

Reading Borough Local Plan

Transport Modelling Report

On behalf of **Reading Borough Council**



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1 Introduction

1.1 Context

- 1.1.1 Peter Brett Associates (PBA) has been commissioned to undertake a highway modelling assessment to help support the development of Reading Borough Council's (RBC) Local Plan. RBC Local Plan will be used to guide development within the borough up to 2036. The borough council has a statutory duty to prepare a Local Plan, which will be used to guide development and inform planning decisions once adopted.
- 1.1.1 The purpose of this high-level modelling study is to assess the cumulative highway impact of the forecast developments and identify locations on the highway network which are expected to see increased delays as a result of those developments.
- 1.1.2 This report summarises the methodology undertaken and the results of the modelling assessment. The results of this study will be used to help identify potential transport improvements to be undertaken in Reading, to accommodate the traffic generated as a result of the developments.

1.2 Report Structure

- 1.2.1 Following this introduction this report includes the following information:
- i. Section 2 sets out the modelling methodology;
 - ii. Section 3 sets out the development scenarios;
 - iii. Section 4 provides an overview and summary of the key results; and
 - iv. Section 5 provides conclusions of the study and sets out recommendations for the next steps.

2 Methodology

2.1 Overview

- 2.1.1 The transport modelling study has been carried out using RBC's SATURN Highway Model. This model was developed by PBA and should be noted that it is a highway only tool, therefore any shift in mode of travel, time or origin/distribution cannot be modelled.
- 2.1.2 The methodology used to undertake the modelling work has been based on the Department for Transport's Transport Analysis Guidance (TAG) and the Planning Practical Guidance document '*Transport evidence bases in plan making and decision taking*' DfT March 2015¹.

2.2 SATURN Models

- 2.2.1 The model used for this study is known as the Reading Transport Model (RTM). This was built in 2015 for the purpose of assisting in assessing the relative effects of different developments and transport schemes in and around Reading. The model was initially used for the development of the business case for East Reading Mass Rapid Transport Scheme and models for the following years were produced at this time:
- i. 2015 Base Model
 - ii. 2021 Forecast Model
 - iii. 2031 Forecast Model
- 2.2.2 The RTM is a highway network model developed using the established SATURN software. The model consists of an AM peak hour model (08:00 to 09:00), an average Inter Peak hour model (10:00 to 16:00) and a PM peak hour model (17:00 to 18:00). The model has five user classes comprising car commute, car employer business, car other, Light Goods Vehicles (LGV) and Heavy Goods Vehicles (HGV). Further information on the development of the model is included with the '*Reading Transport Model, Highway Assignment Model, Local Model Validation Report*', PBA, October 2016.
- 2.2.3 The area covered by the model is shown in Figure 2.1. The area includes the whole of the Reading urban area, therefore covering areas that fall within Wokingham Borough Council and West Berkshire Council.
- 2.2.4 The network within the study was coded as simulation and is shown in Figure 2.2.
- 2.2.1 The model comprises 560 zones which are based on the 2011 census output areas. The zones within the study area are more refined than those outside it where they become coarser. The zone plan is shown in Figure 2.3.

¹ <https://www.gov.uk/guidance/transport-evidence-bases-in-plan-making-and-decision-taking>

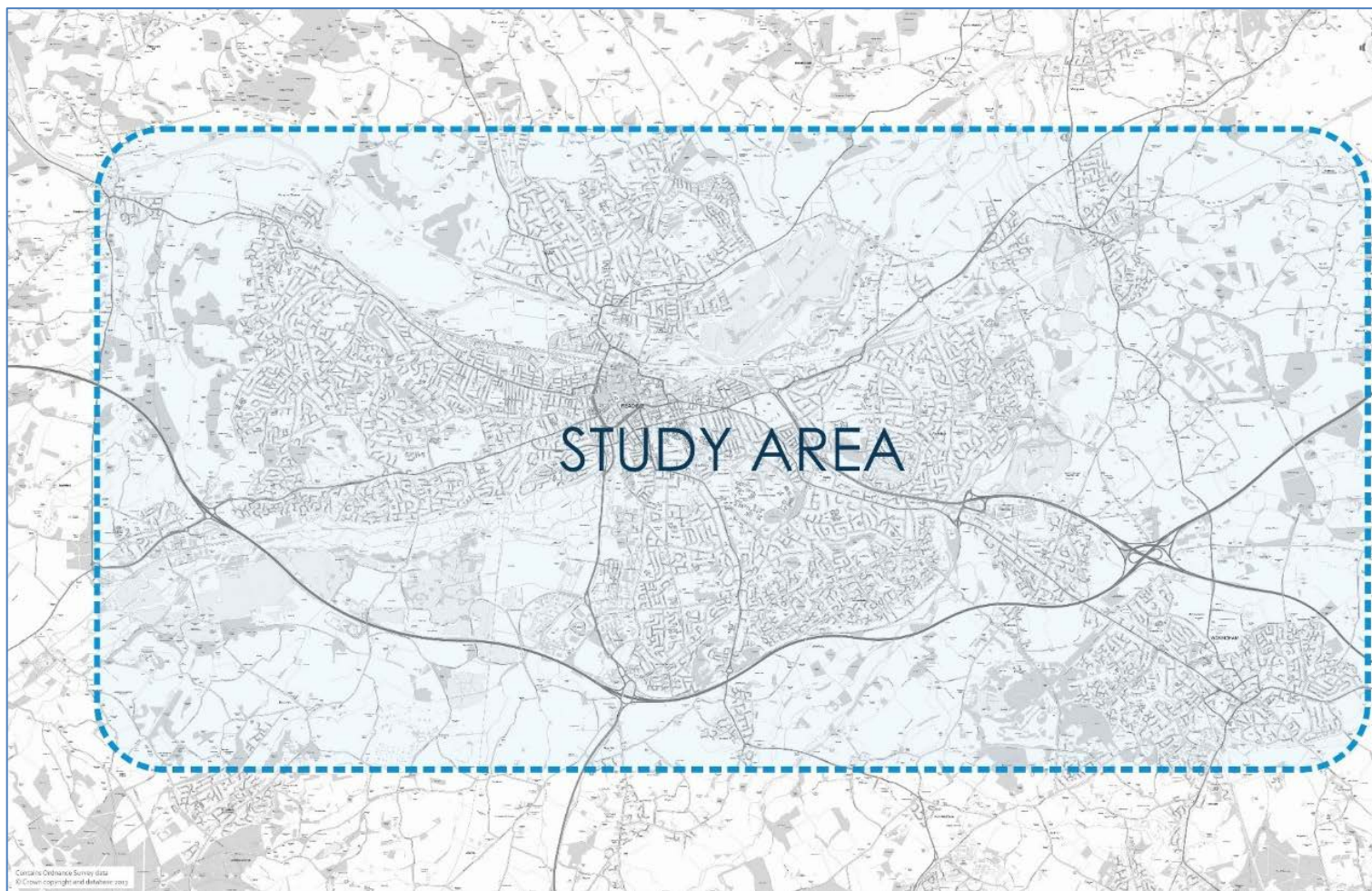


Figure 2.1: Reading Transport Model Study Area

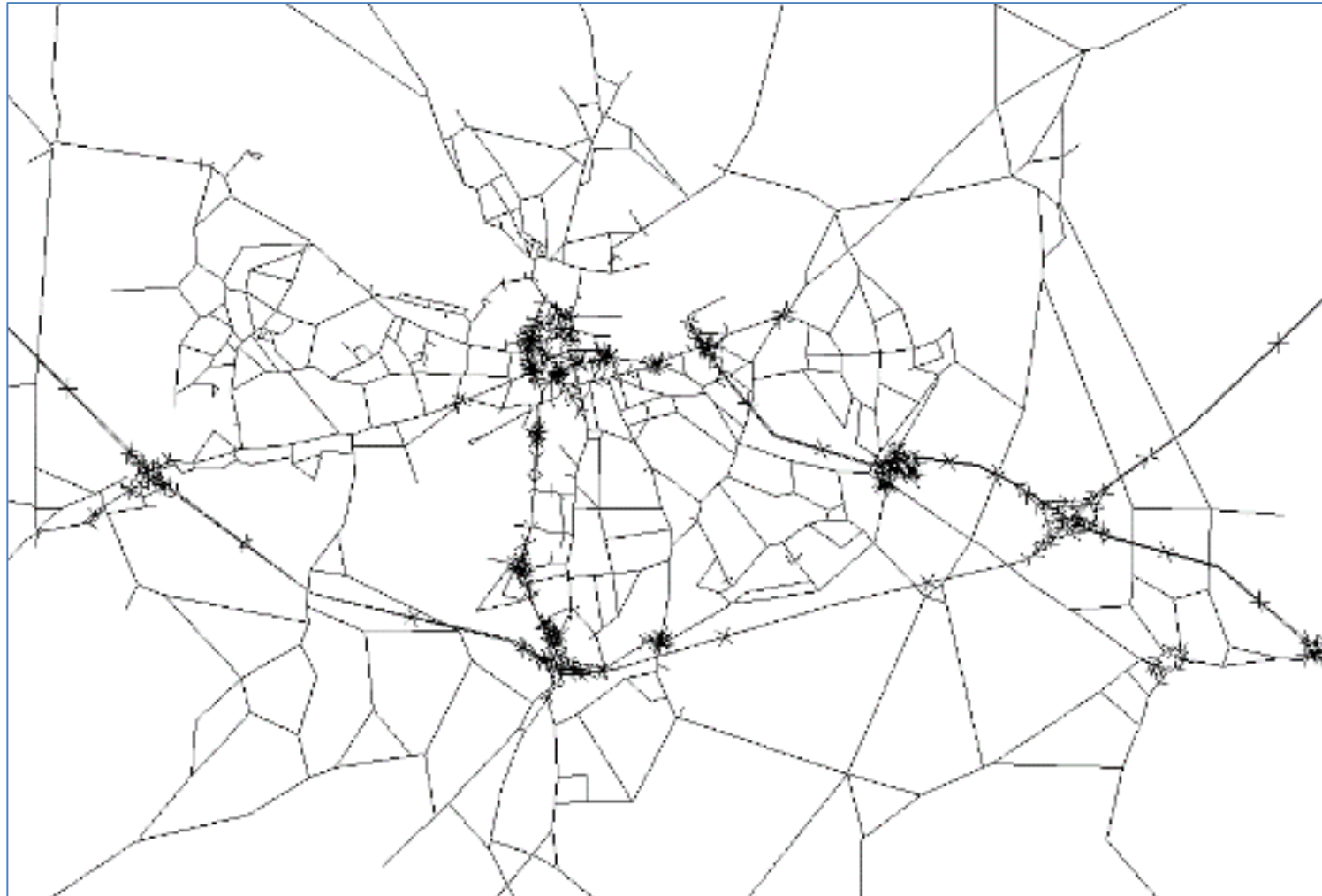


Figure 2.2: Reading Transport Model Study Area Network

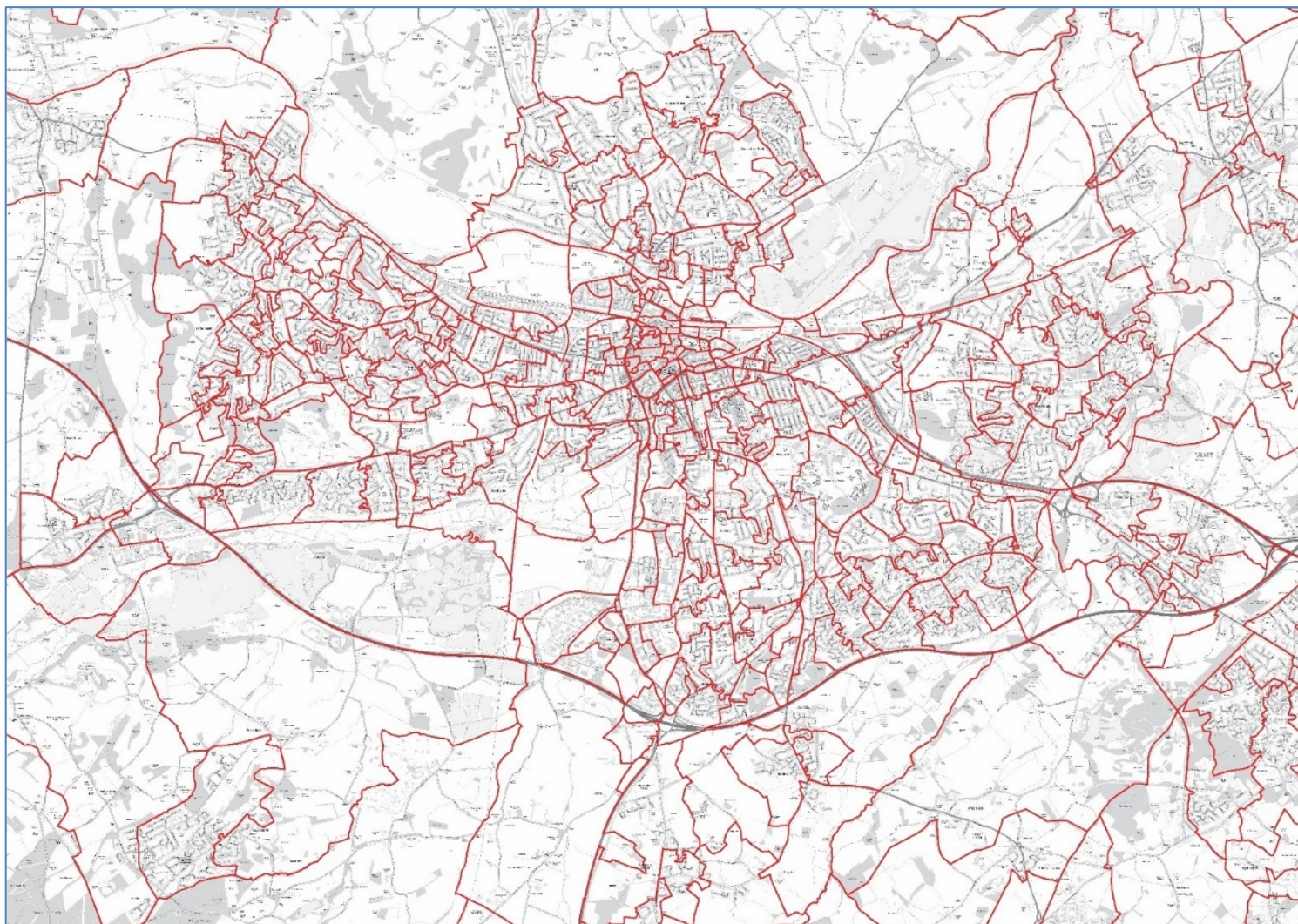


Figure 2.3: Reading Transport Model Study Area Zones

2.3 Forecasting

- 2.3.1 The modelling work has considered the end of the Local Plan period, which is 2036. Previous versions of the forecast models only include 2021 and 2031, therefore for this assessment, there has been a need to produce an additional 2036 forecast model.
- 2.3.2 Outputs have only been produced for the end of the plan period, therefore only the 2036 models have been used.
- 2.3.3 Models have been developed for the following scenarios:
- i. 2036 Reference Case; and
 - ii. 2036 with Local Plan development.
- 2.3.4 The purpose of the modelling is to determine the potential impact of the Local Plan development is on the local highway network based on a set of forecast assumptions. Therefore, direct comparisons of these two scenarios will indicate where on the network the Local Plan development will result in issues, over and above those related to existing development commitments.
- 2.3.5 Traffic growth has been applied to the base model to account for forecast changes in traffic demand. The growth was calculated based on best practice guidance and future housing targets and discussed in section 3.1.
- 2.3.6 Committed changes to the highway network have also been included within the models.
- 2.3.7 The traffic demand related to specific development sites have been added to the model. This involved estimating the traffic demand of each development, and distributing these trips across the model. This process is detailed further in Section 3 for the Reference Case and Local Plan models respectively.
- 2.3.8 The model outputs were used to assess the impact of these scenarios on the highway network. The model outputs include traffic flows, forecast junction capacity, queues and delays.
- 2.3.9 The outputs from the modelling work can then be used to inform development of potential transport schemes that may be required to support the delivery of the Local Plan development.

2.4 Background Traffic Growth – Reference Case

- 2.4.1 Background traffic growth is the predicted change over time in the number of cars and goods vehicles on the highway network. When forecasting the performance of the highway network in the future, it is necessary to allow for changes in traffic demand. This background traffic growth can be defined as follows:
- i. New trips which will result from changes in population, employment and car ownership and which, directly affect how many vehicles travel on the highway network.
 - ii. Trip frequency where changes in GDP, income and travel costs affect how frequently people travel.
- 2.4.2 Growth in traffic demand in the future year scenarios has been considered in line with the fixed demand approach defined in TAG Unit M4 forecasting and uncertainty. A fixed demand approach means that the matrices used for the Reference Case and with the Local Plan are

identical and will ignore the effects of induced or suppressed traffic due to changes in travel costs, and other changes such as peak spreading.

- 2.4.3 Induced traffic is generated traffic as a result of additional capacity being provided on the highway network and suppressed traffic, that may not appear on the network due to congestion, as people switch mode or travel at different times for example.
- 2.4.4 A fixed demand approach has been used so the impact of the proposed development can be clearly assessed between scenarios without the impact of other variables.
- 2.4.5 Uncertainty in relation to the growth factors has not been considered as part of the study. It is considered that this is not necessary as the key outputs of the study are the differing impacts between scenarios.
- 2.4.6 The National Trip End Model (NTEM) dataset represents the Department for Transport's standard assumptions about growth in travel demand. Access to the dataset is provided through the TEMPro software. The latest version of the dataset, NTEM 7.2 and TEMPro software, version 7, have been used to provide the data for this study. This was released in March 2017.
- 2.4.7 TEMPro has been used to calculate growth factors for cars based on the future year, trip purpose, time period and the origin and destination of trips. The assumptions within NTEM were adjusted using the alternative assumptions facility within TEMPro.
- 2.4.8 The housing numbers from the specific developments in each scenario have been subtracted from this baseline, and the housing assumptions within TEMPro were adjusted to match this target. More detail on this process is provided in Section 3, specifically for the scenarios modelled.
- 2.4.9 For HGV growth, Road Traffic Forecasts have been used.

2.5 Local Plan Model

- 2.5.1 The matrix for the Local Plan model includes the Reference Case matrix with the Local Plan trips added on top. The Local Plan trips are derived using trips rates from the TRICS database. The derivation of the trip rates is detailed in Section 2.6.

2.6 Dealing with Congested Network

- 2.6.1 At peak times, much of the highway network within Reading is at or close to capacity. This is likely to result in different travel behaviours in the future, to avoid the worst congested periods. This is likely to include change in mode, change in time trips are made or not travelling at all (e.g. more home working) and this will be key to facilitate new development.
- 2.6.2 As stated in paragraph 2.4.2 and 2.4.3, the model used within this process is a fixed trip highway matrix and will not account for these changes. This is because no public transport model or demand model (which would assist in modelling such changes) is available at this time.
- 2.6.3 To deal with this and allow these behaviours to be taken on board in both the Reference Case and the Local Plan test, we have considered the inclusion of the following:
 - i. Income and Fuel price adjustment factors; and
 - ii. Derivation of Trip Rates for Local Plan Development.

Income and Fuel Price Adjustment Factors

- 2.6.4 TAG guidance indicates that with a fixed trip matrix, it would be normal to consider the impact of changes in real incomes and real fuel prices on the amount people travel in the future. These are derived from the TAG Databook and the latest data shows that between the modelled base year, 2015 and the Local Plan forecast year, 2036, the growth is expected to be around 9%.
- 2.6.5 It has been decided not to apply this growth within either the Reference Case model or the Local Plan model. The reasoning for this is that this is effectively a proxy for dealing with suppressed traffic within the peak hour that the model represents i.e. by reducing the level of growth within the peak hour. It is felt that this is a proportionate approach given levels of congestion in Reading.
- 2.6.6 As this is carried out for both scenarios, there is a like for like comparison when trying to look at the impact of the Local Plan on the highway network.

Derivation of Trip Rates for Local Plan Developments

- 2.6.7 The methodology used for the derivation of car trip rates has considered the geographical location of the proposed development sites as the basis to forecast the number of trips that each development may attract or generate.
- 2.6.8 Car trip rates are likely to differ depending on the geographical location of the proposed development sites, although it is recognised that other factors may have an influence. Sites within the town centre are likely to have lower levels of parking supply or charged parking and will have good access by public transport for example.
- 2.6.9 To take account of the geographical location of the Local Plan developments, the “Revised Parking Standards and Design” document adopted in 2011 by RBC has been referred to, to produce a zonal level of trip rates. This sets out four zones as follows:
- i. Zone 1, Central Core Area – Primarily retail and commercial with the best transport hubs
 - ii. Zone 2, Primary Core Area – Areas directly surrounding the core area, well served by public transport
 - iii. Zone 3, Secondary Core Area – Variety of land uses, with 400m walk of high frequency bus services
 - iv. Zone 4, Wider Urban Area – Mostly open space and residential, some support by direct bus services and other less accessible by public transport. Areas are generally not with walking distance of a railway station.
- 2.6.10 For the purposes of the modelling, each of the RTM zones have been assigned to two sectors, based on the above criteria. Zone 1 is considered different to zones 2, 3 and 4 which have been combined into a single sector. The zones are shown in Figure 2.4.
- 2.6.11 The approach considers the level of likely accessibility and car parking provision. This is believed to be a reasonable approach, applying lower car trip rates in the central areas and higher trip rates for developments further out.

