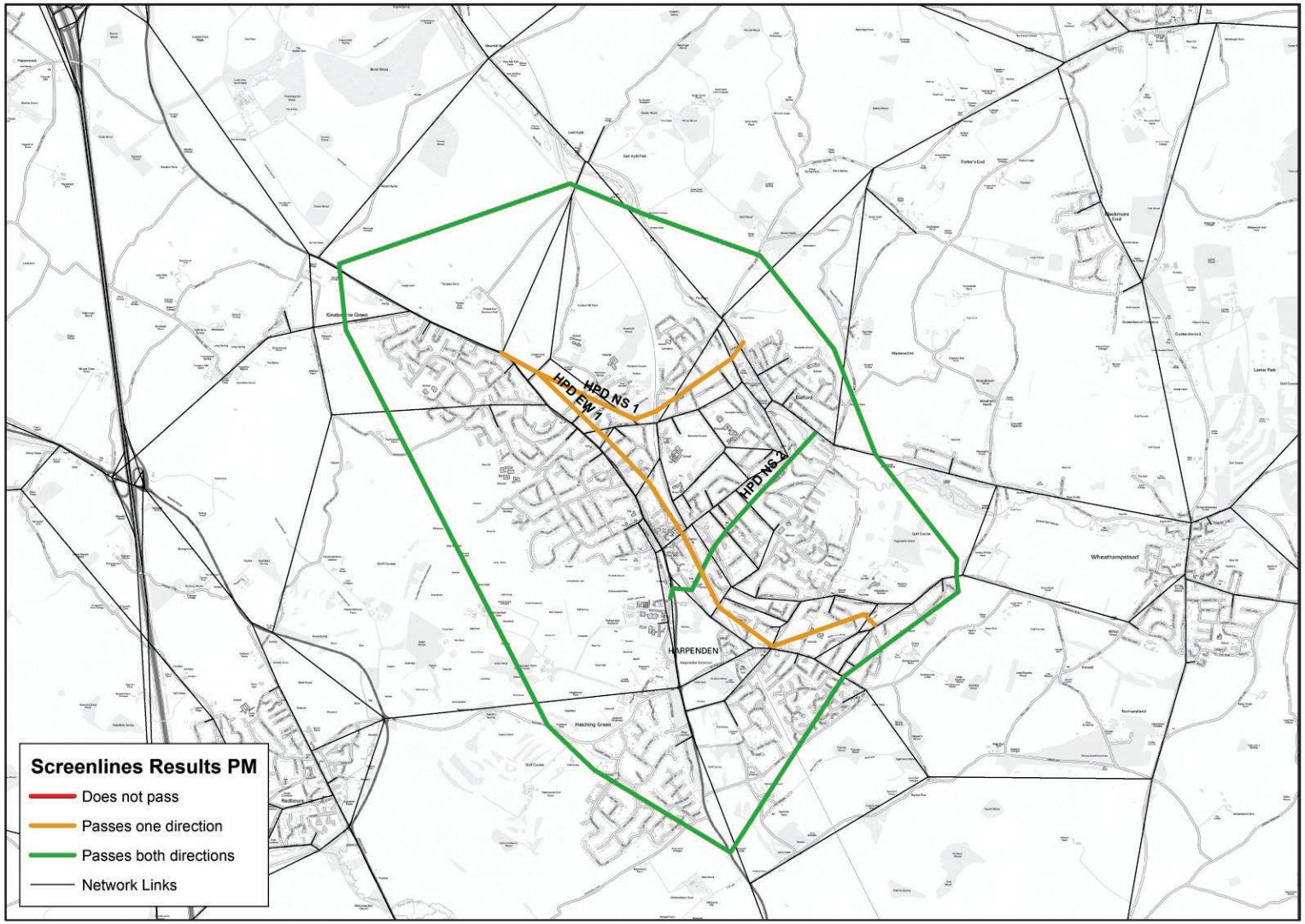
# St Albans Screenlines
## PM Harpenden



# Post Matrix Assignment Results

## Journey Times - St Albans Area

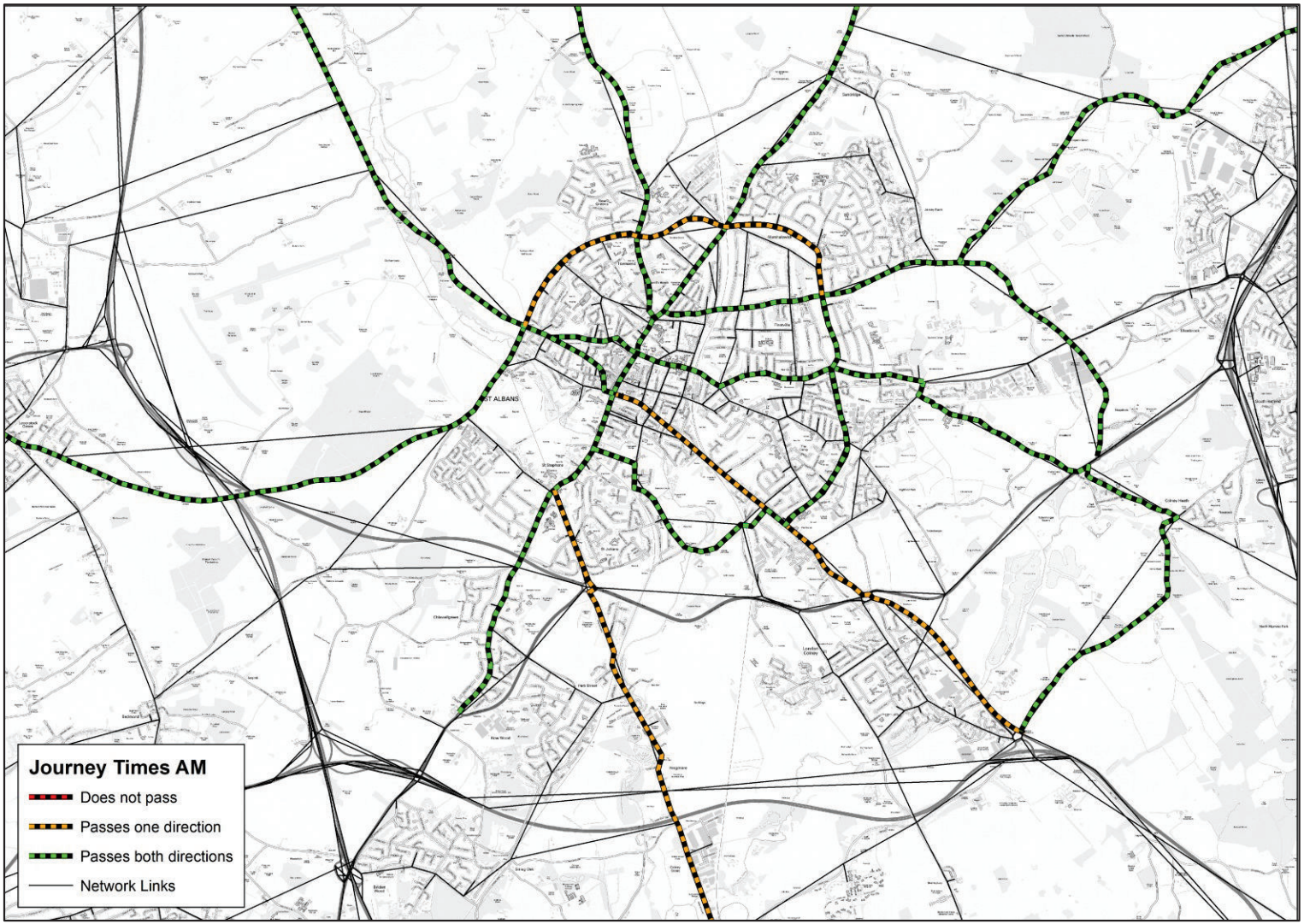
Journey time routes passing WebTAG criteria: AM 84%, IP 89%, PM 84%

| Route | Direction | Observed | | | Modelled | | | Difference | | | % Difference | | | WebTAG Compliant? | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | AM | IP | PM | AM | IP | PM | AM | IP | PM | AM | IP | PM | AM | IP | PM |
| STA 1: St Albans Road - Northbound | Northbound | 538 | 496 | 516 | 564 | 535 | 527 | 26 | 39 | 10 | 5% | 8% | 2% | YES | YES | YES |
| STA 1: St Albans Road - Southbound | Southbound | 675 | 532 | 512 | 600 | 524 | 537 | -75 | -8 | 25 | -11% | -2% | 5% | YES | YES | YES |
| STA 10: A5183 - Northbound | Northbound | 710 | 545 | 646 | 792 | 478 | 718 | 82 | -67 | 72 | 12% | -12% | 11% | YES | YES | YES |
| STA 10: A5183 - Southbound | Southbound | 404 | 428 | 485 | 456 | 469 | 493 | 52 | 41 | 8 | 13% | 10% | 2% | YES | YES | YES |
| STA 6: A513 - Northbound | Northbound | 484 | 423 | 686 | 760 | 546 | 782 | 276 | 123 | 96 | 57% | 29% | 14% | NO | NO | YES |
| STA 6: A513 - Southbound | Southbound | 463 | 424 | 454 | 477 | 405 | 430 | 14 | -19 | -24 | 3% | -5% | -5% | YES | YES | YES |
| STA 11: Coopers Green lane - Northbound | Northbound | 338 | 338 | 484 | 353 | 337 | 396 | 15 | -1 | -88 | 4% | -0% | -18% | YES | YES | NO |
| STA 11: Coopers Green Lane - Southbound | Southbound | 339 | 319 | 347 | 344 | 330 | 342 | 5 | 11 | -5 | 1% | 3% | -1% | YES | YES | YES |
| STA 2: Ring Road St Albans - Northbound | Northbound | 1,548 | 1,369 | 1,377 | 1,559 | 1,423 | 1,403 | 12 | 54 | 26 | 1% | 4% | 2% | YES | YES | YES |
| STA 2: Ring Road St Albans - Southbound | Southbound | 1,412 | 1,297 | 1,335 | 1,629 | 1,475 | 1,442 | 217 | 178 | 108 | 15% | 14% | 8% | YES | YES | YES |
| STA 2A: Marshalswick Lane - Westbound | Westbound | 638 | 530 | 551 | 682 | 591 | 569 | 45 | 61 | 18 | 7% | 11% | 3% | YES | YES | YES |
| STA 2A: Marshalswick Lane - Eastbound | Eastbound | 599 | 529 | 594 | 773 | 691 | 651 | 174 | 162 | 57 | 29% | 31% | 10% | NO | NO | YES |
| STA 2B: CottonMill Lane - Northbound | Northbound | 910 | 840 | 825 | 877 | 833 | 834 | -33 | -7 | 8 | -4% | -1% | 1% | YES | YES | YES |
| STA 2B: CottonMill Lane - Southbound | Southbound | 813 | 767 | 741 | 856 | 784 | 791 | 43 | 16 | 50 | 5% | 2% | 7% | YES | YES | YES |
| STA 3: A1081 - Northbound | Northbound | 846 | 754 | 819 | 718 | 649 | 600 | -128 | -105 | -219 | -15% | -14% | -27% | YES | YES | NO |
| STA 3: A1081 - Southbound | Southbound | 613 | 563 | 631 | 775 | 680 | 754 | 162 | 117 | 123 | 26% | 21% | 19% | NO | NO | NO |
| STA 3A: A1081 North - Northbound | Northbound | 694 | 665 | 779 | 741 | 734 | 897 | 47 | 69 | 118 | 7% | 10% | 15% | YES | YES | YES |
| STA 3A: A1081 North - Southbound | Southbound | 882 | 757 | 803 | 829 | 730 | 819 | -52 | -27 | 16 | -6% | -4% | 2% | YES | YES | YES |
| STA 4: A4147 - Westbound | Westbound | 504 | 451 | 534 | 530 | 449 | 574 | 26 | -2 | 40 | 5% | -0% | 8% | YES | YES | YES |
| STA 4: A4147 - Eastbound | Eastbound | 616 | 455 | 667 | 642 | 443 | 478 | 26 | -12 | -189 | 4% | -3% | -28% | YES | YES | NO |
| STA 5: Sandpit lane - Northbound | Northbound | 774 | 557 | 629 | 698 | 583 | 667 | -76 | 27 | 38 | -10% | 5% | 6% | YES | YES | YES |
| STA 5: Sandpit lane - Southbound | Southbound | 660 | 562 | 618 | 646 | 595 | 663 | -14 | 33 | 45 | -2% | 6% | 7% | YES | YES | YES |
| STA 7: Colney Health Lane - Northbound | Northbound | 626 | 519 | 638 | 563 | 554 | 561 | -62 | 35 | -77 | -10% | 7% | -12% | YES | YES | YES |
| STA 7: Colney Health Lane - Southbound | Southbound | 508 | 504 | 533 | 515 | 512 | 521 | 7 | 7 | -13 | 1% | 1% | -2% | YES | YES | YES |
| STA 8A: A1057 (Centre) - Westbound | Westbound | 800 | 715 | 850 | 790 | 739 | 765 | -9 | 24 | -85 | -1% | 3% | -10% | YES | YES | YES |
| STA 8A: A1057 (Centre) - Eastbound | Eastbound | 792 | 761 | 756 | 723 | 719 | 855 | -69 | -42 | 99 | -9% | -6% | 13% | YES | YES | YES |
| STA 9: A5183 - Northbound | Northbound | 429 | 436 | 453 | 484 | 469 | 499 | 55 | 33 | 46 | 13% | 7% | 10% | YES | YES | YES |
| STA 9: A5183 - Southbound | Southbound | 558 | 481 | 521 | 493 | 475 | 443 | -65 | -6 | -79 | -12% | -1% | -15% | YES | YES | YES |
| HPD 1: A181 Luton Road - Northbound | Northbound | 520 | 556 | 589 | 519 | 514 | 581 | -1 | -42 | -8 | -0% | -8% | -1% | YES | YES | YES |
| HPD 1: A181 Luton Road - Southbound | Southbound | 623 | 502 | 485 | 531 | 504 | 531 | -91 | 3 | 45 | -15% | 0% | 9% | YES | YES | YES |
| HPD 2A: B653/ Lower Luton road - Northbound | Northbound | 628 | 551 | 617 | 582 | 576 | 596 | -46 | 25 | -22 | -7% | 5% | -3% | YES | YES | YES |
| HPD 2A: B653/ Lower Luton road - Southbound | Southbound | 662 | 545 | 582 | 468 | 437 | 455 | -193 | -108 | -127 | -29% | -20% | -22% | NO | NO | NO |
| HPD 2B: B653/ Lower Luton road - Northbound | Northbound | 342 | 329 | 361 | 359 | 357 | 405 | 16 | 28 | 45 | 5% | 8% | 12% | YES | YES | YES |
| HPD 2B: B653/ Lower Luton road - Southbound | Southbound | 440 | 340 | 355 | 554 | 359 | 371 | 114 | 19 | 16 | 26% | 6% | 5% | NO | YES | YES |
| HPD 3: B652 - Northbound | Northbound | 691 | 627 | 613 | 643 | 625 | 640 | -49 | -1 | 28 | -7% | -0% | 5% | YES | YES | YES |
| HPD 3: B652 - Southbound | Southbound | 765 | 711 | 711 | 565 | 560 | 565 | -200 | -151 | -146 | -26% | -21% | -21% | NO | NO | NO |
| HPD 4: Wheathampstead - Westbound | Westbound | 305 | 276 | 272 | 271 | 266 | 269 | -34 | -10 | -4 | -11% | -4% | -1% | YES | YES | YES |
| HPD 4: Wheathampstead - Eastbound | Eastbound | 279 | 255 | 261 | 277 | 279 | 278 | -2 | 24 | 17 | -1% | 9% | 6% | YES | YES | YES |
| HPD 5: Station Road - Northbound | Northbound | 544 | 507 | 503 | 513 | 497 | 521 | -31 | -10 | 19 | -6% | -2% | 4% | YES | YES | YES |
| HPD 5: Station Road - Southbound | Southbound | 549 | 484 | 525 | 588 | 495 | 592 | 39 | 12 | 66 | 7% | 2% | 13% | YES | YES | YES |
| HPD 6A: Grove Road - Northbound | Northbound | 552 | 486 | 462 | 489 | 449 | 454 | -63 | -37 | -9 | -11% | -8% | -2% | YES | YES | YES |
| HPD 6A: Grove Road - Southbound | Southbound | 484 | 472 | 475 | 479 | 473 | 476 | -5 | 0 | 2 | -1% | 0% | 0% | YES | YES | YES |
| HPD 6B: B487- Eastbound | Eastbound | 408 | 319 | 365 | 323 | 280 | 306 | -84 | -39 | -59 | -21% | -12% | -16% | NO | YES | YES |
| HPD 6B: B487- Westbound | Westbound | 319 | 319 | 365 | 320 | 272 | 292 | 1 | -47 | -73 | 0% | -15% | -20% | YES | YES | NO |

