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Northamptonshire Strategic Transport Model (NSTM)

TRAFFIC FORECASTING REPORT

NNJPU Core Strategy Assessment

23/01/2015

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1 Project background

1.1 Purpose

- 1.1.1 WSP has been tasked by the North Northamptonshire Joint Planning Unit (NNJPU) to provide guidance on how future housing and employment development will impact on the highway network in the boroughs of Corby, Kettering, Wellingborough, and East Northamptonshire district.
- 1.1.2 This forecasting report details results taken from the Northamptonshire Strategic Transport Model (NSTM). The NSTM has been constructed as a strategic multi-modal model covering Northamptonshire capable of assessing the impacts of future changes in journey patterns within Northamptonshire.
- 1.1.3 The results from the NSTM outlined in the report will be used to inform the Joint Core Strategy being developed by the NNJPU which aims to provide a strategic plan for Corby, East Northamptonshire, Kettering and Wellingborough going forward to 2031. It also provides information on the performance of the draft Infrastructure Delivery Plan (IDP) against forecast traffic flows.

1.2 NSTM specification

- 1.2.1 The validated base year model which the NSTM forecasts were based on in this report is 2013. The base year model was re-validated in 2014 to inform the assessment of the Chowns Mill (A45 / A6) roundabout for the Highways Agency. The associated Local Model Validation Report (LMVR) is available dated September 2014
- 1.2.2 The NSTM was run for a forecast year of 2031 with an AM peak (0800-0900) and PM peak (1700-1800) model for multiple scenarios detailed in Section 2.
- 1.2.3 SATURN version 11.2.05 is the highway modelling software package used within the NSTM. EMME version 3.1 is used for the public transport and demand model element of the NSTM.

1.3 Report

- 1.3.1 This report is split into the following sections
 - Model inputs (Section 2)
 - Model results (Section 3)
 - Sensitivity test results (Section 4)
 - Conclusion (Section 5)

1.4 Conclusions and recommendations

- 1.4.1 This report outlines a number of junctions which the NSTM 2031 results suggest will experience congestion problems in the future. Section 5 of the report outlines local junctions by Local Planning Authority (LPA) which continue to show congestion problems despite the inclusion of the draft Infrastructure Delivery Plan (IDP) in the NSTM. Further analysis of the junction designs in question and their input into the NSTM will be required.

2 Model inputs

2.1 Data inputs

2.1.1 The main data inputs required for the NSTM demand model in relation to developments are as follows:

- Households
- Jobs
- Retail Space Value
- School Pupil Numbers

2.1.2 The information for these data inputs was provided to WSP by the NNJPU in terms of committed, proposed and potential developments for a forecast year of 2031. Appendix A contains details of the developments included within the NSTM model runs.

2.2 Residential developments

2.2.1 Residential developments with a household size lower than 10 were not assigned a specific zone, but were aggregated within their respective district, with this total then spread proportionally across all the zones within the district according to the base year distribution. Residential developments which comprised between 10 and 500 households were allocated to a specific zone within the NSTM. Developments greater than 500 households (i.e. strategic sites) were modelled explicitly in the sense they were given their own zone(s). The internal road network and mitigation for these explicitly modelled developments was also included within NSTM. Coding of the internal road network for explicitly modelled developments was taken from the respective masterplan for the development if it was available. In absence of this information assumptions were made in terms of how traffic for these major developments would load onto the road network.

2.2.2 Table 2.1 lists the large developments for which a masterplan was used to inform the network coding within the NSTM

Table 2.1: Large developments with masterplan used for network coding

Development	LPA
Priors Hall	Corby / East Northants
Stanion Lane Plantation	Corby
West Corby	Corby
Weldon Park	Corby
Warth Park Extension, Raunds	East Northants
A14 J10 Business Park	Kettering
Kettering East	Kettering
WEAST	Wellingborough
Wellingborough North	Wellingborough

- 2.2.3 For the large developments in table 2.2, more generic assumptions were made with regards to where these developments would access the NSTM network.

Table 2.2: Large developments with generic assumptions used for network coding

Development	LPA
Former Gefco automotive site	Corby
Land at Cockerell Road	Corby
Land West of Stanion	Corby
Seymour Plantation	Corby
Nene Valley Farm, Rushden	East Northants
North Raunds (West End)	East Northants
Rushden East SUE	East Northants
West of Huxlow School / Irthlingborough West SUE	East Northants
Cransley Business Park	Kettering
North Kettering	Kettering
Kettering South (A14 J9 / A509)	Kettering
Rothwell North	Kettering
North Desborough	Kettering
Weekley Wood Development Area	Kettering
Appleby Lodge	Wellingborough

- 2.2.4 Residual housing related to a particular settlement was split proportionally according to the base year distribution of households for the zones covering the settlement.
- 2.2.5 The total housing numbers for each LPA remained constant across all model scenarios and is detailed in table 2.3. These figures represent the growth in housing numbers between 2013 and 2031.

Table 2.3: Household totals by district (2013-2031)

LPA	District Total
Corby	13,235
East Northants	7,968
Kettering	9,196
Wellingborough	6,762
Total	37,161

- 2.2.6 Major residential developments comprising over 500 dwellings included in the NSTM are shown in table 2.4, representing the proposed phasing of these major developments between 2013 and 2031.

Table 2.4: Major residential developments

Development	LPA	Dwellings
Priors Hall	Corby / East Northants	4,893
Land West of Stanion	Corby	594
West Corby	Corby	3,966
Weldon Park	Corby	991
West of Huxlow School / Irthlingborough West SUE	East Northants	672
Rushden East SUE	East Northants	1,535
Kettering East	Kettering	3,647
Rothwell North	Kettering	835
North Desborough	Kettering	1,010
WEAST	Wellingborough	2,836
Wellingborough North	Wellingborough	1,064

2.3 Non-B class employment

- 2.3.1 The NNJPU identified predominantly B-class (B1, B2 and B8) jobs for specific developments alongside non-B class jobs associated with retail developments. A total of 6,086 jobs were allocated to specific retail developments, on top of the B-class job totals provided. Table 2.5 details the largest retail developments included in the NSTM with over 500 jobs assumed as part of the development, detailing the increase in job numbers at these developments between 2013 and 2031.

Table 2.5 Non-B class job totals by district

LPA	Development	Retail floorspace (sqm)	Jobs
Corby	Town centre retail expansion	15,500	775
East Northants	Rushden Lakes	50,800	1,714
Kettering	Town centre SHQ1 Wadcroft / Newlands Phase 1	16,000	800
Wellingborough	Market Square and Tresham Institute	18,182	909

- 2.3.2 However the 6,086 non-B class jobs allocated to the retail developments represented a shortfall in the JCS job targets for non-B class employment between 2013 and 2031 defined for each Local Planning Authority (LPA), shown in table 2.6 below.

Table 2.6 Non-B class job totals by district

LPA	Non-B class job target (JCS) (A)	Retail jobs (B)	Non-B class short-fall (B-A)
Corby	2,225	1,150	1,075
East Northants	2,763	2,479	284
Kettering	3,676	1,250	2,426
Wellingborough	2,041	1,207	834
Total	10,704	6,086	4,619

- 2.3.3 In order to allocate the shortfall of non-B class jobs within the NSTM, the zones covering the major urban area within each LPA, namely Corby, Rushden, Kettering and Wellingborough were ascertained. The base year distribution of jobs within these selected zones was determined from TEMPRO, with the shortfall in B-class jobs for each respective district then allocated proportionally across the zones for each urban centre using the base year distribution.

2.4 Employment development scenarios

- 2.4.1 The NNJPU requested two different employment scenarios were modelled within the NSTM. Both scenarios had the same level of housing detailed in Table 2.3. These scenarios varied in terms of the B-class employment distribution within each LPA.

Scenario 2

- 2.4.2 Scenario 2 includes all employment sites assumed to provide B1, B2 and B8 use class jobs identified by the north Northamptonshire LPAs reduced by 50% relative to the actual anticipated numbers. This adjustment was made as including all consented and potential employment sites leads to a significant oversupply of B-class employment relative to the JCS job targets. Not all sites will be built to full capacity by 2031 but all have potential on an individual site-by-site basis. The percentage adjustment was carried out by the NNJPU to ensure the effects of individual sites were not too exaggerated in the model.
- 2.4.3 Table 2.7 provides a summary of the job totals including in the NSTM by district in north Northamptonshire for scenario 2. Comparing the job totals across the LPAs, there is clearly a substantial amount of consented and potential employment development proposed in Kettering in comparison to the other LPAs. There is around three times as much employment development proposed in Kettering compared to East Northamptonshire, and around twice as much as much compared to either Corby or Wellingborough.

Table 2.7: Scenario 2 employment job totals by district

LPA	B-class jobs	Retail jobs	Non-b class jobs	District Total
Corby	6,066	1,150	1,075	8,291
East Northants	3,298	2,479	284	6,061
Kettering	10,847	1,250	2,426	14,544
Wellingborough	5,772	1,207	834	7,792
Total	25,983	6,086	4,619	36,688

Scenario 5

- 2.4.4 Scenario 5 includes all employment sites assumed to provide B1, B2 and B8 use class jobs, but with job assumptions aligned to match B-class job targets in the JCS. This has an impact of reducing the job totals at individual sites significantly.
- 2.4.5 Table 2.8 provides a summary of the job totals including in the NSTM by district in north Northamptonshire for Scenario 5. Compared to Scenario 2 there is an overall decrease in proposed employment across the north Northamptonshire LPAs of -15%. However the distribution of employment between the LPAs changes in Scenario 5 with East Northamptonshire, Kettering and Wellingborough assigned a very similar level of B-class employment developments (between 4,000 to 4,500 jobs), whilst Corby shows an increase in B-class employment in Scenario 5 compared to

Scenario 2, with an overall increase of 17%. Employment assigned to East Northamptonshire increases by 19%, whereas it decreases substantially by -44% in Kettering and -22% in Wellingborough

Table 2.8: Scenario 5 employment job totals by district

District	B-class jobs	Retail jobs	Non-b class jobs	District Total	Difference vs Sc2
Corby	7,475	1,150	1,075	9,700	17%
East Northants	4,438	2,479	284	7,201	19%
Kettering	4,424	1,250	2,426	8,100	-44%
Wellingborough	4,059	1,207	834	6,100	-22%
Total	20,396	6,086	4,619	31,101	-15%

Major employment developments

2.4.6

Table 2.9 outlines the major employment developments containing 500 or more B-class jobs included within Scenarios 2 and 5. Following the realignment of the job totals in Scenario 5 to match the JCS, the major developments in Corby and East Northamptonshire (aside from Seymour Plantation) include an increase in jobs, particularly Stanion Lane Plantation which has 1,400 jobs in Scenario 2 and 3,009 jobs in Scenario 5. In Scenario 5, the job totals decrease for the major employment developments in Kettering and Wellingborough, aside from Appleby Lodge compared to Scenario 2.

Table 2.9: Scenario 5 major employment developments

Development	LPA	Sc2 B-class jobs	Sc5 B-class jobs
Priors Hall	Corby	990	604
Stanion Lane Plantation	Corby	1,400	3,009
Former Gefco automotive site	Corby	547	1,066
Seymour Plantation	Corby	623	417
Land at Cockerell Road	Corby	417	525
West Corby SUE	Corby	985	931
North Raunds (West End)	East Northants	296	527
Vehicle Depot, Islip	East Northants	657	788
Warth Park Extension, Raunds	East Northants	637	783
Nene Valley Farm, Rushden	East Northants	480	700
West of Huxlow School / Irthlingborough West SUE	East Northants	477	849
Rothwell North	Kettering	740	236
Kettering South (A14 J9 / A509)	Kettering	1,800	1,103
Kettering East	Kettering	1,499	232
Weekley Wood Development Area	Kettering	1,910	801
A14 J10 Business Park	Kettering	1,125	699
Cransley Business Park	Kettering	701	248
North Kettering	Kettering	1,275	785
Appleby Lodge	Wellingborough	1,403	1,826
WEAST	Wellingborough	3,100	1,722
Wellingborough North	Wellingborough	725	227

2.5 TEMPRO comparison

2.5.1 TEMPRO (Trip End Model Presentation Program) is software which can provide forecasts for:

- Population
- Employment
- Households by car ownership
- Trip ends
- Traffic growth

2.5.2 TEMPRO uses data from the National Transport Model (NTM), provided by the Department for Transport (DfT). It is common practice within the UK to use TEMPRO for transport planning purposes. The latest definitive version of TEMPRO is version 6.2

2.5.3 Comparisons against TEMPRO growth from the NTM version 6.2 are shown below to emphasise how the level of employment and housing modelled in NSTM compare. Table 2.10 provides a comparison of TEMPRO growth between 2013 and 2031 to the Scenario 2 employment development information supplied by the NNJPU. Overall, employment levels modelled are 217% higher across the north Northamptonshire LPAs compared to TEMPRO.

Table 2.10: TEMPRO vs Scenario 2 employment comparison

LPA	TEMPRO Jobs Growth	NSTM Jobs Sc2	Difference vs TEMPRO
Corby	4,554	8,291	82%
East Northants	893	6,061	579%
Kettering	4,676	14,544	211%
Wellingborough	1,467	7,792	431%
Total	11,590	36,688	217%

2.5.4 For Scenario 5, table 2.11 details how the employment levels compare to TEMPRO. Across the north Northamptonshire LPAs, the level of employment modelled is 168% higher than TEMPRO.

Table 2.11: TEMPRO vs Scenario 5 employment comparison

LPA	TEMPRO Jobs Growth	NSTM Jobs Sc5	Difference vs TEMPRO
Corby	4,554	9,700	113%
East Northants	893	7,201	706%
Kettering	4,676	8,100	73%
Wellingborough	1,467	6,100	316%
Total	11,590	31,101	168%

2.5.5 Table 2.12 details the difference between the housing modelled in both NSTM scenarios compared to TEMPRO. Overall, what is modelled in NSTM for the north Northamptonshire LPAs is -4% lower in terms of housing compared to TEMPRO. However, there are notable variations between the LPAs. The housing included for Corby in the NSTM is at a level 271% higher than TEMPRO. Whereas all the other LPAs have housing levels in the NSTM below TEMPRO levels, particularly Kettering which is being modelled in the NSTM -49% below TEMPRO with regards to housing numbers.

Table 2.12: TEMPRO vs NNJPU housing comparison

LPA	TEMPRO Housing Growth	NSTM Housing (Sc2 & Sc5)	Difference vs TEMPRO
Corby	3,564	13,235	271%
East Northants	8394	7,968	-5%
Kettering	18,201	9,196	-49%
Wellingborough	8,689	6,762	-22%
Total	38,848	37,161	-4%

2.6 Draft infrastructure delivery plan

2.6.1 The draft Infrastructure Delivery Plan (IDP) is a comprehensive series of infrastructure improvements and mitigation produced by the NNJPU and Northamptonshire County Council (NCC) developed through previous modelling runs, reflecting adopted Area Action Plans and incorporating key strategic schemes identified by NCC and the Highways Agency, designed to deal with future traffic growth within the north Northamptonshire LPAs. The latest proposals included in the draft IDP were coded in the NSTM forecast model network in all model runs discussed within this report.

2.6.2 Table 2.13 outlines the draft IDP proposals for Corby borough.

Table 2.13: Corby infrastructure

Reference	Description	Mitigation
C1	A427 / Uppingham Road	Minor widening to northern Uppingham Road approach
C2	A6003 Rockingham Road / Uppingham Road	Minor widening to Rockingham Road approaches
C3	Vian Way / Uppingham Road	Three arm roundabout
C4	Elizabeth Street / Cottingham Road	Minor widening to eastern Cottingham Road arm
C5	Corby Link Road	New A43 alignment
C6	Corby Northern Orbital – Phase 2	Between Rockingham Motor Speedway and Willowbrook East Industrial Estate
C7	Gretton Brook Road / A6116	Minor widening to western Rockingham Road approach
C8	A427 Weldon Road/ A6086 Lloyds Road/ A6086 Geddington Road	Minor widening to Lloyds Road and eastern A427 Weldon Road approach
C9	A6014 Oakley Road/ Danesholme Road/ Lewin Road	Minor widening to northern A6014 Oakley Road approach
C10	A427 Oakley Road/ A427 Westcott Way/ Oakley Road/ Elizabeth Street	Minor widening to all approaches
C11	A6003 Caldecott Road/A6003 Main Street/Gretton Road/Cottingham Road	Additional right turn lane on A6003 Caldecott Road
C12	Corby West - A6003 / Danesholme Road access	Four arm roundabout
C13	Corby West - Northern A6003 access / A427 access	Three arm roundabouts
C14	A6003 Uppingham Road (between Wescott Way and Danesholme Road)	Speed reduction to 40mph

2.6.3 Table 2.14 details the draft IDP proposals for East Northamptonshire district.

Table 2.14: East Northamptonshire infrastructure

Reference	Description	Mitigation
E1	Duck Street and Rectory Road, Rushden	Changed to two-way
E2	Rectory Rd / Newton Rd / Park Rd, Rushden	Left turn filter lane from Rectory Road
E3	High Street, Higham Ferrers	Traffic calming, assumed speed of 20mph
E4	A45 / A6 Chown's Mill roundabout	Revised signalised junction design
E5	A45 Stanwick to Thrapston	Upgraded to dual carriageway
E6	A45 Skew Bridge roundabout	Increased capacity to accommodate Rushden Lakes retail development, including relief link between A5001 Northampton Road and Crown Way
E7	A45 / B663 Raunds roundabout	Capacity improvements

2.6.4 Table 2.15 outlines the draft IDP proposals for Kettering borough.

Table 2.15: Kettering infrastructure

Reference	Description	Mitigation
K1	A43/A6003 Rockingham Road/ Rockingham Road	Roundabout improvements
K2	Montague Street/ Stamford Road/ Central Avenue/ Windmill Avenue	East of Kettering - Junction Improvement a
K3	Windmill Avenue/ St Mary's Road	East of Kettering - Junction Improvement b
K4	Windmill Avenue/Deeble Road	East of Kettering - Junction Improvement c
K5	London Road/Barton Road/ Pytchley Road	East of Kettering - Junction Improvement d
K6	Barton Road/ Windmill Avenue	East of Kettering - Junction Improvement e
K7	Barton Road/Warkton Lane	East of Kettering - Access Junction E
K8	Warkton-Weekley Avenue	Part of Phase 3 of East of Kettering development
K9	A14 Junction 10a	Related to the East of Kettering development
K10	A14 Junction 10	Closure of eastern slip roads as part of Junction 10a scheme, realignment of A6 as part of A14 J10 Business park proposals
K11	A14 Junction 7 to 9	Widening to from dual carriageway to three lanes

2.6.5 Table 2.16 outlines the draft IDP proposals forming the Kettering Town Centre Area Action Plan (TCAAP).

Table 2.16: Kettering TCAAP infrastructure

Reference	Description	Mitigation
KTC1	Northampton Road/ Station Road/ Bowling Green Road	Altered to take into account bus only links on Sheep Street
KTC2	Bowling Green Road/ London Road	Altered to take into account bus only links on Sheep Street / Market Street
KTC3	London Road/ Market Street	Altered to take into account Queen Street becoming two-way link
KTC4	Silver Street/ High Street	Altered to take into account new two-way links in town centre
KTC5	Montagu Street/ Victoria Street	Altered as Victoria Street becomes two-way link

Reference	Description	Mitigation
KTC6	Northall Street/ Eskdail Street	Altered to take into account new two-way links in town centre
KTC7	Station Road	Made into two-way link
KTC8	Trafalgar Road to Northfield Avenue	Link road
KTC9	Queen Street	Made into two-way link
KTC10	20mph zone in city centre	Within Northall Street / Victoria Street / Northfield Avenue
KTC11	Sheep Street / Market Street	Made bus only; no through traffic

2.6.6 Table 2.17 provides information on the infrastructure included within Wellingborough borough as part of the draft IDP.

Table 2.17: Wellingborough infrastructure

Reference	Description	Mitigation
W1	A4500/A509/Northampton Rd	Four arm signalised roundabout
W2	A509 / Rutherford Drive	Improved capacity to A509 northern arm, taking into account Park Farm Way dualling
W3	A509/Turnells Mill Lane/ Embankment	Four arm signalised roundabout
W4	Senwick Road/ Elsdon Road/ Midland Road	Signalised junction
W5	A45 / Wilby Way roundabout	Four arm signalised roundabout
W6	Park Farm Way dualling	Included by changes to junction saturation flows
W7	Northern Interceptor Road	Four arm junction with Alma Road / Park Road
W8	Church Street	Becomes bus only as part of TCAAP and introduction of one way system with interceptor road
W9	Route 4 to WEAST	Part of the WEAST development
W10	Route 2 to WEAST	Part of the WEAST development
W11	Route 2 to WEAST extension	Part of the WEAST development
W12	Eastern Relief Road (along Sidegate Lane)	Part of the WEAST development
W13	Route 6	Part of the WEAST development
W14	A509 Niort Way / Kettering Road / A510 Northern Way / Harrowden Road	Northern arm changed to link related to IWIMP, A509 severed and downgraded
W15	A509 Niort Way / Gleneagles Drive	Four arm roundabout
W16	A509 Niort Way / Hardwick Road	Exit southbound into A509 dual carriageway
W17	A509 Niort Way - Wellingborough North priority access	Between Gleneagles Drive & A509 / A510 / Harrowden Rd roundabouts
W18	A509 Niort Way / IWIMP	Four arm roundabout
W19	A510 Northern Way / Nest Farm Road	Four arm roundabout
W20	A510 Northern Way / A510 Stewarts Rd / Sanders Rd	Four arm roundabout to include Route 6 to WEAST
W21	A509 Niort Way	Upgraded to dual carriageway
W22	IWIMP link	Connecting Isham Bypass to A509 Niort Way
W23	IWIMP link / Red Hill Street	Through Wellingborough North development
W24	Isham Bypass	Bypasses A509 Kettering Road
W25	Wellingborough Inner Relief Road	Between Finedon Road and Midland Road

3 Model results

3.1 Introduction

- 3.1.1 This section will discuss the results of the modelling for Scenario 2 and Scenario 5, looking at each LPA in turn focusing on the volume to capacity ratio of key junctions.

3.2 Volume to capacity ratio

- 3.2.1 In order to determine the suitability of the IDP to accommodate future traffic growth up to 2031, NSTM outputs have been used to identify junction 'hotspots' i.e. locations at which the volume of traffic is near or exceeds the maximum capacity of a junction. These junctions are the locations at which congestion and queuing is most likely to occur and constrain the local and strategic highway network during the morning and evening peak hours.
- 3.2.2 The 'Volume to Capacity Ratio' (V/C) was analysed for every turn and junction arm within the north Northamptonshire LPAs in each model run. The capacity for each link and turn is set within the NSTM representing the maximum number of vehicles per hour which the road network can adequately cope with. The volume of traffic is the traffic flow assigned to a given link and turn within the NSTM. The volume of traffic assigned to a link or turn is divided by its respective capacity to generate a ratio which can be converted to a percentage, giving an indication of how the road network copes with the forecast levels of traffic. The maximum V/C ratio at a junction (or for more complex junctions, the approach) was identified. Turns or junction approaches with a flow of less than 500 vehicles were excluded to ensure major junctions arms or turns were focused on in the analysis.
- 3.2.3 Table 3.1 shows how the volume to capacity ratios have been categorised in terms of the scale of the problem they represent. Appendix B contains tables which detail the maximum V/C values for congested junctions across all model runs.

Table 3.1: Volume to capacity ratio definitions

Volume to capacity ratio	Severity
75 to 85%	Moderate
85 to 100%	Significant
100% +	Highly significant

3.3 Scenario 2 vs Scenario 5 comparison

- 3.3.1 Comparing the outputs from the Scenario 2 and Scenario 5 NSTM modelling shows the two model runs produce similar results. This is because the number of trips generated by the demand model element of the NSTM is dependent on housing numbers and the associated population segmentation, as these totals stay constant, the numbers of trips generated by NSTM stays similar.
- 3.3.2 Zones containing employment acts as trip attractors, however there needs to be enough demand for the employment from the housing numbers to generate trips in and out of zones containing employment, effectively enough workers to fill the jobs.
- 3.3.3 Table 2.7 and Table 2.8 outlined the comparison between the job totals in Scenario 2 and 5, to TEMPRO. Job totals for north Northamptonshire were 217% and 168% higher than those detailed in TEMPRO. Whereas Table 2.9 demonstrates the housing numbers used in both NSTM scenarios are lower than those assumed in TEMPRO, at a level -4% lower. The overall housing and employment

numbers input into the NSTM are a combination of background growth generated by TEMPRO and committed development advised by the NNJPU. Therefore the difference between the balance of housing and employment shown by TEMPRO against committed development information is crucial to understand.

- 3.3.4 Table 3.2 repeats the percentage differences described in Tables 2.7 to 2.9, highlighting the percentage difference between the committed development household and job totals in the NSTM against TEMPRO. Kettering is shown to have housing levels which are around 50% lower than those in TEMPRO, whereas the employment levels in Scenario 2 are over twice as high (211%), and around 75% higher in Scenario 2. Despite the differences in employment totals between these scenarios in Kettering, the shortfall in housing numbers means there is not enough demand from the trip generation (housing) to fulfil the required trip attraction (jobs). This pattern is repeated in East Northamptonshire and Wellingborough; both show a respective shortfall in housing in comparison to TEMPRO of -5% and -22%. However, employment levels in Scenario 2 and Scenario 5 are significantly above TEMPRO. Corby is an exception in there is a relative over-supply of housing included in the NSTM (271%) relative to the increased numbers of jobs in Scenario 2 and Scenario 5 which are also above TEMPRO, at 82% and 113% respectively.

Table 3.2: NSTM development totals compared to TEMPRO

LPA	Households	Sc2 Jobs	Sc5 Jobs
Corby	271%	82%	113%
East Northants	-5%	579%	706%
Kettering	-49%	211%	73%
Wellingborough	-22%	431%	316%
Total	-4%	217%	168%

- 3.3.5 The differences in housing and employment levels modelled compared to TEMPRO means traffic levels between Scenarios 2 and 5 will not vary greatly if the employment level is altered but housing numbers remain constant. The two modelled scenarios share the same pattern of differences in the balance of housing and employment, which is a limited level of demand for jobs (represented by housing numbers) relative to an over-supply of employment (represented by job numbers at developments). Employment spaces will only be filled if there is an adequate supply of labour occupying the housing spaces.
- 3.3.6 The relative similarity of the outputs from the Scenario 2 and Scenario 5 model runs highlights the stability of the NSTM, emphasising the results it produces can be used with confidence. Appendix C contains actual flow plots for the Scenario 2 and Scenario 5 model runs.

