Eastleigh Local Plan

31/07/2018

Reference number 105599

SRTM MODELLING – DATA EXTRACTION OF JUNCTIONS IN SOUTHAMPTON BASED ON THE DO SOMETHING 3 SCENARIO

SYSTRA

EASTLEIGH LOCAL PLAN

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IDENTIFICATION TABLE	
Client/Project owner	Eastleigh Borough Council
Project	Eastleigh Local Plan
Study	SRTM Modelling – Data Extraction of Junctions in Southampton based on the Do Something 3 Scenario
Type of document	Results of Further Data Extraction
Date	31/07/2018
File name	180731_Eastleigh Local Plan Southampton Junctions.docx
Reference number	105599
Number of pages	22

APPROVAL					
Version	**Name**		**Position**	**Date**	**Modifications**
1	Author	Michael Hornung	Consultant	31/07/2018	
	Checked by	Claire Stephens	Associate	02/08/2018	
	Approved by	Claire Stephens	Associate	02/08/2018	

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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 a Transport Assessment.

1.2.4 The focus of the study reported in the transport assessment was 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 also formed inputs to an ecology and air quality assessment that was 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.

1.2.6 On 25th July 2018, EBC commissioned SYSTRA to undertake further data extraction on defined junctions in Southampton based on the existing Do Something 3 Scenario. The

outputs will be presented in tables highlighting the RFC and indicating which junction arms will have significant or severe impacts compared to the 2036 Baseline. This document also includes flow difference plots.

1.2.7 This document presents the results from the additional data extraction from DS3, but does not provide commentary to the level presented within the Transport Assessment.

2. DATA EXTRACTION

2.1 List of Junctions

2.1.1 The junctions in Southampton for which further data extraction has been undertaken are as follows:

- A33 Bassett Avenue/A27 Bassett Green Road/M3 J14 Rbt (Chilworth Rbt)
- A33 Bassett Avenue/A35 Winchester Road Rbt
- A33 Bassett Avenue/A35 Burgess Road Sgn
- A35 Burgess Rd/High Rd/Stoneham Way Sgn
- Stoneham Way/Stoneham Ln Sgn
- A335 Stoneham Way/A335 Thomas Lewis Way Sgn
- A335 Stoneham Way/A27 Wide Ln/Bassett Green Rd Sgn
- A27 Kanes Hill/A334 Thornhill Park Road Rbt
- A334 Thornhill Park Road/Hinkler Road Sgn

2.2 Assessment Criteria

2.2.1 To provide a consistent measure of the impacts arising from the Local Plan proposals all scenarios previously modelled have been assessed against the criteria below (these criteria match those applied to other SRTM commissions relating to Local Plan TAs). Volume to Capacity (V/C) is reported as a percentage to express the forecast take-up of available highway capacity at individual locations - hence identifying links with a high V/C is a proxy for identifying junctions with capacity issues:

- a junction where the ratio of volume to capacity (V/C) on any approach arm was 85% or more in the Do-Something or Do-More scenario and has increased by 5% or more compared with the Baseline scenario, is considered as experiencing a **significant** impact;
- a junction where the ratio of volume to capacity (V/C) on any approach arm was 95% or more in the Do-Something or Do-More scenario and has increased by 10% or more compared with the Baseline scenario, is considered as experiencing a **severe** impact;
- a junction where the average delay per vehicle in the Do-Something or Do-More scenario was two minutes or more in any period and has increased by one minute or more compared with the Baseline scenario, is considered as experiencing a severe impact.

2.3 Junction Impacts

2.3.1 Table 1 below shows where significant or severe impacts are expected to occur based on the assessment criteria above.

2.3.2 Only one junction is forecast a significant impact (A334 Thornhill Park Road/Hinkler Road Sgn).

Table 1. 2036 Do Something 3 - Locations of Significant or Severe Impact

LINK/JUNCTION	ID	BASELINE		DS 3	
		AM	PM	AM	PM
A33 Bassett Avenue/A27 Bassett Green Road/M3 J14 Rbt (Chilworth Rbt)	116				
A33 Bassett Avenue/A35 Winchester Road Rbt	117				
A33 Bassett Avenue/A35 Burgess Road Sgn	118				
A35 Burgess Rd/High Rd/Stoneham Way Sgn	119				
Stoneham Way/Stoneham Ln Sgn	120				
A335 Stoneham Way/A335 Thomas Lewis Way Sgn	121				
A335 Stoneham Way/A27 Wide Ln/Bassett Green Rd Sgn	122				
A27 Kanes Hill/A334 Thornhill Park Road Rbt	123				
A334 Thornhill Park Road/Hinkler Road Sgn	124	Sig			
TOTALS	**Sig**	**1**	**0**	**0**	**0**
		1		**0**	
	Sev	**0**	**0**	**0**	**0**
		0		**0**	

2.4 Detailed List of Junctions

2.4.1 The following tables summarise the AM and PM peak hour performance statistics, by arm, for the Baseline (BL) and the Do Something 3 (DS3) Scenario. Where assessment criteria for “significant” or “severe” impacts are met, these are highlighted in yellow and red respectively.

