Agenda Item 9ii

COMET St Albans Enhancement

Progress meeting 2

23 June 2017

AECOM

This Presentation

- Introduction
- Realism Test Results (Stage 2c)
- 2031 Do Minimum Results (Stage 3)
- Actions / Timescales / Invoicing
- Task 6

Introduction

Context

- Hertfordshire County Council (HCC) commissioned AECOM to develop a strategic countywide multi-modal model, COMET
  - A first version, with Base Year 2014, was delivered in February 2016

- The first enhancement of the model was undertaken in the second half of 2016. Changes were undertaken to the Prior Matrix (overall) and in particular to calibration and validation of model in Watford and its vicinity, as this area was included in the Growth and Transport Plan (GTP) work due in 2016/17.

- The enhancement work also included (where possible) updates to the official modelling standards. This resulted in COMET V2.

- SADC commissioned AECOM in Autumn 2016 to use COMET V2 to aid the development of its Detailed Local Plan.

- The updated 2014 Base Model for this study including changes in St Albans and Harpenden was delivered in Spring 2017.

Context

- SADC highlighted the following:
  - The current task objectives are “to review the performance of the COMET model in the St Albans District area, collect new data and enhance the model as necessary”.
  - In addition, this work will be followed by Task 6 (out of the current scope) which will use the enhanced COMET V3 “to test the implications of Local Plan growth and adequacy of identified mitigation measures”.
  - Task 5, the preliminary design of schemes to be tested in Task 6, is currently being progressed by AECOMs Highways Team.
- The overall objective for this COMET model enhancement work is to:
  - Have a good representation of St Albans and Harpenden areas to test the cumulative growth from the Local Plan alongside broad, strategic-level interventions in St Albans District; and
  - Be able to demonstrate the scale and location of the impacts from both Local Plan growth and potential strategic schemes.

Realism Tests (Stage 2c)

Realism Tests (Stage 2c)

- The updated highway and public transport models (from Stages 2a and 2b) were used to run standard sensitivity tests i.e. +10% increase in rail fare, public transport journey times, highway journey times or fuel costs.

- The Variable Demand Model (VDM) produced for each 'realism test' new demand matrices. Global changes to the demand compared to the updated Base Year model were used to estimate elasticity factors.

- These factors were compared to the expected standards set out by the Department for Transport (DfT)'s WebTAG advice, unit M2, Variable Demand Modelling.

- The primary realism tests require that car fuel cost and public transport fare elasticities lie within specified bands . Car fuel cost elasticity tests are required in all cases where a highway model is used. Public transport fare elasticity tests are required in all cases where changes in public transport generalised costs, including changes in fares, are modelled. Car journey time elasticity tests are also required.

Realism Test 1: Fuel Cost

The car fuel cost elasticity required is the percentage change in car vehicle-kms with the percentage change in fuel cost.

10% increase in car fuel cost
Sensitivity in range -0.25 to -0.35

Segment	AM	IP	PM	OP	Annl
Commuting	-0.139	-0.109	-0.133	-0.177	**-0.136**
Business	-0.170	-0.194	-0.176	-0.189	**-0.183**
Other	-0.377	-0.406	-0.378	-0.359	**-0.388**
All Pers Annl	**-0.277**	**-0.347**	**-0.276**	**-0.301**	**-0.318**
LGV	0.015	0.007	0.018	-0.014	0.000
HGV	0.006	0.001	0.012	-0.021	-0.004

Trip Distance Elasticity

Realism Test 2: Public Transport Fare

The public transport fare elasticity required is the percentage change in public transport trips by all public transport modes with respect to the percentage changes in public transport fares.

10% increase in PT fares
Sensitivity in range -0.20 to -0.90

Segment	AM	IP	PM	OP	Annl
Commuting	-0.458	-0.448	-0.456	-0.460	**-0.457**
Business	-0.504	-0.479	-0.389	-0.466	**-0.459**
Other	-0.525	-0.426	-0.607	-0.548	**-0.487**
All Pers Annl	**-0.484**	**-0.431**	**-0.509**	**-0.490**	**-0.466**

Trip Elasticity

Realism Test 3: Car Journey Time

The car journey time elasticity required is the change in car trips with respect to the change in journey time.

10% increase in car journey times
Sensitivity in range 0.00 to -2.00

Segment	AM	IP	PM	OP	Annl
Commuting	-0.169	-0.010	-0.187	-0.091	**-0.110**
Business	-0.043	-0.004	-0.175	-0.154	**-0.066**
Other	-0.144	-0.110	-0.164	-0.122	**-0.127**
All Pers Annl	**-0.144**	**-0.091**	**-0.170**	**-0.118**	**-0.114**
LGV	0.000	0.000	0.000	0.000	0.000
HGV	0.000	0.000	0.000	0.000	0.000

Trip Elasticity

2031 DM Scenario (Stage 3)

2031 DM Scenario - Context

The 2031 Do Minimum Scenario (Stage 3) aims to test the impacts of St Albans District planning assumptions for a Forecast Year 2031 without the introduction of any potential mitigation schemes. The purpose of this test is to identify the impact of growth to enable potential hotspots and additional locations of traffic congestion to be identified.

It is understood that the 2031 Do-Minimum scenario will only consider:

- The planning data as provided by HCC to AECOM in October 2016:
- Unconstrained Local Plan growth in all Hertfordshire districts including St Albans
- NTEM v7 assumptions will apply directly outside Hertfordshire
- The schemes included in the 2031 Reference Case / Do Minimum Scenarios

