

SRTM MODELLING - COMPARISON OF DEVELOPMENT OPTIONS (TRANSPORT ASSESSMENT PART 1)



SYSTRA

EASTLEIGH LOCAL PLAN

SRTM MODELLING - COMPARISON OF DEVELOPMENT OPTIONS (TRANSPORT ASSESSMENT PART 1)

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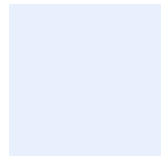
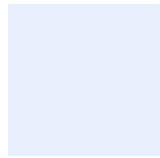
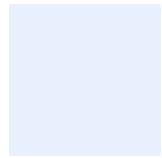


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1. INTRODUCTION

1.1 Introduction

1.1.1 Eastleigh Borough Council (EBC) commissioned SYSTRA to undertake strategic modelling using the Solent Transport’s Sub-Regional Traffic Model (SRTM) to test the traffic impacts of a range of development options as part of its Local Plan process.

1.1.2 The SRTM was 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.

1.1.3 All outputs in this report focus on 2036 forecast conditions. This narrative summarises the key SRTM modelling assumptions and presents the modelling results.

1.2 Study Background

1.2.1 The SRTM was previously used to undertake a Baseline (committed development) and a number of Do Minimum (Local Plan additional development allocations) scenarios for 2036. In July 2017, the emerging Local Plan strategy of a 5,200 dwelling Strategic Growth Option (SGO) site north of Bishopstoke / North East of Fair Oak (SGO sites B and C), alongside provision of a new northern link road between M3 J12 and Fair Oak, via Allbrook was initially proposed.

1.2.2 In December 2017, EBC commissioned SYSTRA to undertake an Interim Do Something SRTM scenario that included a range of highway interventions to support the full Council in making a decision on the SGO site.

1.2.3 On December 11th 2017, the Council agreed that the Local Plan for submission will feature a strategic growth option of around 5,200 dwellings at North Bishopstoke / North East of Fair Oak which will enable achievement of the Council’s housing delivery targets. This is subject to completion of evidence, including this Transport Assessment.

1.2.4 The focus of the study reported in this document is the impact of potential packages of “off-site” infrastructure schemes to mitigate congestion impacts resulting from the Local Plan. Traffic flow data output from the SRTM will also form inputs to an ecology and air quality assessment that is reported by a third party in a separate document.

1.2.5 Alongside the preferred development option, a number of other development options have been specified by EBC and modelled using the SRTM.

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1.3 Development Options

1.3.1 The scenarios and SGO sites being tested in 2036 as part of this commission are as follows:

- Baseline - forms the basis against which the proposed Local Plan development will be assessed
- DS1 – SGO sites B and C without the northern link road
- DS2 – SGO sites B and C with the northern link road. This is the Council’s draft Local Plan option with an intermediate level of off-site infrastructure interventions
- DS3 – SGO sites B and C with the northern link road. This is the Council’s draft Local Plan option with a high level of off-site infrastructure interventions
- DS4 – SGO site C without the northern link road
- DS5 - SGO site D
- DS6 – SGO site E
- DS7 – SGO site D and a small part of E.

1.3.2 Full details of the scenarios and development quantum’s included within each scenario is provided in the following chapters, alongside descriptions of the associated infrastructure.

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

2.1 Model Development

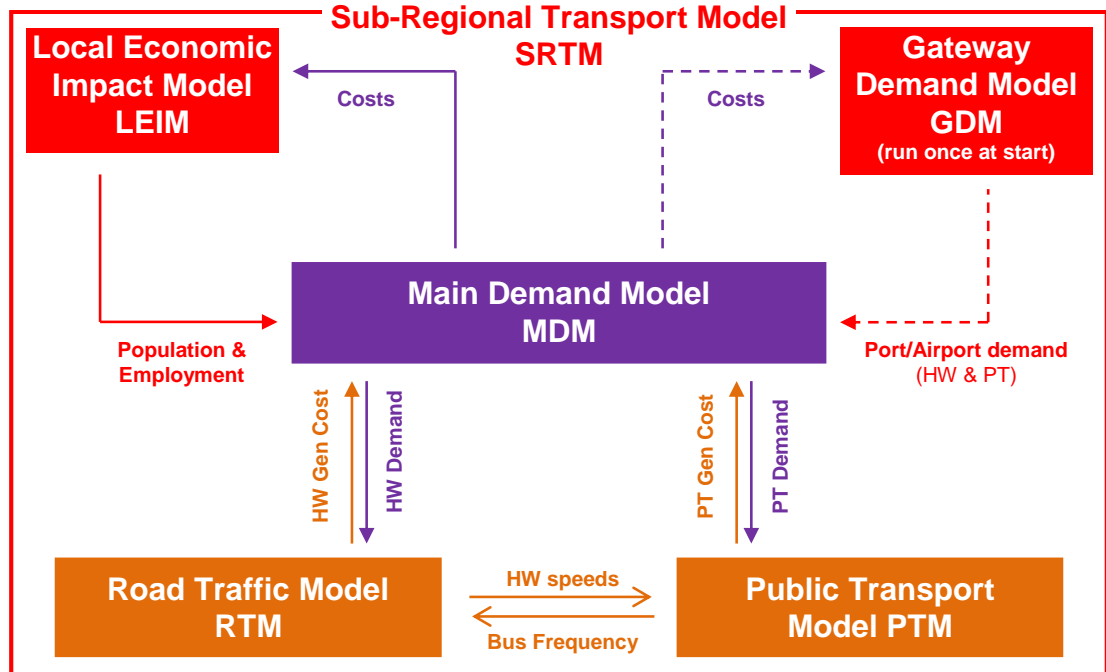
2.1.1 SYSTRA was commissioned, as part of a wider team, to support Solent Transport with the development and application of a Sub-Regional Transport Model (SRTM) for this nationally important area. An update to the 2010 model was completed in early 2017 to use a 2015 base year.

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 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 1. Solent Transport Sub-Regional Transport Model



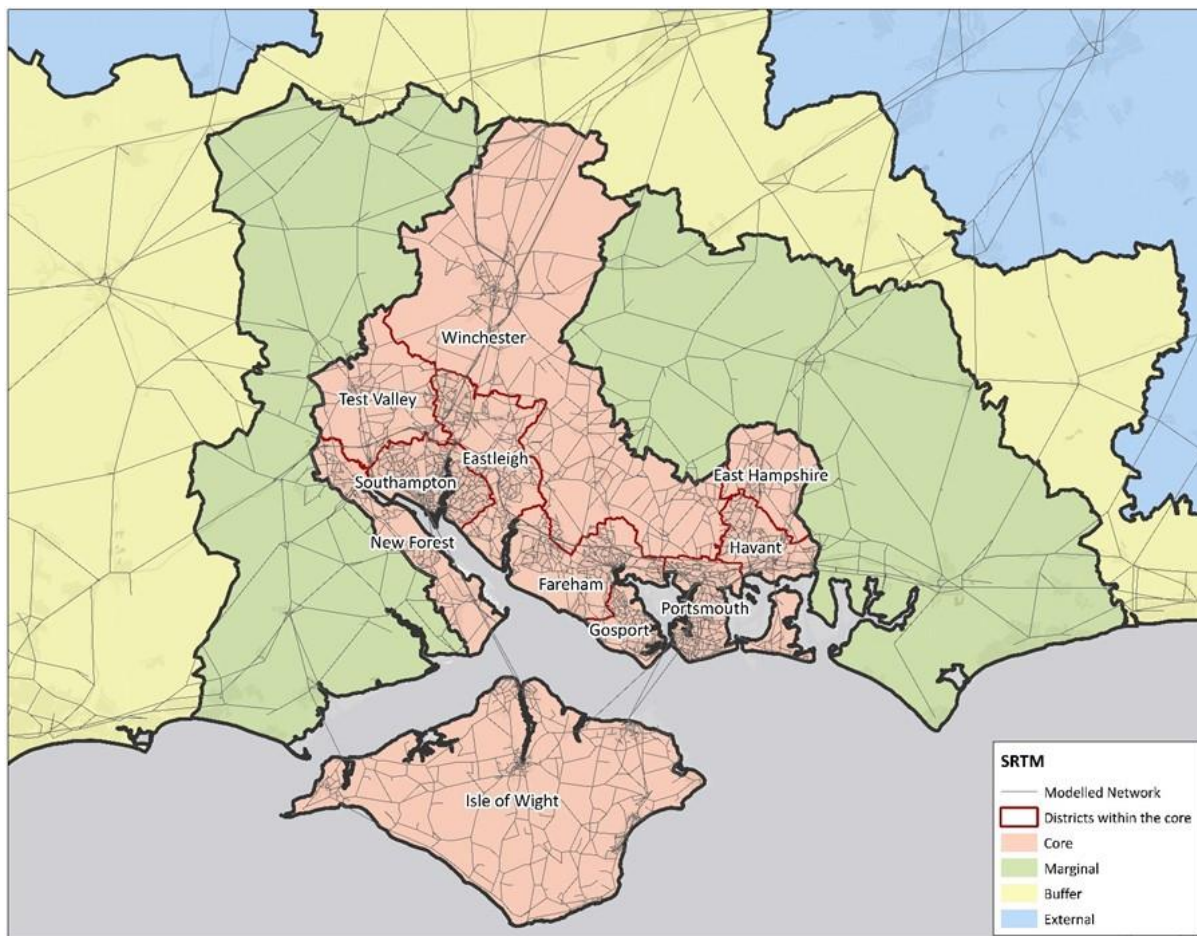
2.2.2 The area modelled by the SRTM is divided into four regions, shown in Figure 2, which differ by zone aggregation and modelling detail. Eastleigh Borough is within the Core Fully Modelled Area (the most detailed region of the model).

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).

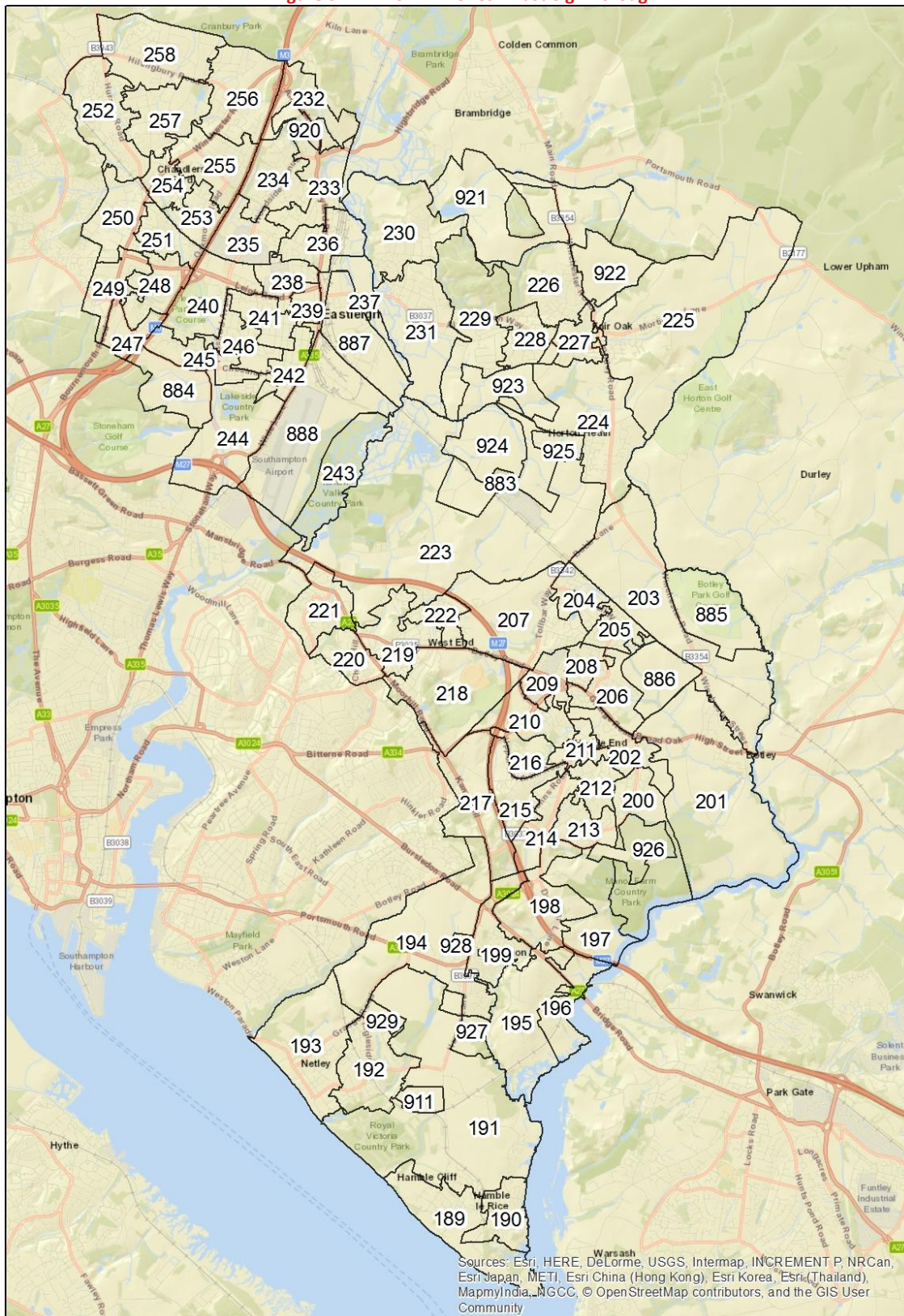
2.2.4 The SRTM has a base year of 2015, and forecast years of 2019, 2026, 2031, 2036 and 2041. For the Eastleigh Local Plan tests, the model was projected forward up to 2036.

Figure 2. Study Area of the SRTM



2.2.5 Figure 3 below shows the SRTM zone structure for Eastleigh Borough.

Figure 3. SRTM Zones – Eastleigh Borough



3. EASTLEIGH BASELINE (WITHOUT LOCAL PLAN DEVELOPMENT)

3.1 Introduction

3.1.1 This chapter summarises the planning assumptions applied to the SRTM forecast years that are used in the Eastleigh Baseline.

3.2 Reference Case Committed Schemes and Development

3.2.1 The SRTM has a base year of 2015 and represents conditions up to the year 2041. Known committed developments and committed (funded) highway schemes are included within the model’s reference case scenarios (2019, 2026, 2031, 2036 and 2041) to provide the most accurate representation of future year conditions. The Reference Case is used as the starting point for the Baseline scenario, which is described further in Section 3.3 below. A list of the committed highway schemes at the time of commissioning are included in Appendix A.

3.2.2 Within the Reference Case, in addition to the 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 location and maximum land use quantum of the permissible sites are based on Local Authority inputs as at April 2016 in accordance with adopted Local Plans at that time. The take up of permissible developments is determined by the SRTM and is based on the local conditions (the relative ‘attractiveness’ of the development e.g. accessibility).

3.2.3 The level of overall development take-up within the model is 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.

3.2.4 In this study the SRTM Reference Case inputs populate the Do Minimum scenario for all model areas except Eastleigh Borough where the Reference Case inputs have been revised as detailed in Section 3.3 below.

3.3 Eastleigh Borough Completions and Committed Development Land Use Assumptions - Baseline

3.3.1 The starting point in the Baseline for all model data specific to Eastleigh Borough is to remove all the standard Reference Case inputs post 2015. In place of these the actual site completions post 2015 have been added plus hard committed (with Planning Permission) future developments. The total completions and committed development (hard commitments) totals for Eastleigh Borough are summarised in Table 1 below and a breakdown by model zone is provided in Appendix B.

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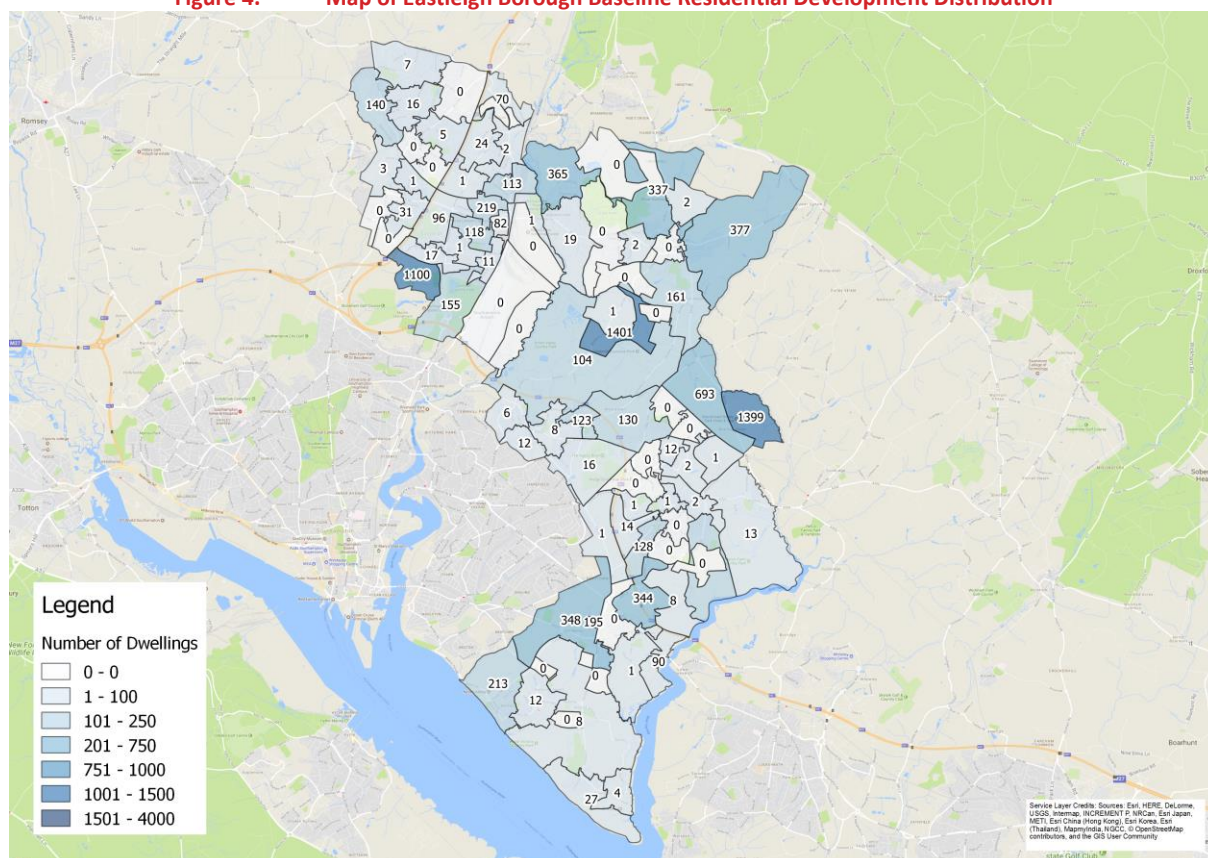
3.3.2 Development outside of Eastleigh Borough remains in accordance with TEMPRO v7.2, as per the Reference Case.

Table 1. Baseline Eastleigh Land Use Assumptions 2015 – 2036 Completions and Committed

FLOORSPACE TYPE	DWELLINGS	SQM
Residential	8,897	
Retail		13,810
Office		10,280
Industrial		11,870
Warehousing		-5,727
Primary and secondary educations		6,441
Leisure		4,448

3.3.3 The map in Figure 4 below shows the spatial distribution of the residential development by SRTM zone.

Figure 4. Map of Eastleigh Borough Baseline Residential Development Distribution



3.4 Eastleigh Borough Committed Highway Infrastructure

3.4.1 In addition to committed development land use and Reference Case infrastructure, the Baseline scenario also includes a series of committed highway infrastructure proposals. Both Hampshire County Council and Highways England confirmed in February 2018 that the following schemes be included in the Baseline in 2036:

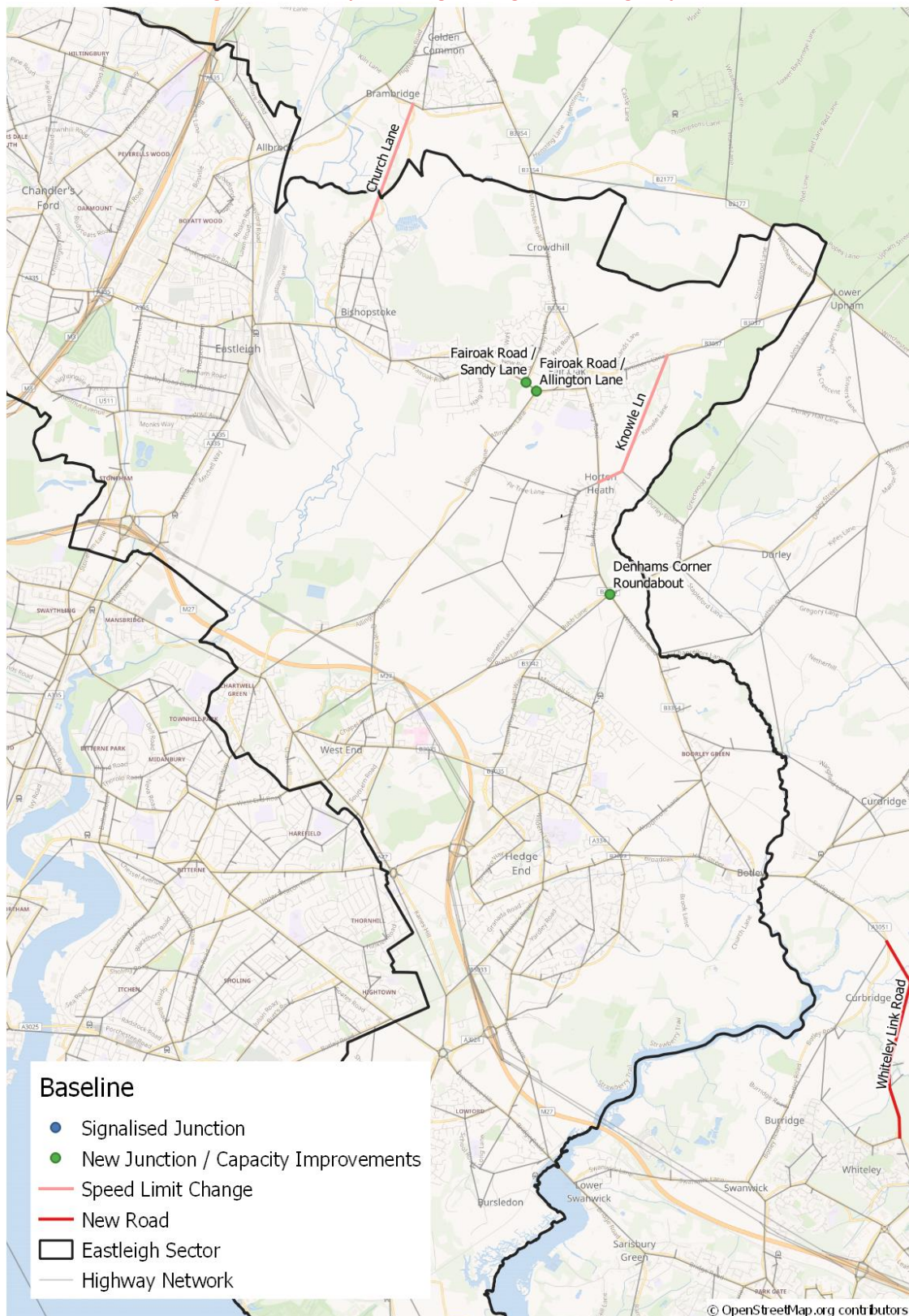
- Fair Oak Road / Sandy Lane / Allington Lane junction improvements – 2 lane approach between the 2 junctions on Fair Oak Road, right turns to Allington Lane and Fair Oak Road have their own lanes, and flares added to right turn out of Sandy Lane and left turn from Fair Oak Road to Sandy Lane
- Knowle Lane and Church Lane adjustments to better reflect rural narrow roads with pinch points
- Maypole roundabout - widening the southbound Woodhouse Lane approach to provide two lanes and the widening of the other approach arms to provide increased flare lengths
- Denhams Corner roundabout improvements – long flares added on Bubb Lane and Botley Road approaches
- M3 Smart Motorways – Winchester (Junction 9) to M27 (Junction 14 / link to M27 J4). Hard shoulders converted to 24/7 running lanes.
- M27 Junction 8 and Windhover roundabout – RIS1 scheme

- M27 Junction 9 – Highways England Growth and Housing fund scheme
- Whiteley Way – New road linking existing section of Whiteley Way to A3051

3.4.2 A summary of each of the schemes designs are shown in Appendix C.

3.4.3 The map in Figure 5 below shows the locations of the Baseline committed highway infrastructure.

Figure 5. Map of Eastleigh Borough Baseline Highway Infrastructure



3.5 Eastleigh Borough Committed Public Transport Infrastructure

3.5.1 At the time of the study, there was no additional public transport mode measures specified to be included in the Baseline SRTM scenario for Eastleigh Borough.

3.6 Eastleigh Borough Active Mode Network Changes

3.6.1 At the time of the study, there was no additional active mode measures specified to be included in the Baseline SRTM scenario for Eastleigh Borough.

4. EASTLEIGH LOCAL PLAN – DO SOMETHING 1 (DS1)

4.1 Introduction

4.1.1 This chapter summarises the planning assumptions applied to the SRTM forecast years that are used in the Eastleigh Local Plan commission, for the Do Something 1 scenario.

4.1.2 The Do Something 1 scenario uses the SGO allocations of sites B and C, but doesn't include a link road in North Bishopstoke and Allbrook.

4.2 Strategic Growth Option B & C

4.2.1 All Local Plan scenarios are built on top of the land use inputs created as part of the Baseline to ensure that all completions and committed development are included in the Do Something scenarios, along with the proposed additional developments per scenario.

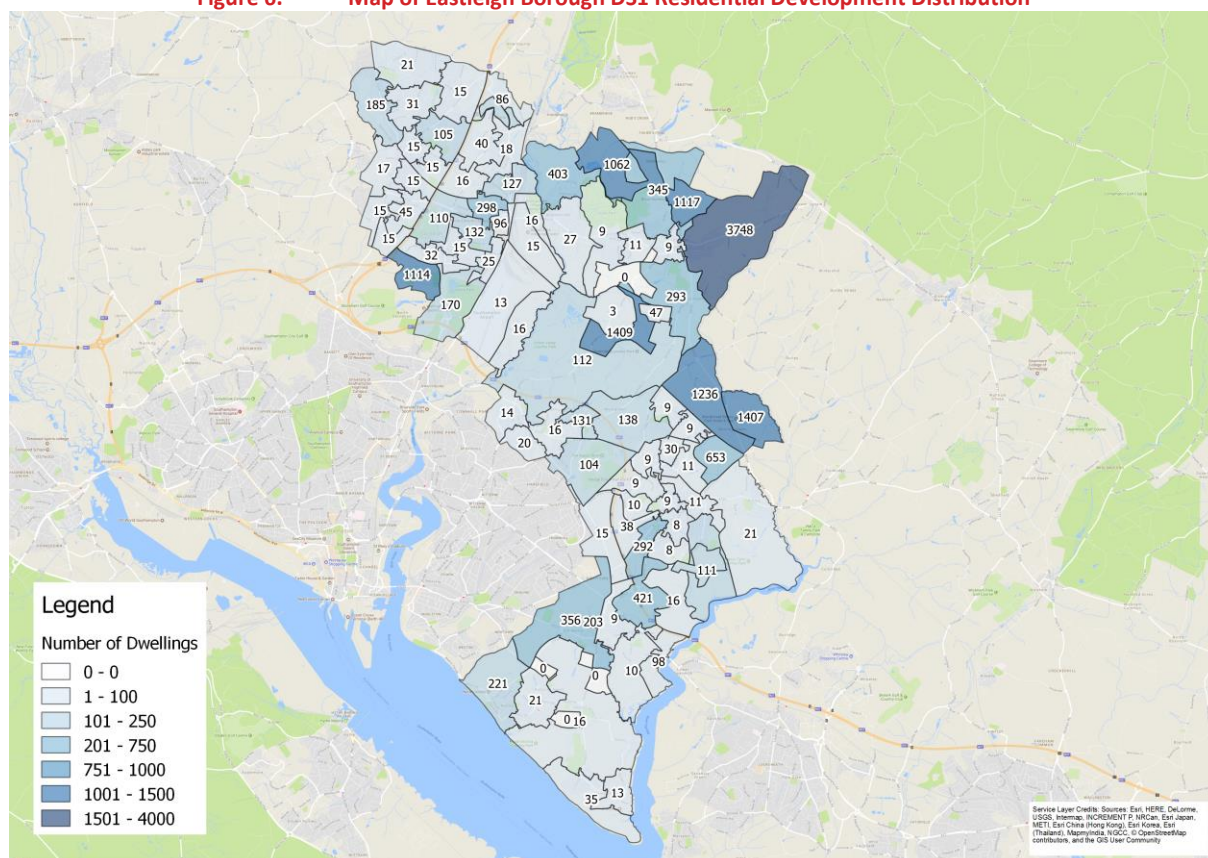
4.2.2 The Strategic Growth Option site of B and C consists of around 5,200 homes at North Bishopstoke / North East Fair Oak. The Local Plan proposes a minimum of 5,200 dwellings at the SGO sites of B and C. A figure of 5,406 dwellings have been included in the transport model to create a margin for flexibility. The land use breakdown for the Local Plan including the SGO sites of B&C are shown below in Table 2. Other smaller greenfield sites and infill urban development are included within these assumptions. A breakdown by model zone is provided in Appendix D.

Table 2. Eastleigh Local Plan SGO B&C – Additional Land Use Assumptions 2015 - 2036

FLOORSPACE TYPE	DWELLINGS	SQM
Residential	8,533	
Retail		11,779
Office		81,200
Industrial		29,800
Warehousing		27,000
Primary and secondary education		20,201
Leisure		400

4.2.3 The map in Figure 6 below shows the spatial distribution of the residential development by SRTM zone.

Figure 6. Map of Eastleigh Borough DS1 Residential Development Distribution



4.3 Highway Network Changes – Do Something 1

4.3.1 In addition to Reference Case schemes and schemes included in the Baseline, DS1 includes the following schemes:

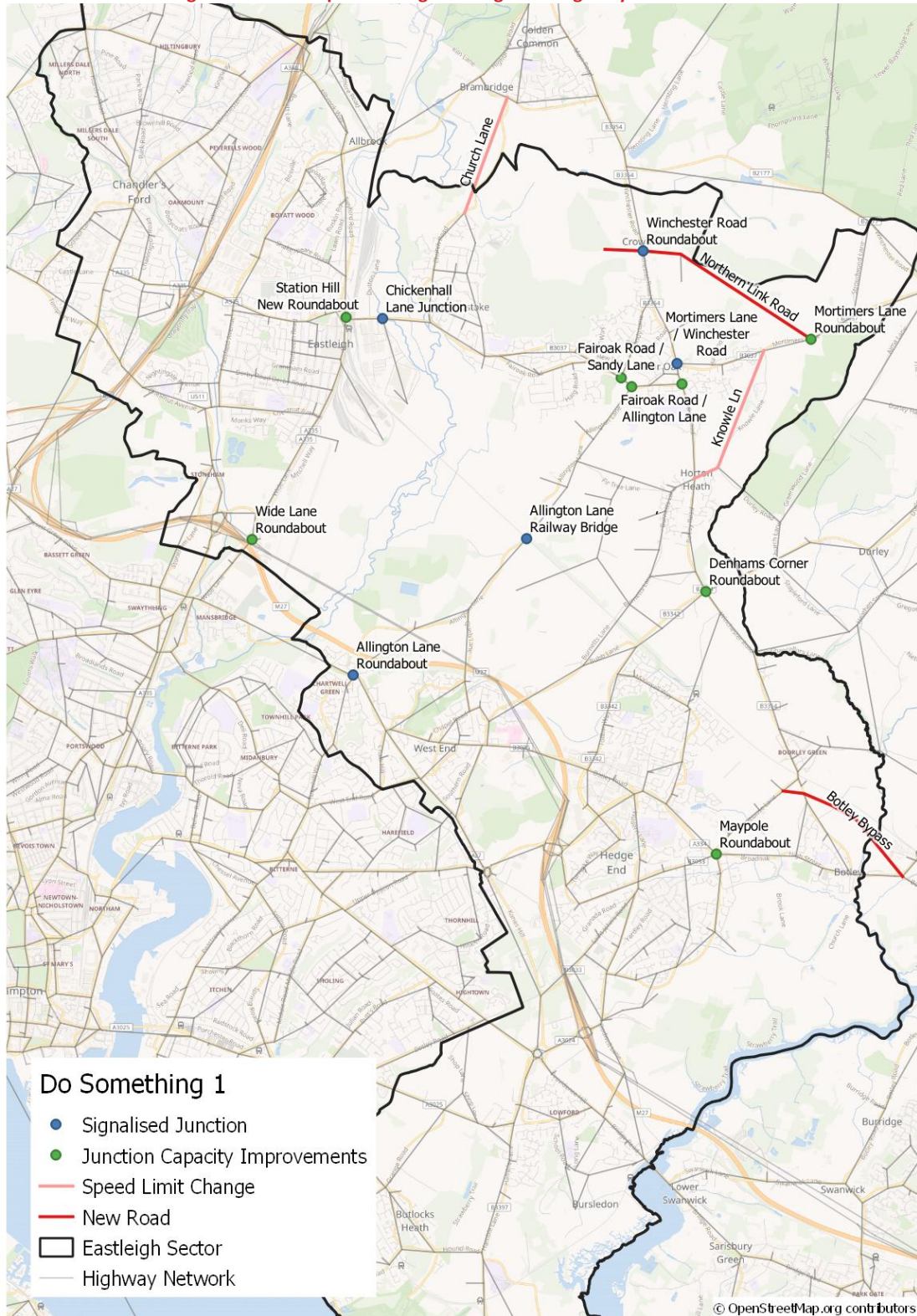
- Link road between Mortimers Lane and Winchester Road at Crowdhill – 30mph speed limit
- Botley Road / Eastleigh Road improvements – flared approach from Botley Road north
- Winchester Road / Mortimers Lane junction changed to signals (improvements included as identified as part of the DS3 test)
- Denhams Corner roundabout further improvements – improved Botley Road southbound approach to include a 1 lane plus a 2 lane flare and improved Winchester Road northbound approach to a 2 lane approach (improvements included as identified as part of the DS3 test)
- Maypole Roundabout improvements – B3033 Lower Northam Road approach increased to 1 lane and long flare, A334 Grange Road approach increased to 1 lane and long flare, Woodhouse Lane approach increased to 1 lane plus a 2 lane flare, A334 Broad Oak approach increased to 1 lane plus a 2 lane flare and Kings Copse Avenue approach increased to 1 lane plus a long flare (improvements included as identified as part of the DS3 test)

- Botley Bypass – junction of Botley Bypass / A334 / A3051, the westbound approach from A334 (over the railway line) increased to 2 lane plus a 2 lane flare (included further improvements as identified as part of the DS3 test)
- Eastleigh town centre Station Hill / Romsey Road roundabout improvements – double roundabout
- Bishopstoke Road / Chickenhall Lane roundabout – signalised junction
- Allington Lane / A27 / Townhill Way roundabout – rebuild of the junction as a signalised crossroads
- Allington Lane rail bridge – signalised node added to represent a shuttle on the bridge over the railway
- A3024 Bitterne Road corridor improvements into Southampton

4.3.2 All designs for the schemes are shown in Appendix E.

4.3.3 The map in Figure 7 below shows the locations of the DS1 committed highway infrastructure.

Figure 7. Map of Eastleigh Borough DS1 Highway Infrastructure



4.4 Public Transport Network Changes – DS1

- 4.4.1 In the DS1 scenario, the existing Bluestar 2 services clockwise loop around Fair Oak has been enlarged so that the service runs via new roads east of Winchester Road, as shown below in Figure 8.

Figure 8. DS1 Bus Route Changes – Bluestar 2 Extension



4.5 Active Mode Network Changes – DS1

- 4.5.1 At the time of the study, there was no additional active mode measures specified to be included in the Baseline for Eastleigh Borough.

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5. EASTLEIGH LOCAL PLAN – DO SOMETHING 2 (DS2)

5.1 Introduction

5.1.1 This chapter summarises the planning assumptions applied to the SRTM forecast years that are used in the Eastleigh Local Plan commission, for the Do Something 2 scenario.

5.1.2 The Do Something 2 scenario uses the SGO allocations of sites B and C, and is the Council's draft Local Plan option. This scenario also includes the intermediate level of off-site infrastructure interventions.

5.2 Strategic Growth Option B & C

5.2.1 All Local Plan scenarios are built on top of the land use inputs created as part of the Baseline to ensure that all completions and committed development are included in the Do Something scenarios, along with the proposed additional developments per scenario.

5.2.2 The Strategic Growth Option site of B and C consists of around 5,200 homes at North Bishopstoke / North East Fair Oak, and is exactly the same as that used in DS1, shown in Table 2. The Local Plan proposes a minimum of 5,200 dwellings at the SGO sites of B and C. A figure of 5,406 dwellings have been included in the transport model to create a margin for flexibility.

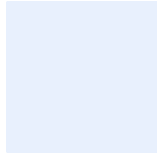
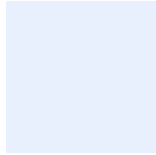
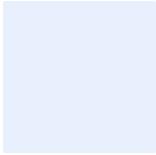
5.3 Highway Network Changes – Do Something 2

5.3.1 In addition to Reference Case schemes and schemes included in the Baseline, DS2 includes the following schemes:

- Northern Link Road (North Bishopstoke Bypass and Allbrook Hill Relief Road)
- M3 Junction 12 – widening A335 Allbrook Way northbound from Pitmore Road to 2 lanes, 3 lane entry from A335 northbound and 200m long 2 lane section on Winchester Road southbound approach plus 2 roundabout entry lanes
- Allbrook Way A335 / Allbrook Hill Relief Road new roundabout – enhanced design including a freeflow ahead lane on the A335 Allbrook Way northbound
- Central Allbrook junction – changed from a roundabout to a priority junction with a flare added to the right turn movement from Highbridge Road to Pitmore Road
- Highbridge Road / Northern Link Road junction – signalised junction
- Botley Road / Eastleigh Road improvements – flared approach from Botley Road north
- Winchester Road / Mortimers Lane junction – flares added for left turn movement exiting Winchester Road and to right turn movement entering Winchester Road from Mortimers Lane
- Botley Bypass and related improvements to Woodhouse Lane.
- A3024 Bitterne Road corridor improvements into Southampton

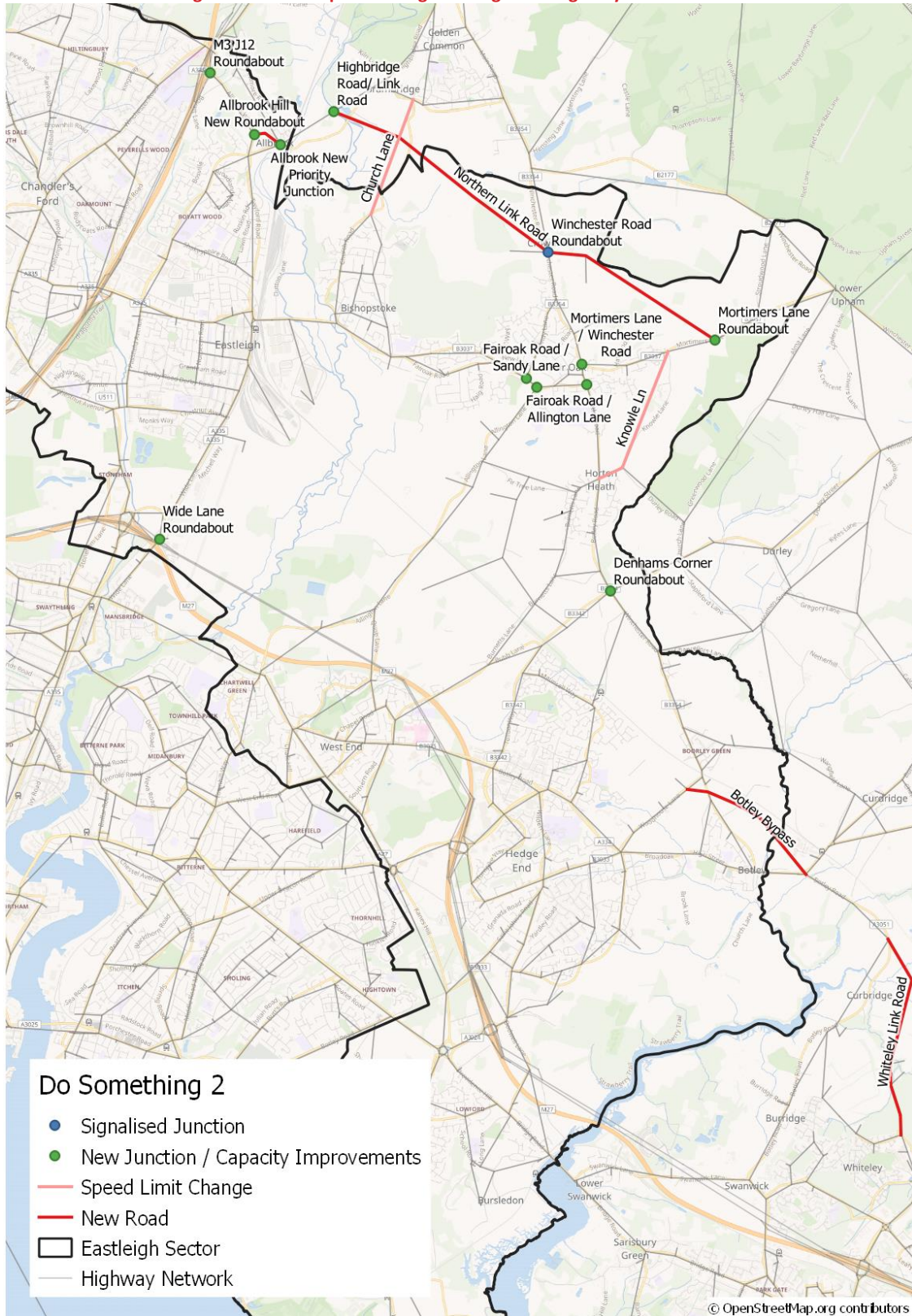
5.3.2 All designs for the schemes are shown in Appendix F.

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5.3.3 The map in Figure 9 below shows the DS2 committed highway infrastructure locations.

Figure 9. Map of Eastleigh Borough DS2 Highway Infrastructure



5.4 Public Transport Network Changes – DS2

5.4.1 In the DS2 scenario, as per the DS1 scenario, the existing Bluestar 2 services clockwise loop around Fair Oak has been enlarged so that the service runs via new roads east of Winchester Road. In addition, a new half hourly bus service has also been added which operates from West of Horton Heath running eastwards via Mortimers Lane then turning north and running through the Northern Link Road, which it would follow across Winchester Road west, then north-west to Highbridge, taking Highbridge Road to Allbrook then via the new relief road to Allbrook Way, then continuing south to Eastleigh bus station via Twyford Road. This route would then continue to Southampton. Both routes are shown in Figure 10 below.

Figure 10. DS2/DS3 Bus Route Changes – Bluestar 2 extension and a new half-hourly bus service



5.5 Active Mode Network Changes – DS2

5.5.1 At the time of the study, there was no additional active mode measures specified to be included in the Baseline for Eastleigh Borough.

6. EASTLEIGH LOCAL PLAN – DO SOMETHING 3 (DS3)

6.1 Introduction

6.1.1 This chapter summarises the planning assumptions applied to the SRTM forecast years that are used in the Eastleigh Local Plan commission, for the Do Something 3 scenario.

6.1.2 The Do Something 3 scenario uses the SGO allocations of sites B and C, and is the Council’s draft Local Plan option. This scenario also includes the high level of off-site infrastructure interventions (“Do More”).

6.2 Strategic Growth Option B & C

6.2.1 All Local Plan scenarios are built on top of the land use inputs created as part of the Baseline to ensure that all completions and committed development are included in the Do Something scenarios, along with the proposed additional developments per scenario.

6.2.2 The Strategic Growth Option site of B and C consists of around 5,200 homes at North Bishopstoke / North East Fair Oak, and is exactly the same as that used in DS1, shown in Table 2. The Local Plan proposes a minimum of 5,200 dwellings at the SGO sites of B and C. A figure of 5,406 dwellings have been included in the transport model to create a margin for flexibility.

6.3 Highway Network Changes – Do Something 3

6.3.1 The Do Something 3 network builds off the DS2 network, and includes the following schemes, or enhancements to DS2 schemes:

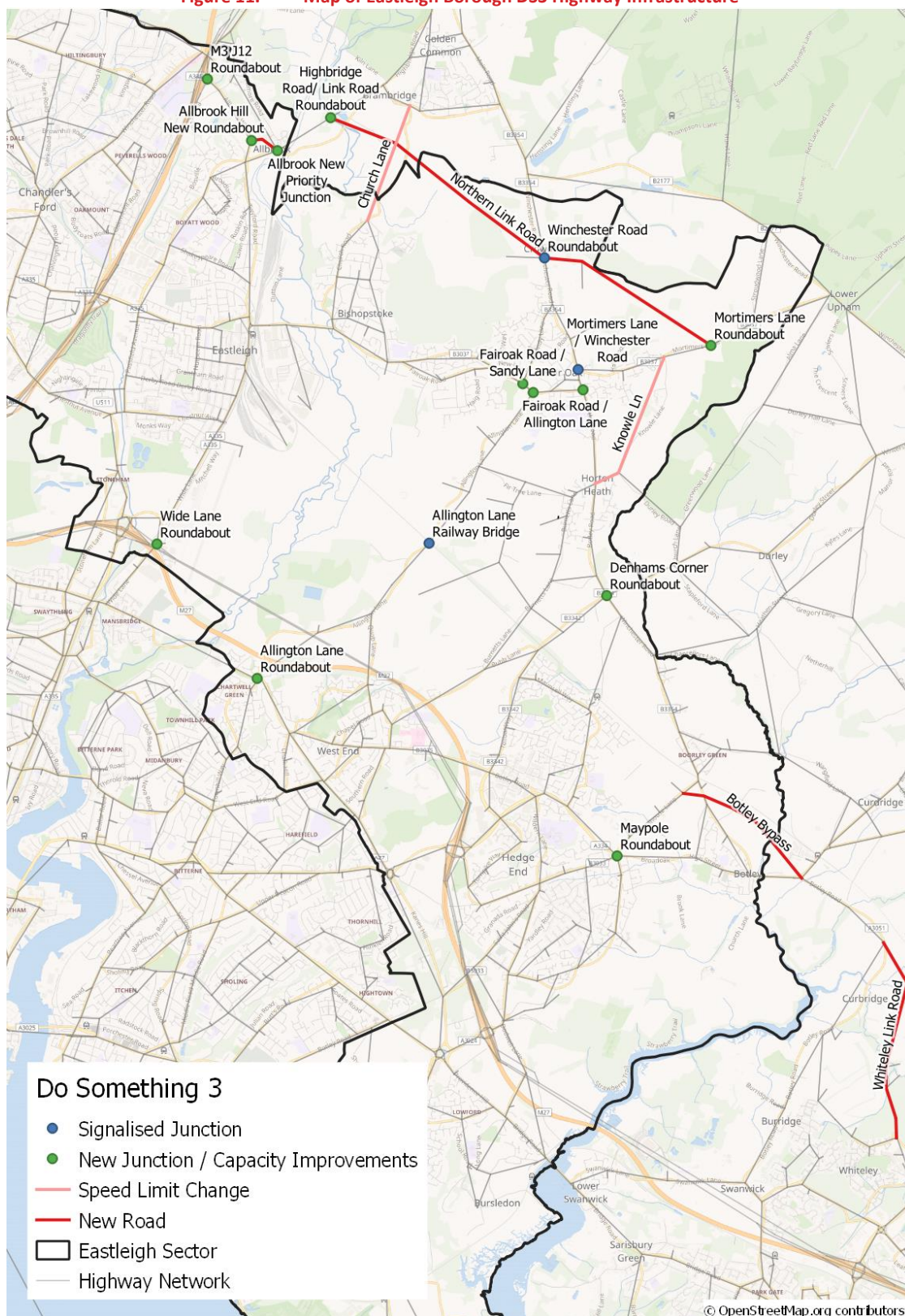
- M3 J12 – 3 lanes entry Winchester Road southbound from junction with Otterbourne Hill, provision of a short free-flow left hand turn lane (avoiding the roundabout) for traffic turning to access M3 southbound form A335 Allbrook Way, and northbound off-slip improved to include a long flare at the roundabout
- Central Allbrook junction – also include a westbound only slip from Highbridge Road onto Allbrook Hill
- Highbridge Road / Northern Link Road junction – roundabout
- Winchester Road / Mortimers Lane junction – changed to signals
- Denhams Corner roundabout further improvements – improved Botley Road southbound approach to include a 1 lane plus a 2 lane flare and improved Winchester Road northbound approach to a 2 lane approach
- Maypole Roundabout improvements – B3033 Lower Northam Road approach increased to 1 lane and long flare, A334 Grange Road approach increased to 1 lane and long flare, Woodhouse Lane approach increased to 1 lane plus a 2 lane flare, A334 Broad Oak approach increased to 1 lane plus a 2 lane flare and Kings Copse Avenue approach increased to 1 lane plus a long flare
- Botley Bypass – junction of Botley Bypass / A334 / A3051, the westbound approach from A334 (over the railway line) increased to 2 lane plus a 2 lane flare

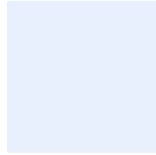
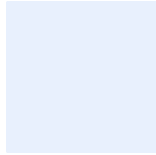
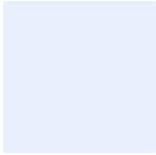
- Allington Lane / A27 / Townhill Way roundabout – longer flares and improved geometry, which include A27 Swaythling Road eastbound approach increased to 1 lane plus a long flare, Allington Lane southbound approach increased to 1 lane and a flare, A27 Swaythling Road westbound approach increased to 1 lane and a long flare and Townhill Way northbound approach increased to 1 lane and a long flare
- Allington Lane rail bridge – signalised node added to represent a shuttle on the bridge over the railway

6.3.2 All designs for the schemes are shown in Appendix G.

6.3.3 The map in Figure 11 below shows the DS3 committed highway infrastructure locations.

Figure 11. Map of Eastleigh Borough DS3 Highway Infrastructure





6.4 Public Transport Network Changes – DS3

6.4.1 The changes to the bus routes are exactly the same in DS3 as shown in DS2.

6.5 Active Mode Network Changes – DS3

6.5.1 At the time of the study, there was no additional active mode measures specified to be included in the Baseline for Eastleigh Borough.