2.4.2 As shown above, the only junction identified with a significant impact is forecast in the AM peak for the westbound A334 Thornhill Park Road approach to the signalised junction.

Bassett Avenue/A27 Bassett Green Road/M3 J14 (Chilworth Roundabout)

Table 2. Bassett Avenue/A27 Bassett Green Road/M3 J14 (Chilworth Roundabout) AM Peak Junction Performance

AM PEAK (ARM)	V/C (%)		AVE QUEUE (PCU)		DELAY (S/PCU)	
	BL	DS3	BL	DS3	BL	DS3
SB A27	106	106	78	90	110	123
WB A27 Basset Green Rd	108	108	11	10	250	259
NB A33 Bassett Ave	105	105	62	62	102	101

Table 3. Bassett Avenue/A27 Bassett Green Road/M3 J14 (Chilworth Roundabout) PM Peak Junction Performance

PM PEAK (ARM)	V/C (%)		AVE QUEUE (PCU)		DELAY (S/PCU)	
	BL	DS3	BL	DS3	BL	DS3
SB A27	106	106	77	83	117	126
WB A27 Basset Green Rd	100	100	7	7	78	83
NB A33 Bassett Ave	100	100	7	6	17	15

A33 Bassett Avenue/A35 Winchester Road

Table 4. A33 Bassett Avenue/A35 Winchester Road AM Peak Junction Performance

AM PEAK (ARM)	V/C (%)		AVE QUEUE (PCU)		DELAY (S/PCU)	
	BL	DS3	BL	DS3	BL	DS3
SB A33 Bassett Ave	110	110	89	90	185	187
NB A33 Bassett Ave	99	97	6	5	22	18
EB A35 Winchester Rd	111	109	58	50	234	194

Table 5. A33 Bassett Avenue/A35 Winchester Road PM Peak Junction Performance

PM PEAK (ARM)	V/C (%)		AVE QUEUE (PCU)		DELAY (S/PCU)	
	BL	DS3	BL	DS3	BL	DS3
SB A33 Bassett Ave	107	107	65	68	142	148
NB A33 Bassett Ave	75	75	1	1	8	8
EB A35 Winchester Rd	101	101	15	16	52	55

A33 Bassett Avenue/A35 Burgess Road

Table 6. A33 Bassett Avenue/A35 Burgess Road AM Peak Junction Performance

AM PEAK (ARM)	V/C (%)		AVE QUEUE (PCU)		DELAY (S/PCU)	
	BL	DS3	BL	DS3	BL	DS3
SB A33 Bassett Ave	79	76	10	10	47	46
WB A35 Burgess Rd	102	103	16	17	173	182
NB The Avenue	98	98	13	13	65	66
EB A35 Burgess Rd	108	106	29	26	278	240

Table 7. A33 Bassett Avenue/A35 Burgess Road PM Peak Junction Performance

PM PEAK (ARM)	V/C (%)		AVE QUEUE (PCU)		DELAY (S/PCU)	
	BL	DS3	BL	DS3	BL	DS3
SB A33 Bassett Ave	59	58	7	7	41	41
WB A35 Burgess Rd	99	100	8	8	124	133
NB The Avenue	99	99	12	12	74	74
EB A35 Burgess Rd	97	97	9	9	99	102

A35 Burgess Rd/High Rd/Stoneham Way

Table 8. A35 Burgess Rd/High Rd/Stoneham Way AM Peak Junction Performance

AM PEAK (ARM)	V/C (%)		AVE QUEUE (PCU)		DELAY (S/PCU)	
	BL	DS3	BL	DS3	BL	DS3
SB Stoneham Way	21	20	2	2	16	16
NB High Rd	42	45	2	2	44	44
EB A35 Burgess Rd	46	45	2	2	18	18