3.4 Scenario 2 - Corby

- 3.4.1 Figures 3.1 and 3.2 detail the V/C ratios at congested junctions within Corby in the 2031 AM peak and PM peak Scenario 2 model runs.
- 3.4.2 Two roundabouts, both on the A43, are shown to experience highly significant V/C ratios (over 100%) in both the AM peak and PM peak. The approaches associated with the A43 Stamford Road and A6116 experience the highest levels of delay.
- A43 Stamford Road / A6116 Brigstock Road / A4300 Stamford Road / Long Croft Road / Corby Link Road roundabout (node 1206)
 - A43 Stamford Road / Stamford Road / Priors Hall development access roundabout (node 1212)
- 3.4.3 The following junctions have a highly significant V/C value (100%+) in one peak hour, with a significant V/C (85-100%) in the PM peak:
- A427 Oakley Road / A427 Weldon Road / A6080 Geddington Road / Lloyds Road roundabout (node 1201)
 - A43 Stamford Road / Geddington Road (node 1046)
- 3.4.4 The following roundabout shows significant capacity problems (85-100%) in both peaks, with the main problem on the A6003 northern approach in the AM, and on the A6014 Oakley Road in the PM:
- A6003 Uppingham Road / A6014 Oakley Road / Oakley Road (node 1187)
- 3.4.5 The following junctions are shown to experience significant V/C issues in one peak hour only:
- A6003 Caldecott Road / A6003 Main Street / B670 Cottingham Road / Gretton Road (node 1006)
 - A6003 Uppingham Road / A6116 Rockingham Road (node 1198)
 - A6116 Rockingham Road / Rockingham Road (node 1199)
 - A6003 Uppingham Road / A427 Cottingham Road / A427 Corby Road (node 1181)
 - Cottingham Road / Elisabeth Street (node 1166)
 - Rockingham Road / Lloyds Road / The Jamb (node 1203)
 - A6086 Phoenix Parkway / Lloyds Road (node 1202)
- 3.4.6 These results show further junction modelling may be required or checks of the saturation flows used in the NSTM at the various key junctions around Corby should be conducted to determine if any of the identified 'hotspots' need to be potentially mitigated and re-designed. Overall, the key corridors of the A43, A427 and A6003 show the highest levels of delay which is to be expected given these strategic routes carry the highest levels of traffic and subsequent forecast traffic growth.

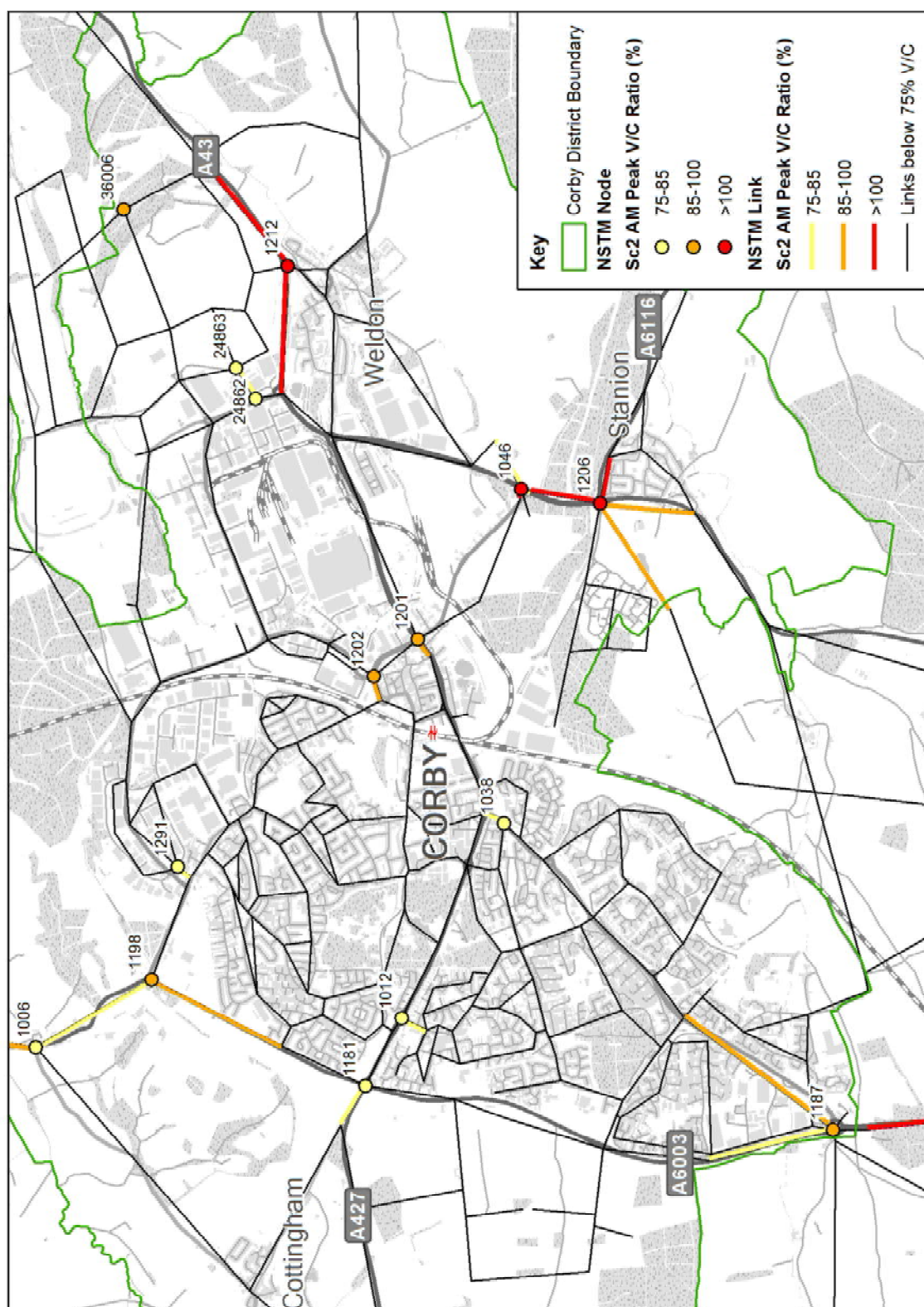


Figure 3.1: Scenario 2 V/C – 2031 AM – Corby

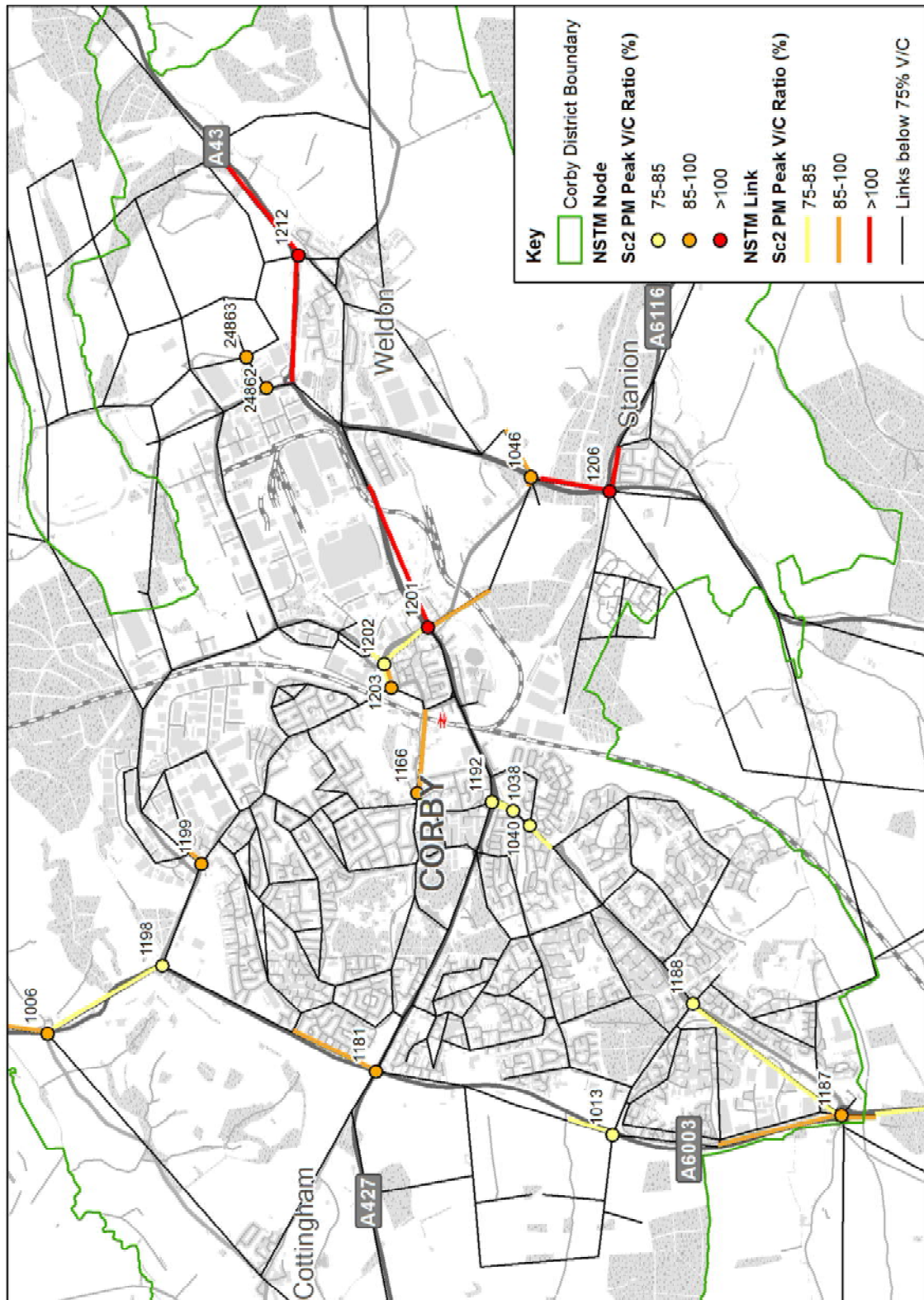


Figure 3.2: Scenario 2 V/C – 2031 PM – Corby

3.5 Scenario 2 - East Northamptonshire

- 3.5.1 Figures 3.3 and 3.4 details the V/C performance of junctions within East Northamptonshire district, focusing predominantly on the A45 corridor.
- 3.5.2 The Chowns Mill roundabout (A6 / A45) design generally performs well, particularly in the AM peak in which no element reports a V/C ratio greater than 82%. In the PM peak there is significant delay on the A45 south-west / circulatory approach, reaching 94% V/C (node 34010).
- 3.5.3 The Rushden Lakes roundabout at Skew Bridge (node 1145) experiences severe congestion in the PM peak, reaching 117% V/C, with the A45 western approach, Rushden Lakes access and A5001 approach all above 100% V/C. In the AM peak this junction performs better, but still exhibits significant congestion with a maximum V/C of 91%.
- 3.5.4 The A45 / westbound on-slip from Ditchford Road (node 11144) experiences highly significant congestion with a 100% V/C in the AM peak, however in the PM peak this junction performs well with a maximum V/C for major turns of 58%.
- 3.5.5 Two other key junctions on the A45 show significant congestion, with maximum V/C values of between 85-100%:
- A45 / B663 London Road (Raunds roundabout – node 10130)
 - A45 / West Street (Stanwick roundabout – node 10065)
- 3.5.6 The Raunds Roundabout shows consistent congestion problems with a maximum V/C of 95% in the AM and 99% in the PM, whilst the Stanwick roundabout reaches 93% in the AM and 87% in the PM.
- 3.5.7 The junction designs included in the NSTM along the A45 corridor were taken from a draft version of the A45 corridor study carried out by AECOM on behalf of the Highways Agency. Further analysis and junction designs along the A45 may need to be tested in future runs of the NSTM to reflect the Highways Agency's most recent thinking on this corridor.
- 3.5.8 At Thrapston, the A14 J13 shows highly significant congestion problems. In particular the northern A605 approach (node 10422) shows a consistent maximum V/C of around 104% in both peak hours. Whilst the westbound-off slip and circulatory approach (node 12838) at this junction are between 99-101% V/C in both peaks.
- 3.5.9 Within Rushden, the following two junctions show highly significant congestion with V/C over 100% in the PM peak:
- A5001 Wellingborough Road / B569 Irchester Road / B569 Washbrook Road (node 11828)
 - John Clark Way / Rectory (node 12827).
- 3.5.10 Also within Rushden, the A5001 Wellingborough Road is shown to experience congestion westbound leaving Rushden in the AM peak, and eastbound heading into Rushden in the PM peak. Aside from the A5001 Wellingborough Road / B569 junction detailed above, the two roundabouts listed below show significant congestion. Further investigation is required to establish the causes for congestion at these locations.
- A5001 Wellingborough Road / A5001 Northampton road roundabout (node 11607)
 - A5001 Wellingborough Masfield Drive (node 11713)

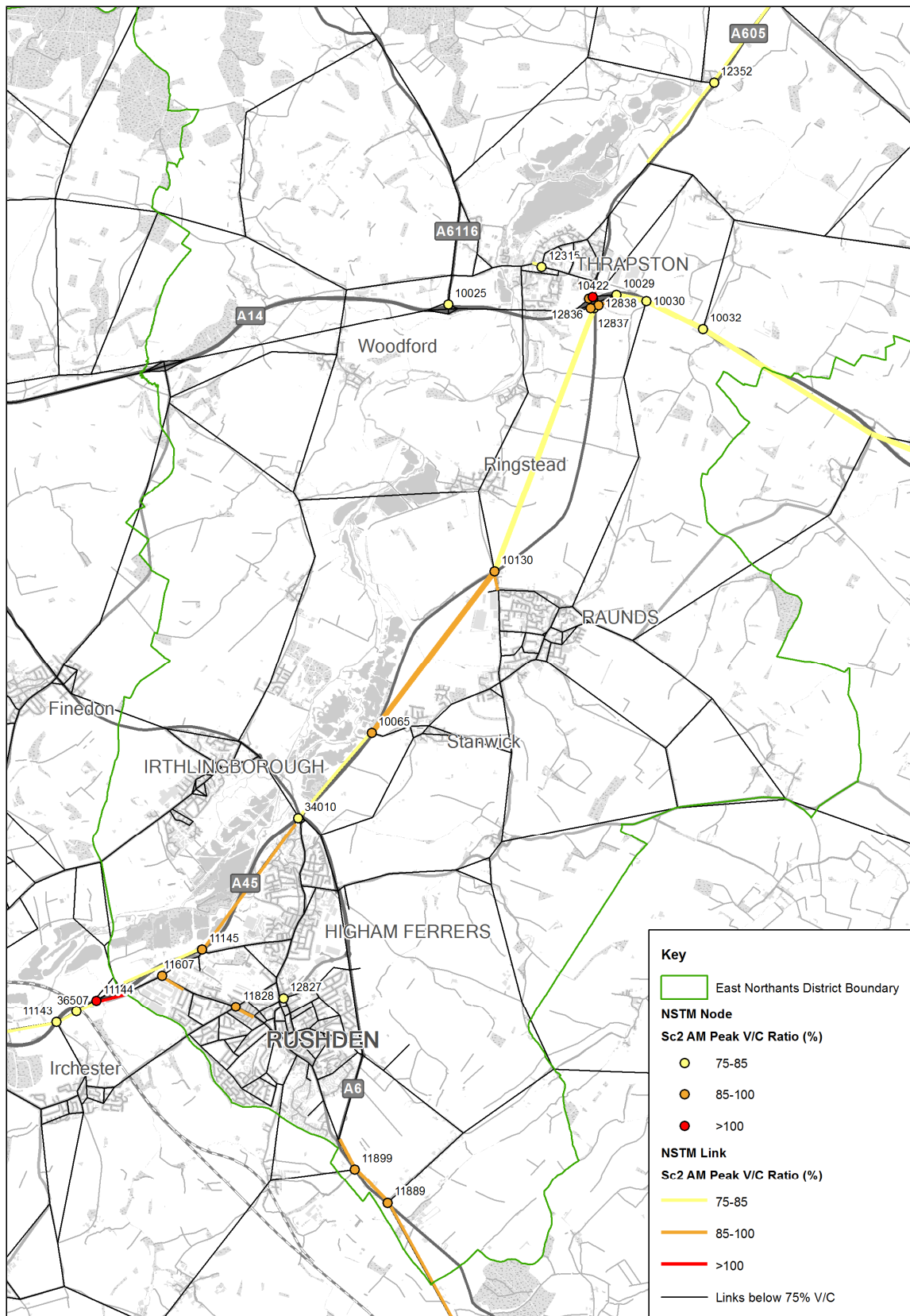


Figure 3.3: Scenario 2 V/C – 2031 AM – East Northamptonshire

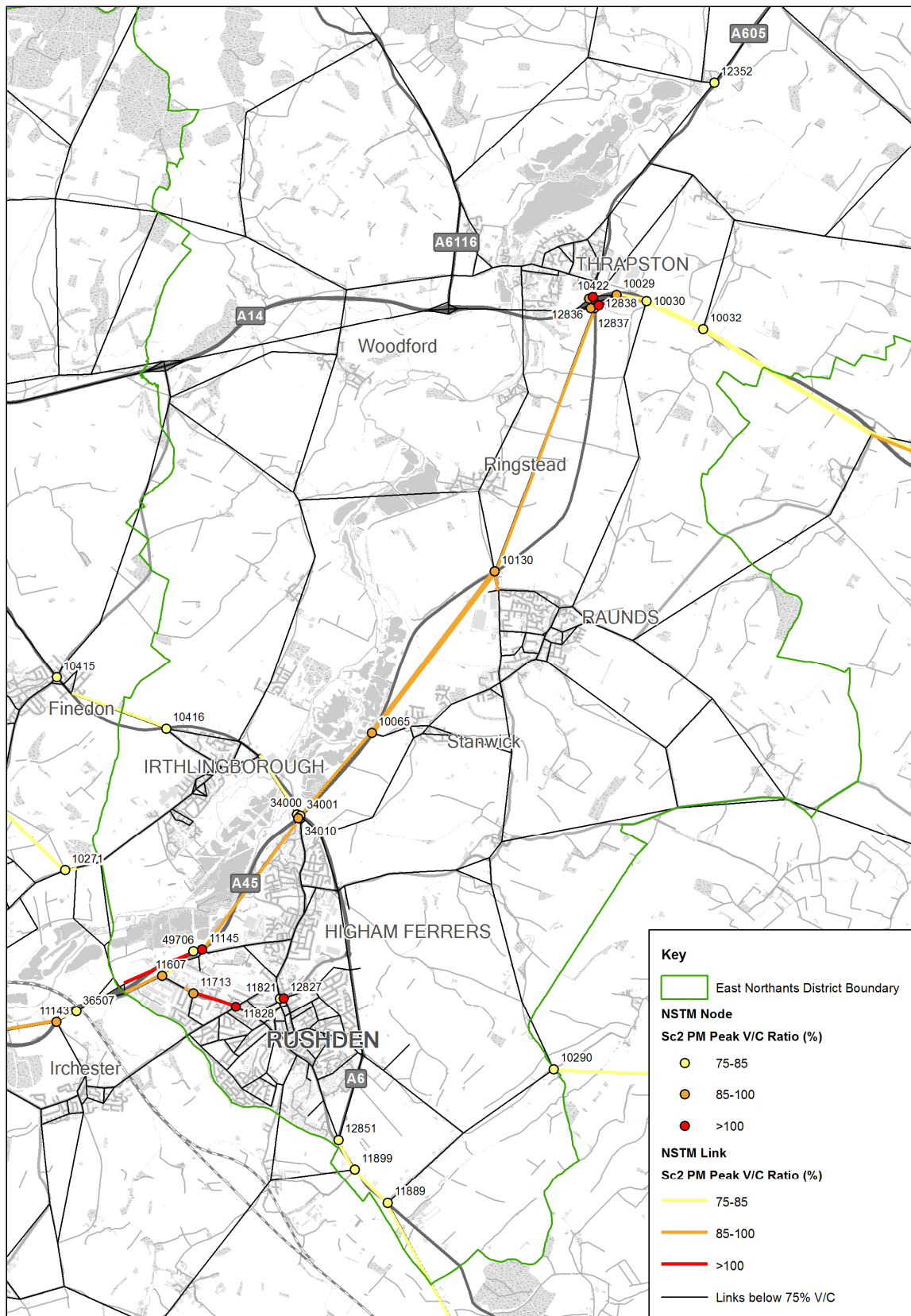


Figure 3.4: Scenario 2 V/C – 2031 PM – East Northamptonshire

3.6 Scenario 2 - Kettering

- 3.6.1 Figures 3.5 and 3.6 plots the maximum V/C ratios for junctions within the borough of Kettering. The NSTM shows high levels of traffic on the A14 between junctions 4 and 10. In the AM peak, westbound flow on the A14 from junction 9 to 10 reaches over 5,000 pcus per hour.
- 3.6.2 At the A14 junction 6 there is highly significant congestion apparent at the eastbound off-slip / A14 mainline (node 26011) due to the high traffic flows. Maximum V/C reaches 103% in the AM peak and 96% in the PM peak.
- 3.6.3 The A14 junction 7 experiences highly significant congestion in both peaks at the A14 southbound off-slip / circulatory (node 12740), between 100-102% between both peaks. Significant V/C values of between 93-96% occur in the AM peak for the A14 southbound on-slip / northbound off-slip / mainline (node 10385) and A43 approach (node 12745), whilst in the PM the northbound off-slip / circulatory (node 12743) experiences significant congestion.
- 3.6.4 The A14 junction 9 experiences significant and highly significant maximum V/C values at a number of different locations. The A509 northern arm / A14 off-slip approach (node 12704) is at 100% in both the AM and PM peak. The A509 southern arm shows a highly significant maximum V/C of 107% in the PM peak, and 97% in the AM peak. Both eastbound on and off-slips with the A14 mainline (nodes 10405 and 10408) experience significant congestion with V/C between 87-98% across both peaks.
- 3.6.5 Close to the boundary with the borough of Corby, the A6003 Rockingham Road / Corby Link Road / Newton Road roundabout (node 1034) shows highly significant V/C values of over 100% in both peaks, in the AM peak due to the A6003 northern approach (continuing through the A6003 Rockingham Road / Station Road junction – node 26001), whilst in the PM peak the southern A6003 approach shows the greatest problem.
- 3.6.6 Within Kettering, in the AM peak the following two roundabouts show highly significant congestion (V/C over 100%); whilst in the PM peak it is significant (V/C between 85-100%):
- A6003 Barton Road / Pytchley Road (node 10768)
 - A509 Pytchley Road / Holdenby / Carina Road / Orion Way (node 10706)
- 3.6.7 The Isham Bypass experiences highly significant congestion at the northern A509 Kettering Road roundabout (node 28045), with both the northern A509 approach and the bypass approach experiencing highly V/C values over 100%. Generic saturation flows have been assumed at this junction in absence of any detailed designs having been provided, subsequent re-testing of the performance of this junction through detailed junction modelling and re-runs of the NSTM may be required.

