

FAREHAM LOCAL PLAN – SRTM MODELLING



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1. INTRODUCTION

1.1 Study Background

1.1.1 SYSTRA has been commissioned by Fareham Borough Council (FBC) to apply Solent Transport's Sub-Regional Transport Model (SRTM) to help inform the update to Fareham's Local Plan. The SRTM has been used to model the proposed land allocations and identify key transport implications resulting from the scale and location of the allocations. The SRTM outputs form inputs to a Transport Assessment undertaken by Hampshire Traded Services and reported in a separate document

1.1.2 This application of the SRTM was commissioned by FBC in 2019.

1.2 Fareham Borough Council Development Scenarios

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

- Scenario 1 – 2036 Baseline, no Fareham Local Plan development except for committed sites.
- Scenario 2 – 2036 Do Minimum, full Fareham Local Plan development without transport mitigation.
- Scenario 3 – 2036 Do Something, full Fareham Local Plan development with transport mitigation

1.2.2 This report outlines the results for Scenarios 1 and 2.

Scenario 1 – 2036 Baseline *No Fareham Local Plan Development Except Committed Sites*

1.2.3 The Baseline forms the scenario against which the proposed Local Plan development quantum scenarios will be assessed.

1.2.4 In this study the Baseline includes all current (at time of commissioning) completed development and infrastructure within Fareham, in addition to all committed development and infrastructure through to 2036. In the Baseline, no allowance is made for Local Plan allocations in Fareham. For clarity, the development at Welborne is considered to be committed and is included within the Baseline. This equates to 4260 residential units within the Plan period up to 2036.

1.2.5 Outside of Fareham, development growth is assumed to continue as 'normal' and in accordance with the adopted Local Plan's for the respective Borough's, and in accordance with TEMPro v7.2 growth projections.

Scenario 2 – 2036 Do Minimum *With Full Local Plan Development, Without Mitigation Measures*

1.2.6 The Do Minimum scenario builds on the Scenario 1 2036 Baseline with the addition of the full quantum of proposed development associated to the Fareham Local Plan. Growth outside the borough is identical to the Baseline.

- 1.2.7 By comparing the outputs of the Do Minimum scenario with the Baseline, the transport impacts resulting from the Local Plan proposals can be identified.
- 1.2.8 The outputs from the Scenarios 1 and 2 of this commission form inputs to a Transport Assessment assessing the impacts of the Local Plan proposals and identifying appropriate mitigation as necessary. The TA has been prepared by Hampshire Traded Services and is reported in a separate document.

Scenario 3 – 2036 Do Something *With Full Local Plan Development, With Mitigation Measures*

- 1.2.9 Scenario 3 has incorporated the highway mitigation measures developed as part of the TA for the Local Plan. Scenario 3 captures the impact of these interventions in the wider context of the full Borough and surrounding areas.

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

2.1 Model Development

2.1.1 SYSTRA was commissioned, as part of a wider team, to support Solent Transport 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 that updated the model to a 2015 base year.

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

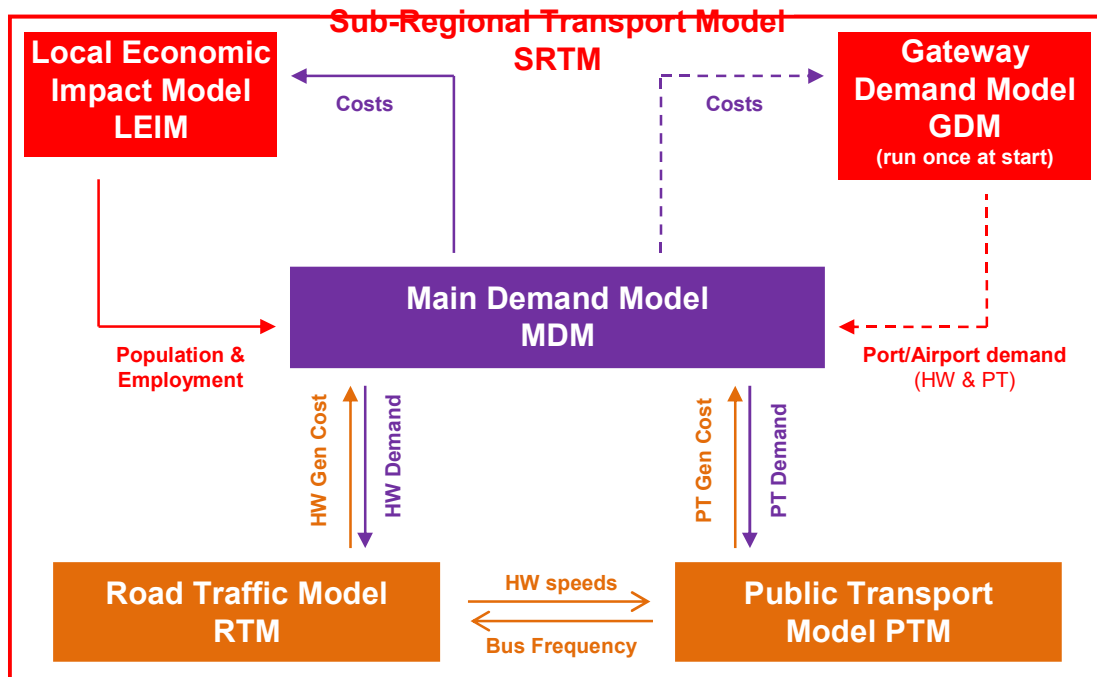


Figure 2-1 Solent Transport Sub-Regional Transport Model

- 2.2.2 The modelled area of the SRTM is divided into four regions, shown in Figure 2-2, which differ by zone aggregation and modelling detail. Fareham Borough is within the Core Fully Modelled Area (the most detailed region of the model). The zones within the borough are shown in Figure 2-3.
- 2.2.3 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).
- 2.2.4 The SRTM has a base year of 2015, and forecast years of 2019, 2026, 2031, 2036, and 2041. For the Fareham Local Plan assessment, scenarios were forecast to 2036.
- 2.2.5 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.

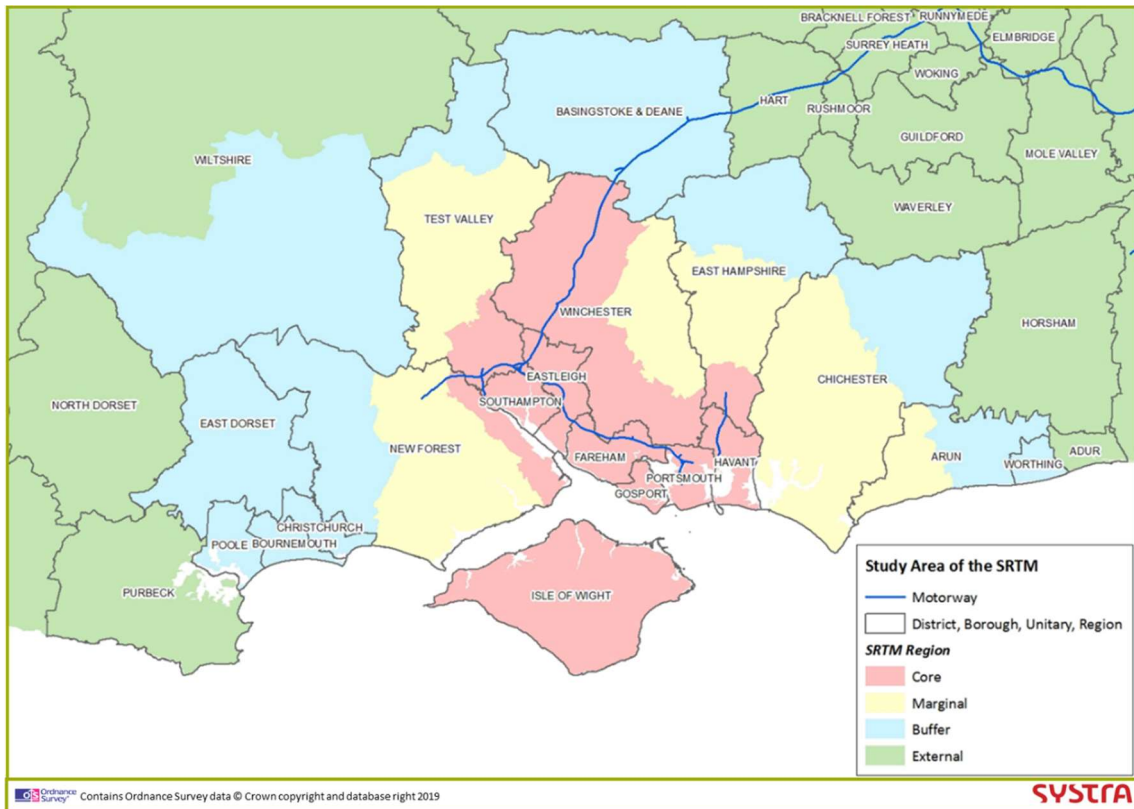


Figure 2-2 SRTM Study Area

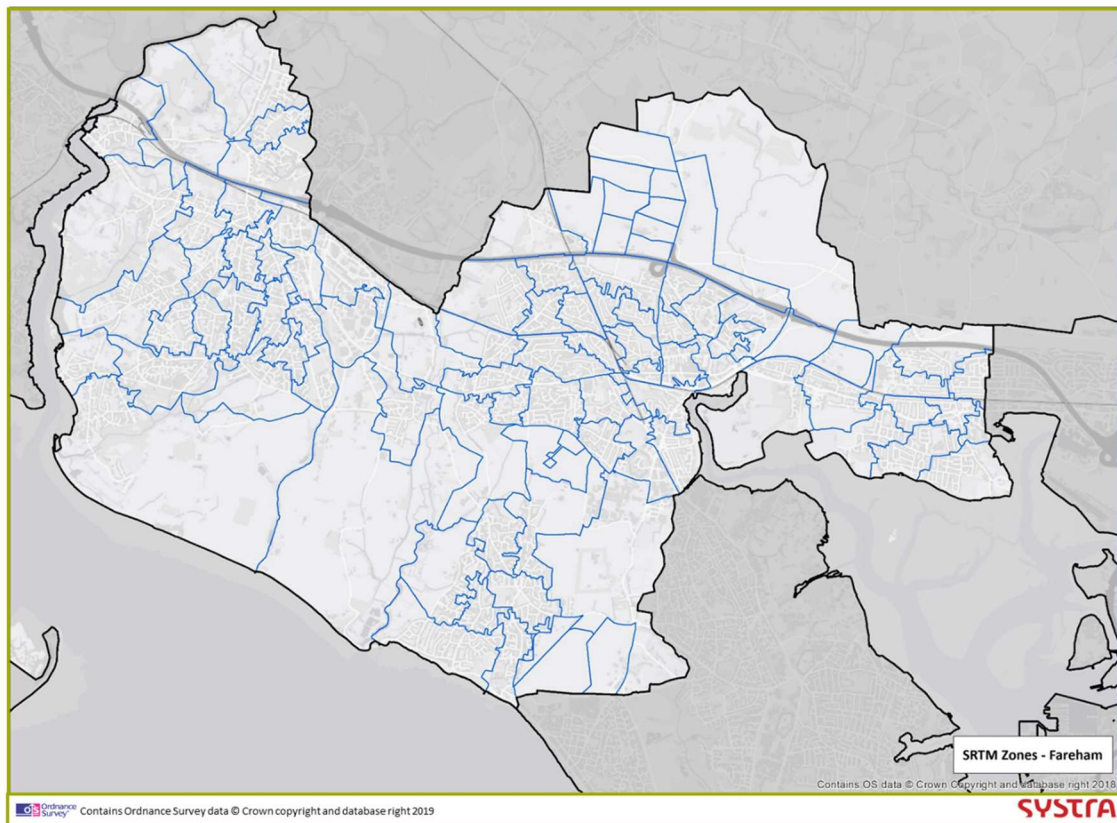


Figure 2-3 SRTM Fareham District Zone Structure

3. FAREHAM 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 below sections provide a breakdown of the key modelling processes, inputs and outputs. Committed development, and infrastructure information through to 2036 to be used in this study was provided/ confirmed by FBC and HCC Officers in December 2019.

3.1.3 It should be noted that the highway network incorrectly modelled the A27 Bridge Road / Barnes Lane junction as a signalised junction. This does not have a significant impact on the results of the modelling and a sensitivity study has been carried out. This sensitivity study can be found in **Appendix E**.

3.2 Scenario 1 – 2036 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 2015 and represents forecast conditions up to the year 2041. Known developments and committed highway schemes are included within the models' reference case scenarios (2019, 2026, 2031, 2036 and 2041) 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 Due to the inclusion of Welborne Garden Village in the Baseline scenario, the associated highway and PT networks have also been represented in this scenario, as agreed with FBC and Hampshire County Council (HCC). This includes the addition of the west facing slips at M27 Junction 10, the reconfiguration of Broadway Roundabout (on the A32), and BRT services between Welborne and Fareham rail station.

Non-Fareham Borough Land Use Assumptions

3.2.3 In this study, the SRTM Reference Case inputs populate the Baseline scenario for all model areas except Fareham Borough where the Reference Case inputs have been revised as detailed in Section 3.2.6 below.

3.2.4 Within the Reference Case land use (excluding Fareham), 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 2018 in accordance with adopted Local Plans at that time. The take up of permissible developments is determined by the LEIM module of SRTM and is based on the local conditions (the relative 'attractiveness' of the development, e.g. accessibility).

3.2.5 LEIM controls the level of overall development growth within the model in accordance with TEMPro (v7.2) employment and population trajectories for the sub-region which

conforms with WebTAG. This is equivalent to allowing for background traffic growth within the modelling process.

Fareham Borough Completions and Committed Development Land Use Assumptions

3.2.6 The starting point in the Baseline for all model data specific to Fareham Borough is to remove all the standard reference case inputs after 2015. In place of these, the actual site completions post-2015 have been added plus hard committed future developments. The total completions and total development, those with permission or resolution to grant, for Fareham Borough are summarised in Table 3-1 below. Figure 3-1 shows the location of the residential developments within the Borough

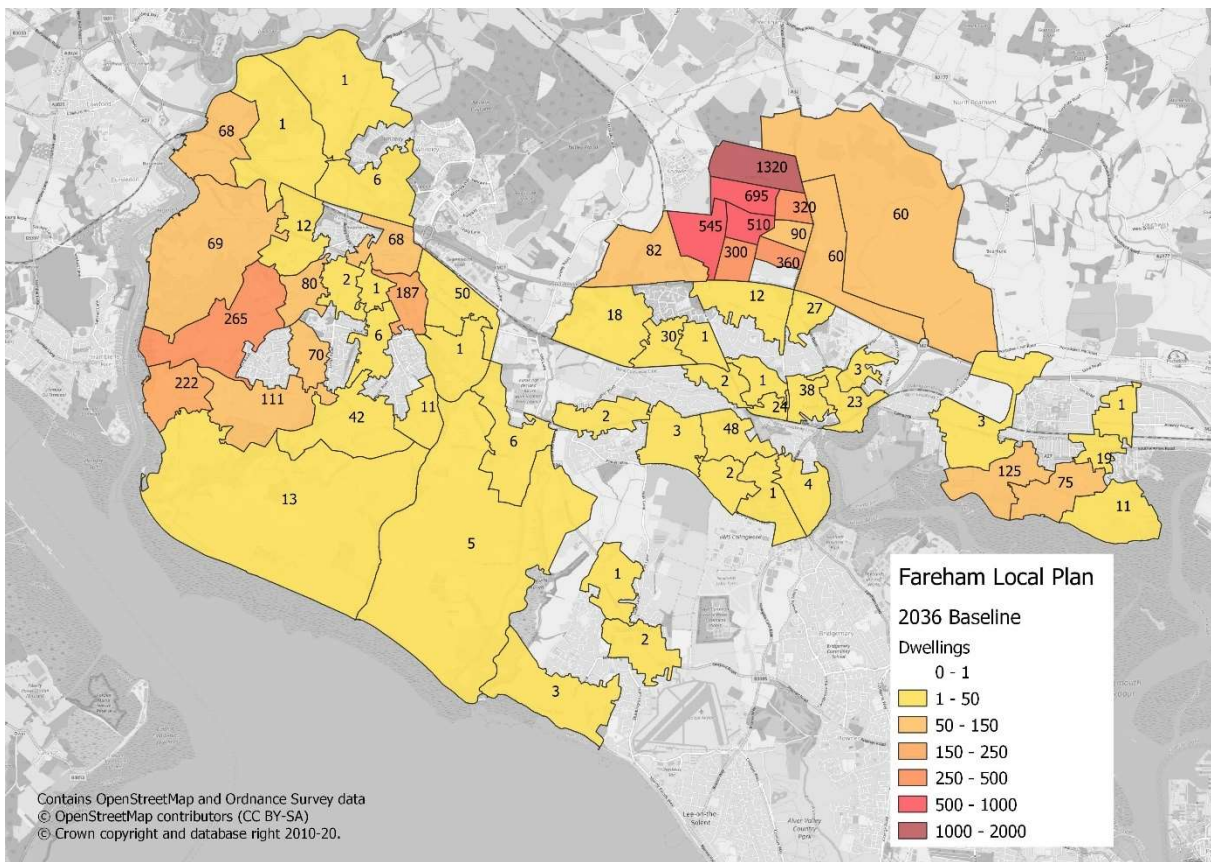


Figure 3-1 2036 Scenario 1 Baseline – Modelled Residential Growth for Fareham

Table 3-1 Baseline: Fareham Land Use Inputs 2015 – 2036

	RESIDENTIAL	EMPLOYMENT (SQM)							
	Dwellings	Retail	Office	Industrial	Warehousing	Primary & Secondary Education	Hotel & Other Accommodation	Healthcare	Leisure
SCENARIO 1 BASELINE (2015 2036 Completions and Committed)	6,118	-1,264	11,427	999	779	1,008	0	0	1,319