2031 DM Scenario – Highways Schemes

Scheme	District
A10 Turnford Interchange (improvements to allow access to proposed Brookfield development site)	Broxbourne
West Hoddesdon (High Leigh) development access onto A10 link	Broxbourne
West Hoddesdon Junction improvements	Broxbourne
Park Plaza Access	Broxbourne
Swallowdale Lane/ Three Cherry Trees Lane Junction Signalisation	Dacorum
A414 Breakspear Way / Maylands Lane Reallocation	Dacorum
Breakspear Way / Green Lane Junction Improvement - Trial signalisation on M1 arm	Dacorum
Western Hemel Hempstead – Development site access onto Long Chaulden (priority junction with dedicated RT lane in)	Dacorum
Western Hemel Hempstead – Development site Secondary site access onto The Avenue (extension of existing spur)	Dacorum
Marchmont Farm Access	Dacorum
Water End HGV ban	Dacorum
A120 Little Hadham Bypass	East Hertfordshire
A602 Ware to Stevenage Corridor Strategy Stage 1	East Hertfordshire
Bishop's Stortford North Development, Access onto Hadham Road	East Hertfordshire
Bishop's Stortford North Development, new access onto A120 and Spine Road connecting with Rye Street	East Hertfordshire
Bishop's Stortford North (ASR 5) access to Rye Street	East Hertfordshire
A120 / B1383 capacity improvements (Bishop's Stortford North mitigation measure)	East Hertfordshire
A120 / A1250 Tesco roundabout capacity improvements (Bishop's Stortford North mitigation measure)	East Hertfordshire
Gilston development access	East Hertfordshire
A10 Amwell Roundabout Bus Lane Removal	East Hertfordshire
Bishop's Stortford Goods Yard – bus link from London Road	East Hertfordshire
Land North and East of Ware Spine Road	East Hertfordshire
Borehamwood - Station Road/Theobald St/Allum Lane junction signalisation	Hertsmere
Borehamwood - Elstree Way Corridor	Hertsmere
New link road connecting North Baldock development to North Road and Royston Road	North Hertfordshire
A414 Colney Heath Longabout signalisation	St Albans
Radlett Railfreight (spine road and associated junction improvements)	St Albans
Oaklands development site access	St Albans
North Harpenden development access	St Albans
Woodside Road Roundabout	Three Rivers
Uxbridge Road/Long Ln Roundabout	Three Rivers
Watford Health Campus Link (Thomas Sawyer Way)	Watford
Hospital access road	Watford
A1(M) junction 6 pinch point scheme ramp metering	Welwyn Hatfield
West of Hatfield (Stanborough - HAT1) development access	Welwyn Hatfield
Symondshyde development access	Welwyn Hatfield
Birchall development access	Welwyn Hatfield
A1(M) junction 6 - 8 Smart motorway	Welwyn Hatfield / Stevenage / North Hertfordshire

In total, 38 highways schemes included in Hertfordshire in the 2031 DM scenario. All schemes are expected to proceed.

4 in St Albans District:

- A414 Colney Heath Longabout Signalisation
- Radlett Railfreight
- Oaklands development access
- North Harpenden development access

2031 DM Scenario – Highways Schemes

Scheme	Area
A5 - M1 link	Central Bedfordshire
M11 J8 short term capacity improvements	Uttlesford (Essex)
M25 J23-25 Permanent use of Hard Shoulder	Hertfordshire / London Borough of Enfield
Widening of M25 J25-27	Essex / London Borough of Enfield
M25 Junction 25 Enhancement (Highways England RIS scheme)	London Borough of Enfield
A414 / London Road Enterprise Zone New Access & Link Road	Harlow (Essex)
A414 / Clocktower Junction Capacity Upgrade	Harlow (Essex)
A414 First Avenue / Gilden Way Junction Upgrade	Harlow (Essex)
A414 Cambridge Road (Gates) Upgrade - including widening to 4 lanes of Edinburgh Way;	Harlow (Essex)
A414 Edinburgh Way / East Road Signal Junction Improvement	Harlow (Essex)
Cambridge Road - new access into River Way	Harlow (Essex)
New junction on M11 (J7a) with associated link to & rbt on B183 Gilden Way; localised widening of Gilden Way	Epping Forest (Essex)
A1 Biggleswade Junction improvements - capacity improvements and dedicated left turn	Biggleswade (Central Bedfordshire)
Luton Town Centre Bypass	Luton
Luton London Road Grade Separated Junction	Luton

In total, 15 highways schemes included outside Hertfordshire in the 2031 DM scenario. All schemes are expected to proceed.

2031 DM Scenario – Public Transport Schemes

The only new public transport scheme in Hertfordshire to be added during the creation of the forecast network was the Croxley Rail link. This consists of the closure of Watford Metropolitan line station, the creation of a new rail link between Croxley and Watford Junction through Watford High Street, the creation of two new stations at Ascot Road and Watford Vicarage Road, and running 4-6 trains per hour in each direction along the new route.

In addition to this scheme, timetable changes/frequency increases were implemented on the following rail services:

– Hertford East to/from Liverpool St (frequency increase)

– Thameslink/Great Northern (timetable changes)

No changes to the future year bus network were made.

Outside Hertfordshire, a light rail scheme was added that links Luton Airport Parkway station to Luton airport.

2031 DM Scenario – Dwelling Assumptions in Hertfordshire

District	2031 HCC Dwellings (Do-Minimum)
Broxbourne	6,997
Dacorum	9,566
East Hertfordshire	16,594
Hertsmere	4,426
North Hertfordshire	15,969
St Albans	7,809
Stevenage	7,856
Three Rivers	2,517
Watford	7,937
Welwyn Hatfield	11,538

These DM figures represent an increase of approximately 20,000 additional dwellings compared to NTEM 2031 projections

2031 DM Scenario – Employment Assumptions in Hertfordshire

District	2031 HCC Jobs
Broxbourne	7,458
Dacorum	4,782
East Hertfordshire	4,123
Hertsmere	4,258
North Hertfordshire	10,575
St Albans	13,968
Stevenage	11,254
Three Rivers	6,627
Watford	12,686
Welwyn Hatfield	16,613

These DM figures represent an increase of approximately 43,000 additional jobs compared to NTEM 2031 projections

