Review of NFDC Local Plan 2016-2036 **05/06/2017**

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REVISED ASSESSMENT OF TRANSPORT IMPACTS

SYSTRA

REVIEW OF NFDC LOCAL PLAN 2016-2036

REVISED ASSESSMENT OF TRANSPORT IMPACTS

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Appendix A Updated New Forest Local Plan SRTM Report

1. INTRODUCTION

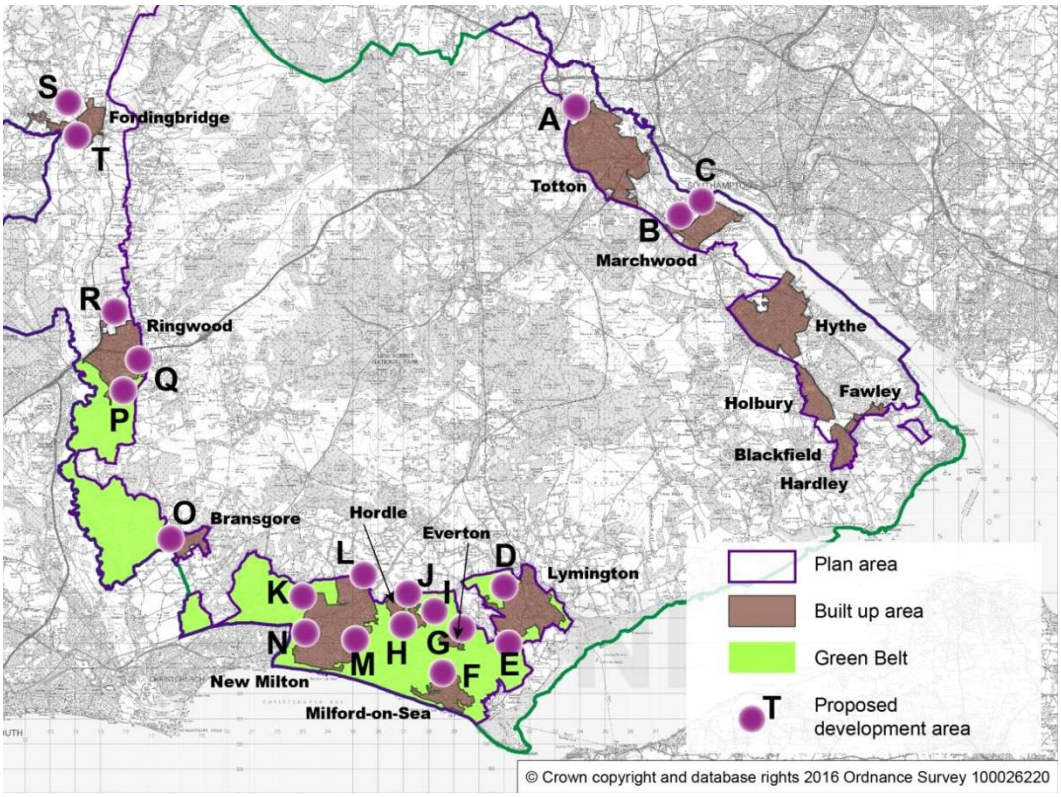
1.1 Background

1.1.1 In recent years SYSTRA has undertaken a number of assessments of the potential transport impacts of planned development at Allocation Sites proposed in New Forest District Council's (NFDC's) Local Plan 2016-2036. A total of 18 development sites are currently identified in the draft Local Plan and these fall into three general sub-areas:

- Totton and Waterside - 4 sites;
- South Coastal Towns – 7 sites; and
- Avon Valley and Downlands - 7 sites.

1.1.2 The locations of the three sub-areas are indicated in **Figure 1** extracted from the Local Plan Consultation Summary. The figure also shows the locations of many of the development sites included in this assessment but it should be noted that some changes to proposed housing allocations have taken place since the publication of the Consultation Summary.

Figure 1. Location of development sub-areas and sites



1.1.3 In the period since a review was carried out in late 2015, plans for development have been refined and this has resulted in the number of planned residential units in some of the sites being changed from the figures used in the 2015 studies.

1.1.4 As a result of this, NFDC has commissioned SYSTRA to undertake a further review using the current numbers of planned units to assess how these changes might impact on the conclusions and recommendations from previous studies.

1.2 Scope of the Study

1.2.1 The original reviews assessed the potential impacts of proposed developments on the strategic road network by examining the changes in traffic flows at links and junctions across the study area. This work used two methodologies which were dictated by the type and reliability of the data available;

- The Totton & Waterside and South Coastal Towns sub-areas were assessed using Solent Transport's Sub Regional Transport Model (SRTM); and
- The Avon Valley and Downlands sub-area was assessed using individual junction models within the area.

1.2.2 The original assessment using the SRTM had included traffic from the proposed development at the Fawley Power Station site as part of its Do Minimum scenario (as well as the Do Something scenario), and thus as a first step in undertaking this new assessment it was decided that the model be re-run without this Fawley traffic to give a revised baseline for comparison. The outcomes of this exercise are reported in the following chapter of this report.

1.2.3 The assessment of Local Plan development impacts in the Totton and Waterside and South Coastal Towns sub-areas have made use of the SRTM to assess the traffic impacts of the planned developments on the surrounding road network. These have been assessed through identification of potential changes in traffic flow, delay and congestion on links around the network, taken from the model outputs. The Do Something model scenario is unchanged from the 2015 study. This is because the overall quantum of proposed development has reduced and therefore the original Do Something modelling remains robust. The potential impacts of the redistribution of proposed housing growth is discussed later in this report.

1.2.4 The proposed development sites in the Avon Valley and Downlands area fall outside the area covered by the SRTM, and thus an alternative assessment was undertaken using a manual methodology and Junctions8 junction modelling software to identify junctions where problems may exist. Following the modelling these junctions were rated using a red-amber-green (RAG) matrix to identify which junctions currently experience problems and which may do so in the future post-development.

2. SRTM MODELLING – REVISED BASELINE SCENARIO

2.1 Modelling Context

2.1.1 In 2015, SYSTRA was commissioned by New Forest District Council (NFDC) in 2015 to assist in preparation of its Local Plan. The SRTM has been identified as a suitable tool to contribute to the evidence base for the Transport Assessment required as part of the Local Plan. The model supports a wide-ranging set of interventions and is 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;
- Testing the impacts of land use and transport policies and strategies within a relatively short model run time; and
- Testing the impacts of individual transport interventions in the increased detail necessary for preparing submissions for inclusion in funding programmes.

2.1.2 More specifically, the SRTM has been used to quantify the transport implications resulting from the size and location of proposed developments (within the core and marginal model extents only) in the Local Plan.

2.2 Modelling Scenarios

2.2.1 This chapter details the main results and conclusions of the revised modelling work completed in spring 2017 and assesses the impacts of the revisions in the context of the Local Plan proposals assessed in 2015.

2.2.2 Our updated report, summarised here and included as Appendix A, uses the same assumptions as the study in 2015, with the removal of the development at Fawley Power Station from the Do Minimum (DM) scenario. The results of the revised DM show the relatively small impact of removing Fawley from the land use from the Do Minimum.

2.2.3 The two scenarios were modelled within SRTM to enable the impact of the potential development sites to be isolated and assessed included:

- Do Minimum – without New Forest Local Plan Development; and
- Do Something – With New Forest Local Plan Development (within the core and marginal model areas only) including Fawley;

2.2.4 For the Do Something scenario, the Local Plan Development sites were allocated to zones within the SRTM model, with the eastern area of the district (Totton, Marchwood, Hythe and Fawley – the Totton and Waterside sub-area) falling within the core modelled area which is effectively bounded by the A326. The marginal area includes Lymington, Everton, Hordle, Milford-on Sea and New Milton (known as the South Coastal Towns sub-area). The west of district lies within the buffer area of the model for which land use is not modelled.

2.2.5 Because of limitations on what can be modelled outside the core model area only the land use changes from the proposed Local Plan in the core and marginal model areas of New Forest ere used in the model runs.

2.3 Updated 'Do Minimum' Scenario Excluding Fawley Power Station

2.3.1 The revised Do Minimum test was run to exclude the Fawley development, as this should only have been included within the Do Something scenario. The report in **Appendix A** provides an update to the previous 2015 version and the main changes between the two versions along with the report conclusions are detailed here.

2.3.2 The 1,300 proposed houses at Fawley were removed from the Do Minimum test (this was the number modelled in 2015 rather than the 1,250 now proposed), this resulted in the Do Something (Local Plan) scenario having a slightly greater impact on the network than previously modelled.

2.3.3 The total number of expected trips that result from the Do Something compared to the Do Minimum increased from 59,500 to 62,600 (a 10% increase compared to the previous 9% increase). In turn this resulted in a greater differential in forecast emissions which go from a 4-7% increase to a 7-12% increase within the New Forest area.

2.3.4 The highway network sees the differential in forecast highway vehicle hours within the New Forest Core modelled area increase from between 7% and 9% to between 11% and 13%. The forecast increase in vehicle kilometres goes from 5% to between 8-9% in the revised version. Finally the reduction in average speed between the do minimum and do something increases from 1.8% in the AM to 2.8% and in the PM the reduction increases from 3% to 4%.

2.3.5 The local changes in traffic flow, delay and congestion continue to occur in similar locations as they are related to the Do Something test. **Table 1** and **Table 2** below highlight the main capacity hotspots forecast by the modelling. The Do Minimum numbers for both the previous and updated model run have been included to show the limited changes.

Table 1. New Forest Capacity Hotspots AM

JUNCTION	CAPACITY HOTSPOTS			
	Base 2010	Previous Do Minimum	Revised Do Minimum	Do Something
A326 Hythe Bypass (SB) / Fawley Road	94%	96%	85%	97%
A326 Hythe Bypass (SB) / Sizer Way	102%	102%	102%	103%
A326 Marchwood Bypass (SB) / Twiggs Lane	<80%	82%	<80%	83%
A326 Marchwood Bypass (NB) / Staplewood Lane	81%	81%	<80%	85%
A326 Marchwood Bypass (SB) / Staplewood Lane	86%	93%	92%	91%
A326 (SB) / A326	<80%	86%	82%	85%
A326 (SB) / Kneller Lane	88%	93%	91%	98%

JUNCTION	CAPACITY HOTSPOTS			
	Base 2010	Previous Do Minimum	Revised Do Minimum	Do Something
A326 (NB) / Fletchwood Road	<80%	<80%	<80%	83%
A326 (NB) / A336	<80%	<80%	<80%	88%
Michigan Way (WB) / A326	<80%	83%	86%	91%
A35 (NB) / Rushington Lane	<80%	<80%	<80%	81%
A35 (SB) / A326	<80%	<80%	<80%	84%
A35 Totton Bypass (SB)	<80%	<80%	<80%	84%
B3076 High Street, Totton (NB) / A35 Totton Bypass	91%	96%	96%	100%
Redbridge Causeway (EB)	<80%	93%	93%	100%
Salisbury Road (SB) / A336	87%	98%	98%	100%
Salisbury Road (NB) / Brunel Road	<80%	<80%	<80%	80%
Salisbury Road (WB) / A326	<80%	96%	96%	100%
M27 Junction 2 – approach to eastbound on-slip	<80%	98%	98%	98%
A36 (NB) / A3090	<80%	91%	90%	97%
A36 (SB) / A3090	<80%	<80%	<85%	80%
M27 eastbound (between junctions 2 and 3)	<80%	92%	92%	94%

Table 2. New Forest Capacity Hotspots PM

JUNCTION	CAPACITY HOTSPOTS			
	Base 2010	Previous Do Minimum	Revised Do Minimum	Do Something
A326 Long Lane (SB) / Holbury Drove	<80%	<80%	<80%	81%
A326 Hythe Bypass (SB) / Fawley Road	<80%	<80%	<80%	81%
A326 Hythe Bypass (SB) / Sizer Way	91%	102%	101%	102%
A326 Marchwood Bypass (SB) / Staplewood Lane	<80%	84%	82%	88%
A326 (SB) / A326	<80%	<80%	<80%	85%
A35 Southampton Road (SB) / Beaulieu Road	93%	96%	96%	99%
A326 (SB) / Kneller Lane	<80%	84%	80%	92%
A326 (NB) / Fletchwood Road	<80%	80%	80%	87%
A35 (SB) / A326	<80%	86%	83%	90%
A35 Totton Bypass (SB)	<80%	86%	85%	90%
B3076 High Street, Totton (NB) / A35 Totton Bypass	90%	93%	93%	100%
A35 Totton Bypass (SB) / B3076 High Street, Totton	<80%	<80%	<80%	84%
Redbridge Causeway (EB)	<80%	89%	89%	98%
Salisbury Road (SB) / A336	85%	83%	83%	98%
Salisbury Road (WB) / A326	<80%	96%	95%	101%
Salisbury Road (EB) / A326	<80%	<80%	<80%	96%
M27 Junction 2 – approach to eastbound on-slip	<80%	96%	96%	100%
M27 eastbound (between junctions 2 and 3)	<80%	85%	84%	88%

2.3.6 The public transport network is also marginally impacted by the changes to the Do Minimum run. The differential in bus boardings within the New Forest increases from 16% previously to 20% in the AM and from 26% to 31% in the PM using the revised Do Minimum. Bus passenger hours within the New Forest have the change between Do Minimum and Do

Something increase from 11% to 18% in the AM peak and from 10% to 18% in the PM. Finally the bus passenger kilometres differential increases from 9% to 15% in the AM and from 8% to 15% in the PM.

2.3.7 The increase in PT trips observed between the Do Minimum and Do Something remains concentrated along bus routes between the New Forest and Southampton (in both directions) via Redbridge Causeway.

2.4 Impacts of revised Local Plan numbers on the Highway and PT network

2.4.1 Given that the number of houses within both the core and marginal modelled areas are higher than those now proposed, the impacts of the revised Local Plan are likely to be similar or less influential on both the highway and PT networks. As the main developments within the core modelled area are located in similar places to those being proposed, the locations identified as being likely to experience capacity issues with the inclusion of the Local Plan are still expected to be the locations that will see the greatest impact.

3. DEVELOPMENT CHANGES ASSESSMENT – SRTM AREA

3.1 Local Plan Development Updates – SRTM Area

3.1.1 In the period since the 2015 modelling analysis for the Do Something scenario was undertaken, revisions have been made to the forecasts for proposed housing allocations across the district.

3.1.2 The previous SRTM modelling had included 3,670 houses within the core area compared to the revised figure of 3,444 houses now proposed. The marginal area was modelled as including 3,454 houses compared to the 941 now proposed. These changes are shown in **Table 3** below.

Table 3. Proposed development sites for modelling assessment

MODEL AREA	ORIGINAL NO. OF PROPOSED UNITS	CURRENT NO. OF PROPOSED UNITS
Totton	1,050	1,059
Marchwood	800	1,135
Fawley Power Station	1,300	1,250
Additional Core Housing	520	0
Core area Total	3,670	3,444
Marginal area Total	3,454	941
Total	**7,124**	**4,385**

3.1.3 For the purposes of this study, it was decided that the Do Something model scenario would not be updated as the total houses being modelled across the core and marginal areas is now less than what was previously modelled. This means that the model is showing a worse case situation and is deemed robust.

3.1.4 The only area where there are additional houses in the current proposals is at Marchwood, but the impacts arising from the additional 335 houses at this location are to some extent off-set by the reductions in housing across other parts of the core area and the significant reductions within the marginal area.

3.2 Assessment of Impacts of Development Updates – Totton and Waterside

3.2.1 The current number of development units proposed in the Totton and Waterside sub-area represents a reduction over the number of units modelled in 2015 of slightly over 6%. In light

of this it can be expected that many of the links and junctions within the core model area will experience a commensurate reduction in traffic pressure by 2036.

3.2.2 The locations and current number of planned residential units for the current Local Plan allocation sites are shown in **Table 4**.

Table 4. Development Site No. of Units – Totton and Waterside

LOCAL PLAN REF.	SITE LOCATION	LOCAL PLAN PROPOSED UNITS	LOCAL PLAN UNITS PLUS 7% UPLIFT
Site A	North of Totton	990	1059
Site B	West of Marchwood	880	942
Site C	North of Marchwood	180	193
No ref.	Fawley Power Station	1250	1250*
TOTALS		**3,300**	**3,444**

* 7% uplift not applied

3.2.3 The Marchwood development area is currently proposed to have an additional 335 units over the number that was modelled in 2015 and it is therefore reasonable to expect that the links and junctions in the area of the development will experience an increase in vehicle trips. Reference to **Tables 1** and **2** in Section 2 indicates that the junctions closest to Marchwood (on the A326 at Twiggs Lane and Staplewood Lane) are forecast to be operating within capacity in the Do Something scenario and this suggests that the impact of the additional housing at Marchwood is unlikely to significantly affect the modelling results.

3.3 Assessment of Impacts of Development Updates – South Coastal Towns

3.3.1 Planned development in the South Coastal Towns area has reduced from the 3,454 assessed in the 2015 study to a current figure of 941, a reduction of 2,513 (73%). It should be noted that the current figure includes a 7% uplift from Local Plan figures to allow for variations in the number of units that may be actually approved at planning and to assist in providing a robust assessment.

3.3.2 A total of five sites in the South Coastal Towns sub-area have been removed from the draft Local Plan allocations since the 2015 assessment, providing a reduction in the number of units in the sub-area of 2,150. These sites are:

- Site D – North Lymington;
- Site G – Everton;
- Site J – North of Hordle;
- Site K – North West New Milton; and
- Site M – South East New Milton.

3.3.3 The largest of these is Site D, at 800 units, followed by Sites K and M at 500 units each. Given the size of these proposed developments it can be seen that these areas will see a significant improvement in traffic levels and impacts compared with those assessed in 2015.

3.3.4 The locations and current number of planned residential units for the proposed Local Plan allocations are shown in **Table 5**.

Table 5. Development Site No. of Units – South Coastal Towns

LOCAL PLAN REF.	SITE LOCATION	LOCAL PLAN PROPOSED UNITS	LOCAL PLAN UNITS PLUS 7% UPLIFT
Site E	South West of Lymington	200	214
No ref.	South of Lymington	100	107
Site F	North of Milford-on-Sea	100	107
Site H	Central Hordle	130	139
Site I	North of Hordle	100	107
Site L	North East of New Milton	130	139
Site N	South West of New Milton	120	128
TOTALS		**880**	**941**

3.3.5 As previously noted there has been a substantial net reduction in the proposed housing numbers within the South Coastal Towns area compared with the previous SRTM modelling, and consequently the impacts resulting from the previous modelling will be overstated.

3.3.6 Site promoter Transport Assessments and studies have been made available for a number of the sites located within the sub-area, and these were reviewed to identify any new data or analysis which might usefully inform this revised assessment of transport impacts. Given that the South Coastal Towns lie within the marginal area, this additional transport assessment information provides useful analysis of local transport impacts, beyond that which is possible using the SRTM alone. The studies contain varying levels of detail in terms of network flows, trip generation and impact analysis but where detailed analysis is available it has demonstrated that additional traffic can be accommodated satisfactorily or that mitigation measures are capable of being implemented to accommodate the anticipated levels of growth.

3.3.7 The sites within the sub-area range in size from 100-200 dwellings and these sites are distributed across the whole of the sub-area. As indicated in the site promoter assessments the impacts of these small scale individual sites are relatively low and capable of being accommodated with local mitigation. Furthermore, given that the total dwelling numbers across the sub-area are now substantially lower than those modelled in the 2015 study, it

follows that the cumulative impacts could be accommodated also, with reduced impacts relative to the previous SRTM modelling results.

4. DEVELOPMENT CHANGES ASSESSMENT – AVON VALLEY AND DOWNLANDS

4.1 Local Plan Development Updates – Avon Valley and Downlands

4.1.1 Our original review made an assessment of Sites O to T. The locations and previous and current number of planned residential units for each site are shown in Table 6. The table includes a 7% uplift from Local Plan figures to allow for variations in the number of units that may be actually approved at planning and to assist in providing a robust assessment.

Table 6. Development Site No. of Units – Avon Valley and Downlands

LOCAL PLAN REF.	SITE LOCATION	ORIGINAL NO. OF PROPOSED UNITS	LOCAL PLAN PROPOSED UNITS	LOCAL PLAN UNITS PLUS 7% UPLIFT
Site O	North-west Bransgore (south of Derritt Lane)	100	140	150
Site P	Ringwood South (east of Christchurch Road)	800	460	492
Site Q	Ringwood East (east of Eastfield Lane)	350	350	375
Site R	Ringwood North (north of North Poulner Road)	150	115	123
Site S	North & NW Fordingbridge	500	740 (over two sites)	792 (over two sites)
Site T	West Fordingbridge	100	100	107
No ref.	North/east Sandleheath	50	0	0
TOTALS		**2,050**	**1,905**	**2,039**

4.2 Junction Assessments

4.2.1 In late 2015, SYSTRA undertook a review of the Local Plan Allocation Sites in the Ringwood and Fordingbridge areas, using a manual traffic allocation methodology and Junctions8 junction modelling software, the results of which are reported in our Review of Local Plan 2016-2036 Transport Assessment published in January 2016.

4.2.2 The locations and reference numbers of the junctions in the Ringwood area which were assessed by our previous study are shown in **Figure 2**, while the junction locations in the Fordingbridge area are shown in **Figure 3**.

