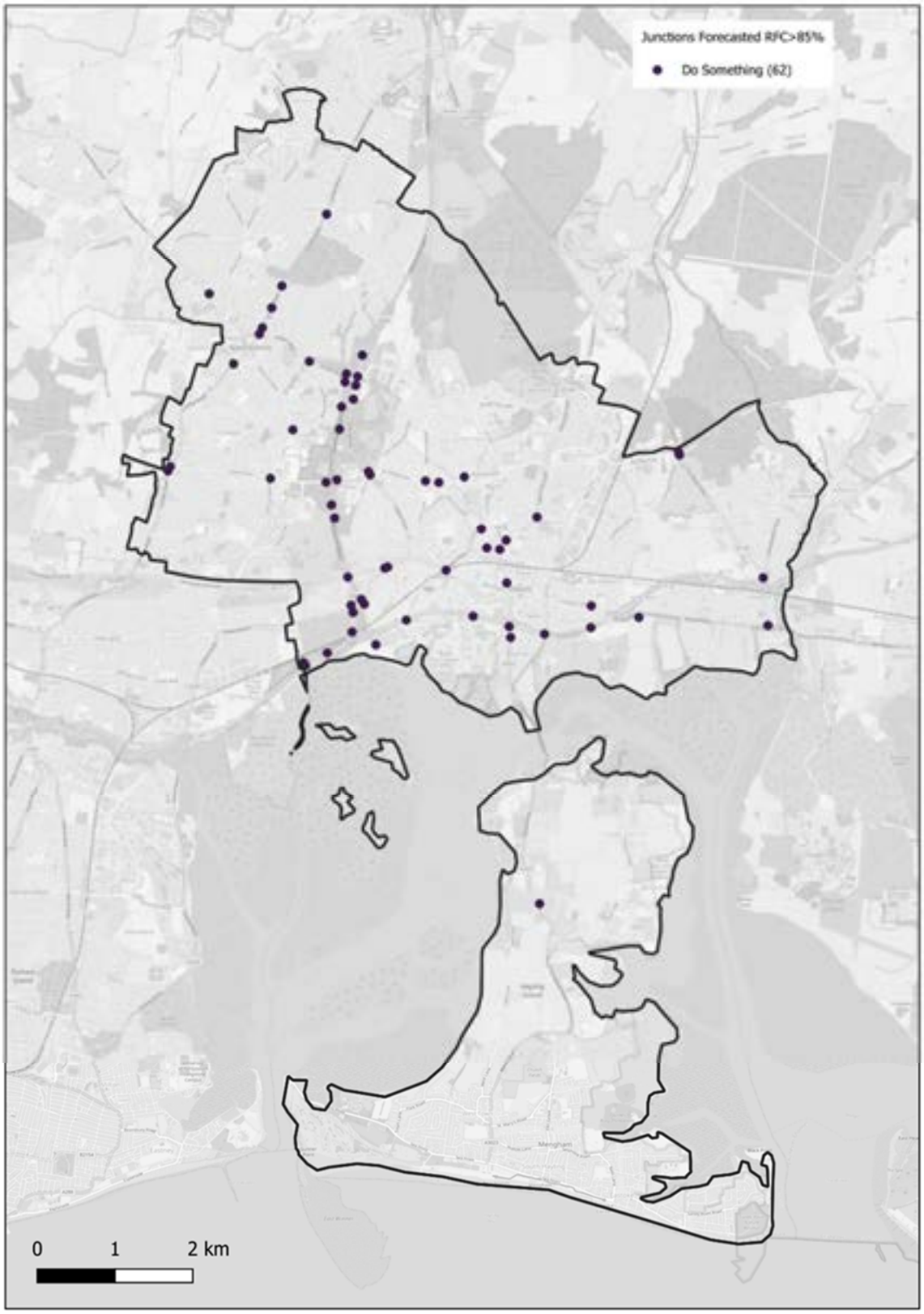

Figure 5-24 Junctions Forecast to have a V/C >85% in 2046 Do Something

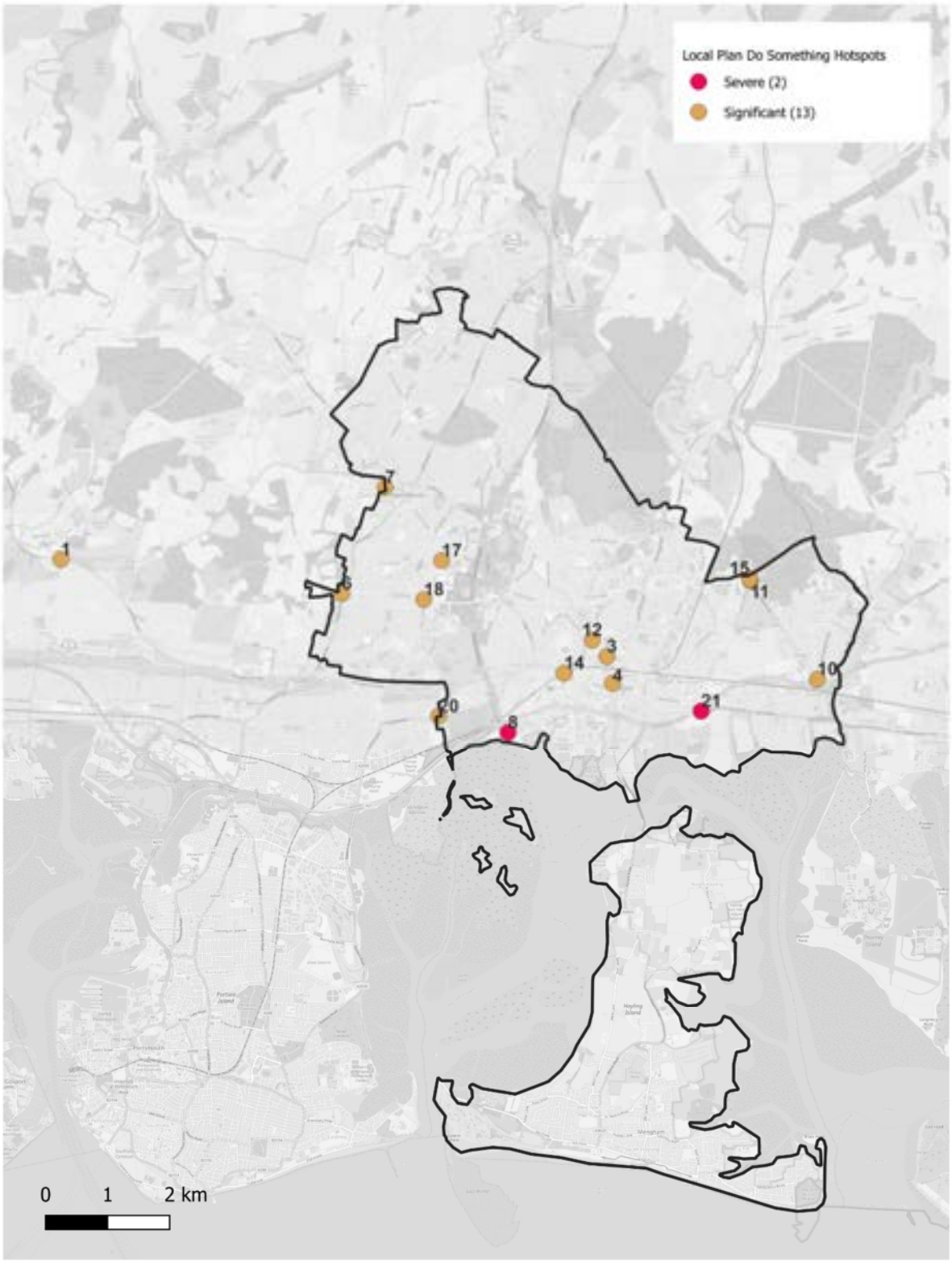

Figure 5-25 2046 Do Something vs. Baseline 2046 'Significant' or 'Severe' Impacted Junctions

Public Transport Passenger Flow Difference

5.3.24 The PT passenger flow difference plots show the change in passenger volumes on PT services (rail and bus). They follow a similar format to the highway flow difference plots with the value identified adjacent to the appropriate link. Blue lines identify a reduction against the comparative scenario and green lines an increase. In addition, the scale of the change is represented graphically with the coloured lines of varying width.

5.3.25 Figure 5-26 and Figure 5-27 identify the change in passenger volume in the AM and PM peak hours between the 2046 Do Something and 2046 Baseline scenarios, at an overall borough level. Figure 5-26 and Figure 5-29 provide more detail of the PT passenger volume changes in the Havant town centre area.

5.3.26 Similarly to the Do Minimum, passenger flow increases are forecast to the west of Havant Station in both directions. The maximum increase in the AM period is 94 passengers, travelling in the western direction from Havant train station, and 71 passengers in the PM, travelling Eastbound into Havant station from Bedhampton. This is consistent with differences found in the Do Minimum comparison, suggesting mitigation measures have had minimal impact on PT flows. This is also reflected throughout the wider strategic view, where the public transport network appears largely unchanged despite changes made to the highway network in the Do Something scenario, with only negligible reductions in demand on some routes.

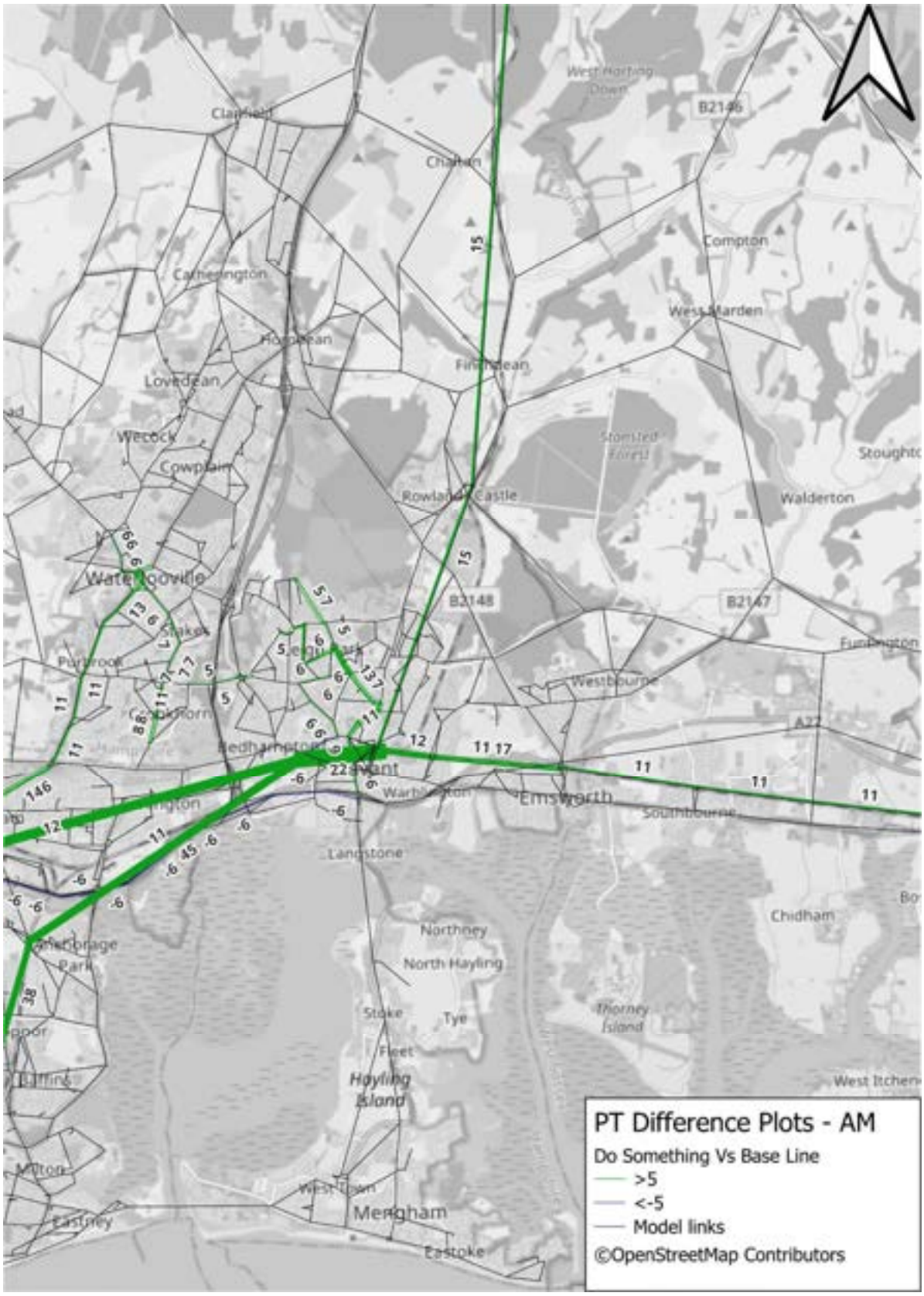

Figure 5-26 PT Passenger Difference – 2046 DS vs. 2046 Baseline (AM) – Strategic view

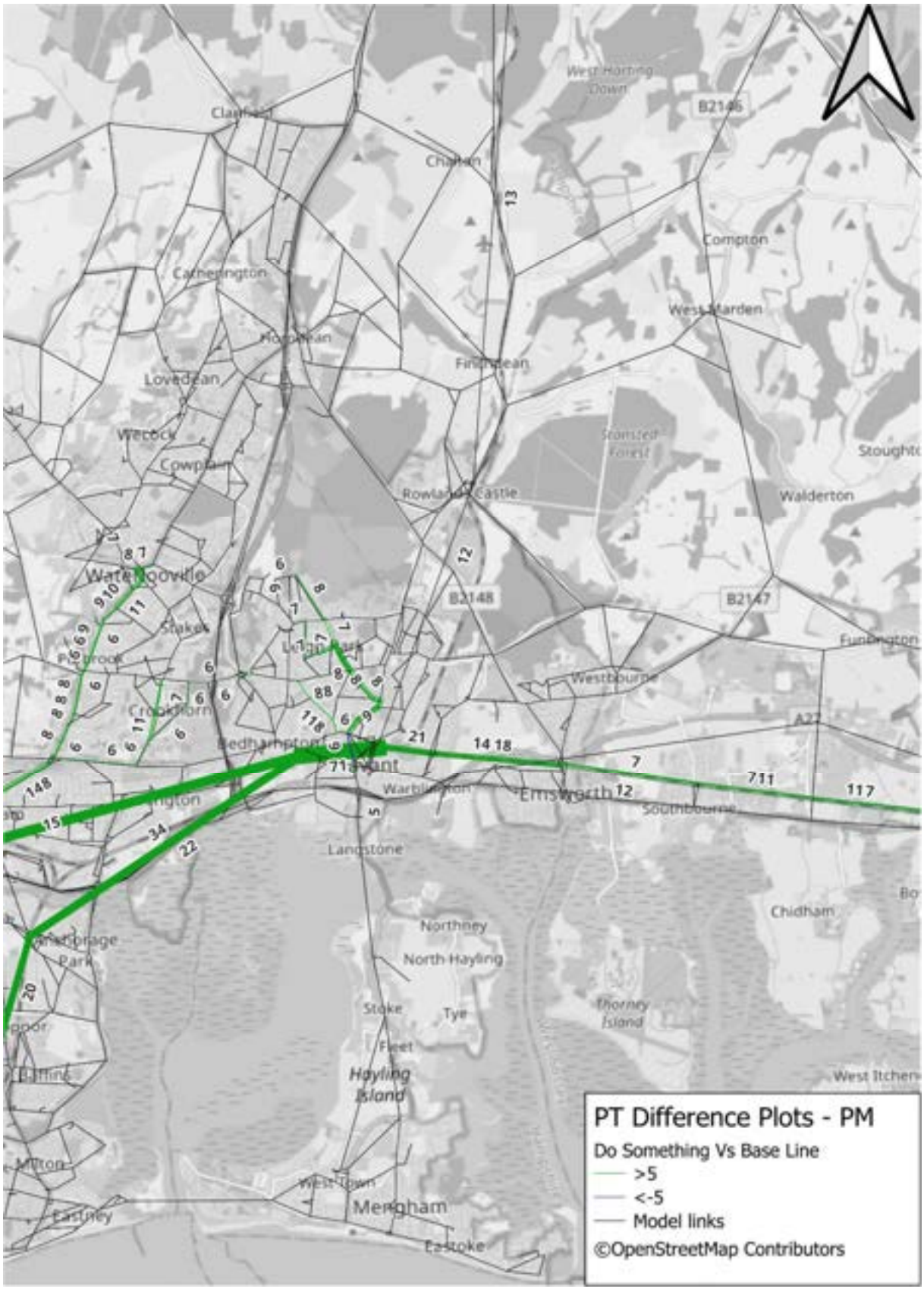

Figure 5-27 PT Passenger Difference – 2046 DS vs. 2046 Baseline (PM) – Strategic view

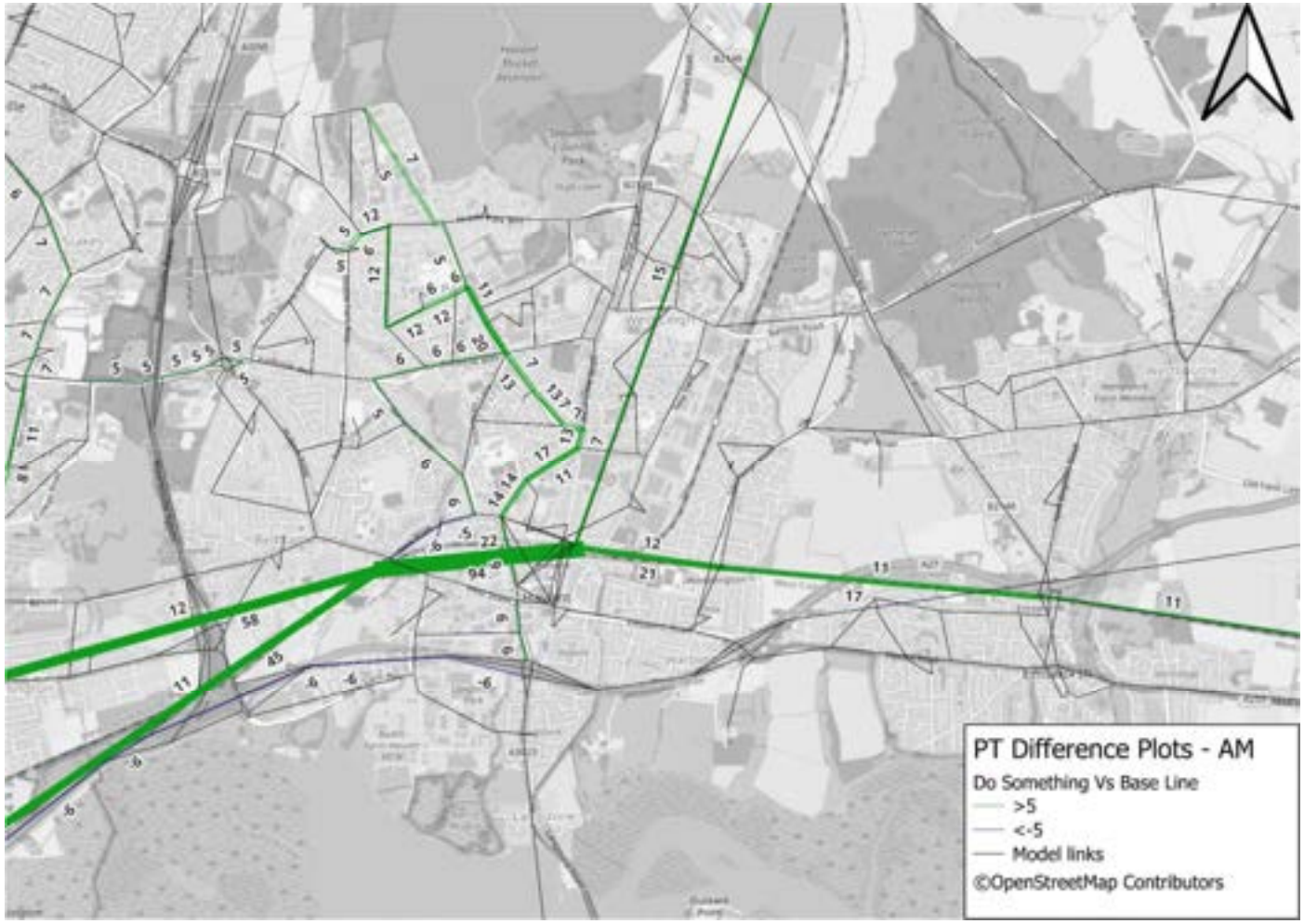

Figure 5-28 PT Passenger Difference – 2046 DS vs. 2046 Baseline (AM) – Havant town centre

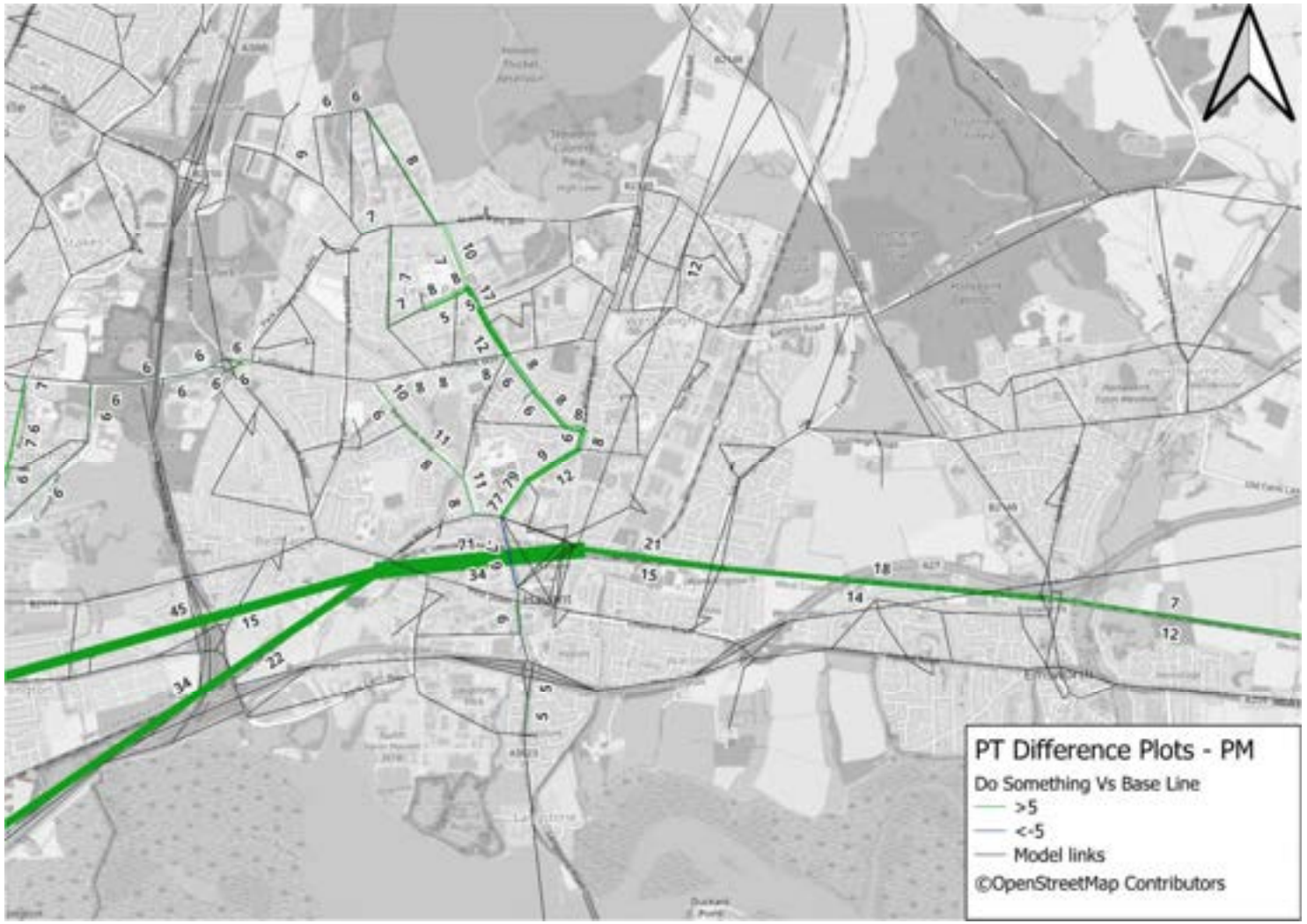

Figure 5-29 PT Passenger Difference – 2046 DS vs. 2046 Baseline (PM) – Havant town centr

6. SUMMARY AND CONCLUSIONS

6.1.1 Solent Transport's SRTM has been used to test three scenarios to help inform the development and appraisal of the update to Havant Local Plan:

- Scenario 1 – 2046 Baseline, no Havant Local Plan development except for committed sites.
- Scenario 2 – 2046 Do Minimum, full Havant Local Plan development without transport mitigation.
- Scenario 3 – 2046 Do Something, full Havant Local Plan development with transport mitigation.

6.2 2046 Scenario 1 Baseline

6.2.1 The Baseline scenario includes residential (approximately 3,600 dwellings) and employment growth based on committed sites within the Havant Borough and committed highway infrastructure schemes up to a forecast year of 2046. Outside of Havant, growth continues in accordance with adopted Local Plans as modelled in the SRTM reference case plus updates to include the emerging Winchester, Portsmouth and Chichester Local Plans. This scenario confirms the forecast transport network performance without the proposed Havant Local Plan allocation site growth.

6.2.2 Due to the general increase in traffic flows within the Havant Borough through to 2046, a total of 57 junctions within Havant Borough are forecast to operate with a V/C greater than 85% in the 2046 Baseline Scenario. This reflects the fact that testing the Local Plan scenarios is being completed on a network that is already heavily congested in 2046.

6.3 2046 Scenario 2 Do Minimum

6.3.1 The 2046 Do Minimum scenario builds off the Baseline, by including the proposed Havant Local Plan allocations for residential and employment development. Growth outside of the borough is unchanged from the Baseline. An additional approximate 6,800 dwellings and 40,000 sqm of employment floorspace have been included within the Do Minimum scenario over and above the Baseline.

6.3.2 The highway network tested within the Baseline and Do Minimum scenario remains consistent to assess the impact of the Local Plan allocations without any new mitigation or connectivity improvements.

6.3.3 Based on the SRTM modelling, the Southleigh development has the greatest impact on the highway network with the additional 2,100 dwellings resulting in increases in flows as well as impacting local delays and junction performance. There are also general increases in traffic across large parts of Havant with the additional development being added in.

6.3.4 A total of 63 junctions within the Havant Borough are forecast to operate with a V/C greater than 85% by 2046. This is an increase of 6 junctions across the borough in

comparison to the 2046 Baseline. Of those 63 junctions, it is forecast that 12 will experience 'significant' impact and 7 junctions a 'severe' impact in comparison to the 2046 Baseline. The 'severe' sites are located within the Havant town centre area, close to the Southleigh development site and by the Dunsbury Park development. The Southleigh site is considered to be a contributing factor in most of the sites, in particular those at either end of Southleigh Road and on the B2148.

6.3.5 The list of 19 junctions forecast with either 'significant' or 'severe' impact were recommended to form the starting point for more detailed review and development of potential mitigation measures and connectivity improvements in consultation with the Highway Authorities.

6.4 2046 Scenario 3 Do Something

6.4.1 The 2046 Do Something scenario builds off the Do Minimum and includes for two highway mitigation schemes. The land use in the Do Something is identical to the Do Minimum and includes the full land use being tested for the Havant Local Plan scenarios.

6.4.2 The first mitigation scheme is at the Hulbert Road / Fitzwygram Way roundabout where signals are introduced as well as the addition of crossings. The second scheme is at the A27 junction with Emsworth Road and Havant Road. This scheme signalises the original two roundabouts. Both the schemes improve the overall performance of the junctions they are implemented at although the A27 scheme does worsen the westbound circulating section of the roundabout between the WB off slip and Havant Road section due to the introduction of traffic signals.

6.4.3 The introduction of the mitigation measures also impact the distribution of flows within the borough which leads to improvements in the performance of additional junctions that were previously identified as 'significantly' or 'severely' impacted by the Local Plan development. The overall number of junctions being flagged reduces from 19 to 15 with the number of 'severe' junctions reducing from seven to two.

6.4.4 The outputs of this modelling report along with the impacts of further mitigation measures that were not included within the SRTM modelling are explored further in the STA.

APPENDIX A – REFERENCE CASE TRANSPORT SCHEMES

SRTM
REF CASE

District	Scheme	Description	2019	2026	2031	2036	2041
COMMITTED AND INCLUDED IN CURRENT REFERENCE CASE							
Havant	Hulbert Rd / Purbook Way Junction (Dunsbury Hill)	Major redesign and partial signalisation of 'ASDA' rbt.	✓	✓	✓	✓	✓
Havant	Dunsbury Hill Farm Business Park	New site access roundabout on Hulbert Rd B2150	✓	✓	✓	✓	✓
Havant	A3(M) J3	Signalisation of N/B off slip onto roundabout		X	X	X	X
Havant	Purbook Way / College Road	Signalisation of priority junction		✓	✓	✓	✓
Havant	Interbridges	New signal access (off B2148 between Emsworth rail bridge and A27)		X	X	X	X
Havant	Purbrook Way / Stakes Hill Road	Replacement of roundabout with traffic signals.		X	X	X	X
Havant	Purbrook Way from Stakes Hill Road to College Road	Dual carriageway to replace single carriageway.		X	X	X	X
Havant	Hulbert Rd / Frendstaple Rd / Tempest Ave	Enlarge and modify existing roundabout.		X	X	X	X
Havant	West of Waterlooville development access/ link road	Creation of Houghton Ave/ Newlands Ave roads, creating new through routes parallel to A3/ Hambledon Rd. WoW development completion anticipated 2030 so likely through road link will be completed some time before then		X	✓	✓	✓
Havant	Harts Farm Way / Southmoor Ln mini roundabout	Modification of mini roundabout to create kerbed central island & changes to layout	✓	✓	✓	✓	✓
Havant	Barncroft Way/ New Road	Right turn ban from Barncroft Way to New Road and junction layout changes	✓	✓	✓	✓	✓
Havant	Ladybridge Roundabout	Access to West Waterlooville MDA		X	✓	✓	✓
Havant	A259 Havant Road east of A27 Warblington Junction	New signalised junction for access to Land North of Havant Road development		✓	✓	✓	✓
Havant	A27/A259 Warblington Junction	Secured improvements at this junction linked to Land North of Havant Road development		✓	✓	✓	✓
Havant	Eagle Avenue Wecock Farm- mini roundabout	New mini roundabout for Woodcroft development site		X	✓	✓	✓
Havant	Bartons Road/ Horndean Road junction	Lining changes which increase the length of the two lane approach - linked to permitted Land South of Bartons Road development		X	X	X	X
Havant	Bartons Road right turn lane	Right turn lane (access to development)	✓	✓	✓	✓	✓
Havant	Bartons Rd/Petersfield Rd	Extended left turn lane from Bartons Rd into Petersfield Rd		X	X	X	X
Havant	Hambledon Road/Aston Road, Waterlooville	Layout change- Aston Rd widened to 3 lanes; Hambledon Rd right turn lane extended	✓	✓	✓	✓	✓
Havant	Park Road South/Solent Road, Havant	SCOOT control peak times; MOVA control off peak introduced	✓	✓	✓	✓	✓
Havant	Park Road South/Elm Lane/Parkway, Havant	SCOOT control peak times; MOVA control off peak introduced	✓	✓	✓	✓	✓
Havant	40 Acres development site accesses	2 new priority T junctions and 2 new right turn pockets		✓	✓	✓	✓
Havant	Rusty Cutter roundabout	Pedestrian and cyclist improvements at signals		✓	✓	✓	✓
Havant	Havant Thicket Right Turn access	Right turn lane (access to development)		✓	✓	✓	✓
Havant	Milton Road Roundabout	Existing priority junction with Lovedean Lane to be turned into a mini roundabout		✓	✓	✓	✓
Havant	Milton Road / Elettra Avenue roundabout improvements	additional lane on Elettra avenue approach		X	✓	✓	✓
Havant	Pedestrian crossing at Goodwillies, A3	New pedestrian crossing		✓	✓	✓	✓
Havant	Pedestrian crossing at McDonald's, B2150	New pedestrian crossing		✓	✓	✓	✓
Havant	Pedestrian crossing on B2149	New pedestrian crossing		✓	✓	✓	✓

APPENDIX B – HAVANT LOCAL PLAN LANDUSE INPUTS

SRTM - Reference Case 2019 Update

Land Use Assumptions

Residential

			BASELINE 2041								
TOTAL	**ALL**	**dwellings**	**10,424**								
TOTALS	**ALL**	**dwellings**	1839	57	1782	1833	0	1833	6809	0	6809
			Completions			***Permissions***			**Allocations**		
Zone	**District**	**Unit**	Gains	Losses	Net	*Gains*	*Losses*	*Net*	Gains	Losses	Net
591	Havant	dwellings	18	7	11	4		4	23		23
592	Havant	dwellings	14	5	9	0		0	23		23
593	Havant	dwellings	40	1	39	1		1	23		23
594	Havant	dwellings	4	1	3	0		0	23		23
595	Havant	dwellings	35	0	35	355		355	30		30
596	Havant	dwellings	53	2	51	141		141	23		23
597	Havant	dwellings	83	3	80	162		162	23		23
598	Havant	dwellings	272	0	272	85		85	23		23
599	Havant	dwellings	65	2	63	45		45	31		31
600	Havant	dwellings	6	1	5	101		101	23		23
601	Havant	dwellings	5	4	1	1		1	23		23
602	Havant	dwellings	0	0	0	8		8	35		35
603	Havant	dwellings	32	0	32	103		103	175		175
604	Havant	dwellings	0	0	0	0		0	346		346
605	Havant	dwellings	12	3	9	66		66	23		23
606	Havant	dwellings	102	2	100	26		26	651		651
607	Havant	dwellings	0	0	0	0		0	23		23
608	Havant	dwellings	90	2	88	2		2	23		23
609	Havant	dwellings	104	0	104	134		134	53		53
610	Havant	dwellings	70	0	70	0		0	207		207
611	Havant	dwellings	72	0	72	0		0	23		23
612	Havant	dwellings	96	4	92	10		10	32		32
613	Havant	dwellings	26	6	20	13		13	23		23
614	Havant	dwellings	115	0	115	45		45	23		23
615	Havant	dwellings	11	0	11	2		2	283		283
616	Havant	dwellings	65	0	65	0		0	23		23
617	Havant	dwellings	36	0	36	0		0	23		23
618	Havant	dwellings	1	0	1	0		0	23		23
619	Havant	dwellings	0	1	-1	6		6	113		113
620	Havant	dwellings	1	0	1	0		0	23		23
621	Havant	dwellings	5	0	5	2		2	68		68
622	Havant	dwellings	0	0	0	2		2	23		23
623	Havant	dwellings	1	0	1	0		0	254		254
624	Havant	dwellings	39	0	39	73		73	93		93
625	Havant	dwellings	2	0	2	6		6	23		23
626	Havant	dwellings	1	0	1	0		0	23		23
627	Havant	dwellings	0	0	0	0		0	23		23
628	Havant	dwellings	0	0	0	4		4	106		106
629	Havant	dwellings	1	0	1	0		0	23		23
630	Havant	dwellings	8	2	6	3		3	23		23
631	Havant	dwellings	91	1	90	31		31	23		23
632	Havant	dwellings	150	1	149	67		67	38		38
633	Havant	dwellings	12	2	10	16		16	23		23
634	Havant	dwellings	9	0	9	1		1	23		23
635	Havant	dwellings	0	0	0	0		0	23		23
636	Havant	dwellings	4	1	3	1		1	23		23
637	Havant	dwellings	4	0	4	2		2	23		23
638	Havant	dwellings	0	0	0	0		0	23		23
639	Havant	dwellings	16	1	15	97		97	360		360
640	Havant	dwellings	4	1	3	2		2	188		188
641	Havant	dwellings	3	1	2	3		3	23		23
642	Havant	dwellings	2	0	2	0		0	23		23
643	Havant	dwellings	3	1	2	0		0	23		23
644	Havant	dwellings	47	0	47	2		2	23		23
645	Havant	dwellings	10	2	8	2		2	23		23
646	Havant	dwellings	0	0	0	0		0	742		742
881	Havant	dwellings	0	0	0	0		0	23		23
882	Havant	dwellings	0	0	0	0		0	23		23
900	Havant	dwellings	1	0	1	209		209	4		4
976	Havant	dwellings	0	0	0	0		0	2103		2103