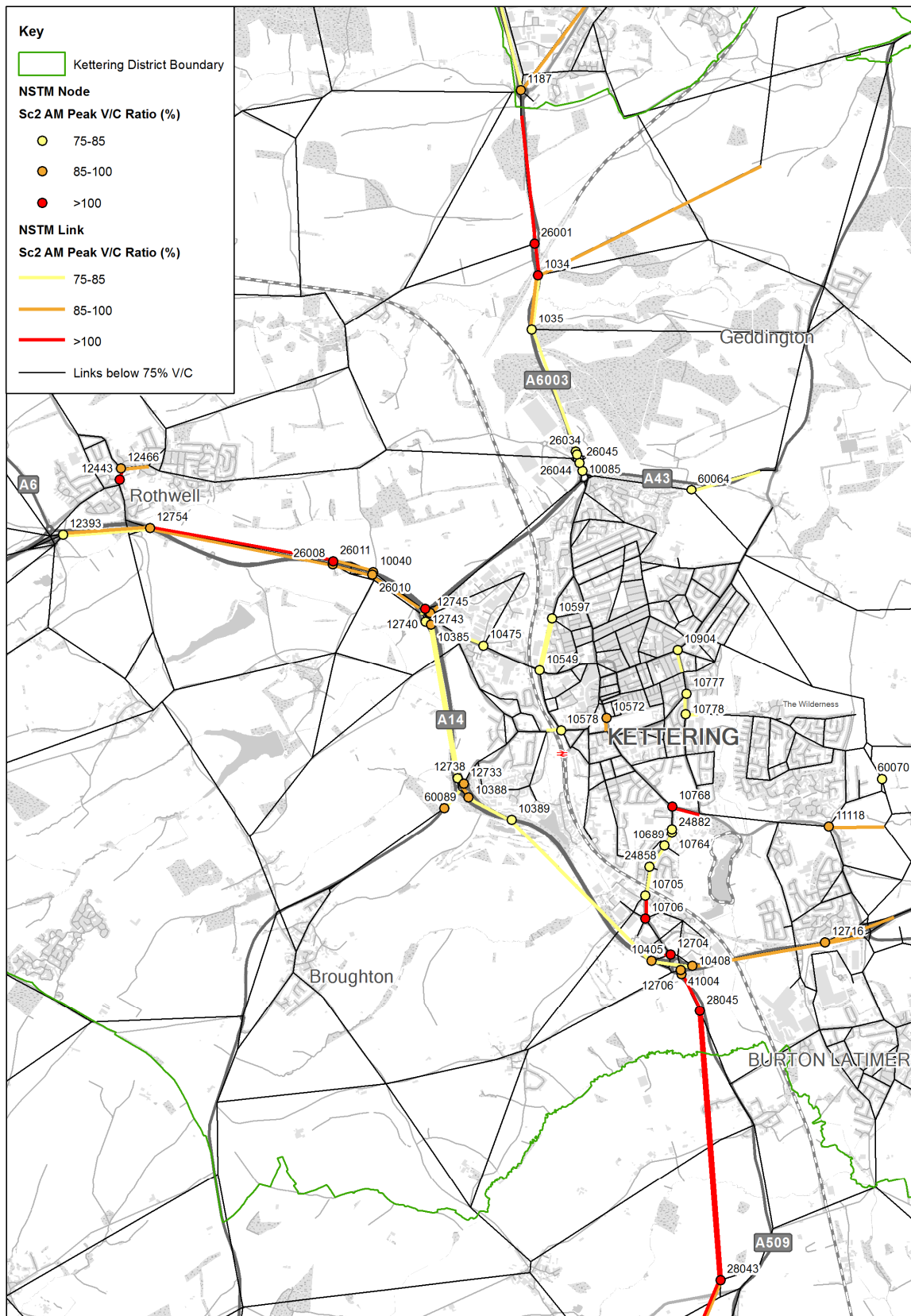


Figure 3.5: Scenario 2 V/C – 2031 AM – Kettering

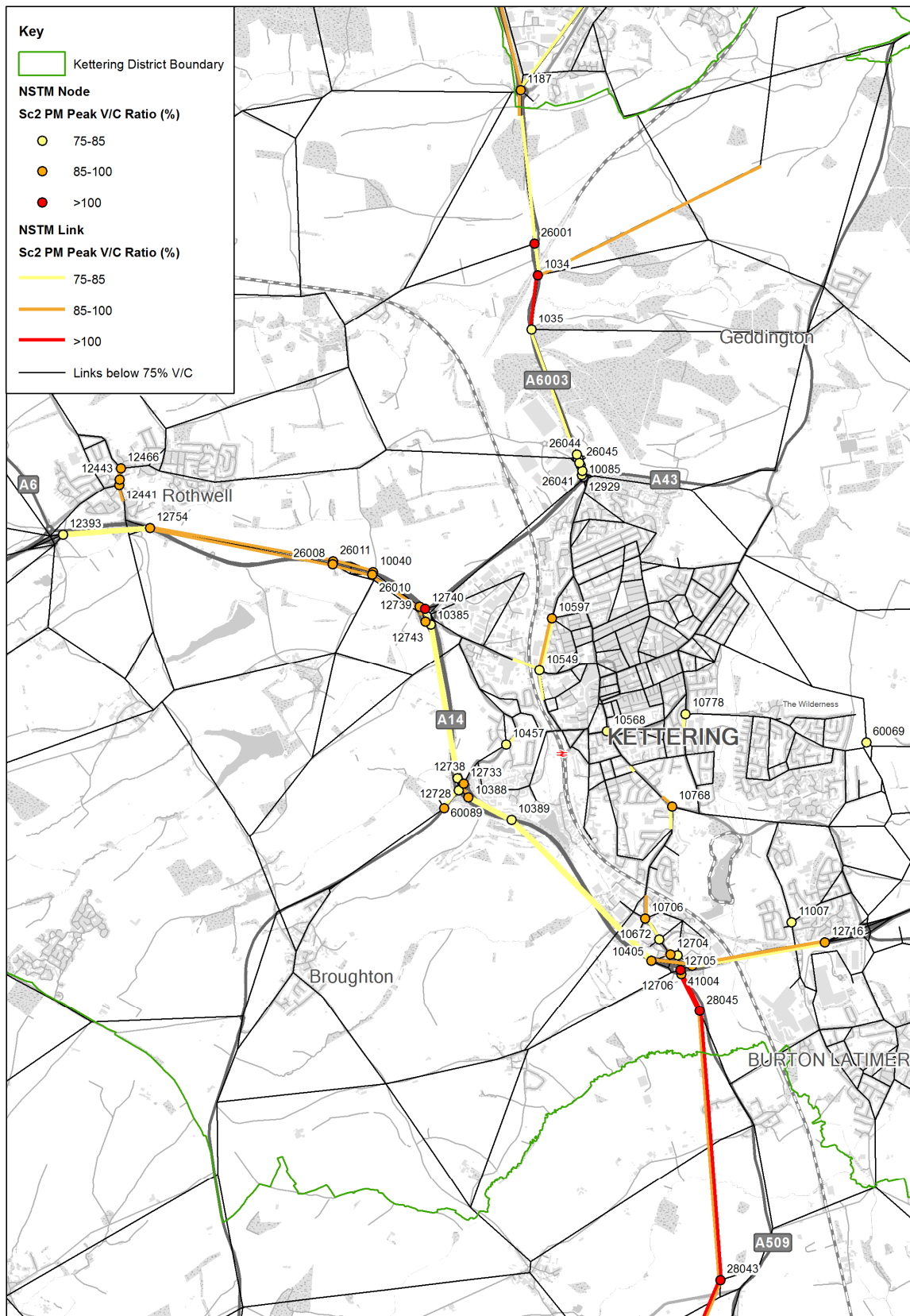


Figure 3.6: Scenario 2 V/C – 2031 PM – Kettering

3.7 Scenario 2 - Wellingborough

- 3.7.1 Figures 3.7 and 3.8 details the maximum V/C for junctions in the borough of Wellingborough.
- 3.7.2 The southern end of the Isham Bypass at the junction with Hilltop Road (node 28043) experiences highly significant congestion with maximum V/C of 101-102% in both peaks. Continuing south two junctions along the IWIMP corridor, related to the Wellingborough North development (nodes 28037 and 28038) show significant congestion with a V/C of between 85-100% in both peaks. The results suggest further analysis may be required of the Isham Bypass and IWIMP corridor.
- 3.7.3 Dualling along the A509 Park Farm Way generally leads to junctions accommodating the 2031 traffic growth, however in the AM peak the following junctions continue to show significant V/C values:
- A509 Niort Way / A509 Park Farm Way / Sywell Road (96% - node 10431)
 - A509 Niort Way / Rutherford Drive (86% - node 10432)
- 3.7.4 In close proximity to the A509 corridor, the Sywell Road / Shelley Road (node 11244) experiences high delays in the AM peak, with a maximum V/C of 97%.
- 3.7.5 The A45 Higham Road / A509 Wilby Way roundabout shows significant congestion in both peaks. The segregated left turn from the A45 Higham Road to the A45 southbound is the worst performing element of this junction (nodes 49711 and 49712) with V/C values between 93-95% across both peaks.
- 3.7.6 Within Wellingborough town centre, the following junctions experience highly significant congestion, with V/C over 100% in either the AM or PM peak:
- A5193 High Street / Silver Street / A5128 Oxford Street (node 11463)
 - A5128 Cannon Street / Alma Street (node 11567)
 - A5193 High Street / Queen Street (node 41031)
- 3.7.7 In the AM peak, significant congestion afflicts the A45 further south at junctions 10 (Earls Barton) and junction 11 (Great Doddington) with V/C values peaking between 91-96%. Including the following approaches
- A45 junction 11 northbound off-slip (node 11936)
 - A45 junction 11 southbound on-slip (node 11938)
 - A45 junction 10 Northampton Road approach (node 12605)
 - A45 junction 10 Grendon Road (node 12630)

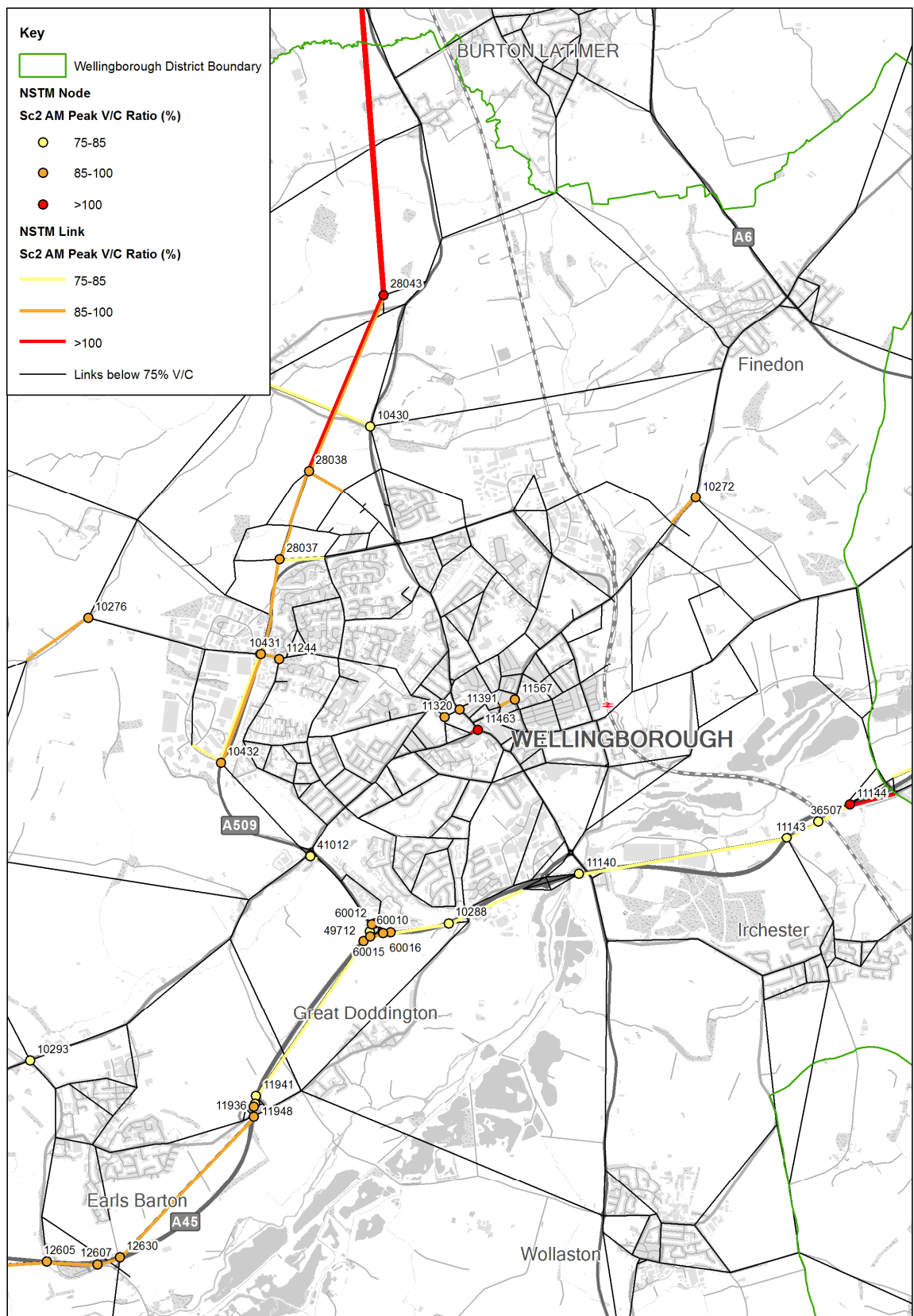


Figure 3.7: Scenario 2 V/C – 2031 AM – Wellingborough

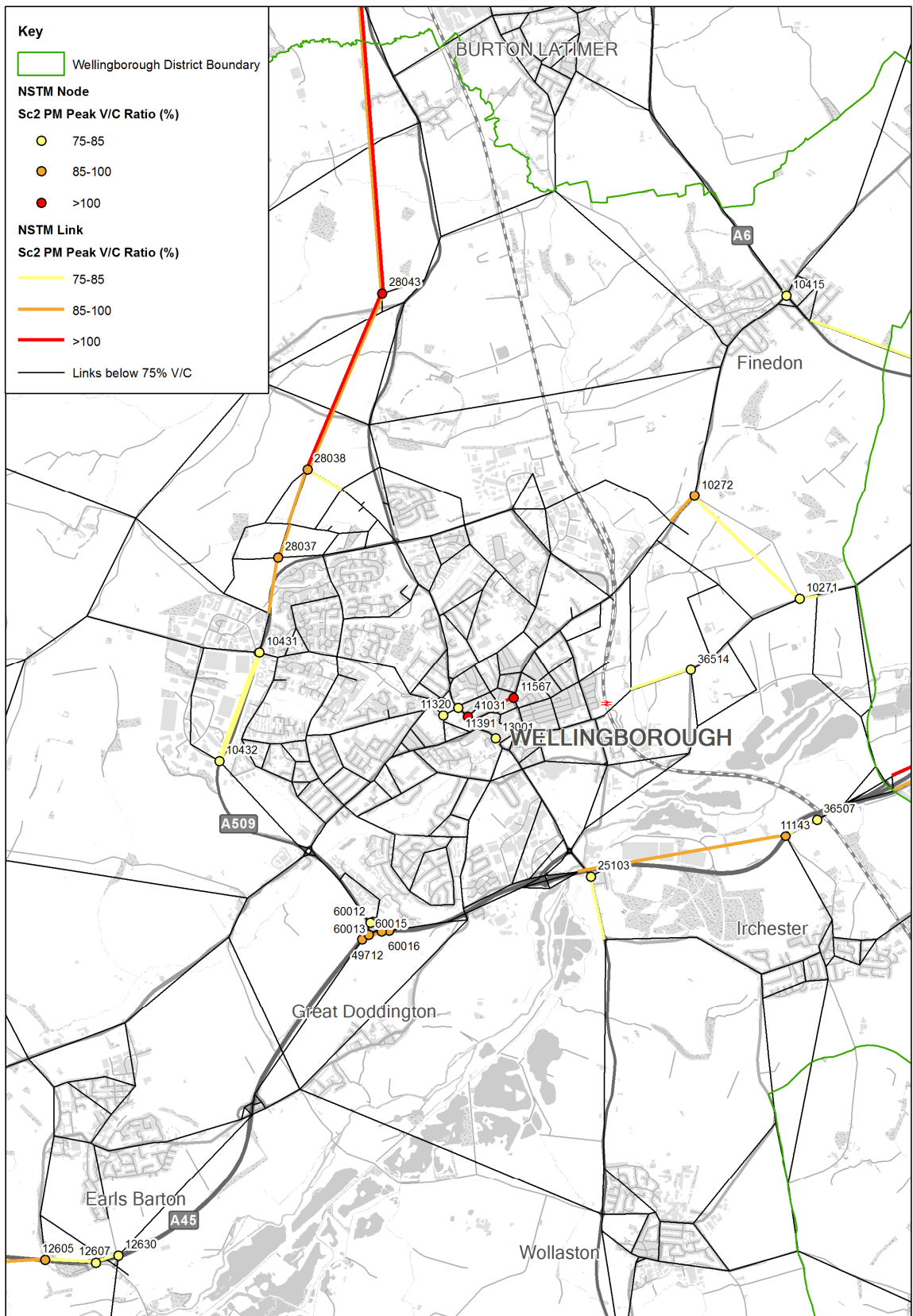


Figure 3.8: Scenario 2 V/C – 2031 PM – Wellingborough

3.8 Scenario 5 modelling results

- 3.8.1 Figures 4.1 and 4.8 details the maximum V/C ratios across each peak hour model run in Scenario 5, for each north Northamptonshire LPA. As previously discussed the results for Scenario 5 and very similar to the results for Scenario 2. V/C values for Scenario 5 are included in Appendix B.
- 3.8.2 Appendix C includes actual flow plots for Scenario 5.

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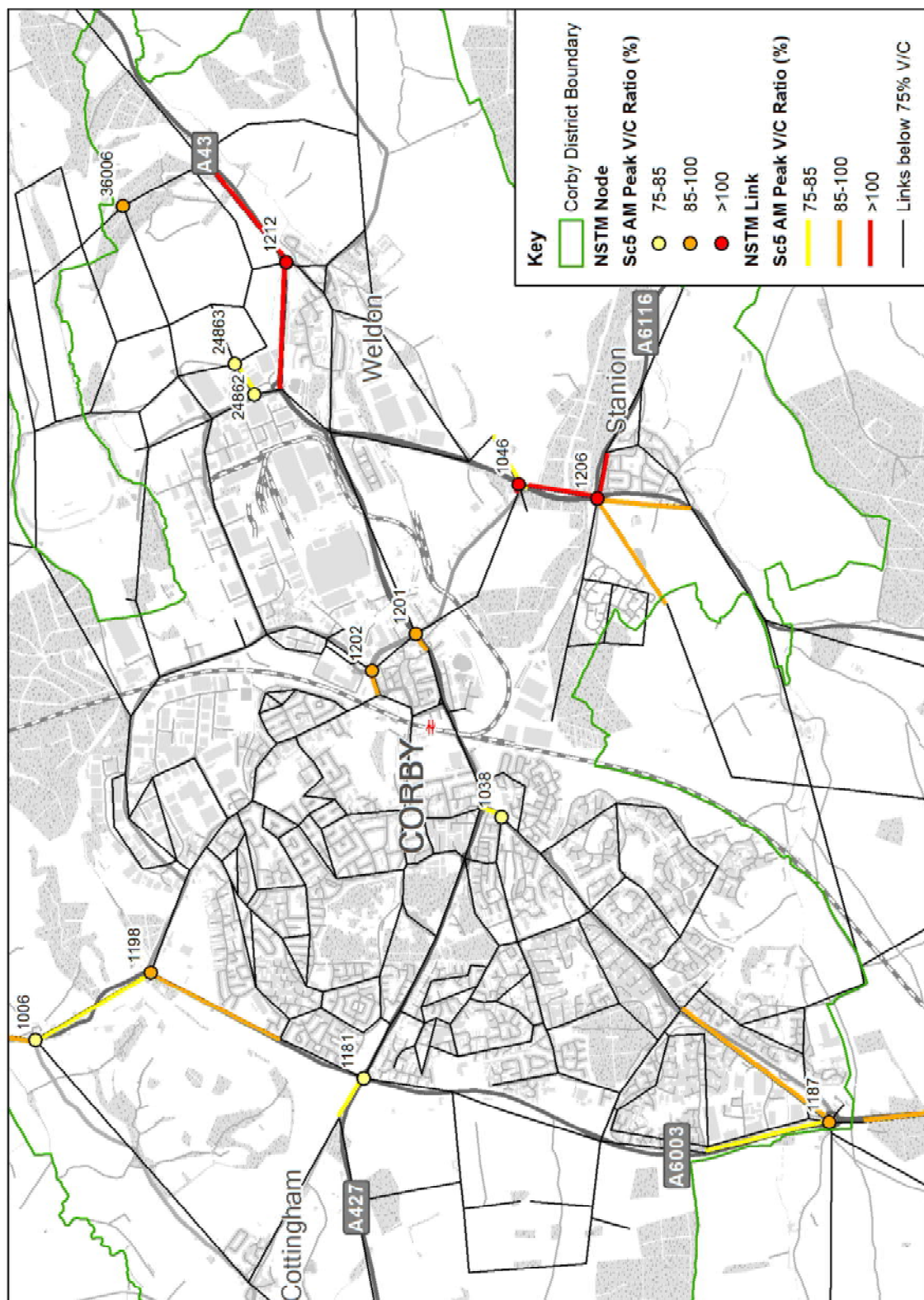