7. EASTLEIGH LOCAL PLAN – DO SOMETHING 4 (DS4)

7.1 Introduction

7.1.1 This chapter summarises the planning assumptions applied to the SRTM forecast years that are used in the Eastleigh Local Plan commission, for the Do Something 4 scenario.

7.1.2 The Do Something 4 scenario uses the SGO allocations of site C, without the Option B site and without the link road proposals associated with Option B.

7.2 Strategic Growth Option C

7.2.1 All Local Plan scenarios are built on top of the land use inputs created as part of the Baseline to ensure that all completions and committed development are included in the Do Something scenarios, along with the proposed additional developments per scenario.

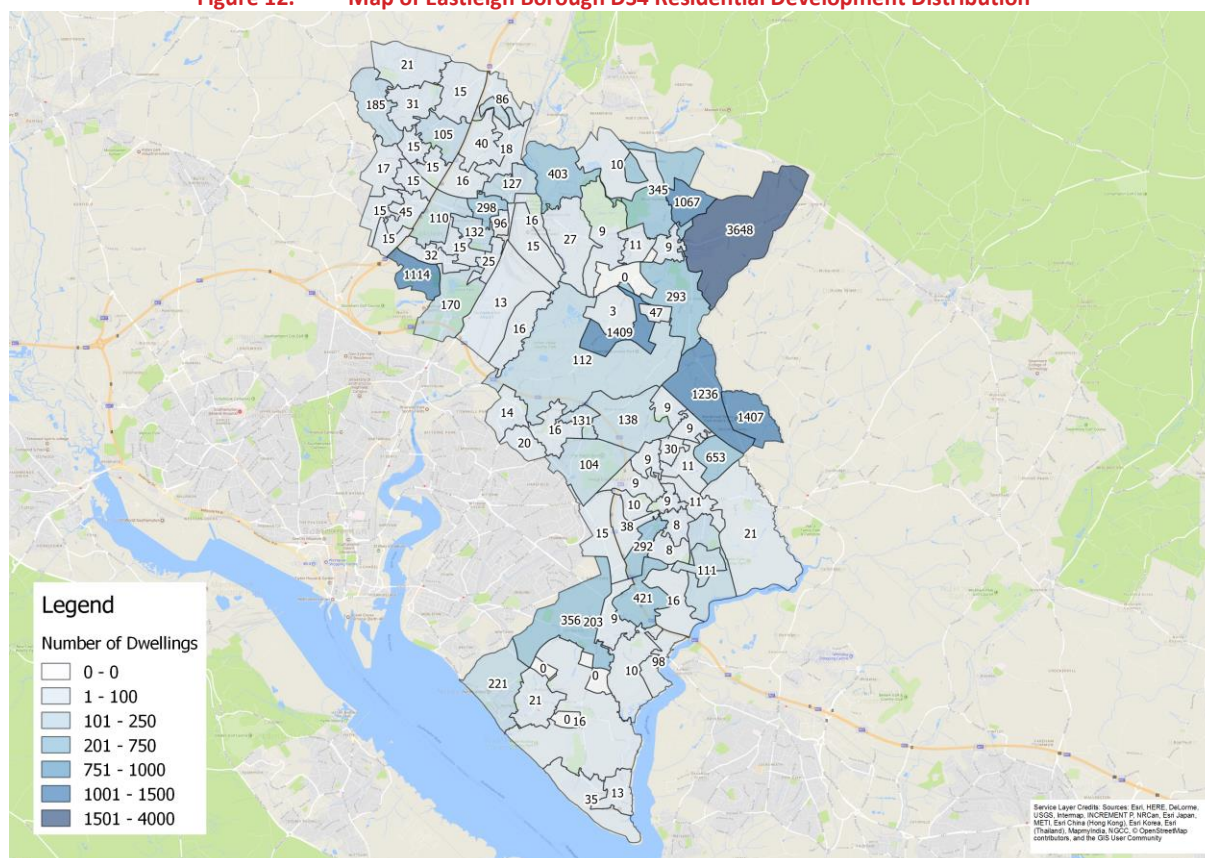
7.2.2 The Strategic Growth Option site of C consists of around 4,204 homes North of Fair Oak. The land use breakdown for the Local Plan including SGO C are shown below in Table 3. Other smaller greenfield sites and infill urban development are included within these assumptions. A breakdown by model zone is provided in Appendix H.

Table 3. Eastleigh Local Plan SGO C – Additional Land Use Assumptions 2015 - 2036

FLOORSPACE TYPE	DWELLINGS	SQM
Residential	7,331	
Retail		10,779
Office		76,617
Industrial		29,800
Warehousing		27,000
Primary and secondary education		16,634
Leisure		400

7.2.3 The map in Figure 12 below shows the spatial distribution of the residential development by SRTM zone.

Figure 12. Map of Eastleigh Borough DS4 Residential Development Distribution



7.3 Highway Network Changes – Do Something 4

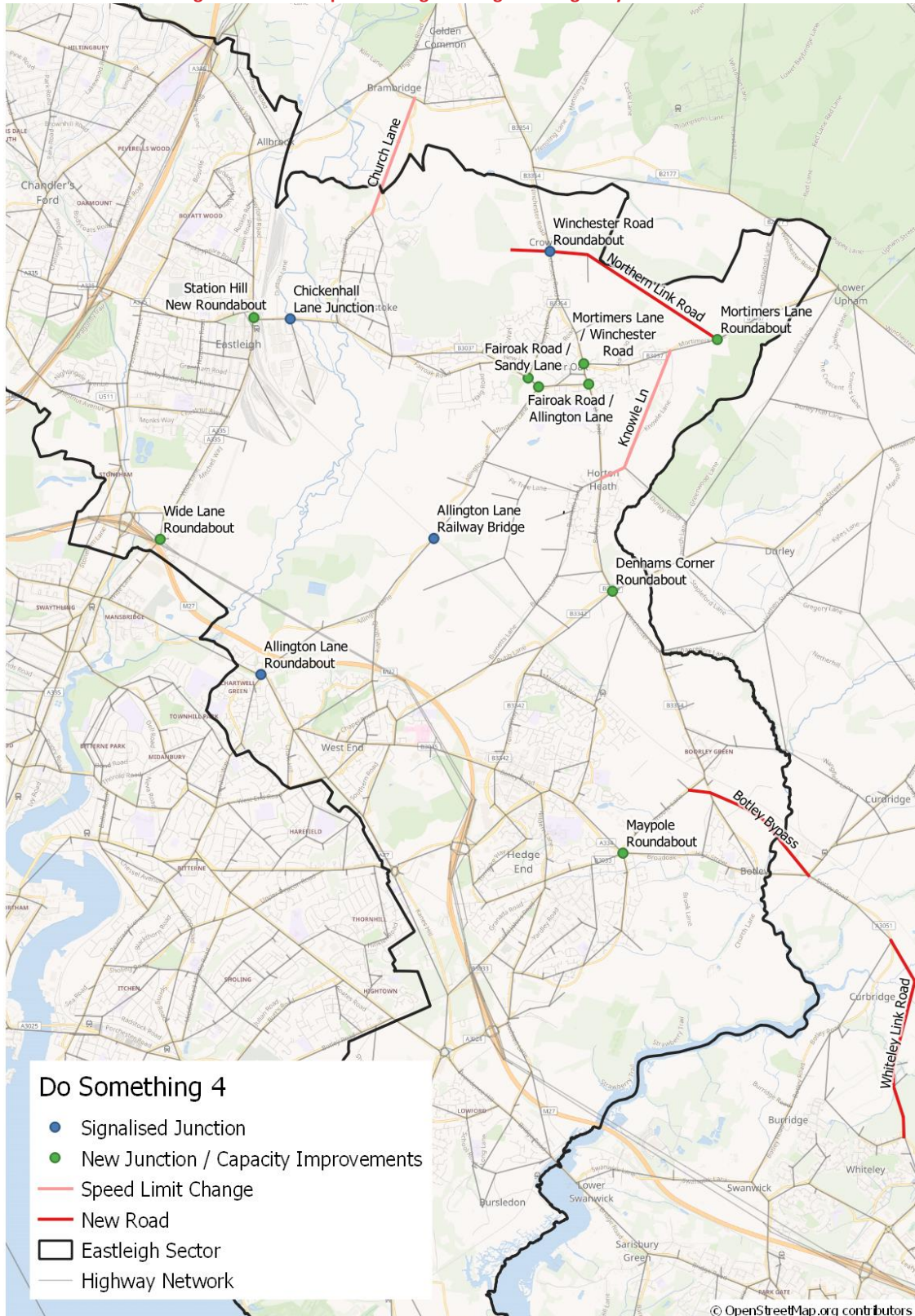
7.3.1 In addition to Reference Case schemes and schemes included in the Baseline, DS4 includes the following schemes:

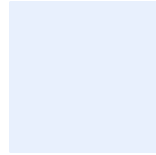
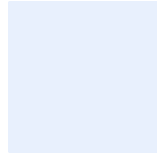
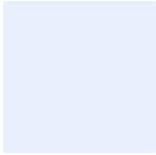
- Link road between Mortimers Lane and Winchester Road at Crowdhill – 30mph speed limit
- Botley Road / Eastleigh Road improvements – flared approach from Botley Road north
- Winchester Road / Mortimers Lane junction – flares added for left turn movement exiting Winchester Road and to right turn movement entering Winchester Road from Mortimers Lane
- Denhams Corner roundabout further improvements – improvements included as identified as part of the DS3 test
- Maypole roundabout improvements – improvements included as identified as part of the DS3 test
- Botley Bypass and related improvements to Woodhouse Lane. Also included further improvements as identified as part of the DS3 test
- Eastleigh town centre Station Hill / Romsey Road roundabout improvements – double roundabout
- Bishopstoke Road / Chickenhall Lane roundabout – signalised junction

- Allington Lane / A27 / Townhill Way roundabout – rebuild of the junction as a signalised crossroads
- Allington Lane rail bridge – signalised node added to represent a shuttle on the bridge over the railway
- A3024 Bitterne Road corridor improvements into Southampton

7.3.2 The map in Figure 13 below shows the DS4 committed highway infrastructure locations.

Figure 13. Map of Eastleigh Borough DS4 Highway Infrastructure





7.4 Public Transport Network Changes – DS4

7.4.1 In DS4, the bus route changes are the same as in DS1.

7.5 Active Mode Network Changes – DS4

7.5.1 At the time of the study, there was no additional active mode measures specified to be included in the Baseline for Eastleigh Borough.

8. EASTLEIGH LOCAL PLAN – DO SOMETHING 5 (DS5)

8.1 Introduction

8.1.1 This chapter summarises the planning assumptions applied to the SRTM forecast years that are used in the Eastleigh Local Plan commission, for the Do Something 5 scenario.

8.1.2 The Do Something 5 scenario uses the SGO allocations of site D, an assessment of an alternative spatial option South of Bishopstoke.

8.2 Strategic Growth Option D

8.2.1 All Local Plan scenarios are built on top of the land use inputs created as part of the Baseline to ensure that all completions and committed development are included in the Do Something scenarios, along with the proposed additional developments per scenario.

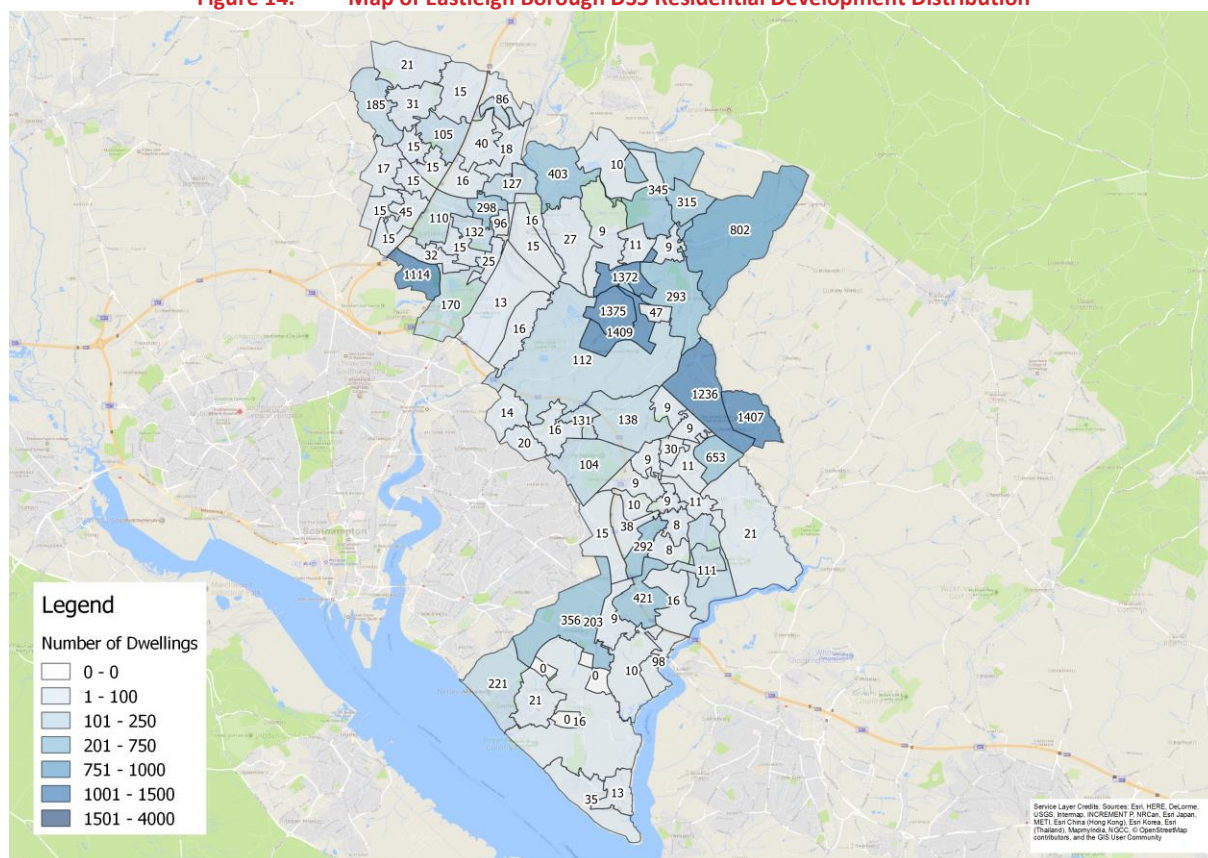
8.2.2 The Strategic Growth Option site of D consists of around 2,744 homes at the South of Bishopstoke Site, plus a partial development of 606 units at the Option C site North of Fair Oak to make up the balance of the housing delivery requirement. The land use breakdown for the Local Plan including SGO D are shown below in Table 4. Other smaller greenfield sites and infill urban development are included within these assumptions. A breakdown by model zone is provided in Appendix I.

Table 4. Eastleigh Local Plan SGO D – Additional Land Use Assumptions 2015 - 2036

FLOORSPACE TYPE	DWELLINGS	SQM
Residential	6,477	
Retail		10,579
Office		81,200
Industrial		29,800
Warehousing		27,000
Primary and secondary education		11,275
Leisure		400

8.2.3 The map in Figure 14 below shows the spatial distribution of the residential development by SRTM zone.

Figure 14. Map of Eastleigh Borough DS5 Residential Development Distribution



8.3 Highway Network Changes – Do Something 5

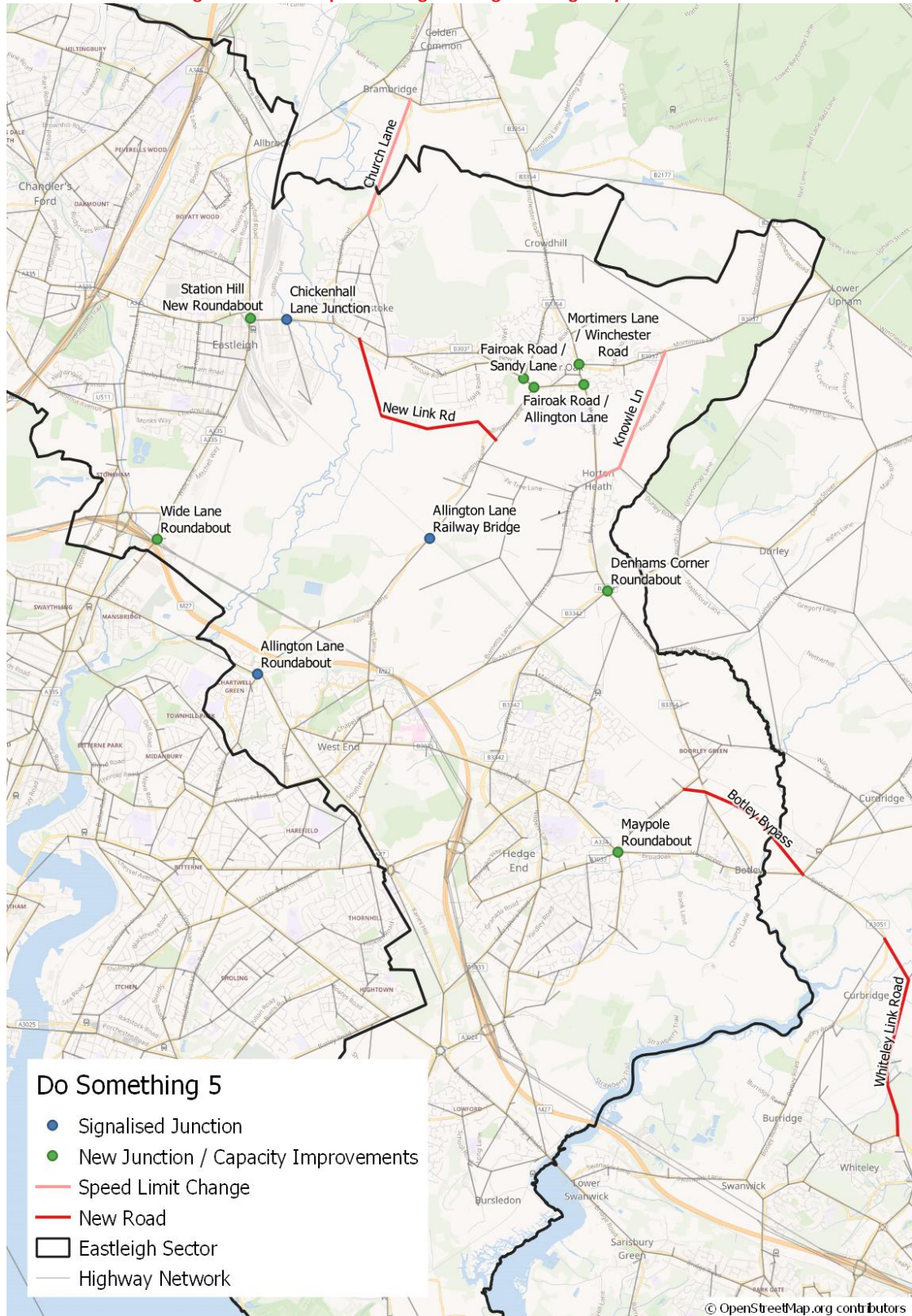
8.3.1 In addition to Reference Case schemes and schemes included in the Baseline, DS5 includes the following schemes:

- Botley Road / Eastleigh Road improvements – flared approach from Botley Road north
- Winchester Road / Mortimers Lane junction – flares added for left turn movement exiting Winchester Road and to right turn movement entering Winchester Road from Mortimers Lane
- Denhams Corner roundabout further improvements – improvements included as identified as part of the DS3 test
- Maypole roundabout improvements – improvements included as identified as part of the DS3 test
- Botley Bypass and related improvements to Woodhouse Lane. Also included further improvements as identified as part of the DS3 test
- Eastleigh town centre Station Hill / Romsey Road roundabout improvements – double roundabout
- Bishopstoke Road / Chickenhall Lane roundabout – signalised junction
- Allington Lane / A27 / Townhill Way roundabout – rebuild of the junction as a signalised crossroads

- Allington Lane rail bridge – signalised node added to represent a shuttle on the bridge over the railway
- A3024 Bitterne Road corridor improvements into Southampton
- New link road from Option D south of Bishopstoke to join Bishopstoke opposite Guest Road with a signalised junction

8.3.2 The map in Figure 15 below shows the DS5 committed highway infrastructure locations.

Figure 15. Map of Eastleigh Borough DS5 Highway Infrastructure



8.4 Public Transport Network Changes – DS5

8.4.1 For the DS5 scenario, the development would require a new bus service which would utilise Bishopstoke Road to just east of the junction with Riverside, before diverting south-east towards West Horton Farm onto the new access into the development from Bishopstoke Road, and then cross Allington Lane before connecting into the Fir Tree Lane and West of Horton Heath housing developments via a one way loop then serving the southern part of SGO D via a one way loop. This new route is also extended at the eastern end at Horton Heath, and extends south to Southampton, as shown below in Figure 16.

Figure 16. DS5 Bus Route Changes – New half hourly bus service



8.5 Active Mode Network Changes – DS5

8.5.1 At the time of the study, there was no additional active mode measures specified to be included in the Baseline for Eastleigh Borough.

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9. EASTLEIGH LOCAL PLAN – DO SOMETHING 6 (DS6)

9.1 Introduction

9.1.1 This chapter summarises the planning assumptions applied to the SRTM forecast years that are used in the Eastleigh Local Plan commission, for the Do Something 6 scenario.

9.1.2 The Do Something 6 scenario uses the SGO allocations of site E, an assessment of an alternative spatial option at Allington Lane.

9.2 Strategic Growth Option E

9.2.1 All Local Plan scenarios are built on top of the land use inputs created as part of the Baseline to ensure that all completions and committed development are included in the Do Something scenarios, along with the proposed additional developments per scenario.

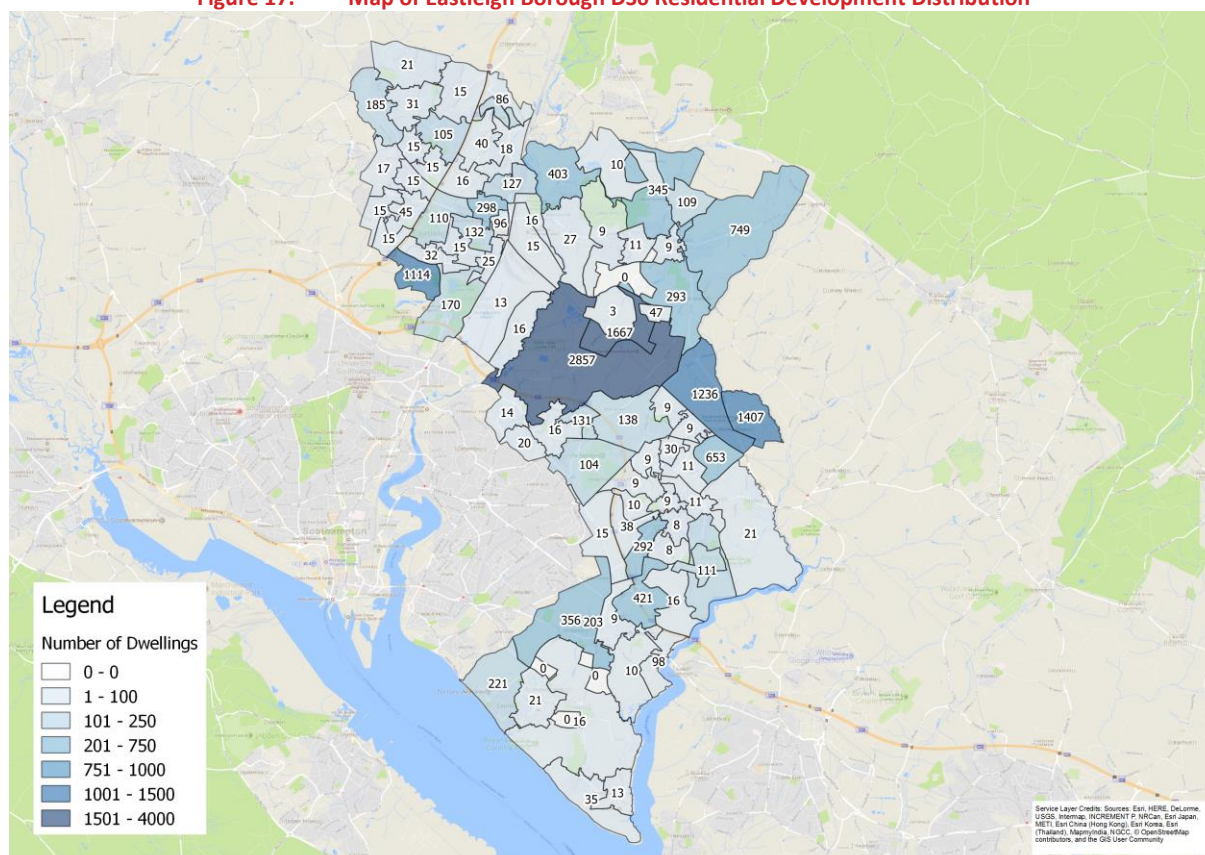
9.2.2 The Strategic Growth Option site of E consists of around 3,003 dwellings at the Allington Lane Site (between the Fareham – Eastleigh Railway Line and the M27 north of West End), plus a partial development of 347 units at the Option C site North of Fair Oak to make up the balance of the housing delivery requirement. The land use breakdown for the Local Plan including SGO E are shown below in Table 5. Other smaller greenfield sites and infill urban development are included within these assumptions. A breakdown by model zone is provided in Appendix J.

Table 5. Eastleigh Local Plan SGO E – Additional Land Use Assumptions 2015 - 2036

FLOORSPACE TYPE	DWELLINGS	SQM
Residential	6,477	
Retail		6,996
Office		81,200
Industrial		29,800
Warehousing		27,000
Primary and secondary education		11,884
Leisure		400

9.2.3 The map in Figure 17 below shows the spatial distribution of the residential development by SRTM zone.

Figure 17. Map of Eastleigh Borough DS6 Residential Development Distribution



9.3 Highway Network Changes – Do Something 6

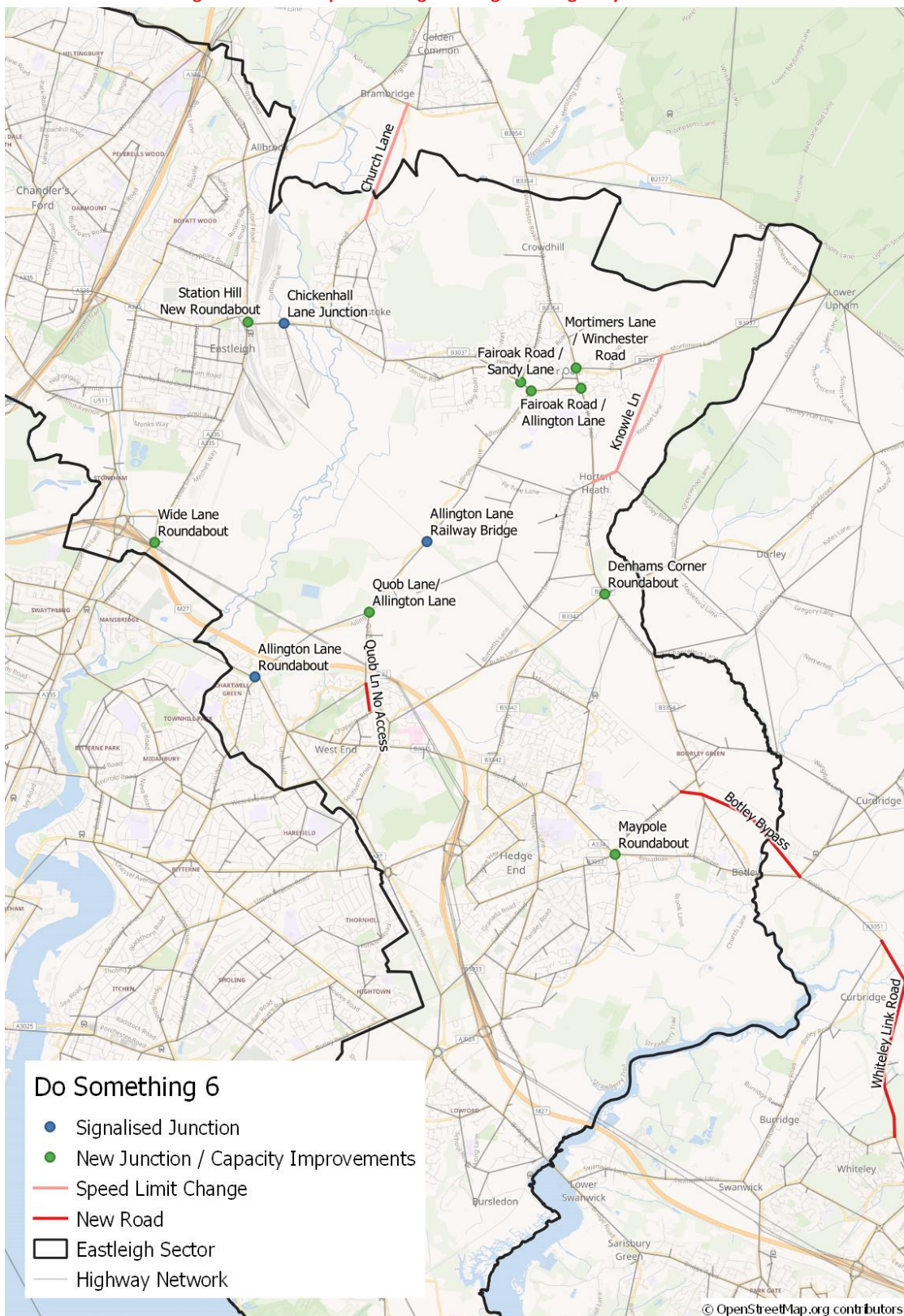
9.3.1 In addition to Reference Case schemes and schemes included in the Baseline, DS6 includes the following schemes:

- Botley Road / Eastleigh Road improvements – flared approach from Botley Road north
- Winchester Road / Mortimers Lane junction – flares added for left turn movement exiting Winchester Road and to right turn movement entering Winchester Road from Mortimers Lane
- Denhams Corner roundabout further improvements – improvements included as identified as part of the DS3 test
- Maypole roundabout improvements – improvements included as identified as part of the DS3 test
- Botley Bypass and related improvements to Woodhouse Lane. Also included further improvements as identified as part of the DS3 test
- Eastleigh town centre Station Hill / Romsey Road roundabout improvements – double roundabout
- Bishopstoke Road / Chickenhall Lane roundabout – signalised junction
- Allington Lane / A27 / Townhill Way roundabout – rebuild of the junction as a signalised crossroads

- Allington Lane rail bridge – signalised node added to represent a shuttle on the bridge over the railway
- Roundabout at the north end of Quobb Lane where this road meets Allington Lane, to facilitate access into the development whilst reducing delay to northbound traffic using Allington Lane
- Road closure to vehicular traffic on Quob Lane immediately south of the roundabout with Barbe Baker Avenue / Quob Farm Close
- A3024 Bitterne Road corridor improvements into Southampton

9.3.2 The map in Figure 18 below shows the DS6 committed highway infrastructure locations.

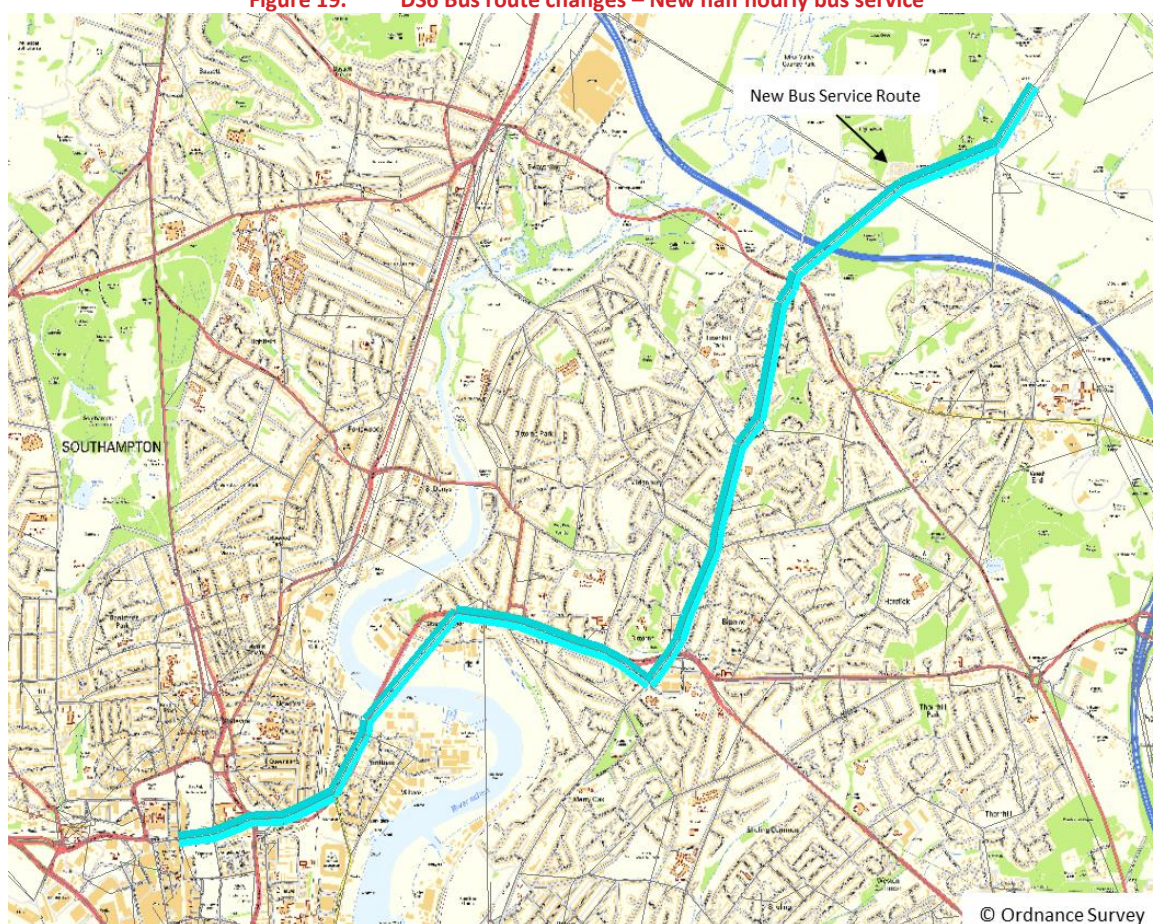
Figure 18. Map of Eastleigh Borough DS6 Highway Infrastructure



9.4 Public Transport Network Changes – DS6

9.4.1 For DS6, to connect the development to Southampton, a new half-hourly service is provided, as shown below in Figure 19.

Figure 19. DS6 Bus route changes – New half hourly bus service



9.5 Active Mode Network Changes – DS6

9.5.1 At the time of the study, there was no additional active mode measures specified to be included in the Baseline for Eastleigh Borough.

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10. EASTLEIGH LOCAL PLAN – DO SOMETHING 7 (DS7)

10.1 Introduction

10.1.1 This chapter summarises the planning assumptions applied to the SRTM forecast years that are used in the Eastleigh Local Plan commission, for the Do Something 7 scenario.

10.1.2 The Do Something 7 scenario uses the SGO allocations of site D and a small part of E.

10.2 Strategic Growth Options D and part of E

10.2.1 All Local Plan scenarios are built on top of the land use inputs created as part of the Baseline to ensure that all completions and committed development are included in the Do Something scenarios, along with the proposed additional developments per scenario.

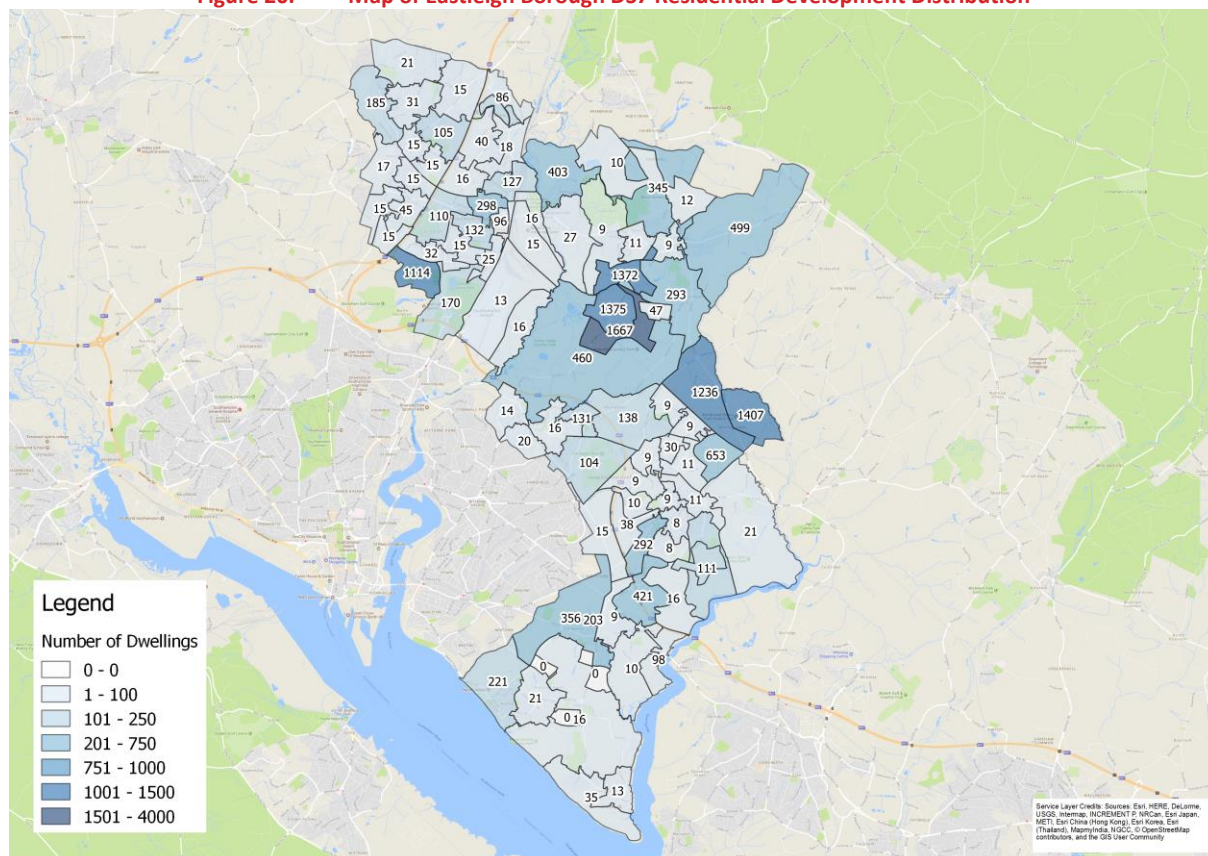
10.2.2 The Strategic Growth Option site in the DS7 scenario consists of a combination of the two sites, with 2,744 homes in the Option D site and 606 homes within the Option E site. The land use breakdown for the Local Plan including this SGO option are shown below in Table 6. Other smaller greenfield sites and infill urban development are included within these assumptions. A breakdown by model zone is provided in Appendix K.

Table 6. Eastleigh Local Plan SGO D and E – Additional Land Use Assumptions 2015 - 2036

FLOORSPACE TYPE	DWELLINGS	SQM
Residential	6,477	
Retail		10,079
Office		81,200
Industrial		29,800
Warehousing		27,000
Primary and secondary education		11,884
Leisure		400

10.2.3 The map in Figure 20 below shows the spatial distribution of the residential development by SRTM zone.

Figure 20. Map of Eastleigh Borough DS7 Residential Development Distribution



10.3 Highway Network Changes – Do Something 7

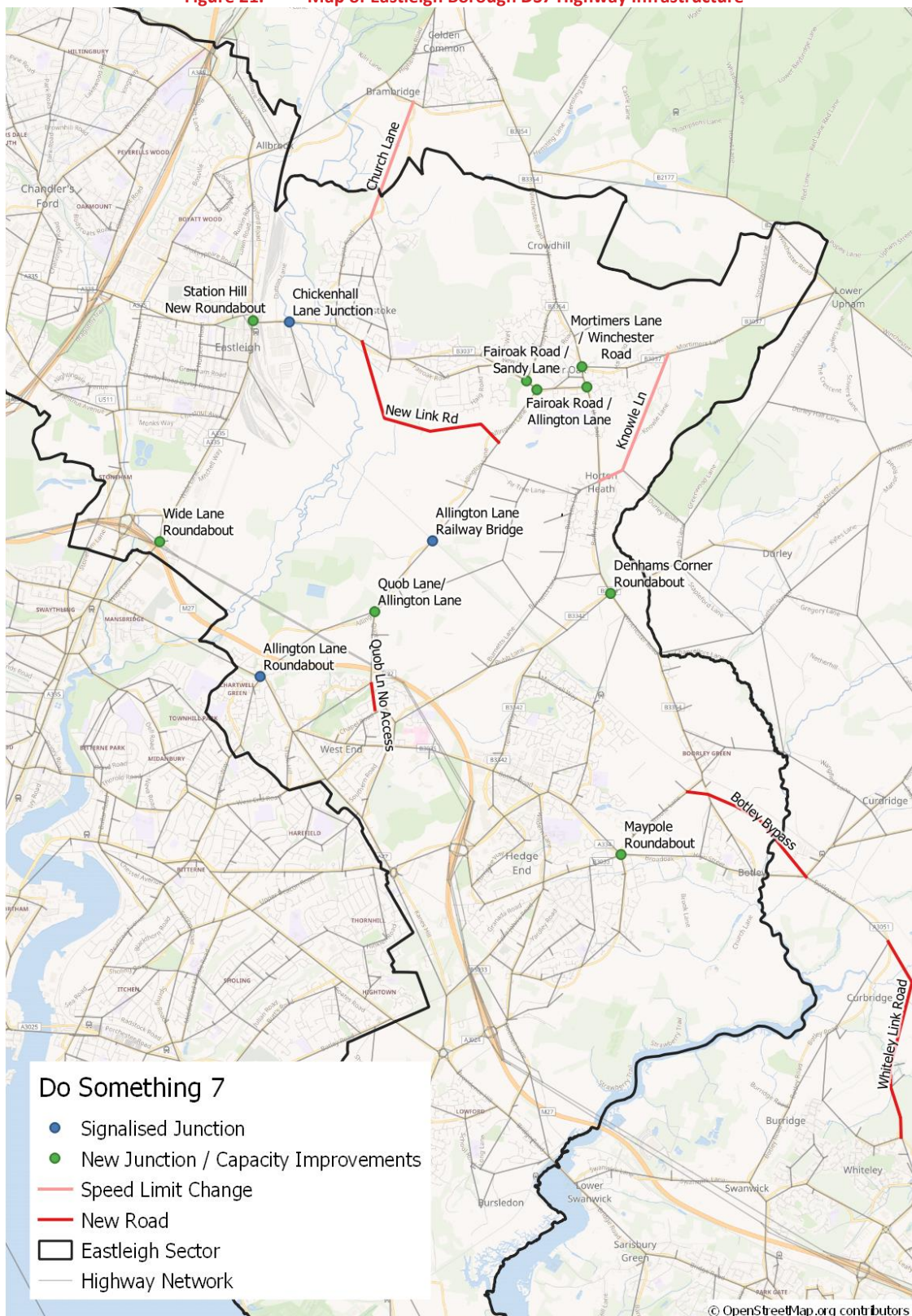
10.3.1 In addition to Reference Case schemes and schemes included in the Baseline, DS7 includes the following schemes:

- Botley Road / Eastleigh Road improvements – flared approach from Botley Road north
- Winchester Road / Mortimers Lane junction – flares added for left turn movement exiting Winchester Road and to right turn movement entering Winchester Road from Mortimers Lane
- Denhams Corner roundabout further improvements – improvements included as identified as part of the DS3 test
- Maypole roundabout improvements – improvements included as identified as part of the DS3 test
- Botley Bypass and related improvements to Woodhouse Lane. Also included further improvements as identified as part of the DS3 test
- Eastleigh town centre Station Hill / Romsey Road roundabout improvements – double roundabout
- Bishopstoke Road / Chickenhall Lane roundabout – signalised junction
- Allington Lane / A27 / Townhill Way roundabout – rebuild of the junction as a signalised crossroads

- Allington Lane rail bridge – signalised node added to represent a shuttle on the bridge over the railway
- Roundabout at the north end of Quobb Lane where this road meets Allington Lane, to facilitate access into the development whilst reducing delay to northbound traffic using Allington Lane
- Road closure to vehicular traffic on Quob Lane immediately south of the roundabout with Barbe Baker Avenue / Quob Farm Close
- A3024 Bitterne Road corridor improvements into Southampton
- New link road from Option D south of Bishopstoke to join Bishopstoke opposite Guest Road with a signalised junction

10.3.2 The map in Figure 21 below shows the DS7 committed highway infrastructure locations.

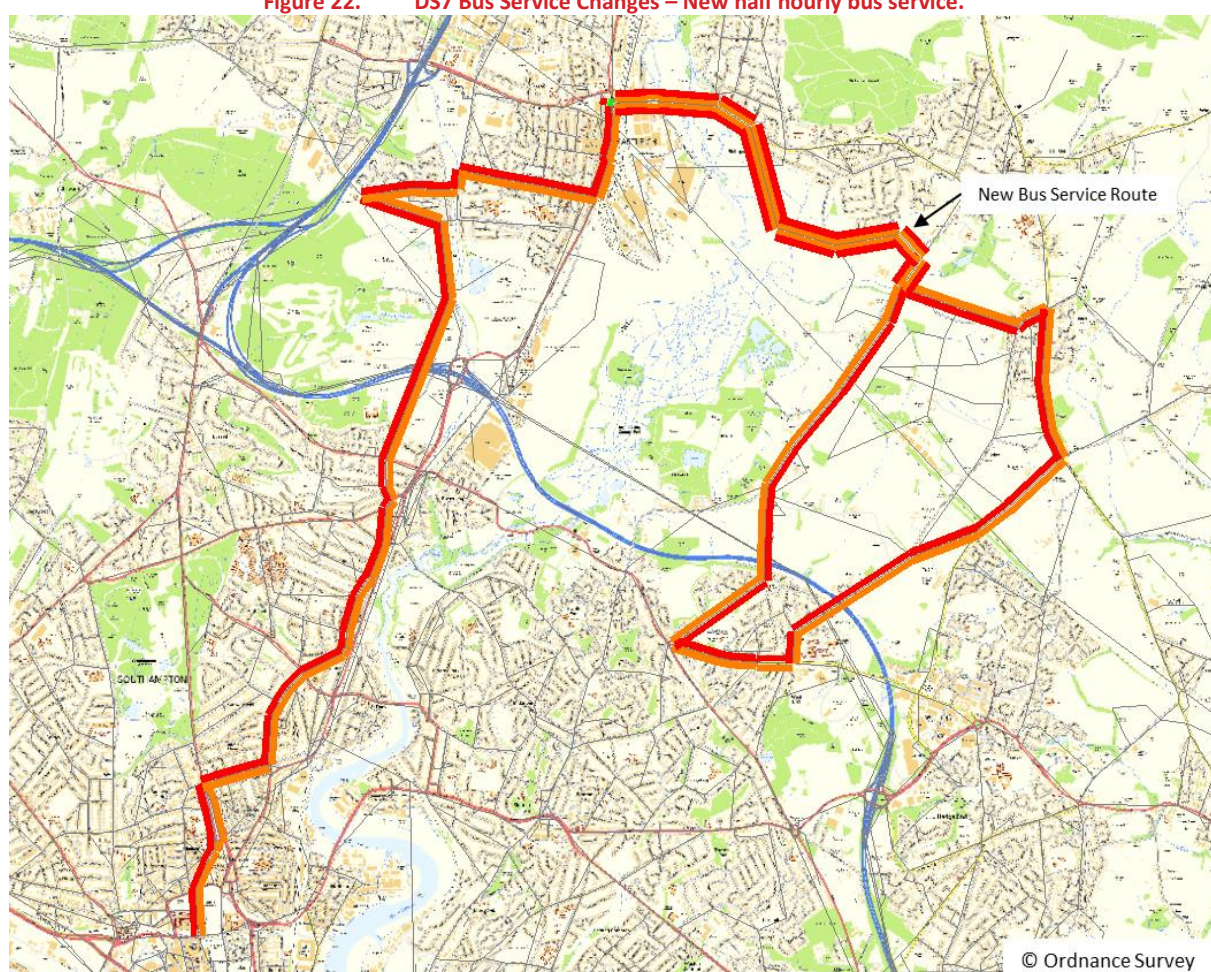
Figure 21. Map of Eastleigh Borough DS7 Highway Infrastructure



10.4 Public Transport Network Changes – DS7

10.4.1 The changes to the bus services in DS7 are the same as shown in DS5, except that the new bus route extends to the northern part of SGO option E, as shown below in Figure 22. For the southern part of the bus route (north of West End), the actual route will go south of the railway line to serve the northern part of SGO E, however, in the SRTM, there was no road link to put this bus on. Zone connectors were added to ensure the trips can get into and out of the zone, but we cannot run a bus route through these so we had to use the next available road, and due to the closure at Quob Lane, we had to go a bit further south than desired.

Figure 22. DS7 Bus Service Changes – New half hourly bus service.