SRTM - Reference Case 2019 Update

Land Use Assumptions

Retail

			BASELINE 2041								
TOTAL	**ALL**	**sqm**	**4,337**								
TOTALS	**ALL**	**sqm**	0	0	0	4337	0	4337	0	0	0
			Completions			**Permissions**			**Allocations**		
Zone	**District**	**Unit**	Gains	Losses	Net	Gains	Losses	Net	Gains	Losses	Net
591	Havant	sqm	0	0	0			0			0
592	Havant	sqm	0	0	0			0			0
593	Havant	sqm	0	0	0			0			0
594	Havant	sqm	0	0	0			0			0
595	Havant	sqm	0	0	0			0			0
596	Havant	sqm	0	0	0			0			0
597	Havant	sqm	0	0	0			0			0
598	Havant	sqm	0	0	0			0			0
599	Havant	sqm	0	0	0			0			0
600	Havant	sqm	0	0	0	1899		1899			0
601	Havant	sqm	0	0	0			0			0
602	Havant	sqm	0	0	0			0			0
603	Havant	sqm	0	0	0			0			0
604	Havant	sqm	0	0	0			0			0
605	Havant	sqm	0	0	0			0			0
606	Havant	sqm	0	0	0			0			0
607	Havant	sqm	0	0	0			0			0
608	Havant	sqm	0	0	0			0			0
609	Havant	sqm	0	0	0			0			0
610	Havant	sqm	0	0	0			0			0
611	Havant	sqm	0	0	0			0			0
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613	Havant	sqm	0	0	0			0			0
614	Havant	sqm	0	0	0			0			0
615	Havant	sqm	0	0	0			0			0
616	Havant	sqm	0	0	0			0			0
617	Havant	sqm	0	0	0			0			0
618	Havant	sqm	0	0	0			0			0
619	Havant	sqm	0	0	0			0			0
620	Havant	sqm	0	0	0			0			0
621	Havant	sqm	0	0	0			0			0
622	Havant	sqm	0	0	0			0			0
623	Havant	sqm	0	0	0			0			0
624	Havant	sqm	0	0	0			0			0
625	Havant	sqm	0	0	0			0			0
626	Havant	sqm	0	0	0			0			0
627	Havant	sqm	0	0	0			0			0
628	Havant	sqm	0	0	0			0			0
629	Havant	sqm	0	0	0			0			0
630	Havant	sqm	0	0	0			0			0
631	Havant	sqm	0	0	0			0			0
632	Havant	sqm	0	0	0			0			0
633	Havant	sqm	0	0	0			0			0
634	Havant	sqm	0	0	0			0			0
635	Havant	sqm	0	0	0			0			0
636	Havant	sqm	0	0	0	2438		2438			0
637	Havant	sqm	0	0	0			0			0
638	Havant	sqm	0	0	0			0			0
639	Havant	sqm	0	0	0			0			0
640	Havant	sqm	0	0	0			0			0
641	Havant	sqm	0	0	0			0			0
642	Havant	sqm	0	0	0			0			0
643	Havant	sqm	0	0	0			0			0
644	Havant	sqm	0	0	0			0			0
645	Havant	sqm	0	0	0			0			0
646	Havant	sqm	0	0	0			0			0
881	Havant	sqm	0	0	0			0			0
882	Havant	sqm	0	0	0			0			0
900	Havant	sqm	0	0	0			0			0
976	Havant	sqm	0	0	0			0			0

SRTM - Reference Case 2019 Update

Land Use Assumptions

Office

			BASELINE 2041								
TOTAL	**ALL**	**sqm**	**42,593**								
TOTALS	**ALL**	**sqm**	14440	0	14440	18952	443	18509	9644	0	9644
			Completions			**Permissions**			**Allocations**		
Zone	**District**	**Unit**	Gains	Losses	Net	Gains	Losses	Net	Gains	Losses	Net
591	Havant	sqm	0	0	0	0		0	0		0
592	Havant	sqm	0	0	0	0		0	0		0
593	Havant	sqm	0	0	0	0		0	0		0
594	Havant	sqm	0	0	0	0		0	0		0
595	Havant	sqm	0	0	0	0		0	0		0
596	Havant	sqm	0	0	0	0		0	0		0
597	Havant	sqm	0	0	0	0		0	0		0
598	Havant	sqm	0	0	0	7250		7250	0		0
599	Havant	sqm	0	0	0	0		0	0		0
600	Havant	sqm	0	0	0	0		0	0		0
601	Havant	sqm	0	0	0	0		0	0		0
602	Havant	sqm	0	0	0	0		0	0		0
603	Havant	sqm	0	0	0	0		0	0		0
604	Havant	sqm	0	0	0	3348		3348	0		0
605	Havant	sqm	3039	0	3039	0		0	0		0
606	Havant	sqm	0	0	0	0		0	2300		2300
607	Havant	sqm	0	0	0	0		0	0		0
608	Havant	sqm	0	0	0	0		0	0		0
609	Havant	sqm	0	0	0	0		0	0		0
610	Havant	sqm	0	0	0	0		0	0		0
611	Havant	sqm	0	0	0	0		0	0		0
612	Havant	sqm	0	0	0	0		0	275		275
613	Havant	sqm	0	0	0	157		157	1180		1180
614	Havant	sqm	0	0	0	0		0	0		0
615	Havant	sqm	0	0	0	0		0	0		0
616	Havant	sqm	0	0	0	0		0	0		0
617	Havant	sqm	2482	0	2482	0	443	-443	440		440
618	Havant	sqm	0	0	0	0		0	0		0
619	Havant	sqm	0	0	0	0		0	0		0
620	Havant	sqm	0	0	0	0		0	0		0
621	Havant	sqm	0	0	0	0		0	0		0
622	Havant	sqm	0	0	0	0		0	0		0
623	Havant	sqm	0	0	0	0		0	0		0
624	Havant	sqm	1364	0	1364	0		0	0		0
625	Havant	sqm	0	0	0	0		0	0		0
626	Havant	sqm	0	0	0	0		0	0		0
627	Havant	sqm	0	0	0	0		0	0		0
628	Havant	sqm	0	0	0	0		0	0		0
629	Havant	sqm	0	0	0	0		0	0		0
630	Havant	sqm	0	0	0	0		0	0		0
631	Havant	sqm	0	0	0	0		0	0		0
632	Havant	sqm	0	0	0	0		0	0		0
633	Havant	sqm	0	0	0	0		0	0		0
634	Havant	sqm	0	0	0	0		0	0		0
635	Havant	sqm	0	0	0	0		0	0		0
636	Havant	sqm	299	0	299	2147		2147	853		853
637	Havant	sqm	0	0	0	0		0	0		0
638	Havant	sqm	0	0	0	0		0	0		0
639	Havant	sqm	308	0	308	0		0	0		0
640	Havant	sqm	0	0	0	0		0	0		0
641	Havant	sqm	0	0	0	0		0	0		0
642	Havant	sqm	0	0	0	0		0	0		0
643	Havant	sqm	0	0	0	0		0	0		0
644	Havant	sqm	0	0	0	0		0	0		0
645	Havant	sqm	0	0	0	0		0	0		0
646	Havant	sqm	0	0	0	0		0	0		0
881	Havant	sqm	6949	0	6949	6050		6050	1112		1112
882	Havant	sqm	0	0	0	0		0	3484		3484
900	Havant	sqm	0	0	0	0		0	0		0
976	Havant	sqm	0	0	0	0		0	0		0

SRTM - Reference Case 2019 Update

Land Use Assumptions

Industrial

			BASELINE 2041								
TOTAL	**ALL**	**sqm**	**79,533**								
TOTALS	**ALL**	**sqm**	17835	0	17835	42518	1028	41490	20208	0	20208
			Completions			**Permissions**			**Allocations**		
Zone	**District**	**Unit**	Gains	Losses	Net	Gains	Losses	Net	Gains	Losses	Net
591	Havant	sqm	0	0	0	0		0	0		0
592	Havant	sqm	0	0	0	0		0	0		0
593	Havant	sqm	0	0	0	0		0	0		0
594	Havant	sqm	0	0	0	0		0	0		0
595	Havant	sqm	0	0	0	0		0	0		0
596	Havant	sqm	0	0	0	0		0	0		0
597	Havant	sqm	0	0	0	0		0	0		0
598	Havant	sqm	0	0	0	16820		16820	0		0
599	Havant	sqm	0	0	0	0		0	0		0
600	Havant	sqm	0	0	0	0		0	0		0
601	Havant	sqm	0	0	0	0		0	0		0
602	Havant	sqm	0	0	0	0		0	0		0
603	Havant	sqm	0	0	0	0		0	0		0
604	Havant	sqm	0	0	0	3457		3457	0		0
605	Havant	sqm	6548	0	6548	0		0	3171		3171
606	Havant	sqm	0	0	0	0		0	0		0
607	Havant	sqm	0	0	0	0		0	0		0
608	Havant	sqm	0	0	0	0		0	0		0
609	Havant	sqm	0	0	0	0		0	0		0
610	Havant	sqm	0	0	0	0		0	0		0
611	Havant	sqm	0	0	0	0		0	0		0
612	Havant	sqm	0	0	0	0		0	638		638
613	Havant	sqm	0	0	0	364		364	2738		2738
614	Havant	sqm	0	0	0	0		0	0		0
615	Havant	sqm	0	0	0	0		0	0		0
616	Havant	sqm	0	0	0	2860		2860	0		0
617	Havant	sqm	1931	0	1931	0	1028	-1028	1021		1021
618	Havant	sqm	0	0	0	0		0	0		0
619	Havant	sqm	0	0	0	0		0	0		0
620	Havant	sqm	0	0	0	0		0	0		0
621	Havant	sqm	0	0	0	0		0	0		0
622	Havant	sqm	0	0	0	0		0	0		0
623	Havant	sqm	0	0	0	0		0	0		0
624	Havant	sqm	1061	0	1061	0		0	0		0
625	Havant	sqm	0	0	0	0		0	0		0
626	Havant	sqm	0	0	0	0		0	0		0
627	Havant	sqm	0	0	0	0		0	0		0
628	Havant	sqm	0	0	0	0		0	0		0
629	Havant	sqm	0	0	0	0		0	0		0
630	Havant	sqm	0	0	0	0		0	0		0
631	Havant	sqm	0	0	0	0		0	0		0
632	Havant	sqm	0	0	0	0		0	0		0
633	Havant	sqm	0	0	0	0		0	0		0
634	Havant	sqm	0	0	0	0		0	0		0
635	Havant	sqm	0	0	0	0		0	0		0
636	Havant	sqm	0	0	0	4980		4980	1980		1980
637	Havant	sqm	0	0	0	0		0	0		0
638	Havant	sqm	0	0	0	0		0	0		0
639	Havant	sqm	239	0	239	0		0	0		0
640	Havant	sqm	0	0	0	0		0	0		0
641	Havant	sqm	0	0	0	0		0	0		0
642	Havant	sqm	0	0	0	0		0	0		0
643	Havant	sqm	0	0	0	0		0	0		0
644	Havant	sqm	0	0	0	0		0	0		0
645	Havant	sqm	0	0	0	0		0	0		0
646	Havant	sqm	0	0	0	0		0	0		0
881	Havant	sqm	8056	0	8056	14037		14037	2579		2579
882	Havant	sqm	0	0	0	0		0	8082		8082
900	Havant	sqm	0	0	0	0		0	0		0
976	Havant	sqm	0	0	0	0		0	0		0

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Land Use Assumptions

Warehousing

			BASELINE 2041								
TOTAL	**ALL**	**sqm**	**39,227**								
TOTALS	**ALL**	**sqm**	21308	0	21308	11519	301	11218	6701	0	6701
			Completions			**Permissions**			**Allocations**		
Zone	**District**	**Unit**	Gains	Losses	Net	Gains	Losses	Net	Gains	Losses	Net
591	Havant	sqm	0	0	0	0		0	0		0
592	Havant	sqm	0	0	0	0		0	0		0
593	Havant	sqm	0	0	0	0		0	0		0
594	Havant	sqm	0	0	0	0		0	0		0
595	Havant	sqm	0	0	0	0		0	0		0
596	Havant	sqm	0	0	0	0		0	0		0
597	Havant	sqm	0	0	0	0		0	0		0
598	Havant	sqm	0	0	0	4930		4930	0		0
599	Havant	sqm	0	0	0	0		0	0		0
600	Havant	sqm	0	0	0	0		0	0		0
601	Havant	sqm	0	0	0	0		0	0		0
602	Havant	sqm	0	0	0	0		0	0		0
603	Havant	sqm	0	0	0	0		0	0		0
604	Havant	sqm	0	0	0	1013		1013	0		0
605	Havant	sqm	1919	0	1919	0		0	1707		1707
606	Havant	sqm	0	0	0	0		0	0		0
607	Havant	sqm	0	0	0	0		0	0		0
608	Havant	sqm	0	0	0	0		0	0		0
609	Havant	sqm	0	0	0	0		0	0		0
610	Havant	sqm	0	0	0	0		0	0		0
611	Havant	sqm	0	0	0	0		0	0		0
612	Havant	sqm	0	0	0	0		0	187		187
613	Havant	sqm	0	0	0	2		2	802		802
614	Havant	sqm	0	0	0	0		0	0		0
615	Havant	sqm	0	0	0	0		0	0		0
616	Havant	sqm	0	0	0	0		0	0		0
617	Havant	sqm	15152	0	15152	0	301	-301	299		299
618	Havant	sqm	0	0	0	0		0	0		0
619	Havant	sqm	0	0	0	0		0	0		0
620	Havant	sqm	0	0	0	0		0	0		0
621	Havant	sqm	0	0	0	0		0	0		0
622	Havant	sqm	0	0	0	0		0	0		0
623	Havant	sqm	0	0	0	0		0	0		0
624	Havant	sqm	606	0	606	0		0	0		0
625	Havant	sqm	0	0	0	0		0	0		0
626	Havant	sqm	0	0	0	0		0	0		0
627	Havant	sqm	0	0	0	0		0	0		0
628	Havant	sqm	0	0	0	0		0	0		0
629	Havant	sqm	0	0	0	0		0	0		0
630	Havant	sqm	0	0	0	0		0	0		0
631	Havant	sqm	0	0	0	0		0	0		0
632	Havant	sqm	0	0	0	0		0	0		0
633	Havant	sqm	0	0	0	0		0	0		0
634	Havant	sqm	0	0	0	0		0	0		0
635	Havant	sqm	0	0	0	0		0	0		0
636	Havant	sqm	0	0	0	1460		1460	580		580
637	Havant	sqm	0	0	0	0		0	0		0
638	Havant	sqm	0	0	0	0		0	0		0
639	Havant	sqm	137	0	137	0		0	0		0
640	Havant	sqm	0	0	0	0		0	0		0
641	Havant	sqm	0	0	0	0		0	0		0
642	Havant	sqm	0	0	0	0		0	0		0
643	Havant	sqm	0	0	0	0		0	0		0
644	Havant	sqm	0	0	0	0		0	0		0
645	Havant	sqm	0	0	0	0		0	0		0
646	Havant	sqm	0	0	0	0		0	0		0
881	Havant	sqm	3493	0	3493	4114		4114	756		756
882	Havant	sqm	0	0	0	0		0	2369		2369
900	Havant	sqm	0	0	0	0		0	0		0
976	Havant	sqm	0	0	0	0		0	0		0

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Land Use Assumptions

Primary & Secondary Education

			BASELINE 2041								
TOTAL	**ALL**	**sqm**	**3,030**								
TOTALS	**ALL**	**sqm**	0	0	0	0	0	0	3030	0	3030
			Completions			**Permissions**			**Allocations**		
Zone	**District**	**Unit**	Gains	Losses	Net	Gains	Losses	Net	Gains	Losses	Net
591	Havant	sqm			0			0			0
592	Havant	sqm			0			0			0
593	Havant	sqm			0			0			0
594	Havant	sqm			0			0			0
595	Havant	sqm			0			0			0
596	Havant	sqm			0			0			0
597	Havant	sqm			0			0			0
598	Havant	sqm			0			0			0
599	Havant	sqm			0			0			0
600	Havant	sqm			0			0			0
601	Havant	sqm			0			0			0
602	Havant	sqm			0			0			0
603	Havant	sqm			0			0			0
604	Havant	sqm			0			0			0
605	Havant	sqm			0			0			0
606	Havant	sqm			0			0			0
607	Havant	sqm			0			0			0
608	Havant	sqm			0			0			0
609	Havant	sqm			0			0			0
610	Havant	sqm			0			0			0
611	Havant	sqm			0			0			0
612	Havant	sqm			0			0			0
613	Havant	sqm			0			0			0
614	Havant	sqm			0			0			0
615	Havant	sqm			0			0			0
616	Havant	sqm			0			0			0
617	Havant	sqm			0			0			0
618	Havant	sqm			0			0			0
619	Havant	sqm			0			0			0
620	Havant	sqm			0			0			0
621	Havant	sqm			0			0			0
622	Havant	sqm			0			0			0
623	Havant	sqm			0			0			0
624	Havant	sqm			0			0			0
625	Havant	sqm			0			0			0
626	Havant	sqm			0			0			0
627	Havant	sqm			0			0			0
628	Havant	sqm			0			0			0
629	Havant	sqm			0			0			0
630	Havant	sqm			0			0			0
631	Havant	sqm			0			0			0
632	Havant	sqm			0			0			0
633	Havant	sqm			0			0			0
634	Havant	sqm			0			0			0
635	Havant	sqm			0			0			0
636	Havant	sqm			0			0			0
637	Havant	sqm			0			0			0
638	Havant	sqm			0			0			0
639	Havant	sqm			0			0			0
640	Havant	sqm			0			0			0
641	Havant	sqm			0			0			0
642	Havant	sqm			0			0			0
643	Havant	sqm			0			0			0
644	Havant	sqm			0			0			0
645	Havant	sqm			0			0			0
646	Havant	sqm			0			0			0
881	Havant	sqm			0			0			0
882	Havant	sqm			0			0			0
900	Havant	sqm			0			0			0
976	Havant	sqm			0			0	3030		3030

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Land Use Assumptions

Hotel and Other Accomodation

			BASELINE 2041								
TOTAL	**ALL**	**sqm**	**16,480**								
TOTALS	**ALL**	**sqm**	440	0	440	30280	0	15240	800	0	800
			Completions			**Permissions**			**Allocations**		
Zone	**District**	**Unit**	Gains	Losses	Net	Gains	Losses	Net	Gains	Losses	Net
591	Havant	sqm	0	0	0	0		0	0		0
592	Havant	sqm	0	0	0	0		0	0		0
593	Havant	sqm	0	0	0	0		0	0		0
594	Havant	sqm	0	0	0	120		120	0		0
595	Havant	sqm	0	0	0	200		200	0		0
596	Havant	sqm	440	0	440	0		0	0		0
597	Havant	sqm	0	0	0	0		0	0		0
598	Havant	sqm	0	0	0	4760		4760	0		0
599	Havant	sqm	0	0	0	0		0	0		0
600	Havant	sqm	0	0	0	0		0	0		0
601	Havant	sqm	0	0	0	0		0	0		0
602	Havant	sqm	0	0	0	0		0	0		0
603	Havant	sqm	0	0	0	3200		3200	800		800
604	Havant	sqm	0	0	0	0		0	0		0
605	Havant	sqm	0	0	0	0		0	0		0
606	Havant	sqm	0	0	0	320		320	0		0
607	Havant	sqm	0	0	0	0		0	0		0
608	Havant	sqm	0	0	0	0		0	0		0
609	Havant	sqm	0	0	0	3120		3120	0		0
610	Havant	sqm	0	0	0	0		0	0		0
611	Havant	sqm	0	0	0	0		0	0		0
612	Havant	sqm	0	0	0	0		0	0		0
613	Havant	sqm	0	0	0	400		400	0		0
614	Havant	sqm	0	0	0	560		560	0		0
615	Havant	sqm	0	0	0	0		0	0		0
616	Havant	sqm	0	0	0	0		0	0		0
617	Havant	sqm	0	0	0	0		0	0		0
618	Havant	sqm	0	0	0	0		0	0		0
619	Havant	sqm	0	0	0	0		0	0		0
620	Havant	sqm	0	0	0	0		0	0		0
621	Havant	sqm	0	0	0	0		0	0		0
622	Havant	sqm	0	0	0	0		0	0		0
623	Havant	sqm	0	0	0	0		0	0		0
624	Havant	sqm	0	0	0	0		0	0		0
625	Havant	sqm	0	0	0	0		0	0		0
626	Havant	sqm	0	0	0	0		0	0		0
627	Havant	sqm	0	0	0	0		0	0		0
628	Havant	sqm	0	0	0	0		0	0		0
629	Havant	sqm	0	0	0	0		0	0		0
630	Havant	sqm	0	0	0	0		0	0		0
631	Havant	sqm	0	0	0	0		0	0		0
632	Havant	sqm	0	0	0	0		0	0		0
633	Havant	sqm	0	0	0	2560		2560	0		0
634	Havant	sqm	0	0	0	0		0	0		0
635	Havant	sqm	0	0	0	0		0	0		0
636	Havant	sqm	0	0	0	0		0	0		0
637	Havant	sqm	0	0	0	0		0	0		0
638	Havant	sqm	0	0	0	0		0	0		0
639	Havant	sqm	0	0	0	0		0	0		0
640	Havant	sqm	0	0	0	0		0	0		0
641	Havant	sqm	0	0	0	0		0	0		0
642	Havant	sqm	0	0	0	0		0	0		0
643	Havant	sqm	0	0	0	0		0	0		0
644	Havant	sqm	0	0	0	0		0	0		0
645	Havant	sqm	0	0	0	0		0	0		0
646	Havant	sqm	0	0	0	0		0	0		0
881	Havant	sqm	0	0	0	0		0	0		0
882	Havant	sqm	0	0	0	0		0	0		0
900	Havant	sqm	0	0	0	0		0	0		0
976	Havant	sqm	0	0	0	0		0	0		0

APPENDIX C - JUNCTION HOTSPOTS DETAILED PERFORMANCE (DO MINIMUM)

Havant Local Plan : Junction approach arm statistics for identified locations (Summary Sheet)

ID	Junction	Approach Arm	2041 BL AM Actual Flow (PCUs)	2041 DM AM Actual Flow (PCUs)	2041 BL AM RFC (%) (Act)	2041 DM AM RFC (%) (Act)	AM RFC Diff	AM	2041 BL AM Delay (s)	2041 DM AM Delay (s)	AM Delay Diff	AM	2041 BL AM Ave Queue (PCUs)	2041 DM AM Ave Queue (PCUs)	AM Ave Q Diff (pcu)	2041 BL AM Ave Queue (Metres)	2041 DM AM Ave Queue (Metres)	AM Ave Q Diff (M)	2041 BL PM Actual Flow (PCUs)	2041 DM PM Actual Flow (PCUs)	2041 BL PM RFC (%) (Act)	2041 DM PM RFC (%) (Act)	PM RFC Diff	PM	2041 BL PM Delay (s)	2041 DM PM Delay (s)	PM Delay Diff	PM	2041 BL PM Ave Queue (PCUs)	2041 DM PM Ave Queue (PCUs)	PM Ave Q Diff (pcu)	2041 BL PM Ave Queue (Metres)	2041 DM PM Ave Queue (Metres)	PM Ave Q Diff (M)	AM RFC (%)	AM Delay (s)	PM RFC (%)	PM Delay (s)
1	Southwick Road / High Street	High Street SB	76	77	14	14	0		7	7	0		0	0	0	0	0	0	298	292	54	56	2		9	10	1		0	0	0	2	3	0		1				
1		Southwick Road EB	727	720	98	97	-1		16	15	-2		2	2	0	15	12	-2	532	548	73	77	4		7	8	1		0	1	0	2	3	1		1				
1		Crooked Walk Lane NB	201	201	41	44	3		10	11	1		0	0	0	2	2	0	313	340	55	60	4		10	11	1		0	0	0	2	3	0		1				
1		Southwick Road WB	797	869	92	100	8	Sig	5	10	5		0	1	1	0	9	9	823	827	96	97	0		6	6	0		0	0	0	3	3	0	1	1				
2	Park Lane / Hazelholt Drive priority	Park Lane NB	217	203	20	19	-1		3	3	0		0	0	0	0	0	0	197	190	21	21	0		4	4	0		0	0	0	0	0	0		1				
2		Hazelholt Drive	563	678	73	87	14	Sig	5	6	1		0	1	0	2	4	2	468	565	59	72	13		4	4	0		0	0	0	1	1	1	1	1				
2		Park Lane SB	267	268	14	15	0		1	1	0		0	0	0	0	0	0	523	621	30	36	6		2	2	0		0	0	0	0	0	0		1				
3	New Road roundabout	New Road EB	1158	1172	107	107	0		152	160	7		46	49	3	279	295	16	1270	1296	102	102	0		58	62	4		19	21	2	114	125	11		1				2
3		Petersfield Road SB	1188	1179	103	105	1		93	113	20		29	35	6	173	211	37	1356	1353	102	102	0		65	70	5		22	24	2	133	145	11		1				2
3		Elmleigh Road WB	24	28	82	95	13	Sig	217	249	32		1	2	0	9	12	3	20	21	68	72	3		193	198	6		1	1	0	6	7	1	1	1				2
3		Park Road North	1406	1445	105	106	1		122	132	10		45	51	5	273	303	31	1267	1302	111	115	4		231	297	67	Sev	75	97	22	452	583	131		1				2
4	Elm Lane/ Park Road North	Park Road North SB	1332	1379	79	81	3		23	24	1		7	7	0	39	41	2	976	1028	87	92	5	Sig	38	45	7		7	8	1	42	46	3		2		2	1	1
4		Elm Lane WB	485	552	89	101	12	Sev	86	179	92	Sev	5	11	7	27	67	40	932	1022	82	90	8	Sig	66	105	39		7	16	9	40	94	53	2	2	2	2	1	1
4		Park Road South NB	1387	1368	71	71	0		67	64	-3		16	15	-1	95	90	-5	1003	956	79	76	-2		52	64	11		7	10	2	45	58	13		2		2		1
5	A27 EB off/on slip / Emsworth Road	Emsworth Road EB	609	638	97	108	10	Sev	33	187	154	Sev	5	31	27	30	189	159	513	514	93	99	6	Sig	29	46	17		4	6	2	21	36	14	2	2	2	2	1	1
5		A27 EB off slip	1351	1450	92	97	5	Sig	8	11	3		1	3	1	8	17	9	1638	1664	100	102	2		16	57	41		5	25	20	33	150	117	1	2		2		1
5		Havant Road WB	450	420	39	36	-3		4	4	0		0	0	0	0	0	0	187	205	16	18	2		4	4	0		0	0	0	0	0	0		2		2		1
6	London Road/Purbrook Heath Road	London Road SB	1007	1028	84	91	7	Sig	10	16	6		1	1	0	4	6	3	1160	1191	86	89	2		10	11	1		1	1	0	3	4	1	1	1				
6		London Road NB	1015	1030	48	49	1		2	2	0		0	0	0	0	0	0	769	759	36	35	-1		1	1	0		0	0	0	0	0	0		1				
6		Purbrook Heath Road EB	170	152	34	31	-3		8	8	0		0	0	0	1	1	0	472	504	85	88	3		15	16	1		2	2	0	9	11	2		1				
7	Maurepas Way/Hambledon Road Roundabout	Maurepas Way WB	1568	1691	79	85	6	Sig	14	15	1		1	1	0	3	5	1	1684	1716	92	94	1		17	18	1		2	2	0	12	14	2	1	1				
7		Maurepas Way NB	1041	1044	95	99	4		25	34	9		4	7	3	23	40	17	1014	987	89	87	-2		19	18	-1		2	2	0	13	11	-2		1				
7		Zone 902 access	227	228	6	6	0		13	13	0		0	0	0	0	0	0	222	222	5	5	0		12	12	0		0	0	0	0	0	0		1				
7		Zone 901 access	309	303	7	8	0		10	10	0		0	0	0	0	0	0	634	634	15	15	0		9	9	0		0	0	0	1	1	0		1				
7		Hambledon Road SB	970	945	57	56	0		8	8	0		0	0	0	2	2	0	1063	1039	70	69	-1		10	10	0		1	1	0	4	4	0		1				
8	Tear Drop - A27 / A2030 / Harts Farm Way	Harts Farm Way WB	492	537	108	112	4		190	260	69	Sev	24	34	11	143	206	63	368	388	111	114	3		266	310	44		24	29	5	145	175	30			2	2		
8		A27 junction circulating traffic	2866	2793	43	42	-1		0	0	0		0	0	0	0	0	0	2594	2626	39	40	0		0	0	0		0	0	0	0	0	0				2		
9	Belmont Junction	B2177 Portsdown Hill Road EB	681	690	103	104	1		92	113	21		16	21	4	99	123	24	658	684	102	106	4		77	140	63	Sev	13	25	12	79	152	73					2	2
9		Bedhampton Hill NB	597	594	102	102	0		75	78	4		11	12	1	67	70	4	661	672	106	109	3		151	206	55		26	36	10	155	213	58						2
9		B2177 Bedhampton Road WB	1180	1179	102	102	0		47	48	1		13	14	0	80	81	2	1181	1178	101	101	0		35	30	-5		9	8	-2	56	46	-10						2
10	B2148 Horndean Road / New Brighton Road	B2148 New Brighton Road NB	794	905	54	61	7		3	4	1		0	0	0	1	1	0	1060	1239	81	92	11	Sig	7	13	6		0	1	0	2	5	2		1		1	1	
10		Horndean Road SB	751	961	35	45	10		1	2	0		0	0	0	0	0	0	633	665	30	31	1		1	1	0		0	0	0	0	0	0		1			1	
10		B2147 New Brighton Road SB	580	569	81	90	9	Sig	9	17	8		1	2	1	6	13	7	363	390	52	62	10		6	7	2		0	0	0	2	3	1	1	1			1	
11	Horndean Road / Emsworth Common Road	Horndean Road NB	665	998	23	37	14		1	2	1		0	0	0	0	0	0	679	782	22	26	4		1	1	0		0	0	0	0	0	0					1	
11		Horndean Road SB	915	968	24	25	1		1	1	0		0	0	0	0	0	0	743	769	19	20	1		1	1	0		0	0	0	0	0	0					1	
11		Emsworth Common Road	307	282	68	77	10		13	22	9		1	1	1	5	9	4	510	511	90	100	10	Sig	18	54	36		2	7	5	13	43	31					1	1
12	Barncroft Way / Stockheath Lane	Barncroft Way SB	546	541	26	26	0		1	1	0		0	0	0	0	0	0	582	662	28	32	4		1	1	0		0	0	0	0	0	0		1				
12		Stockheath Lane SB	431	539	73	95	21	Sig	9	23	13		1	3	2	5	18	13	327	342	57	68	10		8	11	3		0	1	0	3	4	2	1	1				
12		Barncroft Way NB	652	645	57	56	0		4	4	0		0	0	0	1	1	0	805	927	64	76	13		5	7	2		0	0	0	1	2	1		1				
13	B2177 Portsdown Hill Road / Crookhorn Lane	Portsdown Hill Road EB	788	767	41	40	-1		2	2	0		0	0	0	0	0	0	888	947	45	48	3		2	2	0		0	0	0	0	0	0		1				
13		Crookhorn Lane SB	671	802	69	86	17	Sig	10	17	7		1	3	1	9	16	7	610	615	101	102	1		63	81	18		10	13	3	59	77	18	1	1				
13		Portsdown Hill Road WB	887	902	32	33	1		2	2	0		0	0	0	0	0	0	892	894	32	33	1		2	2	0		0	0	0	0	0	0		1				
14	Bedhampton Level Crossing	West Street EB	90	110	25	30	5		209	211	3		5	6	1	31	37	7	16	21	4	6	2		199	200	1		1	1	0	5	7	2				1		2
14		West Street WB	46	64	13	18	5		203	205	2		3	4	1	16	22	6	335	366	92	101	9	Sig	284	350	66	Sev	22	26	4	132	156	24			1	1	2	2
15	Bartons Road / Horndean Road	Comley Hill SB	317	385	11	14	3		2	2	0		0	0	0	0	0	0	63	87	2	3	1		5	3	-2		0	0	0	0	0	0	1					
15		Horndean Road NB	942	1152	24	30	5		2	2	0		0	0	0	0	0	0	1019	1124	26	29	3		2	2	0		0	0	0	0	0	0		1				
15		Bartons Road EB	743	716	94	101	7	Sig	23	36	14		4	7	3	26	43	16	794	784	100	101	0		27	30	3		6	6	1	35	39	3	1	1				
16	Hulbert Road / Fitzwygram Way roundabout	Hulbert Road SB	993	1005	71	74	2		5	5	0		0	0	0	1	1	0	1417	1434	99	101	2		8	26	18		1	9	8	7	52	45		1		2		2
16		Fitzwygram Way WB	353	374	41	43	1		6	6	0		0	0	0	1	1	0	477	560	104	116	12	Sev	125	338	213	Sev	16	47	31	95	283	187		1		2	2	2
16		Hulbert Road NB	949	1023	86	92	6	Sig	5	6	1		0	0	0	2	3	1	939	943	92	93	1		8	9	1		1	1	0	6	8	2	1	1		2		2
17	Stakes Hill Road / Grendstaple Road Roundabout	Stakes Hill Road SB	732	787	68	73	5		10	10	0		0	0	0	1	1	0	839	885	76	81	4		10	10	0		0	0	0	1	1	0				1		
17		Frendstaple Road WB	336	336	78	78	0		49	50	1		1	1	0	5	6	0	296	300	69	70	1		42	44	1		1	1	0	4	4	0				1		
17		Stakes Hill Road NB	772	817	68	72	4		7	7	0		0	0	0	0	0	0	959	1015	84	89	5	Sig	7	8	0		0	0	0	1	1	0				1	1	
18	Stakes Road / Purbrook Way Roundabout	Stakes Hill Road SB	855	887	101	103	2		55	87	32		12	20	8	72	121	50	886	924	94	98	4		13	19	6		2	3	2	11	20	9		1		1		
18		Purbrook Way WB	636	627	47	46	-1		8	8	0		0	0	0	0	0	0	908	908	70	71	1		9	9	0		0	0	0	2	2	0		1		1		
18		Crockhorn Lane NB	565	611	82	89	6	Sig	13	15	2		1	1	0	5	7	2	461	510	81	90	10	Sig	16	22	6		1	2	1	7	13	6	1	1		1	1	
18		Stakes Road EB	467	444	86	85	-1		20	20	0		2	2	0	10	10	0	408	409	79	84	5		18	22	4		1	2	0	7	10	3		1		1		
19	Downwood Way / London Road Roundabout	London Road SB	327	321	60	67	7		9	12	3		1	1	0	3	5	2	339	349	46	48	2		5	5	0		0	0	0	1	1	0		1				
19		A3 NB on-slip (one way)																																		1				
19		London Road NB	807	871	92	100	7	Sig	4	4	0		0	0	0	0	0	0	478	472	55	54	-1		4	4	0		0	0	0	0	0	0	1	1				
19		Downwood Way EB	146	146	26	29	3		7	8	1		0	0	0	1	1	0	164	167	22	22	0		5	5	0		0	0	0	0	0	0		1				

APPENDIX D - JUNCTION HOTSPOTS DETAILED PERFORMANCE (DO SOMETHING)

Havant Local Plan : Junction approach arm statistics for identified locations (Summary Sheet)