Figure 3.9: Scenario 5 V/C – 2031 AM – Corby

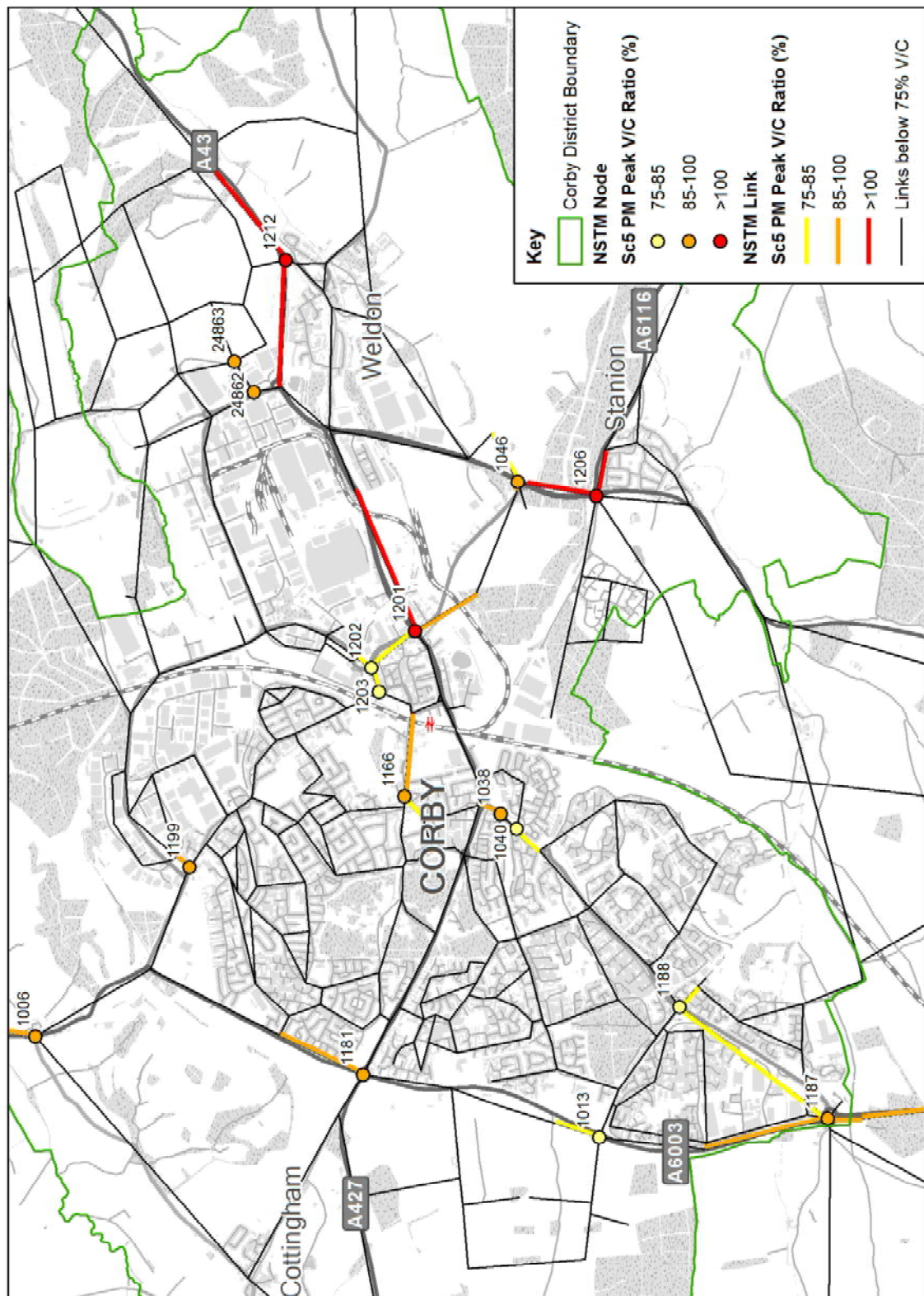


Figure 3.10: Scenario 5 V/C – 2031 PM – Corby

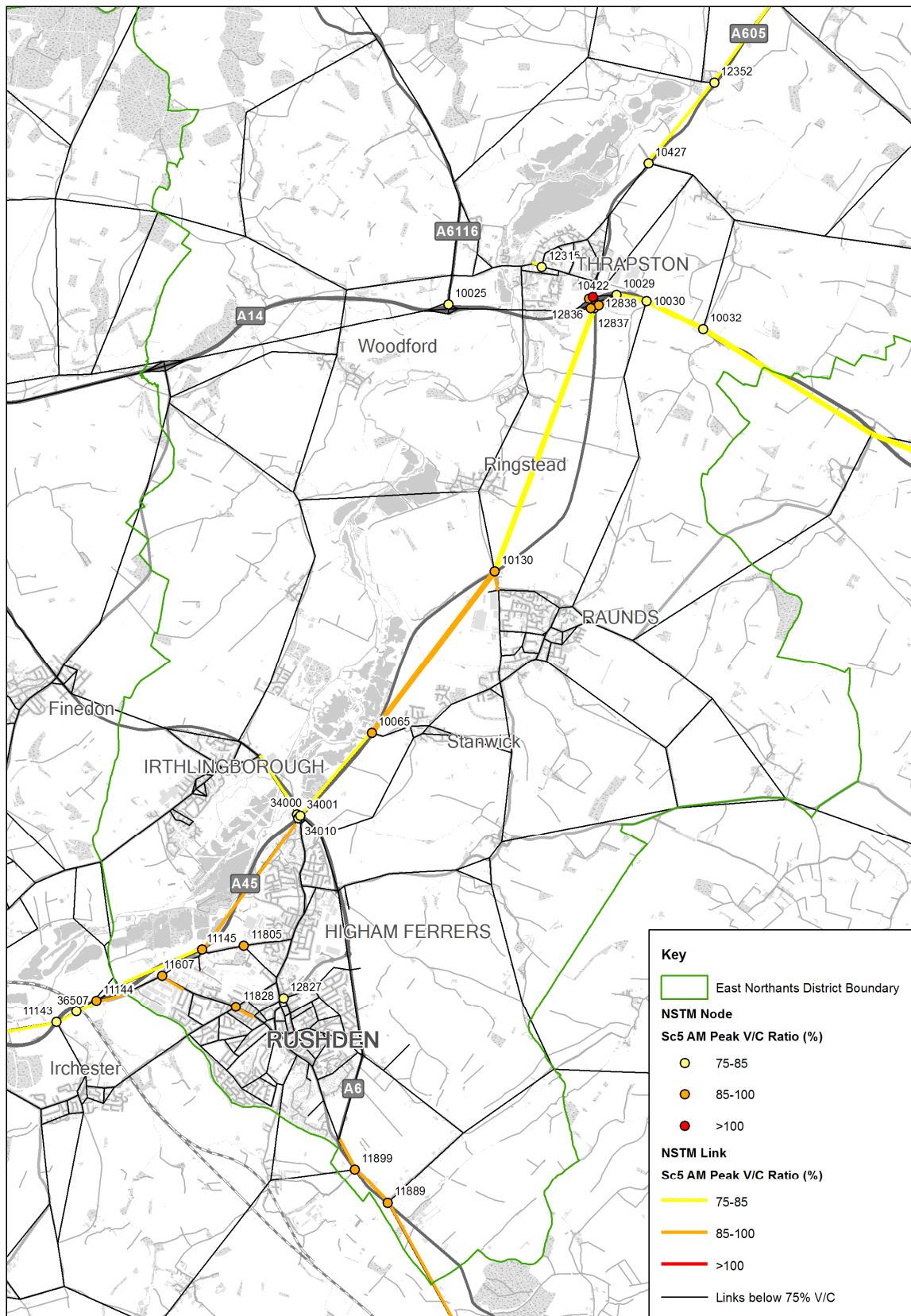


Figure 3.11: Scenario 5 V/C – 2031 AM – East Northamptonshire

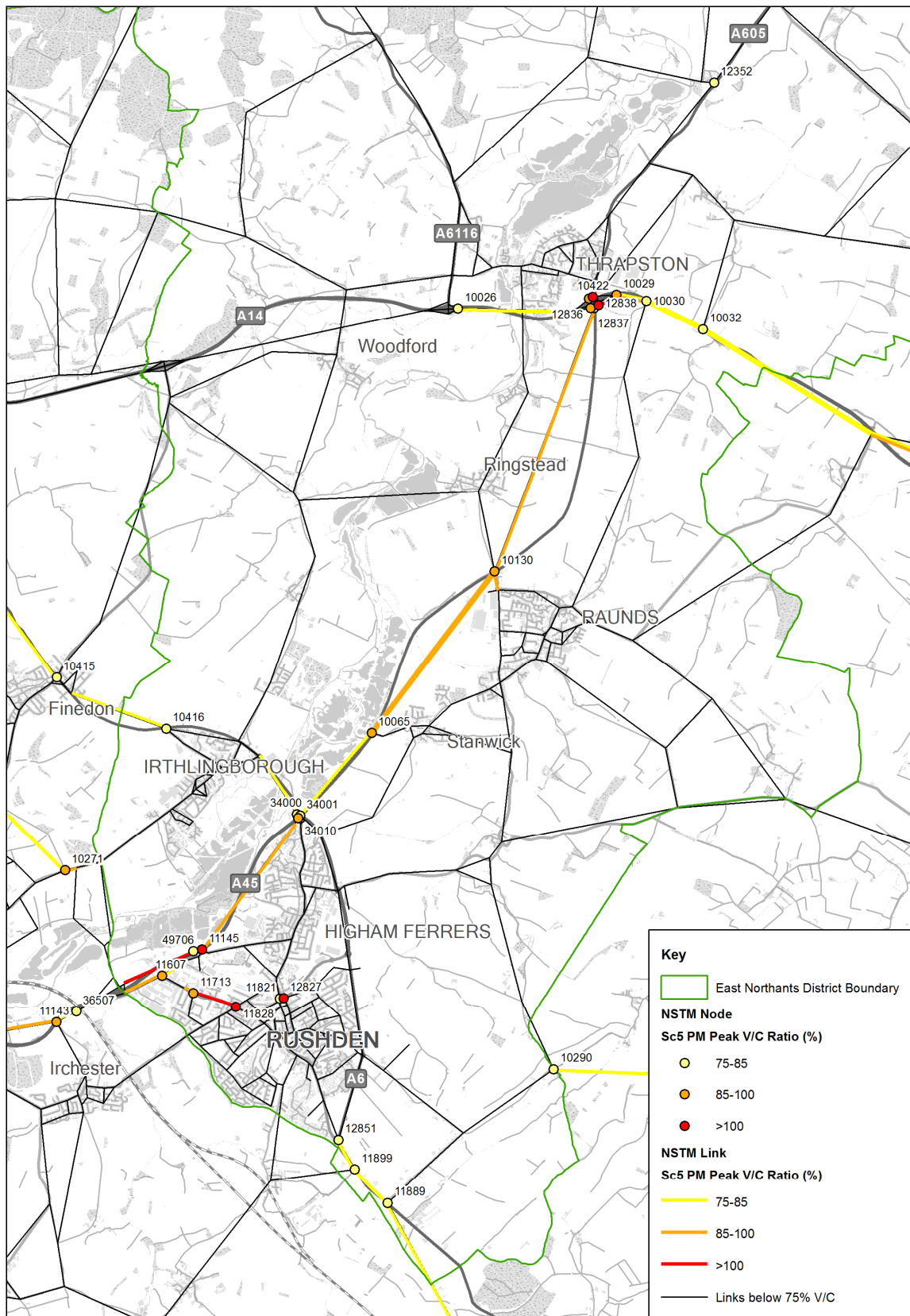


Figure 3.12: Scenario 5 V/C – 2031 PM – East Northamptonshire

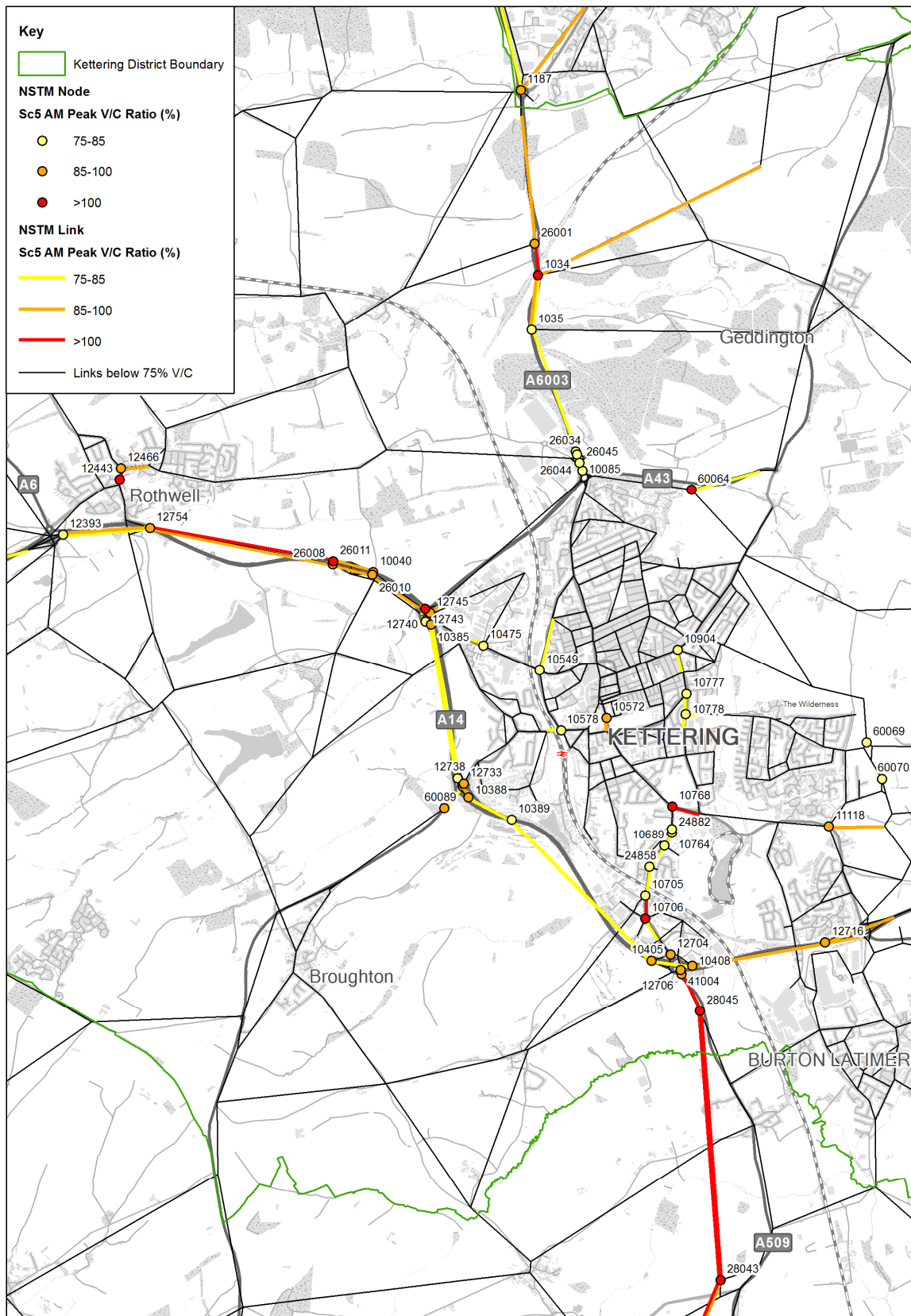


Figure 3.13: Scenario 5 V/C – 2031 AM – Kettering

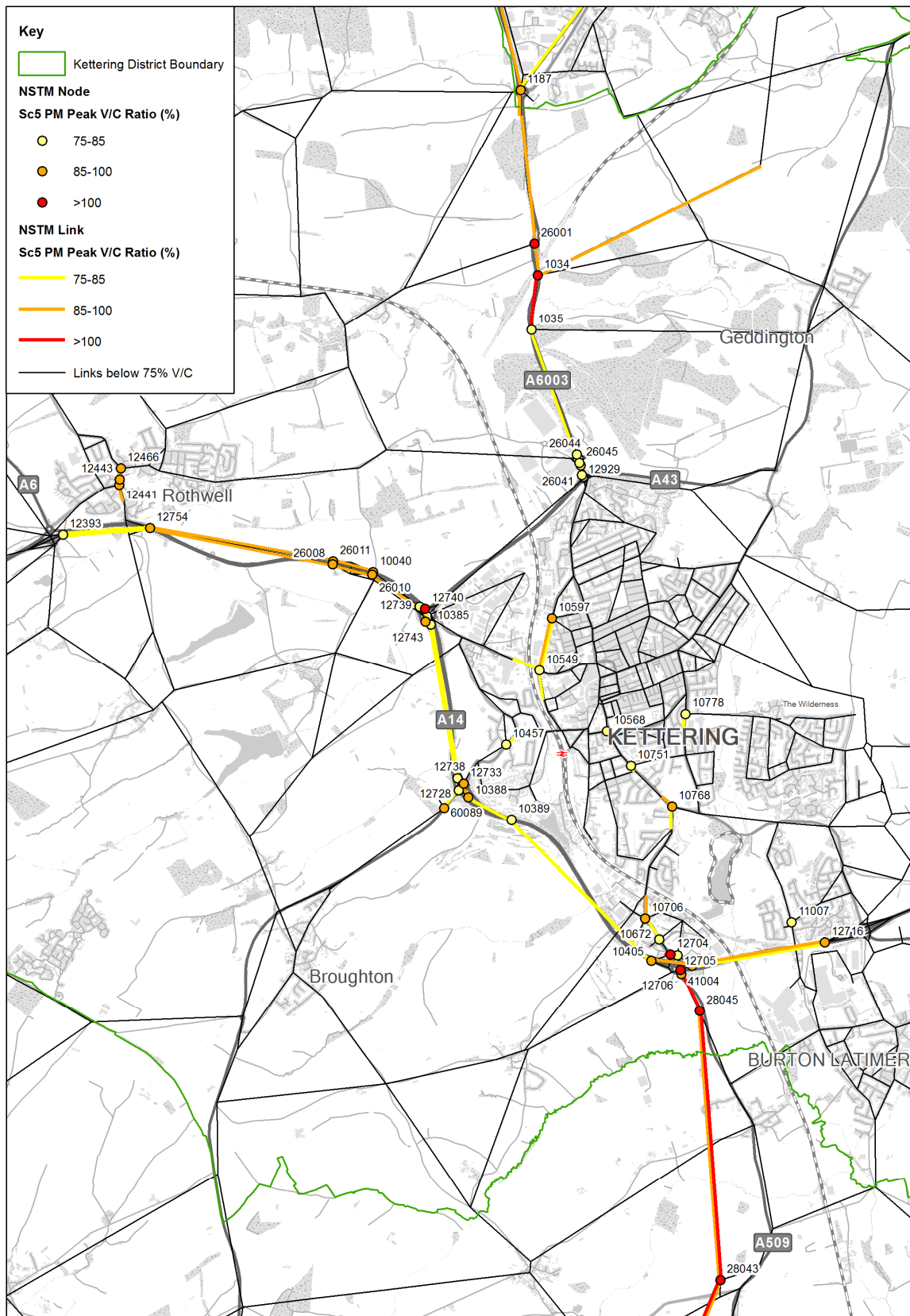


Figure 3.14: Scenario 5 V/C – 2031 PM – Kettering

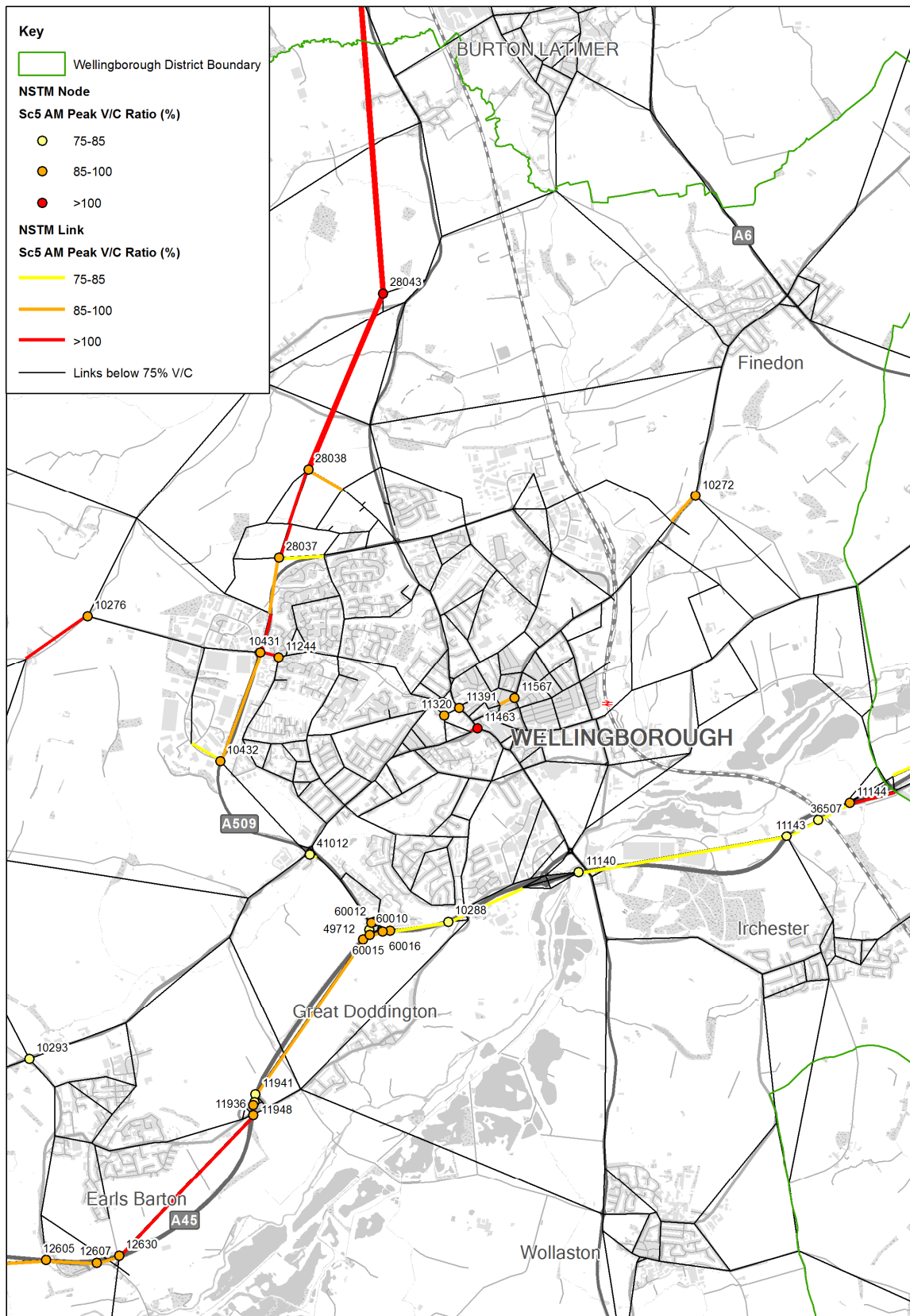


Figure 3.15: Scenario 5 V/C – 2031 AM – Wellingborough

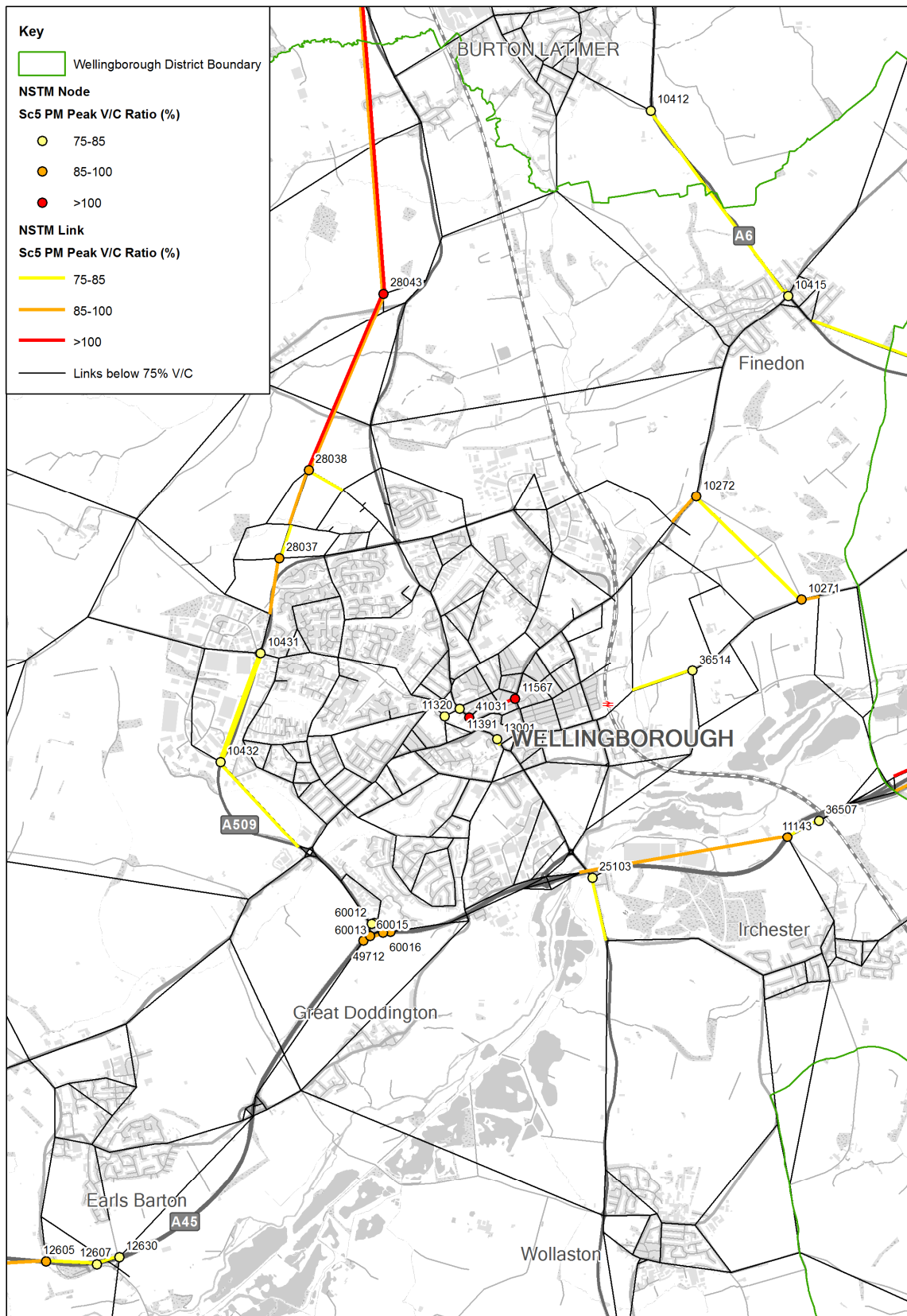


Figure 3.16: Scenario 5 V/C – 2031 PM – Wellingborough

4 Sensitivity tests

4.1 Introduction

- 4.1.1 Sensitivity tests were carried out for both Scenario 2 and Scenario 5. These were used to highlight the relative impact of specific additional developments that have at present been identified as potential sites for growth, but which are presently at a conceptual stage

4.2 Additional developments tested

- 4.2.1 The underlying assumptions in Scenario 2 and Scenario 5 remained unchanged in the sensitivity tests. The difference is the inclusion of the developments outlined in table 4.1

Table 4.1: Additional developments included in sensitivity tests

LPA	Development	Jobs	Housing
Corby	Rockingham Motor Speedway	3,580	-
East Northamptonshire		6,133	-
East Northamptonshire	Deenethorpe Airfield	210	1,000
Kettering	Kettering Energy Park	375	-

- 4.2.2 The inclusion of the above developments in the sensitivity tests mainly leads to flow differences in Corby and Oundle. Flows remain stable in Wellingborough, whilst in Kettering; the Kettering Energy Park development does not lead to significant changes in traffic levels or routing due to the relatively small scale of the development and over-supply of employment relative to housing in the borough of Kettering.

4.3 Scenario 2 sensitivity test

- 4.3.1 Figures 4.1 to 4.4 detail the flow difference between Scenario 2 and the Scenario 2 sensitivity tests in Corby and Oundle.
- 4.3.2 In Corby the increases in flow in the sensitivity test occur on the A43, A6003 and A6116. Figure 4.1 shows in the AM peak, southbound flow on the A6003 increases by around 190 pcus, whilst southbound on the A43 Stamford Road flow increases by around 280 pcus east of the Priors Hall development. Two-way flow on the A6116 Brigstock Road increases by around 430 pcus due to the Rockingham Motor Speedway development. Figure 4.2 shows in the PM peak increased flow northbound on the A6003 of around 180 pcus and 250 pcus northbound on the A43 Stamford Road occurs, whilst two-way flow on the A6116 Brigstock Road increases by over 800 pcus. Figures 4.3 and 4.4 show the A427 Benefield Road to and from Oundle shows increased flow due to the inclusion of the re-development of Rockingham Motor Speedway and Deenethorpe Airfield, increasing two-way in the AM peak by 110 pcus, and by around 80 pcus in the PM peak.
- 4.3.3 Appendix B includes the V/C ratios for the Scenario 2 sensitivity test runs. In the AM peak, the inclusion of the Rockingham Motor Speedway leads to a worsening in performance at the A6116 Gretton Brook Road / Causeway Road / Princewood Road (node 1291) junction which increases from 77% V/C in the main Scenario 2 assignment to 92% in the sensitivity test. In the PM peak, the A6116 Rockingham Road / A6116 Gretton Brook Road / Rockingham Road (node 1198) junction shows a worsening performance, rising to 100% V/C in the sensitivity test, having been at 93% V/C in the main Scenario 2 PM peak assignment.

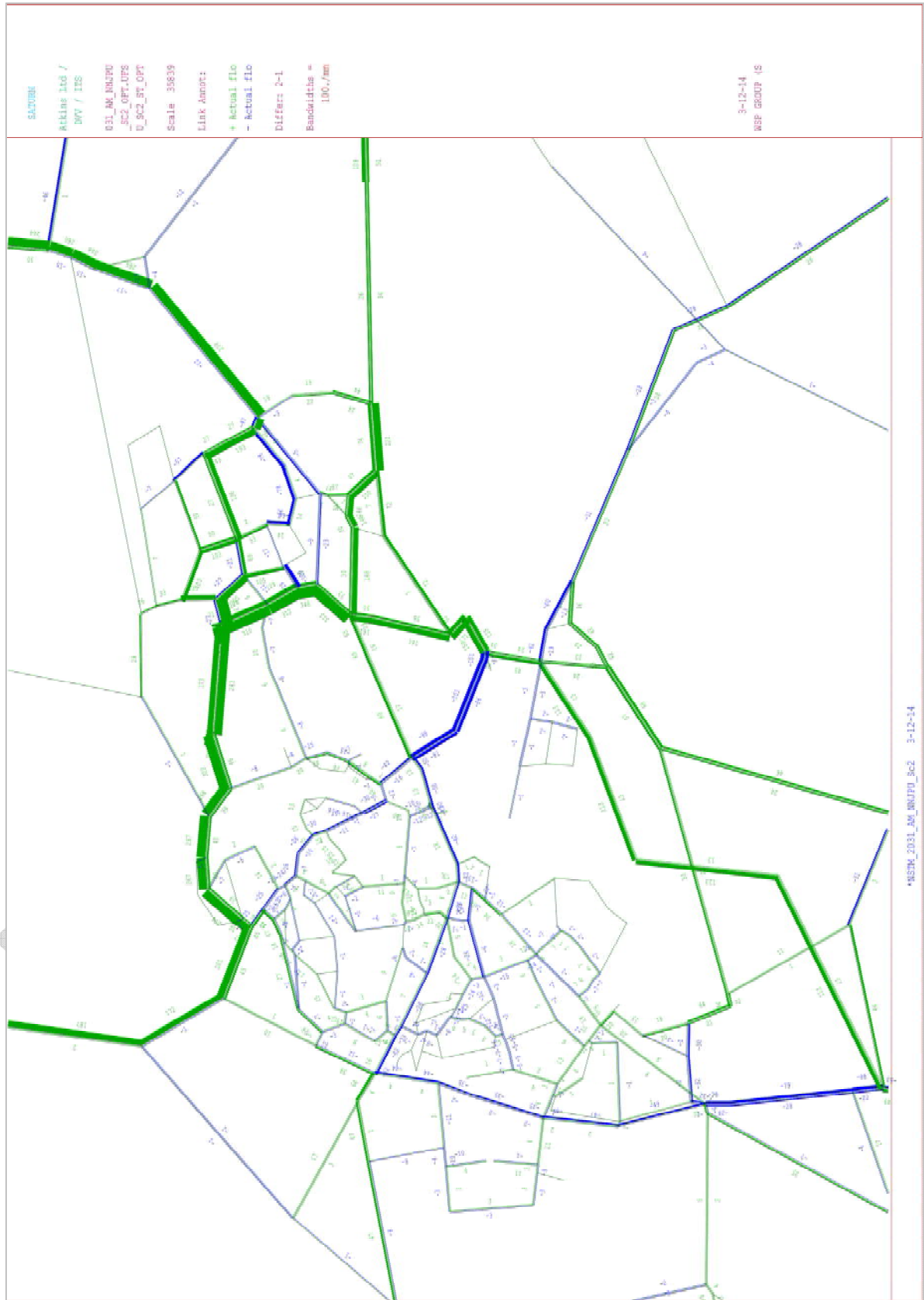


Figure 4.1: Flow difference – 2031 AM - Scenario 2 vs Scenario 2 sensitivity test – Corby

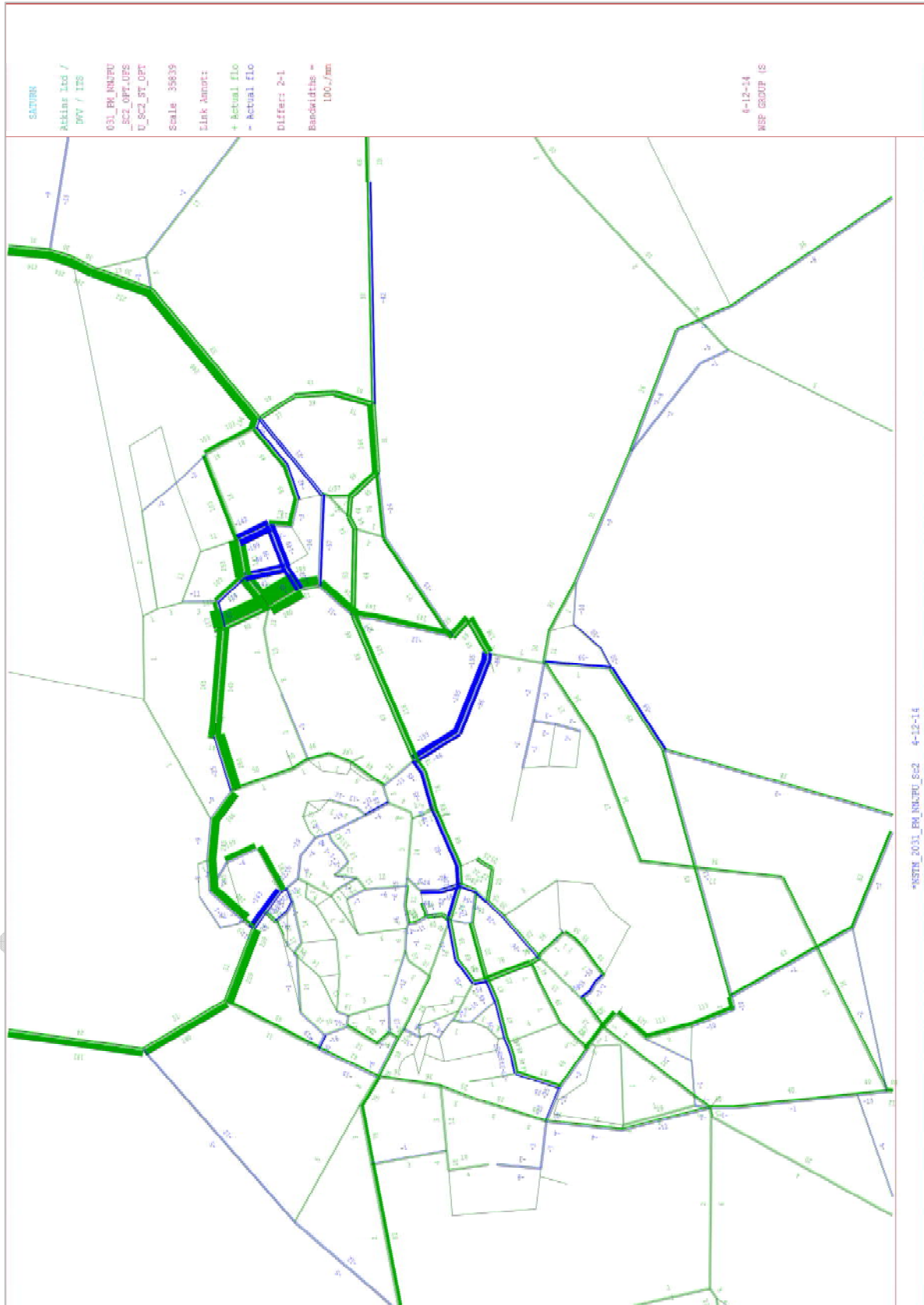


Figure 4.2: Flow difference – 2031 PM - Scenario 2 vs Scenario 2 sensitivity test – Corby