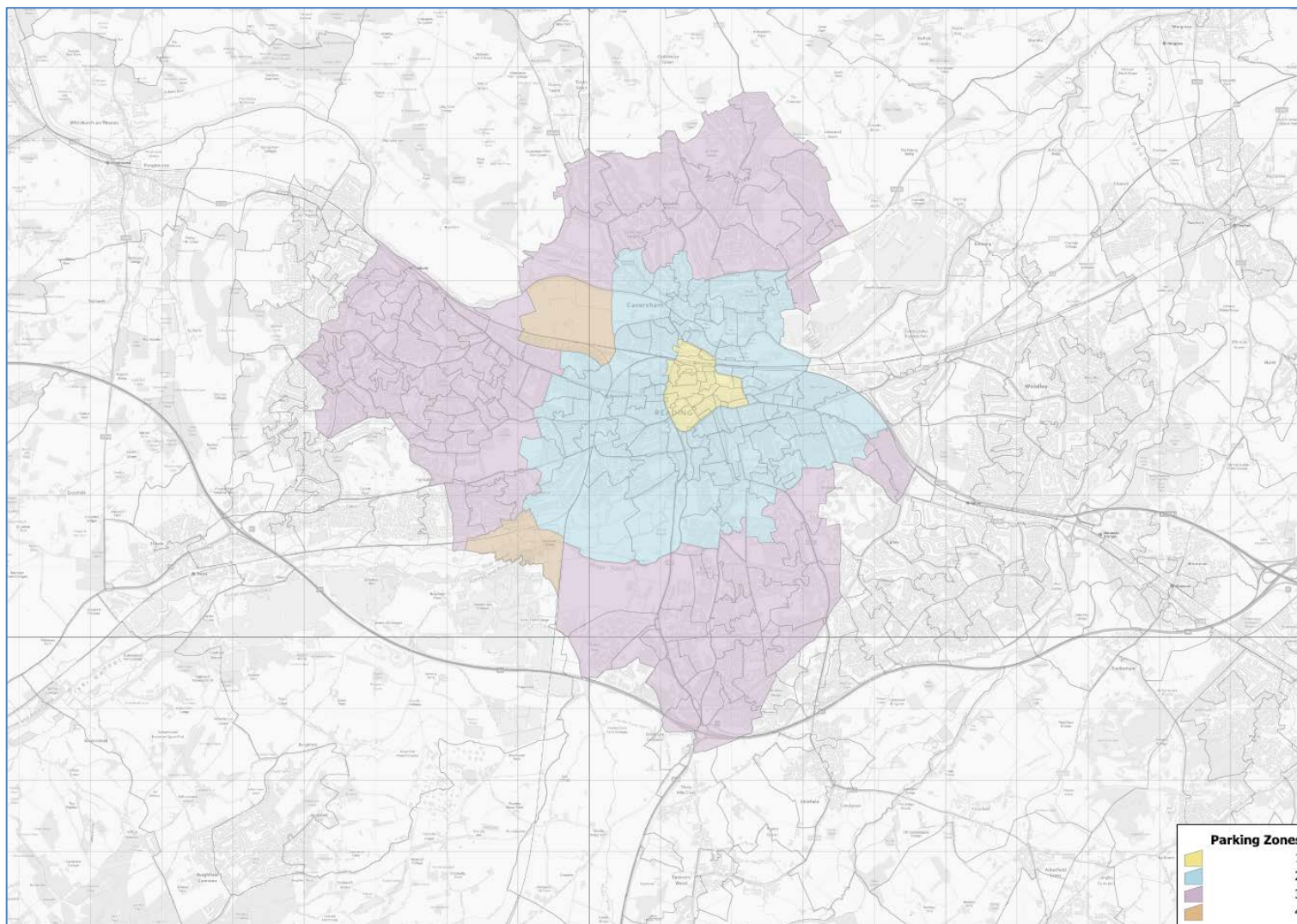


Figure 2.4: Trip Rate Sectors used for Local Plan Development

3 Development Scenarios

3.1 Reference Case Models

3.1.1 Models for the Reference Case 2036, AM peak, inter peak and PM peak have been created by using:

- i. A forecast network including any committed highway schemes;
- ii. Committed development information obtained from RBC, Wokingham Borough Council and West Berkshire Council; and
- iii. Adjustment for traffic growth using NTEM data

Forecast Network

3.1.2 The previously developed 2031 highway network has been used for the 2036 model. This already includes any committed highway schemes within the model area, which includes the following:

3.1.3 The committed highway infrastructure projects from 2015 to 2036 in the Reading area have been added to the validated 2015 modelled highway network, as well as schemes in the Reading urban area. The schemes are:

- i. M4 Junction 10
- ii. Shinfield Bypass and link across M4
- iii. Bath Road junction changes associated with Ikea
- iv. South Reading MRT
- v. Cow Lane Bridges widening

3.1.4 All highway infrastructure coding has been undertaken consistently with the coding of the base year network.

Committed Developments

3.1.5 Demand data for the forecast was generated by growing up trips from the base year of 2015. This was carried out by incorporating committed development within the Reading area, this includes development in Reading, Wokingham and West Berkshire where they fall within the study area.

3.1.6 Forecast developments that have been included within the 2036 Reference Case model are detailed within Table 3.1. The developments included at this stage of the model development are based on guidance on uncertainty, as summarised within Table A-2 of TAG Unit M-4, '*Forecasting and Uncertainty*'. The definitions are provided in Table 3.2, with development in the first two categories are included within the Reference Case model.

3.1.7 Some developments have planning permission for first phase with full development included within the Local Plan. Within the modelling, the development quantum has been split accordingly e.g. Where the total number of dwellings is identified as 100, and 25 are identified as part of the Local Plan, the Reference Case scenario will include the first 75 dwellings and the Local Plan scenario will include all 100 dwellings.

Table 3.1: Committed Developments

Development	
Shinfield Residential	211-221 Oxford Road, 10 & rear of 8 Prospect Street
Shinfield Science Park	361-363 Oxford Road
GreenPark Phases 1 & 2	537-541 Oxford Road
Gerrard House, 30 Gerrard Street	Unit 1, Paddock Road Industrial Estate
Yell House, Queens Walk	The Old Bakehouse, Wellington House
Thames Tower, 37-45 Station Road	Former Arthur Legge Centre, Wolsey Road
University of Reading, The Chancellors Way & Shinfield Road	St Martin's Precinct, Church Street
Dee Park Estate, Spey Road	University of Reading, The Chancellors Way & Shinfield Road
Reading International Business Park, A33 Relief Road	83-85 London Street
Pingemead Business Park & Land adj to Longwater Avenue	40 Silver Street
Royal Elm Park	34-36 Crown Street
Friar Street and Station Road	Ibex House, 85 Southampton Street
Station Hill (wider site)	Trinity Hall, South Street
North of the Station	62-68 Silver Street
Great Knollys Street and Weldale Street	1025-1027 Oxford Road
Broad Street Mall	Land Adjacent The Roebuck Ph, Oxford Road
Hosier Street	Chazey Farm, The Warren
108-116 Oxford Road, 10 Eaton Place and 115-125 Chatham Street	Lok n Store, 5-9 Berkeley Avenue
37-43 Market Place	34 Parkside Road
Aldwych House, 2 Blagrave Street	21 Rose Kiln Lane
Energis House, Forbury Road	62-79 Armadale Court, Westcote Road
84 Watlington Street	Dee Park (excluding 103 Dee Rd)
179 Oxford Road	330 Tilehurst Road
27 Castle Street	Royal Berkshire Hospital, London Road
Land West of Rivermead Car Park	Wells Hall, Upper Redlands Road
Summit House, 49-51 Greyfriars Road	Hanover House, 202 Kings Road
Kings Reach, 38-50 Kings Road	1a Upper Redlands Road
Zenith House, 7 Cheapside	University of Reading, London Road
Jacksons Corner, 1-9 Kings Road	79 London Road and 34 Eldon Terrace
Havell House, 62-66 Queens Road	252 Kings Road
173-175 Kings Road	Land adjacent to 153 Bath Road
130 Queens Road	Worton Grange
Kings Point, 120 Kings Road	Land north of Manor Farm Road
Kings Lodge, 194 Kings Road	Plot 3.2, 400-450 Longwater Avenue
118 Chatham Street	Plot 8, 600 South Oak Way
139-141 Oxford Road	Land west of A33 and north of Island Road
42 Kenavon Drive	Green Park Village, Longwater Avenue
120 Oxford Road	Plot 17, 500-600 Longwater Avenue

53 Greyfriars Road	Foudry Place and 22 Commercial Road
57 Baker Street	Worton Drive
Land at junction of Addison Road and Meadow Road	Land west of Longwater Avenue
Princes House, 73a London Road	177 Basingstoke Road
57 Castle Street	Kenet Island Phase 3, Manor Farm Road
116-117 & 119 Broad Street & 19-22 Minster Street	

Table 3.2: WebTAG Probability Classification of Future Development Inputs

Probability of the Input	Status	Core Scenario Assumption delays)
Near certain: The outcome will happen or there is a high probability that it will happen	Intent announced by proponent to regulatory agencies. Approved development proposals. Projects under construction	This should form part of the core scenario
More than likely. The outcome is likely to happen, but there is significant uncertainty	Submission of planning or consent application imminent. Development application within consent process.	This could form part of the core scenario [Refer to Section Developing the Core Scenario]
Reasonably foreseeable. The outcome may happen, but there is significant uncertainty	Identified within a development plan. Not directly associated with the transport strategy/scheme, but may occur if the strategy/scheme is implemented. Development conditional upon the transport strategy/scheme proceeding. Or, a committed policy goal subject to tests (e.g. of deliverability) whose outcomes are subject to significant uncertainty.	These should be excluded from the core scenario but may form part of the alternative scenarios
Hypothetical: There is considerable uncertainty whether the outcome will ever happen.	Conjecture based upon currently available information. Discussed on conceptual basis. One of a number of possible inputs in an initial consultation process. Or a policy aspiration	These should be excluded from the core scenario but may form part of the alternative scenarios

- 3.1.8 In order to add the trips generated by committed development, appropriate trip rates were applied to the development quanta. These rates were derived from an existing Transport Assessment (TAs) for each development where available. When a TA was not available, or the trips rates from a TA of a similar development not applicable, data from the TRICS database was used to provide the level of trip generation.
- 3.1.9 The distribution of trips to and from the site has been taken from a zone in the base year model which had similar characteristics in terms of land use and location.
- 3.1.10 The total trips generated by the committed developments is shown in Table 3.3.

Table 3.3: Committed Development Trip Generation

Time Period	Committed Development
AM	10,416
Inter Peak	5,394
PM	9,557

Additional Background Growth

- 3.1.11 The Reference Case model has been created assuming a level of background growth. In order to avoid double counting, the background growth application considers the following:
- i. Committed development growth;
 - ii. Background growth outside the immediate study area; and
 - iii. Local Plan growth within Reading.
- 3.1.12 Future growth predicted within Reading Borough in NTEM has been removed to take account of the fact that the purpose of the study is to understand the impact of the Reading Local Plan proposals on the highway network. i.e. no growth over above the committed development growth is included.
- 3.1.13 Trip end growth in modelled zones which do not contain any new development in the future has been ascertained from TEMPro, using NTEM v7.2.
- 3.1.14 Using GIS software, the model zones were overlaid over the NTEM zones to establish the appropriate growth factor for the model zones. For a few modelled zones, the zone fell into more than one NTEM zone, in which case the NTEM zone, into which the largest area of the model zone fell, was used.
- 3.1.15 The committed employment development details generally are referred in terms of gross floor area, rather than jobs. Employment densities have therefore been used to convert floor area to jobs. These densities are taken from the TRICS sites used to generate trip rates. They have also been sense checked against the 3rd edition (November 2015) of the Home and Communities Agency's 'Employment Densities guide'.
- 3.1.16 Within TEMPro, alternative planning assumptions were applied to subtract the development jobs and households from the NTEM forecasts. This allows that the total trip end growth to be corrected to be consistent with NTEM levels. The development jobs were subtracted pro rata from all NTEM zones in Reading.

- 3.1.17 Committed development information provided for Wokingham and West Berkshire are also used within the model development and the NTEM growth factors for these areas is adjusted downwards accordingly, again to avoid double counting.
- 3.1.18 Background NTEM growth outside the immediate study area, where no specific committed developments are included, are extracted from NTEM and used unadjusted.
- 3.1.19 The trips generated by NTEM between 2015 and 2036 are shown in Table 3.4.

Table 3.4: 2015 to 2036 NTEM Trip Generation

Time Period	Background Growth
AM	11,543
Inter Peak	10,317
PM	10,718

3.2 Local Plan Model

- 3.2.1 A 2036 Reference case model and a 2036 Local Plan model have been created to test the impact of the Local Plan developments.
- 3.2.2 The 2036 Local Plan model was created by adding the Local Plan developments to the 2036 Reference Case matrices. The list of developments was supplied to PBA by RBC and are in Appendix A and shown in Figure 3.1.

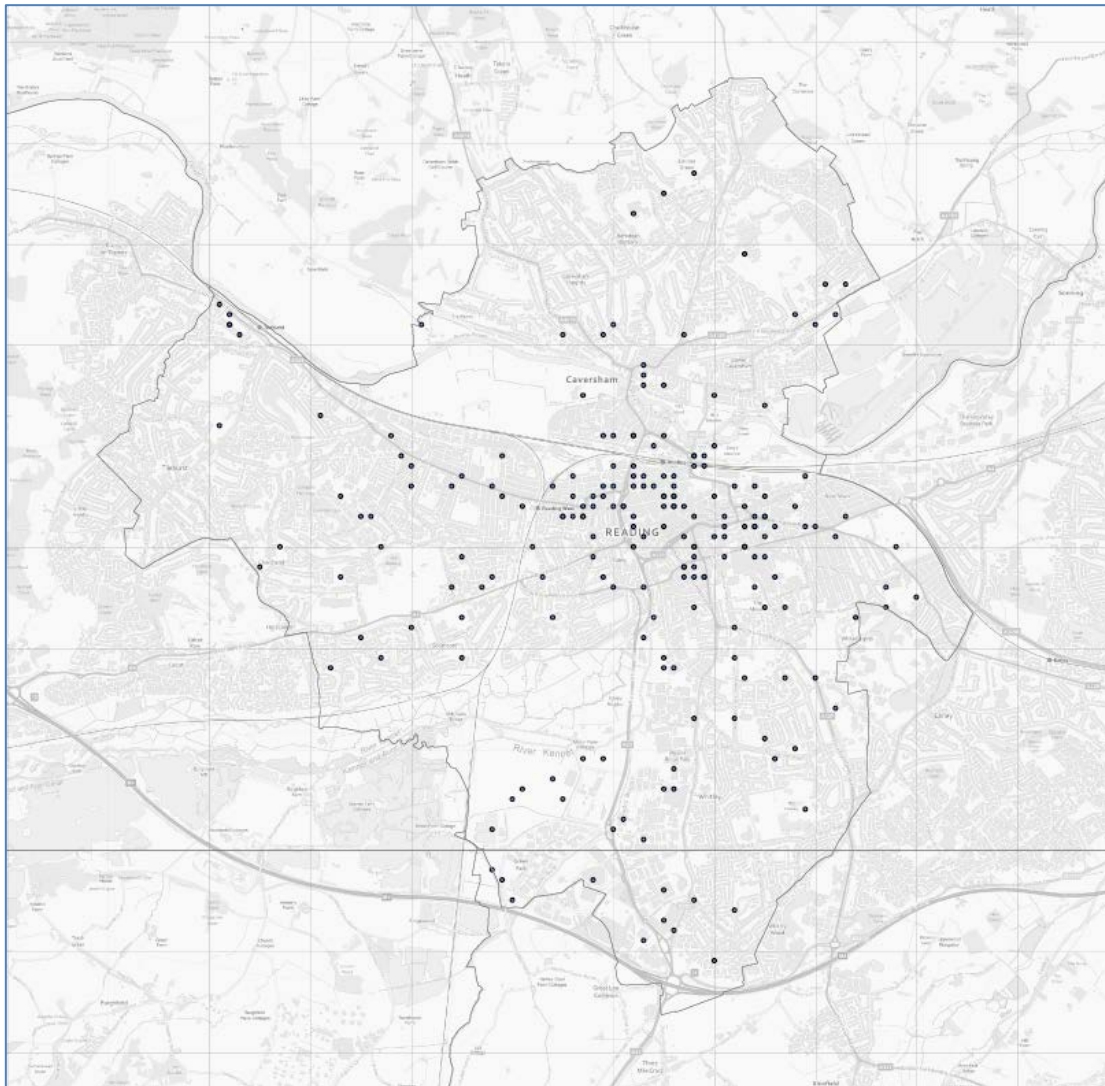


Figure 3.1: Local Plan Sites

3.2.3 For each of the land uses, TRICS has been used to derive the trip rates. The geographical categorisation used within TRICS has been used to inform the trip rates for the different sectors for each the Local Plan developments. The derived TRICS Trip rates for each land use by sector are shown in Tables 3.5 to 3.18. Further detail of the TRICS trips rates is provided in Appendix B.

Table 3.5: Residential Vehicle Trip Rates per Dwelling

	AM in	AM out	IP in	IP out	PM in	PM out
Sector 1	0.020	0.112	0.039	0.038	0.107	0.040
Sector 2	0.104	0.230	0.125	0.125	0.224	0.126

Table 3.6: Residential OGV Trip Rates per Dwelling

	AM in	AM out	IP in	IP out	PM in	PM out
Sector 1	0.000	0.001	0.001	0.001	0.000	0.000
Sector 2	0.000	0.001	0.001	0.001	0.000	0.000

Table 3.7: B1 Office Vehicle Trip Rates

	AM in	AM out	IP in	IP out	PM in	PM out
Sector 1	0.667	0.104	0.287	0.281	0.089	0.550
Sector 2	1.296	0.215	0.285	0.298	0.156	1.168

Table 3.8: B1 Office OGV Trip Rates per 100m²

	AM in	AM out	IP in	IP out	PM in	PM out
Sector 1	0.003	0.003	0.001	0.001	0.000	0.000
Sector 2	0.006	0.004	0.003	0.003	0.001	0.002

Table 3.9: Non-Food Retail Vehicle Trip Rates

	AM in	AM out	IP in	IP out	PM in	PM out
Sector 1	0.164	0.078	0.343	0.337	0.162	0.316
Sector 2	3.684	3.301	4.624	4.624	4.649	4.967

Table 3.10: Non-Food Retail OGV Trip Rates per 100m²

	AM in	AM out	IP in	IP out	PM in	PM out
Sector 1	0.002	0.003	0.002	0.001	0.002	0.002
Sector 2	0.106	0.078	0.068	0.070	0.018	0.023

Table 3.11: Leisure Vehicle Trip Rates

	AM in	AM out	IP in	IP out	PM in	PM out
Sector 1	0.104	0.082	0.116	0.109	0.200	0.204
Sector 2	0.202	0.167	0.207	0.187	0.446	0.444

Table 3.12: Leisure OGV Trip Rates per 100m²

	AM in	AM out	IP in	IP out	PM in	PM out
Sector 1	0.002	0.002	0.000	0.000	0.000	0.000
Sector 2	0.002	0.002	0.001	0.001	0.000	0.001

Table 3.13: Warehousing Vehicle Trip Rates

	AM in	AM out	IP in	IP out	PM in	PM out
Sector 1	N/A	N/A	N/A	N/A	N/A	N/A
Sector 2	0.458	0.223	0.266	0.275	0.106	0.394

Table 3.14: Warehousing OGV Trip Rates per 100m²

	AM in	AM out	IP in	IP out	PM in	PM out
Sector 1	N/A	N/A	N/A	N/A	N/A	N/A
Sector 2	0.019	0.021	0.021	0.021	0.006	0.008

Table 3.15: Hotel Vehicle Trip Rates

	AM in	AM out	IP in	IP out	PM in	PM out
Sector 1	0.301	0.502	0.219	0.236	0.400	0.219
Sector 2	0.346	0.553	0.208	0.251	0.398	0.229

Table 3.16: Hotel OGV Trip Rates per 100m²

	AM in	AM out	IP in	IP out	PM in	PM out
Sector 1	0.010	0.010	0.002	0.002	0.000	0.000
Sector 2	0.004	0.004	0.005	0.007	0.002	0.002

Table 3.17: Hospital Vehicle Trip Rates

	AM in	AM out	IP in	IP out	PM in	PM out
Sector 1	0.741	0.258	0.373	0.388	0.240	0.602
Sector 2	N/A	N/A	N/A	N/A	N/A	N/A

Table 3.18: Hospital OGV Trip Rates per 100m²

	AM in	AM out	IP in	IP out	PM in	PM out
Sector 1	0.006	0.005	0.005	0.006	0.002	0.002
Sector 2	N/A	N/A	N/A	N/A	N/A	N/A

3.2.4 The total vehicle trip generation associated with the Local Plan developments is shown in Table 3-9.

Table 3.19: 2036 Local Plan Development Trip Generation

Time Period	Local Plan Development
AM	2,000
IP	1,392
PM	1,732

3.3 Trip Distribution

3.3.1 The distribution of trips to and from the site has been taken from an existing zone within the model which is deemed to have similar characteristics in terms of land use and location.