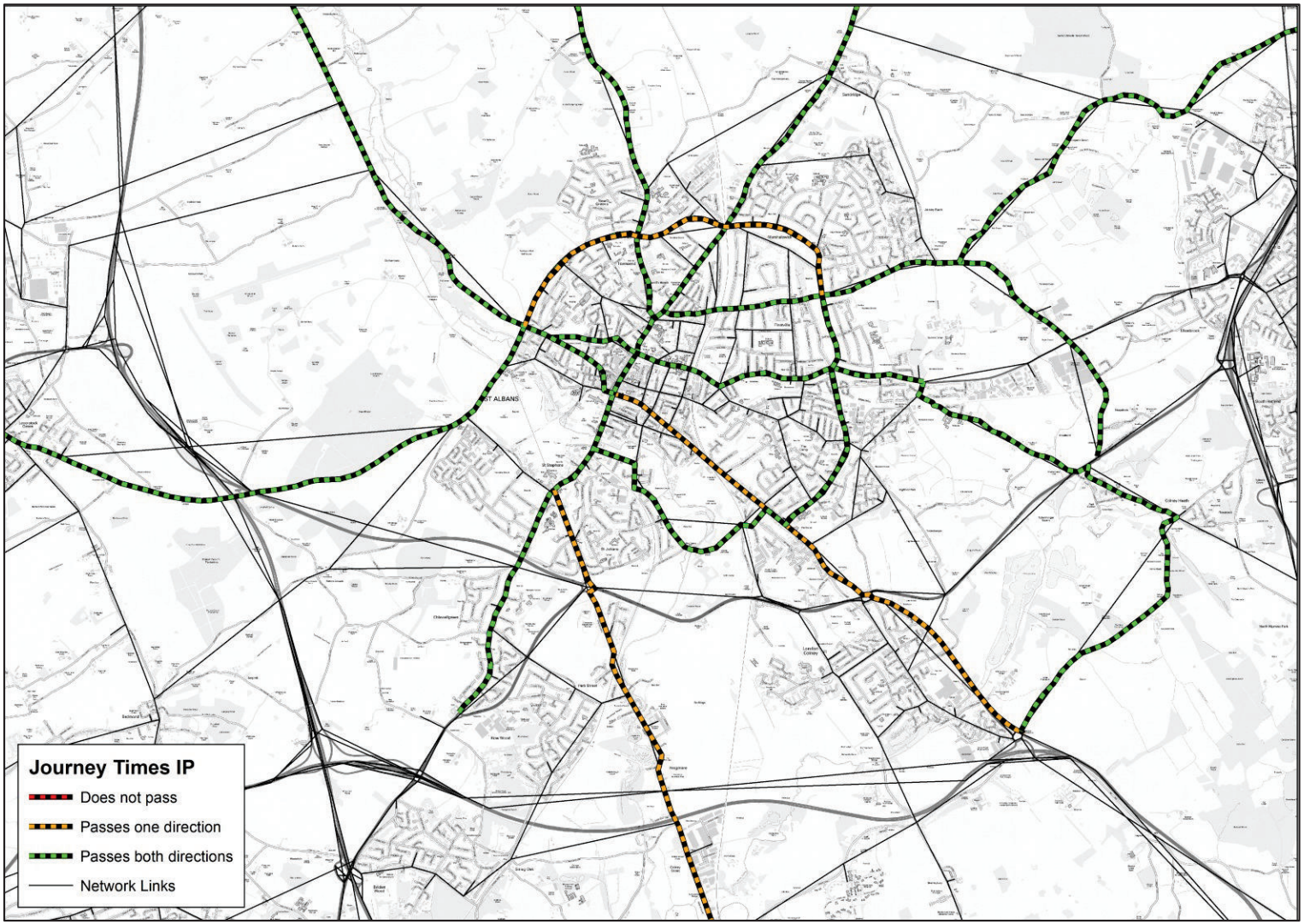


AECOM

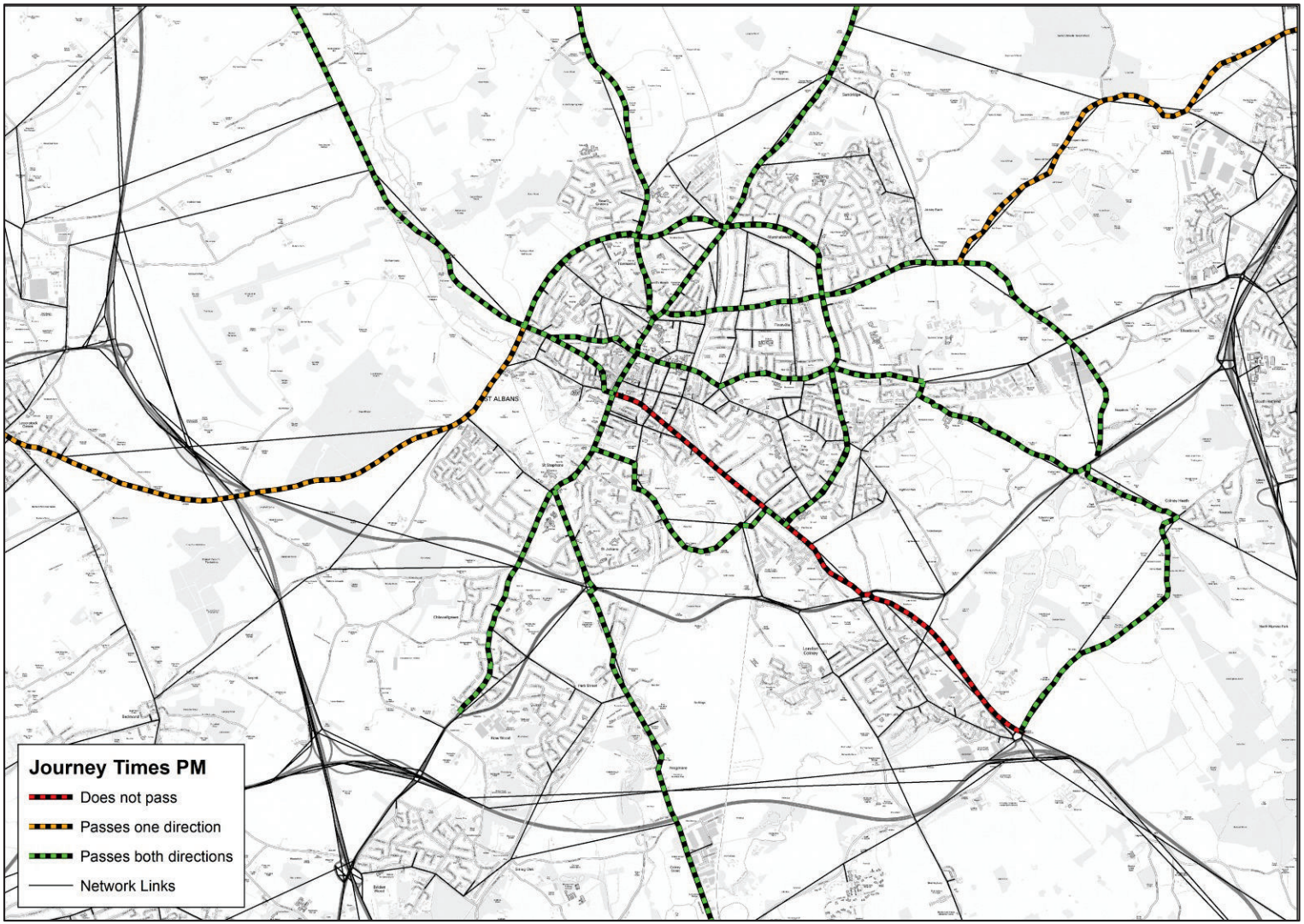
# Journey Time Routes
## AM St Albans



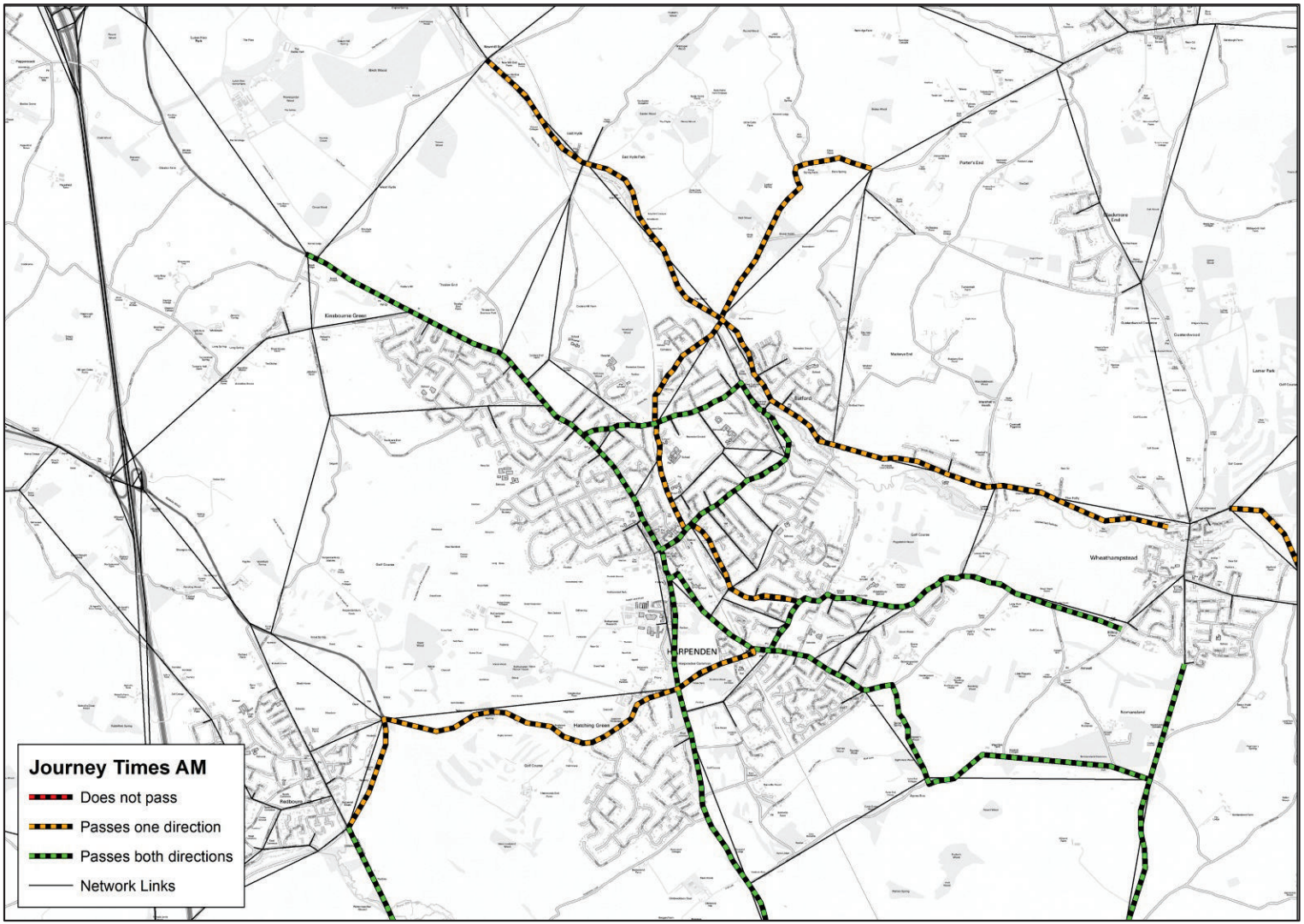
# Journey Time Routes
## IP St Albans



# Journey Time Routes
## PM St Albans



# Journey Time Routes
## AM Harpenden





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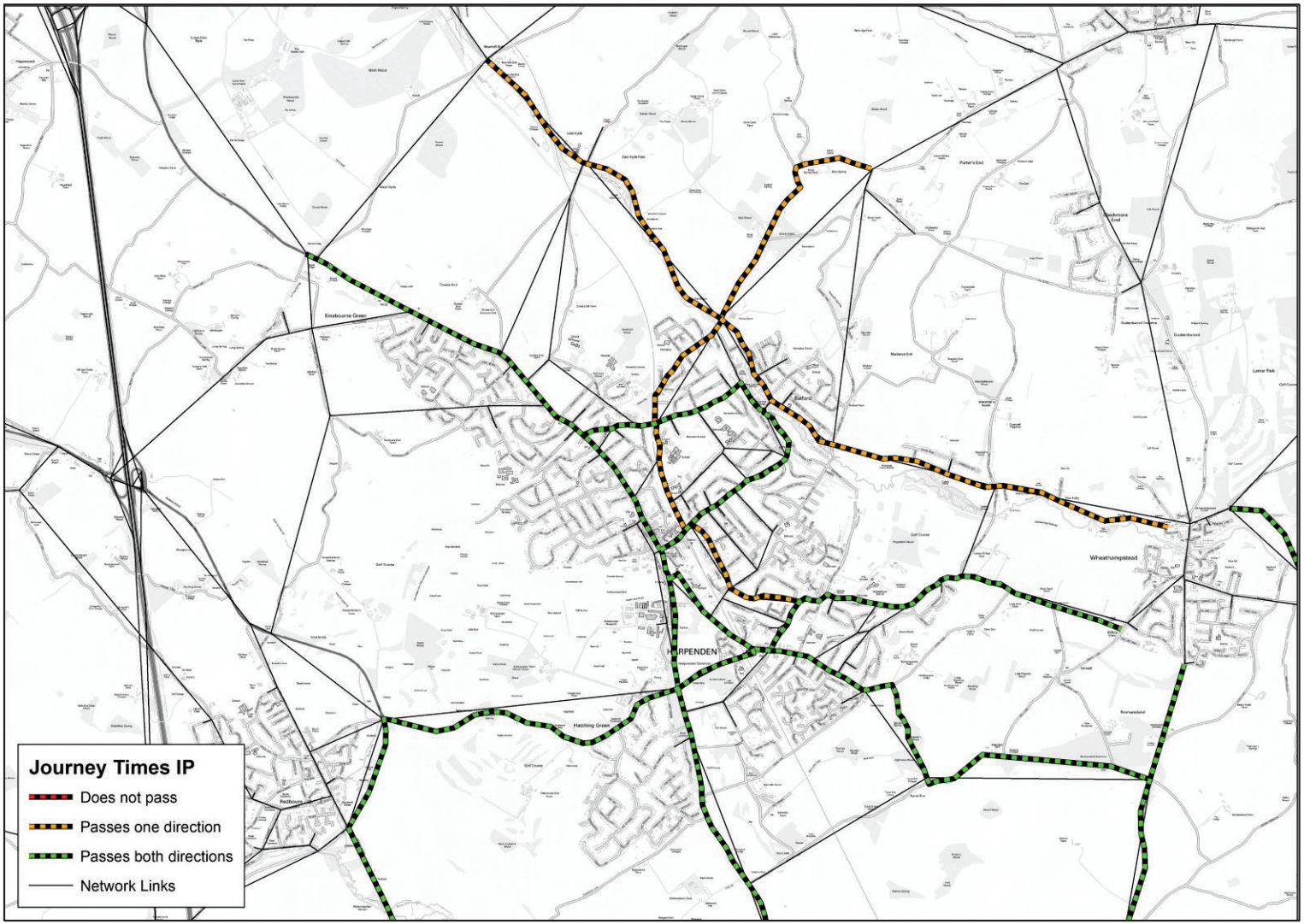
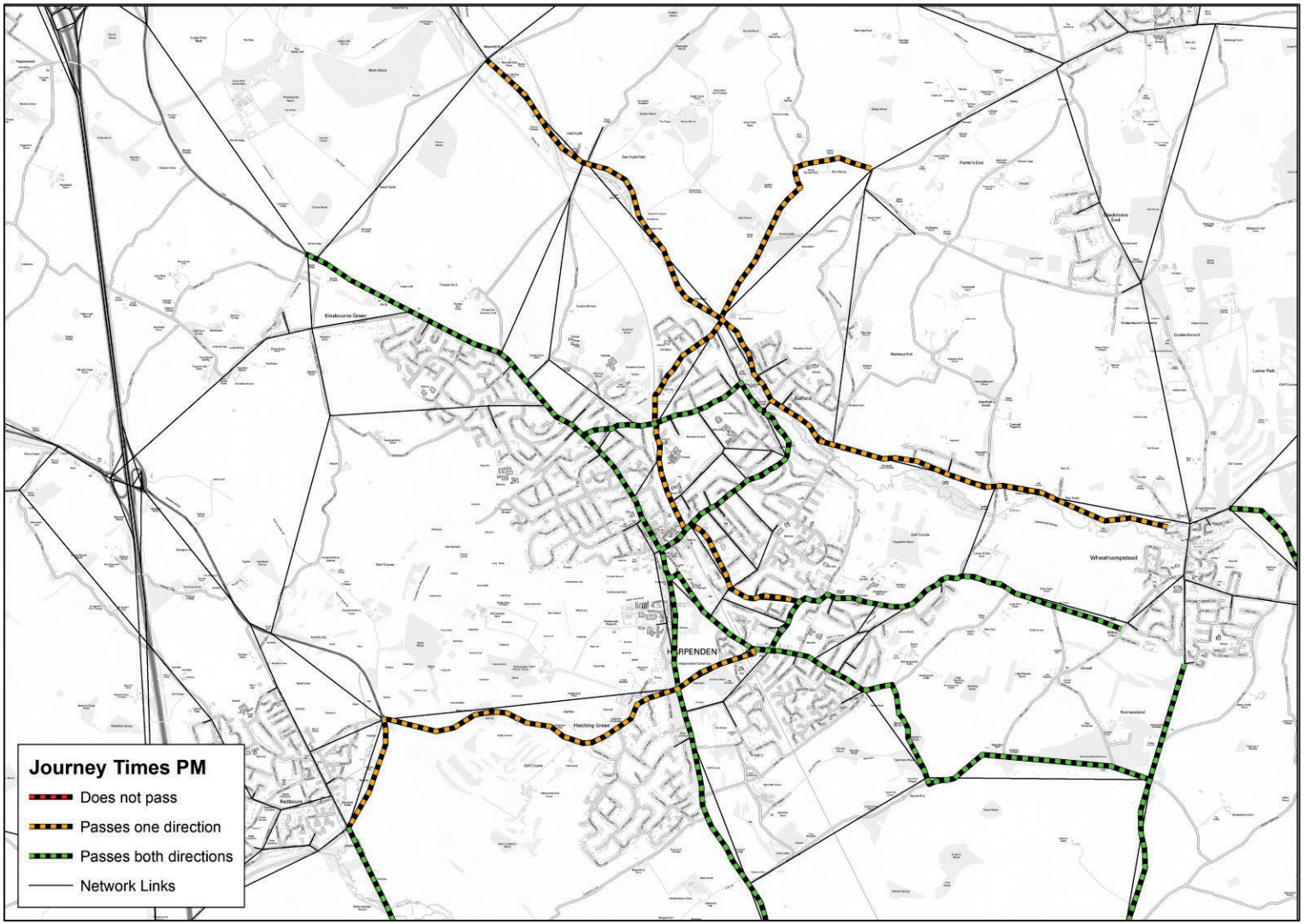
# Journey Time Routes
## IP Harpenden



# Journey Time Routes
## PM Harpenden





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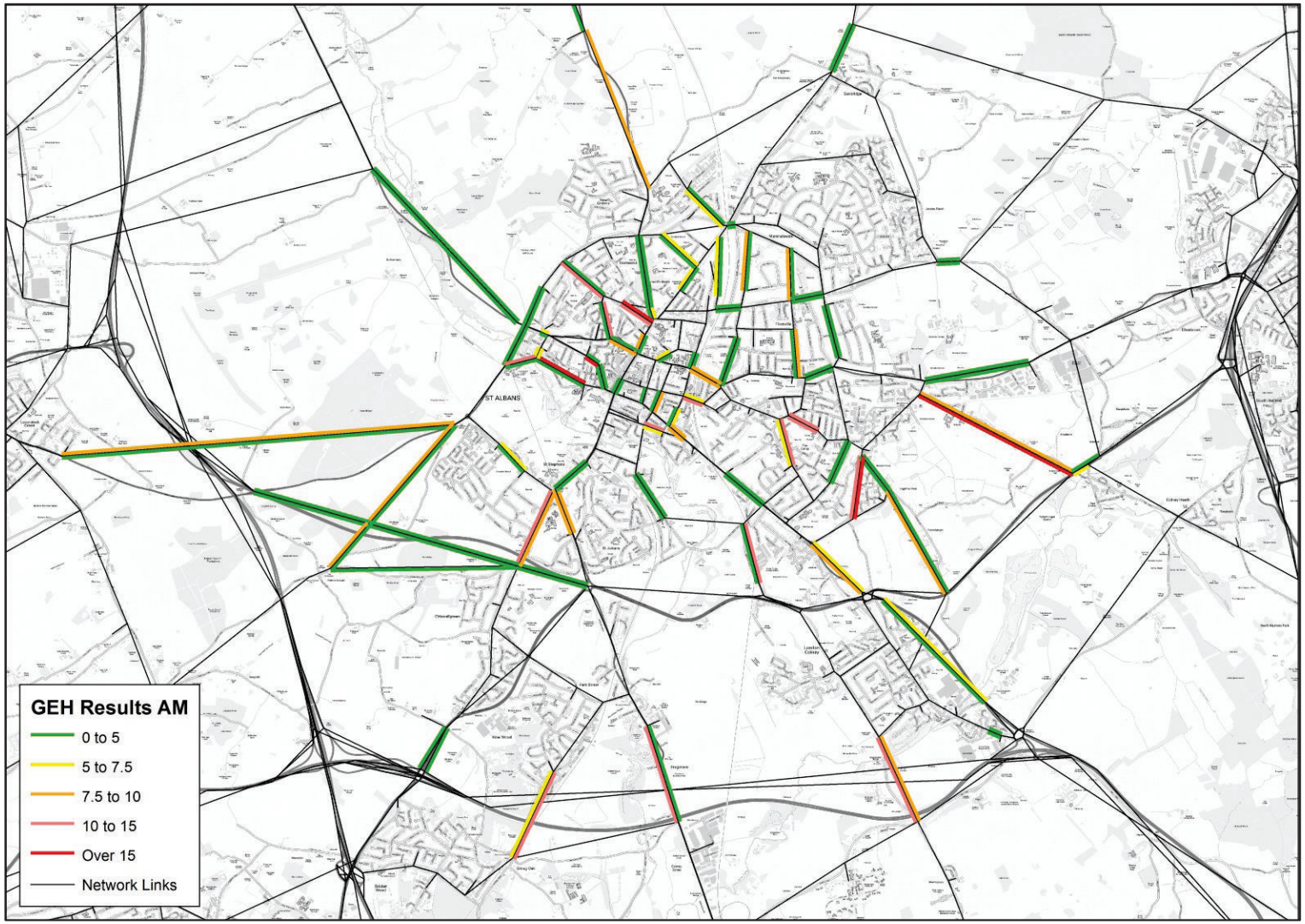