Figure 4.3 Flow difference – 2031 AM - Scenario 2 vs Scenario 2 sensitivity test – Oundle

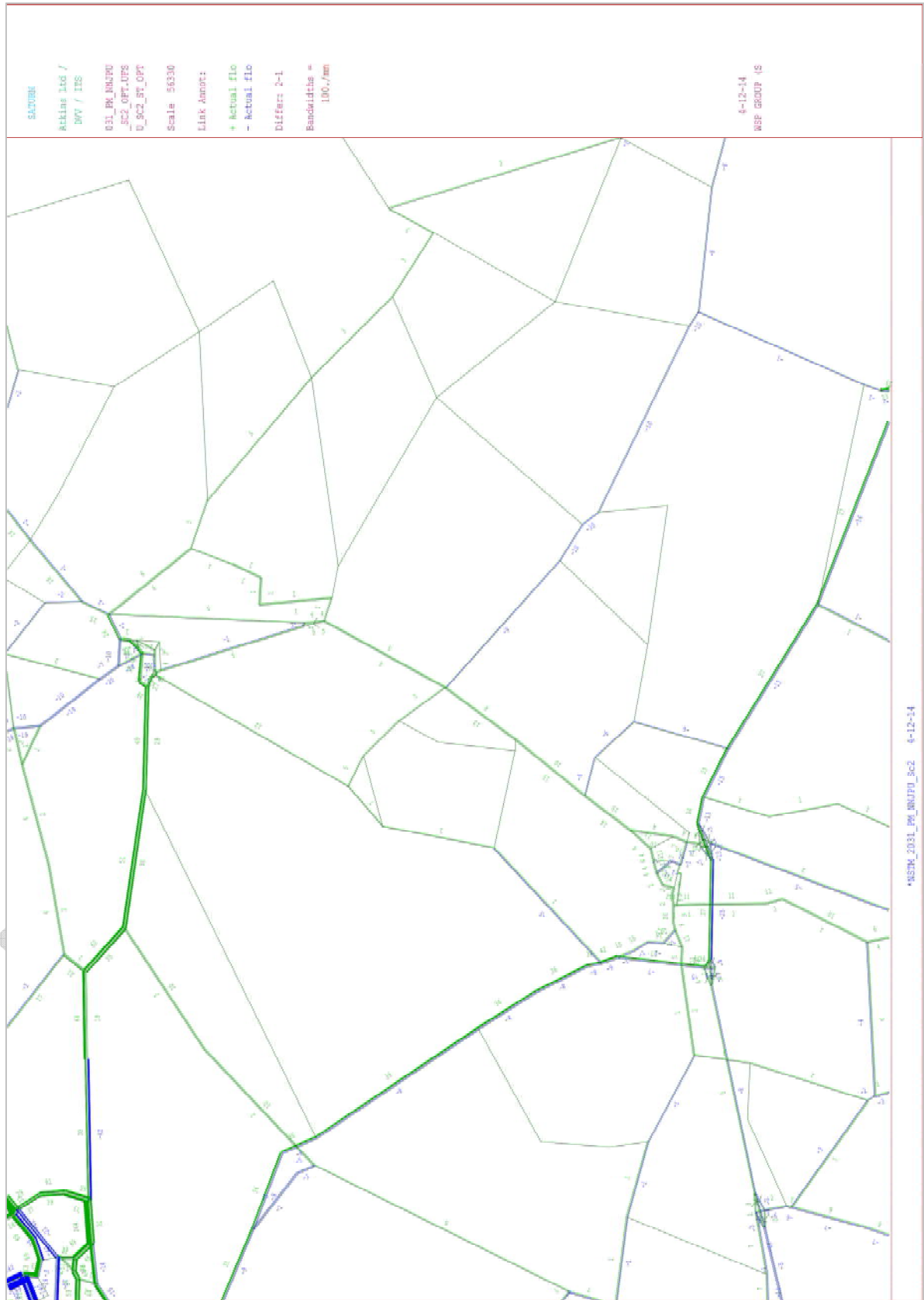


Figure 4.4 Flow difference – 2031 PM - Scenario 2 vs Scenario 2 sensitivity test – Oundle

4.4 Scenario 5 sensitivity test

- 4.4.1 Figures 4.5 to 4.8 detail the flow difference between Scenario 5 and the Scenario 5 sensitivity tests in Corby and Oundle.
- 4.4.2 The increase in two-way flow on the A427 Benefield Road due to the Deenethorpe Airfield and Rockingham Motor Speedway remain similar in the comparison between the Scenario 5 and Scenario 5 sensitivity tests, when compared to the changes shown in the Scenario 2 tests. Increases are shown on key roads such as the A43, A6003 and A6116. Though in this comparison, the flow differences are higher, figure 4.5 shows increased flow of 250 pcus southbound on the A6003, whilst on the A43 Stamford Road southbound flow increases by 300 pcus. Figure 4.6 shows in the PM peak, northbound flow on the A6003 increases by 240 pcus, whilst northbound flow on the A43 Stamford Road increases by 285 pcus.
- 4.4.3 Appendix B includes the V/C ratios for the Scenario 5 sensitivity test. In the AM peak, the A6003 / Uppingham Road / A427 (node 1181) shows the greatest change in V/C, reaching a maximum of 85% in the Scenario 5 sensitivity tests, having been at 77% in the main Scenario 5 assignment. In the PM peak, the A6116 Rockingham Road / A6116 Gretton Brook Road / Rockingham Road (node 1199) shows the most notable change, reaching a maximum V/C of 100% V/C in the sensitivity test, having been at 91% in the main Scenario 5 assignment.

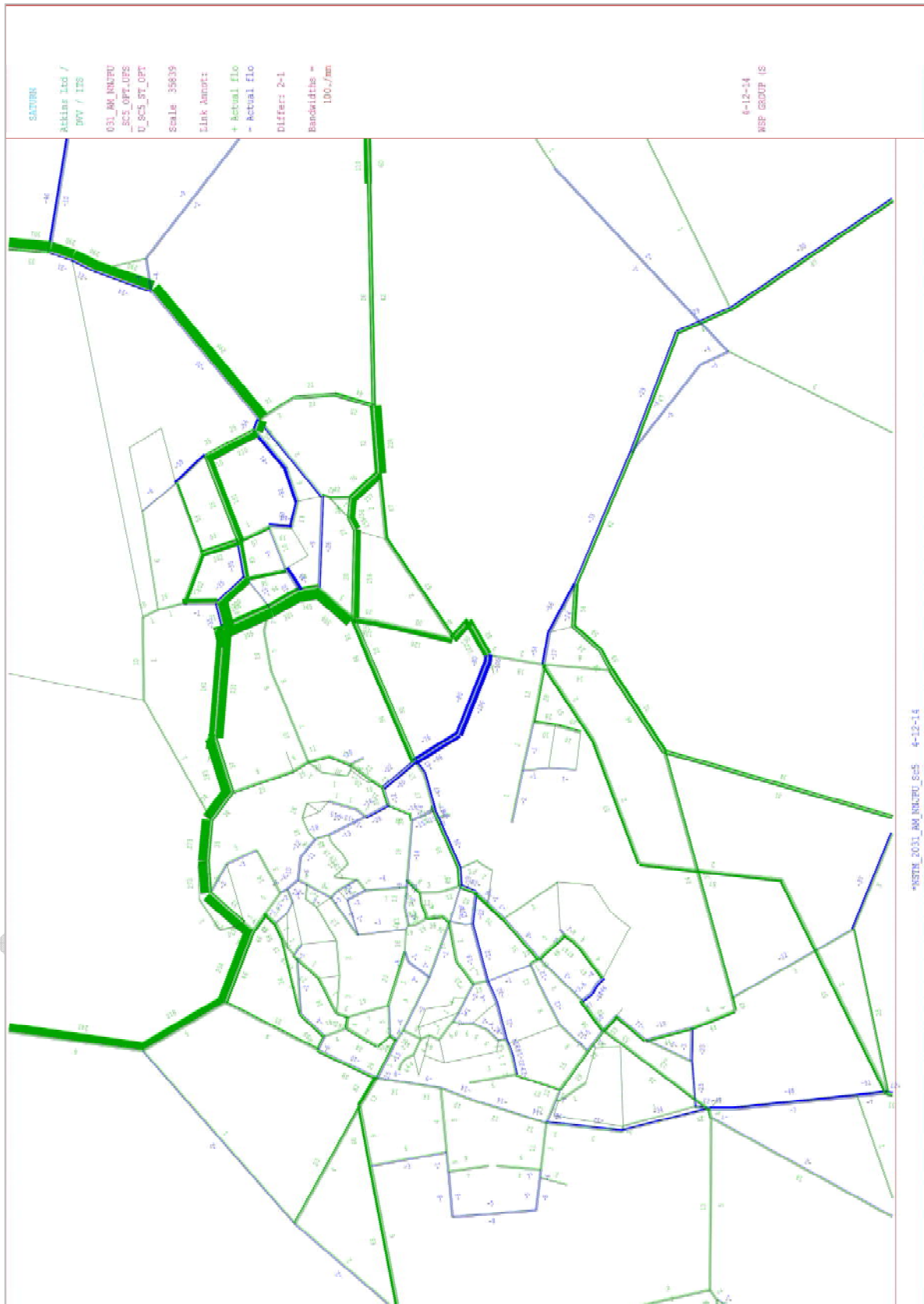


Figure 4.5: Flow difference – 2031 AM - Scenario 5 vs Scenario 5 sensitivity test – Corby

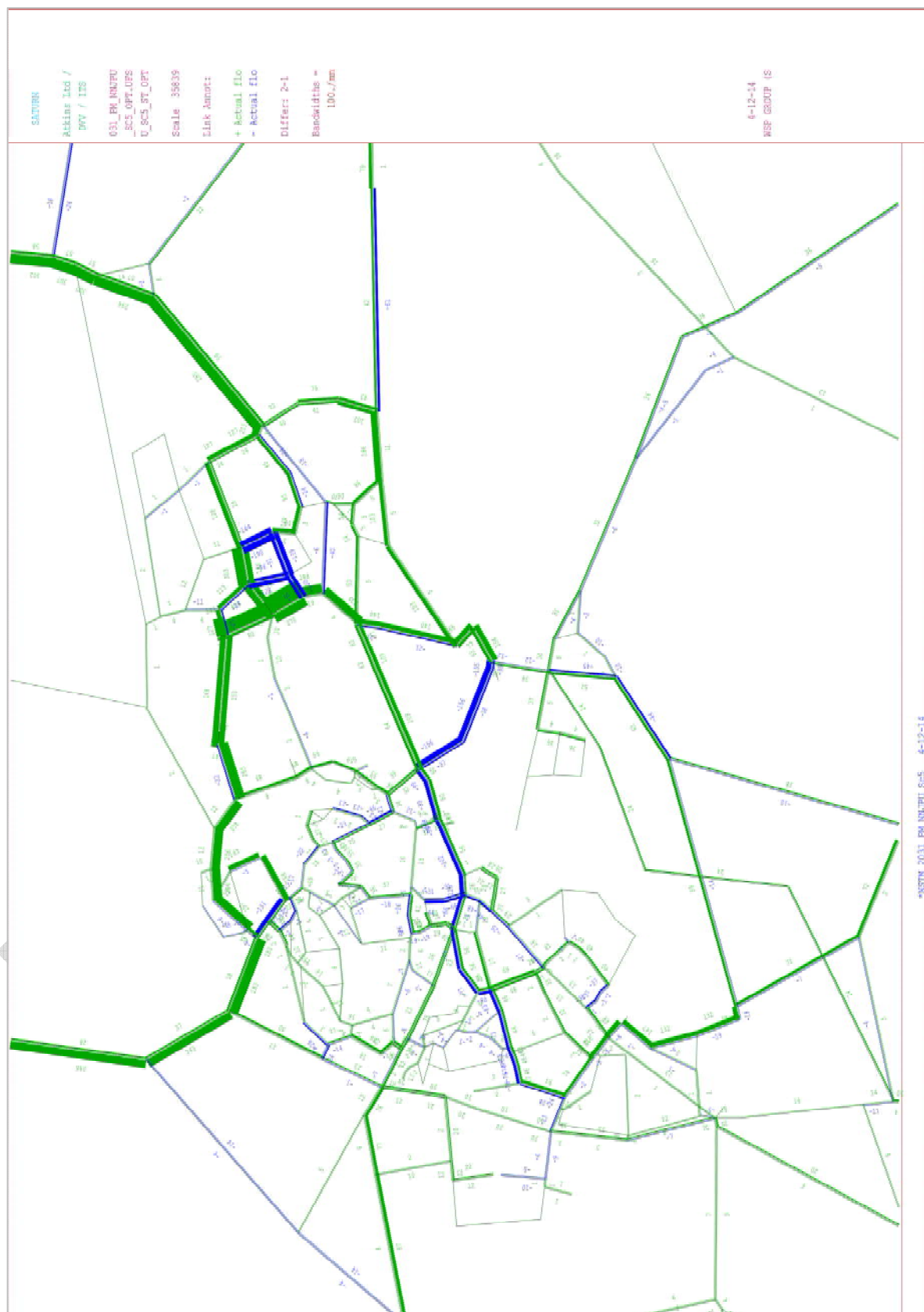


Figure 4.6: Flow difference – 2031 PM - Scenario 5 vs Scenario 5 sensitivity test – Corby



Figure 4.7: Flow difference – 2031 AM - Scenario 5 vs Scenario 5 sensitivity test – Oundle



Figure 4.8: Flow difference – 2031 PM - Scenario 5 vs Scenario 5 sensitivity test – Oundle

5 Conclusions

- 5.1.1 Two different employment distributions (Scenario 2 and Scenario 5) varying the level of B-class employment in the north Northamptonshire LPAs have been analysed using the NSTM for a forecast year of 2031.
- 5.1.2 Due to the relative over-supply of employment, compared to the level of housing in the information input for the north Northamptonshire LPAs, the difference in congestion and junction performance between the two scenarios is shown to be minimal.
- 5.1.3 Following the results of the modelling, the key infrastructure on the corridor between Kettering and Wellingborough listed below are shown to experience highly significant congestion problems. Further analysis of the junction designs along this route may be required in order to understand the nature of capacity constraints on these strategic corridors.
- A14 Junction 9
 - Isham Bypass
 - IWIMP
 - A509 Niort Way / Park Farm Way
- 5.1.4 Along the A45 corridor, four junctions in particular show highly significant congestion, listed below. Further detailed analysis of the designs at these junctions may be required.
- Skew Bridge / Rushden Lakes roundabout
 - A45 / West Street (Stanwick roundabout)
 - A45 / B663 London Road (Raunds roundabout)
 - A14 Junction 13 (A14 / A45)
- 5.1.5 The Chowns Mill (A6 / A45) roundabout design included in the NSTM is shown to generally cope with forecast levels of traffic, though one element of the design reaches a volume to capacity ratio of 94% in the PM peak. However, the results for this junction represent a significant improvement in comparison to previous NSTM results provided to the NNJPU.
- 5.1.6 The A43 is shown to have a number of junctions with high levels of congestion. The following junctions in particular are shown to be consistently over capacity and may require further analysis:
- A43 Stamford Road / A6116 Brigstock Road / A4300 Stamford Road / A43 Corby Link Road roundabout
 - A6003 Rockingham Road / A43 Corby Link Road / Newton Road roundabout
 - A43 Stamford Road / Stamford Road / Priors Hall development access
 - A43 Stamford Road / Geddington Road roundabout
- 5.1.7 Sensitivity tests were carried out for Scenarios 2 and Scenario 5, including the Rockingham Motor Speedway, Deenethorpe Airfield and Kettering Energy Park developments. These main differences in the sensitivity tests affected the key roads in Corby and Oundle.

Appendices

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Appendix A – Modelled developments

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Appendix A - Consented and potential developments included within NSTM

Residential developments (included in all scenarios)

NSTM Zone	Development	District	Households
701	Priors Hall	Corby	1659
702	Priors Hall	Corby	871
703	Priors Hall	Corby	367
704	Priors Hall	Corby	1996
705	R8 Land West of Stanion	Corby	594
613	Oakley Vale	Corby	342
426	H3 Land off Occupation Road	Corby	27
490	Corby Road, Weldon	Corby	31
427	Arran Way	Corby	55
228	North of Cottingham Road	Corby	61
612	50 Stephenson Way	Corby	11
211	Land at Finland Way (Danesholme Regeneration Area)	Corby	47
678	West Corby	Corby	471
658	West Corby	Corby	3495
612	R4 Pen Green Lane	Corby	289
488	R17 Oundle Road, Weldon	Corby	51
234	R9 Off Stanion Lane	Corby	18
234	Off Stanion Lane (phase 2)	Corby	14
81	Part R16 Chapel Road, Weldon	Corby	20
229	R2 Pytchley Court	Corby	13
706	Weldon Park	Corby	991
218	Pluto Site, Gainsborough Road	Corby	40
226	Old Depot Site, West Glebe Park	Corby	18
212	Our Lady Pope John	Corby	94
228	Parkland Gateway	Corby	112
212	Garage Sites	Corby	177
214	Canada Square	Corby	64
211	Kingswood Phase 2	Corby	21
74	Hunting Lodge, Cottingham	Corby	18
218	Beanfield School	Corby	90
218	Kingswood School	Corby	89
488	Site near Larratt Road (SHLAA Site 182)	Corby	56
231	The Shire Horse PH, Willow Brook Rd (SHLAA Site 291)	Corby	19
426	Former Education Centre, off Occupation Road (SHLAA Site 299)	Corby	22
490	Former garage site, Weldon Road (SHLAA Site 363)	Corby	15
439	Garage Court, Swale Close (SHLAA Site 364)	Corby	13
234	Railway Station Interchange, Station Road (SHLAA Site 2030)	Corby	53
80	Site at Corner Church Street & A427 (SHLAA Site 255)	Corby	26
426	School, Off Occupation Road (SHLAA Site 350)	Corby	20
216	Corby Community College, Oakley Road (SHLAA 1148)	Corby	233
613	Oakley Vale, Science Park (SHLAA Site 2003)	Corby	136
225	Evolution Corby (SHLAA Site 2052)	Corby	169
115	Land at Wharf Road Allotment Site	East Northants	159
116	Midland Business Centre, Midland Road	East Northants	32
476	Westfield's Terrace	East Northants	10
476	Land Between A6 Higham Ferrers Bypass And A5028 Station Road	East Northants	84
120	Whitworth's Site, Wellingborough Road	East Northants	248
121	Former Sunseekers factory site	East Northants	62
121	Laundry Site, 259 Addington Road	East Northants	55
82	Land between Willow Lane & Fineshade	East Northants	63
91	Land End of Creed Road	East Northants	139
90	Oundle School Playing Field, Glapthorn Road	East Northants	59
444	Darsdale Farm, Chelveston Road	East Northants	441
423	Northdale End (Raunds North East)	East Northants	297
422	90 Hill Street	East Northants	13
422	RPC Containers Ltd, Grove Street	East Northants	56
442	Land off Windsor Road	East Northants	115
110	Broadlands Family Unit, Victoria Road	East Northants	25
123	Former Garage Site, Station Road	East Northants	30
442	Land off Windsor Road	East Northants	110
423	Avenue Agricultural, Park Road	East Northants	18
111	Rushden Hospital, The Drive	East Northants	120
111	29 Wellingborough Road	East Northants	13
111	66 Harborough Road	East Northants	14
111	Land South of Goulsbra Road	East Northants	70
85	Land Adjacent 16 Stamford Lane	East Northants	24
114	Ferrers School	East Northants	262
121	West of Huxlow School/ Irthlingborough West SUE	East Northants	672
121	Land off Addington Road (Irthlingboorugh East)	East Northants	77
120	Land rear of Green Close	East Northants	58
89	Ashton Road/Herne Road	East Northants	130
88	Dairy Farm	East Northants	19
112	Land adjacent to Pevensey Close, Barrington Road	East Northants	106

NSTM Zone	Development	District	Households
479	Thrapston South (Phases 1 and 2)	East Northants	150
479	Thrapston South (Phase 3)	East Northants	72
479	Thrapston South (Phase 4)	East Northants	432
112	Church Street	East Northants	11
85	Eaglethorpe Barns	East Northants	12
729	Rushden East Sustainable Urban Extension	East Northants	1535
121	Attley Way (Irthlingborough East)	East Northants	182
477	West End (Raunds North)	East Northants	221
237	Kingfisher Way	Kettering	39
235	Diana Way (land off)	Kettering	94
236	White Lodge Farm (land at), Higham Road	Kettering	10
236	Higham Road, (Land to the North of)	Kettering	79
238	Cranford Road (Land At),	Kettering	65
64	Harborough Road (land off)	Kettering	138
503	Desborough Water Tower, Bridge Road (land to the west)	Kettering	8
64	Ironwood Avenue (land off)	Kettering	16
64	Talbot Court, High Street, Desborough	Kettering	12
662	*East of Kettering	Kettering	889
689	*East of Kettering	Kettering	1026
690	*East of Kettering	Kettering	721
722	*East of Kettering	Kettering	1010
253	18-24 Durban Road	Kettering	8
258	Westhill (land at)	Kettering	384
254	Dryden Street & Field Street (land at junction of)	Kettering	37
269	Former Tresham College, St Marys Rd	Kettering	8
507	Rothwell Town Football Club, Off Cambridge Street, (renewal of 2010/028	Kettering	14
61	Harrington Road	Kettering	76
67	Jubilee Street (245 units)	Kettering	36
241	Polwell Lane (land at)	Kettering	272
59	Cransley Hill (land at) Broughton	Kettering	50
260	Rockingham Rd	Kettering	41
253	52 Lawson St	Kettering	29
496	Cecil St	Kettering	40
254	SHOPPING QUARTER: Wadcroft/ Newlands Phase 1 (SHQ1and SHQ3), Kett	Kettering	33
254	RESIDENTIAL QUARTER: Land north and east of Trafalgar Road (NRQ4), Ke	Kettering	100
254	RESIDENTIAL QUARTER: National Grid site north, Jutland Way (NRQ6), Ket	Kettering	12
254	RESIDENTIAL QUARTER: National Grid site south, Jutland Way (NRQ7), Ket	Kettering	12
256	RESIDENTIAL QUARTER: Northampton Road/ Northfield Avenue (NRQ11),	Kettering	15
254	SHOPPING QUARTER: Dryden Street / Fleet Street (SHQ7), Kettering	Kettering	38
258	RESIDENTIAL QUARTER: Stagecoach Site, Northampton Road (NRQ12), Ket	Kettering	39
254	RESIDENTIAL QUARTER: Meadow Road Recreation Ground (CAT 1 GF) (NRQ	Kettering	79
255	SHOPPING QUARTER: Morrison's Staff Car Park, Trafalgar Road (SHQ2)*, K	Kettering	15
254	YARDS QUARTER: Soans Yard (Y2)*, Kettering	Kettering	23
254	YARDS QUARTER: Job's Yard North (Y1), Kettering	Kettering	25
268	STATION QUARTER: Land Opposite Station Square (SHLAA 930) (STQ4)*	Kettering	13
254	RESIDENTIAL QUARTER: Former Lidl store site, north of Trafalgar Road (SH	Kettering	18
254	RESIDENTIAL QUARTER: B&Q & Comet site, Meadow Road / Jutland Way (	Kettering	44
254	RESIDENTIAL QUARTER: Land at Lidl store site, west of Trafalgar Road(SHL	Kettering	56
252	SILVER STREET QUARTER: Queen Street / Horsemarket north (SSQ4)	Kettering	52
254	RESIDENTIAL QUARTER: Temporary car park, land west of Trafalgar Road (	Kettering	40
255	SHOPPING QUARTER: South of Northall St (Tanners Gate 1) (SHQ5)	Kettering	28
254	SILVER STREET QUARTER: Montagu Street / Tordoff Place (SSQ1)	Kettering	9
252	SILVER STREET QUARTER: Carrington Street / Victoria Street (SSQ2)	Kettering	16
255	SHOPPING QUARTER: South of Northall St (Tanners Gate 2) (SHQ6)	Kettering	20
254	RESIDENTIAL QUARTER: Meadow Road / Cromwell Road backland (NRQ8)	Kettering	15
254	RESIDENTIAL QUARTER: Commercial Road car park (NRQ9)	Kettering	17
660	Rothwell North	Kettering	835
235	Bosworth's Nursery	Kettering	25
659	North Desborough	Kettering	585
67	Harrington Road (land at)	Kettering	63
258	Convent site, Hall Lane	Kettering	50
262	Maplefields School, south of Beatrice Rd	Kettering	14
263	Avondale Shool	Kettering	41
261	Scott Road Garages (KE/001)	Kettering	11
268	Kettering Fire Station (KE/007)	Kettering	15
258	Land West of Kettering (KE/011)	Kettering	404
256	Glendon Ironworks (KE/151)	Kettering	9
267	Ise Garden Centre, Warkton Lane (KE/152)	Kettering	13
240	Land to the rear of 239 Barton Road (KE/156)	Kettering	18
270	Abbots Way (KE/184)	Kettering	17
236	Finedon Road (BL/042)	Kettering	29
238	Land to the West of Kettering Road (BL/044)	Kettering	18
238	Land to the North of Church Street (BL/047)	Kettering	13
236	Land to the North of Higham Road (BL/180)	Kettering	166
236	Land around White Lodge Farm, Higham Road (BL/058)	Kettering	92
65	Desborough Site 3 (DE/063)	Kettering	68
62	Land adjoining the Orchards, Harrington Road (DE/067)	Kettering	50
461	Comprehensive development of DE/072 (Former Hawthorns Leisure Centr	Kettering	254