10.5 Active Mode Network Changes – DS7

10.5.1 At the time of the study, there was no additional active mode measures specified to be included in the Baseline for Eastleigh Borough.

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11. EASTLEIGH LOCAL PLAN INPUTS SUMMARY

11.1 Introduction

11.1.1 This section summarises the land use and highway infrastructure inputs for each scenario. All figures presented are for 2036, and are additional to the Baseline.

11.2 Land Use Inputs

11.2.1 Table 7 below shows the land inputs for all seven Do Something scenarios. All units are in sqm except for the residential inputs which are the number of dwellings.

11.2.2 The model inputs for the number of dwellings, as shown in Table 7, are the inputs that go directly into LEIM module with the SRTM. The LEIM module uses floorspace (sqm) to determine the number of dwellings.

Table 7. Eastleigh Local Plan Inputs – Additional Land Use Assumptions 2015 – 2036

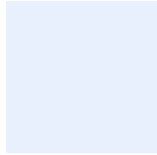
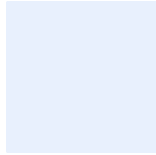
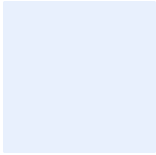
	DS1-3	DS4	DS5	DS6	DS7
Residential	8,533	7,331	6,477	6,477	6,477
Retail	11,779	10,779	10,579	6,996	10,079
Office	81,200	76,617	81,200	81,200	81,200
Industrial	29,800	29,800	29,800	29,800	29,800
Warehousing	27,000	27,000	27,000	27,000	27,000
School	20,201	16,634	11,275	11,884	11,884
Leisure	400	400	400	400	400

11.2.3 The Eastleigh Local Plan set a target to build 14,580 dwellings in the period between 2016 – 2036. DS1 – 3 are based on a total dwelling provision which exceeds this by 2,392 dwellings (based on the assumptions fed into the model which includes 458 completions outside the local plan period).

11.2.4 Do Something scenarios 1-3 have the highest residential land use inputs, over 30% more than DS5 – 7.

11.2.5 All retail inputs are relatively similar except for DS6 which has approximately 4,000 sqm less floorspace than the other scenarios.

11.2.6 For the office floorspace inputs, all scenarios are the same except for DS4, which has approximately 4,500 sqm less floorspace.



11.2.7 All land use inputs for industry, warehousing and leisure are the same for all scenarios.

11.2.8 The floorspace for the schools is calculated from the number of expected pupils at each school, which are highest in the Do Something scenarios 1-3.

11.3 Highway Infrastructure Inputs

11.3.1 Table 8 below lists which schemes are included for the 2036 Baseline and all seven Do Something scenarios.

Table 8. Eastleigh Local Plan Inputs – Highway Infrastructure

	BL	DS1	DS2	DS3	DS4	DS5	DS6	DS7
Fair Oak Road / Sandy Lane / Allington Lane junction improvements	✓	✓	✓	✓	✓	✓	✓	✓
Knowle Road and Church Lane adjustments	✓	✓	✓	✓	✓	✓	✓	✓
M3 Smart Motorways	✓	✓	✓	✓	✓	✓	✓	✓
M27 J8 and Windhover RIS1 scheme	✓	✓	✓	✓	✓	✓	✓	✓
M27 J9 Highways England Growth and Housing Fund Scheme	✓	✓	✓	✓	✓	✓	✓	✓
Whitley Way new link road	✓	✓	✓	✓	✓	✓	✓	✓
Northern Link Road (North Bishopstoke Bypass and Allbrook Hill Relief Road)			✓	✓				
M3 J12			✓	✓				
M3 J12 further improvements				✓				
Allbrook Way A335 / Allbrook Hill Relief Road new roundabout			✓	✓				
Central Allbrook junction – roundabout to priority			✓	✓				
Central Allbrook junction – westbound only slip from Highbridge Road onto Allbrook Hill				✓				
Highbridge Road / Northern Link Road – signals			✓					

	BL	DS1	DS2	DS3	DS4	DS5	DS6	DS7
Highbridge Road / Northern Link Road – roundabout				✓				
Botley Road / Eastleigh Road improvements	✓	✓	✓	✓	✓	✓	✓	✓
Winchester Road / Mortimers Lane improvements			✓		✓	✓	✓	✓
Winchester Road / Mortimers Lane – changed to signals	✓			✓				
Denhams Corner improvements	✓		✓					
Denhams Corner roundabout further improvements		✓		✓	✓	✓	✓	✓
Maypole roundabout improvements	✓		✓					
Maypole roundabout further improvements		✓		✓	✓	✓	✓	✓
Botley Bypass and related improvements to Woodhouse Lane	✓	✓	✓	✓	✓	✓	✓	✓
Botley Bypass / A334 / A3051 improvements	✓			✓	✓	✓	✓	✓
Eastleigh town centre Station Hill / Romsey Road roundabout improvements	✓				✓	✓	✓	✓
Bishopstoke Road / Chickenhall Lane signalised	✓				✓	✓	✓	✓
Allington Lane / A27 / Townhill Way longer flares				✓				

	BL	DS1	DS2	DS3	DS4	DS5	DS6	DS7
Allington Lane / A27 / Townhill Way signalised	✓				✓	✓	✓	✓
Allington Lane Rail Bridge	✓			✓	✓	✓	✓	✓
A3024 Bitterne Road corridor improvements	✓	✓	✓	✓	✓	✓	✓	✓
Link road between Mortimers Lane and Winchester Road at Crowdhill	✓				✓			
Option D Link Road						✓		✓
Quobb Lane / Allington Lane changed to roundabout							✓	✓
Quob Lane road closure immediately south of Barbe Baker Avenue / Quob Farm Close							✓	✓

12. LAND USE MODEL RESULTS

12.1 Introduction

12.1.1 This section summarises the outputs of the land use model for the Baseline and the seven Do Something scenarios.

12.2 Population, Dwellings and Jobs (LEIM Module Output)

12.2.1 Table 9 and Table 10 summarises the forecasts, produced by the LEIM module of the SRTM, for the population and the number of jobs respectively within the Eastleigh Borough. The comparisons show the change between the 2036 Baseline (with no local plan allocations) and the 2036 site allocations which include for the different strategic growth options being tested as part of the local plan. DS1 – DS3 used the same land use allocations (sites B and C) so are only reported once in the tables below.

12.2.2 For the preferred SGO site (DS1-3), Eastleigh Borough is forecast to see an increase in population of approximately 18,900 (13%) between 2015 – 2036. In the same period, the number of jobs increases by approximately 8,100 (12%). All quoted numbers are in addition to the 2036 Baseline

12.2.3 For the other scenarios, increases are forecast between 10 and 11% for population, and 11 to 12% for jobs, which tie in with the lower land use inputs for these scenarios.

Table 9. Eastleigh Borough Change in Population, Baseline 2036 vs. SGO Options 2036

	BASELINE	DO SOMETHING	DIFFERENCE	% DIFFERENCE
Baseline	140,984			
DS1 – DS3		159,856	18,873	13%
DS4		156,047	15,063	11%
DS5		155,617	14,633	10%
DS6		155,015	14,031	10%
DS7		155,370	14,386	10%

SRTM Ref: DOI, DOJ, DOK, DOL, DOM, DON

Table 10. Eastleigh Borough Change in Jobs, Baseline 2036 vs. SGO Options 2036

	BASELINE	DO SOMETHING	DIFFERENCE	% DIFFERENCE
Baseline	65,453			
DS1 – DS3		73,526	8,073	12%
DS4		73,117	7,663	12%
DS5		72,495	7,041	11%
DS6		73,045	7,592	12%
DS7		72,593	7,140	11%

SRTM Ref: DOI, DOJ, DOK, DOL, DOM, DON

13. MAIN DEMAND MODEL (MDM) RESULTS

13.1 Introduction

13.1.1 This section summarises the forecasts produced by the MDM module of the SRTM for the Baseline and the Do Something scenarios in 2036, along with the differences to isolate the impacts of the Local Plan development.

13.2 Demand Model (MDM) Results

13.2.1 Table 11 summarises the total person trips with either an Origin or a Destination in Eastleigh Borough by period (AM, IP, PM and combined 12 hour). DS1-3 have the highest number of additional trips when compared to the Baseline (12% increase over a 12 hour period), tying in with these scenarios having the largest land use inputs.

13.2.2 This is further broken down by mode in Table 12, with the mode share for the 12 hour period shown in Table 13.

13.2.3 Comparing all scenarios, DS1 -3 have the highest number of additional highway trips when compared to the Baseline (11% increase over a 12 hour period) which ties in with these scenarios having the largest growth in land use inputs.

13.2.4 For the public transport trips, DS5 and DS7 have the highest number of additional trips over the Baseline (27% increase over the 12 hour period), with DS1 -3 showing an increase of 17%. For the respective scenarios the public transport proposals include a new bus route to access the SGO site(s) with a 30 minute frequency. However, for the DS5/7 scenarios, the new bus route into Eastleigh is shorter in distance, with shorter journey times.

13.2.5 DS1 – 3 have the highest increase of additional active mode trips over the Baseline, with an 18% increase over a 12 hour period. This suggests that the mix of landuse (residential, employment, retail and other), within the SGO sites included in DS1-3 is helping to enable shorter trips by active modes (e.g. people are able to walk to their place of work). This mix of landuse may also benefit existing Fair Oak residents now being able to walk or cycle to the new facilities.

13.2.6 Comparison of the modal split % within Eastleigh over a 12 hour period shows all scenarios to have a lower highway mode split when compared to the Baseline, with increases forecast for public transport and active mode splits. DS7 has the largest increase in public transport model split, with DS1 - DS4 showing the largest increases in active model splits.

Table 11. Person trips with Origin / Destination in Eastleigh Borough

SCENARIO	AM PERIOD (0700-1000)	IP PERIOD (1000-1600)	PM PERIOD (1600-1900)	12 HOUR PERIOD (0700-1900)
Baseline	110,313	237,960	124,486	472,760
DS1	124,962	266,846	138,683	530,491
Difference DS1 – Baseline	14,649	28,886	14,196	57,731
Diff % DS1 - BL	13.3%	12.1%	11.4%	12.2%
DS2	124,962	266,846	138,683	530,491
Difference DS2 – Baseline	14,649	28,886	14,196	57,731
Diff % DS2 - BL	13.3%	12.1%	11.4%	12.2%
DS3	125,028	266,922	138,859	530,808
Difference DS3 – Baseline	14,714	28,962	14,372	58,048
Diff % DS3 - BL	13.3%	12.2%	11.5%	12.3%
DS4	122,768	261,664	136,906	521,339
Difference DS4 – Baseline	12,455	23,704	12,420	48,579
Diff % DS4 - BL	11.3%	10.0%	10.0%	10.3%
DS5	121,865	261,218	136,155	519,238
Difference DS5 – Baseline	11,552	23,258	11,669	46,479
Diff % DS5 - BL	10.5%	9.8%	9.4%	9.8%
DS6	121,868	259,785	137,465	519,117
Difference DS6 – Baseline	11,554	21,825	12,978	46,357
Diff % DS6 - BL	10.5%	9.2%	10.4%	9.8%
DS7	121,908	261,502	137,310	520,721
Difference DS7 – Baseline	11,594	23,542	12,824	47,961
Diff % DS7 - BL	10.5%	9.9%	10.3%	10.1%

SRTM Ref: DOP, DPR, DPC, DPP, DQG, DQS, DQQ, DQR

Table 12. Person trips with Origin / Destination in Eastleigh Borough Split by Mode

SCENARIO	AM PERIOD (0700-1000)			IP PERIOD (1000-1600)			PM PERIOD (1600-1900)			12 HOUR PERIOD (0700-1900)		
	CAR	PT	ACTIVE	CAR	PT	ACTIVE	CAR	PT	ACTIVE	CAR	PT	ACTIVE
Baseline	89,347	5,925	15,042	196,545	9,010	32,405	105,997	5,083	13,406	391,889	20,018	60,853
DS1	100,073	7,004	17,885	218,090	10,596	38,160	117,041	5,893	15,749	435,203	23,493	71,794
<i>Difference DS1 – Baseline</i>	10,726	1,079	2,843	21,545	1,586	5,755	11,044	809	2,343	43,314	3,475	10,942
<i>Diff % DS1 - BL</i>	12.0%	18.2%	18.9%	11.0%	17.6%	17.8%	10.4%	15.9%	17.5%	11.1%	17.4%	18.0%
DS2	100,073	7,004	17,885	218,090	10,596	38,160	117,041	5,893	15,749	435,203	23,493	71,794
<i>Difference DS2 – Baseline</i>	10,726	1,079	2,843	21,545	1,586	5,755	11,044	809	2,343	43,314	3,475	10,942
<i>Diff % DS2 - BL</i>	12.0%	18.2%	18.9%	11.0%	17.6%	17.8%	10.4%	15.9%	17.5%	11.1%	17.4%	18.0%
DS3	100,195	6,989	17,843	218,245	10,595	38,082	117,245	5,897	15,717	435,685	23,482	71,641
<i>Difference DS3 – Baseline</i>	10,849	1,065	2,801	21,700	1,585	5,677	11,248	814	2,311	43,796	3,464	10,789
<i>Diff % DS3 - BL</i>	12.1%	18.0%	18.6%	11.0%	17.6%	17.5%	10.6%	16.0%	17.2%	11.2%	17.3%	17.7%
DS4	98,566	6,682	17,521	214,186	10,033	37,445	115,702	5,669	15,535	428,453	22,384	70,501
<i>Difference DS4 – Baseline</i>	9,219	757	2,479	17,641	1,023	5,041	9,704	586	2,129	36,564	2,366	9,649

SCENARIO	AM PERIOD (0700-1000)			IP PERIOD (1000-1600)			PM PERIOD (1600-1900)			12 HOUR PERIOD (0700-1900)		
	CAR	PT	ACTIVE	CAR	PT	ACTIVE	CAR	PT	ACTIVE	CAR	PT	ACTIVE
<i>Diff % DS4 - BL</i>	10.3%	12.8%	16.5%	9.0%	11.4%	15.6%	9.2%	11.5%	15.9%	9.3%	11.8%	15.9%
DS5	97,176	7,418	17,272	212,503	11,619	37,096	114,597	6,274	15,285	424,275	25,311	69,652
<i>Difference DS5 – Baseline</i>	7,829	1,494	2,230	15,958	2,609	4,691	8,600	1,191	1,879	32,386	5,293	8,799
<i>Diff % DS5 - BL</i>	8.8%	25.2%	14.8%	8.1%	29.0%	14.5%	8.1%	23.4%	14.0%	8.3%	26.4%	14.5%
DS6	97,939	6,716	17,213	212,908	10,112	36,765	116,442	5,717	15,305	427,288	22,545	69,283
<i>Difference DS6 – Baseline</i>	8,592	791	2,171	16,363	1,102	4,360	10,445	634	1,899	35,400	2,527	8,430
<i>Diff % DS6 - BL</i>	9.6%	13.4%	14.4%	8.3%	12.2%	13.5%	9.9%	12.5%	14.2%	9.0%	12.6%	13.9%
DS7	97,231	7,493	17,183	212,813	11,763	36,926	115,776	6,313	15,222	425,820	25,569	69,331
<i>Difference DS7 – Baseline</i>	7,884	1,569	2,141	16,268	2,753	4,522	9,779	1,229	1,816	33,931	5,551	8,479
<i>Diff % DS7 - BL</i>	8.8%	26.5%	14.2%	8.3%	30.5%	14.0%	9.2%	24.2%	13.5%	8.7%	27.7%	13.9%

SRTM Ref: DOP, DPR, DPC, DPP, DQG, DQS, DQQ, DQR

Table 13. Mode Share (%) with Origin / Destination in Eastleigh Borough – 12 hour period

SCENARIO	CAR	PT	ACTIVE
Baseline	82.9%	4.2%	12.9%
DS1	82.0%	4.4%	13.5%
<i>Difference DS1 – Baseline</i>	<i>-0.9%</i>	<i>0.2%</i>	<i>0.7%</i>
DS2	82.0%	4.4%	13.5%
<i>Difference DS2 – Baseline</i>	<i>-0.9%</i>	<i>0.2%</i>	<i>0.7%</i>
DS3	82.1%	4.4%	13.5%
<i>Difference DS3 – Baseline</i>	<i>-0.8%</i>	<i>0.2%</i>	<i>0.6%</i>
DS4	82.2%	4.3%	13.5%
<i>Difference DS4 – Baseline</i>	<i>-0.7%</i>	<i>0.1%</i>	<i>0.7%</i>
DS5	81.7%	4.9%	13.4%
<i>Difference DS5 – Baseline</i>	<i>-1.2%</i>	<i>0.6%</i>	<i>0.5%</i>
DS6	82.3%	4.3%	13.3%
<i>Difference DS6 – Baseline</i>	<i>-0.6%</i>	<i>0.1%</i>	<i>0.5%</i>
DS7	81.8%	4.9%	13.3%
<i>Difference DS7 – Baseline</i>	<i>-1.1%</i>	<i>0.7%</i>	<i>0.4%</i>

SRTM Ref: DOP, DPR, DPC, DPP, DQG, DQS, DQQ, DQR

14. HIGHWAY MODEL RESULTS

14.1 Introduction

14.1.1 This section summarises specified highway outputs, with all outputs relating to a forecast year of 2036.

14.2 Junction Delay

14.2.1 Table 14 to Table 18 show the total junction delays, by area, in PCU hours (junction delay multiplied by the actual modelled flow in PCUs), for the AM peak hour, IP, PM peak hour, total peak hour (AM + PM peak hour) and 12 hour (07:00-19:00) whole period respectively for all scenarios including the Baseline. The actual and relative changes to the Baseline are reported.

14.2.2 The delay in PCU hours is summarised in the context of the full model area (junction delay is only reported for the core and marginal model areas) through to individual areas in Eastleigh, Southampton, and Winchester and highway corridors outside of Eastleigh Borough as specified by EBC, which are shown by zone and sector tables in Appendix L. An adjusted model wide area is also presented which excludes Portsmouth and the Isle of Wight as there was multiple small changes (model noise) being observed within these areas which were showing a large overall change, unrelated to the Eastleigh changes.

14.2.3 At the adjusted Model Wide level, the impacts are diluted but an increase in total 12hr junction delay of up to 2% above Baseline conditions is forecast for DS1 and DS2, whilst all of the other scenarios show an increase rounded to 1%. A general increase in delay was not unexpected as all options have more development and associated movement activity over the Baseline scenario. Looking at the increases in more detail at the adjusted model area, DS3 generates the least increase in delay which is consistent with this particular scenario including the most extensive package of highway mitigation measures to help minimise the impact of the new development. A similar picture to above is presented when looking at the individual peak hours within the 12 hour period.

14.2.4 Focussing on Eastleigh Borough as a whole, there is a forecast 7-13% increase in total junction delay above the Baseline across the scenarios for the 07:00-19:00 twelve hour period. DS3 and DS7 have the lowest forecast increase at 7% and DS1 the greatest increase at 13%.

14.2.5 For the areas within Eastleigh Borough, the grouping of Bishopstoke / Fair Oak / Horton Heath is forecast the largest percentage increase in delay in DS1 – 3 above the Baseline (circa 80-100% increase in the 12hr period). That area is where the majority of the new development is located in those scenarios. The absolute change in delay is not dissimilar to those in other areas across the scenarios but because the Baseline total junction delay is small, the resulting percentage change is high. The percentage changes should be viewed in conjunction with the forecast absolute change.

- 14.2.6 For Southampton District as a whole, the delay increase is small compared to Baseline for the 12hr period across all scenarios with a maximum increase of 1% in DS1 and DS6. More locally, the percentage increase is significantly larger east of the River Itchen (up to 7% increase) compared to the western side. The Baseline absolute delay is significantly lower on the eastern side of the Itchen compared to the western side so the higher percentage change should be considered against the absolute changes.
- 14.2.7 For Winchester district as a whole the delay increase compared to Baseline for the 12hr period varies across the scenarios from 1% in DS4 and DS7 through to 7% in DS2. For the more local areas, the most significant increases in junction delay are forecast in Bishops Waltham and Upham in the DS1 – 4 scenarios and ranges between 20-26% increase in the 12 hour period (because of the relatively small Baseline delay, the percentage change should be viewed in conjunction with the absolute change). This area is near to where the development in these scenarios is located. The most significant reduction in delay is forecast in the DS3 scenario for the Coldon Common, Oswlebury, Otterbourne and Twyford area, which sees a 4% reduction, indicating that the additional mitigation measures are effective given the level of development. All other changes within the areas of Winchester are less than a 10% change during all time periods.
- 14.2.8 For the specified road corridors, the most significant changes in delay all occur in the DS1 – 4 scenarios, where the most significant changes are sometimes the largest increases but also sometimes the largest decreases in delay. For the 12 hour period, the corridor on the B3037 from Fair Oak to B2177 at Lower Upham has a delay increase in DS1 and DS3 of approximately 900% (although this is from a very low Baseline value). The B3335 corridor from Allbrook to M3 Junction 11, DS2 and DS3 are forecast decreases in delay over the Baseline, indicating that the mitigation measures are effective (both DS1 and DS4 forecast increases in delay on this corridor). Similarly, for the B3354 corridor between Fair Oak to B3335 North of Colden Common, the scale of the forecast increase in delay in DS1 is reduced in DS2/3. For the roads within the National Park, all scenarios except DS2 and DS3 are forecast an increase in delay, where in DS2/3 there is a forecast decrease in delay of up to 20%.

Table 14. Total Junction Delay, AM Peak Hour

		AM								AM diff							AM %						
		BL	DS1	DS2	DS3	DS4	DS5	DS6	DS7	DS1	DS2	DS3	DS4	DS5	DS6	DS7	DS1	DS2	DS3	DS4	DS5	DS6	DS7
Model Wide	Model Wide	19,137	19,483	19,585	19,018	19,286	19,299	19,226	19,286	345	448	-120	149	161	89	148	2%	2%	-1%	1%	1%	0%	1%
	Adjusted Model Wide	15,592	15,991	16,086	15,711	15,779	15,779	15,737	15,771	399	494	119	187	187	145	179	3%	3%	1%	1%	1%	1%	1%
Eastleigh	Eastleigh Borough	2,836	3,193	3,243	3,011	3,070	3,019	3,017	3,017	357	407	176	234	184	181	181	13%	14%	6%	8%	6%	6%	6%
	Bishopstoke / Fair Oak / Horton Heath	76	126	145	145	98	65	63	62	50	69	69	22	-11	-13	-14	65%	91%	91%	29%	-15%	-18%	-18%
	Botley / Hedge End / West End	983	1,012	1,004	919	972	982	1,002	981	29	21	-63	-11	-1	19	-2	3%	2%	-6%	-1%	0%	2%	0%
	Bursledon / Hamble / Hound	579	594	577	565	586	586	588	586	15	-2	-15	7	7	8	7	3%	0%	-3%	1%	1%	1%	1%
	Chandler's Ford / Hiltingbury	128	133	168	180	134	129	128	127	5	40	52	6	0	-1	-1	4%	31%	40%	4%	0%	0%	-1%
	Eastleigh	1,069	1,328	1,348	1,202	1,280	1,259	1,237	1,260	259	278	132	211	189	168	191	24%	26%	12%	20%	18%	16%	18%
Southampton	Southampton Borough	3,626	3,765	3,619	3,646	3,675	3,696	3,696	3,710	139	-7	20	49	70	70	84	4%	0%	1%	1%	2%	2%	2%
	Southampton West of River Itchen	2,987	3,023	2,970	2,953	2,986	2,978	2,988	3,006	36	-17	-34	-1	-9	1	19	1%	-1%	-1%	0%	0%	0%	1%
	Southampton East of River Itchen	639	742	649	692	689	718	708	704	103	10	54	51	79	69	65	16%	2%	8%	8%	12%	11%	10%
Winchester	Winchester Borough	1,740	1,795	1,988	1,774	1,759	1,787	1,754	1,756	54	248	34	18	47	14	16	3%	14%	2%	1%	3%	1%	1%
	Colden Common, Oswlebury, Otterbourne, Twyford	315	340	325	306	329	331	329	327	25	9	-9	14	16	14	12	8%	3%	-3%	4%	5%	4%	4%
	Bishops Waltham, Upham	42	56	60	57	56	44	46	44	13	18	15	13	2	3	2	31%	41%	35%	31%	5%	8%	4%
	Winchester Rest	1,383	1,399	1,604	1,411	1,374	1,412	1,380	1,385	16	221	28	-8	29	-3	2	1%	16%	2%	-1%	2%	0%	0%
Road Corridors	B2177 : Fishers Pond to Bishops Waltham	18	24	25	25	23	18	19	18	6	7	7	5	1	1	1	34%	39%	41%	31%	3%	5%	3%
	B3037 : Fair Oak to B2177 at Lower Upham	3	27	16	28	9	3	3	3	23	13	24	6	0	0	0	731%	392%	765%	174%	6%	8%	0%
	B3335 : Allbrook to M3 Junction 11	36	50	26	28	38	37	34	33	14	-10	-8	2	1	-1	-3	40%	-28%	-22%	5%	3%	-4%	-8%
	B3354 : Fair Oak to B3335 North of Colden Common	70	131	78	83	107	80	82	79	61	8	12	37	10	12	8	88%	11%	18%	53%	15%	17%	12%
	Otterbourne Hill	50	50	62	78	50	50	50	50	-1	12	27	-1	0	0	0	-1%	23%	54%	-1%	-1%	-1%	-1%
	National Park : All Roads	79	110	55	62	95	94	94	89	31	-24	-17	16	15	15	10	39%	-30%	-22%	20%	19%	18%	13%
	National Park : Rural Lanes : Morestead, Owlesbury, Twyford, Upham	15	18	13	16	13	16	16	13	3	-2	1	-2	1	1	-3	18%	-14%	8%	-13%	5%	3%	-17%

SRTM Ref: DOP, DPR, DPC, DPP, DQG, DQS, DQQ, DQR

Table 15. Total Junction Delay, IP

		IP								IP diff							IP %						
		BL	DS1	DS2	DS3	DS4	DS5	DS6	DS7	DS1	DS2	DS3	DS4	DS5	DS6	DS7	DS1	DS2	DS3	DS4	DS5	DS6	DS7
Model Wide	Model Wide	7,870	7,995	7,917	7,837	7,930	7,898	7,914	7,898	125	47	-33	60	28	44	28	2%	1%	0%	1%	0%	1%	0%
	Adjusted Model Wide	6,202	6,354	6,285	6,223	6,298	6,266	6,286	6,261	152	83	21	96	64	84	59	2%	1%	0%	2%	1%	1%	1%
Eastleigh	Eastleigh Borough	958	1,114	1,028	1,028	1,070	1,047	1,049	1,043	156	70	69	112	89	90	84	16%	7%	7%	12%	9%	9%	9%
	Bishopstoke / Fair Oak / Horton Heath	34	70	67	74	55	40	37	39	36	33	40	20	5	3	4	104%	95%	116%	59%	16%	8%	13%
	Botley / Hedge End / West End	307	352	343	332	345	341	352	340	45	36	25	37	34	45	33	15%	12%	8%	12%	11%	15%	11%
	Bursledon / Hamble / Hound	159	165	163	164	166	165	163	163	6	4	6	7	6	4	4	4%	3%	4%	4%	4%	3%	3%
	Chandler's Ford / Hiltingbury	57	60	61	58	58	58	58	58	3	4	1	1	1	1	1	5%	7%	2%	2%	2%	2%	2%
	Eastleigh	401	467	394	399	447	444	439	443	66	-7	-2	46	43	38	42	16%	-2%	0%	12%	11%	9%	10%
Southampton	Southampton Borough	1,974	1,961	1,971	1,944	1,972	1,955	1,977	1,954	-13	-4	-30	-2	-19	2	-21	-1%	0%	-2%	0%	-1%	0%	-1%
	Southampton West of River Itchen	1,675	1,656	1,668	1,643	1,668	1,652	1,670	1,649	-19	-7	-31	-6	-22	-4	-25	-1%	0%	-2%	0%	-1%	0%	-2%
	Southampton East of River Itchen	300	306	303	301	304	303	306	304	6	3	1	4	3	7	5	2%	1%	0%	1%	1%	2%	2%
Winchester	Winchester Borough	689	700	707	695	699	698	700	698	11	19	6	11	9	11	9	2%	3%	1%	2%	1%	2%	1%
	Colden Common, Oswlebury, Otterbourne, Twyford	54	57	57	53	56	55	55	55	3	4	0	2	1	1	1	6%	7%	-1%	3%	2%	2%	2%
	Bishops Waltham, Upham	16	18	18	18	18	17	17	17	2	2	2	2	0	0	0	12%	12%	10%	9%	2%	3%	2%
	Winchester Rest	619	624	632	624	626	626	628	627	6	13	5	7	7	9	8	1%	2%	1%	1%	1%	2%	1%
Road Corridors	B2177 : Fishers Pond to Bishops Waltham	8	10	7	8	9	8	8	8	2	0	0	1	0	0	0	28%	-4%	2%	16%	4%	5%	2%
	B3037 : Fair Oak to B2177 at Lower Upham	1	14	4	15	3	2	2	1	13	2	13	2	0	0	0	899%	152%	916%	120%	8%	8%	-1%
	B3335 : Allbrook to M3 Junction 11	10	11	11	8	11	10	10	10	1	1	-1	1	1	1	1	13%	13%	-14%	11%	7%	5%	6%
	B3354 : Fair Oak to B3335 North of Colden Common	17	38	26	35	26	18	19	17	21	9	18	9	0	1	-1	120%	51%	103%	52%	1%	7%	-4%
	Otterbourne Hill	14	13	15	14	13	13	13	13	0	1	1	0	0	0	0	-1%	9%	7%	-1%	0%	-1%	-1%
	National Park : All Roads	14	17	13	13	16	15	15	15	3	-1	-1	2	1	1	1	21%	-8%	-8%	12%	7%	7%	5%
	National Park : Rural Lanes : Morestead, Owlesbury, Twyford, Upham	3	4	3	3	4	3	3	3	1	0	0	1	0	0	0	27%	-4%	0%	17%	4%	6%	2%

SRTM Ref: DOP, DPR, DPC, DPP, DQG, DQS, DQQ, DQR

Table 16. Total Junction Delay, PM Peak Hour

		PM								PM diff								PM %							
		BL	DS1	DS2	DS3	DS4	DS5	DS6	DS7	DS1	DS2	DS3	DS4	DS5	DS6	DS7	DS1	DS2	DS3	DS4	DS5	DS6	DS7		
Model Wide	Model Wide	16,990	17,258	17,280	17,201	17,192	17,154	17,247	17,170	268	291	211	203	165	257	180	2%	2%	1%	1%	1%	2%	1%		
	Adjusted Model Wide	13,301	13,557	13,573	13,497	13,501	13,458	13,571	13,471	256	272	196	200	157	270	170	2%	2%	1%	2%	1%	2%	1%		
Eastleigh	Eastleigh Borough	2,157	2,407	2,395	2,337	2,365	2,319	2,353	2,300	250	237	179	208	162	196	143	12%	11%	8%	10%	7%	9%	7%		
	Bishopstoke / Fair Oak / Horton Heath	60	110	119	122	92	70	60	66	49	58	62	31	9	0	6	82%	96%	102%	51%	16%	0%	9%		
	Botley / Hedge End / West End	820	914	890	881	906	901	944	909	94	70	61	86	82	124	89	12%	9%	7%	11%	10%	15%	11%		
	Bursledon / Hamble / Hound	428	443	445	446	438	439	444	439	15	17	18	9	11	16	10	3%	4%	4%	2%	2%	4%	2%		
	Chandler's Ford / Hiltingbury	137	143	174	158	142	134	135	134	6	38	21	5	-3	-2	-3	5%	27%	15%	4%	-2%	-1%	-2%		
	Eastleigh	712	797	766	729	788	775	770	753	85	54	17	76	63	58	41	12%	8%	2%	11%	9%	8%	6%		
Southampton	Southampton Borough	2,907	2,914	2,912	2,918	2,912	2,930	2,954	2,920	7	5	11	5	23	47	13	0%	0%	0%	0%	1%	2%	0%		
	Southampton West of River Itchen	2,386	2,370	2,383	2,385	2,386	2,398	2,405	2,390	-16	-3	-1	0	12	19	5	-1%	0%	0%	0%	1%	1%	0%		
	Southampton East of River Itchen	521	544	529	533	526	532	548	530	22	8	12	5	10	27	9	4%	2%	2%	1%	2%	5%	2%		
Winchester	Winchester Borough	1,658	1,690	1,707	1,685	1,685	1,684	1,705	1,683	32	49	27	27	26	47	24	2%	3%	2%	2%	2%	3%	1%		
	Colden Common, Oswlebury, Otterbourne, Twyford	218	206	215	203	203	219	205	216	-13	-3	-15	-15	1	-13	-2	-6%	-1%	-7%	-7%	0%	-6%	-1%		
	Bishops Waltham, Upham	31	36	37	37	36	33	34	33	6	7	7	6	2	3	2	20%	22%	23%	19%	7%	11%	8%		
	Winchester Rest	1,410	1,448	1,454	1,445	1,445	1,432	1,465	1,434	38	44	36	36	23	56	24	3%	3%	3%	3%	2%	4%	2%		
Road Corridors	B2177 : Fishers Pond to Bishops Waltham	15	20	16	15	19	16	17	15	5	0	0	4	0	1	0	30%	3%	-1%	24%	3%	9%	1%		
	B3037 : Fair Oak to B2177 at Lower Upham	3	30	6	31	5	3	3	3	27	4	29	3	0	0	0	1090%	157%	1147%	116%	11%	15%	4%		
	B3335 : Allbrook to M3 Junction 11	23	25	22	18	26	25	25	24	3	0	-5	3	2	2	2	12%	-1%	-22%	13%	10%	9%	8%		
	B3354 : Fair Oak to B3335 North of Colden Common	36	70	54	60	54	32	36	30	33	17	23	17	-4	0	-6	91%	47%	64%	47%	-12%	-1%	-17%		
	Otterbourne Hill	54	46	76	85	48	54	53	53	-9	21	30	-7	0	-1	-1	-16%	39%	56%	-13%	0%	-2%	-2%		
	National Park : All Roads	36	45	30	30	40	38	40	37	9	-7	-7	4	2	4	1	24%	-18%	-18%	12%	5%	10%	3%		
	National Park : Rural Lanes : Morestead, Owlesbury, Twyford, Upham	11	16	11	11	13	12	13	12	4	-1	0	2	0	1	0	39%	-6%	-4%	16%	3%	11%	1%		

SRTM Ref: DOP, DPR, DPC, DPP, DQG, DQS, DQQ, DQR

Table 17. Total Junction Delay, Total Peak Hour (AM and PM)

		AM + PM Peak Hour								AM + PM diff							AM + PM %							
		BL	DS1	DS2	DS3	DS4	DS5	DS6	DS7	DS1	DS2	DS3	DS4	DS5	DS6	DS7	DS1	DS2	DS3	DS4	DS5	DS6	DS7	
Model Wide	Model Wide	36,127	36,740	36,865	36,218	36,478	36,453	36,473	36,456	613	738	91	351	326	346	329	2%	2%	0%	1%	1%	1%	1%	
	Adjusted Model Wide	28,893	29,548	29,659	29,208	29,280	29,238	29,308	29,242	655	767	315	388	345	416	349	2%	3%	1%	1%	1%	1%	1%	
Eastleigh	Eastleigh Borough	4,993	5,600	5,637	5,348	5,435	5,338	5,370	5,317	607	645	355	442	345	377	324	12%	13%	7%	9%	7%	8%	6%	
	Bishopstoke / Fair Oak / Horton Heath	136	235	264	267	190	134	123	128	99	127	131	53	-2	-14	-8	72%	93%	96%	39%	-1%	-10%	-6%	
	Botley / Hedge End / West End	1,803	1,926	1,894	1,801	1,878	1,883	1,946	1,891	123	92	-2	75	80	143	88	7%	5%	0%	4%	4%	8%	5%	
	Bursledon / Hamble / Hound	1,008	1,037	1,023	1,011	1,024	1,025	1,032	1,024	29	15	3	16	17	24	17	3%	2%	0%	2%	2%	2%	2%	
	Chandler's Ford / Hiltingbury	265	277	343	338	276	263	263	261	11	78	73	11	-2	-2	-4	4%	29%	27%	4%	-1%	-1%	-2%	
	Eastleigh	1,781	2,125	2,114	1,931	2,068	2,033	2,007	2,013	344	333	150	287	252	226	232	19%	19%	8%	16%	14%	13%	13%	
Southampton	Southampton Borough	6,533	6,679	6,531	6,563	6,587	6,626	6,650	6,630	146	-2	30	54	93	117	97	2%	0%	0%	1%	1%	2%	1%	
	Southampton West of River Itchen	5,373	5,393	5,353	5,338	5,372	5,376	5,394	5,397	20	-20	-35	-1	3	21	24	0%	0%	-1%	0%	0%	0%	0%	
	Southampton East of River Itchen	1,160	1,285	1,178	1,226	1,216	1,250	1,256	1,233	125	18	66	56	90	96	73	11%	2%	6%	5%	8%	8%	6%	
Winchester	Winchester Borough	3,398	3,484	3,695	3,459	3,444	3,471	3,459	3,439	86	296	61	45	72	60	40	3%	9%	2%	1%	2%	2%	1%	
	Colden Common, Oswlebury, Otterbourne, Twyford	533	546	540	509	532	550	534	543	12	7	-25	-1	16	1	10	2%	1%	-5%	0%	3%	0%	2%	
	Bishops Waltham, Upham	73	92	97	95	92	77	80	77	19	24	22	19	4	7	4	26%	33%	30%	26%	6%	9%	6%	
	Winchester Rest	2,792	2,846	3,057	2,856	2,819	2,844	2,845	2,818	54	265	64	27	52	53	26	2%	9%	2%	1%	2%	2%	1%	
Road Corridors	B2177 : Fishers Pond to Bishops Waltham	33	44	40	40	42	34	35	34	11	7	7	9	1	2	1	33%	22%	22%	28%	3%	7%	2%	
	B3037 : Fair Oak to B2177 at Lower Upham	6	56	22	59	14	6	6	6	51	16	53	8	0	1	0	889%	289%	933%	149%	8%	11%	2%	
	B3335 : Allbrook to M3 Junction 11	58	75	48	46	63	62	59	58	17	-10	-13	5	3	1	-1	29%	-18%	-22%	8%	6%	1%	-2%	
	B3354 : Fair Oak to B3335 North of Colden Common	107	201	131	142	161	112	118	109	94	25	36	54	6	11	2	89%	23%	33%	51%	5%	11%	2%	
	Otterbourne Hill	105	96	138	163	97	104	103	103	-9	33	58	-7	0	-1	-1	-9%	32%	55%	-7%	0%	-1%	-1%	
	National Park : All Roads	116	155	85	92	135	132	134	127	40	-31	-24	20	17	18	11	35%	-26%	-21%	17%	15%	16%	10%	
	National Park : Rural Lanes : Morestead, Owlesbury, Twyford, Upham	27	34	24	27	27	28	28	24	7	-3	1	0	1	2	-2	27%	-11%	2%	0%	4%	7%	-9%	

SRTM Ref: DOP, DPR, DPC, DPP, DQG, DQS, DQQ, DQR

Table 18. Total Junction Delay, 12 Hour Period

		12h (whole period)								12h diff							12h %						
		BL	DS1	DS2	DS3	DS4	DS5	DS6	DS7	DS1	DS2	DS3	DS4	DS5	DS6	DS7	DS1	DS2	DS3	DS4	DS5	DS6	DS7
Model Wide	Model Wide	140,632	142,962	142,811	140,711	141,907	141,644	141,813	141,657	2330	2178	79	1274	1012	1181	1025	2%	2%	0%	1%	1%	1%	1%
	Adjusted Model Wide	111,849	114,442	114,308	112,798	113,429	113,122	113,444	113,107	2594	2459	950	1580	1273	1595	1258	2%	2%	1%	1%	1%	1%	1%
Eastleigh	Eastleigh Borough	18,613	21,107	20,683	19,948	20,428	20,039	20,134	19,956	2494	2069	1335	1815	1426	1521	1343	13%	11%	7%	10%	8%	8%	7%
	Bishopstoke / Fair Oak / Horton Heath	558	1,030	1,083	1,135	820	588	542	566	471	525	577	262	29	-17	7	84%	94%	103%	47%	5%	-3%	1%
	Botley / Hedge End / West End	6,497	7,094	6,957	6,654	6,928	6,917	7,150	6,936	597	460	157	431	420	653	439	9%	7%	2%	7%	6%	10%	7%
	Bursledon / Hamble / Hound	3,547	3,660	3,614	3,594	3,631	3,631	3,636	3,616	113	67	46	84	84	88	69	3%	2%	1%	2%	2%	2%	2%
	Chandler's Ford / Hiltingbury	1,031	1,076	1,255	1,222	1,065	1,030	1,030	1,025	46	224	192	34	-1	-1	-5	4%	22%	19%	3%	0%	0%	-1%
	Eastleigh	6,980	8,246	7,773	7,343	7,984	7,873	7,776	7,814	1266	794	363	1004	894	797	834	18%	11%	5%	14%	13%	11%	12%
Southampton	Southampton Borough	28,697	28,979	28,671	28,592	28,818	28,818	29,010	28,816	282	-26	-105	122	121	313	120	1%	0%	0%	0%	0%	1%	0%
	Southampton West of River Itchen	23,905	23,836	23,814	23,631	23,864	23,781	23,934	23,813	-68	-90	-274	-41	-123	29	-92	0%	0%	-1%	0%	-1%	0%	0%
	Southampton East of River Itchen	4,792	5,142	4,856	4,961	4,955	5,037	5,076	5,004	350	64	169	163	245	284	212	7%	1%	4%	3%	5%	6%	4%
Winchester	Winchester Borough	12,934	13,220	13,790	13,130	13,116	13,173	13,161	13,095	285	855	196	181	239	226	160	2%	7%	2%	1%	2%	2%	1%
	Colden Common, Oswlebury, Otterbourne, Twyford	1,693	1,739	1,731	1,626	1,698	1,742	1,699	1,722	46	38	-67	5	48	5	29	3%	2%	-4%	0%	3%	0%	2%
	Bishops Waltham, Upham	285	347	359	351	343	299	306	299	61	74	65	57	13	21	13	21%	26%	23%	20%	5%	7%	5%
	Winchester Rest	10,956	11,134	11,699	11,153	11,075	11,133	11,156	11,074	178	744	198	119	177	200	118	2%	7%	2%	1%	2%	2%	1%
Road Corridors	B2177 : Fishers Pond to Bishops Waltham	130	171	147	149	161	135	138	133	40	16	19	31	4	8	3	31%	12%	14%	24%	3%	6%	2%
	B3037 : Fair Oak to B2177 at Lower Upham	23	234	78	242	56	25	26	24	210	55	218	32	2	2	0	898%	234%	932%	137%	8%	10%	1%
	B3335 : Allbrook to M3 Junction 11	207	257	189	166	226	220	212	209	50	-19	-41	19	13	5	2	24%	-9%	-20%	9%	6%	2%	1%
	B3354 : Fair Oak to B3335 North of Colden Common	377	743	495	578	569	391	412	377	367	118	201	192	14	36	0	97%	31%	53%	51%	4%	9%	0%
	Otterbourne Hill	353	328	448	509	332	352	349	349	-26	94	156	-21	-1	-5	-4	-7%	27%	44%	-6%	0%	-1%	-1%
	National Park : All Roads	379	498	295	312	440	427	430	411	119	-84	-67	61	48	51	32	31%	-22%	-18%	16%	13%	14%	9%
	National Park : Rural Lanes : Morestead, Owlesbury, Twyford, Upham	87	111	79	88	90	90	93	81	24	-8	2	3	3	6	-5	27%	-9%	2%	4%	4%	7%	-6%

SRTM Ref: DOP, DPR, DPC, DPP, DQG, DQS, DQQ, DQR

14.3 Average Trip Length

- 14.3.1 Table 19 below shows the average trip length for trips with an origin or destination within Eastleigh Borough, for the AM, IP, PM peak hours, combined AM and PM peak hour total, and total 12 hour (07:00-19:00) for car non-work trips and for all user classes combined for the Baseline and the seven Do Something scenarios, along with the absolute and relative change to the Baseline.
- 14.3.2 The 'all user classes' is a weighted average of the total of 4 user classes (car in work, car non-work, LGV and HGV trips) that are represented within the SRTM. The 'car non work' user class contains the greatest demand of the four user classes.
- 14.3.3 For all scenarios and time periods there is a reduction compared to the Baseline in average trip length. Focussing on the 12hr period the reduction in average trip lengths for the 'car non work' user class ranges from 1.5% (DS1 and DS4) to 2.2% (DS7). For all trips (i.e. All User Classes) the reduction is dampened and range from 0.9% (DS1) to 1.5%. (DS7)

Table 19. Average Trip Length

Scenario	AM Peak Hour		IP		PM Peak Hour		AM + PM Peak Hour		12 Hour Period	
	UC2 (Car non-work)	All UC	UC2 (Car non-work)	All UC	UC2 (Car non-work)	All UC	UC2 (Car non-work)	All UC	UC2 (Car non-work)	All UC
Baseline	18.23	18.39	15.63	15.89	20.29	19.72	19.26	19.06	17.34	17.37
DS1	17.92	18.20	15.45	15.77	19.95	19.52	18.94	18.86	17.09	17.22
<i>Difference DS1 – Baseline</i>	- 0.31	- 0.19	- 0.19	- 0.12	- 0.34	- 0.21	- 0.33	- 0.20	- 0.25	- 0.15
<i>Diff % DS1 - BL</i>	-1.7%	-1.0%	-1.2%	-0.7%	-1.7%	-1.1%	-1.7%	-1.0%	-1.5%	-0.9%
DS2	17.89	18.17	15.43	15.75	19.94	19.50	18.91	18.83	17.07	17.20
<i>Difference DS2 – Baseline</i>	- 0.35	- 0.22	- 0.21	- 0.13	- 0.35	- 0.22	- 0.35	- 0.22	- 0.27	- 0.17
<i>Diff % DS2 - BL</i>	-1.9%	-1.2%	-1.3%	-0.8%	-1.7%	-1.1%	-1.8%	-1.2%	-1.6%	-1.0%
DS3	17.85	18.15	15.43	15.75	19.90	19.48	18.88	18.81	17.05	17.18
<i>Difference DS3 – Baseline</i>	- 0.38	- 0.24	- 0.20	- 0.14	- 0.39	- 0.25	- 0.39	- 0.24	- 0.29	- 0.19
<i>Diff % DS3 - BL</i>	-2.1%	-1.3%	-1.3%	-0.9%	-1.9%	-1.3%	-2.0%	-1.3%	-1.7%	-1.1%
DS4	17.88	18.16	15.46	15.77	19.90	19.46	18.89	18.81	17.07	17.20
<i>Difference DS4 – Baseline</i>	- 0.35	- 0.22	- 0.18	- 0.11	- 0.39	- 0.26	- 0.37	- 0.24	- 0.27	- 0.17
<i>Diff % DS4 - BL</i>	-1.9%	-1.2%	-1.1%	-0.7%	-1.9%	-1.3%	-1.9%	-1.3%	-1.5%	-1.0%
DS5	17.81	18.11	15.40	15.72	19.86	19.42	18.83	18.76	17.02	17.15
<i>Difference DS5 – Baseline</i>	- 0.42	- 0.28	- 0.23	- 0.16	- 0.43	- 0.31	- 0.43	- 0.30	- 0.32	- 0.23
<i>Diff % DS5 - BL</i>	-2.3%	-1.5%	-1.5%	-1.0%	-2.1%	-1.6%	-2.2%	-1.5%	-1.9%	-1.3%
DS6	17.83	18.12	15.38	15.70	19.82	19.39	18.82	18.76	17.00	17.13
<i>Difference DS6 – Baseline</i>	- 0.40	- 0.27	- 0.26	- 0.18	- 0.47	- 0.33	- 0.44	- 0.30	- 0.34	- 0.24
<i>Diff % DS6 - BL</i>	-2.2%	-1.5%	-1.7%	-1.1%	-2.3%	-1.7%	-2.3%	-1.6%	-2.0%	-1.4%
DS7	17.78	18.08	15.34	15.68	19.82	19.38	18.80	18.73	16.97	17.11
<i>Difference DS7 – Baseline</i>	- 0.46	- 0.31	- 0.30	- 0.21	- 0.47	- 0.34	- 0.46	- 0.32	- 0.37	- 0.26
<i>Diff % DS7 - BL</i>	-2.5%	-1.7%	-1.9%	-1.3%	-2.3%	-1.7%	-2.4%	-1.7%	-2.2%	-1.5%

SRTM Ref: DOP, DPR, DPC, DPP, DQG, DQS, DQQ, DQR

14.4 Carbon Dioxide Emissions

14.4.1 Table 20 below presents the carbon dioxide levels (in kilograms) over a 12 hour (07:00-19:00) period in the model as a whole and for specified sectors within Eastleigh and surrounding Districts for all Do Something scenarios compared to the Baseline. The emissions are calculated for all links within the specified area.

14.4.2 Over the 12 hour period, and on a model wide basis, all scenarios forecast a slight increase in carbon dioxide emissions except for DS3 which is forecast a 0.3% reduction. That can be attributed to the more substantial mitigation proposals in DS3 to help manage increased traffic flows and control/ reduce delays and congestion in this scenario. The most substantial percentage increase is forecast for scenarios DS1-3 within the Bishopstoke / Fair Oak / Horton Heath area which is due to the high development quantum in this for these scenarios.