3.4 Grazeley Garden Settlement

3.4.1 In addition to the known Local Plan developments that have been tested and reported on in this report there is also the potential for a large-scale housing development at Grazeley. This would be in the region of 15,000 homes and the likely impacts on the highway network would

require significant transport investment to mitigate. This would require a separate transport modelling exercise to be undertaken, which is still to be completed.

4 Results

4.1 Outputs

4.1.1 A series of comparisons have been undertaken between the 2036 Reference Case and 2036 Local Plan model to understand the potential vehicle impacts of the Local Plan developments. These include a comparison of:

- i. Sector to sector trips
- ii. Difference in actual and demand flow
- iii. Junctions which are over capacity
- iv. Links that are over capacity

4.2 Trip Generation

4.2.1 The RTM has been split into 8 sectors to gain a better understanding of where the changes in trip movements. The sectors are shown in Figure 4.1.

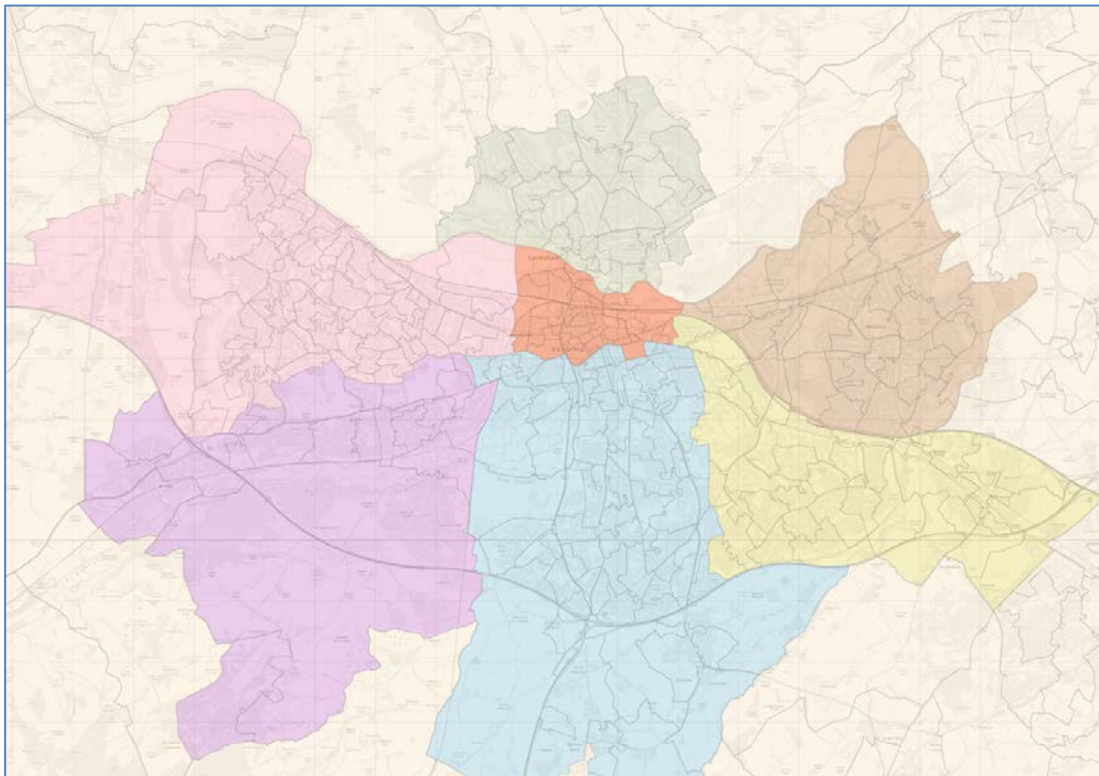


Figure 4.1: RTM Sector Plan

4.2.2 The tables below provide the number of sector to sector trips in the 2036 Reference Case and Local Plan models for each of the time periods. Where there is decrease, it is due to a current development being replaced with a development which has lower trip generation.

4.2.3 In the 2036 Local Plan AM peak hour (0800-0900) model, there are 92,911 trips which is an increase of 2,000 trips over the 2036 Reference Case. Table 4-1 shows the sector to sector trips for the 2036 Local Plan AM model and Table 4-2 gives a summary of the change in sector to sector trips between the 2036 Reference Case and 2036 Local Plan models.

Table 4-1: 2036 Local Plan AM Peak Hour Trips by Sector

	Central	North	East	South-East	South	South-West	West	External	Total
Central	558	179	319	244	747	183	295	1,214	3,739
North	367	348	325	176	647	164	332	1,259	3,616
East	618	274	942	627	1,321	227	227	2,065	6,300
South-East	728	294	770	1,239	1,865	270	276	2,853	8,294
South	1,172	442	851	1,084	3,413	698	653	4,769	13,082
South-West	285	112	226	277	785	526	423	1,355	3,990
West	569	327	343	393	1,189	562	1,588	2,046	7,016
External	1,944	760	2,156	2,167	7,378	1,579	1,255	29,635	46,874
Total	6,241	2,736	5,933	6,206	17,344	4,209	5,047	45,194	92,911

4.2.4 The main increase in trips are in the central, south and external zones.

Table 4-2: Increase in AM Peak Hour Trips Between 2036 and 2036 Local Plan by Sector

	Central	North	East	South-East	South	South-West	West	External	Total
Central	115	20	112	65	134	47	61	380	935
North	3	3	6	6	-53	-1	4	18	-16
East	51	1	1	25	23	0	-2	2	101
South-East	54	4	17	57	41	0	1	41	217
South	28	-14	54	57	-141	30	16	273	304
South-West	11	-2	2	6	-12	-3	-2	9	9
West	20	0	3	8	-29	-25	-7	4	-28
External	160	1	1	64	260	-5	-3	0	477
Total	442	13	195	288	223	43	69	727	1,999

4.2.5 In the 2036 Local Plan Inter Peak model, which is an average hour between 1000 and 1600, there are 66,648 trips per hour which is an increase of 1,392 trips per hour over the 2036 Reference Case. Table 4-3 shows the sector to sector trips for the 2036 Local Plan Inter Peak model and Table 4-4 the change in sector to sector trips between the 2036 Reference Case and 2036 Local Plan models.

Table 4.3: 2036 Local Plan Inter Peak Hourly Trips by Sector

	Central	North	East	South-East	South	South-West	West	External	Total
Central	660	212	208	273	777	206	628	1,054	4,018
North	236	479	116	138	323	94	248	675	2,309
East	299	148	934	480	617	99	258	1,435	4,271
South-East	338	155	469	1,441	1,155	88	227	1,775	5,648
South	896	350	431	1,130	3,460	447	780	3,294	10,789
South-West	143	76	55	93	469	582	489	961	2,868
West	455	232	202	239	823	486	1,758	1,195	5,389
External	1,054	703	1,198	1,802	3,271	1,017	1,316	20,997	31,357
Total	4,082	2,354	3,614	5,594	10,895	3,019	5,704	31,386	66,648

4.2.6 As with the AM peak hour, during the inter peak, the main increase in trips are in the central, south and external zones.

Table 4.4: Increase in Inter Peak Hourly Trips Between 2036 and 2036 Local Plan by Sector

	Central	North	East	South-East	South	South-West	West	External	Total
Central	153	20	27	37	89	26	64	127	543
North	27	6	1	2	7	2	6	7	58
East	42	3	0	3	7	3	5	0	62
South-East	42	2	1	7	23	2	5	4	87
South	83	1	0	15	124	14	9	55	302
South-West	17	-2	0	-2	15	7	-7	-9	19
West	55	1	-2	0	9	-1	10	-4	68
External	132	9	0	6	70	21	18	-1	254
Total	551	41	27	68	343	74	109	178	1,392

4.2.7 In the 2036 Local Plan PM, peak hour (1700-1800) model, there are 95,284 trips which is an increase of 1,732 trips over the 2036 Reference Case. Table 4-5 shows the sector to sector trips for the 2036 Local Plan PM model and Table 4-6 the change in sector to sector trips between the 2036 Reference Case and 2036 Local Plan models.

Table 4.5: 2036 Local Plan PM Peak Hour Trips by Sector

	Central	North	East	South-East	South	South-West	West	External	Total
Central	549	474	664	1,011	1,292	358	913	1,579	6,840
North	245	372	301	362	426	106	416	537	2,766
East	492	467	1,117	1,077	1,152	236	607	1,530	6,679
South-East	469	398	961	2,365	1,672	373	779	2,158	9,175
South	816	729	1,539	2,829	4,042	1,116	1,789	4,860	17,718
South-West	232	201	286	474	826	618	696	1,016	4,348
West	366	376	315	609	940	546	1,918	1,057	6,126
External	1,190	944	1,792	3,139	3,588	1,233	1,940	27,806	41,631
Total	4,358	3,960	6,974	11,865	13,938	4,586	9,057	40,544	95,284

4.2.8 Most of the increase in trips in the PM peak hour are originating within the central and southern zones.

Table 4.6: Increase in PM Peak Hour Trips Between 2036 and 2036 Local Plan by Sector

	Central	North	East	South-East	South	South-West	West	External	Total
Central	111	-3	63	69	105	19	57	124	545
North	33	5	4	4	-7	2	10	1	54
East	148	8	3	3	46	12	16	1	237
South-East	123	8	6	11	30	16	20	3	217
South	79	-23	39	34	-160	19	14	126	128
South-West	46	-11	-12	-25	-4	-4	-35	-44	-89
West	75	0	-6	-9	5	5	16	-14	72
External	366	12	4	8	100	34	33	12	568
Total	981	-4	102	96	114	103	131	209	1,732

4.3 Flow Plots

4.3.1 The following figures are traffic flow difference plots between the 2036 Reference Case and 2036 Local Plan models. The green bandwidths represent an increase in traffic flow in the Local Plan model and the blue a decrease. The width of the bandwidth is relative to the size of the change in flow.

4.3.2 Difference plots are shown for actual flows and demand flows. The actual flows are those which utilise a route within the modelled time period, whereas the demand flows are the level

of flow that would travel along a route in the absence of any delays, which may influence their route choice or ability to reach the network.

- 4.3.3 Figure 4.2 and Figure 4.3 shows the difference in actual and demand flow between the 2036 AM Reference Case and 2036 Local Plan AM model respectively. These figures demonstrate that despite there being a large increase in trip demand there is a smaller increase in actual flow. This would indicate that large areas of the network are unable to accommodate the additional trip demands particularly in the central and southern areas. This is consistent with the areas that have had significant increase in trip demands.

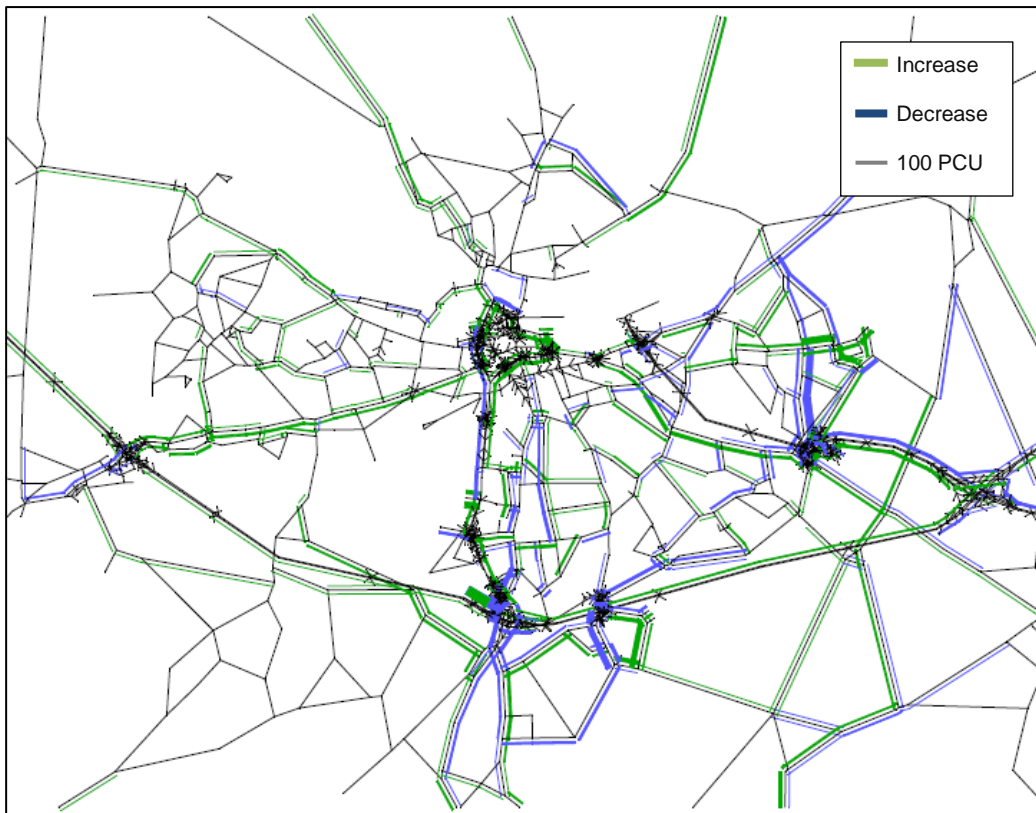


Figure 4.2: Difference in Actual Flow Between 2036 Reference Case and 2036 Local Plan (AM Peak Hour)

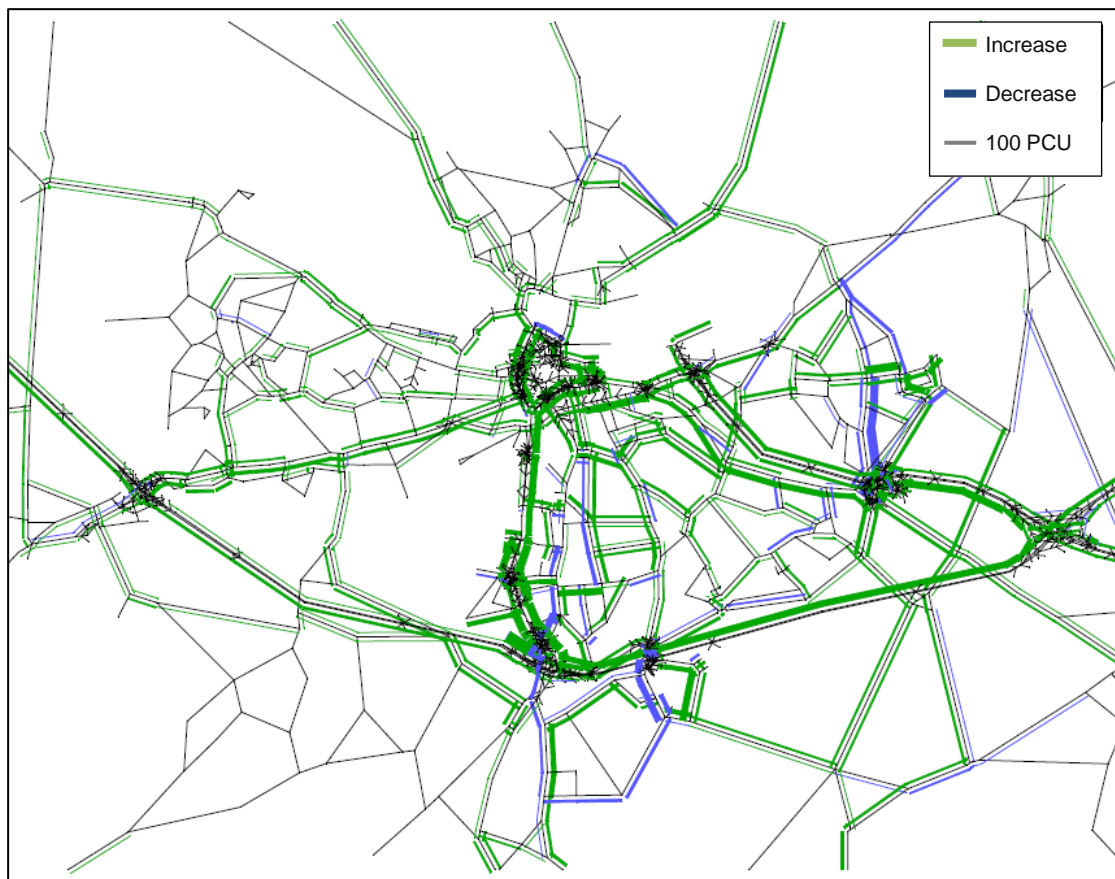


Figure 4.3: Difference in Demand Flow Between 2036 Reference Case and 2036 Local Plan (AM Peak Hour)

4.3.4 Figure 4.4 and Figure 4.5 show the difference in actual and demand flow between the 2036 Inter Peak Reference Case and 2036 Local Plan Inter Peak model respectively. There are very similar differences shown in both the demand and actual flow figures which would indicate that there is available capacity within the network to accommodate the additional trips in the inter peak.