AECOM

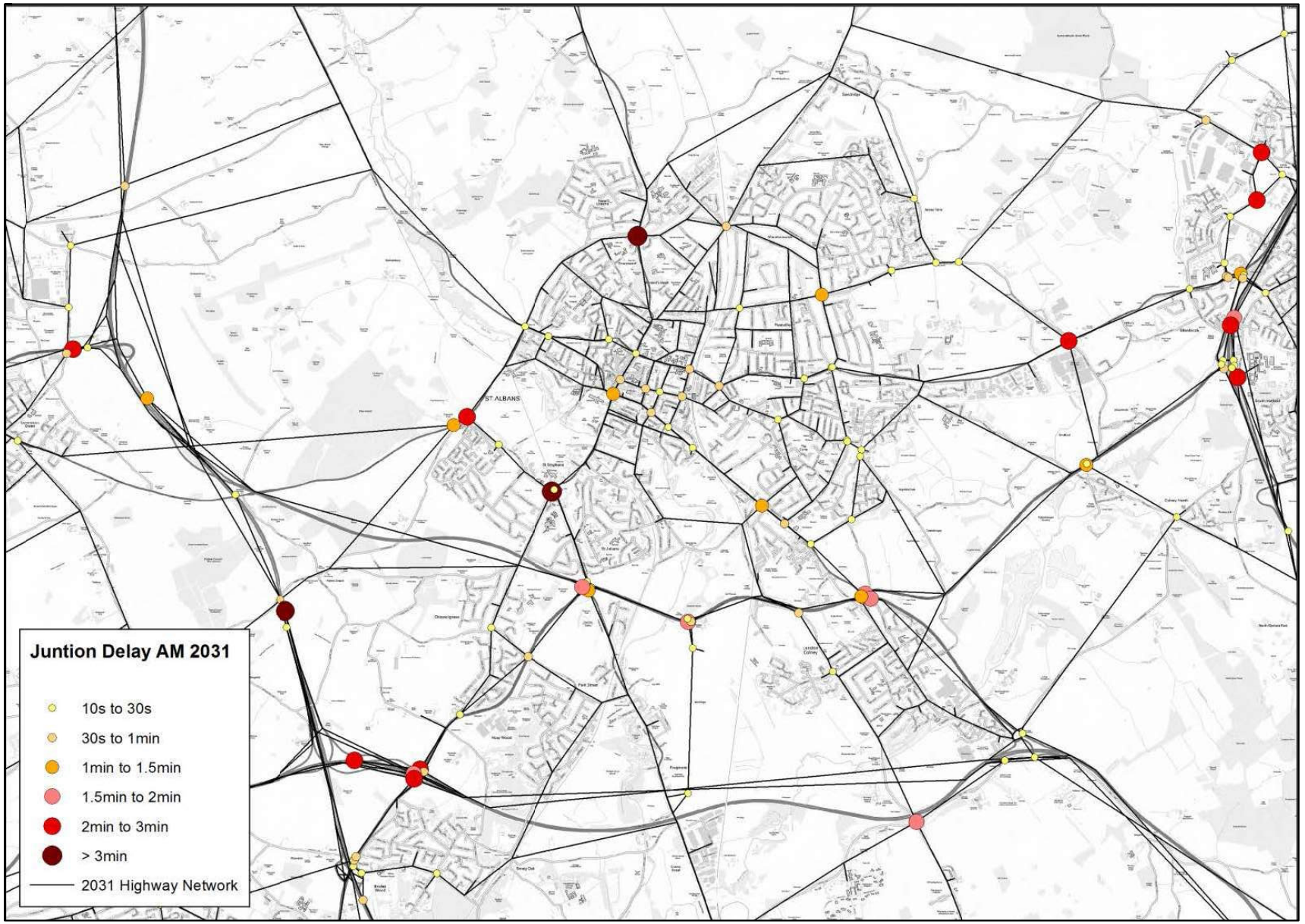
2031 DM Scenario – Dwellings, Employment and Population growth outside Hertfordshire

	2014-2021	2021-2026	2026-2031
Dwellings	6.43%	3.84%	3.53%
Employment	4.76%	1.48%	1.23%
Population	4.56%	2.96%	2.51%

The availability of planning data outside Hertfordshire is limited. Consequently, growth in terms of housing, employment and population in the rest of Great Britain outside Hertfordshire was derived directly from NTEM v7. The annual growth rates are provided by 5 year intervals in the table above. It is worth noting that these growth figures are likely to be lower than growth being proposed through the Local Plan process in these areas.

