WYG Transport Planning

Breckland Council

Local Plan Transport Study: Dereham

Study Report

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EXECUTIVE SUMMARY

This report presents the findings of a study of the transport impacts of the committed and potential land-use developments in Dereham and the surrounding area of Breckland district. The report shows how development is likely to affect the transport network and the new transport measures that will be required to mitigate the cumulative impacts of this development.

Breckland Council commissioned the study and the scope and methodology were agreed with the highway authority, Norfolk County Council. The study is divided into three stages. **Stage 1** is to forecast how the committed and potential developments would affect traffic movements and where this is likely to cause significant congestion problems, above and beyond those that already exist. **Stage 2** is a review of the various assumptions about development and traffic that were made in Stage 1 to assess whether other assumptions would be more appropriate and acceptable. **Stage 3** goes on to assess the impact of the potential developments on highway capacity and then presents the proposed highway improvements that would be required to mitigate the effects of development traffic.

The study focuses on Dereham but also takes account of the committed and potential development in Mattishall and Yaxham. It uses existing travel behaviour as a baseline and then tests the effects of background traffic growth, trips generated by committed development and the potential Local Plan allocations on the highway network. New data about vehicle flows and queues was collected at key junctions on the network.

Different scenarios of land use were tested, to show the impacts of building new homes in different areas of the town. The growth scenarios were mainly to the south of the A47 but did include a small number to the north and east of the town centre. The scenarios have each been tested over different timescales, so the network capacity has been tested in 2020, 2026 and 2036 for each scenario.

Future traffic movements across the network were forecast and then detailed junction models were built for the key junctions to test whether they would be able to cope with the forecast increases in traffic. The models provide forecasts of delay and traffic queues at each junction for each development scenario in each assessment year. The results show that some key junctions are either already congested or likely to become congested in all growth scenarios if no mitigation or intervention was to come forward.

The modelling results have been summarised to give an overall classification for each junction of: 'Adequate Capacity', 'Risk of Over-capacity' and 'Over-capacity'.

The results suggest that certain junctions on the existing highway network are already over capacity, largely caused by the constraint at the Tavern Lane/Yaxham Road signalised junction. This junction would need to be improved under all growth scenarios. The South Green / Tavern Lane junction is also at risk of over-capacity in all scenarios. Other junctions do not have the required capacity to cope with the cumulative effects of some of the larger scale development scenarios without intervention. Different levels of development would require different mitigations measures at certain years within the Local Plan period.

All of the scenarios tested exclude any interventions and the analysis shows that overall the network does not have the required capacity to cope with all of the cumulative effects of development. These impacts could be reduced or mitigated if different land use scenarios were developed or if junction capacities can be increased.

Stage 2 of the study considered whether alternative assumptions about the amount and location of the potential developments would be more appropriate and whether different assumptions about traffic growth would be more realistic. This stage focussed the transport study into four key junctions and improvement schemes were then developed for these junctions in Stage 3.

A separate assessment of development in Mattishall and Yaxham was completed. This showed that traffic congestion is not likely to be a major problem in the villages but that there is likely to be some increase in traffic through Mattishall as a result of new development in Dereham and in the village itself. The impact of traffic on the environment and road safety is a concern in the villages. However, the dualling of the A47 is likely to reduce the amount of day-to-day traffic through the villages and also reduce the number of incidents on the A47 that often cause drivers to use this route between Dereham and Norwich. The report also considers the different options for the location of potential new housing development in Mattishall.

The study has also considered existing road safety issues and sustainable transport options and how new developments could affect these. Some of the key junctions and road links have an existing accident record that is a concern and development proposals may need to address these issues in due course. Existing bus services already pass the proposed development sites, although the frequencies are low at some of the sites. Again, this may need to be addressed at a later stage of the planning process in order to increase the sustainability of some of the sites.

1 INTRODUCTION

1.1

1.1.1 WYG has been commissioned by Breckland Council to carry out a study of the transport impacts of proposed and potential land-use developments in Dereham and the surrounding area. The Emerging Single Local Plan is due to replace the existing Development Plan and is currently progressing through the required stages of consultation. Information is required to show how the growth options and levels of growth within the emerging plan options would affect the transport network and if new transport infrastructure and/or measures are required to mitigate the cumulative impacts of this growth.

1.1.2 The study is intended to contain three stages. Stage One focuses on producing junction models of the signal controlled and roundabout junctions to identify and draw conclusions as to whether the identified impacts are acceptable with regard to the development options and growth levels coming forward. Stages Two and Three are secondary stages that are finer grained studies that add more detail to the modelling and review the transport solutions that would be required to facilitate growth and propose costed solutions to address the issues that have been identified.

1.1.3 The study focuses on one of the key locations for growth in the district, Dereham and the villages of Mattishall and Yaxham. Breckland Council is currently considering the level and locations of growth across the district through the emerging Local Plan. The Preferred Directions Local Plan consultation document currently seeks to allocate 910 dwellings in Dereham along with some additional small levels of growth in nearby local service centres. However Dereham is the focus of a number of applications and increased market pressure and there is the potential through site options for additional growth to be allocated.

1.1.4 To date, the committed developments that already have planning permission have provided site-specific highway improvements, but no assessment has been made of the need to provide improvements that address the cumulative needs of the proposed development. Concern has been expressed by elected members, Dereham Town Council and local residents that the highway network does not have the capacity to cope with the cumulative impacts of the proposed and committed developments in the town.

1.1.5 Consideration has been given in the preparation of this study to the following national and local transport policy documents considered to be relevant to the Local Plan Transport Study:

National Policy

- Transport White Paper: Creating Growth, Cutting Carbon: Making Sustainable Local Transport happen
- National Planning Policy Framework
- Transport Evidence Bases in Plan Making and Decision Taking

Local Policy

- Norfolk County Council – Local Transport Plan 3
- Norfolk County Council – Safe, Sustainable Development guidance
- Breckland District Local Plan – Issues and Options Consultation
- Breckland District Local Plan – Preferred Directions Consultation

1.2 REPORT SCOPE

1.2.1 The project brief required a study of the cumulative effects of the different land-use proposals in the town in order to inform the Preferred Options consultation process. There are local concerns about the ability of the existing road network to cope with the proposed increase in development traffic so Stage 1 of the study quantifies the traffic impacts of the proposed development, Stage 2 refines the potential development sites and traffic assumptions and Stage 3 presents the proposed improvement schemes at the key junctions. Road capacity is constrained at the junctions in the town so junction modelling is a key element, but other issues have also been taken into account, such as road safety and sustainable transport.

1.2.2 The scope of the study was discussed and agreed with Breckland Council and Norfolk County Council. Key junctions were identified through collaboration with the Council, Norfolk County Council (Highways officers) and the Town Council, which were perceived to be either already congested or likely to become congested if the development proceeds and these form the focus of the study.

1.3 REPORT FORMAT

1.3.1 The structure of this report is as follows:

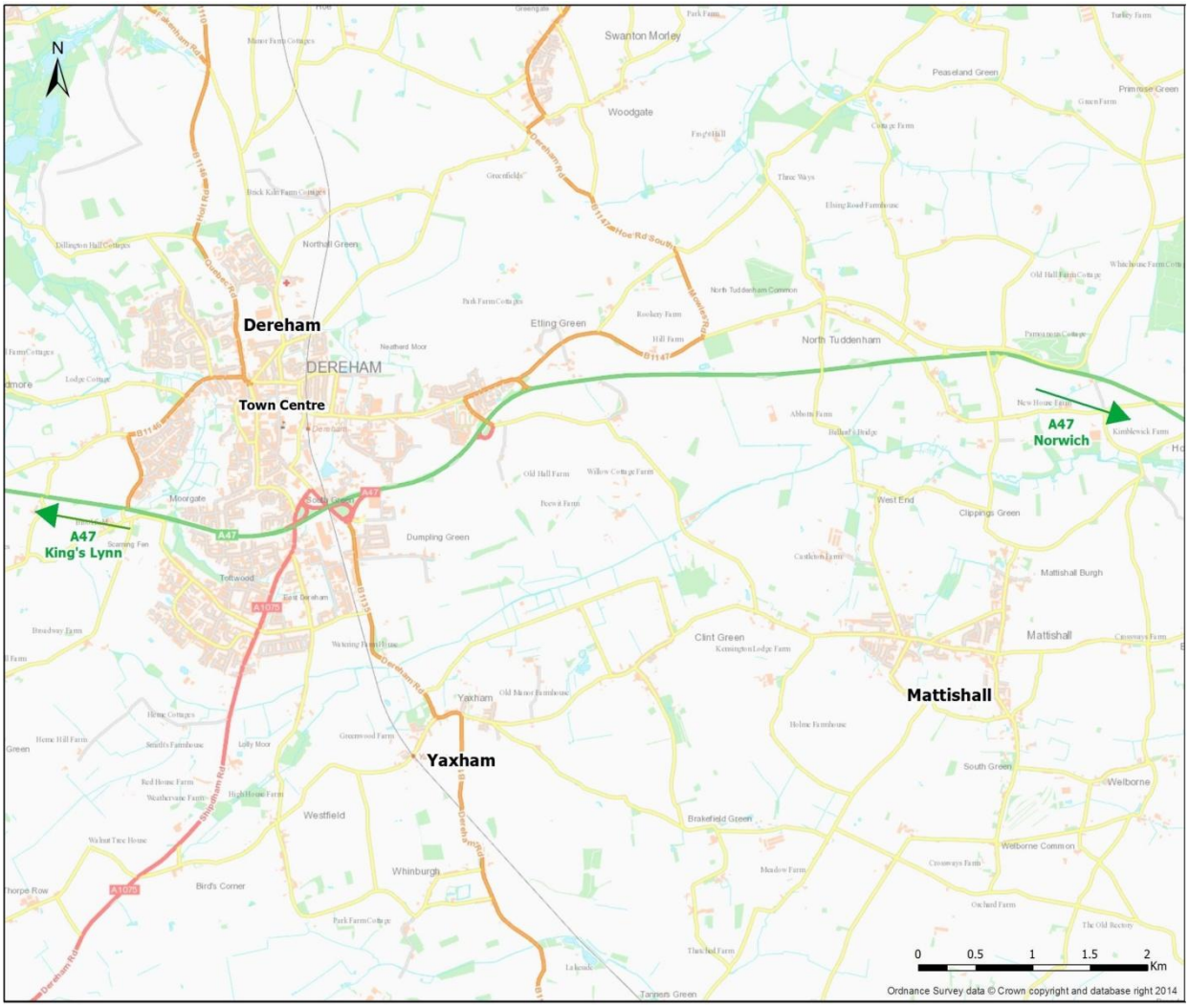
- Section 2 describes existing transport conditions;
- Section 3 outlines the committed development proposals and existing allocations;
- Section 4 sets out potential growth scenarios for assessment;
- Section 5 presents the Stage 1 highway capacity assessment work;
- Section 6 reports the initial highway capacity results from Stage 1;
- Section 7 presents the Stage 2 refinement of potential development sites and assumptions;
- Section 8 sets out the revised scope of junction capacity assessment;
- Section 9 shows the Stage 3 revised highway capacity results;
- Section 10 presents the Stage 3 proposed highway mitigation measures;
- Section 11 includes the transport study relating to Mattishall and Yaxham;
- Section 12 sets out the sustainable transport context relating to the proposed development sites; and
- Section 13 summarises the report.

2 EXISTING CONDITIONS

2.1 DEREHAM AND SURROUNDING AREA

2.1.1 Dereham is one of five market towns in Breckland District and one of the key centres identified for sustainable growth in the existing Core Strategy and the emerging Local Plan. It has a population of over 18,000 serving a large rural hinterland of Breckland and is also an origin of commuter trips into Norwich due to the good connections provided by its proximity to the A47 Trunk road. The town has been identified as a preferred growth area in the emerging Breckland Local Plan. **Figure 1** shows Dereham and the surrounding area.

Figure 1: Study Location



2.2 EXISTING HIGHWAY NETWORK

2.2.1 The town lies to the north of the A47 with the town centre linked to the A47 by London Road and Yaxham Road. There is a one-way system in the town centre but the study focuses more on the road network to the south and east of the town centre because this is where most of the proposed development and site options are located. Toftwood is the part of the town that lies to the south of the A47 and is linked to the town centre by two roads that pass beneath the A47.

2.2.2 The A47 is a Trunk road that links Norwich to Kings Lynn, Peterborough and the Midlands. It is a strategically important route that is a mixture of single and dual carriageway. It has three main junctions with roads into Dereham, to the east, west and centre of the town. The central A47 junction has on and off slip roads that connect with the local road network at a roundabout to the south and a priority junction to the north of the A47.

2.2.3 The study area was agreed with the District Council and County Council and is shown in **Figure 2**. The study area is made up of nine key junctions in the town plus the key junction in the centre of Mattishall. Four of these junctions are located adjacent to the main A47 junction, three are on the radial routes to the south of the town and the other two are at key locations to the north and east of the town centre.

Figure 2: Study Area

2.2.4 The following photographs show (clockwise from top left) the junctions of Yaxham Road/Greens Road, Yaxham Road/Tavern Lane, Kings Road/Swanton Road and a southbound queue on Yaxham Road approaching the Tavern Lane signals.

2.3 TRAFFIC SURVEYS

2.3.1 In order to gain an understanding of current network conditions, traffic surveys were undertaken at the key junctions in November 2015. These included traffic volume surveys at the junctions to quantify existing demand and queue length surveys to give an indication about existing traffic congestion. The locations of these surveys are shown in **Figure 3** and are set out in **Tables 1 and 2**.

Figure 3: Traffic Survey Locations

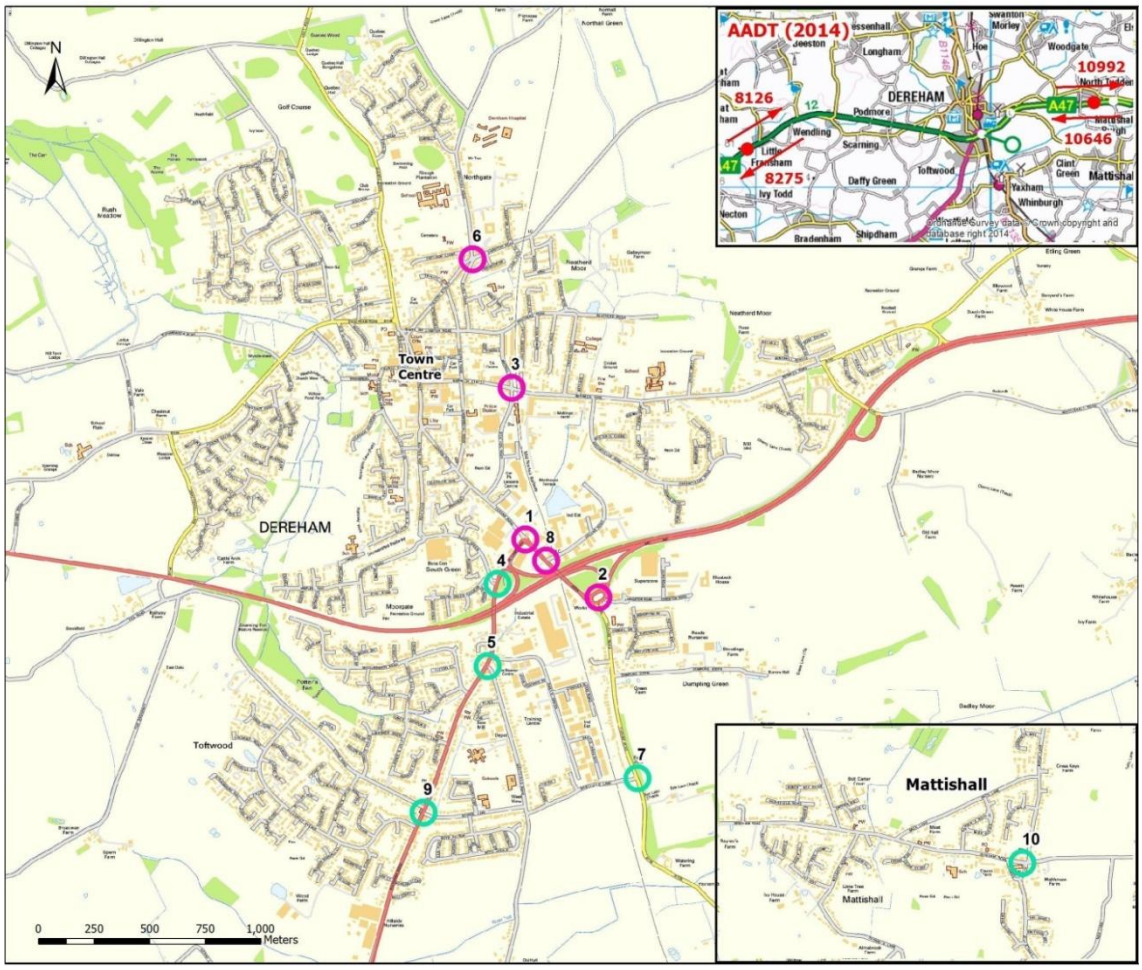


Table 1 – Traffic Volume Surveys (November 2015)

	Junction	Type
1	Tavern Lane / Yaxham Road	3 arm, Signalised
2	A47 Westbound / Yaxham Road (Tesco roundabout)	4 arm Roundabout
3	Matsell Way / Norwich Road (B1110)	4 arm, Signalised
4	South Green / Tavern Lane	3 arm Priority junction
5	Shipdham Road (A1075) / Westfield Road	3 arm Priority junction
6	Kings Road / Swanton Road (B1147)	4 arm Priority junction
7	Yaxham Road (B1135) / Westfield Lane	3 arm Priority junction
8	Yaxham Road / Greens Road	4 arm, Signalised
9	School Lane / Shipdham Road	3 arm Priority junction
10	Dereham Road / Church Plain / Burgh Lane, Mattishall	4 arm Priority crossroads

Table 2 – Queue Length Surveys (November 2015)

	Link
1	Tavern Lane eastbound from its junction with Yaxham Road
2	Yaxham Road in both directions between Station Road and the Tesco roundabout
3	Station Road / Norwich Road junction
4	Kings Road / Swanton Road junction
5	A47 Eastbound and Westbound offslips

2.3.2 In order to quantify and define traffic queues these surveys measured queues as stationary and/or slow moving traffic travelling less than 5mph, for each individual lane on the link (Worst Case within 5 Min Period). The full turning count results are presented in **Appendix A**.

2.4 CONGESTION ANALYSIS

2.4.1 The queue length survey results are shown in **Figures 4** and **5**.

Figure 4: Queue Length Survey Results

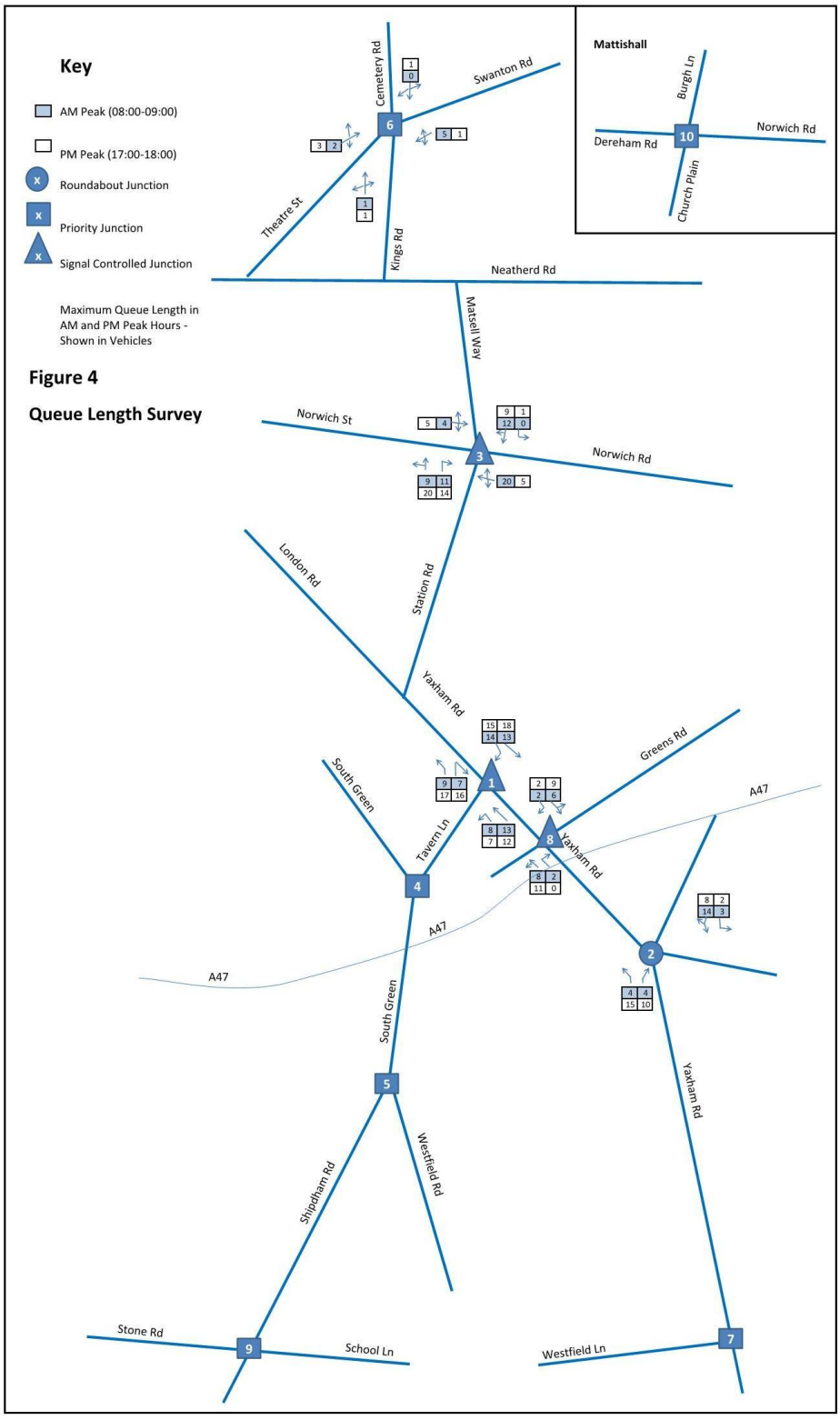
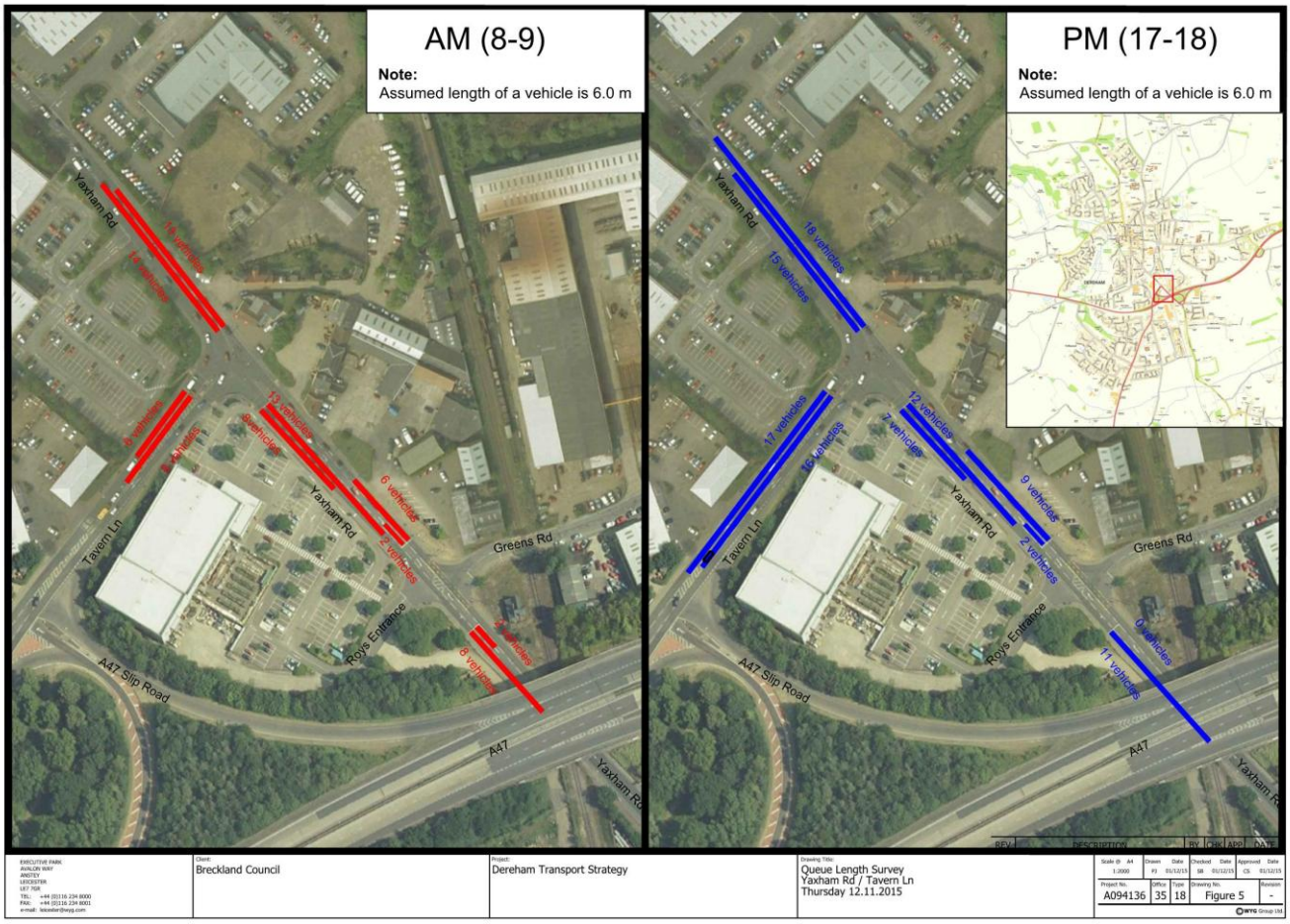


Figure 5: Queue Length Survey Results Yaxham Road



2.4.2 The surveys show that there is some existing congestion on the local road network, especially on the approaches to the Tavern Lane / Yaxham Road junction that appears to be the main constraint to traffic movement in this part of the town. All the main routes between the town centre, the A47 and areas to the south converge at this signalised junction and the adjacent linked signalised junction at Greens Road / Roys Superstore. In addition to the volume of traffic moving through these junctions, there are also local businesses that have accesses on this busy section of Yaxham Road which generates turning movements across the main carriageway, with an impact on junction capacity.

2.4.3 Queues were also observed at the Yaxham Road / Tesco Roundabout, on the A47 slip road in the AM peak and on Yaxham Road northbound in the PM peak.

2.4.4 There were queues at the Matsell Way / Norwich Road signalised junction with a maximum queue of 20 vehicles in both the AM and PM peak hours.

2.4.5 There were no significant queues at the Kings Road / Swanton Road priority controlled crossroads, with the largest queue observed being 5 vehicles on Swanton Road in the AM peak.

2.5 DEREHAM COLLISION HISTORY

2.5.1 Vehicle collision data has been provided by Norfolk County Council for Dereham and Mattishall for the 5 year period covering November 2010 to October 2015. The data is shown in **Figures 6** and **7** and **Table 3**.

2.5.2 The figures and tables show that there have been significant numbers of collisions on some of the main roads through the study area. Personal injury accidents are classified as Slight, Serious and Fatal, depending on the severity of the injuries that are sustained by the casualties.

Table 3 – Dereham 5 Year Personal Injury Accidents (Nov 2010-Oct 2015)

	Slight	Serious	Fatal	Total
A47	7	0	3	10
Yaxham Road	8	1	0	9
South Green / Shipdham Road	10	3	0	13
Westfield Road	2	0	0	2
Station Road	8	0	0	8
Tavern Lane	1	0	0	1
Kingston Road	1	0	0	1
Totals	**37**	**4**	**3**	**44**

2.5.3 There have been three fatal collisions on the section of the A47 through Dereham in the last 5 years. One involved a vehicle undertaking a dangerous overtaking manoeuvre in wet conditions colliding with a vehicle travelling in the opposite direction. The passenger in the car suffered fatal injuries. The second involved a vehicle leaving the carriageway and hitting a tree. There was one fatality and serious injuries to the passengers. The third involved a pedestrian in the carriageway that was struck by a vehicle. The accident happened in wet

conditions at night where there was no street lighting. There were also seven Slight collisions recorded on the A47.

2.5.4 Road safety on Yaxham Road to the south of the A47 appears to be good with just one Slight collision that happened at the Tesco arm of the A47 slip road roundabout.

2.5.5 There was a cluster of accidents along Yaxham Road to the north of the A47 where nine injury collisions occurred, concentrated at the two signalised junctions and the mini-roundabout junction with Station Road.

2.5.6 The South Green / Shipdham Road route had 13 collisions in the five year period (10 Slight and 3 Serious). There were also clusters of collisions at junctions along Station Road, including two slight accidents at the signalised junction with Norwich Road.

2.5.7 There were no collisions recorded at the Kings Road / Swanton road junction during the 5 year period.

2.6 MATTISHALL COLLISION HISTORY

2.6.1 **Figure 7** and **Table 4** show that there have been very few accidents in Mattishall in the 5 year period with two Slight accidents on the main road, one Slight and one Serious accident on Mill Street and one Slight accident on Back Lane. There were no accidents at the Burgh Street / Dereham Road junction. Although all accidents are a concern, the results suggest that there is not a major issue with road safety in the village. Dereham Road is traffic calmed with road humps, junction tables and road narrowings which helps to keep vehicle speeds low through the centre of the village.

Table 4 – Mattishall 5 Year Personal Injury Accidents (Nov 2010-Oct 2015)

	Slight	Serious	Fatal	Total
Dereham Road	2	0	0	2
Other Roads	2	1	0	3
Totals	4	1	0	5

3 COMMITTED DEVELOPMENTS

3.1 INTRODUCTION

3.1.1 Dereham was identified as a key sustainable settlement in the existing adopted Breckland Core Strategy and a preferred location for growth in the emerging Local Plan. At the time of producing this report there are 396 residential commitments in the town that have extant planning permission and a further 180 commitments that were allocated in the existing Core Strategy. Most of these commitments are on small sites for which access issues have been addressed but there are no wider transport improvement schemes to address the cumulative effects of the development in the town.

3.1.2 In addition to development in Dereham the emerging Local Plan also advocates small scale growth in the local service villages surrounding Dereham. These villages have their own transport concerns about the implications of development in Dereham but also their development contributes to transport issues in Dereham. These issues are explored within the study report.

3.2 COMMITTED LAND USE DEVELOPMENTS

3.2.1 The list of development sites that have been treated as committed and added into the transport baseline is presented in **Table 5** and **6**. This list includes sites with extant planning permissions and existing allocations in the Local Plan. A more detailed table of committed developments is included in **Appendix B**.

Table 5 – Committed Developments in Dereham

Ref No.	Development Site	Number of Dwellings
D1a	The Old Maltings Phase 1 (existing site allocation, no Planning Permission)	50
D1b	The Old Maltings Phase 2	130
D2a	Greenfields Road/ Weatcroft Way Phase 1	220
D2b	Greenfields Road/ Weatcroft Way Phase 2	80
D3	Norwich Road (existing site allocation)	176
BP1	Aldi Food Retail, Dereham Business Park	1500m^2 GFA
BP2	Mixed Use Development, Dereham Business Park	A4/A5/B2

Table 6 – Other Committed Developments and Appeals

	Development Site	Number of Dwellings
1	Yaxham – Land off Elm Close	45
2	Mattishall – Land South of Dereham Road (awaiting Appeal outcome)	65 or 95
3	Mattishall – Land North of Dereham Road	16
4	Mattishall – Land Off Cedar Rise	35

3.2.2 Forecasts of the transport impacts of these developments have been produced in this study, using the associated Transport Assessments where possible, or new forecasts of trip generation, distribution and assignment where necessary. The trip rates and distributions that were used to forecast vehicle movements from committed sites in the absence of Transport Assessments were discussed and agreed with Norfolk County Council.

3.2.3 For each site a traffic distribution and assignment forecast was produced that could then be combined to assess the cumulative effects of all development. Development scenarios were devised by Breckland Council that were designed to test the effects of different packages of development with and without some of these allocated schemes. The different scenarios tested are set out in detail in the following chapter.