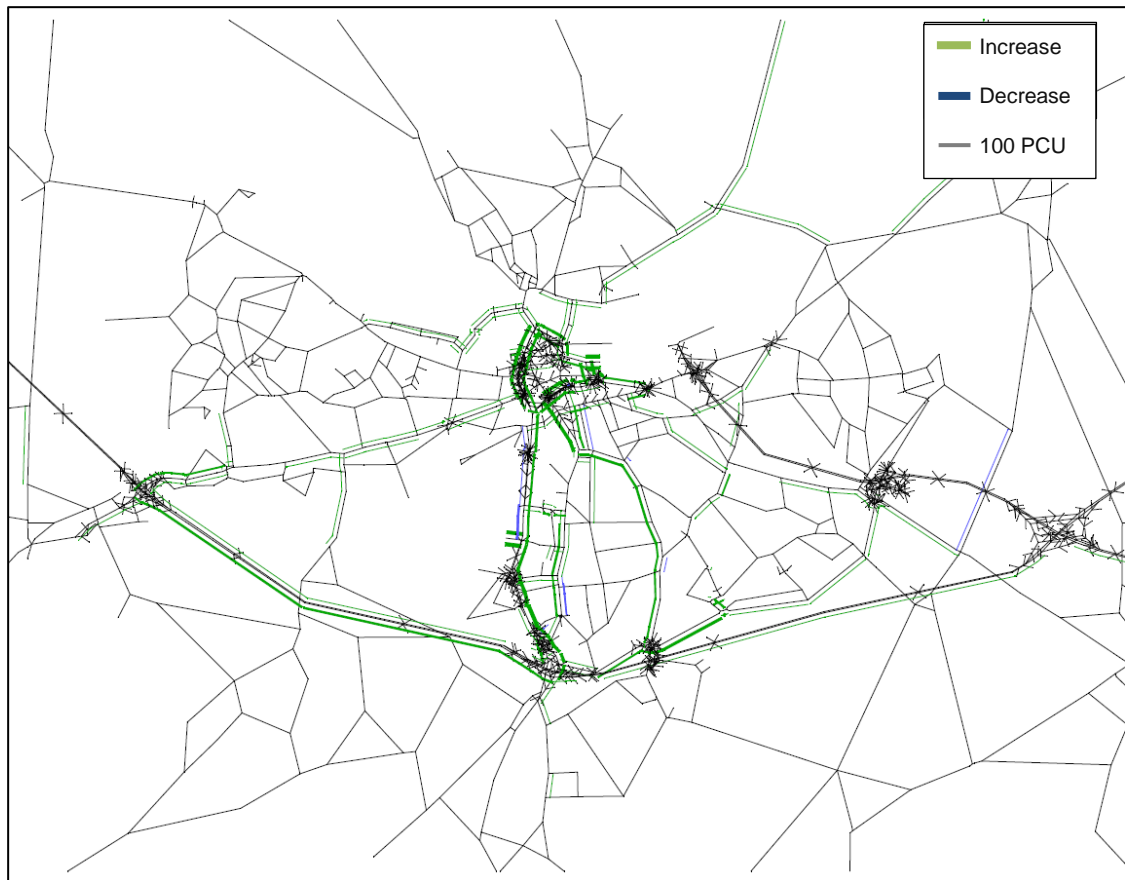


Figure 4.4: Difference in Actual Flow Between 2036 Reference Case and 2036 Local Plan (Inter Peak Average Hour)

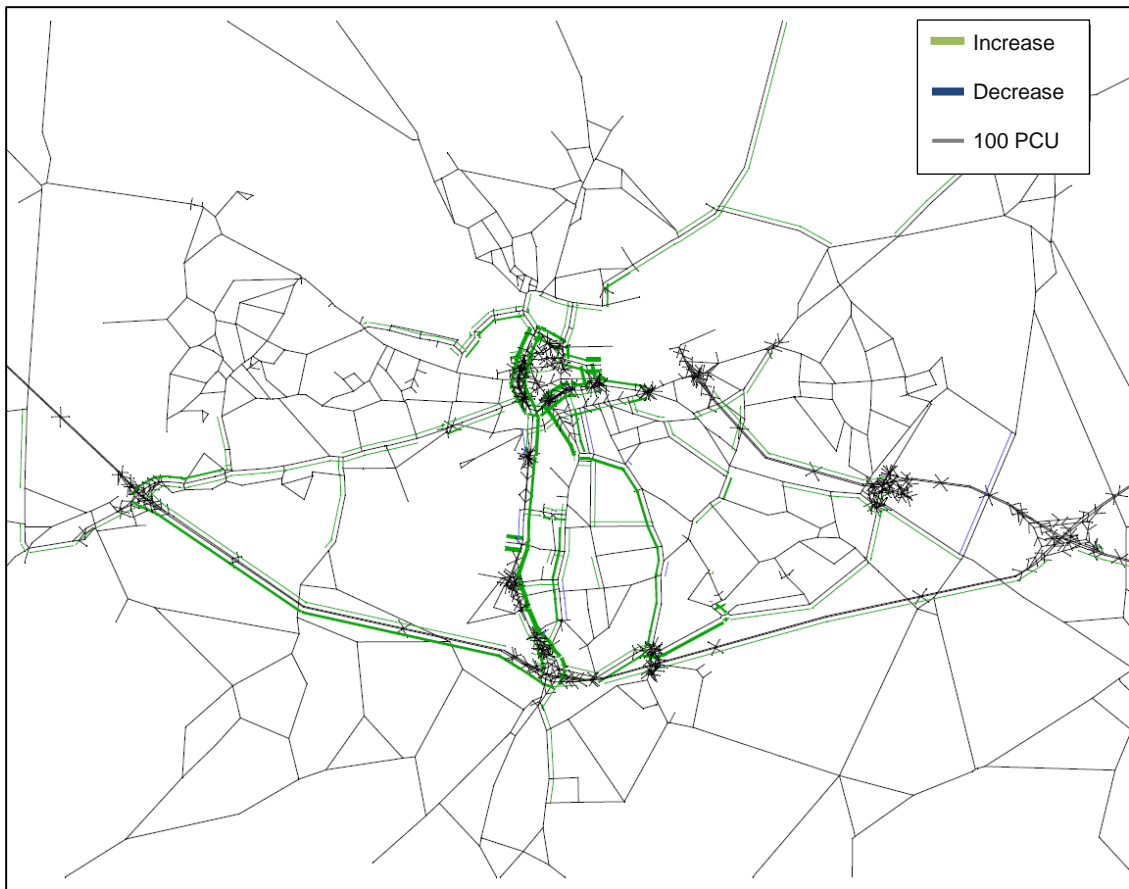


Figure 4.5: Difference in Demand Flow Between 2036 Reference Case and 2036 Local Plan (Inter Peak Average Hour)

4.3.5 Figure 4.6 and Figure 4.7 shows the difference in actual and demand flow between the 2036 PM Reference Case and 2036 Local Plan PM model respectively. As with the AM peak results, these figures demonstrate that despite there being a large increase in trip demand there is a smaller increase in actual flow. This would indicate that large areas of the network are unable to accommodate the additional trip demands particularly along the southern corridor.

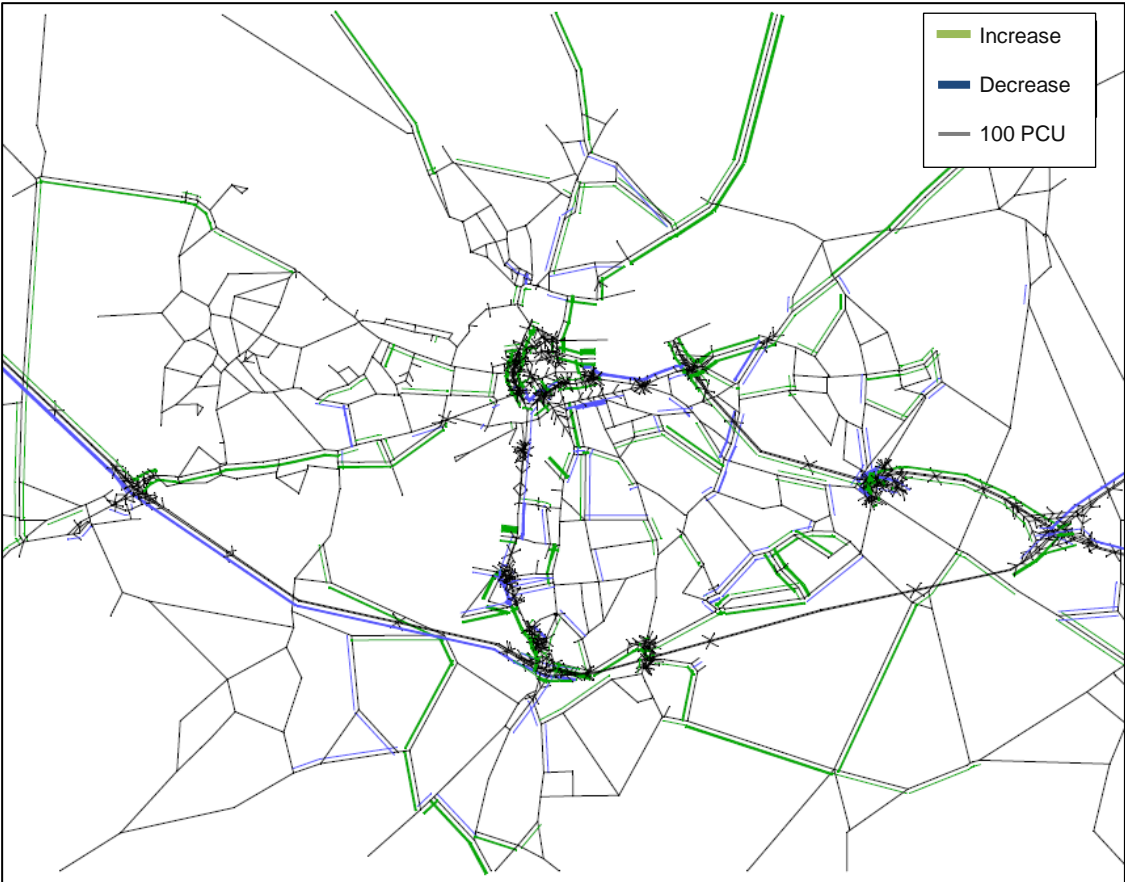


Figure 4.6: Difference in Actual Flow Between 2036 Reference Case and 2036 Local Plan (PM Peak Hour)

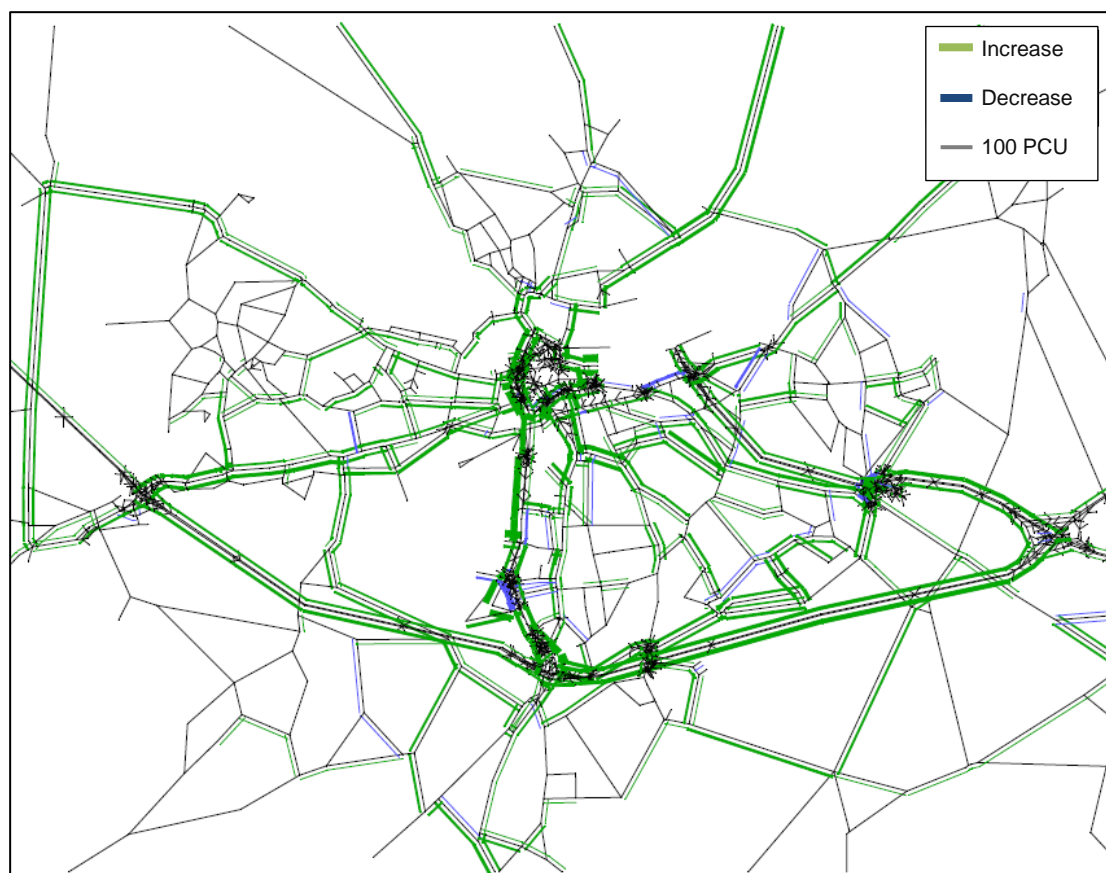


Figure 4.7: Difference in Demand Flow Between 2036 and 2036 Local Plan (PM Peak Hour)

4.4 Over Capacity Junctions

- 4.4.1 The following figures show where junctions are forecast to have a volume over capacity (V/C) greater than 1. This means that the volume of traffic, exceeds the theoretical capacity of the junction on at least one arm and thus delays will occur. The blue dots identify the junctions and the size of the dot is relative to how much overcapacity the junction is and the larger the delays are likely to be experienced.
- 4.4.2 Figure 4.8 and Figure 4.9 show which junctions are over capacity in the 2036 AM Reference Case and 2036 Local Plan AM model respectively. There is an increase in the number of junctions operating overcapacity in the Local Plan model.

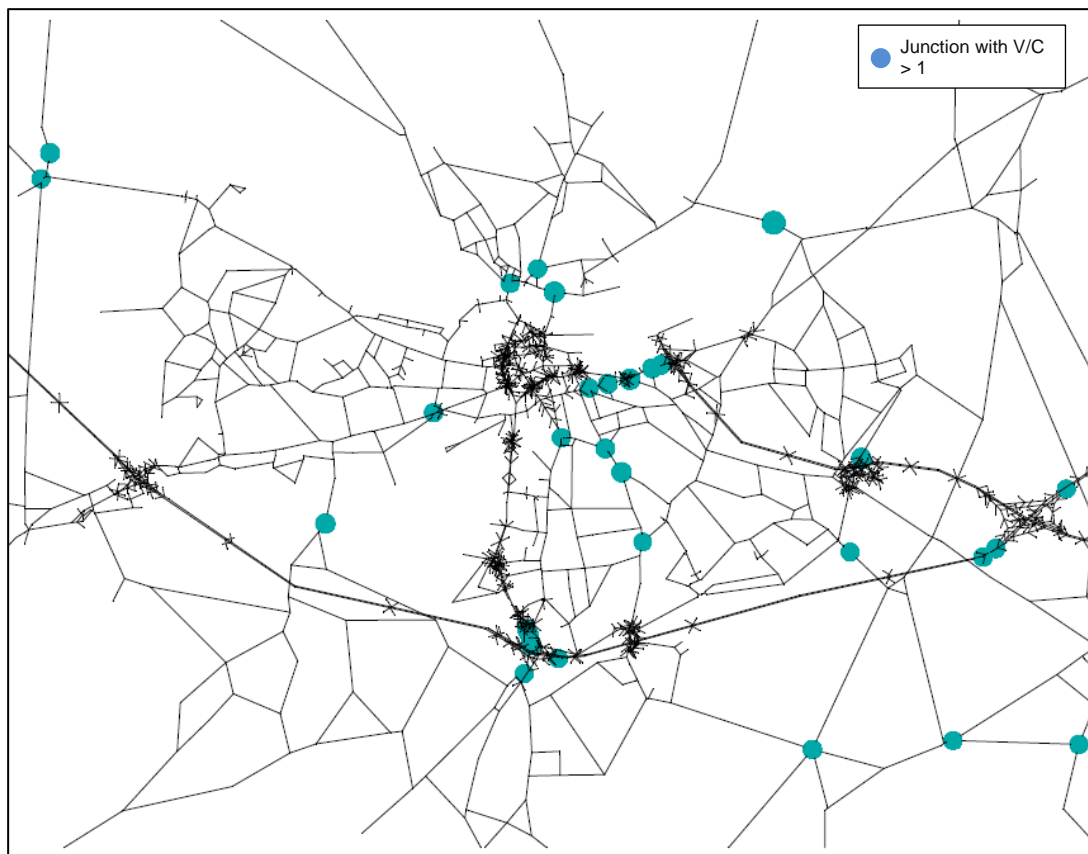


Figure 4.8: Junctions with a V/C Greater Than 1 – Reference Case (AM Peak Hour)

- 4.4.3 There are three main corridors where more than one junction is forecast to go over capacity which are:
- i. London Rd between Cemetery Junction and the A329
 - ii. The A33 between Island Rd and J11
 - iii. The A327 Shinfield Road
- 4.4.4 These areas are already known to be congested within the AM Peak Hour and the additional Local Plan development will only add to the level of congestion at these locations.
- 4.4.5 In addition to these corridors, congestion at both Reading and Caversham Bridges increases.

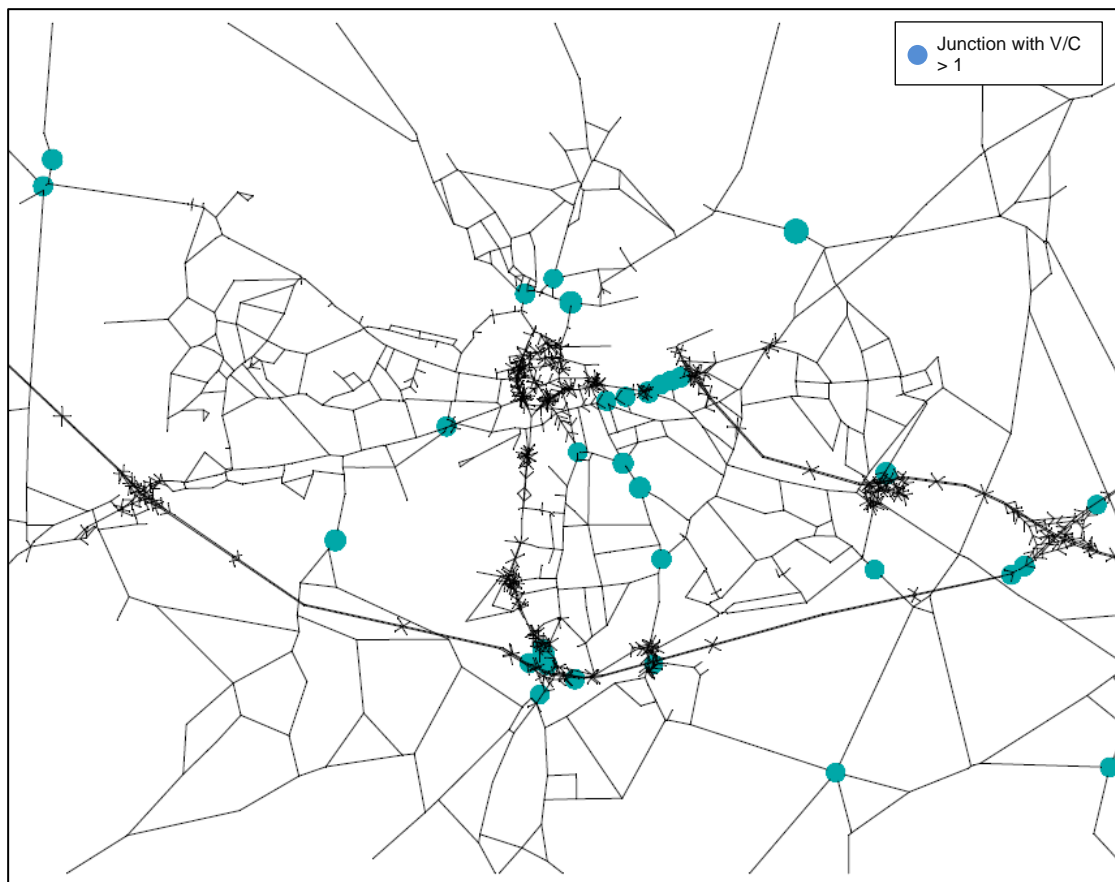


Figure 4.9: Junctions with a V/C Greater Than 1 – With Local Plan (AM Peak Hour)

4.4.6 In the Inter Peak, there are no junctions in either the 2036 Reference Case or Local Plan model which are forecast to have a V/C greater than 1.

4.4.7 Figure 4.10 and Figure 4.11 show which junctions are forecast to operate over capacity in the 2036 PM Reference Case and 2036 Local Plan PM model respectively.