SRTM Ref: ELA

3.3 Scenario 2– 2036 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.

Non-Fareham Borough Land Use Assumptions

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

Fareham Borough Local Plan Land Use Assumptions

3.3.3 The Fareham Borough Local Plan development allocations are included within the Do Minimum scenario as ‘exogenous’ development meaning that they will be built in their specified location, regardless of local conditions. The Fareham Local Plan development totals for the Do Minimum scenario are shown in Table 3-2, and summarised by model zone in

3.3.4 All totals account for full Local Plan growth (i.e. they include for the Baseline growth).

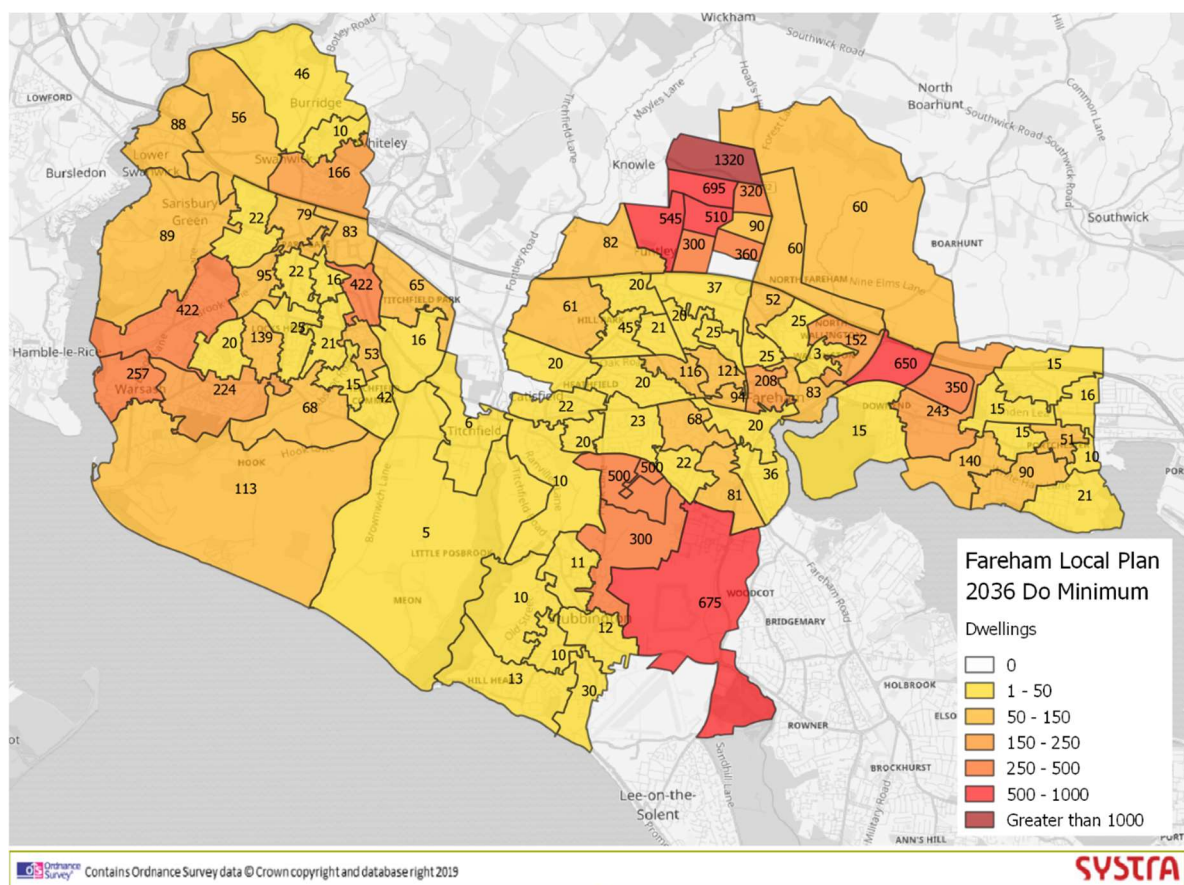


Figure 3-2 2036 Do Minimum Residential Dwelling growth

Table 3-2 Do Minimum: Fareham Land Use Assumptions 2015 – 2036 (include for Baseline values)

	RESIDENTIAL	EMPLOYMENT (SQM)							
	Dwellings	Retail	Office	Industrial	Warehousing	Primary & Secondary Education	Hotel & Other Accommodation	Healthcare	Leisure
SCENARIO 2 DO MINIMUM (2036 Local Plan Development)	12,169	4,736	41,427	87,999	40,779	16,524	1,000	3,491	3,819

3.4 Scenario 3– 2036 Do Something

3.4.1 The ‘Do Something’ scenario includes the infrastructure measures identified to help mitigate the transport impacts associated to the Fareham Local Plan. The final mitigation sites/measures and selection process are identified in the TA for the Local Plan prepared by Hampshire Traded Services.

Highway and PT network

3.4.2 The Highway network for the Do Something scenario includes changes at 5 junctions within Fareham District in order to mitigate against the impacts of the Fareham Local Plan. The location and type of mitigation are summarised Table 3-3. Preliminary design drawings for each of the schemes can be found in **Appendix F**.

Table 3-3 Transport Network Changes in Scenario 3 – Do Something

JUNCTION	SIGNALISATION OF JUNCTION	ADJUSTMENT TO SIGNAL PHASING/ GREEN TIMES	ADDITIONAL PHYSICAL CAPACITY	PUBLIC TRANSPORT MEASURES
Delme Roundabout	X	X	X	X
Leafy Lane / Parkway	X		X	
Warsash Rd / Abshot Rd / Little Abshot Rd			X	
A27 / Gudge Heath Lane / Redlands Lane		X		
A27 / Bishopsfield Road		X		

3.4.3 It should be noted that where mitigation measures increase capacity, and potentially attract further traffic, the expected reduction in delay from the mitigation may be dampened or absorbed entirely by the impact of the increased traffic volume. In addition, the provision of traffic signals will inherently produce an element of delay due to the red

signal periods and this may be greater than the scenario without the signals particularly in time periods where capacity or congestion issues are not present/ forecast.



Figure 1. Scenario 3 Do Something Junction Mitigation Locations

Land Use Assumptions

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

4. LAND USE MODEL RESULTS

4.1.1 This section summarises the outputs of the land use model for the Baseline and Do Minimum scenarios.

4.2 Population, Dwellings, Jobs (LEIM Module Outputs)

4.2.1 The below tables summarise the forecasts produced by the LEIM module of the SRTM, for the population, number of dwellings, and number of jobs within the Fareham Borough. In the table, the 2036 Do Minimum scenario has been compared against the 2036 Baseline scenario.

4.2.2 Table 4-1 below shows how Scenario 2 (DM) compares to Scenario 1 (Baseline) in 2036. The Local Plan proposes an increase of approximately 6,000 households between 2015 and 2036. The additional employment land use included in the local plan provides approximately 3,000 jobs in the borough during the same period.

Table 4-1 Change in LEIM outputs in Fareham, 2036 DM vs 2036 Baseline

	2036 SCENARIO 1 BASELINE	2036 SCENARIO 2 DO MINIMUM OPTION 1	DIFFERENCE	% DIFFERENCE
Population	117,008	131,229	14,221	12%
Dwellings	54,255	60,306	6,051	11%
Jobs	57,250	60,208	2,958	5%

5. MAIN DEMAND MODEL RESULTS

5.1 Introduction

5.1.1 This section summarises the forecasts produced by the MDM module of the SRTM for Scenarios 1 and 2 as well as their difference in order to isolate the impacts of the Local Plan development.

5.2 Main Demand Model (MDM) Results

5.2.1 The total person trips, and percentage mode share to, and from, Fareham Borough for a 24-hour period are summarised in the below table.

5.2.2 Table 5-1 shows the trip generation associated directly to the Local Plan (Do Minimum scenario) against the 2036 Baseline. The Do Minimum scenario includes for an approximate increase of 6,000 dwellings within Fareham when compared to the Baseline. This is reflected in the number of person trips to / from and within Fareham over a 24-hour period.

5.2.3 The mode share across the 2036 Do Minimum scenarios remains similar to the 2036 Baseline. There are small changes in active mode share at the expense of highway in the Do Minimum Option. The Do Something scenario is not expected to have a significant impact on mode share or distribution of trips compared to the Do Minimum, and therefore is only run as an assignment without further input from the Demand Model.

Table 5-1 Person Trips to / from Fareham – 2036 DM vs. 2036 Baseline

	SCENARIO	FROM FAREHAM			TO FAREHAM		
		HIGHWAY	PT	ACTIVE	HIGHWAY	PT	ACTIVE
ABSOLUTE	2036 Scenario 1 Baseline	280,328	10,389	55,641	282,055	10,531	55,554
	2036 Scenario 2 Do Minimum	304,967	11,966	68,361	307,364	12,138	68,273
	<i>Difference DM – Baseline</i>	24,639	1,577	12,720	25,309	1,607	12,719
MODE SHARE (%)	2036 Scenario 1 Baseline	81%	3%	16%	81%	3%	16%
	2036 Scenario 2 Do Minimum	79%	3%	18%	79%	3%	18%
	<i>Difference DM – Baseline</i>	-2%	0%	2%	-2%	0%	2%

6. HIGHWAY MODEL RESULTS

6.1 Introduction

6.1.1 This section summarises the highway outputs across the Fareham Borough as a whole for the following Scenarios:

- 2036 Scenario 1 Baseline vs. 2015 Base;
- 2036 Scenario 2 Do Minimum vs. 2036 Scenario 1 Baseline;
- 2036 Scenario 3 Do Something vs 2036 Scenario 2 Do Minimum.

6.1.2 For each comparison, four aspects of the model have been reviewed:

Highway Network Performance

6.1.3 The key network statistics for the full SRTM core study area have been summarised, including vehicle hours, vehicle kilometres, and average speed. Due to the size of the SRTM, the results for the Fareham Borough in isolation have also been provided.

Highway Link Flows, Delays and Capacity Hotspots (Road Traffic Model Module outputs)

6.1.4 The outputs of the Road Traffic Model (RTM) have been analysed with respect to highway 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 below. The plots included in the report, are an overview of the Fareham Borough – with more localised plots being provided in the relevant appendices.

6.1.5 In addition to the new traffic directly associated with the land use, 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 Traffic Flow

6.1.6 For the flow difference plots the absolute difference in passenger car units (PCUs) is 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 bandwidth. Only flow differences of 25 PCUs or greater and are displayed in the plots. Plots showing more localised areas are in **Appendix B**.

Highway Delay

6.1.7 The absolute difference in delay in seconds per PCU is identified adjacent to the appropriate link. Blue lines identify a reduction and pink/red lines an increase. In addition, the scale of the change is represented graphically with the coloured lines of varying bandwidth. All delay differences in excess of 3 seconds are displayed in the plots. More localised plots are provided in **Appendix C**.

Capacity Hotspots

- 6.1.8 In order to identify locations with potential capacity issues as a result of proposed Local Plan allocations, the operating capacity on all links on the approaches to junctions within the Fareham Borough have been assessed. Junction approaches have been reviewed based on the ratio of flow to capacity (RFC) on each approach – hence identifying links with a high RFC is a proxy for identifying junctions with capacity issues.
- 6.1.9 The following criteria has been used to identify junctions where future highway schemes may be required, for each scenario tested:
- Links where the RFC is greater than 80% in either AM or PM peak hour.
- 6.1.10 If the RFC 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 over capacity and significant queues and delay could occur.
- 6.1.11 In peak hours, it is not unexpected that a relatively high number of junctions have an RFC in excess of 80%. The analysis has been refined further to identify the junction potentially impacted the most.
- 6.1.12 The change in RFC and delay between the scenarios has been calculated to identify locations where the forecast junction 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 in agreement with HCC):
- ‘Significant’ increase in RFC is where the RFC is greater than 85% and has increased by more than 5% on any approach arm; and
 - ‘Severe’ increase in RFC is where the RFC is greater than 95% and has increased by more than 10%, or where delay is greater than 120 seconds and has increased by more than 60 seconds on any approach arm.
- 6.1.13 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.
- 6.1.14 A detailed list of junction performance for each comparison is provided in **Appendix D**.
- 6.1.15 Following the initial submission of this report capacity hotspots 36, 37 and 62 have been omitted due to duplication of junctions. As a result, these junctions are not present in tables included in this revised version of the report.

6.2 2036 Scenario 1 Baseline vs. 2015 Base

Highway Network Performance

6.2.1 Table 6-1 and Table 6-2 summarise the highway network statistics for the AM and PM periods for the 2015 Base and 2036 Scenario 1 Baseline. Vehicle hours increase by 30% in Fareham during the AM and PM periods between the two scenarios. Vehicle kilometres increase by smaller volumes, with a 22% increase in both the AM and PM periods. The average speed in the borough decreases by 7% in the AM and PM peak periods. The impact seen in Fareham is comparable with that seen in the Core Modelled Area as a whole and is consistent with a network containing higher traffic volumes and increasing delay.

Table 6-1 AM Period Highway Model Network Statistics, 2036 Scenario 1 Baseline vs 2015 Base

		BASE 2015	BASELINE 2036	DIFFERENCE	% DIFFERENCE
Vehicle Hours	Core Model Area	122,717	158,372	35,655	29%
	Fareham	13,420	17,507	4,087	30%
Vehicle kms	Core Model Area	5,591,552	6,739,811	1,148,259	21%
	Fareham	601,754	734,761	133,007	22%
Average Speed (kph)	Core Model Area	46	43	-3	-7%
	Fareham	45	42	-3	-7%

Table 6-2 PM Period Highway Model Network Statistics, 2036 Scenario 1 Baseline vs 2015 Base

		BASE 2015	BASELINE 2036	DIFFERENCE	% DIFFERENCE
Vehicle Hours	Core Model Area	129,820	171,471	41,651	32%
	Fareham	14,500	18,921	4,421	30%
Vehicle kms	Core Model Area	6,077,638	7,445,519	1,367,881	23%
	Fareham	663,263	807,948	144,685	22%
Average Speed (kph)	Core Model Area	47	43	-4	-9%
	Fareham	46	43	-3	-7%

Highway Flow Difference

- 6.2.2 Figure 6-1 and Figure 6-2 identify the change in traffic flow, in passenger car units (PCUs), for AM and PM peak hours respectively between the 2036 Scenario 1 Baseline and 2015 Base scenarios. The geographic extent of the figures is borough wide to give an overview of the full study area.
- 6.2.3 The M27 sees the greatest forecast flow increase during both periods (approximately 1,900 additional PCUs in both directions during the AM peak, with 1,700 westbound and 1,650 eastbound during the PM peak). This is followed by the A27 towards between M27 J9 and Stubbington Bypass and on the Bypass itself. As expected the Stubbington Bypass is forecast to attract traffic away from the existing road network, predominantly through Stubbington village. The increase in flows forecast on Stubbington Bypass exceeds 1,100 PCUs in each direction during both the AM and PM peaks.
- 6.2.4 Development traffic at Welborne is clearly visible to the north of the M27 Junction 10. It is forecast that development traffic will contribute to a reduction in flows travelling adjacent to Welborne via A32 Wickham Road. This is predominantly due to the network configuration within Welborne linking to the west facing slips at M27 Junction 10.