3.3 COMMITTED TRANSPORT PROJECTS

3.3.1 Norfolk County Council confirmed that there are no transport schemes in their investment programme that will have a material impact on the movement of traffic through the study area. However, the dualling of the A47 Trunk Road between North Tuddenham and Easton by Highways England has been given approval to proceed by the Government as part of the Road Investment Strategy. The scheme is one part of a package of improvements along the A47. The scheme aims to improve highway capacity and road safety between Dereham and Norwich. One potential outcome is that the scheme would lead to a reduction in traffic that uses the parallel routes, such as the Yaxham - Mattishall route.

4 LOCAL PLAN DEVELOPMENT SCENARIOS

4.1 INTRODUCTION

4.1.1 Significant housing growth has been proposed in Dereham through the Single Local Plan process and a Preferred Options consultation exercise is planned in 2016. In order to test the ability of the highway network to cope with generated traffic in the future it was necessary to devise a series of different land-use development scenarios.

4.2 LOCAL PLAN DEVELOPMENT LEVELS

4.2.1 Different levels of Local Plan growth were used to derive the detailed scenarios to be assessed. The starting point was the Preferred Option of growth in the District, which is 6.1% as shown in Table 7. Higher growth versions of the Preferred Option were also included, to test the effects of medium and high growth scenarios plus a Southern Expansion scenario that focuses an even higher level of growth at the southern edge of the town.

Table 7 – Dereham Development Growth

Scenario	Growth Level	Total No. of required dwellings	Completions 2011-2015	Commitments 2011-2015	Residual Local Plan Requirement
Baseline	6.1%	910	176	576	**158**
Mid Growth	8%	1,194	176	576	**442**
High Growth	10%	1,493	176	576	**741**
South Expansion	18%	2,676	176	576	**1,924**

4.3 ASSESSMENT YEARS

4.3.1 The phasing of development to be assessed was agreed by the District and County Councils to be:

- 2015-2020
- 2021-2026
- 2027-2036

4.3.2 The highway capacity tests were completed for the final year of these time periods when all development in that phase will be complete, i.e. 2020, 2026 and 2036.

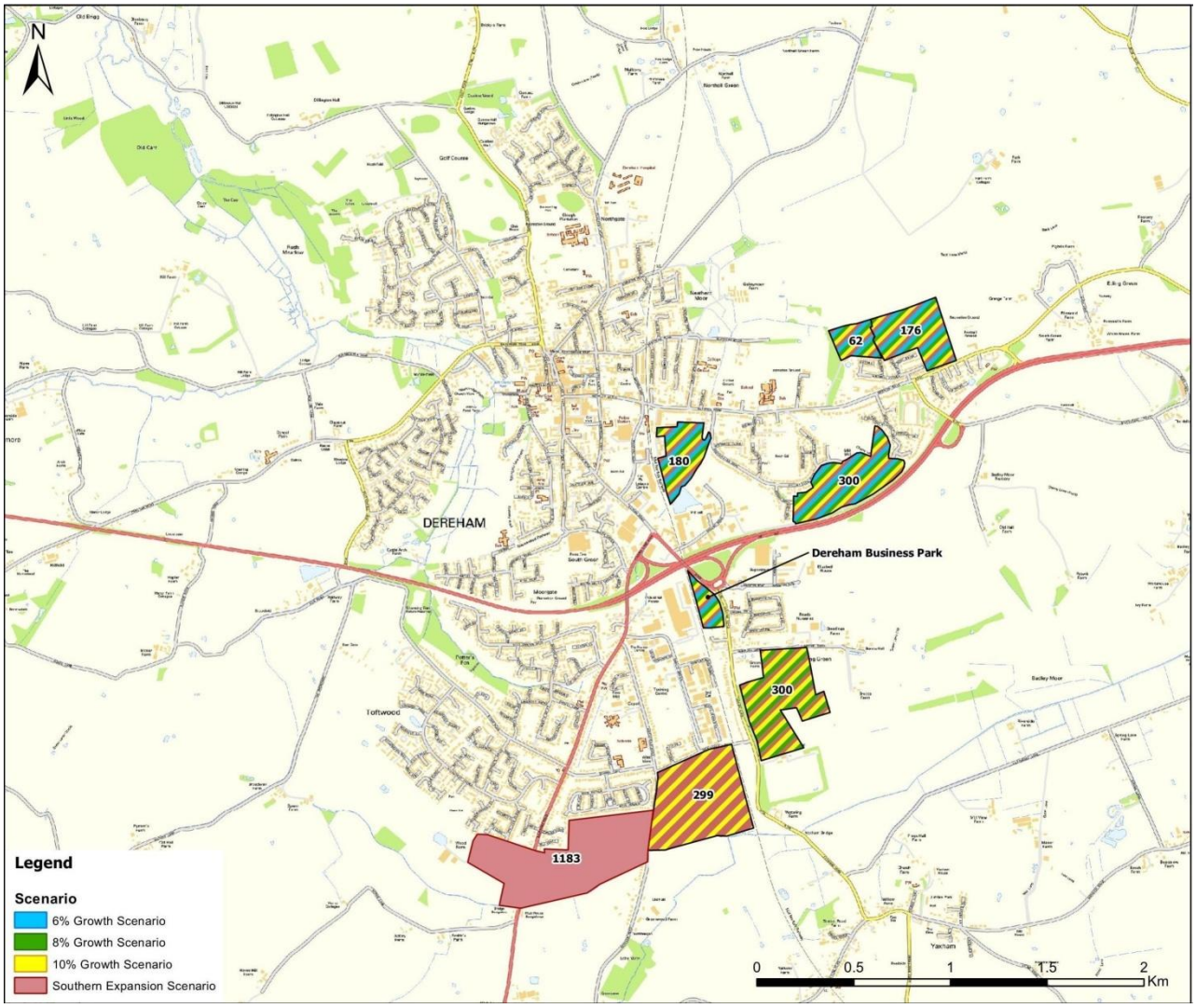
4.3.3 Traffic survey data was interrogated to identify the peak hours of vehicle movement in the town. As a result of this it was decided to carry out highway capacity assessments for the following peak hours:

- AM Peak 8.00 AM – 9.00 AM
- PM Peak 5.00 PM - 6.00 PM

4.4 DETAILED DEVELOPMENT SCENARIOS

4.4.1 The content and phasing of the different scenarios is presented in **Table 8** and **Figure 8**. Some sites, such as Greenfields Road /Weatcroft Way Phase 1 (D2a) and the Norwich Road development are included in all scenarios and in all time periods because there is a high level of certainty that they will be constructed within the next five years. Other allocated sites have been excluded from the early phases because there is a risk that they will not be complete by 2021.

Figure 8: Potential Development Sites



4.4.2 Indicative potential growth scenarios have been selected by Breckland Council in conjunction with NCC in order to meet the different potential levels of growth and test the effects on the road network. Selection of the growth scenarios is based on previous discussions with scheme promoters, local knowledge, including known site constraints and existing applications along with site submissions into the emerging Local Plan.

4.4.3 The Baseline scenario (6.1% growth) mainly includes the already committed sites and some site extensions plus a small amount of additional housing to make up the deficit. These sites are grouped mainly to the North of the A47. The Medium Growth (8%) scenario adds a further

300 dwellings at the sequential site to the East of Yaxham Road (known as the Hopkins Homes site). The High Growth scenario adds sequentially a further 300 dwellings at the site to the south of Westfield Lane at the south end of the town. The maximum growth scenario is reflected in the site options located at the southern edge of the town, providing additional housing between Yaxham Road and Shipdham Road, which could be connected by a link road through the site. This area has been estimated to have capacity for 1,183 additional dwellings.

4.4.4 Residential development in Mattishall and Yaxham is assumed to be the same in each growth scenario.

Table 8 – Development Scenarios

Ref No.	Development Site	No. Units	Baseline Growth 6.1%			Medium Growth 8%			High Growth 10%			Southern Expansion 18%		
			2021	2026	2036	2021	2026	2036	2021	2026	2036	2021	2026	2036
Committed and Existing Allocations														
D1a	The Old Maltings Phase 1	50		✓	✓		✓	✓		✓	✓		✓	✓
D1b	The Old Maltings Phase 2	130			✓			✓		✓	✓		✓	✓
D2a	Greenfields/ Weatcroft Phase 1	220	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
D2b	Greenfields/ Weatcroft Phase 2	80		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
D3	Norwich Road	176	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
BP	Dereham Business Park		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
New Allocations														
1	Etling View West Ext	62		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
2	Windfall sites North Dereham	16			✓									
3	East of Yaxham Rd (Hopkins) Ph1	100				✓	✓	✓	✓	✓	✓	✓	✓	✓
4	East of Yaxham Rd (Hopkins) Ph2	200					✓	✓		✓	✓		✓	✓
5	Westfield Lane (East part of Link Rd)	299									✓		✓	✓
6	Shipdham Rd / Yaxham Rd / Link Rd	1183												✓
Service Centre Growth														
M1	Mattishall Housing Phase 1	70	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
M2	Mattishall Housing Phase 2	60		✓	✓		✓	✓		✓	✓		✓	✓
M3	Mattishall Housing Phase 3	98			✓			✓			✓			✓
Y1	Yaxham Housing Phase 1	35	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Y2	Yaxham Housing Phase 2	20		✓	✓		✓	✓		✓	✓		✓	✓
Y3	Yaxham Housing Phase 3	34			✓			✓			✓			✓

5 HIGHWAY CAPACITY ASSESSMENT

5.1 INTRODUCTION

5.1.1 The forecast highway capacity has been assessed using the following methodology:

1. Quantify current highway conditions using survey data
2. Forecast how background traffic is expected to increase to the assessment years
3. Add vehicle movements from committed developments
4. Forecast vehicle movements generated by potential new Local Plan allocation sites
5. Test the effect of forecast traffic on junction capacity

5.2 TRAFFIC GROWTH

5.2.1 In order to obtain forecast year traffic flows traffic growth forecasts have been extracted from the Trip End Model Presentation Program (TEMPro) and the National Trip End Model traffic growth forecasts that are produced by the Department for Transport. They are individually calculated for each zone in the country, including Dereham and are based on Local Plan growth forecasts. The resulting growth factors for Dereham are displayed below:

- 2015 to 2020 AM = 1.046
- 2015 to 2020 PM = 1.050

- 2015 to 2025 AM = 1.134
- 2015 to 2025 PM = 1.144

- 2015 to 2035 AM = 1.281
- 2015 to 2035 PM = 1.305

5.2.2 The growth factors have been applied to the 2015 observed traffic flows to produce 2020, 2025 and 2035 background traffic flows, as shown in **Appendix C**.

5.3 TRIP RATES

5.3.1 The trip rates that were used to forecast vehicle movements for the potential development sites were discussed and agreed with Norfolk County Council as Highway Authority. Some of the development sites that have been through the planning process have associated Transport

Assessments, in this situation the forecasts of traffic generation and distribution have been extracted from the available Transport Assessments and used within this study.

5.3.2 Trip rates for new development were derived using the Trip Rate Information Computer System (TRICS) v7.2.3 to derive the traffic generation forecasts. TRICS uses empirical data from actual development sites to produce a trip rate which can be applied to potential sites with similar characteristics. The proposed allocation sites are all residential so the trip rate was calculated using the following assumptions:

- Houses Privately Owned
- Vehicle trip rate (as opposed to multi-modal)
- All Regions except Gtr London, Wales, Scotland and Ireland
- Weekday surveys only
- Date range Jan 2007 to December 2014
- Number of dwellings: All sites
- Secondary filtering – include whole sample
- 85th percentile trip rates (combined arrivals and departures)

5.3.3 This represents a robust forecast of the volume of traffic that will be generated by the residential developments. The peak hour trip rates for the sample of sites generated by these parameters are presented in **Table 9**. This shows how many vehicle trips are expected to be generated by each residential dwelling during the peak hour. The full TRICS outputs are presented in **Appendix D**.

5.3.4 Trip rates are influenced by the availability of sustainable modes of travel (bus, cycle and pedestrian facilities). The sample taken from TRICS represents typical residential developments with 'average' levels of sustainable access. If the actual development sites are supported by better than average facilities when they are brought forward it could promote alternative modes of travel and reduce trip generation by car. However, at this stage it has been assumed that an average level will be provided for each site. In some cases, such as where bus services are currently very limited, the provision of average levels of sustainable access would represent a significant improvement.

5.3.5 These rates were applied to the expected numbers of dwelling units at the potential development sites where no previous traffic forecasts have been made.

Table 9 – Residential Trip Rates

	Arrival Trip Rate	Departure Trip Rate	Total
08:00 - 09:00	0.243	0.491	0.734
17:00 - 18:00	0.405	0.369	0.774

5.4 TRAFFIC GENERATION

5.4.1 **Table 10** presents the traffic generation forecasts for the developments in Dereham, Mattishall and Yaxham. The trip rates presented in the previous section were applied to the proposed number of dwellings to give the total trip generation for each site. The table shows which sites have associated Transport Assessments (TA) from which traffic forecasts have been extracted.

Table 10 – Traffic Generation by Site (vehicles per hour)

Site	Units	TA	Traffic Generation (vehicles/hour)			
			AM		PM	
			Arrivals	Departures	Arrivals	Departures
The Old Maltings Phase 1	50		12	25	20	18
The Old Maltings Phase 2	130		32	64	53	48
Greenfields/ Weatcroft Phase 1	220	TA	52	125	97	50
Greenfields/ Weatcroft Phase 2	80	TA	19	45	35	18
Norwich Road	176		43	86	71	65
Dereham Business Park	N/A	TA	27	12	40	59
Etling View West Ext	62	TA	12	17	14	10
North Dereham and windfall	16		4	7	6	6
East of Yaxham Rd (Hopkins) Ph1	100	TA	24	33	34	29
East of Yaxham Rd (Hopkins) Ph2	200	TA	47	66	67	58
Westfield Lane (East part of Link Rd)	299		73	147	121	110
Shipdham Rd/ Yaxham Rd/ Link Rd	1183		287	581	479	437
Mattishall Housing Phase 1	70		17	34	28	26
Mattishall Housing Phase 2	60		15	29	24	22
Mattishall Housing Phase 3	98		24	48	40	36
Yaxham Housing Phase 1	35		9	17	14	13
Yaxham Housing Phase 2	20		5	10	8	7
Yaxham Housing Phase 3	34		8	17	14	13

5.5 TRIP DISTRIBUTION AND ASSIGNMENT

5.5.1 The traffic generation forecasts for the development that were presented in the previous section have been distributed and assigned onto the highway network using local Census Journey to Work data for the Breckland 005 Middle Super Output Area (2011 Census data) and existing journey time information to select the most likely route. Where door to door journey times are similar the volume of journeys using each route has been split accordingly.

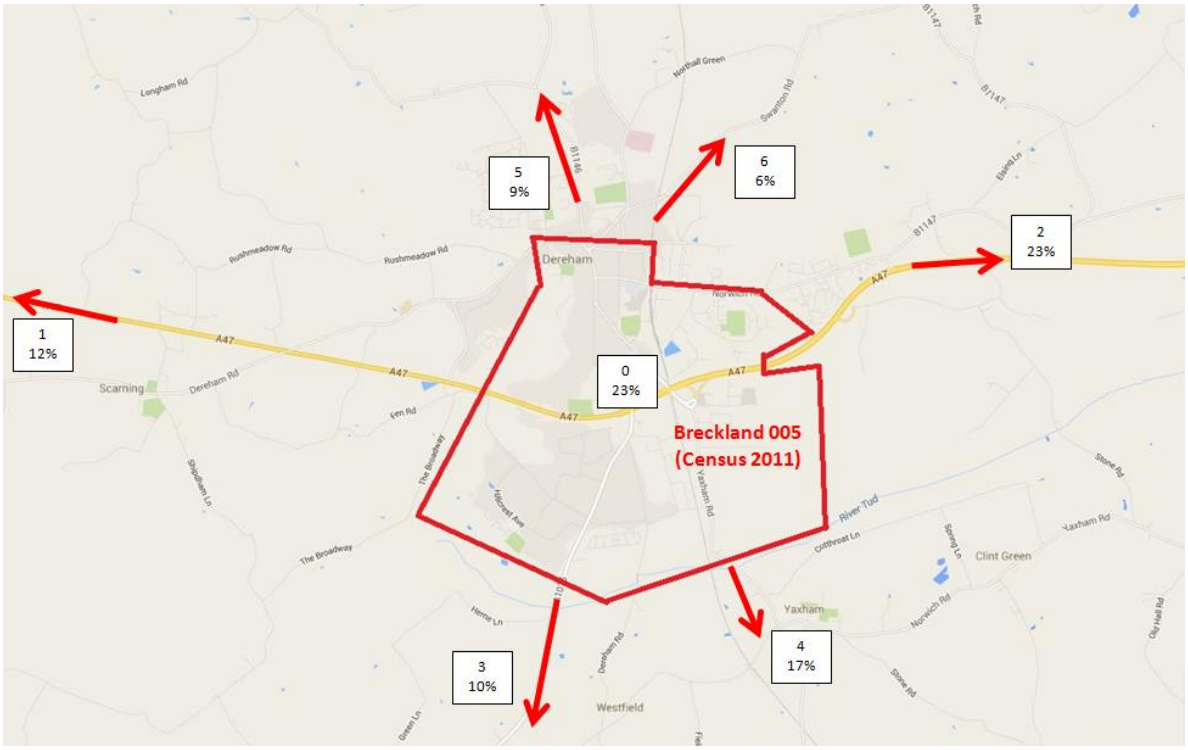
5.5.2 **Figure 9** shows where trips from the development sites are forecast to travel to and from, based on the 2011 Census journey to work data. This has been used as a proxy for the journey to work location of the new residents of the proposed development and hence the distribution of new trips on to the network. Travel within Breckland District can be broken down further into different areas to identify the likely routes of local traffic, including MSOA 5 itself which includes the majority of Dereham. Over 23% of journeys to work start and finish in Dereham itself.

Table 11 - Travel to Work from Breckland MSOA 5 (Dereham), 2011 Census

Local Authority	% of work trips
Suffolk	2.6%
Cambridgeshire	0.8%
Essex	0.3%
Greater London	0.4%
Other Counties/Cities	2.5%
Norfolk	93.4%
Breckland	*50.1%*
Broadland	*8.1%*
Great Yarmouth	*0.6%*
Kings Lynn and W. Norfolk	*5.5%*
North Norfolk	*4.1%*
Norwich	*14.0%*
South Norfolk	*11.0%*
Total	100%

5.5.3 These journey to work statistics were used to produce the forecast of trip distribution, as presented in **Figure 9**. Actual journey time information was used to assign journeys to these destinations to particular routes on the road network.

Figure 9: Forecast Traffic Distribution



5.5.4 The most common journeys to work are into Dereham itself (23%) and to the East along the A47 (23%). The proportion of internal trips is an indicator of the role that a town fulfils in a hierarchy of settlements. Dereham is largely within a single MSOA so that level of internal movements within the MSOA is not unusual (e.g. Swaffham has 20.3% and Downham Market has 20% internal trips). The good road links have allowed the town to have a function as a commuter town for Norwich and other locations, although in total there are more inbound employment trips to the town than outbound employment trips to other locations.

5.5.5 Journeys to the south of Breckland District, including towards Attleborough, the A11 and to South Norfolk are expected to use Yaxham Road and Shipdham Road to the south of Dereham. The number of journeys to the west and north are relatively minor, presumably because of the distance to major centres in those directions and perceived limited employment opportunities.

5.5.6 The generated traffic from potential development sites has been assigned to the network using these distribution proportions and these are presented in **Appendix E**.

5.5.7 New trips within Dereham were assigned to the road network using an assumption that people would travel to the town centre from the new developments. The number of trips was then added to the relevant link and junction flows.

6 TRAFFIC IMPACT ASSESSMENT

6.1 INTRODUCTION

6.1.1 This section of the report provides a technical assessment of the capacity of the road network in Dereham to handle the forecast volumes of traffic generated by the various development scenarios. The traffic survey information has been used to create a baseline then the effects of various growth scenarios on junction capacity have been tested.

6.1.2 The queue length surveys showed that the network already experiences some congestion while the junction modelling shows how the cumulative growth would impact on the road network without adequate mitigation measures.

6.2 JUNCTION MODELLING RESULTS

6.2.1 The junctions that have been modelled are presented in **Table 12**. The junctions are controlled in different ways so different capacity modelling software has been used for each junction type.

Table 12 – Junction Capacity Models

No.	Junction	Type of Control	Model Software
1	Tavern Lane / Yaxham Road	Signalised	Linsig 3.2
2	A47 Westbound / Yaxham Road	Roundabout	Junctions9
3	Matsell Way / Norwich Road	Signalised	Linsig 3.2
4	South Green / Tavern Lane	Priority junction	Junctions9
5	Shipdham Road / Westfield Road	Priority junction	Junctions9
6	Kings Road / Swanton Road	Priority junction	Junctions9
7	Yaxham Road / Westfield Lane	Priority junction	Junctions9
8	Yaxham Road / Greens Road	Signalised	Linsig 3.2
9	School Lane / Shipdham Road	Priority junction	Junctions9
10	Dereham Road / Church Plain / Burgh Lane, Mattishall	Priority crossroads	Junctions9

6.2.2 Each junction was tested for all of the development scenarios that were set out in Section 4 for the AM and PM peak in the three different assessment years. The detailed results are presented in **Appendix F**. These diagrams show the level of capacity on each arm of all junctions. This is presented in terms of the Level of Service (LoS) for each vehicle movement

that is calculated from the queueing delay at the junction. This is classified into the following, nationally recognised categories:

Level of Service A – Free Flow
Level of Service B – Reasonably Free Flow
Level of Service C – Stable Flow
Level of Service D – Approaching Unstable Flow
Level of Service E – Unstable Flow
Level of Service F – Forced or Breakdown Flow

6.2.3 The junction capacity results show the variation between different arms of each junction. Some junctions are forecast to be over-capacity on one approach road while others are over-capacity on all approaches. The results have been summarised to provide an assessment of each junction as a whole. These are shown in the following tables.

6.2.4 Some interpretation and judgement by WYG was required to categorise the junctions in this summary. For instance some junctions are forecast to experience severe delays on one arm only in one peak hour, while others experience less severe delay on any single arm but have significant delays spread across all arms of the junctions in both peaks. The results from the worst peak hour have been used in the assessment, i.e. AM or PM. Some junctions suffer capacity shortfalls in both peaks while others have an AM peak or PM peak issue only.

Reference Flow Capacity (RFC) is an industry standard measure used in junction modelling of the ratio between flow and capacity for each vehicle movement at priority junctions and roundabouts. The Design Manual for Roads and Bridges (TA 23/81) set a threshold of 85% RFC which would ensure that a junction does not have queues in the majority of 'normal' conditions. RFCs higher than 0.85 indicate an increasing risk of queues and delays and those above 1.0 indicate that queues are highly likely and the extent of these is shown by vehicle delay forecasts. RFC is an indicator of junction performance but other factors still need to be considered alongside the RFC value, such as vehicle delay.

Practical Reserve Capacity (PRC) is an industry standard measure used in the modelling of signal controlled junctions. The PRC is calculated from the maximum degree of saturation on a link and is a measure of how much additional traffic could pass through a junction. A PRC of 10% or more indicates that a junction is likely to operate within capacity. Queues will still form because of the nature of traffic signals but the junction would still operate satisfactorily. This indicator also needs to be considered alongside the measure of vehicle delay on each link.

6.2.5 The junction capacity classifications are based on a combination of the following capacity indicators:

Classification	Definition	Indicators
Adequate Capacity	Junction will operate without significant queues in most 'normal' circumstances	RFC less than 85% on all arms of priority junctions and roundabouts
		Approach arm Level of Service of A, B, C or D
		PRC greater than 10% on all arms of signalised junctions
Risk of over-capacity	Traffic volumes are high enough so that there is a risk of queues and delays at busy times of day	RFC over 0.9 on at least one arm
		Approach arm Level of Service of E
		PRC between 0% and 10% on all arms of signalised junctions
Over-capacity	There is a high likelihood that significant queues and delays will occur. This could also affect the performance of adjacent junctions	RFC over 1.0 on at least one arm
		Approach arm Level of Service of F
		PRC less than zero on at least one arm of a signalised junctions

Table 13 – Junction Capacity Assessment Results

Ref	'6% 'Baseline' (LDF allocations)	Stage 0: 2015	Stage 1: 2015-2020	Stage 2: 2021-2026	Stage 3: 2027-2036
1	Tavern Lane / Yaxham Road signals	Over-capacity	Over-capacity	Over-capacity	Over-capacity
8	Yaxham Road / Greens Road signals	Adequate capacity	Adequate capacity	Over-capacity	Over-capacity
2	A47 / Yaxham Road roundabout	Adequate capacity	Adequate capacity	Adequate capacity	Over-capacity
3	Station Road / Matsell Way signals	Adequate capacity	Adequate capacity	Adequate capacity	Over-capacity
4	Tavern Lane / South Green	Adequate capacity	Risk of over-capacity	Risk of over-capacity	Over-capacity
5	Shipdham Road / Westfield Road	Adequate capacity	Adequate capacity	Adequate capacity	Over-capacity
6	Cemetery Road / Swanton Road	Adequate capacity	Adequate capacity	Adequate capacity	Adequate capacity
7	Yaxham Road / Westfield Lane	Adequate capacity	Adequate capacity	Adequate capacity	Adequate capacity
9	Shipdham Road / School Lane	Adequate capacity	Adequate capacity	Adequate capacity	Adequate capacity
10	Burgh Lane, Mattishall	Adequate capacity	Adequate capacity	Adequate capacity	Adequate capacity

Ref	'8% 'Mid' Growth Scenario	Stage 0: 2015	Stage 1: 2015-2020	Stage 2: 2021-2026	Stage 3: 2027-2036
1	Tavern Lane / Yaxham Road signals	Over-capacity	Over-capacity	Over-capacity	Over-capacity
8	Yaxham Road / Greens Road signals	Adequate capacity	Adequate capacity	Over-capacity	Over-capacity
2	A47 / Yaxham Road roundabout	Adequate capacity	Adequate capacity	Risk of over-capacity	Over-capacity
3	Station Road / Matsell Way signals	Adequate capacity	Adequate capacity	Adequate capacity	Over-capacity
4	Tavern Lane / South Green	Adequate capacity	Risk of over-capacity	Over-capacity	Over-capacity
5	Shipdham Road / Westfield Road	Adequate capacity	Adequate capacity	Adequate capacity	Over-capacity
6	Cemetery Road / Swanton Road	Adequate capacity	Adequate capacity	Adequate capacity	Adequate capacity
7	Yaxham Road / Westfield Lane	Adequate capacity	Adequate capacity	Adequate capacity	Adequate capacity
9	Shipdham Road / School Lane	Adequate capacity	Adequate capacity	Adequate capacity	Adequate capacity
10	Burgh Lane, Mattishall	Adequate capacity	Adequate capacity	Adequate capacity	Adequate capacity

Ref	'10% 'High' Growth Scenario	Stage 0: 2015	Stage 1: 2015-2020	Stage 2: 2021-2026	Stage 3: 2027-2036
1	Tavern Lane / Yaxham Road signals	Over-capacity	Over-capacity	Over-capacity	Over-capacity
8	Yaxham Road / Greens Road signals	Adequate capacity	Adequate capacity	Over-capacity	Over-capacity
2	A47 / Yaxham Road roundabout	Adequate capacity	Adequate capacity	Risk of over-capacity	Over-capacity
3	Station Road / Matsell Way signals	Adequate capacity	Adequate capacity	Risk of over-capacity	Over-capacity
4	Tavern Lane / South Green	Adequate capacity	Risk of over-capacity	Over-capacity	Over-capacity
5	Shipdham Road / Westfield Road	Adequate capacity	Adequate capacity	Adequate capacity	Over-capacity
6	Cemetery Road / Swanton Road	Adequate capacity	Adequate capacity	Adequate capacity	Adequate capacity
7	Yaxham Road / Westfield Lane	Adequate capacity	Adequate capacity	Adequate capacity	Risk of over-capacity
9	Shipdham Road / School Lane	Adequate capacity	Adequate capacity	Adequate capacity	Over-capacity
10	Burgh Lane, Mattishall	Adequate capacity	Adequate capacity	Adequate capacity	Adequate capacity

Ref	'Southern Expansion' Scenario	Stage 0: 2015	Stage 1: 2015-2020	Stage 2: 2021-2026	Stage 3: 2027-2036
1	Tavern Lane / Yaxham Road signals	Over-capacity	Over-capacity	Over-capacity	Over-capacity
8	Yaxham Road / Greens Road signals	Adequate capacity	Adequate capacity	Over-capacity	Over-capacity
2	A47 / Yaxham Road roundabout	Adequate capacity	Adequate capacity	Risk of over-capacity	Over-capacity
3	Station Road / Matsell Way signals	Adequate capacity	Adequate capacity	Risk of over-capacity	Over-capacity
4	Tavern Lane / South Green	Adequate capacity	Risk of over-capacity	Over-capacity	Over-capacity
5	Shipdham Road / Westfield Road	Adequate capacity	Adequate capacity	Risk of over-capacity	Over-capacity
6	Cemetery Road / Swanton Road	Adequate capacity	Adequate capacity	Adequate capacity	Adequate capacity
7	Yaxham Road / Westfield Lane	Adequate capacity	Adequate capacity	Adequate capacity	Over-capacity
9	Shipdham Road / School Lane	Adequate capacity	Adequate capacity	Adequate capacity	Over-capacity
10	Burgh Lane, Mattishall	Adequate capacity	Adequate capacity	Adequate capacity	Adequate capacity

6.2.6 These tables show that:

- The Tavern Lane / Yaxham Road signalised junction is over-capacity in every scenario, including under current conditions. Under future development scenarios the junction would become further over-capacity with a knock on effect on the adjacent junctions as the traffic queues and delays get longer. The close proximity of the signalised junctions means that the Greens Road signals has adequate capacity to cope with forecast traffic flows in the early stages, however, the queues from the Tavern Lane junction are expected to block back and interfere with its operation, especially during the later stages of the plan period. An improvement at the Tavern Lane junction would affect the Greens Road junction so any scheme would need to consider these two junctions as a combined junction improvement.
- Only one extra junction would become at risk of over-capacity during Stage 1 (2015-2020) in every growth scenario. This is the Tavern Lane / South Green junction where the average delay for vehicles turning right out of South Green would be high.

- Under Baseline (6%) growth the Greens Road / Yaxham Road junction would become over capacity by 2026 with large queues and delays on the side roads and between the two signalised junctions. Three additional junctions (A47/Yaxham Road (Tesco) roundabout, Matsell Way / Station Road and Shipdham Road / Westfield Road) are expected to be over capacity by the end of the Local Plan period (2036). The A47 off slips are expected to have a queue in the AM peak, Westfield Road would have queues in both peaks turning right and left. The Matsell Way / Norwich Road junction would be under pressure by 2036, particularly in the PM peak hour.
- The 8% Mid-growth scenario would lead to further pressure on the Tavern Lane / South Green junction to push it over capacity by 2026 while there would be an increased risk of capacity problems at the A47 / Yaxham Road (Tesco) roundabout by 2026. Traffic emerging from Westfield Road on to Shipdham Road is forecast to have delays of approximately 2.5 minutes by 2036.
- The 10% High growth scenario would cause the Matsell Way / Norwich Road signals to be at risk of over capacity by the end of Stage 2 (2026) because of a forecast delay of over 80 seconds for traffic on Norwich Street in the PM peak. The other arms of the junction are expected to be over capacity by 2036. The junctions at Shipdham Road / School Lane and Yaxham Road / Westfield Lane would come under pressure in the later stages of this scenario as it would become increasingly difficult to get out from the side roads at each junction.
- Finally, the Southern Expansion scenario would bring forward the capacity issues at Shipdham Road / Westfield Road to 2026 and would make Yaxham Road / Westfield Lane over capacity by 2036. Traffic volumes on Shipdham Road would make it very difficult to get out of the side roads, leading to queues and delays. The layout of the development and proposed link road between Shipdham Road and Yaxham Road is not known at this stage. It is likely to remove some traffic from School Lane but assumptions have been necessary to forecast how traffic volumes will change on this part of the network. Traffic that does use the proposed link road would still have an impact on the existing junctions as it would use Yaxham Road and Shipdham Road to head towards the town centre and the A47, thus making it more difficult for the side road traffic at those junctions. Vehicles turning right and left out of Westfield Road on to Shipdham Road are expected to experience delays of 1 minute by 2026 but the increase in traffic flow on the main road by 2036 would make it extremely difficult to get

out of the side road. The Yaxham Road / Westfield Lane junction would operate satisfactorily until the 2036 when link road would be completed and the junction would be way over capacity for movements in and out of the side road. A new junction would be required to cope with development flows and link road flows.