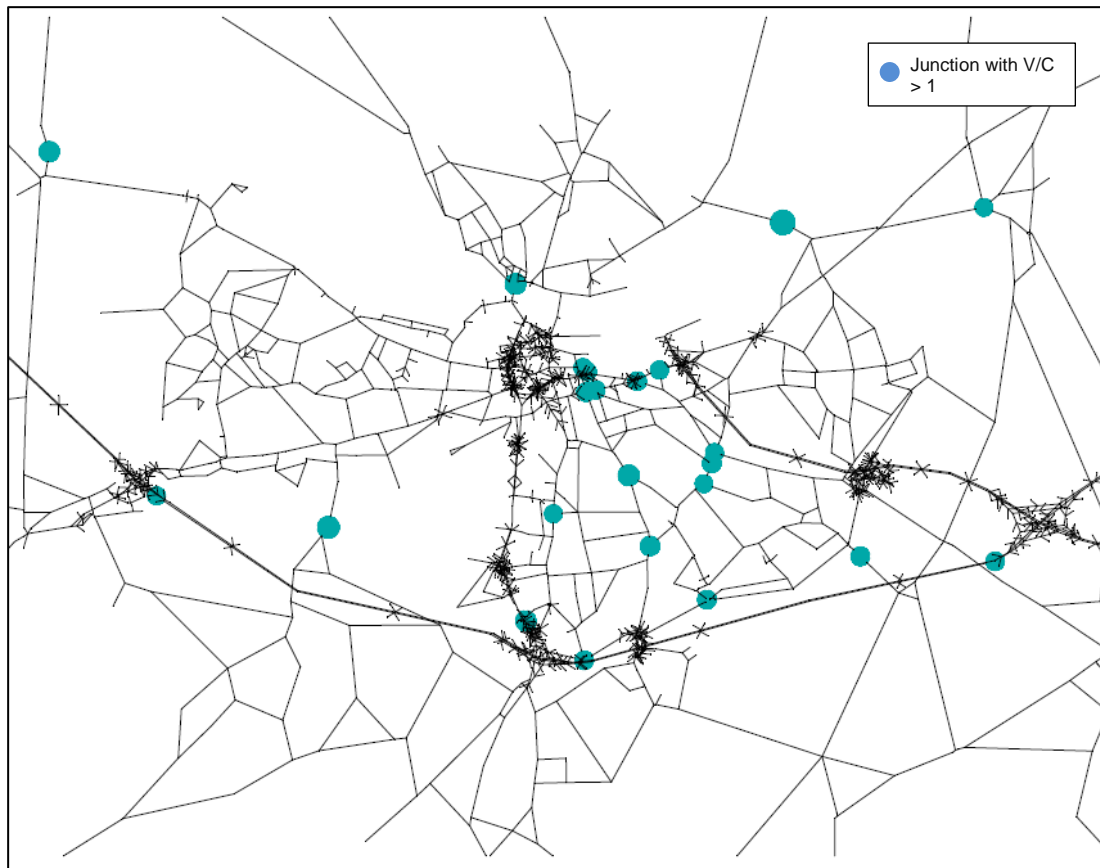


Figure 4.10: Junctions with a V/C Greater Than 1 – Reference Case (PM Peak Hour)

4.4.8 There are two main corridors where significant clusters of junctions are forecast to exceed capacity which are:

- i. London Rd
- ii. The A33 between south of South Oak Way and M4 Junction 11

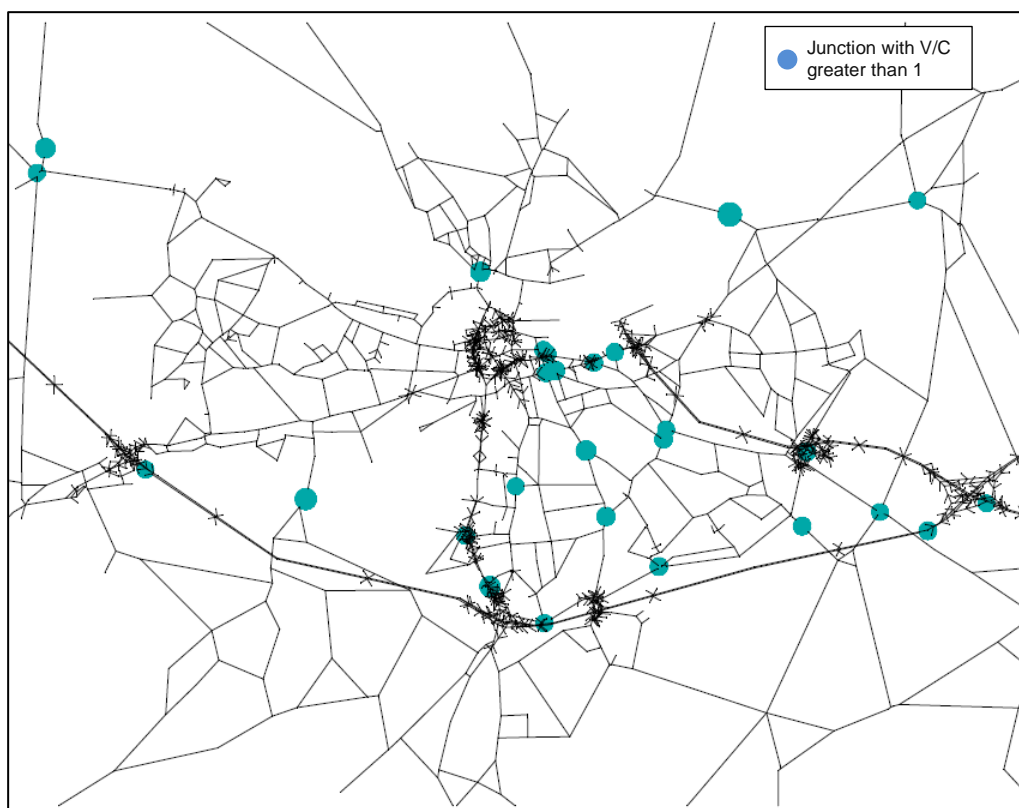


Figure 4.11: Junctions with a V/C Greater Than 1 – With Local Plan (PM Peak Hour)

4.5 Link Volume/Capacity

- 4.5.1 The following figures show the links which have a volume/capacity ratio up to 100% for 2036 Reference Case and 2036 Local Plan models. The bandwidths illustrate the least and most congested links in the network during the three peak periods varying from less than 50% to 100% v/c.
- 4.5.2 Figure 4.12 and Figure 4.13 show which links are forecast to be over capacity in the 2036 AM Reference Case and 2036 Local Plan AM model respectively.

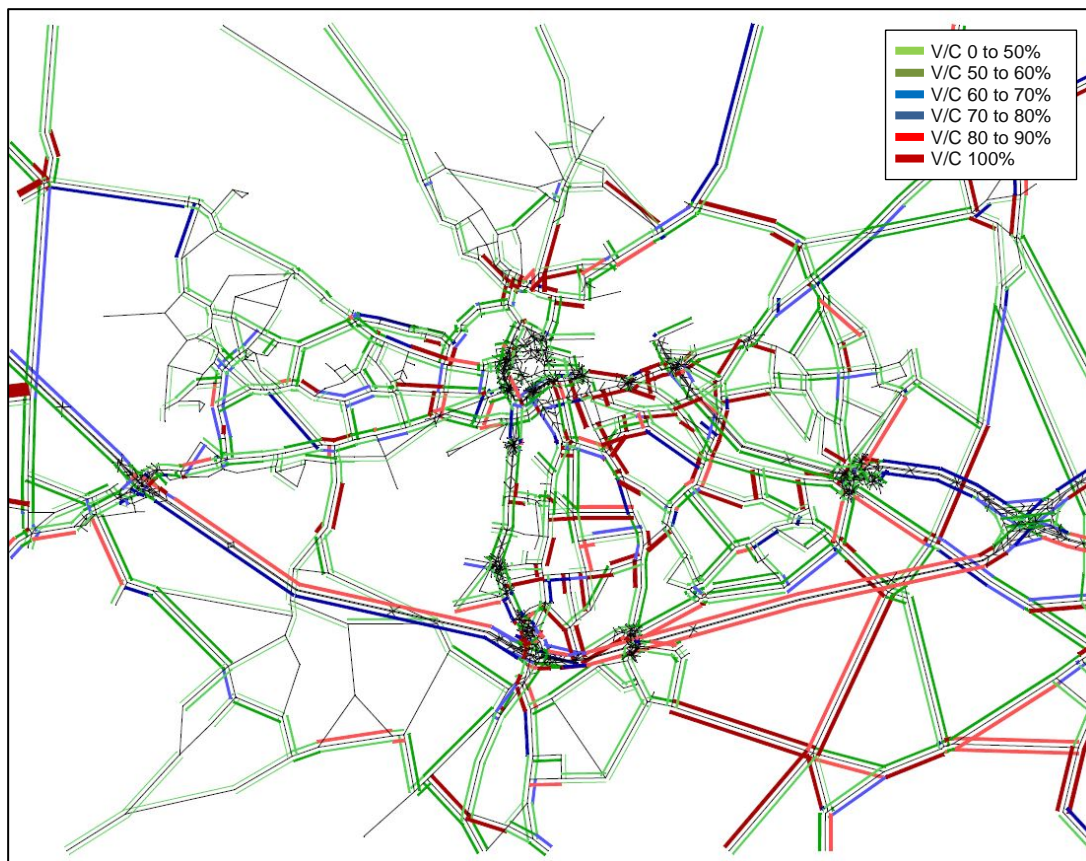


Figure 4.12: Link V/C – Reference Case (AM Peak Hour)

- 4.5.3 There are a large number of links that are forecast to operate over capacity in the 2036 Reference Case. This number increases in the 2036 Local Plan model particularly in the town centre and the south.
- 4.5.4 The models show the main areas which witness a V/C of greater than 80% include:
- i. The approaches to Caversham and Reading Bridges from the north
 - ii. Within the town centre
 - iii. Along the A33 south of Imperial Way, and
 - iv. Along the M4 between Junction 10 and 12

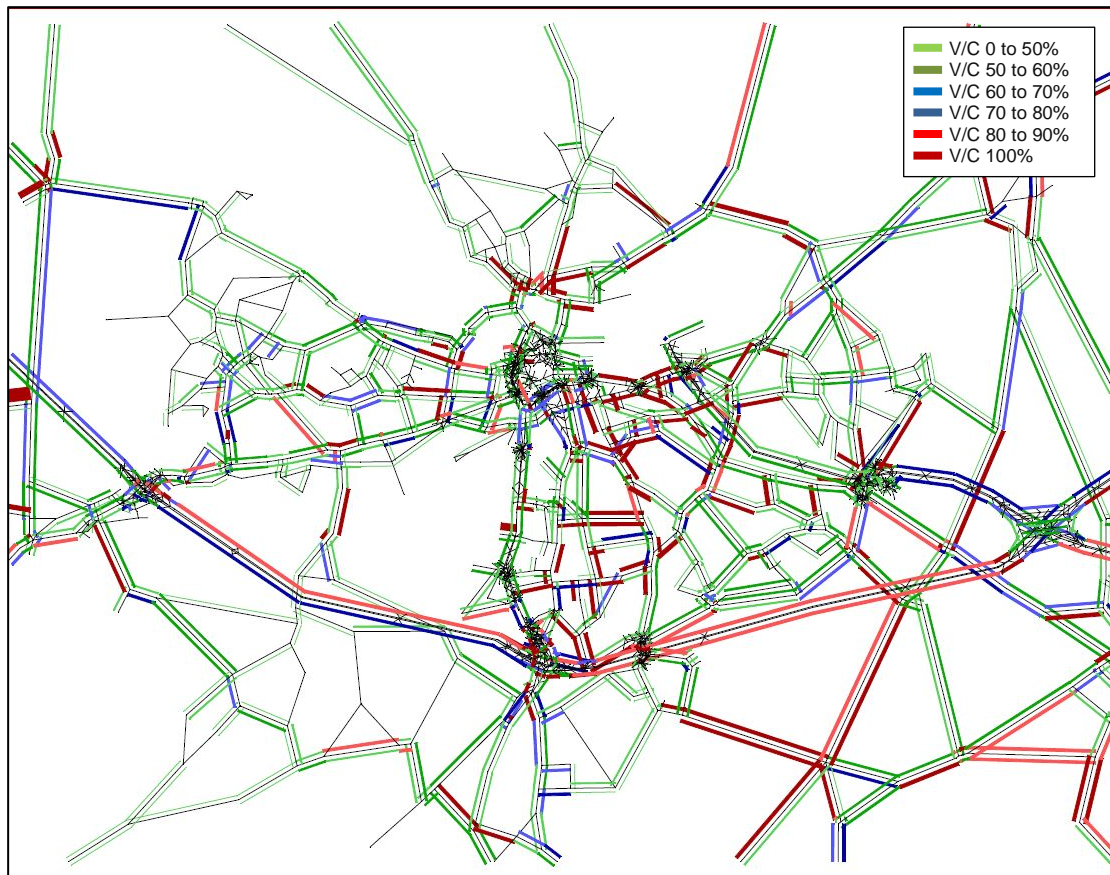


Figure 4.13: Link V/C – with Local Plan (AM Peak Hour)

4.5.5 Figure 4.14 and Figure 4.15 show which links are forecast to be congested in the 2036 Inter Peak Reference Case and 2036 Local Plan Inter Peak model respectively.

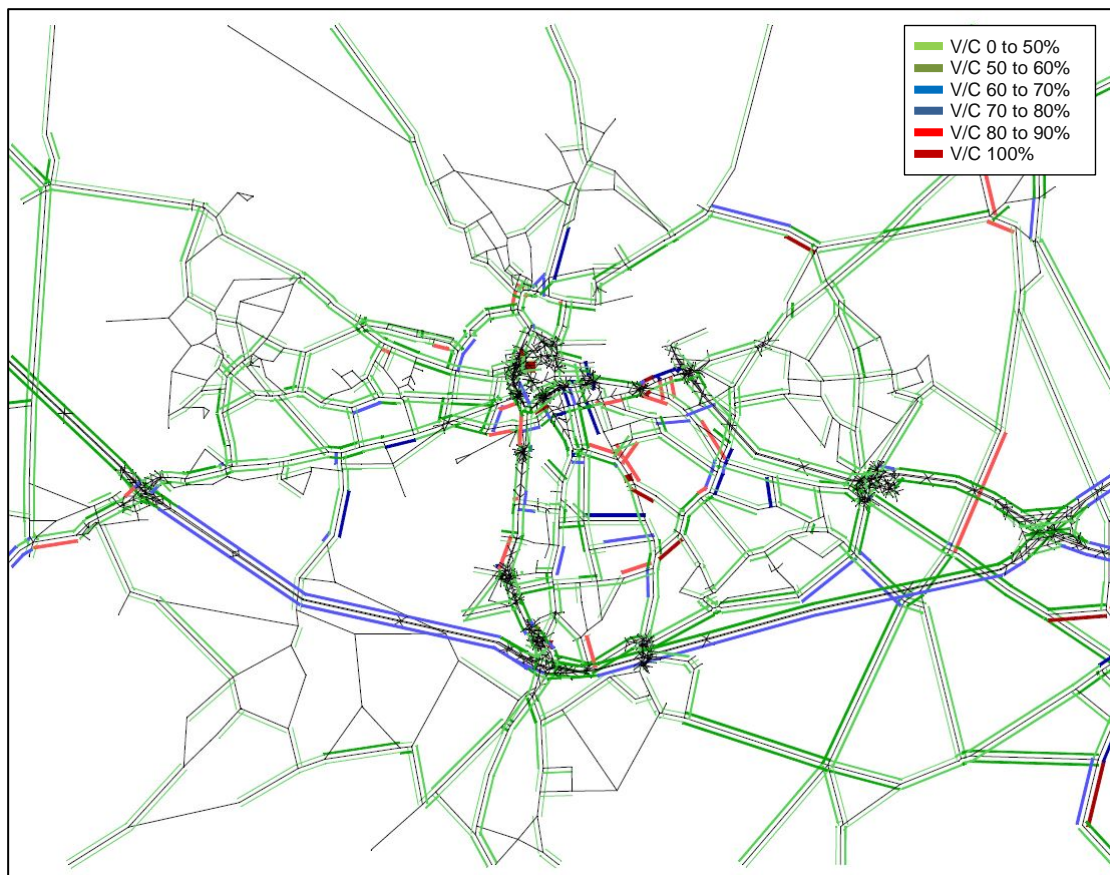


Figure 4.14: Link V/C – Reference Case (Inter Peak)

4.5.6 During the Inter Peak, there are only a limited number of links in the 2036 Reference Case which have a high V/C of above 80%, this number increases slightly with the introduction of the Local Plan.

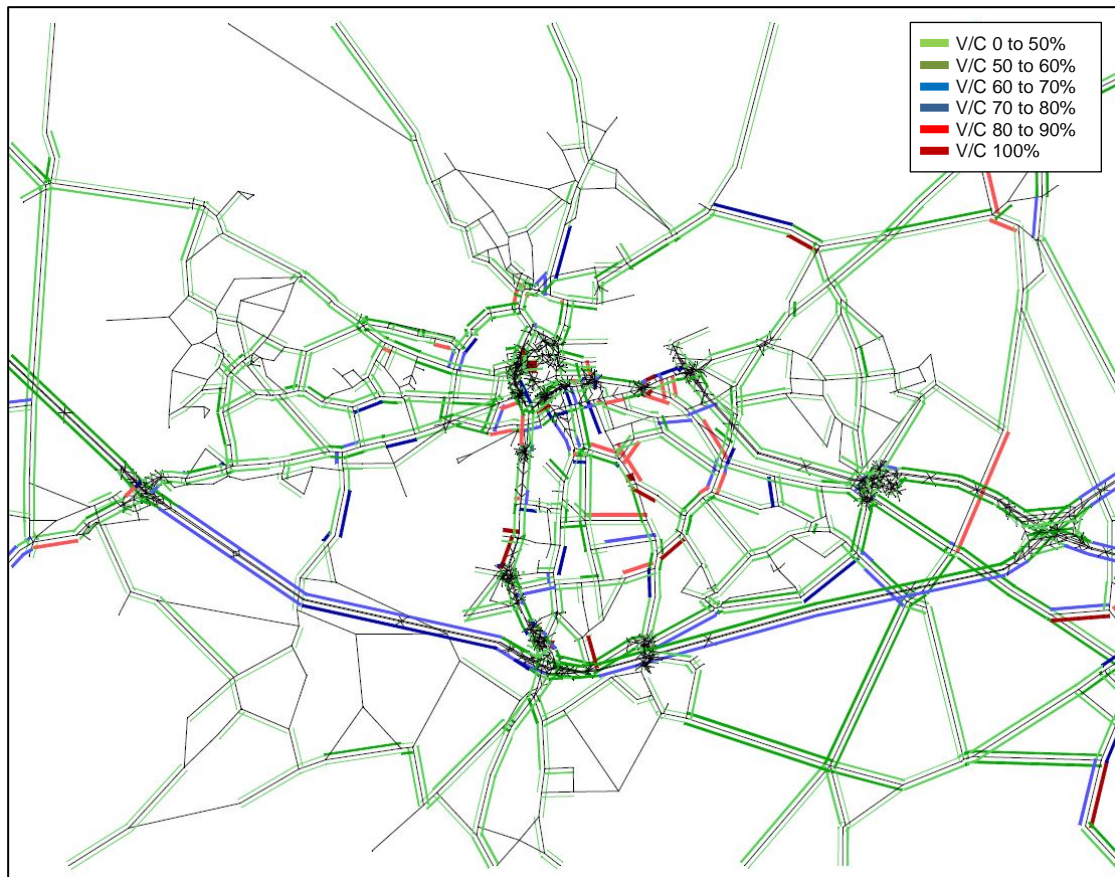


Figure 4.15: Link V/C – with Local Plan (Inter Peak)

4.5.7 Figure 4.16 and Figure 4.17 shows which links are forecast to be over capacity in the 2036 PM Reference Case and 2036 Local Plan PM model respectively.

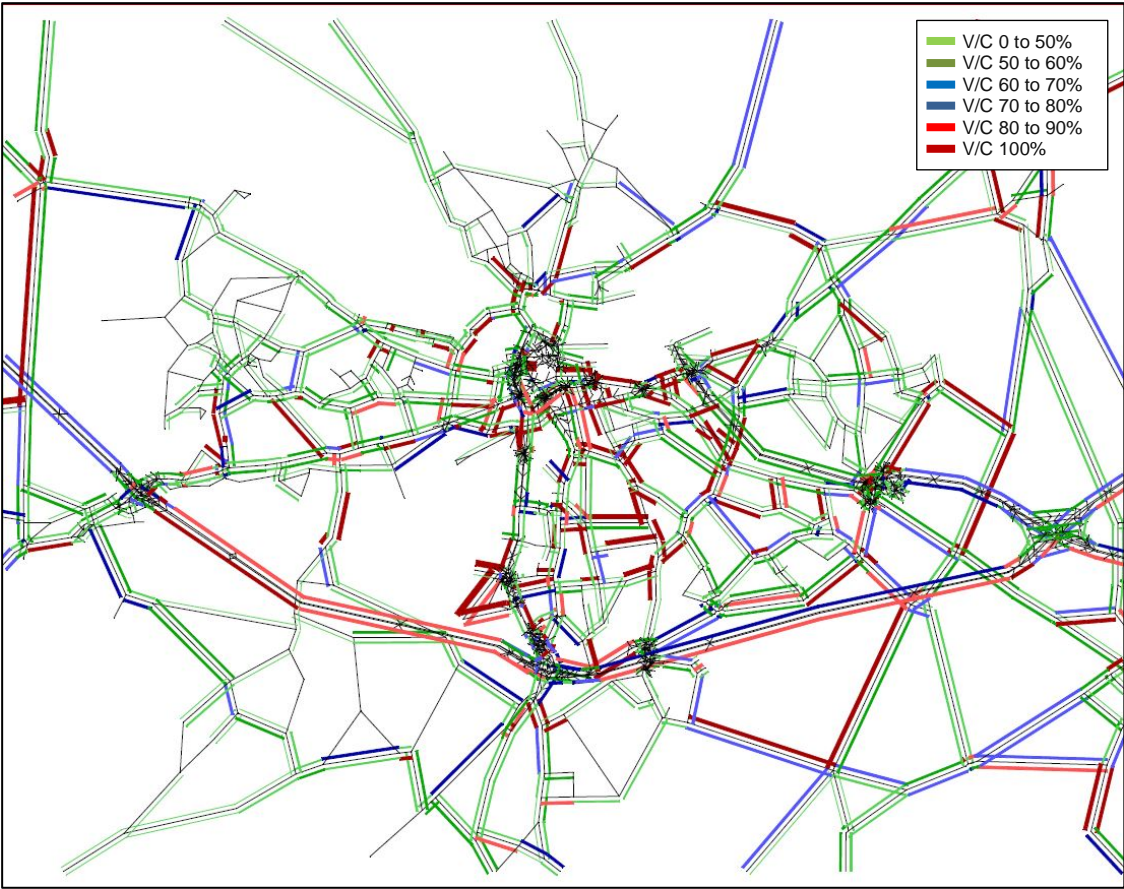


Figure 4.16: Link V/C – Reference Case (PM Peak Hour)

4.5.8 The PM Peak shows the highest proportion of links which witness a V/C of greater than 80% in both the 2036 Reference Case and 2036 Local Plan in any modelled period.