Figure 2. Location of key junctions in Ringwood

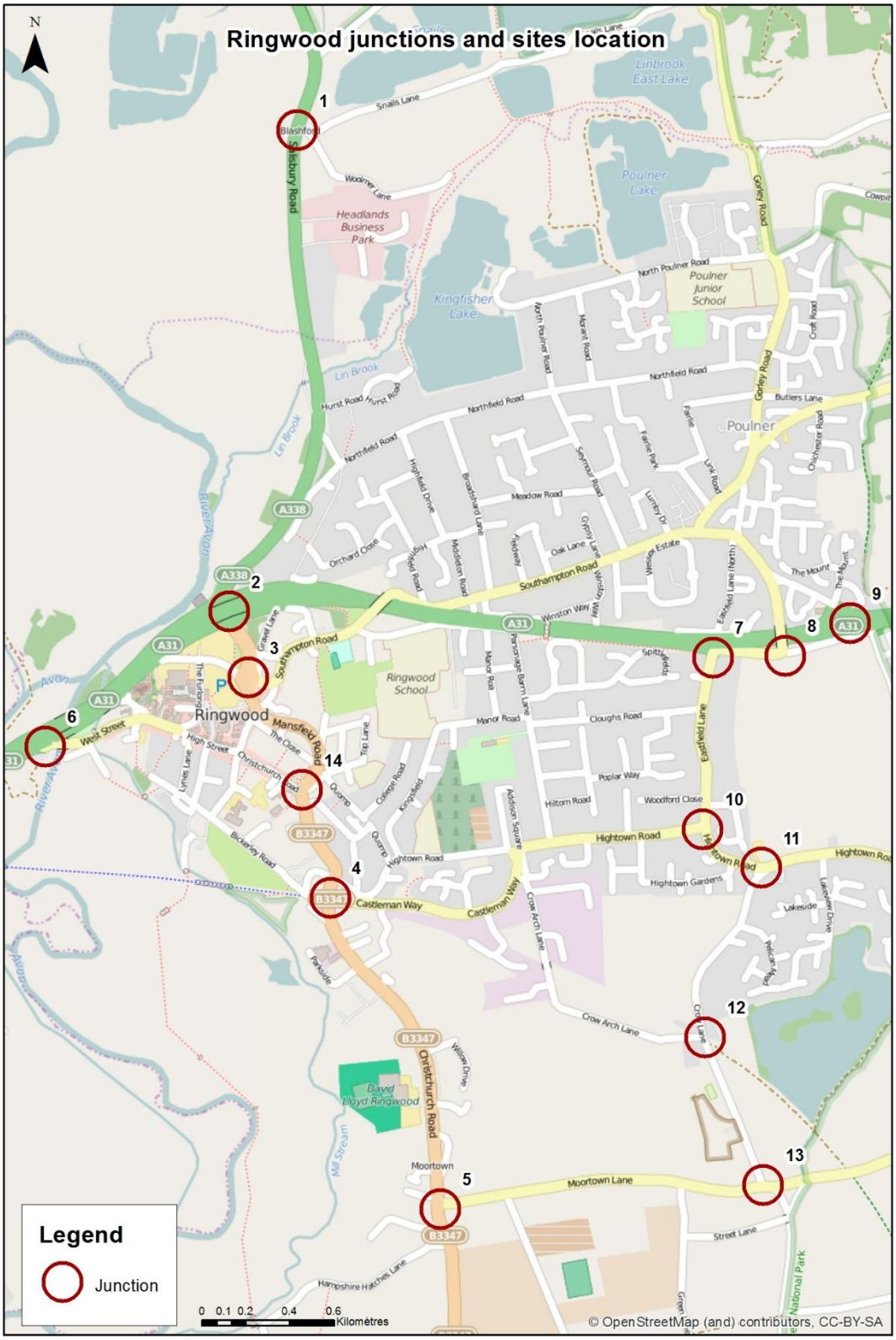
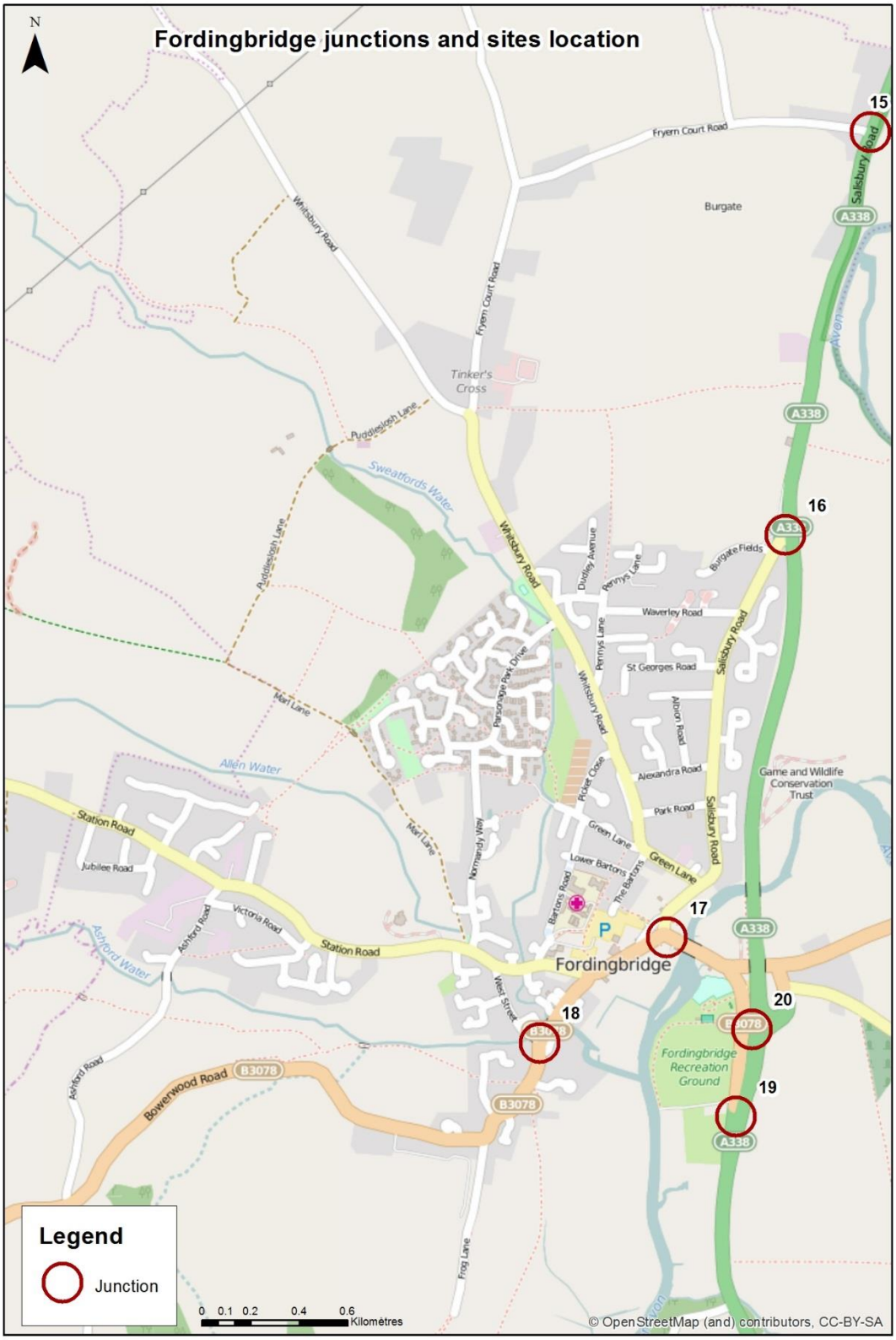


Figure 3. Location of key junctions in Fordingbridge



4.2.3 Following the modelling the junctions were rated using a red-amber-green (RAG) matrix to identify which junctions currently experience problems and which may do so in the future post-development. The RAG matrix was based on the Ratio of Flow to Capacity (RFC) figures produced by the models, where:

- Junctions with an RFC of less than 0.85 were rated as green;
- Junctions with an RFC between 0.85 - 0.99 were rated as amber; and
- Junctions with an RFC of 1.00 of more were rated as red.

4.2.4 It is generally accepted by that junctions which operate with an RFC of below 0.85 are operating effectively and within their practical capacity. Those with an RFC of between 0.85 – 0.99 are approaching capacity and function less effectively, with resultant queueing and delays, and those with RFC's of over 1.00 are considered to be over-saturated and may require mitigation measures to restore effective operation.

4.2.5 Our assessment examined traffic flows in the AM and PM hours for peak traffic movements. A total of six junctions were rated as amber or red in the AM peak, identifying them either as having existing problems or having the potential for problems in the future. The results for these junctions are re-presented in **Table 7**.

Table 7. Junctions with existing or potential problems in the AM peak hour

ID	JUNCTION	RFC - 2015 AM BASELINE	RFC – 2036 WITH DEVELOPMENT
RINGWOOD AREA JUNCTIONS			
2	Roundabout junction of A338, A31 and B3347	0.93	1.10
3	Roundabout junction of B3347 and The Furlong	0.91	0.98
4	Roundabout at B3347, Bickerley Rd and Castleman Way	0.80	1.09
5	Priority junction of B3347 and Moortown Lane	0.35	0.95
7	Priority junction of Eastfield Lane with the A31 slip road	0.65	0.90
14	Mini-roundabout at B3347 and Mansfield Road	0.95	1.06

4.2.6 The assessment also identified a total of seven junctions with existing or potential future issues in the PM peak hour for traffic and these results are reproduced in **Table 8**.

Table 8. Junctions with existing or potential problems in the PM peak hour

ID	JUNCTION	RFC - 2015 PM BASELINE	RFC – 2036 WITH DEVELOPMENT
RINGWOOD AREA JUNCTIONS			
4	Roundabout at B3347, Bickerley Road and Castleman Way	0.81	1.03
5	Priority junction of B3347 and Moortown Lane	0.49	0.85
7	Priority junction of Eastfield Lane with the A31 slip road	0.82	1.13
8	Mini-roundabout at Southampton Road and the A31 sslip road	0.53	0.98
10	Priority junction of Hightown Road and Eastfield Lane	0.51	0.87
14	Mini-roundabout at B3347 and Mansfield Road	1.12	1.34
FORDINGBRIDGE AREA JUNCTIONS			
17	Mini-roundabout at Salisbury Street, Bridge Street and High Street	0.96	1.11

4.2.7 It is these junctions that are most likely to be affected by changes in the number of proposed residential units at Local Plan development sites.

4.3 Impacts of Changed Development Figures

4.3.1 For our assessment of the impacts of changed development figures we have taken the spreadsheet traffic model that was used in our original review and updated this with the revised numbers of residential units shown in Table 1. The spreadsheet applies the new development figures to the model and this allows a comparison of vehicle turning movements from this new development scenario with the '2036 with-development' scenario from the previous study.

4.3.2 For the purposes of this analysis very small changes in flows of 1-2 vehicles have been ignored as the changes in operational effectiveness on these junction arms would be minimal.

4.4 Ringwood Area AM Traffic Impacts

4.4.1 Our previous study identified three junctions which currently operate above their practical capacity in the AM peak hour, with RFCs in the range 0.91-0.95 (junctions 2, 3 and 14).

Additionally, a further three junctions (4, 5 and 7) were identified as having potential problems in the future.

4.4.2 The overall reduction in the number of proposed new dwellings, from 2,050 to 2,039, will not have changed the overall number of new journeys significantly, but the changed distribution of planned development will place different pressures on the junctions around the network. For the purposes of this study we have firstly reviewed the 6 junctions that were previously identified as likely to be approaching or exceeding capacity in 2036. Secondly we have considered other junctions, which were not previously in this category but which will experience significant increases in traffic as a result of the revised housing distribution.

4.4.3 **Table 9** presents a summary of the changes identified by our analysis in the AM peak hour. For the purposes of this analysis we have also used a RAG classification to indicate the scale of the changes as follows:

- Green – A reduction in traffic flow
- Amber – Slight increase in traffic flow 0% to +10%
- Red – Significant increase in traffic flow >+10%

Table 9. Summary of AM turning movement changes - Ringwood

JCT ID	MOVEMENT	AM CHANGE IN TRAFFIC FLOWS
RINGWOOD AREA JUNCTIONS		
2	A338 southbound → A31 eastbound	+ 20.1%
	A338 southbound → A31 westbound	+ 2.0%
3	B3347 southbound	- 0.9%
	B3347 northbound	- 0.6%
4	B3347 southbound	- 1.4%
	B3347 northbound	- 7.8%
5	Christchurch Road southbound → Moortown Lane eastbound	- 10.6%
	Christchurch Road northbound → Moortown Lane eastbound	- 6.4%
	Moortown Lane westbound → Christchurch Road northbound	- 21.0%

JCT ID	MOVEMENT	AM CHANGE IN TRAFFIC FLOWS
	Moortown Lane westbound → Christchurch Road southbound	- 23.2%
7	Nouale Lane westbound → A31 westbound	+ 1.25%
	Eastfield Lane northbound → Nouale Lane eastbound	- 6.0%
14	B3347 southbound	- 1.1%
	B3347 northbound → High Street	- 15.2%

4.4.4 In the AM peak hour, three junctions of those identified as having existing or potential issues showed an increase in traffic flows.

4.4.5 The largest increase was seen at Junction 2 (between the A338 and A31), where southbound vehicles on the A338 joined the A31 eastbound. Whilst the increase was of over 20%, the net change is only 51 movements per hour and as a consequence is unlikely to affect the conclusions of the previous study.

4.4.6 One additional junction (junction 8) showed an increase in traffic levels, this being a 5.4% increase in traffic leaving the Ringwood East development area westbound on Nouale Lane. This junction was previously assessed to operate well within capacity and it is not considered that the increase in traffic identified here would have a sufficient impact on the junction to affect its green operational rating.

4.5 Ringwood Area PM Traffic Impacts

4.5.1 Six junctions had previously been identified as having existing or potential issues in the PM peak, with one junction (junction 14) having existing issues and the remainder (4, 5, 7, 8 and 10) having potential post-development problems.

4.5.2 Only one of these junctions (junction 8) recorded an increase in traffic movements in the PM peak hour, on a single arm. The results of our PM analysis at the affected junctions are summarised in **Table 10**.

Table 10. Summary of PM turning movement changes - Ringwood

JCT ID	MOVEMENT	PM CHANGE IN TRAFFIC FLOWS
RINGWOOD AREA JUNCTIONS		
4	B3347 southbound	- 5.6%

JCT ID	MOVEMENT	PM CHANGE IN TRAFFIC FLOWS
	B3347 northbound	- 2.4%
5	Christchurch Road southbound → Moortown Lane eastbound	- 14.0%
	Christchurch Road northbound → Moortown Lane eastbound	- 14.7%
	Moortown Lane westbound → Christchurch Road northbound	- 10.8%
	Moortown Lane westbound → Christchurch Road southbound	- 6.7%
7	Nouale Lane westbound → Eastfield Lane southbound	- 1.5%
	Eastfield Lane northbound → Nouale Lane eastbound	- 1.6%
8	Nouale Lane westbound → Southampton Road northbound	- 0.9%
	Nouale Lane westbound	- 5.9%
	Southampton Road southbound → Ringwood East development	+ 6.3%
10	Eastfield Lane southbound → Hightown Road southbound	- 4.6%
	Hightown Road northbound → Eastfield Lane northbound	- 2.3%
14	B3347 southbound	- 4.2%

4.5.3 The increase at Junction 8 affects the PM inbound movement into the Ringwood East development from Southampton Road which increases from 64 to 68 movements per hour. Whilst this equates to a 6.3% change, a net increase of 4 movements would have no significant impact on junction performance.

4.5.4 Again, one other junction (Junction 2) recorded an increase in traffic levels in the PM peak assessment, with a 9.6% increase in the number of vehicles joining the A31 eastbound from the A338 southbound. This arises from a net change in flow 18 movements per hour (from 188 to 206). Elsewhere at the junction there are other minor changes including a reduction of 30 movements on the right turn into Mansfield Road from the A31 eastbound. These small

changes would not significantly affect junction performance or the conclusions of the original study.

4.6 Fordingbridge Area AM Traffic Impacts

4.6.1 The original review showed all of the junctions in the Fordingbridge area to operate within capacity during the AM peak hour, both currently and in the 2036 'Do Something' scenario.

4.6.2 The most significant change resulting from the revised housing forecasts is the increased numbers at the Fordingbridge North and West sites. As set out in Table 7 this changes the numbers assessed from 500 dwellings to 792 (including the 7% uplift). This will primarily affect junction 15, but will also have impacts at junction 16 and the merge/diverge lanes at junctions 19 & 20. **Table 11** summarises the changes that will be seen at these junctions.

Table 11. Summary of AM turning movement changes - Fordingbridge

JCT ID	MOVEMENT	AM CHANGE IN TRAFFIC FLOWS
FORDINGBRIDGE AREA JUNCTIONS		
15	Fryern Court Road eastbound → A338 northbound	+ 48.6%
	Fryern Court Road eastbound → A338 southbound	+ 53.6%
	A338 northbound → Fryern Court Road westbound	+ 28.1%
	A338 southbound → Fryern Court Road westbound	+ 25.7%
16	A338 northbound	+ 3.9%
	A338 Southbound	+ 14.5%

4.6.3 Whilst some of these figures appear large in percentage terms, the number of additional trips generated is not considered sufficient to bring either junction close to its practical capacity.

4.6.4 The highest number of additional vehicles will be seen on Fryern Court Road eastbound, where 132 additional vehicles will join the A338. The previous rating at this junction was green (RFC 0.72) in the 'Do Something' scenario. It is possible that the increase in traffic could affect the operation of the junction to increase its previous RAG rating from green to amber, or even red. However, we note from the site promoters' Transport Assessment that a new roundabout junction on the A338 is being proposed to serve the site. This would remove traffic from Junction 15 and provide an opportunity for a new, high capacity junction to be created.

4.6.5 At the remaining junctions where future increases in traffic levels were identified (junctions 16, 19 & 20) the additional traffic is not considered of sufficient magnitude to affect their operational ratings.

4.6.6 Changes at Junction 17, will see a minor decrease in traffic from High Street northbound to Bridge Street and a similarly small increase from High Street northbound into Salisbury Road. These small changes will not affect the previous conclusions for this junction.

4.7 Fordingbridge Area PM Traffic Impacts

4.7.1 Our previous study identified only one junction in the Fordingbridge area that has existing and future issues, this being junction 17. The revised housing forecasts indicate there will be a slight reduction of traffic at this junction as summarised in **Table 12**. This is due to the removal of the Sandleheath site.

Table 12. Summary of PM turning movement changes - Fordingbridge

JCT ID	MOVEMENT	PM CHANGE IN TRAFFIC FLOWS
FORDINGBRIDGE AREA JUNCTIONS		
17	High Street northbound → Bridge Street eastbound	- 0.9%
	Bridge Street westbound → High Street southbound	- 1.2%

4.7.2 As previously noted, the most significant change resulting from the revised housing forecasts is the increased numbers at the Fordingbridge North and West sites; with consequent implications for Junctions 15, 16 and the merge/diverge lanes at junctions 19 & 20.

4.7.3 At junction 15 vehicles from Fryern Court Road joining the A338 increase by 30% northbound and 32.6% southbound, whilst flows into Fryern Court Road increased by 50% from the south and 51.4% from the north. Whilst these percentage changes appear significant, the net result is that 113 additional vehicles would be added to the westbound flow on Fryen Court Road in the PM peak hour.

4.7.4 It is possible that these traffic increases could affect operation of the junction but, as noted in Section 4.6, the site promoter for Ringwood North is proposing to provide a new roundabout onto the A338 which will either replace or relieve traffic at this junction.

4.7.5 At the remaining junctions where future increases in traffic levels were identified (junctions 16, 19 & 20) the additional traffic is not considered of sufficient magnitude to affect their operational ratings.

4.8 Review of Potential Mitigation Measures

4.8.1 The overall levels of planned housing in the sub-are have changed very little from those assessed in the 2015 study and therefore the general conclusions reached previously concerning highway mitigation measures are largely unchanged. The effects of the planned

redistribution of housing have been considered and the following additional observations are now made.

4.8.2 Changes at Junction 2 (A31 / A338) are relatively minor but traffic flows have increased slightly compared to the 2015 study. This is unlikely to have a significant impact and the previous conclusions remain, including the possible need to consider interim local capacity improvements pending the Governments planned A31 upgrade.

4.8.3 The reduced levels of planned development within Ringwood, notably at Ringwood South, will tend to reduce the impacts along the Christchurch Road corridor (including Junctions 4 and 14 that were previously identified as experiencing capacity problems). However, the conclusions concerning the benefits of a corridor improvement scheme to mitigate traffic growth impacts are unchanged, albeit that the reduction in Local Plan housing numbers will reduce the proportional contribution, from local plan allocations, towards the need for such improvements. Traffic flows at the Moortown Lane junction (Junction 5) are significantly reduced compared with the previous study and accordingly mitigation at this junction, related to Ringwood South, may no longer be required. This will need to be confirmed at the planning application stage.

4.8.4 At the remaining Avon Valley junctions previously identified for possible mitigation measures (i.e. Junctions 7, 8, 10 and 17); forecast traffic flows remain similar to those assessed in the previous studies and the conclusions are unchanged.

5. CONCLUSIONS AND RECOMMENDATIONS

5.1 SRTM Modelling – Revised Baseline Scenario Modelling

5.1.1 A revised Do Minimum test was run to exclude the Fawley development as this should only have been included within the Do Something scenario. This has enabled a revised comparison between the No Minimum and Do Something modelling results to be undertaken. The comparison between the two scenarios now shows an increase in the total number of modelled trips from 59,500 to 62,600 (a 10% increase compared to the a 9% increase in the previous 2015 study). In terms of total vehicle hours, the revised baseline indicates an increase from between 7% and 9% to between 11% and 13% for the Do Minimum and do Something scenarios.

5.1.2 The public transport network is also marginally impacted by the changes to the Do Minimum run. The differential in bus boardings within the New Forest increases from 16% previously to 20% in the AM and from 26% to 31% in the PM using the revised Do Minimum. Bus passenger hours within the New Forest have the change between Do Minimum and Do Something increase from 11% to 18% in the AM peak and from 10% to 18% in the PM. Finally the bus passenger kilometres differential increases from 9% to 15% in the AM and from 8% to 15% in the PM.

5.1.3 The updated Local Plan housing numbers mean that there are now 4,385 proposed dwellings within the core and marginal areas of the model compared with 7,124 currently included in the Do Something scenario. The distribution of housing has changed with increases in some areas and decreases in others. However the overall reduction in housing forecasts is significant and indicates that the 2015 Do Something assessment remains robust. Based on the reduced number of proposed houses it was decided not to update the Do Something scenario as using the original land use data produces robust results as it is likely to represent a worst case scenario.

5.1.4 Having considered the revised Do Minimum modelling results alongside the revisions to forecast housing numbers within the core and marginal areas, it is concluded that the results and conclusions from the 2015 are not significantly affected and remain robust. It is recommended that any further significant land use changes or proposed transport interventions developed in response to development impacts be tested; either through the SRTM or using local detailed junction models utilising the forecast traffic flows output by SRTM.

5.2 Totton and Waterside Area

5.2.1 The number of proposed development units modelled in the SRTM core area in 2015 was some 6.6% greater than the current Local Plan allocation numbers, the net difference being a reduction of 226 units. Given this relatively minor difference it is considered that the conclusions drawn from the 2015 Study continue to be robust for the Totton and Waterside sub-area.

5.2.2 Whilst the distribution of proposed units has changed across the sub-area, the changes are considered to be small enough to not have a material effect on the modelling outcomes. It is

therefore considered that the 2015 modelling offers a robust evidence base to support the current Local Plan proposals for the sub-area.

5.3 South Coastal Towns Area

5.3.1 The number of units proposed in the South Coastal Towns sub-area under the current Local Plan allocation figures is significantly reduced from the numbers assessed in the previous 2015 study. Due to the size of the reduction (2,513 units) it can be concluded that the number of trips that will be generated by the current Local Plan proposals will be significantly reduced. This will bring a commensurate benefit in the operation of junctions and links across the sub-area.

5.3.2 As the South Coastal towns lie within the SRTM marginal area where level of detail of modelling output is more limited, use has been made of the trip generation and modelling assessments included in the site promoter transport assessments. This information provides useful analysis of local transport impacts, beyond that which is possible using the SRTM alone. The assessments have been reviewed and utilised where appropriate to supplement this review of Local Plan transport impacts.

5.3.3 The development sites range in size from 100 to 200 dwellings and their locations are distributed across the sub-area. Where site promoter assessments are available, these demonstrate that the traffic impacts will be localised and capable of being accommodated, with local small scale mitigation measures identified where needed. Similar conclusions can be drawn for the remaining sites, the majority of which propose less than 140 units, thus indicating that the resultant number of new vehicle trips will be low in the context of road network capacity.

5.3.4 Furthermore, given that the total dwelling numbers across the sub-area are now substantially lower than those modelled in the 2015 study, it follows that the cumulative impacts could be accommodated also, with reduced impacts relative to the previous SRTM modelling results.

5.4 Avon Valley and Downlands Area

5.4.1 The overall quantum of proposed new dwellings has changed very little since the 2015 study, with a reduction from 2,050 to 2,039. This will not significantly change the overall number of new journeys, but the changed distribution of planned development will place different pressures on the junctions around the network.

5.4.2 The most significant change is the increased numbers at the Fordingbridge North and West sites where the total previously assessed has risen from 500 dwellings to 792 (including the 7% uplift). This is offset by reductions elsewhere, primarily in Ringwood.

5.4.3 The increased numbers at Fordingbridge mainly affect junction 15 and it is possible that this could affect previous conclusions about the operation of this junction. However, the site promoters are proposing a new roundabout junction onto the A338 to serve this site. This would remove traffic from Junction 15 and provide an opportunity for a new, high capacity junction to be created.

5.4.4 Elsewhere in the sub-area, there are no significant impacts arising from the revised housing numbers and the conclusions of the previous study remain robust. However, It is

recommended that any further significant land use changes or proposed transport interventions developed in response to development impacts should be investigated further.

Appendix A

UPDATED NEW FOREST LOCAL PLAN SRTM REPORT

NEW FOREST DISTRICT COUNCIL - LOCAL PLAN TRANSPORT IMPACTS

SYSTRA

SOLENT TRANSPORT EVIDENCE BASE

NEW FOREST DISTRICT COUNCIL - LOCAL PLAN TRANSPORT IMPACTS

IDENTIFICATION TABLE	
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Project	Solent Transport Evidence Base
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	Approved by	Claire Stephens	Principal Consultant	17/07/2015	
3	Author	Claire Stephens	Principal Consultant		Amendments to Tables 4.5 and 4.6 following comments from HCC
	Approved by	Claire Stephens	Principal Consultant		
4	Author	Emma Douglas	Senior Consultant	12/04/2017	Revised DM with no Fawley development
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APPENDICES

Appendix A – Current Reference Case
Appendix B – Proposed Land Use

1. INTRODUCTION

1.1 SRTM Background

1.1.1 SYSTRA was commissioned, as part of a wider team, to support Solent Transport with the development and application of a Sub-Regional Transport Model Suite (SRTM) for this nationally important area.