# Journey Time Routes Summary

Results from the journey times in St Albans and Harpenden provide confidence in the results seen. The journey times cover all key routes in, through and around the towns and ensure traffic conditions are accurately represented.

## Flow Analysis

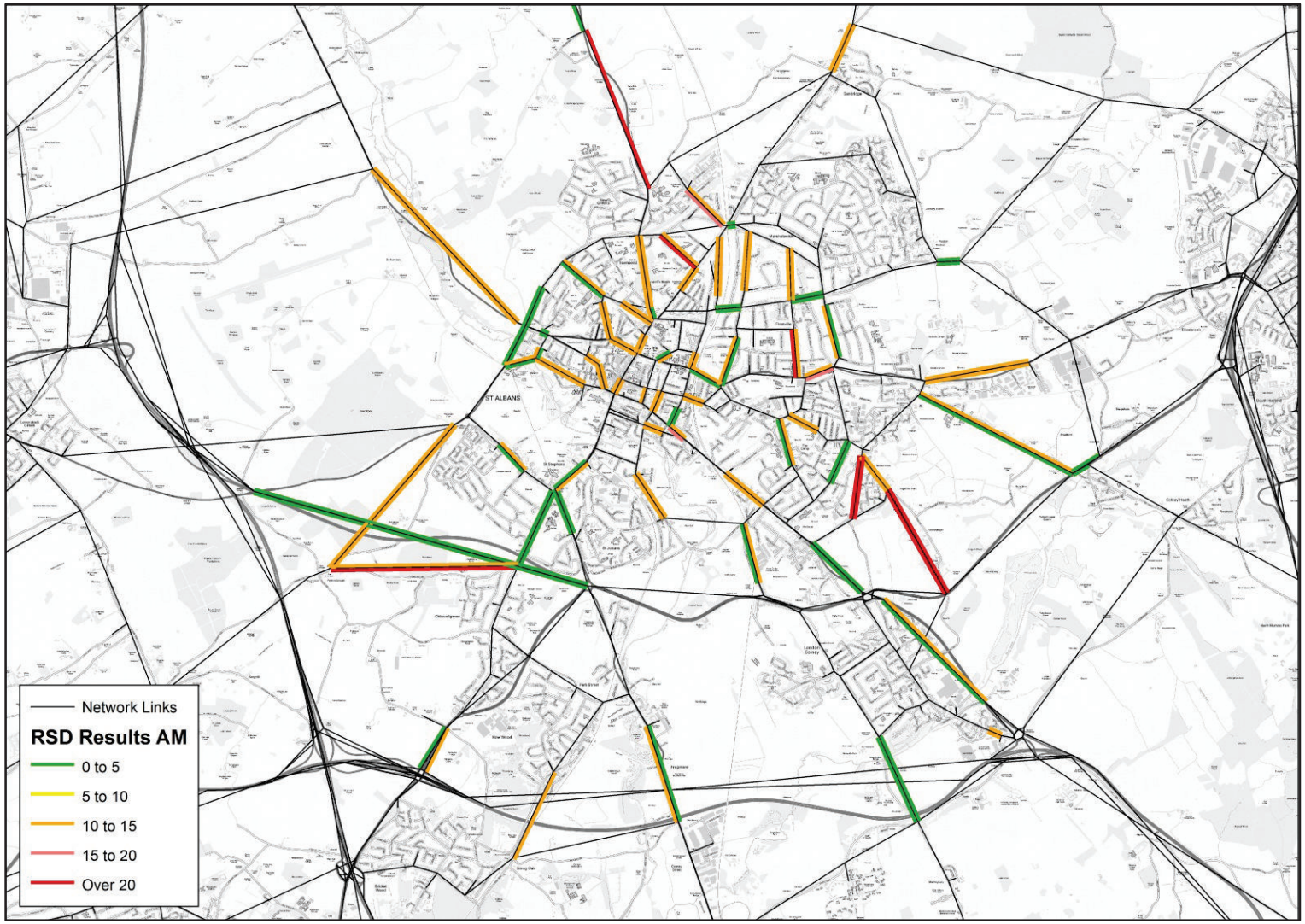
The following slides provide background to the flow validation results. GEH and RSD (Relative Standard Deviation) plots were prepared. GEH provides a measurement of how modelled flows compare to actual flows. RSD represents the variation in traffic flow data used. Roads forming the cordons and screenlines are mapped.