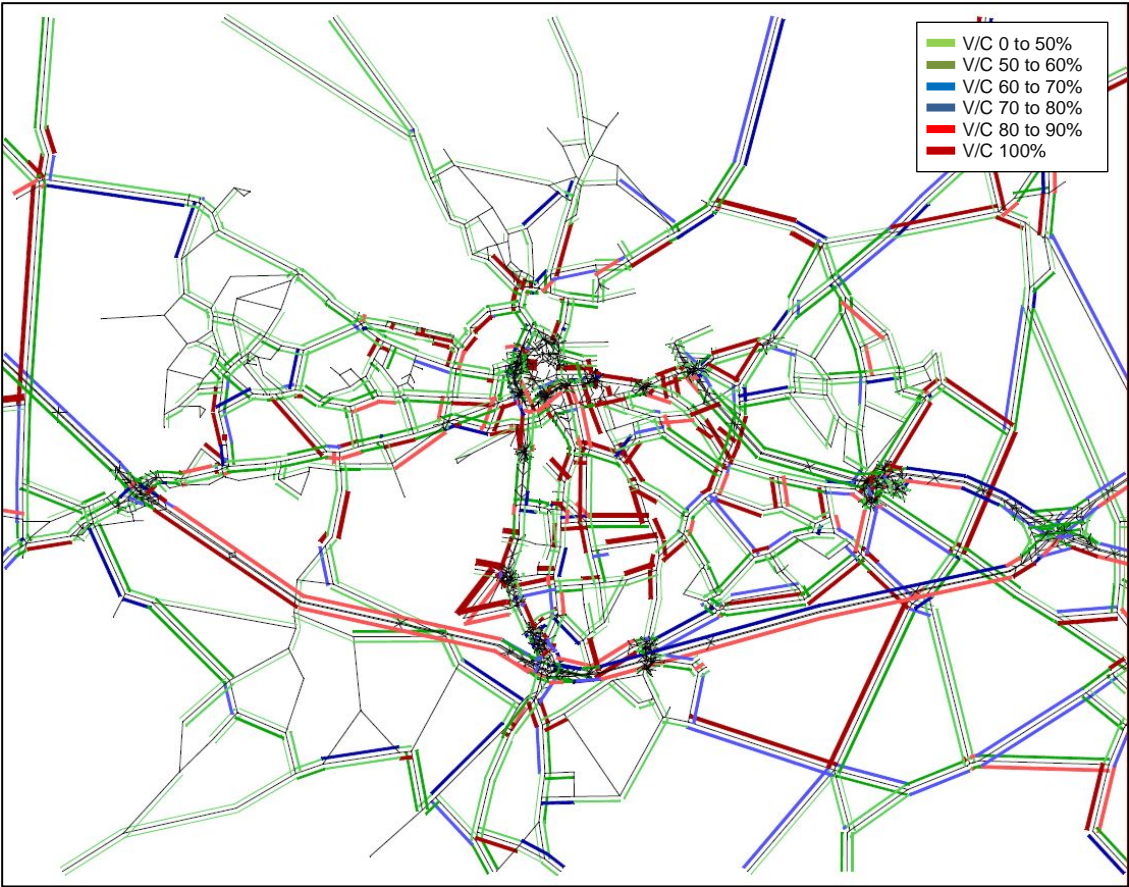


Figure 4.17: Link V/C – with Local Plan (PM Peak Hour)

4.6 Over Capacity Links

- 4.6.1 The following figures show which links are forecast to have a V/C greater than 1. The red lines identify the links which are over capacity in at least one direction.
- 4.6.2 The advantage of looking at the links is that it highlights areas of congestion where not all the approaches to a junction are over capacity. Some of the links will be on the approaches to the junctions identified in the previous section, but this will also identify additional areas of congestion.
- 4.6.3 Figure 4.12 and Figure 4.13 show which links are forecast to be over capacity in the 2036 AM Reference Case and 2036 Local Plan AM model respectively.

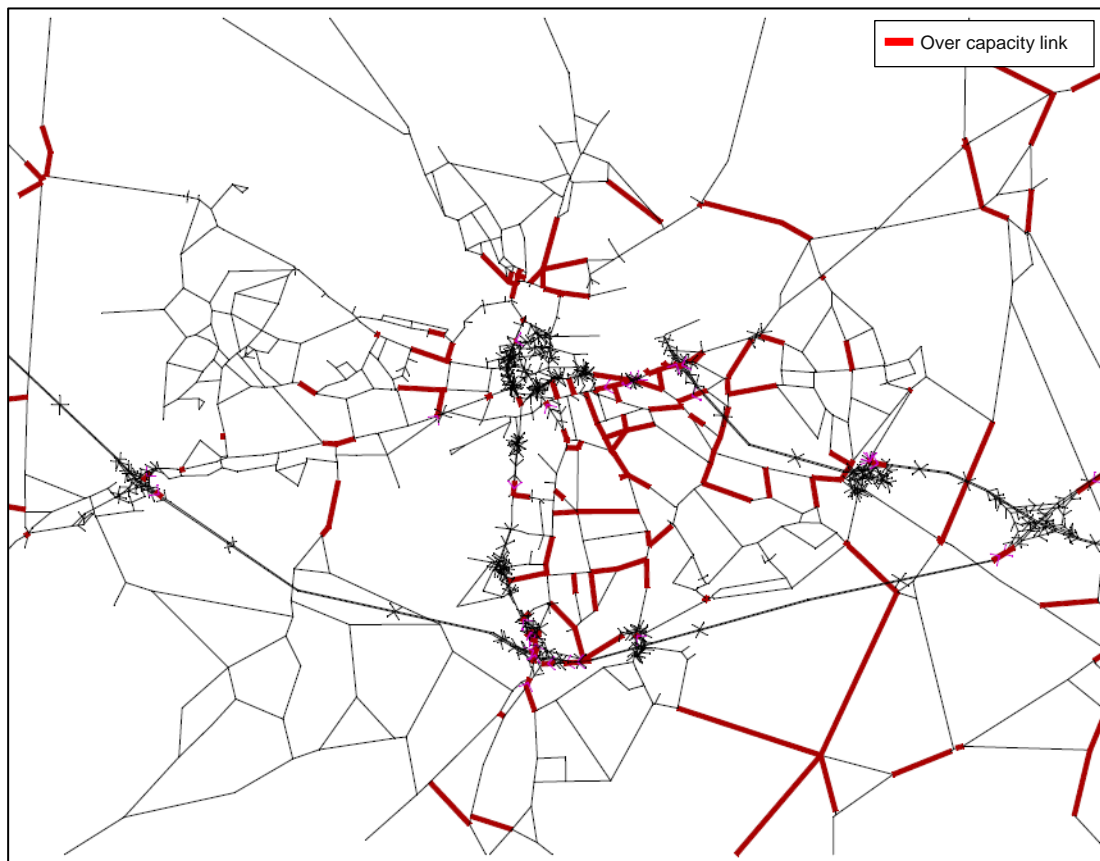


Figure 4.18: Links with V/C Greater Than 1 – Reference Case (AM Peak Hour)

- 4.6.4 There are a large number of links that are forecast to operate over capacity in the 2036 Reference Case. This number increases in the 2036 Local Plan model particularly in the town centre and the south.
- 4.6.5 The main areas of congestion are forecast to be:
- v. The approaches to Caversham and Reading Bridges from the north
 - vi. Within the town centre
 - vii. Along the A33 south of Imperial Way
 - viii. Along the A327 Shinfield Road

ix. London Rd / Kings Road

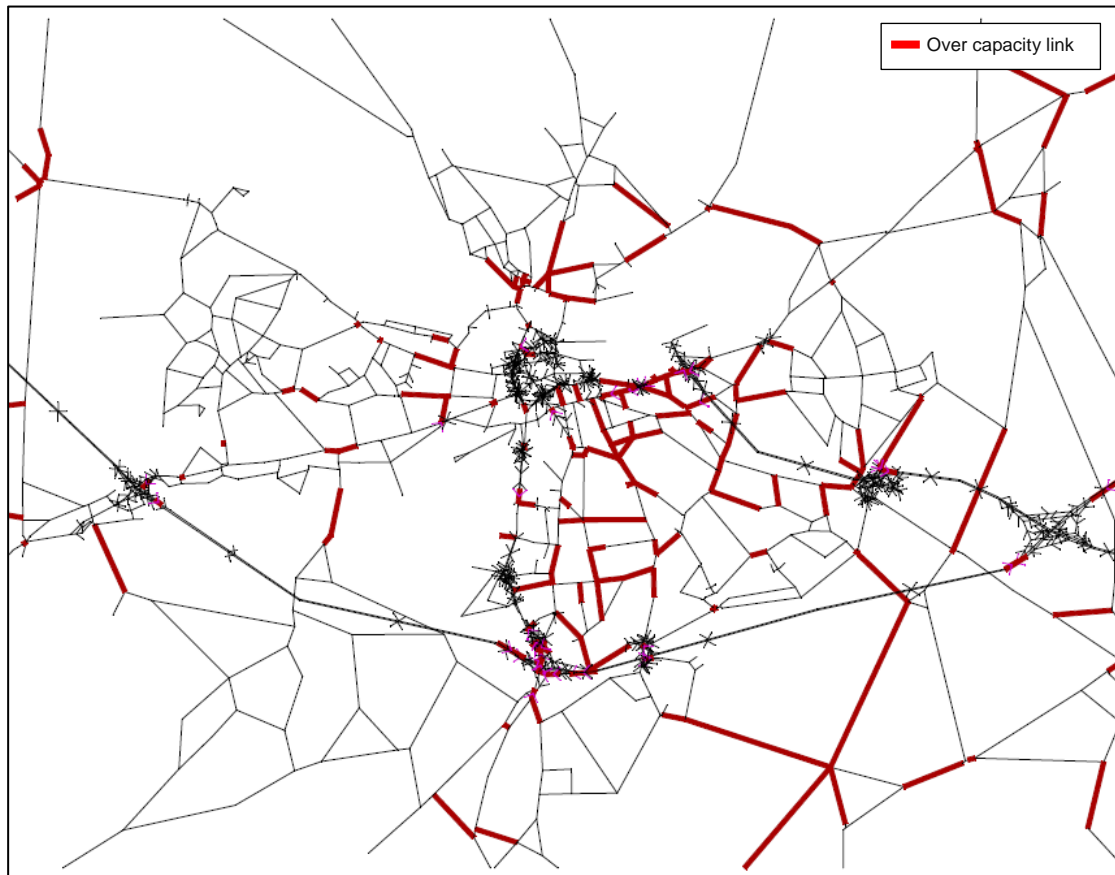


Figure 4.19: Links with V/C Greater Than 1 – with Local Plan (AM Peak Hour)

4.6.6 Figure 4.14 and Figure 4.15 show which links are forecast to operate over capacity in the 2036 Inter Peak Reference Case and 2036 Local Plan Inter Peak model respectively.

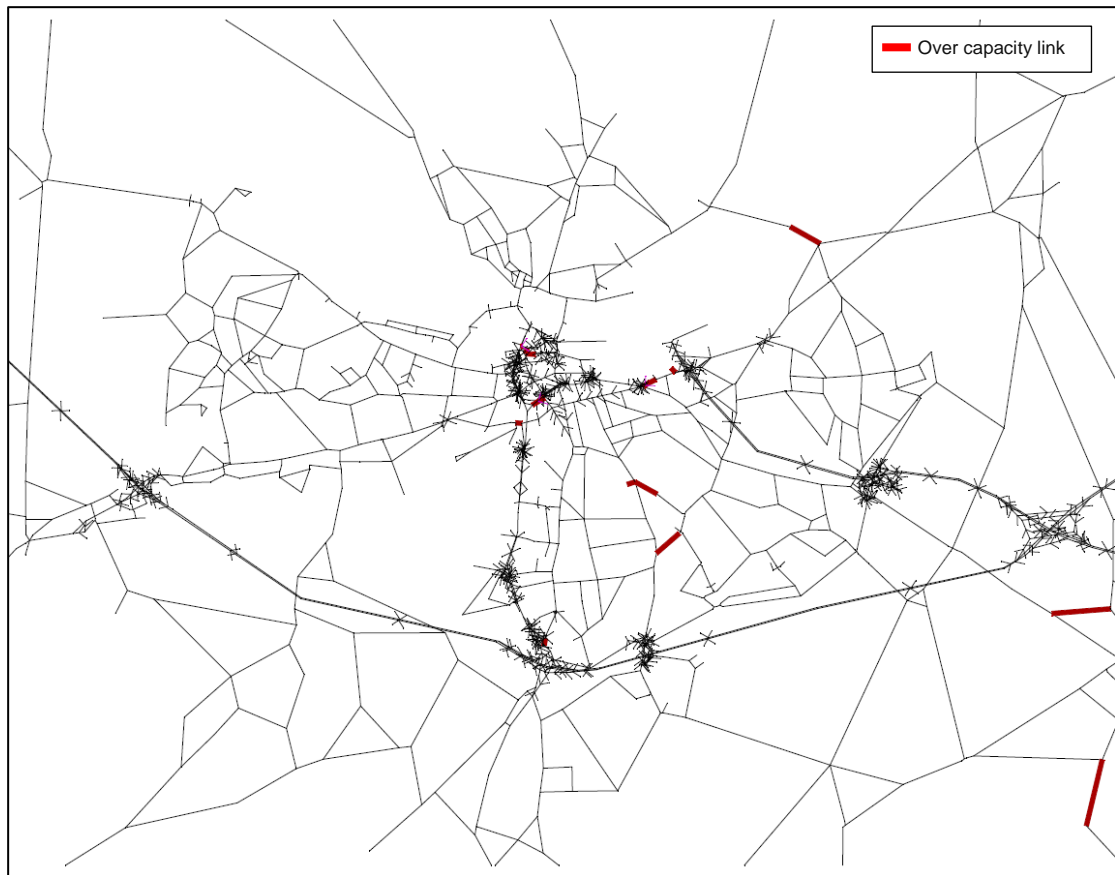


Figure 4.20: Links with V/C Greater Than 1 – Reference Case (Inter Peak)

4.6.7 In the Inter Peak there are only a few links in the 2036 Reference Case that are forecast to be over capacity and with the Local Plan developments this number increases slightly.

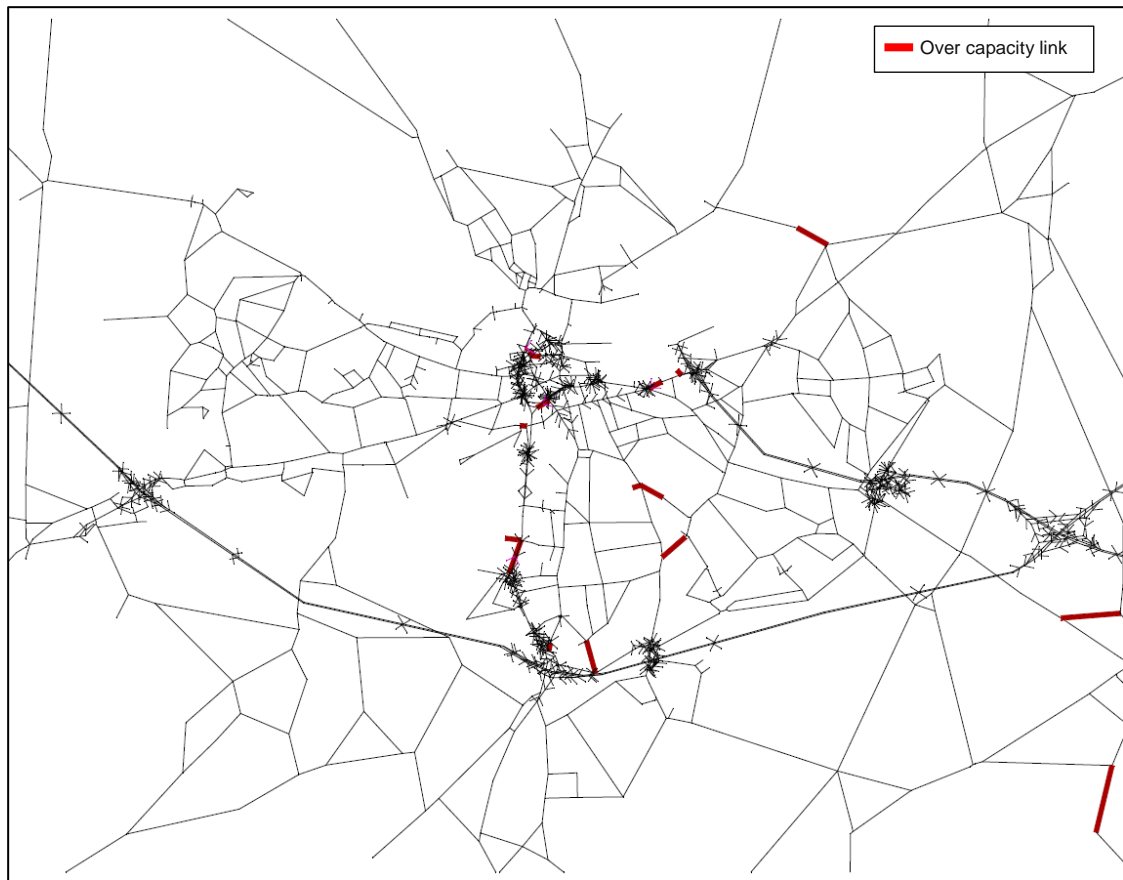


Figure 4.21: Links with V/C Greater Than 1 – with Local Plan (Inter Peak)

4.6.8 Figure 4.16 and Figure 4.17 shows which links are forecast to be over capacity in the 2036 PM Reference Case and 2036 Local Plan PM model respectively.

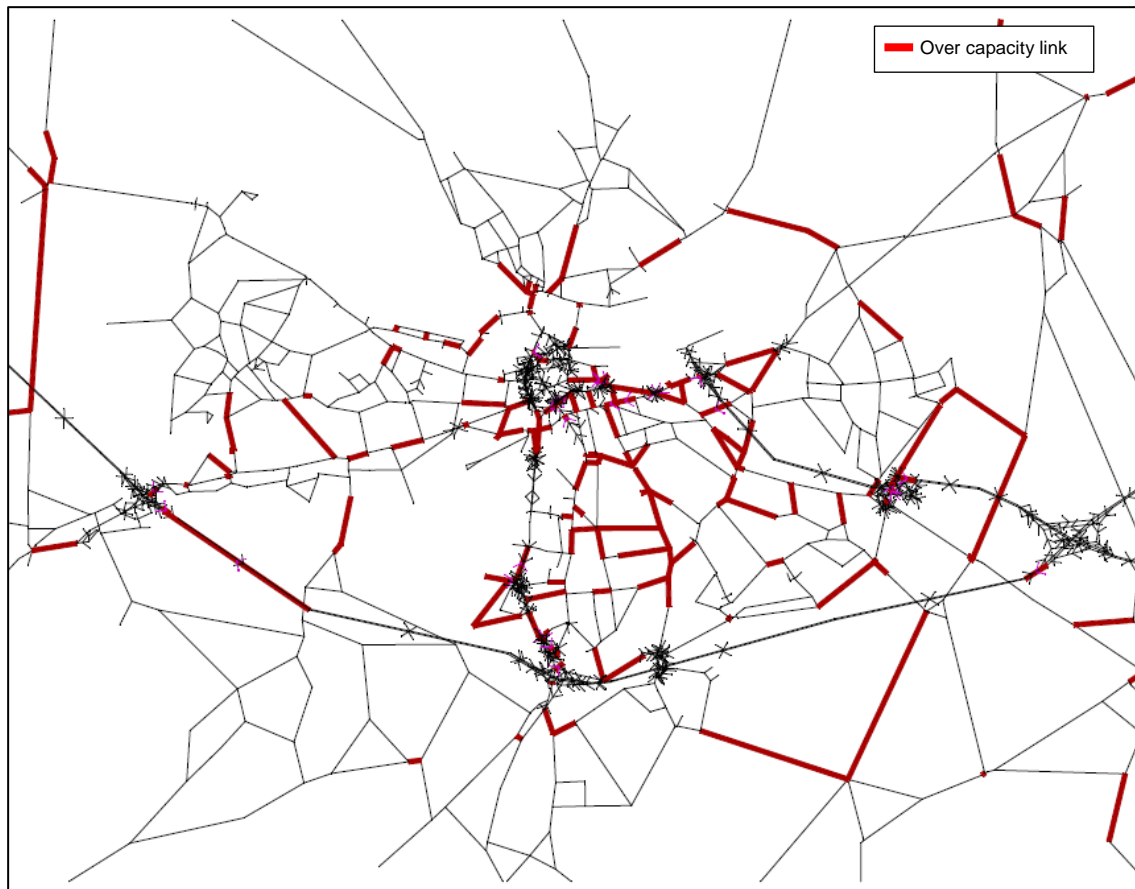


Figure 4.22: Links with V/C Greater Than 1 – Reference Case (PM Peak Hour)

4.6.9 The PM Peak Hour network shows that there are a large number of links which are forecast to be over capacity in the 2036 Reference Case. In the Local Plan model, this increases, in particular along the A33.