Table 9. A35 Burgess Rd/High Rd/Stoneham Way PM Peak Junction Performance

PM PEAK (ARM)	V/C (%)		AVE QUEUE (PCU)		DELAY (S/PCU)	
	BL	DS3	BL	DS3	BL	DS3
SB Stoneham Way	19	20	1	1	8	8
NB High Rd	28	29	1	1	54	54
EB A35 Burgess Rd	40	39	2	2	10	10

Stoneham Way/Stoneham Ln

Table 10. Stoneham Way/Stoneham Ln AM Peak Junction Performance

AM PEAK (ARM)	V/C (%)		AVE QUEUE (PCU)		DELAY (S/PCU)	
	BL	DS3	BL	DS3	BL	DS3
SB Stoneham Way	17	17	2	2	20	20
NB Stoneham Way	47	47	5	5	25	26
EB Stoneham Lane	46	47	3	3	43	43

Table 11. Stoneham Way/Stoneham Ln PM Peak Junction Performance

PM PEAK (ARM)	V/C (%)		AVE QUEUE (PCU)		DELAY (S/PCU)	
	BL	DS3	BL	DS3	BL	DS3
SB Stoneham Way	18	19	2	2	18	19
NB Stoneham Way	36	36	3	3	21	21
EB Stoneham Lane	34	36	2	2	44	44

A335 Stoneham Way/A335 Thomas Lewis Way

Table 12. A335 Stoneham Way/A335 Thomas Lewis Way AM Peak Junction Performance

AM PEAK (ARM)	V/C (%)		AVE QUEUE (PCU)		DELAY (S/PCU)	
	BL	DS3	BL	DS3	BL	DS3
WB A335 Stoneham Way	106	106	51	52	168	171
NB A335 Thomas Lewis Way	70	70	10	10	65	64
EB Stoneham Way	26	27	2	2	11	11

Table 13. A335 Stoneham Way/A335 Thomas Lewis Way PM Peak Junction Performance

PM PEAK (ARM)	V/C (%)		AVE QUEUE (PCU)		DELAY (S/PCU)	
	BL	DS3	BL	DS3	BL	DS3
WB A335 Stoneham Way	102	103	23	26	104	111
NB A335 Thomas Lewis Way	58	59	8	8	42	43
EB Stoneham Way	25	24	2	2	11	11

A335 Stoneham Way/A27 Wide Ln/Bassett Green Rd

Table 14. A335 Stoneham Way/A27 Wide Ln/Bassett Green Rd AM Peak Junction Performance

AM PEAK (ARM)	V/C (%)		AVE QUEUE (PCU)		DELAY (S/PCU)	
	BL	DS3	BL	DS3	BL	DS3
SB A335 Stoneham Way	89	90	8	8	30	31
WB A27 Wide Ln	81	79	4	4	36	35
NB A335 Stoneham Way	97	99	20	15	74	72
EB A27 Bassett Green Rd	22	21	1	1	18	17

Table 15. A335 Stoneham Way/A27 Wide Ln/Bassett Green Rd PM Peak Junction Performance

PM PEAK (ARM)	V/C (%)		AVE QUEUE (PCU)		DELAY (S/PCU)	
	BL	DS3	BL	DS3	BL	DS3
SB A335 Stoneham Way	98	98	13	12	59	59
WB A27 Wide Ln	63	64	3	3	30	30
NB A335 Stoneham Way	96	90	9	9	51	34
EB A27 Bassett Green Rd	24	23	1	1	17	17

Table 16. A27 Kanes Hill/A334 Thornhill Park Road AM Peak Junction Performance

AM PEAK (ARM)	V/C (%)		AVE QUEUE (PCU)		DELAY (S/PCU)	
	BL	DS3	BL	DS3	BL	DS3
SB Approach A27 Moorhill Rd	74	77	9	8	42	35
WB Approach Charles Watts Way	49	49	23	22	119	115
WB Approach Comines Way	32	34	1	1	9	9
NB Approach A27 Kanes Hill	75	65	2	2	11	11
EB Approach Thornhill Park Rd	102	98	25	9	77	33

Table 17. A27 Kanes Hill/A334 Thornhill Park Road PM Peak Junction Performance

PM PEAK (ARM)	V/C (%)		AVE QUEUE (PCU)		DELAY (S/PCU)	
	BL	DS3	BL	DS3	BL	DS3
SB Approach A27 Moorhill Rd	67	72	6	8	29	33
WB Approach Charles Watts Way	66	67	39	40	178	181
WB Approach Comines Way	29	33	0	0	8	8