# Post Matrix Assignment Results
## GEH AM St Albans

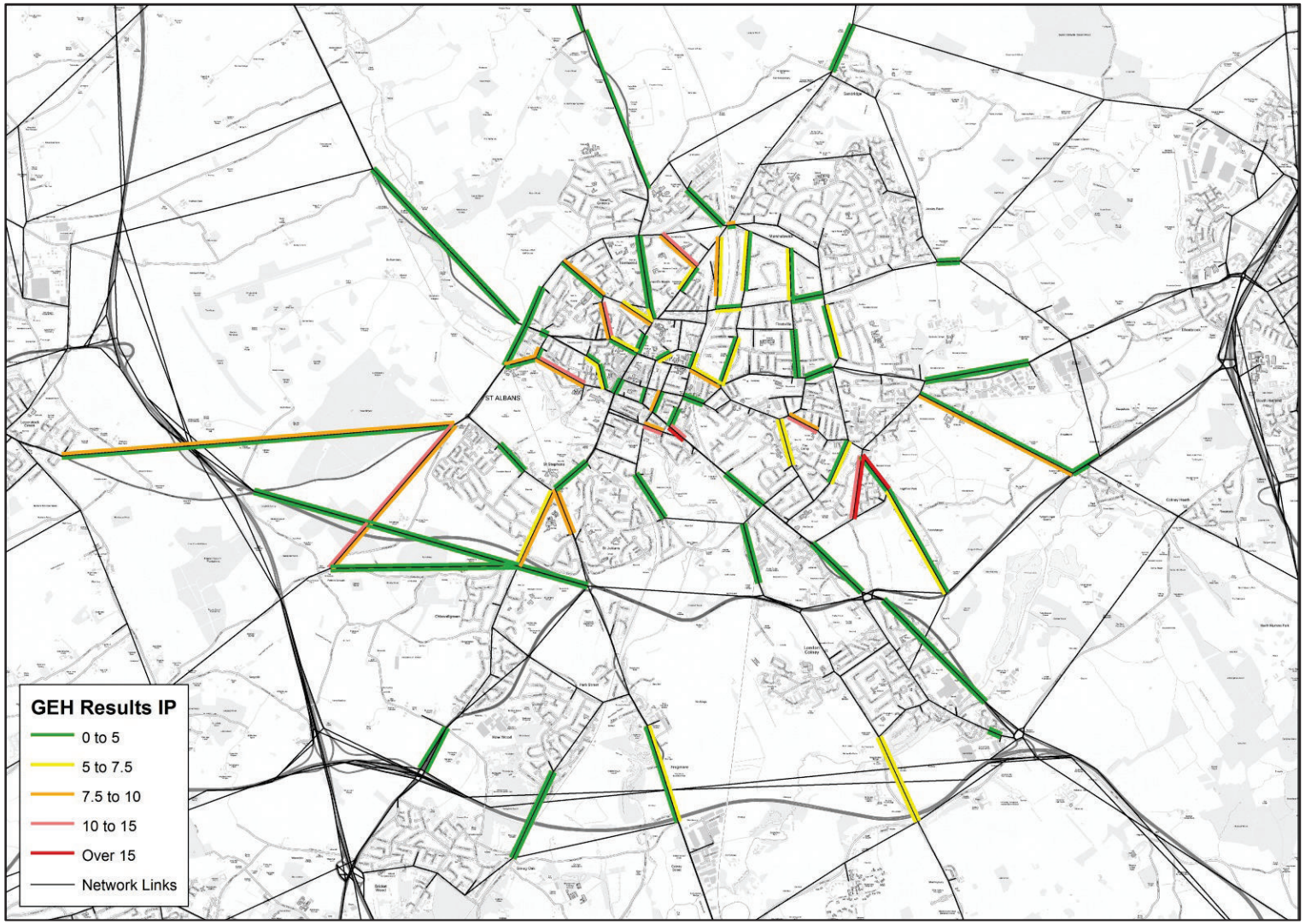


# Traffic Count Data – RSD Values

## AM St Albans

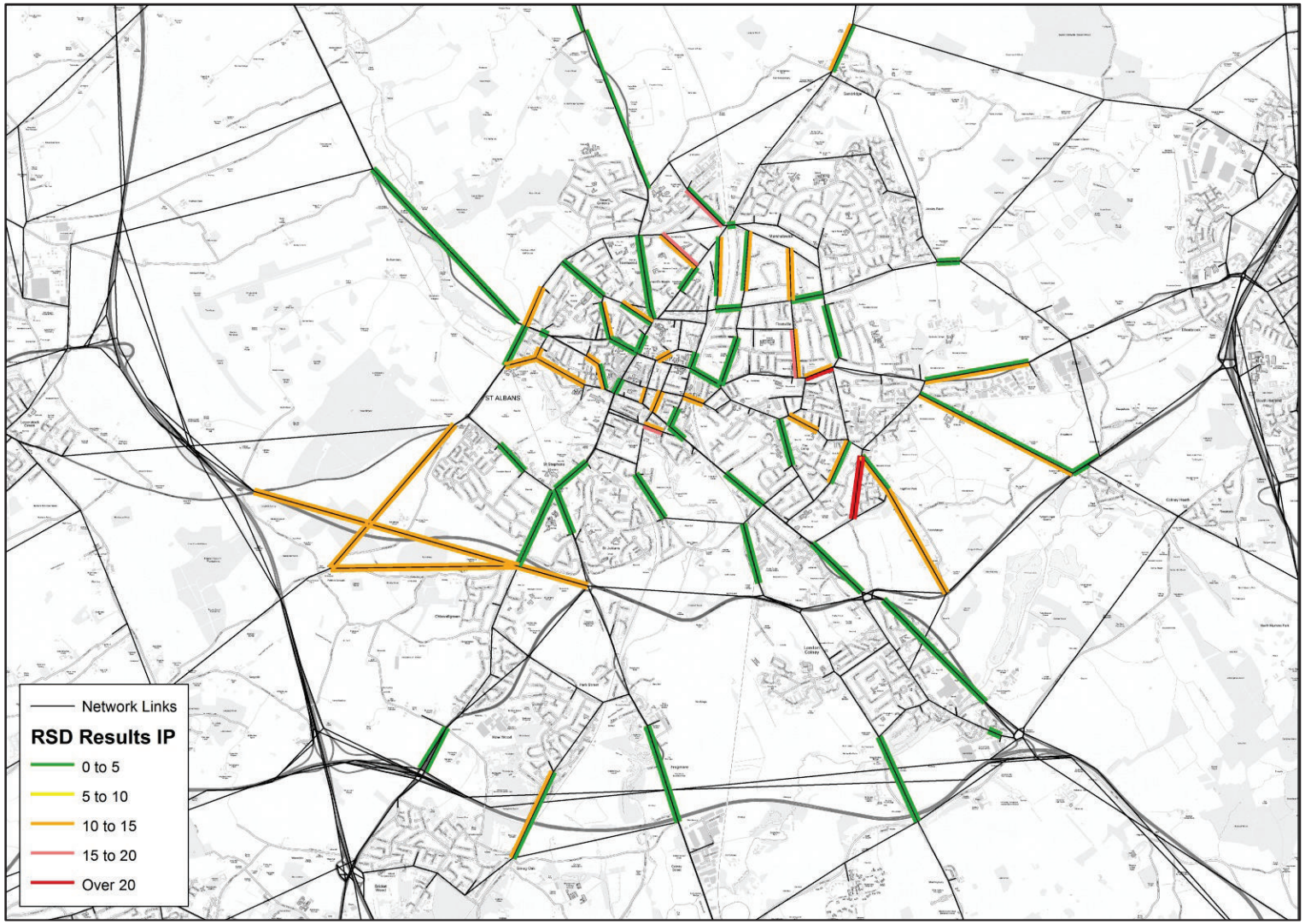


# Post Matrix Assignment Results
## GEH IP St Albans

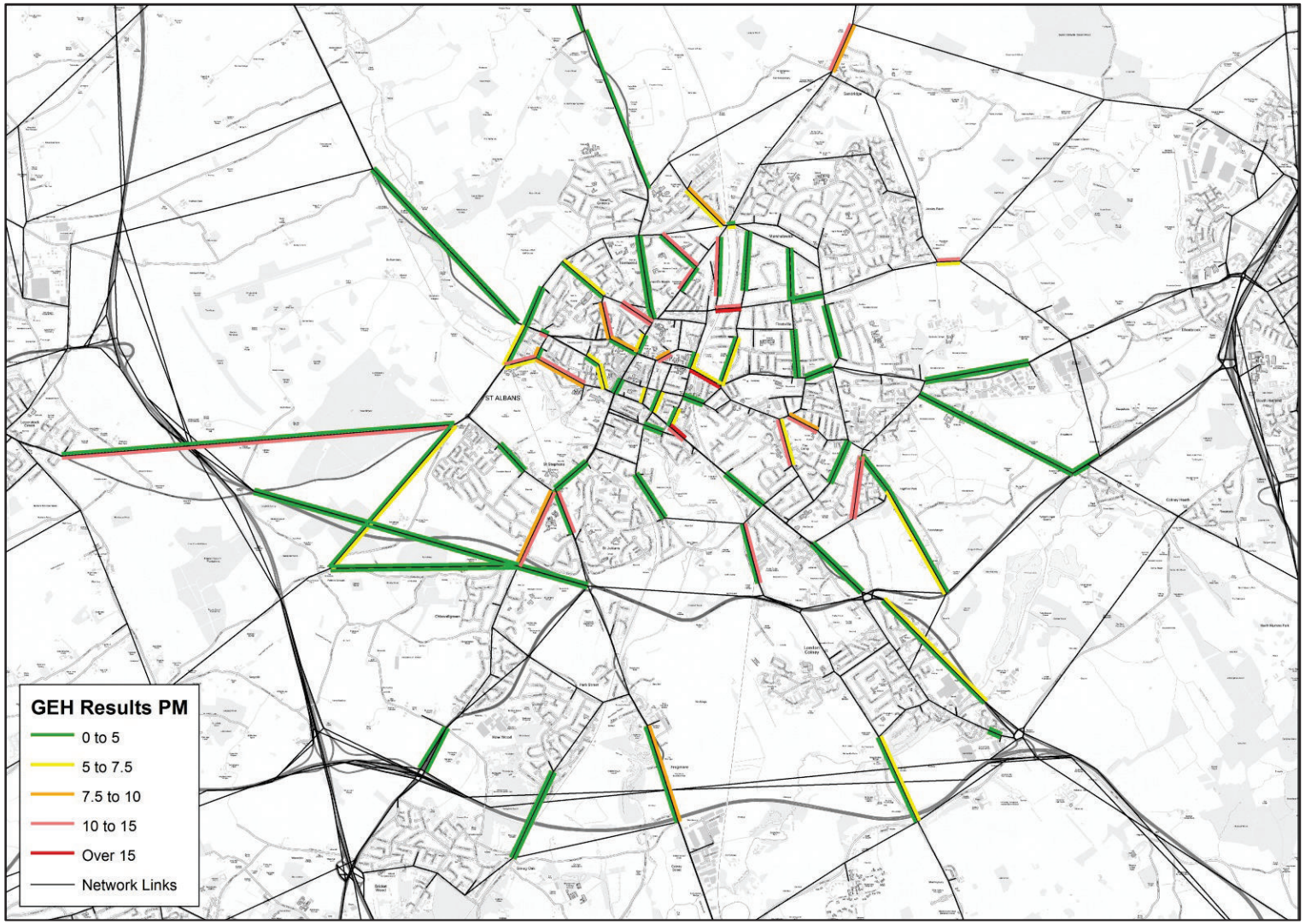


# Traffic Count Data – RSD Values

## IP St Albans

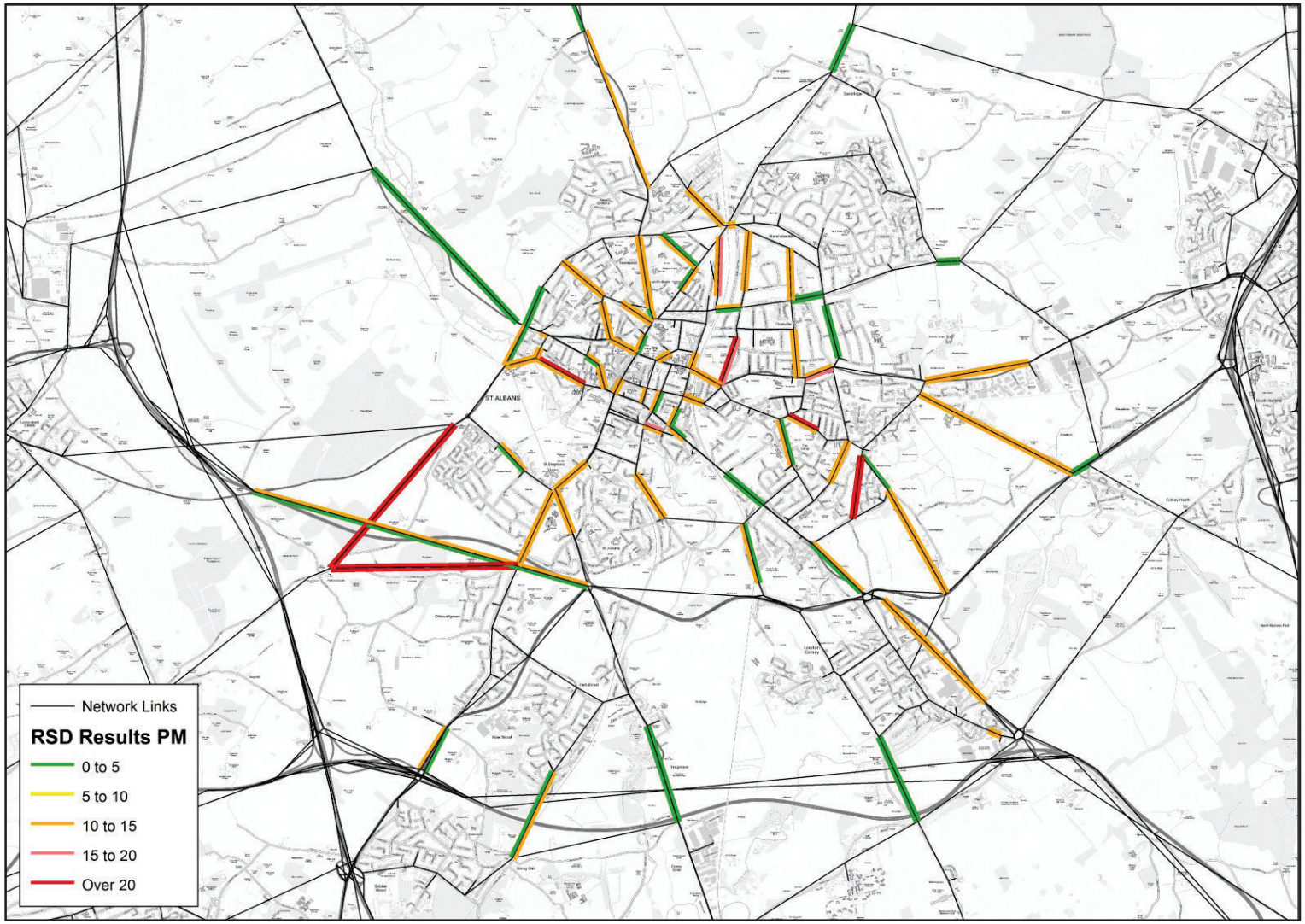


# Post Matrix Assignment Results
## GEH PM St Albans

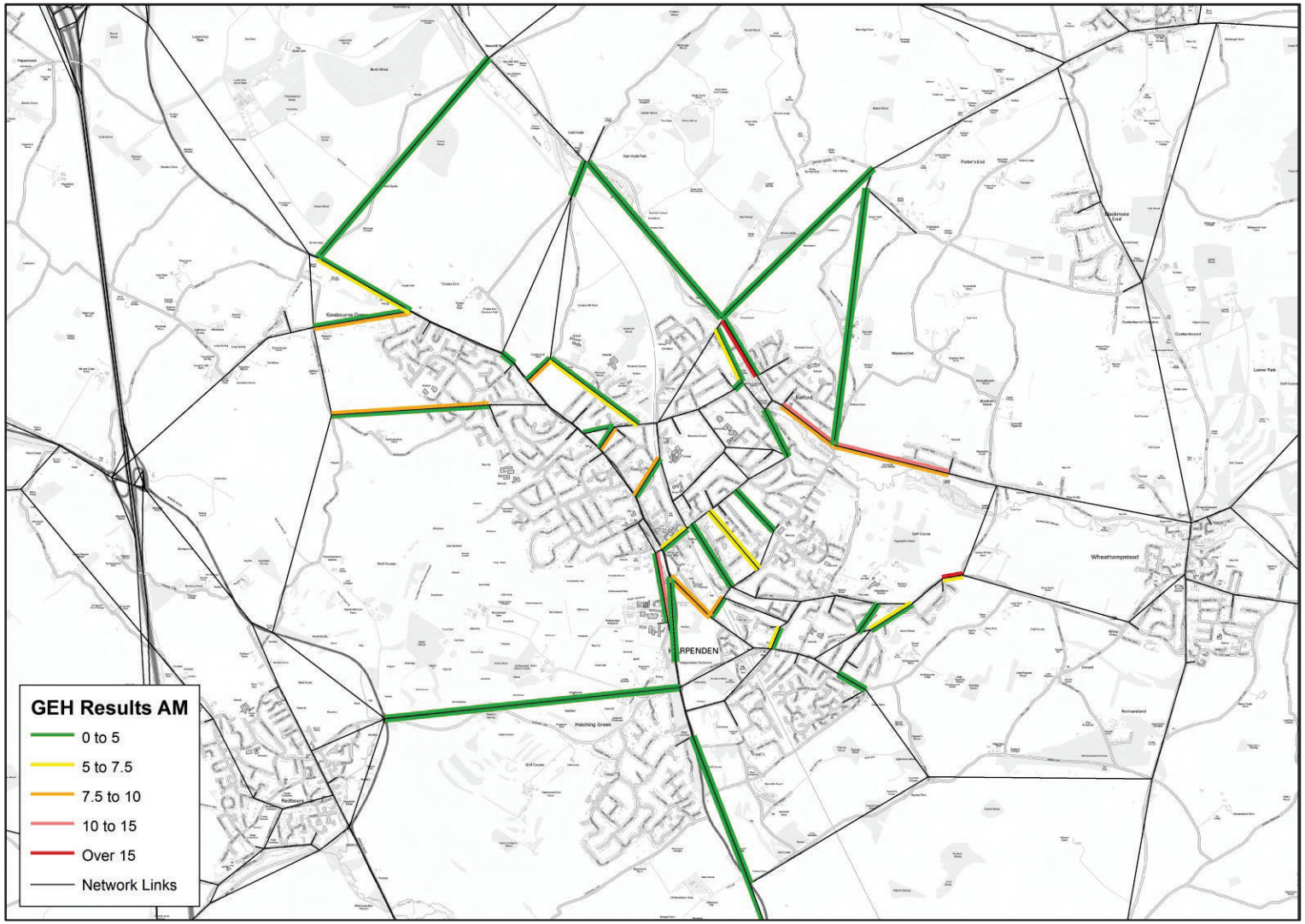


# Traffic Count Data – RSD Values

## PM St Albans

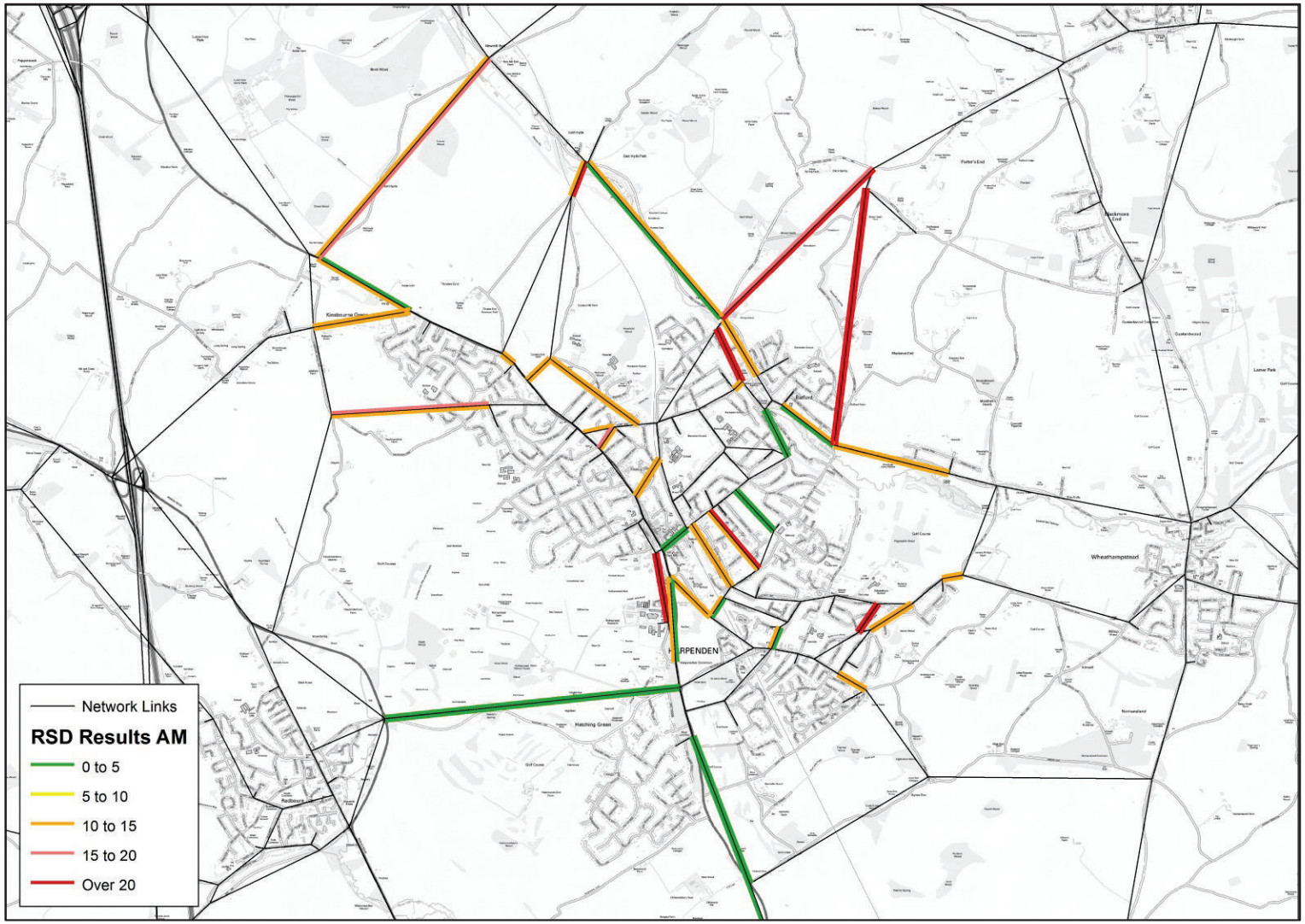


# Post Matrix Assignment Results
## GEH AM Harpenden

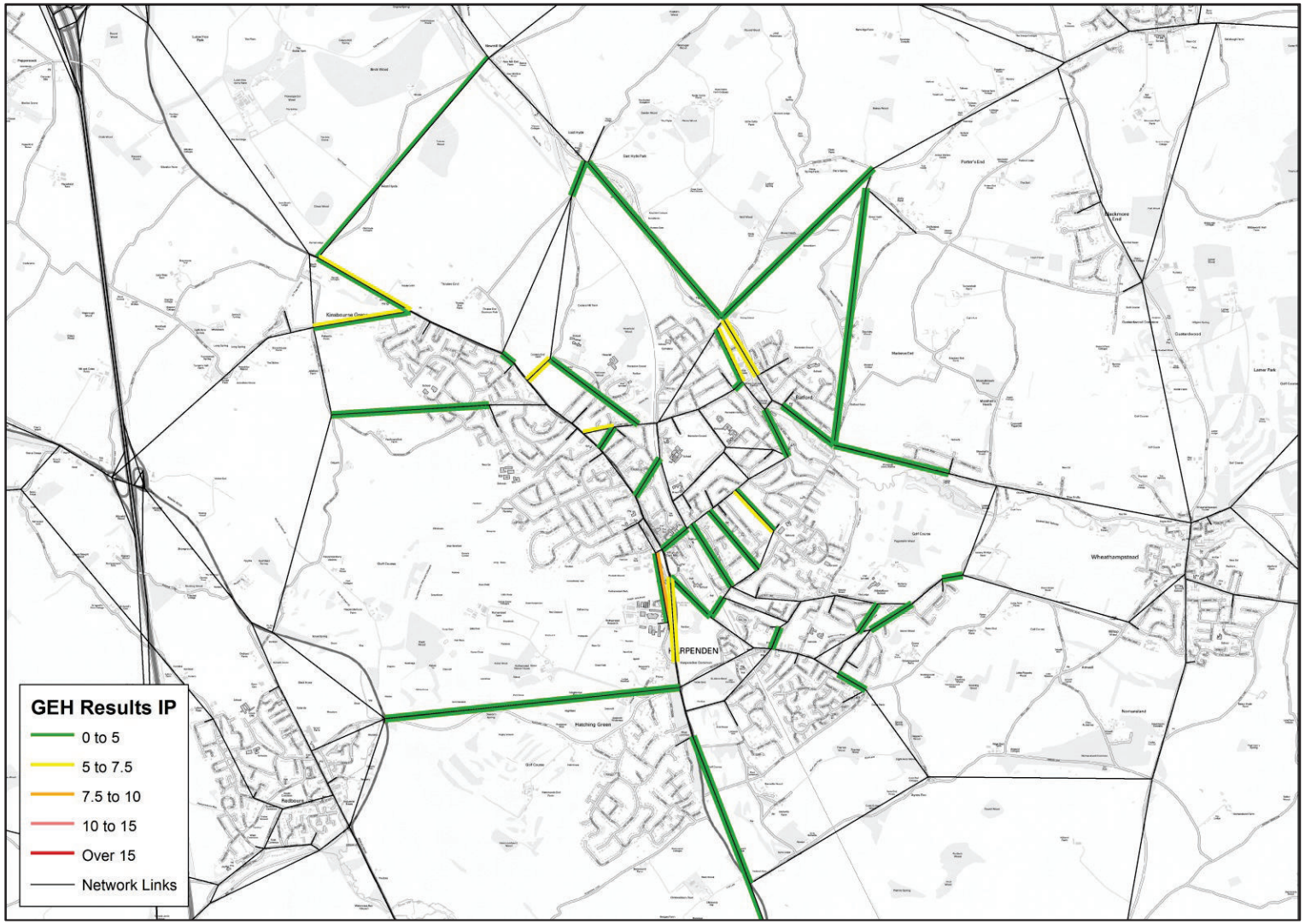


# Traffic Count Data – RSD Values

## AM Harpenden

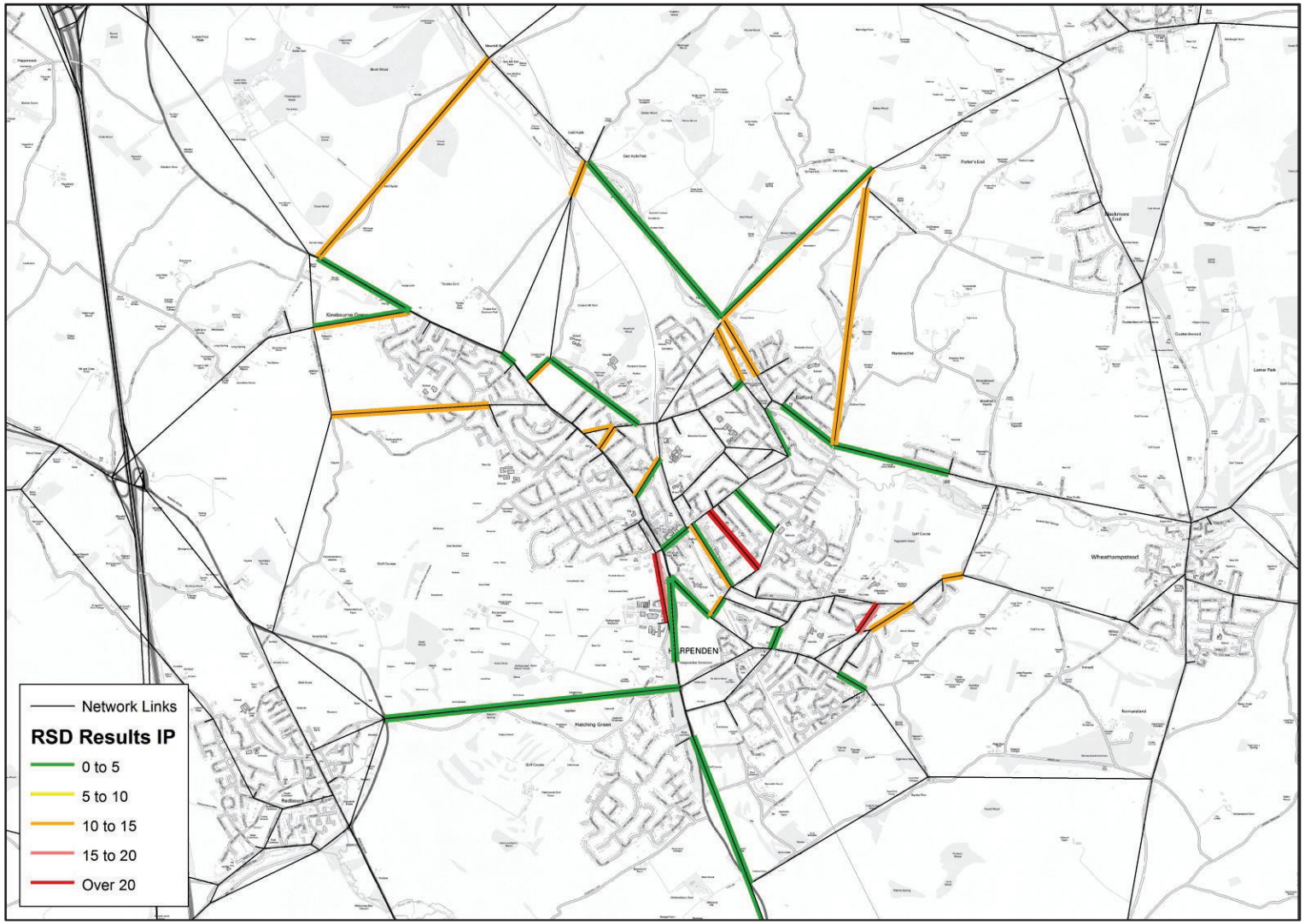


# Post Matrix Assignment Results
## GEH IP Harpenden

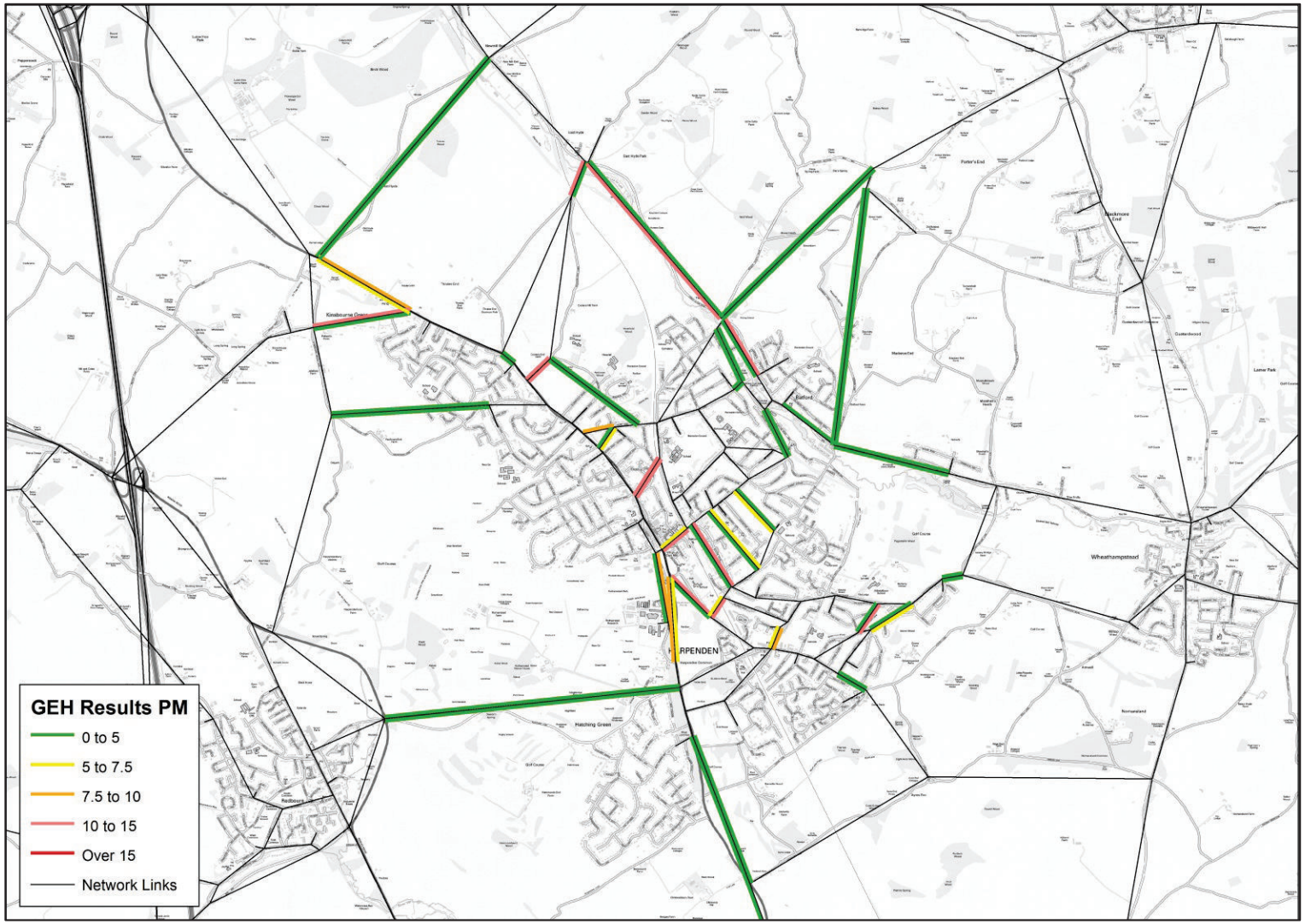


# Traffic Count Data – RSD Values

## IP Harpenden

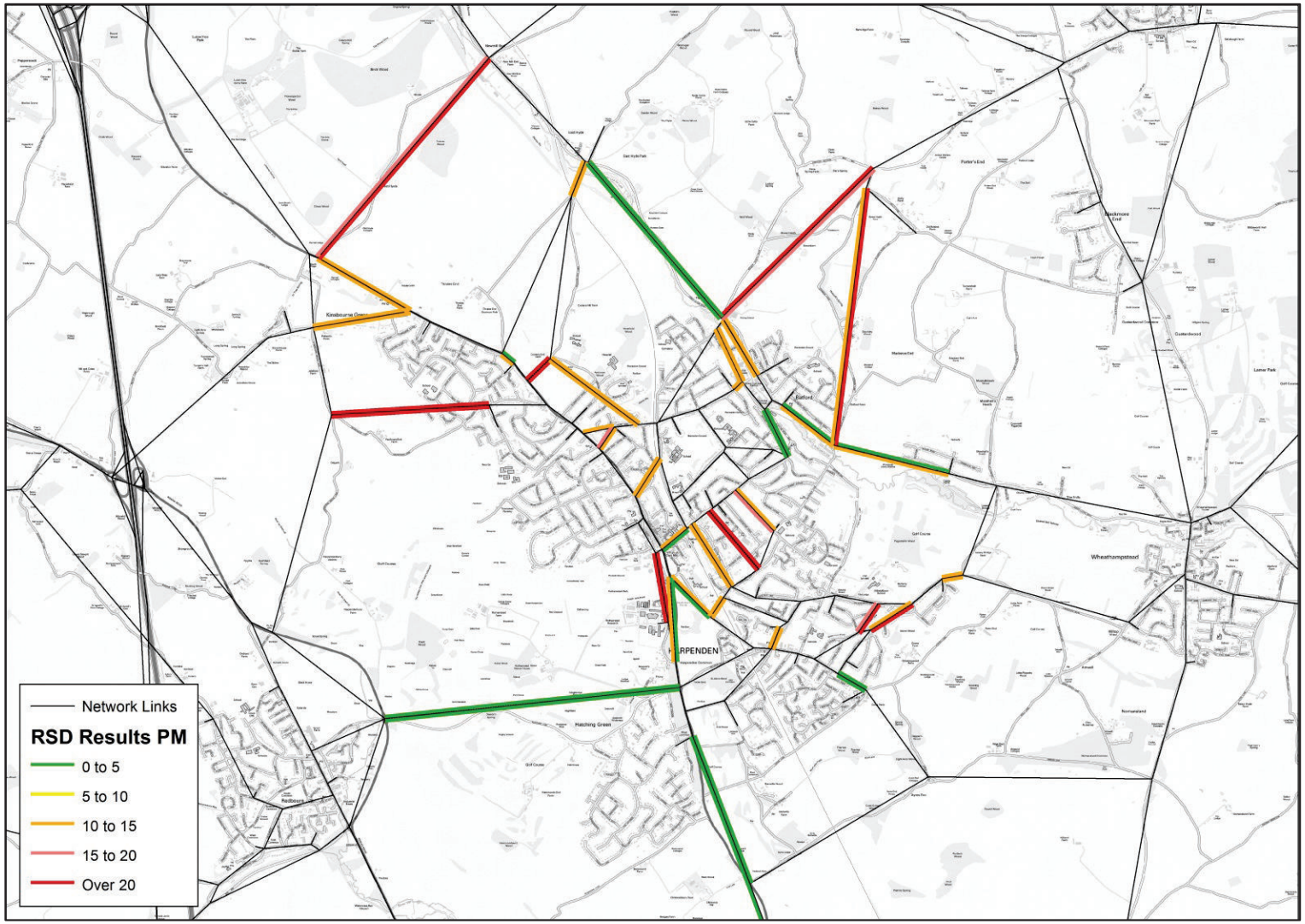


# Post Matrix Assignment Results
## GEH PM Harpenden



# Traffic Count Data – RSD Values

## PM Harpenden



# Screenline GEH/RSD Analysis

GEH/RSD results by screenline and time period are summarised in the following slides.

– The GEH columns highlight that despite the varying GEH values, across all links (i.e the entire screenline or cordon) the calibration/validation process has been able to correlate flows well.

– The RSD figures highlight that there is great variability in the data collected. This is especially prevalent in Harpenden where there is greater variability, but the overall flows are lower. A lot of the Max (individual links) figures relate to roads with lower flows where greater variability was seen.

# Screenline Analysis - AM
## Modelled Flows, GEH Results and RSD

| Screenlines | Cal/Val | Modelled Flow | GEH | | | RSD | |
|---|---|---|---|---|---|---|---|
| | | | Min (Individual Links) | Max (Individual Links) | Total (All links) | Min (Individual Links) | Max (Individual Links) |
| St Albans City-Inbound | C | 10,858 | 0.00 | 10.88 | 1.24 | 1% | 25% |
| St Albans City-Outbound | C | 10,482 | 0.04 | 11.63 | 2.68 | 3% | 34% |
| STA Inner Cordon-Inbound | C | 4,865 | 0.11 | 14.14 | 0.73 | 1% | 16% |
| STA Inner Cordon-Outbound | C | 4,410 | 0.08 | 14.93 | 4.06 | 2% | 15% |
| STA EW 1-Eastbound | C | 2,421 | 1.34 | 17.29 | 0.29 | 2% | 13% |
| STA EW 1-Westbound | C | 2,816 | 0.10 | 17.16 | 4.20 | 2% | 51% |
| STA EW 2-Eastbound | V | 1,855 | 0.29 | 11.03 | 10.63 | 3% | 14% |
| STA EW 2-Westbound | V | 2,624 | 1.20 | 12.05 | 3.34 | 4% | 15% |
| STA A414-Northbound | C | 3,107 | 4.03 | 17.84 | 1.47 | 2% | 27% |
| STA A414-Southbound | C | 2,857 | 0.20 | 10.95 | 1.47 | 2% | 24% |
| STA NS 1-Northbound | C | 3,718 | 0.27 | 13.08 | 1.26 | 4% | 40% |