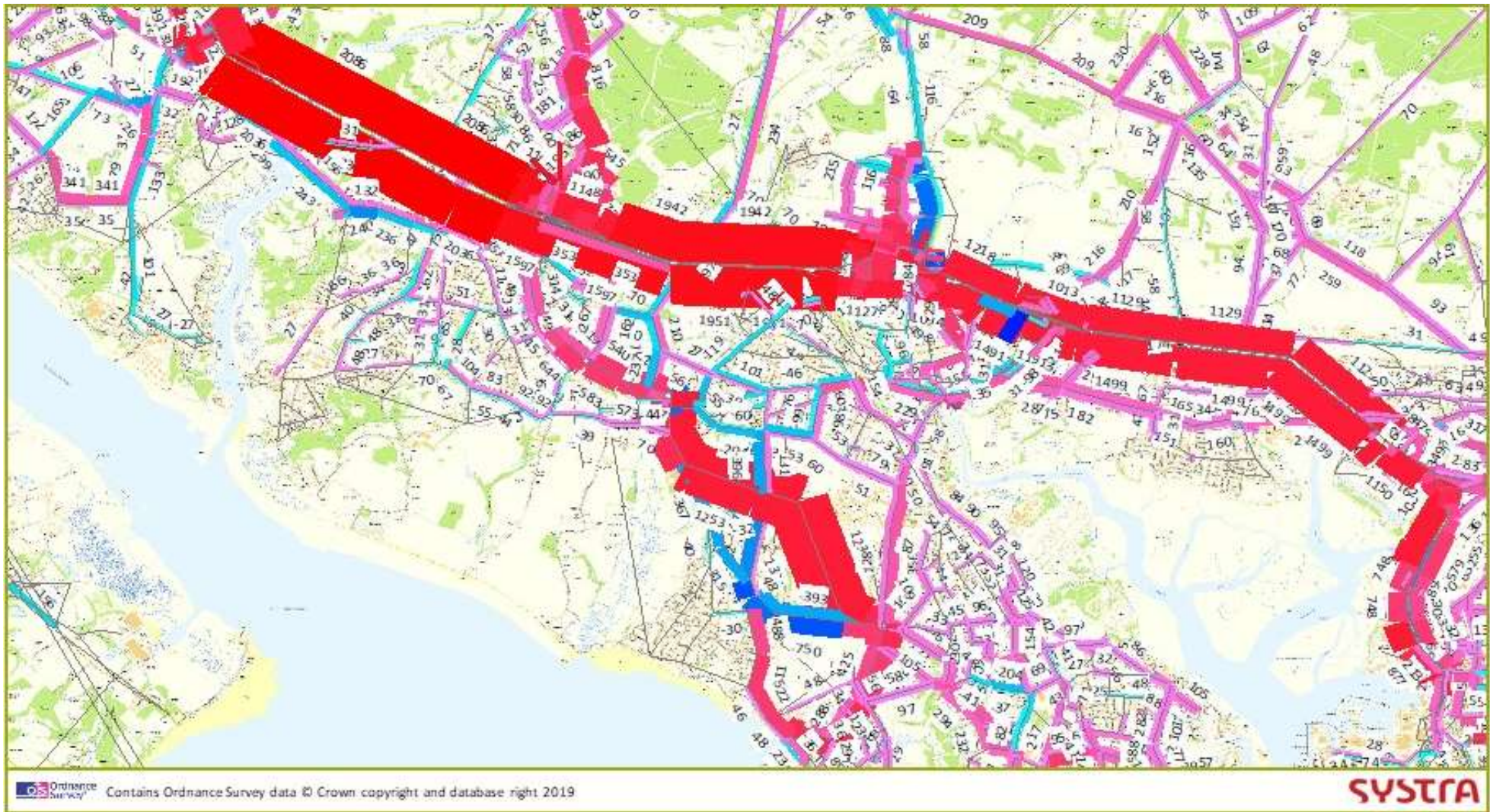


Figure 6-1 Flow Difference – 2036 Scenario 1 Baseline vs. 2015 Base (AM)

(SRTM Ref: ELA v EGZ)

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Figure 6-2 Flow Difference – 2036 Scenario 1 Baseline vs. 2015 Base (PM)

(SRTM Ref: ELA v EGZ)

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Highway Delays

- 6.2.5 Figure 6-3 and Figure 6-4 display the forecast change in link delay, in seconds, per PCU, for the AM and PM peak hours respectively between the 2036 Scenario 1 Baseline and 2015 Base.
- 6.2.6 The changes in delay are most prominent in this comparison due to the additional traffic forecast in 2036 when compared to 2015. As such, a number of junctions both within Fareham and model wide are forecast an increase in delay.
- 6.2.7 It is forecast that there will be changes in delays at M27 Junction 11 in both the AM & PM periods. It is forecast that there will be a mixture of increases and reductions at approach arms to the junction. Forecast traffic flow (and amended traffic signal timings) at this location not only account for general growth between 2015 and 2036 but also redistribution of traffic due to the provision of west facing slips at M27 Junction 10.
- 6.2.8 The change in delay during the AM peak shows a neutral impact along the length of the A27 between the M27 J9 and the A32 with a mixture of increases and decreases.
- 6.2.9 The location with the biggest increase in delay is on Bridge Street to the east of Titchfield and is due to the increases in traffic using the new Stubbington Bypass in this area. During the AM peak the westbound delay is forecast to be 101 seconds with a 50 second delay eastbound. During the PM peak the forecast delays are smaller at 24 seconds westbound and 38 seconds eastbound.



Figure 6-3 Delay Difference – 2036 Scenario 1 Baseline vs. 2015 Base (AM)

(SRTM Ref: EUK v EGZ)

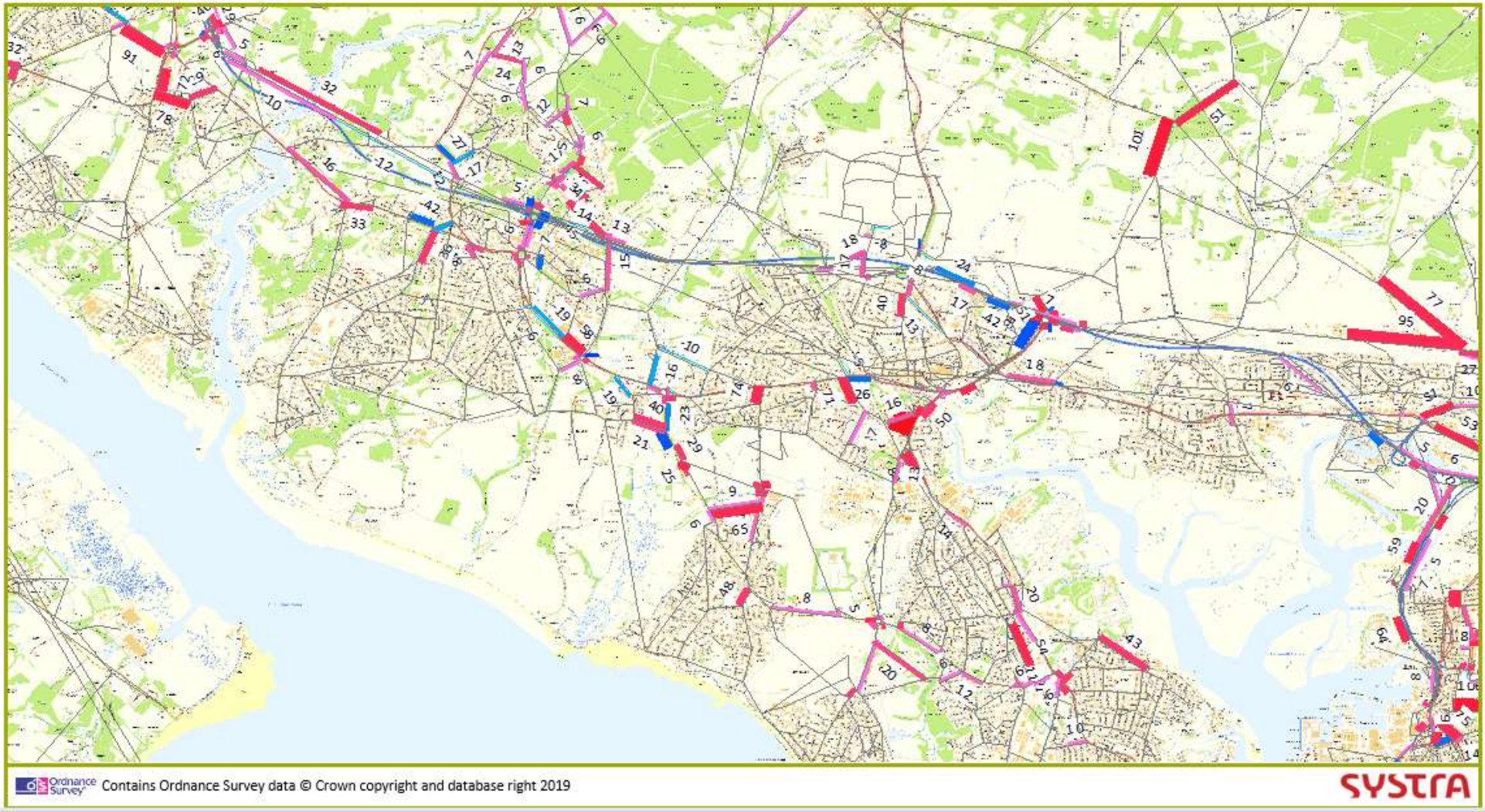


Figure 6-4 Delay Difference – 2036 Scenario 1 Baseline vs. 2015 Base (PM)

(SRTM Ref: EUK v EGZ)

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Capacity Hotspots

- 6.2.10 Figure 6-5 and Figure 6-6 display the junctions forecast to have an RFC greater than 80% in the 2015 Base and 2036 Scenario 1 Baseline respectively in any time period. 48 junctions meet this criteria in the 2015 Base, with the 2036 Scenario 1 Baseline forecast to have 53 junctions meeting the criteria.
- 6.2.11 Further to the analysis identifying those junctions with V/C in excess of 80% in the 2015 Base and 2036 Baseline scenarios, we have applied the threshold detailed in Section 6.1.12 to identify those junctions within Fareham District most impacted by highway growth between the 2015 Base and 2036 Baseline. Because the 2036 Baseline only includes already committed development within Fareham this does not represent a list of sites where mitigation should be considered as part of delivery of the Local Plan itself.
- 6.2.12 There are a total of 23 junctions that meet the 'severe' change criteria and 16 are classified as 'significant' as summarised in the locations shown in Figure 6-7, and Table 6-3.

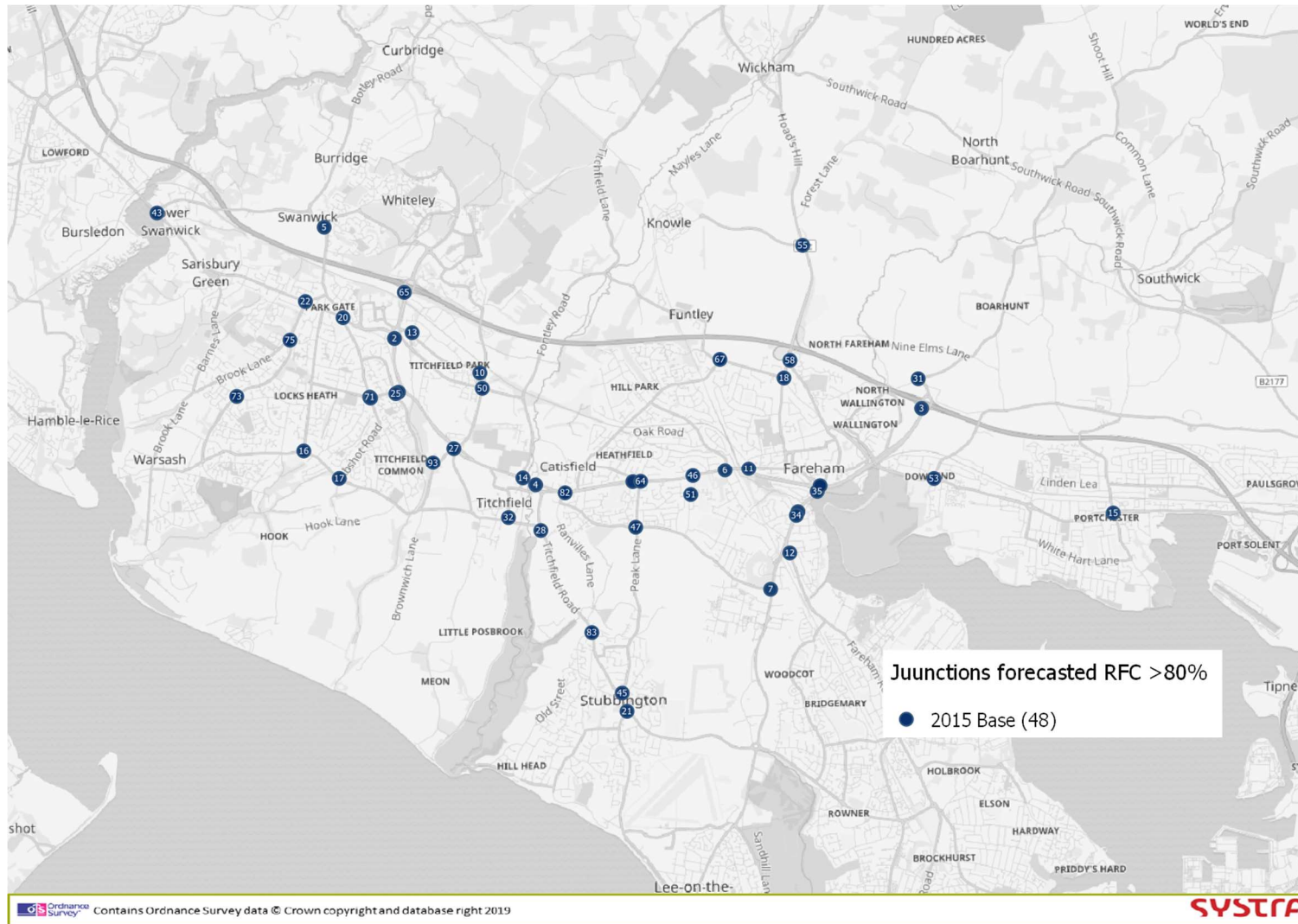


Figure 6-5 Junctions with RFC >80% in 2015 Base

(SRTM Ref: EGZ)