ID	Junction	Approach Arm	2046 BL AM Actual Flow (PCUs)	2046 DS AM Actual Flow (PCUs)	2046 BL AM RFC (%) (Act)	2046 DS AM RFC (%) (Act)	AM RFC Diff	AM	2046 BL AM Delay (s)	2046 DS AM Delay (s)	AM Delay Diff	AM	2046 BL AM Ave Queue (PCUs)	2046 DS AM Ave Queue (PCUs)	AM Ave Q Diff (pcu)	2046 BL AM Ave Queue (M)	2046 DS AM Ave Queue (M)	AM Ave Q Diff (M)	2046 BL PM Actual Flow (PCUs)	2046 DS PM Actual Flow (PCUs)	2046 BL PM RFC (%) (Act)	2046 DS PM RFC (%) (Act)	PM RFC Diff	PM	2046 BL PM Delay (s)	2046 DS PM Delay (s)	PM Delay Diff	PM	2046 BL PM Ave Queue (PCUs)	2046 DS PM Ave Queue (PCUs)	PM Ave Q Diff (pcu)	2046 BL PM Ave Queue (M)	2046 DS PM Ave Queue (M)	PM Ave Q Diff (M)
1	Southwick Road / High Street	High Street SB	76	77	14	14	0		7	7	0		0	0	0	0	0	0	298	292	54	55	2		9	10	1		0	0	0	2	3	0
1		Southwick Road EB	727	719	98	96	-1		16	15	-2		2	2	0	15	12	-2	532	543	73	76	3		7	8	1		0	1	0	2	3	1
1		Crooked Walk Lane NB	201	202	41	45	4		10	11	1		0	0	0	2	2	0	313	342	55	60	5		10	11	1		0	0	0	2	3	0
1		Southwick Road WB	797	869	92	100	8	Sig	5	10	5		0	1	1	0	9	8	823	823	96	96	0		6	6	0		0	0	0	3	3	0
2	Park Lane / Hazelholt Drive priority	Park Lane NB	217	208	20	19	-1		3	3	0		0	0	0	0	0	0	197	183	21	20	-1		4	4	0		0	0	0	0	0	0
2		Hazelholt Drive	563	659	73	85	12		5	6	1		0	1	0	2	3	2	468	526	59	66	8		4	4	0		0	0	0	1	1	0
2		Park Lane SB	267	267	14	14	0		1	1	0		0	0	0	0	0	0	523	601	30	35	5		2	2	0		0	0	0	0	0	0
3	New Road roundabout	New Road EB	1158	1174	107	107	0		152	157	5		46	49	2	279	292	13	1270	1280	102	102	0		58	64	6		19	21	2	114	128	14
3		Petersfield Road SB	1188	1183	103	104	0		93	100	7		29	31	2	173	187	13	1356	1349	102	102	0		65	68	4		22	23	1	133	141	7
3		Elmleigh Road WB	24	27	82	90	8	Sig	217	235	18		1	2	0	9	10	2	20	21	68	71	3		193	198	5		1	1	0	6	7	0
3		Park Road North	1406	1421	105	106	1		122	141	19		45	53	8	273	318	45	1267	1292	111	113	2		231	263	32		75	87	11	452	519	67
4	Elm Lane/ Park Road North	Park Road North SB	1332	1338	79	79	0		23	23	0		7	7	0	39	39	0	976	1046	87	94	6	Sig	38	48	10		7	8	1	42	47	4
4		Elm Lane WB	485	537	89	99	10	Sig	86	139	53		5	6	2	27	39	12	932	1002	82	88	6	Sig	66	93	27		7	12	5	40	73	33
4		Park Road South NB	1387	1368	71	70	-1		67	69	2		16	16	0	95	98	3	1003	954	79	77	-2		52	62	10		7	9	2	45	56	11
5	A27 EB off/on slip / Emsworth Road	Emsworth Road EB	609	880	97	68	-29		33	22	-12		5	4	-1	30	26	-4	513	559	93	62	-32		29	26	-3		4	3	0	21	20	-2
5		A27 EB off slip	1351	1383	92	48	-44		8	12	4		1	4	2	8	23	15	1638	1731	100	54	-46		16	12	-5		5	4	-1	33	26	-7
5		Havant Road WB	450	419	39	36	-3		4	16	12		0	1	1	0	8	8	187	172	16	18	2		4	17	13		0	1	1	0	4	4
6	London Road/Purbrook Heath Road	London Road SB	1007	1027	84	90	6	Sig	10	15	5		1	1	0	4	6	2	1160	1181	86	88	2		10	10	1		1	1	0	3	4	0
6		London Road NB	1015	1018	48	48	0		2	2	0		0	0	0	0	0	0	769	765	36	35	0		1	1	0		0	0	0	0	0	0
6		Purbrook Heath Road EB	170	153	34	31	-3		8	8	0		0	0	0	1	1	0	472	518	85	90	5	Sig	15	18	3		2	2	1	9	13	4
7		Maurepas Way WB	1568	1692	79	85	6	Sig	14	15	1		1	1	0	3	5	1	1684	1717	92	94	1		17	17	1		2	2	0	12	14	2
7	Maurepas Way/Hambledon Road Roundabout	Maurepas Way NB	1041	1033	95	98	3		25	33	8		4	6	2	23	37	13	1014	1000	89	88	-1		19	19	0		2	2	0	13	12	-1
7		Zone 902 access	227	227	6	6	0		13	13	0		0	0	0	0	0	0	222	221	5	5	0		12	12	0		0	0	0	0	0	0
7		Zone 901 access	309	296	7	7	0		10	10	0		0	0	0	0	0	0	634	631	15	15	0		9	9	0		0	0	0	1	1	0
7		Hambledon Road SB	970	942	57	56	-1		8	8	0		0	0	0	2	2	0	1063	1035	70	68	-1		10	10	0		1	1	0	4	4	0
8	Tear Drop - A27 / A2030 / Harts Farm Way	Harts Farm Way WB	492	530	108	113	5	Sig	190	288	97	Sev	24	37	13	143	223	80	368	383	111	114	3		266	326	60		24	30	6	145	180	35
8		A27 junction circulating traffic	2866	2808	43	43	-1		0	0	0		0	0	0	0	0	0	2594	2648	39	40	1		0	0	0		0	0	0	0	0	0
9	Belmont Junction	B2177 Portsdown Hill Road EB	681	684	103	104	0		92	98	6		16	18	1	99	106	7	658	672	102	104	1		77	102	25		13	18	5	79	108	30
9		Bedhampton Hill NB	597	596	102	102	0		75	75	1		11	11	0	67	67	1	661	658	106	108	1		151	179	28		26	30	5	155	182	27
9		B2177 Bedhampton Road WB	1180	1174	102	102	0		47	48	1		13	14	0	80	81	2	1181	1188	101	102	1		35	46	11		9	13	4	56	78	22
10	B2148 Horndean Road / New Brighton Road	B2148 New Brighton Road NB	794	873	54	58	4		3	4	0		0	0	0	1	1	0	1060	1250	81	92	11	Sig	7	13	6		0	1	0	2	5	2
10		Horndean Road SB	751	885	35	42	6		1	1	0		0	0	0	0	0	0	633	658	30	31	1		1	1	0		0	0	0	0	0	0
10		B2147 New Brighton Road SB	580	575	81	87	7	Sig	9	14	5		1	2	1	6	10	4	363	392	52	63	11		6	7	2		0	0	0	2	3	1
11	Horndean Road / Emsworth Common Road	Horndean Road NB	665	998	23	37	14		1	2	1		0	0	0	0	0	0	679	787	22	27	4		1	1	0		0	0	0	0	0	0
11		Horndean Road SB	915	960	24	25	1		1	1	0		0	0	0	0	0	0	743	777	19	20	1		1	1	0		0	0	0	0	0	0
11		Emsworth Common Road	307	270	68	75	7		13	21	8		1	1	1	5	8	3	510	499	90	99	9	Sig	18	48	31		2	6	4	13	34	21
12	Barncroft Way / Stockheath Lane	Barncroft Way SB	546	537	26	25	0		1	1	0		0	0	0	0	0	0	582	648	28	31	3		1	1	0		0	0	0	0	0	0
12		Stockheath Lane SB	431	504	73	87	14	Sig	9	15	5		1	2	1	5	10	5	327	337	57	65	8		8	10	2		0	1	0	3	4	1
12		Barncroft Way NB	652	653	57	56	-1		4	4	0		0	0	0	1	1	0	805	919	64	76	12		5	6	2		0	0	0	1	2	1
13	B2177 Portsdown Hill Road / Crookhorn Lane	Portsdown Hill Road EB	788	777	41	40	-1		2	2	0		0	0	0	0	0	0	888	942	45	48	3		2	2	0		0	0	0	0	0	0
13		Crookhorn Lane SB	671	785	69	84	16		10	17	7		1	3	1	9	15	6	610	604	101	102	1		63	80	18		10	13	3	59	76	17
13		Portsdown Hill Road WB	887	890	32	32	0		2	2	0		0	0	0	0	0	0	892	883	32	33	0		2	2	0		0	0	0	0	0	0
14	Bedhampton Level Crossing	West Street EB	90	104	25	29	4		209	211	2		5	6	1	31	36	5	16	26	4	7	3		199	200	1		1	1	1	5	9	3
14		West Street WB	46	72	13	20	7		203	206	3		3	4	1	16	25	9	335	353	92	97	5	Sig	284	312	29		22	23	1	132	141	9
15	Bartons Road / Horndean Road	Comley Hill SB	317	383	11	14	3		2	2	0		0	0	0	0	0	0	63	92	2	3	1		5	3	-2		0	0	0	0	0	0
15		Horndean Road NB	942	1140	24	30	5		2	2	0		0	0	0	0	0	0	1019	1108	26	29	2		2	2	0		0	0	0	0	0	0
15		Bartons Road EB	743	716	94	101	7	Sig	23	36	13		4	7	3	26	42	16	794	791	100	101	0		27	30	3		6	7	1	35	39	4
16	Hulbert Road / Fitzwygram Way roundabout	Hulbert Road SB	993	392	71	42	-30		5	3	-2		0	0	0	1	0	0	1417	226	99	23	-76		8	3	-5		1	0	-1	7	0	-7
16		Fitzwygram Way WB	353	379	41	36	-5		6	26	19		0	2	2	1	12	11	477	561	104	90	-14		125	73	-52		16	4	-12	95	24	-72
16		Hulbert Road NB	949	1030	86	46	-40		5	9	4		0	2	2	2	13	11	939	931	92	45	-47		8	11	2		1	2	1	6	14	7
17		Stakes Hill Road SB	732	793	68	73	6		10	10	0		0	0	0	1	1	0	839	909	76	83	6		10	10	0		0	0	0	1	2	0
17	Stakes Hill Road / Grendstaple Road Roundabout	Frendstaple Road WB	336	326	78	76	-2		49	48	-2		1	1	0	5	5	0	296	273	69	64	-5		42	39	-3		1	1	0	4	4	0
17		Stakes Hill Road NB	772	840	68	73	6		7	7	0		0	0	0	0	0	0	959	1048	84	91	7	Sig	7	7	0		0	0	0	1	1	0
18	Stakes Road / Purbrook Way Roundabout	Stakes Hill Road SB	855	887	101	103	2		55	87	32		12	20	8	72	122	51	886	928	94	98	4		13	19	5		2	3	1	11	20	9
18		Purbrook Way WB	636	653	47	48	1		8	8	0		0	0	0	0	0	0	908	908	70	71	1		9	9	0		0	0	0	2	2	0
18		Crockhorn Lane NB	565	613	82	90	8	Sig	13	16	3		1	1	1	5	9	4	461	500	81	90	9	Sig	16	22	6		1	2	1	7	13	6
18		Stakes Road EB	467	437	86	86	0		20	22	2		2	2	0	10	11	1	408	403	79	86	7	Sig	18	24	6		1	2	1	7	12	4
19	Downwood Way / London Road Roundabout	London Road SB	327	321	60	63	2		9	11	1		1	1	0	3	4	1	339	347	46	47	2		5	5	0		0	0	0	1	1	0
19		A3 NB on-slip (one way)																																
19		London Road NB	807	846	92	97	4		4	4	0		0	0	0	0	0	0	478	480	55	55	0		4	4	0		0	0	0	0	0	0
19		Downwood Way EB	146	146	26	28	2		7	7	1		0	0	0	1	1	0	164	167	22	22	0		5	5	0		0	0	0	0	0	0
20	A2030 Havant Road / Rectory Avenue	Havant Road EB	1113	1094	55	54	-1		2	2	0		0	0	0	0	0	0	1069	1066	51	51	0		2	2	0		0	0	0	0	0	0
20		Rectory Road SB	389	415	84	89	5	Sig	19	23	4		2	2	1	10	14	4	252	261	71	72	2		19	19	0		1	1	0	7	7	0
20		Havant Road WB	822	805	55	52	-3		4	3	0		0	0	0	1	0	0	1317	1294	81	79	-2		6	6	-1		0	0	0	1	1	0
21	A27 WB off/on slip / Havant Road	Havant Road WB	1658	1660	84	79	-5		5	16	11		1	6	5	4	34	30	1394	1362	64	65	0		4	14	10		0	4	4	1	25	24
21		A27 on slip (one way)																																
21		Circulating on roundabout																																
21		Circulating from A27 WB off slip	293	606	28	96	68	Sev	7	63	56		0	3	3	1	16	15	122	251	14	40	26		7	18	11		0	1	1	1	6	5

SYSTRA provides advice on transport, to central, regional and local government, agencies, developers, operators and financiers.

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Abu Dhabi
AS Business Centre, First Floor, Suites 201-213,
Al Ain Road, Umm al Nar, P.O. Box 129865,
Abu Dhabi, UAE
T: +971 2 558 3809 F: +971 2 558 9961

Birmingham
Second Floor, 37a Waterloo Street
Birmingham B2 5TJ United Kingdom
T: +44 (0)121 233 7680 F: +44 (0)121 233 7681

Dublin
1st Floor, 12/13 Exchange Place,
Custom House Docks, IFSC, Dublin 1 Ireland
T: +353 (0)1 542 6000 F: +353 (0)1 542 6001

Edinburgh
Prospect House, 5 Thistle Street, Edinburgh EH2 1DF
United Kingdom
T: +44 (0)131 220 6966

Glasgow
Seventh Floor, 78 St Vincent Street
Glasgow G2 5UB United Kingdom
T: +44 (0)141 225 4400

Lille
86 Boulevard Carnot, 59000 Lille, France

T: +33 (0)3 74 07 00 F: +33 (0)1 53 17 36 01

London
Seventh Floor, 15 Old Bailey
London EC4M 7EF United Kingdom
T: +44 (0)20 7529 6500 F: +44 (0)20 3427 6274

Lyon
11, rue de la République, 69001 Lyon, France
T: +33 (0)4 72 10 29 29 F: +33 (0)4 72 10 29 28

Manchester
25th Floor, City Tower, Piccadilly Plaza
Manchester M1 4BT United Kingdom
T: +44 (0)161 236 0282 F: +44 (0)161 236 0095

Marseille
76, rue de la République, 13002 Marseille, France
T: +33 (0)4 91 37 35 15 F: +33 (0)4 91 91 90 14

Newcastle
PO Box 438, Newcastle upon Tyne, NE3 9BT
United Kingdom
T: +44 (0)191 2136157

Paris
72 rue Henry Farman, 75015 Paris, France
T: +33 (0)1 53 17 36 00 F: +33 (0)1 53 17 36 01

Woking
Dukes Court, Duke Street
Woking, Surrey GU21 5BH United Kingdom
T: +44 (0)1483 728051 F: +44 (0)1483 755207

Hong Kong
14th Floor West, Warwick House, TaiKoo Place,

979 King's Road, Island East, Hong Kong

T: +852 2529 7037 F: +852 2527 8490

Shenzhen
Room 905, Excellence Mansion, No.98, No.1 Fuhua Road,
Futian Central Zone, Shenzhen, PRC, Post Code：518048
T：+86 755 3336 1898 F：+86 755 3336 2060

Shenzhen - Beijing Branch Office
Room 1503, Block C, He Qiao Mansion, No. 8 Guanghua Road,
Chaoyang District, Beijing, PRC, Post Code：100026
T：+86 10 8557 0116 F：+86 10 8557 0126

Beijing Joint Venture
Room 1507, Main Building, No. 60, Nan Li Shi Road,
Xi Cheng District, Beijing, PRC, Post Code：100045
T：+86 10 8807 3718 F：+86 10 6804 3744

Mumbai
Antriksh, Unit no. 301, 3rd Floor, CTS Nos.
773, 773/1 to 7, Makwana Road, Marol, Andheri East ,
Mumbai 400069
T: +91 22 2647 3134

B 307, Great Eastern Summit Sector - 15, CBD Belapur Navi
Mumbai - 400 614
T: +91 22 2757 2745

New Delhi
5th Floor Guru Angad Bhawan, 71 Nehru Place, New Delhi
110019
T: +91 11 2641 3310

Noida
3/F, C-131, Sector 2, Noida-201301, U.P.
T: +91 120 432 6999

Singapore
25 Seah Street #04-01 Singapore 188381
T：+65 6227 3252 F：+65 6423 0178

Thailand
37th Floor, Unit F, Payatai Plaza Building,128/404-405 Payathai
Road, Rajthewee, Bangkok 10400, Thailand
T：+662 216 6652 F：+662 216 6651

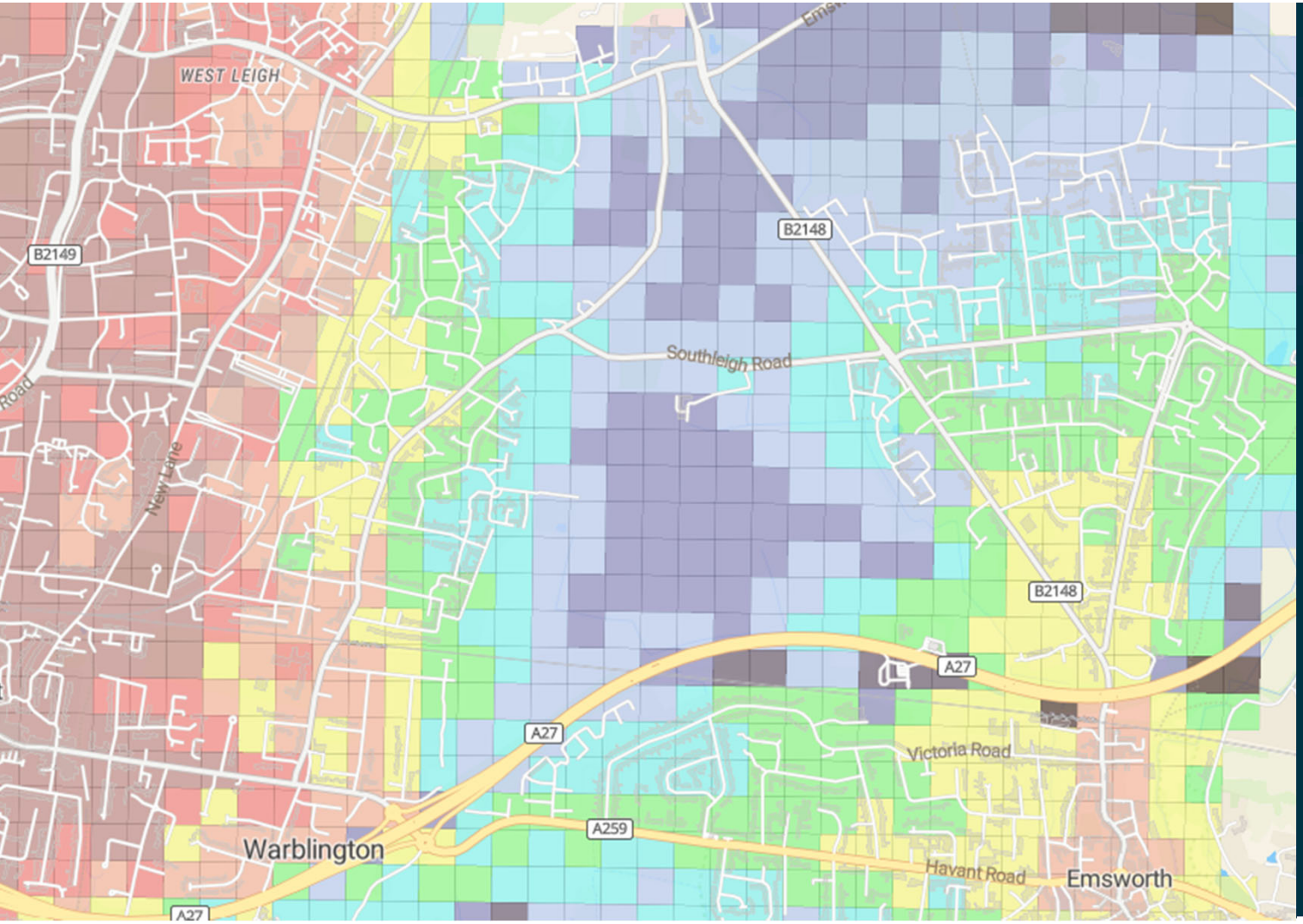
Vietnam
5/F Perfect Building, Le Thi Hong Gam St, District 1,
Ho Chi Minh City, Vietnam

Appendix C – DfT Connectivity Tool Outputs

DfT Connectivity Tool outputs for Havant Borough Council Local Plan allocations

Colour scale simplified from Connectivity Tool, Havant banding

					Sitewide scores				Connectivity scores calculated as site average										
									Mean connectivity score calculated using 'overall' selected in destination field				Mean connectivity score calculated using 'overall (except driving)' selected in modes field						
Site	Dwellings	Beds/Units (care facilities	Floorspace (m^2)	Allocation type	Mean score	Max score	Min score	Variance	Cycling	Walking	Driving	Public Transport	Education	Leisure	Health	Shopping	Residential	Workplaces	Date accessed (week commencing)
Southleigh	2,100			Residential	51	65	33	32	55	45	76	55	45	49	43	49	63	54	17/11/2025
Campdown	628			Residential	55	64	43	21	63	47	81	59	56	48	42	50	67	58	15/09/2025
Long Copse Lane (main site)	260			Residential	45	52	29	23	57	40	75	47	40	42	33	43	58	48	15/09/2025
Newlands, Hambledon Road (Phases 4 and 8)	190			Residential				0											
Land east of Castle Ave	184			Residential	56	62	48	14	47	49	72	62	44	53	52	59	64	57	15/09/2025
Cabbagefield Row	150			Residential	56	61	46	15	63	50	76	58	57	49	36	57	65	54	15/09/2025
Kingscroft Farm	120			Residential	67	70	63	7	67	62	85	69	54	66	66	77	68	61	15/09/2025
Portsmouth Water HQ	120			Residential	73	77	68	9	71	70	87	75	61	75	71	87	70	63	15/09/2025
Land West of Hulbert Road	100			Residential	57	67	47	20	64	51	86	60	53	49	48	58	68	57	15/09/2025
Goodwillies Timber Yard	96			Residential	69	73	66	7	70	67	86	70	70	61	67	78	69	59	15/09/2025
South Downs College Carpark	91			Residential	61	64	57	7	66	54	84	64	68	52	48	57	69	58	15/09/2025
Former Electricity Board, Bartons Road	90			Residential	71	73	70	3	70	70	87	72	68	72	62	83	70	59	15/09/2025
Palk Road	83			Residential	71	74	67	7	72	68	87	74	63	72	67	82	71	63	15/09/2025
Padnell Grange	83			Residential	60	63	58	5	65	61	83	59	62	50	58	69	65	51	15/09/2025
Strouden Court	81			Residential	65	69	62	7	67	64	84	65	70	58	45	70	68	56	15/09/2025
Former Dairy Crest Depot	73			Residential	72	74	71	3	72	71	88	72	68	71	60	87	70	59	15/09/2025
Blue Star	69			Residential	73	74	72	2	71	72	87	73	69	67	73	89	69	59	15/09/2025
Southleigh Park House	61			Residential	48	51	46	5	62	40	84	52	43	46	37	43	63	53	15/09/2025
Coldharbour Farm	44			Residential	58	66	27	39	57	52	81	63	48	59	59	63	62	55	15/09/2025
South of Lower Road Phase 2	43			Residential	52	55	49	6	61	43	82	58	40	49	41	52	66	58	15/09/2025
Helmsley House	30	78		Care facility	56	58	54	4	64	51	83	58	54	53	43	55	65	55	15/09/2025
Former Oak Park School (south west)	21	160		Care facility	73	75	71	4	71	70	86	75	67	74	68	82	72	63	15/09/2025
Former Oak Park School (main)	21	160		Care facility	73	75	71	4	71	70	85	75	67	75	69	83	72	63	15/09/2025
	6	64		Care facility	69	69	69	0	70	72	86	66	78	58	66	80	67	55	15/09/2025
Dunsbury Way		70		Care facility	73	74	72	2	72	72	88	74	70	72	61	86	71	60	15/09/2025
Belmont Castle Rest Home		48		Care facility	57	59	56	3	67	48	87	63	48	53	44	59	68	60	15/09/2025
Langstone Park			49,000	Employment	64	71	51	20	64	59	82	67	49	62	62	73	66	60	15/09/2025
Dunsbury Park Strategic Site phase 1 and 2			42,600	Employment	54	62	46	16	62	48	80	56	52	47	37	54	66	54	17/11/2025
Dunsbury Park Strategic Site phase 3			42,600	Employment	52	57	47	10	61	47	79	54	47	46	40	54	65	52	17/11/2025
Waterloo Park			12,000	Employment	69	72	65	7	68	67	86	69	63	60	62	87	67	57	15/09/2025
Gas Holder Site, New Lane			3,760	Employment	67	68	65	3	69	65	86	67	65	65	56	72	70	60	15/09/2025
Former Colt Site			2,860	Employment	64	65	62	3	68	62	85	64	63	61	52	68	68	58	15/09/2025
Interbridges East			2,300	Employment	68	70	65	5	63	60	84	74	57	72	73	77	67	59	15/09/2025
Interbridges West			2,200	Employment	52	66	33	33	52	44	80	58	40	50	50	55	60	54	15/09/2025
Gas Site, Palmers Road			1,920	Employment	69	70	66	4	66	60	86	85	56	73	75	79	67	59	15/09/2025



Hampshire 2050

Southleigh Connectivity Map – Walking (all destinations)

Accessed 17 November 2025

Coloured bands illustrate overall connectivity scores of 100m² cells relative to the wider Havant area

Shows most of the site is not well connected for walking, particularly the central areas (mainly band G and H)

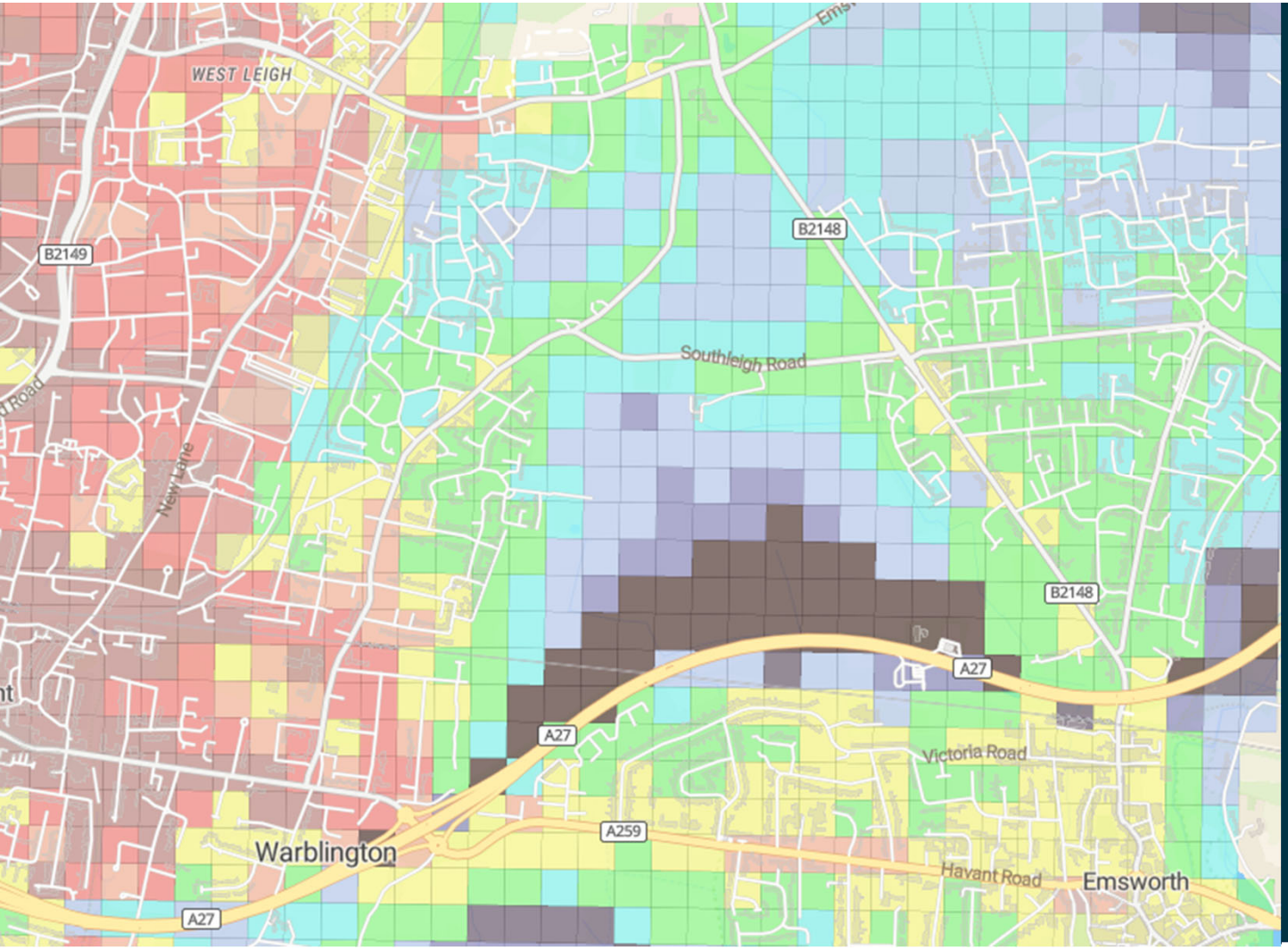
A: most connected
J: least connected

J I H G F E D C B A

Hampshire County Council

FIGURE C1

Havant Local Plan 2025-2043: Strategic Transport Assessment



Hampshire 2050

Southleigh Connectivity Map – Cycling (all destinations)

Accessed 17 November 2025

Coloured bands illustrate overall connectivity scores of 100m² cells relative to the wider Havant area

Shows most of the site is not well connected for cycling, with the southern section scoring very poorly (J)

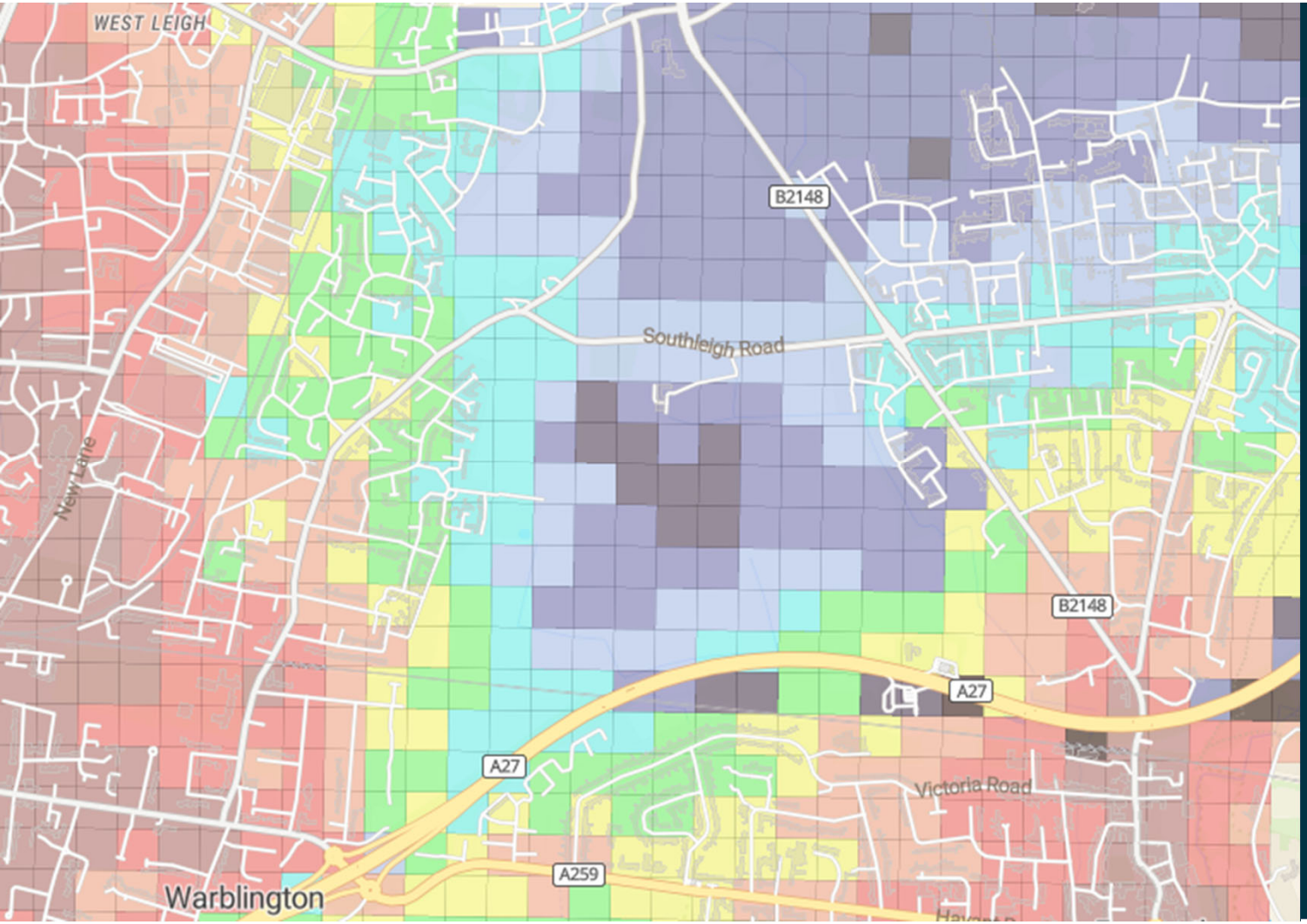
A: most connected
J: least connected

J I H G F E D C B A

Hampshire County Council

FIGURE C2

Havant Local Plan 2025-2043: Strategic Transport Assessment



Hampshire 2050

Southleigh Connectivity Map – Public Transport (all destinations)

Accessed 17 November 2025

Coloured bands illustrate overall connectivity scores of 100m² cells relative to the wider Havant area

Shows most of the site is not well connected for Public Transport, with the central areas scoring mainly G,H and I

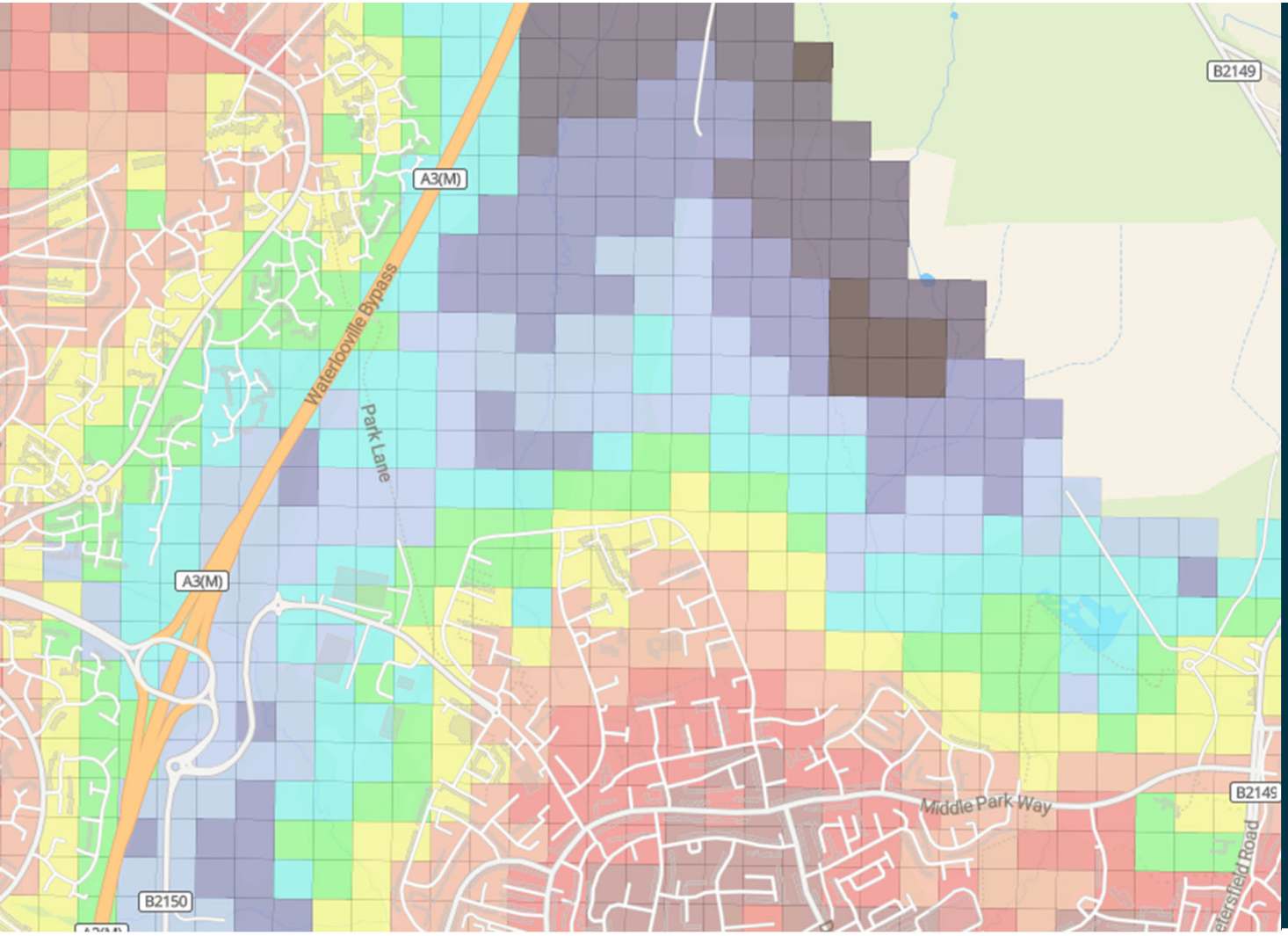
A: most connected
J: least connected

J I H G F E D C B A

Hampshire County Council

FIGURE C3

Havant Local Plan 2025-2043: Strategic Transport Assessment



Hampshire 2050

Dunsbury Park Connectivity Map – Walking (all destinations)

Accessed 17 November 2025

Coloured bands illustrate overall connectivity scores of 100m² cells relative to the wider Havant area