| STA NS 1-Southbound | C | 3,596 | 0.28 | 15.28 | 2.96 | 3% | 39% |
| STA NS 2-Northbound | C | 2,450 | 0.55 | 8.47 | 2.73 | 2% | 20% |
| STA NS 2-Southbound | C | 2,330 | 0.38 | 13.79 | 0.81 | 3% | 13% |
| Harpenden Cordon-Inbound | C | 4,161 | 0.64 | 8.34 | 0.82 | 3% | 30% |
| Harpenden Cordon-Outbound | C | 4,381 | 0.09 | 15.68 | 0.76 | 2% | 37% |
| HPD EW 1-Eastbound | C | 1,687 | 0.25 | 8.19 | 1.06 | 3% | 59% |
| HPD EW 1-Westbound | C | 1,737 | 0.82 | 9.11 | 0.42 | 3% | 27% |
| HPD NS 1-Northbound | C | 1,847 | 1.18 | 23.67 | 0.31 | 5% | 29% |
| HPD NS 1-Southbound | C | 1,942 | 0.25 | 8.76 | 0.59 | 5% | 24% |
| HPD NS 2-Northbound | V | 1,738 | 1.45 | 9.44 | 7.45 | 3% | 36% |
| HPD NS 2-Southbound | V | 2,087 | 0.19 | 11.80 | 3.34 | 2% | 31% |
| **St Albans Cordon - East/West Analysis** | | | | | | | |
| St Albans City-Inbound East | | 3,909 | 0.13 | 5.07 | 3.14 | 3% | 6% |
| St Albans City-Outbound East | | 3,693 | 0.04 | 0.85 | 0.03 | 3% | 11% |
| St Albans City-Inbound West | | 2,787 | 0.00 | 9.64 | 2.29 | 3% | 11% |
| St Albans City-Outbound West | | 1,877 | 0.33 | 4.87 | 2.74 | 4% | 34% |

# Screenline Analysis - IP
## Modelled Flows, GEH Results and RSD

| Screenlines | Cal/Val | Modelled Flow | GEH | | | RSD | |
|---|---|---|---|---|---|---|---|
| | | | Min (Individual Links) | Max (Individual Links) | Total (All links) | Min (Individual Links) | Max (Individual Links) |
| St Albans City-Inbound | C | 7,712 | 0.11 | 14.81 | 0.73 | 2% | 11% |
| St Albans City-Outbound | C | 7,655 | 0.10 | 8.61 | 0.48 | 2% | 15% |
| STA Inner Cordon-Inbound | C | 3,269 | 0.21 | 11.41 | 2.62 | 2% | 21% |
| STA Inner Cordon-Outbound | C | 3,375 | 0.17 | 9.25 | 1.41 | 2% | 11% |
| STA EW 1-Eastbound | C | 1,948 | 2.41 | 11.92 | 0.48 | 2% | 15% |
| STA EW 1-Westbound | C | 2,342 | 0.24 | 9.30 | 0.67 | 2% | 17% |
| STA EW 2-Eastbound | V | 1,593 | 0.23 | 11.97 | 11.06 | 3% | 13% |
| STA EW 2-Westbound | V | 1,750 | 0.25 | 17.40 | 11.55 | 2% | 17% |
| STA A414-Northbound | C | 2,238 | 2.35 | 10.00 | 1.01 | 2% | 13% |
| STA A414-Southbound | C | 2,209 | 0.91 | 9.87 | 0.73 | 2% | 13% |
| STA NS 1-Northbound | C | 2,860 | 0.58 | 10.13 | 0.71 | 2% | 29% |
| STA NS 1-Southbound | C | 2,751 | 0.16 | 25.23 | 22.84 | 3% | 35% |
| STA NS 2-Northbound | C | 1,742 | 0.87 | 8.06 | 2.73 | 2% | 15% |
| STA NS 2-Southbound | C | 1,864 | 1.32 | 10.83 | 0.47 | 2% | 11% |
| Harpenden Cordon-Inbound | C | 2,388 | 0.34 | 6.78 | 0.35 | 2% | 9% |
| Harpenden Cordon-Outbound | C | 2,396 | 0.54 | 4.06 | 0.40 | 2% | 14% |
| HPD EW 1-Eastbound | C | 1,036 | 0.94 | 6.61 | 0.21 | 2% | 33% |
| HPD EW 1-Westbound | C | 1,030 | 0.49 | 6.32 | 0.34 | 3% | 20% |
| HPD NS 1-Northbound | C | 1,023 | 1.17 | 8.20 | 0.20 | 3% | 5% |