- The junctions at Kings Road / Cemetery Road / Swanton Road in Dereham and at Burgh Lane / Dereham Road in Mattishall are not expected to reach capacity in any scenario. There is adequate capacity at these junctions for the forecast volumes of traffic.

6.2.7 This report is the first stage of the transport assessment process for the Local Plan. The assessment carried out so far suggests that there are likely to be a series of highway capacity issues that require further analysis. The next stages are to adjust the assumptions that have been made about the potential development sites and their transport impacts and then address any remaining highway capacity issues with the appropriate mitigation measures, including junction improvements.

6.3 VALIDATION OF JUNCTION MODELS

6.3.1 Models of the junctions have been created for the base (2015) volumes of traffic and the models have been compared with the queue length surveys to give confidence that the models provide a good representation of current conditions. Queue lengths are notoriously difficult to define and comparisons of queue length surveys with the queue lengths forecast as defined by modelling software are not straightforward.

6.3.2 However, the results show that the models are calculating queues that are comparable to the observed queues (see **Figure 4**). At the two signalised junctions on Yaxham Road the junction models forecast Mean Maximum Queues on all approaches and the queue lengths are comparable to the observed queues. The modelled queues at the Matsell Way signals are also comparable with the queue survey results.

6.3.3 Observed mean maximum queues at the A47 westbound offslip on to the Tesco roundabout (8 vehicles over the peak hour) are slightly higher than those modelled in the AM peak (2.2 Passenger Car Units). This could be caused by variability in how drivers are using the approach road to the roundabout; it is wide enough for two lanes of traffic but is only marked out for one lane and it was very rarely used in two lanes during the surveys.

6.3.4 Finally, queue surveys were also carried out at the Kings Road / Swanton Road priority junction that showed very few queues of vehicles. This supports the results of the junction modelling.

6.3.5 In conclusion the junction models have demonstrated comparable results for the 2015 base traffic flows and the observed queue lengths and therefore can be considered to be a good basis for carrying out the forecasts of future junction capacity.

6.4 SUMMARY OF STAGE ONE

6.4.1 This section has presented the results of the junction capacity modelling exercise. It shows that the there is an existing capacity problem at the Tavern Lane / Yaxham Road signalised junction that will inevitably get worse when development traffic is added. All the other junctions are shown to have adequate capacity under existing conditions, although the congestion at the Tavern Lane signals could be causing queues that block back and impede the operation of other neighbouring junctions.

6.4.2 When Local Plan development scenarios were tested it showed that the Baseline growth (6%) would not have a major impact on junction capacity, other than making the performance of the Tavern Lane signals worse and putting the South Green / Tavern Lane junction under pressure. Each turning movement at the Tavern Lane junction has different delays but the key northbound movement in the AM peak would go from an average delay of 40 seconds per vehicle under current conditions to 53 seconds by 2021, 154 seconds by 2026 and 6 minutes by 2036. The junction would clearly need to be improved at an early stage to avoid these excessive delays.

6.4.3 The Mid-growth (8%) scenario would increase the capacity issues at the two junctions named above (Tavern Lane signals and South Green) and also start to put additional junctions under pressure, namely the A47/Yaxham Road Tesco Roundabout and the Matsell Way / Station Road signals, particularly towards the end of the Local Plan period. The Tesco roundabout would have average delays on the worst arm (A47 offslip) of 38 seconds by 2026 and 177 seconds by 2036. The Matsell Way signals would experience delays of up to 80 seconds on the worst movement (PM peak) by 2036.

6.4.4 The High growth (10%) scenario would increase the capacity issues at the junctions highlighted above but would also cause pressure at other junctions (Greens Road / Yaxham

Road signals, Shipdham Road / Westfield Road, Shipdham Road / School Lane and Yaxham Road / Westfield Lane). Delays are expected increase to unacceptable levels at these junctions, particularly on the side roads so improvements would be required to provide more network capacity.

6.4.5 Finally the largest scale development of the Southern Extension of the town, with a link road through the site between Yaxham Road and Shipdham Road, would make the capacity problems worse at many of the junctions highlighted in the other scenarios and bring forward the capacity issues at new junctions such as Shipdham Road / Westfield Road and Yaxham Road / Westfield Lane.

6.4.6 Stage One of the transport study has shown that there are likely to be cumulative highway capacity issues if the potential growth options are taken forward in this way. The next stages of the study are to assess whether different growth scenarios would reduce this impact and then to develop highway capacity schemes that would mitigate the cumulative effects of growth.

7 STAGE 2 – REVIEW OF STUDY ASSUMPTIONS

7.1 INTRODUCTION

7.1.1 This chapter contains a review of the various assumptions made in Stage 1 relating to the proposed and potential land use developments and their transport impact. Stage 2 is to assess whether different assumptions and development scenarios would be more appropriate and acceptable in highways terms.

7.1.2 This review considers the individual and cumulative effects of development on traffic movements on the network and where this traffic is forecast to have an impact on junction congestion and delays.

7.2 GENERAL ASSUMPTIONS

7.2.1 Various assumptions have been made in the transport study that applies to all of the scenarios. These are considered to be the most likely forecasts but alternative outcomes are possible. The assumptions cover the following issues:

- Background traffic growth
- Trip generation of development sites
- Distribution and assignment of new trips

Background Traffic Growth

7.2.2 Traffic growth forecasts have been extracted from the Trip End Model Presentation Program (TEMPro) and National Trip End Model traffic growth forecasts for Dereham in line with recommended guidance. TEMPro was adjusted to remove the traffic growth effect of the development in Dereham, so the growth forecasts just include growth from origins outside the Dereham study area. The resulting traffic growth was:

- 2015 to 2020 5%
- 2015 to 2025 14%
- 2015 to 2035 30%

7.2.3 Traffic growth of approximately 1% per year is not considered to be unreasonable. Different assumptions could be made, using actual change in traffic at traffic survey sites for instance, but the evidence to support a significantly different assumption is limited. Trends in recent

traffic growth can be used to project forwards, but traffic volumes in recent years have fluctuated in response to economic conditions so it may be difficult to justify that they are a better forecast than the TEMPro forecasts. What is clear is that in some scenarios the lack of junction capacity in 2036 is largely due to the increase in background traffic growth rather than the development traffic itself.

7.2.4 The purpose of this study is to identify highway improvements that are necessary to mitigate the effects of the potential Local Plan development in the District. It is not to provide solutions for highway capacity issues caused by existing and future volumes of background traffic. Therefore it was decided to change the assessments that were carried out to remove the effects of background traffic growth. A 2026 assessment was retained so the additional effects of growth can be quantified. The new assessments to be carried out are:

- 2015 Base
- 2015 Base plus Development Scenarios
- 2015 Base plus Development Scenarios plus Traffic Growth to 2026

Development Trip Rates

7.2.5 Trip rates for new development were derived using the Trip Rate Information Computer System (TRICS) v7.2.3 to derive the traffic generation forecasts. The forecasts are above average, by definition, because Norfolk County Council recommended that 85th percentile trip rates were used, to ensure that the forecasts were robust. Average trip rates would be more likely to provide accurate forecasts but they are also more likely to provide an under-estimate of actual trip generation. Many local authorities accept that average trip rates are more appropriate so it would be a valid approach to use lower trip generation rates.

7.2.6 **Table 14** shows the effect of using average trip rates rather than 85th percentile.

Table 14 – Alternative Trip Rates

	85th %ile Trip Rate	Mean Average Trip Rate
AM Peak Arrivals (per dwelling)	0.243	0.162
AM Peak Departures (per dwelling)	0.491	0.374
AM Peak Total (per dwelling)	0.734	0.536
Trip Generation (1,183 dwellings in Yaxham Rd / Shipdham Rd site)		
AM Peak Arrivals	287	192
AM Peak Departure	581	442
AM Peak Total Trips	868	634

7.2.7 Table 2 shows that if Average Trip Rates rather than 85th percentile rates are used the volume of forecast traffic would be reduced significantly and the level of congestion at each junction would be reduced accordingly.

7.2.8 Discussion with Breckland Council and Norfolk County Council resulted in a change to the assumption made in respect to trip generation rates. NCC agreed that the use of average trip rates is more appropriate for a strategic transport assessment of this type. Where multiple development sites are being considered the use of 85th percentile rates would represent an over-estimate across all sites and average trip rates are more likely to be representative.

7.2.9 **Table 15** shows the average trip rates extracted from TRICS that will be used within the revised junction capacity assessments (the values are slightly different from Table 14 because an updated version of TRICS (v7.3.1) has been introduced since the original assessment was carried out in Stage 1 of the study).

Table 15 – Alternative Trip Rates

	Mean Average Trip Rate (AM)	Mean Average Trip Rate (PM)
Peak Arrivals (per dwelling)	0.157	0.353
Peak Departures (per dwelling)	0.390	0.181
Peak Total (per dwelling)	0.547	0.534

Distribution and Assignment of Trips

7.2.10 The 2011 Census data has been used to inform the likely destinations of trips that would be generated by the proposed housing developments. The Census includes information on Travel to Work and where the existing residents of the town are employed. The assumption was made that the new residents of the town would follow the same travel to work pattern as the existing residents, e.g. 50% of work trips would be within Breckland District and 14% would be to Norwich.

7.2.11 There is no evidence to suggest that the future travel to work pattern would differ from the existing and how it would differ. It may be possible that new residents would have a different demographic profile and employment location, but there is no evidence to support an alternative distribution. Therefore, it is considered that the trip distribution based on the 2011 Census is the most robust forecast of future travel behaviour and the recommendation is to retain the approach that has been used.

7.2.12 There is scope to use different assumptions about the assignment of new development trips. Trips between the new origins and the likely destinations were assigned to the road network according to actual journey times taken from the GoogleMaps website that provides likely journey times at different times of day. This includes the route choice between Dereham and Norwich that has a choice between using the A47 or the cross-country route through Mattishall.

7.2.13 Within the study network the number of route choices is relatively small and the likelihood of a significantly different assignment is small. Trafficmaster data on the network was not available from NCC, but there is no reason to think that this would provide significantly different journey times than Google. Changes to the assignment of traffic are therefore expected to be small if different assumptions are used.

7.2.14 Assumptions were made about the likely destination points of trips into Dereham town centre. We assumed that all trips had a destination in the town centre and that they travelled through the study area to that point. Reality will be a lot more complicated than that as people have multiple destinations in the town centre, but there is limited evidence to support different assumptions and the impact on the study junctions in question is likely to be limited.

7.2.15 The effect of applying a different distribution of traffic to the Southern Expansion has been tested. The previous distribution assumed that 12% of traffic would go via Stone Road to get to the West and the town centre, but this may not be acceptable in terms of the impact on the residents of Stone Road. That traffic may be forced on to Shipdham Road and Yaxham Road instead, thus increasing traffic through the junctions on those routes.

7.3 CONCLUSION

Table 16 shows the likely level of impact that using different assumptions would have on the highway capacity results. The effect of these changes on individual junction capacity results is presented in the following chapter.

Table 16 – Summary of General Assumptions

General Assumption	Level of Impact	Scope for Alternative Assumption
Background Traffic	Large (up to 30%)	Limited
Development Trip Generation	Medium	Significant (Average v 85th %ile)
Trip Distribution and Assignment	Small	Limited. More significant for Southern Expansion sites and route choice

8 SCOPE OF JUNCTION CAPACITY ASSESSMENT

8.1.1 This chapter presents a review of the issues at each of the key junctions in the town and how they are expected to perform under different development and traffic assumptions. There is a large range of different scenarios, junctions and assessment years so in order to simplify the assessment an analysis of individual junctions has been carried out to assess their capacity under different scenarios and at different points in time.

8.2 JUNCTION 1/8 – TAVERN LANE / YAXHAM ROAD / GREENS ROAD LINKED SIGNALS JUNCTION

8.2.1 This signalised junction is made up of two linked junctions in close proximity on Yaxham Road. A combined model of the two junctions has been produced which shows how they both operate as a linked junction.

8.2.2 Capacity is already constrained at the junction and traffic queues and congestion occur at busy times of day. There is very little that can be done to relieve the congestion by changing any of the development or transport assumptions. Most developments in the town will lead to an increase in traffic through this junction.

8.2.3 **Conclusion -** A revised junction design will be required at this junction under all development scenarios. The scope for small scale improvements is limited by the existing highway boundary. If large scale developments are to proceed a comprehensive solution will be required here. One option is to use part of the Roys Supermarket site to provide an improved junction layout.

8.3 JUNCTION 2 – A47 / YAXHAM ROAD / TESCO ROUNDABOUT

8.3.1 The junction currently has some spare capacity but this would be used up under the various development scenarios. Many of the developments to the south of the town generate additional traffic through the junction.

8.3.2 By 2026 the A47 slip road approach becomes congested under all scenarios except the 6% Low Growth and by 2036 the whole junction would be over-capacity.

8.3.3 Analysis of the trip generation forecasts show that it is a combination of background growth and Phase 2 of the Hopkins Homes site to the East of Yaxham Road that makes the junction at-risk of being over-capacity in 2026 in the Mid-growth (8%) and High-growth (10%) scenarios.

8.3.4 Under the Southern Expansion scenario (18% growth) the A47 slip road approach would be over-capacity by 2026 due to the Hopkins Homes site and the Land South of Westfield Lane site.

8.3.5 Forecasts of 21 years of background traffic growth suggest that traffic will grow by 28%-30% regardless of the Local Plan development proposals. This growth, plus the Hopkins Homes site, the Land South of Westfield Lane and the large development on land between Yaxham Road and Shipdham Road mean that the junction would be well over-capacity by 2036.

8.3.6 If different assumptions were made about background traffic growth then the threshold of capacity could be delayed.

8.3.7 The Hopkins Homes Phase 2 site (200 units) is accessed off Yaxham Road just to the south of the junction and the large majority of traffic from this site will go through this junction. The only way to reduce the impact of this development would be to reduce the number of units on the site or implement Phase 1 and reduce the size of Phase 2.

8.3.8 The Land South of Westfield Lane (299 units) is forecast to generate traffic along three routes, School Lane, Westfield Road and Yaxham Road. The largest proportion of development traffic (65%) has been assumed to travel along Yaxham Road, thus putting more pressure on the A47 / Tesco Roundabout. An alternative split of development traffic could be used, that reduces the pressure on the roundabout, but increases the traffic on other links and junctions.

8.3.9 Similarly, the large development between Yaxham Road and Shipdham Road (that includes the provision of a section of new link road) also distributes traffic across these three roads to the north. The proportion using Yaxham Road for this site is assumed to be lower (29%) but the proportion could still be reduced to take pressure off the Tesco Roundabout, but again at the expense of the links and junctions along Shipdham Road.

8.3.10 **Conclusion –** The impact on the junction up to 2026 could be reduced or delayed by adjusting the development proposals to the south but background traffic growth is still likely to require a junction improvement by 2036.

8.4 JUNCTION 3 – STATION ROAD / MATSELL WAY SIGNAL CONTROLLED JUNCTION

8.4.1 This signalised junction is expected to operate fairly well until 2020 under all scenarios. The High growth scenarios (10% and Southern Expansion) put the junction at risk of over capacity by 2026 and traffic entering the junction from Norwich Street in the PM peak would experience the most delay. By 2036 the junction would be over-capacity under all scenarios on all approaches to the junction.

8.4.2 Vehicles travel through this junction from many of the proposed developments, but the largest volume would be from the Greenfields (D2), Norwich Road (D3), Old Maltings (D1b) and Shidham Rd/Yaxham Rd (South) developments which all send over 50 extra vehicles through the junction during each peak hour. As a result spare capacity is removed as each development comes on line, rather than all being caused by one or two sites.

8.4.3 Under the assumed phasing of development it is the Old Maltings site that tips the junction over capacity but under a different phasing of development it would be a different site.

8.4.4 Again, it is the background growth assumption that has the largest impact on junction capacity.

8.4.5 **Conclusion –** Traffic impact at the junction is caused by the cumulative effects of a number of different development sites plus background traffic growth. Capacity of the existing junction would be reached mid-way through the Local Plan period when mitigation measures would be required. Various development sites would be responsible for contributing towards a capacity improvement.

8.5 JUNCTION 4 – TAVERN LANE / SOUTH GREEN PRIORITY JUNCTION

8.5.1 This junction is the second to experience capacity pressures, caused by the difficulty for vehicles turning right out of South Green on to the main road. There is a risk that this

movement would be over-capacity by 2020, even under the Low growth scenario and it would be well over-capacity by 2026.

8.5.2 The delays would be caused by an increase in traffic on the main road rather than on the South Green side road. Limited growth in traffic is expected along South Green itself until the very largest development scenario is tested (Southern Expansion). Traffic growth on the main road (Tavern Lane) to and from the sites to the south of the town (Westfield Lane site and Shipdham Road/Yaxham Road site) would tip the junction over-capacity.

8.5.3 **Conclusion -** Improvements will be required at the junction even with the very lowest of growth scenarios.

8.6 JUNCTION 5 – SHIPDHAM ROAD / WESTFIELD ROAD PRIORITY JUNCTION

8.6.1 The junction has spare capacity in the early scenarios but is expected to be over capacity by 2036 under all growth scenarios. The right turn out of Westfield Road would experience the most significant delays.

8.6.2 The developments in the south (Westfield Lane and Shipdham Road/Yaxham Road) are the only ones to add much traffic to the junction. Both of these sites assign traffic on to Westfield Road itself, which then has to turn right towards the town centre and A47. However, the junction would be over capacity in 2036 even without those developments, again suggesting that background traffic growth is the major cause of delay at the junction rather than the developments. The junction would clearly be inadequate to provide access to the Westfield Lane and Shipdham Road/Yaxham Road sites for the volume of traffic that has been assumed in Stage 1.

8.6.3 It may be more appropriate to send vehicles via different routes than try to improve the Westfield Road junction to cope with this traffic. Even if the junction could be improved the traffic would still have to travel along Westfield Road, past the existing residential properties and schools. Keeping the new traffic on Shipdham Road would mean that queues would still increase on the side road because existing traffic would find it harder to get out but it would be less bad than if new trips were routed along Westfield Road as well.

8.6.4 The junction model has been re-run showing how it would operate if the vehicles from the developments to the south were to take access off Shipdham Road instead of Westfield Road.

This shows that the junction would operate better if the vehicles are routed via the main road rather than out of Westfield Lane.

8.6.5 **Conclusion –** No improvements required until 2036 when background traffic and the Southern Expansion site put a lot more traffic through the junction. Recommend that this route is not used for development traffic because of the existing homes alongside the road and the lack of priority at the junction with Shipdham Road.

8.7 JUNCTION 6 – CEMETERY ROAD / SWANTON ROAD PRIORITY JUNCTION

8.7.1 No capacity issues are forecast to occur at the junction under any growth scenarios.

8.8 JUNCTION 7 – YAXHAM ROAD / WESTFIELD LANE PRIORITY JUNCTION

8.8.1 This junction has adequate capacity in all scenarios up to 2036. Then a combination of background growth and development traffic pushes the junction towards capacity and then over-capacity.

8.8.2 With a 10% growth scenario the junction would be getting close to capacity in 2036 because of the Westfield Lane development traffic plus background traffic. Capacity would be constrained for traffic turning right and left out of Westfield Lane.

8.8.3 When the Southern Expansion development is added the junction would be well over-capacity. An assumption was made that 23% of the site traffic would use the Westfield Lane junction. If a new access road were provided with a junction with Yaxham Road then more capacity could be provided and the impact on Westfield Lane would be reduced (although there would still be an impact because of the increase in traffic on the main road at the junction).

8.8.4 There are a number of different options for providing access into the Shipdham Road / Yaxham Road site. A new Link Road with new junctions at each end would provide the best scope to provide the required capacity in the vicinity of the site, but this would not relieve pressure on Shipdham Road and Yaxham Road themselves and the junctions closer to the town and A47.

8.8.5 **Conclusion –** The junction does not have much capacity to deal with much new development traffic and is close to capacity when the Westfield Lane development is completed. It would be

well over capacity with the Southern Expansion development. It is recommended that new development in the south is linked to Yaxham Road via a new junction, at Westfield Lane or elsewhere.

8.9 JUNCTION 9 – SHIPDHAM ROAD / SCHOOL LANE PRIORITY JUNCTION

8.9.1 Similarly to the other junctions in the vicinity of the Southern Expansion scenario, this junction has adequate capacity in all scenarios up to 2036 when a combination of background traffic and development traffic push it over capacity. Capacity could be exceeded even without the proposed developments in the south, under the Mid-growth (8%) scenario when the right turn out of School Lane would be over-capacity.

8.9.2 The Westfield Lane development would lead to additional problems in the PM peak at the junction by 2036 while the Southern Expansion scenario would push the junction well over-capacity in both peak periods.

8.9.3 Assumptions were made about how much of this development traffic would route through this junction. These assumptions could be amended to take some pressure of this junction under the High Growth (10%) scenario (by routing traffic through other junctions at the expense of their capacity). However, the best way to avoid capacity problems at this junction with the Southern Expansion scenario by 2036 would be to provide the Link Road through the site with new junctions at each end.

8.9.4 This proposal would still impact on School Lane as the main road traffic flow would be increased; making it harder to get out of the side road, but at least there would be no increase in traffic on School Lane itself.

8.10 JUNCTION 10 – BURGH LANE, MATTISHALL PRIORITY JUNCTION

8.10.1 No capacity issues are forecast to occur at the junction under any growth scenarios

8.11 CONCLUSION

8.11.1 Table 17 provides a summary of the recommended options for each junction in the study area and how they should be taken forward within the next stage of the study.

Table 17 – Summary of Junction Options

	Junction	Options
1/8	Tavern Lane / Yaxham Road / Greens Road	Mitigation scheme required for all options
2	A47 / Yaxham Road	a) Reduction in Hopkins Homes and Westfield Lane sites would delay the need for junction upgrade b) Redistribute Southern Expansion site to use Shipdham Road rather than Yaxham Road
3	Station Road / Matsell Way	Adjustments to development sites would have a limited impact. Mitigation required mid-way through the Plan period
4	Tavern Lane / South Green	Mitigation scheme required for all options
5	Shipdham Road / Westfield Road	Mitigation scheme required in 2036 but re-route Southern Expansion traffic to prevent problems in 2026.
6	Cemetery Road / Swanton Road	No mitigation measures required
7	Yaxham Road / Westfield Lane	a) Routing traffic via Shipdham Road would reduce the impact on this junction (but would make other junctions worse) b) New junction required on Yaxham Road to serve developments in the South
9	Shipdham Road / School Lane	Limited capacity to cope with traffic growth and development traffic. New junction on Shipdham Road required to serve developments in the South
10	Burgh Lane, Mattishall	No mitigation measures required

9 STAGE 3 - REVISED HIGHWAY CAPACITY ASSESSMENT

9.1 INTRODUCTION

9.1.1 This chapter reports on Stage 3 of the study and it includes revised junction capacity assessments using modified assumptions about the development sites to be tested, the volume of traffic they are expected to generate and the volume of other traffic on the network.

9.1.2 In Stage 2 the details of the likely development sites were reviewed and updated and alternative forecasts of traffic generation and background traffic growth were proposed. A key issue is whether the mitigation measures proposed for the future development years should provide enough capacity for background traffic growth on the network as well as development traffic.

9.1.3 The inclusion of background growth up to the year 2036 would require large scale junction improvement schemes, but at Stage 2 of this study it was considered to be unreasonable to expect developers to provide junction improvements of this scale when the majority of the growth would be in general network traffic rather than new trips from a particular site.

9.1.4 Stage 3 considers the effects of applying different assumptions about development and traffic and the options for implementing schemes on the highway to provide additional capacity for the generated traffic.

9.2 NETWORK CAPACITY ASSESSMENT

9.2.1 The Project Steering Group agreed to apply revised assumptions about the potential development sites in Dereham and the change in traffic on the network. In summary these changes were:

- The large site proposed in Stage One at the south edge of the town (named the Southern Expansion scenario in previous stages) has been scaled down and combined with the High Growth scenario;
- The scenario that tested development plus traffic growth in 2036 has been removed. The assessments completed are for:
    - 2015 Observed Flows

- 2015 Observed Flows plus potential development
- 2026 Forecast Flows plus potential development

- Average trip rates have been applied across the various sites rather than 85th percentile rates; and
- It was agreed to retain the original trip distribution and assignment that was used in Stage One of the study.

9.2.2 The revised capacity calculations for the three land use growth scenarios are presented in **Table 18.** The revised potential development sites are shown in **Figure 8A**, the forecast traffic flows using amended assumptions are presented in **Appendix E** and the revised junction capacity assessments using these flows are presented in **Appendix F**:

Table 18 – Revised Junction Capacity Assessment Results

	'6% 'Baseline' (LDF allocations)	2015 Base	2015 plus Phase 1 396 homes	2015 + Phase 2 588 homes	2015 + Phase 3 734 homes		2026 + Phase 2 588 homes	2026 + Phase 3 734 homes
1/8	Tavern Lane / Yaxham Rd/ Greens Rd	Over-capacity	Over-capacity	Over-capacity	Over-capacity		Over-capacity	Over-capacity
2	A47 / Yaxham Road roundabout	Adequate capacity	Adequate capacity	Adequate capacity	Adequate capacity		Adequate capacity	Adequate capacity
3	Station Road / Matsell Way signals	Adequate capacity	Adequate capacity	Adequate capacity	Adequate capacity		Risk of over capacity	Risk of over capacity
4	Tavern Lane / South Green	Adequate capacity	Adequate capacity	Adequate capacity	Adequate capacity		Risk of over capacity	Over-capacity
5	Shipdham Road / Westfield Road	Adequate capacity	Adequate capacity	Adequate capacity	Adequate capacity		Adequate capacity	Adequate capacity
6	Cemetery Road / Swanton Road	Adequate capacity	Adequate capacity	Adequate capacity	Adequate capacity		Adequate capacity	Adequate capacity
7	Yaxham Road / Westfield Lane	Adequate capacity	Adequate capacity	Adequate capacity	Adequate capacity		Adequate capacity	Adequate capacity
9	Shipdham Road / School Lane	Adequate capacity	Adequate capacity	Adequate capacity	Adequate capacity		Adequate capacity	Adequate capacity
10	Burgh Lane, Mattishall	Adequate capacity	Adequate capacity	Adequate capacity	Adequate capacity		Adequate capacity	Adequate capacity

	'8% 'Mid' Growth Scenario	2015 Base	2015 plus Phase 1 638 homes	2015 + Phase 2 888 homes	2015 + Phase 3 1018 hms		2026 + Phase 2 888 homes	2026 + Phase 3 1018 hms
1/8	Tavern Lane / Yaxham Rd/ Greens Rd	Over-capacity	Over-capacity	Over-capacity	Over-capacity		Over-capacity	Over-capacity
2	A47 / Yaxham Road roundabout	Adequate capacity	Adequate capacity	Adequate capacity	Adequate capacity		Adequate capacity	Adequate capacity
3	Station Road / Matsell Way signals	Adequate capacity	Adequate capacity	Adequate capacity	Adequate capacity		Risk of over capacity	Risk of over capacity
4	Tavern Lane / South Green	Adequate capacity	Adequate capacity	Adequate capacity	Adequate capacity		Risk of over capacity	Over-capacity
5	Shipdham Road / Westfield Road	Adequate capacity	Adequate capacity	Adequate capacity	Adequate capacity		Adequate capacity	Adequate capacity
6	Cemetery Road / Swanton Road	Adequate capacity	Adequate capacity	Adequate capacity	Adequate capacity		Adequate capacity	Adequate capacity
7	Yaxham Road / Westfield Lane	Adequate capacity	Adequate capacity	Adequate capacity	Adequate capacity		Adequate capacity	Adequate capacity
9	Shipdham Road / School Lane	Adequate capacity	Adequate capacity	Adequate capacity	Adequate capacity		Adequate capacity	Adequate capacity
10	Burgh Lane, Mattishall	Adequate capacity	Adequate capacity	Adequate capacity	Adequate capacity		Adequate capacity	Adequate capacity

	'10% 'High' Growth Scenario	2015 Base	2015 plus Phase 1 638 homes	2015 + Phase 2 1018 hms	2015 + Phase 3 1618 hms		2026 + Phase 2 1018 homes	2026 + Phase 3 1618 hms
1/8	Tavern Lane / Yaxham Rd/ Greens Rd	Over-capacity	Over-capacity	Over-capacity	Over-capacity		Over-capacity	Over-capacity
2	A47 / Yaxham Road roundabout	Adequate capacity	Adequate capacity	Adequate capacity	Adequate capacity		Risk of over capacity	Risk of over capacity
3	Station Road / Matsell Way signals	Adequate capacity	Adequate capacity	Adequate capacity	Adequate capacity		Risk of over capacity	Risk of over capacity
4	Tavern Lane / South Green	Adequate capacity	Adequate capacity	Adequate capacity	Adequate capacity		Over-capacity	Over-capacity
5	Shipdham Road / Westfield Road	Adequate capacity	Adequate capacity	Adequate capacity	Adequate capacity		Adequate capacity	Adequate capacity
6	Cemetery Road / Swanton Road	Adequate capacity	Adequate capacity	Adequate capacity	Adequate capacity		Adequate capacity	Adequate capacity
7	Yaxham Road / Westfield Lane	Adequate capacity	Adequate capacity	Adequate capacity	Adequate capacity		Adequate capacity	Adequate capacity
9	Shipdham Road / School Lane	Adequate capacity	Adequate capacity	Adequate capacity	Adequate capacity		Adequate capacity	Adequate capacity
10	Burgh Lane, Mattishall	Adequate capacity	Adequate capacity	Adequate capacity	Adequate capacity		Adequate capacity	Adequate capacity

9.2.3 **Table 18** shows that the change in development scenarios and the associated assumptions has changed the conclusions about the need to provide more capacity at some of the junctions in the study area.

9.2.4 The Tavern Lane / Yaxham Road / Greens Road combined junction will still be over-capacity in all scenarios, and therefore a mitigation scheme will be required at this junction. All the other junctions would continue to operate effectively if development traffic from all three phases were added to the existing traffic on the network.

9.2.5 However, capacity problems do arise if traffic growth up to 2026 is added to the base flows. This would result in the following impacts:

- The Station Road / Matsell Way signalised junction would approach capacity under all three growth scenarios but it would not go over capacity;
- The Tavern Lane / South Green priority junction would approach capacity under Phase 2 development with 2026 growth and would be over-capacity under Phase 3 development with 2026 growth; and
- The A47 / Yaxham Road (Tesco) roundabout would start to approach capacity in the High Growth scenario with 2026 growth.

9.2.6 As a result of this re-assessment of the junctions it is necessary to consider the potential mitigation measures that could be implemented to address the capacity issues that are expected to arise at these four junctions.

10 HIGHWAY MITIGATION MEASURES

10.1.1 Preliminary mitigation measures have been designed for the four key junctions that were identified in the previous chapter as having insufficient capacity for the emerging Local Plan proposals.

10.2 TAVERN LANE / YAXHAM ROAD / GREENS ROAD SIGNALS

Existing Conditions

10.2.1 This junction is the key constraint in Dereham with the highest levels of delay under existing conditions and it is forecast to become well over-capacity under all future development scenarios. There are currently two signalised junctions in close proximity and the operation of the two is linked. A combined LinSig junction capacity model has been produced for the two junctions and a combined mitigation scheme has been produced.

10.2.2 Currently the highway is constrained in the area by commercial development on each side. There are numerous private access points along the east side of Yaxham Road that generate turning movements to and from the main road plus two large retail units (Homebase and Roys) on the west side of Yaxham Road, on each side of the Tavern Lane side road.