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

- forecasting changes in travel demand, road traffic, public transport patronage and active mode use over time as a result of changing economic conditions, land-use policies and development, and transport improvement and interventions;
- 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.

1.2 Study Background

1.2.1 In 2015, SYSTRA were commissioned by New Forest District Council (NFDC) in preparation for its Local Plan for adoption in 2015. The SRTM has been identified as a suitable tool to contribute to the evidence base for the transport assessment required as part of the Local Plan. More specifically the SRTM has been used to quantify the transport implications resulting from the size and location of proposed developments (within the core and marginal model extents only) in the Local Plan.

1.2.2 This updated report uses the same assumptions as the study in 2015, with the removal of the development at Fawley Power Station from the Do Minimum (DM). The results of the revised DM are shown in this report, compared against the Do Something scenario which stays the same as the 2015 commission.

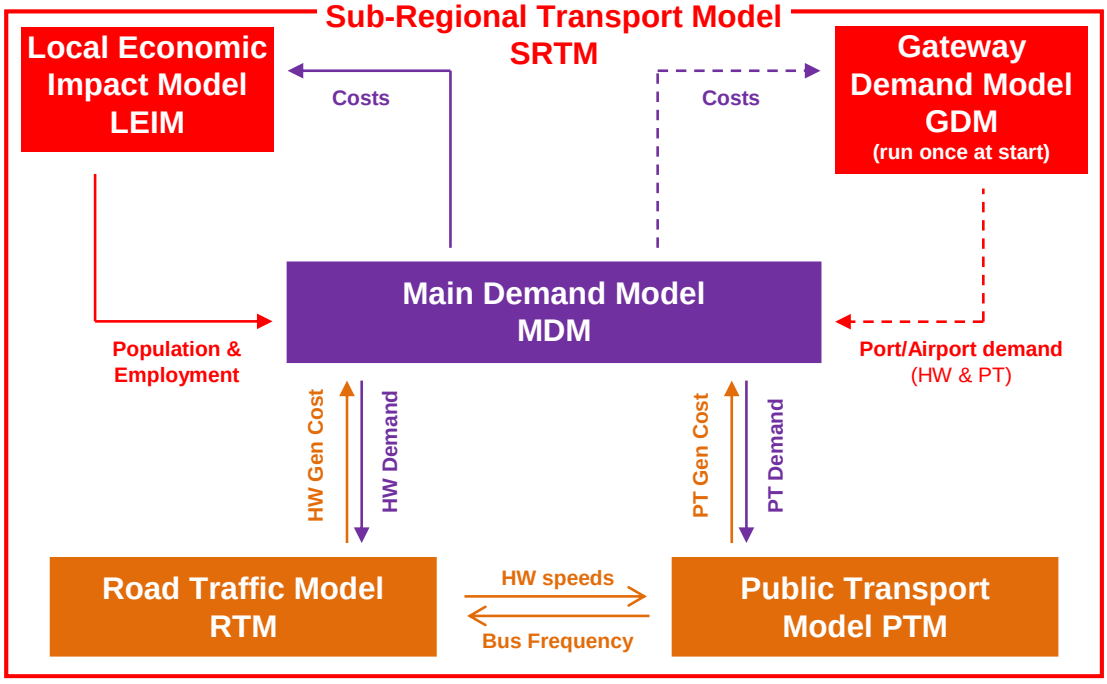
1.3 Sub Regional Transport Model Context and Scope

1.3.1 The SRTM is a suite of linked models comprising the following components as shown in Figure 1 (all components have been used in the New Forest Local Plan modelling):

- 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

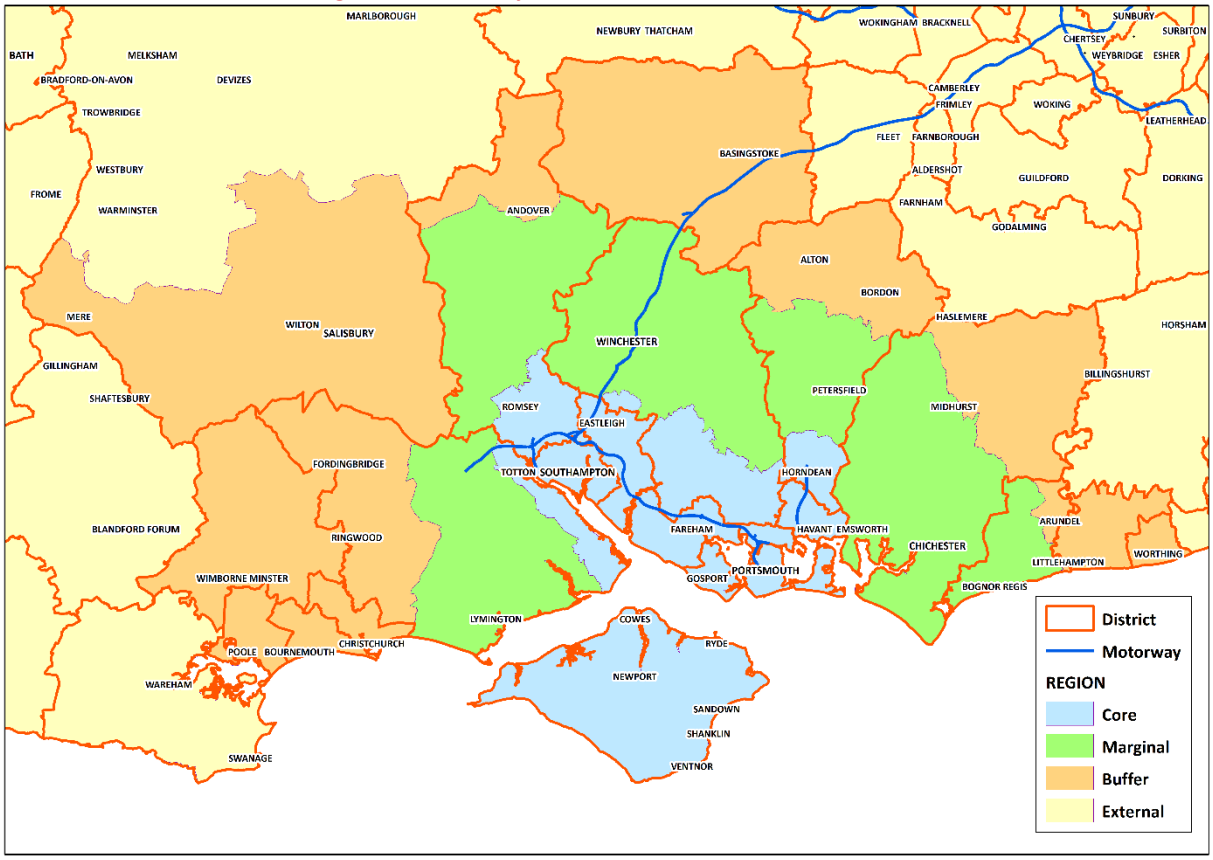
- a Local Economic Impact Model (LEIM) which uses inputs including transport costs to forecast the quantum and location of households, populations and jobs.

Figure 1. Solent Transport Sub-Regional Transport Model



1.3.2 The modelled area of the SRTM is divided into four regions (Figure 2), which differ by zone aggregation and modelling detail. New Forest District straddles the boundary of the Core Fully Modelled Area: the western sections of the District fall within the Marginal, and the Buffer Areas. This places certain limitations on the modelled detail and outputs that can be provided in non-Core areas. This implications for this are described further in Section 2.2.

Figure 2. Study Area of the SRTM



1.3.3 Travel in the model is aggregated into zones which therefore determine the spatial detail available. The definition of zones takes account of barriers (rivers, railways, motorways) as well as administrative and planning data boundaries (SRTM zones are aggregations of Census Output Areas in the fully modelled area and wards elsewhere). In addition, zones account for land use types, access points onto the road network as well as respecting screenlines for trip matrix validation. For public transport catchment areas for rail stations and bus stops fare boundaries were also considered and additional zones are included for the ports and airports.

1.3.4 In accordance with WebTAG guidance (Unit M2) three weekday periods are modelled in the SRTM:

- AM peak: busiest hour between 0700 and 1000, (defined as 38.2% of the three hours for Highway and 40% for Public Transport);
- Inter peak: average of 1000 to 1600 (i.e. 16.7% of the six hours for both modes); and
- PM peak: busiest hour between 1600 and 1900, (defined as 35.8% of the three hours for Highway and 40% for Public Transport).

1.3.5 All model periods are included in each model run but only the AM and PM peaks are reported within this report.

1.3.6 The SRTM model represents transport conditions up to the year 2036. Known developments and committed transport schemes are included within the models' reference case scenarios (2014, 2019, 2026, 2031 and 2036) to provide the most accurate representation of future year conditions. A list of the known larger developments and committed (funded) highway schemes included in the Reference Cases is provided as Appendix A.

1.3.7 In addition to committed sites (where the full 100% uptake of development is forced), "permissible" sites are included within the Reference Cases. These refer to those locations identified as suitable for future development but may or may not have yet been subject to planning approval. The location and maximum land use quantum of the permissible sites are based on the inputs originally provided by each Local Planning Authority during model development (2010). In the Reference Cases the take up of permissible developments is determined by LEIM based on the local conditions (the relative 'attractiveness' of the development).

1.3.8 LEIM controls the level of overall development take-up within the model in accordance with TEMPRO employment and population targets for the sub-region which conforms with WEBTAG. This is equivalent to allowing for background traffic growth within the modelling process.

2. MODELLING NEW FOREST LOCAL PLAN ALLOCATIONS IN SRTM

2.1 Introduction

2.1.1 This chapter identifies the planning assumptions provided by NFDC and incorporated into SRTM and describes how the SRTM was adapted to replicate future forecast conditions. Due to the location of New Forest District in relation to the SRTM modelled area there are limitations on the detail of landuse and infrastructure that can be realistically replicated (Section 2.2).

2.2 Modelling Limitations

2.2.1 New Forest District (NFD) straddles the western perimeter of the core fully modelled area of the SRTM. Within NFD the Core area boundary is effectively the A326 with anything to the east being within the core (Figure 2 identifies the model boundaries).

2.2.2 The Core modelled area has the most detailed network representation with full link and junction capacity modelling, finest zone structure and full landuse inputs. This is the area the model was developed specifically to replicate.

2.2.3 The Marginal modelled area includes full landuse inputs but in a coarser zone structure and with sparser network coverage (limited to larger roads). The marginal area network does not include capacity restraint at junctions (i.e. existing or forecast junction capacity/ congestion hotspots cannot be reported within the Marginal model area). Whilst the number of development trips are determined and assigned by the model, the capacity and network performance implications of these trips are only fully quantifiable (using SRTM) once entering the core model area.

2.2.4 The Buffer area has no landuse inputs and generated demand is limited to those trips passing into or through the Core or Marginal areas. The zone and highway network is very coarse with fixed vehicle speeds. In this study no account is taken of any Local Plan development proposed within the SRTM Buffer region.

2.3 Modelled Scenarios

2.3.1 This study has required the creation of two modelled scenarios, with results assessing the differences between them. The scenarios are:

- 2036 Do Minimum (DM) – 2010-14 Completions and 2014-36 Permissions
- 2036 Do Something (DS) – DM plus Local Plan allocations

2.3.2 Both scenarios are based on an adaption of the current SRTM Reference Case. The Reference Case assumptions include known larger developments (across the whole SRTM modelled area) and committed (funded) major highway schemes (see Appendix A).

2.3.3 There are a number of model inputs that are common to both scenarios including all network assumptions. The difference between the scenarios relates to the landuse inputs

within the LEIM component of SRTM. LEIM operates by using (amongst others) two sets of landuse (floorspace) inputs defined as being either:

- Exogenous – These developments are forced to be built at the size and time specified regardless of other model influences
- Permissible – (not the same as with planning permission). These are sites where development has been identified as being planned and possible but the model determines where, when and how quickly these developments are actually constructed and occupied based on their relative cost and accessibility and within the over-arching development constraints defined in TEMPRO.

2.3.4 Appendix B lists all the New Forest District model zones within the core and marginal areas of SRTM. Zones 250 – 282 are within the core and zones 851 – 863 are within the marginal area. Zones 53 – 58 are new zones and will replicate the 6 larger development sites within the core area. New zones have not been included in the marginal area and the proposed development sites for the marginal area have been included within existing zones. For each zone the floorspace for each use (dwellings for residential, sqm for all other landuse) are identified in addition to the grouping that they fall within (further detail provided within Section 2.4):

- 2011-14 Completions
- 2014-36 Permissions
- 2015-36 Local Plan

2.3.5 Within the core area of the SRTM, the Totton and the Waterside development sites include:

- North Totton
- South Totton
- North Marchwood
- South Marchwood
- Hythe and Dibden
- Fawley Power Station

2.3.6 As noted above, these sites have their own individual development zone except at Fawley Power Station. .

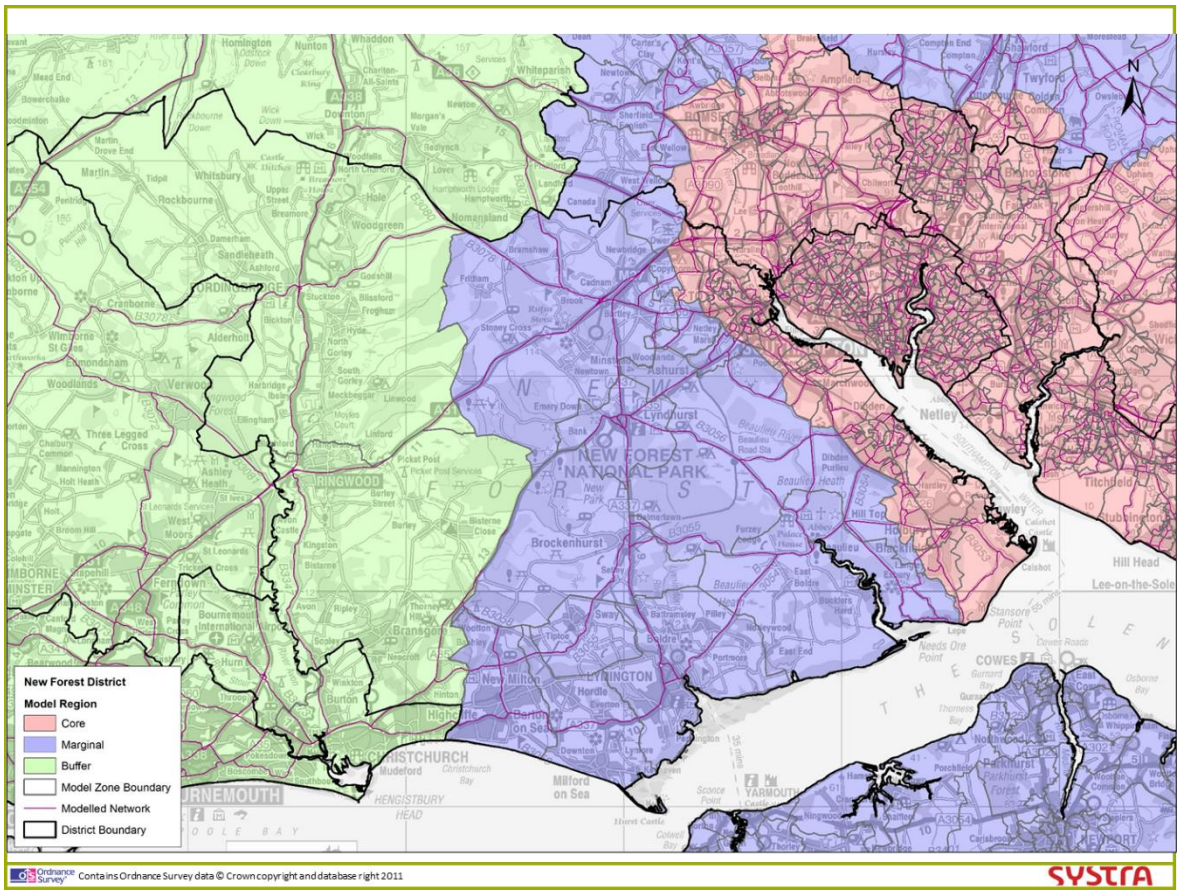
2.3.7 Within the marginal area of the SRTM, the Coastal Towns development has been included within existing zones. These include:

- North Lymington
- South Lymington
- Everton
- Hordle
- Milford-on-Sea (North)
- Milford-on-Sea (West)
- New Milton (South-east)
- New Milton (west)
- New Milton (North-west)

2.3.8 For both the DM and DS scenarios the landuse in all zones within New Forest District have been modelled as exogenous.

2.3.9 Figure 3 below identifies the SRTM zones and modelled highway network focussing on the New Forest core and marginal model areas.

Figure 3. New Forest Zone Map



2.4 New Forest Completions and Committed Sites (permissions)

2.4.1 The SRTM base year is 2010. In order to account for completions for the intervening period to 2014, and planning permissions beyond 2014 we were provided the relevant planning data from NFDC. These are coded as exogenous development within LEIM and a summary of the totals by land use is provided in Table 1 (completions) and Table 2 (permissions) below with a full breakdown by zone provided in Appendix B.

Table 1. NFDC Completions (2010-14)

LANDUSE	TOTAL
Dwellings (units)	759
Retail (m^2)	2,453
Office (m^2)	-1,183
Industrial (m^2)	2,654
Warehousing (m^2)	2,705
Education (m^2)	0
Hotel (m^2)	1,768
Healthcare (m^2)	0
Leisure (m^2)	2,205

Source: NFDC

Table 2. NFDC Permissions beyond 2014

LANDUSE	TOTAL
Dwellings (units)	952
Retail (m^2)	3,738
Office (m^2)	22,084
Industrial (m^2)	27,149
Warehousing (m^2)	41,636
Education (m^2)	0
Hotel (m^2)	1519
Healthcare (m^2)	0
Leisure (m^2)	3468

Source: NFDC

2.5 Do Minimum (DM)

2.5.1 The DM includes all completions and permissions in New Forest as of 17th February 2015, excluding the development at Fawley Power Station. It provides the baseline against

which the NFDC Local Plan development is assessed. The DM requires an adapted SRTM Reference Case using the inputs from Section 2.4 above.

2.5.2 The SRTM Reference Case models include for assumed permissible (Section 2.3.3) levels of future development within model zones in accordance with information provided by Local Authorities dating from 2010 when the model was originally developed (Note: Where known the SRTM does account for any significant changes post 2010 data collection in proposed land use at large strategic sites). To avoid any double counting it was necessary to remove from the forecast scenarios the volume of floorspace equivalent to the draft allocations in the existing New Forest SRTM zones.

2.5.3 Because LEIM controls the overall land use take-up in accordance with TEMPRO targets the take up of permissible floorspace in other model zones (non-New Forest Local Plan zones) may increase in the DM.

2.6 Do Something (DS)

2.6.1 The DS uses the DM as a base to which the New Forest Local Plan development is added. The land-use categories and totals modelled are summarised by the model Core and Marginal areas in Table 3 below. A full breakdown of land use by zone provided in Appendix B.

Table 3. NFDC Local Plan Allocation Sites

LANDUSE	DEVELOPMENT WITHIN CORE MODEL AREA	DEVELOPMENT WITHIN MARGINAL MODEL AREA	TOTAL
Dwellings (units)	2,370	3,454	5,824
Retail (m^2)	0	0	0
Office (m^2)	81,000	6,200	87,200
Industrial (m^2)	81,500	9,300	90,800
Warehousing (m^2)	42,500	15,500	58,000
Education (m^2)	0	0	0
Hotel (m^2)	0	0	0
Healthcare (m^2)	0	0	0
Leisure (m^2)	0	0	0

2.6.2 Also included within the Do Something scenario is the proposed redevelopment at Fawley Power station, with the summary totals provided below in Table 4 by land use category.

Table 4. Fawley Power Station Redevelopment Proposals

LANDUSE	TOTAL
Dwellings (units)	1,300
Retail (m^2)	0
Office (m^2)	18,500
Industrial (m^2)	18,500
Warehousing (m^2)	0
Education (m^2)	0
Hotel (m^2)	0
Healthcare (m^2)	0
Leisure (m^2)	0

2.6.3 It is understood that there are no transport schemes within the Borough to be included as part of the DS tests.

3. MAIN DEMAND MODEL RESULTS

3.1 Introduction

3.1.1 This section summarises the forecasts produced by the MDM module of SRTM for the Local Plan scenarios including outputs for emissions.

3.1.2 The absolute values are provided for each of the two scenarios in addition to the difference between the scenarios to isolate the impacts of the Local Plan development:

- Do Minimum – Without New Forest Local Plan Development
- Do Something – With New Forest Local Plan Development (within the core and marginal model areas only)

3.2 Demand Model (MDM) Results

3.2.1 Table 5 summarises the total person trips and percentage mode share to/from New Forest for a 24hr period for the DM and DS scenarios. Included within this total are the New Forest trips in both Core and Marginal model areas.

3.2.2 There are approximately 62,625 additional person trips to / from and within New Forest across a 24 hour period in the Local Plan scenario (DS) compared to without the Local Plan (DM). This represents an increase of 10%.

Table 5. Forecast Daily Person Trips to and from New Forest District (All Trips)

	TIME PERIOD	TO NEW FOREST			FROM NEW FOREST		
		CAR	PT	ACTIVE	CAR	PT	ACTIVE
ABSOLUTE	DM	225,683	10,208	84,835	222,235	10,247	84,848
	DS	246,523	11,769	93,746	243,110	11,772	93,761
	Diff DS - DM	20,840	1,561	8,911	20,875	1,525	8,913
Mode Share %	DM	70.4%	3.2%	26.5%	70.0%	3.2%	26.7%
	DS	70.0%	3.3%	26.6%	69.7%	3.4%	26.9%
	Diff DS - DM	-0.4%	0.1%	-0.1%	-0.3%	0.2%	0.2%

SRTM Ref: AWZ v BRC

3.3 Emissions

3.3.1 Table 6 to Table 10 show the forecast emissions (NOx, PM10, HC, CO, Carbon) from the two modelled scenarios. Emission outputs are provided for the modelled region as a whole and for the core model area of New Forest district. .

3.3.2 For all five emission types output by SRTM there is an approximate 0.7-1.2% increase in emissions within the Core model area component of New Forest district as a result of the Local Plan development quantum. The changes in emissions across the wider modelled area are not as marked as within New Forest with approximate increases between 7% and 12%.

Table 6. NOx Forecast Emissions (g/12hr)

	DM	DS	DIFF (DS – DM)	
			Abs	%
SRTM	5,739	5,782	43	0.76%
New Forest	151	162	11	7.49%

(SRTM Ref: AWZ v BRC)

Table 7. PM10 Forecast Emissions (g/12hr)

	DM	DS	DIFF (DS – DM)	
			Abs	%
SRTM	101	102	1	1.19%
New Forest	2.3	2.5	0.2	7.36%

(SRTM Ref: AWZ v BRC)

Table 8. HC Forecast Emissions (g/12hr)

	DM	DS	DIFF (DS – DM)	
			Abs	%
SRTM	3,157	3,188	31	1.00%
New Forest	82	91	9	11.24%

(SRTM Ref: AWZ v BRC)

Table 9. CO Forecast Emissions (g/12hr)

	DM	DS	DIFF (DS – DM)	
			Abs	%
SRTM	36,562	36,824	262	0.72%
New Forest	763	832	69	8.99%

(SRTM Ref: AWZ v BRC)

Table 10. Carbon Forecast Emissions (g/12hr)

	DM	DS	DIFF (DS – DM)	
			Abs	%
SRTM	2,215,142	2,142,182	17,040	0.80%
New Forest	54,777	59,461	4,684	8.55%

(SRTM Ref: AWZ v BRC)

4. HIGHWAY MODEL RESULTS

4.1 Introduction

4.1.1 This chapter summarises the Highway outputs for the Local Plan SRTM tests across the District as a whole. All outputs relate to a forecast year of 2036.