2014 AM Junction Delays – St Albans

2031 AM Junction Delays – St Albans

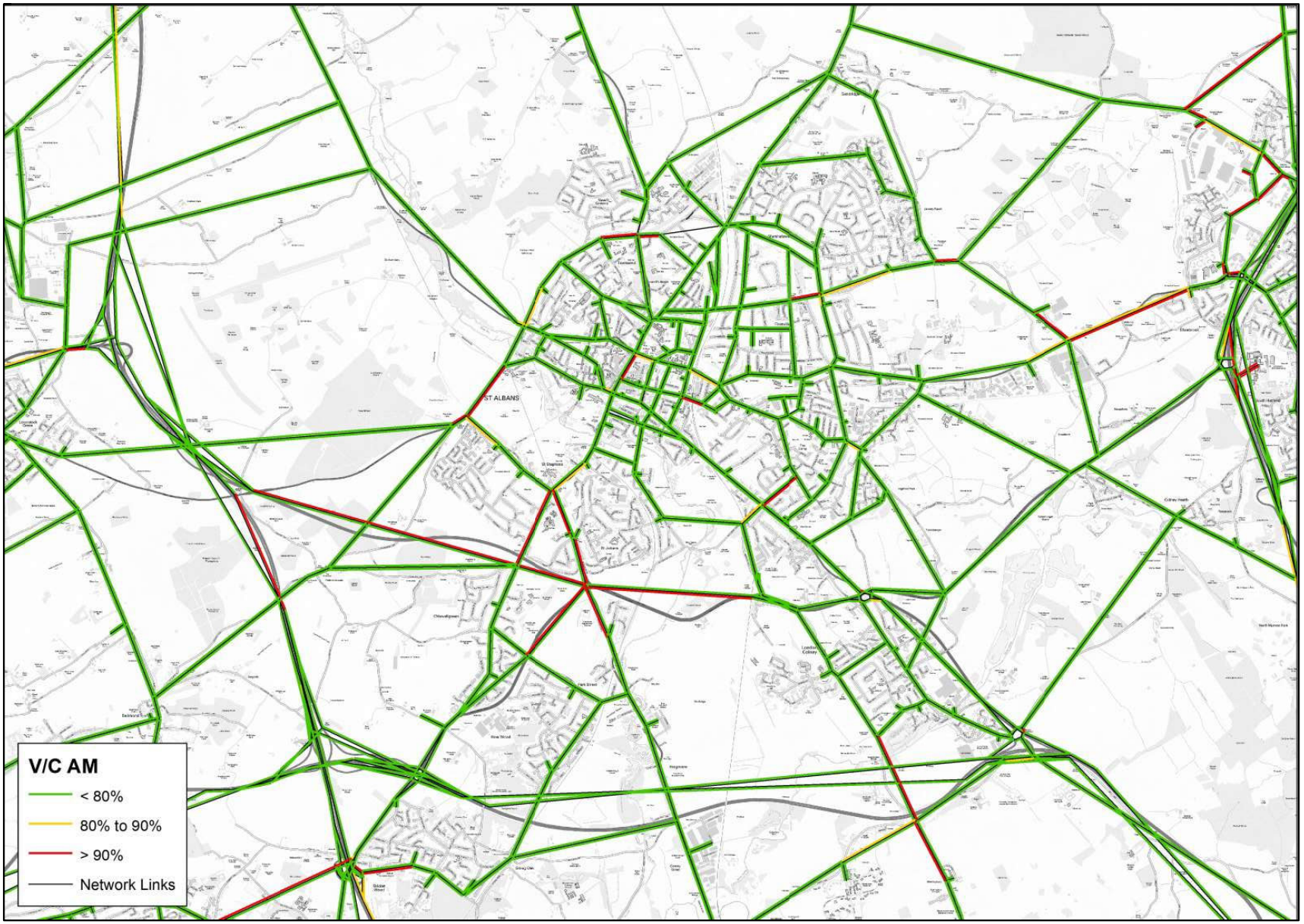


2014-31 AM Junction Delay Difference – St Albans

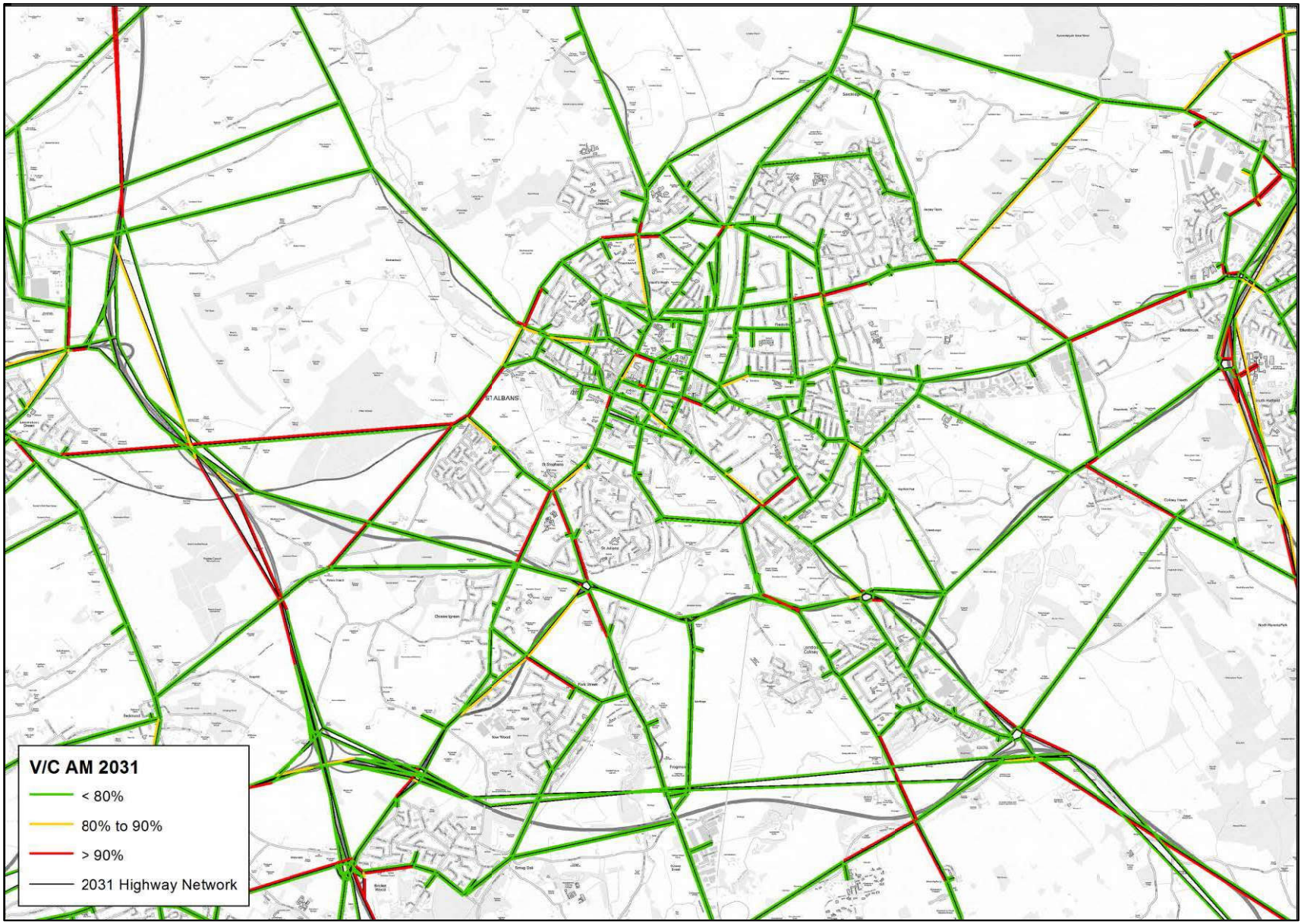
2014-31 AM Junction Delay and Flow Difference – St Albans