10.2.3 The Tavern Lane T-junction has two lanes on each approach and signal controlled pedestrian crossings across each arm. The following photograph shows the Tavern Lane junction and vehicles entering and exiting the private accesses adjacent to the junction.

10.2.4 The Greens Road signalised crossroads has a single lane on each side road approach and two lane approaches on the main road, one straight ahead and one for right turning vehicles in both directions. There are no controlled pedestrian facilities at this junction, but there are dropped kerbs on the side roads. It also has two yellow box markings within the junction, to prevent the queues on the main road from blocking the side roads and right turning vehicles.

10.2.5 There is also a Level Crossing on the Greens Road approach that carries the trains from the Mid-Norfolk heritage railway. It has been assumed that the Level Crossing will not be triggered during weekday peak hours.

10.2.6 The following photograph shows the Green Road junction looking north towards Tavern Lane.

10.2.7 The LinSig junction model shows that under existing traffic volumes the junction is already close to capacity at peak times and this was confirmed by the queue length survey that was carried out that showed significant queues along Yaxham Road in both directions and on the Tavern Lane approach.

10.2.8 When development flows are added additional delays would occur at the junction, therefore an increase in the capacity of the junction is required to mitigate the effects of the potential development. There are two options for a mitigation scheme:

Option 1 – Small Scale Improvement

10.2.9 The objectives of this design are:

- Provide an increase in capacity that does not require the use of third party, private land;
- Keep the cost of implementation as low as possible; and
- Minimise disruption during construction.

10.2.10 The proposed scheme design is presented in **Figure 10**. The changes included in the design are quite limited and include the following features:

- Introduction of a staggered pedestrian crossing of Yaxham Road to the south of Tavern Lane, which replaces the existing straight-across crossing. This allows the signal staging to be altered to provide additional capacity. The existing pedestrian refuge is large enough to provide this facility without the need for any significant change to kerblines;
- Signal staging changed to allow pedestrians to cross Yaxham Road simultaneously with other vehicle movements, thus providing more vehicle capacity; and
- No kerbline changes are proposed and no changes to the Greens Road signals are proposed.

10.2.11 The impact of the changes on junction capacity are shown in Table 19:

Table 19 – Tavern Lane / Yaxham Road / Greens Road Option 1 Capacity

Development Scenario	Devt Phase	Peak Hour	Existing Layout		Option 1 Layout	
			Practical Reserve Capacity (PRC%)	Total Vehicle Delay (pcuHrs)	Practical Reserve Capacity (PRC%)	Total Vehicle Delay (pcuHrs)
2015 Base Traffic		AM	-9.5	31.7	11.8	24.4
		PM	-9.4	36.2	1.5	29.7
Base plus Low Growth (6%)	Ph1	AM	-10.5	38.1	10.7	25.3
		PM	-12.4	39.2	-0.9	31.3
	Ph2	AM	-12.1	44.9	10.2	25.5
		PM	-13.6	45.0	-1.2	31.8
	Ph3	AM	-15.5	64.6	8.2	26.5
		PM	-16.5	60.7	-1.8	33.0
Base plus Medium Growth (8%)	Ph1	AM	-13	51.1	7.7	26.0
		PM	-15.5	52.0	-1.3	33.6
	Ph2	AM	-19	93.6	4.5	27.9
		PM	-17.8	108.2	-5.5	40.1
	Ph3	AM	-22.5	116.7	2.1	28.7
		PM	-19.4	126.4	-6.9	42.2
Base plus High Growth (10%)	Ph1	AM	-13	51.1	7.7	26.0
		PM	-15.5	51.9	-1.3	33.6
	Ph2	AM	-21.8	104.6	3.9	28.3
		PM	-18.8	121.9	-6.1	40.9
	Ph3	AM	-32.1	171.3	-3.5	33.3
		PM	-26.9	175.3	-10.7	55.7
2026 plus Low Growth (6%)	Ph2	AM	-26.9	128.3	-2.8	34.9
		PM	-29.4	143.9	-15.2	83.8
	Ph3	AM	-30.4	156.9	-4.5	37.2
		PM	-32.3	158.9	-15.7	91.8
2026 plus Medium Growth (8%)	Ph2	AM	-33.8	214.8	-7.1	40.8
		PM	-37.3	204.7	-18.3	129.6
	Ph3	AM	-37.3	239.8	-9.7	42.7
		PM	-40.7	234.5	-21.4	136.4
2026 plus High Growth (10%)	Ph2	AM	-39.3	211.4	-8.2	41.9
		PM	-39.3	220.9	-21	131.9
	Ph3	AM	-46.2	305.7	-15.4	71.5
		PM	-46.7	298.8	-20.5	183.9

10.2.12 **Table 19** shows that the scheme would provide increased capacity so that it would be able to cope with the early phase of development, particularly in the AM peak hour. The junction would not have the capacity to cope with Base (2015) traffic plus the largest development scenario flows and it would not have adequate capacity to cope with 2026 traffic levels plus development.

10.2.13 The advantages of the design are that it provides short term capacity increases at a low cost, with little disruption during construction.

10.2.14 The disadvantages are that the increased capacity would not be sufficient to cope with the higher levels of development or with increases in background traffic. The junction would continue to experience delays caused by traffic movements to the adjacent private accesses (which are not possible to quantify within the junction models).

10.2.15 This stage of design only includes a two-dimensional scheme drawing and vertical levels have not been assessed. At this stage no departures from design standards have been identified.

Option 1 Conclusion

10.2.16 This scheme could be implemented to provide some short term relief provided that it is recognised that a larger scheme would be required in the long term.

Option 2 – Signalised Roundabout

10.2.17 The objectives of this design are:

- Increase the throughput of traffic from all directions;
- Minimise the effect on existing buildings;
- Ensure pedestrian crossings are as good, if not better than existing; and
- Reduce the impact of vehicles turning into private accesses on junction capacity.

10.2.18 The proposed scheme design is presented in **Figure 11**. The changes included in the design include the following features:

- Introduction of a new signalised roundabout at the junction of Tavern Lane and Yaxham Road;
- The scheme would require the use of third party land at the junction, namely the corners of the Homebase and Roys car parks;

- Signalised pedestrian crossings on all approaches;
- Central reservations along Yaxham Road to prevent vehicles from turning right across the road into the private accesses and blocking traffic. Divers wishing to turn into the accesses would be able to use the roundabout to turn round and then left into the access. Drivers egressing these properties would be forced to turn left along Yaxham Road but would then be able to U-turn at the Tesco roundabout if necessary; and
- Yaxham Road would be widened slightly on the west side of the Greens Road signals to provide an additional lane between the two signalised junctions.

10.2.19 The impact of the changes on junction capacity are shown in **Table 20**:

Table 20 – Tavern Lane / Yaxham Road / Greens Road - Option 2 Signalised Roundabout Capacity

Development Scenario	Devt Phase	Peak Hour	Existing Layout		Option 2 Roundabout	
			Practical Reserve Capacity (PRC%)	Total Vehicle Delay (pcuHrs)	Practical Reserve Capacity (PRC%)	Total Vehicle Delay (pcuHrs)
2015 Base Traffic		AM	-9.5	31.7		
		PM	-9.4	36.2		
Base plus Low Growth (6%)	Ph1	AM	-10.5	38.1	28.6	19.8
		PM	-12.4	39.2	23.3	23.1
	Ph2	AM	-12.1	44.9	26.6	20.2
		PM	-13.6	45.0	22.4	23.4
	Ph3	AM	-15.5	64.6	25.6	20.8
		PM	-16.5	60.7	20	24.2
Base plus Medium Growth (8%)	Ph1	AM	-13	51.1	26.8	20.4
		PM	-15.5	52.0	21.7	23.8
	Ph2	AM	-19	93.6	23.1	21.7
		PM	-17.8	108.2	18.4	25.7
	Ph3	AM	-22.5	116.7	20	22.3
		PM	-19.4	126.4	16.4	26.5
Base plus High Growth (10%)	Ph1	AM	-13	51.1	26.8	20.4
		PM	-15.5	51.9	21.7	23.8
	Ph2	AM	-21.8	104.6	22.2	21.9
		PM	-18.8	121.9	16.4	26.2
	Ph3	AM	-32.1	171.3	13.8	24.5
		PM	-26.9	175.3	12.9	28.7
2026 plus Low Growth (6%)	Ph2	AM	-26.9	128.3	11.9	25.1
		PM	-29.4	143.9	7.1	31.9
	Ph3	AM	-30.4	156.9	10.9	26.0
		PM	-32.3	158.9	5.3	33.0
2026 plus Medium Growth (8%)	Ph2	AM	-33.8	214.8	8.6	27.4
		PM	-37.3	204.7	3.7	34.6
	Ph3	AM	-37.3	239.8	7.5	28.3
		PM	-40.7	234.5	2.3	35.4
2026 plus High Growth (10%)	Ph2	AM	-39.3	211.4	7.9	27.7
		PM	-39.3	220.9	3.2	34.8
	Ph3	AM	-46.2	305.7	1.9	31.9
		PM	-46.7	298.8	-0.1	40.0

10.2.20 **Table 20** shows that the proposed scheme would have adequate capacity to cope with the traffic associated with all the potential developments plus background traffic growth up to 2026.

10.2.21 The layout has been designed to be usable by HGVs as shown in the swept path drawing in **Figure 12.**

10.2.22 The advantages of this option are that it provides adequate capacity for the potential traffic scenarios and provides good pedestrian facilities at the junction. It reduces the existing problem with vehicles using the private accesses close to the junctions.

10.2.23 The disadvantages are that the scheme would be more expensive and disruptive to construct and it would require the use of third party land from at least two different landowners. The availability of this land is not known and there are risks that the land may be unusable or expensive to acquire. For example, there is an electrical sub-station on the line of the proposed carriageway that appears to be associated with Roys retail unit that would need to be relocated. Further investigation would be required to inform the risks relating to the use of this land and the underground utilities that exist in the area.

10.2.24 This stage of design only includes a two-dimensional scheme drawing and vertical levels have not been assessed. At this stage no departures from design standards have been identified.

10.2.25 There are significant risks associated with the design that relate to the use of third party land, existing conditions and underground utilities. Construction of the scheme would be difficult in such a constrained, highly trafficked location surrounded by commercial properties. A topographical survey will be required at the next stage of design to better understand the existing conditions.

Conclusion

10.2.26 **This scheme would provide the long term capacity required to mitigate the effects of the potential High Growth development scenario and background traffic up to the year 2026.**

10.3 STATION ROAD / MATSELL WAY / NORWICH ROAD SIGNALS

Existing Conditions

10.3.1 This junction is a signalised crossroads on the east side of the town centre between one of the main north-south routes (Station Road / Matsell Way) and the main route to the east of the town (Norwich Road). The junction has been improved relatively recently with pedestrian refuge islands, guardrails and signals equipment.

10.3.2 The junction has a level crossing for the Mid-Norfolk heritage railway across the Norwich Road arm. The junction capacity modelling has assumed that this crossing is not triggered during weekday peak hours.

10.3.3 The following photograph shows the existing junction and the adjacent properties. The islands are there to provide a separate stage for the left turn into Norwich Road, to the left of the photograph.

10.3.4 **Table 21** shows how the existing layout is expected to cope with the additional development traffic. It shows that the junction provides adequate capacity under current conditions and will continue to do so under all of the development scenarios. Only when background traffic

growth up to 2026 is added does the junction start to approach capacity. It is not expected to go over-capacity under any scenario.

10.3.5 An improvement scheme has not been proposed for this junction because there is little scope to provide additional capacity at the junction and the existing layout provides enough theoretical capacity up to 2026 plus all of the development proposals. Figure 4 shows that the junction is constrained on two corners by the existing residential and commercial properties that abut the highway and on the other side by the heritage railway. Therefore, the chances of securing any additional land to enlarge the junction are remote.

10.3.6 The current layout and operation is constrained by the Level Crossing, because the left turn from Matsell Way to Norwich Road is separately signalled from the straight ahead movement (hence the two islands on this approach). This allows the straight ahead movement to continue running even when the Level Crossing is triggered and the left turn is halted. There are no obvious alternatives to this arrangement without taking land that is off the highway and it is considered that the lack of forecast vehicle delay means that such a proposal would not be justified in this location.

10.3.7 Given that the junction already operates in an efficient way with respect to traffic movements, there seems to be little scope for any improvement.

Table 21 –Station Road / Norwich Road Signal Junction Capacity

Development Scenario	Devt Phase	Peak Hour	Existing Layout	
			Practical Reserve Capacity (PRC%)	Total Vehicle Delay (pcuHrs)
2015 Base Traffic		AM	39.0	11.9
		PM	19.6	15.0
Base plus Low Growth (6%)	Ph1	AM	23.6	14.3
		PM	12.1	17.3
	Ph2	AM	16.8	15.9
		PM	9.6	19.2
	Ph3	AM	9.8	17.9
		PM	5	21.1
Base plus Medium Growth (8%)	Ph1	AM	17.9	15.3
		PM	9.9	18.5
	Ph2	AM	16.8	15.9
		PM	9.6	19.2
	Ph3	AM	9.8	17.8
		PM	6.1	20.0
Base plus High Growth (10%)	Ph1	AM	17.9	15.3
		PM	9.9	18.5
	Ph2	AM	10.3	17.6
		PM	5.4	20.8
	Ph3	AM	8.2	18.7
		PM	3.3	22.6
2026 plus Low Growth (6%)	Ph2	AM	3.8	20.3
		PM	-4.1	28.1
	Ph3	AM	-2	24.2
		PM	-8.8	33.7
2026 plus Medium Growth (8%)	Ph2	AM	3.8	20.3
		PM	-4.1	28.1
	Ph3	AM	-1.6	24.0
		PM	-4.4	29.8
2026 plus High Growth (10%)	Ph2	AM	-1.3	23.7
		PM	-8	32.6
	Ph3	AM	-2.5	25.0
		PM	-8.4	36.1

10.4 TAVERN LANE / SOUTH GREEN JUNCTION

Existing Conditions

10.4.1 South Green is a side road off Tavern Lane that gives access to the south end of the town centre. The two roads meet at a Give-way controlled junction that has space for vehicles to turn right and left out of the side road (although it is not marked out for two lanes). Tavern Lane has one lane in each direction at this point, plus a right turn lane into South Green. The following photograph shows the junction.

10.4.2 Although not a lot of development traffic is forecast to use South Green itself, the increase in traffic on the main road is expected to make it increasingly difficult for drivers to get out of the side road, especially for those turning right. Table 1 showed that the junction would have adequate capacity to cope with existing traffic flows plus all scenarios of potential development, however when background traffic growth is applied up to 2026 the junction

would become over capacity and drivers would experience a large delay in getting out of the side road.

10.4.3 If a junction is required that provides adequate capacity for the potential development plus traffic growth to 2026 then the form of control at the junction will need to change. A simple Give-way controlled T-junction will continue to make it difficult for drivers to emerge from the side road, even if the side road were widened. In order to give the side road more priority the junction will need to be changed to either signal controlled or a roundabout.

10.4.4 A comprehensive scheme covering the three adjacent junctions along Tavern Lane needs to be developed, incorporating the junctions with Yaxham Road, the A47 eastbound offslip and on-slip roads and South Green. The junction with the A47 slip roads was not included within the scope of this study but it lies between two of the junctions that have been assessed and it therefore should be considered as part of a comprehensive scheme in this area.

10.4.5 For the purposes of this study a signal controlled junction has been proposed for the Tavern Lane / South Green junction. This has been proposed instead of a roundabout because it would be consistent with the Yaxham Lane signals and could be more easily incorporated into a new junction of Tavern Lane / A47 slip roads. This may not be the only solution but it is one that provides adequate mitigation of the effects of development traffic and background traffic growth.

10.4.6 **Figure 13** shows the proposed signal scheme design. The objectives of this design are:

- Provide an improved capacity for drivers to get through the junction from the South Green side road;
- Improve pedestrian facilities at the junction; and
- Minimise delay on the Tavern Lane main road.

10.4.7 The changes included in the design include the following features:

- Introduction of a new signalised junction at the junction of Tavern Lane and South Green;
- Widening of South Green on its south side to provide a larger central island. This helps to provide the necessary forward visibility to the signal heads and stop line;

- Signalised pedestrian crossings across both roads;
- The existing merge from the A47 offslip road on to Tavern Lane westbound would need to be realigned. The merge currently runs all the way through this junction but this design changes it to a more conventional alignment; and
- The scheme could be constructed within the existing highway so no land would be required.

10.4.8 **Table 22** shows that the proposed signalised junction would have adequate capacity for all development scenarios.

10.4.9 As a whole the junction operates within capacity, however it is important to consider that the signals scheme would introduce a delay to all vehicles on the main road that does not occur now or if the existing layout were retained in the future. The scheme is essentially to provide more capacity for the South Green side road that would be severely restricted without it.

Table 22 – Tavern Lane / South Green - Signalised Junction Capacity

Development Scenario	Devt Phase	Peak Hour	Proposed Signal Junction	
			Practical Reserve Capacity (PRC%)	Total Vehicle Delay (pcuHrs)
2015 Base Traffic		AM	26.3	10.7
		PM	20.3	10.8
Base plus Low Growth (6%)	Ph1	AM	25.6	10.8
		PM	18.5	10.9
	Ph2	AM	25	10.9
		PM	18	11.1
	Ph3	AM	23.8	11.1
		PM	17.6	11.4
Base plus Medium Growth (8%)	Ph1	AM	25.6	10.9
		PM	18.5	11.0
	Ph2	AM	25	10.9
		PM	18	11.1
	Ph3	AM	23.8	11.1
		PM	17.9	11.3
Base plus High Growth (10%)	Ph1	AM	25.6	10.9
		PM	18.5	11.0
	Ph2	AM	25	11.0
		PM	17.8	11.2
	Ph3	AM	22.3	11.8
		PM	14.9	12.0
2026 plus Low Growth (6%)	Ph2	AM	9.7	15.0
		PM	3.2	16.1
	Ph3	AM	8.7	15.3
		PM	3	16.4
2026 plus Medium Growth (8%)	Ph2	AM	9.7	15.0
		PM	3.2	16.1
	Ph3	AM	8.8	15.4
		PM	3.1	16.3
2026 plus High Growth (10%)	Ph2	AM	9.7	15.2
		PM	3.2	16.3
	Ph3	AM	8.7	16.4
		PM	1.4	18.0

10.5 A47 / YAXHAM ROAD (TESCO) ROUNDABOUT

Existing Conditions

10.5.1 This roundabout connects Yaxham Road to the A47 westbound on and off slip roads and provides access to Tesco and Dereham Business Park. There are small queues at the junction already but anecdotal evidence also suggests that the junction experiences queueing back from the downstream congested junctions at Greens Road and Tavern Lane. The following photograph shows the junction looking from the A47 slip road arm.

10.5.2 A significant amount of development traffic is expected to use the junction, generated by the potential development sites to the south that take access off Yaxham Road. Table 1 shows how the junction is expected to cope with this additional traffic. It shows that the roundabout would be able to cope with all development scenarios but would start to approach capacity with the High growth scenario when traffic growth is added up to 2026.

10.5.3 Therefore, a minor improvement would be required to the junction in order to mitigate the effects of traffic in 2026.

10.5.4 The proposed scheme design is presented in **Figure 13**. The changes included in the design are quite limited and include the following features:

- Widening of the A47 offslip road to allow two lanes of vehicles to queue on the approach to the roundabout; and
- Appropriate lane markings to balance the queues for different movements.

10.5.5 The effect of these changes is presented in **Table 23**. This shows that the minor improvements would provide the additional capacity required to mitigate the effects of the High Growth scenarios with 2026 traffic.

Table 23 – A47 / Yaxham Road (Tesco) Roundabout Capacity

Development Scenario	Devt Phase	Peak Hour	Existing Layout		Proposed Improvement	
			Max Reference Flow Capacity (RFC%)	Max Vehicle Delay (Secs)	Max Reference Flow Capacity (RFC%)	Max Vehicle Delay (Secs)
2015 Base Traffic		AM	0.70	12.6	0.44	5.1
		PM	0.59	9.4	0.61	8.1
2026 plus Medium Growth (8%)	Ph2	AM	0.89	34.6	0.58	6.7
		PM	0.78	19.0	0.74	13.8
	Ph3	AM	0.90	38.7	0.59	6.9
		PM	0.82	23.8	0.77	15.9
2026 plus High Growth (10%)	Ph2	AM	0.90	36.1	0.58	6.8
		PM	0.78	19.2	0.74	13.9
	Ph3	AM	0.95	54.4	0.65	8.0
		PM	0.87	32.4	0.79	17.9

10.6 SCHEME COST ESTIMATES

10.6.1 Preliminary cost estimates have been produced for the proposed mitigation schemes presented in this chapter, as shown in **Table 24.** The cost estimates include caveats and contingencies, relating to underground utilities, land costs and potential risk contingencies. Optimism Bias has been applied at 44%, in line with Department for Transport guidance and approved by NCC. The schemes are at a preliminary stage so the maximum Optimism Bias of 44% uplift has been applied which has a large impact on the costs. The level of Optimism Bias will reduce once some ground investigation has been done and more detailed design work is carried out.

10.6.2 An assumption has been made about the cost of underground utility costs for some of the schemes. No information is available about existing services so the actual figure could be higher or lower than this estimate. Once surveys have been done there will be a higher level of confidence about this estimate.

10.6.3 Land costs and Compulsory Purchase Order have been excluded.

Table 24 – Mitigation Scheme Cost Estimates

Cost Element	Junction 1 Tavern Lane / Yaxham Road / Greens Road Option 1 – Small scale improvement	Junction 1 Tavern Lane / Yaxham Road / Greens Road Option 2 – Signalised Roundabout	Junction 3 Tavern Lane / South Green Option 1 – Signalised Junction	Junction 4 Tesco Roundabout Yaxham Road / A47 Option 1 – Minor Widening
Capital cost estimate	£32,500	£762,500	£182,000	£10,000
Prelims/Surveys	£6,000	£124,000	£32,000	£2,500
Underground Utilities	£0	£100,000	£25,000	£0
Land	£0	Unknown	£0	£0
Design and Professional Services	£6,000	£148,000	£36,000	£2,000
Contingency (@15%)	£6,000	£148,000	£36,000	£2,000
Optimism Bias (@44%)	£17,000	£434,000	£105,500	£5,500
TOTAL	**£67,500**	**£1,716,500**	**£416,500**	**£22,000**
Commuted Sum (for ongoing maintenance)	£7,700	£197,000	£48,000	£0

10.7 CONCLUSION

10.7.1 This chapter demonstrates that the potential development in Dereham is likely to lead to increases in traffic on the network that will cause a number of junctions to be over-capacity, leading to additional delays for road users. The effects of different assumptions about development and background traffic growth were tested and it was agreed by the Project Steering Group that providing highway capacity to a level that includes background traffic growth up to 2036 was not a reasonable approach when scheme funding is being sought from the developers of the potential development sites. Traffic growth was therefore capped at 2026.

10.7.2 The large site to the south of the town that was tested within previous stages of the study was scaled down due to environmental constraints, including flood risk.

10.7.3 Potential mitigation measures were developed that could be introduced at these junctions. These would provide the additional capacity to mitigate the effects of the development traffic plus the forecast background traffic up to the year 2026.

10.7.4 All of the proposed schemes are at a feasibility design stage; they will require topographical surveys to be done of the area at the next stage to provide more certainty about levels, alignments and underground utilities. This investigation and design work will provide a higher level of confidence about the scheme cost estimates.

10.7.5 One junction was forecast to be over-capacity before 2026 (Tavern Lane/Yaxham Road/Greens Road) and three others are forecast to be over-capacity when 2026 background traffic growth is added.

10.7.6 Two potential solutions have been developed for the Tavern Lane/Yaxham Road/Greens Road junction. The first is a small scale improvement to the existing junction that provides an increase in capacity that would provide a short term solution. The second solution is a larger scale replacement of the junction with a signalised roundabout. This scheme would provide a long term solution with adequate capacity for all development traffic and background traffic growth to 2026.

10.7.7 Third party land would be required to construct the large scale scheme, with all of the associated processes, approvals and risks that would involve.

10.7.8 Mitigation measures were also proposed for the South Green / Tavern Lane junction and the Yaxham Road / A47 (Tesco) roundabout that provide capacity for all development plus 2026 traffic growth.

10.7.9 The central part of the road network to the south of the town centre requires a comprehensive scheme that includes the Yaxham Road/Tavern Lane/A47 slip roads/South Green junctions. One possibility is a series of linked signalised junctions in this area. Such a proposal would need to be discussed with Highways England in relation to their slip roads.

10.7.10 The layout of the remaining junction at Matsell Way/Norwich Road is expected to provide adequate capacity for 2015 traffic flows plus development but it is expected to approach capacity if 2026 traffic flows are included (although it still would not go over its theoretical capacity).

10.7.11 It has not been possible to produce a mitigation scheme for this junction because of the land constraints surrounding it. The existing residential and commercial properties and the railway land mean that there is not realistic likelihood that capacity can be increased significantly at the junction. It currently operates as well as possible, given the constraints.

10.7.12 This chapter presents a package of network capacity measures that would need to be implemented if the potential development sites were completed in Dereham. The sites would also need to provide improvements to sustainable modes such as bus, walking and cycling that would also help to mitigate some of the effects of the additional traffic.

11 YAXHAM AND MATTISHALL

11.1 INTRODUCTION

11.1.1 A key local issue in the consideration of the additional development in the area is the impact that the generated traffic is likely to have on Yaxham and Mattishall and the options for development there. These two villages are located to the south east of Dereham on the cross country route between Dereham and Honingham that runs parallel to the A47.

11.2 THROUGH TRAFFIC

11.2.1 The roads within and between the villages are unsuitable to carry heavy volumes of traffic but the local perception is that this route is used for some east-west journeys between Dereham and Norwich as an alternative route to the A47.

11.2.2 In terms of distance there is little difference between the routes but the Mattishall route is less direct and lower speed because of the characteristics of the road, it is narrow in places with many bends and frontage properties. However, it does not carry the volume of traffic that the A47 does and therefore there is a possibility that real or perceived journey time savings can be gained by using that route in some circumstances. It is considered that some drivers using the Mattishall route are not travelling from Dereham, but rather from other villages.

11.2.3 Data has not been collected on the origins and destinations of journeys through Mattishall but a comparison of the A47 and Mattishall routes has been carried out to assess the likelihood that new trips from the potential allocation sites will go through Yaxham and Mattishall. This assessment has been carried out by considering the existing journey times on these routes.

11.2.4 The Census data for Dereham, presented in Section 5, showed that 17% of new journey to work trips were expected to head towards the south east through Yaxham, but this is likely to include trips towards the A11, Attleborough and South Norfolk as well as Norwich. The trips heading to and from the south are not expected to travel through Mattishall.

11.2.5 In terms of future year forecasts the approved scheme to widen the A47 from single to dual carriageway between North Tuddenham and Easton will have an impact on route choice between Dereham and Norwich. It will provide more capacity but will also improve the

resilience of the road to cope with accidents and incidents. It has been said that the Mattishall route is very heavily used when there is a capacity restriction on the A47 which could be due to an accident, roadworks, a breakdown or severe congestion at a particular location. Once the road is dualled it is likely that the occurrence of these issues would reduce.

11.3 JOURNEY TIME ANALYSIS

11.3.1 Norfolk County Council has access to Trafficmaster data and the intention was to use this to compare journey times between Dereham and Easton via Mattishall and via the A47 to quantify the relative merits of each route. Unfortunately the Trafficmaster is currently unavailable to NCC so it has been necessary to use Googlemaps journey time data instead, which provides journey time forecasts based on a large sample of actual journeys.

11.3.2 A comparison of journey times was carried out between a central location in Dereham (Tesco, Yaxham Road) to a point on the A47 at Easton. The results will vary slightly depending on which points are selected but the principle is the same. The results are shown in **Table 14**.

Table 25 – Journey Times from Dereham to Easton

Direction	Route	Distance	AM Peak	Off Peak	PM Peak
Eastbound	Dereham - Mattishall – Easton	9.7 miles	20 mins	20 mins	20 mins
	Dereham – A47 – Easton		14-24 mins	14 mins	16 mins
Westbound	Easton - Mattishall - Dereham	9.7 miles	20 mins	20 mins	22 mins
	Easton – A47 – Dereham		12 mins	12 mins	14 mins

11.3.3 The results show that under normal circumstances there are significant time savings in using the A47 for journeys from Dereham towards Norwich. During off-peak times the A47 route is 6-8 minutes quicker but this is reduced during the peaks to a range of results between a 6 minute saving and 4 minutes longer journey time by using the A47. The range of results shows that the A47 is sometimes close to capacity and often becomes over capacity with a large impact on journey times. The additional journey time is due to the regular congestion that occurs on the A47 on the eastbound approach to the Honingham Roundabout.

11.3.4 When this section of the A47 is dualled the journey times are expected to reduce because the delay at Honingham roundabout will be removed. The scheme also aims to improve road safety and reduce accident-related congestion. There is a risk that disruption during

construction will cause short term congestion issues but Highways England are likely to seek to minimise the effects of this.

11.4 IMPACTS OF DEREHAM GROWTH ON MATTISHALL

11.4.1 The potential growth options in Dereham would generate additional vehicle trips and some of these are expected to use the route through Mattishall to get to their destinations. Using the 2011 Census data presented in Section 5 it has been estimated that 17% of new journeys to work would leave Dereham via Yaxham Road and head towards the south and east. An assessment of 2011 journeys to work and journey time information suggests that approximately 40% of these trips would use the route through Mattishall to reach destinations to the east while 60% would head towards the Attleborough and the A11 to the south.

11.4.2 If these assumptions are correct it means that there would be an increase in traffic through Mattishall of the following levels:

Table 26 – Forecast Traffic Increase in Mattishall due to Dereham Development

Growth Scenario	Year	Additional Peak Hour 2-way Trips Through Mattishall	
		AM Peak Hour	PM Peak Hour
Baseline Growth (6%)	2016-21	17	16
	2022-26	9	9
	2027-36	15	16
Total in period	**2016-2036**	**41**	**41**
Mid Growth (8%)	2016-21	20	18
	2022-26	8	8
	2027-36	14	15
Total in period	**2016-2036**	**43**	**41**
High Growth (10%)	2016-21	20	18
	2022-26	15	15
	2027-36	27	28
Total in period	**2016-2036**	**62**	**61**
Southern Extension (18%)	2016-21	20	18
	2022-26	36	35
	2027-36	67	71
Total in period	**2016-2036**	**122**	**124**

11.4.3 To put this increase into context, the recent traffic survey at the junction of Dereham Road / Burgh Lane in Mattishall shows that 519 vehicles travelled through the junction in the AM peak hour and 394 in the PM peak hour. The estimated increase would therefore range from 8% in the AM peak hour and 10% PM with Baseline growth up to 23.5% (AM) and 31% (PM) with the Southern Expansion scenario.

11.5 POTENTIAL DEVELOPMENT IN MATTISHALL

11.5.1 There are some committed residential developments in Mattishall that have been taken account in the highway capacity work carried out, but there is also potential for allocations of further development in the village. This section analyses the capability of the highway network to cope with additional development and suggests where that development could be located from a transport perspective. The 2011 Census data shows that most journey to work trips originating in the village head towards Norwich to the east.

11.5.2 The village has a historic centre with a uniquely characteristic layout. Traffic calming is already in place on Dereham Road through the centre of the village to limit the speed of vehicles driving through. Under normal conditions the main road is not particularly busy, with 379 2-way trips in the AM peak hour and 275 in the PM peak. There are unlikely to be any large congestion issues, but even low volumes of traffic can have a significant environmental effect in some locations.

11.5.3 Dereham Road has been narrowed to a single lane width and vehicles give way to each other. This means there is limited capacity to carry significantly more traffic without creating more delay, particularly at the give-way pinchpoint. The Department for Transport Local Transport Note 1/07 on Traffic Calming cites Danish research that suggests that single-lane sections should not carry more than 3,000 vehicles per day. The recent traffic survey showed that there were just below 3,000 vehicles on Dereham Road in a 12 hour period (7am to 7pm).

11.5.4 The removal of the give-way section to provide more capacity is not recommended because it would remove the speed restriction feature on this important section of the road. The retention of capacity constraints in the village would also deter drivers from Dereham from using this route instead of the A47, particularly when the A47 dualling is completed.