4.1.2 Each output provides a comparison of the forecast highway performance in 2036 with and without the planned development allocations:

- Do Minimum – Without New Forest Local Plan Development (SRTM Ref: BRC)
- Do Something – With New Forest Local Plan Development (within the core and marginal model areas only) (SRTM Ref: AWZ)

4.2 Highway Network Performance

4.2.1 Table 11 and Table 12 summarise key network statistics for the full SRTM core study area for both peak periods. Vehicle hours increase by 0.9% and vehicle kilometres increase by 0.8% between the DM and the DS. Average speed reduces by up to 0.2%.

Table 11. AM Period (07:00 – 10:00) SRTM Core Area Network Statistics

PARAMETER	DO MINIMUM	DO SOMETHING	DIFF (DS – DM)	
			ABS	%
Vehicle Hr	265,306	267,758	2,452	0.92%
Vehicle Km	14,021,986	14,129,473	107,487	0.77%
Average Speed (kph)	52.9	52.8	-0.08	-0.16%

(SRTM Ref: AWZ v BRC)

Table 12. PM Period (16:00 – 19:00) SRTM Core Area Network Statistics

PARAMETER	DO MINIMUM	DO SOMETHING	DIFF (DS – DM)	
			ABS	%
Vehicle Hr	273,407	275,747	2,341	0.86%
Vehicle Km	14,342,602	14,455,718	113,116	0.79%
Average Speed (kph)	52.5	52.4	-0.04	-0.07%

(SRTM Ref: AWZ v BCR)

4.2.2 The equivalent data for the roads within the core New Forest sector is presented in Table 13 and Table 14 and identifies larger proportionate changes where the increase in demand are concentrated. Vehicle hours increase by 11-13% between the DM and the DS, and vehicle kilometres increase by 8-9%. This increase in both vehicle hours and kilometres has impacted on the average speed in the sector with a reduction of 2.8% in the AM peak period and 4% in the PM period.

Table 13. AM Period (07:00-10:00) New Forest Core Network Statistics

PARAMETER	DO MINIMUM	DO SOMETHING	DIFF (DS – DM)	
			ABS	%
Vehicle Hr	5,971	6,656	686	11.48%
Vehicle Km	326,854	354,201	27,346	8.37%
Average Speed (kph)	54.7	53.2	-1.53	-2.80%

(SRTM Ref: AWZ v BCR)

Table 14. PM Period (16:00-19:00) New Forest Core Network Statistics

PARAMETER	DO MINIMUM	DO SOMETHING	DIFF (DS – DM)	
			ABS	%
Vehicle Hr	6,016	6,805	789	13.11%
Vehicle Km	335,673	364,545	28,872	8.60%
Average Speed (kph)	55.8	53.6	-2.23	-3.99%

(SRTM Ref: AWZ v BCR)

4.3 Highway Link Flows, Delays and Capacity Hotspots

4.3.1 The following paragraphs introduce the type and format of the output plots presented in the remainder of this Chapter and highlight the key impacts of the development traffic on the highway network. The output plots included within Figure 4 to Figure 27 include three views – one wider area view to include the full New Forest district, one zoomed in on the New Forest core model sector only, and a further zoomed in view of the New Forest core area.

Change in Traffic Flow

4.3.2 Figure 4 to Figure 6 identify the change in traffic flow in the AM peak between the Do Something and the Do Minimum (Figure 16 to Figure 18 for the PM peak). In addition to enumerating the additional peak hour traffic flows on the network as a result of the proposed development these plots include for any re-routing of traffic that may result from localised congestion or redistribution of existing trips to the new facilities (e.g. homes, employment sites etc.).

4.3.3 For the flow difference plots, the absolute difference in PCUs is identified adjacent to the appropriate link. Blue lines identify a reduction compared to the non-development scenario and pink/red lines an increase. In addition, the scale of the change is represented graphically with the coloured lines of varying bandwidth. Only flow differences of 10 PCUs or greater are displayed in the plots.

4.3.4 In the AM peak, in the marginal section of New Forest, some traffic flow changes are forecast. As noted earlier the marginal model area does not include full network coverage so whilst the volume of additional traffic as a whole is reflective of the development quantum, the distribution is limited to the modelled highway links (i.e. actual distribution would expected to be less focused on the main roads). On the A337 between Lyndhurst and Brockenhurst, an additional 125 extra PCUs is forecast (both directions combined), whilst another (smaller) increase of 76 PCUs (both directions) is forecast on the A35 to the south west of Lyndhurst.

4.3.5 Within the core section of New Forest, the increase in additional trips are more prominent. The roads where these additional trips are concentrated are Salisbury Road, A36, A326 and the A35 with an additional 289 PCUs forecast southbound on Salisbury Road, 193 PCUs southbound on the A36, 169 PCUs southbound on the A326 (towards Jacob's Gutter Lane), whilst on Redbridge Causeway there is an additional 247 PCUs eastbound and 336 westbound.

4.3.6 For the PM peak, in the marginal model section of New Forest, similar changes are forecast to those in the AM peak. On Salisbury Road, the increase is in a southbound direction (206 PCUs), whilst on the A326 the increase in trips is northbound (268 PCUs). On Redbridge Causeway there is an additional 333 PCUs eastbound and 313 PCUs westbound. On Salisbury Road, near the North Totten development site, there has been some local re-routing occurring with a forecast reduction of 87 PCUs northbound.

4.3.7 On the M27 in the AM peak there is a forecast maximum flow increase of 169 PCUs eastbound between junctions 2 and 3 and 305 PCUs in the westbound direction. In the PM peak the comparable increases are 296 PCUs eastbound and 275 PCUs westbound.

Highway Delays

4.3.8 Figure 7 to Figure 9, identify the change in link delay in the AM peak between the Do Something and Do Minimum scenarios (Figure 19 to Figure 21 for the PM peak). The reported delays are comprised of both link delay and junction delay. The absolute difference in delay in seconds (per PCU) is identified adjacent to the appropriate link. Blue lines identify a reduction and pink/red lines an increase. In addition, the scale of the change is represented graphically with the coloured lines of varying bandwidth. All delay differences in excess of 1s are displayed in the plots. The marginal model area network does not include capacity restraint at junctions so delay impacts are only reported for the core modelled area.

4.3.9 For the AM peak the largest increase in delay is 32 seconds at Twiggs Lane southbound at the junction with the A326 Marchwood Bypass followed by an increase in delay of 30 seconds for northbound traffic on the B3076 High Street, Totton, at the junction with the A35 Totton Bypass. The other significant increases in delay are forecast eastbound on Redbridge Causeway (22 seconds) and Jacob's Gutter Lane westbound at the junction with the A326 (21 seconds). These delay increases are consistent with the location of the larger development sites.

4.3.10 Similarly to the AM peak, the largest increase in delay during the PM peak (34 seconds) is for northbound traffic on the B3076 High Street, Totton, at the junction with the A35 Totton Bypass. Other significant increases in delay are forecast eastbound on Redbridge Causeway (15 seconds) and westbound on Jacob's Gutter Lane with the junction of the A326 (27 seconds).

4.3.11 On the M27 in the AM peak there is a forecast increase in delay of 6 seconds eastbound between junctions 2 and 3 and 2 seconds westbound. On the westbound off-slip the forecast increase in delay is 4 seconds. Between junctions 1 and 2 there is a forecast increase in delay of 5 seconds westbound. In the PM peak the forecast increase between junctions 2 and 3 is 10 seconds eastbound and 2 seconds westbound, with a 3 second increase on the westbound off-slip. Between junctions 1 and 2 the forecast delay increase is 5 seconds westbound.

Capacity Hotspots

4.3.12 Figure 10 to Figure 12 and Figure 13 to Figure 15 identifies the capacity hotspots for the AM peak hour for the Do Minimum and Do Something scenarios respectively. (Figure 22 to Figure 24 and Figure 25 to Figure 27 identifies the equivalent PM peak hour hotspots). The hotspots are defined in terms of the link Volume to Capacity ratio (V/C). For the V/C plots the performance of the link is identified through the colour of the link as follows:

- > 80% - Pink
- > 100% - Red

4.3.13 If the V/C is near, or in excess of 90%, then the junction will be subject to queuing and delays; a value of 90% is taken as the practical value for design purposes. A value of >100% means that the junction is over capacity and signification queues and delay could occur. The marginal model area network does not include capacity restraint at junctions so V/Cs are only reported for the core modelled area.

4.3.14 Table 15 and Table 16 below show the location of key hotspots and the volume over capacity in each of the scenarios for AM and PM respectively.

4.3.15 In the AM peak, the links that exceed capacity (>100%) with the introduction of the Local Plan are the B3076 High Street, Totton (northbound) at the junction with the A35 Totton Bypass, Redbridge Causeway (eastbound), Salisbury Road (southbound) at the junction with the A336 and Salisbury Road (westbound) at the junction with the A326.

4.3.16 In the PM peak, the links that exceed over capacity (>100%) in the Do Something compared to the Do Minimum are northbound on the B3076 High Street, Totton towards the junction with the A35 Totton Bypass and Salisbury Road (westbound) at the junction with the A326..

4.3.17 On the M27, in the AM peak, the forecast V/C eastbound between junctions 2 and 3 increases from 92% to 94%. The comparable values for the PM peak are 84% in the Do Minimum and 88% in the Do Something. For the Do Something, the westbound PM V/C between these junctions is 81%, whilst in the Do Minimum this value was less than 80%. Junction 2 eastbound on-slip reaches capacity (100%) in the PM Do Something compared to 96% in the Do Minimum.

Table 15. New Forest Capacity Hotspots AM

JUNCTION	CAPACITY HOTSPOTS		
	Base 2010	Do Minimum	Do Something
A326 Hythe Bypass (SB) / Fawley Road	94%	85%	97%
A326 Hythe Bypass (SB) / Sizer Way	102%	102%	103%
A326 Marchwood Bypass (SB) / Twiggs Lane	<80%	<80%	83%
A326 Marchwood Bypass (NB) / Staplewood Lane	81%	<80%	85%
A326 Marchwood Bypass (SB) / Staplewood Lane	86%	92%	91%
A326 (SB) / A326	<80%	82%	85%
A326 (SB) / Kneller Lane	88%	91%	98%
A326 (NB) / Fletchwood Road	<80%	<80%	83%
A326 (NB) / A336	<80%	<80%	88%
Michigan Way (WB) / A326	<80%	86%	91%
A35 (NB) / Rushington Lane	<80%	<80%	81%
A35 (SB) / A326	<80%	<80%	84%
A35 Totton Bypass (SB)	<80%	<80%	84%
B3076 High Street, Totton (NB) / A35 Totton Bypass	91%	96%	100%
Redbridge Causeway (EB)	<80%	93%	100%
Salisbury Road (SB) / A336	87%	98%	100%
Salisbury Road (NB) / Brunel Road	<80%	<80%	80%
Salisbury Road (WB) / A326	<80%	96%	100%
M27 Junction 2 – approach to eastbound on-slip	<80%	98%	98%
A36 (NB) / A3090	<80%	90%	97%
A36 (SB) / A3090	<80%	<85%	80%
M27 eastbound (between junctions 2 and 3)	<80%	92%	94%

SRTM Ref: Base ATE, DM BRC, DS AWZ

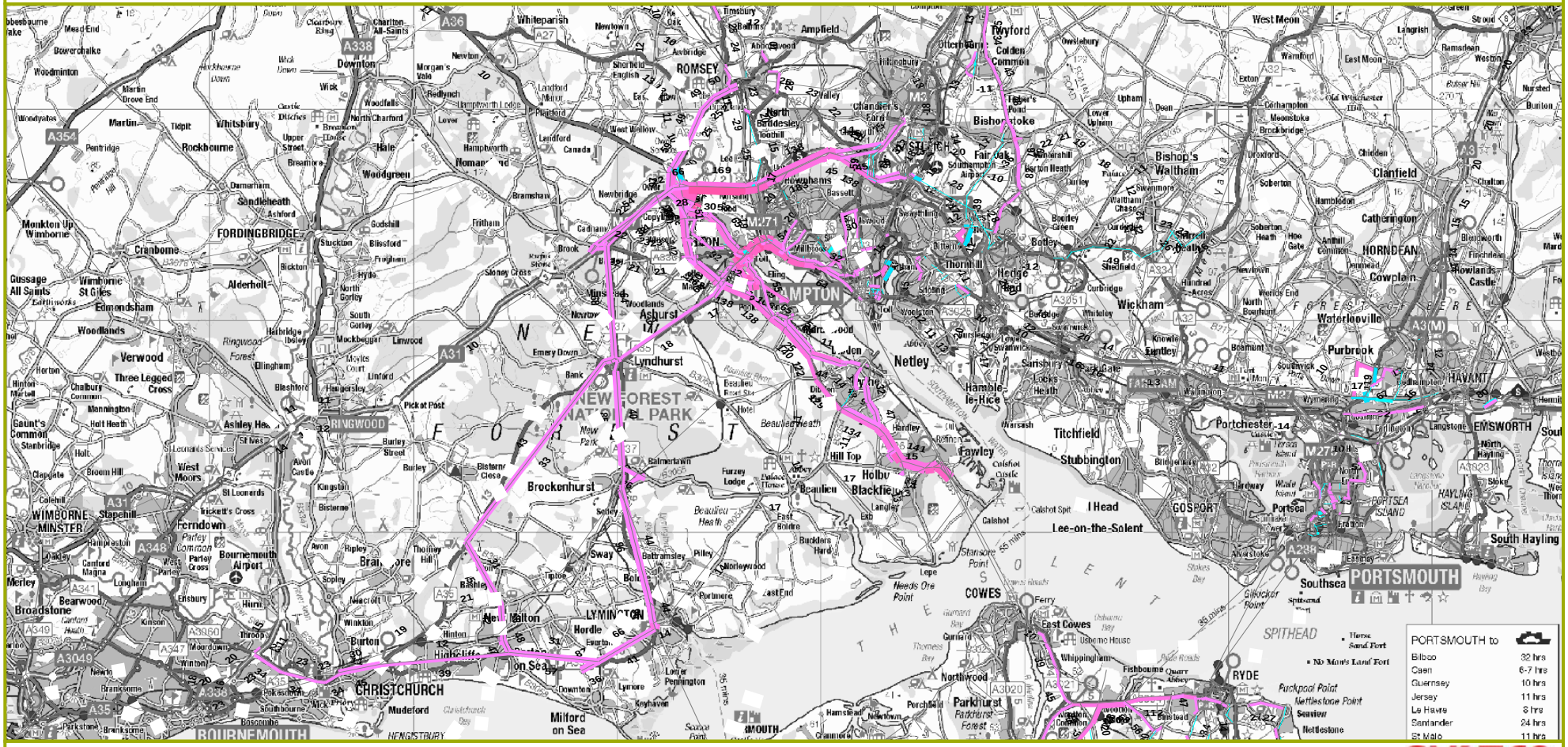
Table 16. New Forest Capacity Hotspots PM

JUNCTION	CAPACITY HOTSPOTS		
	Base 2010	Do Minimum	Do Something
A326 Long Lane (SB) / Holbury Drove	<80%	<80%	81%
A326 Hythe Bypass (SB) / Fawley Road	<80%	<80%	81%
A326 Hythe Bypass (SB) / Sizer Way	91%	101%	102%
A326 Marchwood Bypass (SB) / Staplewood Lane	<80%	82%	88%
A326 (SB) / A326	<80%	<80%	85%
A35 Southampton Road (SB) / Beaulieu Road	93%	96%	99%
A326 (SB) / Kneller Lane	<80%	80%	92%
A326 (NB) / Fletchwood Road	<80%	80%	87%
A35 (SB) / A326	<80%	83%	90%
A35 Totton Bypass (SB)	<80%	85%	90%
B3076 High Street, Totton (NB) / A35 Totton Bypass	90%	93%	100%
A35 Totton Bypass (SB) / B3076 High Street, Totton	<80%	<80%	84%
Redbridge Causeway (EB)	<80%	89%	98%
Salisbury Road (SB) / A336	85%	83%	98%
Salisbury Road (WB) / A326	<80%	95%	101%
Salisbury Road (EB) / A326	<80%	<80%	96%
M27 Junction 2 – approach to eastbound on-slip	<80%	96%	100%
M27 eastbound (between junctions 2 and 3)	<80%	84%	88%

SRTM Ref: Base ATE, DM BRC, DS AWZ

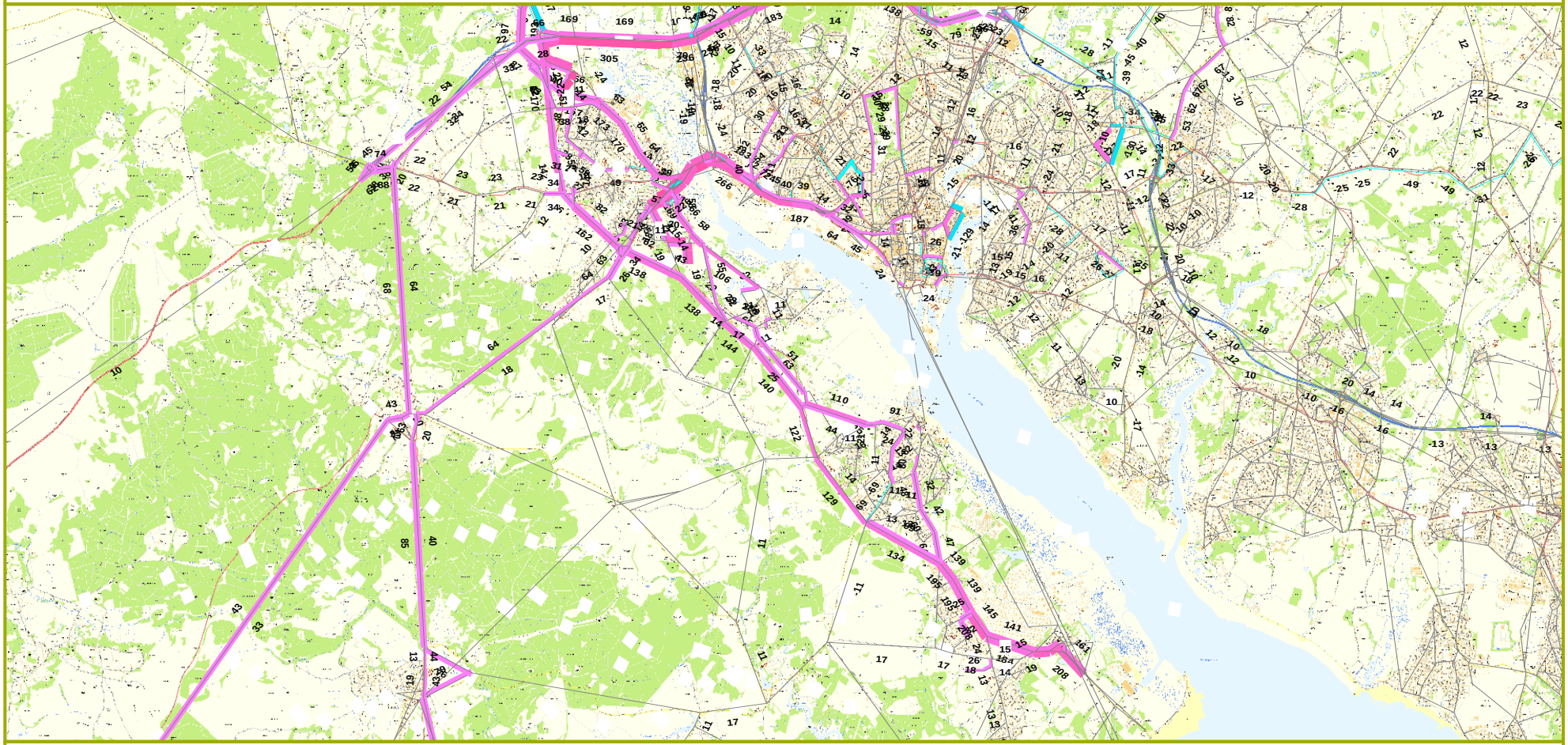
Figure 4. AM Peak Flow Difference (DS v. DM) 2036

Actual Flows DS (AWZ) vs DM (BRC) 2036 AM - Flows (>10pcu/hr)



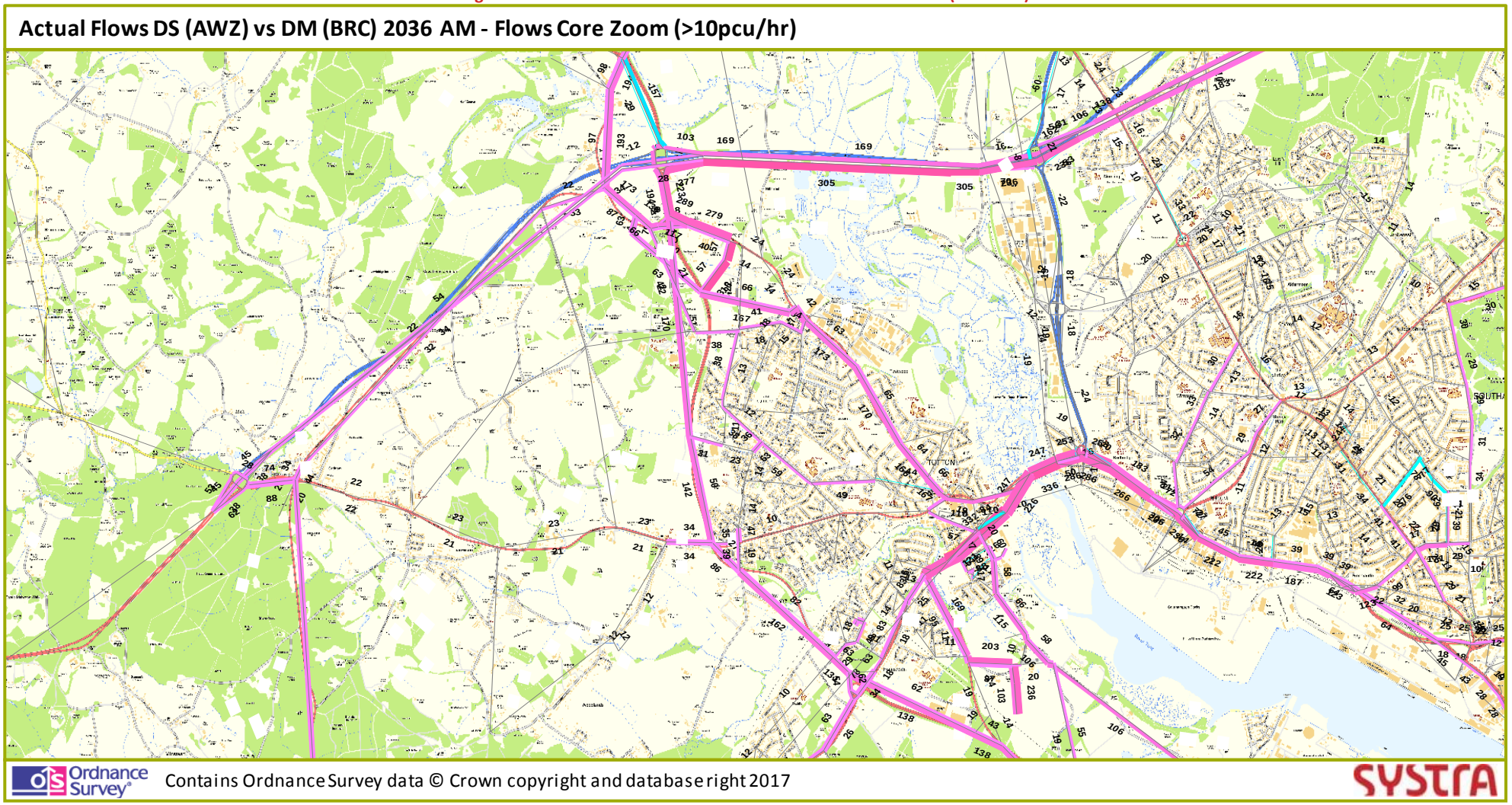
(SRTM Ref: AWZ v. BRC)