Table 20. Carbon Dioxide Emissions (kg/12 hour)

	BL DOP	DS1	DS2	DS3	DS4	DS5	DS6	DS7	DS1	DS2	DS3	DS4	DS5	DS6	DS7	DS1	DS2	DS3	DS4	DS5	DS6	DS7	
		DPR	DPC	DPP	DQG	DQS	DQQ	DQR	DPR	DPC	DPP	DQG	DQS	DQQ	DQR	DPR	DPC	DPP	DQG	DQS	DQQ	DQR	
Model Wide	Model Wide	52,219,588	52,467,135	52,462,916	52,075,713	52,391,847	52,365,373	52,343,595	52,358,969	247,547	243,328	- 143,875	172,260	145,785	124,007	139,381	0.5%	0.5%	-0.3%	0.3%	0.3%	0.2%	0.3%
Eastleigh	Eastleigh Borough	3,915,729	4,045,972	4,068,400	4,049,459	4,019,081	4,013,432	4,004,980	4,015,623	130,242	152,671	133,730	103,352	97,702	89,250	99,894	3.3%	3.9%	3.4%	2.6%	2.5%	2.3%	2.6%
	Bishopstoke / Fair Oak / Horton Heath	137,128	176,677	201,637	195,035	164,763	159,347	146,308	155,893	39,549	64,509	57,907	27,635	22,220	9,180	18,765	28.8%	47.0%	42.2%	20.2%	16.2%	6.7%	13.7%
	Botley / Hedge End / West End	1,537,102	1,595,631	1,597,445	1,585,045	1,584,385	1,591,234	1,600,130	1,596,795	58,529	60,343	47,943	47,284	54,132	63,029	59,694	3.8%	3.9%	3.1%	3.1%	3.5%	4.1%	3.9%
	Bursledon / Hamble / Hound	431,059	434,263	432,832	433,157	434,741	434,626	435,209	434,145	3,204	1,773	2,099	3,683	3,567	4,151	3,086	0.7%	0.4%	0.5%	0.9%	0.8%	1.0%	0.7%
	Chandler's Ford / Hiltingbury	300,965	304,581	307,704	305,707	302,736	301,586	301,245	301,564	3,616	6,738	4,742	1,771	621	280	599	1.2%	2.2%	1.6%	0.6%	0.2%	0.1%	0.2%
	Eastleigh	1,509,476	1,534,820	1,528,783	1,530,515	1,532,456	1,526,639	1,522,087	1,527,226	25,344	19,307	21,039	22,980	17,162	12,611	17,750	1.7%	1.3%	1.4%	1.5%	1.1%	0.8%	1.2%
Southampton	Southampton Borough	2,538,043	2,544,713	2,538,444	2,524,806	2,538,748	2,542,832	2,545,714	2,541,538	6,670	401	- 13,237	705	4,789	7,671	3,495	0.3%	0.0%	-0.5%	0.0%	0.2%	0.3%	0.1%
	Southampton West of River Itchen	1,980,094	1,975,678	1,977,300	1,964,682	1,975,067	1,977,149	1,978,647	1,976,464	- 4,416	- 2,794	- 15,412	- 5,028	- 2,945	- 1,448	- 3,630	-0.2%	-0.1%	-0.8%	-0.3%	-0.1%	-0.1%	-0.2%
	Southampton East of River Itchen	557,949	569,036	561,144	560,124	563,681	565,683	567,068	565,074	11,087	3,195	2,175	5,732	7,734	9,119	7,125	2.0%	0.6%	0.4%	1.0%	1.4%	1.6%	1.3%
Winchester	Winchester Borough	6,100,381	6,178,864	6,164,297	6,133,619	6,160,610	6,137,750	6,141,399	6,135,107	78,484	63,916	33,239	60,229	37,370	41,019	34,727	1.3%	1.0%	0.5%	1.0%	0.6%	0.7%	0.6%
	Colden Common, Oswlebury, Otterbourne, Twyford	1,438,170	1,460,652	1,446,629	1,435,453	1,451,815	1,447,733	1,447,221	1,446,253	22,482	8,459	- 2,717	13,645	9,563	9,051	8,083	1.6%	0.6%	-0.2%	0.9%	0.7%	0.6%	0.6%
	Bishops Waltham, Upham	217,719	237,523	241,392	239,950	236,542	223,373	227,200	224,585	19,804	23,673	22,231	18,824	5,654	9,481	6,866	9.1%	10.9%	10.2%	8.6%	2.6%	4.4%	3.2%
	Winchester Rest	4,127,710	4,151,303	4,150,258	4,133,180	4,144,562	4,140,172	4,140,137	4,138,011	23,593	22,548	5,471	16,853	12,463	12,427	10,301	0.6%	0.5%	0.1%	0.4%	0.3%	0.3%	0.2%

14.5 Highway Flow Difference Plots – Eastleigh Borough

- 14.5.1 Figure 23 to Figure 36 shows the change in traffic flow (PCUs) in the AM and PM peak hours between the Baseline and all of the Do Something scenarios, at an overall Borough level. In addition to the new traffic directly associated with the DS land use, these plots highlight any re-routing of traffic that may result from new highway infrastructure or localised congestion. These plots identify where the net change to traffic flow is most pronounced.
- 14.5.2 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 compared to the 2036 Baseline 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 20 PCUs or greater and are displayed in the plots. The flows displayed on new highway links not included in the Baseline (e.g. Botley Bypass, Northern Link Road, Option D Link Road) are the actual link volumes because there is zero flow in the Baseline. It follows that these locations (and the routes they relieve) often show the largest change when looking at the flow difference plots.
- 14.5.3 For all scenarios, the addition of the Botley Bypass over the Baseline shows significant re-routing around Botley, and in combination with the extension of Whiteley Way, does also have an overall strategic impact, pulling trips off the Motorway.
- 14.5.4 In DS1 and DS4, a forecast increase in flow is shown around Fair Oak / B3037 as this is where the development is located. This is also shown in DS2 and DS3, however, the provision of the Northern Link Road helps to accommodate development traffic and removes a component of existing traffic away from the B3037 and other local roads. In DS2 during the AM peak, there is a forecast flow decrease on the M3 northbound towards J12, which isn't forecast in any other scenario. This is linked to congestion at the northbound off-slip at M3 J12 in DS2 resulting in vehicles finding other strategic routes into the Borough (such as Whiteley Way or Allington Lane), which is alleviated in DS3 when further highway mitigation measures are put into place at M3 J12.
- 14.5.5 Within the DS1 scenario, a reduction of traffic is forecast on both Bishopstoke Road into Eastleigh and on Main Road towards Colden Common due to rerouting from the level of congestion caused by the new development.
- 14.5.6 In scenario DS5, a reassignment in flow is forecast on the Option D Link Road from Bishopstoke Road. In DS6, the forecast flow increases are shown coming out of the Allington Lane development site access, but due to congestion within Eastleigh town centre, and with no Option D Link Road, this traffic is using other routes rather than Allington Lane to access / exit the development. In DS7, as the Option D Link Road is included, more traffic is heading north on Allington Lane.