AECOM

2014 AM Congestion – St Albans

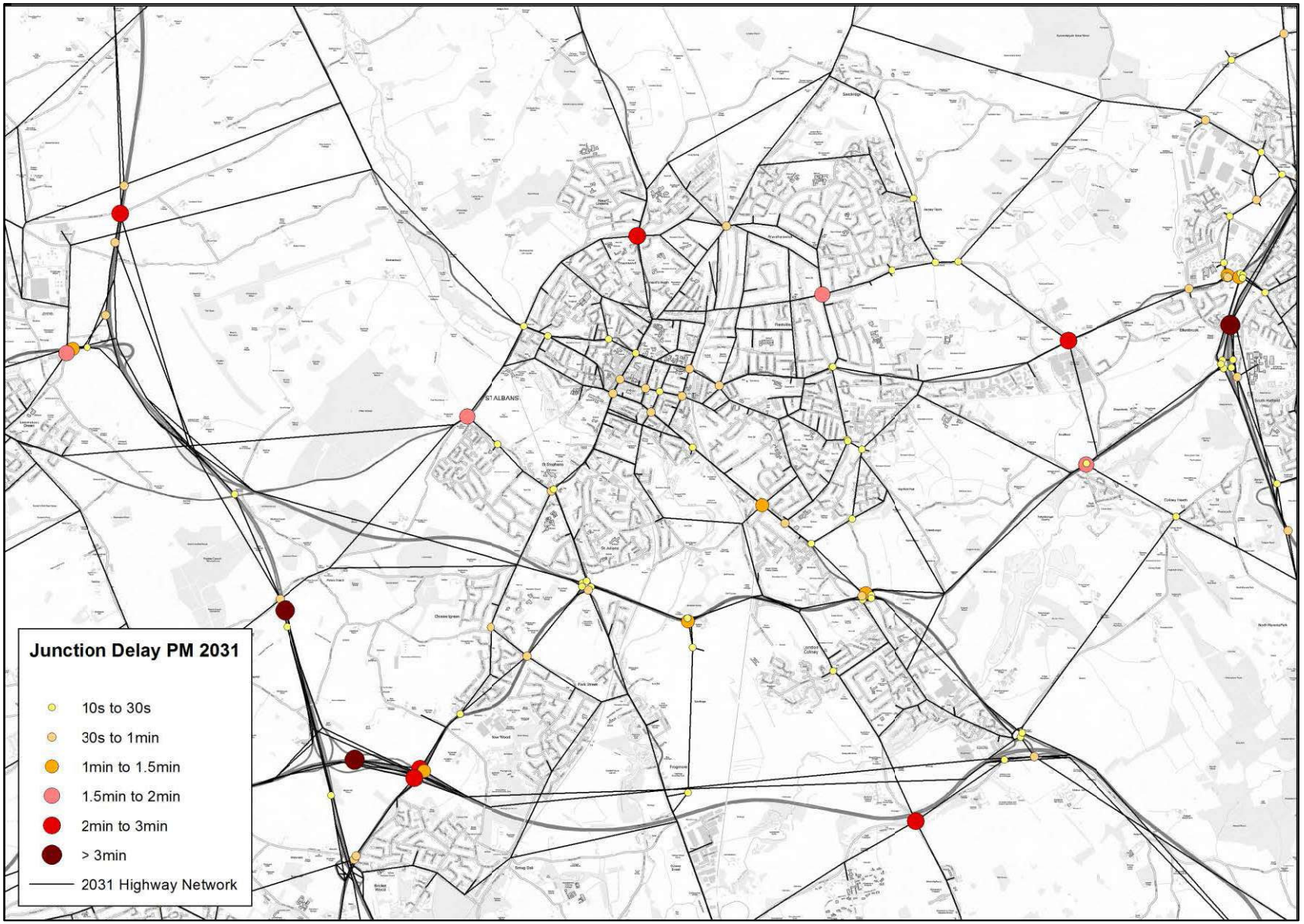


2031 AM Congestion – St Albans



2014 PM Junction Delays – St Albans

2031 PM Junction Delays – St Albans

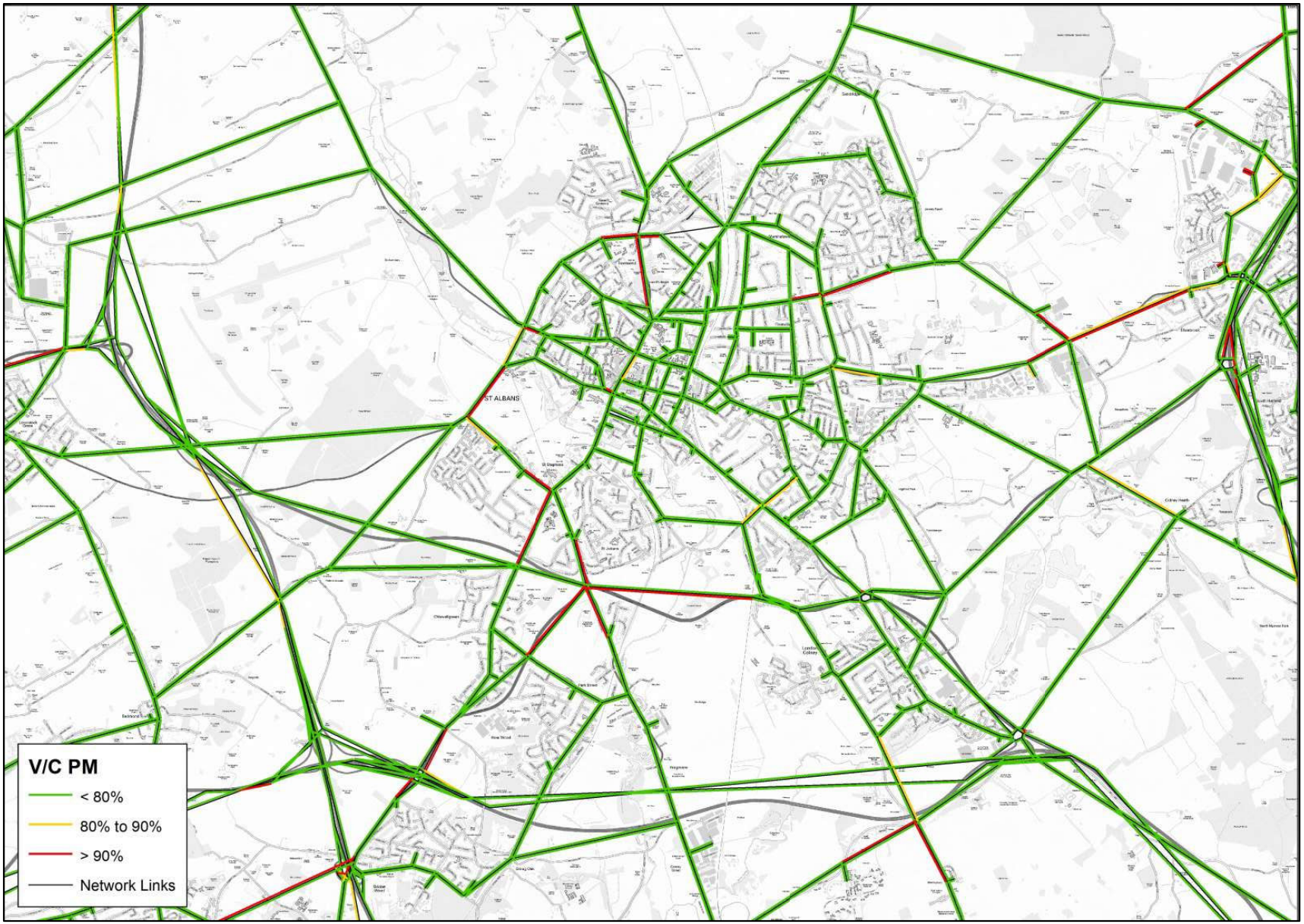


2014-31 PM Junction Delay Differences – St Albans

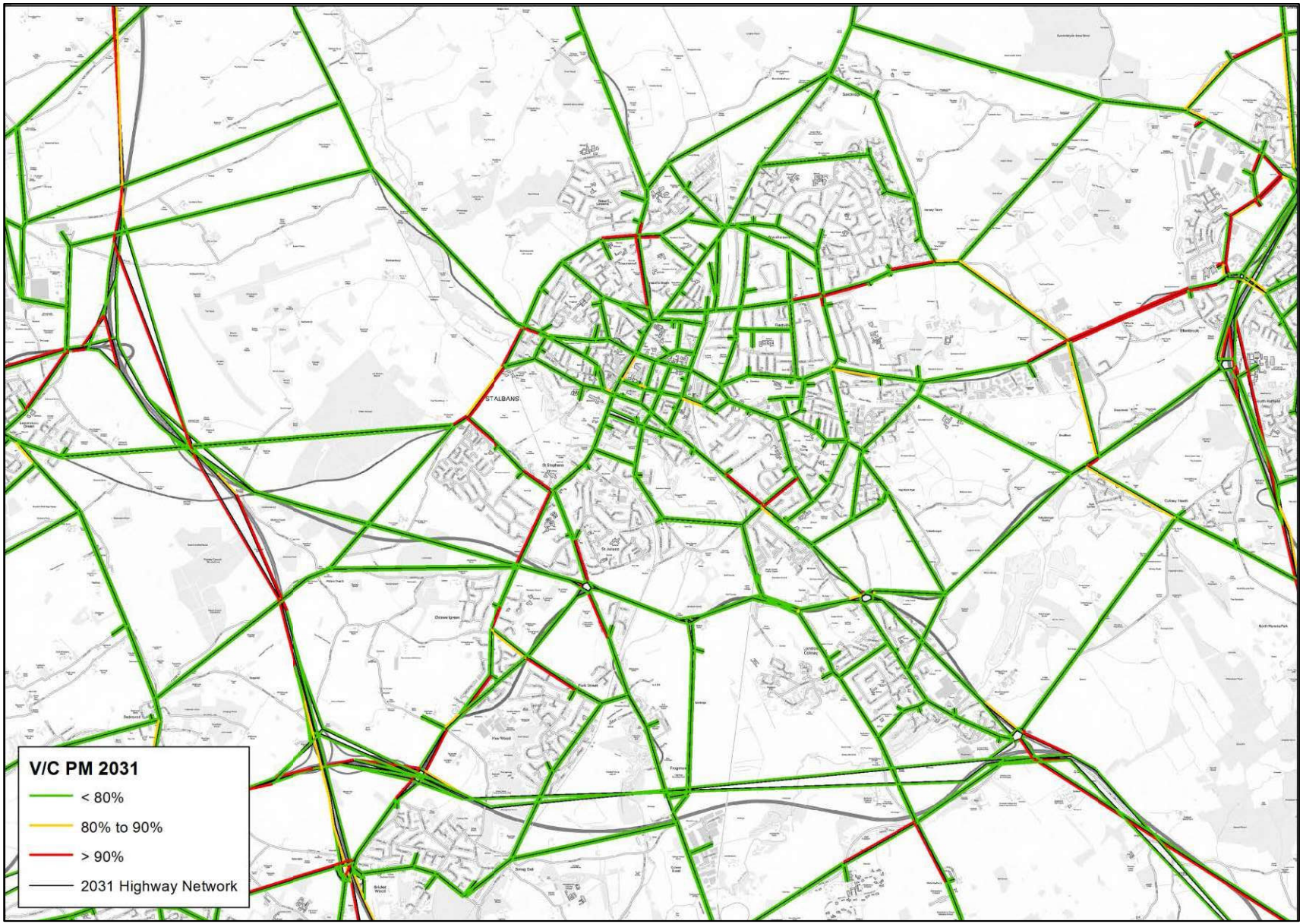
2014-31 PM Junction Delay and Flow Differences – St Albans