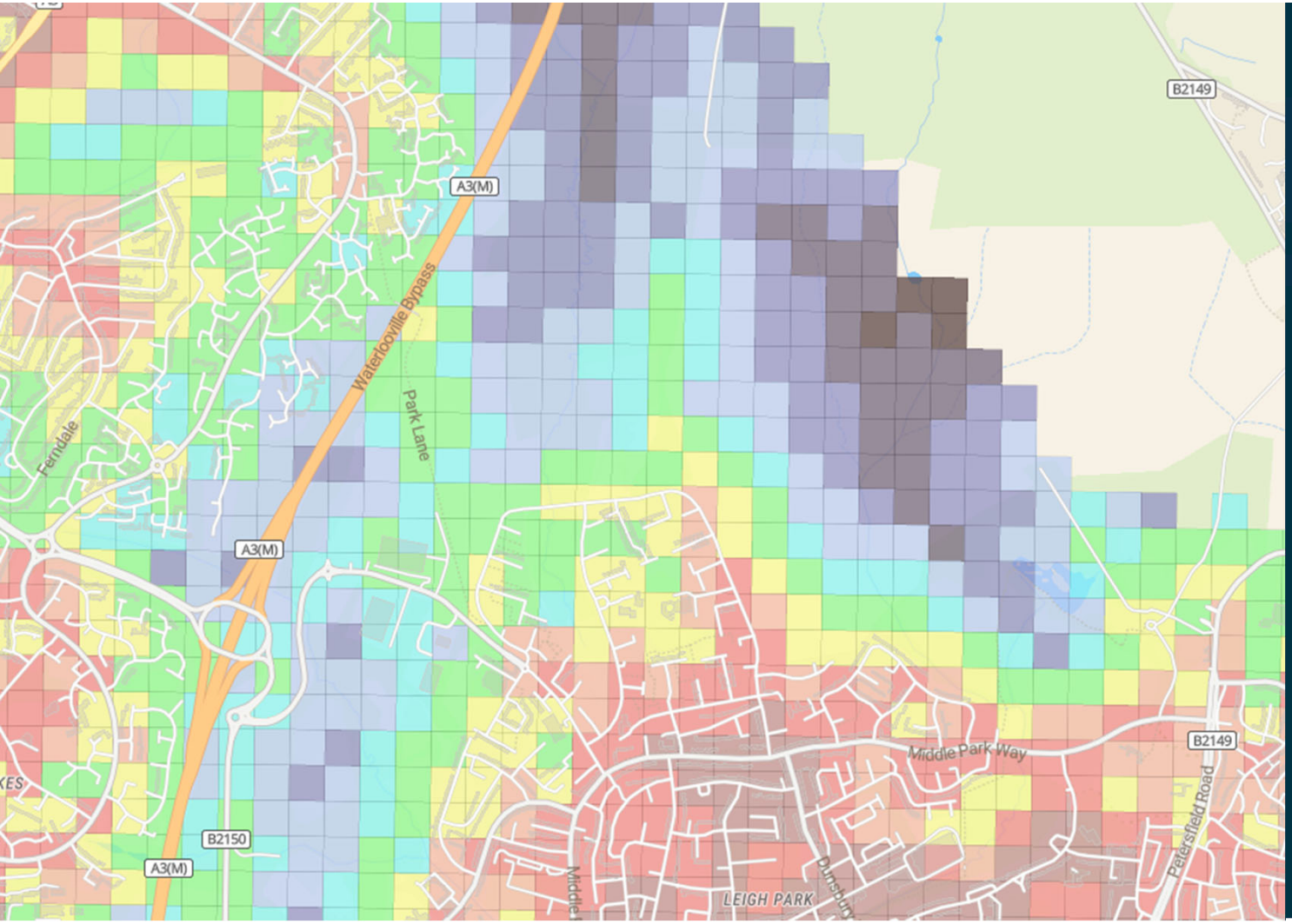
Shows overall most of the site is poorly connected for walking

A: most connected
J: least connected

Hampshire County Council

FIGURE C4

Havant Local Plan 2025-2043: Strategic Transport Assessment



Hampshire 2050

Dunsbury Park Connectivity Map – Cycling (all destinations)

Accessed 18 November 2025

Coloured bands illustrate overall connectivity scores of 100m² cells relative to the wider Havant area

Shows overall most of the site is not well connected for cycling but with some areas being better connected

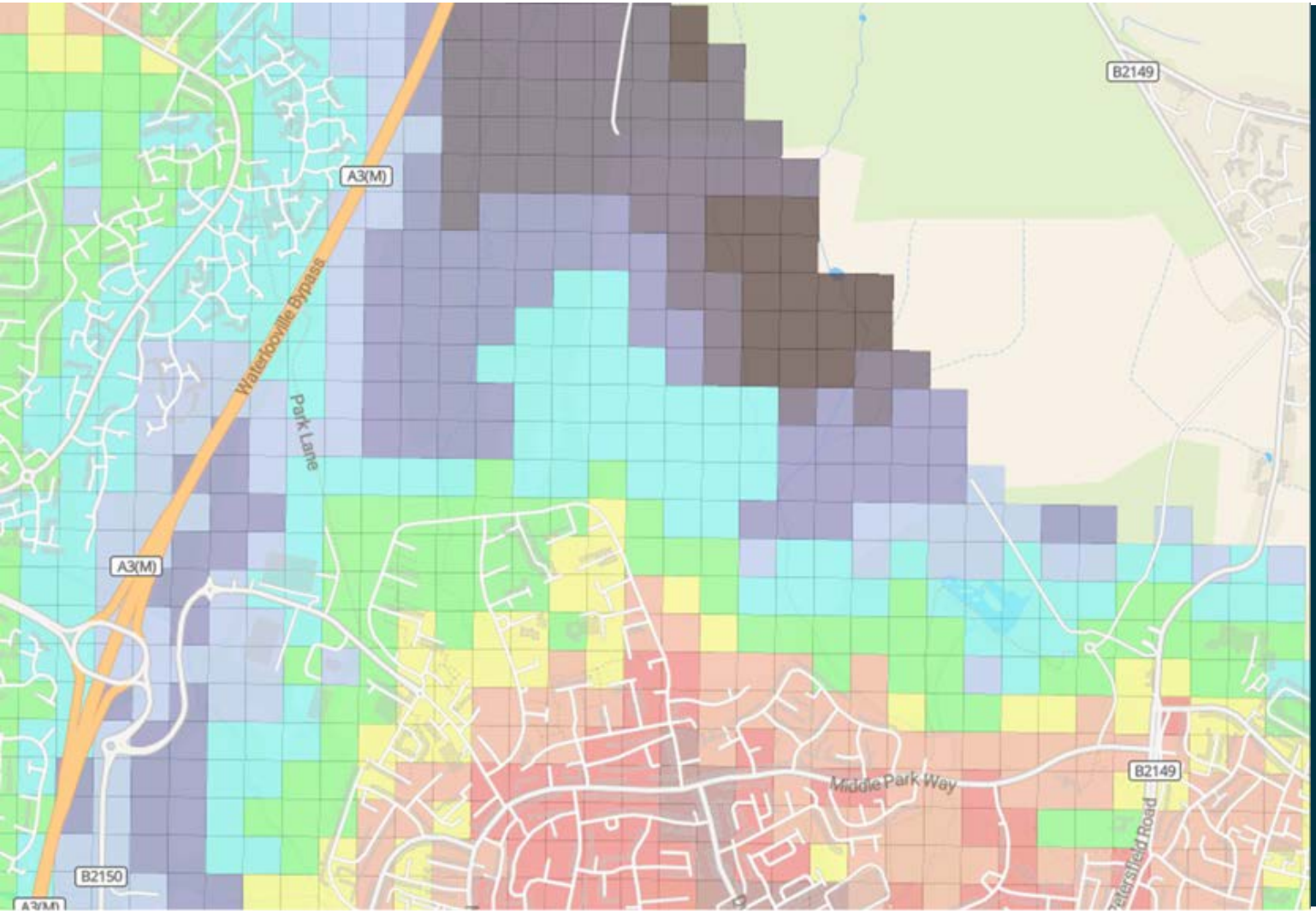
A: most connected
J: least connected

J I H G F E D C B A

Hampshire County Council

FIGURE C5

Havant Local Plan 2025-2043: Strategic Transport Assessment



Hampshire 2050

Dunsbury Park Connectivity Map – Public Transport (all destinations)

Accessed 18 November 2025

Coloured bands illustrate overall connectivity scores of 100m² cells relative to the wider Havant area

Shows most of the site is not well connected for Public Transport, but with some better-connected areas

A: most connected
J: least connected

Hampshire County Council

FIGURE C6

Havant Local Plan 2025-2043: Strategic Transport Assessment

Appendix D – Walking and Cycling Route Analysis

Methodology

Local Plan site allocation polygon centroids were used to provide origins for walking and cycling routes. These centroids were snapped to the nearest point on the Hampshire County Council highways and Public Rights of Way (PRoW) networks to allow for route mapping.

Destination types were taken from Table 1 of the DfT's connectivity tool methodology and location data obtained using the OS AddressBase Premium dataset and Hampshire County Council's railway stations, bus stops and school catchment datasets.

Unweighted origin and destination matrices for every origin and destination pair within the maximum route distances below were constructed and used to produce desire lines. The OpenStreetMap Routing Machine (OSRM) was then used to create routes for each desire line, which were then filtered by distance as set out below. The OSRM profiles for '[on] foot' and '[by] bike' were used for walking and cycling routes respectively to avoid route allocation to parts of the highway inaccessible to each mode.

Maximum route distances:

- Walking destinations
    - 800m for all destinations except:
    - Bus stops – within 400m travelling distance of a site centroid
    - Schools – route to catchment school(s) regardless of distance.
    - Routes to Havant Railway Station from Southleigh site access points.
- Cycling destinations
    - 5,000m for all destinations except:
    - Bus stops along 'STAR' routes 7 and 8 within 5,000m of a site centroid
    - Schools – route to catchment school(s) regardless of distance.

In order to evaluate which sections of the highway and PRoW networks are likely to experience the highest flows resulting from the site allocations, all routes were converted into a single aggregated route network which gave a value for each unique highway segment representing the number of routes which shared each highway segment. This was conducted for both walking and cycling routes, with each route given a weighting of one.

Walking Route Analysis

The map(s) below show the Havant STA walking routes (i.e. routes between proposed sites and trip attractors) overlaid on Havant and Waterlooville Core Walking Zones. The maps also show other CWZ options and the locations of

the Havant Local Plan allocations (as modelled in the SRTM Do-Minimum Scenario).

Thicker lines indicate sections of highway that have a higher number of overlapping routes between proposed sites and trip attractors.

The additional maps provide the same information but are zoomed in on the Havant CWZ and Waterlooville CWZ.

Routes shown with thicker lines were reviewed in more detail and potential interventions have been identified. Most of these routes lie within the CWZs, although a small number fall outside. Where there is crossover with LCWIP cycle route interventions, this has been noted.

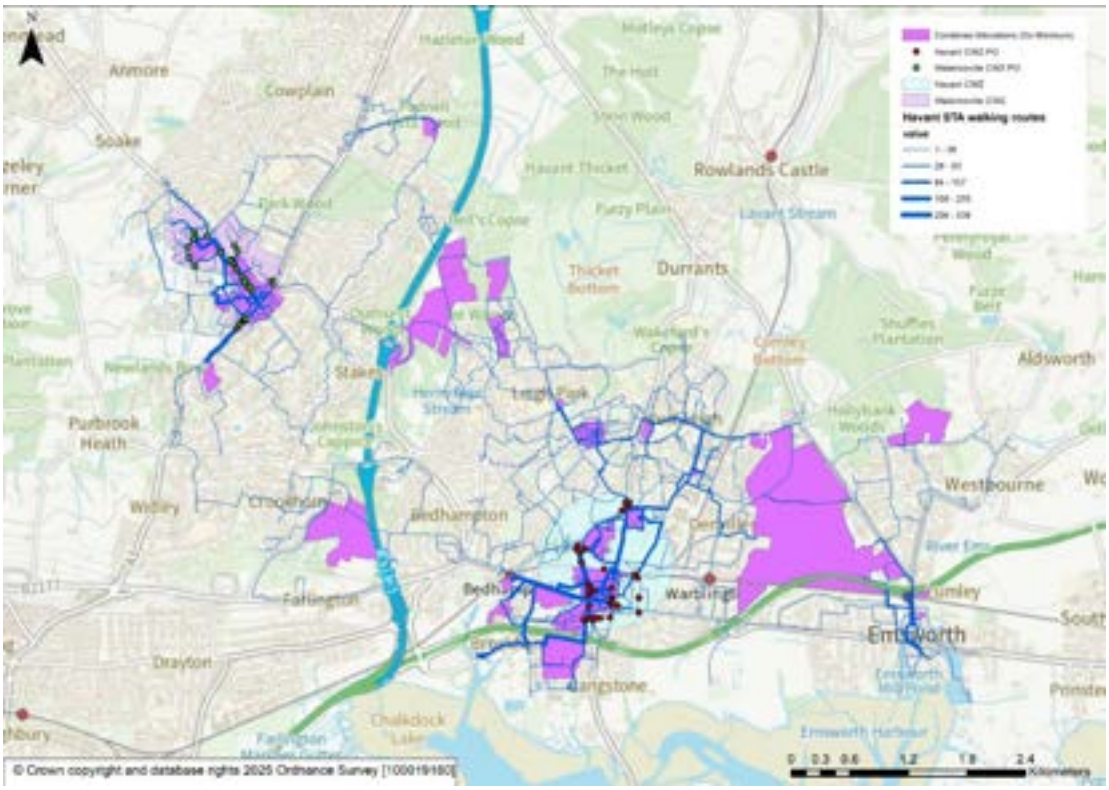


Figure D1: Havant STA Walking Routes

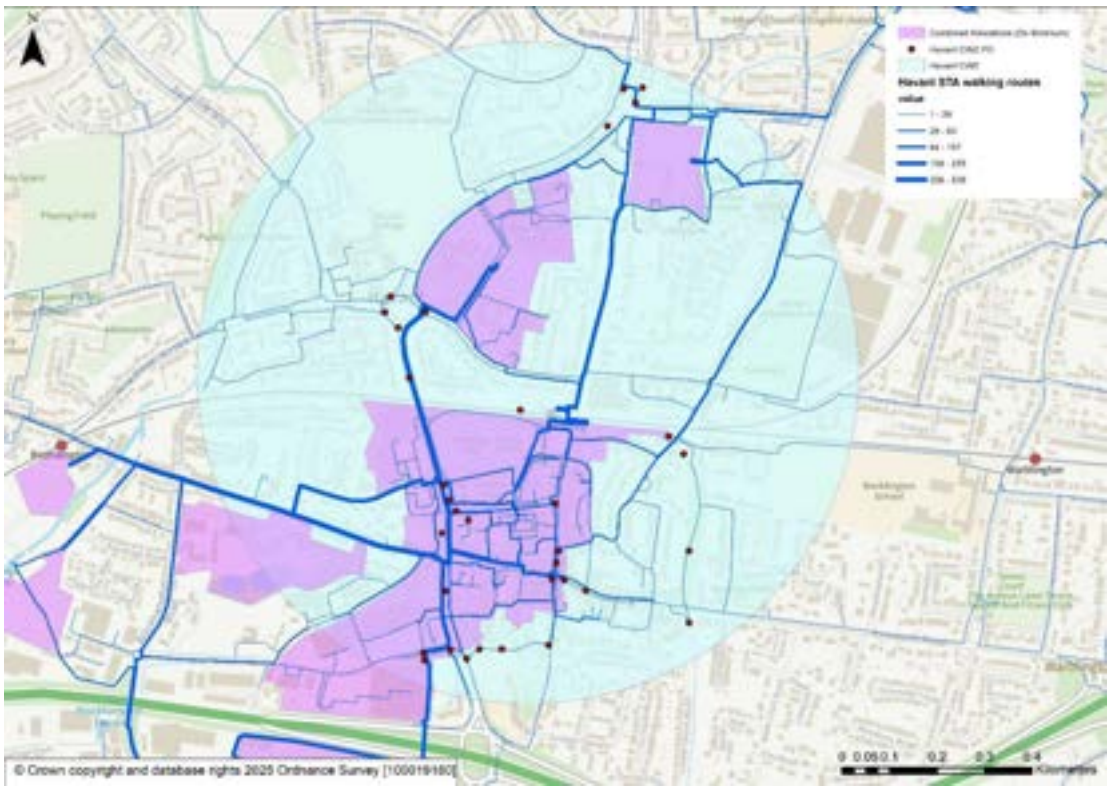


Figure D2: Havant STA Walking Routes within Havant CWZ

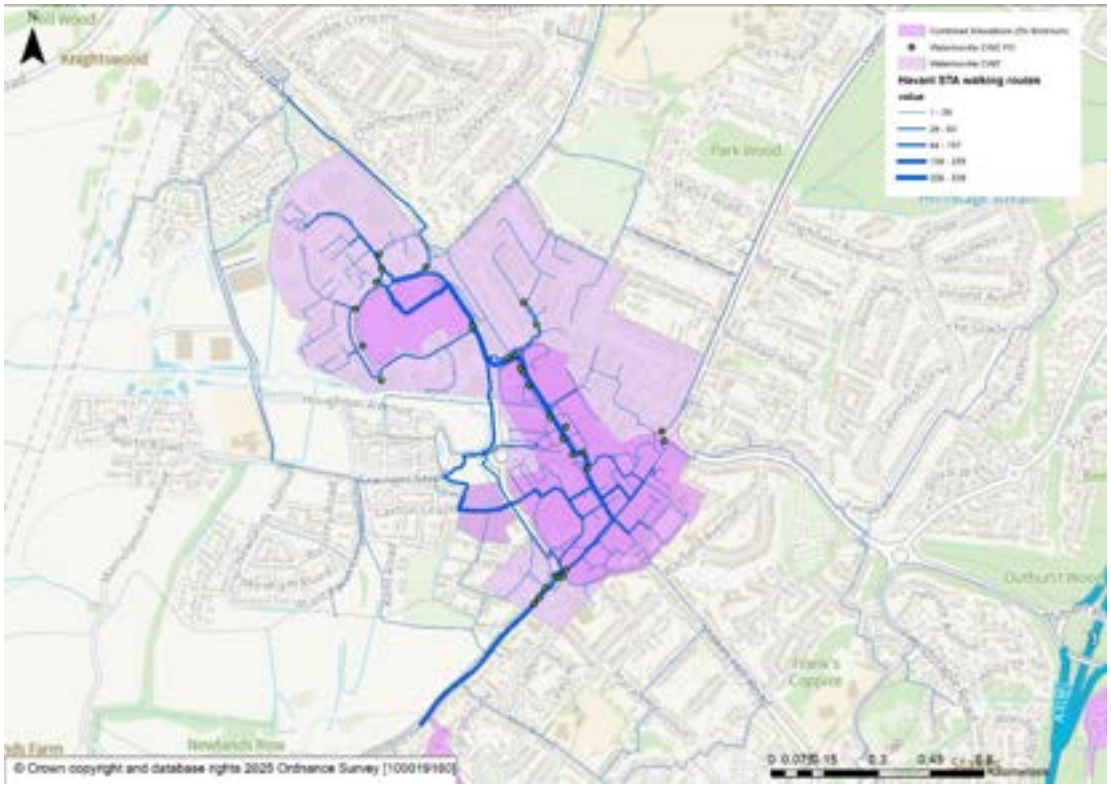


Figure D3: Havant STA Walking Rout4s within Waterlooville CWZ

Cycle routes

Havant STA cycling routes

In addition to the cycling routes identified in the LCWIP, there are additional routes within the Havant STA area that are not currently covered by the LCWIP but are expected to experience cumulative impacts from Local Plan growth. These routes provide important links to key destinations and the wider cycle network.

Developers will be expected to make proportionate contributions to targeted improvements on these additional routes, alongside contributions toward LCWIP routes where relevant.

The maps distinguish between LCWIP cycle routes and the additional Havant STA cycling routes.

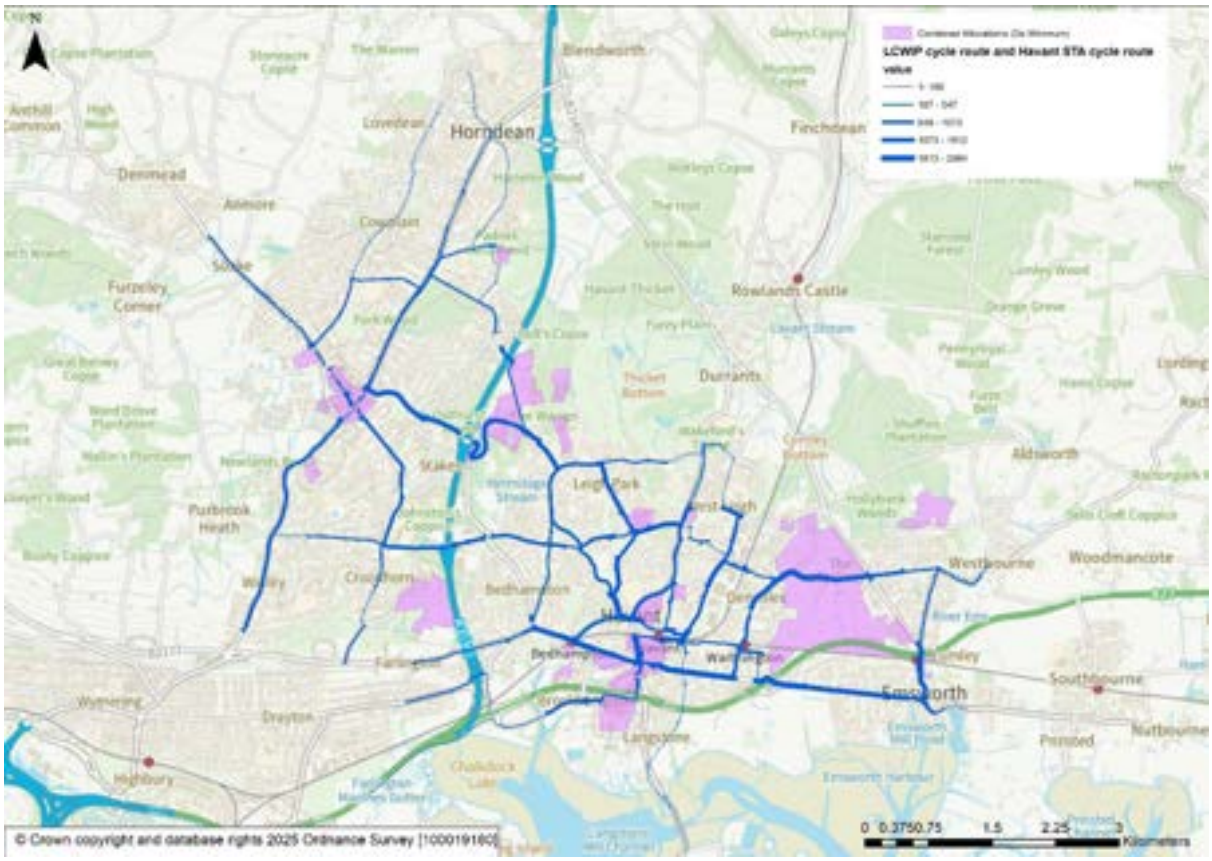


Figure D4: Havant STA cycle routes and LCWIP routes

The following LCWIP cycle sub sections overlap with Havant STA cycle routes: 270.1, 270.2, 275.1, 275.2,275.3, 276.1, 277.1, 277.2, 277.3, 278.1, 278.2, 359.1, 359.2, 359.3, 360.1, 360.2, 360.3, 361.1, 361.2, 361.3, 362.2, 362.3, 363.1, 364.1, 370.1, 370.2, 371.1, 371.2, 372.1, 373.1.

The maps below highlight highest-priority sections of highway that are both on the LCWIP network and have more than 2000 overlapping routes between proposed sites and trip attractors.

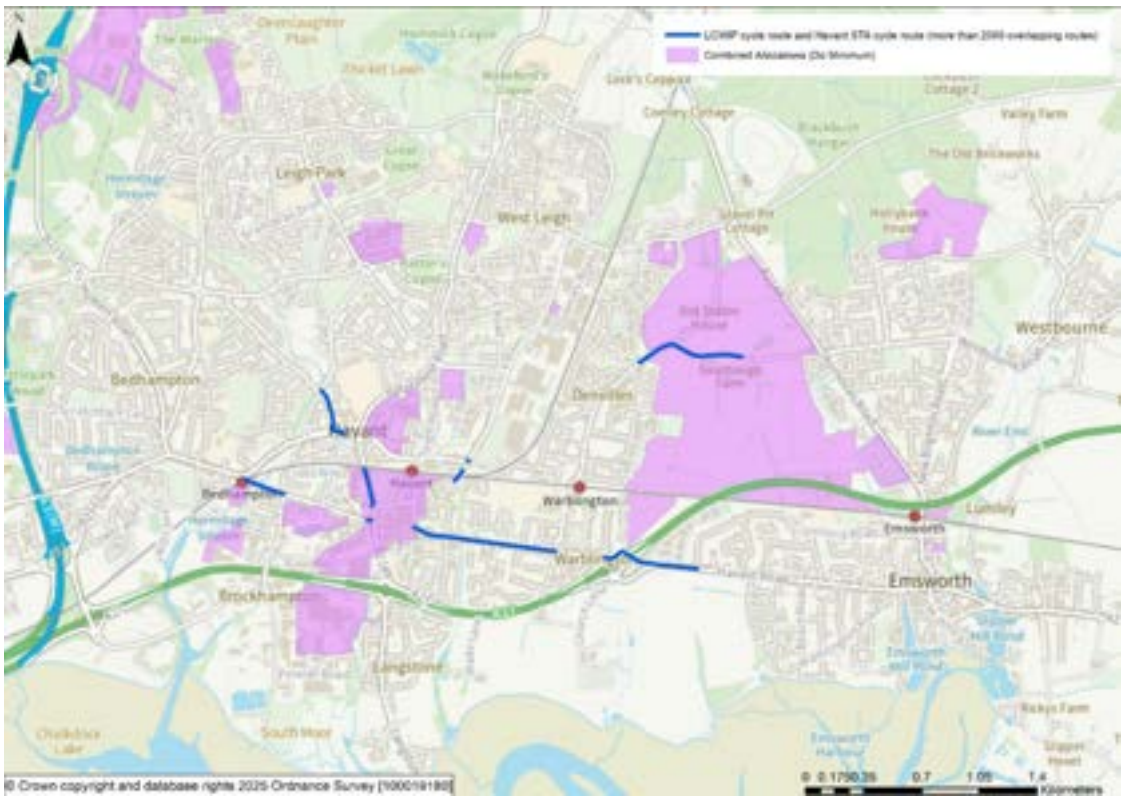


Figure D5: Havant STA cycle routes and LCWIP routes (more than 2000 overlapping routes)

For Havant STA cycle routes not covered by the LCWIP, recommendations should focus on proportionate improvements that support safe and continuous cycle movement. Potential interventions could include:

- segregated cycle facilities
- junction tightening / junction safety upgrades
- crossing improvements (e.g., improved priority, new formal crossings)
- 20mph speed limits and traffic calming to create safer mixed-traffic conditions
- wayfinding and cycle parking where demand is expected or where routes connect to trip attractors.

Further details of the potential new interventions are summarised in Table D1.

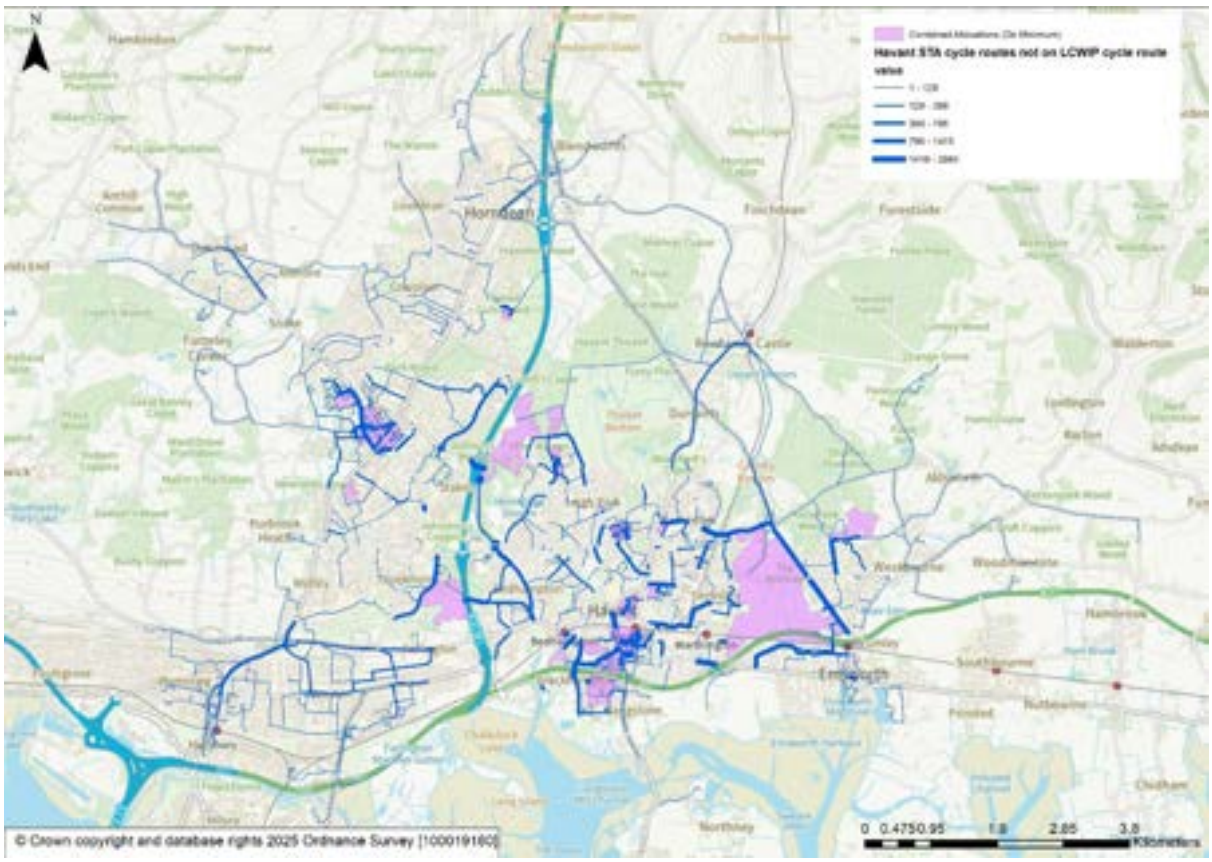


Figure D6: Havant STA cycle routes not covered by LCWIP routes

Table D1: HAVANT LOCAL PLAN STA - WALKING AND CYCLING ROUTES ANALYSIS - POTENTIAL NEW INTERVENTIONS

Route		Notes/background	Intervention 1	Intervention 2	Intervention 3	Intervention 4	Intervention 5	Intervention 6
Havant CWZ	**West Street (Park Road South to South Street)**		The section currently open to vehicles operates under a 30 mph speed limit, which is not suitable for all users. Introducing a 20mph low-speed, quiet mixed-traffic street would help reduce vehicle speeds and traffic volumes, creating a safer and more welcoming environment for walking and cycling.	Remove bollards, particularly at the Homewell junction, as they obstruct movement for people walking and cycling, especially wheelchair users, people with prams, and those using cargo bikes. Remove guard railing at the East Street junction where it restricts direct, accessible movement.	Reduce pavement clutter by relocating items such as bins and signs to the edge of the footway to maximise clear space for walking.	LCWIP 275.2.4: The section of West Street through the town centre from Park Road South to Homewell is pedestrianised with no cycling permitted. Investigate permitting cycling and providing clear segregation through the pedestrianised zone. The segregated cycle track could be extended to provide continuity through to the North Street/East Street junction.		
	West Street (Palk Road to Park Road South)		Provide tactile paving at the junctions with Palk Road, Meyrick Road, Staunton Road, Union Road and Brockhampton Lane to improve accessibility and consistency for blind and partially sighted people.	Remove pedestrian guard railing near the Palk Road junction as it narrows the footway and creates an unnecessary barrier for walking and wheeling.	Improve the junction with Portsmouth Water as it has wide junction geometry and is difficult to cross. Consider a continuous footway and narrowing the junction.	Provide seating to give people a place to stop and rest.	There is currently no cycle parking along this section of West Street. Given the presence of employment sites, a church, and local shops, dedicated cycle parking would be needed to support people travelling by bike.	LCWIP 275.2.3: A review of the B2149 Park Road South/ West Street junction should be undertaken to explore improvements for cycle route continuity through the junction. Investigate the potential for providing a sparrow crossing to improve cycle route continuity and connectivity.
	Leigh Road	A recent scheme has been delivered along Leigh Road. Improvements included widening the footway, a new crossing to link with the Elmleigh Road cycle route along with junction tightening, three new cycle build outs and a continous footway across Russell Road.	Widen the footway on the southern section of Leigh Road approaching Havant railway station, ahead of the Elmleigh Road junction.	Introduce seating along the mid-section of Leigh Road to provide regular opportunities to stop and rest.	Install cycle parking, particularly at the southern section of Leigh Road close to Havant railway station, to support cycle trips.	From LCWIP 310.1.10 - Consider creating a 20mph low speed mixed quiet street, which is likely to require traffic calming measures and potentially modal filters to reduce traffic volume.	Remove any lighting columns or signage from the middle of the footway to the side to increase clear space for walking.	
	Civic Centre Road (from Elmleigh Road to informal crossing into car park)		Install tactile paving at side-road crossing points to help people with visual impairments identify crossings and navigate them more easily.	Remove or relocate signage and any barriers at the car park exit, as these reduce effective footway width and create barriers for people walking.	Where footways are currently narrow, widen to provide more space and improve pedestrian comfort and accessibility.	Provide step-free cycle parking along the street to ensure it is accessible for all users, including people with adapted cycles.		
	Boundary Way onto Park Way		Tighten the Boundary Way/West Street junction and introduce a continuous footway across the side road to make crossing easier and give pedestrians priority.	Ensure dropped kerbs and tactile paving are provided at the junctions with Boundary Way, North Way and Union Road to make crossing easier, safer and more accessible.	Widen footways, particularly along the eastern section where the carriageway is very wide, to create more walking space and accommodate all users.	There is currently no crossing on the Park Way arm of the roundabout. Provide dropped kerbs and tactile paving, and add a pedestrian refuge if required to support safe crossing.	Improve wayfinding towards the Retail Park and town centre.	
	Market Parade towards Station		Review and tighten the junction with Elm Lane, remove guard railing, and provide a continuous crossing aligned with the main desire line to enable safer, more direct crossing.	Introduce additional cycle parking along the street to meet demand in this busy area and support access to nearby amenities.	Upgrade the bus stop to include seating so people have a place to rest with shelter whilst waiting for the bus.	Add a bus gate to through Market Parade to make the street feel more welcoming by reducing traffic flows.		

Route		Notes/background	Intervention 1	Intervention 2	Intervention 3	Intervention 4	Intervention 5	Intervention 6
Waterlooville CWZ	**St Georges Walk**		St George's Walk has limited trees and planting. Adding greenery would help create a more welcoming environment.	Remove street clutter and relocate items such as bins and signs to the edge of the footway to maximise clear space for walking.	Add cycle parking (covered if possible) at bus stops on routes 7 and 8 so people who combine cycling and bus travel can securely park their bikes near the stop.			
	Elettra Avenue (the section by McDonalds and Lidl)		As the footway is narrow and only provided on one side, widen it to create more space for people walking.	Give pedestrians priority at crossings through continuous footways or zebra crossings.	Introduce additional seating and cycle parking. Existing cycle parking at Lidl is unlikely to meet current demand.	If the land to the south is developed, ensure it includes direct active travel links to Elettra Avenue.		
Outside CWZ	**Off-road shared use path - south of Havant bypass and under Havant bypass to Solent Road**		LCWIP 270.2.9: It may be possible to make improvements to the off-road shared use path between Solent Road and Brookside Road, subject to land availability. A review of the subway under the A27 is required to explore improvements for pedestrians and cyclists e.g widening and improving feelings of personal safety.	Improve features along the route to enhance the safety of women and girls. This should include a review of lighting to ensure there are no dark patches, as well as an assessment of sightlines and visibility along the section parallel to the A27, including checks for any overgrown vegetation.				
	Emsworth - North Street (B2148) - Seagull Lane to Palmer's Road		LCWIP 373.1.4: Between the railway bridge and the A259 junction there is limited space due to property boundaries, so this road will need to be made suitable for mixed traffic with a 20mph speed limit and traffic calming. To reach compliance, a modal filter would be required to reduce the level of motor traffic on this road, although there is no obvious alternative traffic route.	Improve the crossing across St James Road by installing a continuous footway, or at minimum dropped kerbs and tactile paving, to support all users.	Install cycle parking as existing cycle parking is limited and unlikely to meet demand.	North Street lacks greenery. Add planting to make the street more welcoming.	Relocate any bollards, signs and lighting columns currently positioned within the footway to the edge, to increase clear walking space.	
	Emsworth - Church Path to West Street		LCWIP 270.1.1 There is insufficient width to provide protected space for cyclists along Queen Street, High Street and West street, so this route could be made suitable for mixed traffic by introducing a 20mph speed limit. Measures may be required to reduce the level of traffic through this section. The removal of on-street parking should also be considered.	Remove bollards where West Street meets Havant Road as these act as a barrier to walking and cycling and reduce widths.	Add cycle parking along this route. This could include by the bus stop on Havant Road so people who combine cycling and bus travel can securely park their bikes near the stop and by St James Parish Hall.	Explore opportunities to widen the footways along Church Path, where feasible, given the narrow carriageway and on-street parking constraints.	Improve the crossing across St James Road by installing a continuous footway, or at minimum dropped kerbs and tactile paving, to support all users.	