4.6.10 This is consistent with the locations of the larger Local Plan developments.

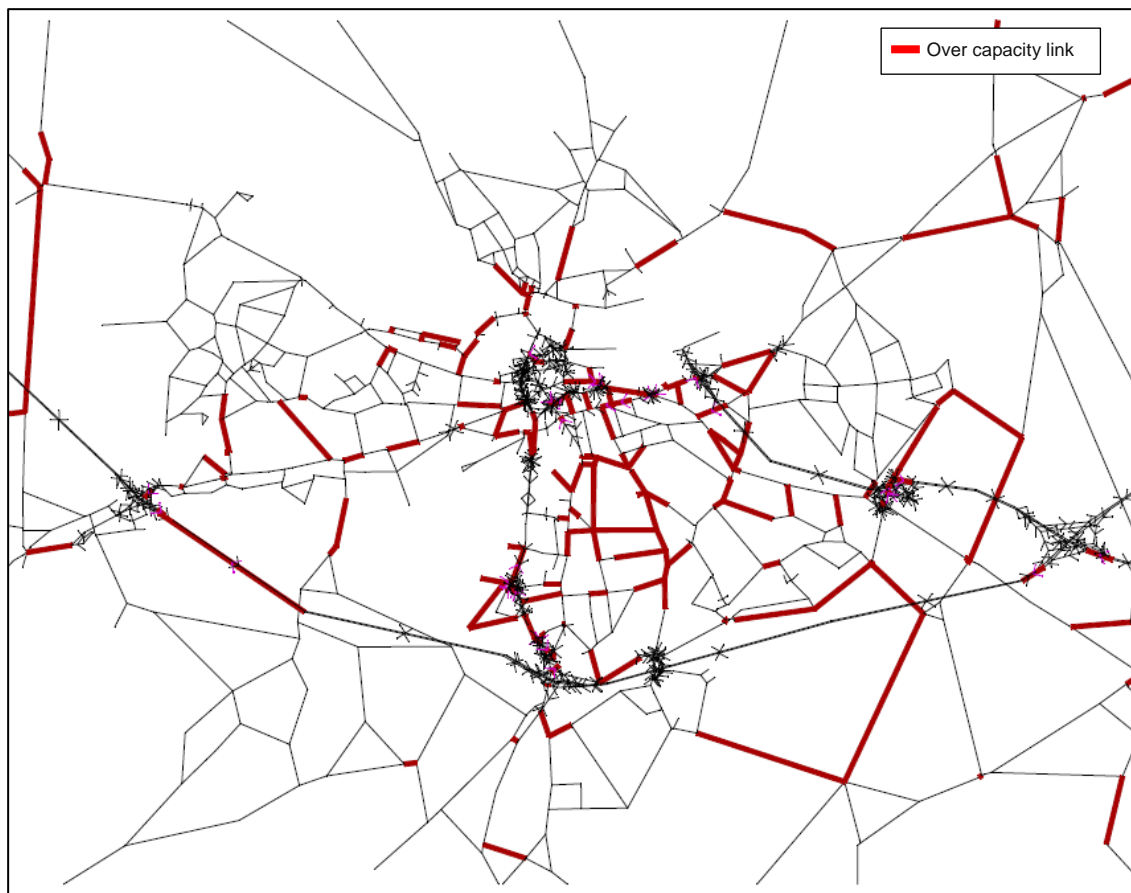


Figure 4.23: Links with V/C Greater Than 1 – with Local Plan (PM Peak Hour)

4.7 The Strategic Road Network (SRN)

- 4.7.1 The SRN are the motorways and trunk roads managed, in England, by Highways England. South of Reading town centre, the M4 makes up part of this network a vital link between London, the M5 and Wales in the west.
- 4.7.2 During the AM peak, the difference in actual flow along the M4 show a limited impact on the SRN east bound or west bound along the M4. The demand flow for the same period, shows there is a significant proportion of trips which, if they could access the M4 would do so, specifically between Reading town centre and west bound towards junction 10 of the M4.
- 4.7.3 Within the Inter Peak period, the actual flow of traffic from Reading Town Centre connects to the M4 at Junction 11 travelling towards junction 12, with the limited forecast congestion during the 2036 Reference Case, the additional flow does not impact in any significant increase in delay along the SRN.
- 4.7.4 Lastly, during the PM peak actual flow replicates a similar pattern of forecast as the AM peak. Specifically, along the SRN there will be a limited increase in flow, with east bound traffic flow from junction 10 of the M4 showing a decrease between the 2036 Reference Case and the Local Plan models. If reviewing the demand flow from the same models, the forecast distribution is much more varied, with the demand for the M4 increasing in both east bound and west bound directions significantly, showing the existing road network is constricting the flow of traffic with the introduction of additional trips.

5 Conclusion

5.1 Summary

- 5.1.1 The results of the forecast scenarios have been analysed to assess the impact of the Local Plan proposals. This included identifying junctions and links forecast to operate over capacity within the Reading Urban Area.
- 5.1.2 This indicates that the Local Plan developments would lead to an increase in traffic at a number of already congested locations across Reading and most significantly:
- Within the town centre
 - Along the A33/Basingstoke Rd corridor
 - Along the A327 corridor
 - London Rd
 - Reading Bridge junctions
 - Caversham Bridge junctions
- 5.1.3 In addition to the known Local Plan developments that have been tested and reported on in this report, there is also the potential for a large-scale housing development at Grazeley, known as Grazeley Garden Settlement. This would be in the region of 15,000 homes and would require testing separately due its large scale, and the likely impacts on the transport network, which would require significant investment in transport services and infrastructure to accommodate.

5.2 Next steps

- 5.2.1 Having identified areas of congestion which are likely to occur as a result of the Local Plan developments, the next step would be to determine the transport improvements necessary to accommodate the developments and to mitigate the congestion forecast to be generated by the developments.
- 5.2.2 The mitigation could be in the form of:
- Improvements to public transport and walking and cycling infrastructure/services/facilities which will lead to a reduced number of car trips such as the proposed East Reading P&R and MRT
 - Travel planning and travel behavioural change
 - Junction and highway improvements
- 5.2.3 A series of sensitivity tests could be run through the model to test the impacts of any mitigation options.

Appendix A Reading Local Plan Developments

Site Code	Site Title
ABA001	Friar Street and Station Road
ABA002	Friars Walk and Greyfriars Road (reduced site)
ABA003	Station Hill (wider site)
ABA004	North of the Station
ABA005	Riverside
ABA006	Napier Road Junction
ABA007	Napier Court
ABA008	Cattle Market
ABA009	Great Knollys Street and Weldale Street
ABA011	Broad Street Mall
ABA012	Hosier Street
ABA013	Reading Prison
ABA014	Forbury Retail Park
ABA015	Forbury Business Park and Kenavon Drive
ABA016	Gas Holder
ABA017	108-116 Oxford Road, 10 Eaton Place and 115-125 Chatham Street
ABA019	Former Reading Family Centre, North Street
ABA023	37-43 Market Place
ABA028	Kings Meadow Pool, Kings Meadow Road
ABA029	Caversham Lock Island
ABB001	Aldwych House, 2 Blagrove Street
ABB002	Energis House, Forbury Road
ABB003	173-175 Friar Street
ABB004	84 Watlington Street
ABB005	179 Oxford Road
ABB006	27 Castle Street
ABB007	Land West of Rivermead Car Park
ABB008	Summit House, 49-51 Greyfriars Road
ABB009	60 Queens Road
ABB010	Kings Reach, 38-50 Kings Road
ABB011	Zenith House, 7 Cheapside
ABB012	Jacksons Corner, 1-9 Kings Road
ABB013	Land at Hodsoll Road
ABB014	Havell House, 62-66 Queens Road
ABB015	173-175 Kings Road
ABB016	130 Queens Road
ABB017	Kings Point, 120 Kings Road
ABB018	Kings Lodge, 194 Kings Road
ABB019	118 Chatham Street
ABB020	139-141 Oxford Road
ABB021	42 Kenavon Drive
ABB022	120 Oxford Road
ABB023	53 Greyfriars Road
ABB024	57 Baker Street
ABB025	Land at junction of Addison Road and Meadow Road
ABB026	Princes House, 73a London Road
ABB027	57 Castle Street
ABB028	116-117 & 119 Broad Street & 19-22 Minster Street

ABB029	The Oracle Shopping Centre, Yield Hall Place
ABC001	27-32 Market Place
ABC002	Primark, 32-42 West Street
ABC003	Former Cox & Wyman site, Cardiff Road
ABC004	Former Gas Works Building, Gas Works Road
ABD001	Central Swimming Pool, Battle Street
ABD002	78 Oxford Road
ABD003	2A Prospect Mews
ABD004	149-153 Oxford Road
ABD005	38-40 Oxford Road & 3-7 Cheapside
ABD006	17-23 Queen Victoria Street
ABD007	1-5 King Street
ABD011	Elite House, 179 Kings Road
ABD012	Brunel Arcade, Station Approach
ABD013	Apex Plaza, Forbury Road
ABD017	The Butler PH, Chatham Street
ABD020	115-117 Caversham Road
ABD022	187-189 Kings Road
ABD026	1-3 Greyfriars Road
ABD028	Shurgard Self Storage, 75-77 Caversham Road
BAA001	211-221 Oxford Road, 10 & rear of 8 Prospect Street
BAA002	Rear of 303-315 Oxford Road
BAA003	Part of former Battle Hospital, Portman Road
BAB001	Land at former Battle Hospital
BAB002	361-363 Oxford Road
BAB004	537-541 Oxford Road
BAD003	458-478 Oxford Road & 1-3 Chester St
BAD008	Land rear of 36-46 Mason Street
CAB001	Unit 1, Paddock Road Industrial Estate
CAB002	The Old Bakehouse, Wellington House
CAB003	72 George Street
CAB004	Former Arthur Legge Centre, Wolsey Road
CAB005	St Martin's Precinct, Church Street
CAC001	307 - 311 Gosbrook Road
CAD003	Reading University Boat Club, Promenade Road
CHB001	University of Reading, The Chancellors Way & Shinfield Road
CHB002	Reading Girl's School, Northumberland Avenue
CHB003	Ridgeway Primary School, Willow Gardens
CHB004	Leighton Park School, Shinfield Road
CHD001	Land rear of 50-52 Cressingham Road
CHD004	St Patricks Hall, Northcourt Avenue
KAA002	Corner of Crown Street and Southampton Street
KAA003	Corner of Crown Street and Silver Street
KAB001	83-85 London Street
KAB002	40 Silver Street
KAB003	34-36 Crown Street
KAB004	Ibex House, 85 Southampton Street
KAB005	Trinity Hall, South Street
KAC001	62-68 Silver Street
KAD001	Enterprise House, 89-97 London Street

KAD002	272-274 Elgar Road South
KAD004	79 Silver Street
KAD005	The Woodley Arms PH, Waldeck Street
KAD006	75-77 London Street
KAD010	268 Elgar Road South
KAD023	Makro, Elgar Road South
KAE001	Central Club, London Street
KEB001	993 Oxford Road
KEB002	1025-1027 Oxford Road
KEB003	Land Adjacent The Roebuck Ph, Oxford Road
KED001	1015 Oxford Road
KED003	Allotments and adjacent land, Kentwood Hill
KED006	Charters Car Sales, Oxford Road
KED008	750 Oxford Road
KED016	816 Oxford Road
MAB001	Chazey Farm, The Warren
MIB001	Lok n Store, 5-9 Berkeley Avenue
MIB002	34 Parkside Road
MIB003	21 Rose Kiln Lane
MIB004	62-79 Armadale Court, Westcote Road
MID002	1 Castle Crescent
MID003	5 Westcote Road
MID004	Government Offices, Coley Park, Wensley Road
MID007	Pulleyn Park, Rose Kiln Lane
MID008	43 Tilehurst Road
MID009	31 Bath Road
MID010	Junction of Berkeley Avenue and St Saviours Road
MIE001	Yeomanry House, Castle Hill
NOA001	Dee Park (exluding 103 Dee Rd)
NOA002	The Meadway Centre, Honey End Lane
NOB001	330 Tilehurst Road
NOD001	2, 4, 6 Water Road and 158 Dee Road
NOD002	St Georges Hall, St Georges Road
NOD003	15 St Georges Road
NOE001	103 Dee Road
PAA001	261-275 London Road
PAA002	Crescent Road Campus
PAC002	Arthur Hill Swimming Pool, 221-225 Kings Road
PAC003	Palmer Park Car Park
PAD003	Alexander House, Kings Road
PAD004	28 Wokingham Road
PAD005	131 Wokingham Road
PAE001	Hamilton Centre, Bulmershe Road
PED001	Part of Reading Golf Course, Kidmore End Road
PED002	Rear of 200-214 Henley Road, 12-24 All Hallows Road & 4, 7 & 8 Copse Avenue
PED003	Rear of 13-14a Hawthorne Road & 282-292 Henley Road
PED004	199-219 Henley Road
PED005	241-251 Henley Road
REB001	Royal Berkshire Hospital, London Road
REB002	Wells Hall, Upper Redlands Road

REB003	Hanover House, 202 Kings Road
REB004	Reading School, Erleigh Road
REB005	1a Upper Redlands Road
REB006	University of Reading, London Road
REB007	79 London Road and 34 Eldon Terrace
REB008	252 Kings Road
REC001	Land adjacent to 17 Craven Road
RED001	3-29 Newcastle Road
RED004	Warwick House, Warwick Road
RED007	Rear of 8-26 Redlands Road
RED008	Land adjacent to 40 Redlands Road
RED009	35 Christchurch Road
RED010	Dingley House, 3-5 Craven Road
SOA002	Elvian School, Bath Road
SOA003	Alice Burrows Home, Dwyer Road
SOB001	Land adjacent to 153 Bath Road
SOE001	Amethyst Lane
THB001	Highdown School, Surley Row
THB002	Queen Annes School, Henley Road
THD001	Rear of 1 & 3 Woodcote Road & 21 St Peter's Hill
THE001	The Arthur Clark Home, Dovedale Close
TIB001	Church End Primary School, Usk Road
TIC001	Meadway Comprehensive School, The Meadway
WHA001	Worton Grange
WHA002	Part of former Berkshire Brewery Site
WHA003	Land north of Manor Farm Road
WHA004	Little Chef, Basingstoke Road
WHB001	Plot 3.2, 400-450 Longwater Avenue
WHB002	Plot 8, 600 South Oak Way
WHB003	Land west of A33 and north of Island Road
WHB004	Green Park Village, Longwater Avenue
WHB005	Plot 17, 500-600 Longwater Avenue
WHB006	Land bounded by Island Road, Longwater Avenue, A33 and Sewage Treatment Works
WHB007	Foudry Place and 22 Commercial Road
WHB008	Madejski Stadium, Royal Way
WHB009	Worton Drive
WHB010	Land west of Longwater Avenue
WHB011	177 Basingstoke Road
WHB012	Kennet Island Phase 3, Manor Farm Road
WHD001	Land south of Island Road at Smallmead
WHD003	Lancaster Jaguar, Bennet Road, Reading
WHD006	Land adjacent to Smallmead MRF, Island Road
WHD007	St Paul's Church and Hall
WHE001	16-18 Bennet Road
WHE002	Land north of Island Road
WHE003	Land south of Smallmead MRF and north of Longwater Avenue
XX001	Confidential Site 1
XX002	Confidential Site 2
XX006	Confidential Site 6
XX007	Confidential Site 7

XX008	Confidential Site 8
XX011	Confidential Site 11
XX014	Confidential Site 14
XX019	Confidential Area Regen 4
XX022	Confidential Area Regen 7
XX024	Confidential Area Regen 9
XX025	Confidential Area Regen 10
XX027	Confidential Area Regen 12

Appendix B TRICS Data

Non food retail (Town Centre)

TRICS 7.3.2

Trip Rate Param Gross floor area

TRIP RATE for Land Use 01 - RETAIL/M - MIXED SHOPPING MALLS

Calculation Factor: 100 sqm

Count Type: VEHICLES

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00-01:00									
01:00-02:00									
02:00-03:00									
03:00-04:00									
04:00-05:00									
05:00-06:00									
06:00-07:00	1	18600	0.011	1	18600	0	1	18600	0.011
07:00-08:00	2	13505	0.196	2	13505	0.07	2	13505	0.266
08:00-09:00	3	21337	0.164	3	21337	0.078	3	21337	0.242
09:00-10:00	3	21337	0.33	3	21337	0.106	3	21337	0.436
10:00-11:00	3	21337	0.336	3	21337	0.205	3	21337	0.541
11:00-12:00	3	21337	0.342	3	21337	0.297	3	21337	0.639
12:00-13:00	3	21337	0.4	3	21337	0.372	3	21337	0.772
13:00-14:00	3	21337	0.362	3	21337	0.375	3	21337	0.737
14:00-15:00	3	21337	0.339	3	21337	0.395	3	21337	0.734
15:00-16:00	3	21337	0.278	3	21337	0.377	3	21337	0.655
16:00-17:00	3	21337	0.264	3	21337	0.373	3	21337	0.637
17:00-18:00	3	21337	0.162	3	21337	0.316	3	21337	0.478
18:00-19:00	3	21337	0.103	3	21337	0.191	3	21337	0.294
19:00-20:00	1	18600	0	1	18600	0.263	1	18600	0.263
20:00-21:00									
21:00-22:00									
22:00-23:00									
23:00-24:00									
Daily Trip Rates:			3.287			3.418			6.705

TRIP RATE for Land Use 01 - RETAIL/M - MIXED SHOPPING MALLS

Calculation Factor: 100 sqm

Count Type: OGVS

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00-01:00									
01:00-02:00									
02:00-03:00									
03:00-04:00									
04:00-05:00									
05:00-06:00									
06:00-07:00	1	18600	0.011	1	18600	0	1	18600	0.011
07:00-08:00	2	13505	0.007	2	13505	0.007	2	13505	0.014
08:00-09:00	3	21337	0.002	3	21337	0.003	3	21337	0.005
09:00-10:00	3	21337	0.002	3	21337	0.003	3	21337	0.005
10:00-11:00	3	21337	0	3	21337	0	3	21337	0
11:00-12:00	3	21337	0.002	3	21337	0.002	3	21337	0.004
12:00-13:00	3	21337	0	3	21337	0	3	21337	0
13:00-14:00	3	21337	0.003	3	21337	0	3	21337	0.003
14:00-15:00	3	21337	0.002	3	21337	0.003	3	21337	0.005
15:00-16:00	3	21337	0.003	3	21337	0.002	3	21337	0.005
16:00-17:00	3	21337	0	3	21337	0.003	3	21337	0.003
17:00-18:00	3	21337	0.002	3	21337	0.002	3	21337	0.004
18:00-19:00	3	21337	0	3	21337	0	3	21337	0
19:00-20:00	1	18600	0	1	18600	0	1	18600	0
20:00-21:00									
21:00-22:00									
22:00-23:00									
23:00-24:00									
Daily Trip Rates:			0.034			0.025			0.059

Non food retail

TRICS 7.3.2

Trip Rate Param Gross floor area

TRIP RATE for Land Use 01 - RETAIL/I - SHOPPING CENTRE - LOCAL SHOPS

Calculation Factor: 100 sqm

Count Type: VEHICLES

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00-01:00									
01:00-02:00									
02:00-03:00									
03:00-04:00									
04:00-05:00									
05:00-06:00									
06:00-07:00	1	540	1.296	1	540	1.296	1	540	2.592
07:00-08:00	22	985	3.241	22	985	2.918	22	985	6.159
08:00-09:00	22	985	3.684	22	985	3.301	22	985	6.985
09:00-10:00	22	985	4.404	22	985	3.961	22	985	8.365
10:00-11:00	22	985	4.113	22	985	3.924	22	985	8.037
11:00-12:00	22	985	4.487	22	985	4.594	22	985	9.081
12:00-13:00	22	985	5.623	22	985	5.434	22	985	11.057
13:00-14:00	22	985	4.963	22	985	4.963	22	985	9.926
14:00-15:00	22	985	4.358	22	985	4.51	22	985	8.868
15:00-16:00	22	985	4.201	22	985	4.317	22	985	8.518
16:00-17:00	22	985	4.663	22	985	4.377	22	985	9.04
17:00-18:00	22	985	4.649	22	985	4.967	22	985	9.616
18:00-19:00	22	985	4.432	22	985	4.769	22	985	9.201
19:00-20:00	20	1052	4.074	20	1052	4.012	20	1052	8.086
20:00-21:00	20	1052	3.147	20	1052	3.446	20	1052	6.593
21:00-22:00	14	840	3.851	14	840	4.25	14	840	8.101
22:00-23:00									
23:00-24:00									
Daily Trip Rates:			65.186			65.039			130.225