Burgh Lane / Dereham Road / Mill Lane Junction

11.5.5 An assessment of the capacity of the key junction of Burgh Lane / Dereham Road / Mill Lane junction in Mattishall was carried out (as described in Section 6). This showed that there are no concerns about the ability of this junction to deal with existing and forecast flows of traffic in terms of capacity and congestion. Very low delays and queues were forecast by the junction model, based on the observed volumes of traffic and forecast increases in traffic.

11.5.6 The Burgh Lane junction has no footways on most arms and the visibility is very restricted from Burgh Lane to the east (as shown in the following photograph). However, it does not have a significant accident record so it could be concluded that people using the junction are familiar with the layout and drive accordingly and that vehicle speeds are low enough to reduce the risk of collisions.

Mill Street

11.5.7 The Mill Street / Church Plain approach to the Burgh Lane junction is constrained in terms of its width and a lack of footways. Vehicle speeds are generally low because of the difficult layout and the presence of pedestrians in the carriageway, as shown in the following photograph of Church Plain looking north.

11.5.8 It is difficult to judge how much 'capacity' Mill Street has to cope with additional traffic from a new development in that area of the village. Congestion and road safety are not major issues on these roads, but Mill Street in particular is a constrained environment where pedestrians and vehicles share the same space. Shared surface streets can be very successful in the right circumstances and with the right design.

11.5.9 The Manual for Streets (DfT, 2007) suggested that a shared space concept is appropriate for roads that carry up to 100 vehicles per hour but Local Transport Note 1/11 on Shared Space suggests that this figure should not be considered as an upper limit for shared space; 'Shared space streets with substantially larger flows have been reported to operate successfully, albeit with reduced willingness of pedestrians to use all of the street space.'

11.5.10 Mill Street carried 160 vehicles in the peak hour during the recent survey so it is already pushing the recommended limit for traffic volume within a shared space.

11.5.11 The Shared Space guidance also suggests that the design speed within a shared space should not be more than 20 mph and preferably less than 15 mph. The design speed is a target speed that designers intend most vehicles not to exceed. A speed survey would be required to verify current vehicle speeds, but site observations suggest that vehicle speeds are generally lower than 20 mph because of the alignment of roads and buildings. Speeds could be reduced further if speed reduction measures were put into Mill Street.

11.5.12 If a shared surface were to be ruled out on the basis of the existing and forecast traffic volume it is difficult to see how Mill Street could be improved to provide pedestrians with adequate facilities, especially where the frontage wall are at the edge of the carriageway on the narrowest section. A solution may be possible here, by narrowing the carriageway to one lane for instance, but it would need to be well designed to balance the needs of the increased numbers of vehicles and pedestrians.

Preferred Development Locations

11.5.13 In general transportation terms the preferred location for development in Mattishall would be along Norwich Road to the east of the village centre. The 2011 Census data shows that the majority of journey to work trips originating in Mattishall were travelling to the east towards Norwich (approximately 60%) while the remainder, including most trips within Breckland would travel towards the west. The potential new housing allocations (228 dwellings) in Mattishall are expected to generate up to 176 new vehicle trips in the PM peak hour, in addition to the trips from other potential development in Yaxham and Dereham (see **Table 10**). This could be distributed as 106 trips to and from the east and 70 to and from the west.

11.5.14 If development is located to the east of the village centre it would mean that majority of traffic movements to the main destinations of Norwich and the east and south would not have to travel through the village.

11.5.15 A suitable access point taken directly off Norwich Road would also be preferable to taking access off one of the existing side roads to prevent traffic pressure on these roads, such as Mill Street or Burgh Lane, although these options should not be ruled out completely until further feasibility design work is carried out.

12 SUSTAINABLE TRANSPORT

12.1 INTRODUCTION

12.1.1 This section considers the existing public transport infrastructure in Dereham and how it could integrate with the potential development sites in the town, with the aim of helping to positively influence travel patterns and thereby place less reliance on the private car. This review of the public transport options in the vicinity of the proposed sites helps to define the ways in which they can effectively integrate with the surrounding areas and connect with local facilities.

12.2 PUBLIC TRANSPORT (BUS)

12.2.1 The existing bus services and frequencies are shown in **Figure 10 and Table 15**. The drawing shows all routes with at least 4 buses per day. There are other services with lower frequencies operated by Konectbus, Carters Coaches and Sanders Coaches but these will have limited impact on travel by new residents for journeys to work.

Table 27 – Local Bus Services

No.	Route	Daytime Frequency (Each direction)
4	Swanton Morley-Dereham-Mattishall-Norwich	Hourly
8	Toftwood-Dereham-Norwich	30 Minute
11	Dereham-Shipdham-King's Lynn	Hourly
12	Dereham-Moorgate-Highfield Road	5 per day
20	Dereham-Swaffham	4 per day
21	Dereham-Fakenham	7 per day
X1	Lowestoft-Norwich-Dereham-Swaffham-King's Lynn-Peterborough	30 Minute

12.2.2 It can be seen from the table and drawing that there is a reasonable level of bus service into Dereham on most of the main routes.

12.2.3 Routes to Norwich are well served by service numbers 4, 8 and X1 giving a combined frequency of 5 buses per hour in each direction. Service 4 travels via Yaxham and Mattishall while the other services travel more directly along the A47. Service 4 also provides a link to Swanton Morley to the north-east of Dereham.

12.2.4 Routes 20 and 21 provide long distance services to Fakenham and Swaffham to the north and west but the frequencies are only 4 and 7 per day. Service 20 travels via the Brooks Road and Wavell Road areas at the edge of Dereham, performing a local as well as long distance function. Service 11 provides an hourly service to King's Lynn via Shipdham and there is also a local service (12) within Dereham linking Moorgate and Highfield Road with the town centre.

12.2.5 Norfolk County Council recommends that the walking distance from new development to bus stops with bus services should not be more than 400m. **Table 16** shows the bus service frequencies within a 400m walk distance from the potential development sites.

Table 28 – Existing Bus Services at Development Sites

Site	Adjacent Bus Routes (within 400m)	Peak Frequency (buses per hour)
The Old Maltings	4, 8, 11, 12, 20, 21, X1	9
Greenfields/ Weatcroft	8, X1	4
Norwich Road	8, X1	4
Etling View West Ext	8, X1	4
North Dereham	12	1
East of Yaxham Rd (Hopkins)	4	1
Westfield Lane (East part of Link Rd)	4, 8	3
Shipdham Rd / Yaxham Rd / Link Rd	8, 11	3
Mattishall Housing	4	1
Yaxham Housing	4	1

12.2.6 The table shows that some sites have a high level of bus frequency but these are the sites that are already committed or allocated and have a high level of likelihood. The potential allocation sites have lower levels of existing bus frequency, due to their location at the edge of town. It is likely that improvements to the bus services linking these sites would be required, especially for the larger sites that generate more trips and need to be well integrated into the town. Better links for bus travel, cycling and walking will help to reduce the pressure of traffic generation from the sites on the road network.

12.3 PUBLIC TRANSPORT - RAIL

12.3.1 Dereham does not have a passenger rail service linked to the national rail network, although it is the main centre of the Mid-Norfolk heritage railway. National Rail passengers have to travel

to the stations at Norwich, King's Lynn or intermediate stations such as Wymondham or Attleborough. Trains from these stations travel direct to Cambridge, London and the Midlands.

12.4 SUMMARY

12.4.1 The committed development sites close to the town centre and on the east side of the town benefit from a relatively high frequency of bus service within walking distance. The potential allocation sites are located further from the town centre towards the southern edge of the town, where bus frequencies are currently low. The existing bus services would not provide an attractive option for travel for new residents travelling into Dereham or any other location, with bus frequencies of 1-3 buses per hour at peak times.

12.4.2 If large scale developments were allocated the provision of new or improved bus services and good pedestrian and cycle links would ensure that the sites were accessible by non-car modes, with the result that the pressure on the highway network would be reduced.

13 CONCLUSION

13.1.1 WYG has been commissioned by Breckland Council to carry out a study of the transport impacts of proposed land-use developments in Dereham and the surrounding area. The report has shown how the existing growth coming forward and the growth options in the emerging Local Plan would affect the transport network and the new transport infrastructure and/or measures that will be required to mitigate the cumulative impacts of this growth. The scope of the study and the methodology used were discussed and agreed with Breckland Council and Norfolk County Council. The study has identified that key junctions are either already congested or likely to become congested in all growth scenarios if no mitigation or intervention was to come forward.

13.1.2 This report has focussed on Dereham and the villages of Mattishall and Yaxham and the cumulative impacts of the proposed and committed developments in the town. The report has assessed existing and forecast highway capacity as well as considering road safety and sustainable transport options. Later stages of the study presented the potential highway improvements to increase capacity.

13.1.3 Junction models have been produced that forecast how development traffic will affect their future performance in terms of congestion and delay. The results show queues and delays on each arm of the junction in each peak period and they highlight where the junction is unable to cope with the forecast traffic volumes going through it. A measure of unacceptable junction performance that has been used is where average delay per vehicle exceeds 80 seconds at signalised junctions and 50 seconds at priority and roundabout junctions (this threshold triggers a Level of Service rating of F, the worst rating that is defined as 'Forced or Breakdown Flow').

13.1.4 The modelling results have been interpreted and summarised to give an overall classification for each junction of: 'Adequate Capacity', 'Risk of Over-capacity' and 'Over-capacity'.

13.1.5 The 'acceptability' of additional queues and delays is inexact and can require some value judgements to be made. A nil-detriment approach requires that highway capacity is provided to mitigate the effects of development so that network performance is no worse than it would have been without the development. However, the National Planning Policy Framework (NPPF) includes a change of emphasis where development should only be prevented where the

residual cumulative impacts are severe. This is the approach to highway capacity that has been used within this report. Where junctions have reduced capacity due to new trips but they still operate within acceptable limits they have not been proposed for improvement.

13.1.6 The results suggest that the existing highway network is already over capacity, largely caused by the constraint at the Tavern Lane/Yaxham Road signalised junction. This junction would need to be improved under all growth scenarios and the South Green / Tavern Lane junction is also at risk of over-capacity in all scenarios. The rest of the network does not have the required capacity to cope with the cumulative effects of some of the larger scale development scenarios without intervention. Different levels of development would require different mitigations measures at certain stages within the Local Plan period.

13.1.7 With Baseline growth (6%) the junctions at Greens Road / Yaxham Road would need to be improved by 2026 and the Tesco roundabout, Matsell Way / Norwich Road and Westfield Road / Shipdham Road would need to be improved by 2036.

13.1.8 With Mid-growth (8%) the improvements to the Tesco roundabout and South Green / Tavern Lane would be brought forward to 2026.

13.1.9 With High growth (10%) improvements would be required at the Matsell Way / Norwich Road signals by 2026 and at School Lane / Shipdham Road and Westfield Lane / Yaxham Road by 2036.

13.1.10 With the Southern Expansion growth scenario (18%) the required improvements would be determined by the location of the potential link road and how development was connected to it and the existing roads. It is possible that the Westfield Road / Shipdham Road improvement would be brought forward to 2026 and an improvement to Westfield Lane / Yaxham Road would be required by 2036.

13.1.11 All of the scenarios tested exclude any interventions and the analysis shows that the network does not have the required capacity to cope with the cumulative effects of development.

13.1.12 Stages Two and Three of the study refined the proposals, added more detail to the junction modelling and presented costed measures to address the issues that have been identified.

FIGURES

Appendix A – Junction Turning Counts

Appendix B – Potential Growth Options

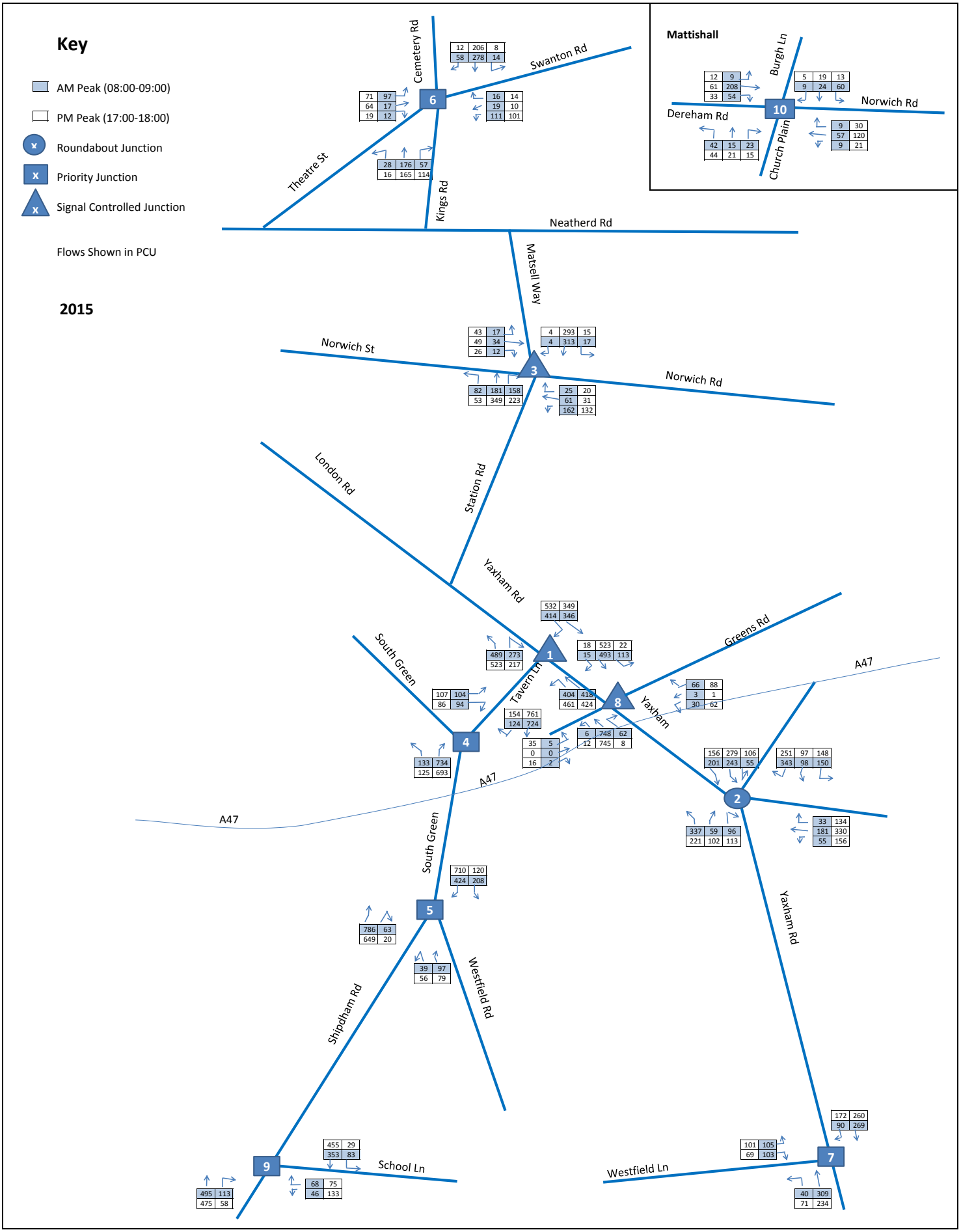
Appendix C – Background Traffic

Appendix D – Trip Rates

Appendix E – Forecast Traffic Movements

Appendix F – Junction Modelling Results

Appendix A - Junction Turning Counts



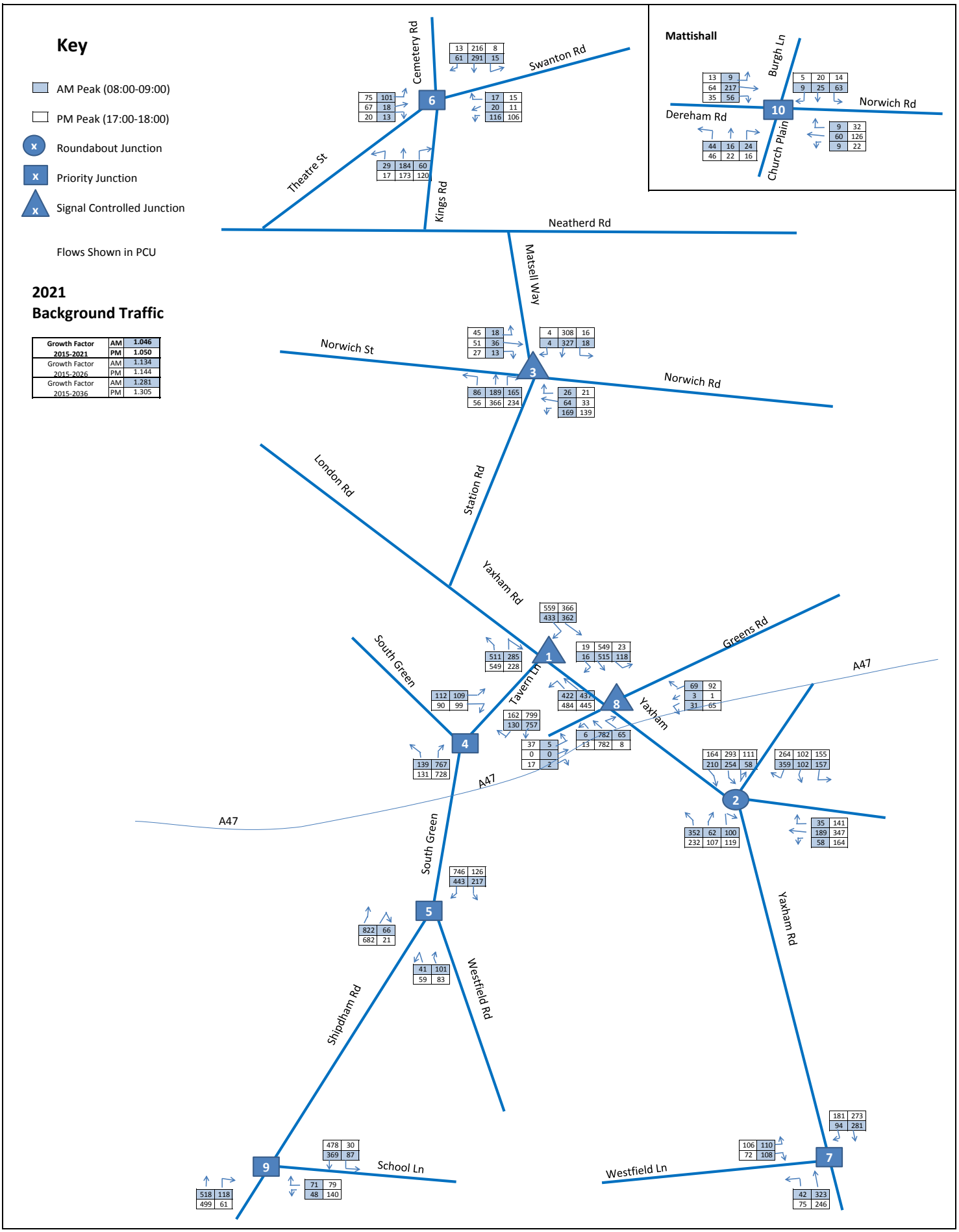
Appendix B - Proposed Development Sites - Stage 1

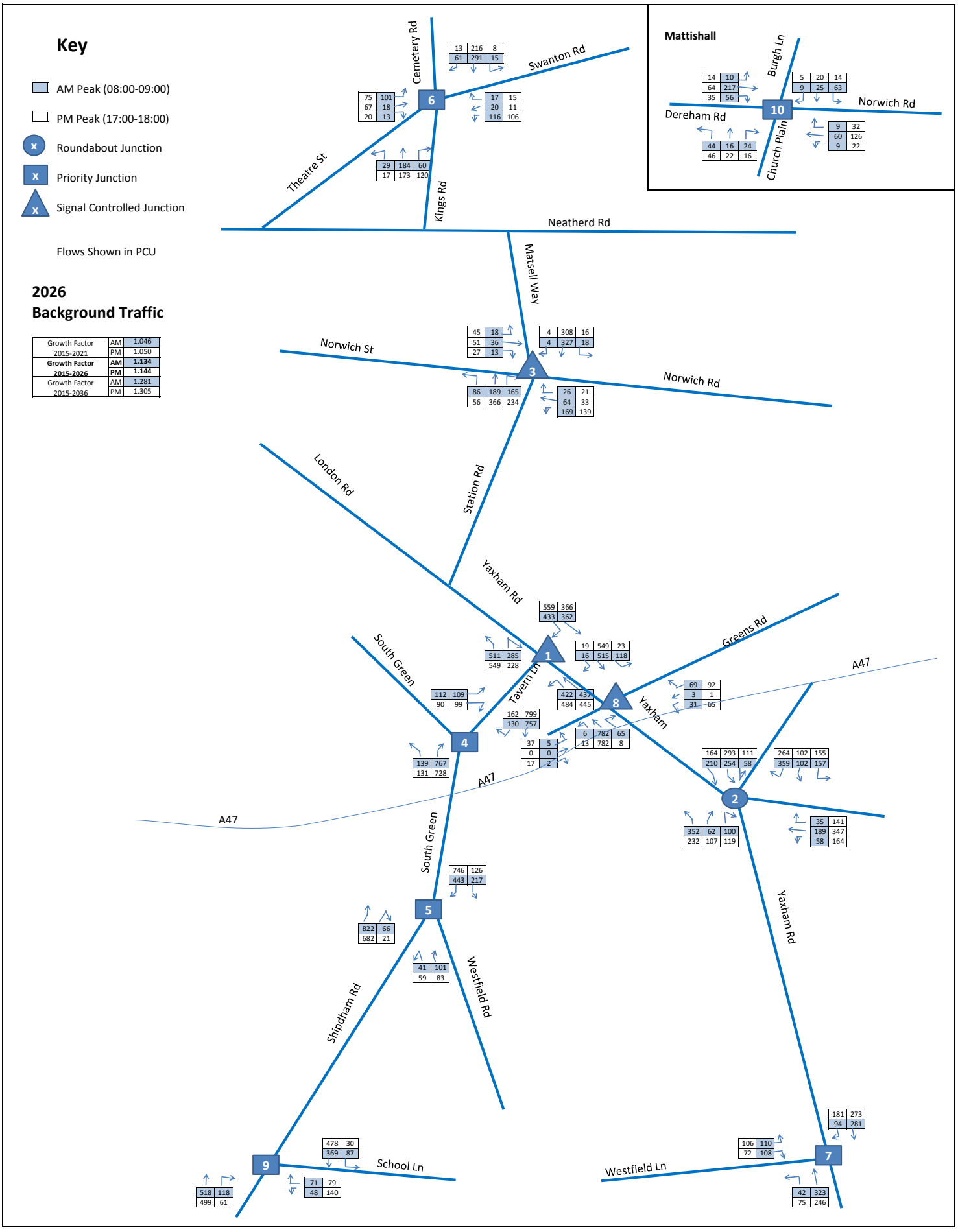
			Trip rates:																	
			0.243	0.491	0.405	0.369														
Site Name	**Constrained capacity**	**Existing TA**	**8-9**		**17-18**		1 = newly built in the Phase of Scenario													
DEREHAM			**arrivals**	**departures**	**arrivals**	**departures**	Low-2021	Low-2026	Low-2036	Mid-2021	Mid-2026	Mid-2036	High-2021	High-2026	High-2036	South-2021	South-2026	South-2036		
Business Park, excl. McDonald's	-	*TA*	*27*	*12*	*40*	*59*	1			1			1			1				
D2 – Greenfields Road/ Weatcroft Way	220	*TA*	*52*	*125*	*97*	*50*	1			1			1			1				
D2 – Greenfields Road/ Weatcroft Way - Extension	80	*TA*	*19*	*45*	*35*	*18*		1		1			1			1				
D3-Norwich Rd	176		43	86	71	65	1			1			1			1				
D1 - centre - phase 1	50		12	25	20	18		1			1			1			1			
D1 - centre - phase 2	130		32	64	53	48			1			1		1			1			
Land West of Etling View	62	*TA*	*12*	*17*	*14*	*10*		1		1			1			1				
North	16		4	8	6	6			1											
Hopkins Homes - Land East of Yaxham Road South of Dumplings Green Phase 1	100	*TA*	*24*	*33*	*34*	*29*				1			1			1				
Hopkins Homes - Land East of Yaxham Road South of Dumplings Green Phase 2	200	*TA*	*47*	*66*	*67*	*58*					1			1			1			
Land south of Westfield Lane	299		73	147	121	110									1		1			
Sites around Shipdham Rd & Yaxham Rd	1183		287	581	479	437												1		
MATTISHALL																				
Mattishall - Phase 1	70		17	34	28	26	1			1			1			1				
Mattishall - Phase 2	60		15	29	24	22		1			1			1			1			
Mattishall - Phase 3	98		24	48	40	36			1			1			1			1		
YAXHAM																				
Yaxham - Phase 1	35		9	17	14	13	1			1			1			1				
Yaxham - Phase 2	20		5	10	8	7		1			1			1			1			
Yaxham - Phase 3	34		8	17	14	13			1			1			1			1		

Appendix B - Revised Proposed Development Sites - Stages 2 and 3

			Trip rates:																
			0.157	0.390			0.353	0.181											
Site Name	**Constrained capacity**	**Existing TA**	**8-9**				**17-18**			1 = newly built in the Phase of Scenario									
DEREHAM			**arrivals**	**departures**			**arrivals**	**departures**		Low-2021	Low-2026	Low-2036	Mid-2021	Mid-2026	Mid-2036	High-2021	High-2026	High-2036	
Business Park, excl. McDonald's	-	*TA*	*27*	*12*			*40*	*59*		**1**			**1**			**1**			
D2 – Greenfields Road/ Weatcroft Way	220	*TA*	*52*	*125*			*97*	*50*		**1**			**1**			**1**			
D2 – Greenfields Road/ Weatcroft Way - Extension	80	*TA*	*19*	*45*			*35*	*18*			**1**		**1**			**1**			
D3-Norwich Rd	176		28	69			62	32		**1**			**1**			**1**			
D1 - centre - phase 1	50		8	20			18	9			**1**			**1**			**1**		
D1 - centre - phase 2	130		20	51			46	24				**1**			**1**		**1**		
Land West of Etling View	62	*TA*	*12*	*17*			*14*	*10*			**1**		**1**			**1**			
North	16		3	6			6	3				**1**							
Hopkins Homes - Land East of Yaxham Road South of Dumplings Green Phase 1	100	*TA*	*24*	*33*			*34*	*29*					**1**			**1**			
Hopkins Homes - Land East of Yaxham Road South of Dumplings Green Phase 2	200	*TA*	*47*	*66*			*67*	*58*						**1**			**1**		
Hopkins Homes - Land East of Yaxham Road South of Dumplings Green Phase 3	100	*TA*	*24*	*33*			*34*	*29*										**1**	
Sites around Shipdham Rd & Yaxham Rd	500		79	195			177	91										**1**	
MATTISHALL																			
Mattishall - Phase 1	70		11	27			25	13		**1**			**1**			**1**			
Mattishall - Phase 2	60		9	23			21	11			**1**			**1**			**1**		
Mattishall - Phase 3	98		15	38			35	18				**1**			**1**			**1**	
YAXHAM																			
Yaxham - Phase 1	35		5	14			12	6		**1**			**1**			**1**			
Yaxham - Phase 2	20		3	8			7	4			**1**			**1**			**1**		
Yaxham - Phase 3	34		5	13			12	6				**1**			**1**			**1**	

Appendix C - Background Traffic




Key
AM Peak (08:00-09:00)
PM Peak (17:00-18:00)
Roundabout Junction
Priority Junction
Signal Controlled Junction
Flows Shown in PCU
2026
Background Traffic
Growth Factor 2015-2021 AM 1.046
Growth Factor 2015-2021 PM 1.050
Growth Factor 2015-2026 AM 1.134
Growth Factor 2015-2026 PM 1.144
Growth Factor 2015-2036 AM 1.281
Growth Factor 2015-2036 PM 1.305
Mattishall
Burgh Ln
Norwich Rd
Dereham Rd
Church Plain
Cemetery Rd
Swanton Rd
Theatre St
Kings Rd
Neatherd Rd
Matsell Way
Norwich St
Norwich Rd
London Rd
Station Rd
Yaxham Rd
South Green
Tavern Ln
Greens Rd
Yaxham
A47
South Green
Shipdham Rd
Westfield Rd
Yaxham Rd
School Ln
Westfield Ln
1
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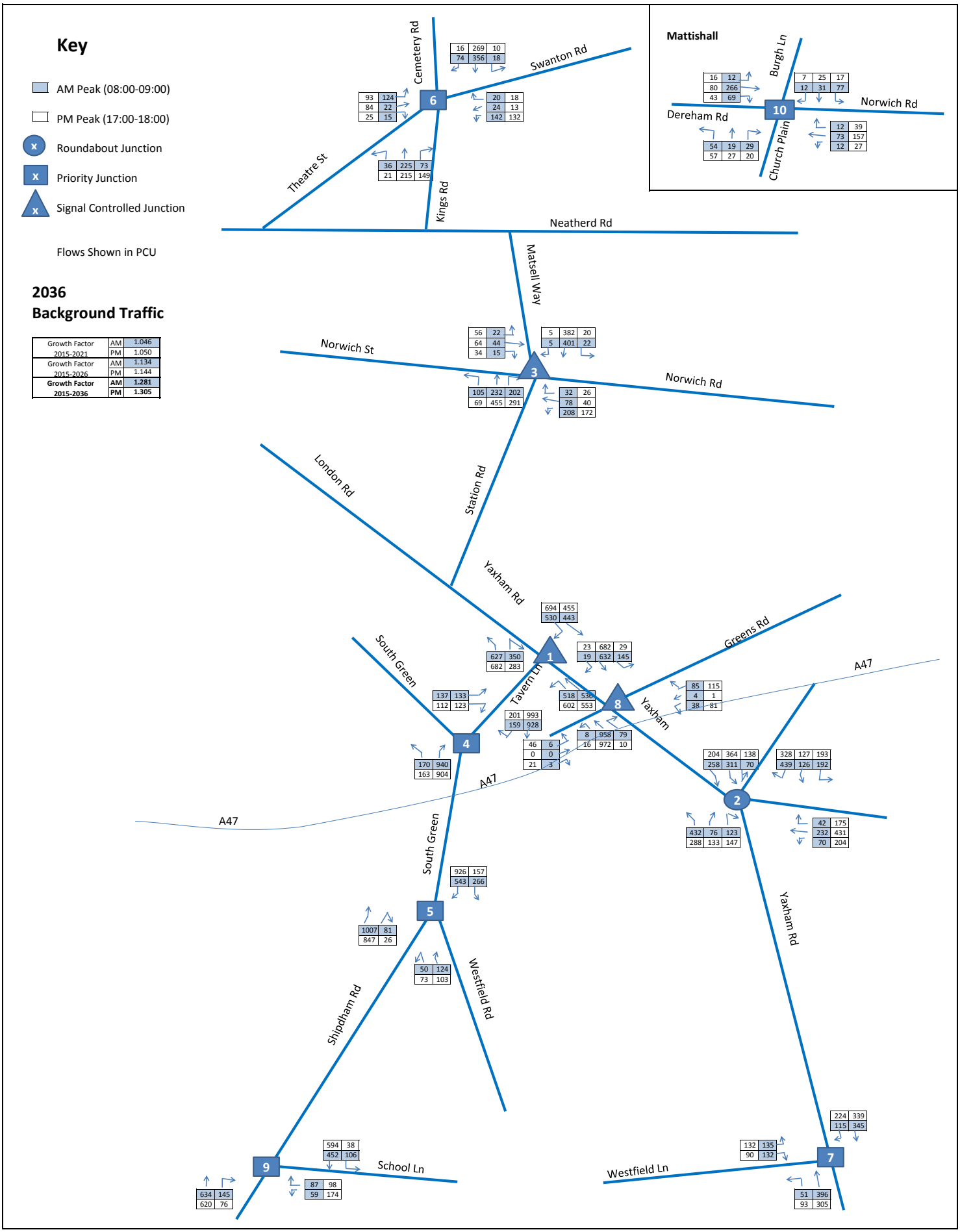
Key
AM Peak (08:00-09:00)
PM Peak (17:00-18:00)
Roundabout Junction
Priority Junction
Signal Controlled Junction
Flows Shown in PCU
2036
Background Traffic
Growth Factor 2015-2021 AM 1.046
Growth Factor 2015-2021 PM 1.050
Growth Factor 2015-2026 AM 1.134
Growth Factor 2015-2026 PM 1.144
Growth Factor 2015-2036 AM 1.281
Growth Factor 2015-2036 PM 1.305
Mattishall
Burgh Ln
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Church Plain
Cemetery Rd
Swanton Rd
Theatre St
Kings Rd
Neatherd Rd
Matsell Way
Norwich St
Norwich Rd
London Rd
Station Rd
Yaxham Rd
South Green
Tavern Ln
Greens Rd
Yaxham
A47
A47
A47
South Green
Shipdham Rd
Westfield Rd
Yaxham Rd
School Ln
Westfield Ln
1
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3
4
5
6
7
8
9
10

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 03 - RESIDENTIAL
Category : A - HOUSES PRIVATELY OWNED
VEHICLES

Selected regions and areas:

01	GREATER LONDON		
	BT	BRENT	1 days
	HO	HOUNSLOW	1 days
	KI	KINGSTON	2 days
	KN	KENSINGTON AND CHELSEA	1 days
	SK	SOUTHWARK	1 days
	WE	WESTMINSTER	1 days
	WF	WALTHAM FOREST	1 days
02	SOUTH EAST		
	ES	EAST SUSSEX	1 days
	EX	ESSEX	1 days
	HC	HAMPSHIRE	1 days
	SC	SURREY	1 days
	WS	WEST SUSSEX	1 days
03	SOUTH WEST		
	CW	CORNWALL	1 days
	DC	DORSET	2 days
04	EAST ANGLIA		
	CA	CAMBRIDGESHIRE	1 days
	NF	NORFOLK	2 days
	SF	SUFFOLK	3 days
05	EAST MIDLANDS		
	LN	LINCOLNSHIRE	3 days
06	WEST MIDLANDS		
	SH	SHROPSHIRE	4 days
	ST	STAFFORDSHIRE	2 days
	WK	WARWICKSHIRE	2 days
	WM	WEST MIDLANDS	1 days
07	YORKSHIRE & NORTH LINCOLNSHIRE		
	NE	NORTH EAST LINCOLNSHIRE	2 days
	NY	NORTH YORKSHIRE	7 days
	SY	SOUTH YORKSHIRE	1 days
08	NORTH WEST		
	CH	CHESHIRE	4 days
	GM	GREATER MANCHESTER	1 days
	LC	LANCASHIRE	1 days
	MS	MERSEYSIDE	1 days
09	NORTH		
	CB	CUMBRIA	2 days
	TW	TYNE & WEAR	1 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Filtering Stage 2 selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter:	Number of dwellings
Actual Range:	6 to 432 (units:)
Range Selected by User:	6 to 4334 (units:)

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/07 to 31/12/15

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Monday	9 days
Tuesday	17 days
Wednesday	6 days
Thursday	13 days
Friday	9 days

This data displays the number of selected surveys by day of the week.