Figure 5. AM Peak Flow Difference New Forest Core (DS v. DM) 2036



(SRTM Ref: AWZ v. BRC)

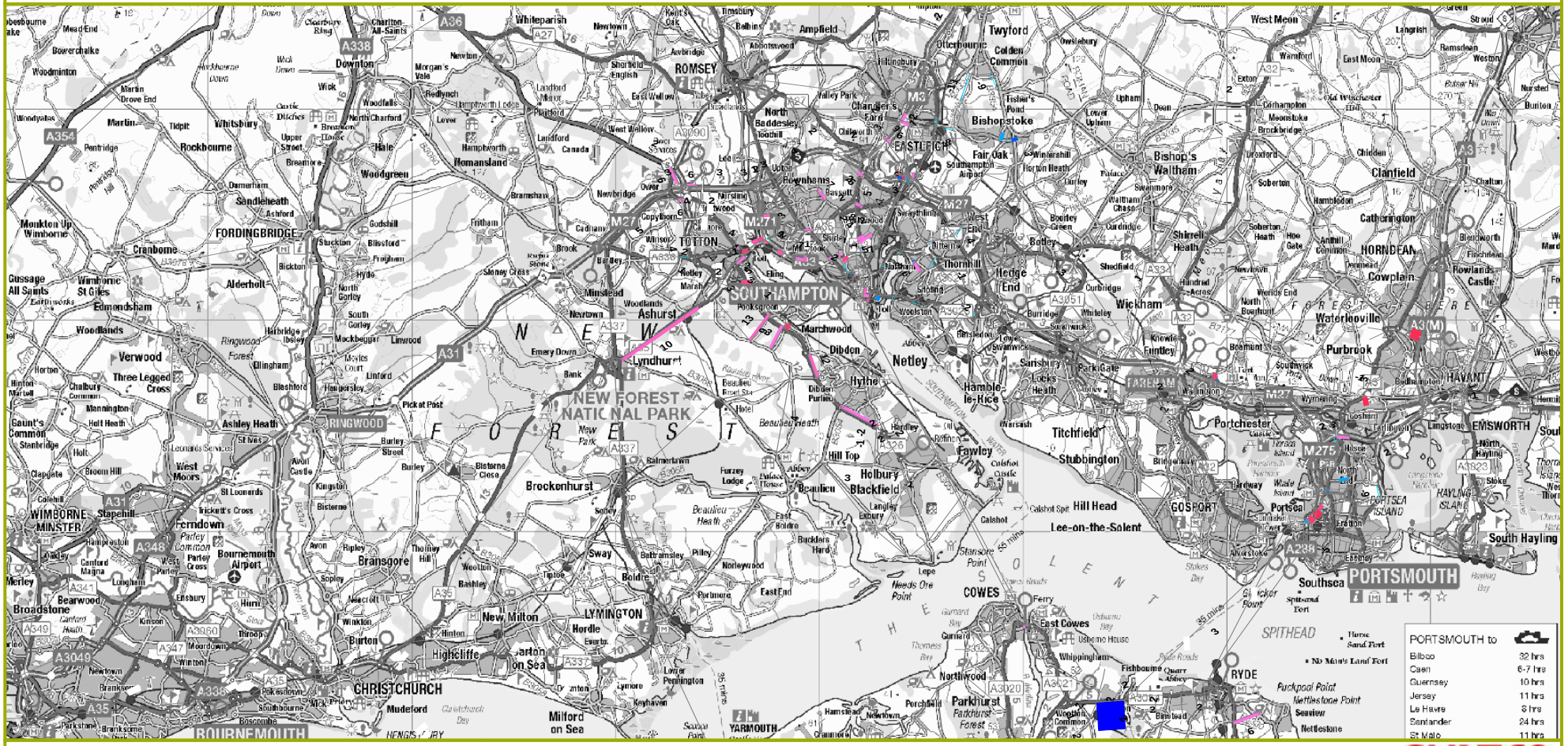
Figure 6. AM Peak Flow Difference New Forest Core zoom (DS v. DM) 2036



(SRTM Ref: AWZ v. BRC)

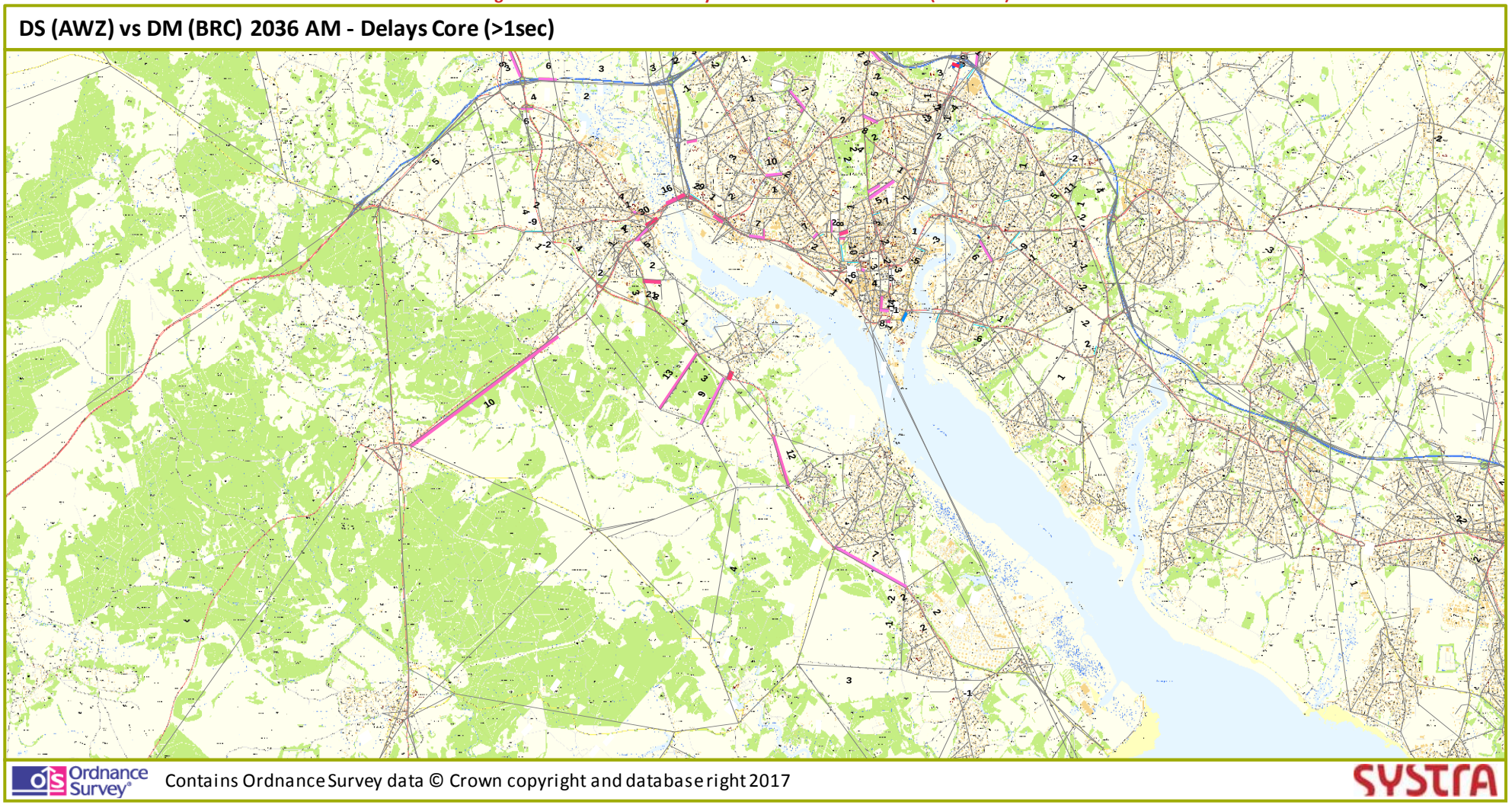
Figure 7. AM Peak Delay Difference (DS v. DM) 2036

DS (AWZ) vs DM (BRC) 2036 AM - Delays (>1sec)



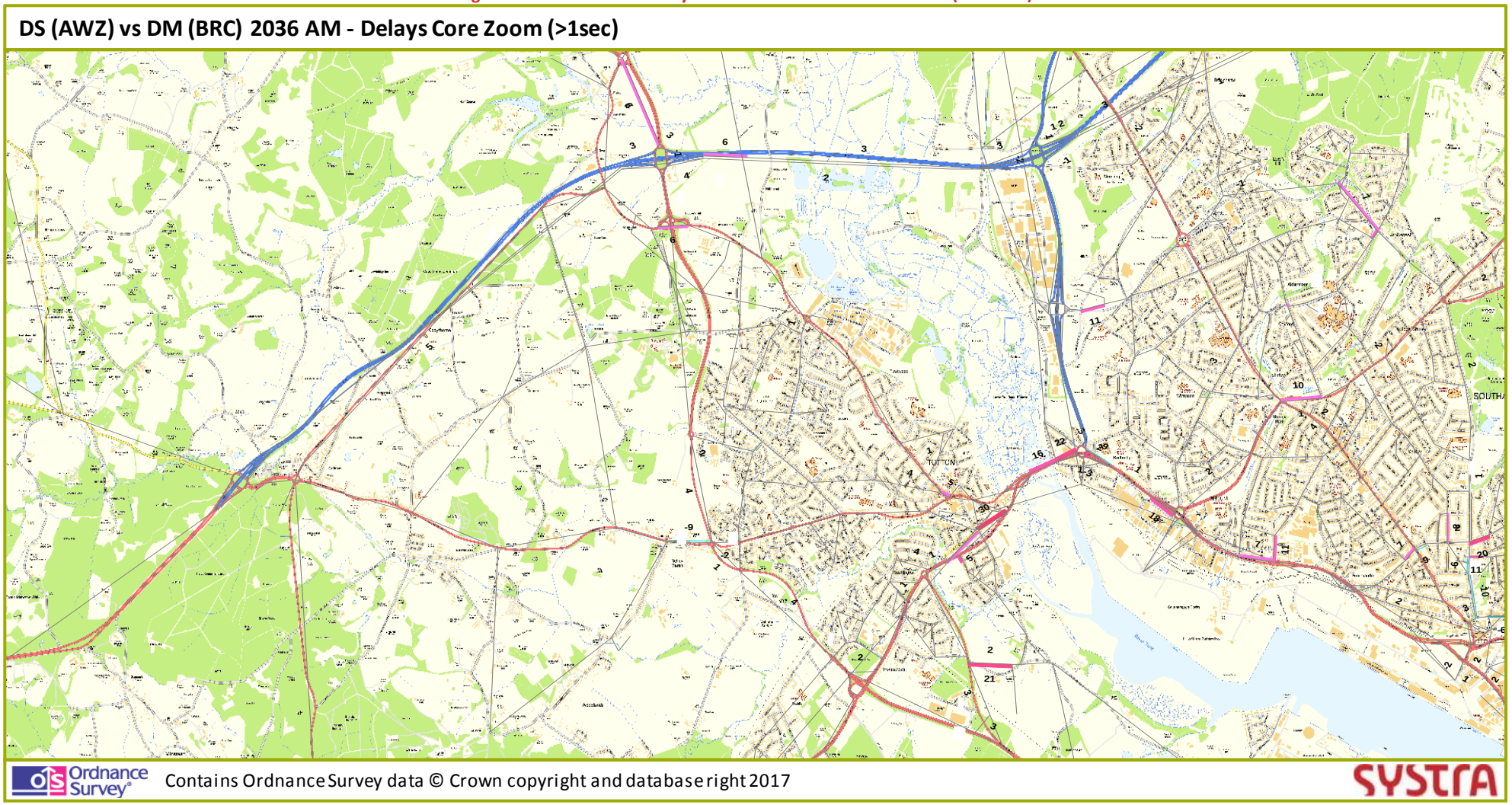
(SRTM Ref: AWZ v. BRC)

Figure 8. AM Peak Delay Difference New Forest Core (DS v. DM) 2036



(SRTM Ref: AWZ v. BRC)

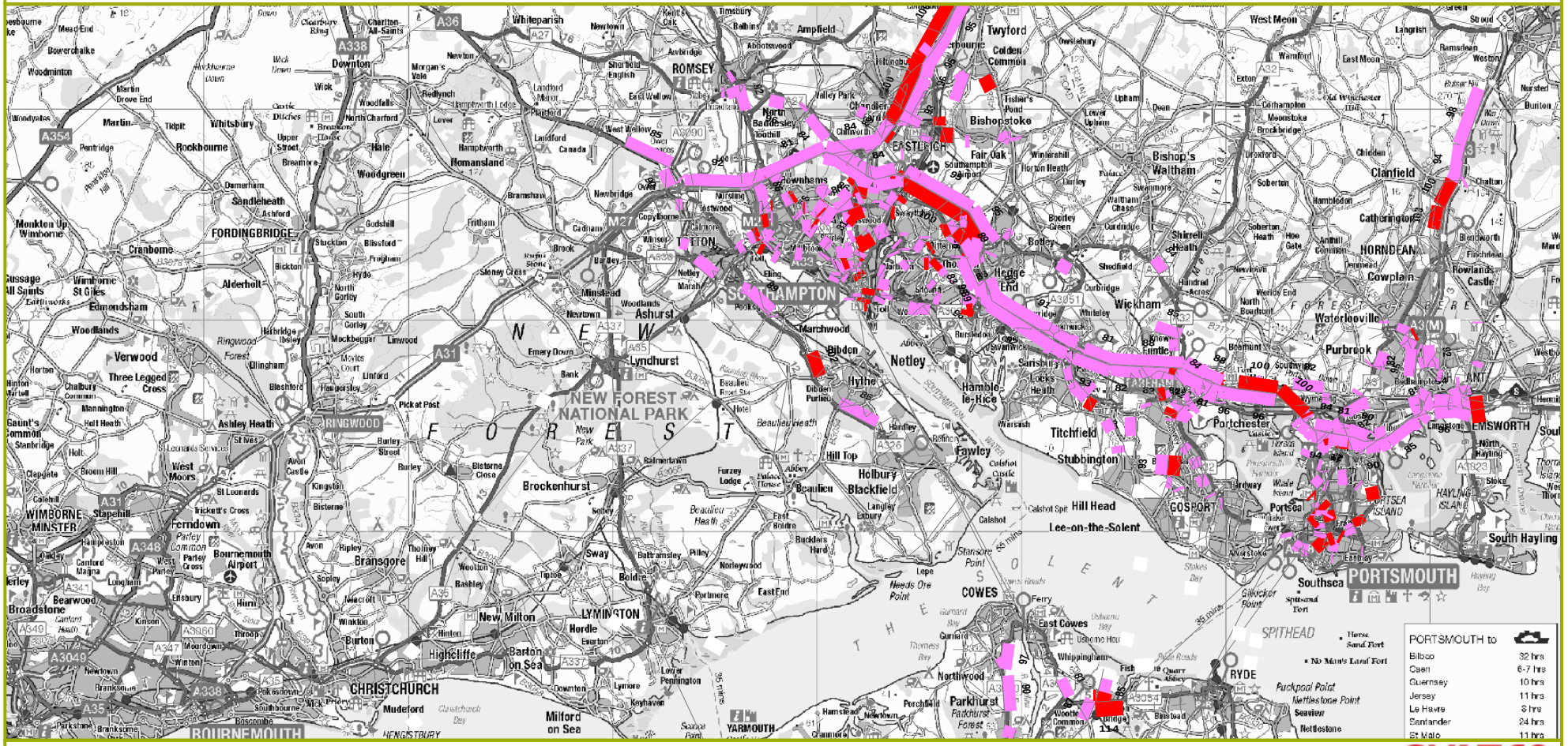
Figure 9. AM Peak Delay Difference New Forest Core zoom (DS v. DM) 2036



(SRTM Ref: AWZ v. BRC)

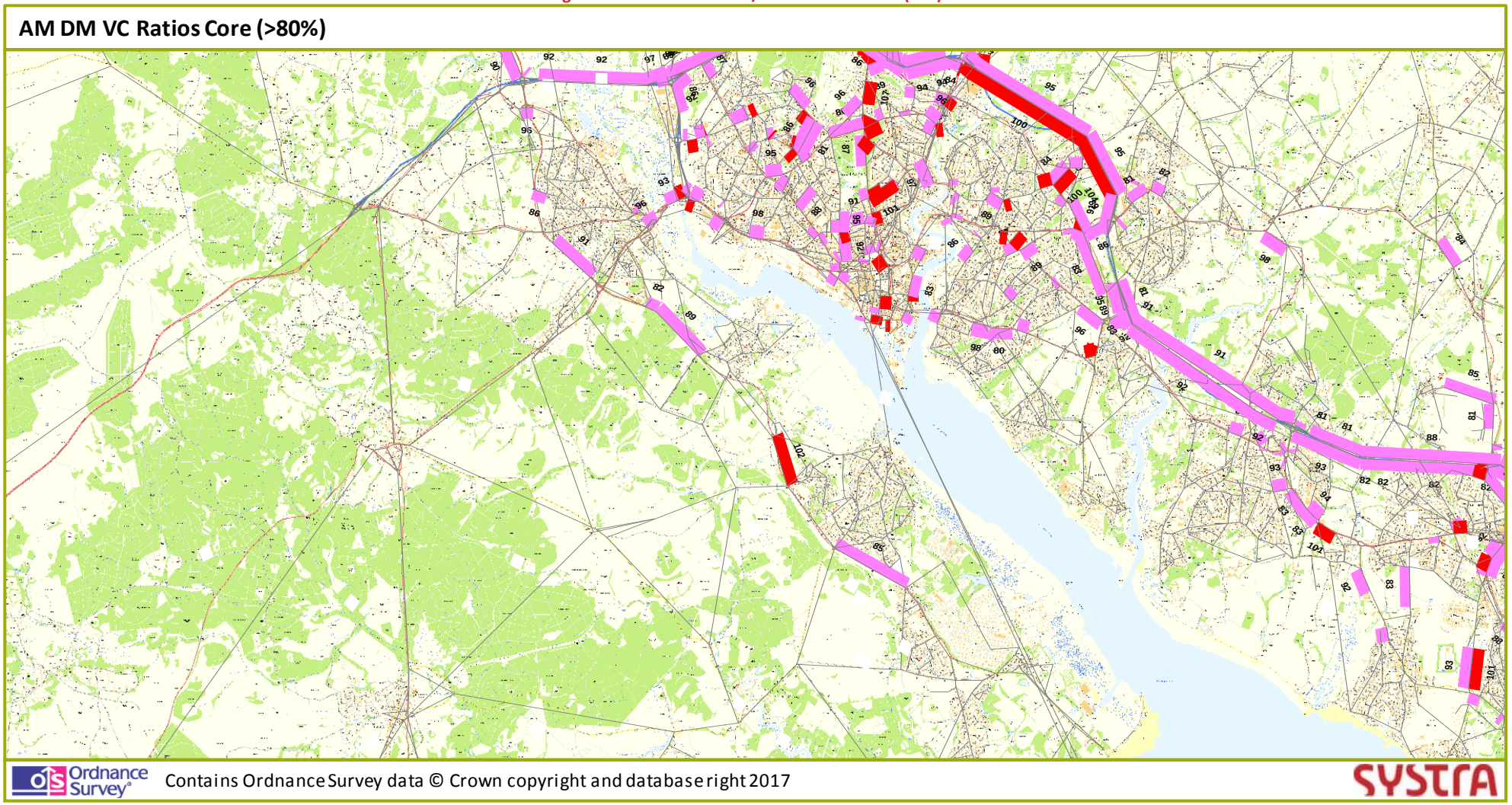
Figure 10. AM Peak V/C (DM) 2036

AM DM VC Ratios (>80%)



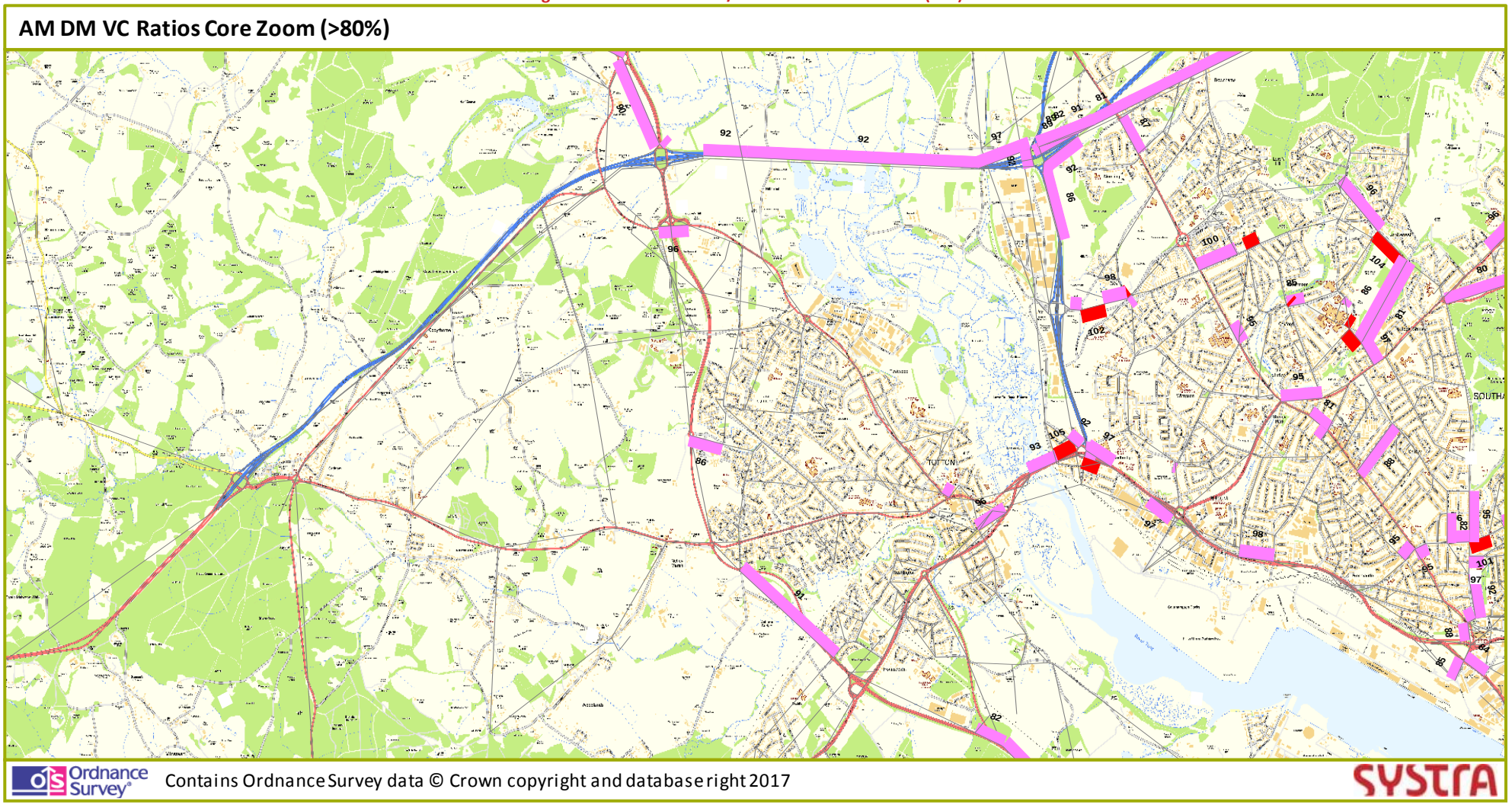
(SRTM Ref: BRC)

Figure 11. AM Peak V/C New Forest Core (DM) 2036



(SRTM Ref: BRC)