Appendix E – Mitigation Scheme at Hulbert Road/ Fitzwygram Way Roundabout

KEY

HIGHWAY BOUNDARY

SEGREGATED CYCLE/ FOOTWAY

PARKING AREA

HULBERT ROAD

FITZWYGRAM WAY

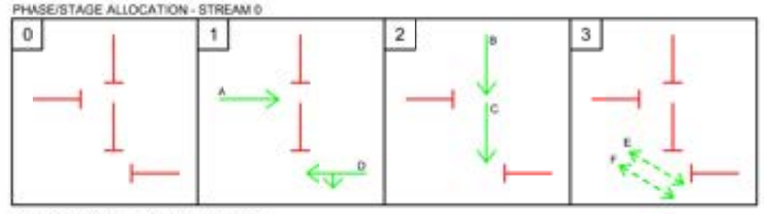
ADDITIONAL HIGHWAY LAND REQUIRED

SEGREGATED CYCLE/ FOOTWAY

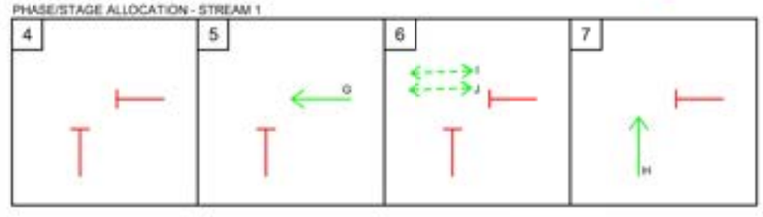
ADDITIONAL HIGHWAY LAND REQUIRED

HULBERT ROAD

PHASE/STAGE ALLOCATION - STREAM 0



PHASE/STAGE ALLOCATION - STREAM 1



DRAFT

S0	P01.01	INITIAL ISSUE	05.12.2025	GTL	GTL	JAM	JAM
SUIT	REV	WORK IN PROGRESS ISSUE AND DESCRIPTION OF AMENDMENTS	DATE	DESIGNED	CAD	CHKD	APPD

CLIENT

HAMPSHIRE COUNTY COUNCIL
UNIVERSAL SERVICES DIRECTORATE
INTELLIGENT TRANSPORT SYSTEMS

CONSULTANT

Hampshire County Council
Engineering Services

TIM LAWTON BEng CEng FICE FCIHT | ASSISTANT DIRECTOR OF UNIVERSAL SERVICES

H. SCALE @ A3: 1:
V. SCALE @ A30: N/A
SHEET NUMBER: 1 OF 1

SCHEME: Hulburt Road/ Fitzwygram Way

JOB No. R.J510632.01

DRAWING TITLE: Concept Design Option 1

HCC CAD PLOT: 17/12/2025 13:32:01

DRAWING NUMBER: R.J510632-ITS-HGN-17026216-DR-TS-00001

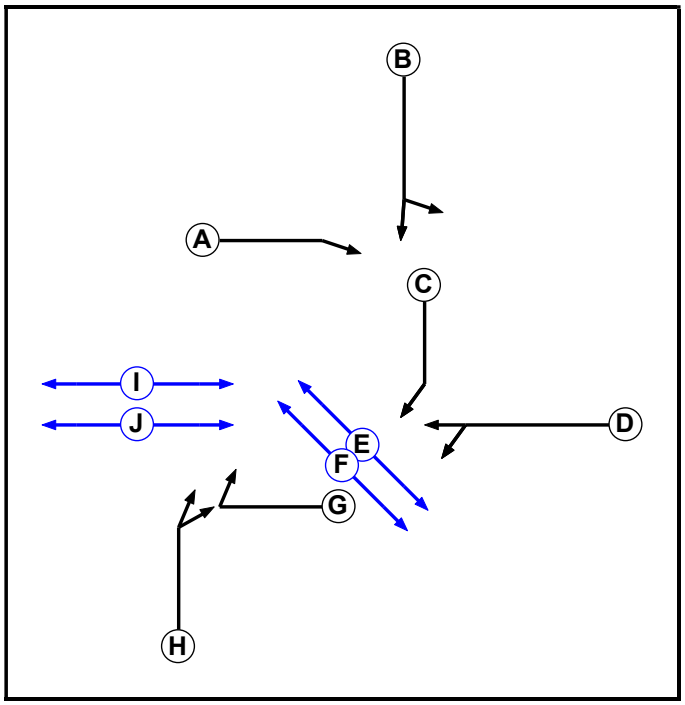
SUIT: S0 | REV: P01.01

Basic Results Summary

User and Project Details

Project:	**Hulbert Road / Fitzwygram Road**
Title:	**Concept Option 1**
Flow Details:	SATURN Demand Flows
File name:	Hulbert Road_Fitzwygram Road Option 1.lsg3x

Phase Diagram



Phase Input Data

Phase Name	Phase Type	Stage Stream	Assoc. Phase	Street Min	Cont Min
A	Traffic	1		7	7
B	Traffic	1		7	7
C	Traffic	1		7	7
D	Traffic	1		7	7
E	Pedestrian	1		6	6
F	Pedestrian	1		6	6
G	Traffic	2		7	7
H	Traffic	2		7	7
I	Pedestrian	2		6	6
J	Pedestrian	2		6	6

Basic Results Summary

Phase Intergreens Matrix

Terminating Phase \ Starting Phase	A	B	C	D	E	F	G	H	I	J
A		5	-	-	-	-	-	-	-	-
B	7		-	-	-	-	-	-	-	-
C	-	-		5	6	6	-	-	-	-
D	-	-	7		8	8	-	-	-	-
E	-	-	6	6		-	-	-	-	-
F	-	-	8	8	-		-	-	-	-
G	-	-	-	-	-	-		5	6	6
H	-	-	-	-	-	-	7		8	8
I	-	-	-	-	-	-	6	6		-
J	-	-	-	-	-	-	8	8	-	

Phase Delays

Stage Stream: 1

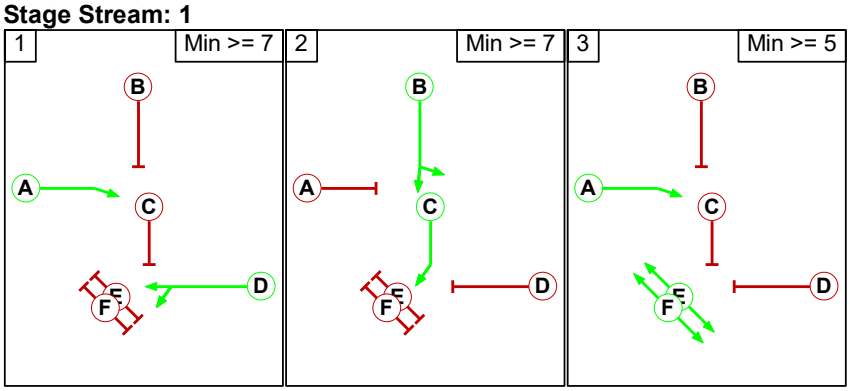
Term. Stage	Start Stage	Phase	Type	Value	Cont value
1	2	D	Losing	4	4
2	1	C	Losing	6	6

Stage Stream: 2

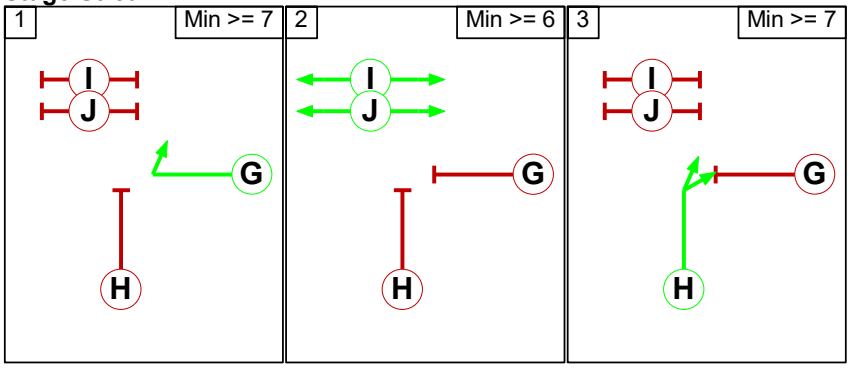
Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Stage Diagram

Stage Stream: 1



Stage Stream: 2



Scenario 1: 'AM Peak + Double Cycle Ped' (FG1: 'Saturn Flows Morning Peak Demand Flows', Plan 1: 'Double Cycle Peds')

Stage Timings

Stage Stream: 1

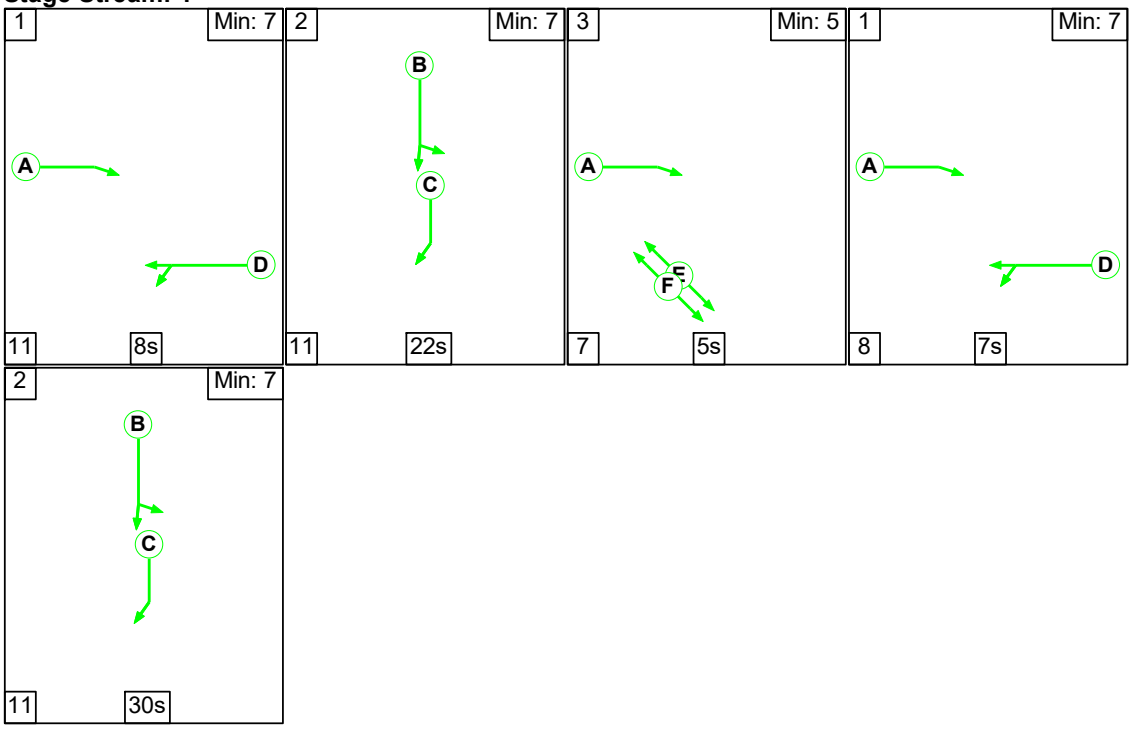
Stage	1	2	3	1	2
Duration	8	22	5	7	30
Change Point	0	19	52	64	79

Stage Stream: 2

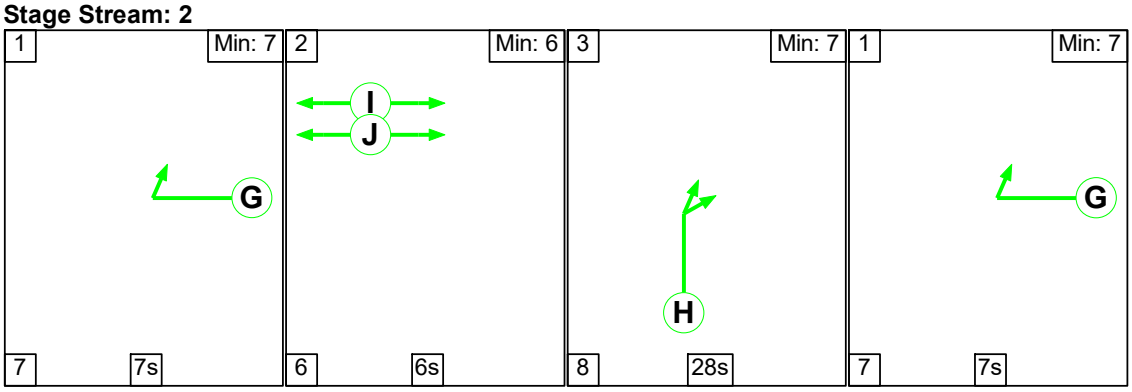
Stage	1	2	3	1	3
Duration	7	6	28	7	39
Change Point	67	81	93	9	23

Stage Sequence Diagram

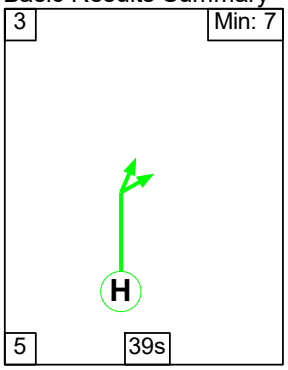
Stage Stream: 1



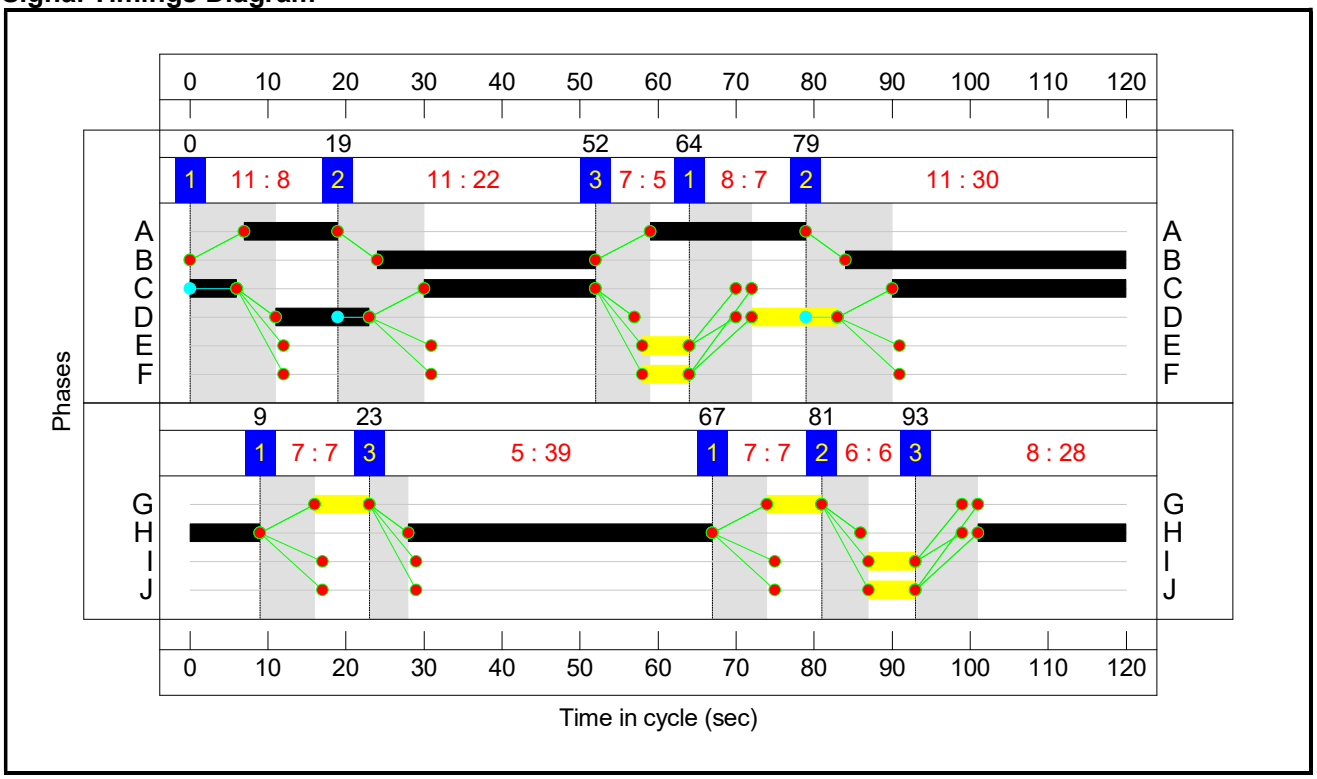
Stage Stream: 2



Basic Results Summary



Signal Timings Diagram



Basic Results Summary

Phase Timings

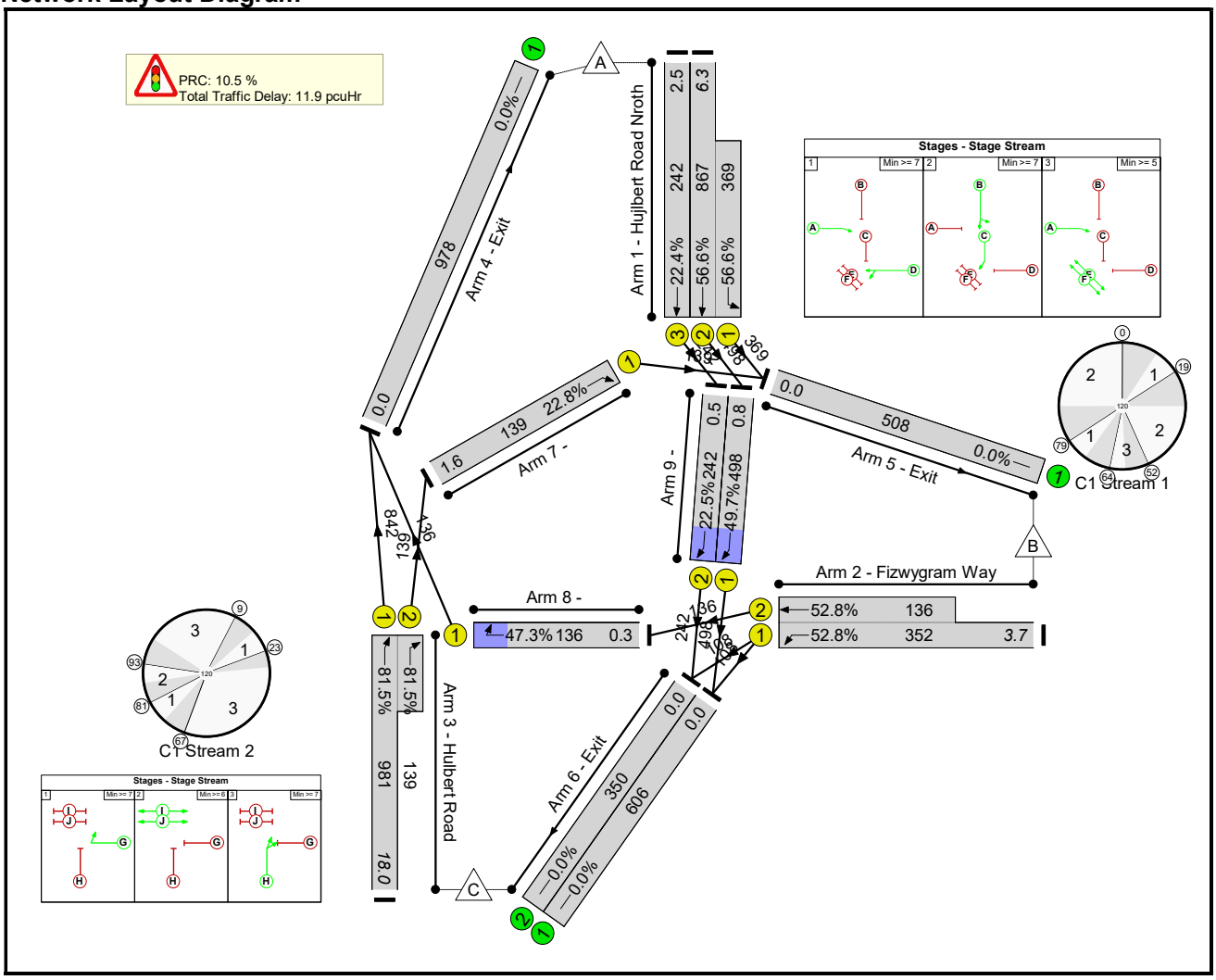
Phase Name	Description	Phase	Stage Stream	Green Period 1			Green Period 2		
				Total Green	Start Time	End Time	Total Green	Start Time	End Time
A	Right	Traffic	1	12	7	19	20	59	79
B	Hujlbert Road Nroth Left Ahead	Traffic	1	28	24	52	36	84	0
C	Ahead	Traffic	1	22	30	52	36	90	6
D	Fizwygram Way Left Ahead	Traffic	1	12	11	23	11	72	83
E	Pedestrians across	Pedestrian	1	6	58	64			
F	Pedestrians across	Pedestrian	1	6	58	64			
G	Right	Traffic	2	7	74	81	7	16	23
H	Hulbert Road Ahead Right	Traffic	2	28	101	9	39	28	67
I	Pedestrians across	Pedestrian	2	6	87	93			
J	Pedestrians across	Pedestrian	2	6	87	93			

Lane Green Times

Junction:					
Lane	Description	Type	Phases	Start Green	End Green
1/1	Hujlbert Road Nroth Left	U	B	24	52
				84	0
1/2	Hujlbert Road Nroth Ahead	U	B	24	52
				84	0
1/3	Hujlbert Road Nroth Ahead	U	B	24	52
				84	0
2/1	Fizwygram Way Left	U	D	11	23
				72	83
2/2	Fizwygram Way Ahead	U	D	11	23
				72	83
3/1	Hulbert Road Ahead	U	H	101	9
				28	67
3/2	Hulbert Road Right	U	H	101	9
				28	67
7/1	Right	U	A	7	19
				59	79
8/1	Right	U	G	74	81
				16	23
9/1	Ahead	U	C	30	52
				90	6
9/2	Ahead	U	C	30	52
				90	6

Basic Results Summary

Network Layout Diagram



Basic Results Summary

Network Results

Item	Lane Description	Lane Type	Full Phase	Total Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: Concept Option 1	-	-	-	-	-	-	-	**81.5%**	**0**	**0**	**0**	**11.9**	-	-
	-	-	-	-	-	-	-	**81.5%**	**0**	**0**	**0**	**11.9**	-	-
1/2+1/1	Hujlbert Road Nroth Left Ahead	U	B	64	867	1940:1965	880+652	56.6 : 56.6%	-	-	-	2.6	10.8	6.3
1/3	Hujlbert Road Nroth Ahead	U	B	64	242	1965	1081	22.4%	-	-	-	0.6	9.2	2.5
2/1+2/2	Fizwygram Way Left Ahead	U	D	23	352	1965:1965	409+258	52.8 : 52.8%	-	-	-	2.6	26.5	3.7
3/1+3/2	Hulbert Road Ahead Right	U	H	67	981	1975:1965	1033+171	81.5 : 81.5%	-	-	-	5.0	18.3	18.0
7/1	Right	U	A	32	139	2155	611	22.8%	-	-	-	0.3	8.5	1.6
8/1	Right	U	G	14	136	2155	287	47.3%	-	-	-	0.2	5.7	0.3
9/1	Ahead	U	C	58	498	2005	1002	49.7%	-	-	-	0.3	2.2	0.8
9/2	Ahead	U	C	58	242	2155	1077	22.5%	-	-	-	0.3	4.0	0.5

C1 Stream: 1 PRC for Signalled Lanes (%): 59.1 Total Delay for Signalled Lanes (pcuHr): 6.70 Cycle Time (s): 120
C1 Stream: 2 PRC for Signalled Lanes (%): 10.5 Total Delay for Signalled Lanes (pcuHr): 5.20 Cycle Time (s): 120
PRC Over All Lanes (%): 10.5 Total Delay Over All Lanes(pcuHr): 11.90

Basic Results Summary
Scenario 2: 'PM Peak + Double Cycle Ped' (FG2: 'Saturn Flows Evening Peak Demand Flows', Plan 1: 'Double Cycle Peds')

Stage Timings

Stage Stream: 1

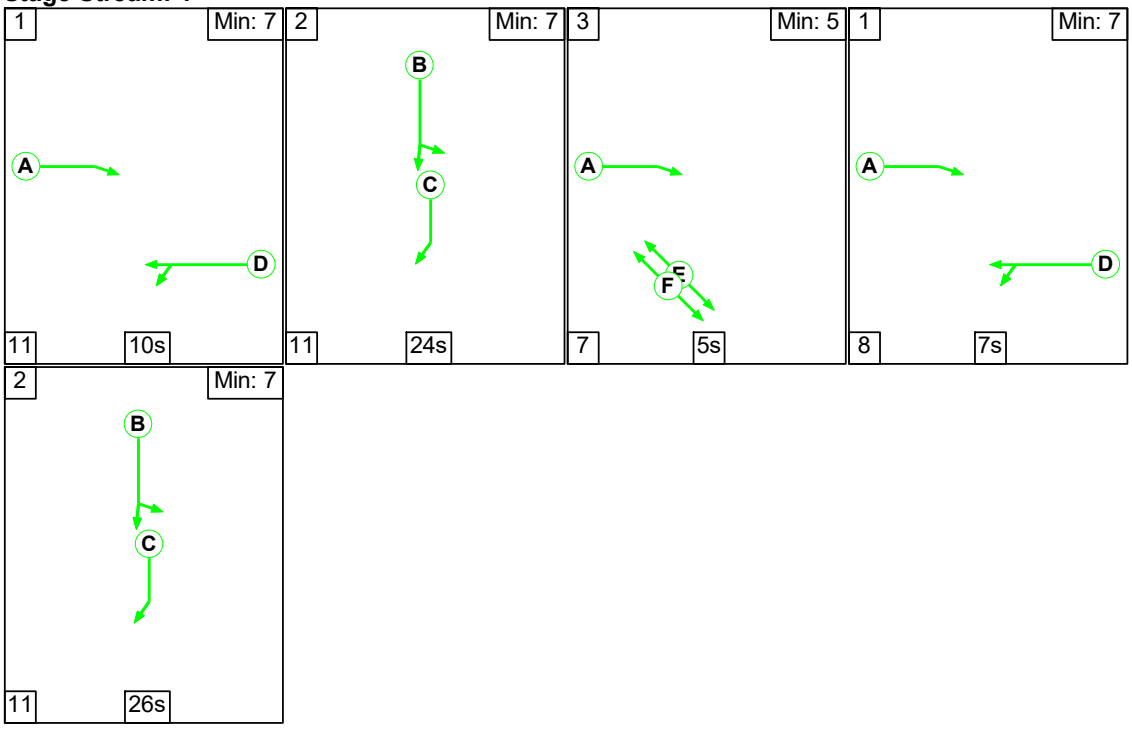
Stage	1	2	3	1	2
Duration	10	24	5	7	26
Change Point	3	24	59	71	86

Stage Stream: 2

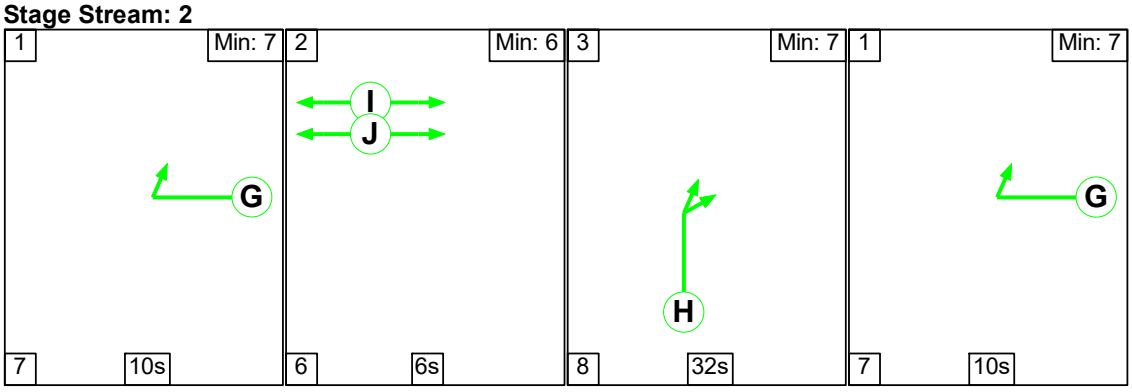
Stage	1	2	3	1	3
Duration	10	6	32	10	29
Change Point	78	95	107	27	44

Stage Sequence Diagram

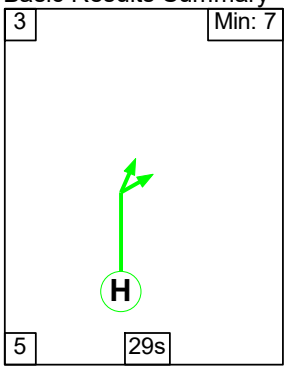
Stage Stream: 1



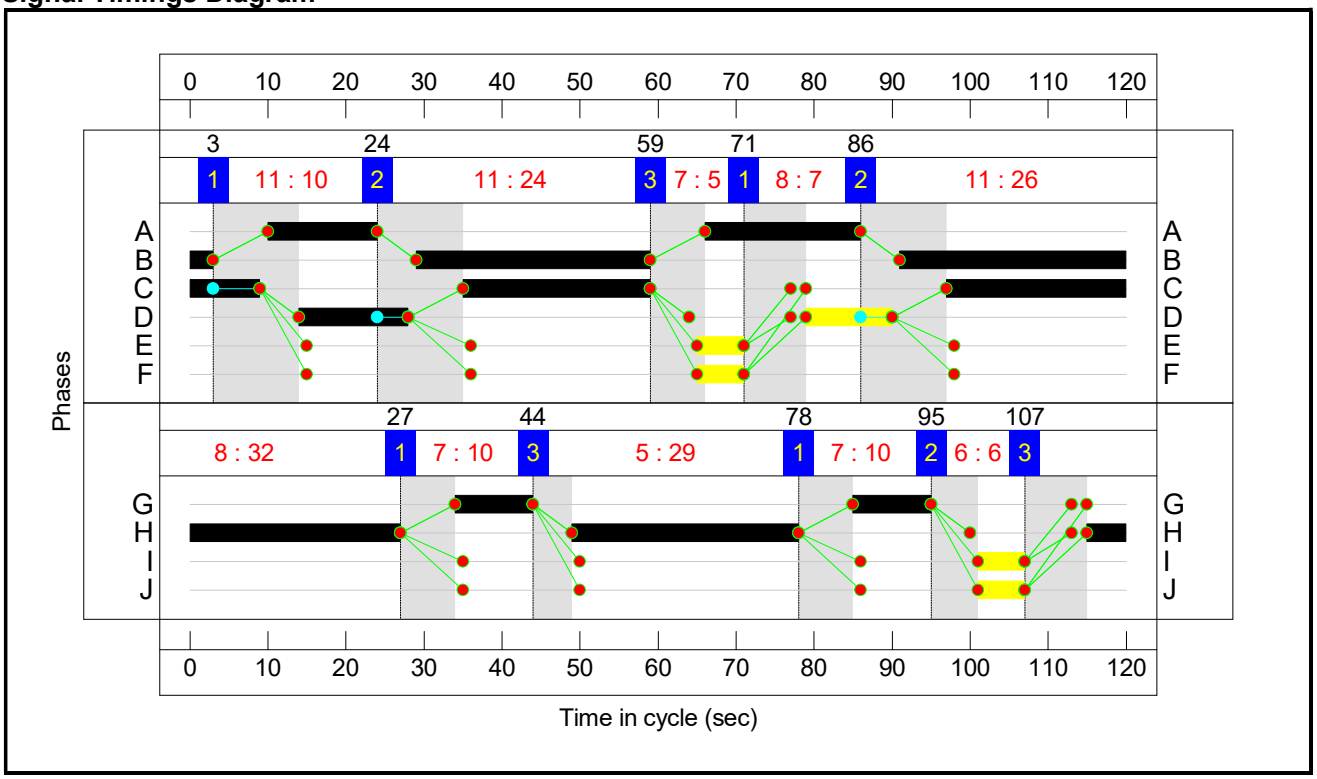
Stage Stream: 2



Basic Results Summary



Signal Timings Diagram



Basic Results Summary

Phase Timings

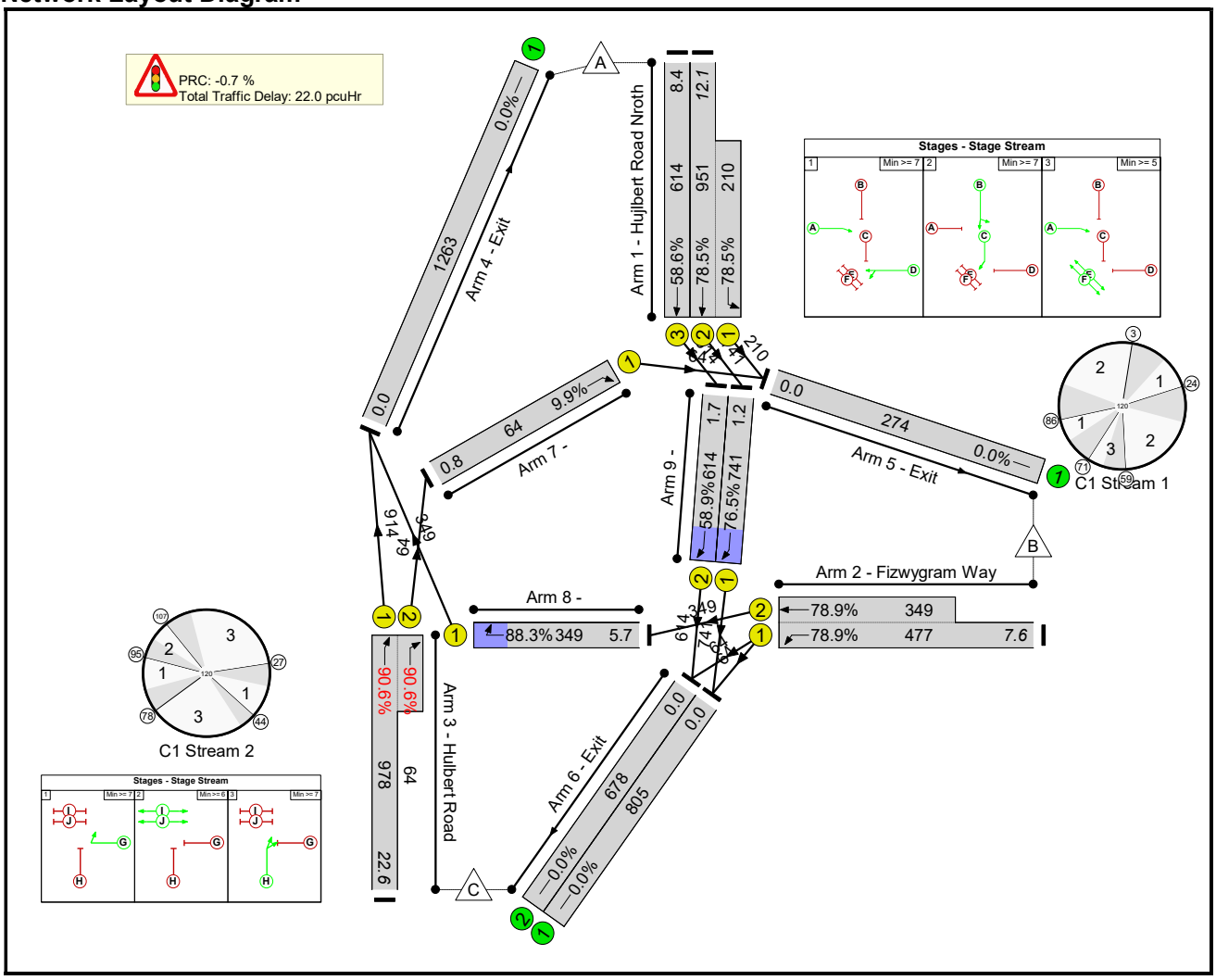
Phase Name	Description	Phase	Stage Stream	Green Period 1			Green Period 2		
				Total Green	Start Time	End Time	Total Green	Start Time	End Time
A	Right	Traffic	1	14	10	24	20	66	86
B	Hujlbert Road Nroth Left Ahead	Traffic	1	30	29	59	32	91	3
C	Ahead	Traffic	1	24	35	59	32	97	9
D	Fizwygram Way Left Ahead	Traffic	1	14	14	28	11	79	90
E	Pedestrians across	Pedestrian	1	6	65	71			
F	Pedestrians across	Pedestrian	1	6	65	71			
G	Right	Traffic	2	10	85	95	10	34	44
H	Hulbert Road Ahead Right	Traffic	2	32	115	27	29	49	78
I	Pedestrians across	Pedestrian	2	6	101	107			
J	Pedestrians across	Pedestrian	2	6	101	107			

Lane Green Times

Junction:					
Lane	Description	Type	Phases	Start Green	End Green
1/1	Hujlbert Road Nroth Left	U	B	29	59
				91	3
1/2	Hujlbert Road Nroth Ahead	U	B	29	59
				91	3
1/3	Hujlbert Road Nroth Ahead	U	B	29	59
				91	3
2/1	Fizwygram Way Left	U	D	14	28
				79	90
2/2	Fizwygram Way Ahead	U	D	14	28
				79	90
3/1	Hulbert Road Ahead	U	H	115	27
				49	78
3/2	Hulbert Road Right	U	H	115	27
				49	78
7/1	Right	U	A	10	24
				66	86
8/1	Right	U	G	85	95
				34	44
9/1	Ahead	U	C	35	59
				97	9
9/2	Ahead	U	C	35	59
				97	9