Selected survey types:

Manual count	54 days
Directional ATC Count	0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaking using machines.

Selected Locations:

Edge of Town Centre	5
Suburban Area (PPS6 Out of Centre)	28
Edge of Town	21

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:

Development Zone	1
Residential Zone	43
Built-Up Zone	2
No Sub Category	8

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

WYG Executive Park, Avalon Way Leicester Licence No: 705102

RANK ORDER for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
VEHICLES

Ranking Type: TOTALS Time Range: 08:00-09:00
15th Percentile = No. 46 NY-03-A-08 Tot: 0.334
85th Percentile = No. 9 WM-03-A-03 Tot: 0.726

Median Values		Mean Values	
Arrivals:	0.111	Arrivals:	0.162
Departures:	0.379	Departures:	0.374
Totals:	0.489	Totals:	0.535

Rank	Site-Ref	Description	Town/City	Area	DWELLS	Day	Date	Trip Rate (Sorted by Totals)			Park Spaces Per Dwelling
								Arrivals	Departures	Totals	
1	MS-03-A-03	DETACHED	LIVERPOOL	MERSEYSIDE	15	Fri	21/06/13	0.400	0.933	1.333	3.00
2	SF-03-A-04	DETACHED & BUN	LOWESTOFT	SUFFOLK	7	Tue	23/10/12	0.429	0.571	1.000	4.43
3	WK-03-A-02	BUNGALOWS	COVENTRY	WARWICKSHIRE	17	Thu	17/10/13	0.588	0.353	0.941	2.06
4	BT-03-A-01	SEMI DETATCHED	BRENT	BRENT	82	Tue	20/11/07	0.415	0.488	0.903	3.71
5	GM-03-A-10	DETACHED/SEMI	MANCHESTER	GREATER MANCHESTER	29	Wed	12/10/11	0.138	0.759	0.897	2.79
6	CH-03-A-05	DETACHED	CREWE	CHESHIRE	17	Tue	14/10/08	0.235	0.588	0.823	3.71
7	SH-03-A-04	TERRACED	SHREWSBURY	SHROPSHIRE	108	Thu	11/06/09	0.287	0.454	0.741	1.86
8	SF-03-A-02	SEMI DET./TERR	IPSWICH	SUFFOLK	230	Thu	24/05/07	0.243	0.491	0.734	2.48
9	WM-03-A-03	MIXED HOUSING	COVENTRY	WEST MIDLANDS	84	Mon	24/09/07	0.321	0.405	0.726	2.60
10	NY-03-A-10	HOUSES AND FLA	RIPON	NORTH YORKSHIRE	71	Tue	17/09/13	0.183	0.521	0.704	0.83
11	SH-03-A-03	DETATCHED	SHREWSBURY	SHROPSHIRE	10	Fri	26/06/09	0.200	0.500	0.700	3.00
12	EX-03-A-01	SEMI-DET.	STANFORD-LE-HOPE	ESSEX	237	Tue	13/05/08	0.177	0.523	0.700	2.53
13	CB-03-A-03	SEMI DETACHED	WORKINGTON	CUMBRIA	40	Thu	20/11/08	0.225	0.450	0.675	3.10
14	KN-03-A-01	TERRACED	NORTH KENSINGTON	KENSINGTON AND CHEL	24	Fri	26/01/07	0.292	0.375	0.667	1.17
15	ST-03-A-05	TERRACED & DET	STOKE-ON-TRENT	STAFFORDSHIRE	14	Wed	26/11/08	0.143	0.500	0.643	2.86
16	CH-03-A-08	DETACHED	CHESTER	CHESHIRE	11	Tue	22/05/12	0.182	0.455	0.637	4.73
17	LN-03-A-01	MIXED HOUSES	LINCOLN	LINCOLNSHIRE	150	Tue	15/05/07	0.187	0.440	0.627	4.91
18	TW-03-A-02	SEMI-DETACHED	GATESHEAD	TYNE & WEAR	16	Mon	07/10/13	0.188	0.438	0.626	2.38
19	LC-03-A-30	SEMI-DETACHED	BLACKPOOL	LANCASHIRE	24	Fri	14/06/13	0.167	0.458	0.625	1.67
20	LN-03-A-02	MIXED HOUSES	LINCOLN	LINCOLNSHIRE	186	Mon	14/05/07	0.183	0.425	0.608	4.13
21	WF-03-A-01	TERRACED	WALTHAMSTOW	WALTHAM FOREST	53	Tue	30/01/07	0.245	0.358	0.603	1.36
22	NY-03-A-11	PRIVATE HOUSIN	BOROUGHBRIDGE	NORTH YORKSHIRE	23	Wed	18/09/13	0.000	0.565	0.565	6.26
23	CB-03-A-04	SEMI DETACHED	WORKINGTON	CUMBRIA	82	Fri	24/04/09	0.183	0.366	0.549	1.74
24	SF-03-A-01	SEMI DETACHED	IPSWICH	SUFFOLK	77	Wed	23/05/07	0.104	0.416	0.520	2.22
25	SH-03-A-05	SEMI-DETACHED/	TELFORD	SHROPSHIRE	54	Thu	24/10/13	0.130	0.370	0.500	1.17
26	NY-03-A-06	BUNGALOWS & SE	BOROUGHBRIDGE	NORTH YORKSHIRE	115	Fri	14/10/11	0.096	0.400	0.496	3.50
27	SC-03-A-04	DETACHED & TER	BYFLEET	SURREY	71	Thu	23/01/14	0.141	0.352	0.493	2.49
28	ES-03-A-02	PRIVATE HOUSIN	PEACEHAVEN	EAST SUSSEX	37	Fri	18/11/11	0.081	0.405	0.486	1.59
29	NY-03-A-07	DETACHED & SEM	BOROUGHBRIDGE	NORTH YORKSHIRE	23	Tue	18/10/11	0.087	0.391	0.478	1.96
30	CH-03-A-02	HOUSES/FLATS	CREWE	CHESHIRE	174	Tue	14/10/08	0.103	0.374	0.477	2.81
31	DC-03-A-01	DETACHED	POOLE	DORSET	51	Wed	16/07/08	0.098	0.373	0.471	3.00
32	ST-03-A-06	SEMI-DET. & TE	WOLVERHAMPTON	STAFFORDSHIRE	17	Fri	09/05/14	0.235	0.235	0.470	1.12

WYG Executive Park, Avalon Way Leicester Licence No: 705102

Rank	Site-Ref	Description	Town/City	Area	DWELLS	Day	Date	Trip Rate (Sorted by Totals)			Park Spaces Per Dwelling
								Arrivals	Departures	Totals	
33	NF-03-A-02	HOUSES & FLATS	NORWICH	NORFOLK	98	Mon	22/10/12	0.122	0.347	0.469	2.24
34	KI-03-A-02	DETACHED	KINGSTON UPON THAME	KINGSTON	20	Thu	24/06/10	0.200	0.250	0.450	3.05
35	SY-03-A-01	SEMI DETACHED	DONCASTER	SOUTH YORKSHIRE	54	Wed	18/09/13	0.056	0.389	0.445	1.13
36	NF-03-A-01	SEMI DET. & BU	CAISTER-ON-SEA	NORFOLK	27	Tue	16/10/12	0.148	0.296	0.444	2.37
37	NE-03-A-03	PRIVATE HOUSES	SCUNTHORPE	NORTH EAST LINCOLNS	180	Tue	20/05/14	0.144	0.283	0.427	2.68
38	CW-03-A-02	SEMI D./DETATC	TRURO	CORNWALL	73	Tue	18/09/07	0.096	0.329	0.425	3.73
39	NE-03-A-02	SEMI DETACHED	SCUNTHORPE	NORTH EAST LINCOLNS	432	Mon	12/05/14	0.067	0.354	0.421	1.00
40	WS-03-A-04	MIXED HOUSES	HORSHAM	WEST SUSSEX	151	Thu	11/12/14	0.139	0.278	0.417	2.28
41	LN-03-A-03	SEMI DETACHED	LINCOLN	LINCOLNSHIRE	22	Tue	18/09/12	0.045	0.364	0.409	1.09
42	CH-03-A-06	SEMI-DET./BUNG	CREWE	CHESHIRE	129	Tue	14/10/08	0.163	0.240	0.403	2.59
43	NY-03-A-09	MIXED HOUSING	NORTHALLERTON	NORTH YORKSHIRE	52	Mon	16/09/13	0.173	0.212	0.385	2.60
44	HO-03-A-01	MIXED HOUSING	OSTERLEY	HOUNSLOW	82	Tue	16/09/14	0.085	0.293	0.378	1.74
45	KI-03-A-01	DETACHED	KINGSTON UPON THAME	KINGSTON	12	Thu	24/06/10	0.167	0.167	0.334	4.75
46	NY-03-A-08	TERRACED HOUSE	YORK	NORTH YORKSHIRE	21	Mon	16/09/13	0.048	0.286	0.334	1.14
47	CA-03-A-04	DETACHED	PETERBOROUGH	CAMBRIDGESHIRE	9	Tue	18/10/11	0.000	0.333	0.333	2.44
48	DC-03-A-08	BUNGALOWS	BOURNEMOUTH	DORSET	28	Mon	24/03/14	0.179	0.143	0.322	4.68
49	HC-03-A-17	HOUSES & FLATS	LIPHOOK	HAMPSHIRE	36	Thu	12/11/15	0.000	0.306	0.306	3.78
50	NY-03-A-03	PRIVATE HOUSIN	BOROUGHBRIDGE	NORTH YORKSHIRE	14	Mon	15/09/08	0.143	0.143	0.286	3.14
51	SK-03-A-01	SEMI DET. & TE	CANADA WATER	SOUTHWARK	15	Thu	23/10/08	0.067	0.200	0.267	2.20
52	WK-03-A-01	TERRACED/SEMI/	LEAMINGTON SPA	WARWICKSHIRE	6	Fri	21/10/11	0.000	0.167	0.167	2.00
53	SH-03-A-06	BUNGALOWS	SHREWSBURY	SHROPSHIRE	16	Thu	22/05/14	0.000	0.063	0.062	2.00
54	WE-03-A-01	PRINCES MEWS	NOTTING HILL	WESTMINSTER	18	Thu	15/10/09	0.000	0.000	0.000	0.67

This section displays actual (not average) trip rates for each of the survey days in the selected set, and ranks them in order of relative trip rate intensity, for a given time period (or peak period irrespective of time) selected by the user. The count type and direction are both displayed just above the table, along with the rows within the table representing the 85th and 15th percentile trip rate figures (highlighted in bold within the table itself).

The table itself displays details of each individual survey, alongside arrivals, departures and totals trip rates, sorted by whichever of the three directional options has been chosen by the user. As with the preceeding trip rate calculation results table, the trip rates shown are per the calculation factor (e.g. per 100m2 GFA, per employee, per hectare, etc). Note that if the peak period option has been selected (as opposed to a specific chosen time period), the peak period for each individual survey day in the table is also displayed.

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 03 - RESIDENTIAL
Category : A - HOUSES PRIVATELY OWNED
VEHICLES

Selected regions and areas:

01	GREATER LONDON		
	BT	BRENT	1 days
	HO	HOUNSLOW	1 days
	KI	KINGSTON	2 days
	KN	KENSINGTON AND CHELSEA	1 days
	SK	SOUTHWARK	1 days
	WE	WESTMINSTER	1 days
	WF	WALTHAM FOREST	1 days
02	SOUTH EAST		
	ES	EAST SUSSEX	1 days
	EX	ESSEX	1 days
	HC	HAMPSHIRE	1 days
	SC	SURREY	1 days
	WS	WEST SUSSEX	1 days
03	SOUTH WEST		
	CW	CORNWALL	1 days
	DC	DORSET	2 days
04	EAST ANGLIA		
	CA	CAMBRIDGESHIRE	1 days
	NF	NORFOLK	2 days
	SF	SUFFOLK	3 days
05	EAST MIDLANDS		
	LN	LINCOLNSHIRE	3 days
06	WEST MIDLANDS		
	SH	SHROPSHIRE	4 days
	ST	STAFFORDSHIRE	2 days
	WK	WARWICKSHIRE	2 days
	WM	WEST MIDLANDS	1 days
07	YORKSHIRE & NORTH LINCOLNSHIRE		
	NE	NORTH EAST LINCOLNSHIRE	2 days
	NY	NORTH YORKSHIRE	7 days
	SY	SOUTH YORKSHIRE	1 days
08	NORTH WEST		
	CH	CHESHIRE	4 days
	GM	GREATER MANCHESTER	1 days
	LC	LANCASHIRE	1 days
	MS	MERSEYSIDE	1 days
09	NORTH		
	CB	CUMBRIA	2 days
	TW	TYNE & WEAR	1 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Filtering Stage 2 selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter:	Number of dwellings
Actual Range:	6 to 432 (units:)
Range Selected by User:	6 to 4334 (units:)

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/07 to 31/12/15

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Monday	9 days
Tuesday	17 days
Wednesday	6 days
Thursday	13 days
Friday	9 days

This data displays the number of selected surveys by day of the week.

Selected survey types:

Manual count	54 days
Directional ATC Count	0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaking using machines.

Selected Locations:

Edge of Town Centre	5
Suburban Area (PPS6 Out of Centre)	28
Edge of Town	21

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:

Development Zone	1
Residential Zone	43
Built-Up Zone	2
No Sub Category	8

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

WYG Executive Park, Avalon Way Leicester Licence No: 705102

RANK ORDER for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
VEHICLES

Ranking Type: TOTALS Time Range: 17:00-18:00
15th Percentile = No. 46 DC-03-A-08 Tot: 0.286
85th Percentile = No. 9 SH-03-A-04 Tot: 0.759

Median Values		Mean Values	
Arrivals:	0.372	Arrivals:	0.327
Departures:	0.143	Departures:	0.184
Totals:	0.514	Totals:	0.511

Rank	Site-Ref	Description	Town/City	Area	DWELLS	Day	Date	Trip Rate (Sorted by Totals)			Park Spaces
								Arrivals	Departures	Totals	Per Dwelling
1	SH-03-A-03	DETATCHED	SHREWSBURY	SHROPSHIRE	10	Fri	26/06/09	0.700	0.600	1.300	3.00
2	BT-03-A-01	SEMI DETATCHED	BRENT	BRENT	82	Tue	20/11/07	0.439	0.427	0.866	3.71
3	LN-03-A-02	MIXED HOUSES	LINCOLN	LINCOLNSHIRE	186	Mon	14/05/07	0.495	0.355	0.850	4.13
4	DC-03-A-01	DETACHED	POOLE	DORSET	51	Wed	16/07/08	0.510	0.333	0.843	3.00
5	CH-03-A-08	DETACHED	CHESTER	CHESHIRE	11	Tue	22/05/12	0.545	0.273	0.818	4.73
6	CA-03-A-04	DETACHED	PETERBOROUGH	CAMBRIDGESHIRE	9	Tue	18/10/11	0.556	0.222	0.778	2.44
7	WM-03-A-03	MIXED HOUSING	COVENTRY	WEST MIDLANDS	84	Mon	24/09/07	0.405	0.369	0.774	2.60
8	CH-03-A-05	DETACHED	CREWE	CHESHIRE	17	Tue	14/10/08	0.353	0.412	0.765	3.71
9	SH-03-A-04	TERRACED	SHREWSBURY	SHROPSHIRE	108	Thu	11/06/09	0.463	0.296	0.759	1.86
10	WF-03-A-01	TERRACED	WALTHAMSTOW	WALTHAM FOREST	53	Tue	30/01/07	0.434	0.321	0.755	1.36
11	NY-03-A-11	PRIVATE HOUSIN	BOROUGHBRIDGE	NORTH YORKSHIRE	23	Wed	18/09/13	0.609	0.130	0.739	6.26
12	NY-03-A-07	DETACHED & SEM	BOROUGHBRIDGE	NORTH YORKSHIRE	23	Tue	18/10/11	0.478	0.261	0.739	1.96
13	SF-03-A-02	SEMI DET./TERR	IPSWICH	SUFFOLK	230	Thu	24/05/07	0.478	0.248	0.726	2.48
14	CB-03-A-03	SEMI DETACHED	WORKINGTON	CUMBRIA	40	Thu	20/11/08	0.475	0.250	0.725	3.10
15	EX-03-A-01	SEMI-DET.	STANFORD-LE-HOPE	ESSEX	237	Tue	13/05/08	0.439	0.274	0.713	2.53
16	ST-03-A-06	SEMI-DET. & TE	WOLVERHAMPTON	STAFFORDSHIRE	17	Fri	09/05/14	0.353	0.294	0.647	1.12
17	CW-03-A-02	SEMI D./DETATC	TRURO	CORNWALL	73	Tue	18/09/07	0.425	0.219	0.644	3.73
18	LN-03-A-01	MIXED HOUSES	LINCOLN	LINCOLNSHIRE	150	Tue	15/05/07	0.413	0.213	0.626	4.91
19	LC-03-A-30	SEMI-DETACHED	BLACKPOOL	LANCASHIRE	24	Fri	14/06/13	0.417	0.208	0.625	1.67
20	NY-03-A-10	HOUSES AND FLA	RIPON	NORTH YORKSHIRE	71	Tue	17/09/13	0.479	0.099	0.578	0.83
21	SF-03-A-04	DETACHED & BUN	LOWESTOFT	SUFFOLK	7	Tue	23/10/12	0.429	0.143	0.572	4.43
22	CB-03-A-04	SEMI DETACHED	WORKINGTON	CUMBRIA	82	Fri	24/04/09	0.354	0.207	0.561	1.74
23	CH-03-A-02	HOUSES/FLATS	CREWE	CHESHIRE	174	Tue	14/10/08	0.322	0.236	0.558	2.81
24	NF-03-A-01	SEMI DET. & BU	CAISTER-ON-SEA	NORFOLK	27	Tue	16/10/12	0.407	0.148	0.555	2.37
25	GM-03-A-10	DETACHED/SEMI	MANCHESTER	GREATER MANCHESTER	29	Wed	12/10/11	0.448	0.103	0.551	2.79
26	KI-03-A-02	DETACHED	KINGSTON UPON THAME	KINGSTON	20	Thu	24/06/10	0.300	0.250	0.550	3.05
27	HC-03-A-17	HOUSES & FLATS	LIPHOOK	HAMPSHIRE	36	Thu	12/11/15	0.306	0.222	0.528	3.78
28	TW-03-A-02	SEMI-DETACHED	GATESHEAD	TYNE & WEAR	16	Mon	07/10/13	0.438	0.063	0.500	2.38
29	ST-03-A-05	TERRACED & DET	STOKE-ON-TRENT	STAFFORDSHIRE	14	Wed	26/11/08	0.286	0.214	0.500	2.86
30	NY-03-A-06	BUNGALOWS & SE	BOROUGHBRIDGE	NORTH YORKSHIRE	115	Fri	14/10/11	0.296	0.174	0.470	3.50
31	SC-03-A-04	DETACHED & TER	BYFLEET	SURREY	71	Thu	23/01/14	0.366	0.099	0.465	2.49
32	NY-03-A-09	MIXED HOUSING	NORTHALLERTON	NORTH YORKSHIRE	52	Mon	16/09/13	0.269	0.192	0.461	2.60

WYG Executive Park, Avalon Way Leicester Licence No: 705102

Rank	Site-Ref	Description	Town/City	Area	DWELLS	Day	Date	Trip Rate (Sorted by Totals)			Park Spaces Per Dwelling
								Arrivals	Departures	Totals	
33	NE-03-A-02	SEMI DETACHED	SCUNTHORPE	NORTH EAST LINCOLNS	432	Mon	12/05/14	0.257	0.162	0.419	1.00
34	SF-03-A-01	SEMI DETACHED	IPSWICH	SUFFOLK	77	Wed	23/05/07	0.247	0.169	0.416	2.22
35	MS-03-A-03	DETACHED	LIVERPOOL	MERSEYSIDE	15	Fri	21/06/13	0.200	0.200	0.400	3.00
36	NF-03-A-02	HOUSES & FLATS	NORWICH	NORFOLK	98	Mon	22/10/12	0.235	0.143	0.378	2.24
37	WS-03-A-04	MIXED HOUSES	HORSHAM	WEST SUSSEX	151	Thu	11/12/14	0.252	0.119	0.371	2.28
38	SH-03-A-05	SEMI-DETACHED/	TELFORD	SHROPSHIRE	54	Thu	24/10/13	0.241	0.130	0.371	1.17
39	NY-03-A-03	PRIVATE HOUSIN	BOROUGHBRIDGE	NORTH YORKSHIRE	14	Mon	15/09/08	0.214	0.143	0.357	3.14
40	ES-03-A-02	PRIVATE HOUSIN	PEACEHAVEN	EAST SUSSEX	37	Fri	18/11/11	0.351	0.000	0.351	1.59
41	NY-03-A-08	TERRACED HOUSE	YORK	NORTH YORKSHIRE	21	Mon	16/09/13	0.286	0.048	0.334	1.14
42	SY-03-A-01	SEMI DETACHED	DONCASTER	SOUTH YORKSHIRE	54	Wed	18/09/13	0.278	0.056	0.334	1.13
43	LN-03-A-03	SEMI DETACHED	LINCOLN	LINCOLNSHIRE	22	Tue	18/09/12	0.273	0.045	0.318	1.09
44	NE-03-A-03	PRIVATE HOUSES	SCUNTHORPE	NORTH EAST LINCOLNS	180	Tue	20/05/14	0.128	0.183	0.311	2.68
45	KN-03-A-01	TERRACED	NORTH KENSINGTON	KENSINGTON AND CHEL	24	Fri	26/01/07	0.167	0.125	0.292	1.17
46	DC-03-A-08	BUNGALOWS	BOURNEMOUTH	DORSET	28	Mon	24/03/14	0.107	0.179	0.286	4.68
47	CH-03-A-06	SEMI-DET./BUNG	CREWE	CHESHIRE	129	Tue	14/10/08	0.132	0.140	0.272	2.59
48	KI-03-A-01	DETACHED	KINGSTON UPON THAME	KINGSTON	12	Thu	24/06/10	0.250	0.000	0.250	4.75
49	HO-03-A-01	MIXED HOUSING	OSTERLEY	HOUNSLOW	82	Tue	16/09/14	0.122	0.098	0.220	1.74
50	WK-03-A-01	TERRACED/SEMI/	LEAMINGTON SPA	WARWICKSHIRE	6	Fri	21/10/11	0.167	0.000	0.167	2.00
51	SK-03-A-01	SEMI DET. & TE	CANADA WATER	SOUTHWARK	15	Thu	23/10/08	0.067	0.067	0.134	2.20
52	SH-03-A-06	BUNGALOWS	SHREWSBURY	SHROPSHIRE	16	Thu	22/05/14	0.000	0.063	0.062	2.00
53	WK-03-A-02	BUNGALOWS	COVENTRY	WARWICKSHIRE	17	Thu	17/10/13	0.000	0.000	0.000	2.06
54	WE-03-A-01	PRINCES MEWS	NOTTING HILL	WESTMINSTER	18	Thu	15/10/09	0.000	0.000	0.000	0.67

This section displays actual (not average) trip rates for each of the survey days in the selected set, and ranks them in order of relative trip rate intensity, for a given time period (or peak period irrespective of time) selected by the user. The count type and direction are both displayed just above the table, along with the rows within the table representing the 85th and 15th percentile trip rate figures (highlighted in bold within the table itself).

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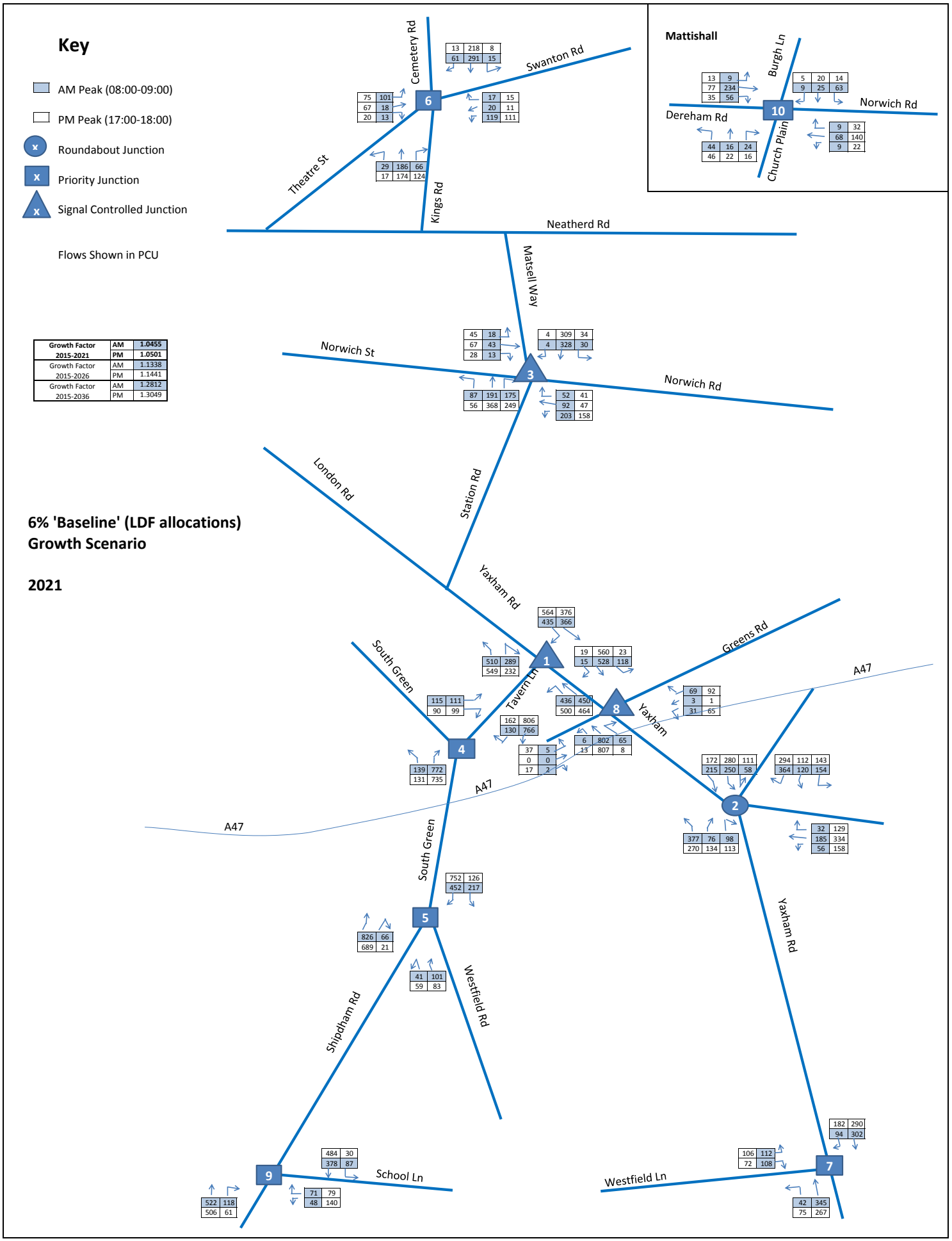
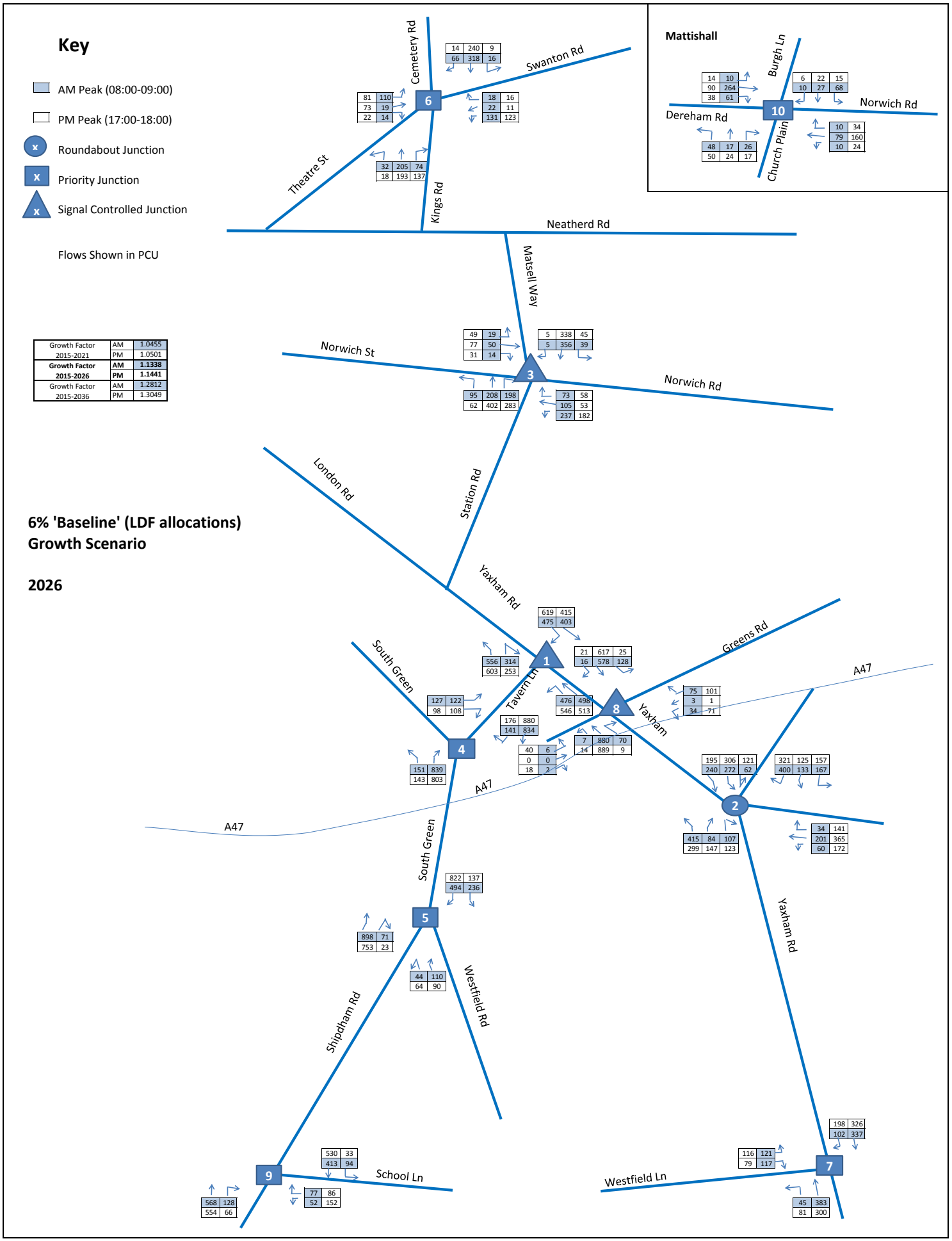
Appendix E - Forecast Traffic Movements