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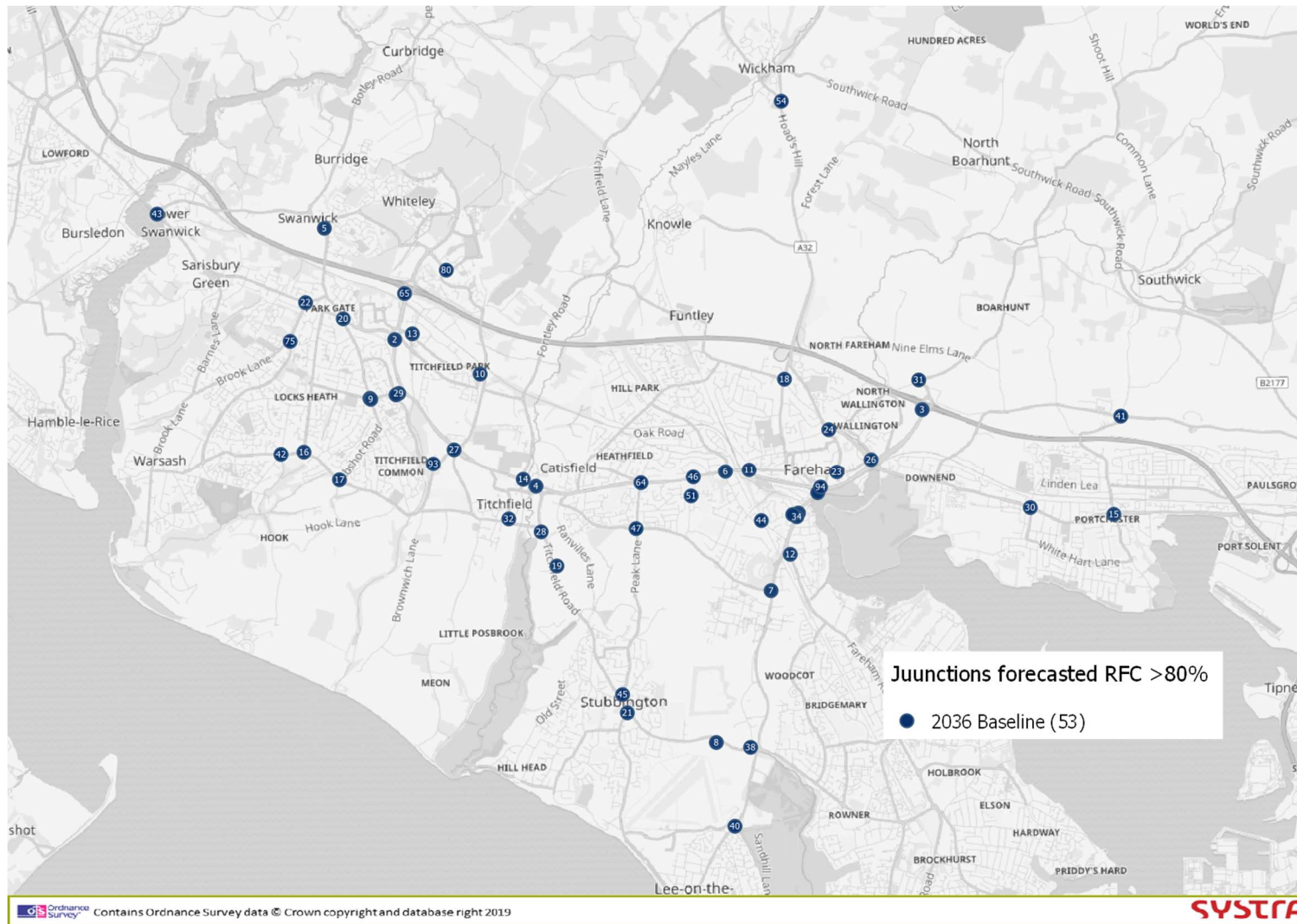


Figure 6-6 Junctions Forecast to have an RFC >80% in 2036 Scenario 1 Baseline



Figure 6-7 2015 Base vs 2036 Baseline Impacted Junction Locations

Table 6.3 2015 Base vs 2036 Baseline Impacted Junction List

ID	JUNCTION NAME	'SIGNIFICANTLY' IMPACTED	'SEVERELY' IMPACTED
2	Segensworth Roundabout		Y
3	M27 J11		Y
4	Titchfield Gyrotory		Y
5	Botley Road / Yew Tree Drive		Y
6	A27 The Avenue / Redlands Lane / Gudge Heath Lane		Y
7	Longfield Avenue / Newgate Lane		Y
8	Stubbington Bypass (southern access)		Y
10	Barnes Wallis Road / Whiteley Lane / Cartwright Drive	Y	
11	Station Roundabout	Y	
12	A32 Gosport Road / Newgate Lane		Y
13	Barnes Wallis Road / Brabazon Road / Witherbed Lane		Y
14	A27 Southampton Road / Mill Lane		Y
15	Castle Street Roundabout	Y	
16	Warsash Road / Locks Road	Y	
17	Warsash Road / Abshot Road	Y	
18	Kiln Road / North Hill / Old Turnpike Lane	Y	
19	Stubbington Bypass (B3334 Titchfield Road)		Y
20	Botley Road / A27 / Hunts Pond Road / Southampton Road		Y
21	B3334 Gosport Road / B3334 / Stubbington Lane		Y
23	West Street / High Street	Y	
24	A32 / High Street / Wallington Way	Y	
26	Delme Roundabout	Y	
28	B3334 Titchfield Road / Bridge Street	Y	
30	Cornaway Lane Roundabout	Y	

ID	JUNCTION NAME	'SIGNIFICANTLY' IMPACTED	'SEVERELY' IMPACTED
31	Boarhunt Road/M27 J11 Off slip		Y
32	Coach Hill/South Street/Bridge Street		Y
34	A32 Gosport Road/Mill Road		Y
35	A32 Gosport Road/A27 Eastern Way		Y
39	Mill Road/Holbrook Road	Y	
40	Broom Way/Daedalus Drive/Cherque Way	Y	
41	Skew Road/Portsmouth Hill Road/Porchester Road	Y	
45	B3334 Titchfield Road/Gosport Road/Mays Lane		Y
54	A32 Hoad's Hill / A334 Fareham Road / A32 School Road	Y	
63	Stubbington Bypass (Peak Lane access)		Y
64	A27 The Avenue / Peak Lane		Y
65	M27 J9		Y
75	Lockwood Road / Brook Lane Roundabout		Y
80	Parkway / Leafy Lane		Y
94	Quay Street [N] / Eastern Way [E] / Eastern Way [W]	Y	

6.3 2036 Scenario 2 Do Minimum vs. 2036 Scenario 1 Baseline

Highway Network Performance

6.3.1 The performance of the highway network for the AM and PM periods for 2036 Scenario 1 Baseline, and 2036 Scenario 2 Do Minimum is shown in Table 6-4 and Table 6-5. The highway traffic growth within Fareham, arising from the introduction of the Local Plan allocations, generates a forecast increase in vehicle hours of 4% in the AM and 5% in the PM. Vehicle kilometres are forecast to increase by 2% in both peaks and average speed is forecast to decrease by 2% in both peaks due to the increased congestion.

6.3.2 The impact on the full Core model area is negligible as landuse changes between the scenarios are focussed solely on Fareham District.

Table 6-4 AM Highway Model Statistics, 2036 Scenario 2 DM Option 1 vs. 2036 Scenario 1 Baseline

		BASELINE 2036	DM 2036	DIFFERENCE	% DIFFERENCE
Vehicle Hours	Core Model Area	158,372	158,201	-171	0%
	Fareham	17,507	18,242	735	4%
Vehicle kms	Core Model Area	6,739,811	6,738,663	-1148	0%
	Fareham	734,761	748,646	13,885	2%
Average Speed (kph)	Core Model Area	42.6	42.6	0.0	0%
	Fareham	42.0	41.0	-1.0	-2%

Table 6-5 PM Highway Model Statistics, 2036 Scenario 2 DM Option 1 vs. 2036 Scenario 1 Baseline

		BASELINE 2036	DM 2036	DIFFERENCE	% DIFFERENCE
Vehicle Hours	Core Model Area	171,471	171,330	-141	0%
	Fareham	18,921	19,865	944	5%
Vehicle kms	Core Model Area	7,445,519	7,439,364	-6,155	0%
	Fareham	807,948	824,435	16,487	2%
Average Speed (kph)	Core Model Area	43.4	43.4	0.0	0%
	Fareham	42.7	41.5	-1.2	-2%

Highway Link Flows, Delays and Capacity Hotspots (RTM Module outputs)

Change in Traffic Flow

- 6.3.3 Figure 6-8 and Figure 6-9 identify the change in traffic flow in the AM and PM peak hours between the 2036 Scenario 2 Do Minimum and 2036 Scenario 1 Baseline scenarios, at an overall borough level.
- 6.3.4 One of the greater changes in forecast flow is at M27 J10. The flow on the westbound off-slip of M27J10 increases by 70 PCUs in the AM peak and 50 PCUs in the PM peak compared to 2036 Scenario 1 Baseline. The eastbound off-slip of M27J10 also sees a 130 PCUs and 80 PCUs increase in the AM and PM respectively. Additionally, the westbound on-slip of M27J10 has a forecast 40 PCUs increase in the AM and 100 PCUs increase in the PM.
- 6.3.5 In the areas of Locks Heath, Stubbington and Portchester there are no major changes in flow differences between the two scenarios other than where traffic is joining the network from the new housing development sites. The magnitude of flow difference, beyond the zone connectors, is not more than +/-100 PCUs in either direction.
- 6.3.6 In areas of Titchfield and Castisfield where the road network is closer to the larger development sites, traffic increase is greater. In Mill Lane, northbound traffic is forecast to increase by 180 PCUs in the AM. This forecast change is in part due to delays at St. Margaret’s Roundabout which is set to be experience ‘severe’ delays. Vehicles are re-routing along Mill Lane rather than the route previously taken via A27 Southampton Road and Cartwright Drive.

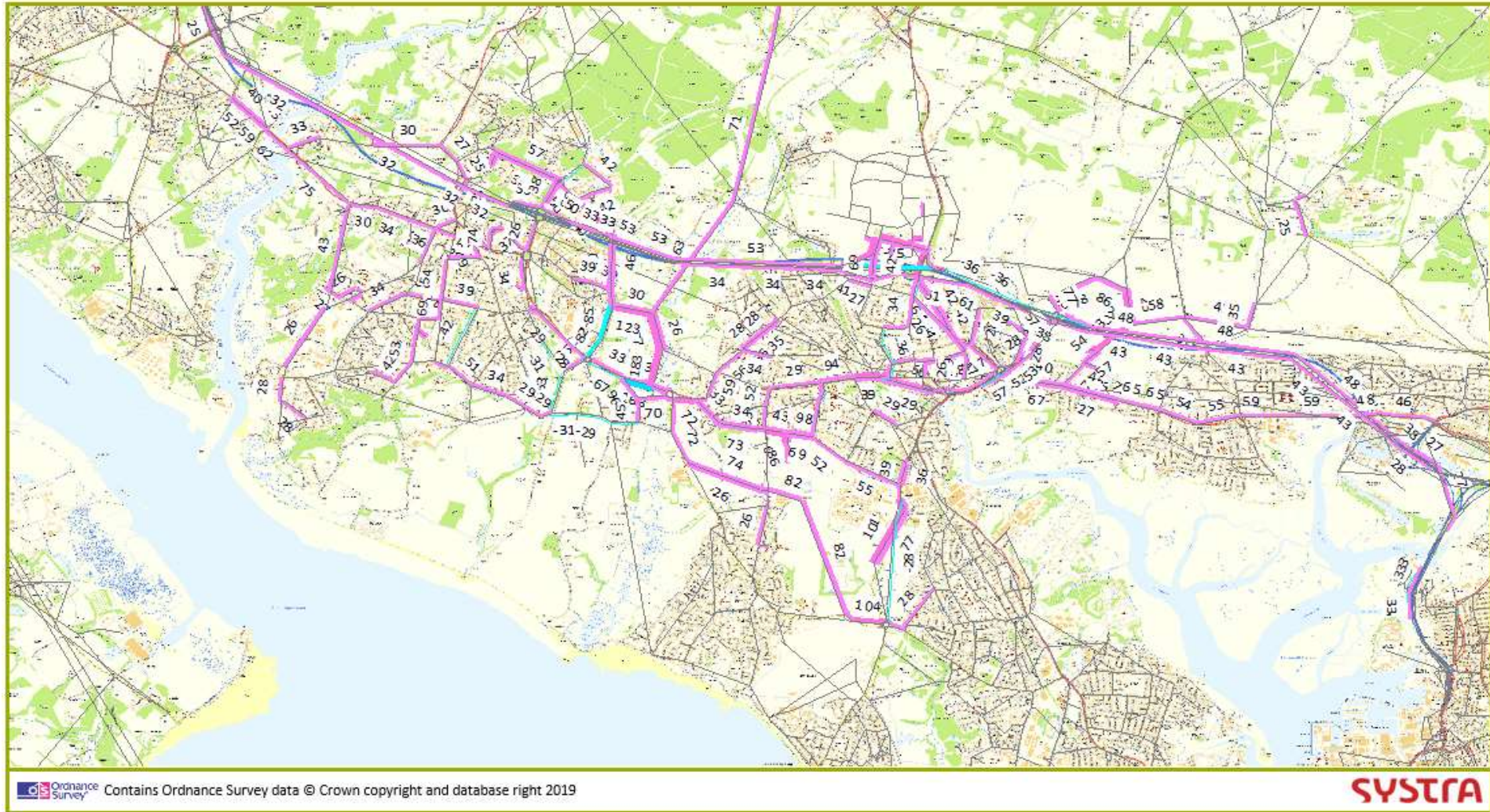


Figure 6-8 Flow Difference – 2036 Scenario 2 DM vs. 2036 Scenario 1 Baseline (AM)

(SRTM Ref: EUO vs. EUK)

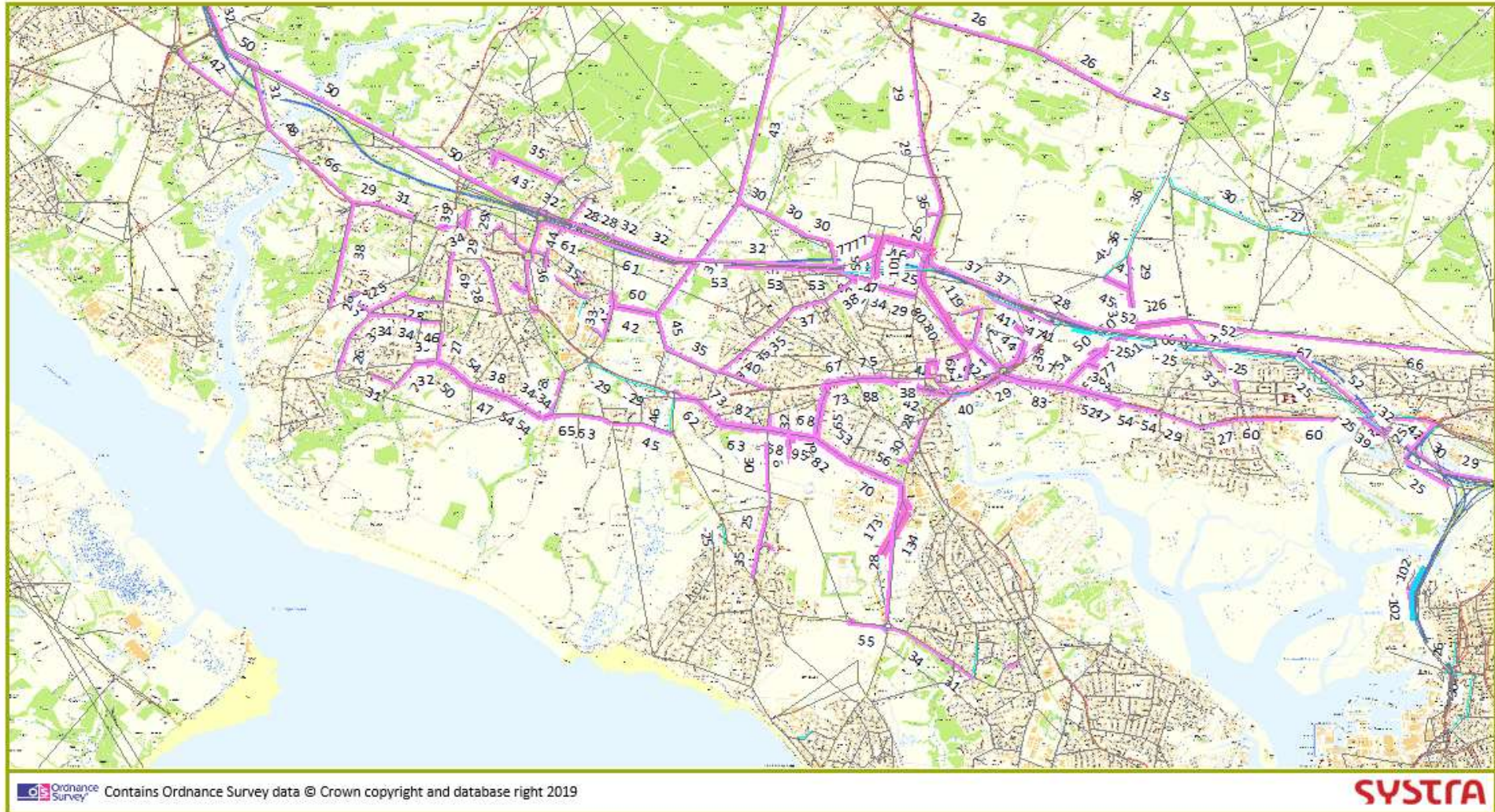


Figure 6-9 Flow Difference – 2036 Scenario 2 DM vs. 2036 Scenario 1 Baseline (PM)

(SRTM Ref: EUO vs. EUK)

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Highway Delays

- 6.3.7 Figure 6-10 and Figure 6-11 display the forecast change in link delay, per PCU, for the AM and PM peak hours between the 2036 Scenario 2 Do Minimum and 2036 Scenario 1 Baseline.
- 6.3.8 There are delay changes to junctions along some sections of the A27 and some sections on the A32, with small increases in delay forecast when compared to 2036 Scenario 1 Baseline. There are minor increases along the M27, namely at junctions providing access to the motorway.
- 6.3.9 Along the A27, the northbound approach (B3334 Titchfield Road) to Titchfield Gyratory in the AM and the southbound approach (at Mill Lane) in the PM face forecast delay increases of over 20 seconds. Delay increases are forecast at the Coach Hill/ Bridge Street/ South Street roundabout near Titchfield Gyratory, with an increase of 21 seconds in the AM and 10 in the PM. These delays are set to be felt on the Bridge Street approach to the junction. In addition, the Barnes Wallis Road/ Whiteley Lane/ Cartwright Drive roundabout is forecast to experience an increase in delay of up to 46 seconds in the AM. This is set to be felt along the Barnes Wallis Road approach with a delay increase of >5 seconds also forecast along the northbound Whiteley Lane approach.