Figure 23. 2036 DS1 (DPR) vs Baseline (DOP) Flow Difference – AM Peak

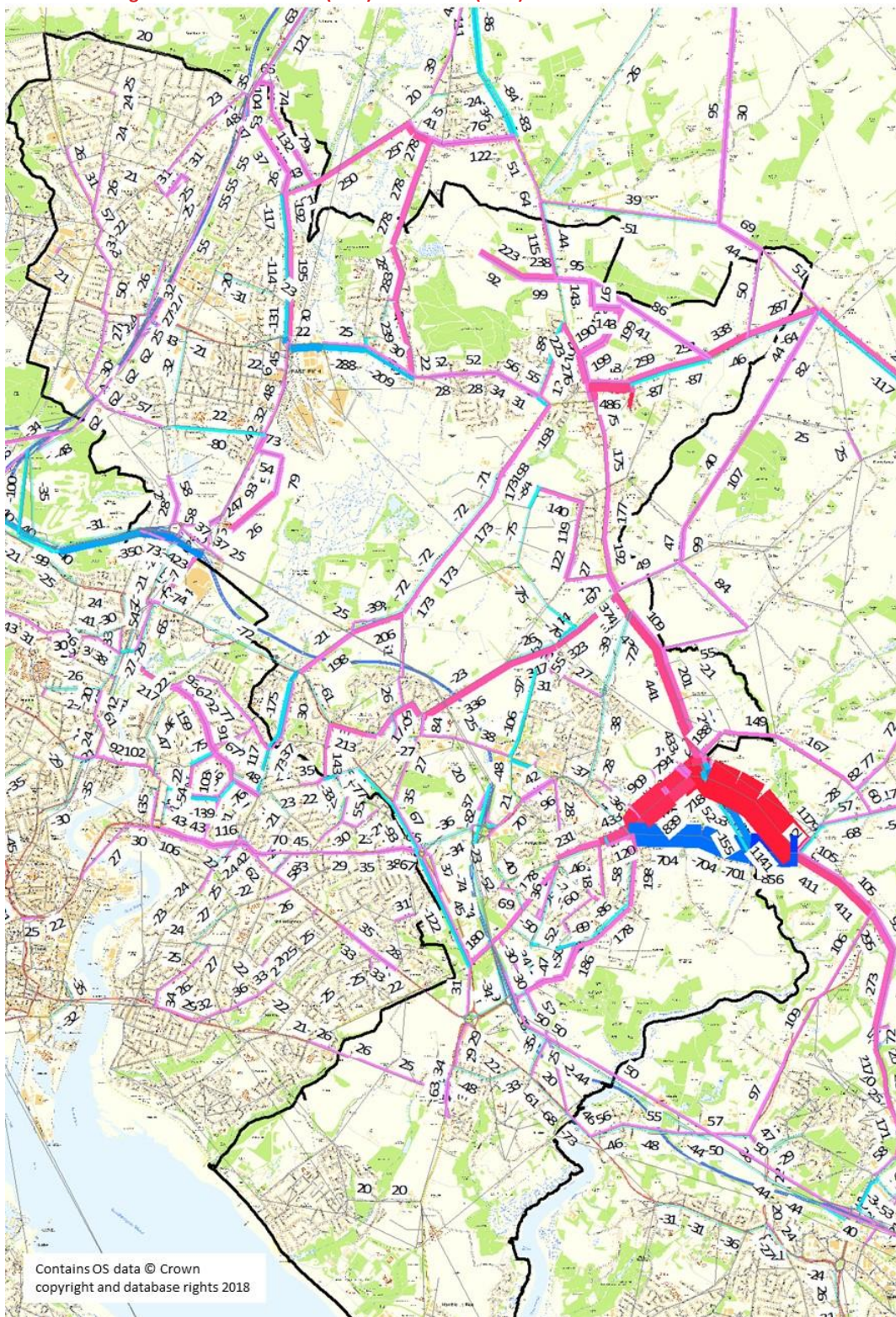


Figure 24. 2036 DS1 (DPR) vs Baseline (DOP) Flow Difference – PM Peak

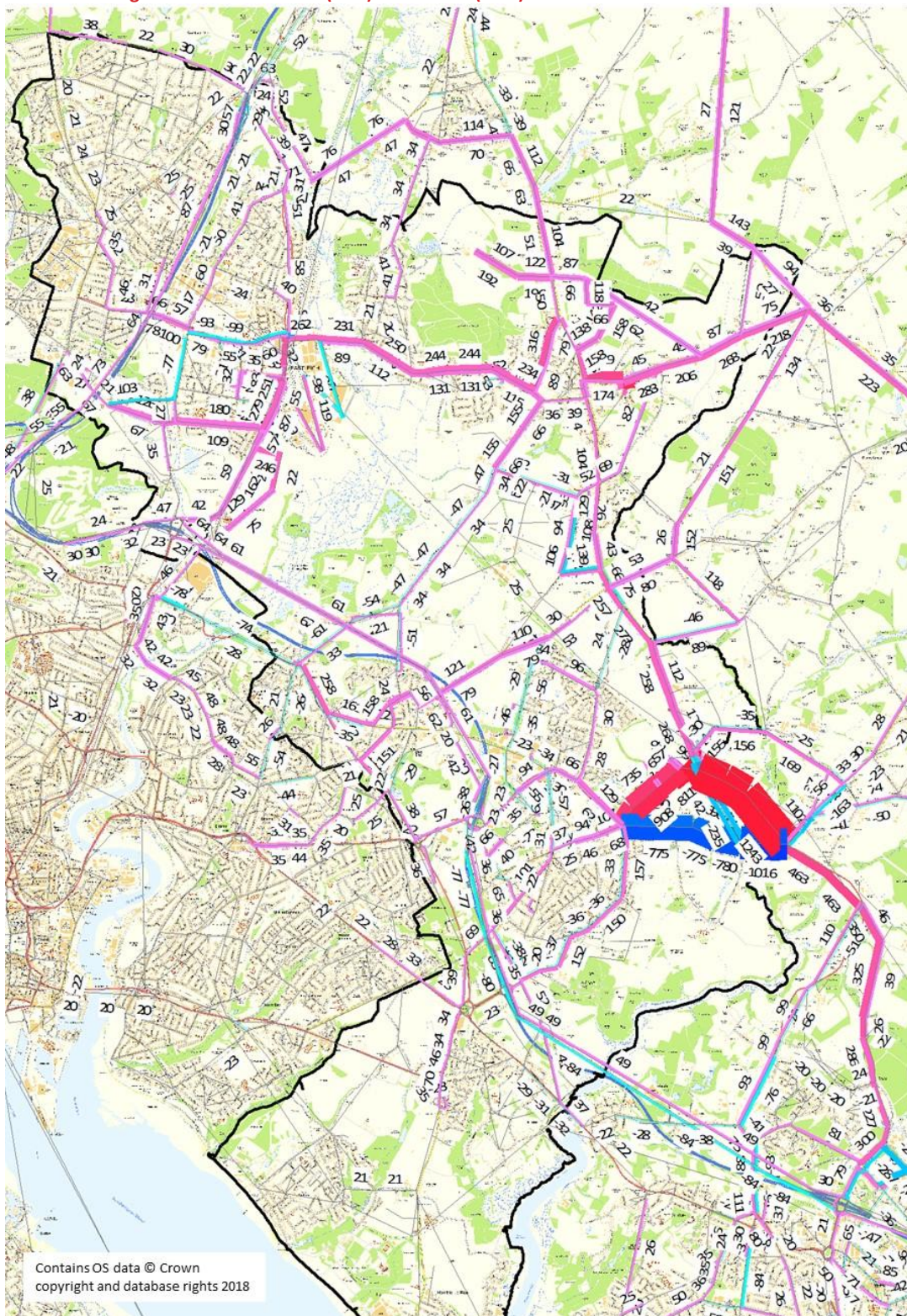


Figure 25. 2036 DS2 (DPC) vs Baseline (DOP) Flow Difference – AM Peak

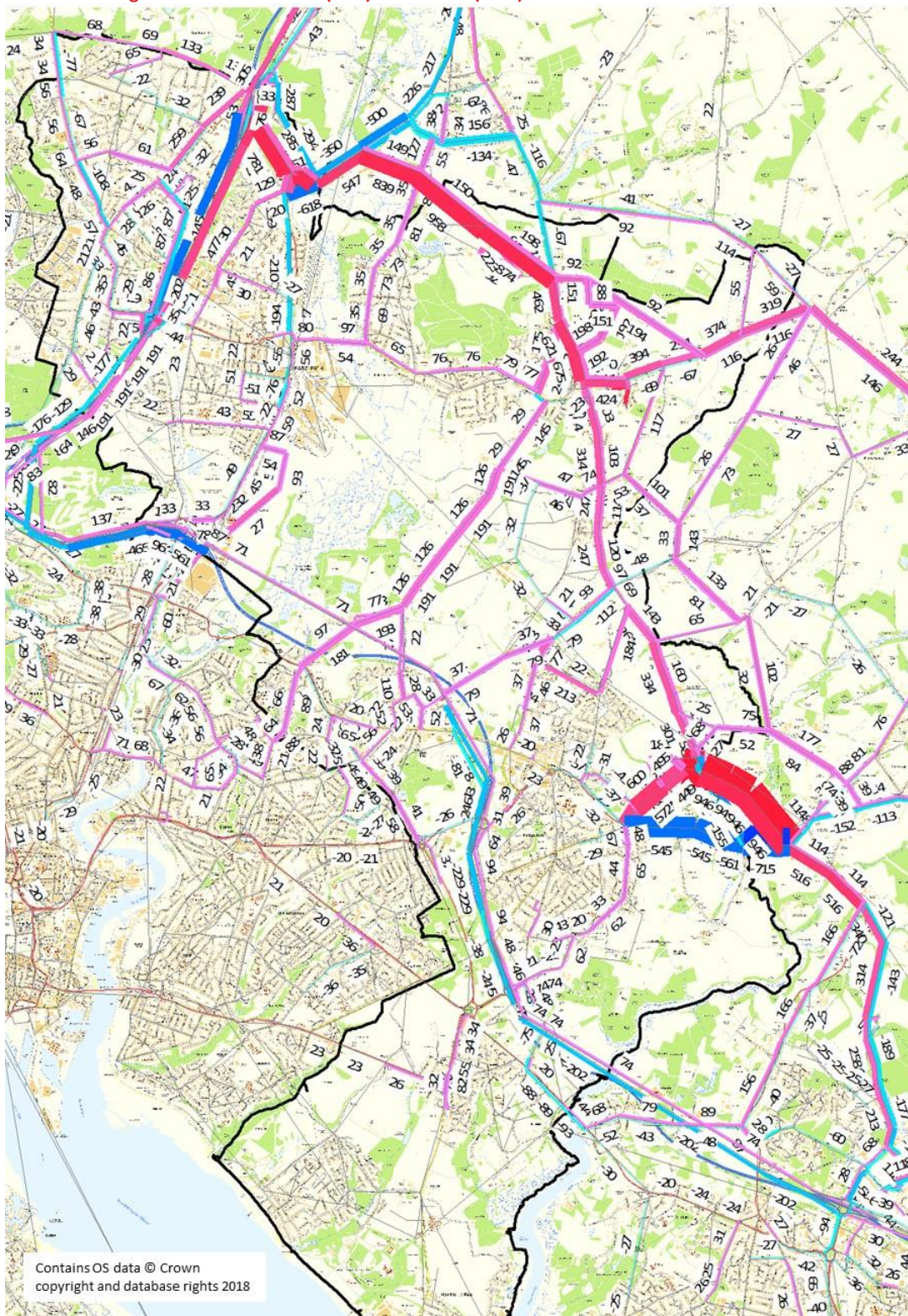


Figure 26. 2036 DS2 (DPC) vs Baseline (DOP) Flow Difference – PM Peak

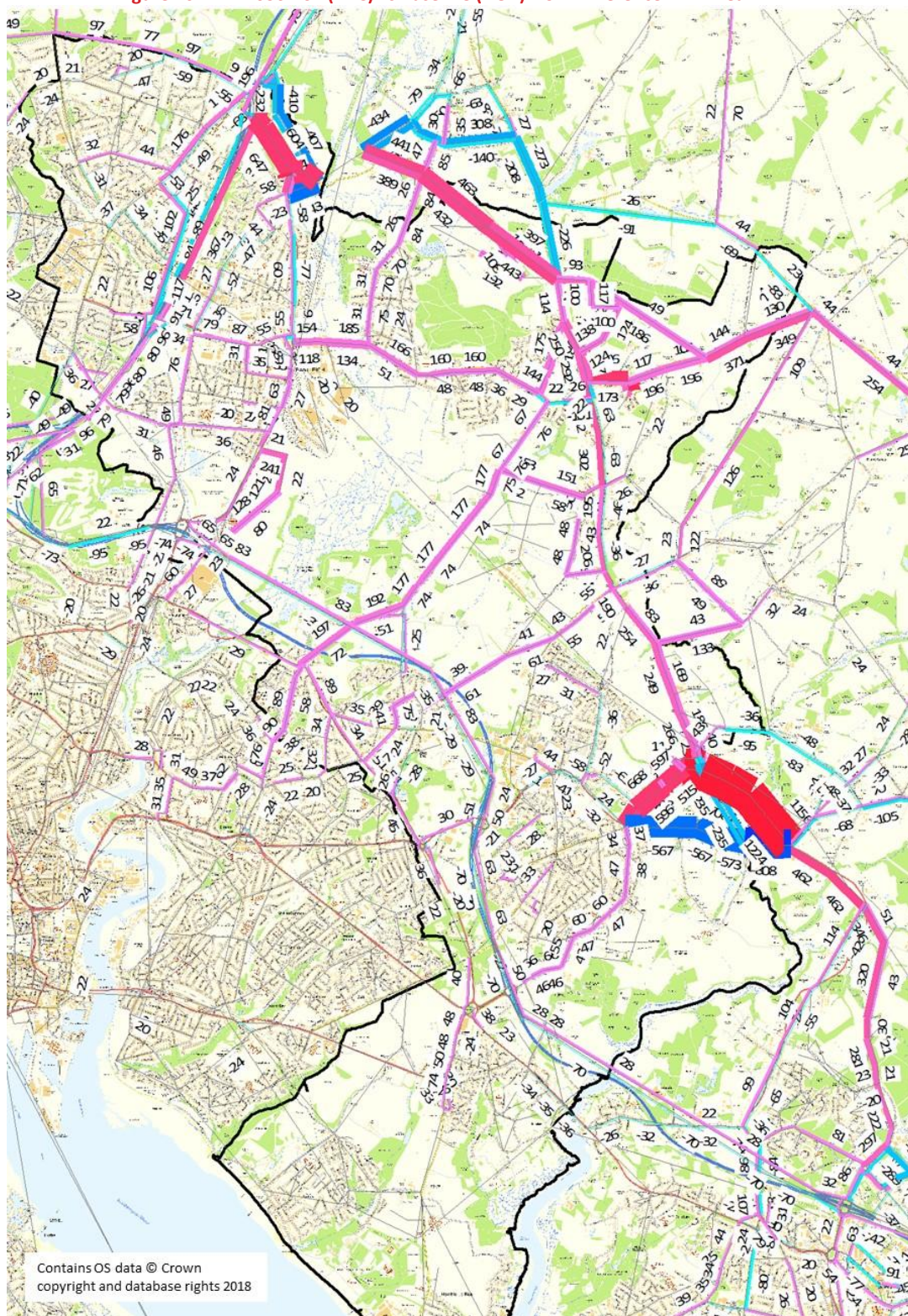


Figure 27. 2036 DS3 (DPP) vs Baseline (DOP) Flow Difference – AM Peak

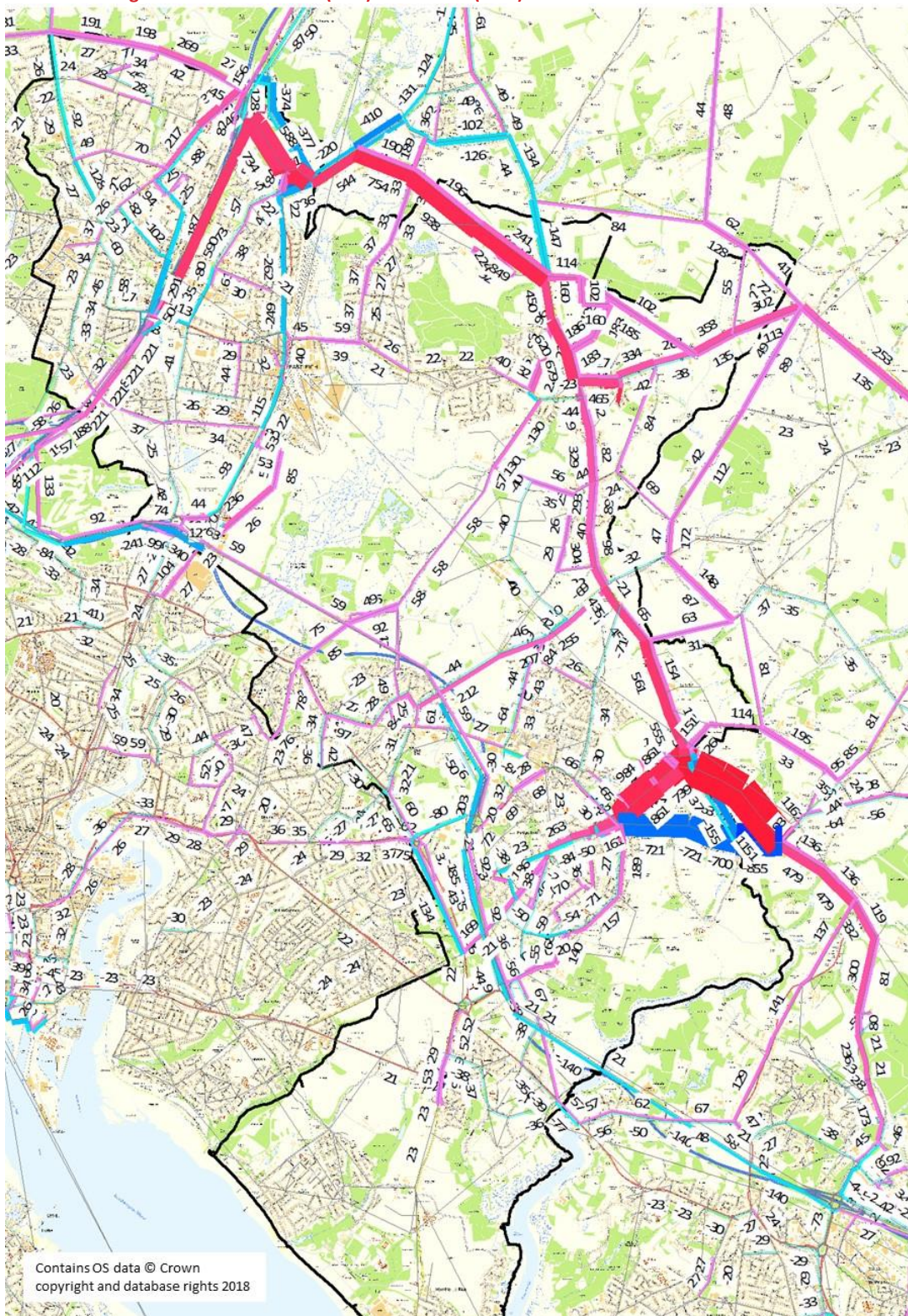


Figure 28. 2036 DS3 (DPP) vs Baseline (DOP) Flow Difference – PM Peak

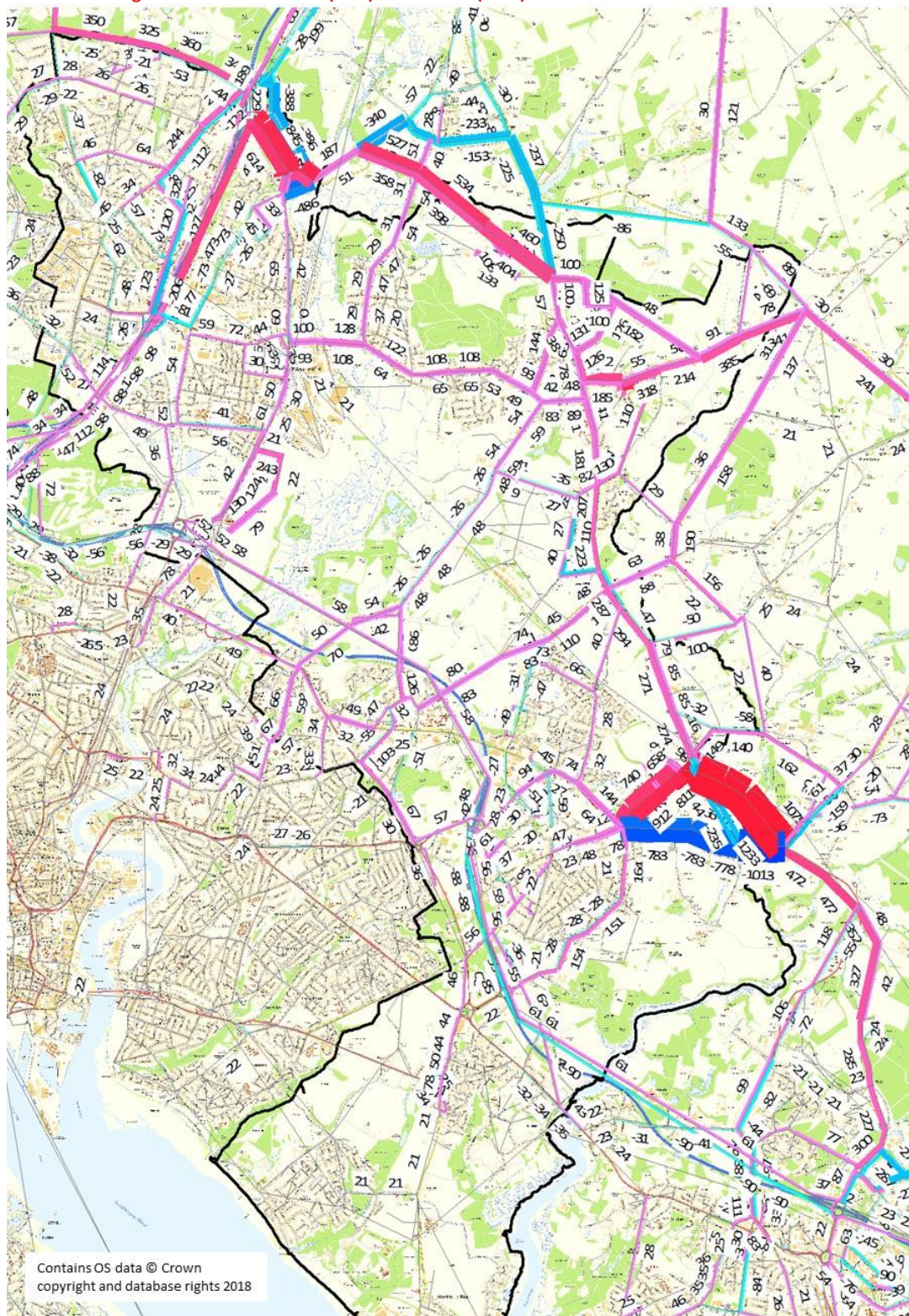


Figure 29. 2036 DS4 (DQG) vs Baseline (DOP) Flow Difference – AM Peak

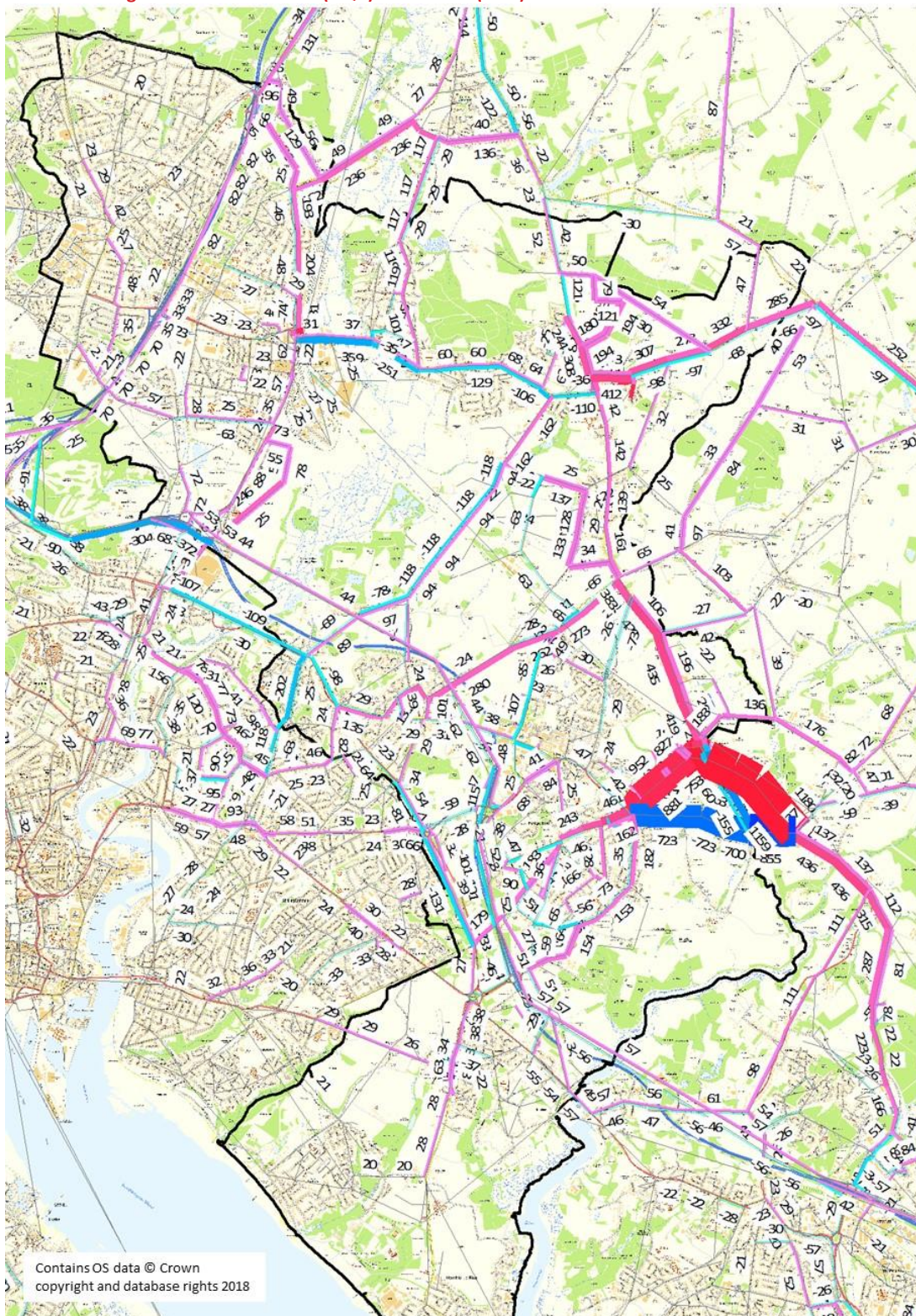


Figure 30. 2036 DS4 (DQG) vs Baseline (DOP) Flow Difference – PM Peak

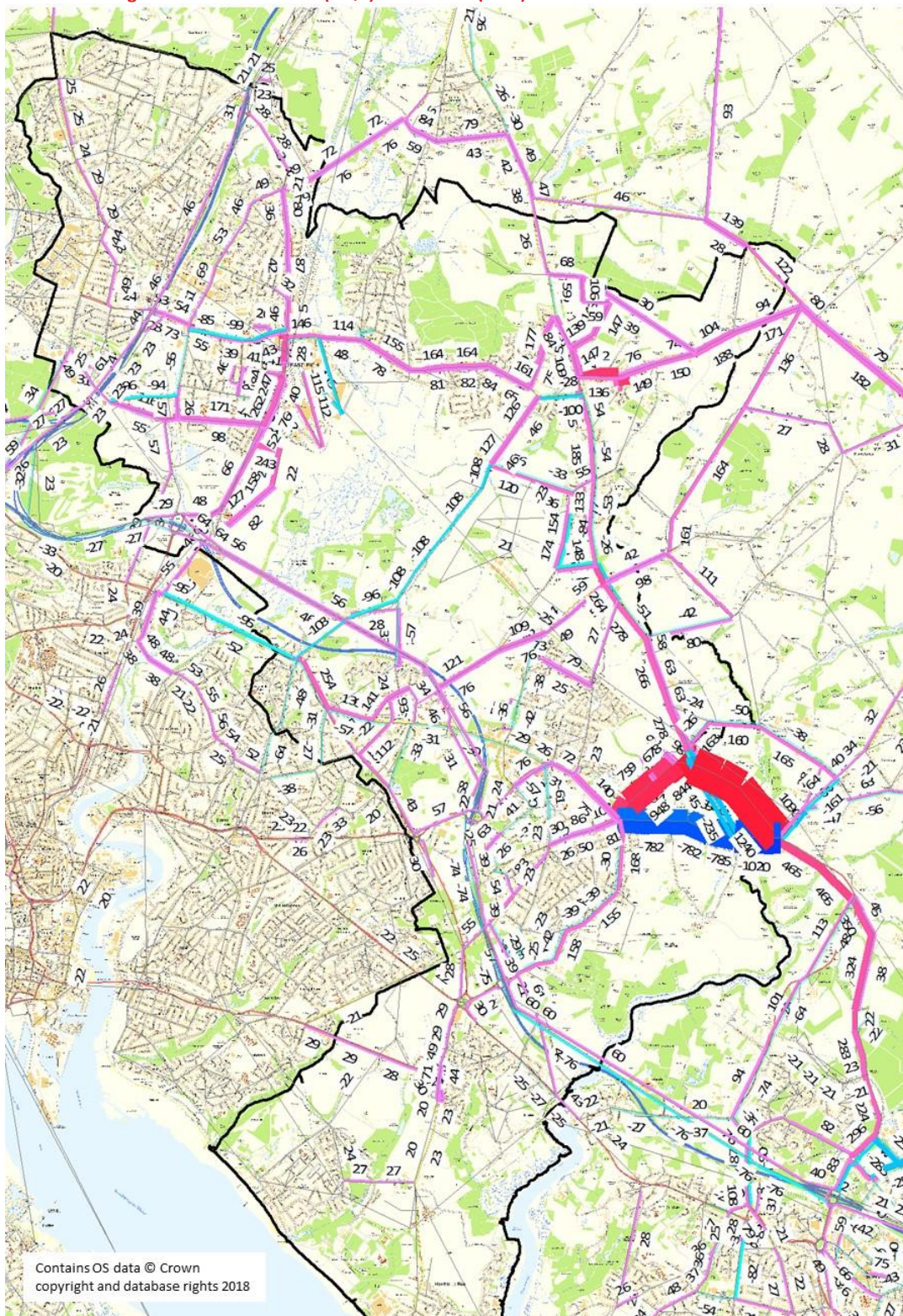


Figure 31. 2036 D55 (DQS) vs Baseline (DOP) Flow Difference – AM Peak

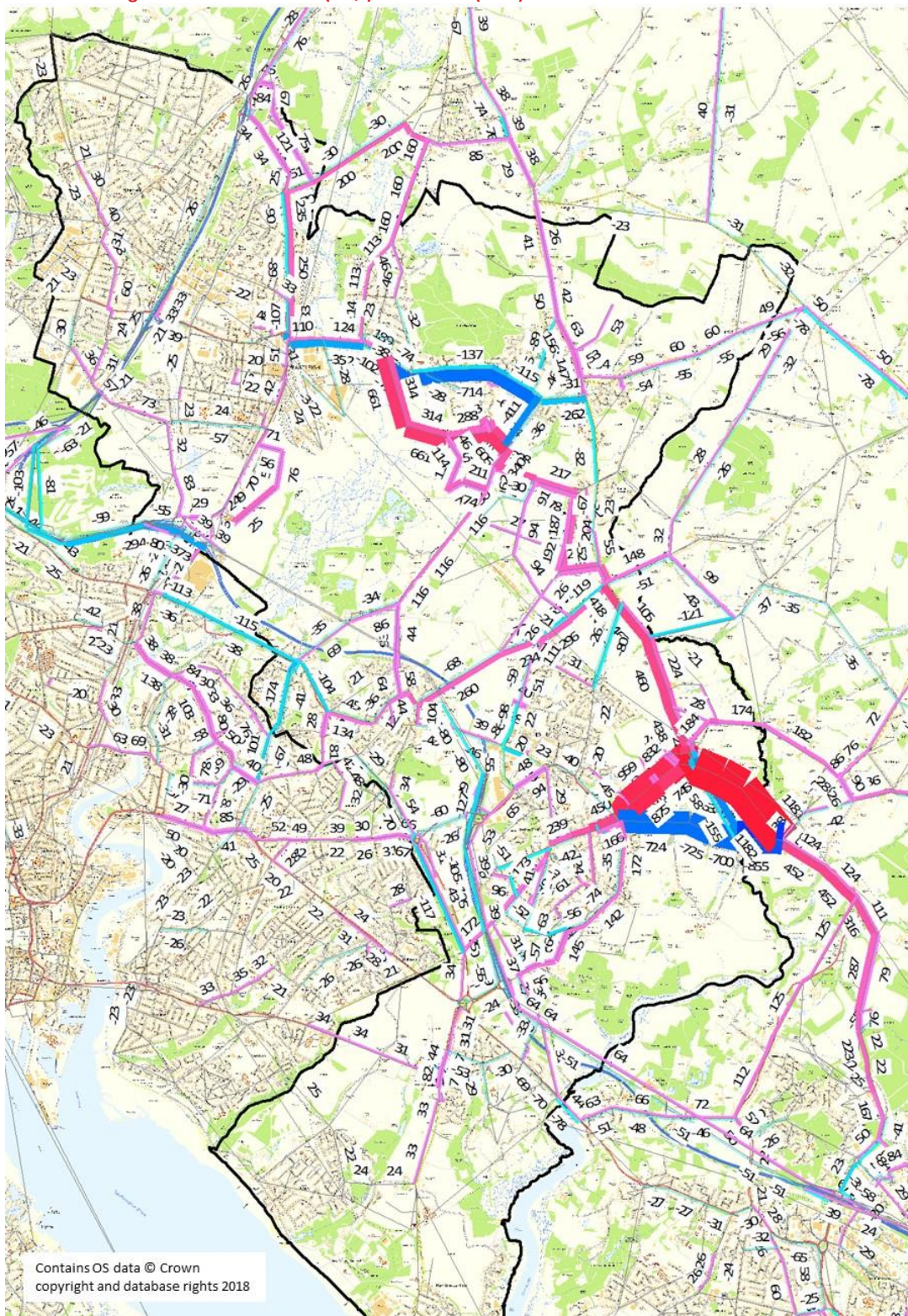


Figure 32. 2036 D55 (DQI) vs Baseline (DOP) Flow Difference – PM Peak

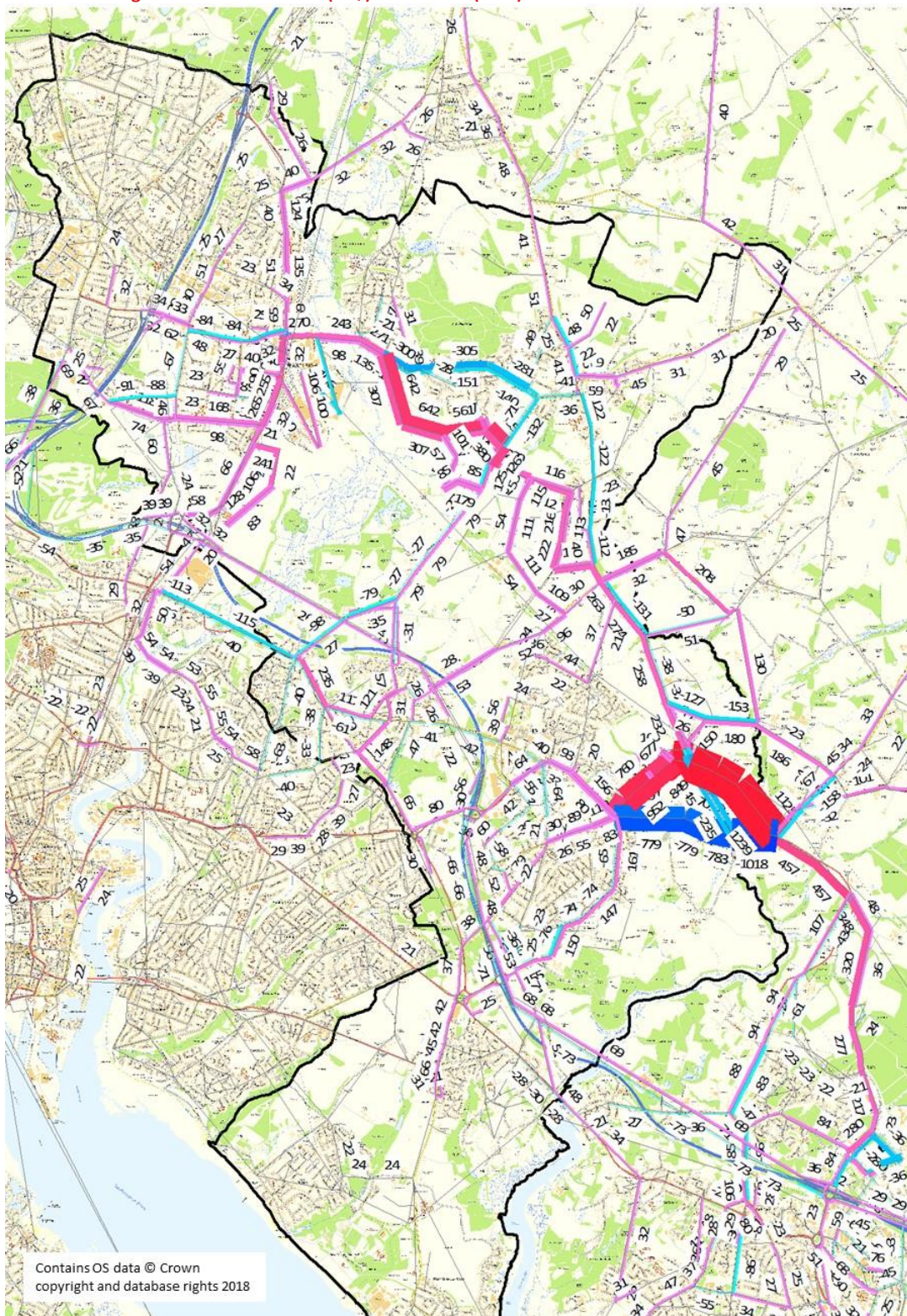


Figure 33. 2036 DS6 (DQQ) vs Baseline (DOP) Flow Difference – AM Peak

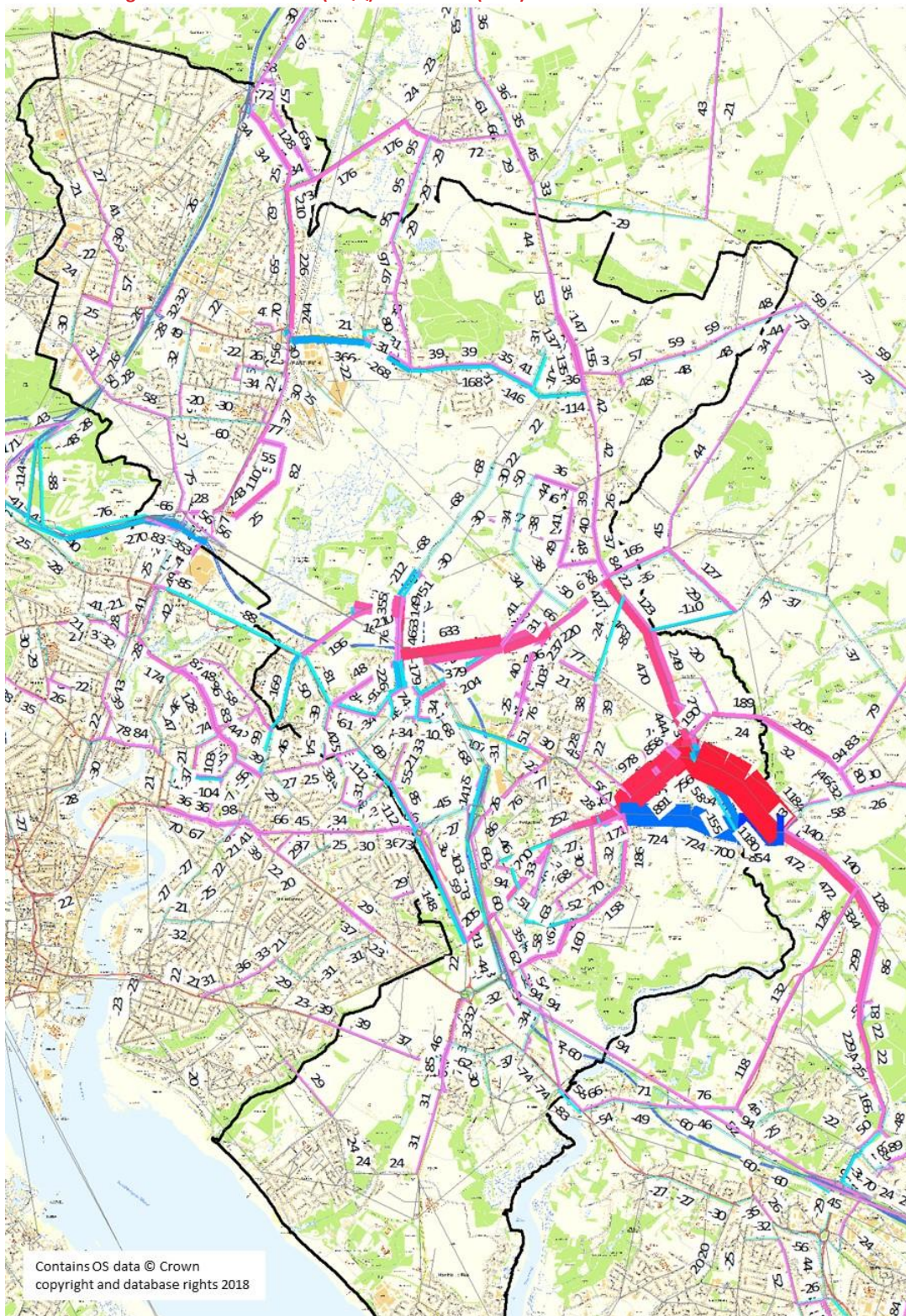


Figure 34. 2036 DS6 (DQQ) vs Baseline (DOP) Flow Difference – PM Peak

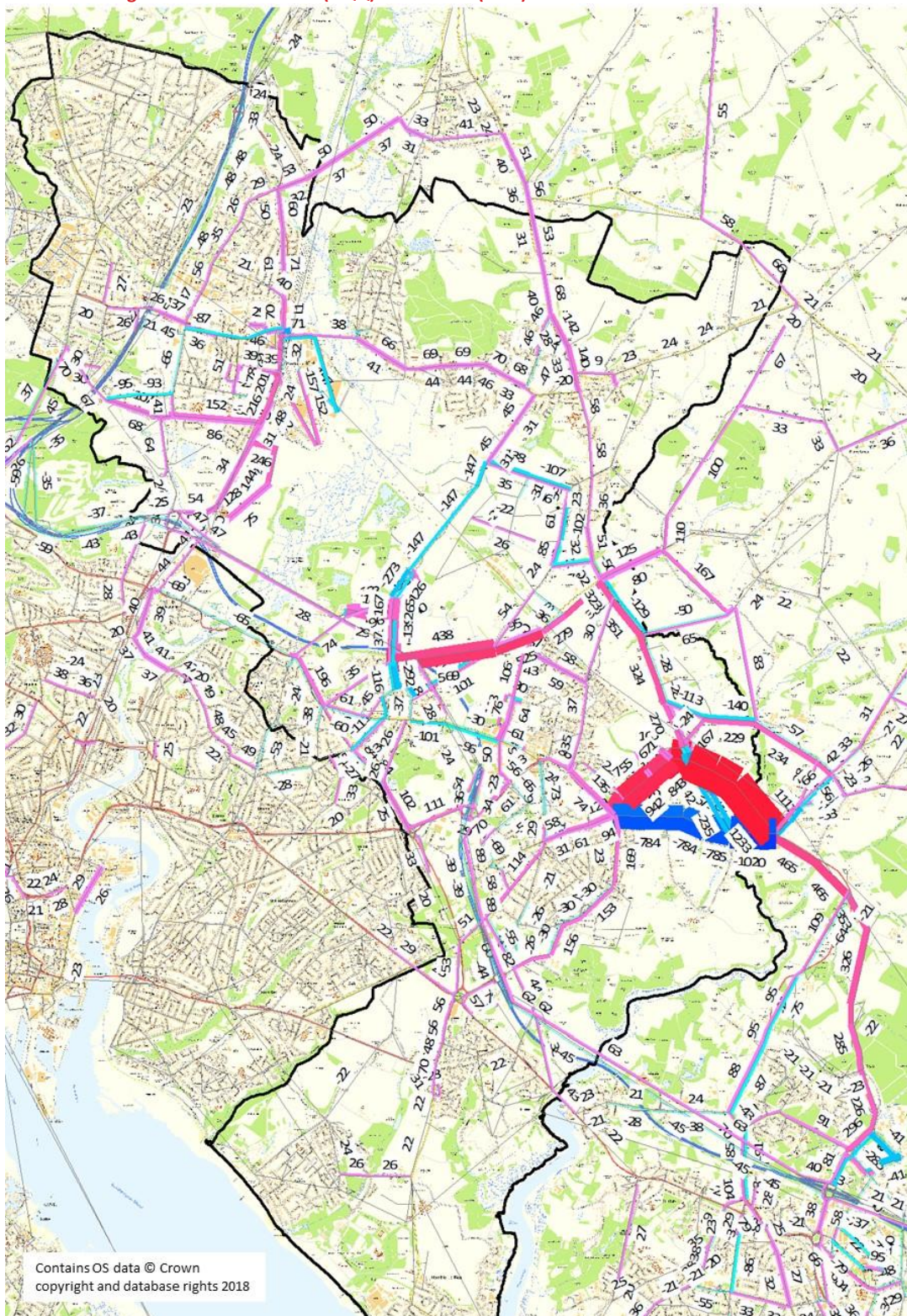


Figure 35. 2036 DS7 (DQR) vs Baseline (DOP) Flow Difference – AM Peak

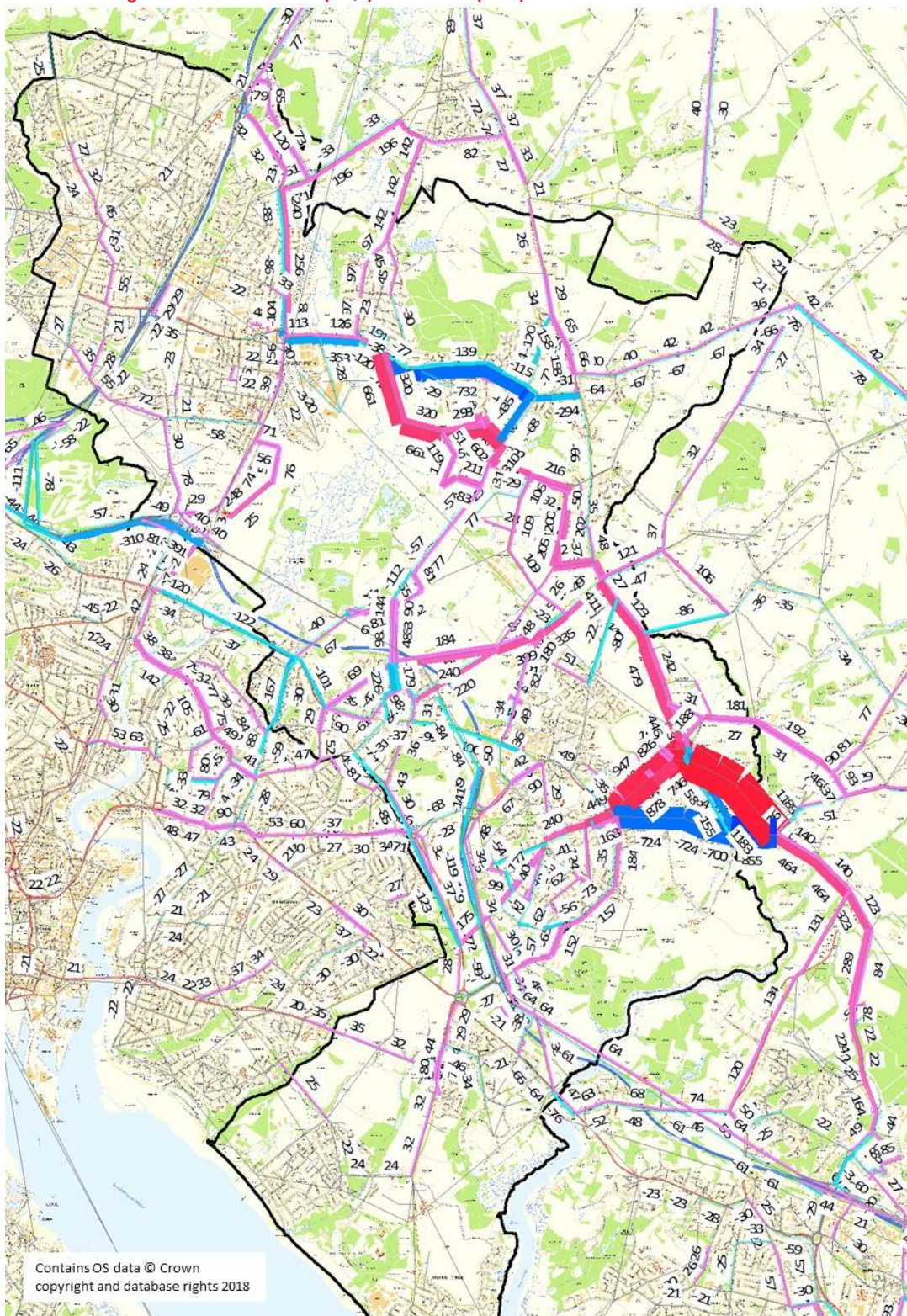
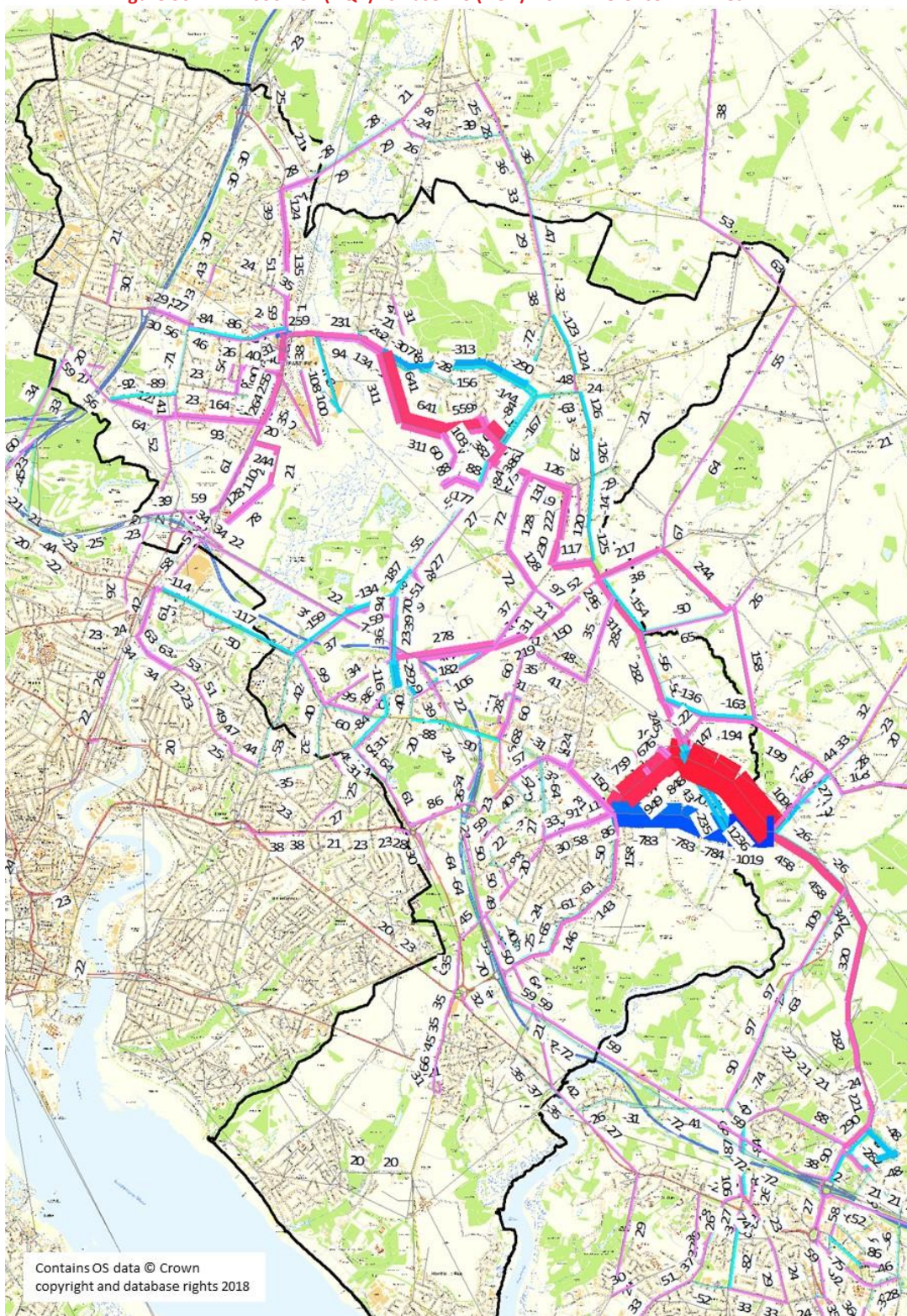


Figure 36. 2036 DS7 (DQR) vs Baseline (DOP) Flow Difference – PM Peak



14.6 Highway Flow Difference Plots – National Parks

- 14.6.1 Figure 37 to Figure 50 shows the change in traffic flow (PCUs) in the AM and PM peak hours between the Baseline and all of the Do Something scenarios, for the South Downs National Parks area in the vicinity to Eastleigh. Flow differences of 1 PCU or greater and are displayed in the plots.
- 14.6.2 These plots indicate that the scenarios which forecast the most change on the roads within the National Park are DS1 and DS4 (with the development in Fair Oak and Bishopstoke but no Northern Link Road). When the new link is included within DS2 and DS3, less impact on the National Park roads is forecast.
- 14.6.3 Table 21 and Table 22 below shows the road forecast with the largest flow increase and decrease respectively for each scenario compared to the Baseline for both peak hours.
- 14.6.4 During the AM peak, the largest flow increase is forecast on the A272 westbound for the DS1 scenario, with the largest flow decrease forecast in DS2 on B3335 Coxshill northbound. For the PM peak, again DS1 is forecast the largest increase on Longwood Road southbound, with DS3 forecasting the largest decrease on B3335 High Street (Twyford) southbound.

Table 21. National Parks Forecast Flow Increases (PCUs/hr)

SCENARIO	AM PEAK		PM PEAK	
	ROAD	CHANGE	ROAD	CHANGE
DS1	A272	+163 WB	Longwood Road	+136 SB
DS2	Whaddon Lane	+22 NB	Longwood Road	+ 84 SB
DS3	Longwood Road	+59 SB	Whaddon Lane	+121 SB
DS4	A272	+131 WB	Whaddon Lane	+93 SB
DS5	A272	+89 WB	Longwood Road	+74 SB
DS6	A272	+98 WB	Longwood Road	+61 SB
DS7	A272	+93 WB	Longwood Road	+46 SB

Table 22. National Parks Forecast Flow Decreases (PCUs/hr)

SCENARIO	AM PEAK		PM PEAK	
	ROAD	CHANGE	ROAD	CHANGE
DS1	B3335 High Street	-95 SB	Belmore Lane	-40 EB
DS2	B3335 Coxshill	-159 NB	B3335 High Street	-53 SB
DS3	B3335 High Street	-116 NB	B3335 High Street	-72 SB
DS4	B3335 High Street	-86 NB	Belmore Lane	-56 EB
DS5	Morestead Road	-60 EB	Belmore Lane	-55 EB
DS6	B3335 High Street	-76 NB	Belmore Lane	-13 EB
DS7	B3335 High Street	-65 NB	Belmore Lane	-40 EB

Figure 37. 2036 DS1 (DPR) vs Baseline (DOP) Flow Difference – AM Peak

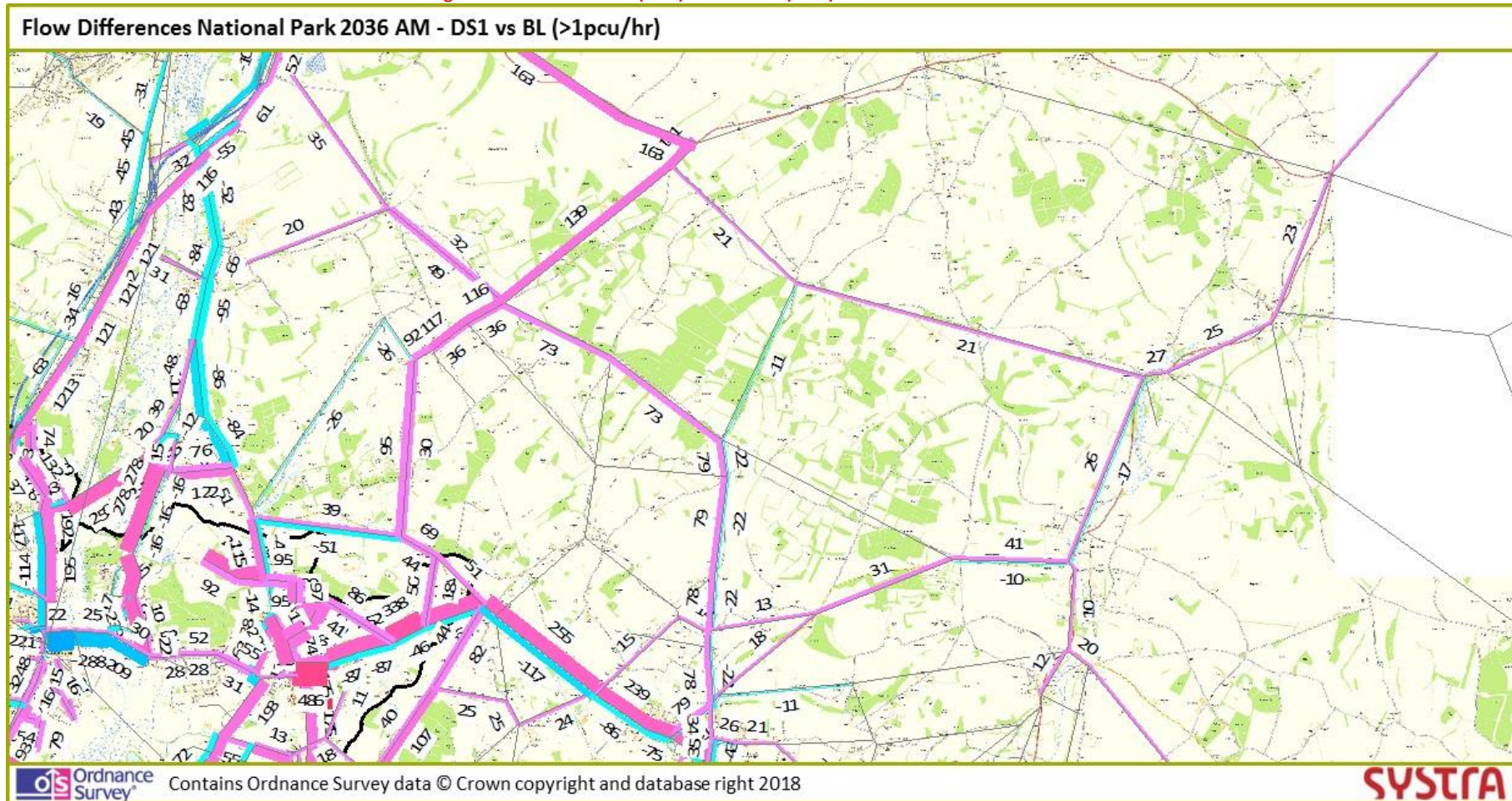


Figure 38. 2036 DS1 (DPR) vs Baseline (DOP) Flow Difference – PM Peak

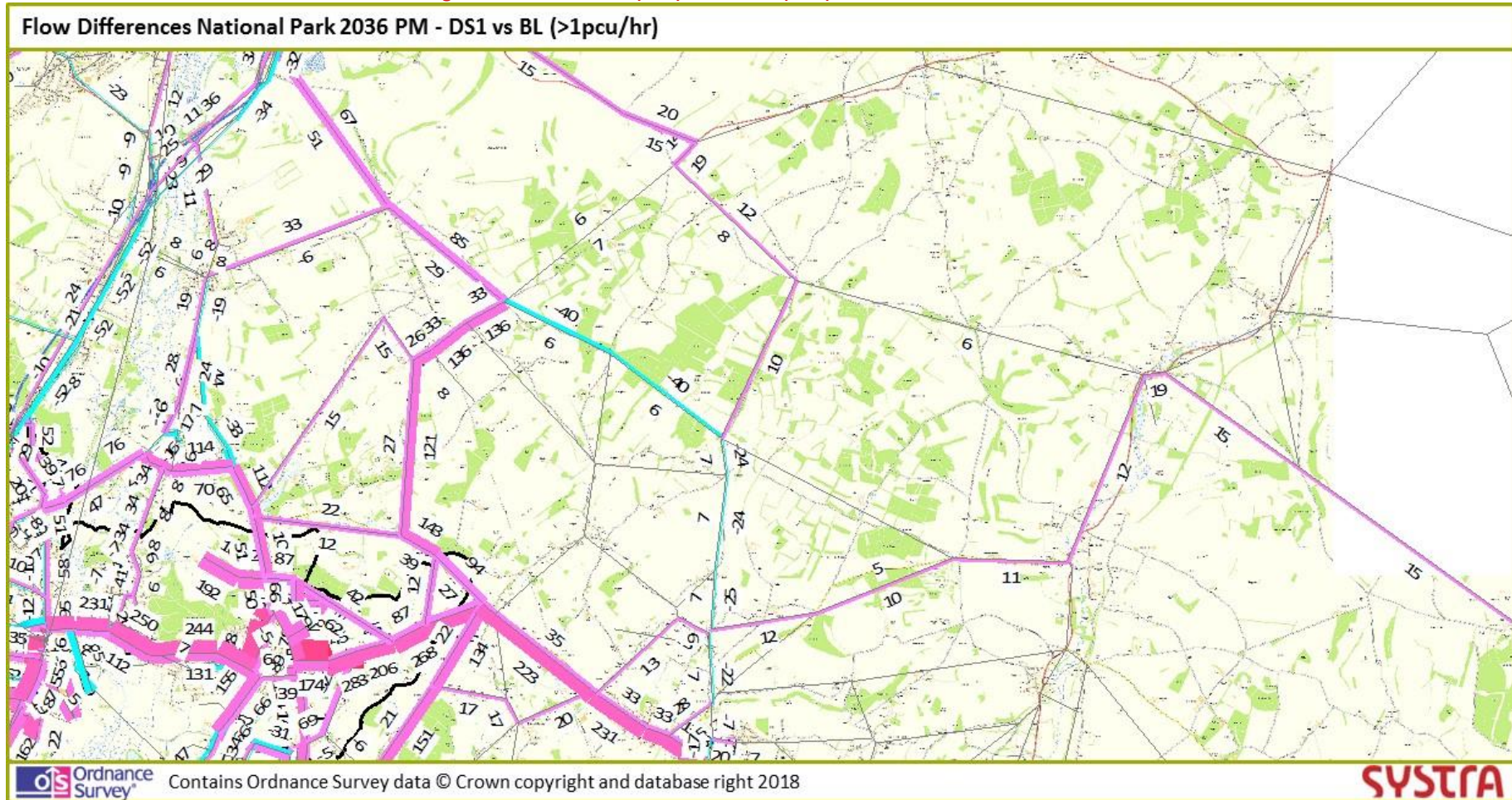


Figure 39. 2036 DS2 (DPC) vs Baseline (DOP) Flow Difference – AM Peak

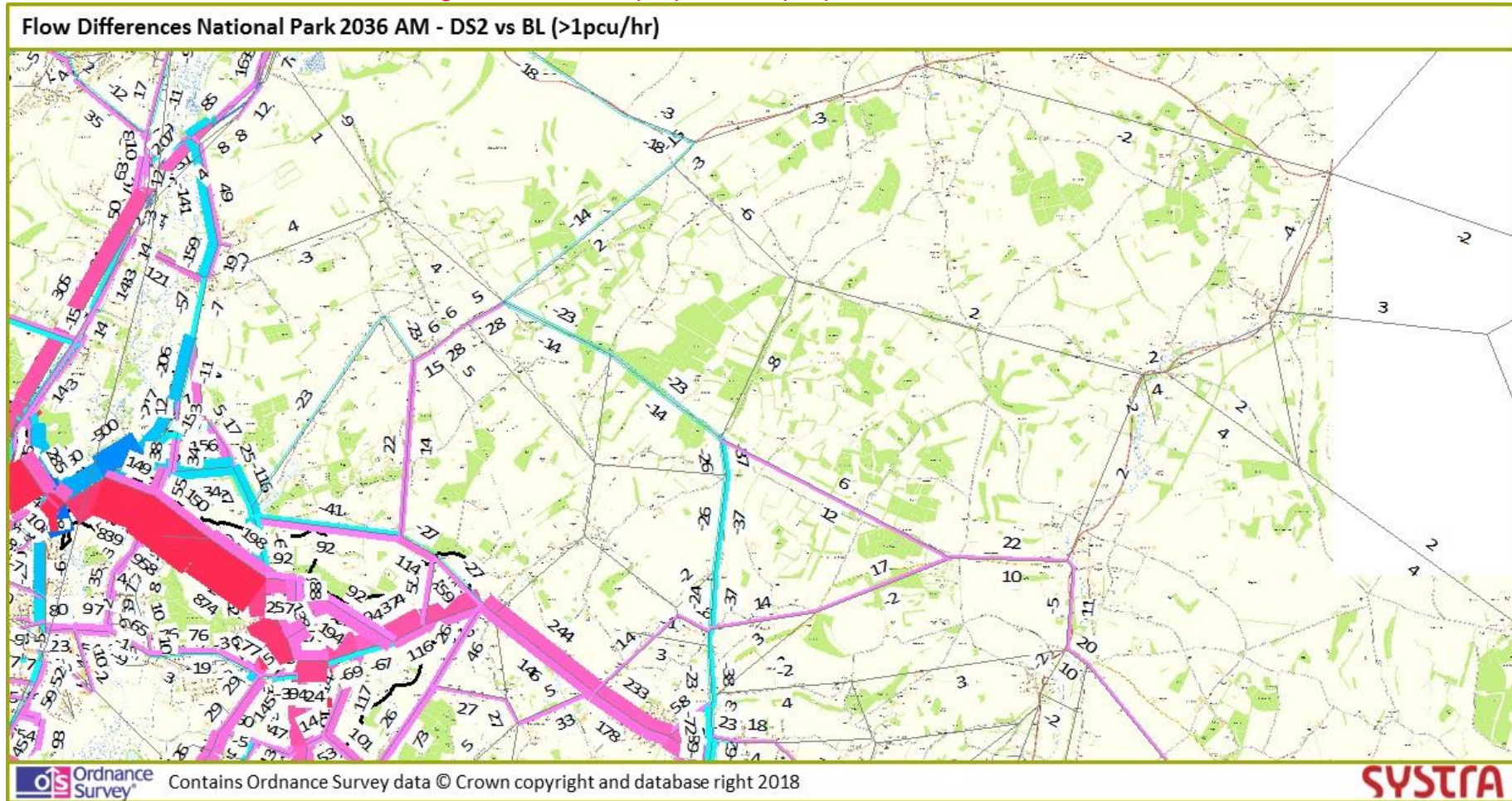


Figure 40. 2036 DS2 (DPC) vs Baseline (DOP) Flow Difference – PM Peak

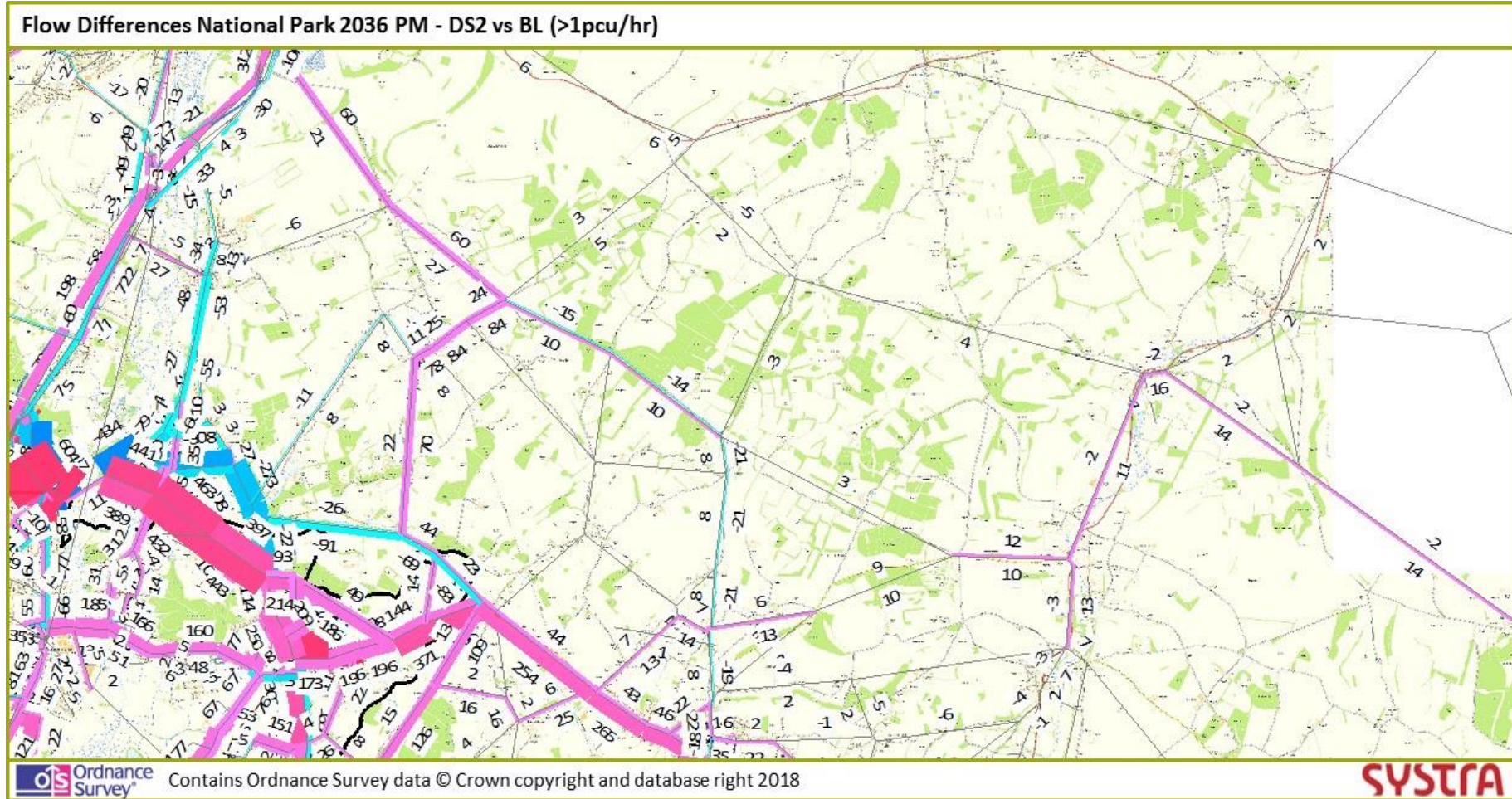


Figure 41. 2036 DS3 (DPP) vs Baseline (DOP) Flow Difference – AM Peak

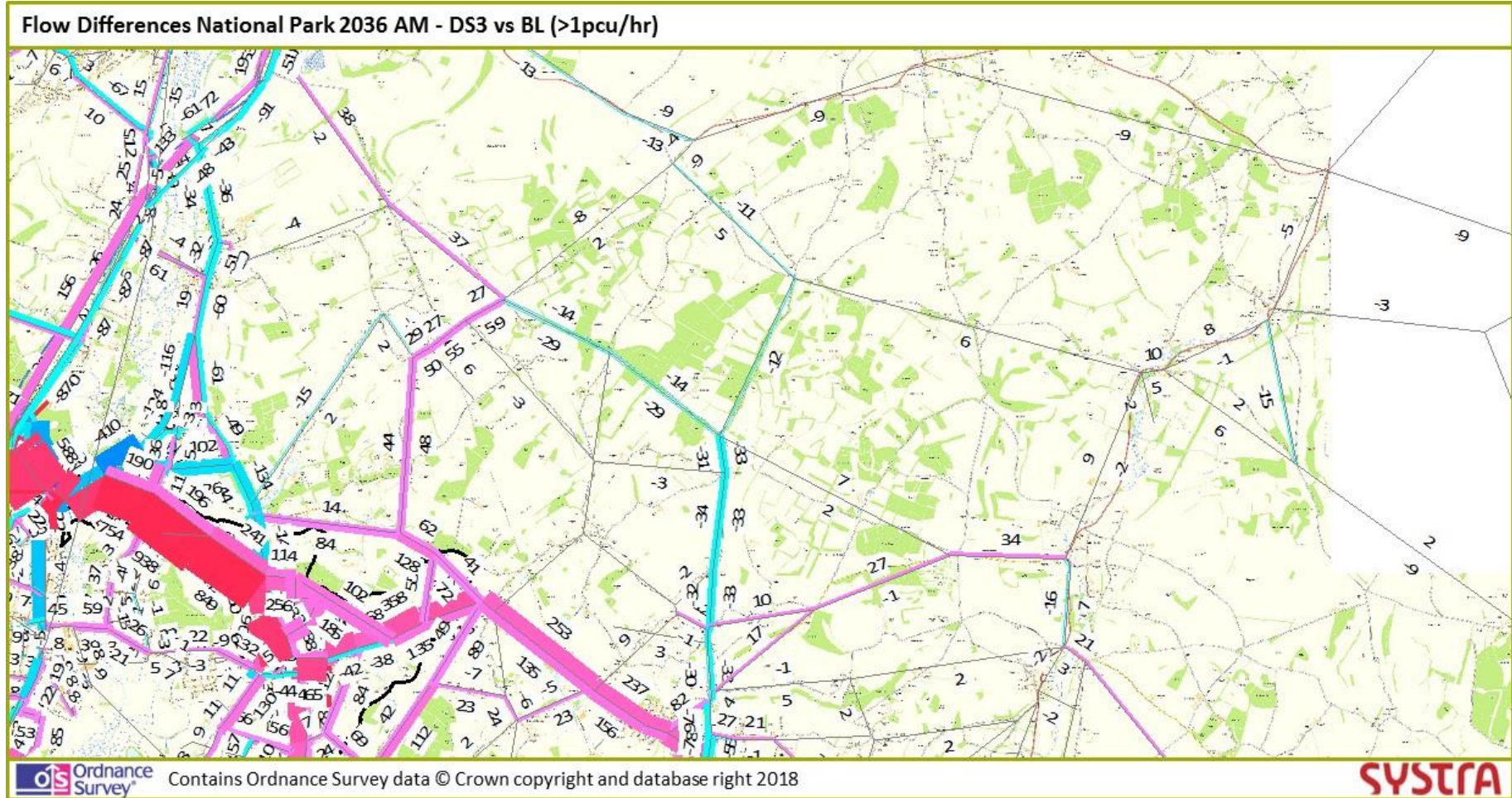
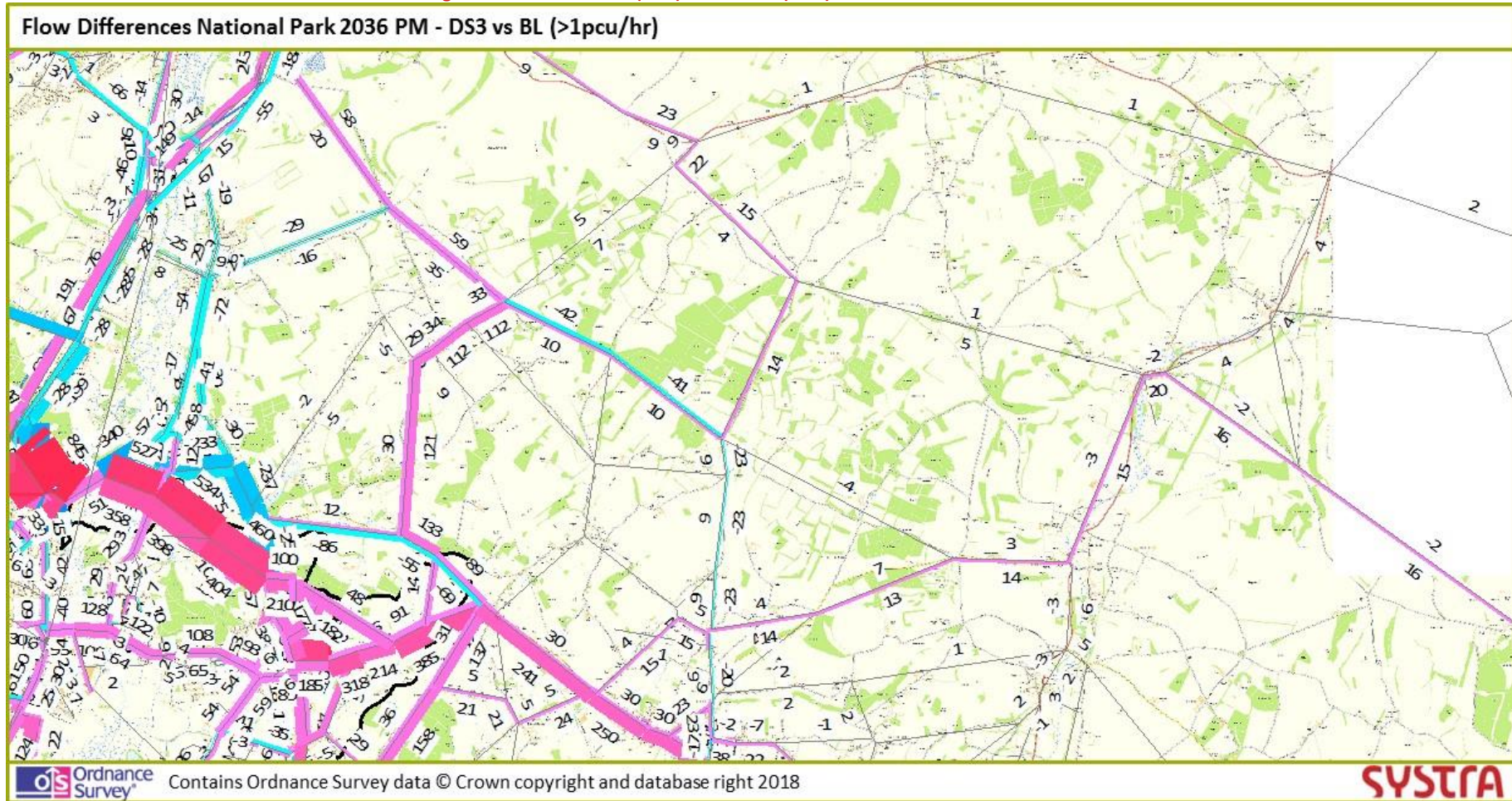


Figure 42. 2036 DS3 (DPP) vs Baseline (DOP) Flow Difference – PM Peak



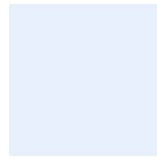
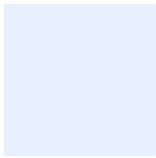
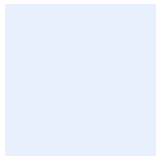


Figure 43. 2036 DS4 (DQG) vs Baseline (DOP) Flow Difference – AM Peak

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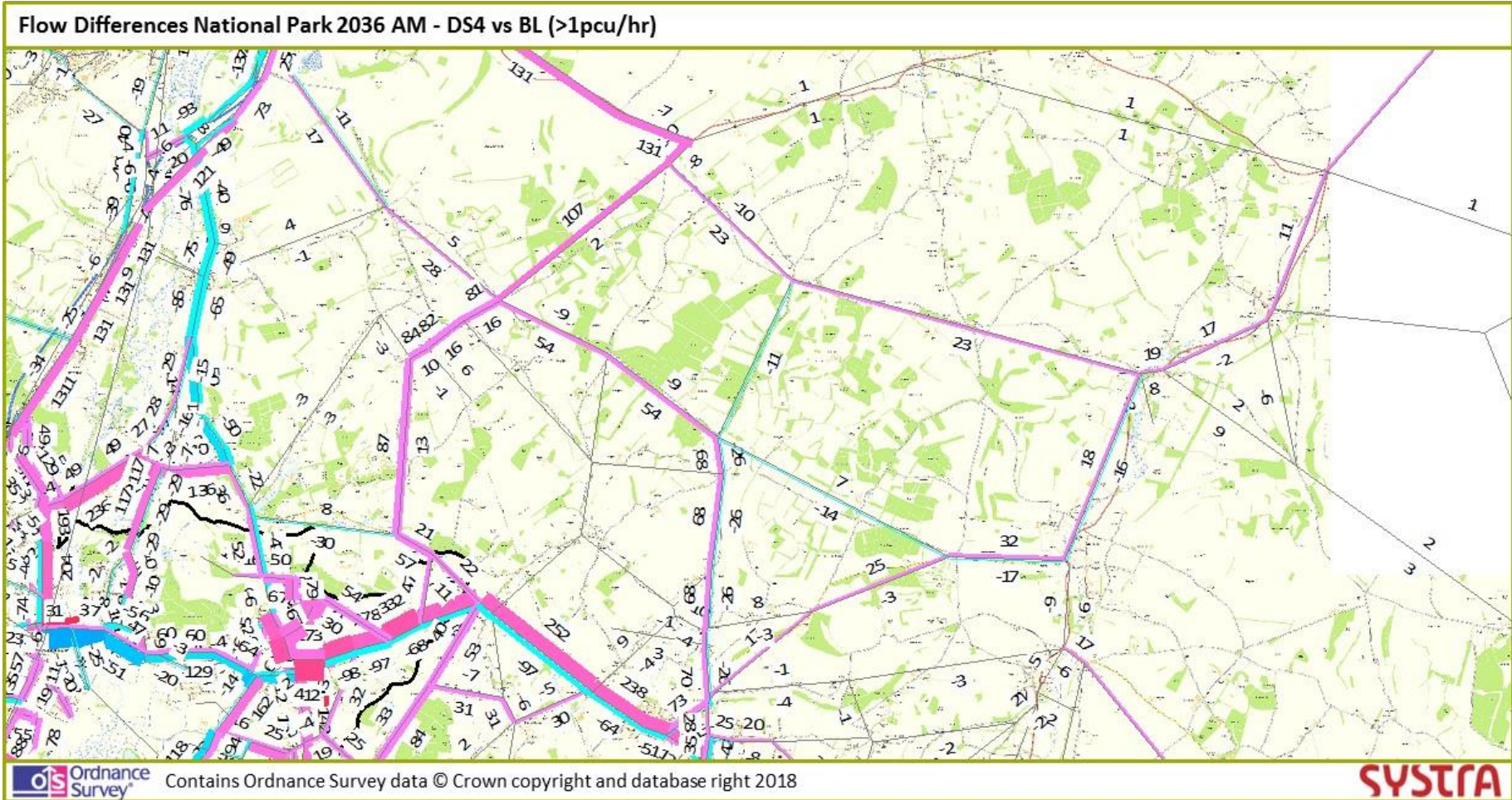
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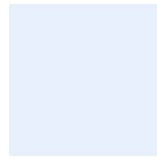
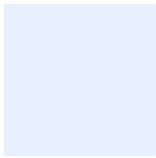
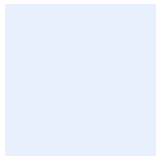


Figure 44. 2036 DS4 (DQG) vs Baseline (DOP) Flow Difference – PM Peak

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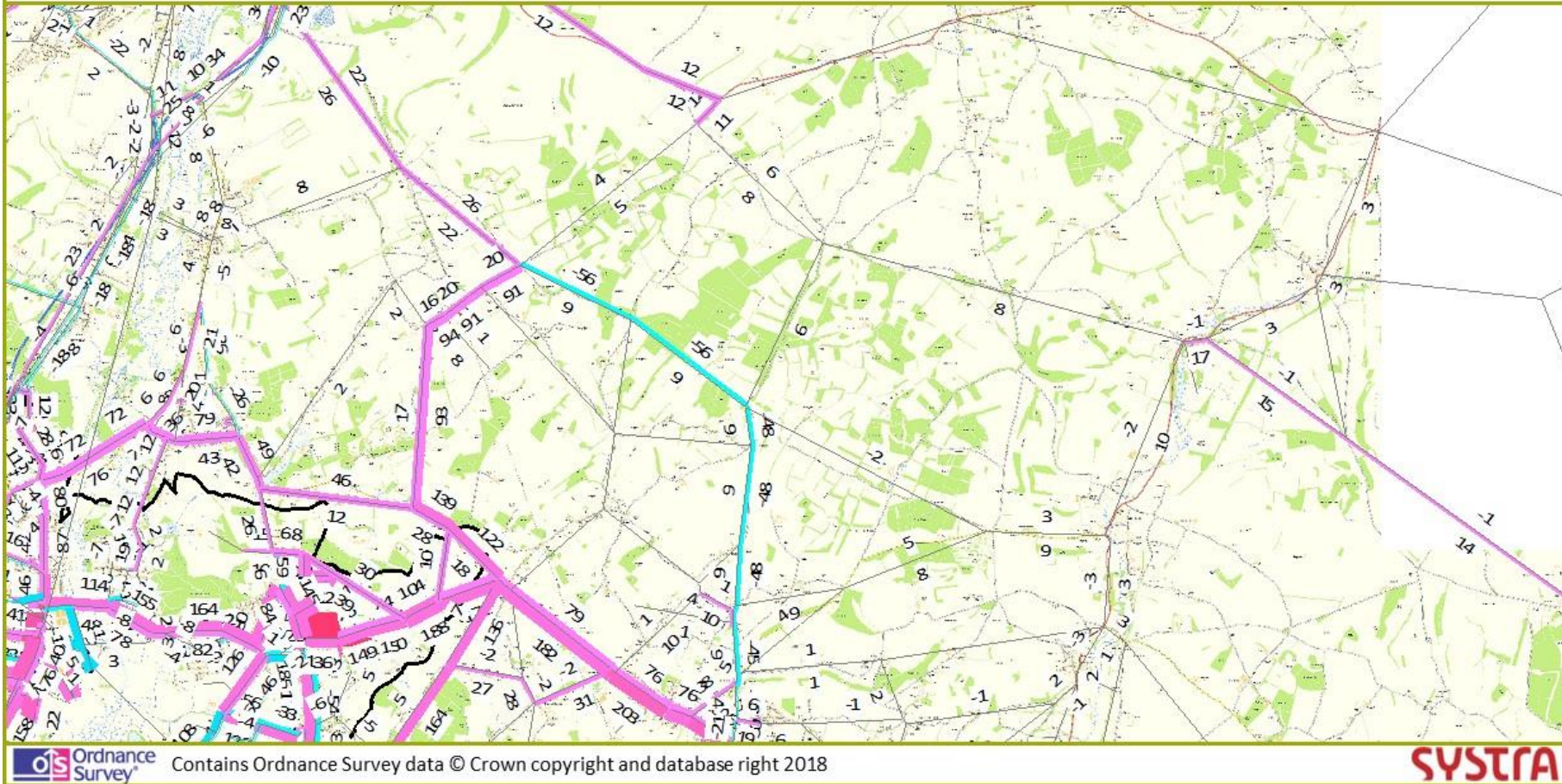
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Flow Differences National Park 2036 PM - DS4 vs BL (>1pcu/hr)



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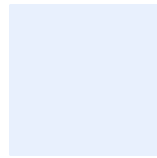
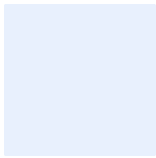
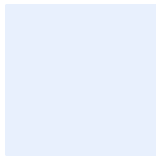


Figure 45. 2036 DS5 (DQS) vs Baseline (DOP) Flow Difference – AM Peak

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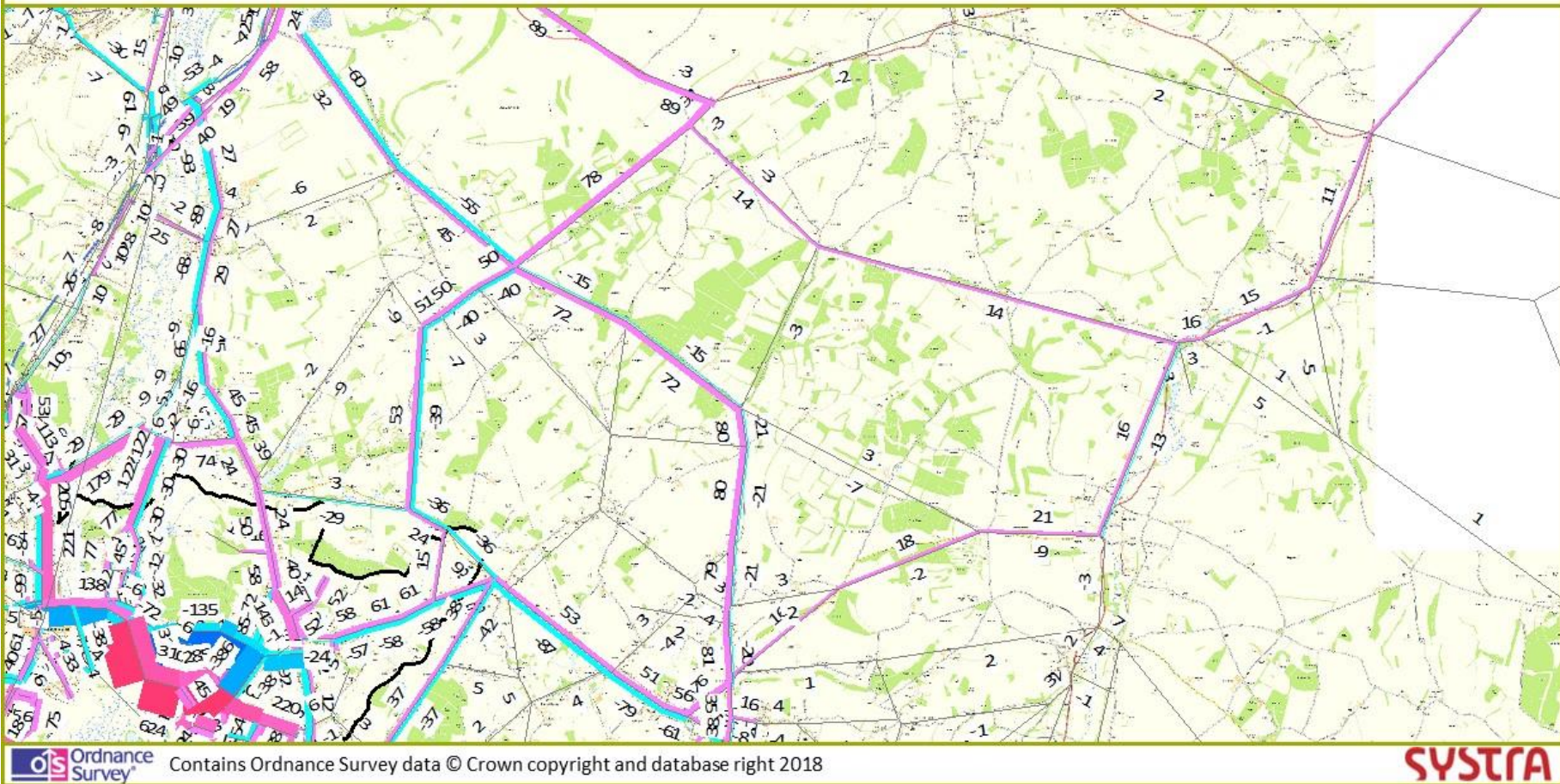
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Flow Differences National Park 2036 AM - DS5 vs BL (>1pcu/hr)



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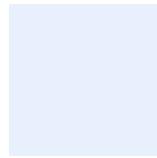
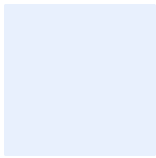
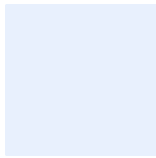