NSTM Zone	Development	District	Households
496	Rothwell Town Football Club (RO/084)	Kettering	40
496	Land to the north of Rothwell to the east of RO/086 (RO/202)	Kettering	55
502	Land to the south east of Northampton Road (frontage only) (RA/094)	Kettering	10
59	Land off Bentham Close (RA/101a)	Kettering	10
59	The Paddock, Meadow Close (RA/127)	Kettering	8
494	Geddington Sawmill (RA/107)	Kettering	8
494	Geddington South East (RA/109)	Kettering	13
494	Old Nursery Site at Grafton Road (RA/110)	Kettering	8
59	Land to the west of Mawsley (RA/174)	Kettering	48
236	*Finedon Road	Kettering	18
59	Rockingham Dene	Kettering	23
504	Buxton Drive (DE/188)	Kettering	38
149	Site of 32 and 36 Broad Green	Wellingborough	7
447	Prince of Wales PH 42 Croyland Road NN8 2JR	Wellingborough	18
136	Land off Bourton Way NN8 2NU	Wellingborough	48
650	Land Between Finedon Road & The Railway, Neilson's Sidings	Wellingborough	180
651	Land Between Finedon Road & The Railway, Neilson's Sidings	Wellingborough	666
652	Land Between Finedon Road & The Railway, Neilson's Sidings	Wellingborough	666
653	Land Between Finedon Road & The Railway, Neilson's Sidings	Wellingborough	133
654	Land Between Finedon Road & The Railway, Neilson's Sidings	Wellingborough	1190
707	55 61 Eastfield Road and rear of 209 Mill Road (Phase 1) Wellingborough	Wellingborough	211
672	Park Farm/Shelley Way	Wellingborough	496
735	Land off the A509 Niort Way and A510 Northen Way and south of Great H	Wellingborough	261
682	Land off the A509 Niort Way and A510 Northen Way and south of Great H	Wellingborough	175
683	Land off the A509 Niort Way and A510 Northen Way and south of Great H	Wellingborough	175
684	Land off the A509 Niort Way and A510 Northen Way and south of Great H	Wellingborough	175
685	Land off the A509 Niort Way and A510 Northen Way and south of Great H	Wellingborough	175
686	Land off the A509 Niort Way and A510 Northen Way and south of Great H	Wellingborough	87
688	Land off the A509 Niort Way and A510 Northen Way and south of Great H	Wellingborough	175
129	Windsor Road	Wellingborough	43
458	Milner Road Finedon	Wellingborough	21
154	Land Between Finedon Road and Nest Lane	Wellingborough	177
150	Hardwick Park	Wellingborough	21
458	Site between 11 and 11a Trapston Road, Finedon. Undetermined planning	Wellingborough	28
477	Former swimming baths, Croyland Road	Wellingborough	7
470	land r/o 9 High Street Earls Barton	Wellingborough	7
134	Doddington Road/Spur road	Wellingborough	35
149	Site A TCAAP - Railway Club Broad Green	Wellingborough	25
149	Site B TCAAP	Wellingborough	99
447	Site C TCAAP - High Street Site	Wellingborough	94
149	Site D TCAAP - Queen Street	Wellingborough	16
446	Site E1 TCAAP - Tresham Institutute Site	Wellingborough	28
446	Site E2 TCAAP - Market Square	Wellingborough	35
418	Site G TCAAP - Alma St/ Cambridge St Backlands	Wellingborough	40
418	Site I TCAAP - PO Sorting Office	Wellingborough	52
446	Bellwin House, 1 Queen Street	Wellingborough	17
446	Site K TCAAP Oxford House	Wellingborough	21
154	Rear 56 Nest Lane, Wellingborough	Wellingborough	11
132	60 Senwick Road Wellingborough NN8 1NJ	Wellingborough	21
132	Saxby Bros Ltd, Chester Road	Wellingborough	124
446	Laundry Premises Buckwell End Short Lane NN8 4LP	Wellingborough	16
129	Garages Buckwell Place Buckwell End NN8 2PR	Wellingborough	9
153	Hemmingwell Lodge (Medical Centre) Nest Farm Cresent, Wellingborough	Wellingborough	18
447	2 Avon House Tithe Barn Road Wellingborough NN8 1DH	Wellingborough	18
149	The Dun Cow Public House 2 Gold Street Wellingborough NN8 4QY	Wellingborough	18
469	Land rear or 1 to 73 Compton Way Earls Barton NN6 0PL	Wellingborough	46
458	40 Orchard Road Finedon NN9 5JG	Wellingborough	9
158	Land to the North of Main Road and Northampton Road Earls Barton	Wellingborough	199
		Total	34088

(A)

Small developments (split across district zones / zones covering major towns)

District	Total
Corby	330
East Northants	1774
Kettering	303
Wellingborough	666
Total	3073

(B)

Final housing numbers

Total (A + B)	37161
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Retail developments (included in all scenarios)

NSTM Zone	Development	District	Retail Space (sqm)	Jobs
225	TC & R03 - Retail Expansion	Corby	15500	775
701	04/00240/OUT Priors Hall	Corby	1661	83
702	04/00240/OUT Priors Hall	Corby	872	44
703	04/00240/OUT Priors Hall	Corby	368	18
704	04/00240/OUT Priors Hall	Corby	1999	100
233	13/00090/DPA Coffee shop at Phoenix Parkway	Corby	364	7
706	Weldon Park	Corby	804	72
705	Land West of Stanion	Corby	1016	51
94	THR3 - 1. High Street (17-31 High Street, the library and Fire Station)	East Northants	1600	20
94	THR3 - 2. Land at Cosy Nook and rear of High Street properties	East Northants	2700	34
691	Rushden Lakes (retail proposal)	East Northants	50800	1714
94	THR3 - 3. Bull Ring, Church Walk	East Northants	1000	13
110	88A -116 High Street South	East Northants	372	19
95	Land South of Mill Marina	East Northants	1492	75
122	Former Express Works, Church Street	East Northants	3895	195
122	Attley Way	East Northants	2059	103
480	Oundle Marina	East Northants	4225	8
102	Former Recycling Centre/ Car Park, Newton Road	East Northants	1846	92
94	THR3 - 4. Cattle Market, Market Road	East Northants	4166	208
254	SHQ1 Wadcroft/Newlands Phase 1	Kettering	16000	800
254	SHQ4 Land South of Northall Street (Iceland Car Park)	Kettering	1000	50
254	SHQ5 Land South of Northall Street (Tanners Gate 1)	Kettering	2000	100
254	SHQ6 Land South of Northall Street (Tanners Gate 2)	Kettering	2000	100
254	Y1 Job's Yard North	Kettering	1000	50
254	Y2 Soans Yard	Kettering	1300	65
254	RQ1 Market Place North (restaurants)	Kettering	600	30
254	RQ1 Market Place South (restaurants)	Kettering	800	40
254	SSQ4 Queen Street/Horsemarket South	Kettering	294	15
446	Sites E1 and E2 (Market Square and Tresham Institute)	Wellingborough	18182	909
446	Site C High Street Site	Wellingborough	356	18
446	Site I PO Sorting Depot Site	Wellingborough	717	36
446	Site K Oxford House Site	Wellingborough	680	34
133	Dennington Road (WP/2010/0237/OA) (renewed and RM approved)	Wellingborough	1064	30
418	Former Gold Street, 106 Gold Street (WP/2012/0562/F)	Wellingborough	468	15
130	Land at London Road (WP/2014/085/FUL)	Wellingborough	3300	165
		Total	146500	6086

Employment developments (Scenario 2)

NSTM Zone	Development	District	B-class jobs
701	Priors Hall	Corby	335
702	Priors Hall	Corby	176
703	Priors Hall	Corby	74
704	Priors Hall	Corby	404
706	R8 Land West of Stanion	Corby	96
705	Oakley Vale	Corby	1400
696	H3 Land off Occupation Road	Corby	547
609	Corby Road, Weldon	Corby	417
224	Arran Way	Corby	206
697	North of Cottingham Road	Corby	111
211	50 Stephenson Way	Corby	171
697	Land at Finland Way (Danesholme Regeneration Area)	Corby	237
490	West Corby	Corby	125
611	West Corby	Corby	623
678	R4 Pen Green Lane	Corby	217
658	R17 Oundle Road, Weldon	Corby	768
696	R9 Off Stanion Lane	Corby	10
226	Off Stanion Lane (phase 2)	Corby	149
477	Part R16 Chapel Road, Weldon	East Northants	296
423	R2 Pytchley Court	East Northants	52
443	Old Depot Site, West Glebe Park	East Northants	26
443	Our Lady Pope John	East Northants	4
92	Garage Sites	East Northants	129
94	Canada Square	East Northants	657
82	Kingswood Phase 2	East Northants	24
85	Kingswood School	East Northants	106
94	Former Education Centre, off Occupation Road (SHLAA Site 299)	East Northants	1
694	Former garage site, Weldon Road (SHLAA Site 363)	East Northants	637
443	Garage Court, Swale Close (SHLAA Site 364)	East Northants	480
729	Site at Corner Church Street & A427 (SHLAA Site 255)	East Northants	278
120	School, Off Occupation Road (SHLAA Site 350)	East Northants	477
490	Corby Community College, Oakley Road (SHLAA 1148)	East Northants	130
89	Oakley Vale, Science Park (SHLAA Site 2003)	East Northants	3
660	Land at Wharf Road Allotment Site	Kettering	740
724	Midland Business Centre, Midland Road	Kettering	919
725	Westfield's Terrace	Kettering	881
693	Land Between A6 Higham Ferrers Bypass And A5028 Station Road	Kettering	278
268	Whitworth's Site, Wellingborough Road	Kettering	111
268	Former Sunseekers factory site	Kettering	103
268	Laundry Site, 259 Addington Road	Kettering	83
268	Land between Willow Lane & Fineshade	Kettering	96
254	Land End of Creed Road	Kettering	53
254	Oundle School Playing Field, Glapthorn Road	Kettering	156
675	Northdale End (Raunds North East)	Kettering	663
722	Land off Windsor Road	Kettering	835
257	Broadlands Family Unit, Victoria Road	Kettering	3
257	Former Garage Site, Station Road	Kettering	3
242	Land off Windsor Road	Kettering	16
242	Avenue Agricultural, Park Road	Kettering	18
257	Rushden Hospital, The Drive	Kettering	13
256	29 Wellingborough Road	Kettering	14
733	66 Harborough Road	Kettering	1910
727	Land South of Goulsbra Road	Kettering	408
731	Land Adjacent 16 Stamford Lane	Kettering	149
727	Ferrers School	Kettering	26
717	West of Huxlow School/ Irthlingborough West SUE	Kettering	1125
695	Land off Addington Road (Irthlingboorugh East)	Kettering	701
731	Land rear of Green Close	Kettering	1275
257	Ashton Road/Herne Road	Kettering	268
692	Dairy Farm	Wellingborough	1403
447	Land adjacent to Pevensey Close, Barrington Road	Wellingborough	42
447	Thrapston South (Phases 1 and 2)	Wellingborough	21
446	Thrapston South (Phase 3)	Wellingborough	3
418	Thrapston South (Phase 4)	Wellingborough	84
418	Church Street	Wellingborough	15
153	Eaglethorpe Barns	Wellingborough	79
153	Rushden East Sustainable Urban Extension	Wellingborough	3
153	Attley Way (Irthlingborough East)	Wellingborough	8
153	West End (Raunds North)	Wellingborough	17
132	Kingfisher Way	Wellingborough	2
649	Diana Way (land off)	Wellingborough	775
654	Desborough Water Tower, Bridge Road (land to the west)	Wellingborough	775
655	Ironwood Avenue (land off)	Wellingborough	775
656	Talbot Court, High Street, Desborough	Wellingborough	775
237	*East of Kettering	Wellingborough	21

NSTM Zone	Development	District	B-class jobs
160	*East of Kettering	Wellingborough	15
160	*East of Kettering	Wellingborough	12
160	*East of Kettering	Wellingborough	18
160	18-24 Durban Road	Wellingborough	20
153	Dryden Street & Field Street (land at junction of)	Wellingborough	8
145	Former Tresham College, St Marys Rd	Wellingborough	48
154	Rothwell Town Football Club, Off Cambridge Street, (renewal of 2010/028	Wellingborough	3
130	Harrington Road	Wellingborough	4
472	Jubilee Street (245 units)	Wellingborough	1
153	Polwell Lane (land at)	Wellingborough	3
130	Rockingham Rd	Wellingborough	3
446	52 Lawson St	Wellingborough	3
145	Cecil St	Wellingborough	80
130	SHOPPING QUARTER: Wadcroft/ Newlands Phase 1 (SHQ1and SHQ3), Kett	Wellingborough	7
447	RESIDENTIAL QUARTER: Land north and east of Trafalgar Road (NRQ4), Ke	Wellingborough	1
145	RESIDENTIAL QUARTER: National Grid site north, Jutland Way (NRQ6), Ket	Wellingborough	9
707	RESIDENTIAL QUARTER: Northampton Road/ Northfield Avenue (NRQ11),	Wellingborough	18
687	SHOPPING QUARTER: Dryden Street / Fleet Street (SHQ7), Kettering	Wellingborough	725
Total			25983

(A)

Non-B class jobs from retail developments

District	Total
Corby	1150
East Northants	2479
Kettering	1250
Wellingborough	1207
Total	6086

(B)

Non-B class jobs shortfall (split across district zones)

District	Total
Corby	1075
East Northants	284
Kettering	2426
Wellingborough	834
Total	4619

(C)

Final housing numbers

Total (A + B + C)	36688
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Employment developments (Scenario 5)

NSTM Zone	Development	District	B-class jobs
701	NE Corby SUE (Priors Hall - Corby)	Corby	205
702	NE Corby SUE (Priors Hall - Corby)	Corby	107
703	NE Corby SUE (Priors Hall - Corby)	Corby	45
704	NE Corby SUE (Priors Hall - Corby)	Corby	246
706	NE Corby SUE (Weldon Park)	Corby	34
705	Stanion Lane Plantation, Corby	Corby	3009
696	Former Gefco automotive site (East of Geddington Road), Corby	Corby	1066
609	Land at Cockerell Road, Corby	Corby	525
224	Oakley Hay, Oakley Road	Corby	223
697	CBC, Oakley Hay	Corby	40
211	Adjacent Astra Headway	Corby	114
697	CNT Plots Oakley Hay	Corby	159
490	Ex Sludgebeds	Corby	290
611	Seymour Plantation, Rockingham Road, Corby	Corby	417
678	West Corby	Corby	205
658	West Corby	Corby	726
696	Land adjacent Iron Pit Close	Corby	9
226	Station Gateway	Corby	53
477	North Raunds (West End), Raunds	East Northants	527
423	North East Raunds (Northdale End), Raunds	East Northants	37
443	Car park adjacent units 18/22 Francis Court, Rushden	East Northants	18
443	Elan Court, Norris Way, Rushden	East Northants	3
92	Plot 1, Haldens Parkway	East Northants	169
94	Vehicle Depot and Adjacent Land, Islip	East Northants	788
82	Kingsmead Industrial Estate (KCF1), Kings Cliffe	East Northants	32
85	Eaglethorpe Barns (WAR1), Warmington	East Northants	76
94	Cattle Market, Market Road (THR3(4)), Thrapston	East Northants	4
694	Warth Park Extension, Raunds	East Northants	783
443	Nene Valley Farm, Northampton Road, Rushden	East Northants	700
729	Rushden East	East Northants	277
120	Irthlingborough West	East Northants	849
490	Data Centre, Gretton Road, Corby	East Northants	172
89	Land r/o Units 3-9, Eastwood Road	East Northants	2
660	Rothwell North Sustainable Urban Extension, Rothwell	Kettering	236
724	Kettering South, (A14 jcn 9/A509) - B8 Allocation & 25% of B1 & B2	Kettering	822
725	Kettering South, (A14 jcn 9/A509) - 75% of B1 & B2	Kettering	281
693	Land West of the Station - STQ1, Kettering	Kettering	43
268	The Crescent North - STQ6, Kettering	Kettering	17
268	The Crescent - STQ7, Kettering	Kettering	16
268	The Crescent - STQ8, Kettering	Kettering	13
268	The Crescent South - STQ9, Kettering	Kettering	15
254	Kettering Cars - STQ10, Kettering	Kettering	8
254	Station Road / Northampton Road - STQ11, Kettering	Kettering	24
675	East of Kettering	Kettering	103
722	East of Kettering	Kettering	129
257	10a Telford Way, Kettering	Kettering	0
257	Unit 4 Furnace Lane, Telford Way, Kettering	Kettering	2
242	2 Orion Way, Kettering	Kettering	2
242	Tesco Stores, Carina Road, Kettering	Kettering	22
257	Isham House, Kettering General Hospital, Kettering	Kettering	2
256	Land at Stanier Close, Kettering	Kettering	2
733	Weekley Wood Development Area, Kettering	Kettering	801
727	North Kettering (Buccleuch Properties East of A6003)	Kettering	63
731	North Kettering (Buccleuch Properties East of A6003)	Kettering	23
727	North Kettering (Buccleuch Properties East of A6003)	Kettering	4
717	A14 Jcn 10/A6 Burton Latimer	Kettering	699
695	Cransley Park, Kettering	Kettering	248
731	North Kettering	Kettering	785
257	A14 Junction 7 Opposite Crematorium (Site Specific LDD Site - K2)	Kettering	63
692	Appleby Lodge, Wellingborough	Wellingborough	1826
447	High Street/Jackson's Lane site - C	Wellingborough	13
447	Oxford House site - K	Wellingborough	7
446	Alma Street/Cambridge Street Backlands site - G	Wellingborough	1
418	Vauxhall dealership, railway club, reachout centre and adjoining land - A a	Wellingborough	26
418	Queen Street/St John Street sites - D	Wellingborough	5
153	2-20 Don White Road Wellingborough NN8 4FT	Wellingborough	25
153	Mining & Chemical Production Ltd, Nielson Road, Finedon Road Industrial	Wellingborough	5
153	4/5 Midland Business Units, Finedon Road, NN8 4AD	Wellingborough	11
153	23-25, Don White Road, Finedon Road, Industrial Estate, Wellingborough,	Wellingborough	13
132	Leyland Trading Estate Irthlingborough Road Wellingborough	Wellingborough	0
649	Wellingborough East SUE	Wellingborough	430
654	Wellingborough East SUE	Wellingborough	430
655	Wellingborough East SUE	Wellingborough	430
656	Wellingborough East SUE	Wellingborough	430
237	304 Former Scrapyard, Station Road, Isham, Kettering, NN15 5NT	Wellingborough	15

NSTM Zone	Development	District	B-class jobs
160	Sywell Airport Business Park, Wellingborough Road, Sywell, Northampton,	Wellingborough	5
160	204, Holcot Lane, Sywell, Northampton, NN6 0BG	Wellingborough	4
160	Site B Unit 1 Lancaster Hanger, Wellingborough Road, Sywell, Northampto	Wellingborough	28
160	Hendrickson Site 7 (Unit 35), Sywell Aerodrome, Wellingborough Road, Sy	Wellingborough	6
153	34 42, Sanders Road, Wellingborough, NN8 4NL	Wellingborough	11
145	Plot U adjoining, Rutherford Drive, Wellingborough, NN8 6AQ	Wellingborough	39
154	16 20, Meadow Close, Wellingborough, NN8 4BH	Wellingborough	1
130	4 Unit 2, Everitt Close, Wellingborough, NN8 2QE	Wellingborough	4
472	12 14, Edmonds Close, Wellingborough, NN8 2QY	Wellingborough	1
153	61 65, Sanders Road, Wellingborough, NN8 4NL	Wellingborough	4
130	Hampton Steel & Wire Limited, 39 43, London Road, Wellingborough, NN8	Wellingborough	4
446	14a, Cambridge Street, Wellingborough, NN8 1DJ	Wellingborough	1
145	Mahle Powertrain, 31, Booth Drive, Park Farm Industrial Estate, Wellingbo	Wellingborough	25
130	Unit A, 22-24, Denington Road, Wellingborough, NN8 2QH	Wellingborough	10
447	Rear of 4-8, Barnabas Street, Wellingborough, NN8 3HB	Wellingborough	0
145	Land rear of 14 to 38 and fronting, Sywell Road, Davy Close, Wellingborou	Wellingborough	14
157	7, Williams Way, Wollaston, Wellingborough, NN29 7RQ	Wellingborough	0
707	Eastfield Urban Quarter	Wellingborough	6
687	Wellingborough North	Wellingborough	227
		Total	20396

(A)

Non-B class jobs from retail developments

District	Total
Corby	1150
East Northants	2479
Kettering	1250
Wellingborough	1207
Total	6086

(B)

Non-B class jobs shortfall (split across district zones)

District	Total
Corby	1075
East Northants	284
Kettering	2426
Wellingborough	834
Total	4619

(C)

Final housing numbers

Total (A + B + C)	31101
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Appendix B – Maximum volume to capacity ratios at junctions