On the A32 there are delays to the Gosport Road/ Mill Road/ Old Gosport Road roundabout, which is forecast to experience an increased delay of 9 and 26 seconds in the AM and PM respectively. An increase in delay is forecast at the Kiln Road/ Park Lane/ North Hill signalized junction with an increase of up to 16 and 6 seconds respectively in AM and PM. Furthermore, there is a delay increase to all arms in this signalized junction in the AM, with only one impacted in the PM.



Figure 6-10 Delay Difference – 2036 Scenario 2 DM vs. 2036 Scenario 1 Baseline (AM)

(SRTM Ref: EUO vs. EUK)

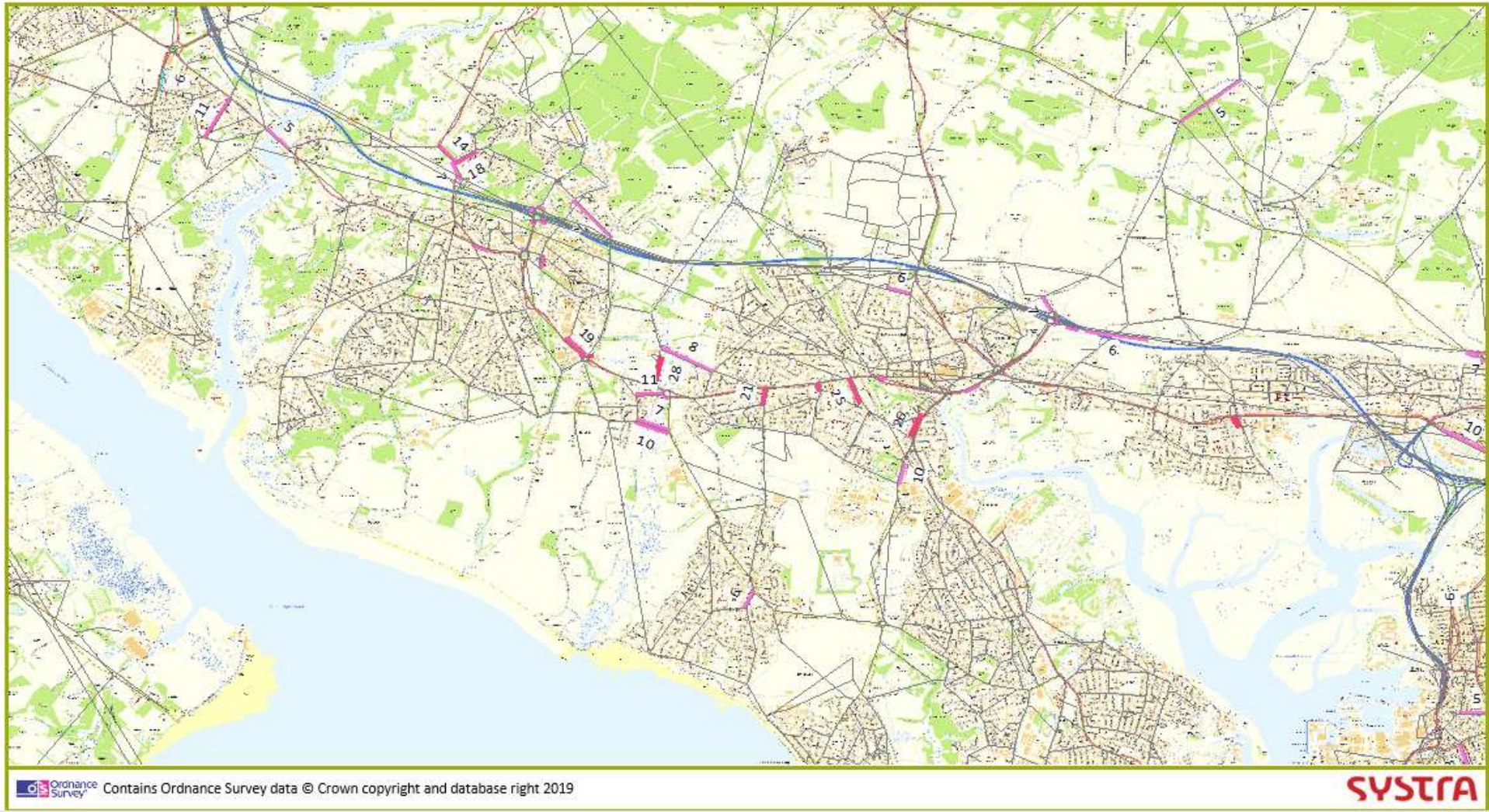


Figure 6-11 Delay Difference – 2036 Scenario 2 DM vs. 2036 Scenario 1 Baseline (PM)

(SRTM Ref: EUO vs. EUK)

Capacity Hotspots

- 6.3.10 Figure 6-12 displays the junctions forecast to have an RFC greater than 80% in the 2036 Scenario 2 Do Minimum. Junctions with an RFC greater than 80% are considered to be operating close to, or at capacity. The 2036 Scenario 2 Do Minimum is forecast to have 58 junctions meeting this criterion. This represents an increase of five junctions compared to Scenario 1 Baseline:
- A27 Bridge Road / Barnes Lane (see also 6.3.13 below);
 - A27 The Avenue / Catisfield Road;
 - Segensworth Road East / Cartwright Drive;
 - Welborne Approach / Broadway / Zone 894 Access; and
 - A27 Cams Hill / A27 Porchester Road / Down End Road / Shearwater Avenue.
- 6.3.11 Applying the criteria set-out in Section 6.1.12, there are a total of 17 junctions that meet the 'significant' change criteria and 1 junction meeting the 'severe' change criteria. These are summarised in the locations shown in Figure 6-13 and Table 6-6
- 6.3.12 It can be seen that of those junctions forecast to experience significant delays, many of them are situated along the A27 and Warsash Road.
- 6.3.13 As noted in 6.3.10 A27 Bridge Road / Barnes Lane is forecast to experience an RFC greater than 80% in the Do Minimum scenario. However, this has incorrectly been modelled as a signalised junction in these scenarios based on an earlier scheme proposal that we now understand is not considered committed. Therefore, FBC has requested this to be remodelled as a priority junction as per its current on-street arrangement. **Appendix E** includes the outputs from modelling of the A27 Bridge Road / Barnes Lane as a priority junction. Sensitivity testing on this scenario found that the implications of reverting the junction from a signalised junction to its current priority arrangement only impacts upon the immediate local network area and does not have significant knock on effects in the wider network. It can be seen that the change from signalised to priority alleviates forecast RFC issues at the junction.

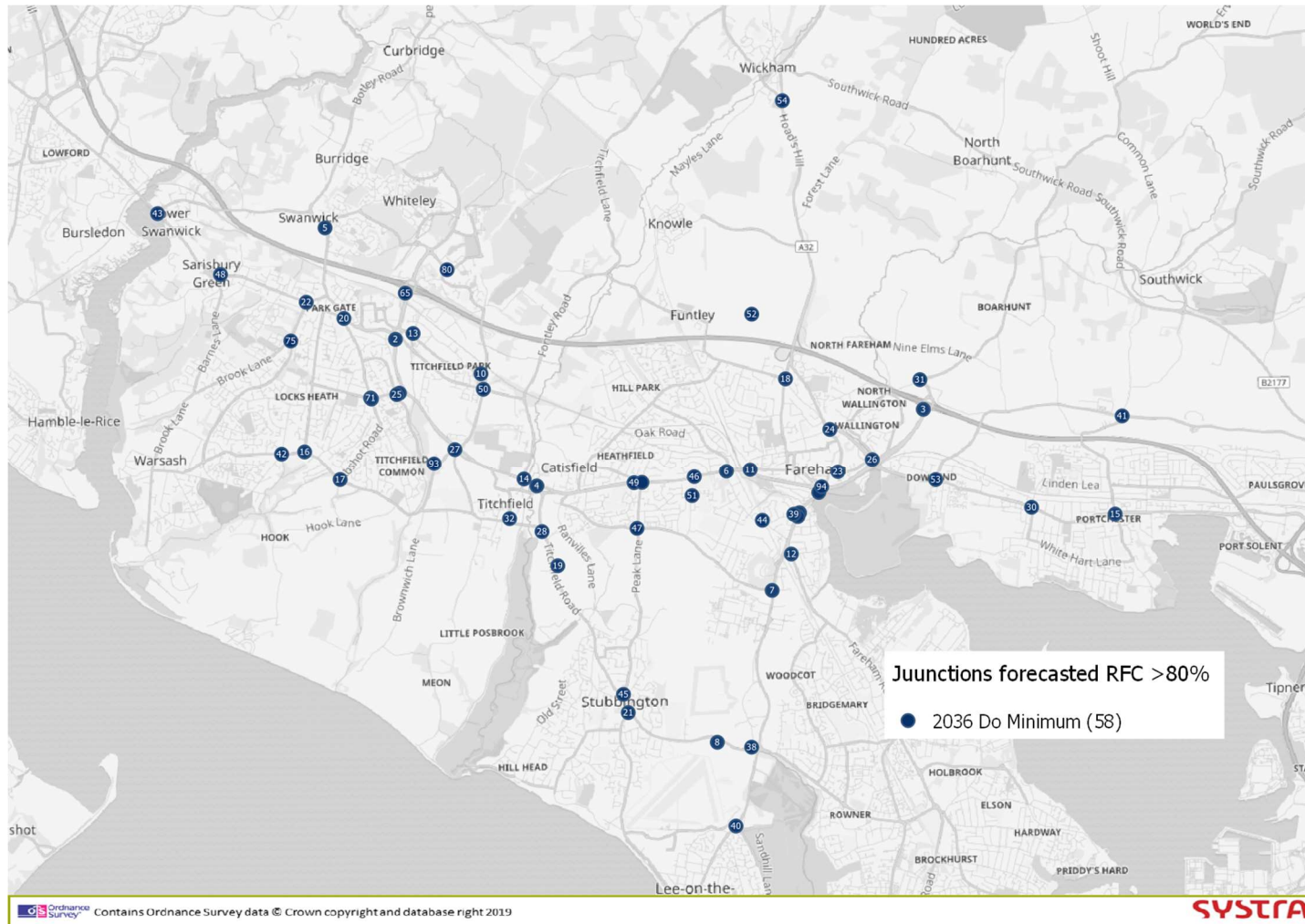


Figure 6-12 Junctions Forecast to have an RFC >80% in 2036 Scenario 2 DM

(SRTM Ref: EUK)

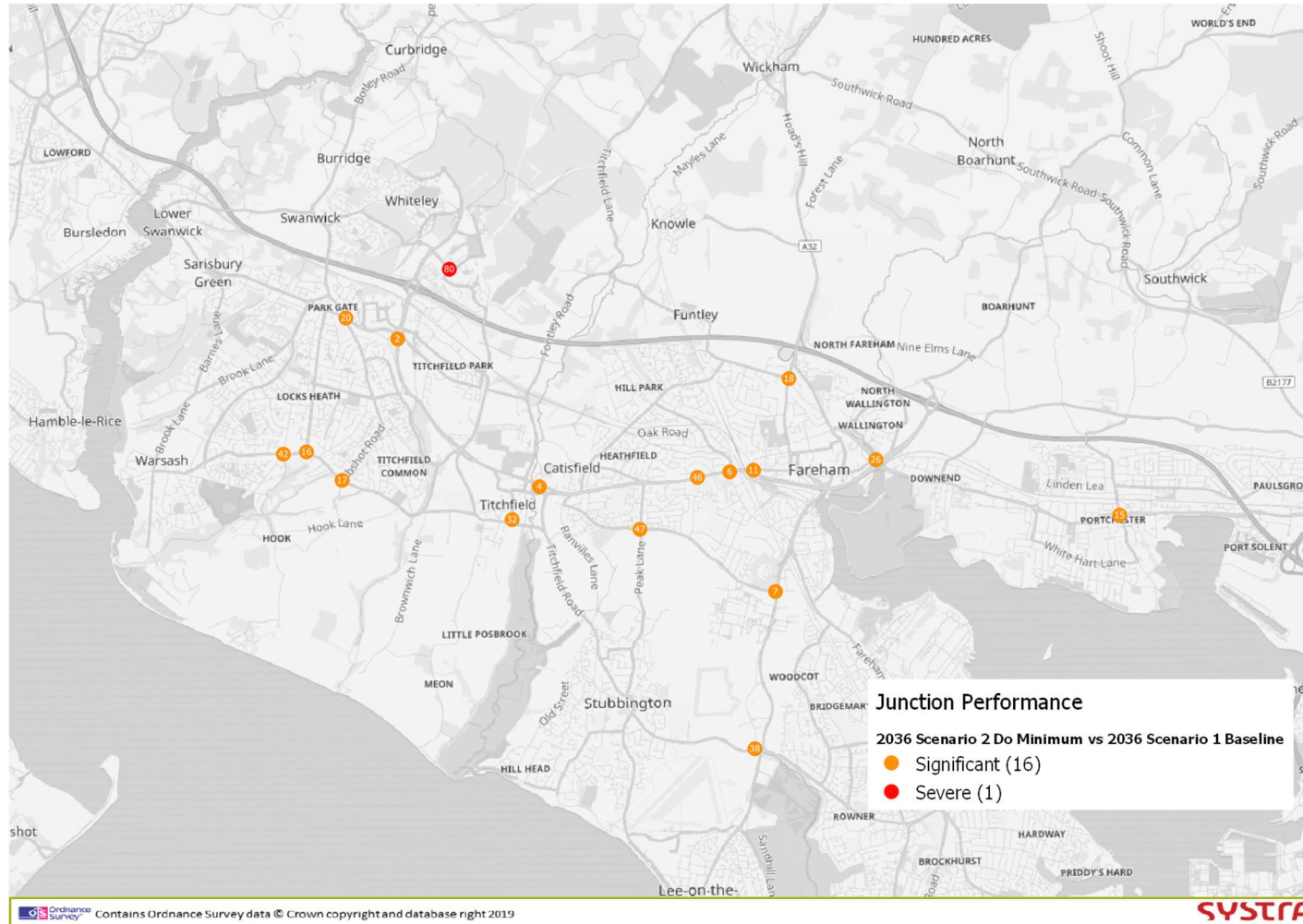


Figure 6-13 2036 Baseline vs 2036 Do Minimum Impacted Junction Locations

(SRTM Ref: EUK-EUO)

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Table 6-6 2036 Baseline vs 2036 Do Minimum Impacted Junction List

ID	JUNCTION NAME	'SIGNIFICANTLY' IMPACTED	'SEVERELY' IMPACTED
2	Segensworth Roundabout	Y	
4	Titchfield Gyratory	Y	
6	A27 The Avenue / Redlands Lane / Gudge Heath Lane	Y	
7	Longfield Avenue / Newgate Lane	Y	
11	Station Roundabout	Y	
15	Castle Street Roundabout	Y	
16	Warsash Road / Locks Road	Y	
17	Warsash Road / Abshot Road	Y	
18	Kiln Road / North Hill / Old Turnpike Lane	Y	
20	Botley Road / A27 / Hunts Pond Road / Southampton Road	Y	
26	Delme Roundabout	Y	
32	Coach Hill/South Street/Bridge Street	Y	
38	Peel Common Roundabout	Y	
42	Fleet End Road/Warsash Road/Raley Road	Y	
46	A27 The Avenue/Bishopsfield Road	Y	
47	Rowan Way/Peak Lane/Longfield Avenue	Y	
80	Parkway / Leafy Lane		Y

6.4 2036 Scenario 3 Do Something vs. 2036 Scenario 2 Do Minimum

Highway Network Performance

6.4.1 The performance of the highway network for the AM and PM periods for 2036 Scenario 1 Baseline, 2036 Scenario 2 Do Minimum and Scenario 3 Do Something is shown in Table 6-7 and Table 6-8. The difference between the Do Something and Do Minimum values is also tabulated.