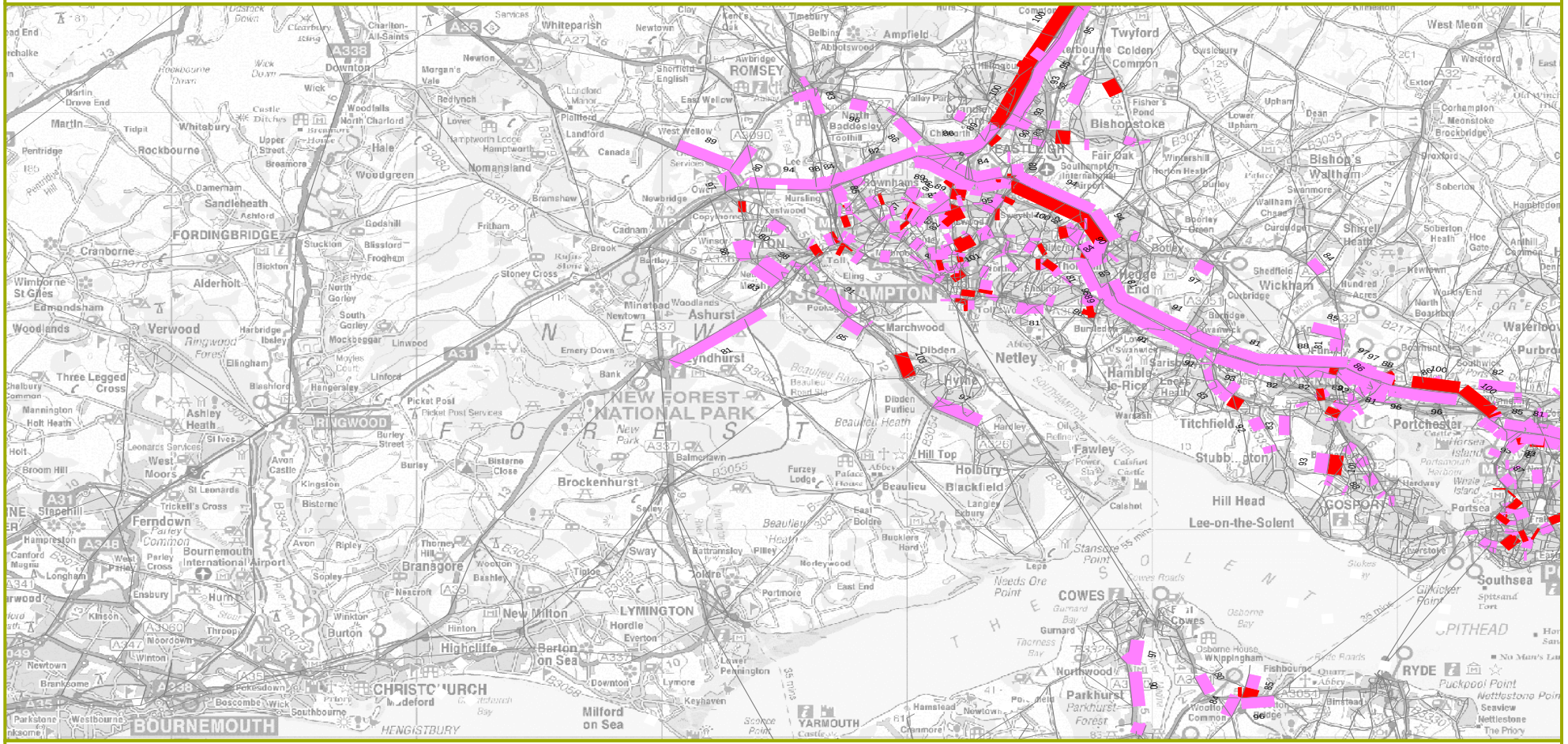
Figure 12. AM Peak V/C New Forest Core zoom (DM) 2036



(SRTM Ref: BRC)

Figure 13. AM Peak V/C (DS) 2036

AM DS VC Ratios (>80%)



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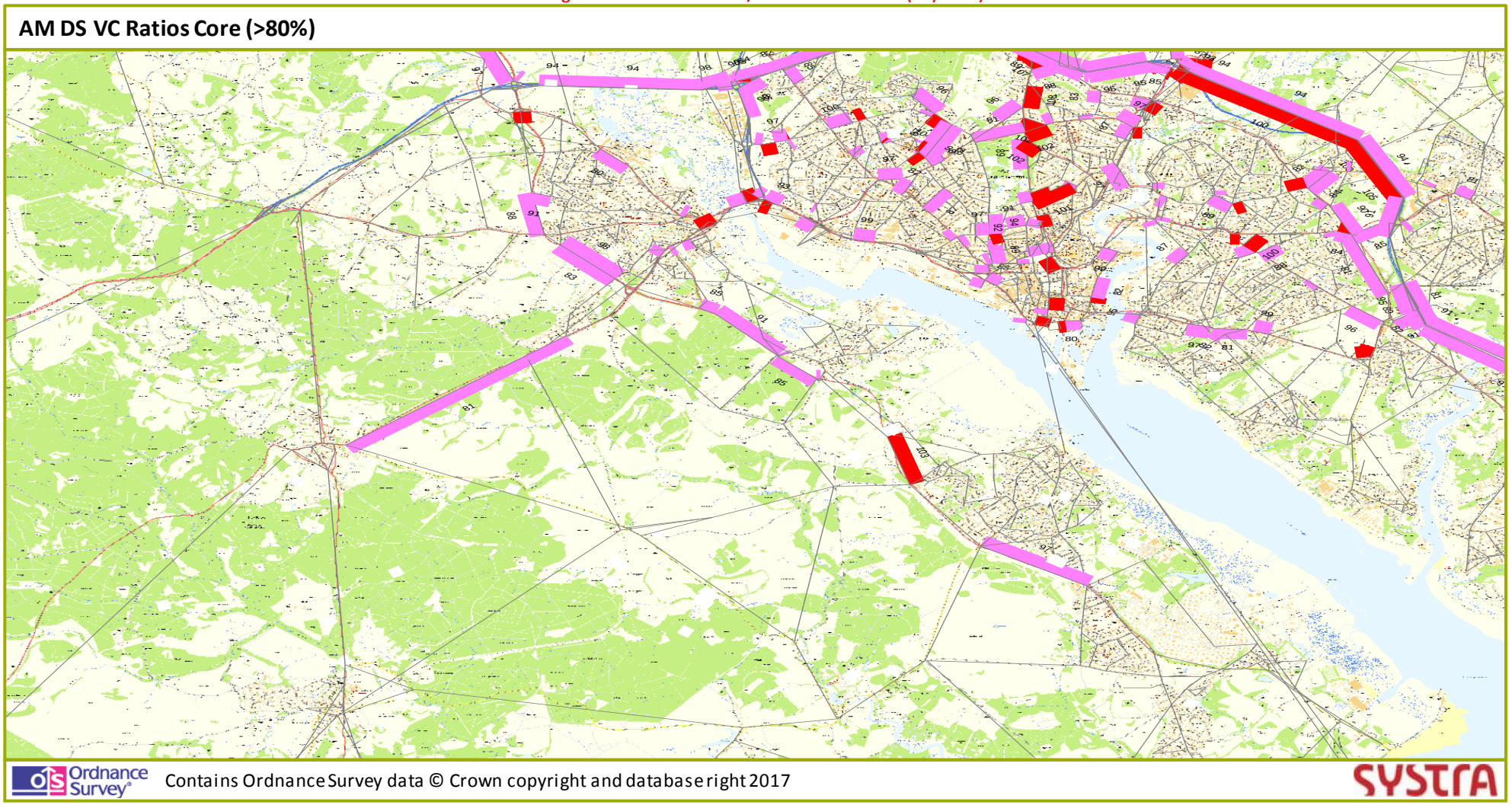
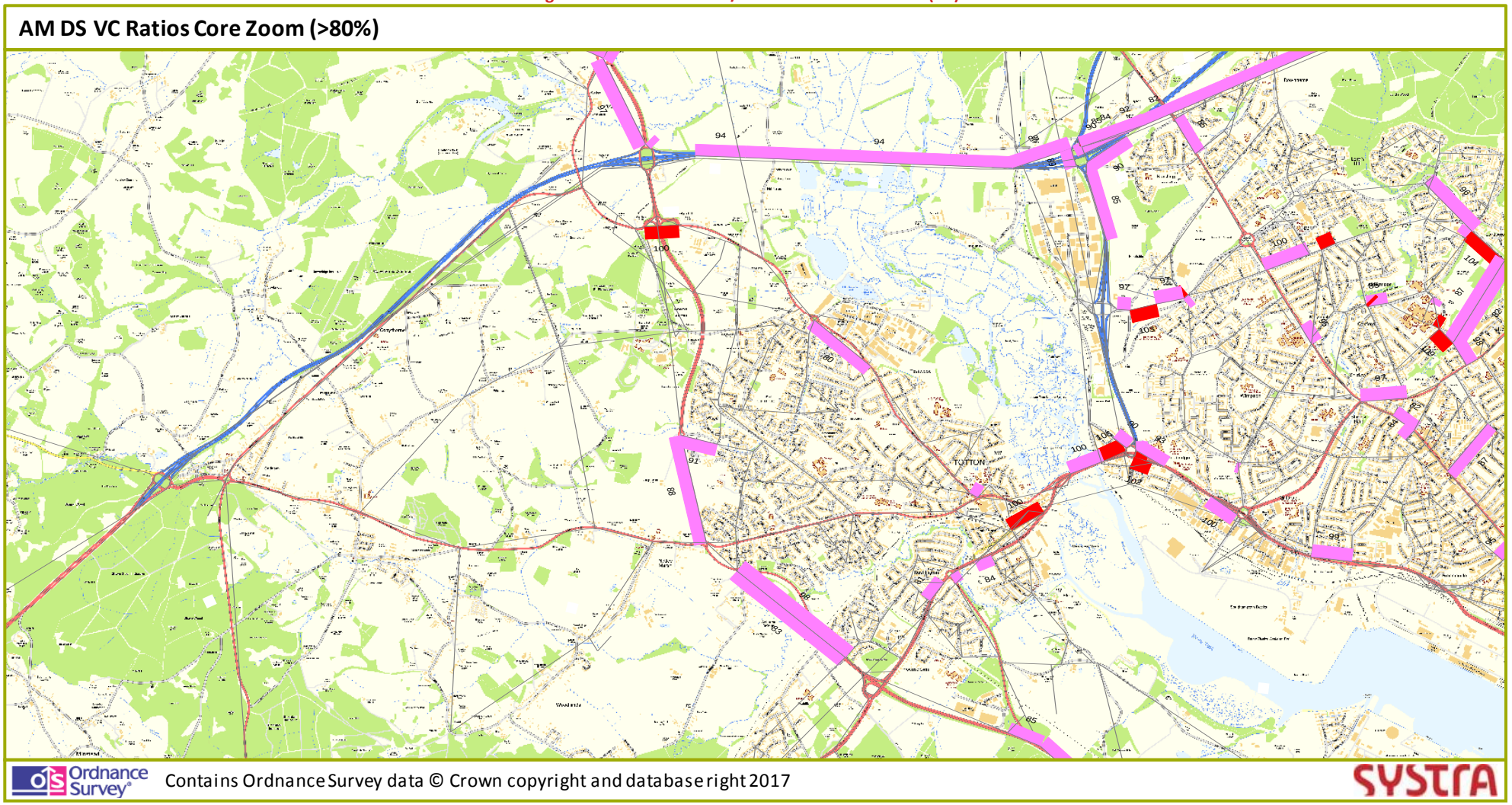
(SRTM Ref: AWZ)

Figure 14. AM Peak V/C New Forest Cores (DS) 2036)



(SRTM Ref: AWZ)

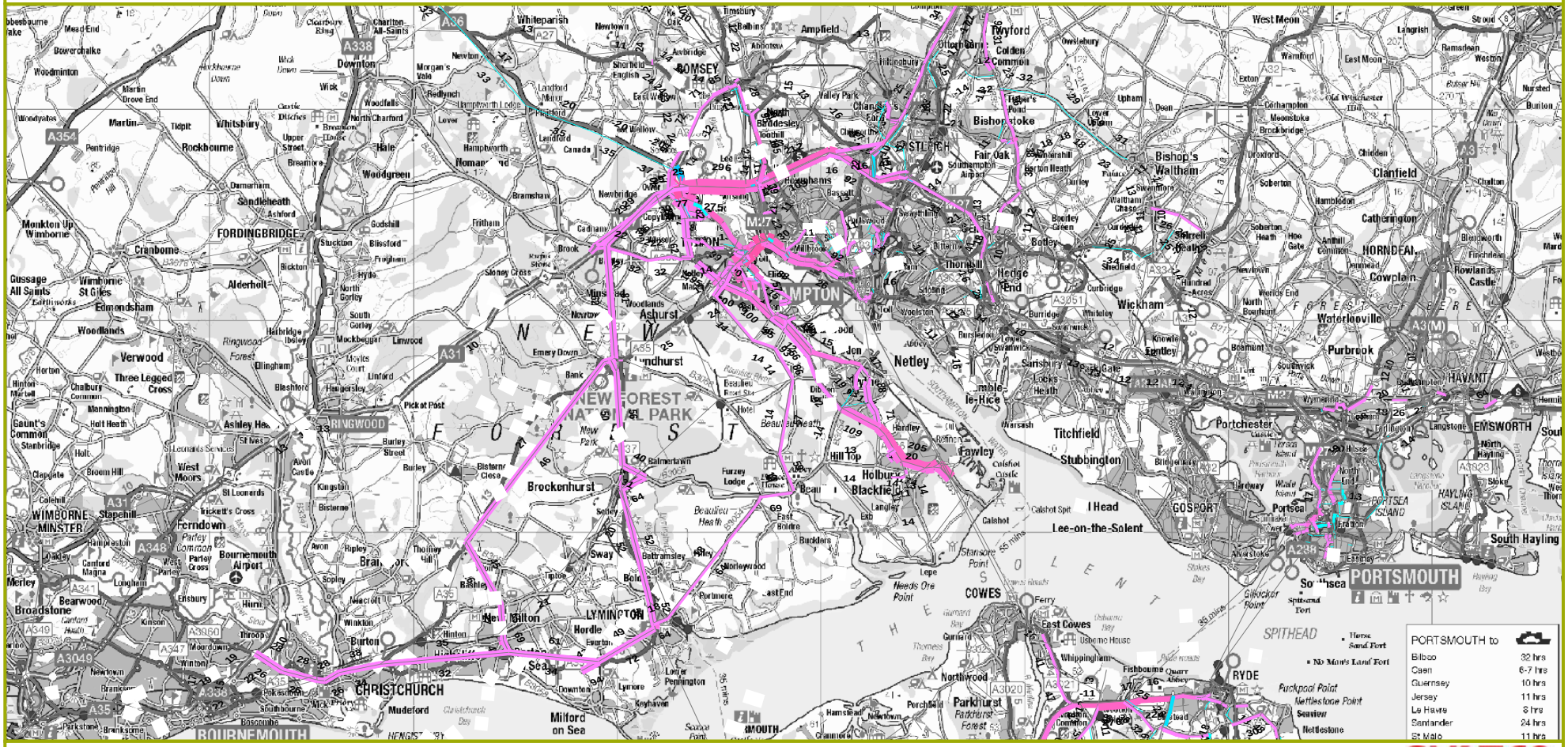
Figure 15. AM Peak V/C New Forest Core zoom (DS) 2036



(SRTM Ref: AWZ)

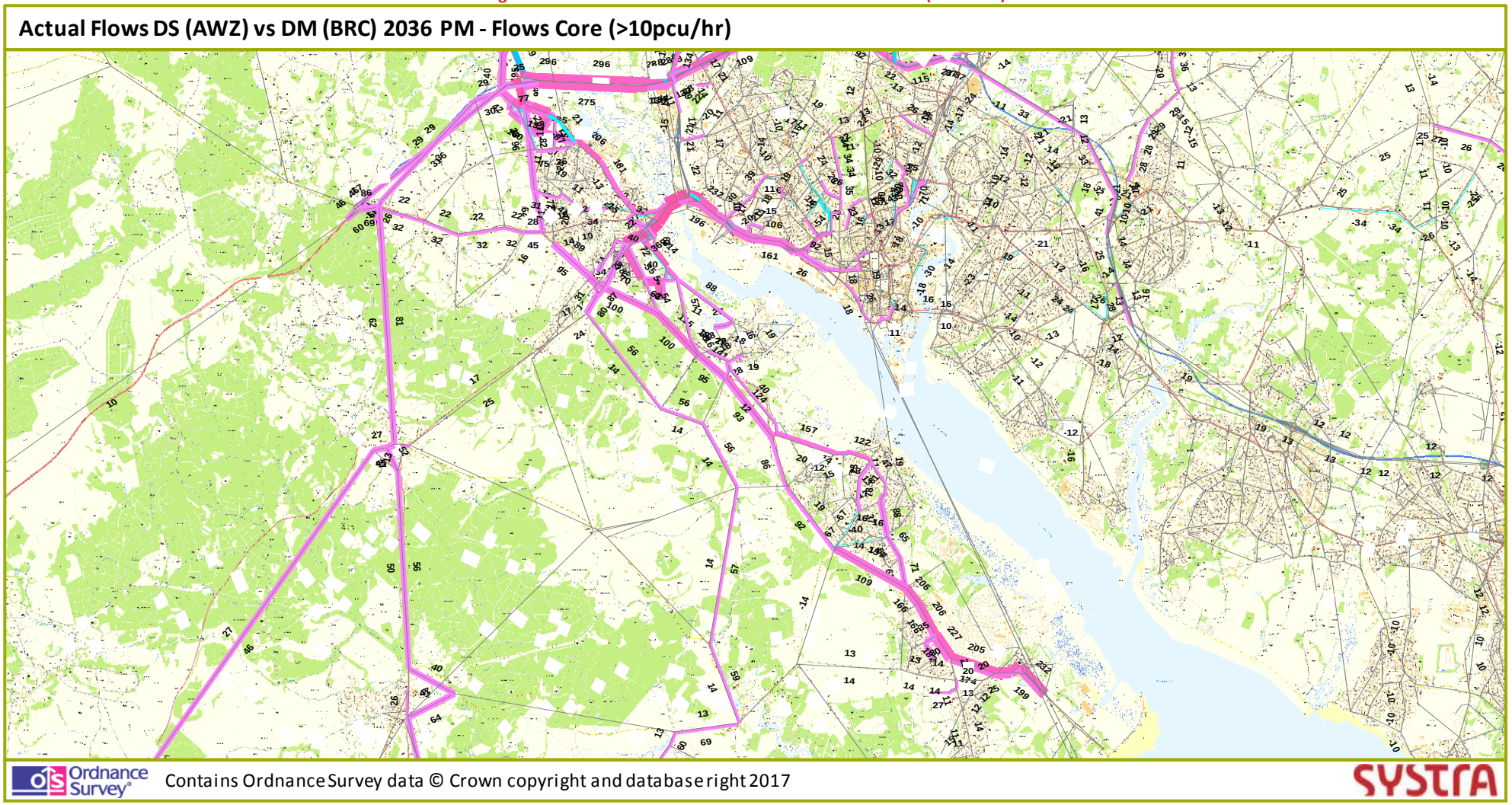
Figure 16. PM Peak Flow Difference (DS v. DM) 2036

Actual Flows DS (AWZ) vs DM (BRC) 2036 PM - Flows (>10pcu/hr)



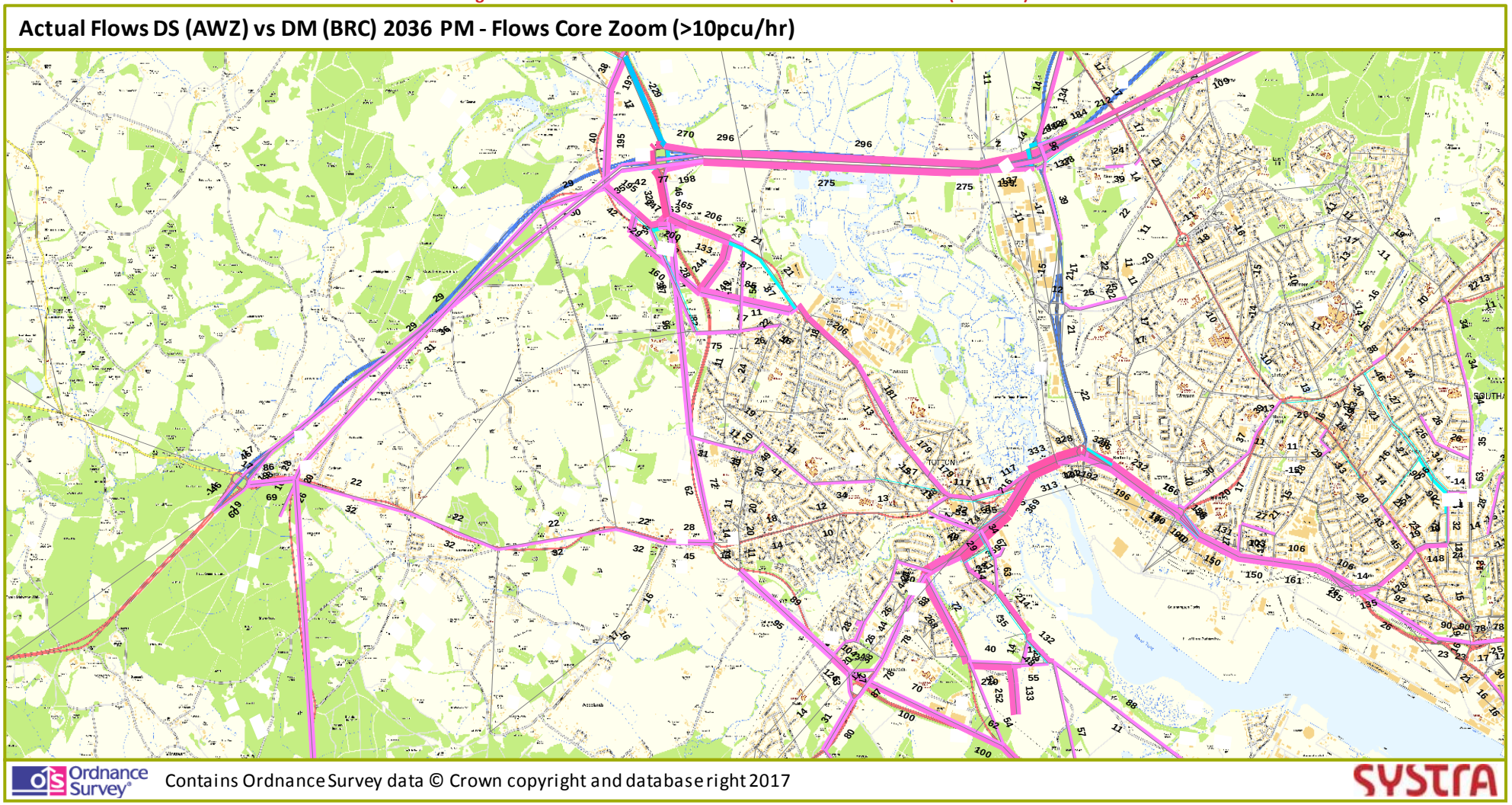
(SRTM Ref: AWZ v. BRC)

Figure 17. PM Peak Flow Difference New Forest Core (DS v. DM) 2936



(SRTM Ref: AWZ v. BRC)