DRAFT

Appendix B - Comparison of maximum V/C values for junctions in NSTM 2031 models

Node	Description	LPA	AM peak				PM peak			
			Sc2	Sc5	Sc2 ST	Sc5 ST	Sc2	Sc5	Sc2 ST	Sc5 ST
1006	A6003 Main Street / A6003 Caldecott Road / B670 Gretton Road / B670 Cottingham Road	Corby	83.04	82.88	83.02	83.17	87.83	87.5	89.22	89.11
1012	A427 Cottingham Road / Beanfield Avenue	Corby	75.32	Low V/C & Flow	Low V/C & Flow	Low V/C & Flow	28.57	Low V/C & Flow	Low V/C & Flow	Low V/C & Flow
1013	A6003 / Danesholme Road / West Corby SUE access road	Corby	74.81	72.03	71.89	72.6	81.77	83	83.25	83.28
1038	A6014 Oakley Road / Gainsborough Road	Corby	79.29	78.93	79.24	76.51	83.33	85.15	86.92	87.47
1040	A6014 Oakley Road / Cecil Drive	Corby	40.34	40.26	39.67	40.15	82.93	84.72	86.15	87.58
1046	A43 Stamford Road / A6086 Geddington Road	Corby	101.63	101.6	102.96	102.06	95.76	92.99	87	84.64
1166	Cottingham Road / Elisabeth Street - in Corby	Corby	59.44	58.17	58.7	Low V/C & Flow	94.28	95.6	95.84	97.28
1181	A6003 / Uppingham Road / A427	Corby	76.73	77.42	82.31	85.27	96.33	97	99.7	99.98
1187	A6003 Uppingham Road / A6014 Oakley Road / Oakley Road / Headway	Corby	97.01	92.16	89.7	88.74	90.97	90.6	92.57	93.61
1188	A6014 Oakley Road / Danesholme Road / Lewin Road	Corby	73.88	74.51	74.18	75.12	80.67	79.94	81.59	80.23
1192	A427 Oakley Road / A427 Wescott Way / A6014 Oakley Road / Elizabeth Street	Corby	56.37	Low V/C & Flow	Low V/C & Flow	Low V/C & Flow	75.35	Low V/C & Flow	Low V/C & Flow	Low V/C & Flow
1198	A6003 / Uppingham Road / A6116 Rockingham Road	Corby	93.13	93.38	95.45	96.1	75.53	75	77.3	77.09
1199	A6116 Rockingham Road / A6116 Gretton Brook Road / Rockingham Road	Corby	72.54	71.28	81.11	81.09	92.96	91	99.84	99.61
1201	A427 Weldon Road / A6086 Geddington Road / Lloyds Road - in Corby	Corby	99.59	99.95	99.73	100.28	101.15	100.57	100.59	99.99
1202	A6086 Lloyds Road / A6086 Phoenix Parkway / Lloyds Road	Corby	89.88	91	89.31	94.94	82.21	81.2	84.87	85.23
1203	Rockingham Road / Lloyds Road / The Jamb	Corby	20.24	20.45	19.41	20.37	86.92	84.82	87.25	88.68
1206	A43 / A6116 / Long Croft Road / Corby Link Road	Corby	101.91	102.64	104.43	105.27	105.34	105.84	106.69	107.34
1212	A43 Stamford Road / A427 Stamford Road / Priors Hall Development access road	Corby	101.42	100.81	102.67	102.51	101.29	101.14	101.76	101.76
1291	A6116 Gretton Brook Road / Causeway Road / Princewood Road	Corby	76.69	Low V/C & Flow	92.44	91.31	57.06	Low V/C & Flow	79.93	78.28
24696	Tower Hill Road / Gainsborough Road	Corby	114.54	115	115.39	114.89	Low V/C & Flow	Low V/C & Flow	93.88	Low V/C & Flow
24862	A6116 Brigstock Road / Priors Hall Road	Corby	76.16	75.98	Low V/C & Flow	Low V/C & Flow	95.77	95.17	Low V/C & Flow	Low V/C & Flow
24863	Priors Hall Road / Gretton Road - in Corby	Corby	83.98	82.82	Low V/C & Flow	Low V/C & Flow	97.21	98.1	91.46	91.98
36006	Priors Hall	Corby	96.25	96.3	97.51	97.09	42.29	40.37	96.84	96.35
70000	West Corby SUE	Corby	106.96	106.01	107.35	106.88	38.4	38.06	61.84	39.5
70002	West Corby SUE	Corby	105.43	104.37	105.25	104.52	80.6	80.17	79.51	78.79
10025	A14 J12 - EB on slip & A6116 flyover	East Northants	77.54	78.05	Low V/C & Flow	76.69	57.11	55.98	Low V/C & Flow	60.93
10026	A14 J12 EB on-slip from A6116 / A14 J12 WB off-slip to A6116 / A14 mainline	East Northants	Low V/C & Flow	68.87	Low V/C & Flow	Low V/C & Flow	Low V/C & Flow	75.6	Low V/C & Flow	Low V/C & Flow
10029	A14 J13 - EB on slip / WB off slip / Mainline	East Northants	78.99	77.67	79.68	78.77	85.94	86.04	85.57	85.75
10030	A14 / Brook Road to North Lodge near Thrapston	East Northants	81.7	84.1	79.9	81.64	84.72	84.84	84.35	84.53
10032	A14 / High Street (to Titchmarsh)	East Northants	81.6	83.99	79.79	81.53	84.73	84.84	84.36	84.53
10065	A45 / West Street (to Stanwick)	East Northants	93.12	90.91	92.86	92.7	86.92	86.64	87.21	87.78
10111	A43 / Main Street - West of Bulwick	East Northants	80.2	79.83	81.9	81.38	76.3	74.71	77.93	77.67
10130	A45 / B663 London Road (to Raunds)	East Northants	94.85	96.64	94.71	96.18	98.76	98.75	98.7	100.32
10290	Rushden Road / Caldecott Road - at Newton Bromswold	East Northants	Low V/C & Flow	Low V/C & Flow	Low V/C & Flow	Low V/C & Flow	84.15	84.46	83.83	83.29
10376	A605 / B662 / Road to Pilton	East Northants	81.66	83.43	82.58	83.2	69.47	70.28	69.91	70.4
10416	A6 Finedon Road / B5348 Finedon Road	East Northants	63.07	63.72	63.38	63.55	79.25	76.28	79.42	77.37
10421	A14 J13 - A45 approach	East Northants	77.6	78.16	77.97	77.4	80.96	79.57	81.06	81.31
10422	A14 J13 - A605 North arm	East Northants	103.67	103.56	103.61	103.58	104.06	103.9	104.17	104.19
10427	A605 / Church Street	East Northants	Low V/C & Flow	75.38	Low V/C & Flow	Low V/C & Flow	Low V/C & Flow	72.46	Low V/C & Flow	Low V/C & Flow
11145	A45 / B645 Northampton Road / A5001 Crown Way / Rushden Lakes Access Road	East Northants	90.61	89.32	90.47	90.6	116.91	118.53	116.92	116.72
11607	A5001 Wellingborough Road / Northampton Road	East Northants	96	96.04	95.88	95.56	93.83	92.65	93.87	92.93
11713	A5001 Wellingborough Road / Masefield Drive	East Northants	70.21	69.22	70.26	70.34	91.11	90.89	90.86	91.54
11805	B645 Northampton Road / Hayway	East Northants	Low V/C & Flow	87.74	Low V/C & Flow	87.72	Low V/C & Flow	67.76	Low V/C & Flow	66.48
11821	A5028 / John Clark Way	East Northants	49.45	49.41	49.13	49.63	78.48	75.8	76.29	77.4
11828	A5001 Wellingborough Road / B569 Irchester Road / B569 Washbrook Road	East Northants	88.57	88.49	88.65	88.55	100.87	100.63	100.6	100.96
11889	A6 Bedford Road / Ave Road	East Northants	92.72	93.55	92.2	92.48	81.16	82.58	80.84	81.07
11899	A6 Bedford Road / Wymington Lane	East Northants	94.17	95.05	93.71	93.65	81.87	83.2	81.58	81.81
12315	Huntington Road / Oundle Road / High Street	East Northants	79.92	78.7	Low V/C & Flow	80.05	Low V/C & Flow	Low V/C & Flow	Low V/C & Flow	Low V/C & Flow
12352	A605 / Road to Thorpe Waterville	East Northants	75.58	77.17	75.5	76.07	80.69	81.52	81.27	81.74
12660	A605 / Church Street (to Warmington)	East Northants	Low V/C & Flow	75.92	Low V/C & Flow	75.33	Low V/C & Flow	71.59	Low V/C & Flow	71.37
12661	A605 / Road to Tansor & Cotterstock	East Northants	76.04	77.62	76.29	77.07	71.47	72.11	72.08	71.86
12664	A605 / Barnwell Road	East Northants	86.46	87.58	87.03	87.76	75.45	75.34	75.69	75.78
12827	John Clark Way / Rectory Road	East Northants	79.9	76.58	79.59	79.88	102.35	102.35	102.34	102.34
12836	A14 J13 - EB off slip / Circulatory	East Northants	92.78	93.59	92.07	92.63	90.84	88.48	91.16	91.52
12837	A14 J13 West - Start of WB on-slip	East Northants	92.78	93.59	92.07	92.63	90.84	88.48	91.16	91.52
12838	A14 J13 - WB off-slip / Circulatory	East Northants	99.88	99.96	99.88	100.13	100.59	102.38	100.2	100.07
12851	A6 / A6 Bedford Road / A5028 Bedford Road	East Northants	56.93	55.34	57.11	56.56	80.8	82.19	80.46	80.82
24055	A43 / Access road to Blatherwycke Lake	East Northants	83.7	83.25	86.27	85.53	79.11	77.32	80.52	80.21
34000	Chowns Mill Roundabout - A6 NW Arm / Circulatory	East Northants	74.98	75.28	74.5	75.33	78.8	76.13	78.7	77.29
34001	Chowns Mill Roundabout - A45 NE Arm / Circulatory	East Northants	74.98	75.28	74.5	75.33	84.88	83.74	86.57	85.02
34010	Chowns Mill Roundabout - A45 SW Arm / Circulatory	East Northants	81.79	81.17	82.45	81.97	93.65	93.18	95.59	93.86
49706	Rushden Lakes development access node (connector only)	East Northants	56.29	58	56.33	56.61	82.94	83.42	83.11	83.66
49710	A605 / Well Lane	East Northants	78.73	80.32	79.98	80.5	69.36	69.25	103.58	69.85
1034	A6003 Rockingham Road / Corby Link Road / Newton Road	Kettering	107.82	108.57	109.58	109.07	103.01	101.39	103.21	101.79
1035	A6003 / Grange Road junction	Kettering	79.26	77.9	77.9	77.21	80.9	80.25	81.27	80.36
10040	A14 J6 - EB on slip / Mainline	Kettering	98.43	98.39	98.39	98.38	95.19	95.56	95.22	95.67
10085	A6003 Rockingham Road / A43 Roundabout - A6003 SB approach / A6003 NB exit	Kettering	80.76	80.95	79.58	80.52	75.25	74.8	77.16	76.07
10094	A6 / A427 Harborough Road / A4304 Rockingham Road	Kettering	79.4	71.01	80.43	76.13	92.38	90.02	92.93	92.86
10385	A14 J7 - SB on slip / NB off slip / Mainline	Kettering	93.01	92.89	92.7	92.61	81.12	79.99	81.32	80.86
10388	A14 J8 South - Mainline / NB off-slip / SB on-slip	Kettering	93.05	93.78	92.68	93.31	92.8	92.24	93.18	93
10389	A14 mid-link between J8 and J9	Kettering	83.12	83.09	83.57	83.09	80.17	79.25	80.34	79.92
10405	A14 J9 - WB on slip / EB off slip / Mainline	Kettering	98.13	97.66	98.4	97.61	95.12	94.13	95.23	94.58
10408	A14 J9 - EB on slip / WB off slip / Mainline	Kettering	94.42	93.73	94.42	93.25	87.2	85.73	87.31	86.24
10412	A6 Burton Road / Higham Road	Kettering	Low V/C & Flow	71.49	Low V/C & Flow	71.89	Low V/C & Flow	75.3	Low V/C & Flow	75.35
10457	A6013 Northampton Road / Westhill Drive	Kettering	73.22	74.11	73.99	73.95	80.12	80.09	79.58	78.95
10475	Warren Hill / Telford Way / A4300 Rothwell Rd	Kettering	76.64	75.79	76.32	76.12	57.35	56.55	57.83	57.08
10549	A4300 Rothwell Rd / A6003 Northfield Avenue / Lower Street	Kettering	82.7	83.69	83.46	83.15	84.24	83.96	83.27	83.9
10568	Bowling Green Road / A6900 / A6003	Kettering	47.37	47.36	47.53	47.44	80.66	80.36	79.3	80.68
10572	A6900 / St Peters Avenue	Kettering	90.96	90.64	90.56	90.5	Low V/C & Flow	Low V/C & Flow	80.42	Low V/C & Flow
10578	A6003 Northfield Avenue / A6013 Northampton Road - in Kettering	Kettering	83.23	81.29	82.24	81.9	70.31	70.29	70.35	69.86
10597	Northfield Avenue / Grafton Street	Kettering	79.91	53.33	83.78	81.36	95.82	96.06	95.68	95.8
10672	A509 / Kettering Parkway / Pegasus Crescent	Kettering	66.46	66.45	65.96	65.93	83.89	84.3	83.56	83.69
10689	A509 Pytchley Road / Paradise Lane	Kettering	82.45	82.45	82.47	82.26	62.62	63.16	62.63	62.72
10705	A509 Pytchley Road / Pytchley Lane	Kettering	81.67	81.73	81.68	81.46	58.27	58.43	58.35	58.25
10706	A509 Pytchley Road / Holdenby / Carina Road / Orion Way	Kettering	100.61	100.51	100.51	100.32	94.9	95.3	94.72	94.95
10751	A6003 London Road / Piper's Hill Road	Kettering	Low V/C & Flow	42.53	Low V/C & Flow	Low V/C & Flow	Low V/C & Flow	75.51	Low V/C & Flow	Low V/C & Flow
10764	A509 Pytchley Road / Spinney Lane	Kettering	81.05	81.05	81.07	80.85	61.56	61.77	61.71	61.11
10768	A6003 Barton Road / London Road / A509 - in Kettering	Kettering	101.77	101.78	101.82	101.65	85.87	85.88	86.75	85.5
10777	A6900 St Marys Road / A6098 Windmill Avenue - in Kettering	Kettering	75.77	75.53	75.94	75.86	69.2	69.25	69.3	68.94
10778	A6098 / Deebie Road / Windmill Avenue	Kettering	82.22	82.02	82.43	82.62	78.97	78.53	79.04	78.16
10904	A4300 Stamford Road / A6098 Winnill Avenue / Central Avenue	Kettering	75.52	76.15	75.89	76.32	68.13	68.03	68.84	67.57
11007	Polwell Lane / Grosvenor Road	Kettering	62.64	62.19	63.59	63.17	75.42	77.55	76.01	78.2
11118	A6003 Barton Road / Warkton Lane - in Kettering	Kettering	92.38	91.86	91.88	91.24	62.49	63.1	62.93	63.67
12393	A14 J3 East - EB on slip / WB off slip / Mainline	Kettering	83.8	84.76	83.96	84.78	79.38	78.6	79.8	79.64
12441	B669 Kettering Road / B576 High Street / Fox Street	Kettering	72.34	72.2	72.32	72.17	90.21	91.61	89.04	89.38
12443	B576 High Street (mid link) - in Rothwell	Kettering	100.69	100.7	100.68	100.63	90.97	90.83	89.74	89.19
12466	B576 High Street / B576 Desborough Road / Bridge Street	Kettering	90.06	90.12	90.28	90.12	93.66	93.38	92.43	91.76
12704	A14 J9 - A509 NB / A14 off slip	Kettering	100.07	99.09	99.49	97.68	100	100.14	100.13	99.85
12705	A14 J9 - Boughton Arm	Kettering	70.09	69.44	70.06	69.27	82.98	82.88	82.92	83.04
12706	A14 J9 - A509 NB arm	Kettering	97.12	94.92	97.15	95.15				

			AM peak			
Node	Description	LPA	Sc2	Sc5	Sc2 ST	Sc5 ST
12605	A45 J10 - Northampton Road	Wellingborough	90.91	91.33	90.71	90.93
12607	A45 - close to and east of J10 (mid-link)	Wellingborough	90.91	91.33	90.71	90.93
12630	Station Road - Grendon Road / A45	Wellingborough	96.27	96.75	96.06	96.3
13001	A5193 Sheep Street pedestrian crossing	Wellingborough	Low V/C & Flow	Low V/C & Flow	Low V/C & Flow	Low V/C & Flow
24690	A509 Mainline (West of Bozeat)	Wellingborough	80.51	82.21	79.96	80.26
25103	A509 London Road / Danield Road	Wellingborough	67.84	68.18	67.48	67.84
28037	Niort Way / Upper Red Hill Development	Wellingborough	96.43	97.19	95.99	96.63
28038	Wellingborough Bypass / Upper Red Hill Development	Wellingborough	99.42	99.48	99.32	99.18
28043	Isham Bypass / Hill Top Road / A509 Kettering Road	Wellingborough	102.8	102.74	103.16	103.09
36507	A45 / EB off-slip to Ditchford Road	Wellingborough	80.03	79.35	79.61	79.81
36514	Stanton Cross/WEAST junction near Grange Farm	Wellingborough	56.84	54.39	57	55.03
41012	A509 / A5128 / A4500 Roundabout	Wellingborough	79.34	78.55	79.57	79.17
41031	A5193 High Street / Queen Street	Wellingborough	Low V/C & Flow	Low V/C & Flow	Low V/C & Flow	Low V/C & Flow
49711	A45 / A45 Higham Road / A45 Wilby Way - A45 Higham Road approach (including SB slip road)	Wellingborough	94.74	94.77	94.55	94.78
49712	A45 / SB slip road from A45 Higham Road / A509 Wilby Way roundabout	Wellingborough	94.74	94.77	94.56	94.78
60010	A509 Wilby Way / A45 Higham Road / A45 / Bourton Way - A45 Approach	Wellingborough	75.41	75.05	75.42	75.38
60012	A509 Wilby Way / A45 Higham Road / A45 / Bourton Way - A509 Wilby Way Approach	Wellingborough	86.82	86.63	86.68	86.8
60013	A509 Wilby Way / A45 Higham Road / A45 / Bourton Way - Circulatory prior to Bourton Way	Wellingborough	90.9	90.54	90.63	90.8
60015	A509 / Bourton Way / A45 Roundabout - A45 left hand filter	Wellingborough	94.74	94.77	94.56	94.78
60016	A509 / Bourton Way / A45 Roundabout - A45 left hand filter	Wellingborough	94.74	94.77	94.56	94.78

PM peak			
Sc2	Sc5	Sc2 ST	Sc5 ST
89.04	89.17	88.89	89.14
75.52	76.04	75.31	75.66
75.52	76.04	75.31	75.66
82.26	82.25	82.31	82.25
74.14	74.69	74.01	74.29
83.32	83.77	83.29	83.74
90.12	92.2	89.82	91.05
92.49	92.32	92.95	92.35
101.44	101.58	101.39	101.39
81.34	81.31	81.39	81.52
84.46	80.53	83.48	79.77
69.63	70.86	69.64	69.9
104.35	104.35	104.35	104.35
92.73	92.24	93.08	93.15
92.73	92.24	93.08	93.15
70.1	69.31	69.82	70.28
80.31	81.04	81.43	80.46
80.49	80	80.82	80.48
92.73	92.24	93.08	93.15
92.73	92.24	93.08	93.15

Appendix C – Traffic flow figures for Scenarios 2 and 5 model runs

DRAFT



SATURN

Atkins Ltd /
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031_AM_NNJPU
_SC2_OPT.UFS

Scale 35839

Link Annot:

Actual flow

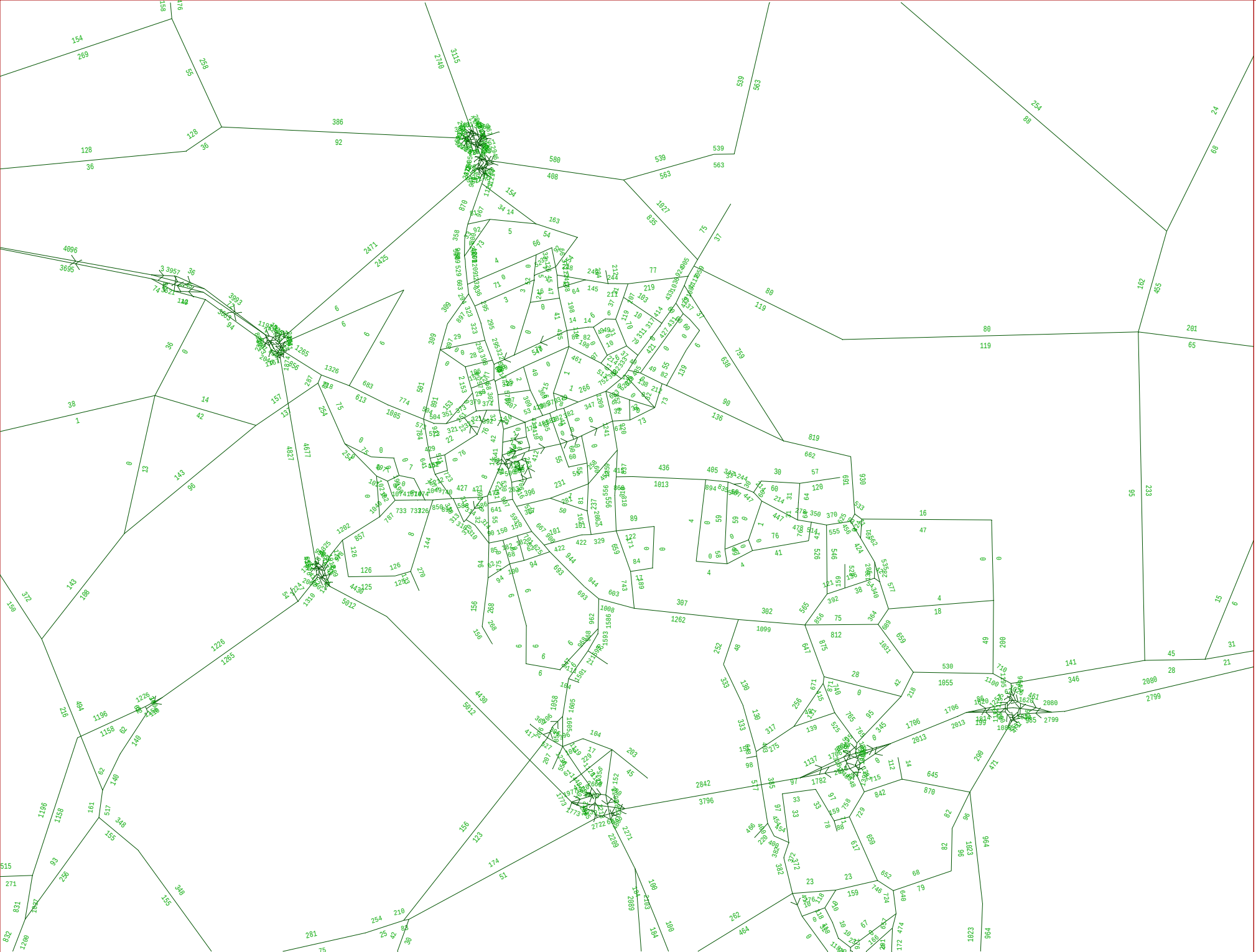
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WSP GROUP (S

C1

CORBY - Sc2

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C2



KETTERING - Sc2

*NSTM_2031_AM_NNJPU_Sc2 2-12-14



SATURN

Atkins Ltd /
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031_AM_NNJP
_SC2_OPT.UFS

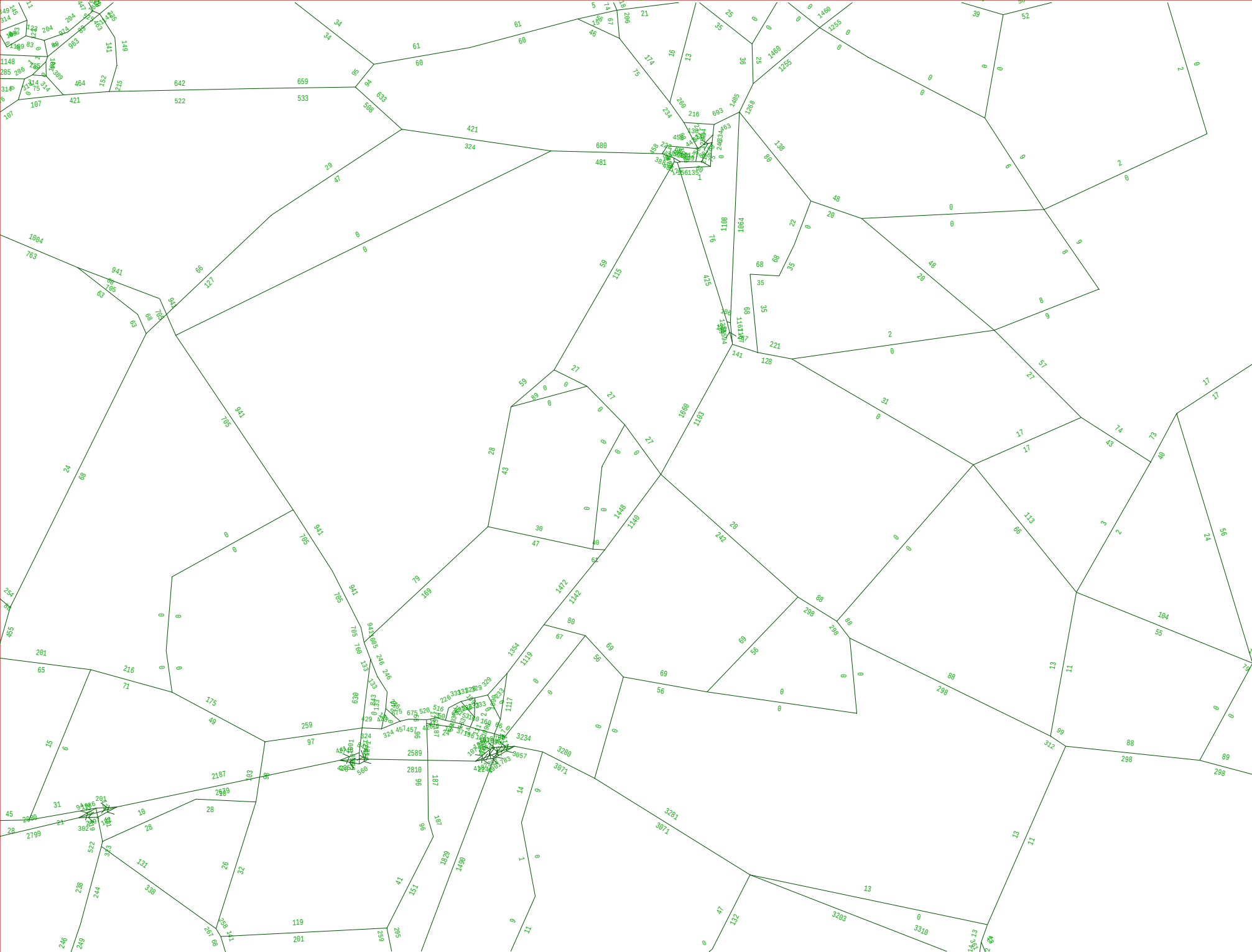
Scale 36625

Link Annot:

Actual flow

2-12-14
WSP GROUP (S

C3



SATURN

Atkins Ltd /
DW / ITS

031_AM_NNJP
_SC2_OPT.UFS

Scale 56330

Link Annot:

Actual flow

2-12-14
WSP GROUP (S

C4



SATURN

Atkins Ltd /
DW / ITS

031_AM_NNJPU
_SC2_OPT.UFS

Scale 33329

Link Annot:

Actual flow

2-12-14
WSP GROUP (S

C5



SATURN

Atkins Ltd /
DW / ITS

031_PM_NNJPU
_SC2_OPT.UFS

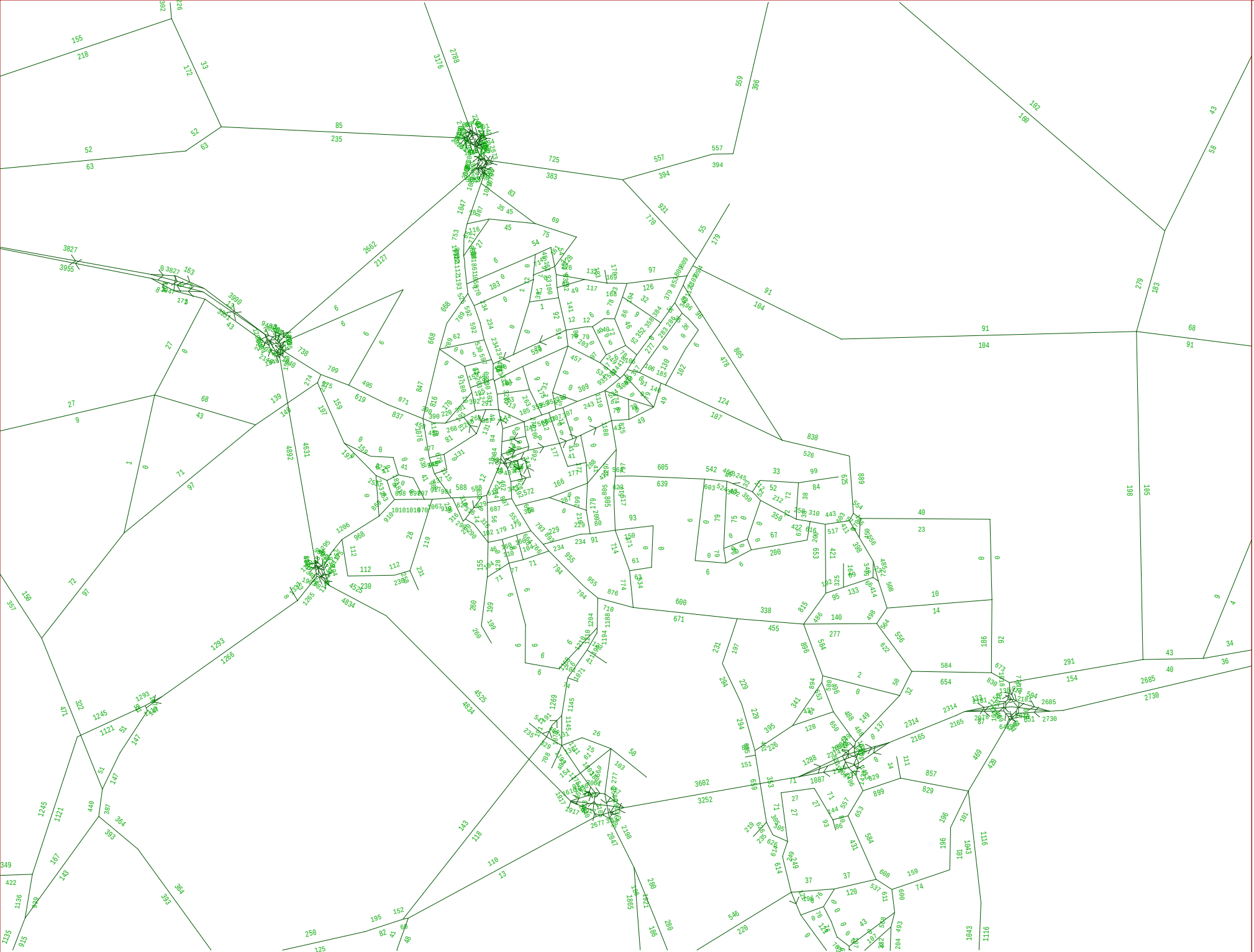
Scale 35839

Link Annot:

Actual flow

2-12-14
WSP GROUP (S)

C6



SATURN

Atkins Ltd /
DW / ITS

031_PM_NNJP
_SC2_OPT.UFS

Scale 27946

Link Annot:

Actual flow

2-12-14
WSP GROUP (S)