PM PEAK (ARM)	V/C (%)		AVE QUEUE (PCU)		DELAY (S/PCU)	
	BL	DS3	BL	DS3	BL	DS3
NB Approach A27 Kanes Hill	57	58	2	3	11	15
EB Approach Thornhill Park Rd	84	85	9	10	30	32

A334 Thornhill Park Road/Hinkler Road

Table 18. A334 Thornhill Park Road/Hinkler Road AM Peak Junction Performance

AM PEAK (ARM)	V/C (%)		AVE QUEUE (PCU)		DELAY (S/PCU)	
	BL	DS3	BL	DS3	BL	DS3
NB Hinkler Rd	99	101	0	4	99	124
EB A334 Thornhill Park Rd	96	100	2	3	49	72
WB A334 Thornhill Park Rd	87	96	9	3	25	42

Table 19. A334 Thornhill Park Road/Hinkler Road PM Peak Junction Performance

PM PEAK (ARM)	V/C (%)		AVE QUEUE (PCU)		DELAY (S/PCU)	
	BL	DS3	BL	DS3	BL	DS3
NB Hinkler Rd	87	88	1	1	61	63
EB A334 Thornhill Park Rd	95	95	3	3	38	40
WB A334 Thornhill Park Rd	83	85	2	2	18	20

2.5 Highway Flow Difference Plots – Southampton

2.5.1 Figures 1 and 2 show the change in traffic flow (PCUs) in the AM and PM peak hours between the Baseline and the Do Something 3 scenario, at an overall district level for Southampton.