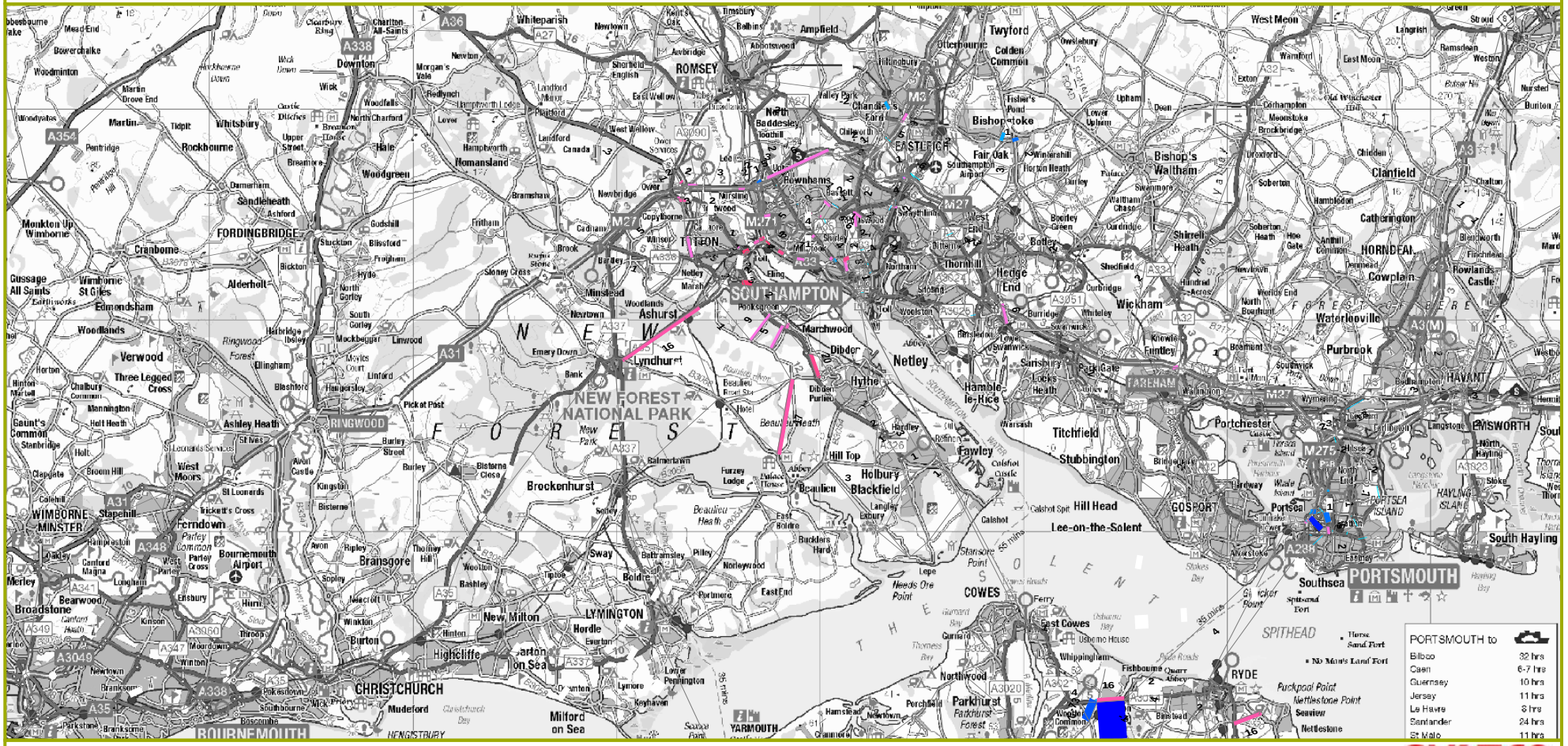
Figure 18. PM Peak Flow Difference New Forest Core zoom (DS v. DM) 2036



(SRTM Ref: AWZ v. BRC)

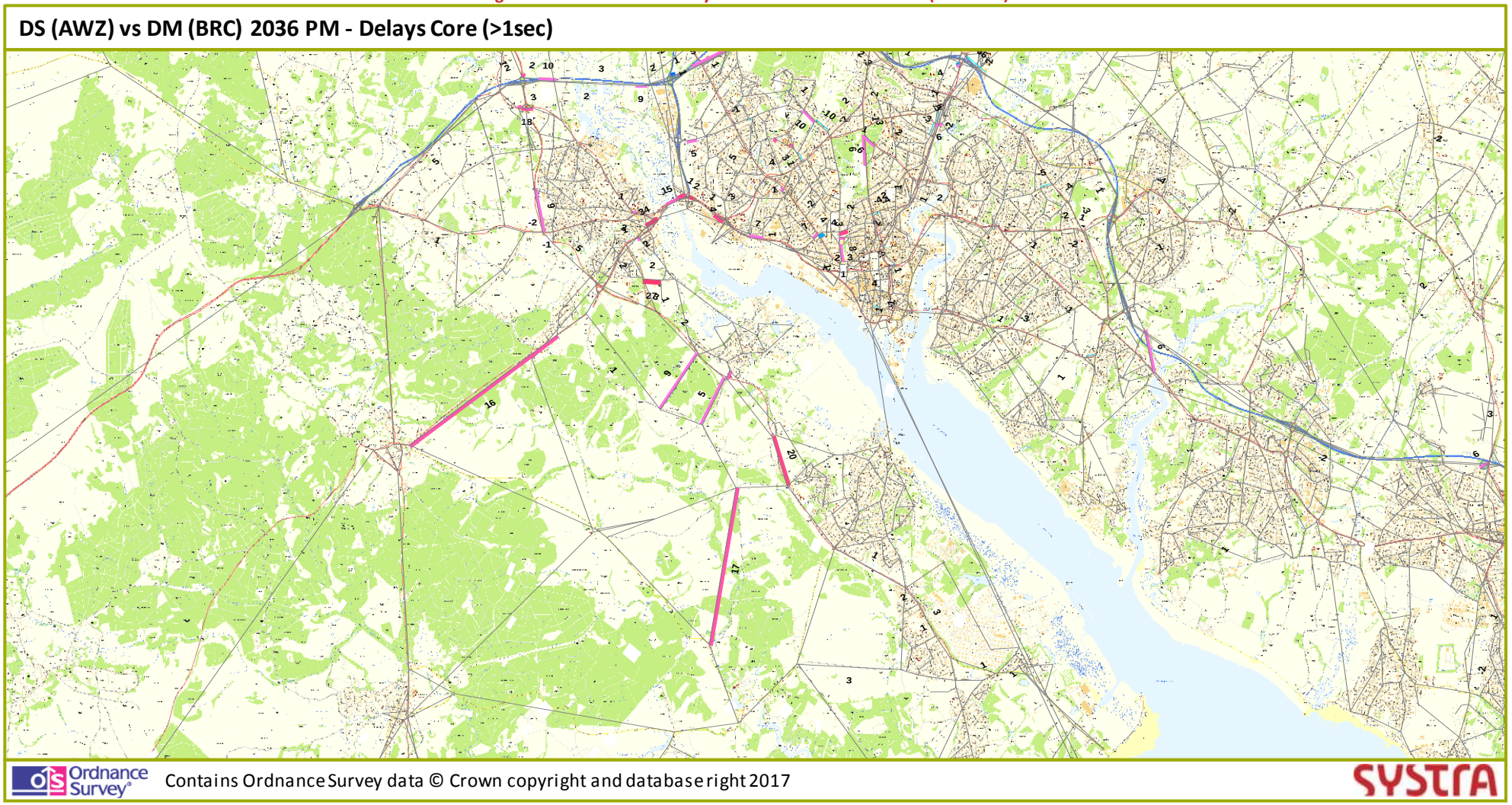
Figure 19. PM Peak Delay Difference (DS v. DM) 2036

DS (AWZ) vs DM (BRC) 2036 PM - Delays (>1sec)



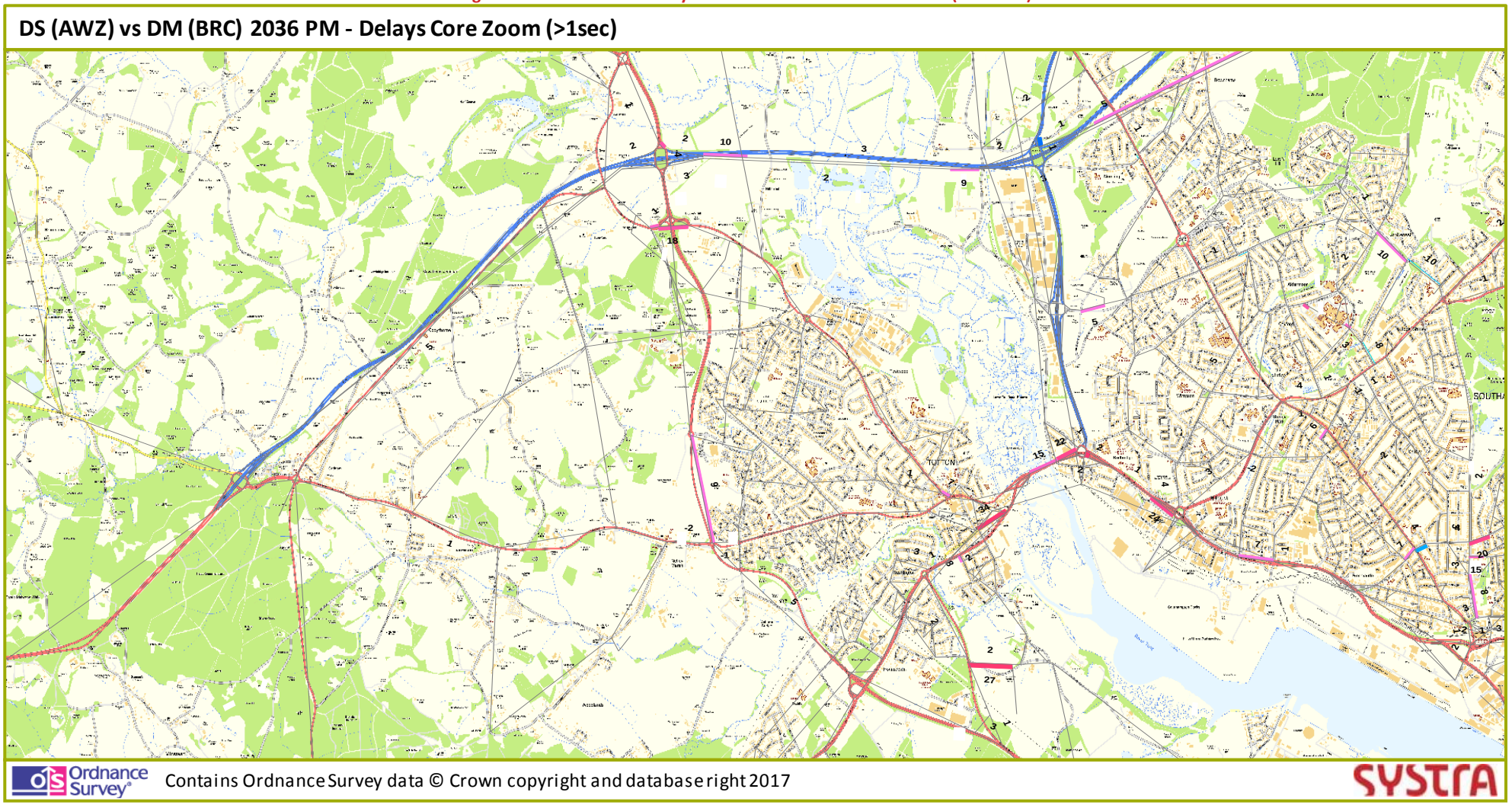
(SRTM Ref: AWZ v. BRC)

Figure 20. PM Peak Delay Difference New Forest Core (DS v. DM) 2036



(SRTM Ref: AWZ v. BRC)

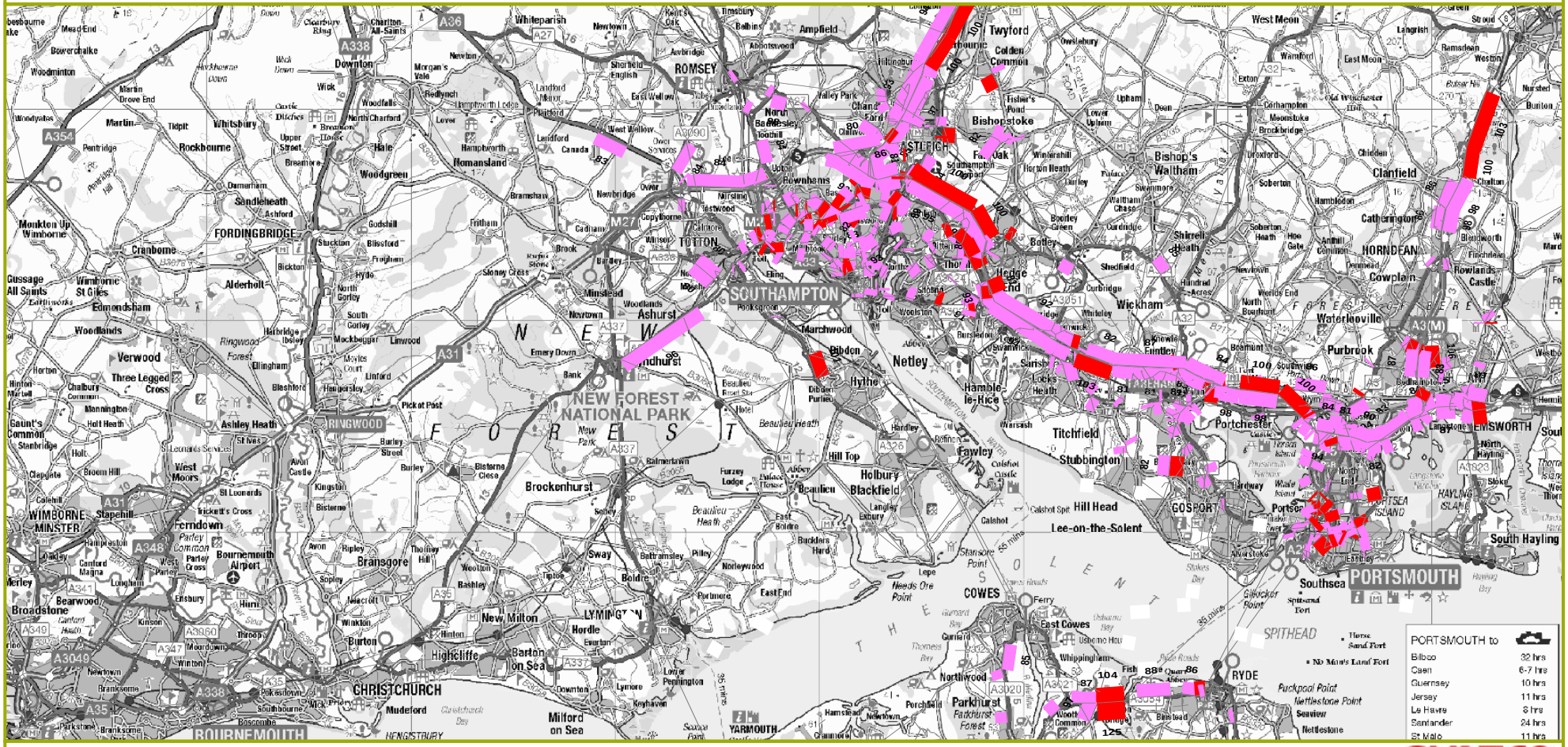
Figure 21. PM Peak Delay Difference New Forest Core zoom (DS v. DM) 2036



(SRTM Ref: AWZ v. BRC)

Figure 22. PM Peak V/C (DM) 2036

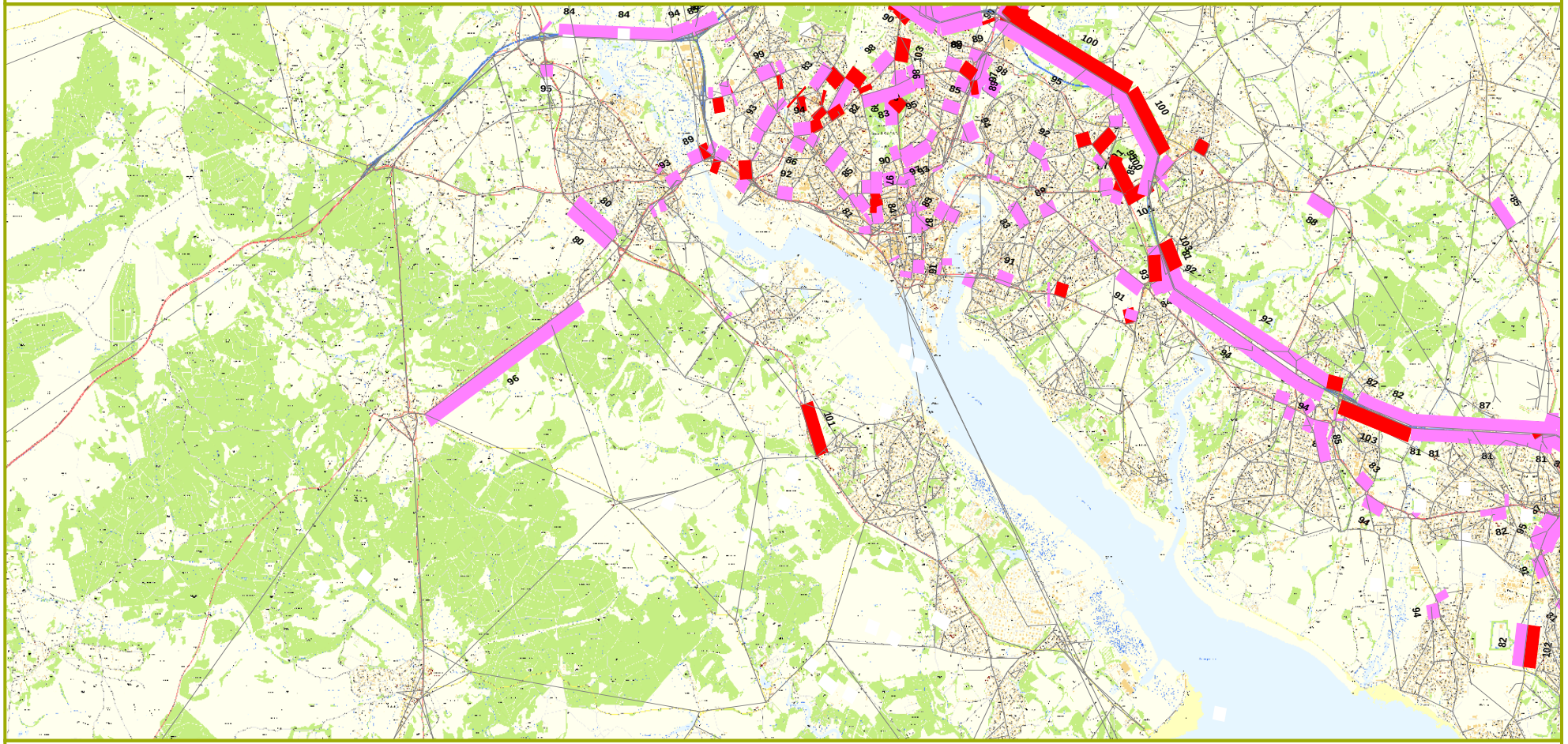
PM DM VC Ratios (>80%)



(SRTM Ref: BRC)

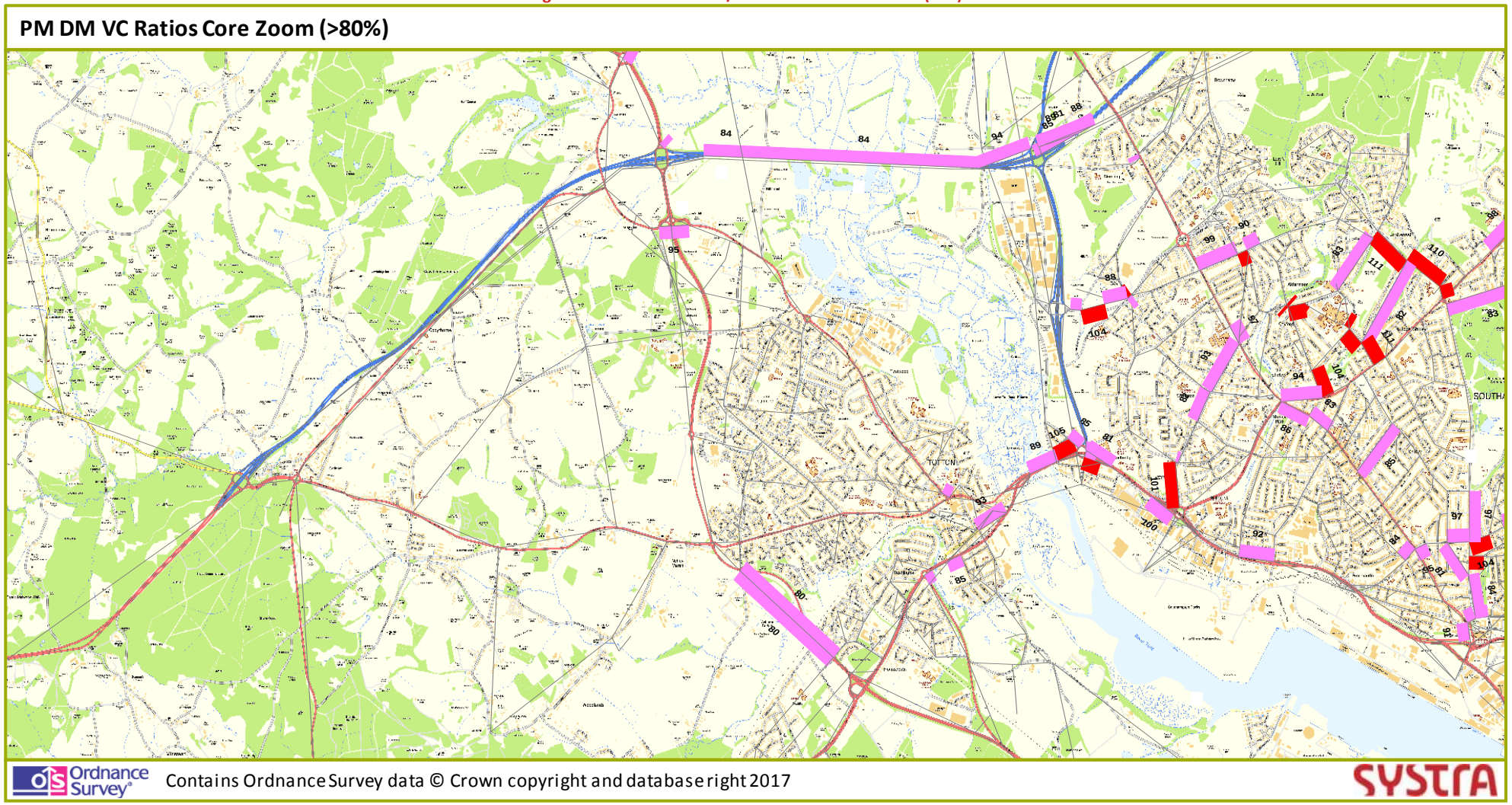
Figure 23. PM Peak V/C New Forest Core (DM) 2036

PM DM VC Ratios Core (>80%)



(SRTM Ref: BRC)

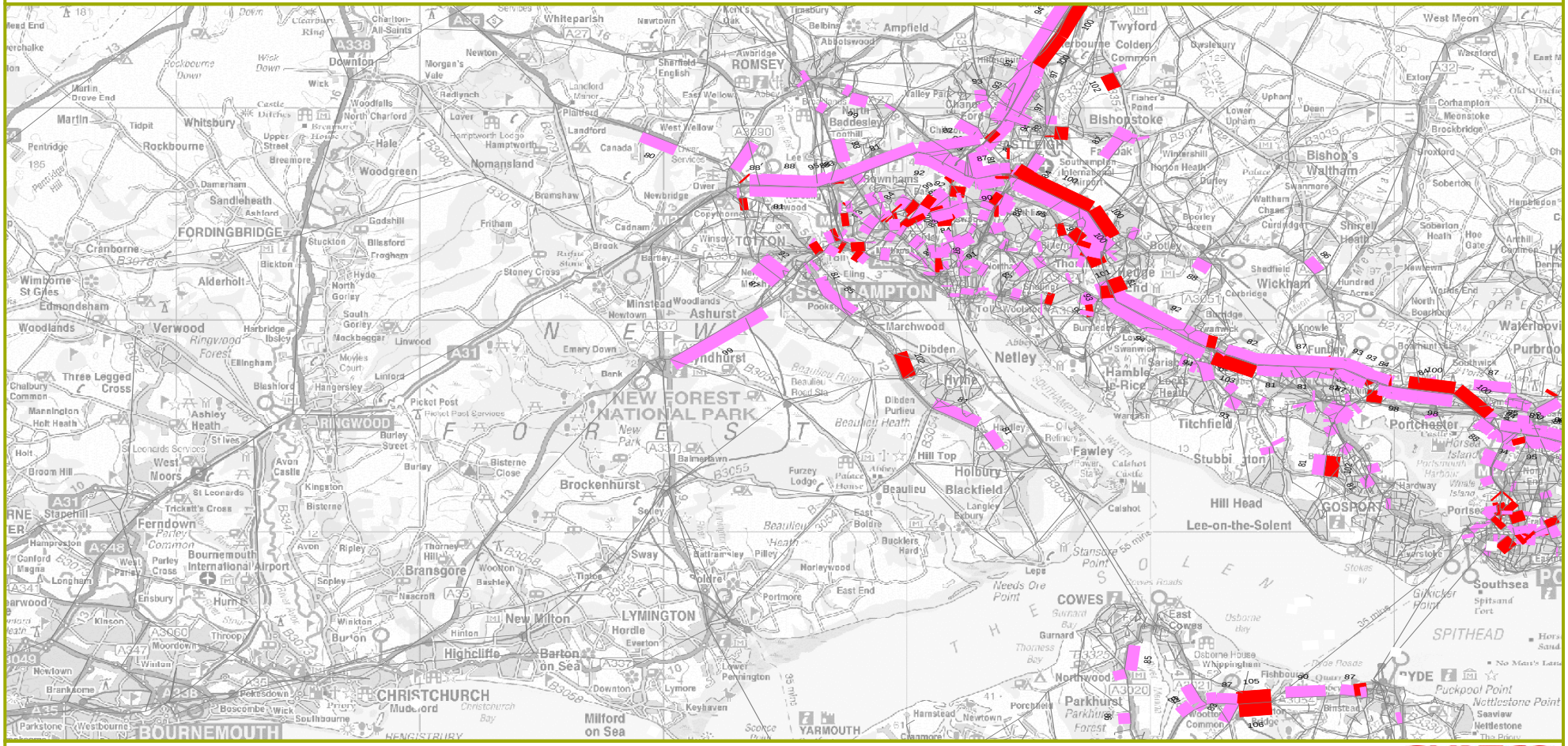
Figure 24. PM Peak V/C New Forest Core zoom (DM) 2036