Figure 46. 2036 DS5 (DQS) vs Baseline (DOP) Flow Difference – PM Peak

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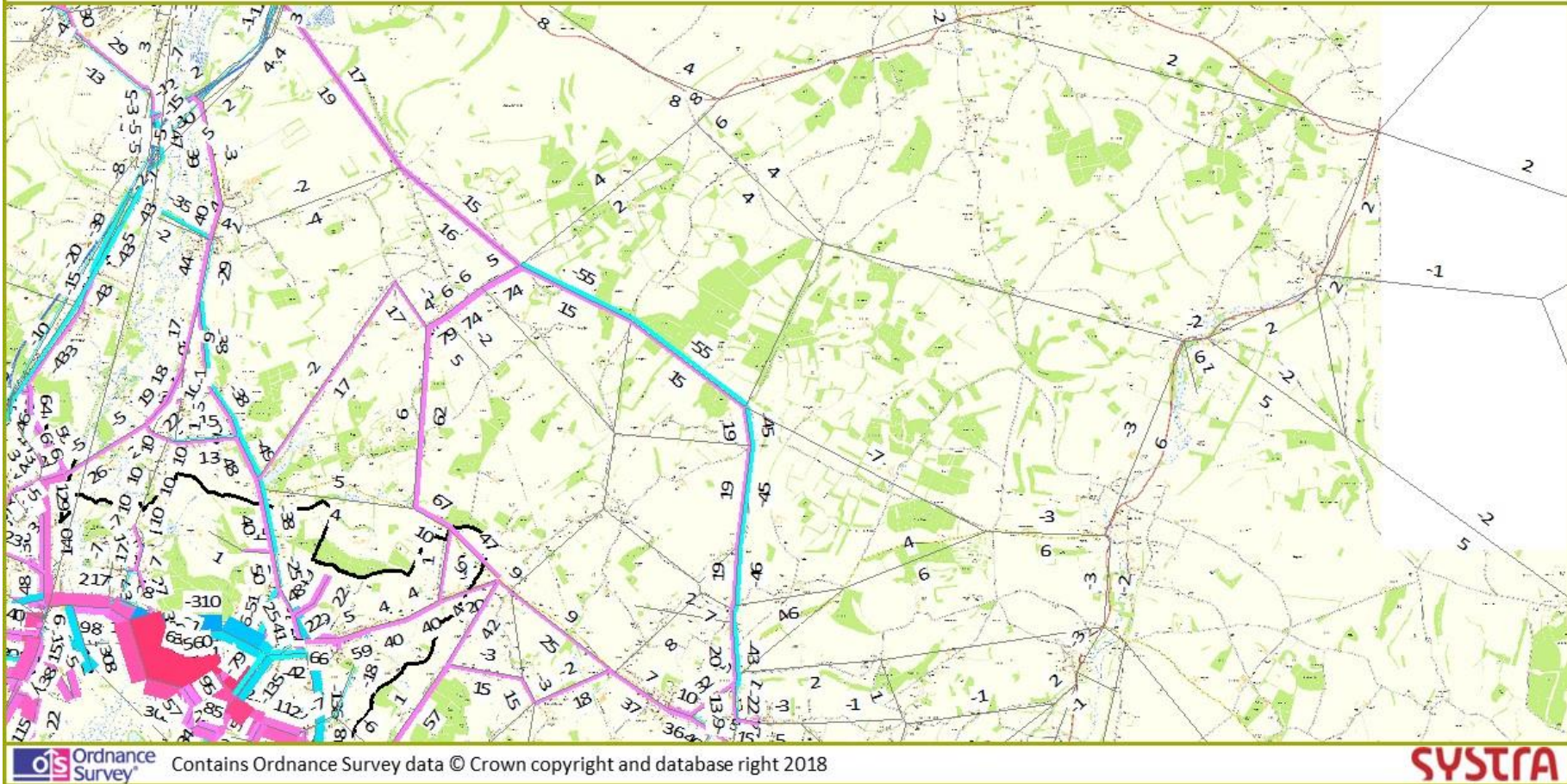
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Flow Differences National Park 2036 PM - DS5 vs BL (>1pcu/hr)



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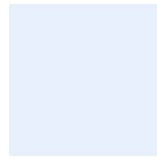
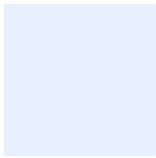
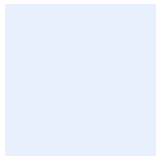


Figure 47. 2036 DS6 (DQQ) vs Baseline (DOP) Flow Difference – AM Peak

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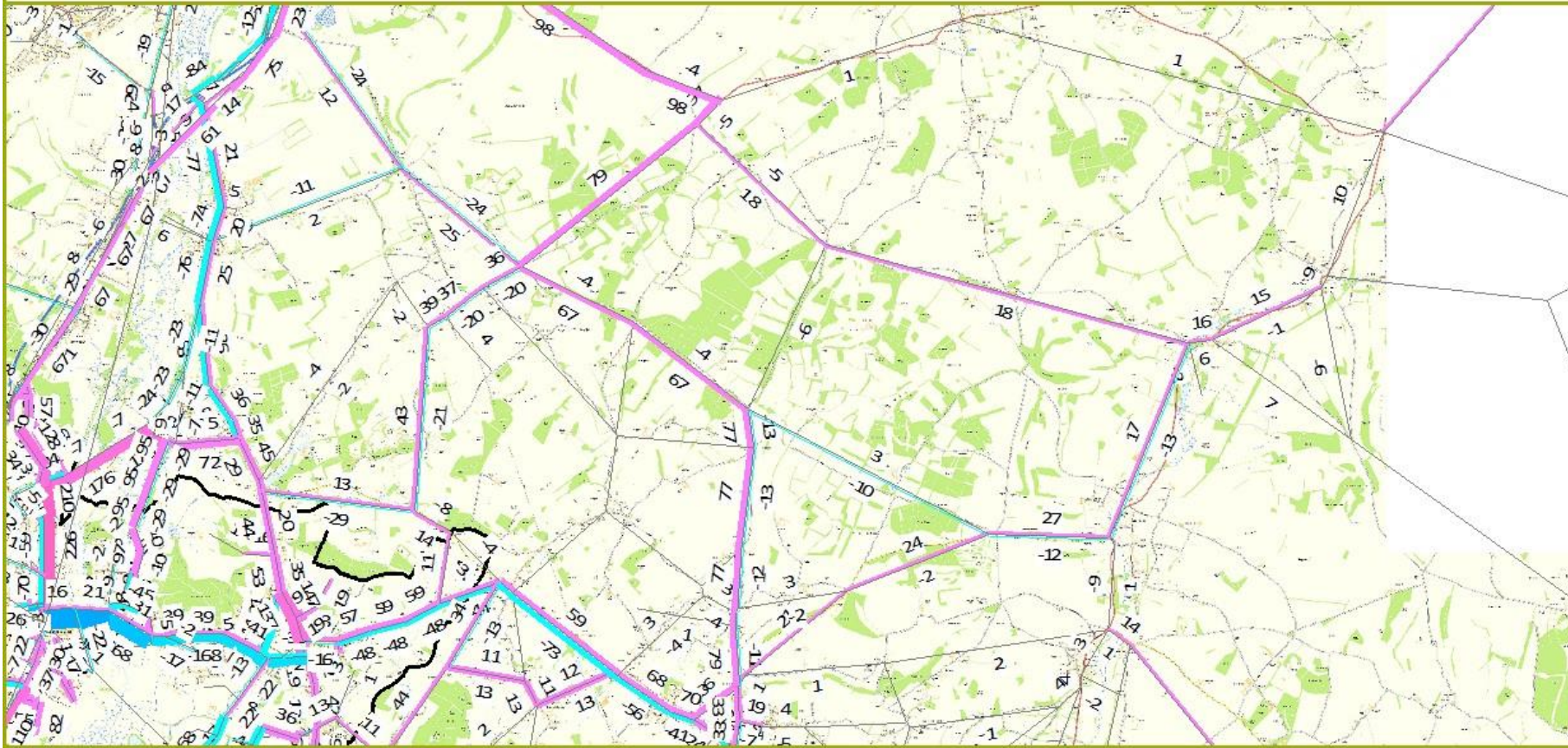
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Flow Differences National Park 2036 AM - DS6 vs BL (>1pcu/hr)



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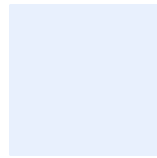
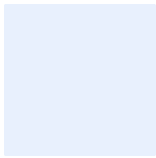
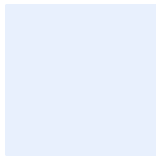


Figure 48. 2036 DS6 (DQQ) vs Baseline (DOP) Flow Difference – PM Peak

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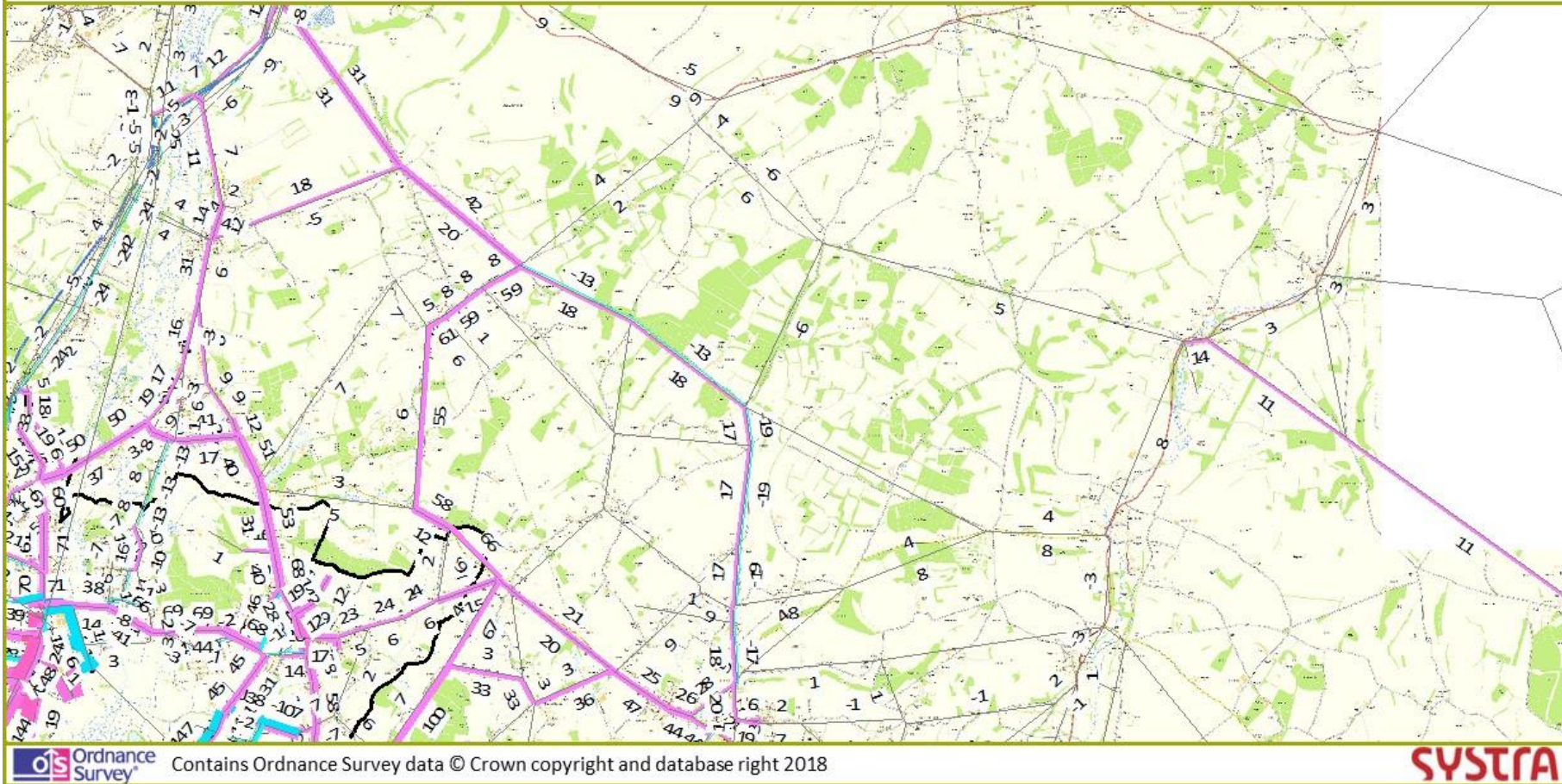
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Flow Differences National Park 2036 PM - DS6 vs BL (>1pcu/hr)



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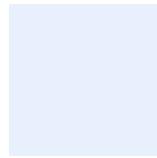
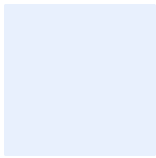
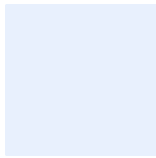


Figure 49. 2036 DS7 (DQR) vs Baseline (DOP) Flow Difference – AM Peak

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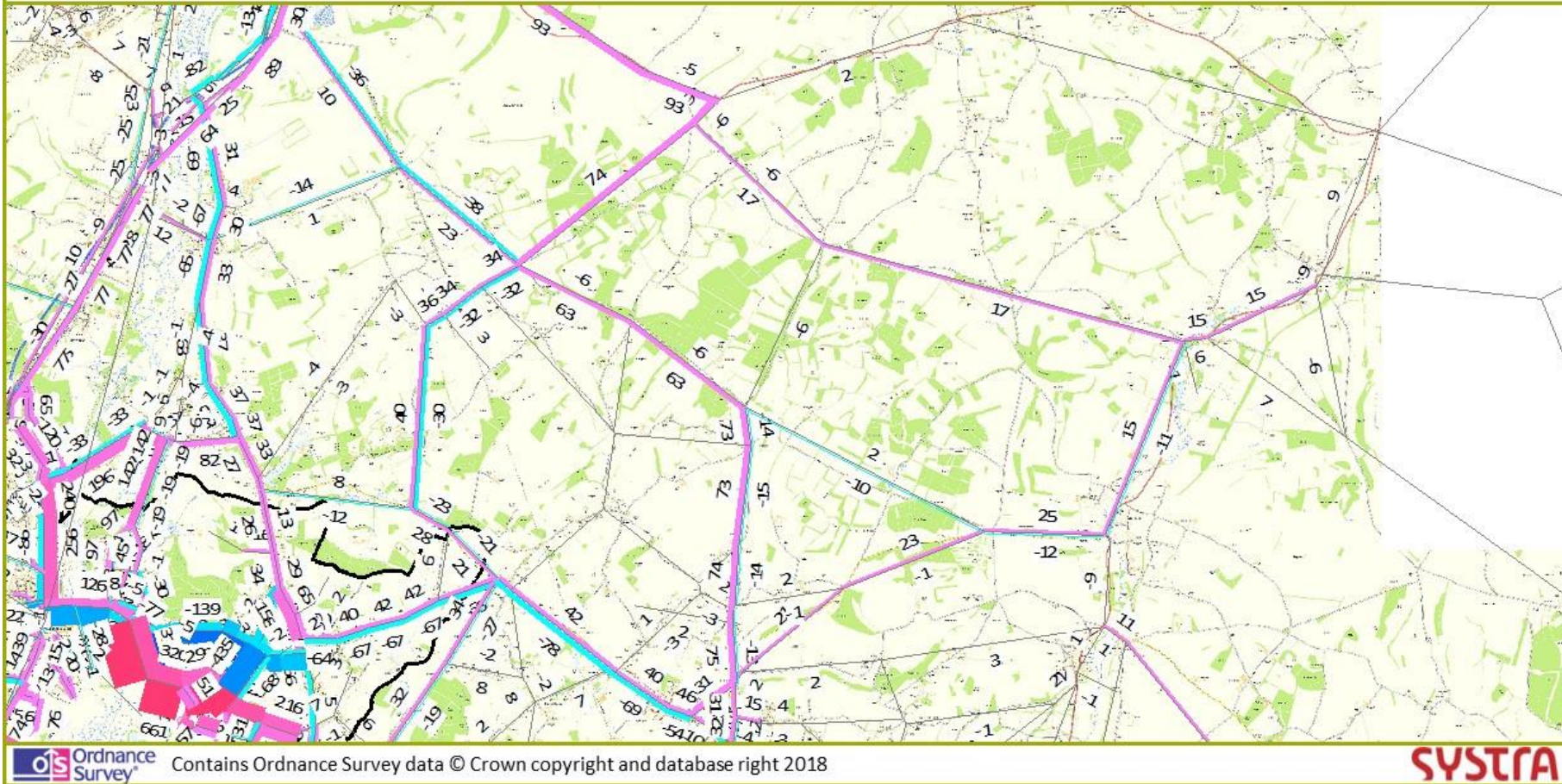
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Flow Differences National Park 2036 AM - DS7 vs BL (>1pcu/hr)



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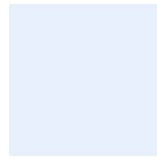
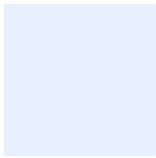
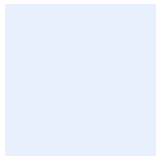
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SYSTRA

Figure 50. 2036 DS7 (DQR) vs Baseline (DOP) Flow Difference – PM Peak

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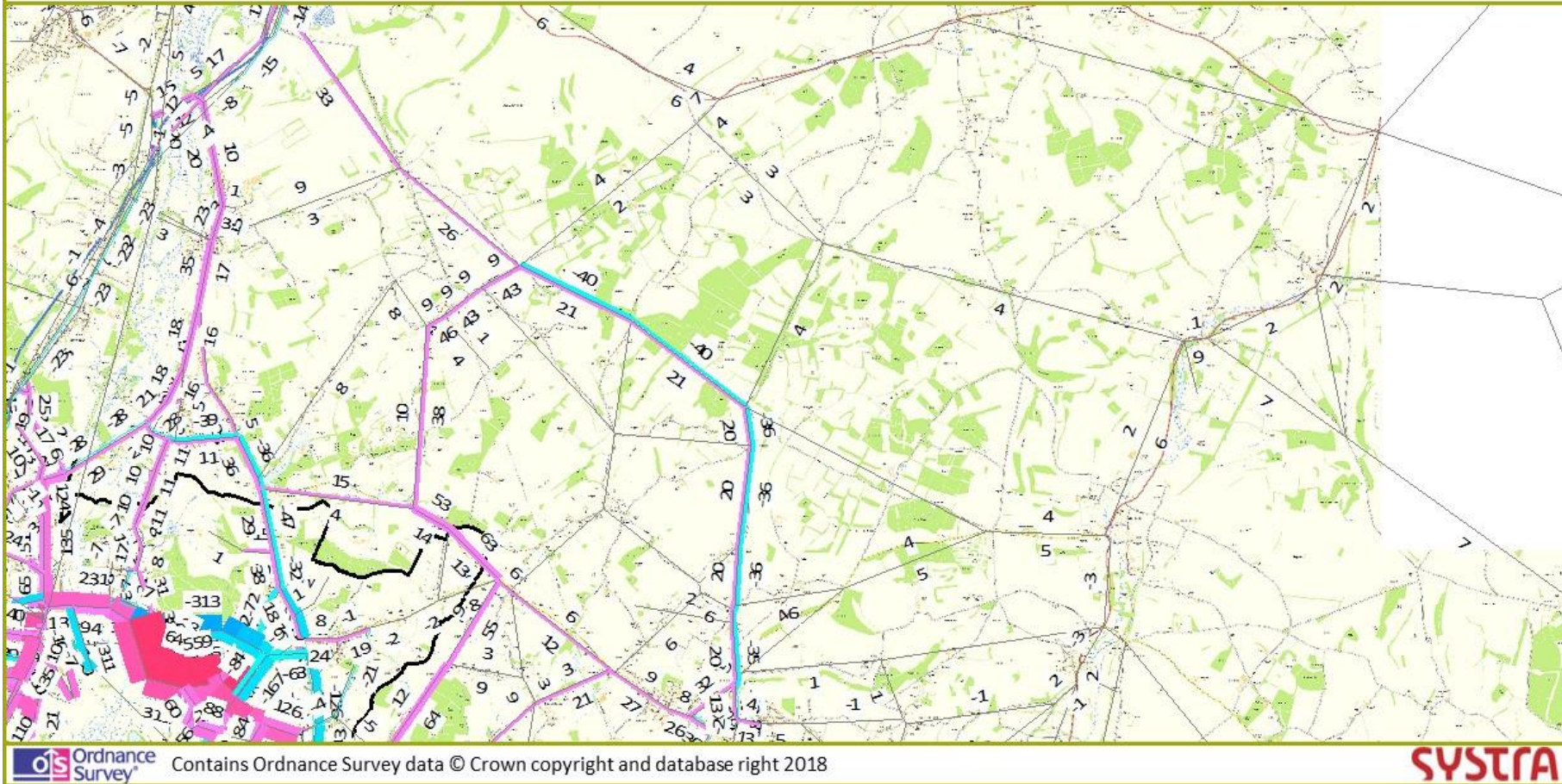
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Flow Differences National Park 2036 PM - DS7 vs BL (>1pcu/hr)



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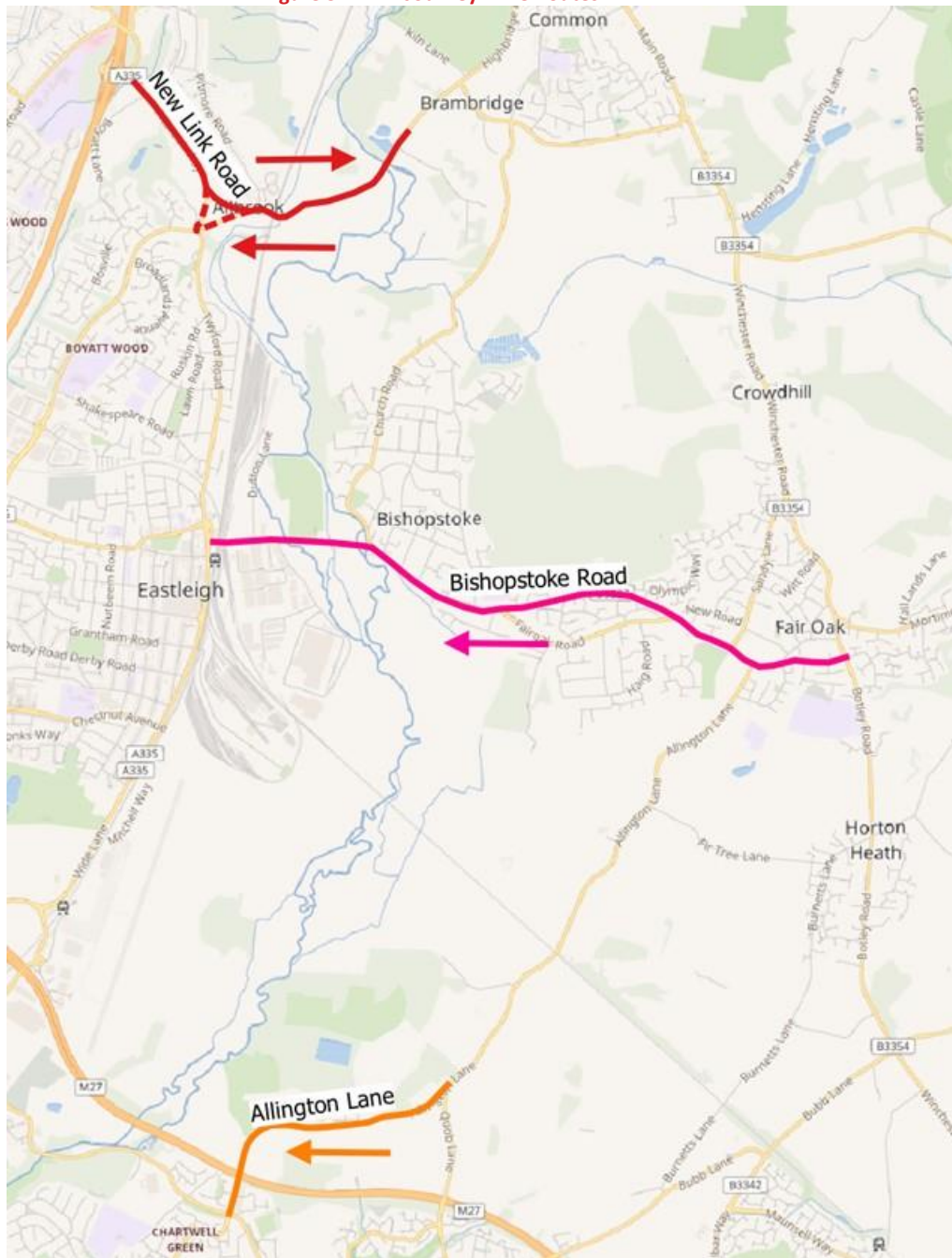
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14.7 Journey Times

14.7.1 Journey times for three routes, as defined by EBC, have been extracted from the SRTM for all scenarios, including the Baseline. These routes were selected as it was anticipated there might be significant changes in delay on these roads in some of the scenarios being tested. The three routes extracted are as follows, and shown below in Figure 51:

- New link road from Highbridge, through Allbrook to M3 J12 (this link road only exists in DS2 and DS3 so the results have only been extracted for these two scenarios)
- Bishopstoke Road / Alan Drayton Way westbound approaching Eastleigh town centre
- Allington Lane southbound approaching A27 junction

Figure 51. Journey Time Routes



14.7.2 Table 23 and Table 24 below shows the journey times for the AM and PM peak hour by direction respectively, including the delay by direction for the journey time route along the Northern Link Road from Highbridge to M3 J12. In the westbound direction, the AM delay is much higher than the PM delay due to queueing at the approach to M3 J12., which worsens slightly in DS3 to 151 seconds over 148 seconds in the AM peak.

14.7.3 However, in DS3, if the journey time route ended on the southbound bypass lane to the M3 on-slip (for consistency of the tabulated results the same node was used for both scenarios), this reduces the overall journey time westbound in DS3 over DS2 (this link is westbound only) with the AM peak delay forecast at 109 seconds and the PM 12 seconds.

14.7.4 In the eastbound direction, the journey times are quicker in both peak periods in DS3 over DS2.

Table 23. Westbound Journey Time – New Link Road

	AM JOURNEY TIME	AM DELAY	PM JOURNEY TIME	PM DELAY
DS2	00:04:47 287 seconds	148	00:02:35 155 seconds	16
DS3	00:04:51 291 seconds	151	00:02:43 163 seconds	25
Difference	00:00:04	3	00:00:08	9
Difference %	1.4%	2.0%	5.2%	56.3%

Table 24. 2036 Eastbound Journey Time – New Link Road

	AM JOURNEY TIME	AM DELAY	PM JOURNEY TIME	PM DELAY
DS2	00:02:38 158 seconds	20	00:02:45 165 seconds	27
DS3	00:02:28 148 seconds	10	00:02:30 150 seconds	10
Difference	-00:00:10	-10	-00:00:15	-17
Difference %	-6%	-50.0%	-9%	-63.0%

SRTM Ref: DOP, DPR, DPC, DPP, DQG, DQS, DQQ, DQR

14.7.5 Table 25 below shows the journey times for the AM and PM peak hour, including the delay for the westbound journey time route along Bishopstoke Road towards Eastleigh town centre (only the westbound direction was specified by EBC as this was the direction of the anticipated delay). For all scenarios (except DS2 and DS3) the journeys time are significantly higher than forecast in the baseline, especially during the AM peak. This is predominantly caused by delay at the Chickenhall Lane junction despite the improvements put in place for scenarios DS1, DS4 – 7. With the inclusion of the Northern Link Road (DS2 and DS3), there is a similar scale of delay forecast to that in the Baseline.

Table 25. 2036 Westbound Journey Time – Bishopstoke Road

	AM JOURNEY TIME	AM DELAY	PM JOURNEY TIME	PM DELAY
Baseline	00:07:11 431 seconds	72	00:06:40 400 seconds	41
DS1	00:11:46 706 seconds	347	00:07:11 431 seconds	73
DS1 Difference	00:04:35	275	00:00:31	32
DS1 Difference %	64%	382%	8%	78%
DS2	00:07:11 431 seconds	74	00:06:40 400 seconds	42
DS2 Difference	00:00:00	2	00:00:00	1
DS2 Difference %	0%	3%	0%	2%
DS3	00:07:12 432 seconds	75	00:06:43 403 seconds	45
DS3 Difference	00:00:01	3	00:00:03	4
DS3 Difference %	0%	4%	1%	10%
DS4	00:09:49 589 seconds	229	00:07:06 426 seconds	67
DS4 Difference	00:02:38	157	00:00:26	26
DS4 Difference %	37%	218%	7%	63%
DS5	00:09:51 591 seconds	232	00:07:13 433 seconds	75
DS5 Difference	00:02:40	160	00:00:33	34
DS5 Difference %	37%	222%	8%	83%
DS6	00:09:35 575 seconds	214	00:07:07 427 seconds	69
DS6 Difference	00:02:24	142	00:00:27	28

	AM JOURNEY TIME	AM DELAY	PM JOURNEY TIME	PM DELAY
DS6 Difference %	33%	197%	7%	68%
DS7	00:10:04 604 seconds	245	00:07:15 435 seconds	76
DS7 Difference	00:02:53	173	00:00:35	35
DS7 Difference %	40%	240%	9%	85%

SRTM Ref: DOP, DPR, DPC, DPP, DQG, DQS, DQQ, DQR

- 14.7.6 Table 26 below shows the journey times for the AM and PM , including the delay for the southbound journey time route from Allington Lane to A27 (only the southbound direction was specified by EBC as this was the direction of the anticipated delay). In all scenarios except DS2 and DS3, the journey times are longer than the Baseline (between 30 and 50% longer). This is due to delay at the Allington Lane / A27 Swaythling Road junction, as this is signalised in DS1 and DS4-7 (although these resultant delays are only a small part of the overall delay caused in DS1 and DS4-7). Whilst signals provide positive control when managing flows and delays, and have been optimised to allow for the best performance compared to the traffic flow on the network, the addition of a signal onto a network will also add transient delay over scenarios with no signal due to the red time allowing the other movements green time.
- 14.7.7 In DS2 where the junction is the same as the Baseline (roundabout), only small increases in delay are forecast over the Baseline. However, in DS3 with longer flares included, the journey times are forecast to decrease to below what is predicted in the Baseline.
- 14.7.8 We recommend further consideration be given to the final form of this junction (improved roundabout or signals), which will be considered in more detail at the planning application stage.

Table 26. 2036 Southbound Journey Time – Allington Lane

	AM JOURNEY TIME	AM DELAY	PM JOURNEY TIME	PM DELAY
Baseline	00:02:06 126 seconds	9	00:02:06 126 seconds	7
DS1	00:03:08 188 seconds	69	00:02:50 170 seconds	52
DS1 Difference	00:01:02	60	00:00:44	45

	AM JOURNEY TIME	AM DELAY	PM JOURNEY TIME	PM DELAY
DS1 Difference %	49%	667%	35%	643%
DS2	00:02:12 132 seconds	14	00:02:06 126 seconds	8
DS2 Difference	00:00:06	5	00:00:00	1
DS2 Difference %	5%	56%	0%	14%
DS3	00:02:05 125 seconds	7	00:02:04 125 seconds	6
DS3 Difference	-00:00:01	-2	-00:00:02	-1
DS3 Difference %	-1%	-22%	-2%	-14%
DS4	00:03:07 187 seconds	70	00:02:48 168 seconds	50
DS4 Difference	00:01:01	61	00:00:42	43
DS4 Difference %	48%	678%	33%	614%
DS5	00:03:03 183 seconds	65	00:02:50 170 seconds	51
DS5 Difference	00:00:57	56	00:00:44	44
DS5 Difference %	45%	622%	35%	629%
DS6	00:03:03 183 seconds	64	00:02:53 173 seconds	54
DS6 Difference	00:00:57	55	00:00:47	47
DS6 Difference %	45%	611%	37%	671%
DS7	00:03:05 185 seconds	66	00:02:52 172 seconds	54
DS7 Difference	00:00:59	57	00:00:46	47

	AM JOURNEY TIME	AM DELAY	PM JOURNEY TIME	PM DELAY
DS7 Difference %	47%	633%	37%	671%

SRTM Ref: DOP, DPR, DPC, DPP, DQG, DQS, DQQ, DQR

15. PUBLIC TRANSPORT RESULTS

15.1 Introduction

15.1.1 This chapter provides forecasts for the change in Public Transport passenger numbers resulting from the Local Plan scenarios and associated highway and public transport infrastructure changes.

15.2 Results

15.2.1 Figure 52 to Figure 65 identifies the passenger number changes between the Do Something scenarios and the Baseline in 2036 for the AM and PM peak hours.

15.2.2 With the extension of the Bluestar 2 service in DS1 and DS4, there are increases forecast on these routes in both peak hours. In these two scenarios, there has been a shift from bus trips to rail trips between Southampton and Eastleigh, of approximately 100 passengers, which could be due to additional congestion on the highway network causing the bus route to be slower.

15.2.3 In DS2 and DS3, around 140 new passengers are forecast to use the new bus services in both directions on the Northern Link Road in the peak hours. This combined with the additional patronage forecast on the extension of the Bluestar 2 service, shows an overall increase of around 320 passengers. In DS5, around 290 new passengers are forecast on the new bus services in both direction, whilst DS6 is forecast around 110 passengers. DS7 sees further passengers using the new bus route serving DS5 (circa 310 passengers).