AECOM

2014 PM Congestion – St Albans

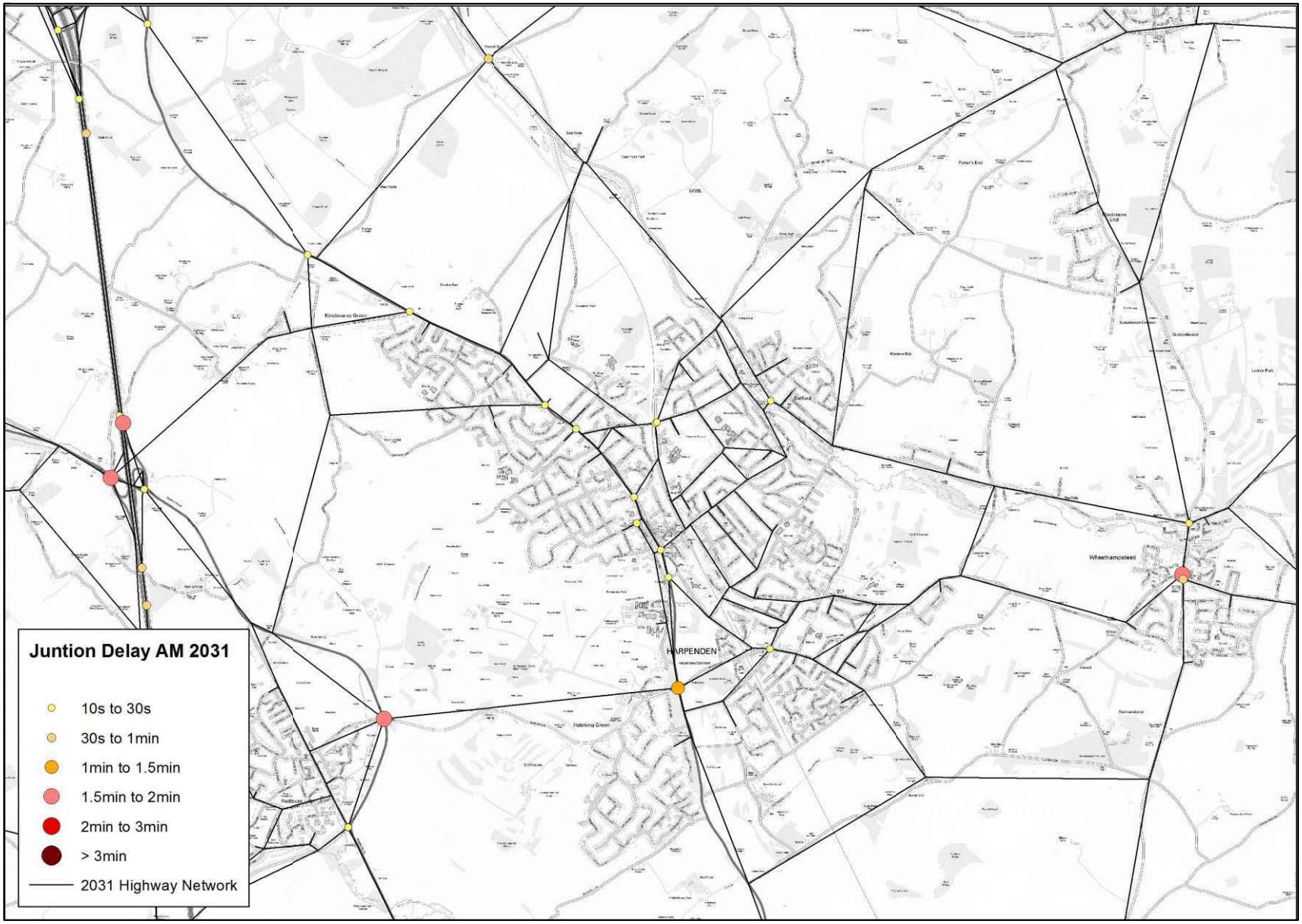


2031 PM Congestion – St Albans



2014 AM Junction Delays - Harpenden

2031 AM Junction Delays - Harpenden