TRIP RATE for Land Use 01 - RETAIL/I - SHOPPING CENTRE - LOCAL SHOPS

Calculation Factor: 100 sqm

Count Type: OGVS

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00-01:00									
01:00-02:00									
02:00-03:00									
03:00-04:00									
04:00-05:00									
05:00-06:00									
06:00-07:00	1	540	0	1	540	0	1	540	0
07:00-08:00	22	985	0.097	22	985	0.088	22	985	0.185
08:00-09:00	22	985	0.106	22	985	0.078	22	985	0.184
09:00-10:00	22	985	0.134	22	985	0.152	22	985	0.286
10:00-11:00	22	985	0.069	22	985	0.069	22	985	0.138
11:00-12:00	22	985	0.074	22	985	0.069	22	985	0.143
12:00-13:00	22	985	0.092	22	985	0.111	22	985	0.203
13:00-14:00	22	985	0.069	22	985	0.083	22	985	0.152
14:00-15:00	22	985	0.055	22	985	0.042	22	985	0.097
15:00-16:00	22	985	0.051	22	985	0.046	22	985	0.097
16:00-17:00	22	985	0.046	22	985	0.042	22	985	0.088
17:00-18:00	22	985	0.018	22	985	0.023	22	985	0.041
18:00-19:00	22	985	0.014	22	985	0.028	22	985	0.042
19:00-20:00	20	1052	0.019	20	1052	0.019	20	1052	0.038
20:00-21:00	20	1052	0	20	1052	0.005	20	1052	0.005
21:00-22:00	14	840	0.009	14	840	0.009	14	840	0.018
22:00-23:00									
23:00-24:00									
Daily Trip Rates:			0.853			0.864			1.717

Leisure (Town Centre)

TRICS 7.3.2

Trip Rate Para Site area

TRIP RATE for Land Use 07 - LEISURE/C - LEISURE CENTRE

Calculation Factor: 1 hect

Count Type: VEHICLES

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. AREA	Trip Rate	No. Days	Ave. AREA	Trip Rate	No. Days	Ave. AREA	Trip Rate
00:00-01:00									
01:00-02:00									
02:00-03:00									
03:00-04:00									
04:00-05:00									
05:00-06:00									
06:00-07:00	5	1.53	4.954	5	1.53	0.261	5	1.53	5.215
07:00-08:00	6	1.45	9.112	6	1.45	5.536	6	1.45	14.648
08:00-09:00	6	1.45	10.381	6	1.45	8.189	6	1.45	18.57
09:00-10:00	6	1.45	14.533	6	1.45	6.805	6	1.45	21.338
10:00-11:00	6	1.45	12.341	6	1.45	10.035	6	1.45	22.376
11:00-12:00	6	1.45	9.689	6	1.45	11.419	6	1.45	21.108
12:00-13:00	6	1.45	10.496	6	1.45	10.381	6	1.45	20.877
13:00-14:00	6	1.45	13.149	6	1.45	9.919	6	1.45	23.068
14:00-15:00	6	1.45	9.227	6	1.45	10.727	6	1.45	19.954
15:00-16:00	6	1.45	14.994	6	1.45	13.149	6	1.45	28.143
16:00-17:00	6	1.45	19.608	6	1.45	16.263	6	1.45	35.871
17:00-18:00	6	1.45	19.954	6	1.45	20.415	6	1.45	40.369
18:00-19:00	6	1.45	22.491	6	1.45	21.107	6	1.45	43.598
19:00-20:00	6	1.45	16.84	6	1.45	20.646	6	1.45	37.486
20:00-21:00	6	1.45	6.69	6	1.45	14.879	6	1.45	21.569
21:00-22:00	6	1.45	0.923	6	1.45	12.226	6	1.45	13.149
22:00-23:00									
23:00-24:00									
Daily Trip Rates:			195.382			191.957			387.339

TRIP RATE for Land Use 07 - LEISURE/C - LEISURE CENTRE

Calculation Factor: 1 hect

Count Type: OGVS

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. AREA	Trip Rate	No. Days	Ave. AREA	Trip Rate	No. Days	Ave. AREA	Trip Rate
00:00-01:00									
01:00-02:00									
02:00-03:00									
03:00-04:00									
04:00-05:00									
05:00-06:00									
06:00-07:00	5	1.53	0	5	1.53	0	5	1.53	0
07:00-08:00	6	1.45	0	6	1.45	0	6	1.45	0
08:00-09:00	6	1.45	0.231	6	1.45	0.231	6	1.45	0.462
09:00-10:00	6	1.45	0	6	1.45	0	6	1.45	0
10:00-11:00	6	1.45	0	6	1.45	0	6	1.45	0
11:00-12:00	6	1.45	0	6	1.45	0	6	1.45	0
12:00-13:00	6	1.45	0.115	6	1.45	0.115	6	1.45	0.23
13:00-14:00	6	1.45	0.115	6	1.45	0.115	6	1.45	0.23
14:00-15:00	6	1.45	0	6	1.45	0	6	1.45	0
15:00-16:00	6	1.45	0	6	1.45	0	6	1.45	0
16:00-17:00	6	1.45	0	6	1.45	0	6	1.45	0
17:00-18:00	6	1.45	0	6	1.45	0	6	1.45	0
18:00-19:00	6	1.45	0	6	1.45	0	6	1.45	0
19:00-20:00	6	1.45	0	6	1.45	0	6	1.45	0
20:00-21:00	6	1.45	0	6	1.45	0	6	1.45	0
21:00-22:00	6	1.45	0	6	1.45	0	6	1.45	0
22:00-23:00									
23:00-24:00									
Daily Trip Rates:			0.461			0.461			0.922

Leisure

TRICS 7.3.2

Trip Rate Paran Site area

TRIP RATE for Land Use 07 - LEISURE/C - LEISURE CENTRE

Calculation Factor: 1 hect

Count Type: VEHICLES

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. AREA	Trip Rate	No. Days	Ave. AREA	Trip Rate	No. Days	Ave. AREA	Trip Rate
00:00-01:00									
01:00-02:00									
02:00-03:00									
03:00-04:00									
04:00-05:00									
05:00-06:00									
06:00-07:00	10	1.04	8.478	10	1.04	0.867	10	1.04	9.345
07:00-08:00	11	0.99	17.475	11	0.99	9.058	11	0.99	26.533
08:00-09:00	11	0.99	20.22	11	0.99	16.651	11	0.99	31.656
09:00-10:00	11	0.99	15.005	11	0.99	12.717	11	0.99	32.937
10:00-11:00	11	0.99	19.579	11	0.99	17.017	11	0.99	36.596
11:00-12:00	11	0.99	21.5	11	0.99	21.592	11	0.99	43.092
12:00-13:00	11	0.99	19.945	11	0.99	20.22	11	0.99	40.165
13:00-14:00	11	0.99	18.39	11	0.99	21.317	11	0.99	39.707
14:00-15:00	11	0.99	15.919	11	0.99	15.737	11	0.99	31.656
15:00-16:00	11	0.99	28.82	11	0.99	16.285	11	0.99	45.105
16:00-17:00	11	0.99	40.988	11	0.99	28.637	11	0.99	69.625
17:00-18:00	11	0.99	44.556	11	0.99	44.373	11	0.99	88.929
18:00-19:00	11	0.99	38.609	11	0.99	47.575	11	0.99	86.184
19:00-20:00	11	0.99	32.113	11	0.99	35.773	11	0.99	67.886
20:00-21:00	11	0.99	14.73	11	0.99	27.173	11	0.99	41.903
21:00-22:00	10	1.08	4.059	10	1.08	23.616	10	1.08	27.675
22:00-23:00	1	0.46	6.522	1	0.46	10.87	1	0.46	17.392
23:00-24:00									
Daily Trip Rates:			366.908			369.478			736.386

TRIP RATE for Land Use 07 - LEISURE/C - LEISURE CENTRE

Calculation Factor: 1 hect

Count Type: OGVS

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. AREA	Trip Rate	No. Days	Ave. AREA	Trip Rate	No. Days	Ave. AREA	Trip Rate
00:00-01:00									
01:00-02:00									
02:00-03:00									
03:00-04:00									
04:00-05:00									
05:00-06:00									
06:00-07:00	10	1.04	0.096	10	1.04	0.096	10	1.04	0.192
07:00-08:00	11	0.99	0	11	0.99	0	11	0.99	0
08:00-09:00	11	0.99	0.183	11	0.99	0.183	11	0.99	0.366
09:00-10:00	11	0.99	0.091	11	0.99	0.091	11	0.99	0.182
10:00-11:00	11	0.99	0.183	11	0.99	0.091	11	0.99	0.274
11:00-12:00	11	0.99	0.183	11	0.99	0.183	11	0.99	0.366
12:00-13:00	11	0.99	0.091	11	0.99	0.183	11	0.99	0.274
13:00-14:00	11	0.99	0.183	11	0.99	0.091	11	0.99	0.274
14:00-15:00	11	0.99	0.091	11	0.99	0.091	11	0.99	0.182
15:00-16:00	11	0.99	0	11	0.99	0	11	0.99	0
16:00-17:00	11	0.99	0	11	0.99	0	11	0.99	0
17:00-18:00	11	0.99	0	11	0.99	0.091	11	0.99	0.091
18:00-19:00	11	0.99	0	11	0.99	0	11	0.99	0
19:00-20:00	11	0.99	0.183	11	0.99	0.183	11	0.99	0.366
20:00-21:00	11	0.99	0	11	0.99	0	11	0.99	0
21:00-22:00	10	1.08	0	10	1.08	0	10	1.08	0
22:00-23:00	1	0.46	0	1	0.46	0	1	0.46	0
23:00-24:00									
Daily Trip Rates:			1.284			1.283			2.567

Hotel (Town Centre)

TRICS 7.3.2

Trip Rate Param Gross floor area

TRIP RATE for Lai FOOD & DRINK/A - HOTELS

Calculation Factor: 100 sqm

Count Type: VEHICLES

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00-01:00									
01:00-02:00									
02:00-03:00									
03:00-04:00									
04:00-05:00									
05:00-06:00									
06:00-07:00									
07:00-08:00	7	4181	0.181	7	4181	0.304	7	4181	0.485
08:00-09:00	7	4181	0.301	7	4181	0.502	7	4181	0.803
09:00-10:00	7	4181	0.273	7	4181	0.369	7	4181	0.642
10:00-11:00	7	4181	0.249	7	4181	0.232	7	4181	0.481
11:00-12:00	7	4181	0.178	7	4181	0.301	7	4181	0.479
12:00-13:00	7	4181	0.26	7	4181	0.263	7	4181	0.523
13:00-14:00	7	4181	0.226	7	4181	0.174	7	4181	0.4
14:00-15:00	7	4181	0.181	7	4181	0.191	7	4181	0.372
15:00-16:00	7	4181	0.222	7	4181	0.253	7	4181	0.475
16:00-17:00	7	4181	0.304	7	4181	0.239	7	4181	0.543
17:00-18:00	7	4181	0.4	7	4181	0.219	7	4181	0.619
18:00-19:00	7	4181	0.304	7	4181	0.208	7	4181	0.512
19:00-20:00	7	4181	0.304	7	4181	0.229	7	4181	0.533
20:00-21:00	7	4181	0.174	7	4181	0.133	7	4181	0.307
21:00-22:00	7	4181	0.188	7	4181	0.14	7	4181	0.328
22:00-23:00	1	3570	0.308	1	3570	0.392	1	3570	0.7
23:00-24:00									
Daily Trip Rates:			4.053			4.149			8.202

TRIP RATE for Lai FOOD & DRINK/A - HOTELS

Calculation Factor: 100 sqm

Count Type: OGVS

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00-01:00									
01:00-02:00									
02:00-03:00									
03:00-04:00									
04:00-05:00									
05:00-06:00									
06:00-07:00									
07:00-08:00	7	4181	0.003	7	4181	0.003	7	4181	0.006
08:00-09:00	7	4181	0.01	7	4181	0.01	7	4181	0.02
09:00-10:00	7	4181	0.007	7	4181	0.007	7	4181	0.014
10:00-11:00	7	4181	0	7	4181	0	7	4181	0
11:00-12:00	7	4181	0	7	4181	0	7	4181	0
12:00-13:00	7	4181	0.003	7	4181	0.003	7	4181	0.006
13:00-14:00	7	4181	0.003	7	4181	0.003	7	4181	0.006
14:00-15:00	7	4181	0.003	7	4181	0.003	7	4181	0.006
15:00-16:00	7	4181	0.003	7	4181	0.003	7	4181	0.006
16:00-17:00	7	4181	0.003	7	4181	0.003	7	4181	0.006
17:00-18:00	7	4181	0	7	4181	0	7	4181	0
18:00-19:00	7	4181	0.003	7	4181	0.003	7	4181	0.006
19:00-20:00	7	4181	0	7	4181	0	7	4181	0
20:00-21:00	7	4181	0	7	4181	0	7	4181	0
21:00-22:00	7	4181	0	7	4181	0	7	4181	0
22:00-23:00	1	3570	0	1	3570	0	1	3570	0
23:00-24:00									
Daily Trip Rates:			0.038			0.038			0.076

Hotel

TRICS 7.3.2

Trip Rate Para: Gross floor area

TRIP RATE for FOOD & DRINK/A - HOTELS

Calculation Factor: 100 sqm

Count Type: VEHICLES

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00-01:00									
01:00-02:00									
02:00-03:00									
03:00-04:00									
04:00-05:00									
05:00-06:00									
06:00-07:00									
07:00-08:00	11	4359	0.167	11	4359	0.365	11	4359	0.532
08:00-09:00	11	4359	0.346	11	4359	0.553	11	4359	0.899
09:00-10:00	11	4359	0.388	11	4359	0.29	11	4359	0.678
10:00-11:00	11	4359	0.223	11	4359	0.246	11	4359	0.469
11:00-12:00	11	4359	0.188	11	4359	0.259	11	4359	0.447
12:00-13:00	11	4359	0.211	11	4359	0.175	11	4359	0.386
13:00-14:00	11	4359	0.24	11	4359	0.286	11	4359	0.526
14:00-15:00	11	4359	0.165	11	4359	0.209	11	4359	0.374
15:00-16:00	11	4359	0.219	11	4359	0.33	11	4359	0.549
16:00-17:00	11	4359	0.296	11	4359	0.246	11	4359	0.542
17:00-18:00	11	4359	0.398	11	4359	0.229	11	4359	0.627
18:00-19:00	11	4359	0.419	11	4359	0.225	11	4359	0.644
19:00-20:00	11	4359	0.39	11	4359	0.242	11	4359	0.632
20:00-21:00	11	4359	0.211	11	4359	0.133	11	4359	0.344
21:00-22:00	11	4359	0.111	11	4359	0.136	11	4359	0.247
22:00-23:00	1	2550	0.235	1	2550	0.196	1	2550	0.431
23:00-24:00	1	2550	0.039	1	2550	0	1	2550	0.039
Daily Trip Rates:			4.246			4.12			8.366

TRIP RATE for I FOOD & DRINK/A - HOTELS

Calculation Factor: 100 sqm

Count Type: OGVS

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00-01:00									
01:00-02:00									
02:00-03:00									
03:00-04:00									
04:00-05:00									
05:00-06:00									
06:00-07:00									
07:00-08:00	11	4359	0.006	11	4359	0.004	11	4359	0.01
08:00-09:00	11	4359	0.004	11	4359	0.004	11	4359	0.008
09:00-10:00	11	4359	0.013	11	4359	0.008	11	4359	0.021
10:00-11:00	11	4359	0.008	11	4359	0.017	11	4359	0.025
11:00-12:00	11	4359	0.008	11	4359	0.006	11	4359	0.014
12:00-13:00	11	4359	0.008	11	4359	0.006	11	4359	0.014
13:00-14:00	11	4359	0.004	11	4359	0.008	11	4359	0.012
14:00-15:00	11	4359	0.002	11	4359	0.002	11	4359	0.004
15:00-16:00	11	4359	0	11	4359	0	11	4359	0
16:00-17:00	11	4359	0.002	11	4359	0.002	11	4359	0.004
17:00-18:00	11	4359	0.002	11	4359	0.002	11	4359	0.004
18:00-19:00	11	4359	0	11	4359	0	11	4359	0
19:00-20:00	11	4359	0.002	11	4359	0	11	4359	0.002
20:00-21:00	11	4359	0	11	4359	0	11	4359	0
21:00-22:00	11	4359	0	11	4359	0	11	4359	0
22:00-23:00	1	2550	0	1	2550	0	1	2550	0
23:00-24:00	1	2550	0	1	2550	0	1	2550	0
Daily Trip Rates:			0.059			0.059			0.118

Hospital (Town Centre)

TRICS 7.3.2

Trip Rate P Gross floor area

TRIP RATE for Land Use 05 - HEALTH/A - GENERAL HOSPITAL - WITH CASUALTY

Calculation Factor: 100 sqm

Count Type: VEHICLES

Time Range	No. Days	Ave. GFA	ARRIVALS		DEPARTURES		TOTALS		
			Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00-01:00									
01:00-02:00									
02:00-03:00									
03:00-04:00									
04:00-05:00									
05:00-06:00									
06:00-07:00	1	53146	0.341	1	53146	0.103	1	53146	0.444
07:00-08:00	13	84250	0.615	13	84250	0.202	13	84250	0.817
08:00-09:00	13	84250	0.741	13	84250	0.258	13	84250	0.999
09:00-10:00	13	84250	0.579	13	84250	0.293	13	84250	0.872
10:00-11:00	13	84250	0.4	13	84250	0.329	13	84250	0.729
11:00-12:00	13	84250	0.322	13	84250	0.333	13	84250	0.655
12:00-13:00	13	84250	0.305	13	84250	0.378	13	84250	0.683
13:00-14:00	13	84250	0.423	13	84250	0.37	13	84250	0.793
14:00-15:00	13	84250	0.43	13	84250	0.422	13	84250	0.852
15:00-16:00	13	84250	0.357	13	84250	0.498	13	84250	0.855
16:00-17:00	13	84250	0.267	13	84250	0.655	13	84250	0.922
17:00-18:00	13	84250	0.24	13	84250	0.602	13	84250	0.842
18:00-19:00	13	84250	0.276	13	84250	0.364	13	84250	0.64
19:00-20:00	12	70698	0.229	12	70698	0.27	12	70698	0.499
20:00-21:00	12	70698	0.132	12	70698	0.277	12	70698	0.409
21:00-22:00	9	80473	0.061	9	80473	0.094	9	80473	0.155
22:00-23:00									
23:00-24:00									
Daily Trip Rates:			5.718			5.448			11.166

TRIP RATE for Land Use 05 - HEALTH/A - GENERAL HOSPITAL - WITH CASUALTY

Calculation Factor: 100 sqm

Count Type: OGVS

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00-01:00									
01:00-02:00									
02:00-03:00									
03:00-04:00									
04:00-05:00									
05:00-06:00									
06:00-07:00	1	53146	0.002	1	53146	0.006	1	53146	0.008
07:00-08:00	13	84250	0.005	13	84250	0.003	13	84250	0.008
08:00-09:00	13	84250	0.006	13	84250	0.005	13	84250	0.011
09:00-10:00	13	84250	0.006	13	84250	0.006	13	84250	0.012
10:00-11:00	13	84250	0.007	13	84250	0.006	13	84250	0.013
11:00-12:00	13	84250	0.006	13	84250	0.006	13	84250	0.012
12:00-13:00	13	84250	0.005	13	84250	0.005	13	84250	0.01
13:00-14:00	13	84250	0.005	13	84250	0.006	13	84250	0.011
14:00-15:00	13	84250	0.005	13	84250	0.005	13	84250	0.01
15:00-16:00	13	84250	0.003	13	84250	0.005	13	84250	0.008
16:00-17:00	13	84250	0.003	13	84250	0.004	13	84250	0.007
17:00-18:00	13	84250	0.002	13	84250	0.002	13	84250	0.004
18:00-19:00	13	84250	0.002	13	84250	0.003	13	84250	0.005
19:00-20:00	12	70698	0.001	12	70698	0.002	12	70698	0.003
20:00-21:00	12	70698	0.001	12	70698	0.001	12	70698	0.002
21:00-22:00	9	80473	0.001	9	80473	0.001	9	80473	0.002
22:00-23:00									
23:00-24:00									
Daily Trip Rates:			0.06			0.066			0.126