Key
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PM Peak (17:00-18:00)
Roundabout Junction
Priority Junction
Signal Controlled Junction
Flows Shown in PCU
Growth Factor 2015-2021 AM 1.0455 PM 1.0501
Growth Factor 2015-2026 AM 1.1338 PM 1.1441
Growth Factor 2015-2036 AM 1.2812 PM 1.3049
6% 'Baseline' (LDF allocations) Growth Scenario
2026
Mattishall
Burgh Ln
Dereham Rd
Norwich Rd
Church Plain
Cemetery Rd
Swanton Rd
Theatre St
Kings Rd
Neatherd Rd
Matsell Way
Norwich St
Norwich Rd
London Rd
Station Rd
Yaxham Rd
South Green
Tavern Ln
Greens Rd
Yaxham
A47
A47
A47
South Green
Shipdham Rd
Westfield Rd
Yaxham Rd
School Ln
Westfield Ln
1
2
3
4
5
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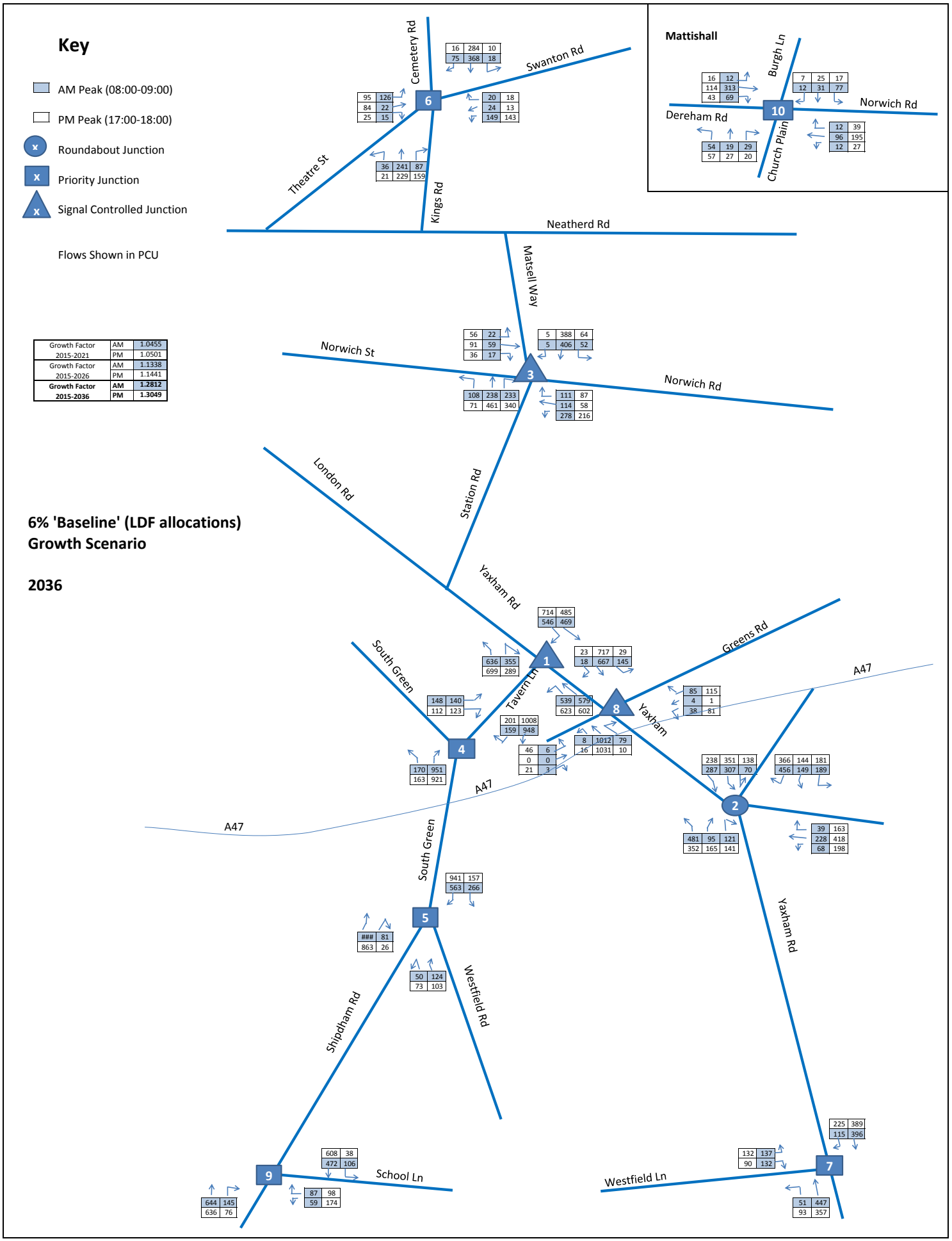
7
8
9
10