| HPD NS 1-Southbound | C | 1,021 | 0.37 | 10.97 | 0.23 | 3% | 13% |
| HPD NS 2-Northbound | V | 1,265 | 0.96 | 6.95 | 1.72 | 2% | 28% |
| HPD NS 2-Southbound | V | 1,216 | 1.44 | 7.52 | 1.80 | 4% | 23% |
| **St Albans Cordon - East/West Analysis** | | | | | | | |
| St Albans City-Inbound East | | 2,716 | 0.11 | 1.62 | 0.07 | 3% | 8% |
| St Albans City-Outbound East | | 2,678 | 0.11 | 4.79 | 0.28 | 3% | 7% |
| St Albans City-Inbound West | | 1,348 | 1.87 | 14.81 | 0.28 | 5% | 11% |
| St Albans City-Outbound West | | 1,352 | 0.81 | 8.61 | 1.67 | 4% | 15% |

# Screenline Analysis - PM
## Modelled Flows, GEH Results and RSD

| Screenlines | Cal/Val | Modelled Flow | GEH | | | RSD | |
|---|---|---|---|---|---|---|---|
| | | | Min (Individual Links) | Max (Individual Links) | Total (All links) | Min (Individual Links) | Max (Individual Links) |
| St Albans City-Inbound | C | 10,739 | 0.21 | 8.48 | 0.71 | 2% | 32% |
| St Albans City-Outbound | C | 10,114 | 0.22 | 13.10 | 1.04 | 2% | 25% |
| STA Inner Cordon-Inbound | C | 3,721 | 0.03 | 13.19 | 0.43 | 1% | 20% |
| STA Inner Cordon-Outbound | C | 4,266 | 0.05 | 12.72 | 2.91 | 3% | 37% |
| STA EW 1-Eastbound | C | 2,215 | 1.96 | 14.22 | 1.25 | 5% | 32% |
| STA EW 1-Westbound | C | 2,908 | 0.86 | 12.96 | 0.47 | 4% | 12% |
| STA EW 2-Eastbound | V | 1,997 | 0.51 | 15.54 | 15.88 | 5% | 19% |
| STA EW 2-Westbound | V | 1,802 | 0.07 | 18.05 | 19.40 | 5% | 11% |
| STA A414-Northbound | C | 2,989 | 0.05 | 9.40 | 3.76 | 2% | 13% |
| STA A414-Southbound | C | 2,961 | 3.01 | 14.08 | 0.63 | 5% | 13% |
| STA NS 1-Northbound | C | 3,128 | 0.18 | 10.43 | 3.25 | 1% | 30% |
| STA NS 1-Southbound | C | 3,330 | 0.60 | 11.10 | 2.61 | 3% | 42% |
| STA NS 2-Northbound | C | 2,169 | 0.21 | 8.98 | 2.05 | 3% | 30% |
| STA NS 2-Southbound | C | 2,381 | 1.65 | 13.03 | 0.37 | 1% | 17% |
| Harpenden Cordon-Inbound | C | 3,905 | 0.33 | 11.21 | 0.44 | 4% | 32% |
| Harpenden Cordon-Outbound | C | 3,752 | 0.29 | 12.77 | 0.05 | 3% | 32% |
| HPD EW 1-Eastbound | C | 1,352 | 1.49 | 13.71 | 0.32 | 6% | 35% |
| HPD EW 1-Westbound | C | 1,342 | 5.71 | 13.58 | 4.34 | 5% | 35% |
| HPD NS 1-Northbound | C | 1,701 | 0.17 | 10.16 | 0.54 | 7% | 35% |
| HPD NS 1-Southbound | C | 1,658 | 2.33 | 21.05 | 2.51 | 1% | 22% |
| HPD NS 2-Northbound | V | 1,674 | 0.01 | 8.30 | 2.10 | 3% | 30% |
| HPD NS 2-Southbound | V | 1,598 | 3.22 | 13.82 | 0.09 | 3% | 21% |
| **St Albans Cordon - East/West Analysis** | | | | | | | |
| St Albans City-Inbound East | | 3,889 | 1.10 | 8.48 | 0.93 | 2% | 14% |
| St Albans City-Outbound East | | 3,358 | 0.41 | 13.10 | 0.52 | 2% | 14% |
| St Albans City-Inbound West | | 1,701 | 0.45 | 1.75 | 0.98 | 3% | 32% |
| St Albans City-Outbound West | | 2,255 | 0.48 | 10.73 | 5.86 | 3% | 25% |