Basic Results Summary

Network Layout Diagram



Basic Results Summary

Network Results

Item	Lane Description	Lane Type	Full Phase	Total Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: Concept Option 1	-	-	-	-	-	-	-	**90.6%**	**0**	**0**	**0**	**22.0**	-	-
	-	-	-	-	-	-	-	**90.6%**	**0**	**0**	**0**	**22.0**	-	-
1/2+1/1	Hujlbert Road Nroth Left Ahead	U	B	62	951	1940:1965	944+267	78.5 : 78.5%	-	-	-	4.4	16.8	12.1
1/3	Hujlbert Road Nroth Ahead	U	B	62	614	1965	1048	58.6%	-	-	-	2.3	13.7	8.4
2/1+2/2	Fizwygram Way Left Ahead	U	D	25	477	1965:1965	162+442	78.9 : 78.9%	-	-	-	4.6	35.1	7.6
3/1+3/2	Hulbert Road Ahead Right	U	H	61	978	1975:1965	1009+71	90.6 : 90.6%	-	-	-	8.1	29.9	22.6
7/1	Right	U	A	34	64	2155	646	9.9%	-	-	-	0.2	10.2	0.8
8/1	Right	U	G	20	349	2155	395	88.3%	-	-	-	0.7	7.0	5.7
9/1	Ahead	U	C	56	741	2005	969	76.5%	-	-	-	0.5	2.6	1.2
9/2	Ahead	U	C	56	614	2155	1042	58.9%	-	-	-	1.1	6.3	1.7

C1	Stream: 1 PRC for Signalled Lanes (%):	14.0	Total Delay for Signalled Lanes (pcuHr):	13.22	Cycle Time (s):	120
C1	Stream: 2 PRC for Signalled Lanes (%):	-0.7	Total Delay for Signalled Lanes (pcuHr):	8.79	Cycle Time (s):	120
	PRC Over All Lanes (%):	-0.7	Total Delay Over All Lanes(pcuHr):	22.01		

Basic Results Summary

Scenario 3: 'AM Peak + Ped Every 5 mins' (FG1: 'Saturn Flows Morning Peak Demand Flows', Plan 2: 'Quintiple Cycle Peds')

Stage Timings

Stage Stream: 1

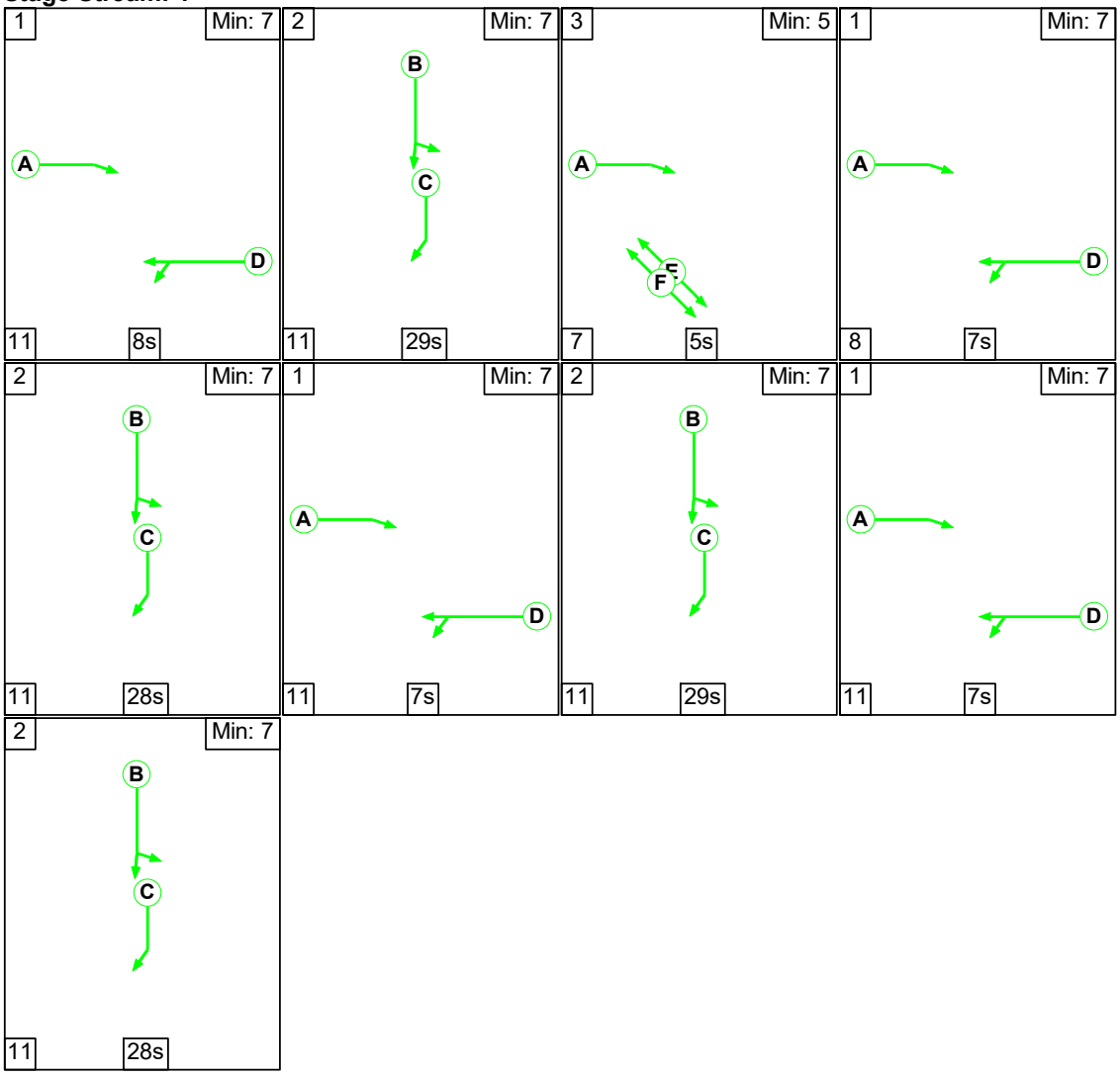
Stage	1	2	3	1	2	1	2	1	2
Duration	8	29	5	7	28	7	29	7	28
Change Point	0	19	59	71	86	125	143	183	201

Stage Stream: 2

Stage	1	2	3	1	3	1	3	1	3
Duration	7	6	28	7	45	7	37	7	39
Change Point	192	206	218	14	28	78	92	134	148

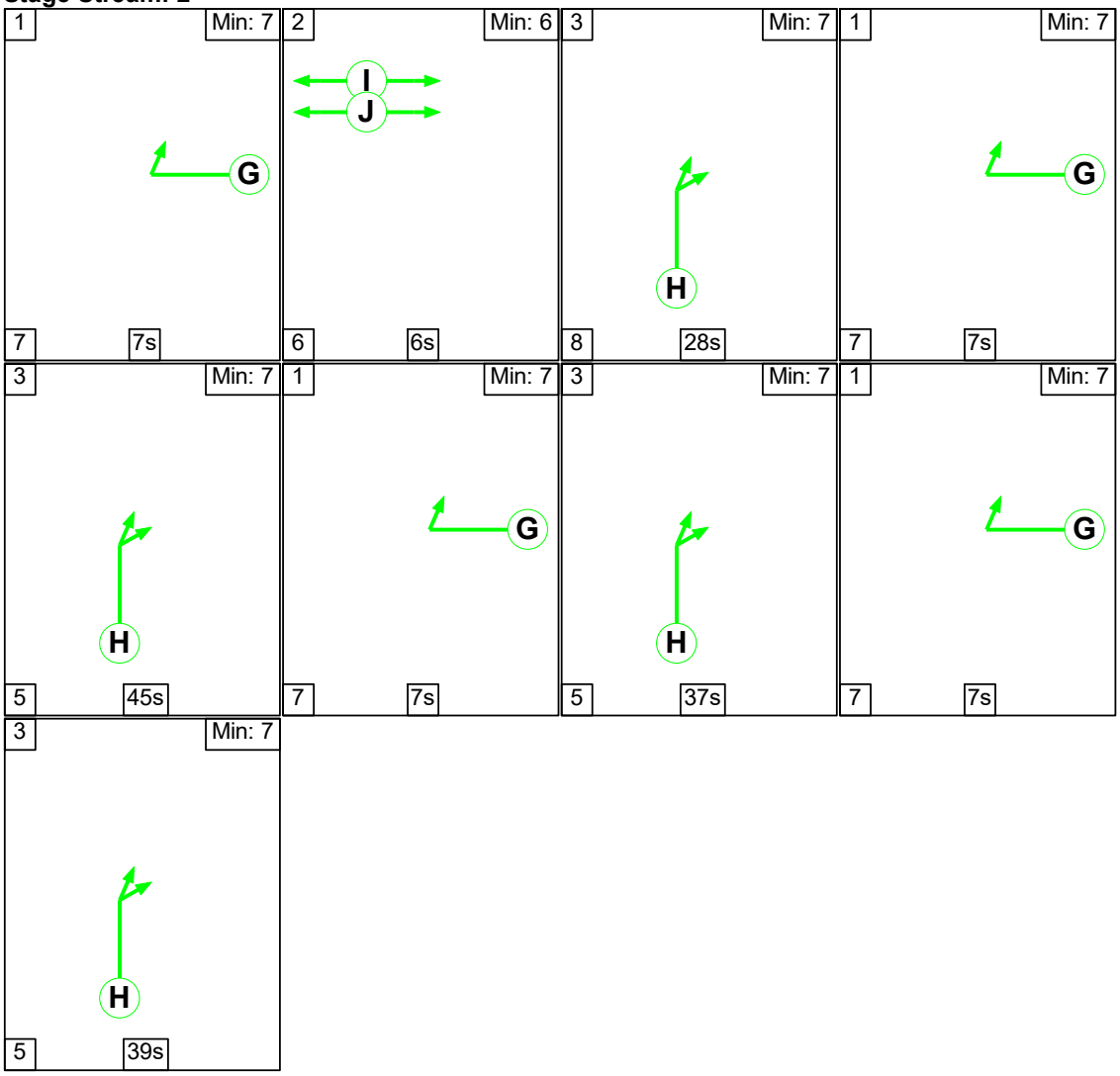
Stage Sequence Diagram

Stage Stream: 1

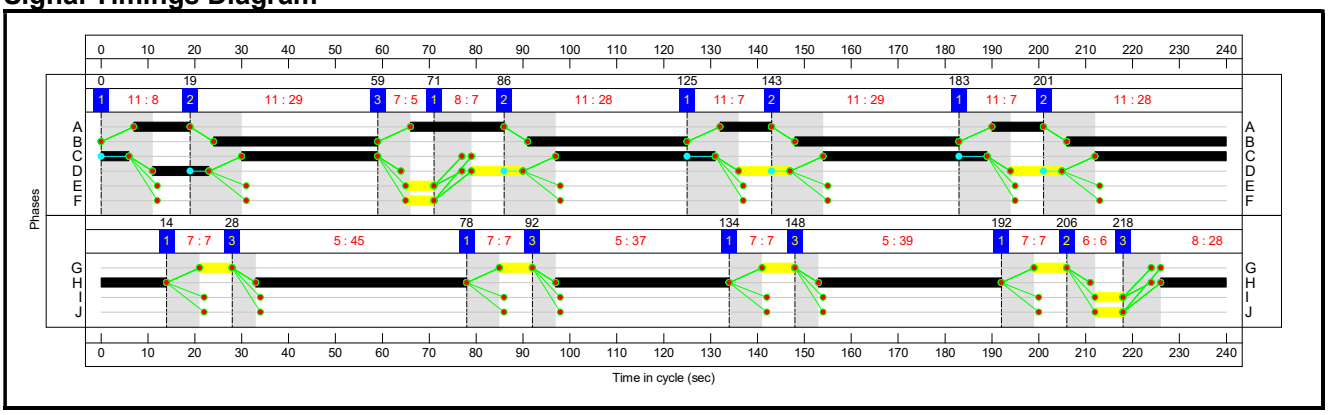


Basic Results Summary

Stage Stream: 2



Signal Timings Diagram



Basic Results Summary

Phase Timings

Phase Name	Description	Phase	Stage Stream	Green Period 1			Green Period 2		
				Total Green	Start Time	End Time	Total Green	Start Time	End Time
A	Right	Traffic	1	12	7	19	20	66	86
B	Hujlbert Road Nroth Left Ahead	Traffic	1	35	24	59	34	91	125
C	Ahead	Traffic	1	29	30	59	34	97	131
D	Fizwygram Way Left Ahead	Traffic	1	12	11	23	11	79	90
E	Pedestrians across	Pedestrian	1	6	65	71			
F	Pedestrians across	Pedestrian	1	6	65	71			
G	Right	Traffic	2	7	199	206	7	21	28
H	Hulbert Road Ahead Right	Traffic	2	28	226	14	45	33	78
I	Pedestrians across	Pedestrian	2	6	212	218			
J	Pedestrians across	Pedestrian	2	6	212	218			

Phase Name	Description	Phase	Stage Stream	Green Period 3			Green Period 4		
				Total Green	Start Time	End Time	Total Green	Start Time	End Time
A	Right	Traffic	1	11	132	143	11	190	201
B	Hujlbert Road Nroth Left Ahead	Traffic	1	35	148	183	34	206	0
C	Ahead	Traffic	1	35	154	189	34	212	6
D	Fizwygram Way Left Ahead	Traffic	1	11	136	147	11	194	205
E	Pedestrians across	Pedestrian	1						
F	Pedestrians across	Pedestrian	1						
G	Right	Traffic	2	7	85	92	7	141	148
H	Hulbert Road Ahead Right	Traffic	2	37	97	134	39	153	192
I	Pedestrians across	Pedestrian	2						
J	Pedestrians across	Pedestrian	2						

Basic Results Summary

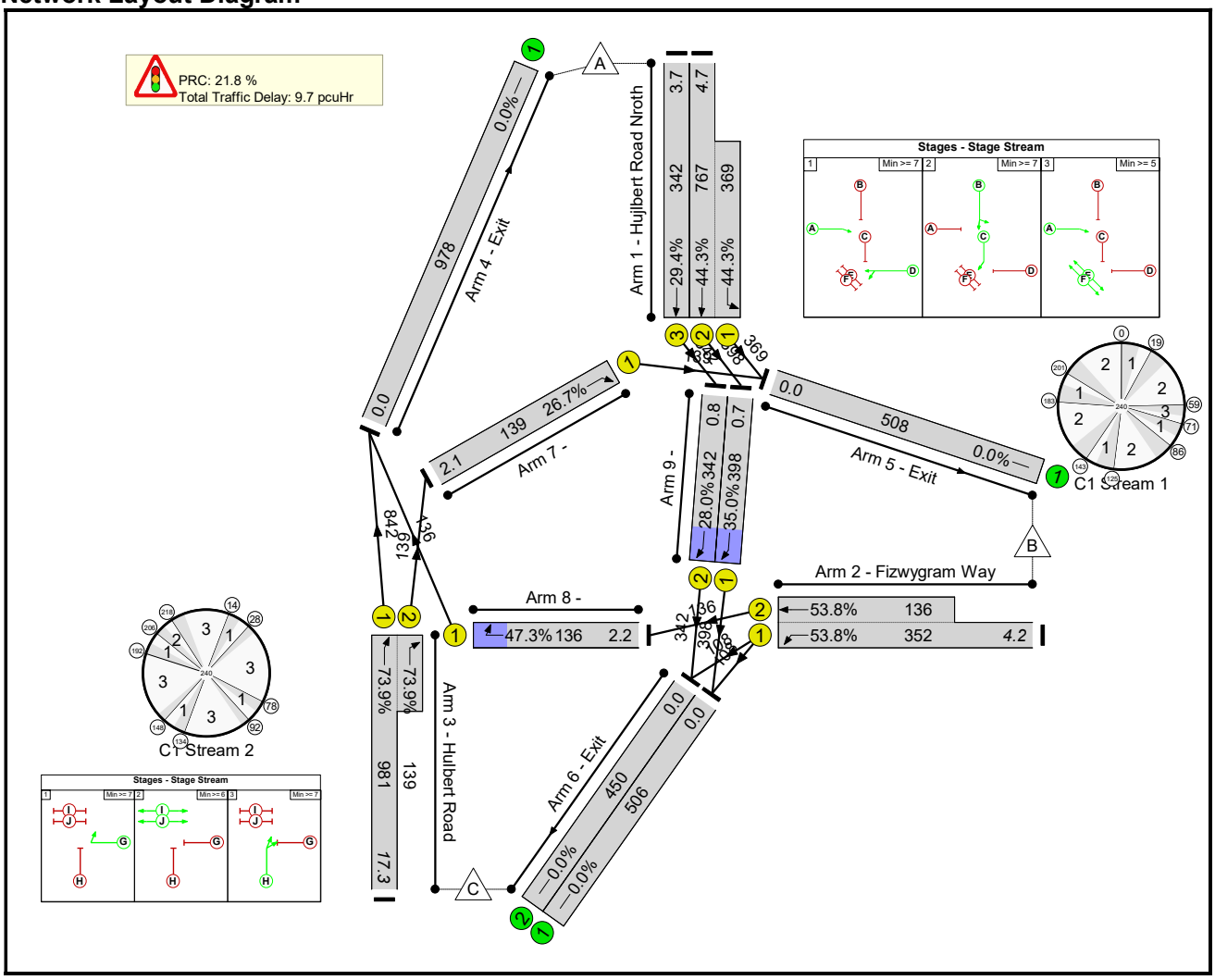
Lane Green Times

Junction:					
Lane	**Description**	**Type**	**Phases**	**Start Green**	**End Green**
1/1	Hujlbert Road Nroth Left	U	B	24	59
				91	125
				148	183
				206	0
1/2	Hujlbert Road Nroth Ahead	U	B	24	59
				91	125
				148	183
				206	0
1/3	Hujlbert Road Nroth Ahead	U	B	24	59
				91	125
				148	183
				206	0
2/1	Fizwygram Way Left	U	D	11	23
				79	90
				136	147
				194	205
2/2	Fizwygram Way Ahead	U	D	11	23
				79	90
				136	147
				194	205
3/1	Hulbert Road Ahead	U	H	226	14
				33	78
				97	134
				153	192
3/2	Hulbert Road Right	U	H	226	14
				33	78
				97	134
				153	192
7/1	Right	U	A	7	19
				66	86
				132	143
				190	201
8/1	Right	U	G	199	206
				21	28
				85	92
				141	148
9/1	Ahead	U	C	30	59
				97	131

Basic Results Summary

				154	189
				212	6
9/2	Ahead	U	C	30	59
				97	131
				154	189
				212	6

Network Layout Diagram



Basic Results Summary

Network Results

Item	Lane Description	Lane Type	Full Phase	Total Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: Concept Option 1	-	-	-	-	-	-	-	**73.9%**	**0**	**0**	**0**	**9.7**	-	-
	-	-	-	-	-	-	-	**73.9%**	**0**	**0**	**0**	**9.7**	-	-
1/2+1/1	Hujlbert Road Nroth Left Ahead	U	B	138	767	1940:1965	898+833	44.3 : 44.3%	-	-	-	1.8	8.2	4.7
1/3	Hujlbert Road Nroth Ahead	U	B	138	342	1965	1163	29.4%	-	-	-	0.8	8.4	3.7
2/1+2/2	Fizwygram Way Left Ahead	U	D	45	352	1965:1965	401+253	53.8 : 53.8%	-	-	-	2.7	27.1	4.2
3/1+3/2	Hulbert Road Ahead Right	U	H	149	981	1975:1965	1139+188	73.9 : 73.9%	-	-	-	3.4	12.6	17.3
7/1	Right	U	A	54	139	2155	521	26.7%	-	-	-	0.5	13.3	2.1
8/1	Right	U	G	28	136	2155	287	47.3%	-	-	-	0.1	4.0	2.2
9/1	Ahead	U	C	132	398	2005	1136	35.0%	-	-	-	0.1	1.0	0.7
9/2	Ahead	U	C	132	342	2155	1221	28.0%	-	-	-	0.3	3.0	0.8

C1 Stream: 1 PRC for Signalled Lanes (%): 67.2 Total Delay for Signalled Lanes (pcuHr): 6.12 Cycle Time (s): 240
C1 Stream: 2 PRC for Signalled Lanes (%): 21.8 Total Delay for Signalled Lanes (pcuHr): 3.59 Cycle Time (s): 240
PRC Over All Lanes (%): 21.8 Total Delay Over All Lanes(pcuHr): 9.71

Basic Results Summary

Scenario 4: 'PM Peak + Ped Every 5 mins' (FG2: 'Saturn Flows Evening Peak Demand Flows', Plan 2: 'Quintiple Cycle Peds')

Stage Timings

Stage Stream: 1

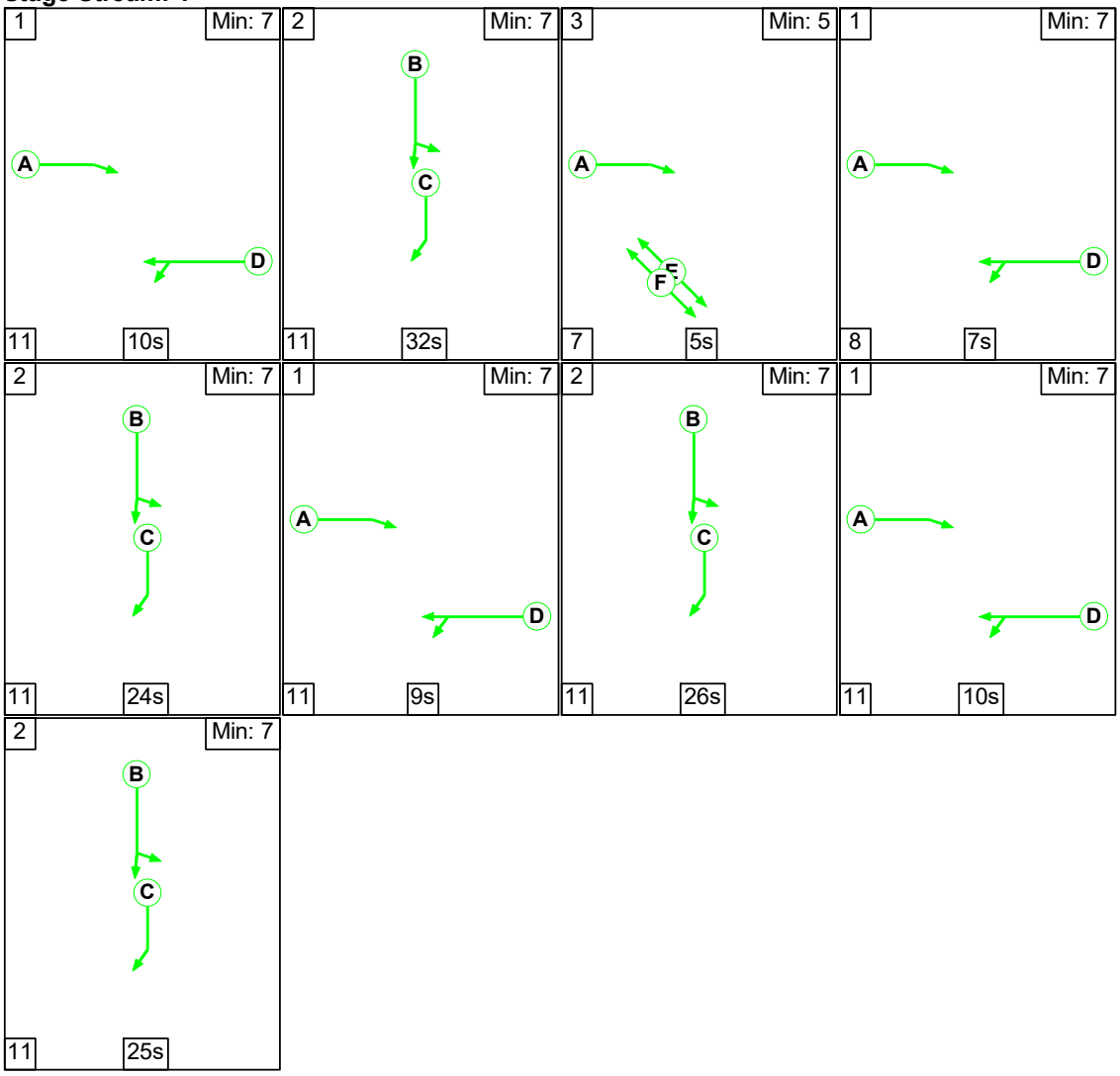
Stage	1	2	3	1	2	1	2	1	2
Duration	10	32	5	7	24	9	26	10	25
Change Point	0	21	64	76	91	126	146	183	204

Stage Stream: 2

Stage	1	2	3	1	3	1	3	1	3
Duration	17	6	38	11	30	8	36	7	30
Change Point	1	25	37	83	101	136	151	192	206

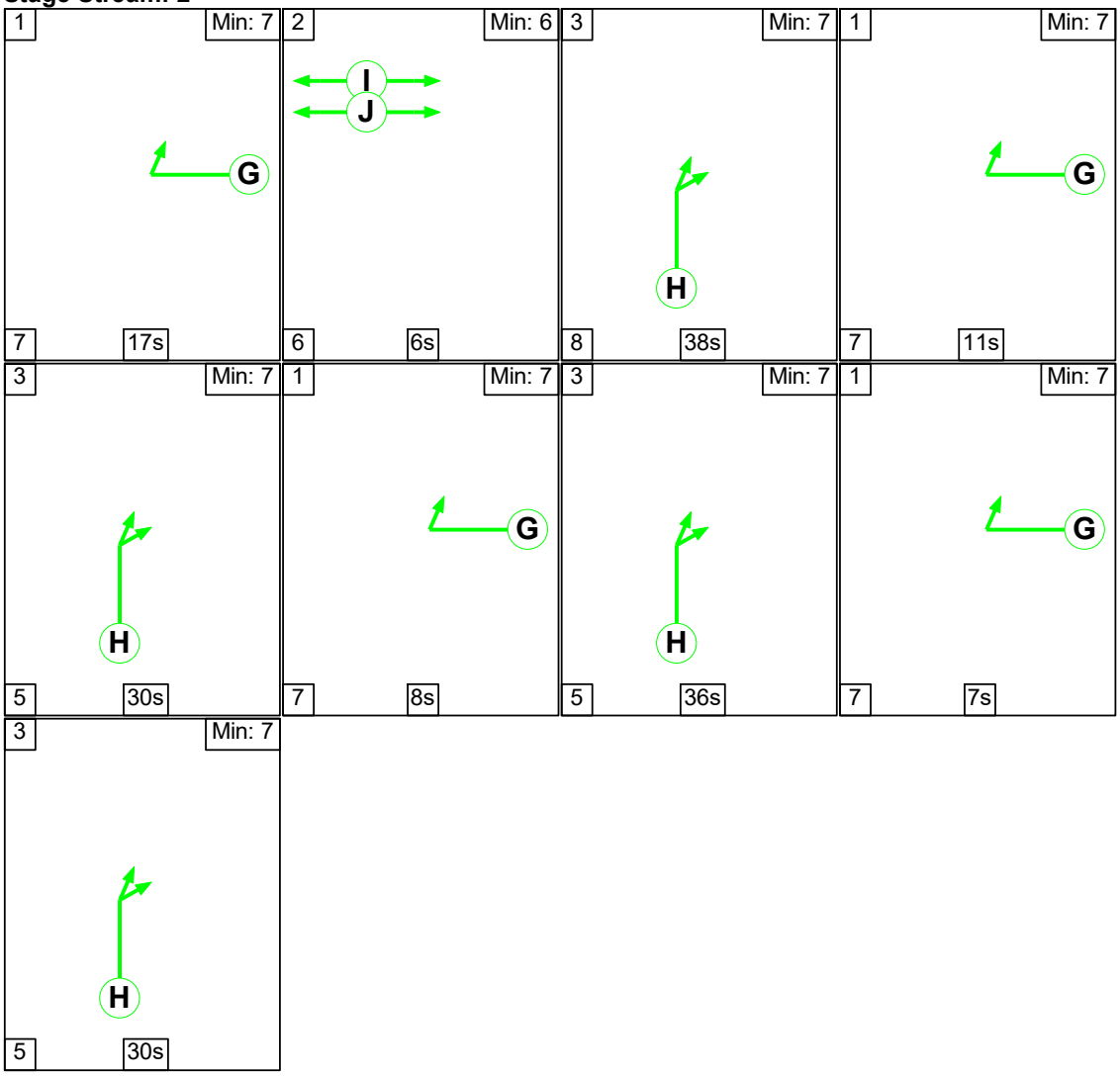
Stage Sequence Diagram

Stage Stream: 1

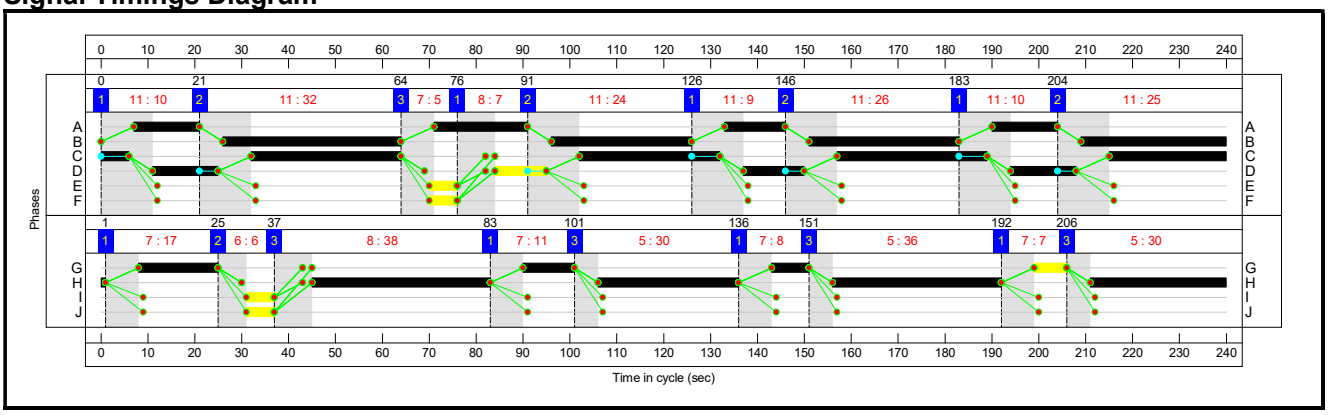


Basic Results Summary

Stage Stream: 2



Signal Timings Diagram



Basic Results Summary

Phase Timings

Phase Name	Description	Phase	Stage Stream	Green Period 1			Green Period 2		
				Total Green	Start Time	End Time	Total Green	Start Time	End Time
A	Right	Traffic	1	14	7	21	20	71	91
B	Hujlbert Road Nroth Left Ahead	Traffic	1	38	26	64	30	96	126
C	Ahead	Traffic	1	32	32	64	30	102	132
D	Fizwygram Way Left Ahead	Traffic	1	14	11	25	11	84	95
E	Pedestrians across	Pedestrian	1	6	70	76			
F	Pedestrians across	Pedestrian	1	6	70	76			
G	Right	Traffic	2	17	8	25	11	90	101
H	Hulbert Road Ahead Right	Traffic	2	38	45	83	30	106	136
I	Pedestrians across	Pedestrian	2	6	31	37			
J	Pedestrians across	Pedestrian	2	6	31	37			

Phase Name	Description	Phase	Stage Stream	Green Period 3			Green Period 4		
				Total Green	Start Time	End Time	Total Green	Start Time	End Time
A	Right	Traffic	1	13	133	146	14	190	204
B	Hujlbert Road Nroth Left Ahead	Traffic	1	32	151	183	31	209	0
C	Ahead	Traffic	1	32	157	189	31	215	6
D	Fizwygram Way Left Ahead	Traffic	1	13	137	150	14	194	208
E	Pedestrians across	Pedestrian	1						
F	Pedestrians across	Pedestrian	1						
G	Right	Traffic	2	8	143	151	7	199	206
H	Hulbert Road Ahead Right	Traffic	2	36	156	192	30	211	1
I	Pedestrians across	Pedestrian	2						
J	Pedestrians across	Pedestrian	2						

Basic Results Summary

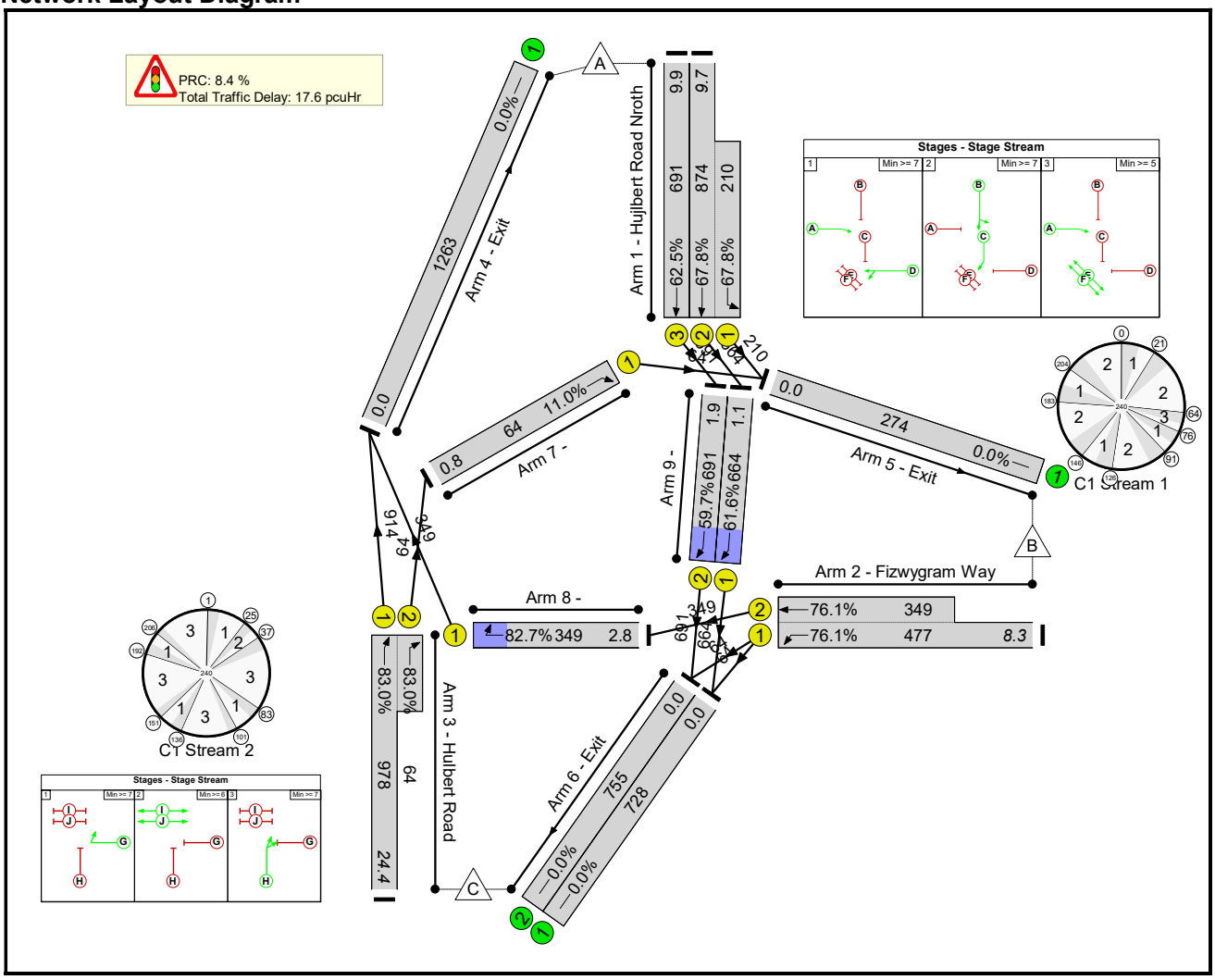
Lane Green Times

Junction:					
Lane	**Description**	**Type**	**Phases**	**Start Green**	**End Green**
1/1	Hujlbert Road Nroth Left	U	B	26	64
				96	126
				151	183
				209	0
1/2	Hujlbert Road Nroth Ahead	U	B	26	64
				96	126
				151	183
				209	0
1/3	Hujlbert Road Nroth Ahead	U	B	26	64
				96	126
				151	183
				209	0
2/1	Fizwygram Way Left	U	D	11	25
				84	95
				137	150
				194	208
2/2	Fizwygram Way Ahead	U	D	11	25
				84	95
				137	150
				194	208
3/1	Hulbert Road Ahead	U	H	45	83
				106	136
				156	192
				211	1
3/2	Hulbert Road Right	U	H	45	83
				106	136
				156	192
				211	1
7/1	Right	U	A	7	21
				71	91
				133	146
				190	204
8/1	Right	U	G	8	25
				90	101
				143	151
				199	206
9/1	Ahead	U	C	32	64
				102	132