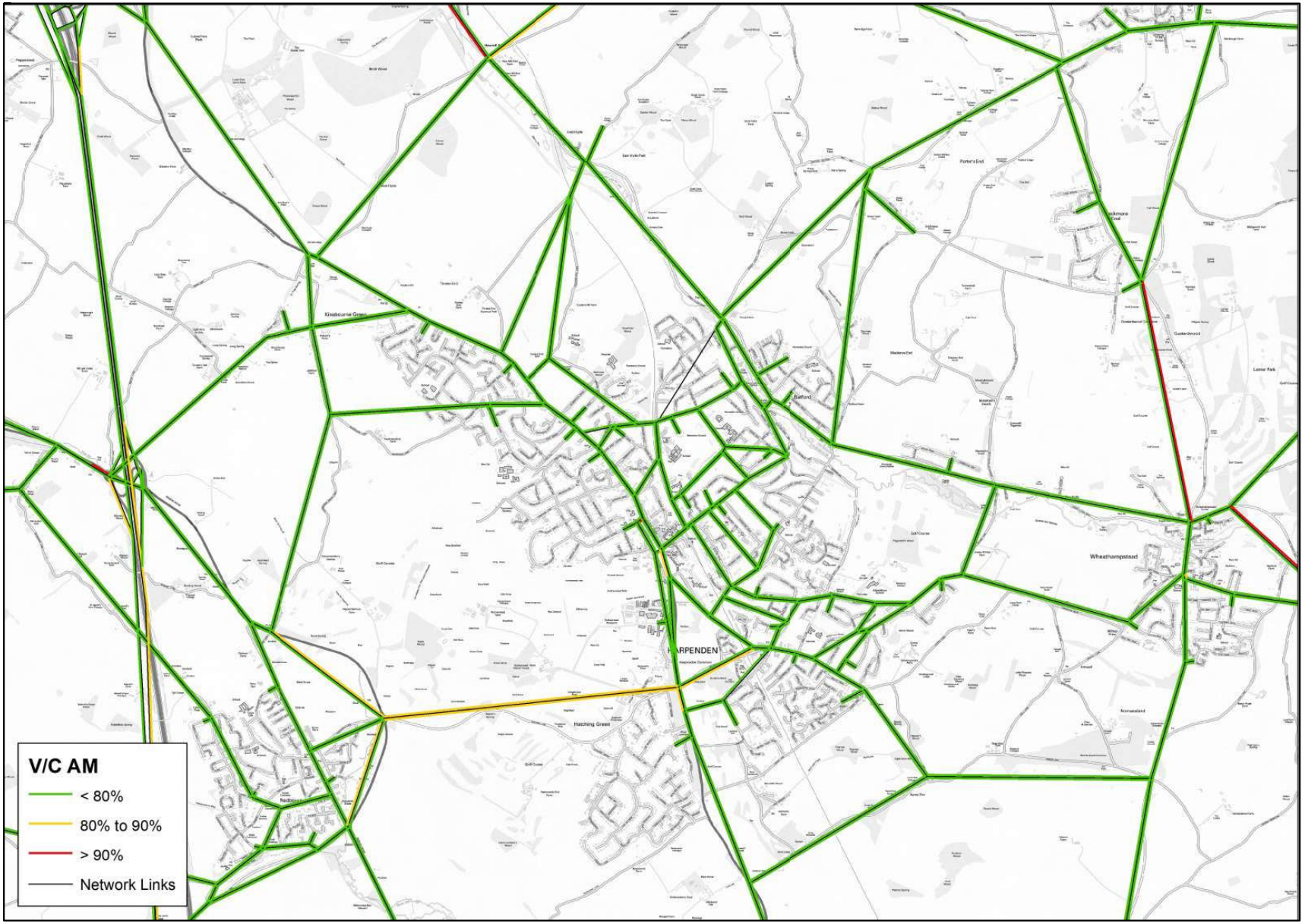
2014-31 AM Junction Delay Differences - Harpenden

AECOM

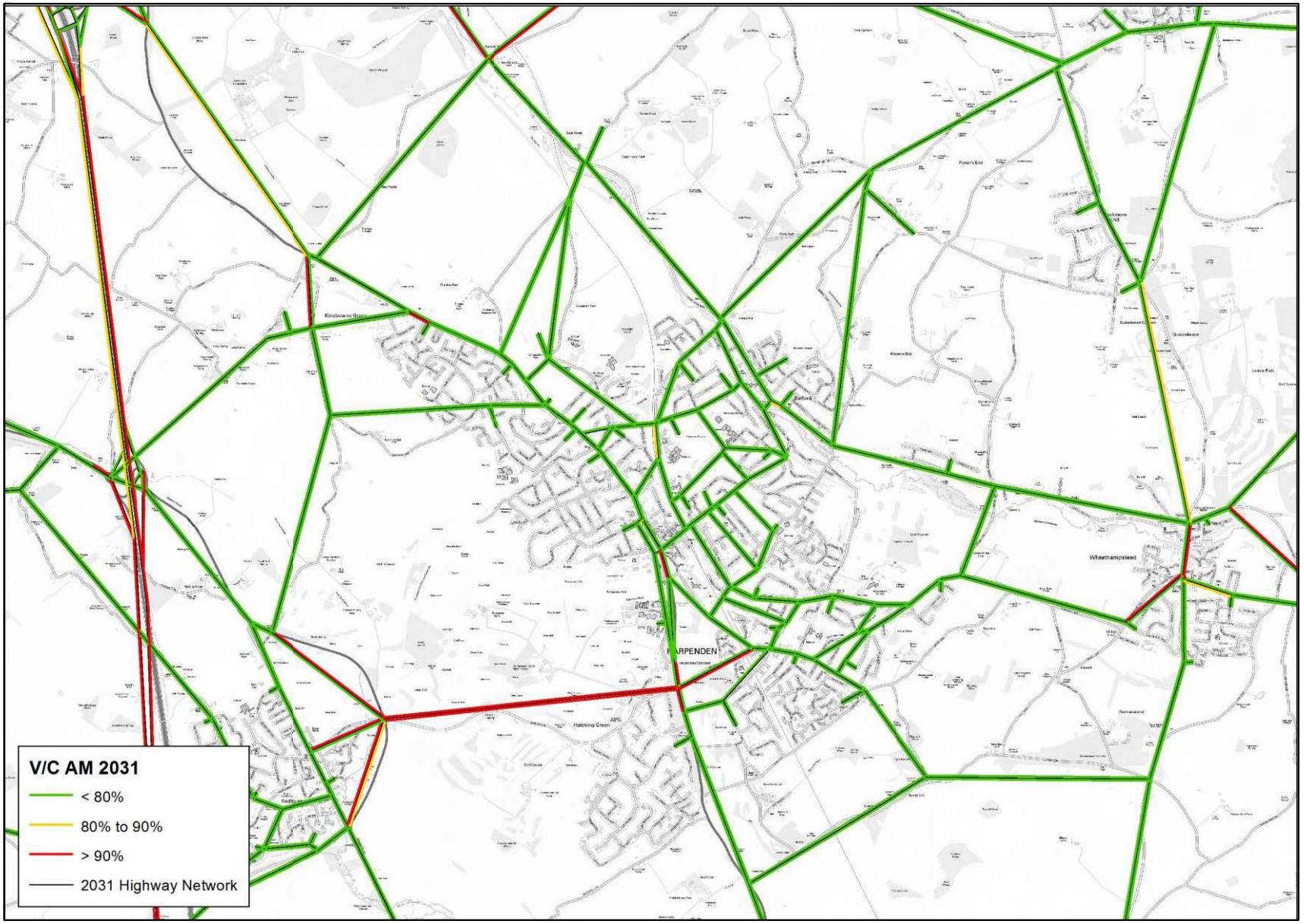
2014-31 AM Junction Delay and Flow Differences - Harpenden