Figure 52. 2036 DS1 (DPR) vs Baseline (DOP) PT Difference – AM Peak

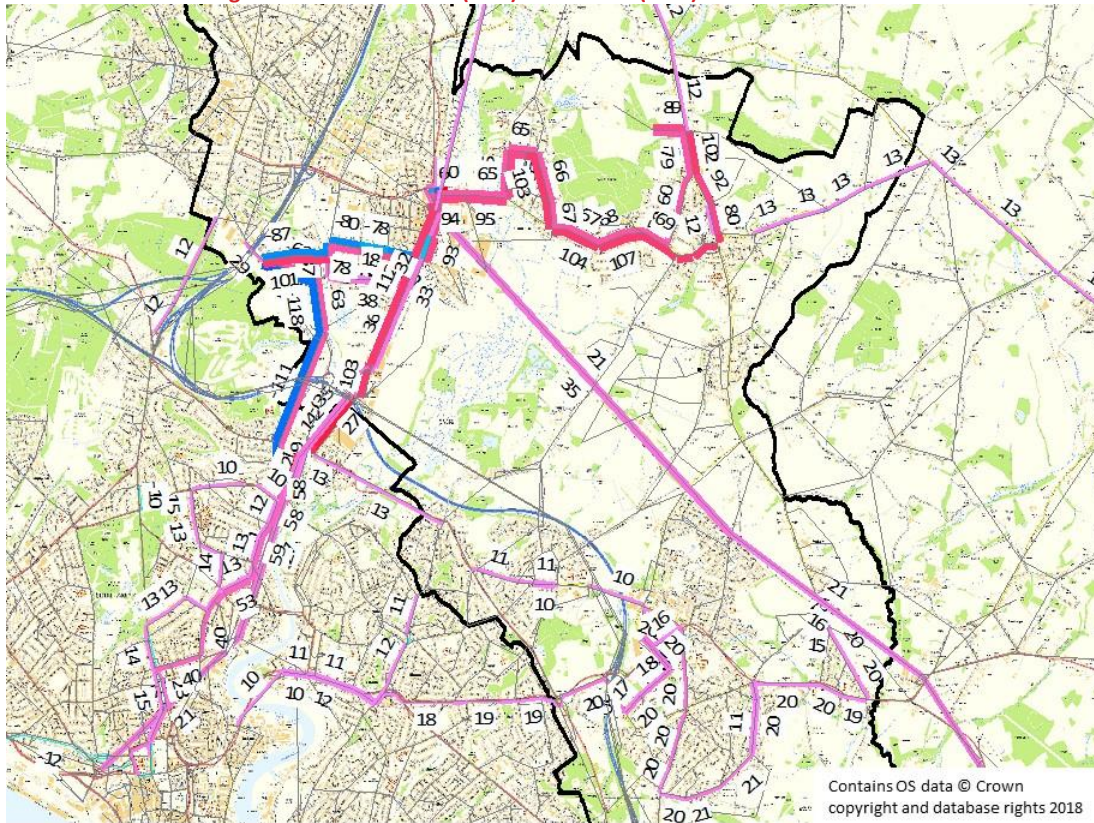


Figure 53. 2036 DS1 (DPR) vs Baseline (DOP) PT Difference – PM Peak

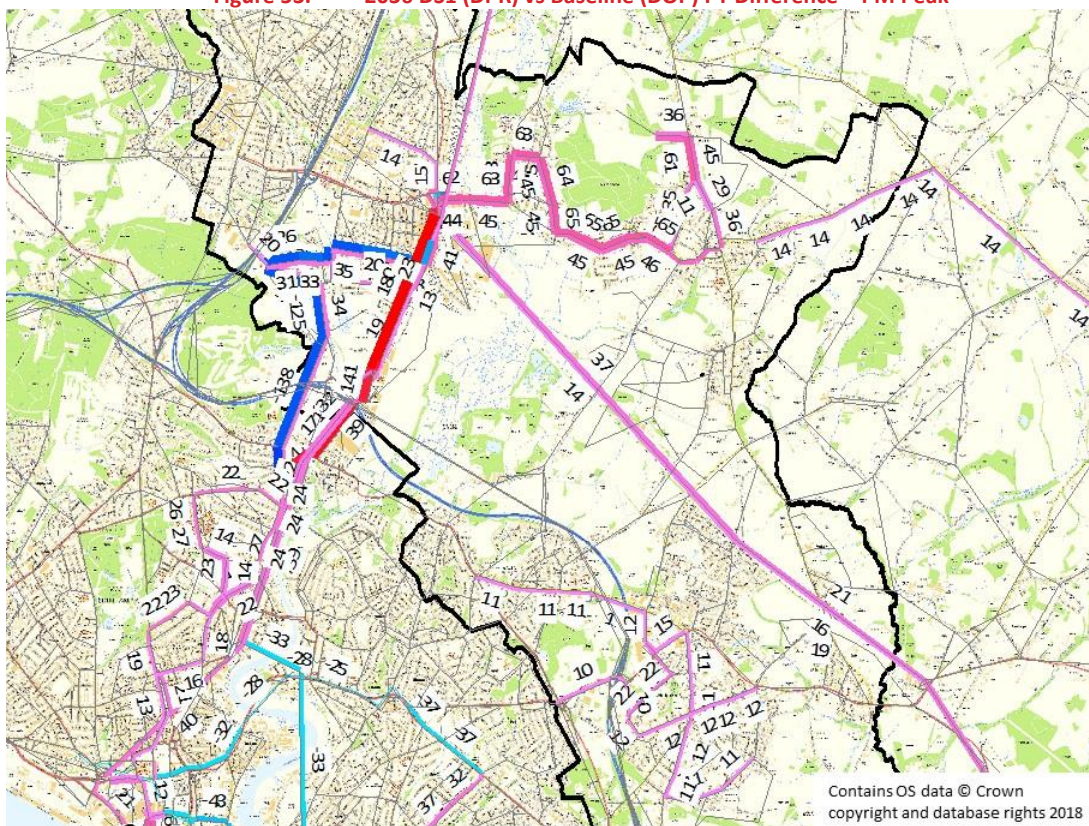


Figure 54. 2036 DS2 (DPC) vs Baseline (DOP) PT Difference – AM Peak

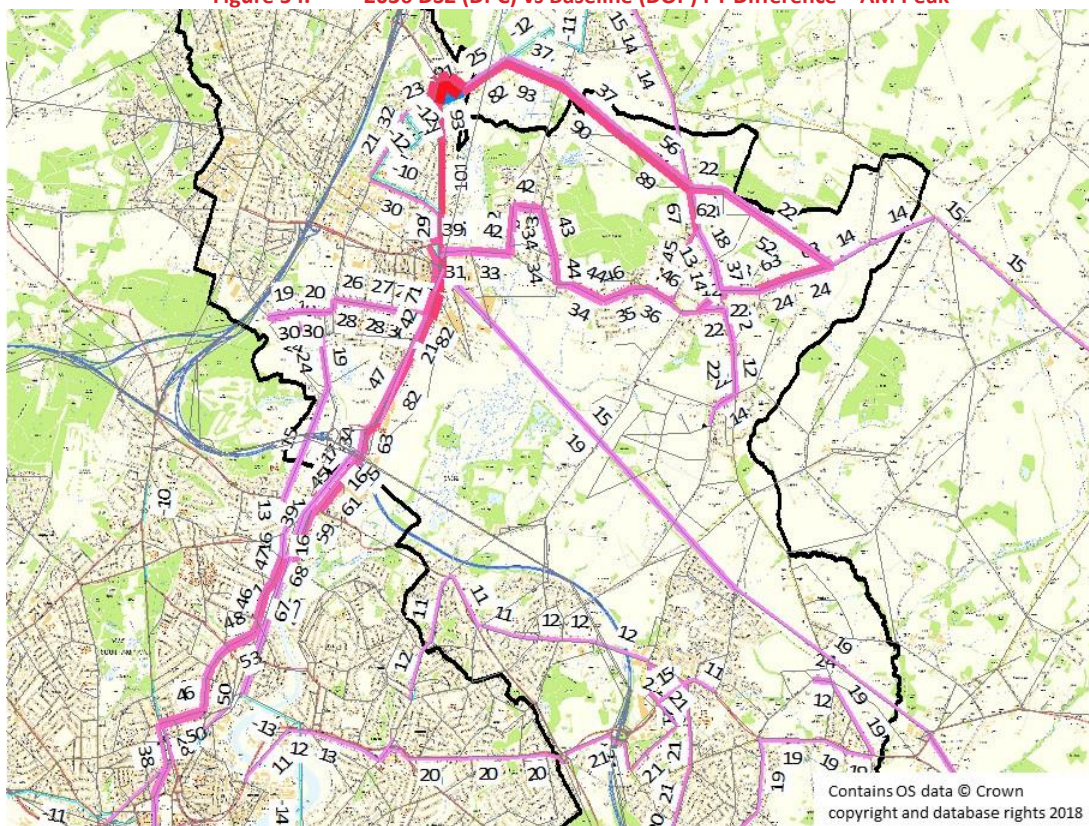


Figure 55. 2036 DS2 (DPC) vs Baseline (DOP) PT Difference – PM Peak

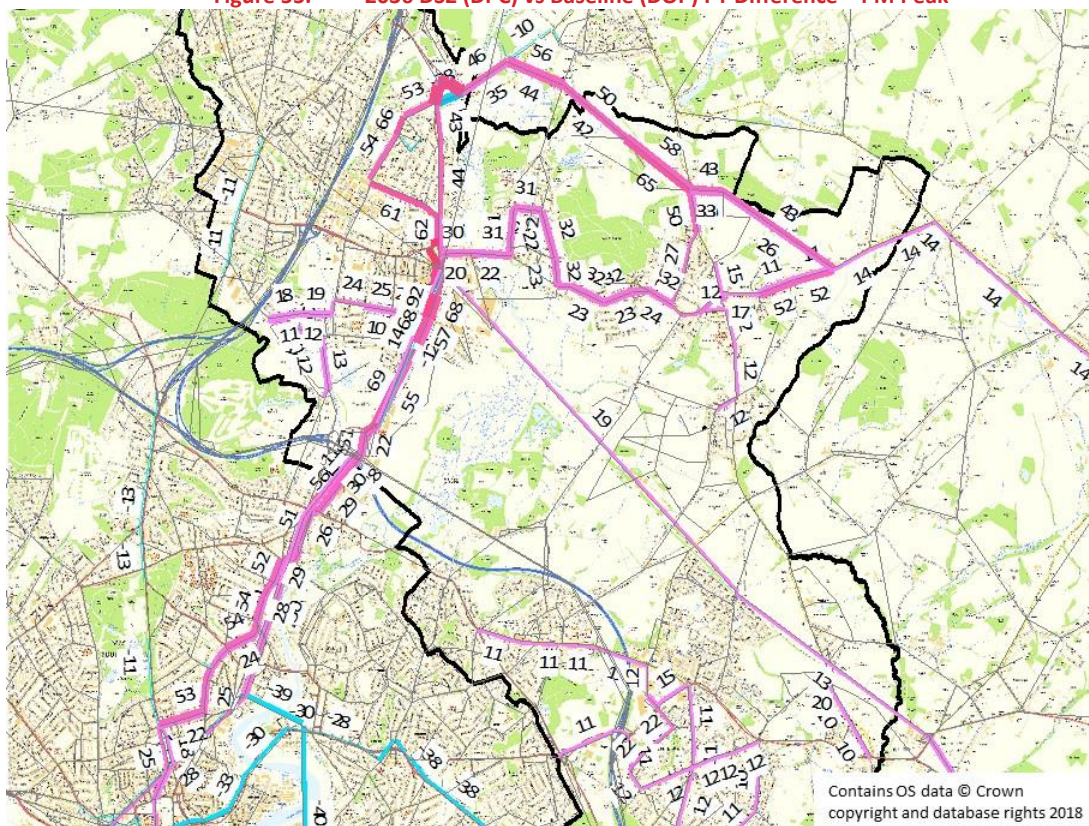


Figure 56. 2036 DS3 (DPP) vs Baseline (DOP) PT Difference – AM Peak

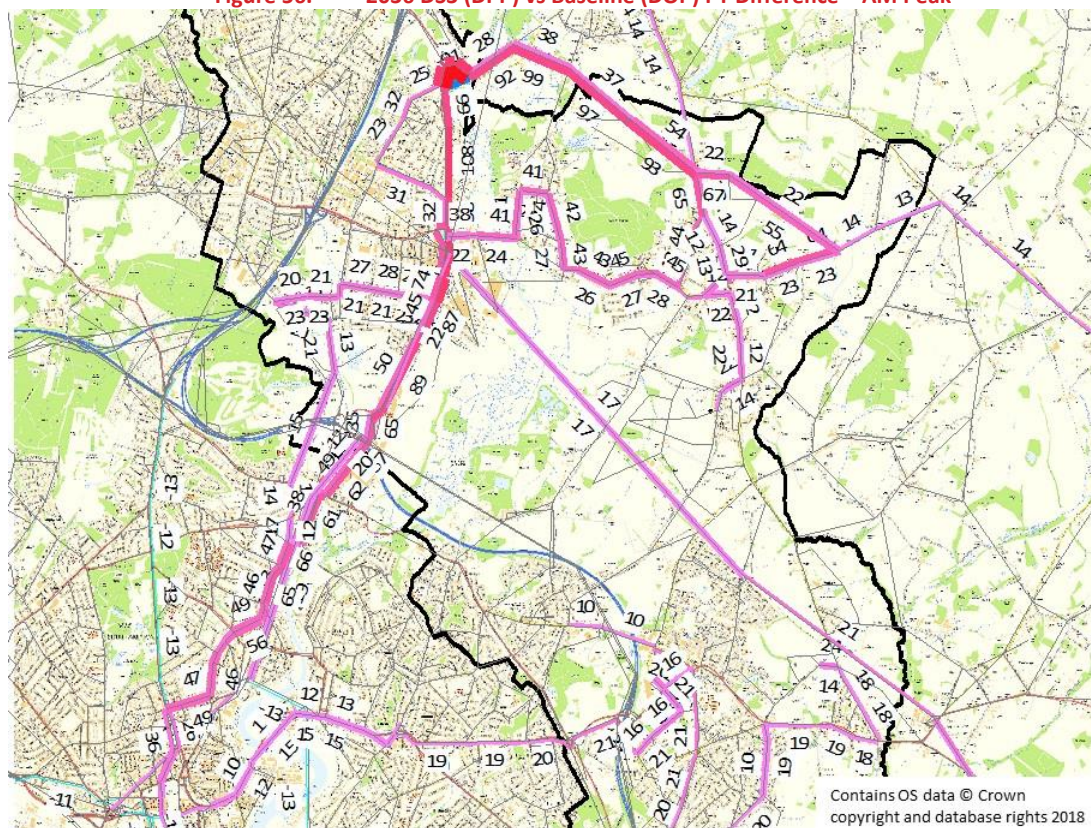


Figure 57. 2036 DS3 (DPP) vs Baseline (DOP) PT Difference – PM Peak

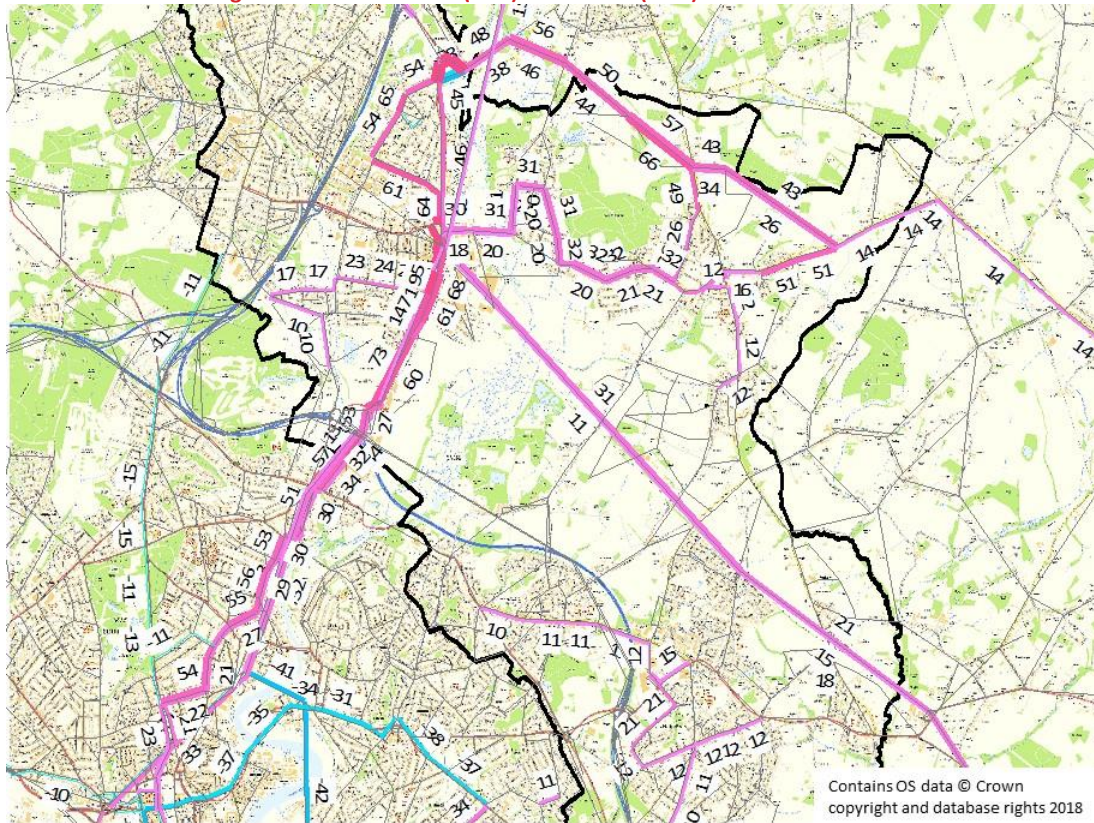


Figure 58. 2036 DS4 (DQG) vs Baseline (DOP) PT Difference – AM Peak

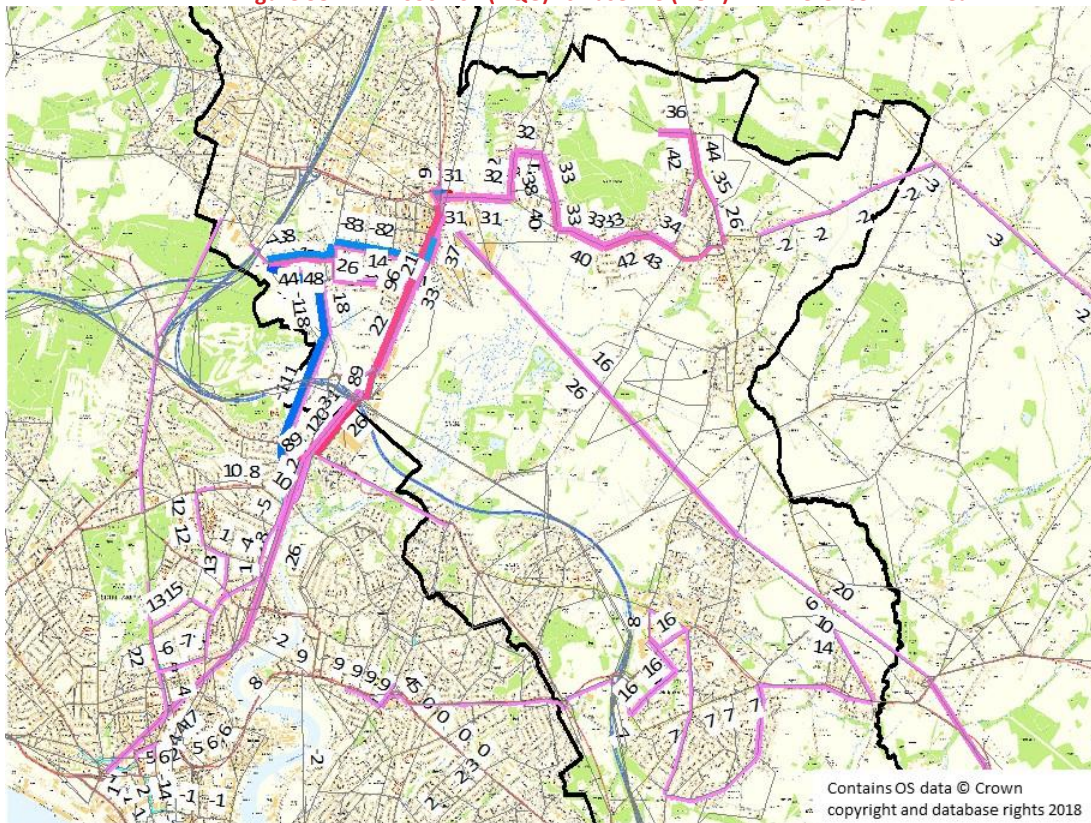


Figure 59. 2036 DS4 (DQG) vs Baseline (DOP) PT Difference – PM Peak

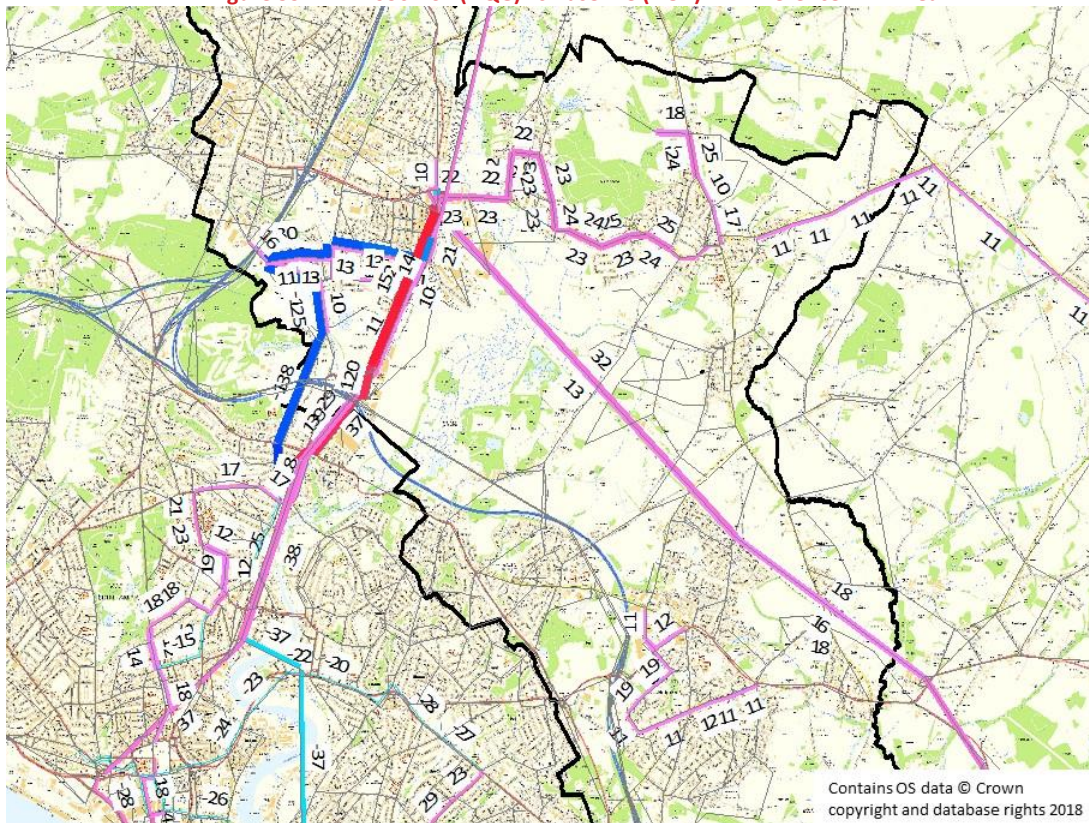


Figure 60. 2036 DS5 (DQI) vs Baseline (DOP) PT Difference – AM Peak

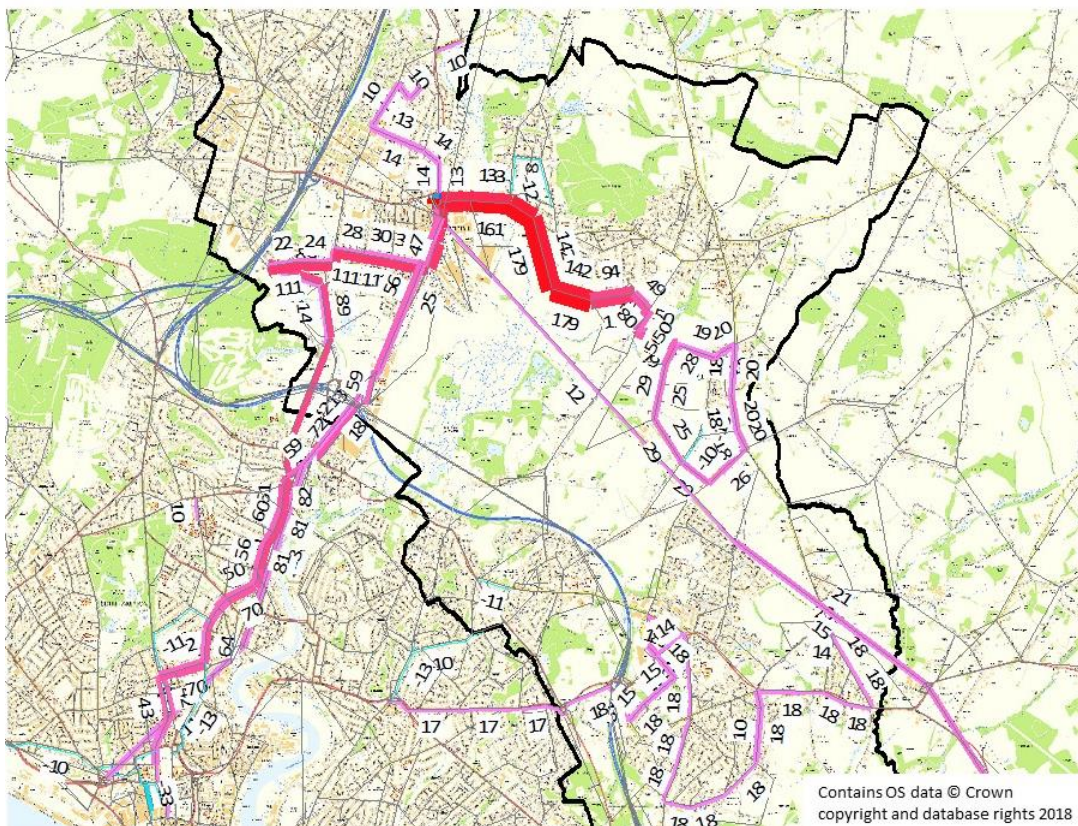


Figure 61. 2036 DSS (DQI) vs Baseline (DOP) PT Difference – PM Peak

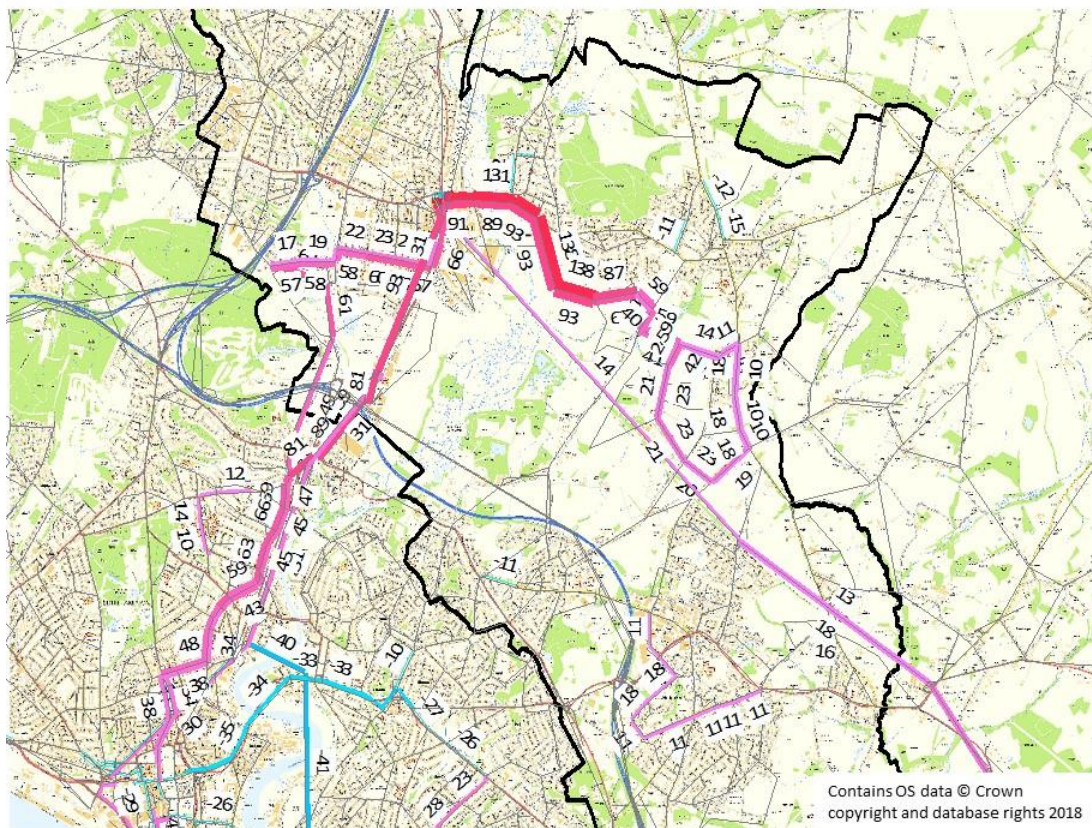


Figure 62. 2036 DS6 (DQQ) vs Baseline (DOP) PT Difference – AM Peak

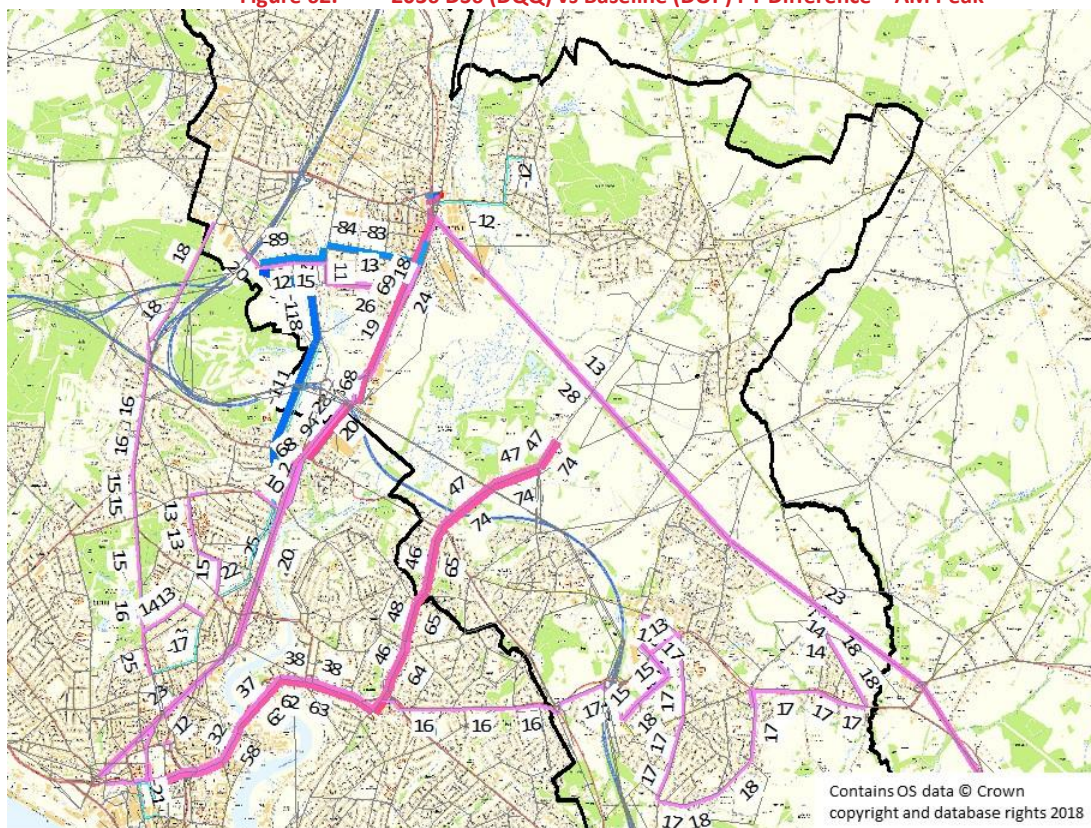


Figure 63. 2036 DS6 (DQQ) vs Baseline (DOP) PT Difference – PM Peak

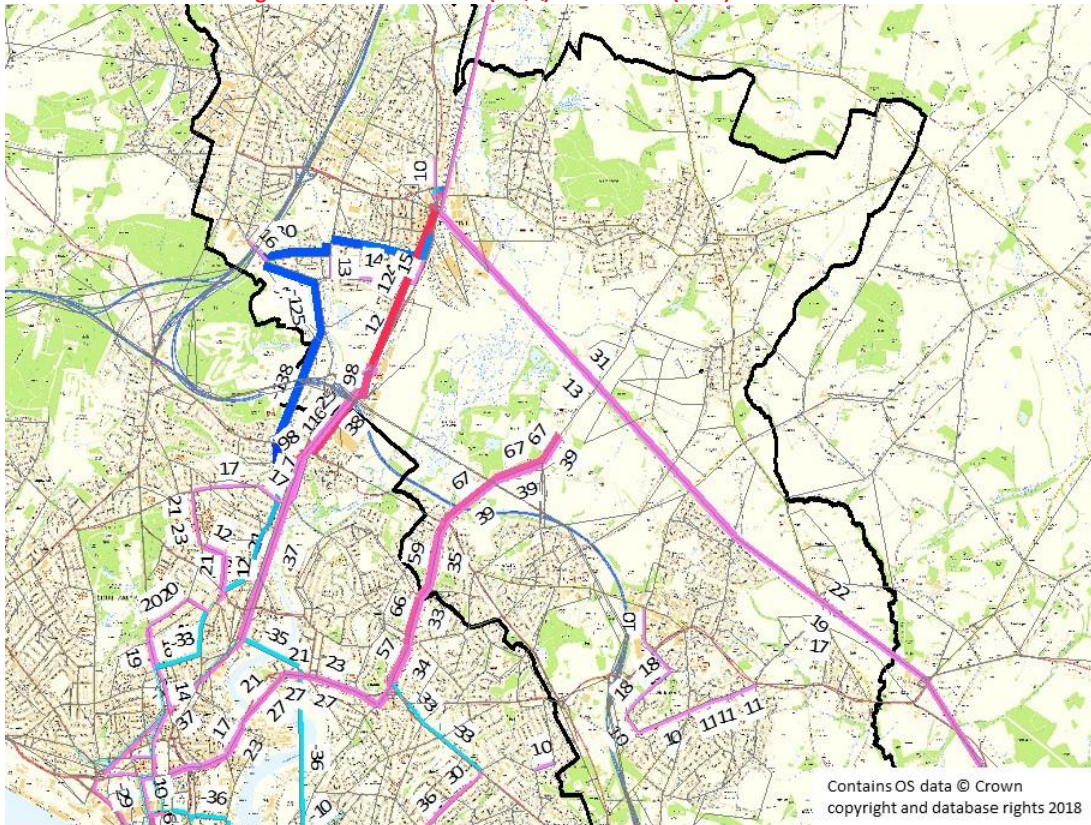


Figure 64. 2036 DS7 (DQQ) vs Baseline (DOP) PT Difference – AM Peak

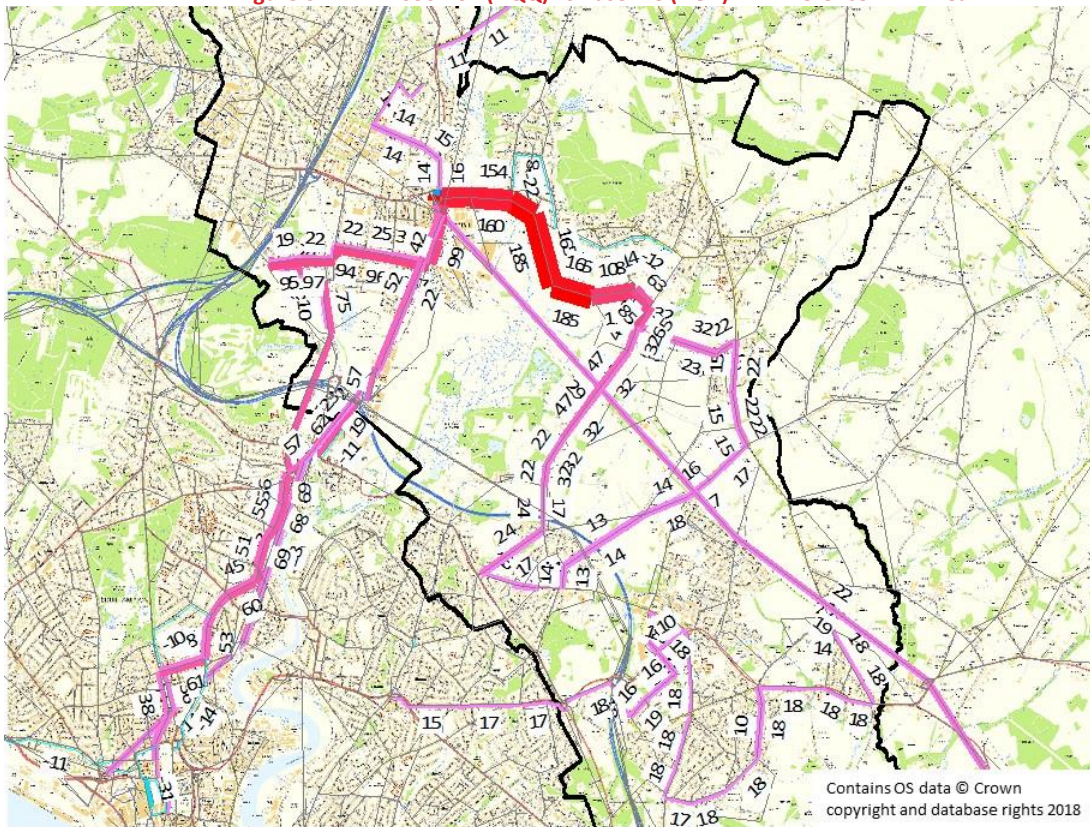
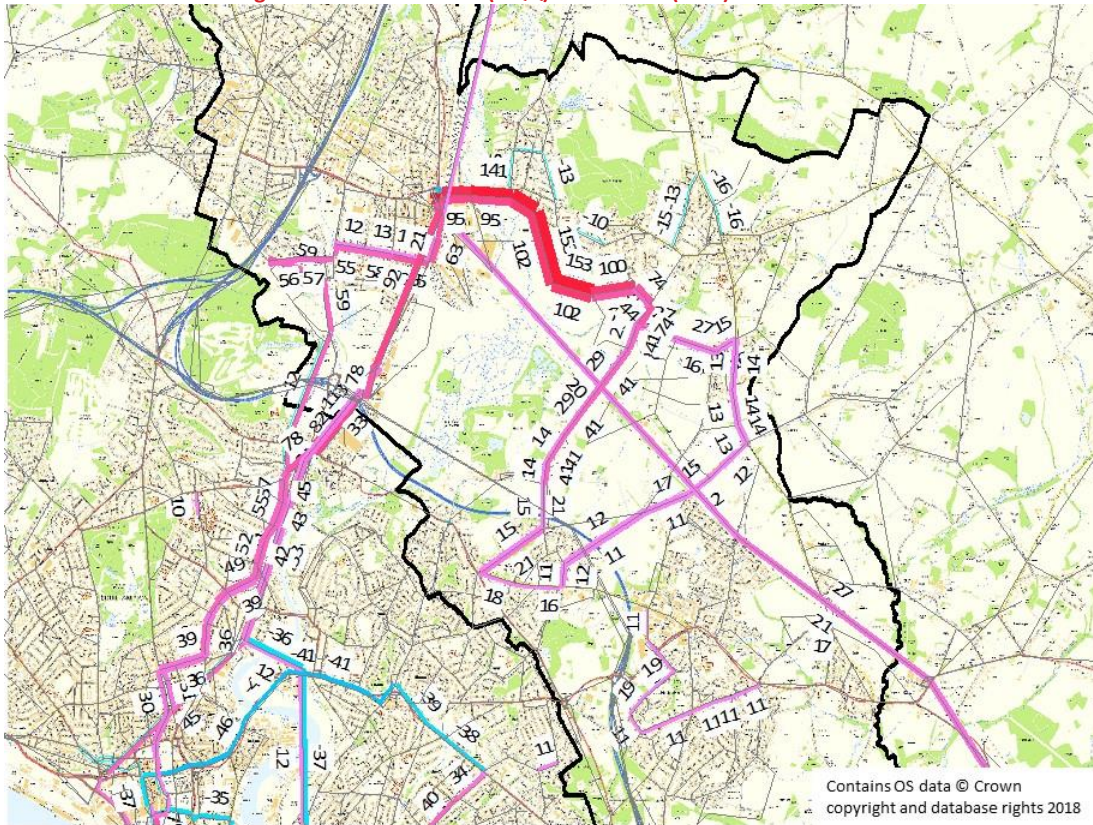


Figure 65. 2036 D57 (DQQ) vs Baseline (DOP) PT Difference – PM Peak



16. SUMMARY

16.1.1 SYSTRA has been undertaking strategic modelling for Eastleigh Borough Council using Solent Transport's Sub-Regional Traffic Model (SRTM) to test the traffic impacts of a range of development options as part of EBC's Local Plan process.

16.1.2 The scenarios and SGO sites being tested for a 2036 forecast year are as follows:

- Baseline - forms the basis against which the proposed Local Plan development will be assessed
- DS1 – SGO sites B and C without the northern link road
- DS2 – SGO sites B and C with the northern link road. This is the Council's draft Local Plan option with an intermediate level of off-site infrastructure interventions
- DS3 – SGO sites B and C with the northern link road. This is the Council's draft Local Plan option with a high level of off-site infrastructure interventions
- DS4 – SGO site C without the northern link road
- DS5 - SGO site D
- DS6 – SGO site E
- DS7 – SGO site D and a small part of E.

16.1.3 For DS1-3, Eastleigh Borough is forecast to see an increase in population of 13% alongside an increase in dwellings of 14% between 2015 – 2036. In the same period, the number of jobs increases by 12%. For the other scenarios, increases are forecast between 10% and 11% for population, 9% and 10% for dwellings and 11 to 12% for jobs, which correlate with the lower land use inputs for these scenarios.

16.1.4 DS1 – 3 has the highest amount of additional highway trips compared to the Baseline of 11% over the 12 hour period. DS5 and 7 have the highest amount of additional public transport trips over the Baseline (27% over 12 hours). DS1 – 3 has the highest amount of additional active mode trips (8% increase).

16.1.5 Within Eastleigh Borough and model-wide, an increase in junction delay is forecast for all scenarios and time periods above the Baseline, except for DS3 during the AM peak hour which is forecast a small decrease. This forecast increase is as expected as all options have more development over the Baseline scenario. For both the total peak hour and 12 hour period, the smallest increase in delay is forecast for DS3. DS3 includes for the most substantial package of proposed mitigation measures which would help both manage traffic growth and address delay/congestion.

16.1.6 Over the 12 hour period, and on a model wide basis, all scenarios forecast a slight increase in carbon dioxide emissions except for DS3 which is forecast a 0.3% reduction, Again this is indicative of the more substantial package of mitigation help to manage/ control traffic growth and associated delays and congestion in this scenario.

16.1.7 The journey times show that with the North Bishopstoke Link Road (DS2 and DS3), journey times westbound along Bishopstoke Road are significantly lower than other scenarios as

traffic is re-routed onto the Link Road. The southbound journey time along Allington Lane shows forecast increases when the junction is signalised, however in DS2 with the existing roundabout only small increases are forecast over the Baseline, and in DS3 with the inclusion of longer flares, journey times decrease below what us predicted in the Baseline.

16.1.8 In general, when a new bus route has been introduced, or extended, this has increased the number of passengers using the service. In DS1 and DS4, a slight modal shift onto rail from bus has been forecast, assumingly due to the levels of highway congestion (that will also impact bus speeds/ journey time) in these scenarios with the Local Plan development allocations and no Northern Link Road.

16.1.9 For the scenarios tested, and based on the transport model forecasts, we consider SGO B/C, in combination with the new Northern Link Road and the higher level of off-site infrastructure, has the lowest impact on overall network performance whilst accommodating the highest level of development growth.

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For more information visit www.systra.co.uk

Birmingham – Newhall Street

5th Floor, Lancaster House, Newhall St,
Birmingham, B3 1NQ
T: +44 (0)121 393 4841

Birmingham – Innovation Court

Innovation Court, 121 Edmund Street, Birmingham B3 2HJ
T: +44 (0)121 393 4841

Dublin

2nd Floor, Riverview House, 21-23 City Quay
Dublin 2, Ireland
T: +353 (0) 1 566 2028

Edinburgh – Thistle Street

Prospect House, 5 Thistle Street, Edinburgh EH2 1DF
United Kingdom
T: +44 (0)131 460 1847

Edinburgh – Manor Place

37 Manor Place, Edinburgh, EH3 7EB
Telephone +44 (0)131 460 1847

Glasgow – St Vincent St

Seventh Floor, 124 St Vincent Street
Glasgow G2 5HF United Kingdom
T: +44 (0)141 468 4205

Glasgow – West George St

250 West George Street, Glasgow, G2 4QY
T: +44 (0)141 468 4205

Leeds

100 Wellington Street, Leeds, LS1 1BA
T: +44 (0)113 360 4842

London

3rd Floor, 5 Old Bailey, London EC4M 7BA United Kingdom
T: +44 (0)20 3855 0079

Manchester – 16th Floor, City Tower

16th Floor, City Tower, Piccadilly Plaza
Manchester M1 4BT United Kingdom
T: +44 (0)161 504 5026

Newcastle

Floor B, South Corridor, Milburn House, Dean Street, Newcastle, NE1
1LE
United Kingdom
T: +44 (0)191 249 3816

Perth

13 Rose Terrace, Perth PH1 5HA
T: +44 (0)131 460 1847

Reading

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Woking

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T: +44 (0)1483 357705

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Washington

The SYSTRA logo is displayed in a bold, red, sans-serif font. The letters are thick and blocky, with a slight shadow effect. The 'S' and 'Y' are particularly prominent.

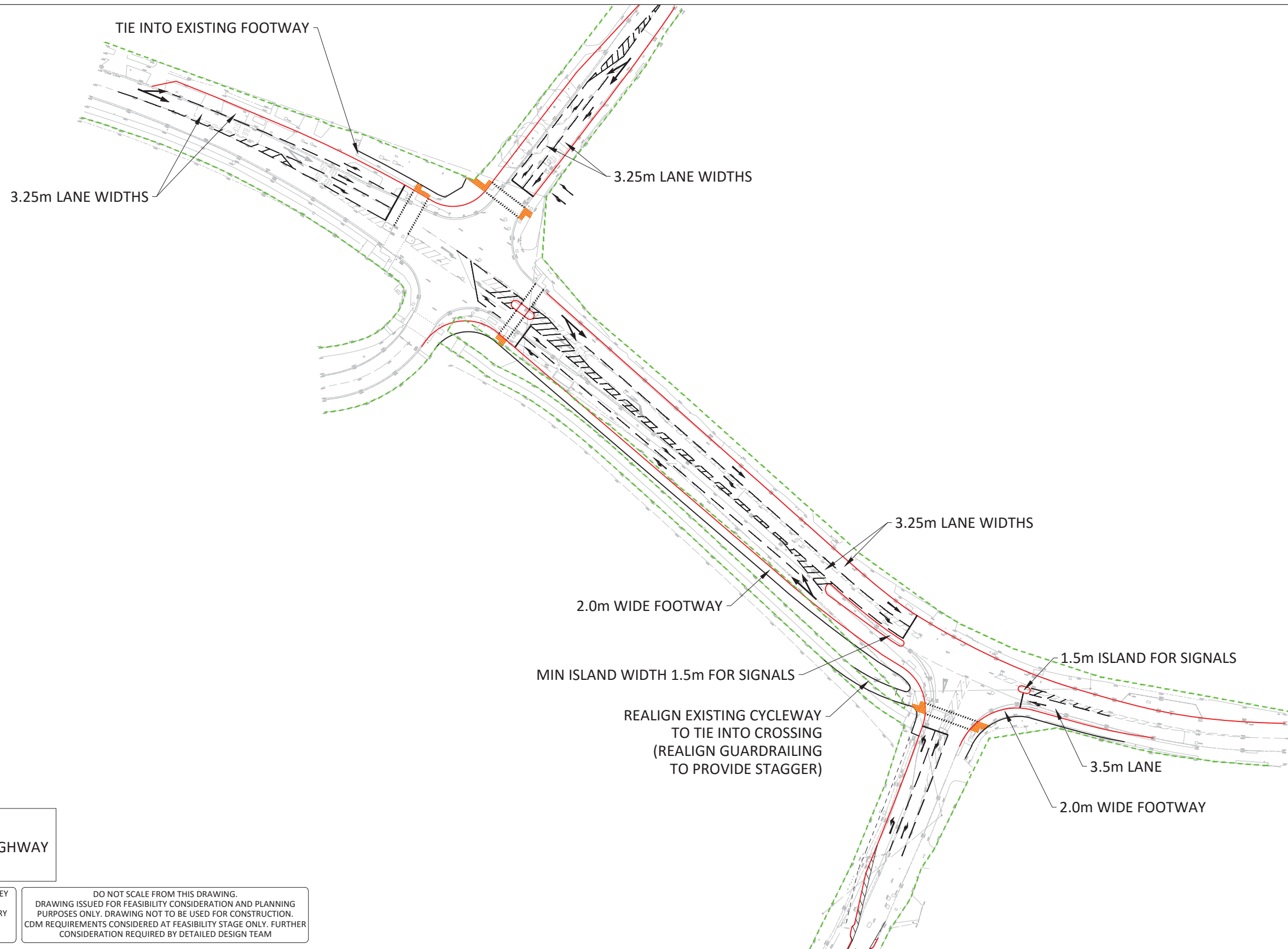
Appendix A – SRTM Reference Case


DISTRICT	SCHEME	DESCRIPTION	2019	2026	2031	2036	2041
EAST HAMPSHIRE	Green Lane, Clanfield	Traffic Calming	✓	✓	✓	✓	✓
EASTLEIGH	A335 Leigh Rd / Passfield Av.	Junction capacity changes	✓	✓	✓	✓	✓
	Sunday's Hill Bypass	New road alignment	✓	✓	✓	✓	✓
	St John's Link Road	6.5m carriageway width and 30mph speed limit	✓	✓	✓	✓	✓
	Chestnut Av. / Stoneham Ln. Rbt.	Roundabout improvements	✓	✓	✓	✓	✓
	Chestnut Av. / Passfield Av. Rbt.	Roundabout improvements	✓	✓	✓	✓	✓
	Burnett's Lane Link Road & Rbt.	New road alignment Burnetts Ln - Bubb Ln	✓	✓	✓	✓	✓
	Botley Road / Burnett's Lane	Signals	✓	✓	✓	✓	✓
	Allington Lane / B3037 Fair Oak Road	Signals	✓	✓	✓	✓	✓
	Southampton Rd / Chestnut Av.	Addition of a right turn lane	✓	✓	✓	✓	✓
FAREHAM	St Margarets Rbt.	Improvement scheme	✓	✓	✓	✓	✓
	Peel Common Rbt.	Improvement scheme	✓	✓	✓	✓	✓
	Gudge Heath Lane	Additional lanes at signals Gudge Heath Lane / The Avenue	✓	✓	✓	✓	✓
	A27 Southampton Road	Widening of carriageway (A27 dualling)	✓	✓	✓	✓	✓
	Newgate Lane South		✓	✓	✓	✓	✓
	Station Rbt. (The Avenue approach)	Widening of The Avenue and around Station Hill Rbt.	✓	✓	✓	✓	✓
	Stubbington Bypass	Bypass		✓	✓	✓	✓
	Peel Common Rbt.	Peel common Rbt.Stubbington Bypass scheme		✓	✓	✓	✓
	Stubbington Bypass mitigation		✓	✓	✓	✓	
HAVANT	Hulbert Rd / Purbook Way Junction	Major redesign and partial signalisation of 'ASDA' rbt.	✓	✓	✓	✓	✓
	Dunsbury Hill Farm Business Park	Currently being constructed	✓	✓	✓	✓	✓

DISTRICT	SCHEME	DESCRIPTION	2019	2026	2031	2036	2041
	A3(M) J3	Signalisation of N/B off slip onto roundabout	✓	✓	✓	✓	✓
	Purbrook Way / College Road	Signalisation of priority junction	✓	✓	✓	✓	✓
	Interbridges	New signal access	✓	✓	✓	✓	✓
	Purbrook Way / Stakes Hill Road	Replacement of roundabout with traffic signals.		✓	✓	✓	✓
	Purbrook Way from Stakes Hill Road	Dual carriageway to replace single carriageway.		✓	✓	✓	✓
	Hulbert Rd/ Frenstaple Rd/ Tempest Av	Enlarge and modify existing roundabout.		✓	✓	✓	✓
ISLE OF WIGHT	Mill Street, Newport	New road between Old Westminster Lane and Foxes Road	✓	✓	✓	✓	✓
	St. Georges Way, Newport	New roundabout, signalisation, widening of St George's rbt.	✓	✓	✓	✓	✓
	Forest Road / Parkhurst Rd, Newport	Revision of junction layout and installation of traffic signals	✓	✓	✓	✓	✓
	Coppins Bridge - St Georges Approach	Widening of carriageway	✓	✓	✓	✓	✓
PORTSMOUTH	Havant Road/Eastern Road	BRT improvements and addition of pedestrian crossings at junction	✓	✓	✓	✓	✓
	The Hard, Queen Street, Wickham Street	Improvements to traffic management	✓	✓	✓	✓	✓
	Fratton Way	New roundabout and access to retail store	✓	✓	✓	✓	✓
SOUTHAMPTON	Commercial Rd/ Morris Rd	Public realm scheme, change to traffic signals	✓	✓	✓	✓	✓
	A33 Western Approach / Millbrook Rd	Reduction in speed limit from 50mph to 40mph	✓	✓	✓	✓	✓
	Woolston - Victoria Rd / Woodley Rd	Changes to Victoria Rd to one way southbound	✓	✓	✓	✓	✓
TEST VALLEY	M27 J3	W/B off-slip, M271 S/B, and circulating flared to 3 lanes, M271 N/B flare lengthened	✓	✓	✓	✓	✓
	M271 Junction 1 / Brownhill Way	Signalisation, and additional lane on Brownhill Way to Adanac Rbt	✓	✓	✓	✓	✓
VARIOUS	Smart Motorways M27	Conversion of hard should to running lane (J4-12)	✓	✓	✓	✓	✓

Appendix B – Baseline 2036 Land Use

Appendix C – Baseline 2036 Committed Scheme Designs



KEY:
 INDICATIVE HIGHWAY BOUNDARY

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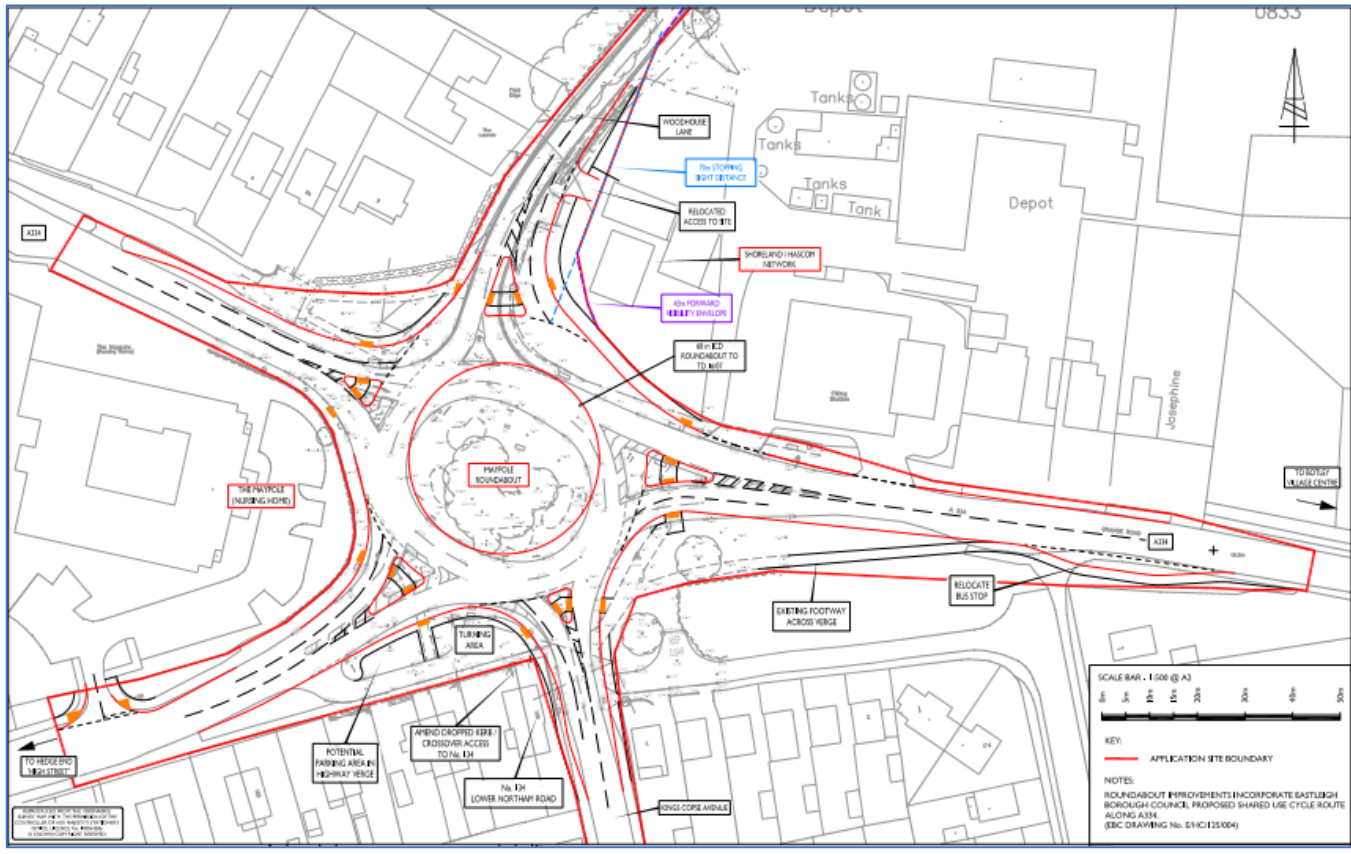
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REV	DATE	BY	DESCRIPTION	CHK	APD
STATUS: DRAFT					

TITLE: PROPOSED SIGNALISED JUNCTION FAIR OAK ROAD / SANDY LANE / ALLINGTON LANE	
PROJECT: NORTH WEST HORTON HEATH	CLIENT: DREW SMITH HOMES LTD

SCALE @ A3: 1:1000	CHECKED: ZB	APPROVED: JDW
FILE REF: ITB10268-GA-028	DRAWN: SH	DATE: 09.09.16
DRAWING No: ITB10268-GA-028		
PROJECT No: ITB10268		REV:

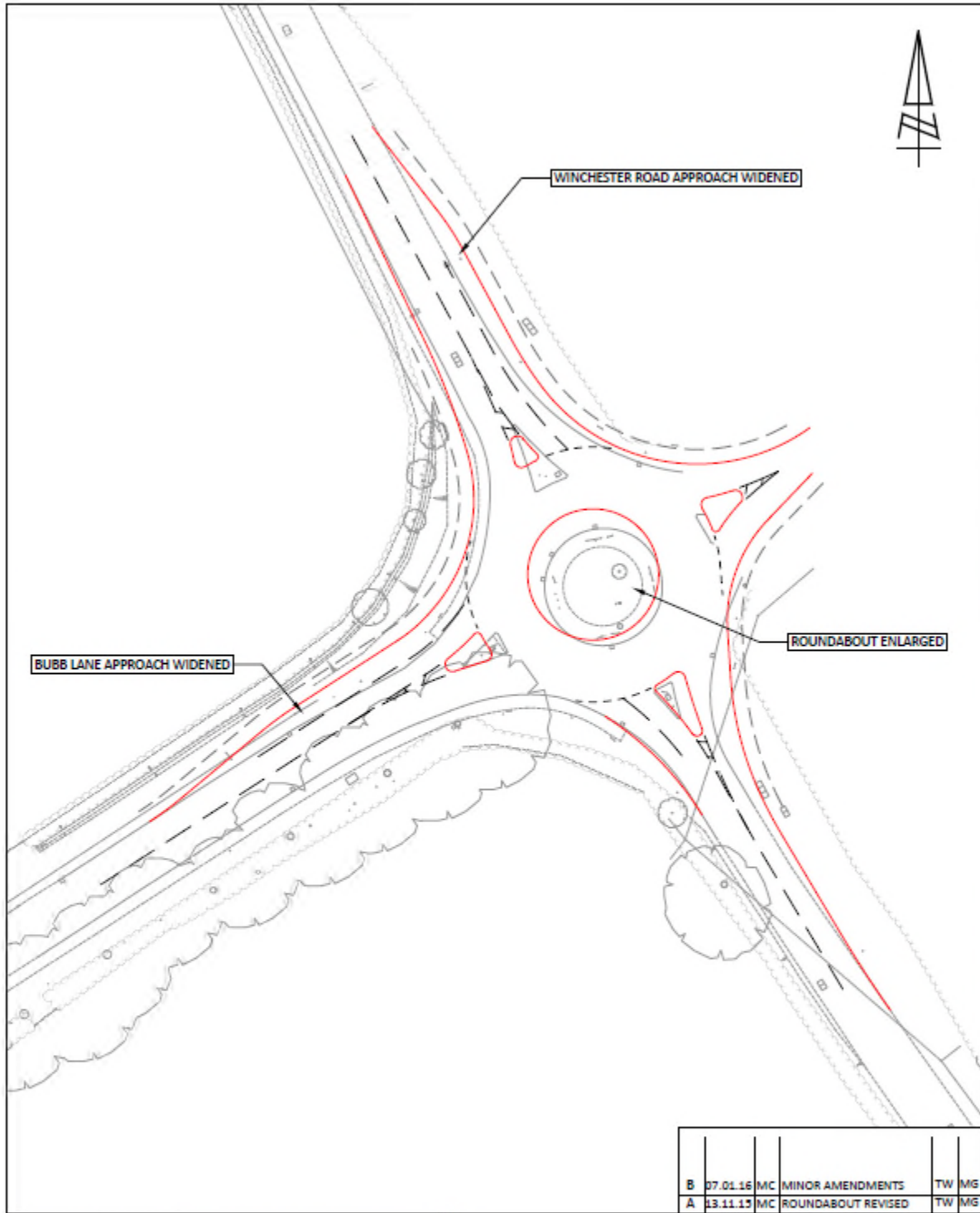


PROPOSED ROUNDABOUT IMPROVEMENTS TO BE INCORPORATED INTO THE EASTLEIGH BOROUGH COUNCIL'S PROPOSED SHARED USE CYCLE ROUTE ALONG A334. (BEC DRAWING No. ENCH125004)



KEY:
 — APPLICATION SITE BOUNDARY

NOTES:
 ROUNDABOUT IMPROVEMENTS INCORPORATE EASTLEIGH BOROUGH COUNCIL'S PROPOSED SHARED USE CYCLE ROUTE ALONG A334.
 (BEC DRAWING No. ENCH125004)



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MILLER / GLEESON / WELBECK

REV	DATE	BY	DESCRIPTION	CHK	APP
B	07.01.16	MC	MINOR AMENDMENTS	TW	MG
A	13.11.15	MC	ROUNDABOUT REVISED	TW	MG

ISSUE

Grove House, Lortyens Close, Chichester
Basingstoke, Hampshire, RG24 8AG
www.i-transport.co.uk

Tel: 01256 338640
Fax: 01256 338644

POTENTIAL IMPROVEMENT TO
B3354 WINCHESTER ROAD / B3342 BUBB LANE

PROJECT
BOORLEY GARDENS, BOORLEY GREEN

SCALE @ A3	1:500	DRAWN BY	TW	APPROVED BY	MG
DRAWING NO.	ITB11055	DATE	NOVEMBER 2015		
PROJECT NO.	ITB11055-GA-203				
REV	B				