Basic Results Summary

				157	189
				215	6
9/2	Ahead	U	C	32	64
				102	132
				157	189
				215	6

Network Layout Diagram



Basic Results Summary

Network Results

Item	Lane Description	Lane Type	Full Phase	Total Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: Concept Option 1	-	-	-	-	-	-	-	**83.0%**	**0**	**0**	**0**	**17.6**	-	-
	-	-	-	-	-	-	-	**83.0%**	**0**	**0**	**0**	**17.6**	-	-
1/2+1/1	Hujlbert Road Nroth Left Ahead	U	B	131	874	1940:1965	979+310	67.8 : 67.8%	-	-	-	3.1	12.6	9.7
1/3	Hujlbert Road Nroth Ahead	U	B	131	691	1965	1105	62.5%	-	-	-	2.6	13.3	9.9
2/1+2/2	Fizwygram Way Left Ahead	U	D	52	477	1965:1965	168+458	76.1 : 76.1%	-	-	-	4.4	33.4	8.3
3/1+3/2	Hulbert Road Ahead Right	U	H	134	978	1975:1965	1101+77	83.0 : 83.0%	-	-	-	5.6	20.6	24.4
7/1	Right	U	A	61	64	2155	584	11.0%	-	-	-	0.2	10.0	0.8
8/1	Right	U	G	43	349	2155	422	82.7%	-	-	-	0.6	6.2	2.8
9/1	Ahead	U	C	125	664	2005	1078	61.6%	-	-	-	0.2	1.2	1.1
9/2	Ahead	U	C	125	691	2155	1158	59.7%	-	-	-	1.0	5.0	1.9

C1 Stream: 1 PRC for Signalled Lanes (%): 18.2 Total Delay for Signalled Lanes (pcuHr): 11.38 Cycle Time (s): 240
C1 Stream: 2 PRC for Signalled Lanes (%): 8.4 Total Delay for Signalled Lanes (pcuHr): 6.21 Cycle Time (s): 240
PRC Over All Lanes (%): 8.4 Total Delay Over All Lanes(pcuHr): 17.59

Basic Results Summary

Scenario 5: 'AM Peak No Ped' (FG1: 'Saturn Flows Morning Peak Demand Flows', Plan 3: 'No Peds')

Stage Timings

Stage Stream: 1

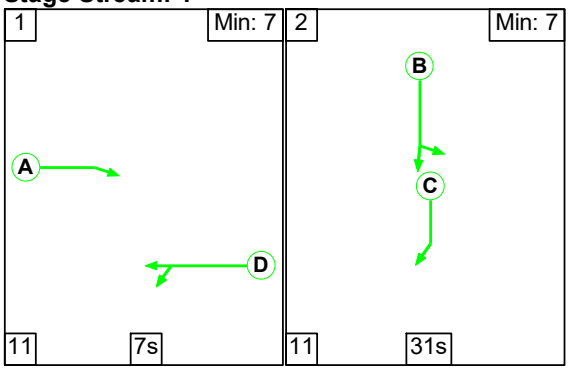
Stage	1	2
Duration	7	31
Change Point	0	18

Stage Stream: 2

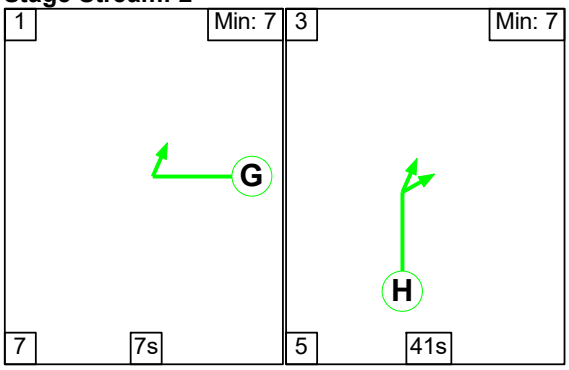
Stage	1	3
Duration	7	41
Change Point	12	26

Stage Sequence Diagram

Stage Stream: 1

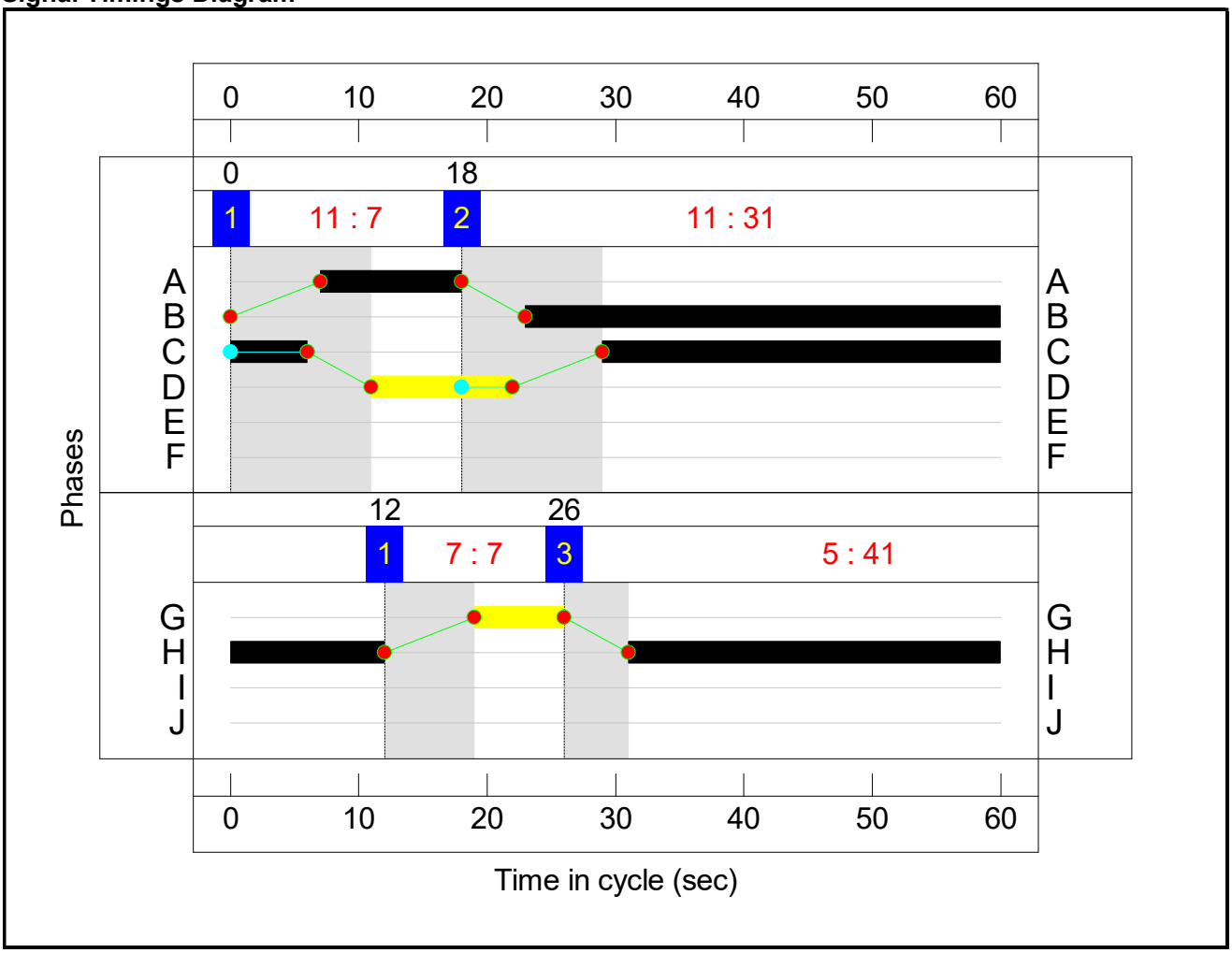


Stage Stream: 2



Basic Results Summary

Signal Timings Diagram



Phase Timings

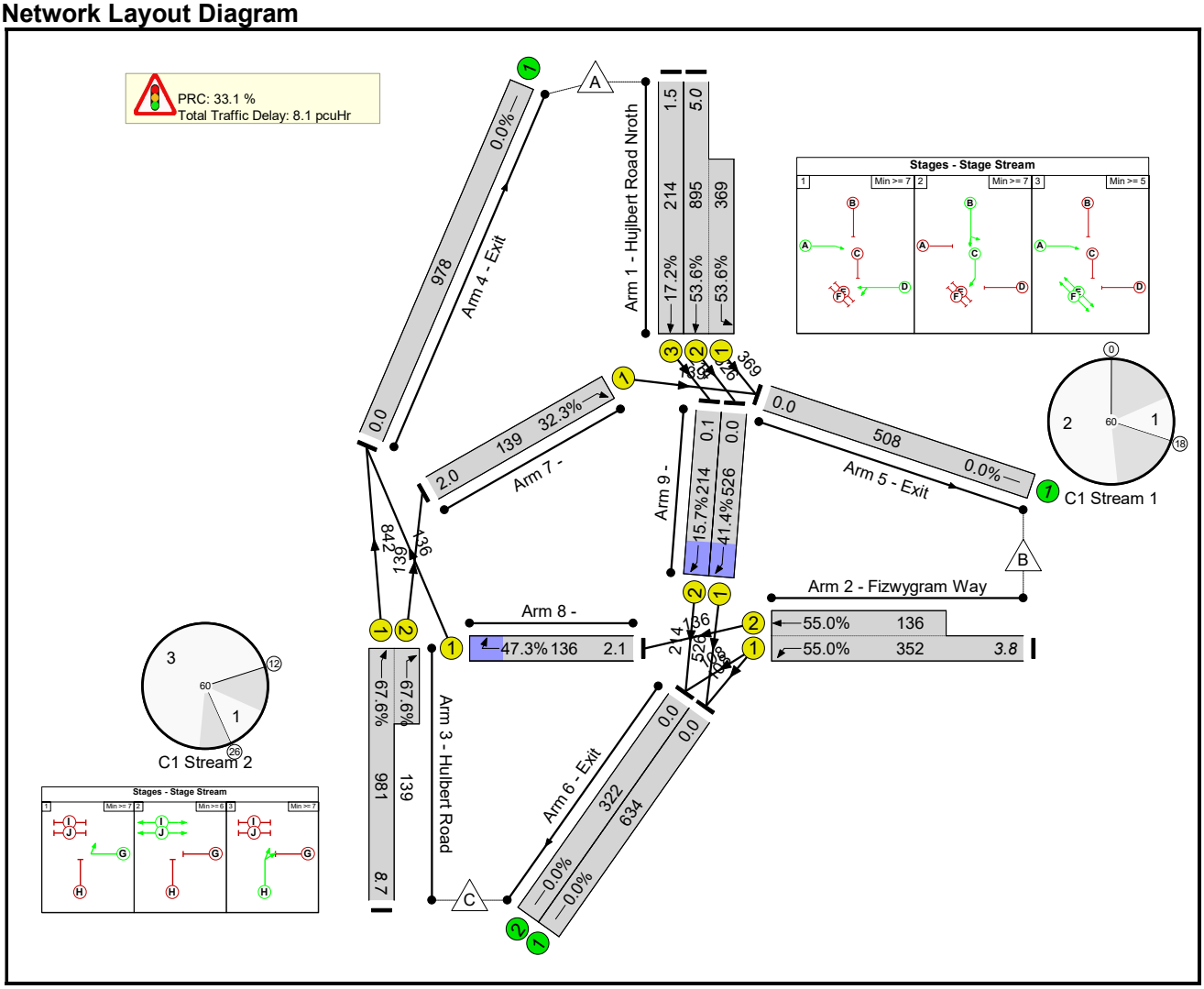
Phase Name	Description	Phase	Stage Stream	Green Period 1		
				Total Green	Start Time	End Time
A	Right	Traffic	1	11	7	18
B	Hujlbert Road Nroth Left Ahead	Traffic	1	37	23	0
C	Ahead	Traffic	1	37	29	6
D	Fizwygram Way Left Ahead	Traffic	1	11	11	22
E	Pedestrians across	Pedestrian	1			
F	Pedestrians across	Pedestrian	1			
G	Right	Traffic	2	7	19	26
H	Hulbert Road Ahead Right	Traffic	2	41	31	12
I	Pedestrians across	Pedestrian	2			
J	Pedestrians across	Pedestrian	2			

Basic Results Summary

Lane Green Times

Junction:					
Lane	**Description**	**Type**	**Phases**	**Start Green**	**End Green**
1/1	Hujlbert Road Nroth Left	U	B	23	0
1/2	Hujlbert Road Nroth Ahead	U	B	23	0
1/3	Hujlbert Road Nroth Ahead	U	B	23	0
2/1	Fizwygram Way Left	U	D	11	22
2/2	Fizwygram Way Ahead	U	D	11	22
3/1	Hulbert Road Ahead	U	H	31	12
3/2	Hulbert Road Right	U	H	31	12
7/1	Right	U	A	7	18
8/1	Right	U	G	19	26
9/1	Ahead	U	C	29	6
9/2	Ahead	U	C	29	6

Network Layout Diagram



Basic Results Summary

Network Results

Item	Lane Description	Lane Type	Full Phase	Total Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: Concept Option 1	-	-	-	-	-	-	-	**67.6%**	**0**	**0**	**0**	**8.1**	-	-
	-	-	-	-	-	-	-	**67.6%**	**0**	**0**	**0**	**8.1**	-	-
1/2+1/1	Hujlbert Road Nroth Left Ahead	U	B	37	895	1940:1965	982+689	53.6 : 53.6%	-	-	-	1.9	7.6	5.0
1/3	Hujlbert Road Nroth Ahead	U	B	37	214	1965	1244	17.2%	-	-	-	0.4	6.3	1.5
2/1+2/2	Fizwygram Way Left Ahead	U	D	11	352	1965:1965	393+247	55.0 : 55.0%	-	-	-	2.7	27.4	3.8
3/1+3/2	Hulbert Road Ahead Right	U	H	41	981	1975:1965	1245+206	67.6 : 67.6%	-	-	-	2.3	8.4	8.7
7/1	Right	U	A	11	139	2155	431	32.3%	-	-	-	0.7	17.0	2.0
8/1	Right	U	G	7	136	2155	287	47.3%	-	-	-	0.1	3.4	2.1
9/1	Ahead	U	C	37	526	2005	1270	41.4%	-	-	-	0.0	0.0	0.0
9/2	Ahead	U	C	37	214	2155	1365	15.7%	-	-	-	0.1	1.6	0.1

C1 Stream: 1 PRC for Signalled Lanes (%): 63.8 Total Delay for Signalled Lanes (pcuHr): 5.70 Cycle Time (s): 60
C1 Stream: 2 PRC for Signalled Lanes (%): 33.1 Total Delay for Signalled Lanes (pcuHr): 2.41 Cycle Time (s): 60
PRC Over All Lanes (%): 33.1 Total Delay Over All Lanes(pcuHr): 8.11

Basic Results Summary

Scenario 6: 'PM Peak No Ped' (FG2: 'Saturn Flows Evening Peak Demand Flows', Plan 3: 'No Peds')

Stage Timings

Stage Stream: 1

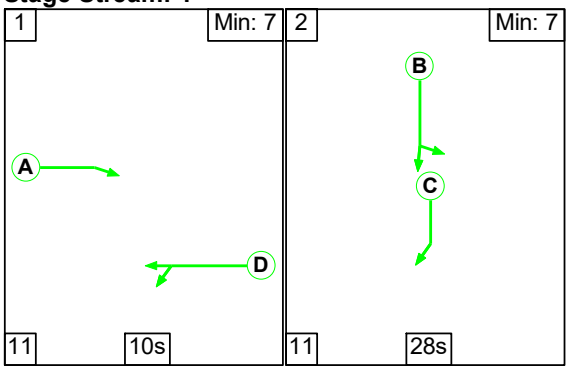
Stage	1	2
Duration	10	28
Change Point	0	21

Stage Stream: 2

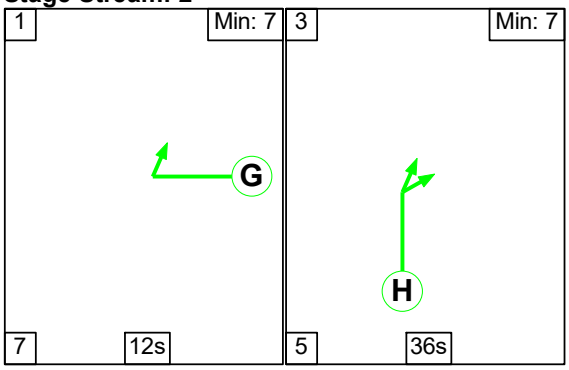
Stage	1	3
Duration	12	36
Change Point	12	31

Stage Sequence Diagram

Stage Stream: 1

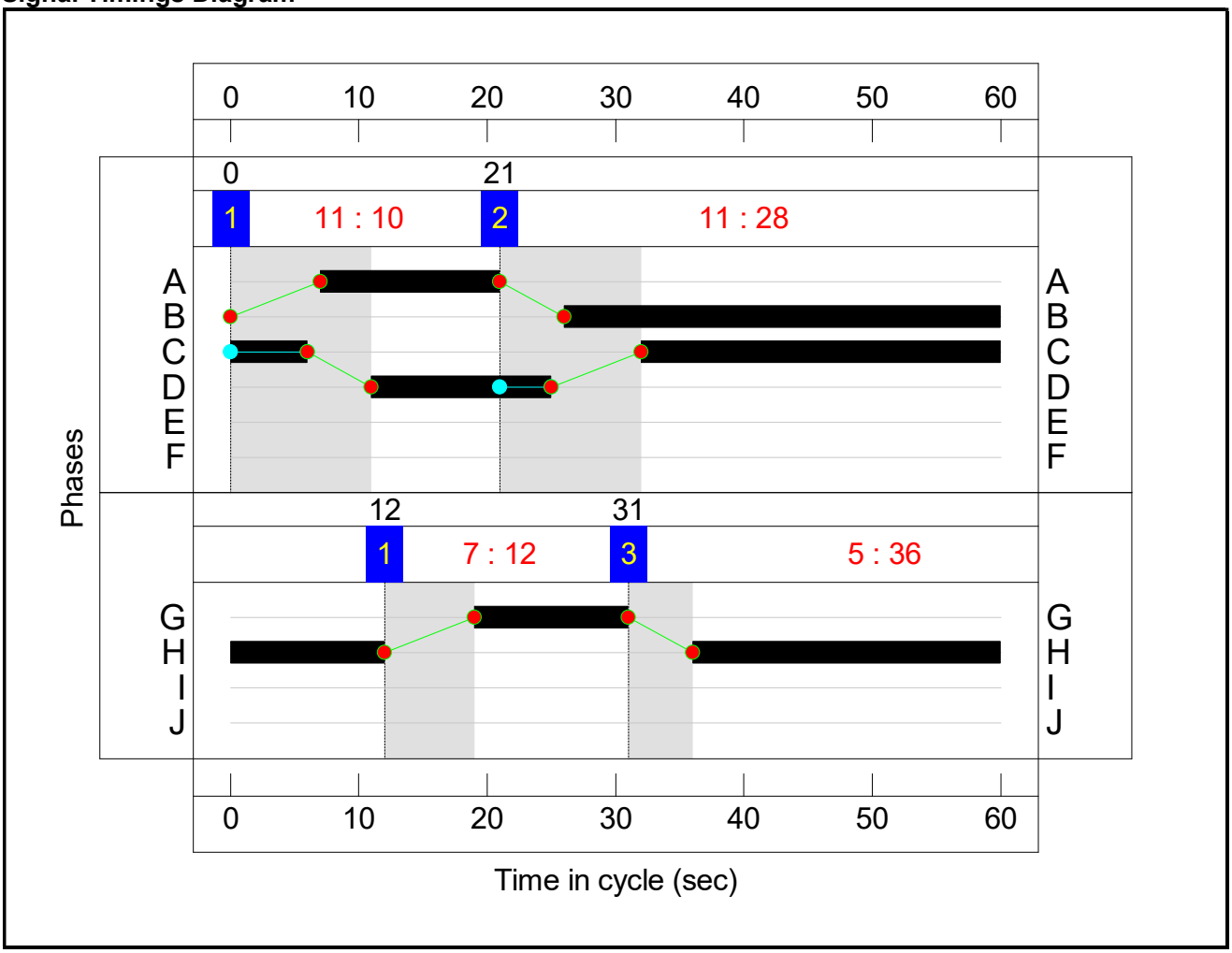


Stage Stream: 2



Basic Results Summary

Signal Timings Diagram



Phase Timings

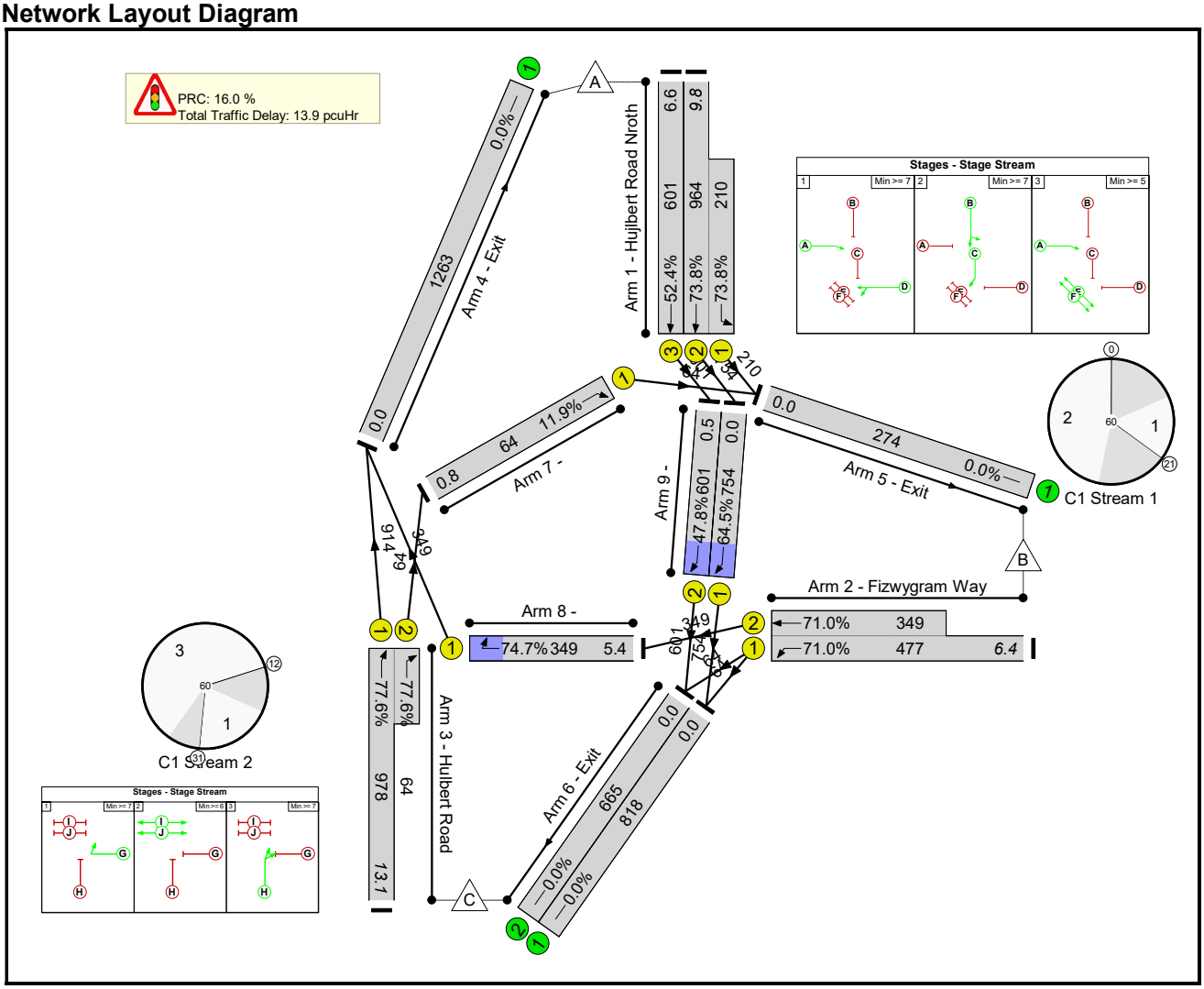
Phase Name	Description	Phase	Stage Stream	Green Period 1		
				Total Green	Start Time	End Time
A	Right	Traffic	1	14	7	21
B	Hujlbert Road Nroth Left Ahead	Traffic	1	34	26	0
C	Ahead	Traffic	1	34	32	6
D	Fizwygram Way Left Ahead	Traffic	1	14	11	25
E	Pedestrians across	Pedestrian	1			
F	Pedestrians across	Pedestrian	1			
G	Right	Traffic	2	12	19	31
H	Hulbert Road Ahead Right	Traffic	2	36	36	12
I	Pedestrians across	Pedestrian	2			
J	Pedestrians across	Pedestrian	2			

Basic Results Summary

Lane Green Times

Junction:					
Lane	**Description**	**Type**	**Phases**	**Start Green**	**End Green**
1/1	Hujlbert Road Nroth Left	U	B	26	0
1/2	Hujlbert Road Nroth Ahead	U	B	26	0
1/3	Hujlbert Road Nroth Ahead	U	B	26	0
2/1	Fizwygram Way Left	U	D	11	25
2/2	Fizwygram Way Ahead	U	D	11	25
3/1	Hulbert Road Ahead	U	H	36	12
3/2	Hulbert Road Right	U	H	36	12
7/1	Right	U	A	7	21
8/1	Right	U	G	19	31
9/1	Ahead	U	C	32	6
9/2	Ahead	U	C	32	6

Network Layout Diagram



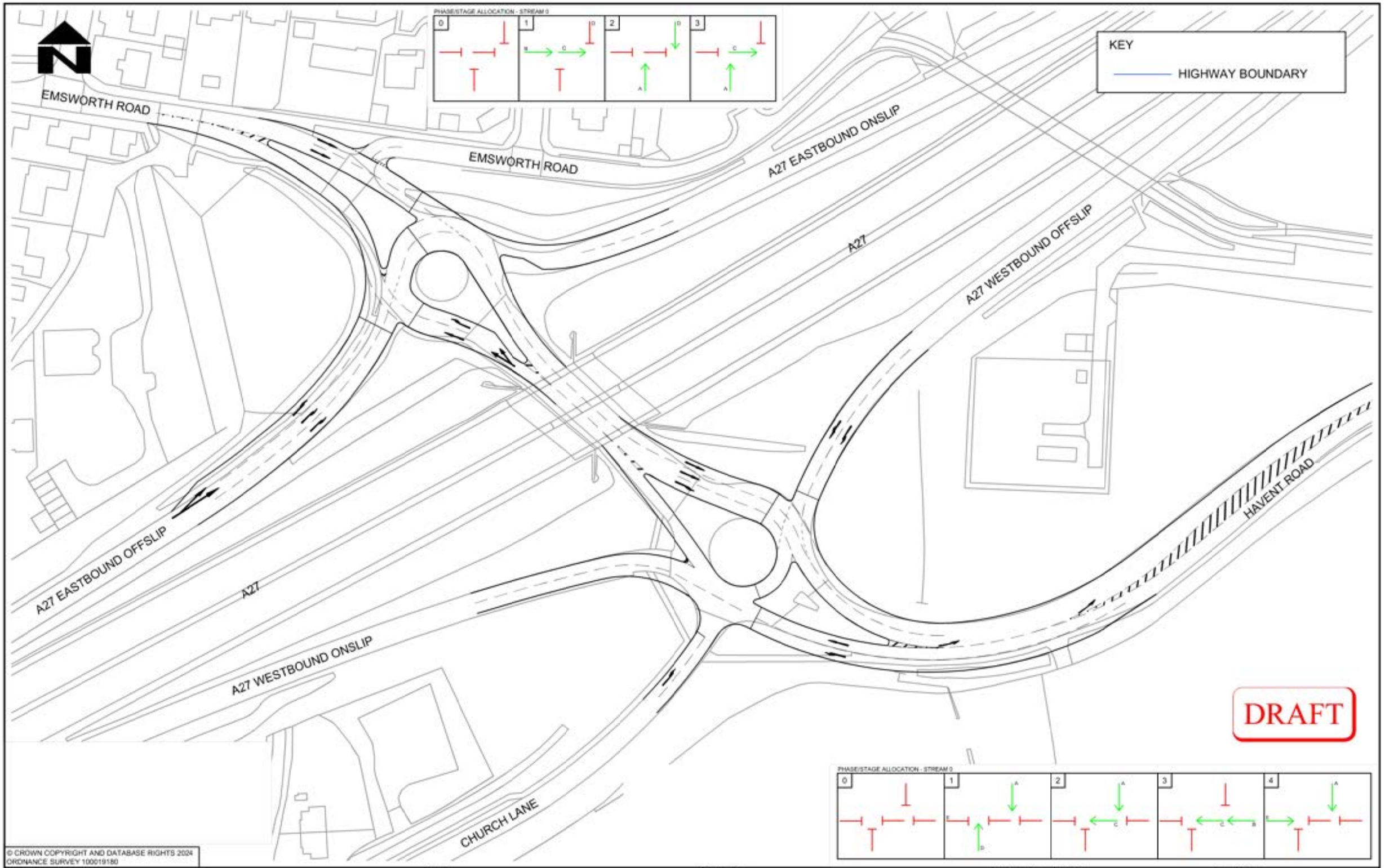
Basic Results Summary

Network Results

Item	Lane Description	Lane Type	Full Phase	Total Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: Concept Option 1	-	-	-	-	-	-	-	**77.6%**	**0**	**0**	**0**	**13.9**	-	-
	-	-	-	-	-	-	-	**77.6%**	**0**	**0**	**0**	**13.9**	-	-
1/2+1/1	Hujlbert Road Nroth Left Ahead	U	B	34	964	1940:1965	1021+284	73.8 : 73.8%	-	-	-	3.5	13.2	9.8
1/3	Hujlbert Road Nroth Ahead	U	B	34	601	1965	1146	52.4%	-	-	-	1.8	10.8	6.6
2/1+2/2	Fizwygram Way Left Ahead	U	D	14	477	1965:1965	180+491	71.0 : 71.0%	-	-	-	3.8	29.0	6.4
3/1+3/2	Hulbert Road Ahead Right	U	H	36	978	1975:1965	1178+82	77.6 : 77.6%	-	-	-	3.9	14.4	13.1
7/1	Right	U	A	14	64	2155	539	11.9%	-	-	-	0.2	10.4	0.8
8/1	Right	U	G	12	349	2155	467	74.7%	-	-	-	0.1	1.4	5.4
9/1	Ahead	U	C	34	754	2005	1170	64.5%	-	-	-	0.0	0.0	0.0
9/2	Ahead	U	C	34	601	2155	1257	47.8%	-	-	-	0.5	2.7	0.5

C1 Stream: 1 PRC for Signalled Lanes (%): 21.9 Total Delay for Signalled Lanes (pcuHr): 9.81 Cycle Time (s): 60
C1 Stream: 2 PRC for Signalled Lanes (%): 16.0 Total Delay for Signalled Lanes (pcuHr): 4.06 Cycle Time (s): 60
PRC Over All Lanes (%): 16.0 Total Delay Over All Lanes(pcuHr): 13.88

Appendix F – Mitigation Scheme at A27 Warblington Interchange



SU	P01.01	INITIAL ISSUE.	05.12.2025	STL	STL	JAM	JAM
SUIT	REV	WORK IN PROGRESS ISSUE AND DESCRIPTION OF AMENDMENTS	DATE	DESIGNED	CAD	CHKD	APPD

CLIENT

HAMPSHIRE COUNTY COUNCIL
UNIVERSAL SERVICES DIRECTORATE
INTELLIGENT TRANSPORT SYSTEMS

CONSULTANT

Hampshire County Council
Engineering Services

TIM LAWTON BEng CEng FICE FCIHT : ASSISTANT DIRECTOR OF UNIVERSAL SERVICES

H. SCALE @ A3: 1:
V. SCALE @ A3: N/A
SHEET NUMBER: 1 OF 1

SCHEME: A27/ Emsworth Road/ Havent Road

JOB No. R.J510632.01

DRAWING TITLE: Concept Design

DRAWING NUMBER: R.J510632-ITS-HGN-17026216-DR-TS-00004

SUIT: S0 REV: P01.01

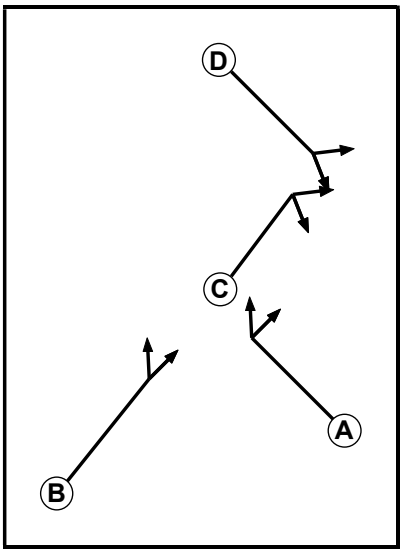
Basic Results Summary

User and Project Details

Project:	
Title:	
File name:	A27 - Emsworth Road - Havent Road Junction.lsg3x

C1

Phase Diagram



Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Traffic		7	7

Phase Intergreens Matrix

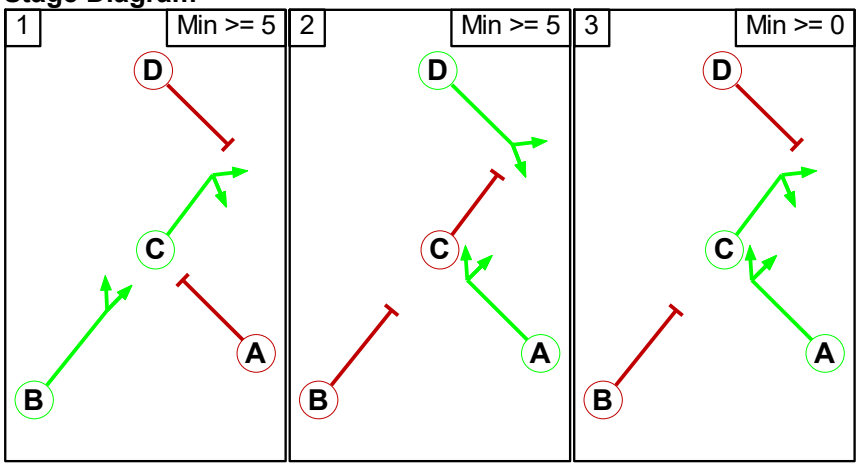
		Starting Phase			
		A	B	C	D
Terminating Phase	A		5	-	-
	B	7		-	-
	C	-	-		5
	D	-	-	7	

Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

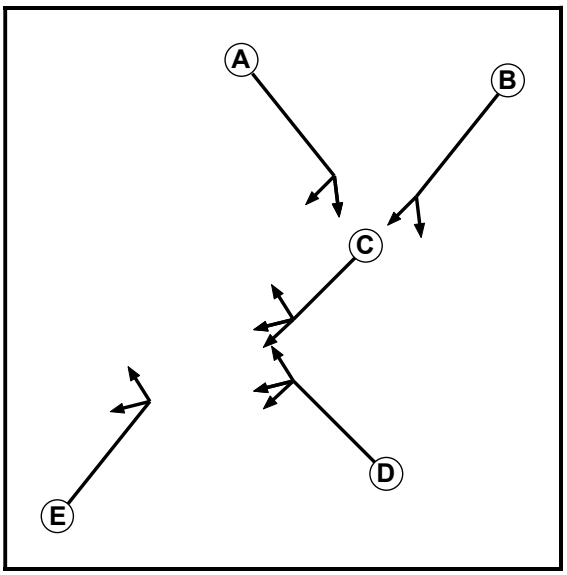
Basic Results Summary

Stage Diagram



C2

Phase Diagram



Phase Input Data

Phase Name	Phase Type	Stage Stream	Assoc. Phase	Street Min	Cont Min
A	Traffic	1		7	7
B	Traffic	1		7	7
C	Traffic	1		7	7
D	Traffic	1		7	7
E	Traffic	1		7	7

Basic Results Summary

Phase Intergreens Matrix

		Starting Phase				
		A	B	C	D	E
Terminating Phase	A		5	-	-	-
	B	7		-	-	-
	C	-	-		5	7
	D	-	-	7		7
	E	-	-	5	5	