6.4.2 Even when focussing at a District level, the coverage is very broad with only five mitigated sites and in terms of comparison between the Do Minimum and Do Something values, the difference is small and, aside from that fact, little further can be gleaned from these outputs. The outputs reported in the sections below that focus more specifically on the locations where mitigation has been included for provide a better comparison between the Do Minimum and Do Something scenarios.

Table 6-7 AM Highway Model Statistics, 2036 Scenario 3 DS vs. 2036 Scenario 2 Do Minimum

		BASELINE 2036	DM 2036	DS 2036	DIFFERENCE (DM VS DS)	% DIFFERENCE
Vehicle Hours	Core Model Area	158,372	158,201	158,278	77	0%
	Fareham	17,507	18,242	18,333	91	0.4%
Vehicle kms	Core Model Area	6,739,811	6,738,663	6,738,133	-530	-0.0%
	Fareham	734,761	748,646	748,963	317	0.0%
Average Speed (kph)	Core Model Area	42.6	42.6	42.6	0	0%
	Fareham	42.0	41.0	40.9	-0.1	-0.2%

Table 6-8 PM Highway Model Statistics, 2036 Scenario 3 DS vs. 2036 Scenario 2 Do Minimum

		BASELINE 2036	DM 2036	DS 2036	DIFFERENCE	% DIFFERENCE
Vehicle Hours	Core Model Area	171,471	171,330	171,344	4	0%
	Fareham	18,921	19,865	19,810	-55	-0.2%
Vehicle kms	Core Model Area	7,445,519	7,439,364	7,440,437	1,073	0.0%
	Fareham	807,948	824,435	824,243	-192	0%
Average Speed (kph)	Core Model Area	43.4	43.4	43.4	0	0.0%
	Fareham	42.7	41.5	41.6	0.1	0.2%

Highway Link Flows, Delays and Capacity Hotspots (RTM Module outputs)

Change in Traffic Flow and Delay

- 6.4.3 Figure 6-14 and Figure 6-15 identify the change in traffic flow in the AM and PM peak hours between the 2036 Scenario 3 Do Something and 2036 Scenario 2 Do Minimum, at an overall borough level. Figure 6-18 and Figure 6-19 identify the delay difference per PCU between the two scenarios. We have combined the reporting on the forecast flow and delay changes in a single section because the impacts between the two are linked.
- 6.4.4 The paragraphs that follow focus on the five locations where mitigation is proposed, plus any other notable flow/ delay changes.

Delme Roundabout

- 6.4.5 The proposed scheme at Delme Roundabout has included for signalisation on the A27 Cams Hill and A32 Wallington Way approaches to the junction and the corresponding circulating movements on the roundabout and some local carriageway widening. This is in addition to the existing signalisation on the approaches from the A27 off-slips and as part of the changes all signals at the junction have been optimised. Although signalisation allows greater regulation of flows, it does also add a component of delay to movements (particularly circulating movements) that did not previously experience this.
- 6.4.6 It is both at, and in the vicinity to, Delme Roundabout that forecast flow changes are most pronounced when comparing the DM and DS scenarios. Flow changes at this location are shown in greater detail in Figure 6-16 and Figure 6-17.
- 6.4.7 In the AM, there is a forecast flow reduction eastbound on East Street towards Delme and a comparable increase on the A27 Eastern Way approach to the junction. This represents a switch in routing between the two links between Quay Street roundabout and Delme roundabout and is linked to a delay reduction on the A27 offslip (due to optimised signals) and an increase in delay on the East Street approach. This impact is not forecast to occur in the PM and flows on the eastbound approaches of both A27 Eastern Way and East Street are largely unchanged.
- 6.4.8 There is a forecast change to routing from Delme Roundabout to the model zone (z299) that includes Fareham Shopping Centre and the access from High Street. Vehicles from Delme have switched from using East Street in order to access High Street and are now forecast to do so via Wallington Way and the Wickham Road roundabout. Based on a comparison to Google Maps data, there is little between the two routes confirming route choice is very sensitive to small changes network performance. The forecast change occurs in both AM and PM peaks.
- 6.4.9 On the southbound offslip of A27 Eastern Way, there is a forecast flow reduction. This relates to traffic from M27 (J11) destined for the northern part of Fareham Town Centre that has switched to J10 to avoid a signal related delay increase on the A27 off-slip at Delme. This is in addition to the increased delay on the roundabout circulating link as a result of the signalisation of the Cams Hill approach to the junction. The forecast flow change occurs in both peaks but is more pronounced in the AM.

6.4.10 Despite a delay reduction on the A27 Cams Hill approach in the AM there is minimal flow change on this arm in that peak. However, in the PM there is a delay increase forecast and an associated flow reduction on this approach. In addition, those vehicles joining at Cams Hill and circulating on the roundabout to A27 northbound towards M27 J11 must pass through a further additional sets of signals whilst circulating on the roundabout that increase delay on this route. A proportion of vehicles have reassigned away from the Cams Hill approach to Delme to join M27 via J12 having been previously forecast to join the motorway at J11.

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

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

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

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

6.4.14 A knock-on impact of the above flow reassignment is forecast to be felt at the Whiteley Lane/ Barnes Wallis Drive roundabout. In the AM, an increase in flow towards Barnes Wallis Drive is reducing gaps for users from Whiteley Lane northbound to join the roundabout that in turn is significantly increasing the delay on that movement by approximately 60 seconds. However, despite the large delay increase the forecast flow on the Whiteley Lane approach impacted by the delay is less than 10 PCUs. The impact in the PM for both flow and delay is forecast to be minimal.

6.4.15 In the PM, the new signals do reduce forecast delay at the junction and modest flow increases are now forecast on the Leafy Lanes and Parkway westbound approaches.

Warsash Rd / Abshot Rd / Little Abshot Rd

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

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

A27 Junctions with Redlands Lane and Bishopsfield Road

- 6.4.17 The above two junctions are located adjacent to each other and both have been subject to traffic signal optimisation in the model. Due to their proximity, and the forecast impact of the mitigation, they have been considered in combination. Whilst signal optimisation seeks to minimise overall delay at the junction being optimised, it does not necessarily tie with overall traffic management objectives at individual locations. In this instance, the optimisation has reallocated green time away from the A27 to one of the side roads at each of the junctions. It is acknowledged that this may not be a desirable outcome/impact for the Highway Authority.
- 6.4.18 In the AM at the Redlands Lane junction, there is a forecast flow reduction on all approach arms except Gudge Heath Lane. At the Bishopsfield Road junction there is a forecast flow reduction on all arms except Bishopsfield Road. The flow reduction on A27 as a result of this is largely offset by a flow increase on Longfield Avenue to the south. The flow increases and reductions correspond with respective delay reductions and increases.
- 6.4.19 In the PM at the Redlands junction, there is a forecast flow reduction on all approach arms except A27 eastbound. At the Bishopsfield Road junction there is a forecast flow reduction on all arms except Bishopsfield Road. Bishopsfield Road is drawing a proportion of traffic away from the parallel routes of Redlands Lane and Peak Lane. There is also a small pull of traffic from the Stubbington Bypass (northbound) with traffic using Newgate Lane and Longfield Avenue to then access A27 via Bishopsfield Road. Similarly to the AM, the flow increases and reductions correspond with respective delay reductions and increases.

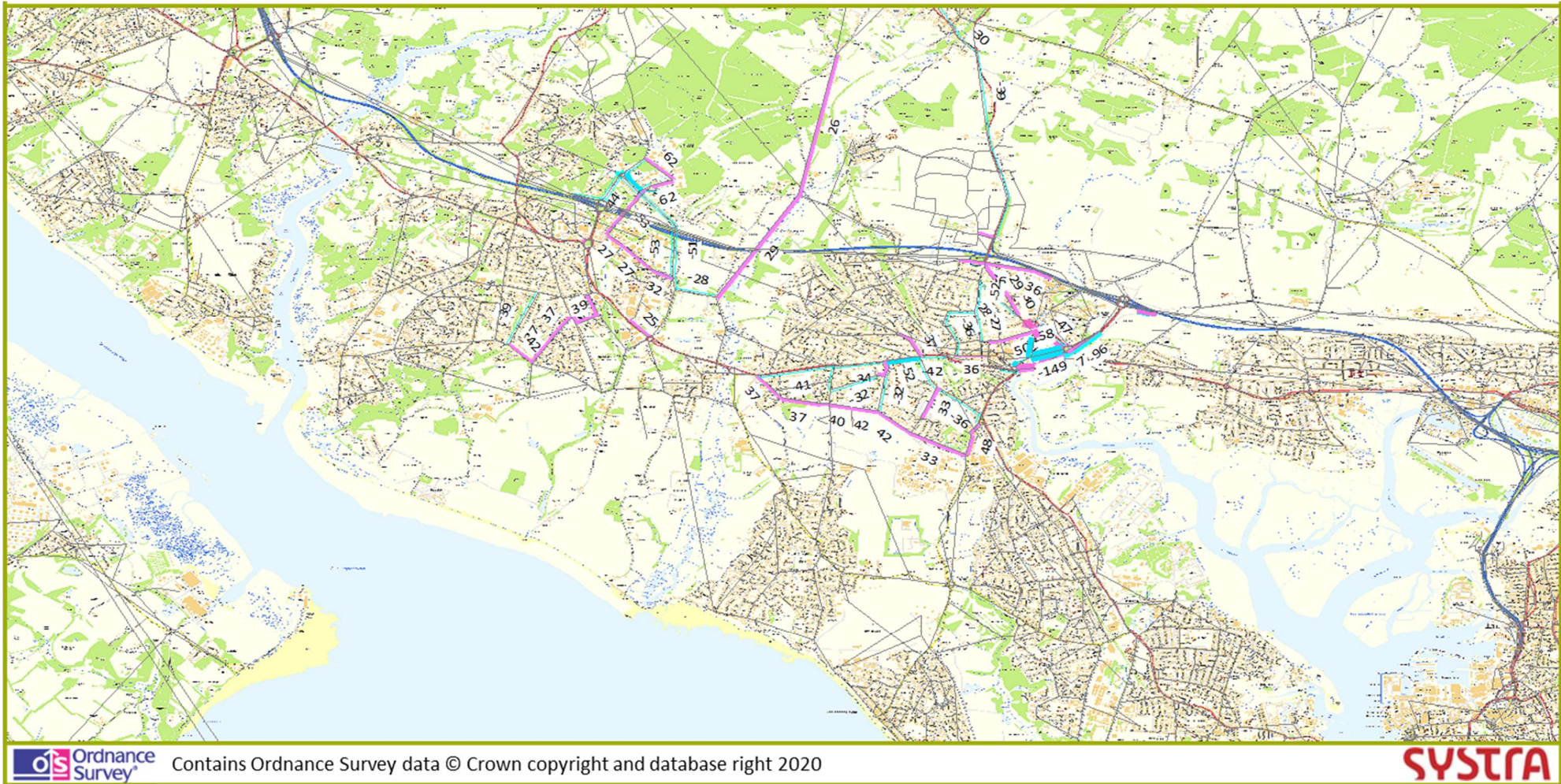


Figure 6-14 Flow Difference – 2036 Scenario 3 DS vs. 2036 Scenario 2 DM (AM)

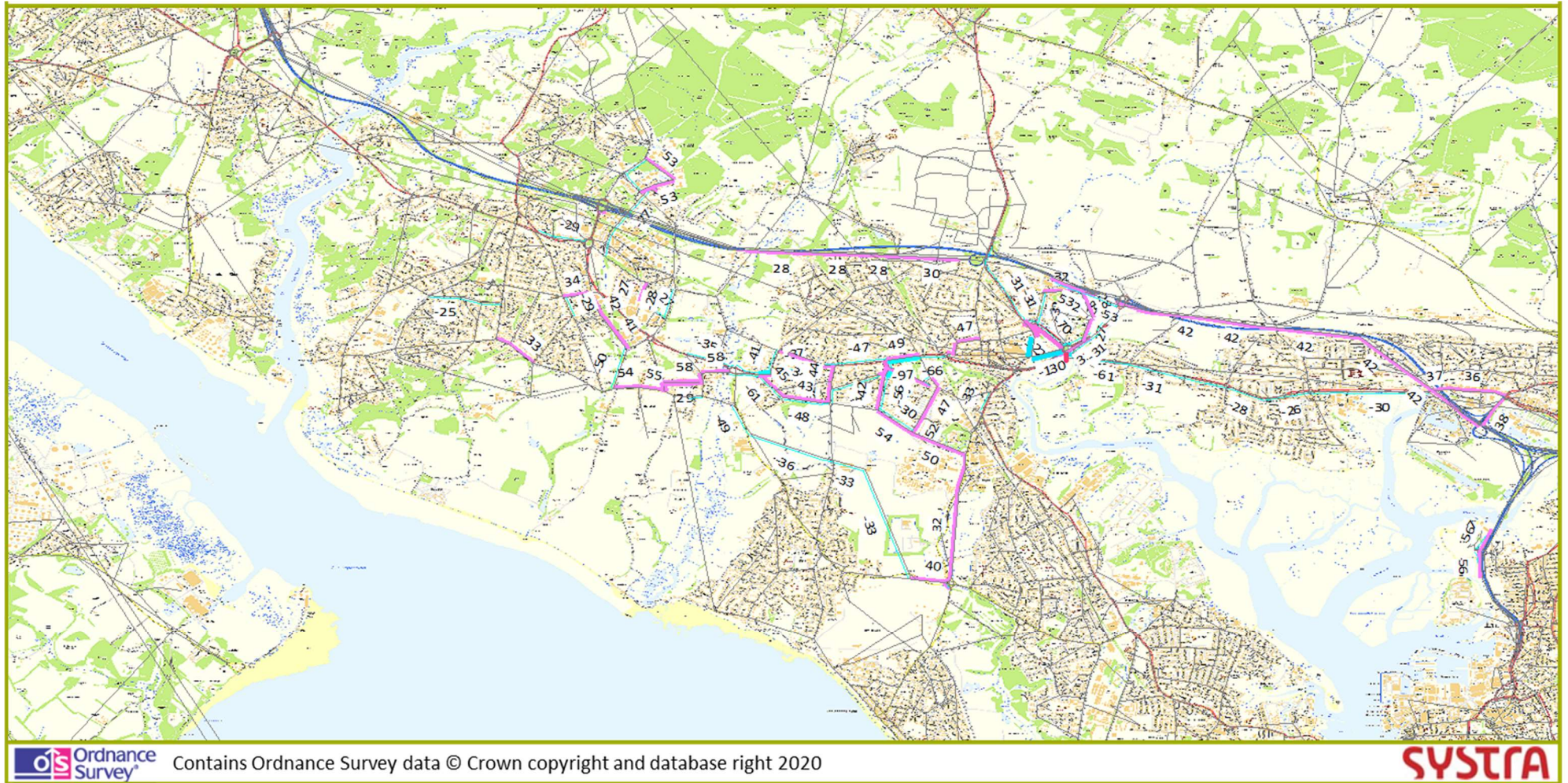


Figure 6-15 Flow Difference – 2036 Scenario 3 DS vs. 2036 Scenario 2 DM (PM)