Appendix D – DS1-3 2036 Land Use

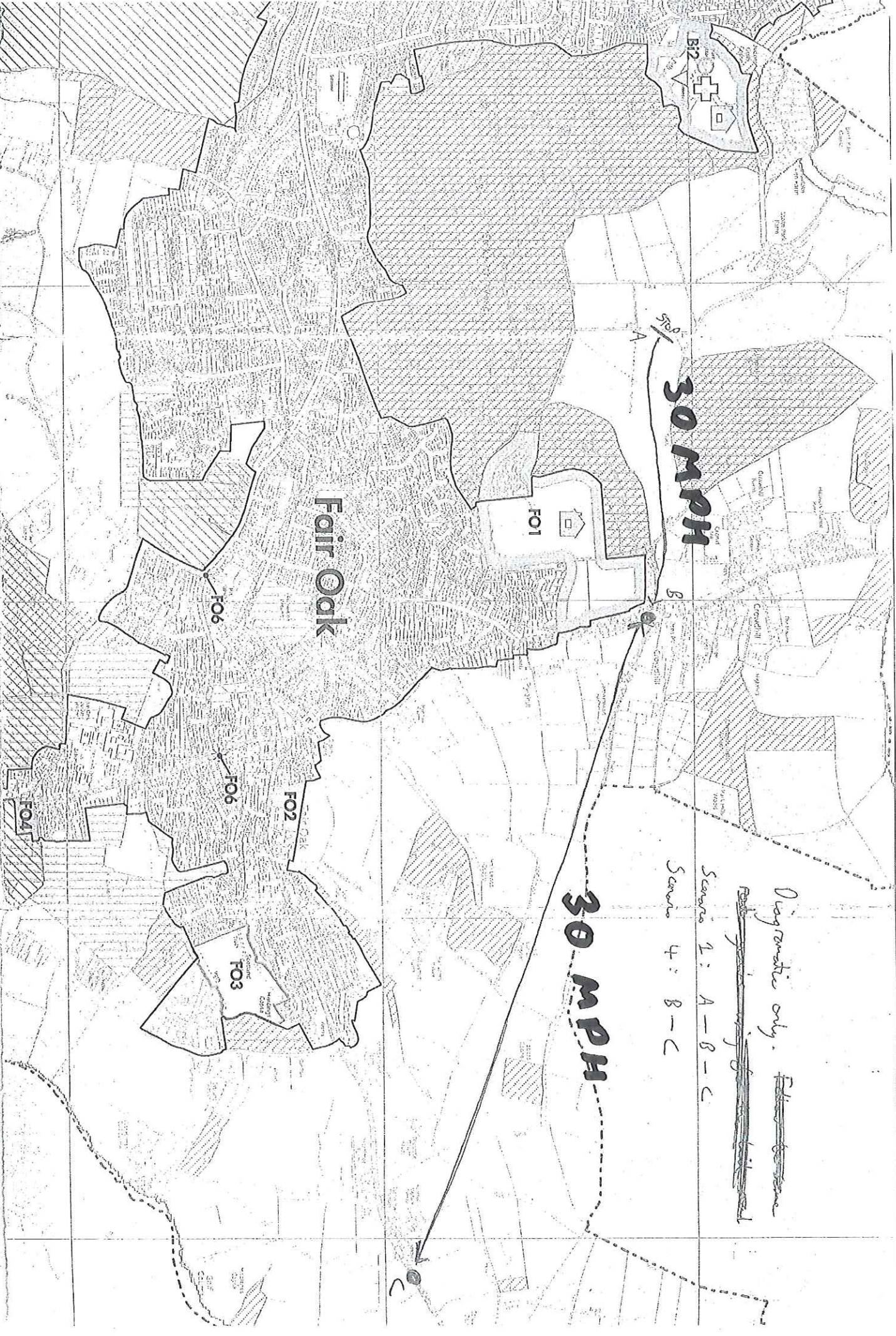
Appendix E – DS1 2036 Scheme Designs

Fair Oak

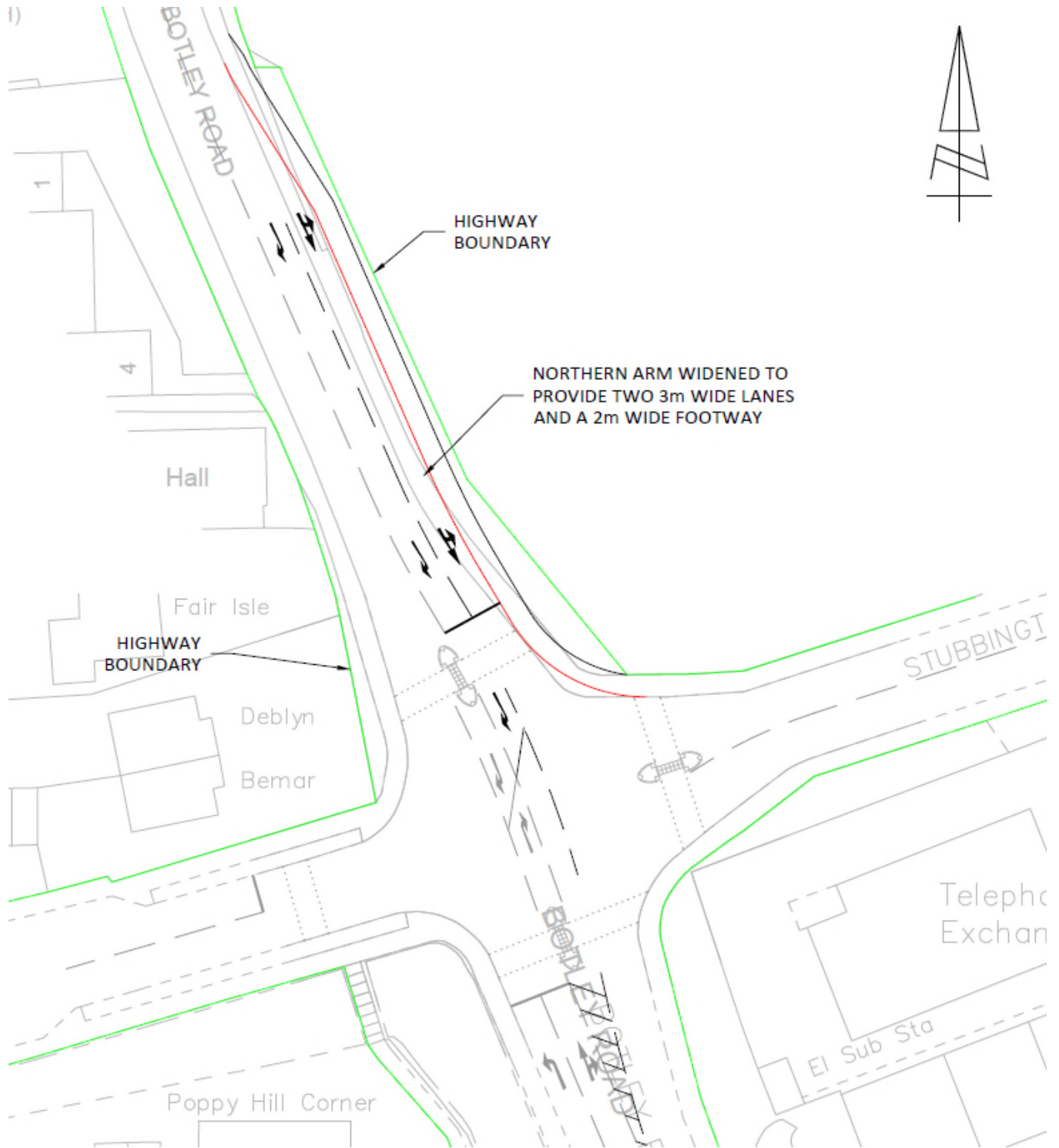
500
A
30 MPH
B

30 MPH
C

Diagramatic only. ~~It is same~~
~~for~~
Scenario 1: A-B-C
Scenario 4: B-C



l)



HIGHWAY BOUNDARY

NORTHERN ARM WIDENED TO PROVIDE TWO 3m WIDE LANES AND A 2m WIDE FOOTWAY

HIGHWAY BOUNDARY

Hall

Fair Isle

Deblyn

Bemar

Poppy Hill Corner

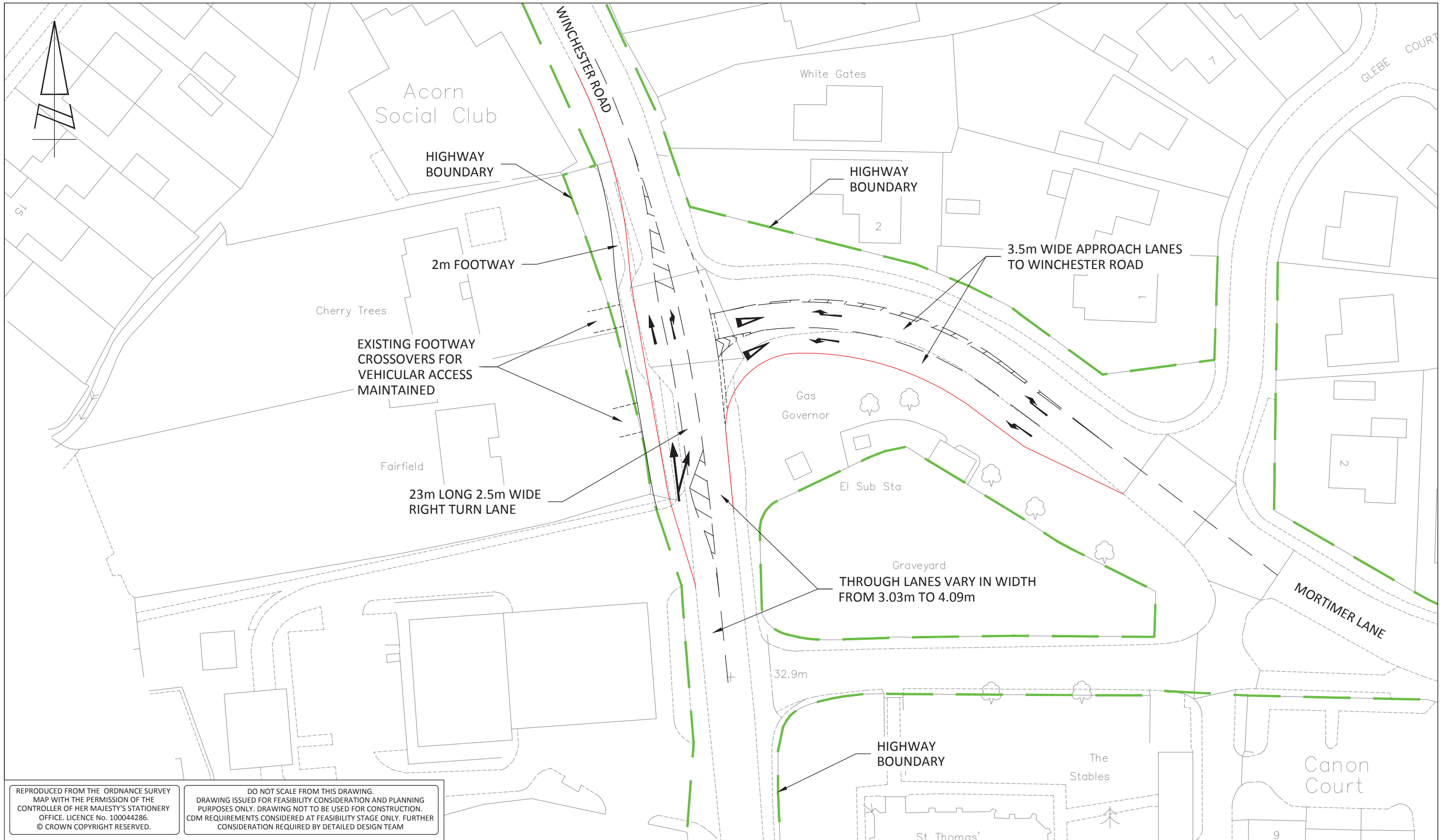
Telephc Exchan

El Sub Sta

STUBBINGT

BOTLEY ROAD

BOTLEY ROAD



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Grove House, Lutyens Close, Chineham Basingstoke, Hampshire, RG24 8AG

Tel: 01256 338640 Fax: 01256 338644

www.i-transport.co.uk

A	14.05.15	PH	LEFT TURN FLARE ADDED TO MORTIMER LANE	BH	JW
REV	DATE	BY	DESCRIPTION	CHK	APD

STATUS: DRAFT

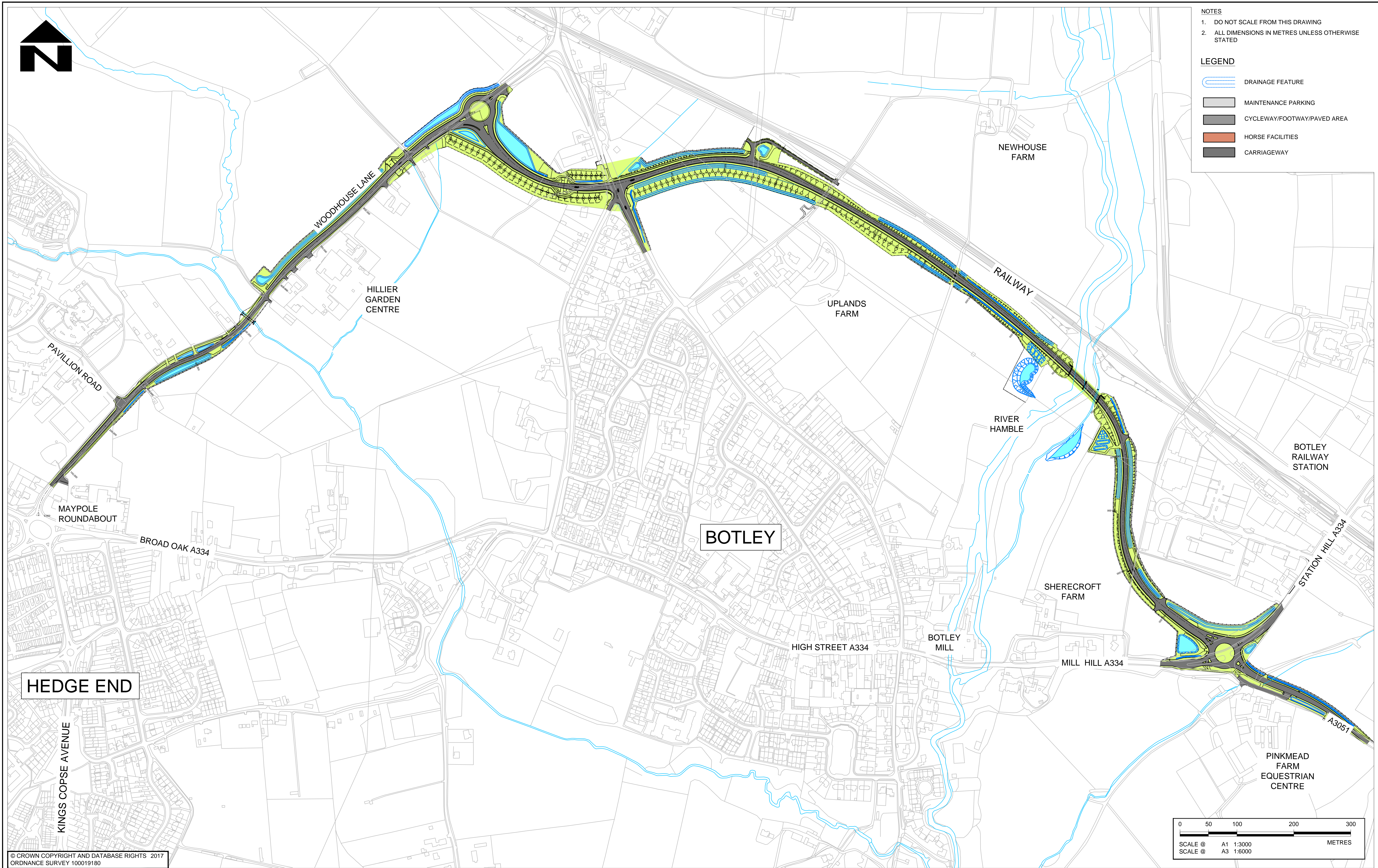
TITLE:	PROPOSED JUNCTION IMPROVEMENT WINCHESTER ROAD / MORTIMER LANE	
PROJECT:	MORTIMER LANE FAIR OAK	CLIENT: HORTON HEATH LTD

SCALE @ A3:	1:500	CHECKED:	BH	APPROVED:	JDW
FILE REF:	ITB10259	DRAWN:	PH	DATE:	FEB 15
DRAWING No:	ITB10259-GA-002				
PROJECT No:	ITB10259	REV:	A		



- NOTES
- DO NOT SCALE FROM THIS DRAWING
 - ALL DIMENSIONS IN METRES UNLESS OTHERWISE STATED

- LEGEND
- DRAINAGE FEATURE
 - MAINTENANCE PARKING
 - CYCLEWAY/FOOTWAY/PAVED AREA
 - HORSE FACILITIES
 - CARRIAGEWAY



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ORDNANCE SURVEY 100019180

REV	AMENDMENTS	DATE	CAD	CHKD	APPD

CLIENT

HAMPSHIRE COUNTY COUNCIL
ECONOMY, TRANSPORT AND ENVIRONMENT DEPARTMENT
STRATEGIC TRANSPORT

CONSULTANT

Hampshire County Council
 Engineering Consultancy

STUART JARVIS BSc DipTP FCIHT MRTPI: DIRECTOR OF ECONOMY, TRANSPORT & ENVIRONMENT

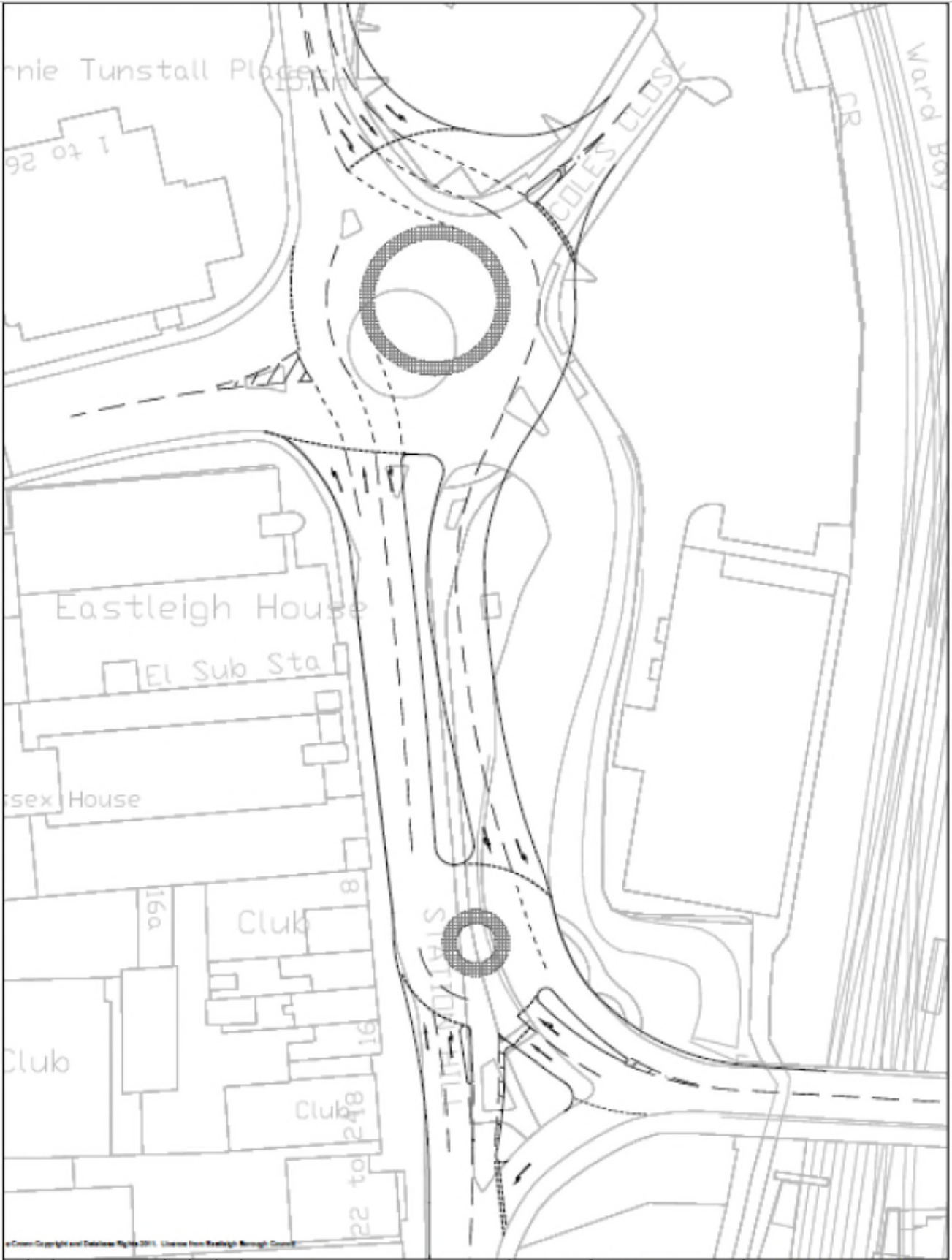
DESIGNER: RW
CAD: DPS
CHECKED: LW
APPROVED: CM

SCHEME: BOTLEY BYPASS

JOB No. SCALE @ A1: 1:4000
DATE: 29.03.2016
SHEET NUMBER: 1 OF 1

DRAWING TITLE: OVERVIEW PLAN

HCC CAD PLOT: 19/06/2017 17:09:24
DRAWING NUMBER: EC/RJ567629/01/106



NO.	DATE	DESCRIPTION	ISSUED BY	APP.



Dukes Court
 Duke Street
 WOKING
 GU21 5BH
 Tel: +44 (0)1483 70001
 Fax: +44 (0)1483 70007

DRAWN:	SW	STATUS:	Draft
CHECKED:	MC	SCALE:	1:500(A3)
APPROVED:	TFC	DATE:	December 2013
PROJECT MANAGER:	MC	FORMAT:	AutoCAD
		CLIENT:	-

PROJECT:	Eastleigh Borough Council Ongoing Local Plan Support
TITLE:	Twyford Road/Romsey Road Station Hill/Bevington Road
DRAWING NO.:	-
REV.:	-



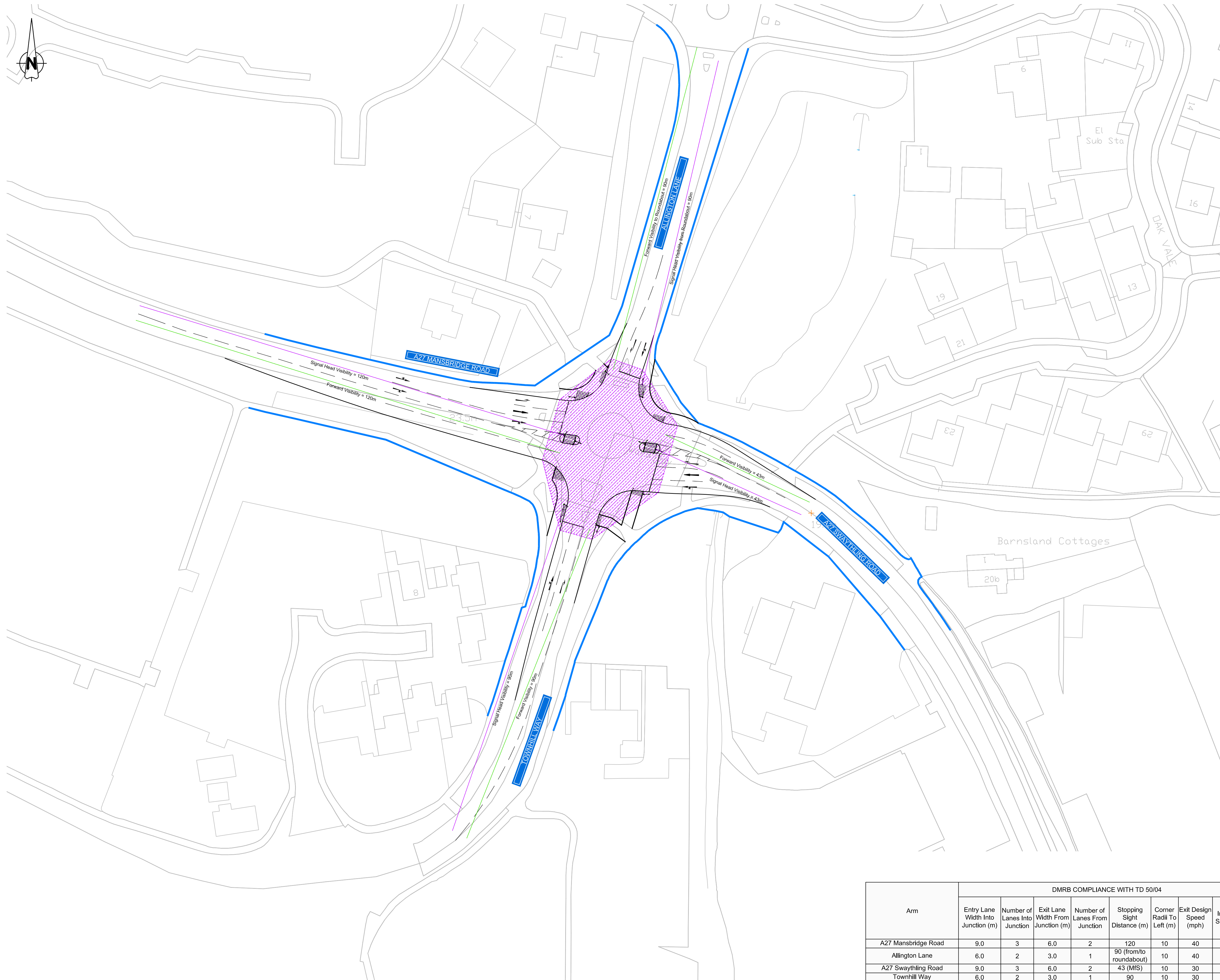
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REVISED	DATE	DESCRIPTION	DRAWN	CHECKED	APPROVED

MVA
SYSTRA GROUP

Dukes Court Duke Street
WOKING GU21 5BH
Tel: +44 (0)1483 70900
Fax: +44 (0)1483 755207

DRAWN:	SW	STATUS:	Draft		PROJECT:	Eastleigh Borough Council Ongoing Local Plan Dusson		
CHECKED:	MC	SCALE:	1:500@A3	DATE:	December 2013	TITLE:	Chirkemall Lane/Bishopstone Road	
APPROVED:	TFC	FORMAT:	AUTOCAD	CLIENT:	-			
PROJECT MANAGER:	MC					DRAWING NO.:	-	
							FIG:	1



Construction Design and Management (CDM)
Key Residual Risks
 Contractors entering the site should gain permission from the relevant land owners and/or principle contractor working on site at the time of entry. Contractors shall be responsible for carrying out their own risk assessments and for liaising with the relevant services companies and authorities. Listed below are Site Specific key risks associated with the project.

- 1) Overhead and underground services
- 2) Street Lighting Cables
- 3) Working adjacent to water courses and flood plain
- 4) Soft ground conditions
- 5) Working adjacent to live highways and railway line
- 6) Unchartered services
- 7) Existing buildings with potential asbestos hazards

NOTES:

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5. The junctions, roundabouts and links have been designed in accordance with the following DMRB standards:
 - TA 23/81: Junctions and Accesses - Determination of Size of Roundabouts and Major-Minor Junctions
 - TA 90/05: The Geometric Design of Pedestrian, Cycle and Equestrian Routes;
 - TA 91/05: Provision for Non-Motorised Users;
 - TD 9/93: Highway Link Design;
 - TD 50/04: The Geometric Layout of Signal-controlled Junctions and Signalized Roundabouts;

KEY:

- Assumed Highway Boundary
- Signal Head Visibility
- Traffic Signal Head
- Pedestrian Signal Head with Push Button
- Intersignal Visibility
- Forward Visibility on Exit
- Tactile Paving

First Issue 29.11.16

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HLM, Bovis Homes and
 The Davies Family

Land South of Allington Lane
 Eastleigh, Hampshire

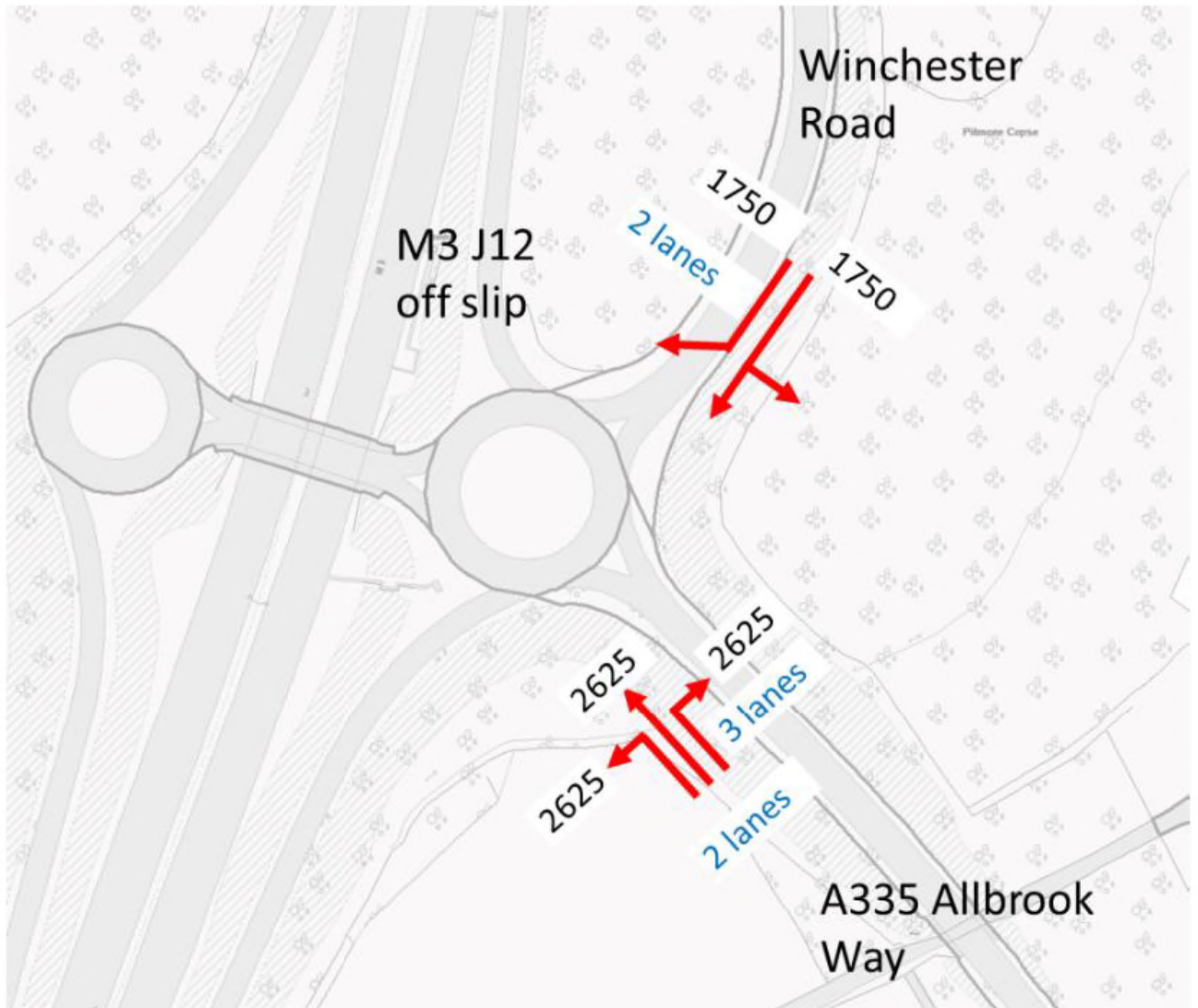
**Off-site Mitigation Drawing
 Signalisation of Swaythling Road
 /Allington Lane Roundabout**

Status		Status Date	
Approval		Oct 2016	
Drawn	Checked	Date	
MDM	LW	20.10.2016	
Scale	Number	Rev	
1:500	10440-HL-19	-	

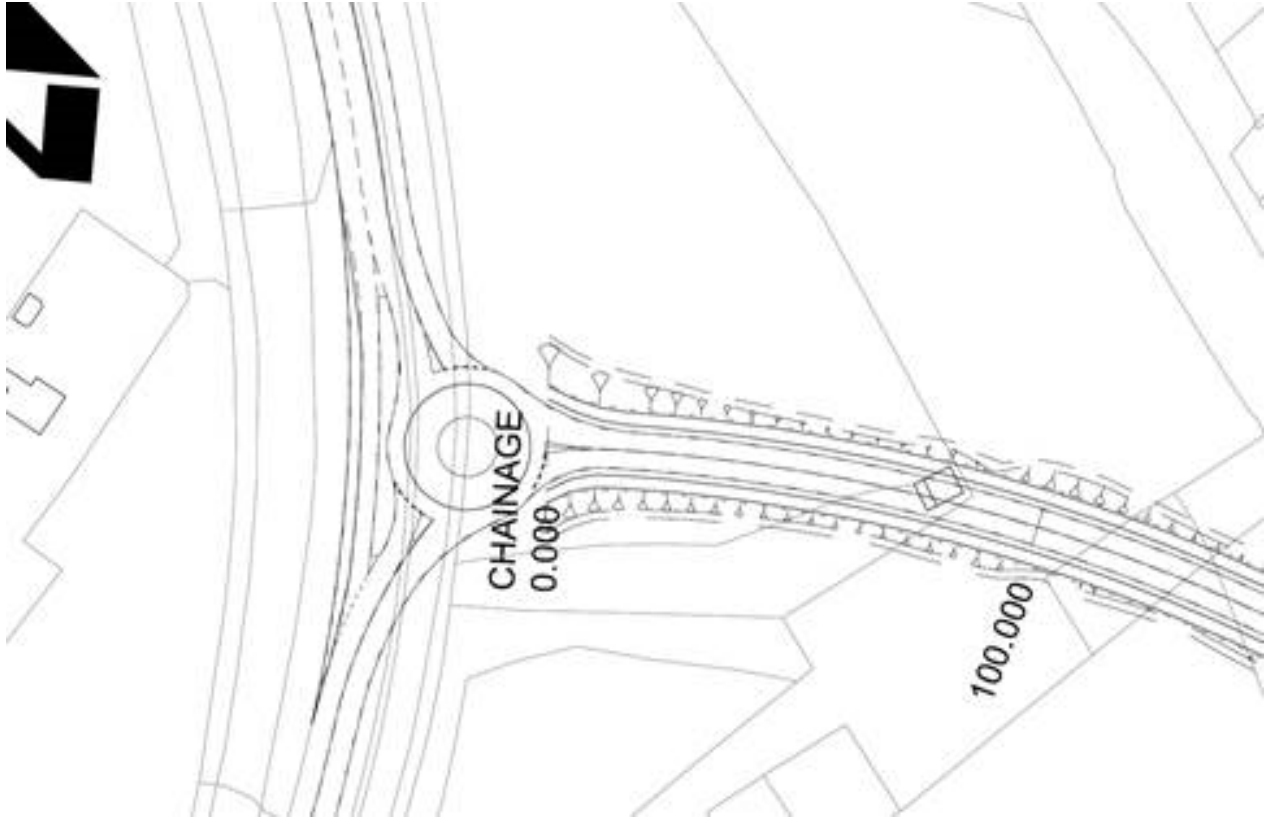
Arm	DMRB COMPLIANCE WITH TD 50/04							
	Entry Lane Width Into Junction (m)	Number of Lanes Into Junction	Exit Lane Width From Junction (m)	Number of Lanes From Junction	Stopping Sight Distance (m)	Corner Radii To Left (m)	Exit Design Speed (mph)	Approx Intervisibility Splay Across Arm (m)
A27 Mansbridge Road	9.0	3	6.0	2	120	10	40	49
Allington Lane	6.0	2	3.0	1	90 (from/to roundabout)	10	40	33
A27 Swaythling Road	9.0	3	6.0	2	43 (MFS)	10	30	49
Townhill Way	6.0	2	3.0	1	90	10	30	33

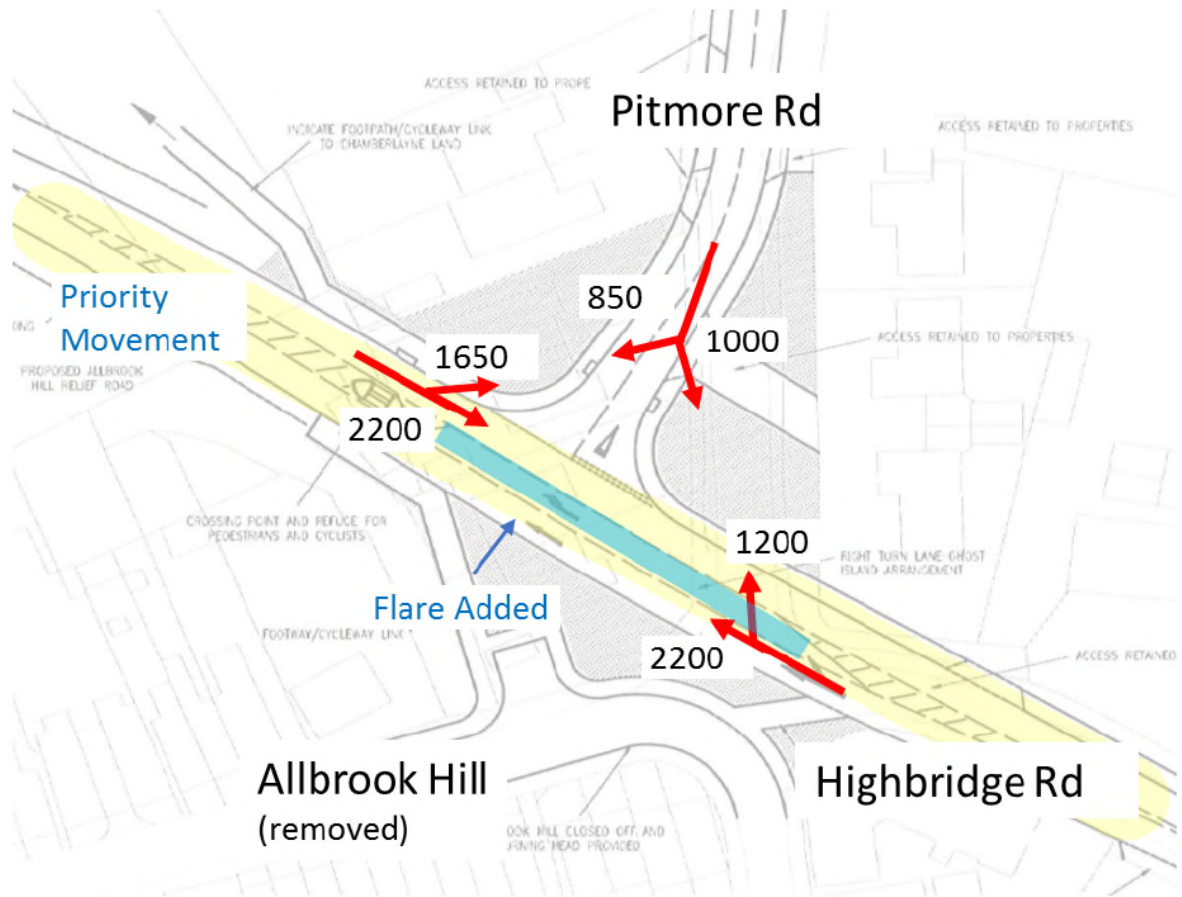
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Appendix F – DS2 2036 Scheme Designs



M3 Junction 12- Allbrook Way/Winchester Rd Junction improvements, with saturation flows (PCU/hr).





Allbrook Village – Junction with Allbrook Hill Relief Road / Highbridge Road / Pitmore Road Junction improvements, with saturation flows (PCU/hr).



Drain

rack

CARRIAGEWAY WIDENED INTO EXISTING VERGE

EXISTING GRACELANDS ACCESS WITH SIGNALISED ARM ARRANGEMENT

CARRIAGEWAY WIDENED INTO EXISTING VERGE

STAGGERED ISLAND FOR PEDESTRIANS

SIGNAL EQUIPMENT NOT SHOWN, BUT TO BE AGREED AS PART OF ANY FURTHER DESIGN WORKS

GENERAL NOTES

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LEGEND

--- INDICATIVE HIGHWAY BOUNDARY - BASED ON HCC MAPPING RECORDS

PRELIMINARY

DRAWING/DESIGN IS STILL 'IN DEVELOPMENT' YOU ARE ADVISED TO MAKE DUE ALLOWANCE

Rev	Description	Date	By	Chkd
-	-	---	--	--

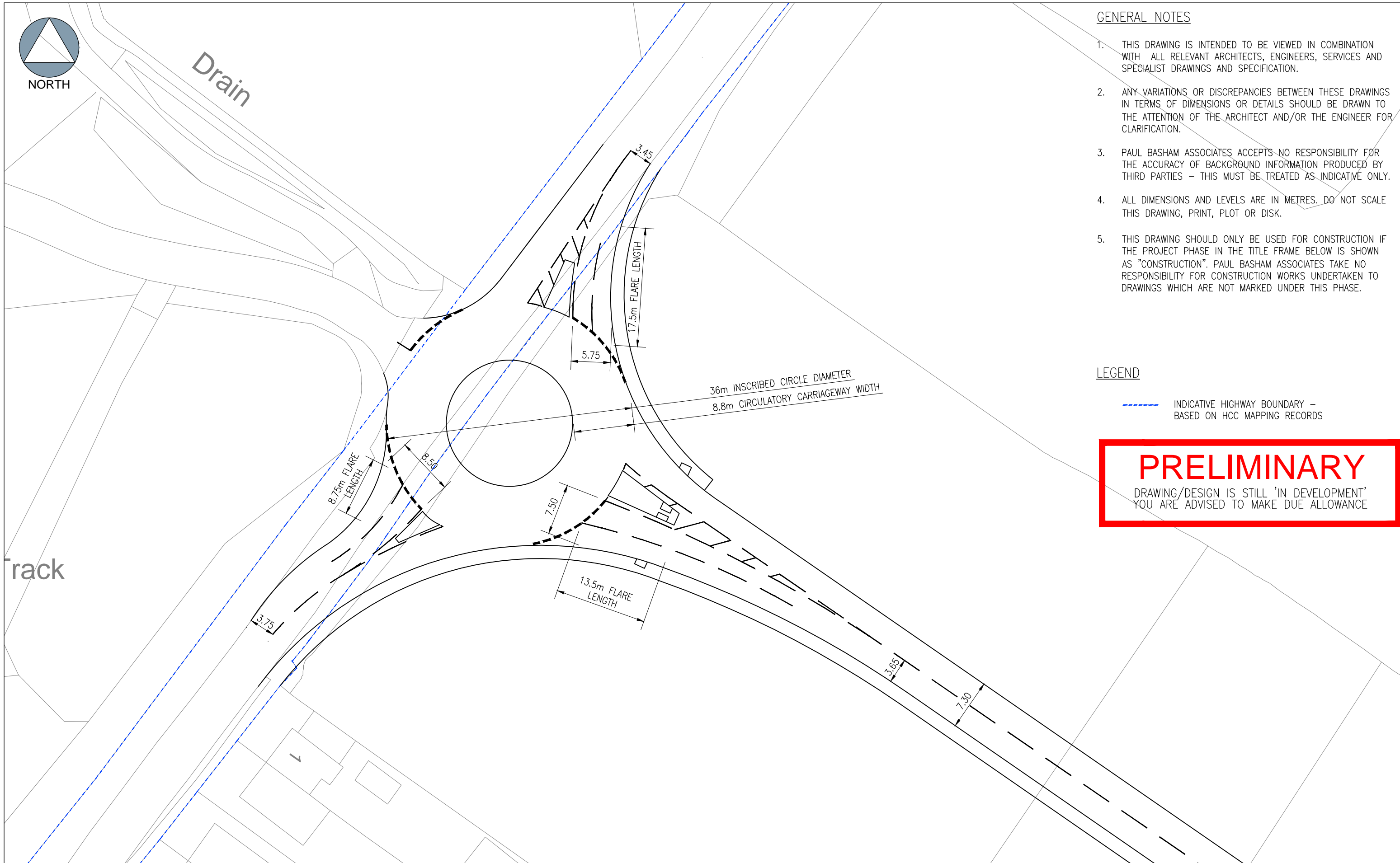
Project Name NORTH BISHOPSTOKE SGO	Title HIGHBRIDGE ROAD TRAFFIC SIGNALS OPTION	 Paul Basham Associates Ltd Lancaster Court, 8 Barnes Wallis Road, Fareham, PO15 5TU 01499 668134 info@paulbashamassociates.com www.paulbashamassociates.com	Client  DREW SMITH LIMITED	Checked By MS	Checked Date 23.01.18	Scale 1:500	(AT A3 SIZE)		
Project Phase PRELIMINARY				Drawn By CL	Drawn Date 23.01.18	Client Drawing No. -	PBA Drawing No. 024.0036.011	Revision -	

Appendix G – DS3 2036 Scheme Designs



Drain

rack



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4. ALL DIMENSIONS AND LEVELS ARE IN METRES. DO NOT SCALE THIS DRAWING, PRINT, PLOT OR DISK.
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LEGEND

--- INDICATIVE HIGHWAY BOUNDARY - BASED ON HCC MAPPING RECORDS

PRELIMINARY
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YOU ARE ADVISED TO MAKE DUE ALLOWANCE

Rev	Description	Date	By	Chkd
-	-	---	--	--

Project Name NORTH BISHOPSTOKE SGO	Title HIGHBRIDGE ROAD ROUNDABOUT OPTION	 <small>Paul Basham Associates Ltd Lancaster Court, 8 Barnes Wallis Road, Fareham, PO15 5TU 01499 668134 info@paulbashamassociates.com www.paulbashamassociates.com</small>	Client DREW SMITH LIMITED	Checked By MS	Checked Date 23.01.18	Scale 1:500	(AT A3 SIZE)	
Project Phase PRELIMINARY			Drawn By CL	Drawn Date 23.01.18	Client Drawing No. -	PBA Drawing No. 024.0036.012		

Appendix H – DS4 2036 Land Use

Appendix I – DS5 2036 Land Use

Appendix J – DS6 2036 Land Use

Appendix K – DS7 2036 Land Use

Appendix L – EBC Areas for Model Results

Zone ID	District	Eastleigh					Southampton			Winchester			
		Eastleigh Borough	Bishopstoke / Fair Oak / Horton Heath	Botley / Hedge End / West End	Bursledon / Hamble / Hound	Chandler's Ford / Hiltingbury	Eastleigh	Southampton on Borough	Southampton on West of River Itchen	Southampton on East of River Itchen	Winchester Borough	Colden Common, Oswlebury, Otterbourn, Twyford	Bishops Waltham, Upham
25	Southampton						YES		YES				
26	Southampton						YES		YES				
27	Southampton						YES		YES				
28	Southampton						YES		YES				
29	Southampton						YES		YES				
30	Southampton						YES		YES				
31	Southampton						YES		YES				
32	Southampton						YES		YES				
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80	Southampton						YES	YES					
81	Southampton						YES	YES					
82	Southampton						YES	YES					
83	Southampton						YES	YES					
84	Southampton						YES	YES					
85	Southampton						YES	YES					
86	Southampton						YES	YES					
87	Southampton						YES	YES					
88	Southampton						YES	YES					
89	Southampton						YES	YES					
90	Southampton						YES		YES				
91	Southampton						YES		YES				
92	Southampton						YES		YES				
93	Southampton						YES		YES				
94	Southampton						YES		YES				
95	Southampton						YES		YES				
96	Southampton						YES		YES				
97	Southampton						YES	YES					
98	Southampton						YES	YES					
99	Southampton						YES	YES					
100	Southampton						YES	YES					
101	Southampton						YES	YES					
102	Southampton						YES	YES					
103	Southampton						YES	YES					
104	Southampton						YES	YES					
105	Southampton						YES	YES					
106	Southampton						YES	YES					
107	Southampton						YES	YES					

Zone ID	District	Eastleigh						Southampton			Winchester			
		Eastleigh Borough	Bishopstoke / Fair Oak / Horton Heath	Botley / Hedge End / West End	Bursledon / Hamble / Hound	Chandler's Ford / Hiltingbury	Eastleigh	Southampton Borough	Southampton on West of River Itchen	Southampton on East of River Itchen	Winchester Borough	Colden Common, Oswlebury, Otterbourn, Twyford	Bishops Waltham, Upham	Winchester Rest
224	Eastleigh	YES	YES											
225	Eastleigh	YES	YES											
226	Eastleigh	YES	YES											
227	Eastleigh	YES	YES											
228	Eastleigh	YES	YES											
229	Eastleigh	YES	YES											
230	Eastleigh	YES	YES											
231	Eastleigh	YES	YES											
232	Eastleigh	YES					YES							
233	Eastleigh	YES					YES							
234	Eastleigh	YES					YES							
235	Eastleigh	YES					YES							
236	Eastleigh	YES					YES							
237	Eastleigh	YES					YES							
238	Eastleigh	YES					YES							
239	Eastleigh	YES					YES							
240	Eastleigh	YES					YES							
241	Eastleigh	YES					YES							
242	Eastleigh	YES					YES							
243	Eastleigh	YES					YES							
244	Eastleigh	YES					YES							
245	Eastleigh	YES					YES							
246	Eastleigh	YES					YES							
247	Eastleigh	YES					YES							
248	Eastleigh	YES					YES							
249	Eastleigh	YES				YES								
250	Eastleigh	YES				YES								
251	Eastleigh	YES				YES								
252	Eastleigh	YES				YES								
253	Eastleigh	YES				YES								
254	Eastleigh	YES				YES								
255	Eastleigh	YES				YES								
256	Eastleigh	YES				YES								
257	Eastleigh	YES				YES								
258	Eastleigh	YES				YES								
367	Winchester (Core)								YES	YES				
368	Winchester (Core)								YES	YES				
369	Winchester (Core)								YES				YES	
370	Winchester (Core)								YES				YES	
371	Winchester (Core)								YES				YES	
372	Winchester (Core)								YES				YES	
373	Winchester (Core)								YES		YES			
374	Winchester (Core)								YES				YES	
375	Winchester (Core)								YES				YES	
376	Winchester (Core)								YES				YES	
377	Winchester (Core)								YES				YES	
378	Winchester (Core)								YES				YES	
379	Winchester (Core)								YES				YES	
380	Winchester (Core)								YES				YES	
381	Winchester (Core)								YES				YES	
382	Winchester (Core)								YES		YES			
383	Winchester (Core)								YES		YES			
384	Winchester (Core)								YES		YES			
385	Winchester (Core)								YES		YES			
386	Winchester (Core)								YES		YES			
387	Winchester (Core)								YES		YES			
388	Winchester (Core)								YES	YES				
389	Winchester (Core)								YES				YES	
390	Winchester (Core)								YES				YES	
391	Winchester (Core)								YES				YES	
392	Winchester (Core)								YES				YES	
393	Winchester (Core)								YES				YES	
394	Winchester (Core)								YES				YES	
395	Winchester (Core)								YES				YES	
396	Winchester (Core)								YES				YES	
397	Winchester (Core)								YES				YES	
398	Winchester (Core)								YES				YES	
399	Winchester (Core)								YES				YES	
400	Winchester (Core)								YES				YES	
401	Winchester (Core)								YES				YES	
402	Winchester (Core)								YES				YES	
403	Winchester (Core)								YES				YES	
404	Winchester (Core)								YES				YES	
405	Winchester (Core)								YES				YES	
406	Winchester (Core)								YES				YES	
407	Winchester (Core)								YES				YES	
408	Winchester (Core)								YES				YES	
409	Winchester (Core)								YES				YES	
410	Winchester (Core)								YES				YES	
411	Winchester (Core)								YES				YES	
412	Winchester (Core)								YES				YES	
413	Winchester (Core)								YES				YES	
414	Winchester (Core)								YES				YES	