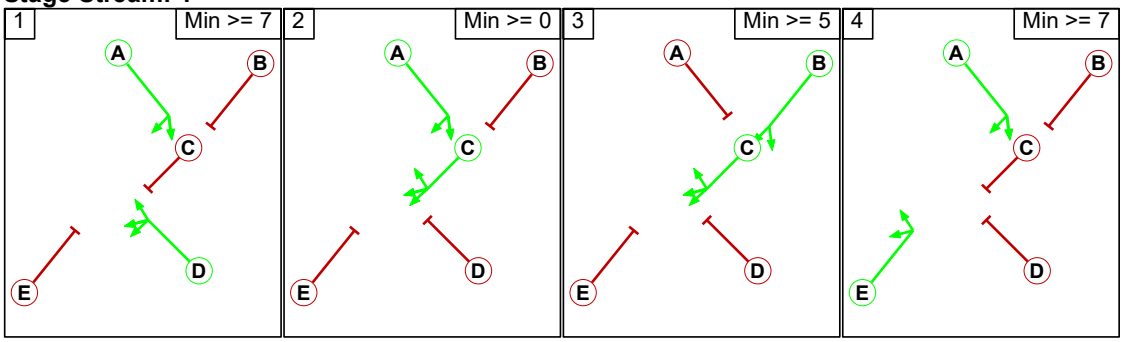
Phase Delays

Stage Stream: 1

Term. Stage	Start Stage	Phase	Type	Value	Cont value
3	1	C	Losing	6	6

Stage Diagram

Stage Stream: 1

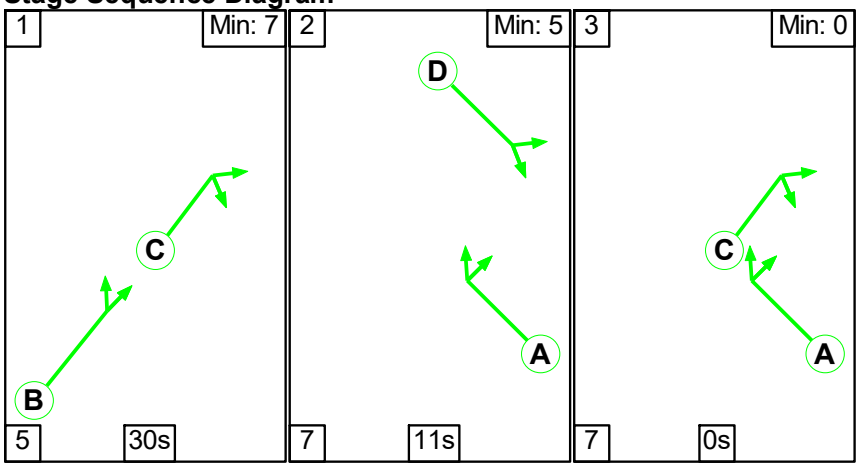


Scenario 1: 'AM Peak Saturn Demand' (FG1: 'AM Peak', Plan 1: 'Network Control Plan 1')
C1

Stage Timings

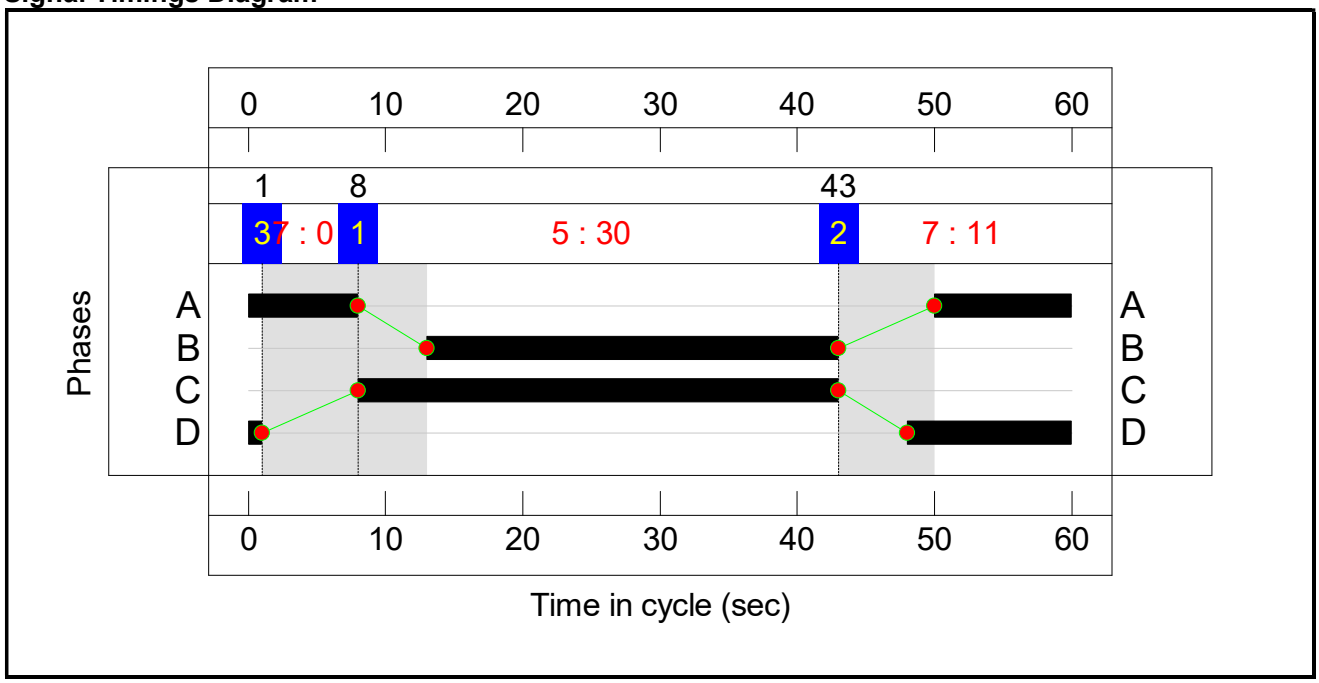
Stage	1	2	3
Duration	30	11	0
Change Point	8	43	1

Stage Sequence Diagram



Basic Results Summary

Signal Timings Diagram



Phase Timings

Phase Name	Description	Phase	Green Period 1		
			Total Green	Start Time	End Time
A	Internal @ A27 Eastbound Offslip Right Right2	Traffic	18	50	8
B	A27 Eastbound Offslip Ahead Left	Traffic	30	13	43
C	Internal @ Emsorth Road Ahead Right	Traffic	35	8	43
D	Emsworth Road Left Ahead	Traffic	13	48	1

C2

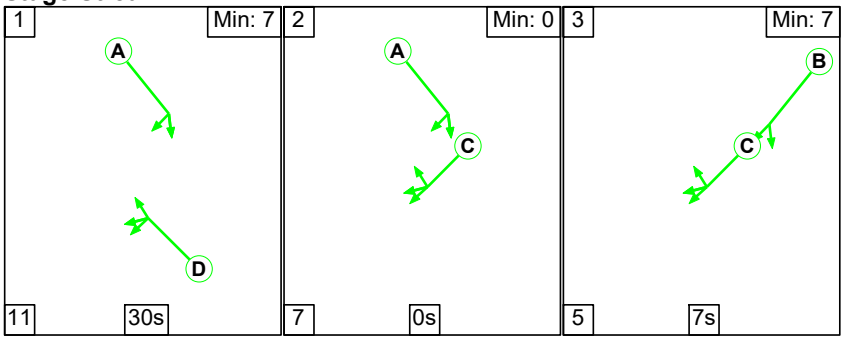
Stage Timings

Stage Stream: 1

Stage	1	2	3
Duration	30	0	7
Change Point	24	5	12

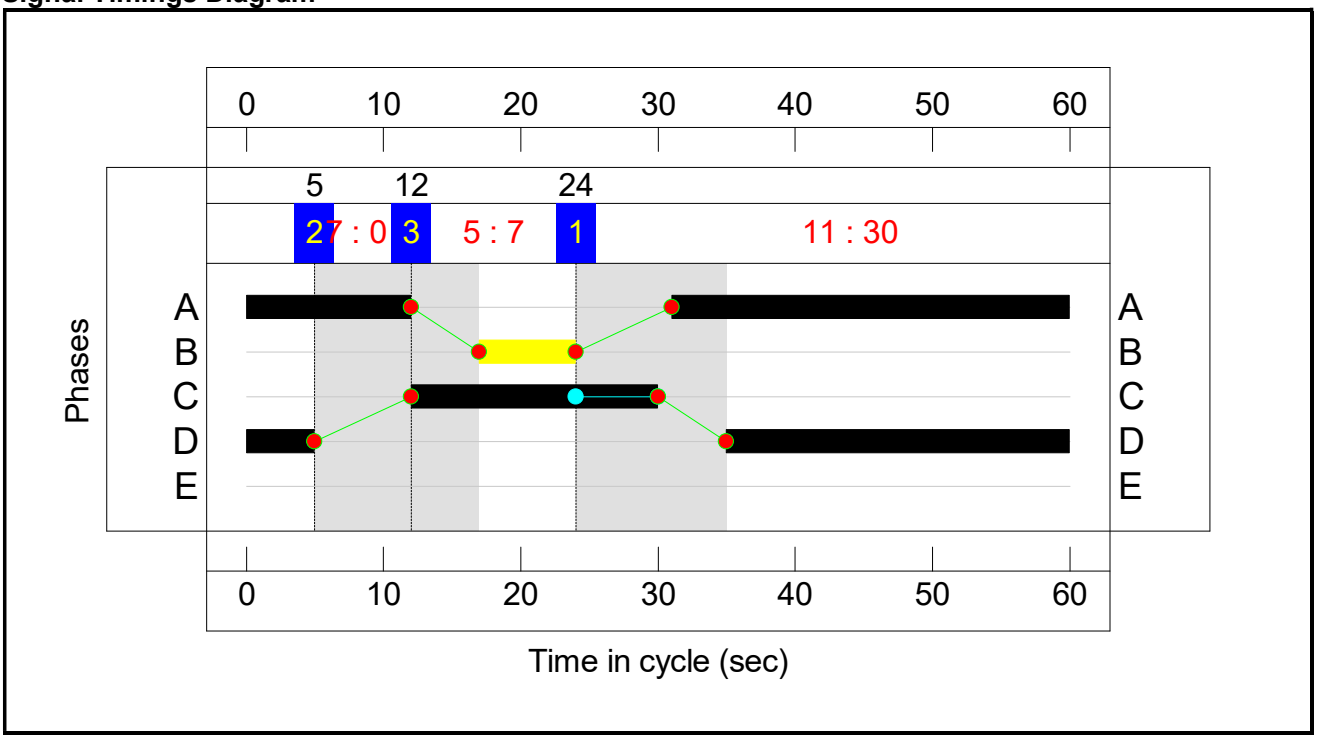
Stage Sequence Diagram

Stage Stream: 1



Basic Results Summary

Signal Timings Diagram



Phase Timings

Phase Name	Description	Phase	Stage Stream	Green Period 1		
				Total Green	Start Time	End Time
A	Internal @ A27 Westbound Offslip Right Right2	Traffic	1	41	31	12
B	A27 Westbound Offslip Ahead Left	Traffic	1	7	17	24
C	Internal @ Havent Road Ahead Right Ahead2	Traffic	1	18	12	30
D	Havent Road Left Ahead Left2	Traffic	1	30	35	5
E	Church Road U-Turn Left	Traffic	1			

Basic Results Summary

Lane Green Times

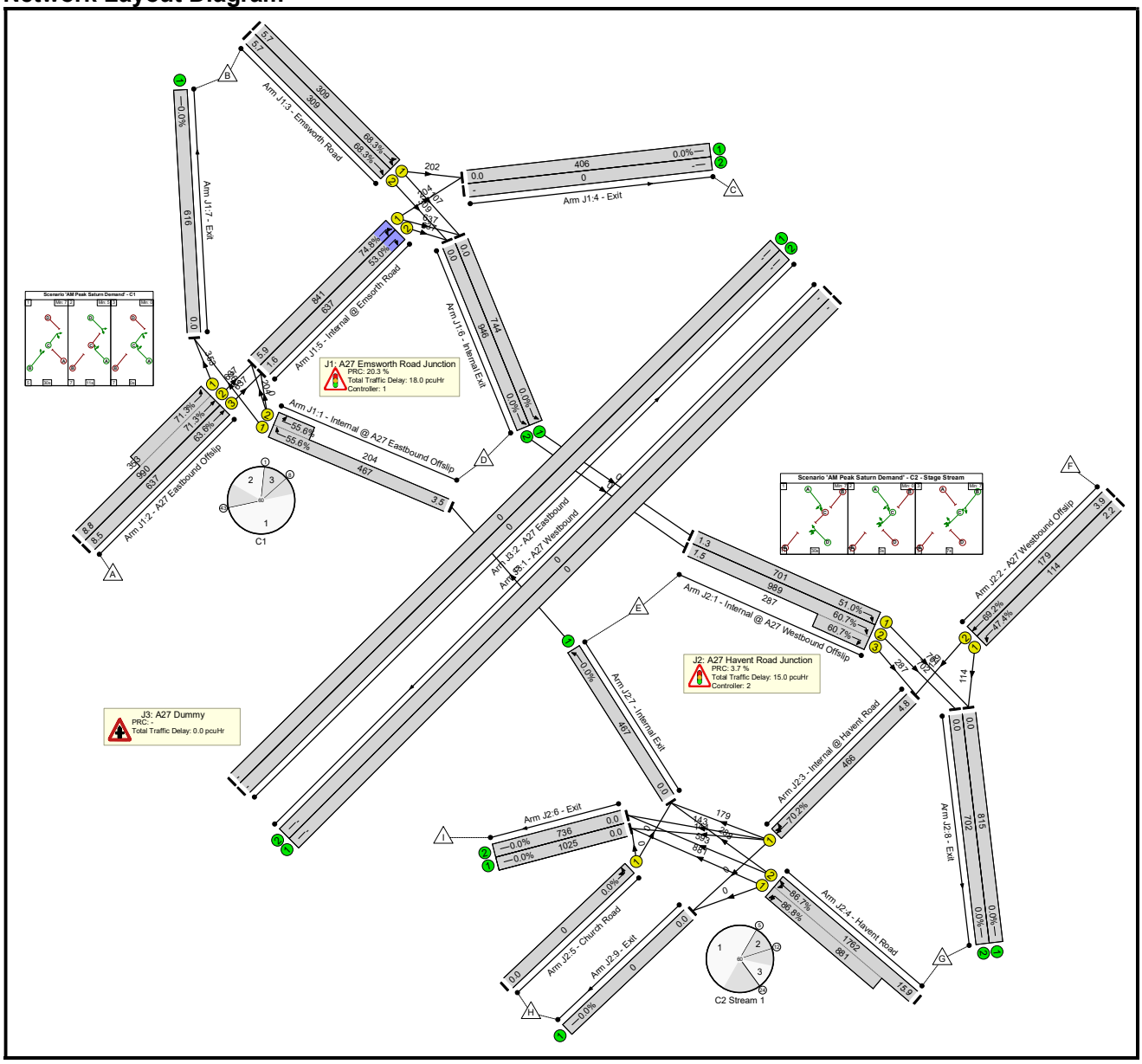
Junction: J1: A27 Emsworth Road Junction					
Lane	**Description**	**Type**	**Phases**	**Start Green**	**End Green**
J1:1/1	Internal @ A27 Eastbound Offslip Right	U	A	50	8
J1:1/2	Internal @ A27 Eastbound Offslip Right	U	A	50	8
J1:2/1	A27 Eastbound Offslip Left	U	B	13	43
J1:2/2	A27 Eastbound Offslip Ahead	U	B	13	43
J1:2/3	A27 Eastbound Offslip Ahead	U	B	13	43
J1:3/1	Emsworth Road Left Ahead	U	D	48	1
J1:3/2	Emsworth Road Ahead	U	D	48	1
J1:5/1	Internal @ Emsorth Road Ahead Right	U	C	8	43
J1:5/2	Internal @ Emsorth Road Right	U	C	8	43

Junction: J2: A27 Havent Road Junction					
Lane	**Description**	**Type**	**Phases**	**Start Green**	**End Green**
J2:1/1	Internal @ A27 Westbound Offslip Right	U	A	31	12
J2:1/2	Internal @ A27 Westbound Offslip Right	U	A	31	12
J2:1/3	Internal @ A27 Westbound Offslip Right	U	A	31	12
J2:2/1	A27 Westbound Offslip Left	U	B	17	24
J2:2/2	A27 Westbound Offslip Ahead	U	B	17	24
J2:3/1	Internal @ Havent Road Ahead Right Ahead2	U	C	12	30
J2:4/1	Havent Road Left Left2	U	D	35	5
J2:4/2	Havent Road Left Ahead	U	D	35	5

Junction: J3: A27 Dummy					
Lane	**Description**	**Type**	**Phases**	**Start Green**	**End Green**
No data to display					

Basic Results Summary

Network Layout Diagram



Basic Results Summary

Network Results

Item	Lane Description	Lane Type	Full Phase	Total Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	-	-	-	-	-	-	-	**86.8%**	**0**	**0**	**0**	**33.0**	-	-
J1: A27 Emsworth Road Junction	-	-	-	-	-	-	-	**74.8%**	**0**	**0**	**0**	**18.0**	-	-
1/1+1/2	Internal @ A27 Eastbound Offslip Right Right2	U	C1:A	18	467	1940:1940	473+367	55.6 : 55.6%	-	-	-	2.1	16.3	3.5
2/2+2/1	A27 Eastbound Offslip Ahead Left	U	C1:B	30	990	1940:1940	893+495	71.3 : 71.3%	-	-	-	3.9	14.3	8.8
2/3	A27 Eastbound Offslip Ahead	U	C1:B	30	637	1940	1002	63.6%	-	-	-	2.7	15.3	8.5
3/1	Emsworth Road Left Ahead	U	C1:D	13	309	1940	453	68.3%	-	-	-	2.9	33.3	5.7
3/2	Emsworth Road Ahead	U	C1:D	13	309	1940	453	68.3%	-	-	-	2.9	33.3	5.7
5/1	Internal @ Emsorth Road Ahead Right	U	C1:C	35	841	1874	1124	74.8%	-	-	-	2.6	11.0	5.9
5/2	Internal @ Emsorth Road Right	U	C1:C	35	637	2005	1203	53.0%	-	-	-	1.0	5.4	1.6
J2: A27 Havent Road Junction	-	-	-	-	-	-	-	**86.8%**	**0**	**0**	**0**	**15.0**	-	-
1/1	Internal @ A27 Westbound Offslip Right	U	C2:A	41	701	1965	1375	51.0%	-	-	-	0.2	1.0	1.3
1/2+1/3	Internal @ A27 Westbound Offslip Right Right2	U	C2:A	41	989	2105:2001	1157+473	60.7 : 60.7%	-	-	-	0.4	1.4	1.5
2/1	A27 Westbound Offslip Left	U	C2:B	7	114	1805	241	47.4%	-	-	-	1.2	38.2	2.2
2/2	A27 Westbound Offslip Ahead	U	C2:B	7	179	1940	259	69.2%	-	-	-	2.3	46.8	3.9
3/1	Internal @ Havent Road Ahead Right Ahead2	U	C2:C	18	466	2095	663	70.2%	-	-	-	1.6	12.5	4.8
4/2+4/1	Havent Road Left Ahead Left2	U	C2:D	30	1762	2105:1965	1016+1015	86.7 : 86.8%	-	-	-	9.3	18.9	15.9

Basic Results Summary

5/1	Church Road U-Turn Left	U	C2:E	0	0	1965	0	0.0%	-	-	-	0.0	0.0	0.0
J3: A27 Dummy	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0.0%**	**0**	**0**	**0**	**0.0**	**-**	**-**

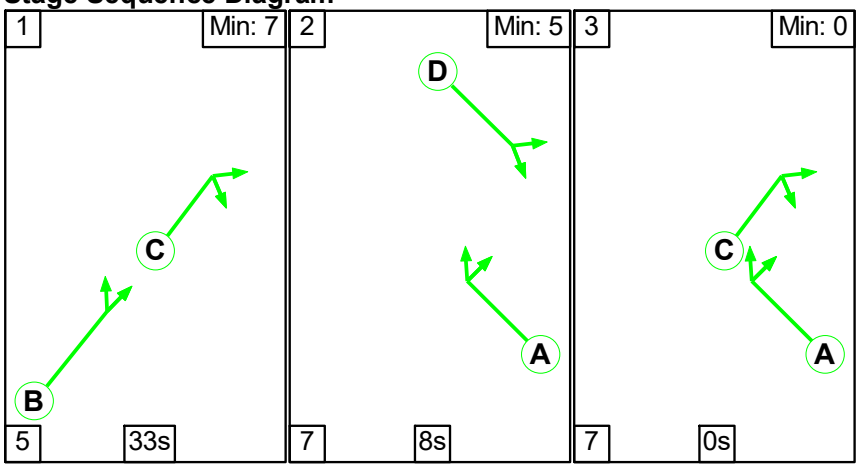
C1		PRC for Signalled Lanes (%):	20.3	Total Delay for Signalled Lanes (pcuHr):	17.99	Cycle Time (s): 60
C2	Stream: 1	PRC for Signalled Lanes (%):	3.7	Total Delay for Signalled Lanes (pcuHr):	14.98	Cycle Time (s): 60
		PRC Over All Lanes (%):	3.7	Total Delay Over All Lanes(pcuHr):	32.97	

Basic Results Summary
Scenario 2: 'PM Peak Saturn Demand' (FG2: 'PM Peak', Plan 1: 'Network Control Plan 1')
C1

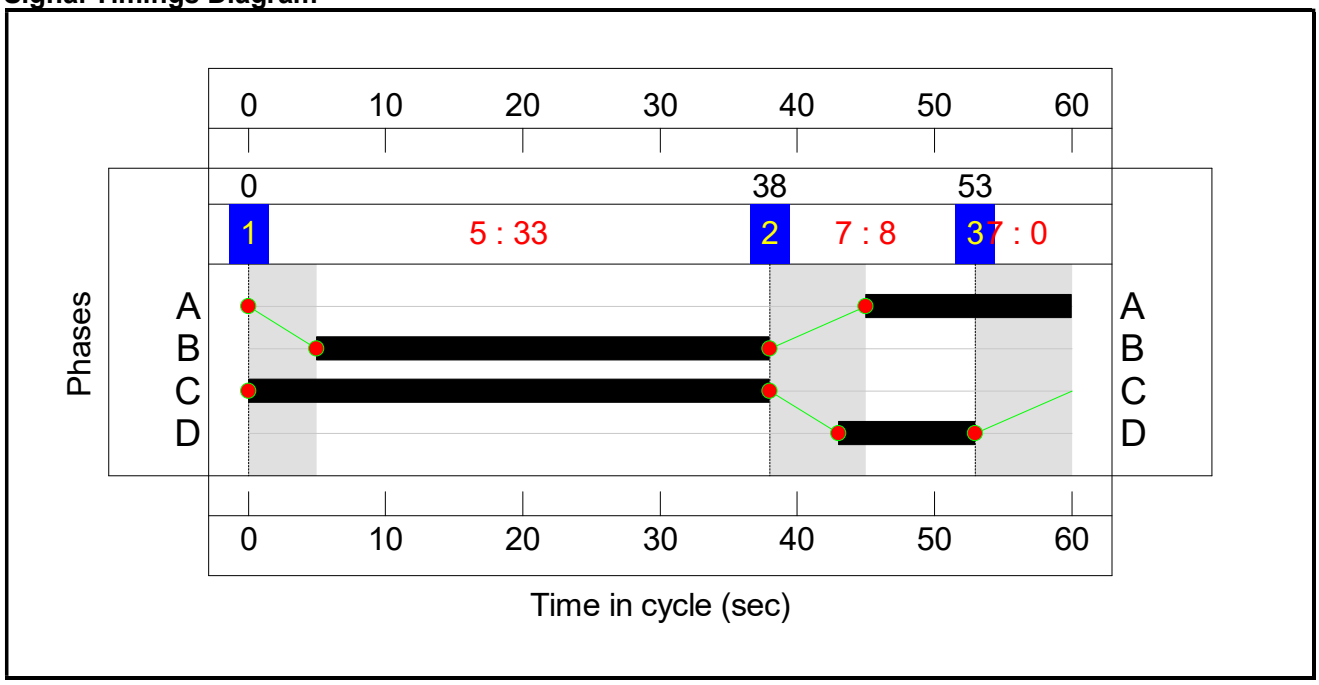
Stage Timings

Stage	1	2	3
Duration	33	8	0
Change Point	0	38	53

Stage Sequence Diagram



Signal Timings Diagram



Basic Results Summary

Phase Timings

Phase Name	Description	Phase	Green Period 1		
			Total Green	Start Time	End Time
A	Internal @ A27 Eastbound Offslip Right Right2	Traffic	15	45	0
B	A27 Eastbound Offslip Ahead Left	Traffic	33	5	38
C	Internal @ Emsorth Road Ahead Right	Traffic	38	0	38
D	Emsworth Road Left Ahead	Traffic	10	43	53

C2

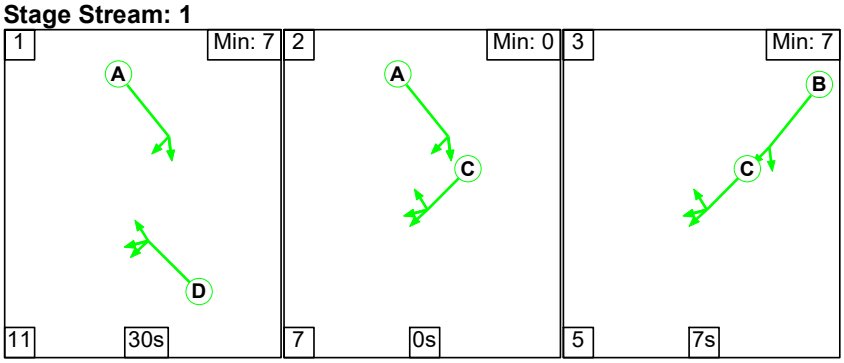
Stage Timings

Stage Stream: 1

Stage	1	2	3
Duration	30	0	7
Change Point	17	58	5

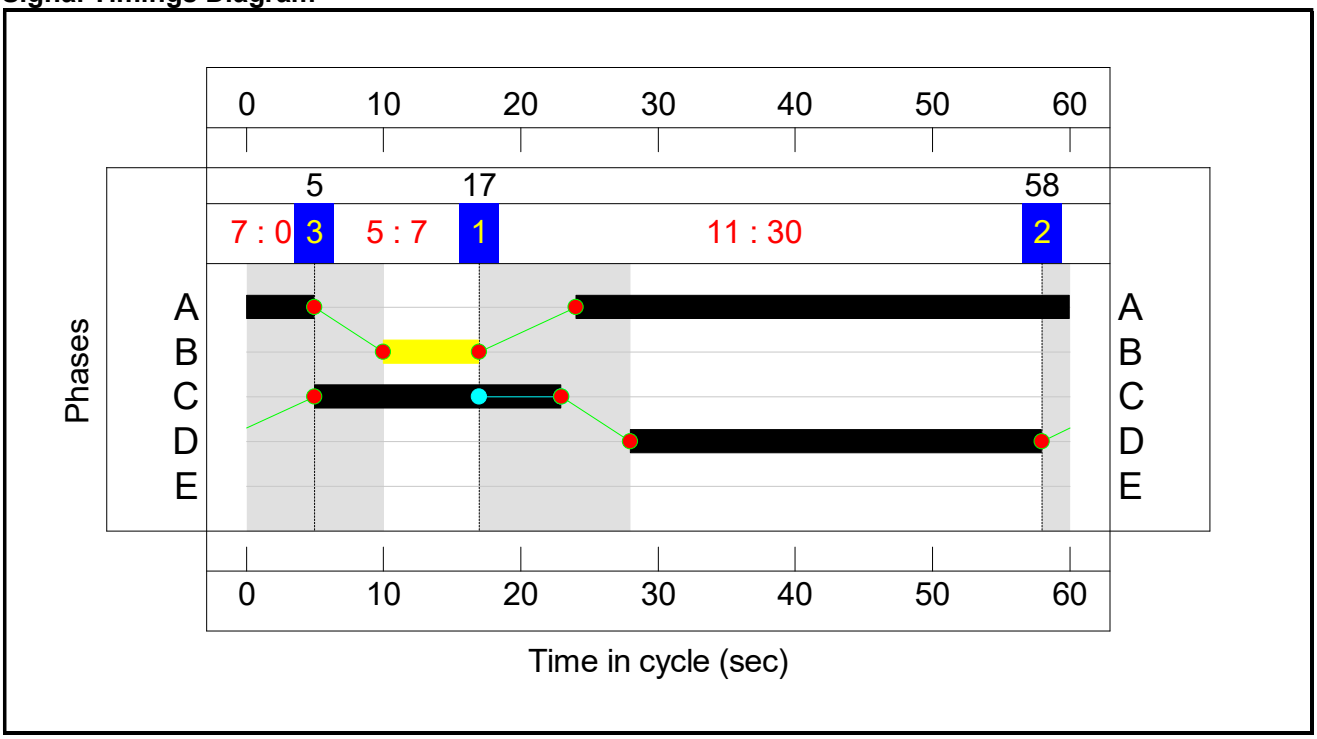
Stage Sequence Diagram

Stage Stream: 1



Basic Results Summary

Signal Timings Diagram



Phase Timings

Phase Name	Description	Phase	Stage Stream	Green Period 1		
				Total Green	Start Time	End Time
A	Internal @ A27 Westbound Offslip Right Right2	Traffic	1	41	24	5
B	A27 Westbound Offslip Ahead Left	Traffic	1	7	10	17
C	Internal @ Havent Road Ahead Right Ahead2	Traffic	1	18	5	23
D	Havent Road Left Ahead Left2	Traffic	1	30	28	58
E	Church Road U-Turn Left	Traffic	1			

Lane Green Times

Junction: J1: A27 Emsworth Road Junction					
Lane	Description	Type	Phases	Start Green	End Green
J1:1/1	Internal @ A27 Eastbound Offslip Right	U	A	45	0
J1:1/2	Internal @ A27 Eastbound Offslip Right	U	A	45	0
J1:2/1	A27 Eastbound Offslip Left	U	B	5	38
J1:2/2	A27 Eastbound Offslip Ahead	U	B	5	38
J1:2/3	A27 Eastbound Offslip Ahead	U	B	5	38
J1:3/1	Emsworth Road Left Ahead	U	D	43	53
J1:3/2	Emsworth Road Ahead	U	D	43	53
J1:5/1	Internal @ Emsorth Road Ahead Right	U	C	0	38
J1:5/2	Internal @ Emsorth Road Right	U	C	0	38

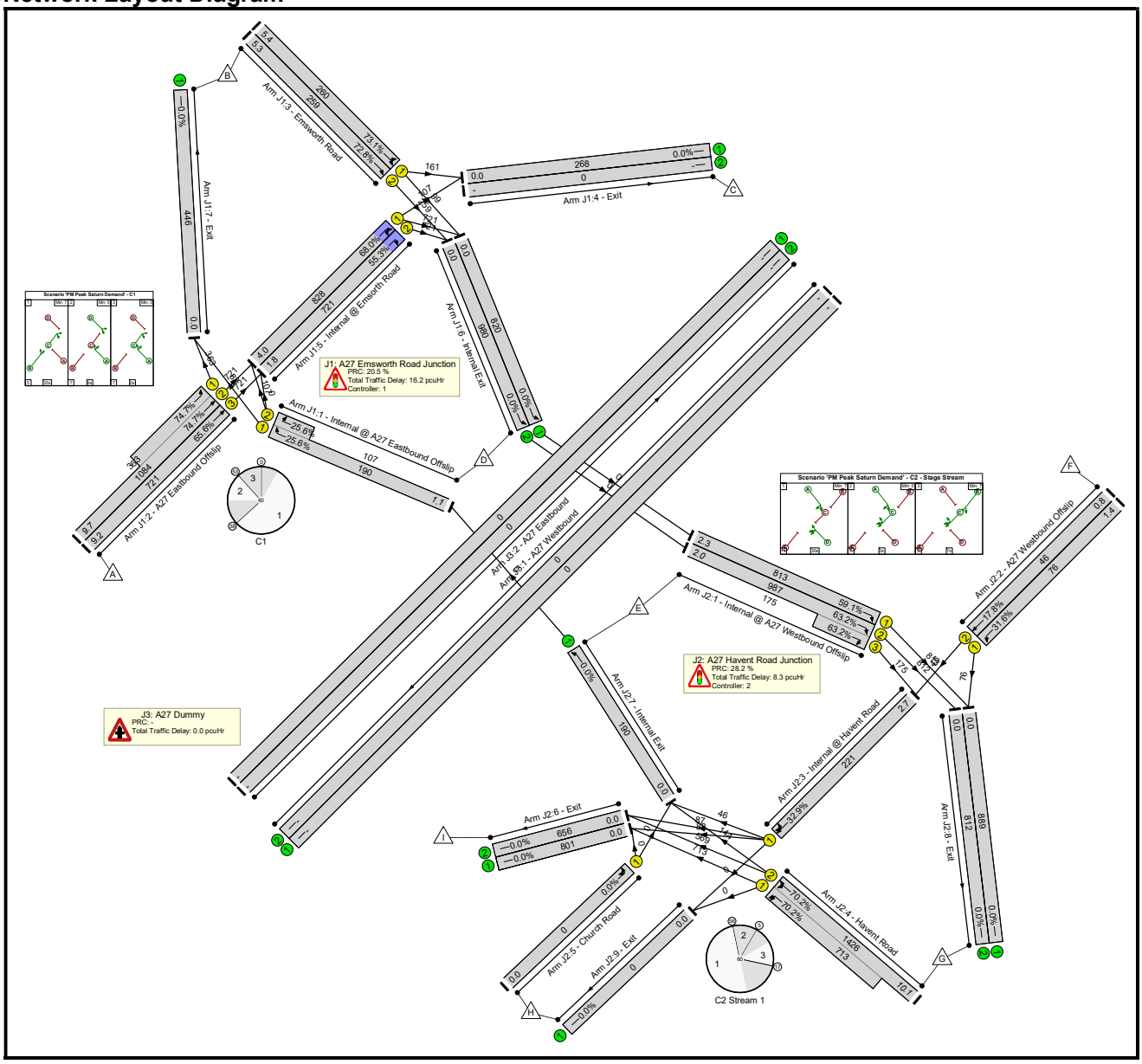
Basic Results Summary

Junction: J2: A27 Havent Road Junction					
Lane	**Description**	**Type**	**Phases**	**Start Green**	**End Green**
J2:1/1	Internal @ A27 Westbound Offslip Right	U	A	24	5
J2:1/2	Internal @ A27 Westbound Offslip Right	U	A	24	5
J2:1/3	Internal @ A27 Westbound Offslip Right	U	A	24	5
J2:2/1	A27 Westbound Offslip Left	U	B	10	17
J2:2/2	A27 Westbound Offslip Ahead	U	B	10	17
J2:3/1	Internal @ Havent Road Ahead Right Ahead2	U	C	5	23
J2:4/1	Havent Road Left Left2	U	D	28	58
J2:4/2	Havent Road Left Ahead	U	D	28	58

Junction: J3: A27 Dummy					
Lane	**Description**	**Type**	**Phases**	**Start Green**	**End Green**
No data to display					

Basic Results Summary

Network Layout Diagram



Basic Results Summary

Network Results

Item	Lane Description	Lane Type	Full Phase	Total Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network	-	-	-	-	-	-	-	**74.7%**	**0**	**0**	**0**	**24.4**	-	-
J1: A27 Emsworth Road Junction	-	-	-	-	-	-	-	**74.7%**	**0**	**0**	**0**	**16.2**	-	-
1/1+1/2	Internal @ A27 Eastbound Offslip Right Right2	U	C1:A	15	190	1940:1940	325+418	25.6 : 25.6%	-	-	-	0.8	14.5	1.1
2/2+2/1	A27 Eastbound Offslip Ahead Left	U	C1:B	33	1084	1940:1940	966+486	74.7 : 74.7%	-	-	-	4.0	13.1	9.7
2/3	A27 Eastbound Offslip Ahead	U	C1:B	33	721	1940	1099	65.6%	-	-	-	2.7	13.7	9.2
3/1	Emsworth Road Left Ahead	U	C1:D	10	260	1940	356	73.1%	-	-	-	3.0	41.4	5.4
3/2	Emsworth Road Ahead	U	C1:D	10	259	1940	356	72.8%	-	-	-	3.0	41.2	5.3
5/1	Internal @ Emsorth Road Ahead Right	U	C1:C	38	828	1874	1218	68.0%	-	-	-	1.7	7.5	4.0
5/2	Internal @ Emsorth Road Right	U	C1:C	38	721	2005	1303	55.3%	-	-	-	1.0	5.0	1.8
J2: A27 Havent Road Junction	-	-	-	-	-	-	-	**70.2%**	**0**	**0**	**0**	**8.3**	-	-
1/1	Internal @ A27 Westbound Offslip Right	U	C2:A	41	813	1965	1375	59.1%	-	-	-	0.3	1.2	2.3
1/2+1/3	Internal @ A27 Westbound Offslip Right Right2	U	C2:A	41	987	2105:2001	1286+277	63.2 : 63.2%	-	-	-	0.4	1.6	2.0
2/1	A27 Westbound Offslip Left	U	C2:B	7	76	1805	241	31.6%	-	-	-	0.7	34.5	1.4
2/2	A27 Westbound Offslip Ahead	U	C2:B	7	46	1940	259	17.8%	-	-	-	0.4	31.6	0.8
3/1	Internal @ Havent Road Ahead Right Ahead2	U	C2:C	18	221	2122	672	32.9%	-	-	-	1.0	15.7	2.7
4/2+4/1	Havent Road Left Ahead Left2	U	C2:D	30	1426	2105:1965	1016+1015	70.2 : 70.2%	-	-	-	5.5	13.8	10.1

Basic Results Summary

5/1	Church Road U-Turn Left	U	C2:E	0	0	1965	0	0.0%	-	-	-	0.0	0.0	0.0
J3: A27 Dummy	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**0.0%**	**0**	**0**	**0**	**0.0**	**-**	**-**

C1	PRC for Signalled Lanes (%):	20.5	Total Delay for Signalled Lanes (pcuHr):	16.16	Cycle Time (s):	60
C2	Stream: 1 PRC for Signalled Lanes (%):	28.2	Total Delay for Signalled Lanes (pcuHr):	8.25	Cycle Time (s):	60
	PRC Over All Lanes (%):	20.5	Total Delay Over All Lanes(pcuHr):	24.41		