AECOM

2014 AM Link Stress - Harpenden



2031 AM Link Stress - Harpenden



2014 PM Junction Delays - Harpenden

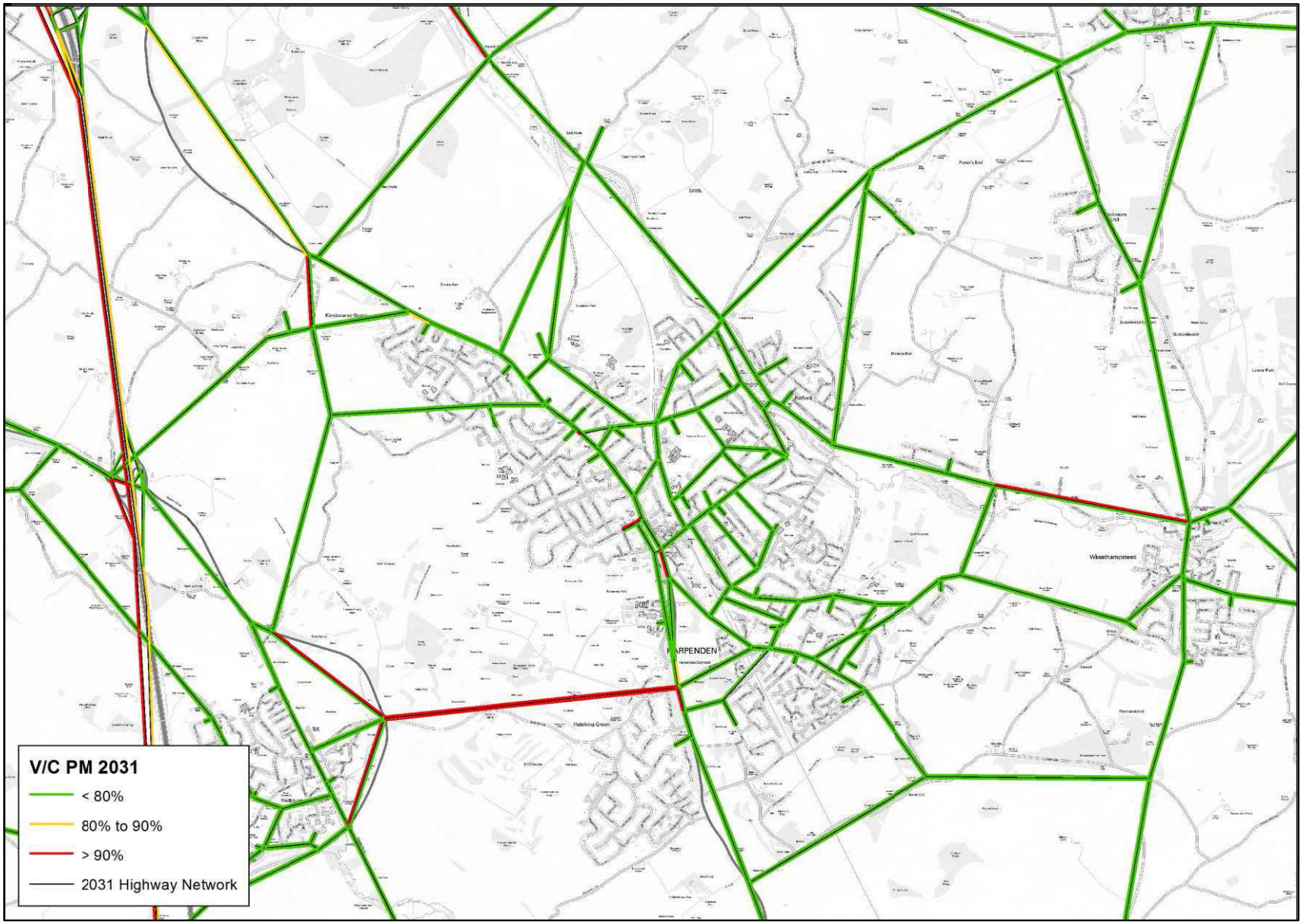
2031 PM Junction Delays - Harpenden

2014-31 PM Junction Delay Differences - Harpenden

2014-31 PM Junction Delay and Flow Differences - Harpenden

2014 PM Link Stress - Harpenden

2031 PM Link Stress - Harpenden



2031 Impact Summary

- 2031 DM Scenario highlights the increased delay at junctions and congestion expected on all routes into St Albans. Key delays on the “ring road” are impacting route choice and flows.
- Impacts in Harpenden not as large but smaller delays start to occur at most junctions along A1081 Luton Road
- Highlights the possible need to consider east-west movements into St Albans/Harpenden from Hemel and Redbourn
- The impact of congestion on the A1 may induce rat running in eastern St Albans
- Congestion at the Wheathampstead Roundabout and links from Redbourn should be monitored