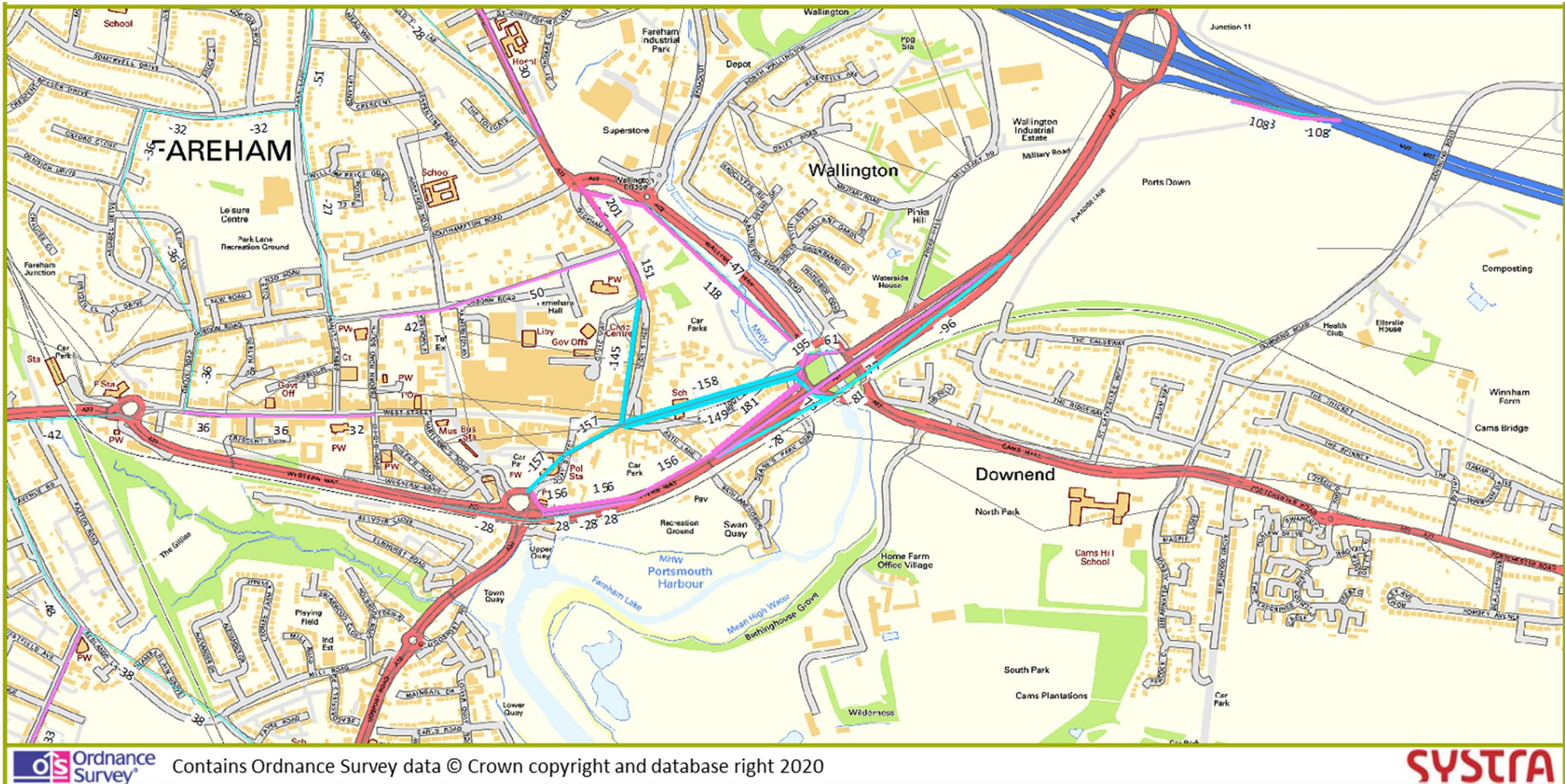


Figure 6-16 Flow Difference – 2036 Scenario 3 DS vs. 2036 Scenario 2 DM (AM) – Delme Roundabout

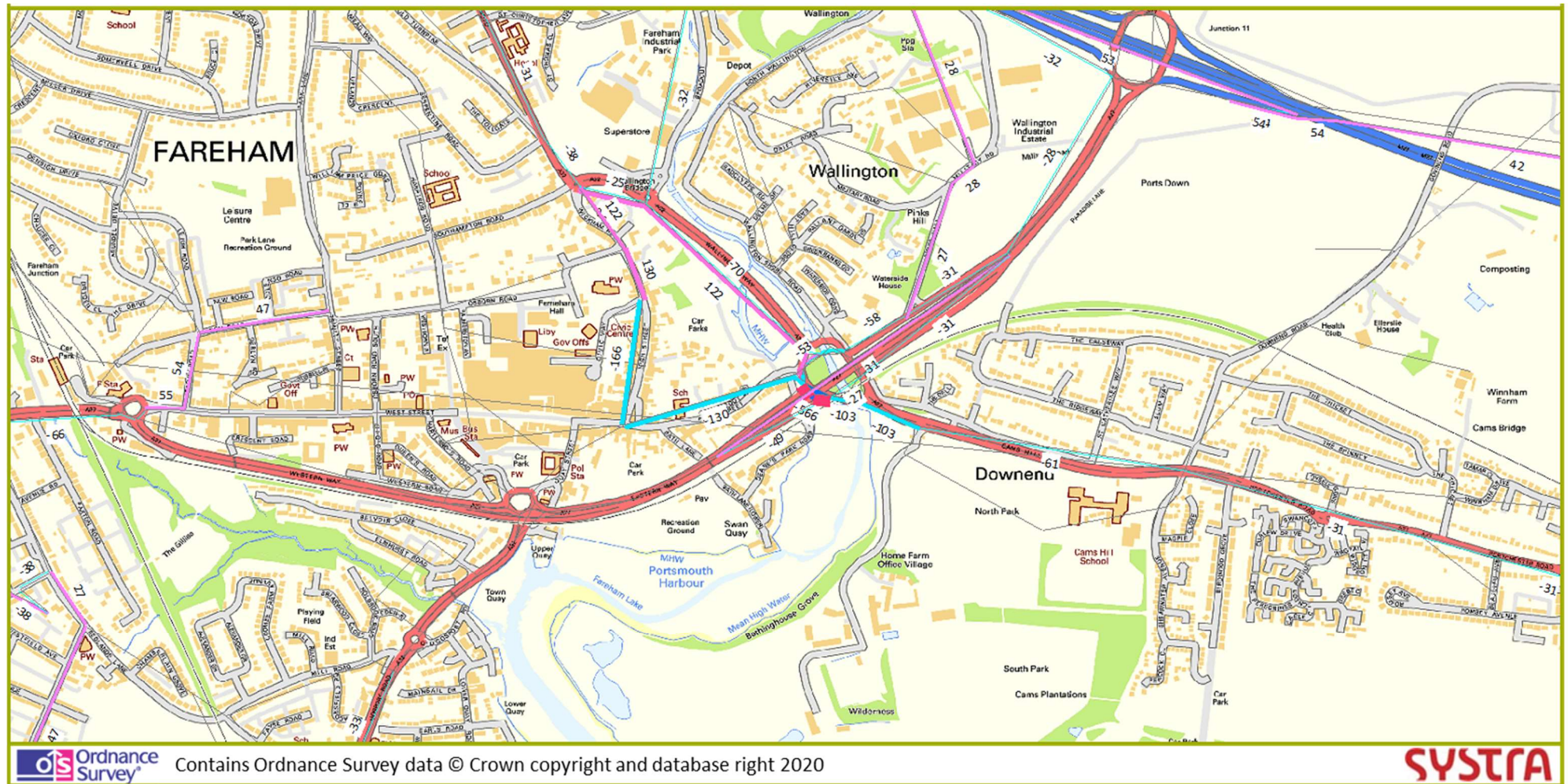


Figure 6-17 Flow Difference – 2036 Scenario 3 DS vs. 2036 Scenario 2 DM (PM - Delme Roundabout)

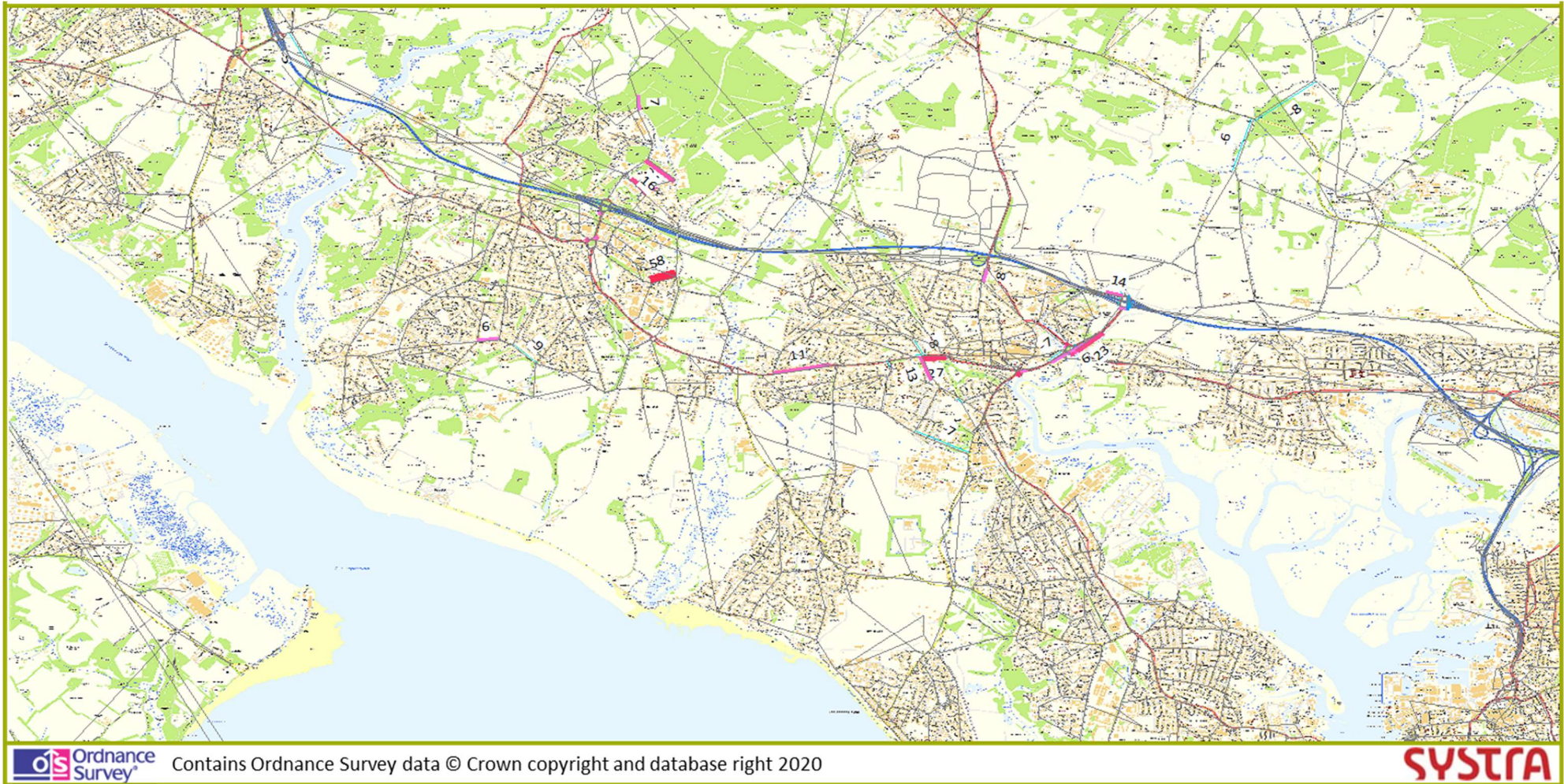


Figure 6-18 Delay Difference – 2036 Scenario 3 DS vs. 2036 Scenario 2 DM (AM)

(SRTM Ref: EUO vs. EUK)

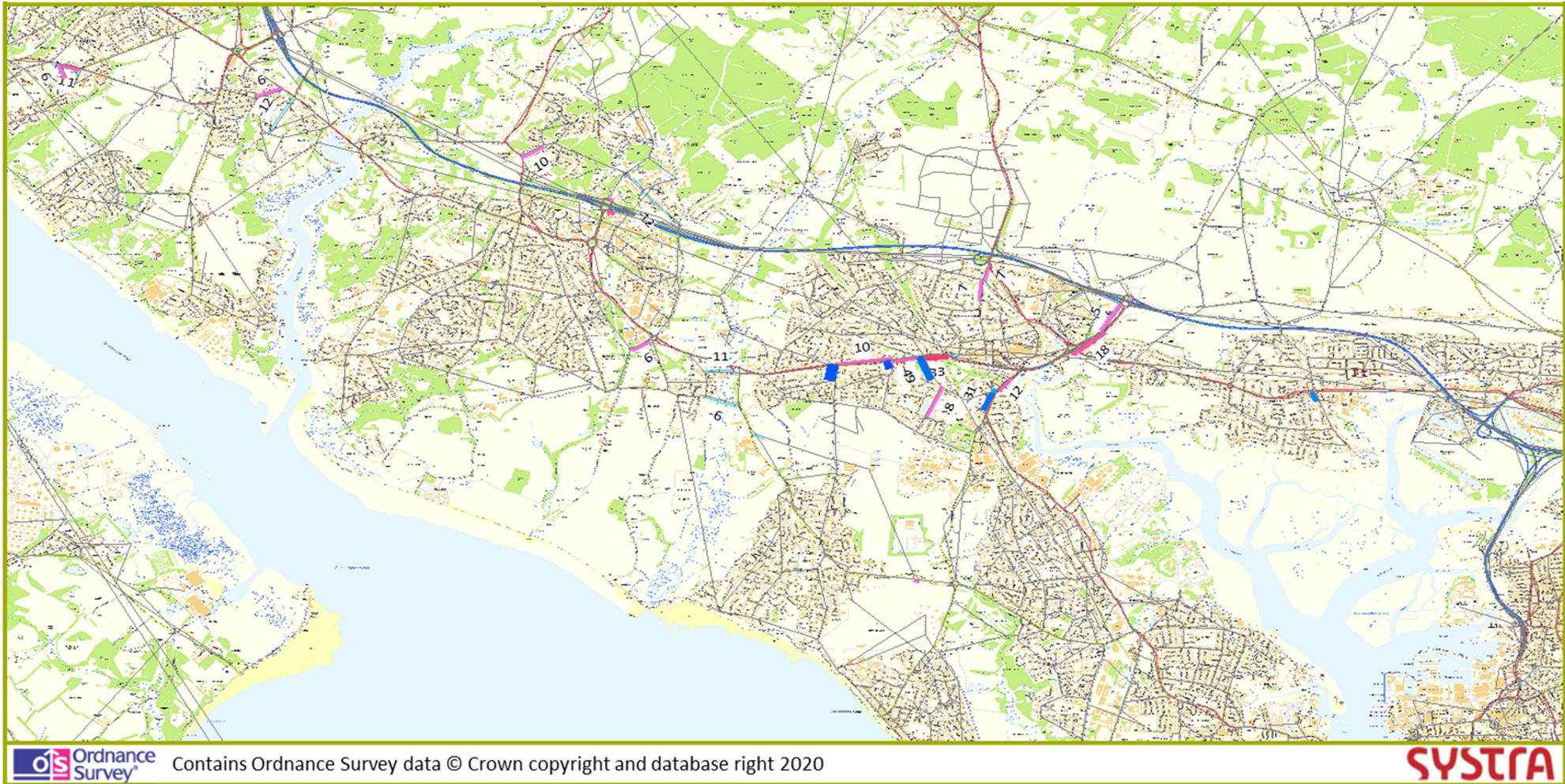


Figure 6-19 Delay Difference – 2036 Scenario 3 DS vs. 2036 Scenario 2 DM (PM)

(SRTM Ref: EUO vs. EUK)

Capacity Hotspots

- 6.4.20 Figure 6-20 displays the junctions forecast to have an RFC greater than 80% in the 2036 Scenario 3 Do Something. Junctions with an RFC greater than 80% are considered to be operating close to, or at capacity. The Do Something scenario is forecast to have 54 junctions meeting this criterion. This represents a reduction from 58 junctions in the Do Minimum and is 1 greater than the number reported for the Baseline.
- 6.4.21 Applying the criteria set-out in Section 6.1.12, there is a total of 17 junctions that meet the ‘significant’ change criteria and 2 junctions meeting the ‘severe’ change criteria when compared against the Baseline. This represents an increase in 1 ‘significant’ location compared to the Do Minimum, and an increase in 1 ‘severe’ location. The junction locations are shown in Figure 6-21 and listed in Table 6-6. There are 7 junctions not previously identified as having ‘significant’ or ‘severe’ impacts in the Do Minimum and these are highlighted in Table 6-6.
- 6.4.22 New junctions triggering one of the ‘significant’ or ‘severe’ criteria are not entirely unexpected due to the mitigation measures incorporated potentially releasing bottlenecks that then impact downstream locations, or changing the assignment of vehicles through the network.
- 6.4.23 The sections below summarise the performance of the mitigated junctions in the Do Something model run, and highlight the additional junction with impact classified as ‘severe’.