# Screenline Analysis - Summary
## Modelled Flows, GEH Results and RSD

- Analysis of the GEH and RSD plots highlights the variability in the data used to calibrate the model in St Albans and Harpenden
- AECOM cleaned and processed all data from the HCC and ATR traffic surveys to obtain the lowest RSD values – in some cases leaving only a few days of data. High values still remain
- The model is trying to calibrate against one average value rather than a range
- Lots of rat running in St Albans and Harpenden in reality and the model – traffic moves around to avoid queues/delays
- Relatively low flows across individual sites on minor roads led to high variability in data
- Relatively low total flows across screenlines mean small variances impact the results greatly
- COMET is a strategic model and therefore has limitations. It does not include every road in the network and local urban trip patterns are difficult to define

# Delays on the Base Year Highway Network - AM

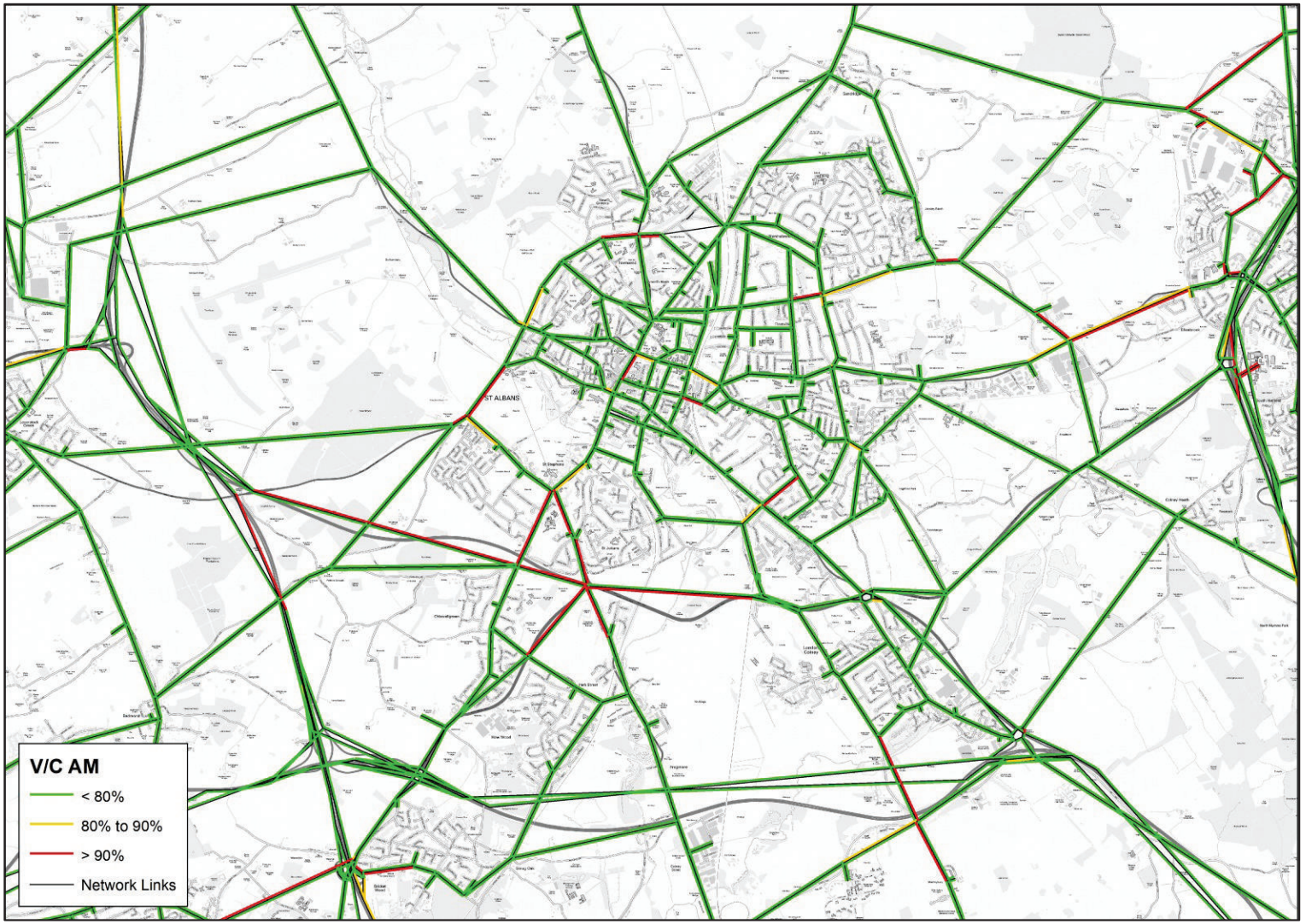
The following plots provide background to the base year network and highlight that delays and congestion are appearing in the correct areas of the network.

The delay plots show the average delay at junctions each vehicle will experience (regardless of the route they approach from, weighted by flows).

# Congestion on the Base Year Highway Network - AM

It should be remembered that COMET saturation flows are the standard ones defined in the coding manual for a strategic model.

V/C = volume divided by capacity

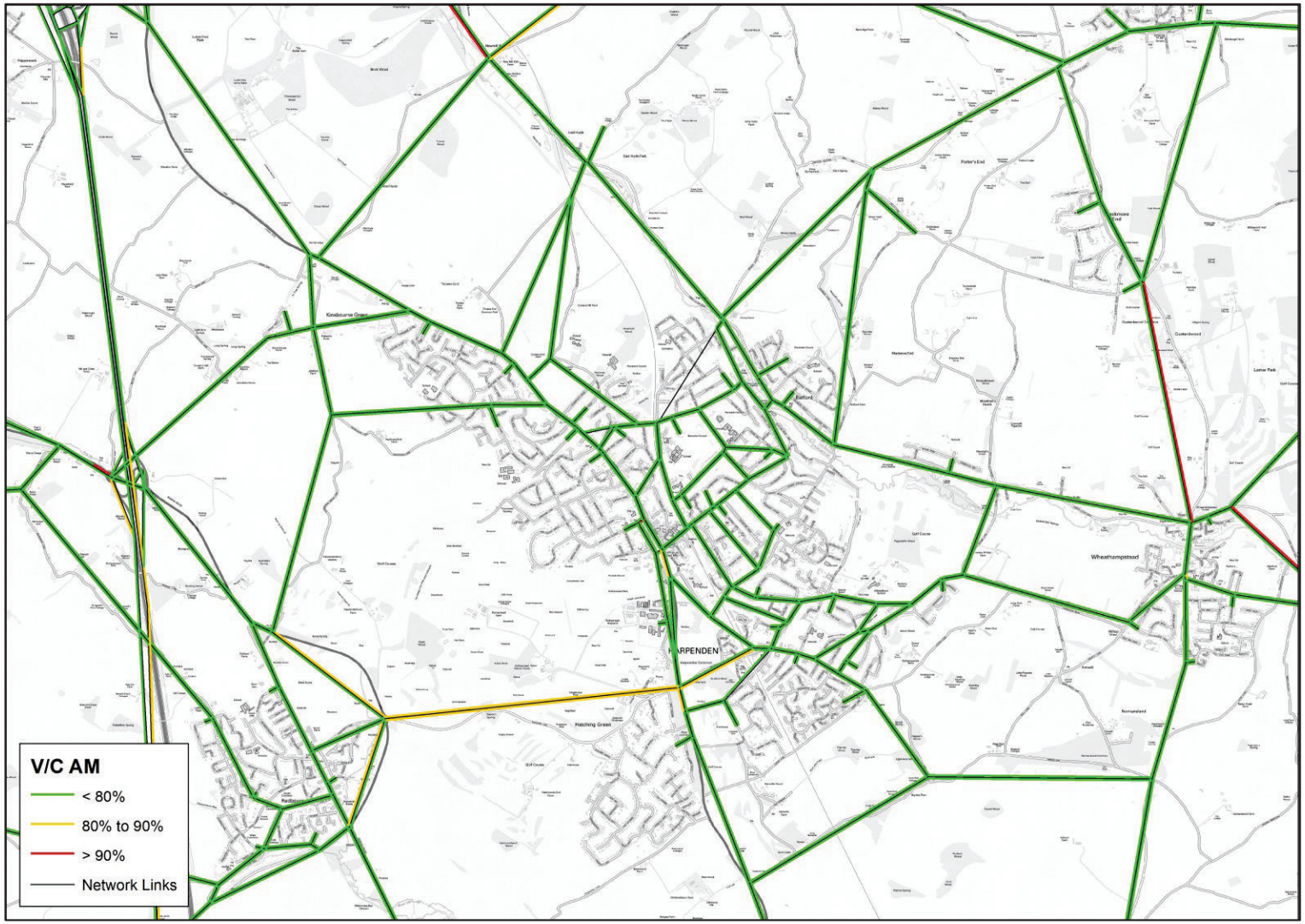


# Delays on the Base Year Highway Network - AM

Minimal delays around and through Harpenden.

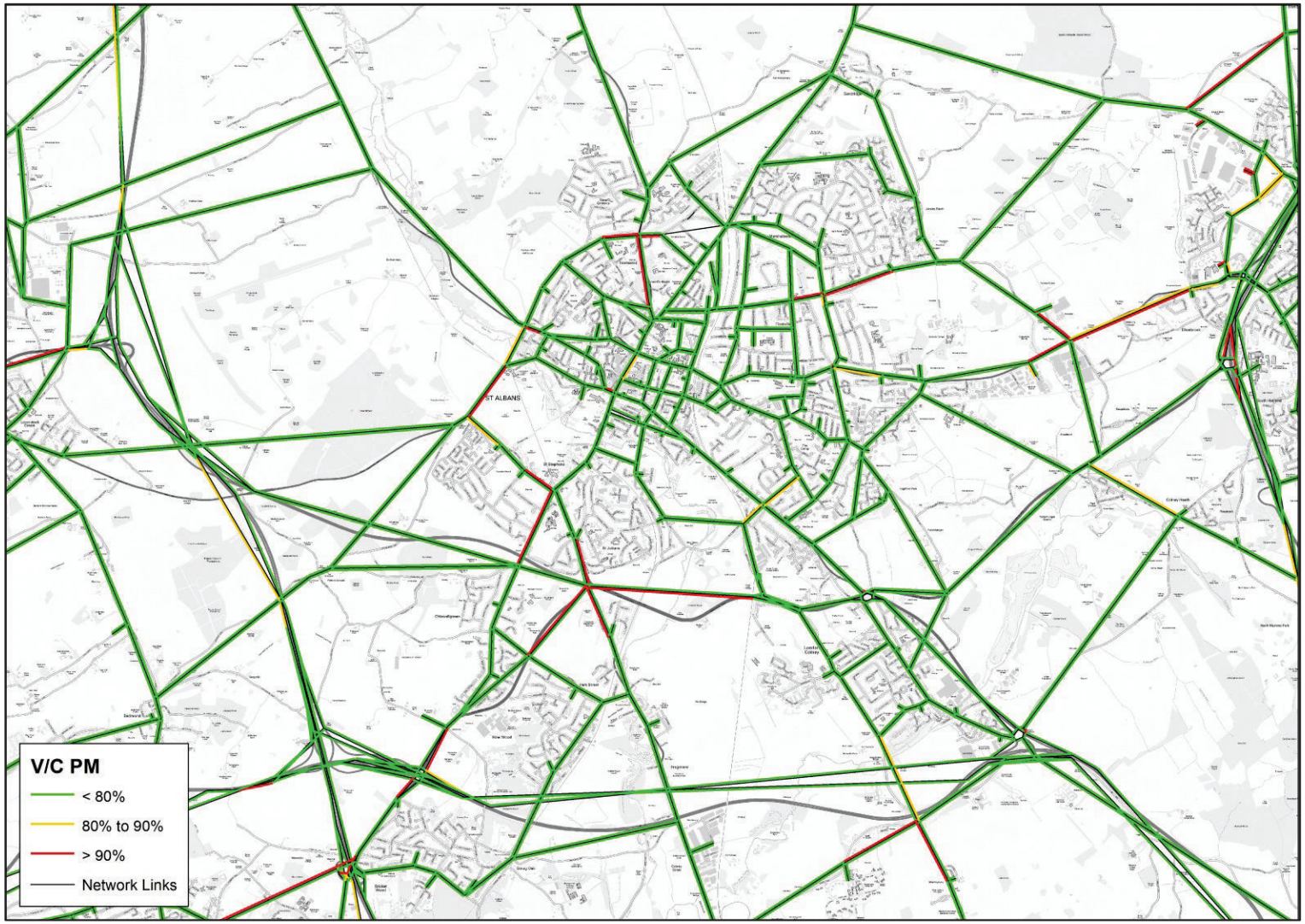
No signal controlled junctions within Harpenden in the model which could impact flows.

# Congestion on the Base Year Highway Network - AM



# Delays on the Base Year Highway Network - PM

# Congestion on the Base Year Highway Network - PM



# Delays on the Base Year Highway Network - PM

# Congestion on the Base Year Highway Network - PM

# Summary of COMET validation
## St Albans Area

– At screenline level
  - Pass WebTAG criterion (>85%) for light and total vehicles in the IP. Figures for the AM and PM peaks slightly lower
  - Poor performance in all time periods for validation screenlines
  - St Albans and Harpenden Cordons validate well with only one exception where flows are 6%. We believe we are accurately modelling flows into/out of St Albans and Harpenden
  - Using the western and eastern sides of the St Albans City Cordon to track movements between Hemel / Hatfield and St Albans the results are approximately 80% across all time periods

– At count level
  - Below WebTAG criterion (>85%) but similar results with the rest of COMET
  - COMET is a strategic model → limited level of network details
  - Sensitivity test that optimised counts over screenlines did not produce material differences

# Summary of COMET validation
## St Albans Area

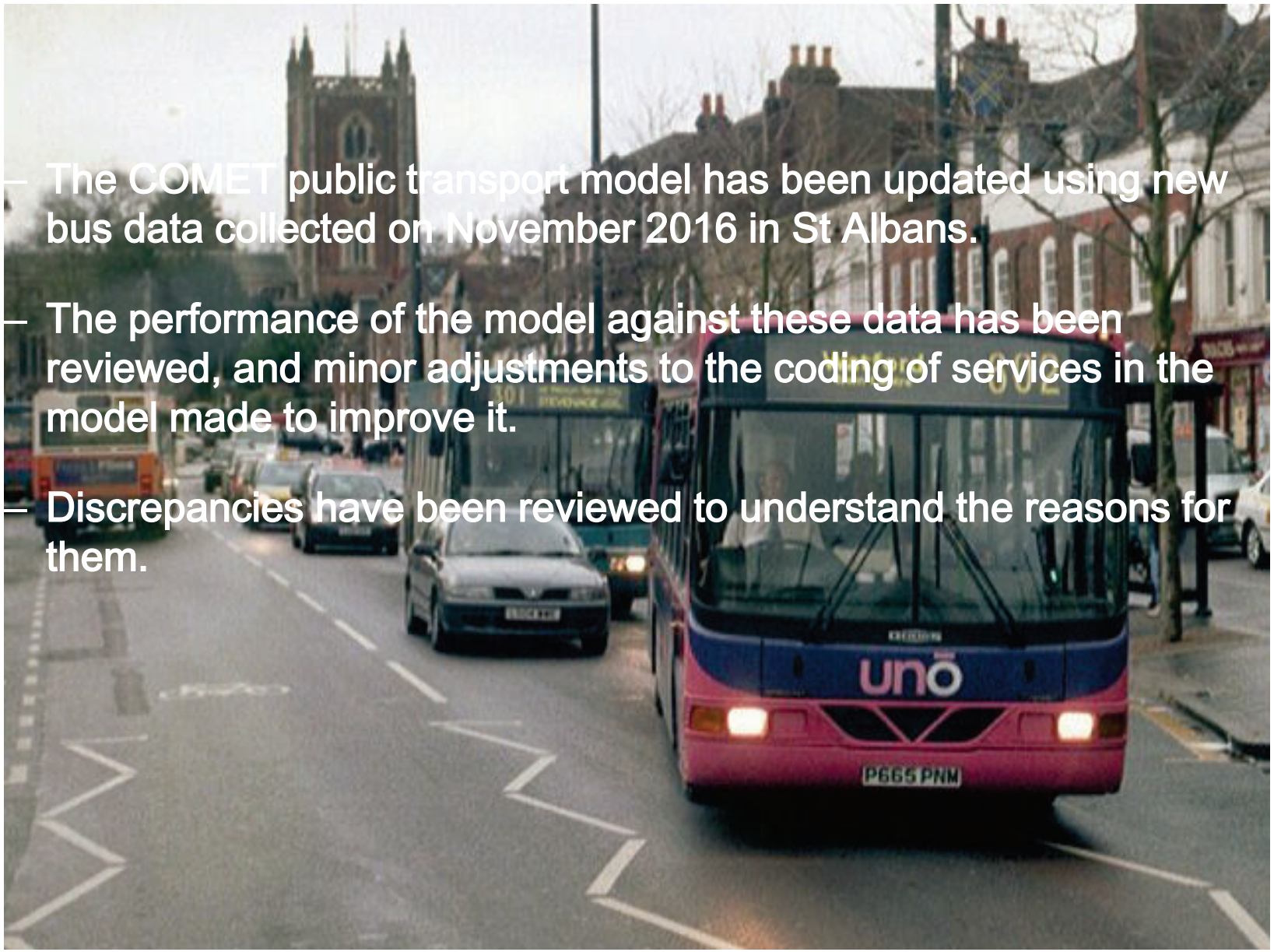
- Journey time validation
  - Good validation, above COMET overall performance
  - Whilst flows may fluctuate between routes, we feel the model is accurately reflecting journey times through and around St Albans and Harpenden

- The overall objective for this COMET model enhancement work was 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.