C7



SATURN

Atkins Ltd /
DW / ITS

031_PM_NNJPU
_SC2_OPT.UFS

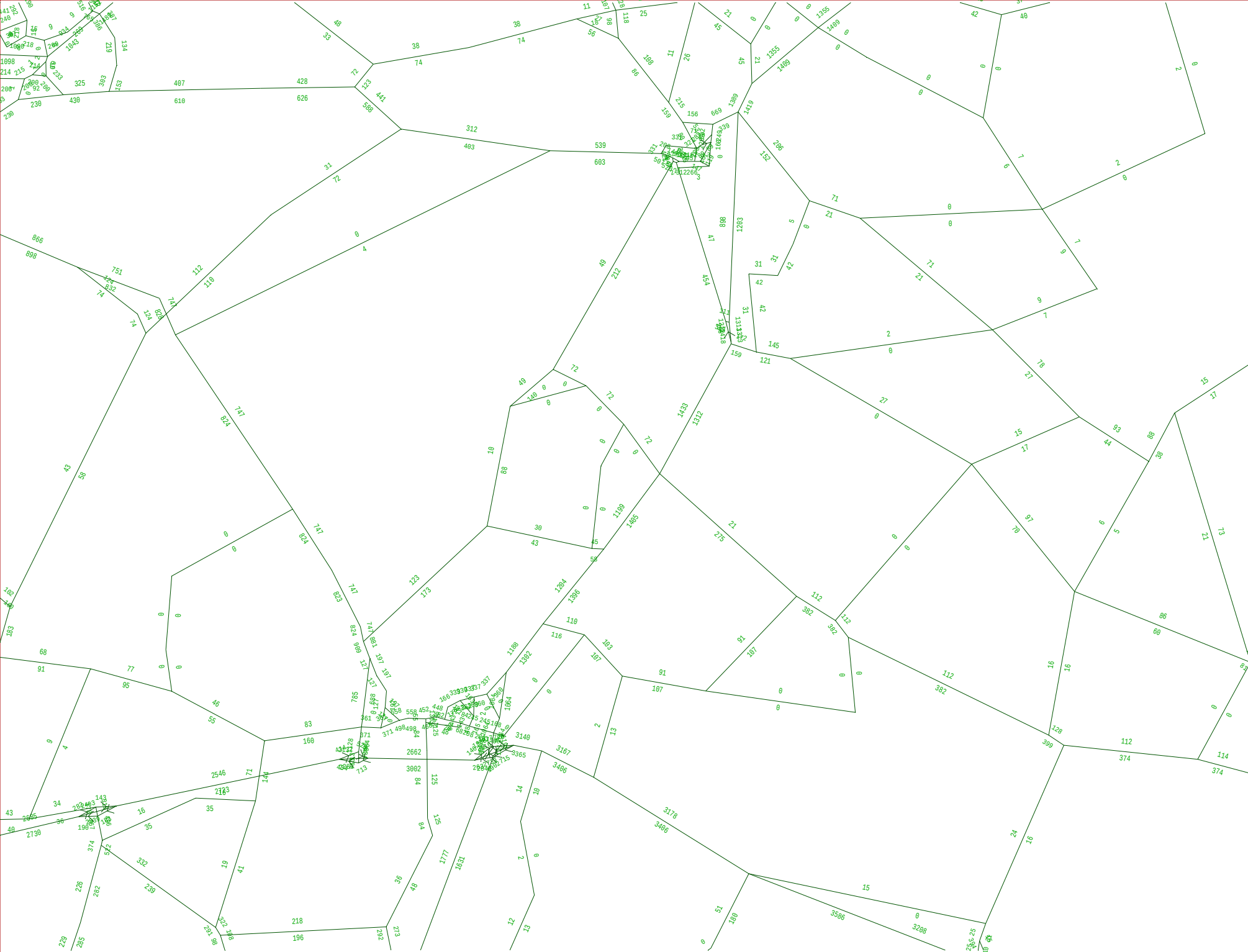
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Link Annot:

Actual flow

2-12-14
WSP GROUP (S

C8



SATURN

Atkins Ltd /
DWM / ITS

031_PM_NNJP
_SC2_OPT.UFS

Scale 56330

Link Annot:

Actual flow

2-12-14
WSP GROUP (S

C9



SATURN

Atkins Ltd /
DW / ITS

031_PM_NNJPU
_SC2_OPT.UFS

Scale 33329

Link Annot:

Actual flow

2-12-14
WSP GROUP (S

C10



SATURN

Atkins Ltd /
DWV / ITS

031_AM_NNJPU
_SC5_OPT.UFS

Scale 35839

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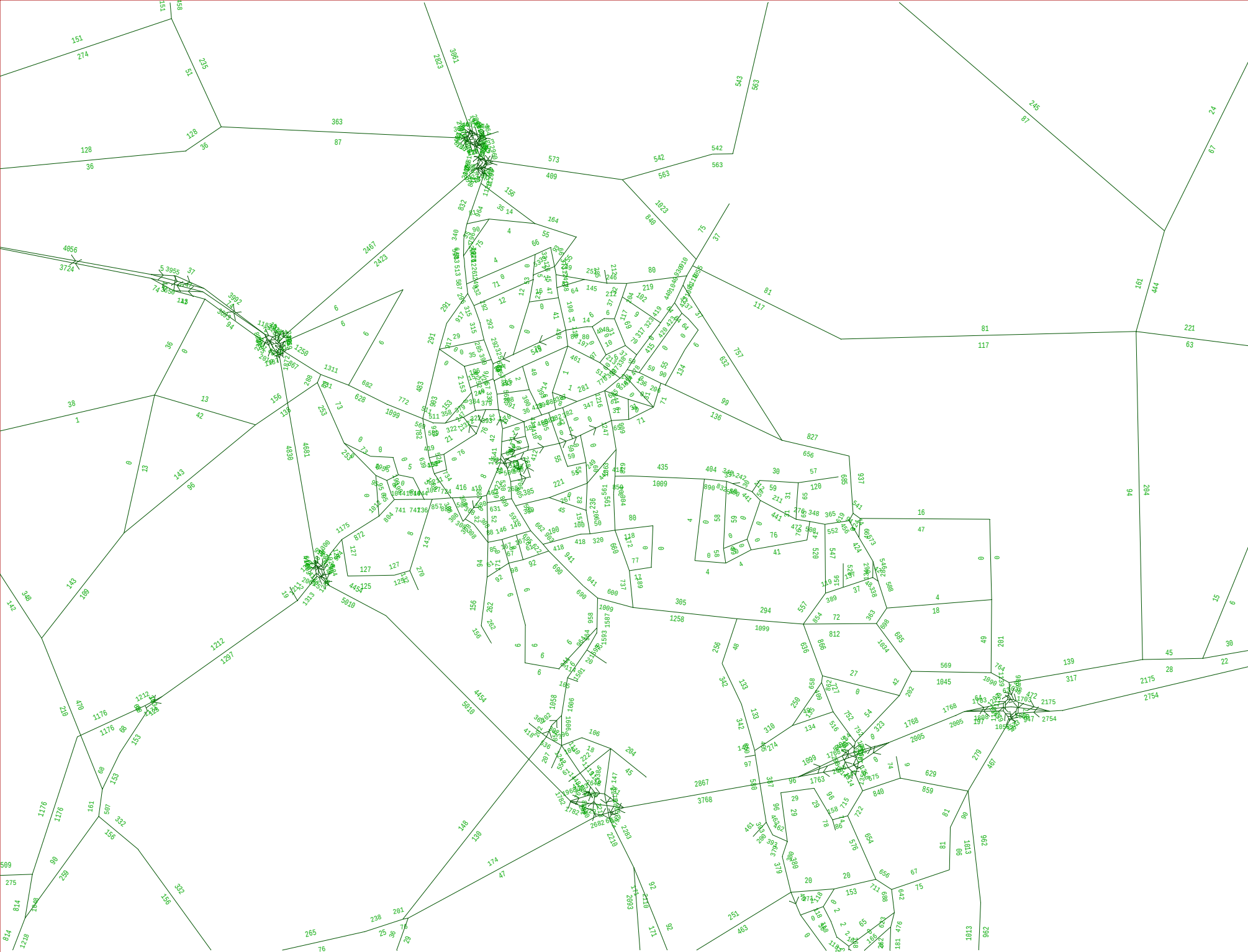
Actual flow

2-12-14
WSP GROUP (S)

C11

CORBY - Sc5

*NSTM_2031_AM_NNJPU_Sc5 2-12-14



SATURN

Atkins Ltd /
DW / ITS

031_AM_NNJPU
_SC5_OPT.UFS

Scale 27946

Link Annot:

Actual flow

2-12-14
WSP GROUP (S)

C12

KETTERING - Sc5

*NSTM_2031_AM_NNJPU_Sc5 2-12-14



SATURN

Atkins Ltd /
DW / ITS

031_AM_NNJPU
_SC5_OPT.UFS

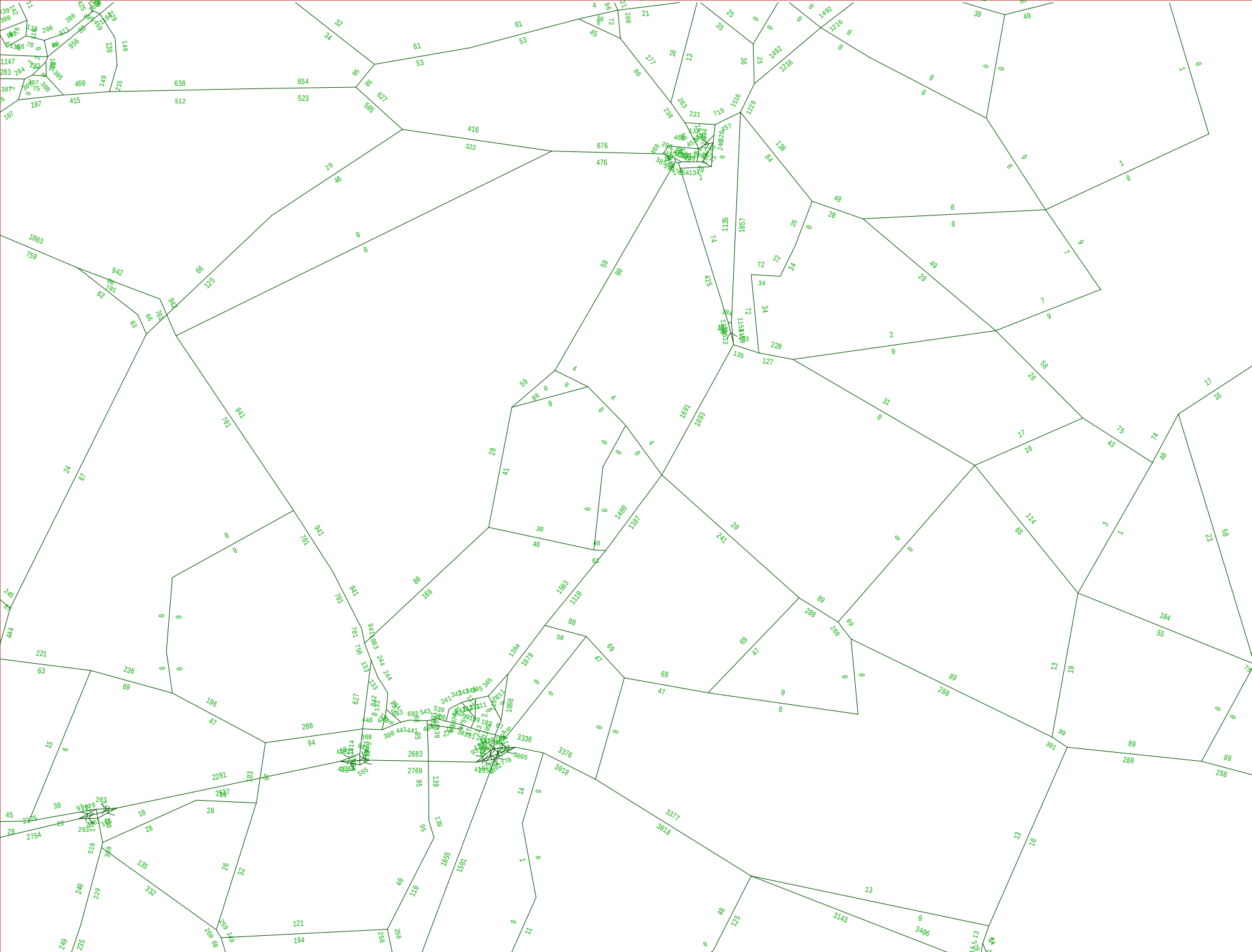
Scale 36625

Link Annot:

Actual flow

2-12-14
WSP GROUP (S

C13



SATURN

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031_AM_NNJP
_SC5_OPT.UFS

Scale 56330

Link Annot:

Actual flow

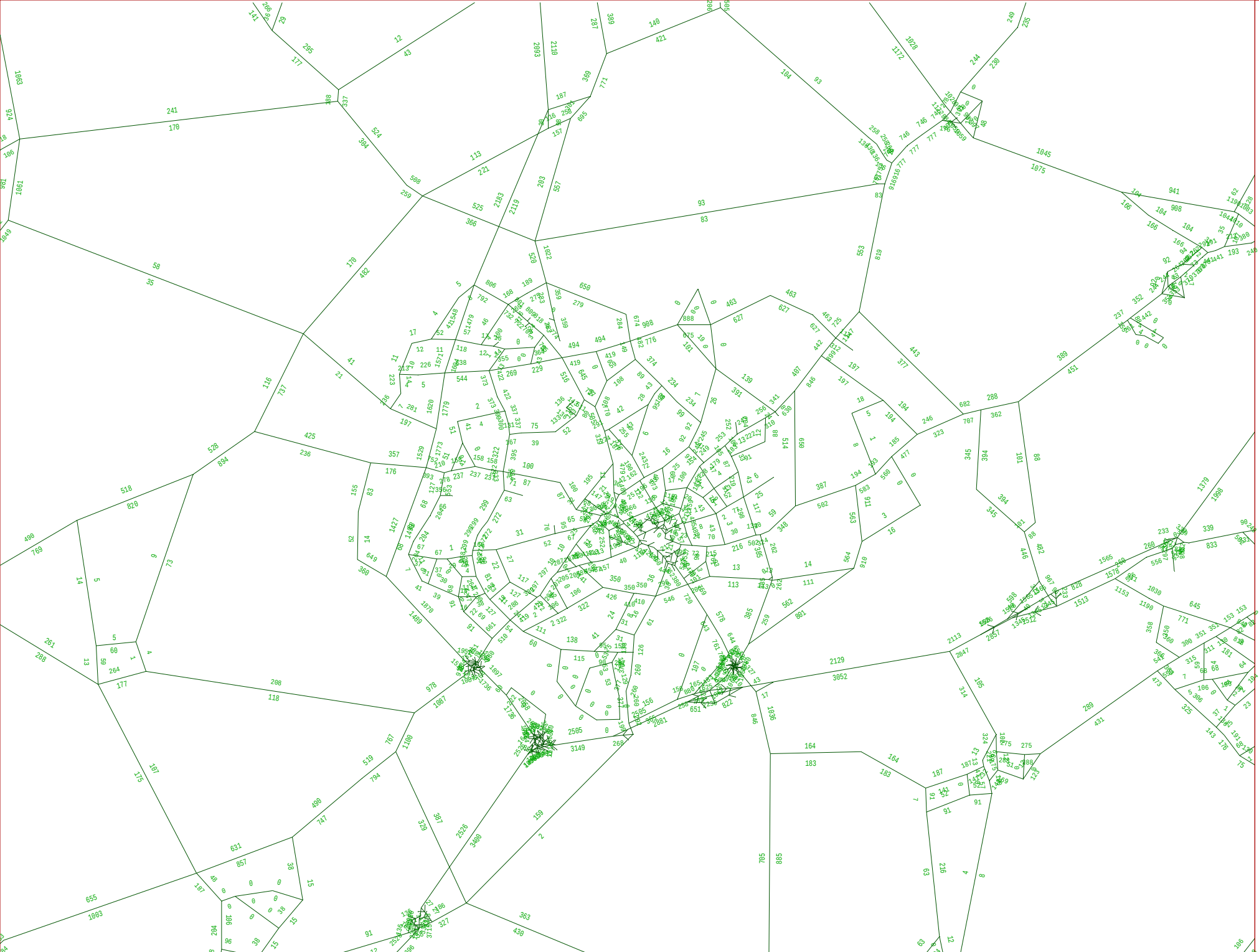
2-12-14
WSP GROUP (S

C14

THRAPSTON & OUNDLE - Sc5

*NSTM_2031_AM_NNJP_U_Sc5 2-12-14

C15



*NSTM_2031_AM_NNJPU_Sc5 2-12-14



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_SC5_OPT.UFS

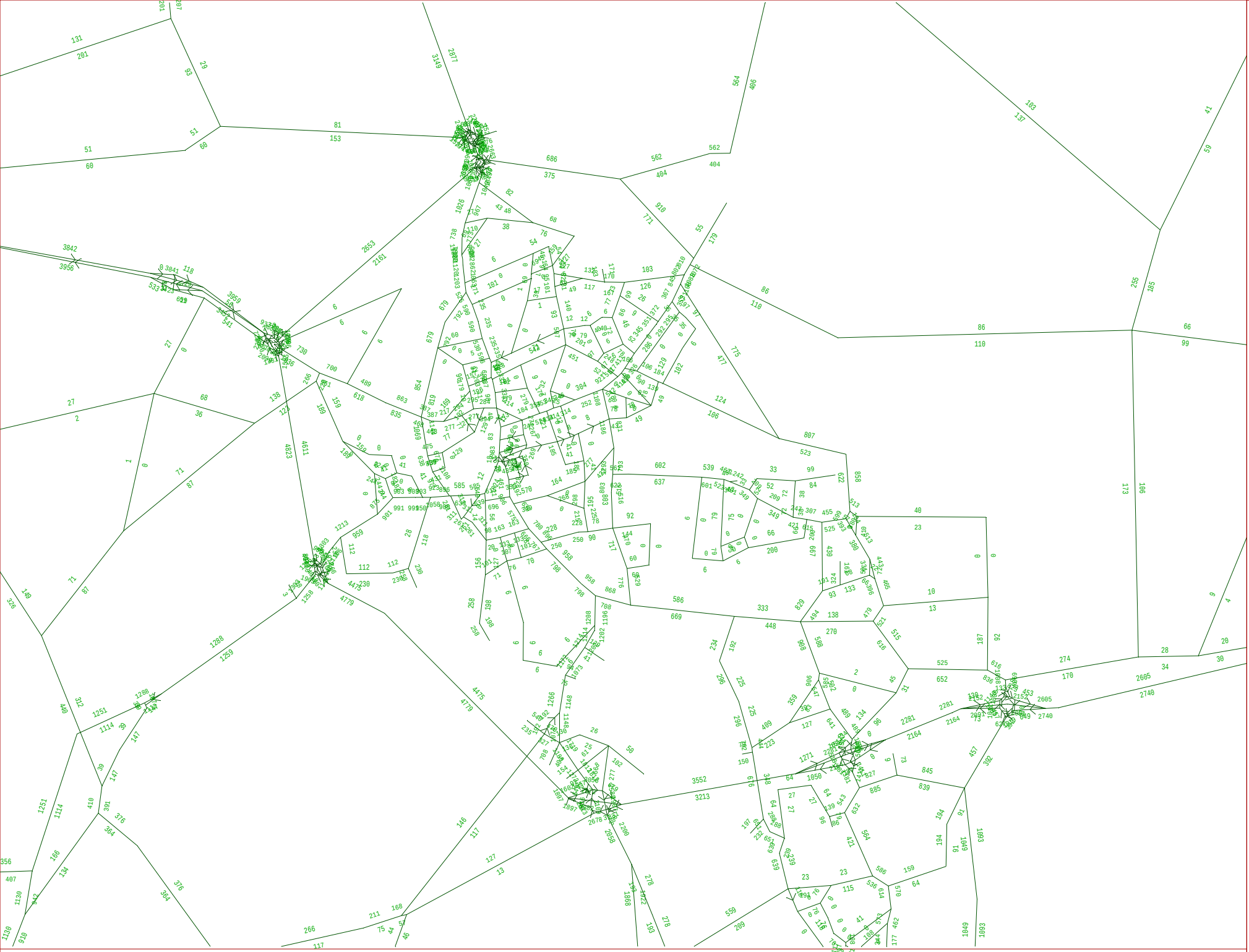
Scale 35839

Link Annot:

Actual flow

2-12-14
WSP GROUP (S)

C16



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_SC5_OPT.UFS

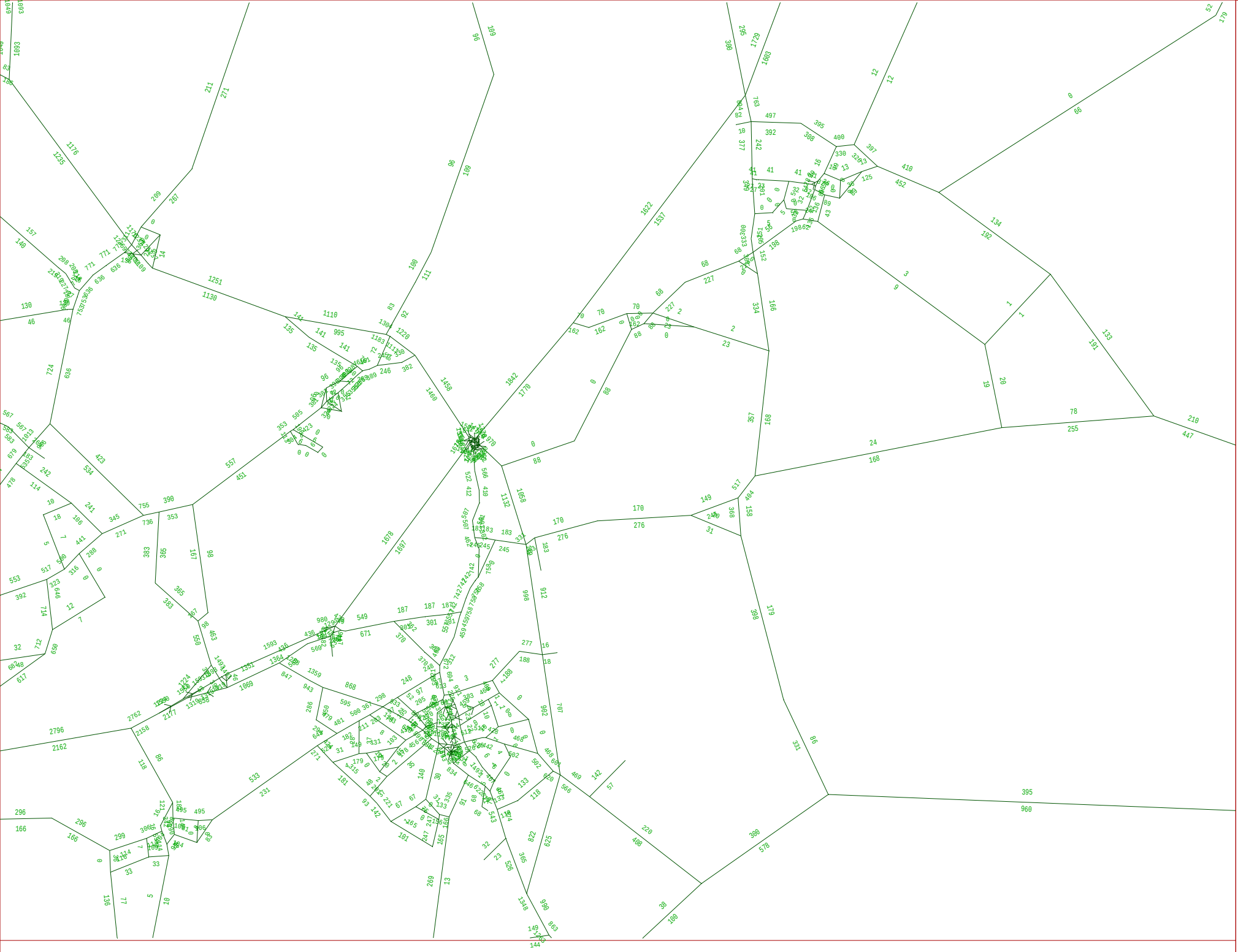
Scale 27946

Link Annot:

Actual flow

2-12-14
WSP GROUP (S

C17



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_SC5_OPT.UFS

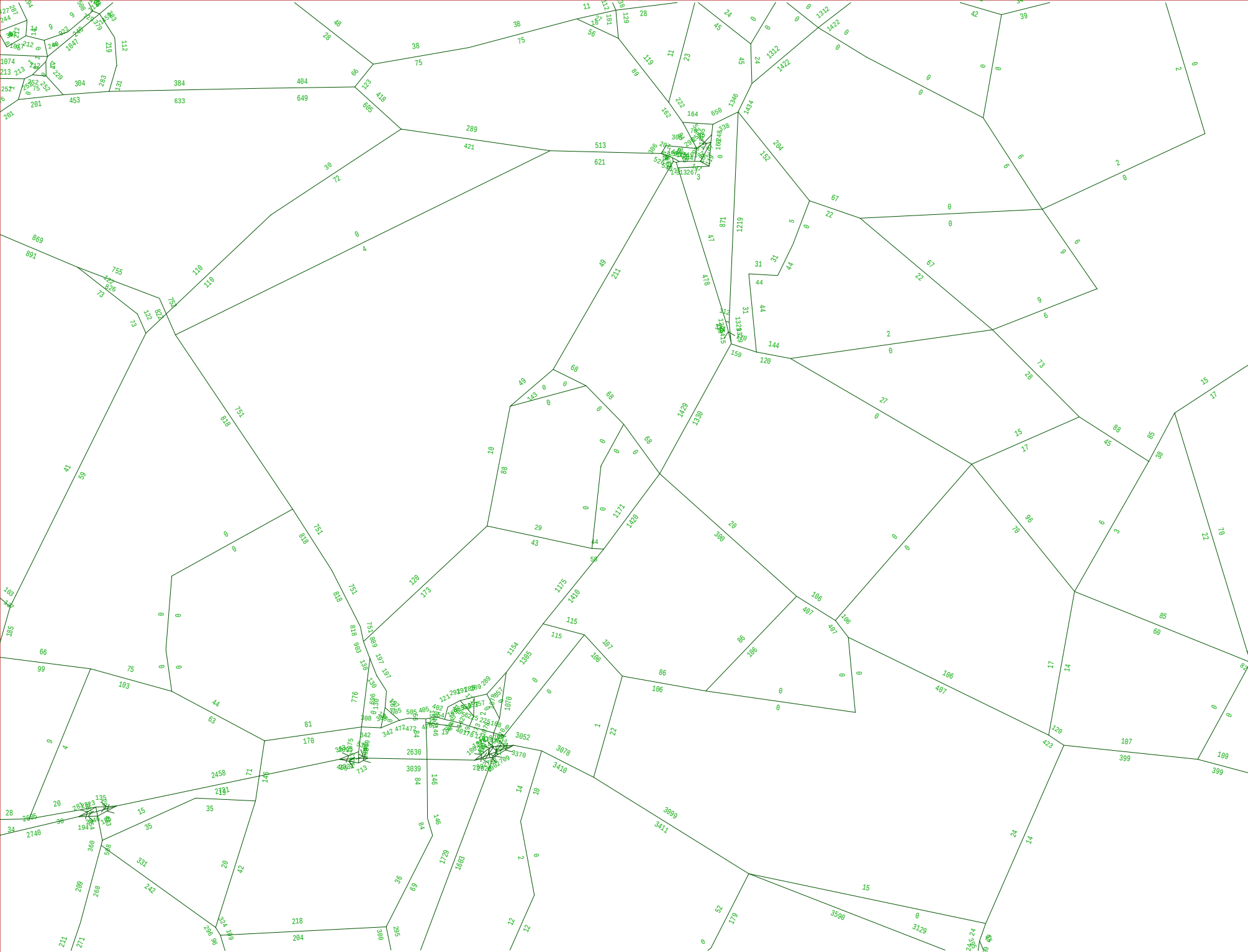
Scale 36625

Link Annot:

Actual flow

2-12-14
WSP GROUP (S

C18



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_SC5_OPT.UFS

Scale 56330

Link Annot:

Actual flow

2-12-14
WSP GROUP (S

C19



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_SC5_OPT.UFS

Scale 33329

Link Annot:

Actual flow

2-12-14
WSP GROUP (S

C20

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