Delme Roundabout

- 6.4.24 Following the mitigation measures at the junction, Delme Roundabout is forecast to have an operational RFC below 80% on all arms.
- 6.4.25 Delme Roundabout was previously classified as forecast to experience “significant” impact, however, the mitigation measures have lowered the RFC substantially and it is no longer classified as meeting either the “significant” or “severe” criteria.

Leafy Lane / Parkway

- 6.4.26 Leafy Lane / Parkway still operates at above 80% RFC in the Do Something scenario, however, RFC on all arms has dropped following the inclusion of mitigation measures.
- 6.4.27 Leafy Lane / Parkway was forecast to suffer “severe” impact in the Do Minimum scenario. Following the inclusion of mitigation measures the junction no longer meets either of the “significant” or “severe” criteria.

Warsash Rd / Abshot Rd / Little Abshot Rd

- 6.4.28 Warsash Road / Abshot Road / Little Abshot Road was forecast to operate above 80% RFC in both the Baseline and Do Minimum scenarios. Following the introduction of the mitigation measures in the Do Something it is forecast to operate below 80% RFC on all arms.

6.4.29 The junction met the “significant” threshold in the Do Minimum scenario. Following the decrease in RFC at the junction it is now forecast to not meet either of the “significant” or “severe” criteria.

A27 / Redlands Avenue

6.4.30 A27 Redlands Avenue is forecast to experience an RFC capacity greater than 80% in all modelled scenarios.

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

A27 / Bishopsfield Road

6.4.32 The A27 / Bishopsfield Road junction is forecast to operate at above 80% RFC. The highest RFC in the Do Minimum was forecast at 92% in the Do Minimum, this has dropped to 80% in the Do Something and sits on the cusp of meeting the threshold.

6.4.33 The A27 / Bishopsfield Road met the “significant” criteria in the Do Minimum scenario. Following the mitigation measures and the forecast drop in RFC as mentioned above, the junction now operates below the “significant” and “severe” thresholds.

Whiteley Lane/ Barnes Wallis Drive

6.4.34 As noted in section 6.4.14, there is a large delay increase on the Whiteley Lane northbound approach to the junction in the AM peak. This delay increase is triggering a “severe” classification. As identified in 6.4.14, the delay increase only applies to a forecast flow of less than 10PCUs.

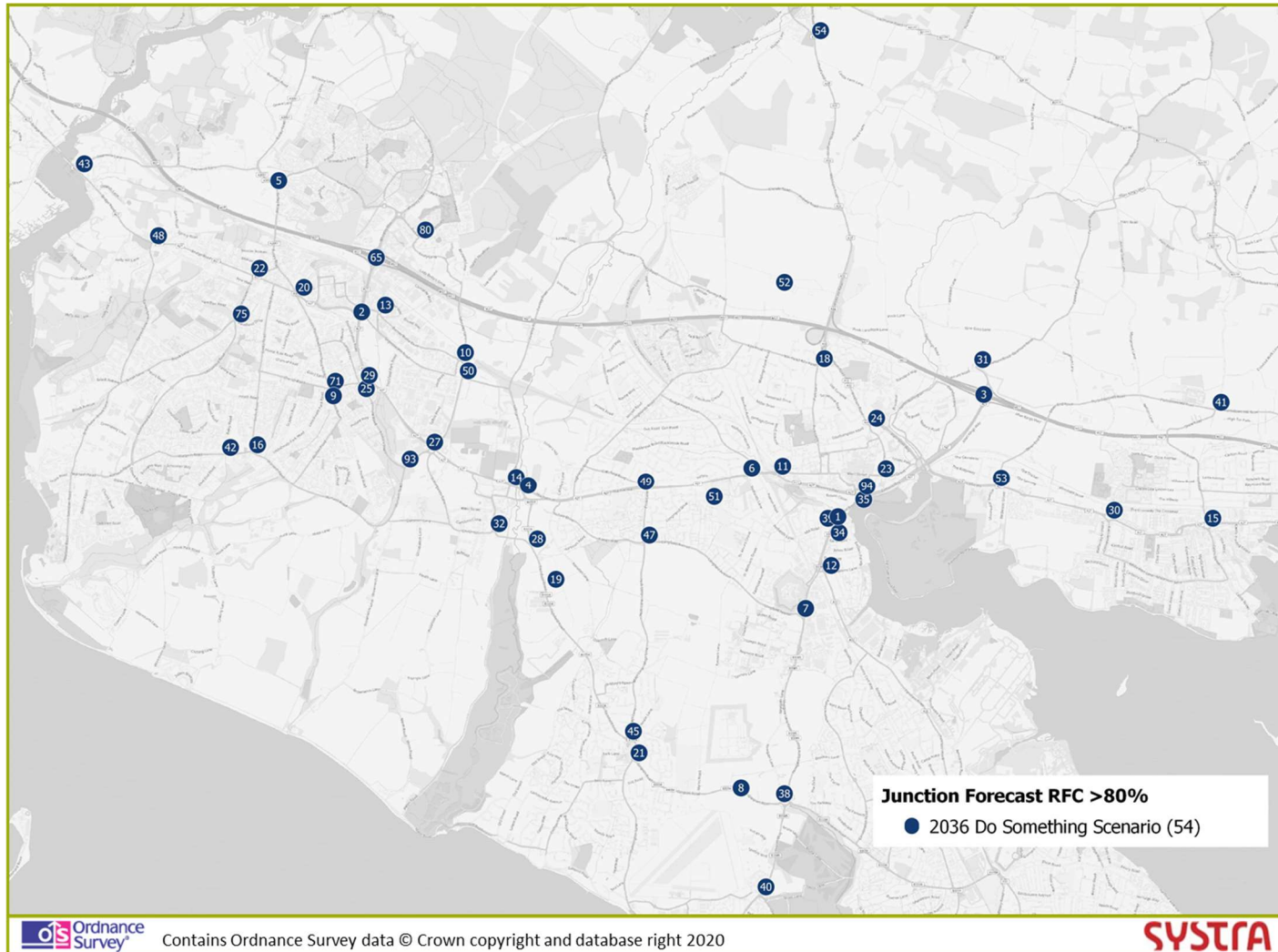


Figure 6-20 Junctions Forecast to have an RFC >80% in 2036 Scenario 3 DS

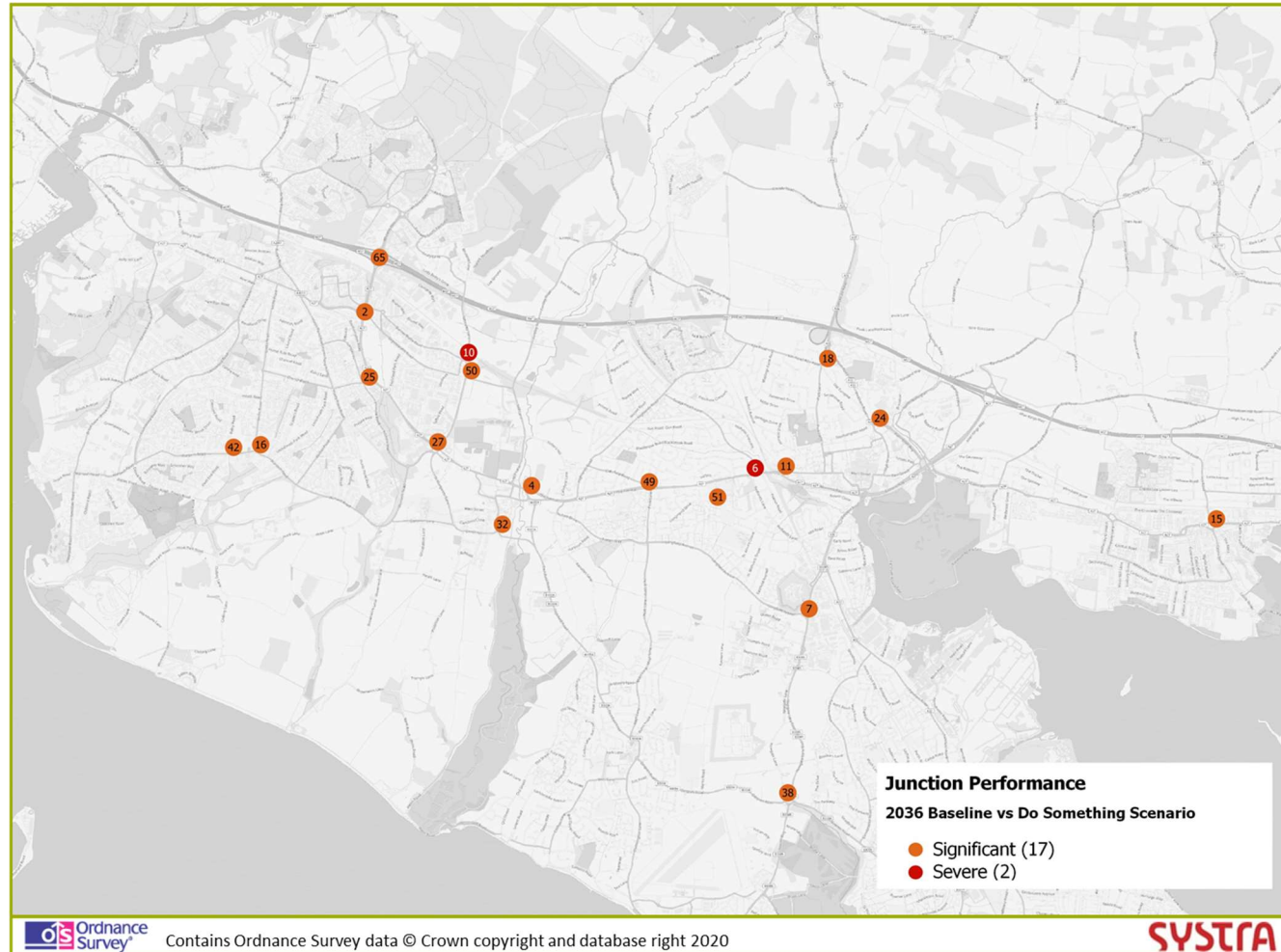


Figure 6-21 2036 Baseline vs 2036 Do Something Impacted Junction Locations

(SRTM Ref: EYC-EUK)

Fareham Local Plan

Fareham Local Plan – SRTM Modelling

Model Outputs Summary Report

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Table 6-6 2036 Baseline vs 2036 Do Something Impacted Junction List (highlighted junctions are those not impacted in the Do Minimum)

ID	JUNCTION NAME	'SIGNIFICANTLY' IMPACTED	'SEVERELY' IMPACTED
2	Segensworth Roundabout	Y	
4	Titchfield Gyratory	Y	
6	A27 The Avenue / Redlands Lane / Gudge Heath Lane		Y
7	Longfield Avenue / Newgate Lane	Y	
10	Barnes Wallis Road / Whiteley Lane / Cartwright Drive		Y
11	Station Roundabout	Y	
15	Castle Street Roundabout	Y	
16	Warsash Road / Locks Road	Y	
18	Kiln Road / North Hill / Old Turnpike Lane	Y	
24	A32 / High Street / Wallington Way	Y	
25	Lower Church Road / Primate Road / Longacres	Y	
27	St Margarets Roundabout	Y	
32	Coach Hill/South Street/Bridge Street	Y	
38	Peel Common Roundabout	Y	
42	Fleet End Road/Warsash Road/Raley Road	Y	
49	A27 The Avenue/Catisfield Road	Y	
50	Segensworth Road East/Cartwright Drive	Y	
51	Bishopsfield Road/Longmynd Drive	Y	
65	M27 J9	Y	

7. SUMMARY AND CONCLUSIONS

7.1.1 Solent Transport’s SRTM has been utilised to test three scenarios to help inform the development and appraisal of the update to Fareham’s Local Plan:

- Scenario 1 – 2036 Baseline, No Fareham Local Plan development. Welborne network and M27 Junction 10 included.
- Scenario 2 – 2036 Do Minimum, With Fareham Local Plan development, without mitigation measures.
- Scenario 3 – 2036 Do Something, With Fareham Local Plan development, with mitigation measures.

7.2 2036 Scenario 1 Baseline

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

7.2.2 In all cases there is a general increase in traffic flows within the Fareham Borough compared to the 2015 model Base year with the most obvious change being related to the Welborne development and its corresponding new network links, including the new west facing slips at J10.

7.2.3 A total of 53 junctions within Fareham district are forecast to operate with an RFC greater than 80% in the 2036 Baseline Scenario.

7.3 2036 Scenario 2 Do Minimum

7.3.1 The 2036 Do Minimum scenarios build off the Baseline, by including the proposed Fareham Local Plan allocations for residential and employment development. Growth outside of the Borough is unchanged from the Baseline. An additional approximate 6,000 dwellings have been included within the Do Minimum scenario over and above the Baseline.

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

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

7.3.4 A total of 58 junctions within Fareham district are forecast to operate with an RFC greater than 80%. This is an increase of 5 junctions across the district in comparison to the 2036 Baseline. Of those 58 junctions, it is forecast that 16 will experience ‘significant’ impact and 1 junction ‘severe’ impact in comparison to the 2036 Baseline. However, on review of the model coding of the A27 Bridge Road/ Barnes Lane a sensitivity test was run with

revised coding at this location and which removed the forecast capacity issues at this location.

- 7.3.5 The list of 17 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 as part of the Transport Assessment undertaken by Hampshire Traded Services.

7.4 2036 Scenario 3 Do Something

- 7.4.1 The 2036 Do Something scenario build off Scenario 2 Do Minimum, by including the proposed mitigation measures to the highway network. The Transport Assessment identified five junctions listed below where mitigation has been proposed and the preliminary designs have been incorporated into the SRTM:

- Delme Roundabout
- Parkway/ Leafy Lane
- Warsash Road/ Abshott Road/ Little Abshott Road
- A27/ Redlands Avenue
- A27/ Bishopsfield Road

- 7.4.2 Land use allocations between Scenario 2 Do Minimum and Scenario 3 Do Something and associated transport demand remain consistent and it is only the modelled transport network that has changed.

- 7.4.3 A total of 54 junctions in Fareham district are forecast to operate with an RFC greater than 80% in the do Something. This is a decrease of 4 junctions from the Scenario 2 Do Minimum and 1 greater than the number forecast to meet this threshold in Scenario 1 Baseline.

- 7.4.4 It is forecast that 17 junctions will experience ‘significant’ impacts in comparison to Scenario 1 Baseline and 2 junctions with ‘severe’ impacts. This represents a 1 junction increase of both significant and severe impacted junctions compared to the Do Minimum. However, of the 5 junctions with mitigation proposed, all except A27/ Redlands Lane are now forecast below the significant or severe criteria.

- 7.4.5 There are 7 junctions not previously identified as having ‘significant’ or ‘severe’ impacts in the Do Minimum. New junctions triggering one of the ‘significant’ or ‘severe’ criteria are not entirely unexpected due to the mitigation measures incorporated potentially releasing bottlenecks that then impact downstream locations, or changing the assignment of vehicles through the network. It is recommended that the junctions identified as experiencing significant or severe impacts be reviewed to determine if any additional mitigation is necessary.

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