(SRTM Ref: BRC)

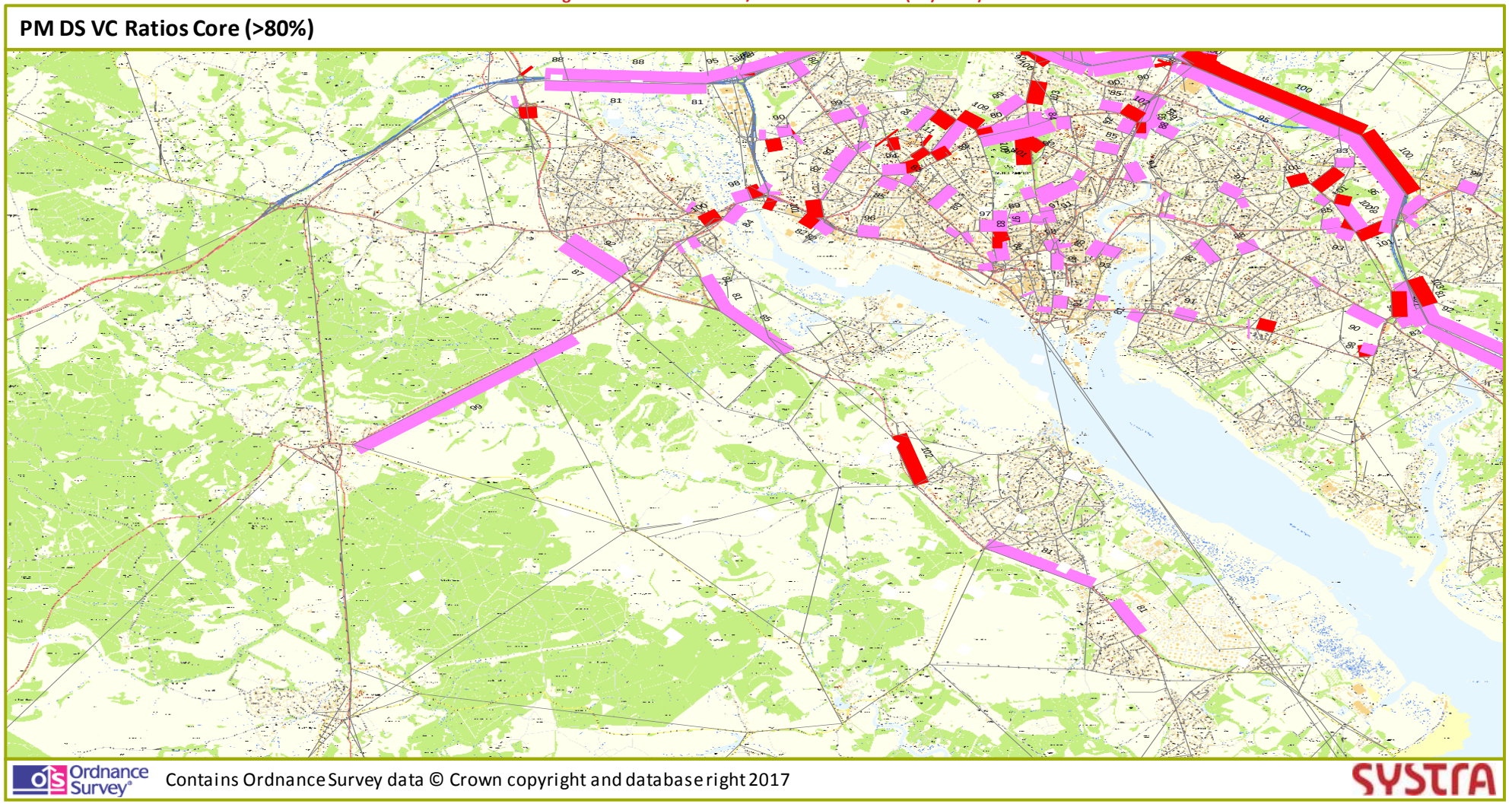
Figure 25. PM Peak V/C (DS) 2036

PM DS VC Ratios (>80%)



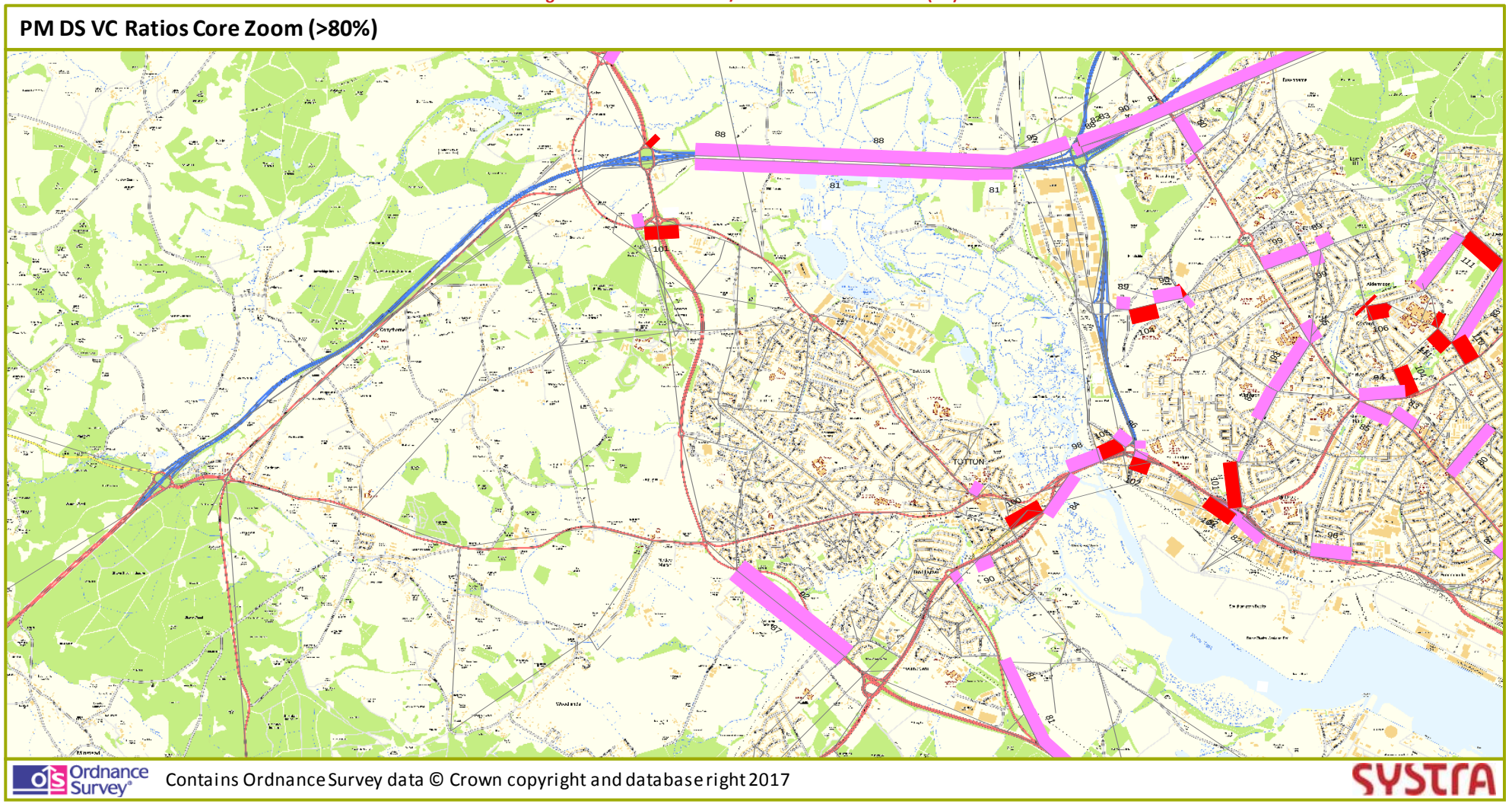
(SRTM Ref: AWZ)

Figure 26. PM Peak V/C New Forest Cores (DS) 2036)



(SRTM Ref: AWZ)

Figure 27. PM Peak V/C New Forest Core zoom (DS) 2036



(SRTM Ref: AWZ)

5. PUBLIC TRANSPORT MODEL RESULTS

5.1 Introduction

5.1.1 This chapter summarises the Public Transport outputs for the Local Plan SRTM tests. All outputs relate to a forecast year of 2036.

5.1.2 Each output provides a comparison of the forecast highway performance in 2036 with and without the draft development allocations:

- Do Minimum – Without New Forest Local Plan Development (SRTM Ref BRC)
- Do Something – With New Forest Local Plan Development (within the core and marginal model areas only) (SRTM Ref AWZ)

5.2 Public Transport Network Performance

5.2.1 Table 17 and Table 18 below summarise key PT network statistics for the full SRTM core study area and for New Forest District (core model sector) for both peak periods.

5.2.2 The changes to the bus passenger hours and kilometres across the wider SRTM core highway network are negligible. However, within the core New Forest sector, both parameters increase by 15-18% in the Do Something compared to the Do Minimum. The AM bus boardings increase by 20% with the PM boardings increasing by 31%.

Table 17. AM Period (07:00-10:00) SRTM Core & New Forest PT Network Statistics

CORE AREA	DO MINIMUM	DO SOMETHING	DIFF (DS – DM)	
			Abs	%
Bus Boardings	44,361	44,422	61	0%
Bus Pass Hrs	13,112	13,222	110	1%
Bus Pass Kms	295,507	298,613	3,107	1%
NEW FOREST				
Bus Boardings	1,502	1,798	296	20%
Bus Pass Hrs	594	700	106	18%
Bus Pass Kms	20,576	23,625	3,049	15%

Table 18. PM Period (07:00-10:00) SRTM Core & New Forest PT Network Statistics

CORE AREA	DO MINIMUM	DO SOMETHING	DIFF (DS – DM)	
			Abs	%
Bus Boardings	41,937	42,140	203	0%
Bus Pass Hrs	12,938	13,087	149	1%
Bus Pass Kms	286,947	291,660	4,713	2%
NEW FOREST				
Bus Boardings	866	1,137	271	31%
Bus Pass Hrs	601	709	109	18%
Bus Pass Kms	19,901	22,808	2,907	15%

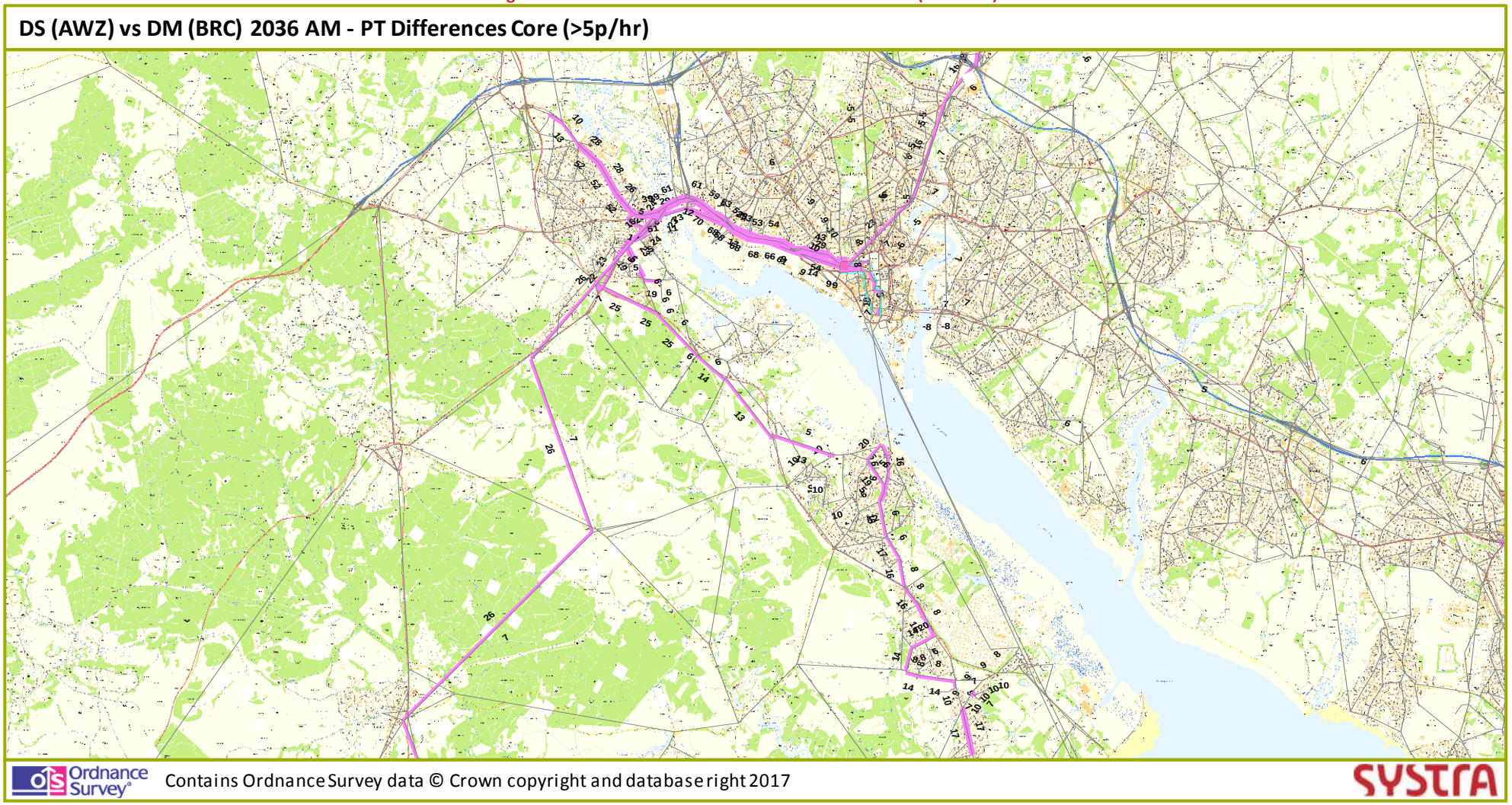
5.3 Change in Public Transport Flows

5.3.1 Figure 29 identifies the change in public transport flow in the AM between the Do Something and Do Minimum scenarios Figure 30 for the PM peak. These plots identify where the net change to passenger flow is most pronounced.

5.3.2 For the flow difference plots, the absolute difference in passengers is identified adjacent to the appropriate link. Blue lines identify a reduction compared to the non-development scenario and pink/red lines an increase. In addition, the scale of the change is represented graphically with the coloured lines of varying bandwidth. Only flow differences of 5 passengers or greater are displayed in the plots.

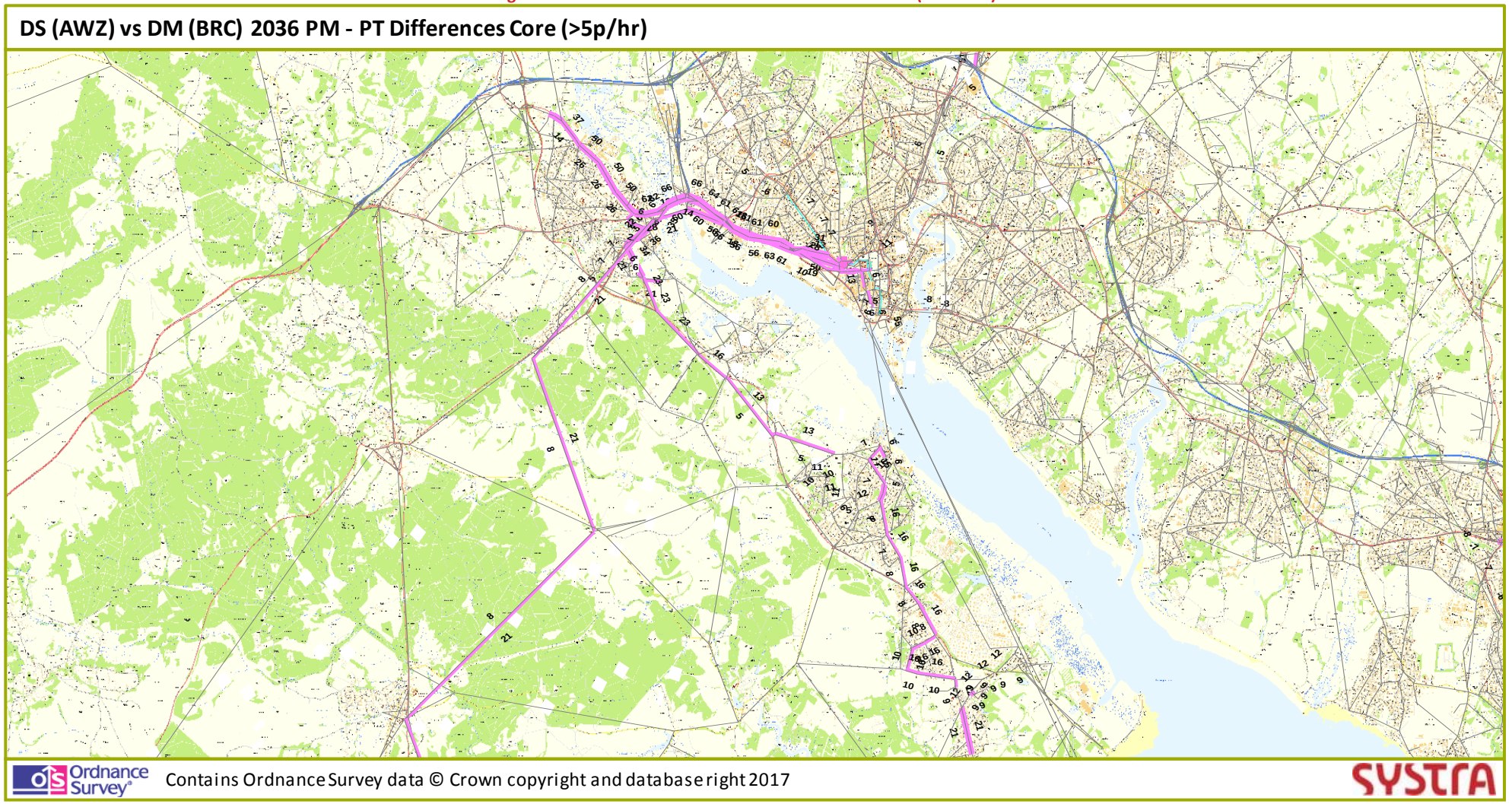
5.3.3 For both the AM and PM peak periods, there is a forecast increase in passenger volumes on the bus routes between New Forest and Southampton (in both directions), travelling over Redbridge Causeway. During the AM peak, this forecast is an additional 61 passengers eastbound and 73 westbound whilst for the PM peak this is 66 passengers eastbound and 60 passengers westbound.

Figure 29. AM Peak PT Difference New Forest Core (DS v. DM) 2036



(SRTM Ref: AWZ vs. BRC)

Figure 30. PM Peak PT Difference New Forest Core (DS v. DM) 2036



(SRTM Ref: AWZ vs. BRC)

6. SUMMARY

6.1 Summary

6.1.1 In 2015, SYSTRA were commissioned by New Forest District Council (NFDC) in preparation for its Local Plan for adoption in 2015. To help inform and evidence the Plan, Solent Transport's SRTM was used to assess the transport implications of the proposed land allocations for the period up to 2036.

6.1.2 This updated study uses the same assumptions as the study in 2015, with the removal of the development at Fawley Power Station from the Do Minimum (DM).

6.1.3 Two scenarios have been modelled within SRTM to enable the impact of the potential development sites to be isolated and assessed:

- Do Minimum – Without New Forest Local Plan Development.
- Do Something – With New Forest Local Plan Development within the core and marginal model areas only).

6.1.4 New Forest District (NFD) straddles the western perimeter of the core fully modelled area of the SRTM. Within NFD the Core area boundary is effectively the A326 with anything to the east being within the core. Because of limitations on what can be modelled outside the core model area only the land use changes from the proposed Local Plan in the core and marginal model areas of New Forest are represented in this study.

6.1.5 The New Forest Local Plan in the core and marginal sectors relate to an increase of 5,824 residential dwellings and 236,000 square metres of employment between 2015-36. In addition to this the Fawley Power station site has 1,300 residential dwellings. This increase in land use activity results in a forecast increase of 10% in person trips to / from the New Forest core sector within a 24 hour period.

6.1.6 The forecast flow changes produce the largest increases in traffic on Salisbury Road, A36, A326 and the A35. The forecast highway impact of the Local Plan within the core model New Forest sector is an increase of 11-13% in vehicle hours and 8-9% increase in vehicle kilometres within the AM and PM peaks. The increase in traffic volumes results in an approximate 2-4% reduction in average speed.

6.1.7 On the M27 in the AM peak there is a forecast flow increase of 169 PCUs eastbound between junctions 2 and 3 and 305 PCUs in the westbound direction. In the PM peak this increase is 296 PCUs eastbound and 275 PCUs westbound.

6.1.8 The location of the delay changes resulting from the increased traffic are similar between both AM and PM peaks. In both time periods one of the largest forecast increases in delay is for northbound traffic on the B3076 High Street, Totton, at the junction with the A35 Totton Bypass. The largest delay increase during the AM peak occurs at Triggs Lane southbound with the junction of A326 Marchwood Bypass. The other more significant increases in delay are forecast eastbound on Redbridge Causeway and westbound on Jacob's Gutter Lane at the junction with the A326.

6.1.9 The delay increase on the M27 is minimal, with the largest increase being 10 seconds. This occurs during the PM peak between junctions 2 and 3 eastbound.

6.1.10 Overall forecast junction operational performance within the core modelled area of New Forest reduces as would be expected with increased traffic volumes. However, there are

only 4 junctions forecast to exceed capacity (for either peak) in the Do Something scenario that were not already experiencing capacity problems in the Do Minimum.

6.1.11 The forecast V/C on the M27 increases by roughly 2-3 % between junctions 2 and 3 eastbound. Junction 2 eastbound on-slip reaches capacity (100%) in the PM Do Something compared to 96% in the Do Minimum.

6.1.12 Public transport patronage is forecast to increase with an 15-18% increase in bus passenger hours and kilometres within the New Forest. Particular demand increases are forecast on routes between New Forest and Southampton over the Redbridge Causeway.

6.2 Next Steps

6.2.1 The impact of the Local Plan development trips reported within this Narrative results in a number of junction capacity hotspots. It is recommended that any transport interventions developed in response to these concerns be tested in conjunction with local detailed junction models utilising the forecast traffic flows output by SRTM.

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

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