- We believe the results seen provide a sound evidence base from which to test the cumulative impact of Local Plan growth and provide a high level assessment of the mitigation schemes.

# Base Year validation – Public Transport model

# Summary of COMET validation
## St Albans Area




- The COMET public transport model has been updated using new bus data collected on November 2016 in St Albans.
- The performance of the model against these data has been reviewed, and minor adjustments to the coding of services in the model made to improve it.
- Discrepancies have been reviewed to understand the reasons for them.

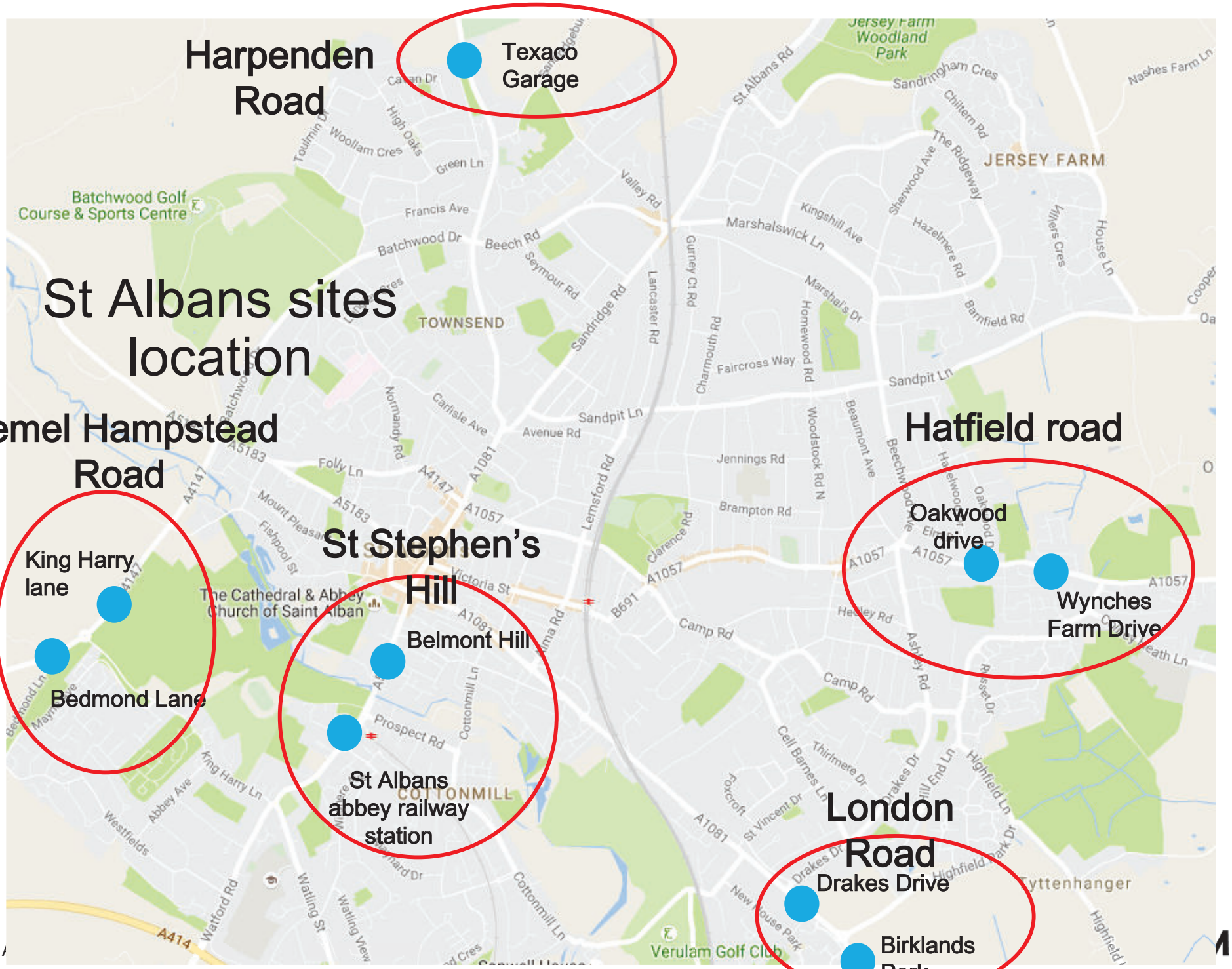

St Peter's Street
(SW Bound)
St Peter's Street
(Stop 10)
St Peter's Street
(Stop 11)
St Peter's Street
(Stop 12)
St Peter's Street
(Stop 1)
St Peter's Street
(Stop 13)
St Peter's Street
(Stop 2)
St Peter's Street
(Stop 14)
St Peter's Street
(Stop 3)
St Peter's Street
(Stop 4)
St Peter's Street
(Stop 5)

# Boardings and Alightings

| | AM | | | IP | | | PM | | |
|---|---|---|---|---|---|---|---|---|---|
| | Observed | Model | Difference | Observed | Model | Difference | Observed | Model | Difference |
| Boardings | 162 | 172 | 7% | 282 | 286 | 1% | 236 | 213 | -10% |
| Alightings | 225 | 297 | 32% | 208 | 283 | 36% | 125 | 142 | 14% |



- This model boardings perform well against the counts.
- The alighting validation appears worse, but the counts show a poor symmetry at all day level, with 120 people fewer than the boardings. In the model the boardings and alightings across the day are similar, as might be expected.
- No changes had to be made to the model to achieve this performance; the existing model broadly agreed with the counts.


Harpenden Road
Texaco Garage
St Albans sites location
Hemel Hampstead Road
King Harry lane
Bedmond Lane
St Stephen's Hill
Belmont Hill
St Albans abbey railway station
Hatfield road
Oakwood drive
Wynches Farm Drive
London Road
Drakes Drive
Birklands Park
TOWNSEND
COTTONMILL
JERSEY FARM
Batchwood Golf Course & Sports Centre
Verulam Golf Club
Tyttenhanger
The Cathedral & Abbey Church of Saint Alban

# Passenger In-Vehicle Counts (St Albans)

| Site | Direction | AM 07:00:00 – 10:00:00 | | | IP 10:00:00 – 16:00:00 | | | PM 16:00:00 – 19:00:00 | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Obs | Mod | Diff | Obs | Mod | Diff | Obs | Mod | Diff |
| Hatfield Road | Westbound | 118 | 145 | 22% | 112 | 120 | 7% | 202 | 96 | -52% |
| St Stephen's Hill | Northbound | 54 | 98 | 84% | 56 | 77 | 38% | 46 | 50 | 9% |
| Hemel Hampstead Road | Eastbound | 75 | 66 | -11% | 45 | 40 | -12% | 29 | 32 | 12% |
| London Road | Westbound | 74 | 78 | 6% | 55 | 59 | 8% | 24 | 26 | 9% |
| Harpenden Road | Southbound | 63 | 60 | -4% | 37 | 61 | 62% | 48 | 46 | -4% |
| **ST ALBANS INBOUND TOTALS** | | **383** | **448** | **16.9%** | **305** | **356** | **16.8%** | **348** | **249** | **-28.3%** |
| Hatfield Road | Eastbound | 156 | 140 | -11% | 106 | 138 | 31% | 109 | 106 | -3% |
| St Stephen's Hill | Southbound | 49 | 54 | 9% | 65 | 88 | 35% | 105 | 71 | -33% |
| Hemel Hampstead Road | Westbound | 30 | 23 | -22% | 32 | 35 | 11% | 81 | 36 | -55% |
| London Road | Eastbound | 19 | 29 | 53% | 50 | 76 | 51% | 85 | 55 | -36% |
| Harpenden Road | Northbound | 32 | 46 | 42% | 38 | 40 | 5% | 55 | 47 | -14% |
| **ST ALBANS OUTBOUND TOTALS** | | **287** | **292** | **1.5%** | **291** | **378** | **29.8%** | **435** | **315** | **-27.6%** |

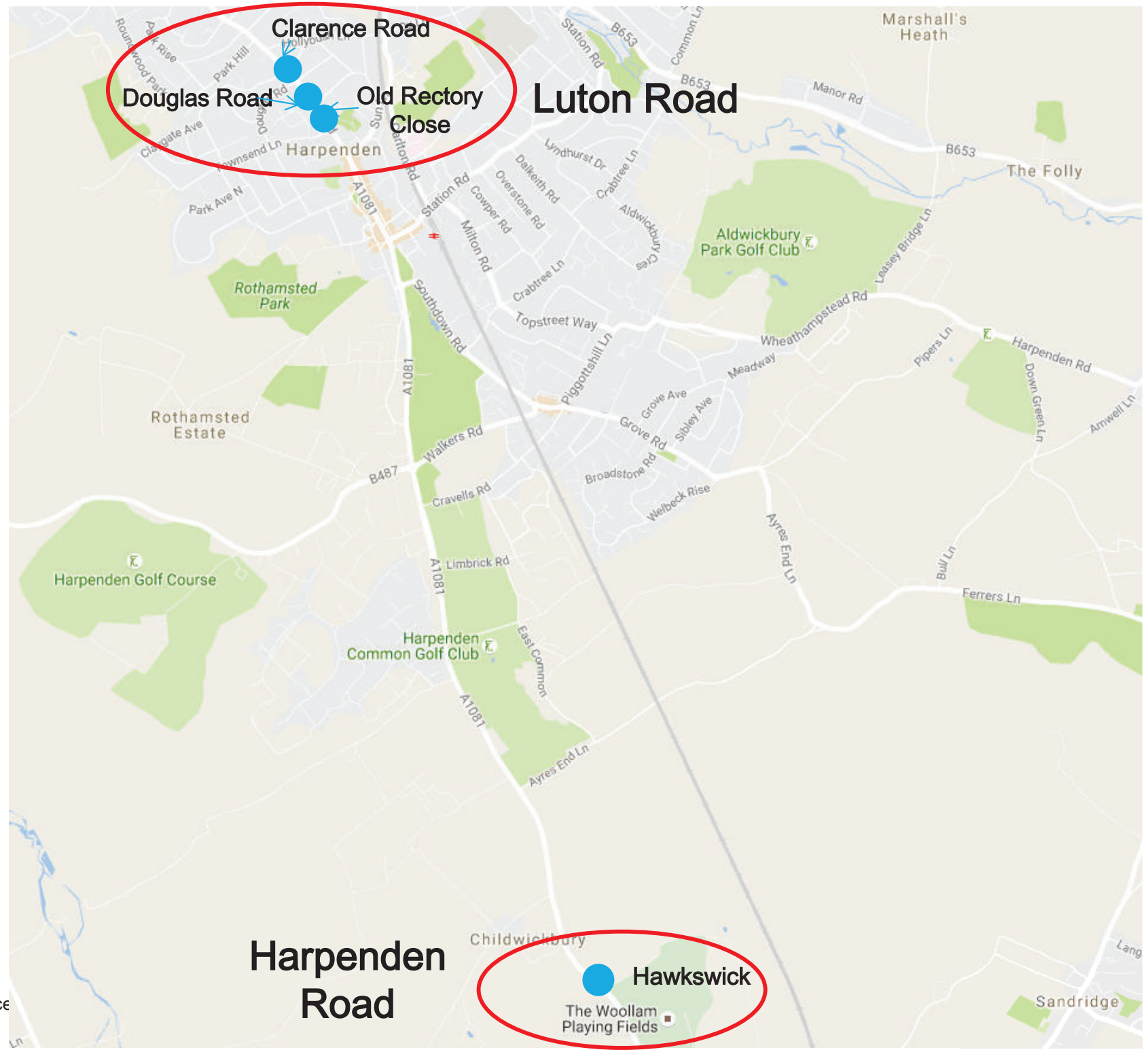




AECOM

# Harpenden sites location





# Passenger In-Vehicle Counts (Harpenden)


| Site | Direction | AM 07:00:00 Obs | AM 10:00:00 Mod | AM Diff | IP 10:00:00 Obs | IP 16:00:00 Mod | IP Diff | PM 16:00:00 Obs | PM 19:00:00 Mod | PM Diff |
|---|---|---|---|---|---|---|---|---|---|---|
| Luton Road | Southbound | 99 | 64 | -35% | 59 | 55 | -6% | 31 | 46 | 50% |
| Harpenden Road | Southbound | 63 | 60 | -4% | 37 | 61 | 62% | 48 | 46 | -4% |
| **Harpenden SouthBOUND TOTALS** | | **162** | **124** | **-23.3%** | **96** | **116** | **20.5%** | **78** | **92** | **17.2%** |
| Luton Road | Northbound | 35 | 39 | 10% | 50 | 44 | -13% | 89 | 56 | -37% |
| Harpenden Road | Northbound | 32 | 46 | 42% | 38 | 40 | 5% | 55 | 47 | -14% |
| **Harpenden NorthBOUND TOTALS** | | **67** | **84** | **25.3%** | **89** | **84** | **-4.8%** | **143** | **103** | **-28.0%** |

# Flows

- At all day level all sites and the cordon total by direction are within the 25% of the observed data.

- There are localised discrepancies. Generally these are within expected day-to-day variability in counts, so there is little reason to suspect the model is necessarily wrong.

- We have checked the ticket sales data directly for the larger discrepancies, and as near as it is possible to determine (translating ticket sales to in-vehicle passengers at a particular point is obviously a bit subjective), they are significantly closer to the model than the counts.

- In some cases bus services have changed slightly between the model year (2014), and the count year (2016), which explain some discrepancies. For instance, service 84 – 84A was extended to Luton Airport in August 2016.

# Next steps

# Next steps: St Albans Local Plan update

- Run Realism tests using the Variable Demand Model next week and assess impacts on the network
- Prepare Future Year 2031 network
  - Include all changes to Base Year network
  - Confirm the planning data provided to AECOM in October 2016 is still current
  - Consider high-level signal optimisation at key / problematic junctions?
- Prepare final presentation by early/mid April to complement the completion of Task 5
- Await Task Order 6

# Thank You