Figure 1. 2036 DS3 (DPP) vs Baseline (DOP) Flow Difference – AM Peak

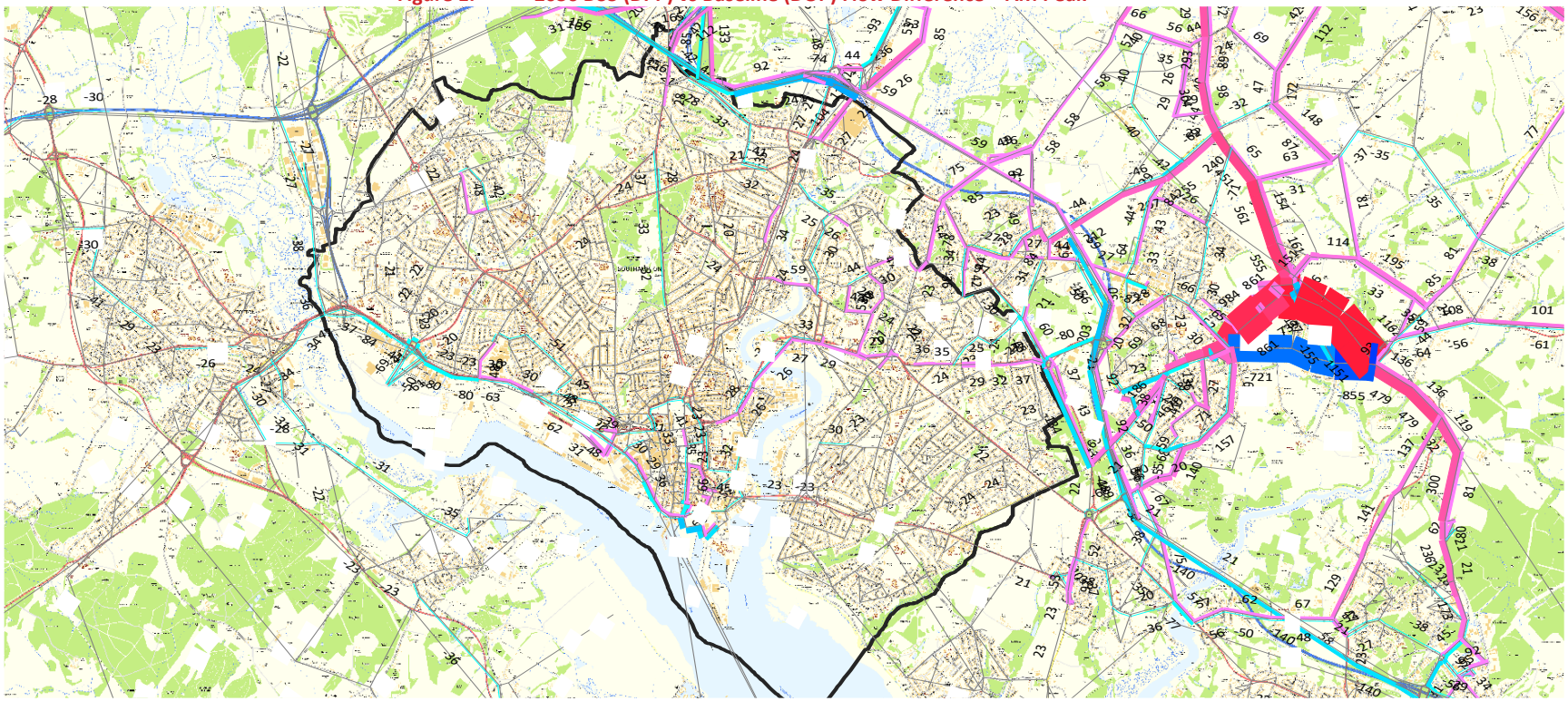
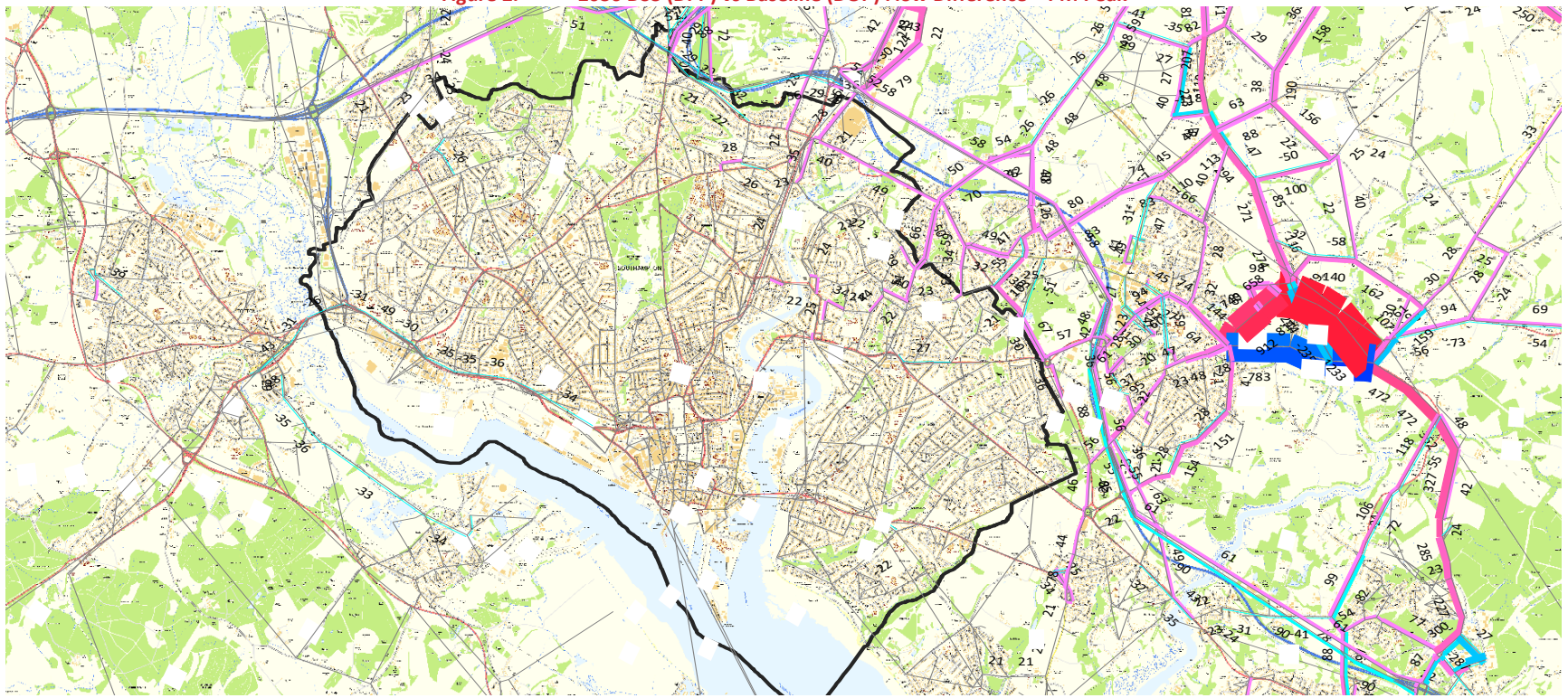


Figure 2. 2036 DS3 (DPP) vs Baseline (DOP) Flow Difference – PM Peak



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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
Soane Point, 6-8 Market Place, Reading,
Berkshire, RG1 2EG
T: +44 (0)118 206 0220

Woking
Dukes Court, Duke Street
Woking, Surrey GU21 5BH United Kingdom
T: +44 (0)1483 357705

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