Key
AM Peak (08:00-09:00)
PM Peak (17:00-18:00)
Roundabout Junction
Priority Junction
Signal Controlled Junction
Flows Shown in PCU
Growth Factor 2015-2021 AM 1.0455
Growth Factor 2015-2021 PM 1.0501
Growth Factor 2015-2026 AM 1.1338
Growth Factor 2015-2026 PM 1.1441
Growth Factor 2015-2036 AM 1.2812
Growth Factor 2015-2036 PM 1.3049
6% 'Baseline' (LDF allocations) Growth Scenario
2036
Mattishall
Burgh Ln
Norwich Rd
Dereham Rd
Church Plain
Cemetery Rd
Swanton Rd
Theatre St
Kings Rd
Neatherd Rd
Matsell Way
Norwich St
Norwich Rd
London Rd
Station Rd
Yaxham Rd
South Green
Tavern Ln
Greens Rd
A47
Yaxham
Yaxham Rd
Shipdham Rd
Westfield Rd
School Ln
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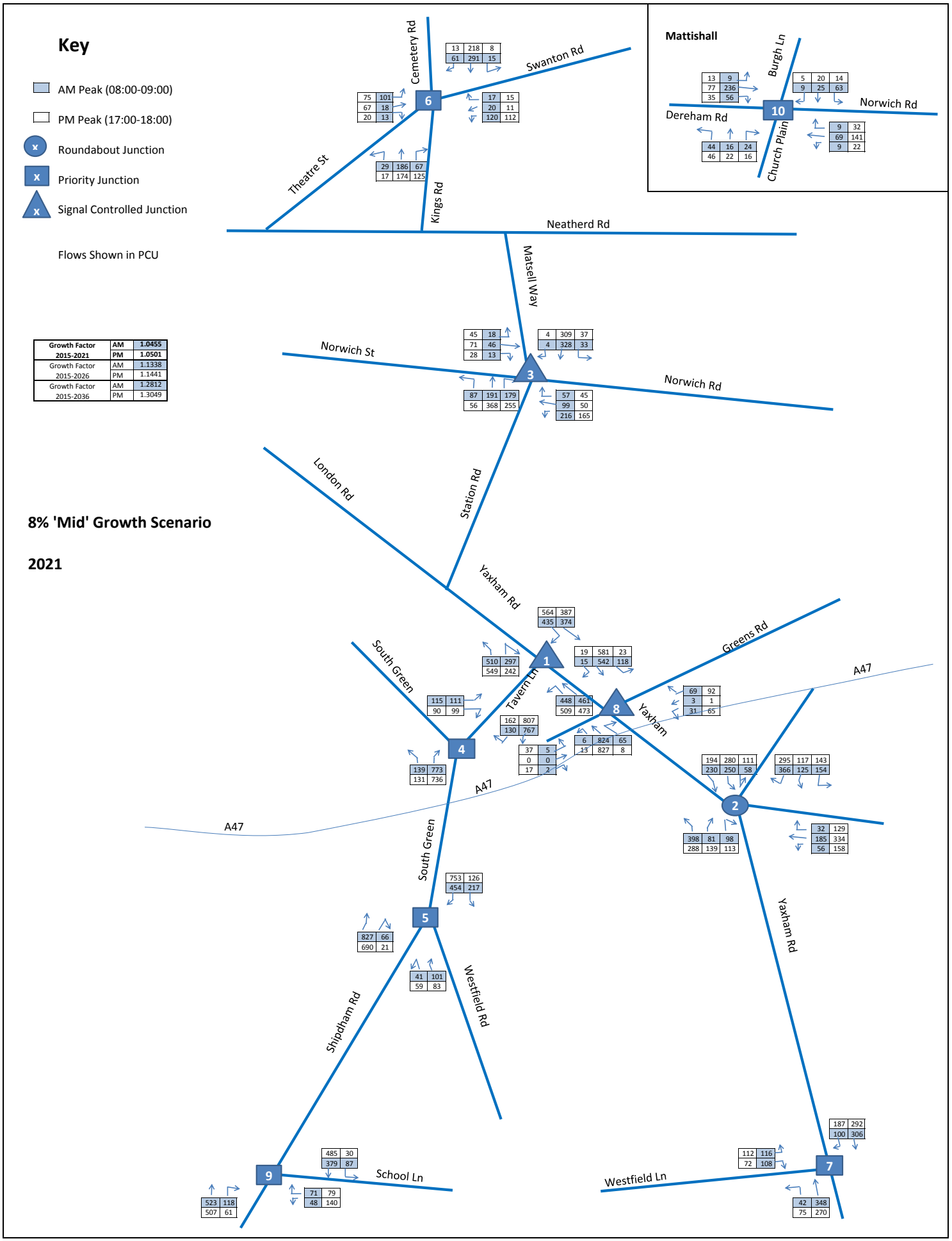
Key
AM Peak (08:00-09:00)
PM Peak (17:00-18:00)
Roundabout Junction
Priority Junction
Signal Controlled Junction
Flows Shown in PCU
Growth Factor 2015-2021 AM 1.0455
Growth Factor 2015-2021 PM 1.0501
Growth Factor 2015-2026 AM 1.1338
Growth Factor 2015-2026 PM 1.1441
Growth Factor 2015-2036 AM 1.2812
Growth Factor 2015-2036 PM 1.3049
8% 'Mid' Growth Scenario
2021
Mattishall
Burgh Ln
Norwich Rd
Dereham Rd
Church Plain
Cemetery Rd
Swanton Rd
Theatre St
Kings Rd
Neatherd Rd
Matsell Way
Norwich St
Norwich Rd
London Rd
Station Rd
Yaxham Rd
South Green
Greens Rd
Tavern Ln
Yaxham
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South Green
Yaxham Rd
Shipdham Rd
Westfield Rd
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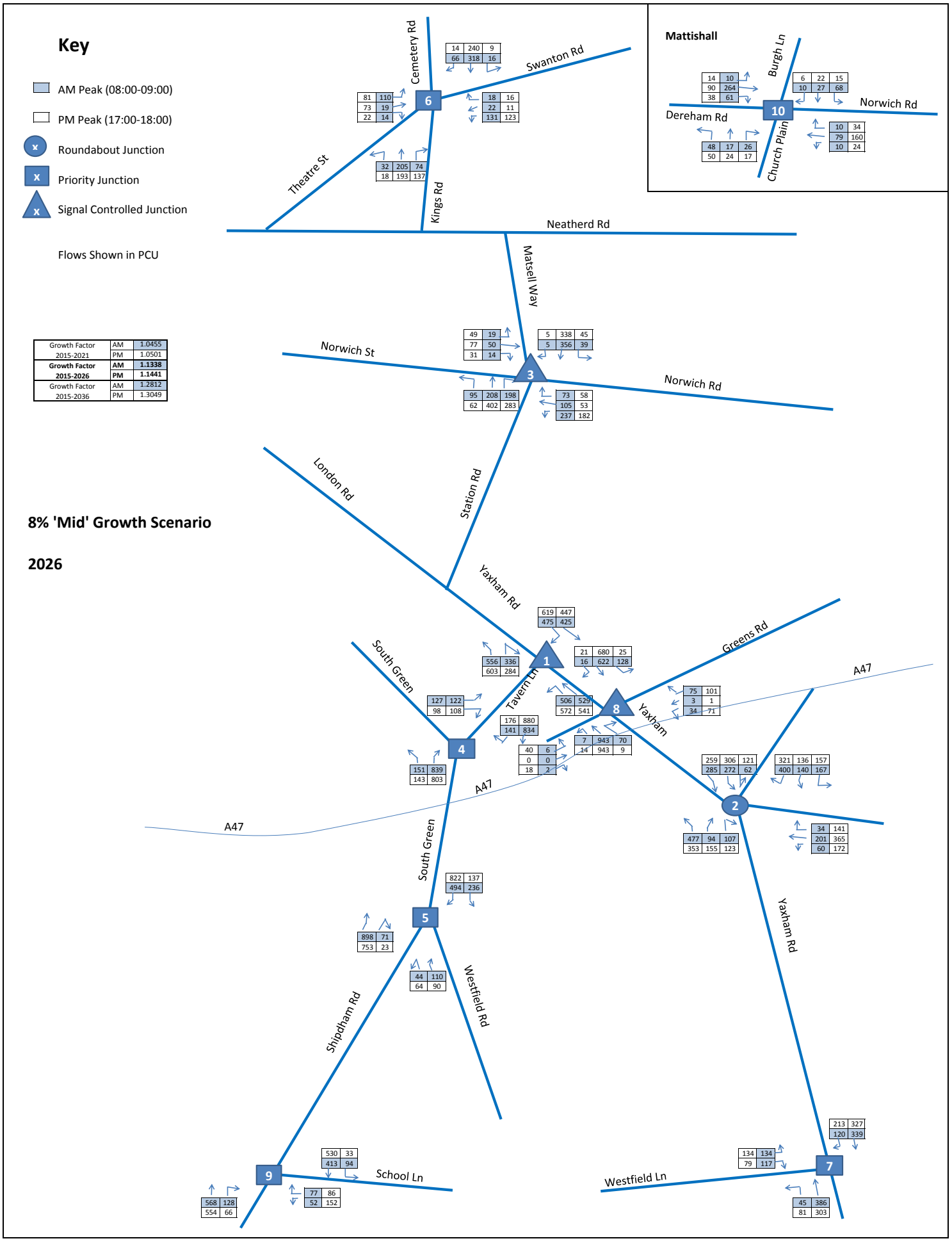
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AM Peak (08:00-09:00)
PM Peak (17:00-18:00)
Roundabout Junction
Priority Junction
Signal Controlled Junction
Flows Shown in PCU
Growth Factor 2015-2021 AM 1.0455
Growth Factor 2015-2021 PM 1.0501
Growth Factor 2015-2026 AM 1.1338
Growth Factor 2015-2026 PM 1.1441
Growth Factor 2015-2036 AM 1.2812
Growth Factor 2015-2036 PM 1.3049
8% 'Mid' Growth Scenario
2026
Mattishall
Burgh Ln
Norwich Rd
Dereham Rd
Church Plain
Cemetery Rd
Swanton Rd
Theatre St
Kings Rd
Neatherd Rd
Matsell Way
Norwich St
Norwich Rd
London Rd
Station Rd
Yaxham Rd
South Green
Tavern Ln
Greens Rd
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Yaxham
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South Green
Shipdham Rd
Westfield Rd
Yaxham Rd
School Ln
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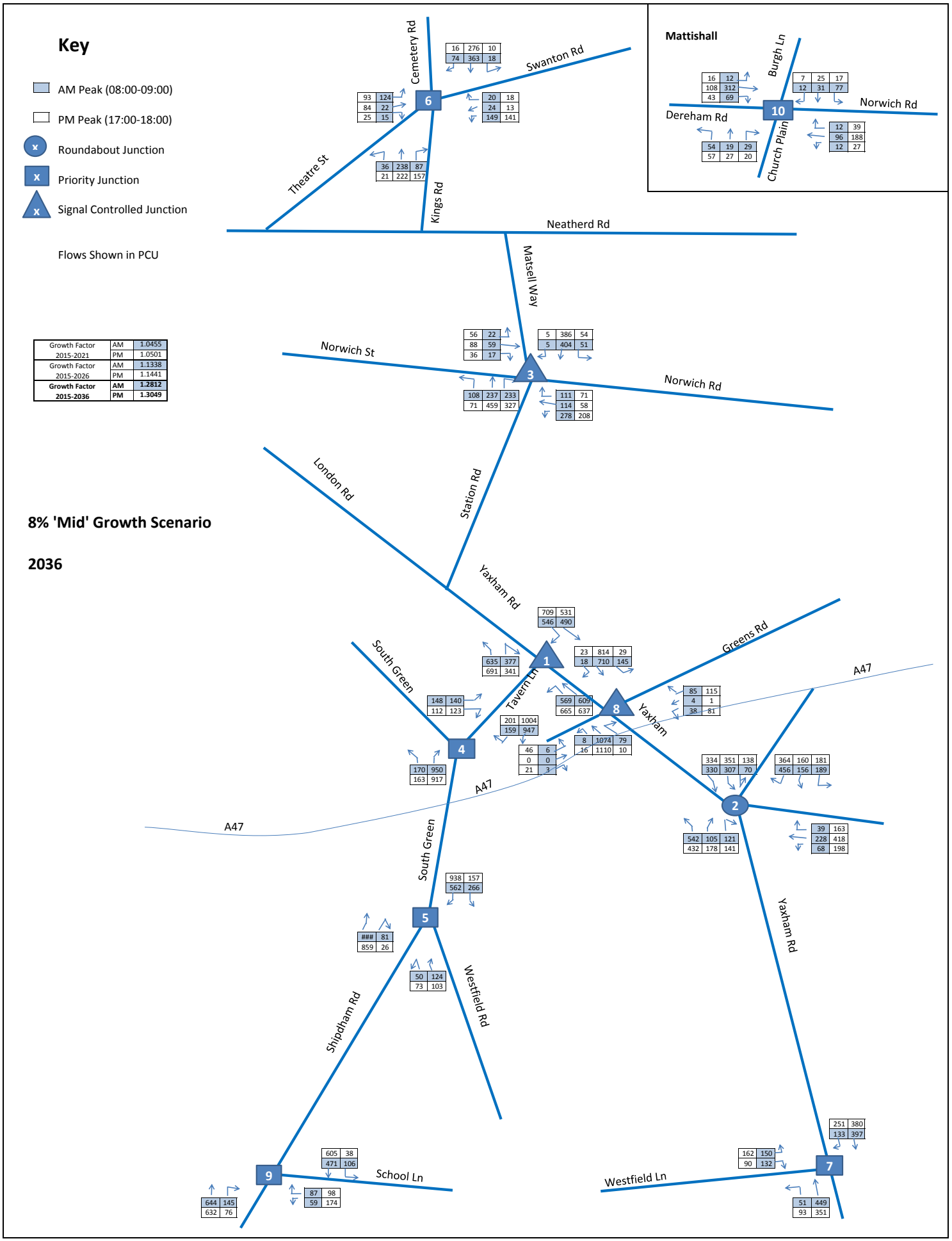
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PM Peak (17:00-18:00)
Roundabout Junction
Priority Junction
Signal Controlled Junction
Flows Shown in PCU
Growth Factor 2015-2021 AM 1.0455
Growth Factor 2015-2021 PM 1.0501
Growth Factor 2015-2026 AM 1.1338
Growth Factor 2015-2026 PM 1.1441
Growth Factor 2015-2036 AM 1.2812
Growth Factor 2015-2036 PM 1.3049
8% 'Mid' Growth Scenario
2036
Mattishall
Cemetery Rd
Swanton Rd
Theatre St
Kings Rd
Neatherd Rd
Matsell Way
Norwich St
Norwich Rd
London Rd
Station Rd
Yaxham Rd
South Green
Tavern Ln
Greens Rd
A47
Yaxham
Shipdham Rd
Westfield Rd
School Ln
Westfield Ln
Burgh Ln
Dereham Rd
Church Plain
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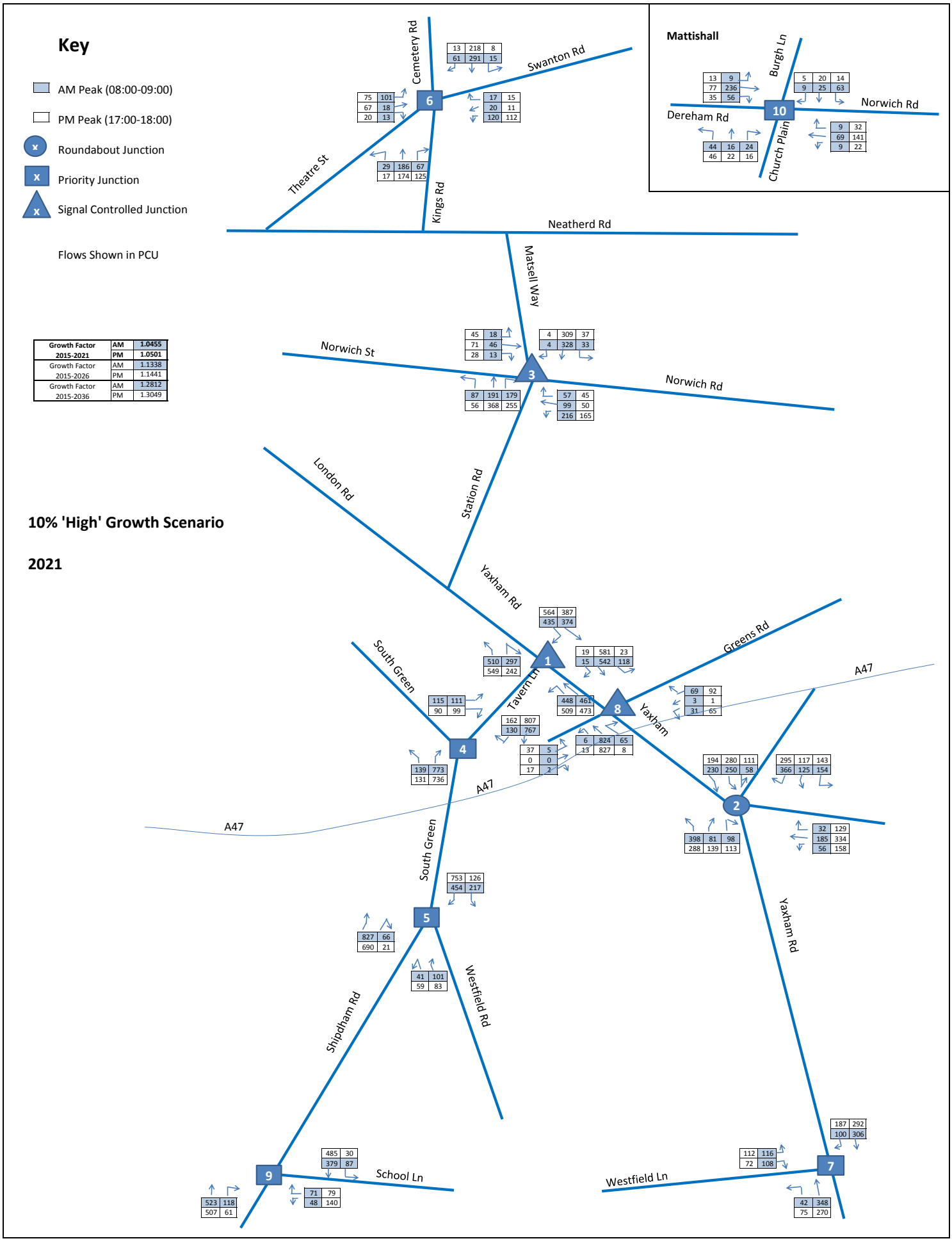
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PM Peak (17:00-18:00)
Roundabout Junction
Priority Junction
Signal Controlled Junction
Flows Shown in PCU
Growth Factor 2015-2021 AM 1.0455 PM 1.0501
Growth Factor 2015-2026 AM 1.1338 PM 1.1441
Growth Factor 2015-2036 AM 1.2812 PM 1.3049
10% 'High' Growth Scenario
2021
Mattishall
Burgh Ln
Norwich Rd
Dereham Rd
Church Plain
Cemetery Rd
Swanton Rd
Theatre St
Kings Rd
Neatherd Rd
Matsell Way
Norwich St
Norwich Rd
London Rd
Station Rd
Yaxham Rd
South Green
Tavern Ln
Greens Rd
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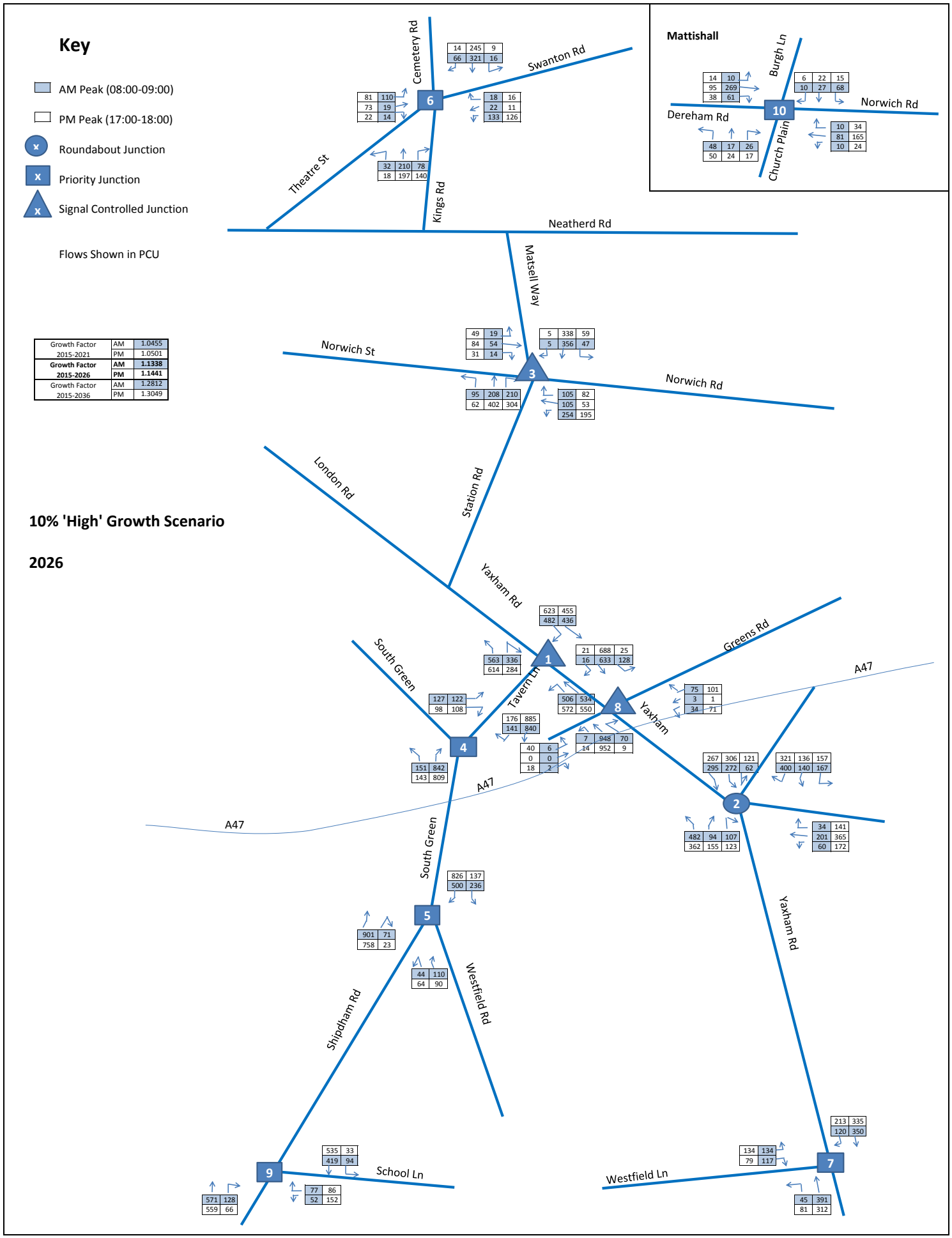
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Priority Junction
Signal Controlled Junction
Flows Shown in PCU
Growth Factor 2015-2021 AM 1.0455
Growth Factor 2015-2021 PM 1.0501
Growth Factor 2015-2026 AM 1.1338
Growth Factor 2015-2026 PM 1.1441
Growth Factor 2015-2036 AM 1.2812
Growth Factor 2015-2036 PM 1.3049
10% 'High' Growth Scenario
2026
Mattishall
Burgh Ln
Norwich Rd
Dereham Rd
Church Plain
Cemetery Rd
Swanton Rd
Theatre St
Kings Rd
Neatherd Rd
Matsell Way
Norwich St
Norwich Rd
London Rd
Station Rd
Yaxham Rd
South Green
Tavern Ln
Greens Rd
A47
Yaxham
Shipdham Rd
Westfield Rd
School Ln
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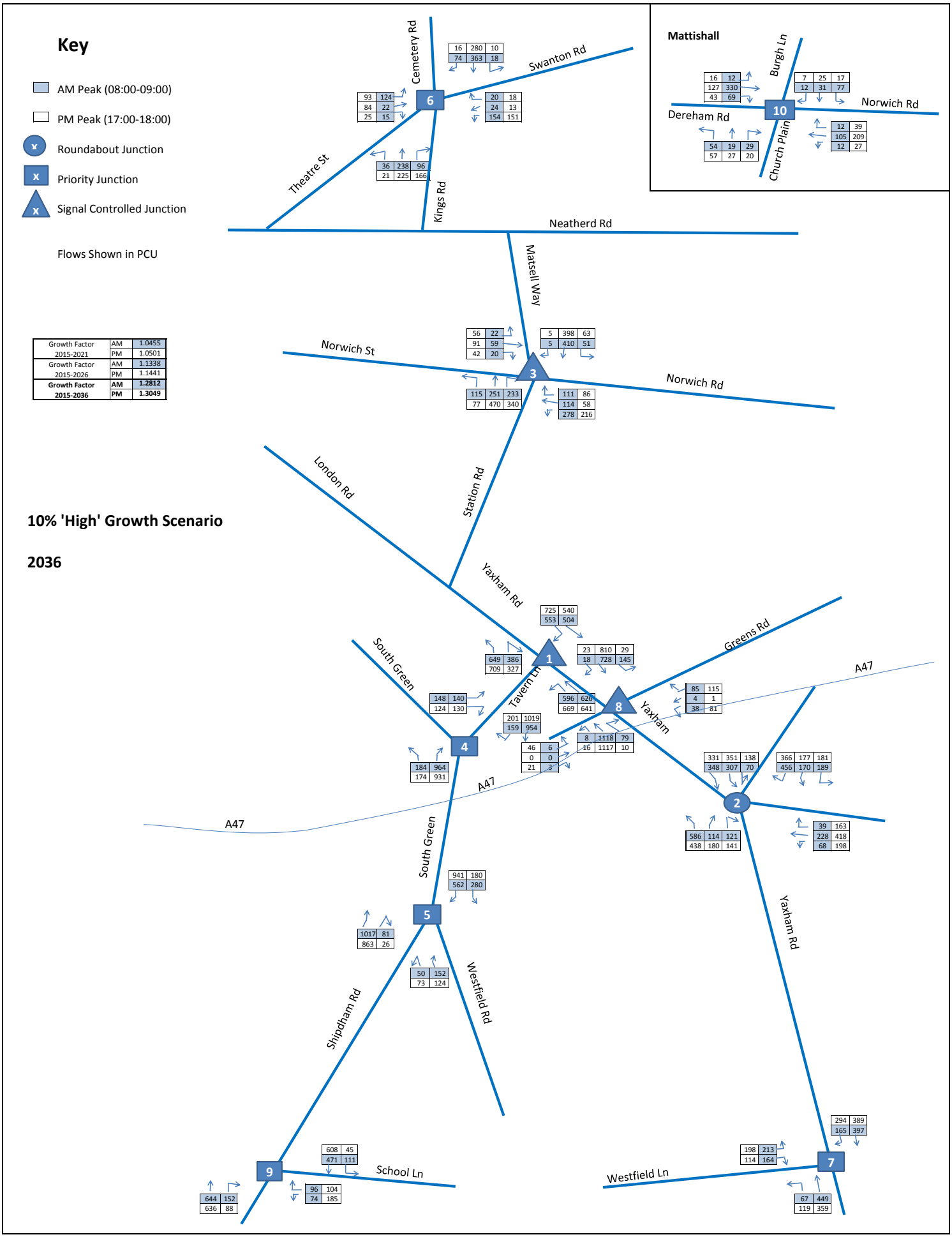
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Priority Junction
Signal Controlled Junction
Flows Shown in PCU
Growth Factor 2015-2021 AM 1.0455
Growth Factor 2015-2021 PM 1.0501
Growth Factor 2015-2026 AM 1.1338
Growth Factor 2015-2026 PM 1.1441
Growth Factor 2015-2036 AM 1.2812
Growth Factor 2015-2036 PM 1.3049
10% 'High' Growth Scenario
2036
Mattishall
Burgh Ln
Norwich Rd
Dereham Rd
Church Plain
Cemetery Rd
Swanton Rd
Theatre St
Kings Rd
Neatherd Rd
Matsell Way
Norwich St
Norwich Rd
London Rd
Station Rd
Yaxham Rd
South Green
Tavern Ln
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Westfield Rd
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School Ln
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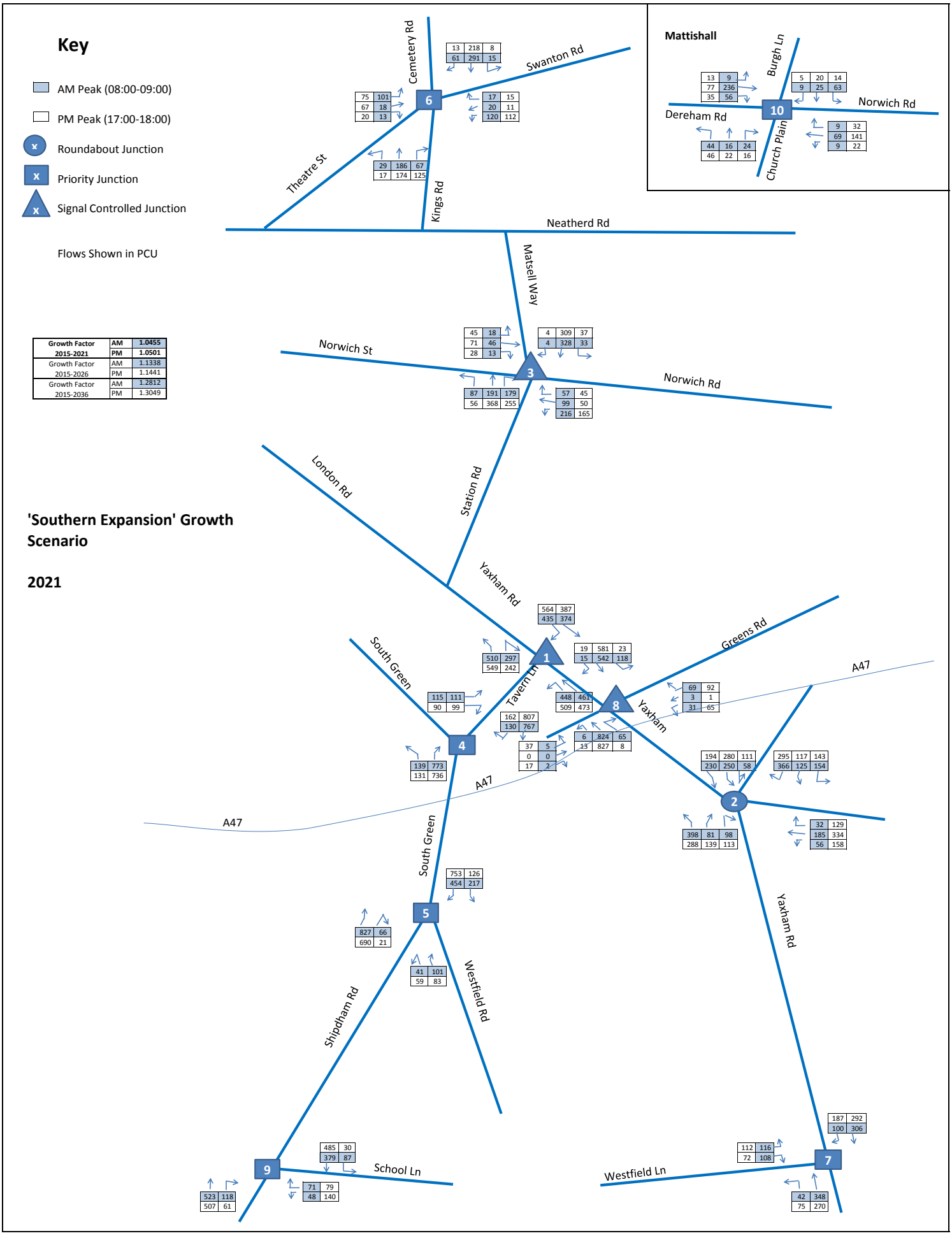
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Roundabout Junction
Priority Junction
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Flows Shown in PCU
Growth Factor 2015-2021 AM 1.0455
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Growth Factor 2015-2026 AM 1.1338
Growth Factor 2015-2026 PM 1.1441
Growth Factor 2015-2036 AM 1.2812
Growth Factor 2015-2036 PM 1.3049
'Southern Expansion' Growth Scenario
2021
Mattishall
Burgh Ln
Norwich Rd
Dereham Rd
Church Plain
Cemetery Rd
Swanton Rd
Theatre St
Kings Rd
Neatherd Rd
Matsell Way
Norwich St
Norwich Rd
London Rd
Station Rd
Yaxham Rd
South Green
Tavern Ln
Greens Rd
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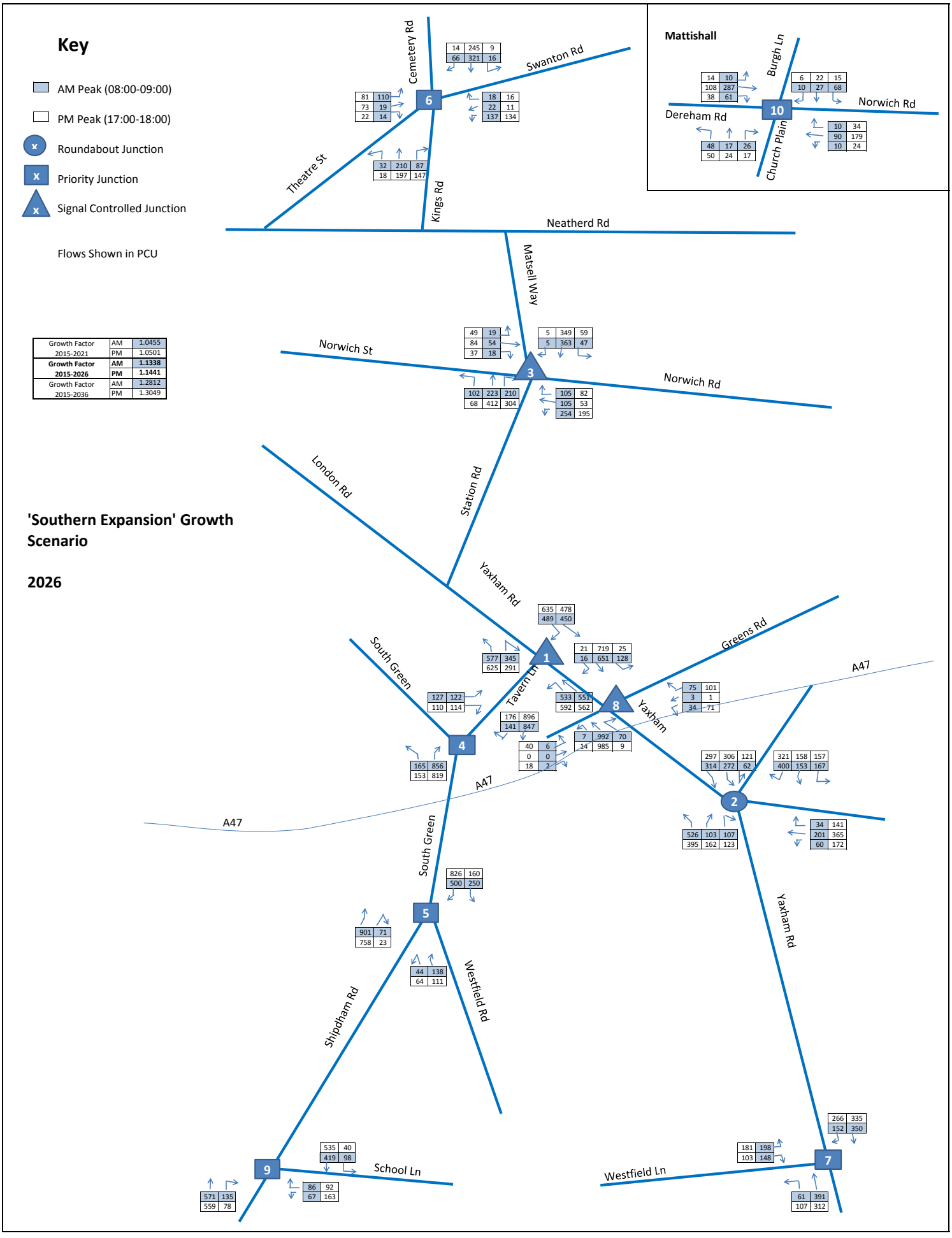
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Flows Shown in PCU
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Growth Factor 2015-2026 AM 1.1338
Growth Factor 2015-2026 PM 1.1441
Growth Factor 2015-2036 AM 1.2812
Growth Factor 2015-2036 PM 1.3049
'Southern Expansion' Growth Scenario
2026
Mattishall
Burgh Ln
Norwich Rd
Dereham Rd
Church Plain
Cemetery Rd
Swanton Rd
Theatre St
Kings Rd
Neatherd Rd
Matsell Way
Norwich St
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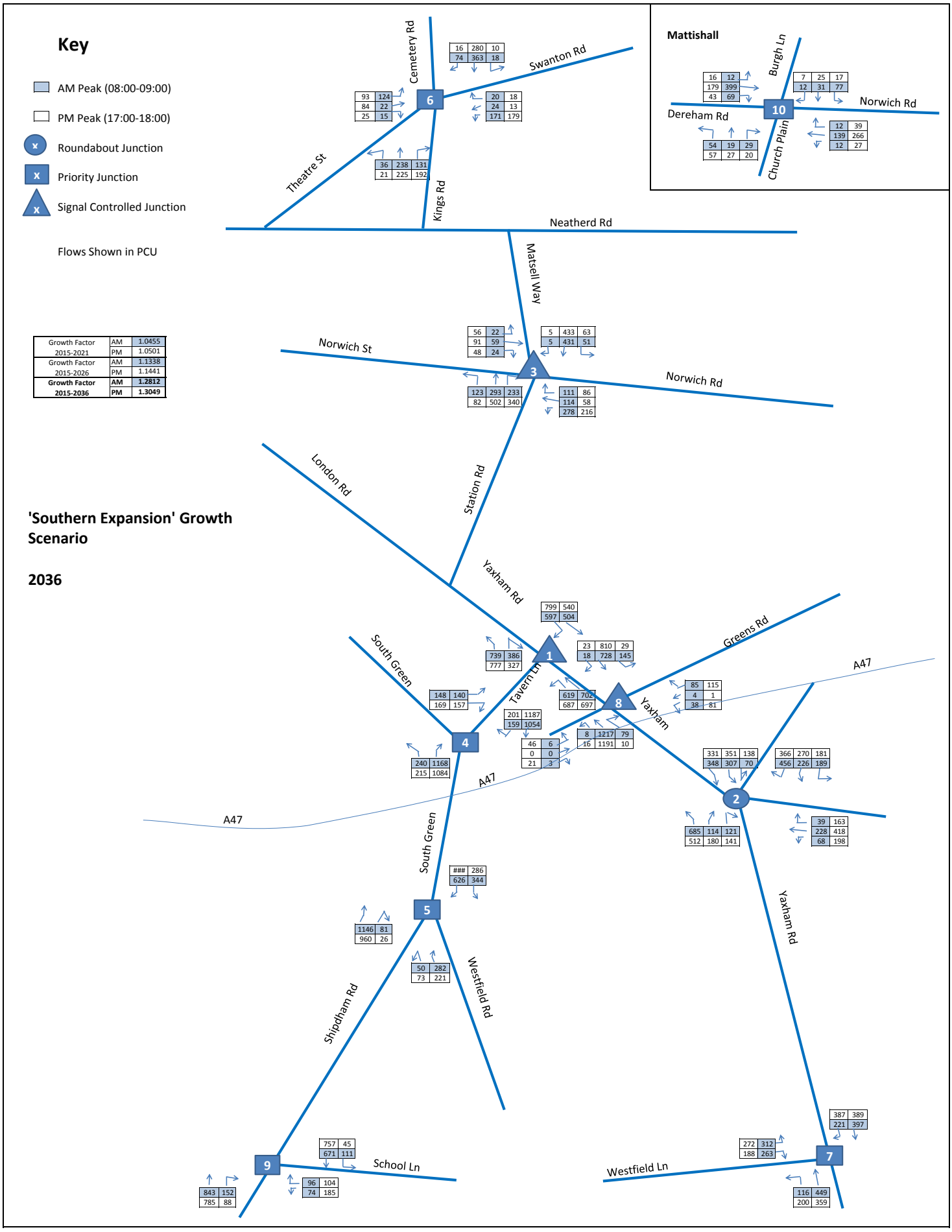
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Roundabout Junction
Priority Junction
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Flows Shown in PCU
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Growth Factor 2015-2021 PM 1.0501
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Growth Factor 2015-2026 PM 1.1441
Growth Factor 2015-2036 AM 1.2812
Growth Factor 2015-2036 PM 1.3049
'Southern Expansion' Growth Scenario
2036
Mattishall
Burgh Ln
Norwich Rd
Dereham Rd
Church Plain
Cemetery Rd
Swanton Rd
Theatre St
Kings Rd
Neatherd Rd
Matsell Way
Norwich St
Norwich Rd
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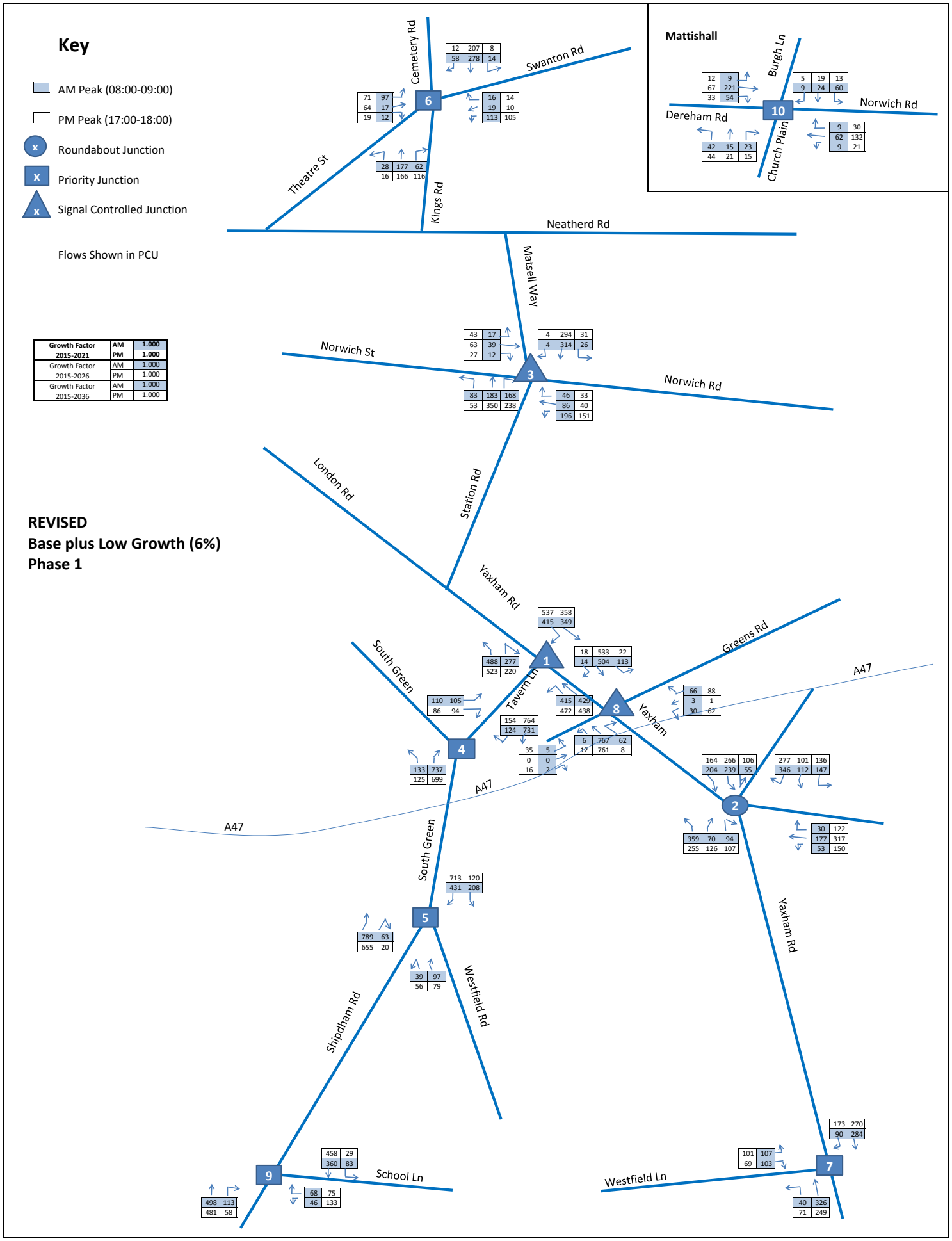
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AM Peak (08:00-09:00)
PM Peak (17:00-18:00)
Roundabout Junction
Priority Junction
Signal Controlled Junction
Flows Shown in PCU
Growth Factor 2015-2021 AM 1.000 PM 1.000
Growth Factor 2015-2026 AM 1.000 PM 1.000
Growth Factor 2015-2036 AM 1.000 PM 1.000
REVISED
Base plus Low Growth (6%)
Phase 1
Mattishall
Burgh Ln
Norwich Rd
Dereham Rd
Church Plain
Cemetery Rd
Swanton Rd
Theatre St
Kings Rd
Neatherd Rd
Matsell Way
Norwich St
Norwich Rd
London Rd
Station Rd
Yaxham Rd
South Green
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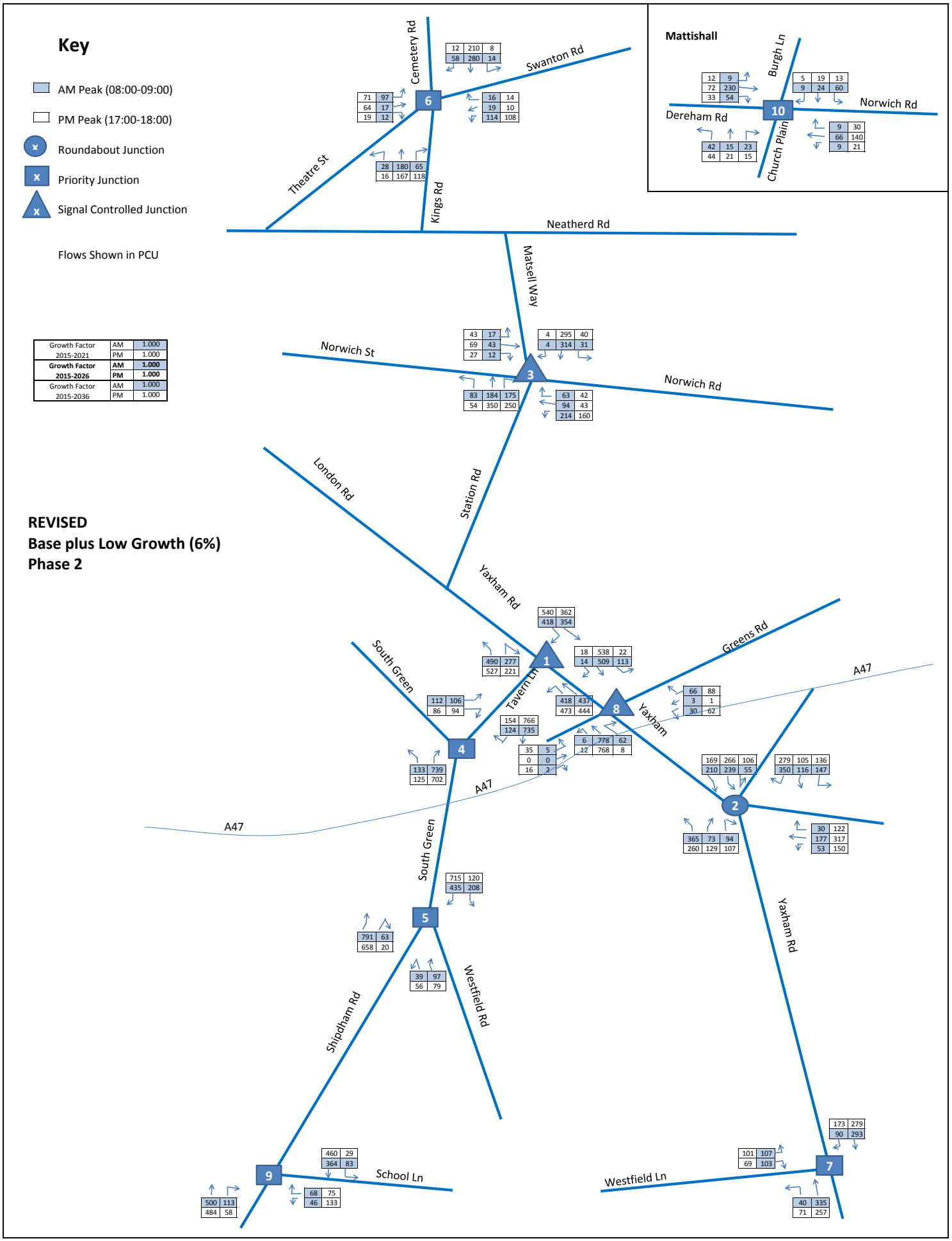
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AM Peak (08:00-09:00)
PM Peak (17:00-18:00)
Roundabout Junction
Priority Junction
Signal Controlled Junction
Flows Shown in PCU
Growth Factor 2015-2021 AM 1.000 PM 1.000
Growth Factor 2015-2026 AM 1.000 PM 1.000
Growth Factor 2015-2036 AM 1.000 PM 1.000
REVISED
Base plus Low Growth (6%)
Phase 2
Mattishall
Burgh Ln
Norwich Rd
Dereham Rd
Church Plain
Cemetery Rd
Swanton Rd
Theatre St
Kings Rd
Neatherd Rd
Matsell Way
Norwich St
Norwich Rd
London Rd
Station Rd
Yaxham Rd
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Tavern Ln
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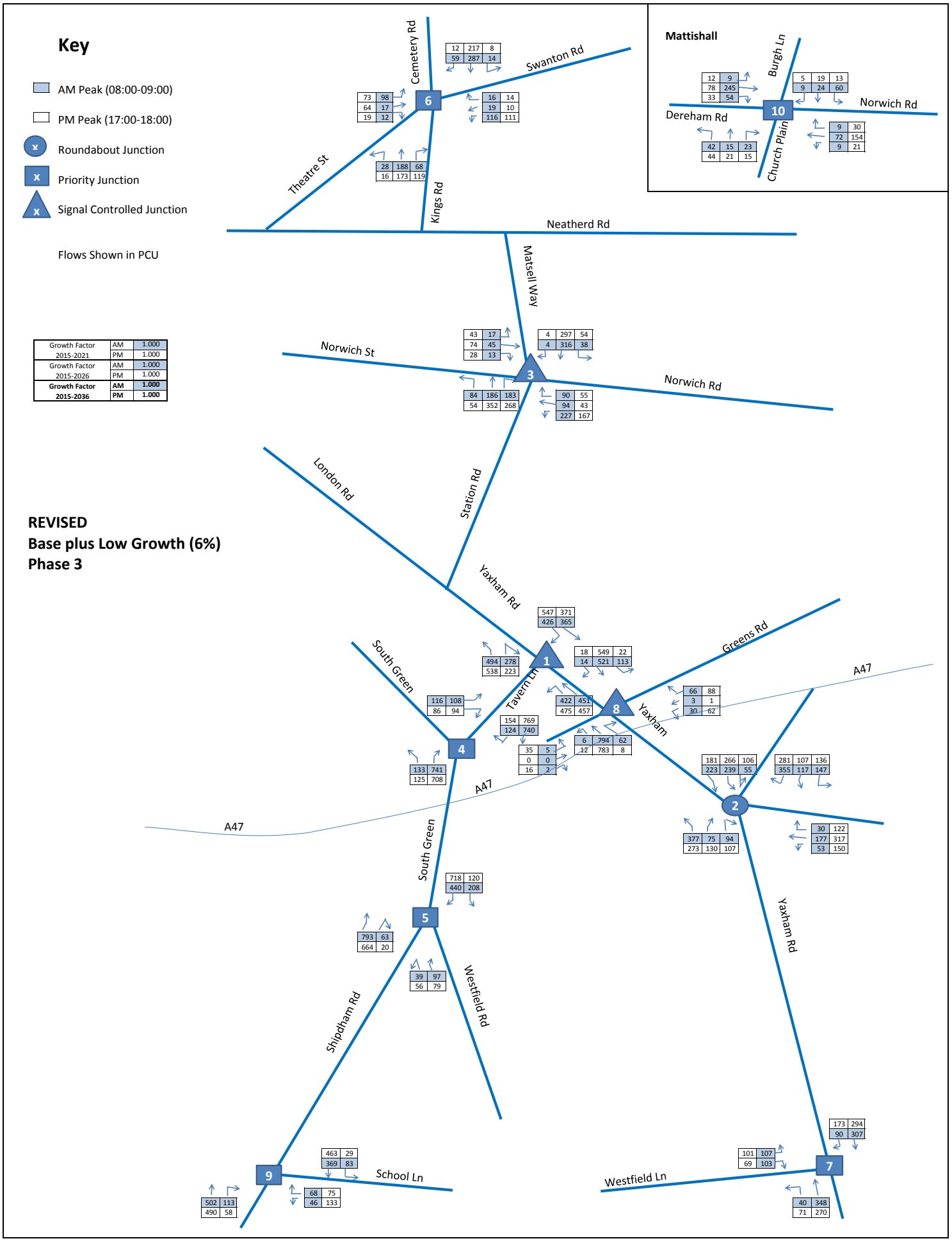
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Roundabout Junction
Priority Junction
Signal Controlled Junction
Flows Shown in PCU
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Growth Factor 2015-2026 AM 1.000 PM 1.000
Growth Factor 2015-2036 AM 1.000 PM 1.000
REVISED
Base plus Low Growth (6%)
Phase 3
Mattishall
Burgh Ln
Norwich Rd
Dereham Rd
Church Plain
Cemetery Rd
Swanton Rd
Theatre St
Kings Rd
Neatherd Rd
Matsell Way
Norwich St
Norwich Rd
London Rd
Station Rd
Yaxham Rd
South Green
Tavern Ln
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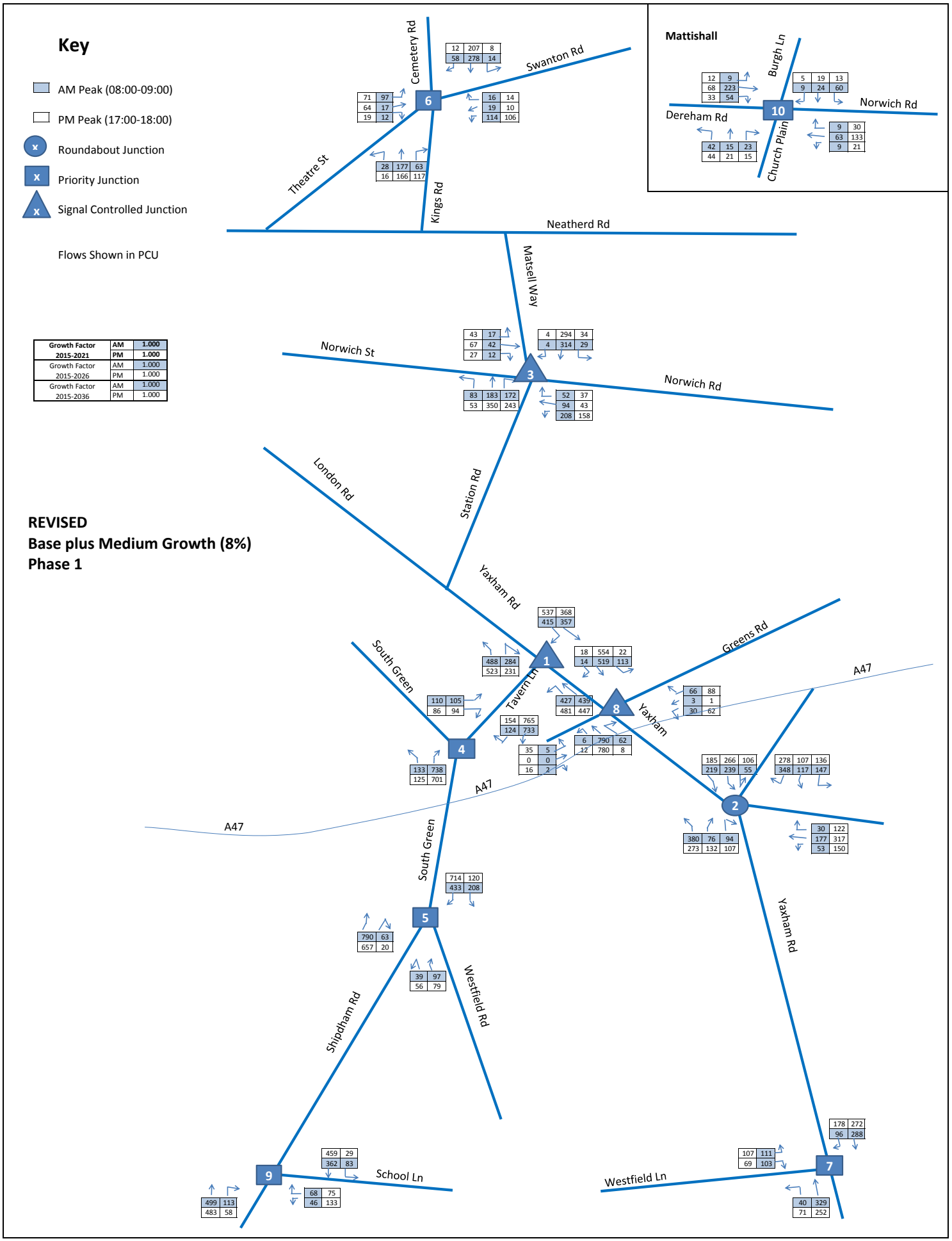
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PM Peak (17:00-18:00)
Roundabout Junction
Priority Junction
Signal Controlled Junction
Flows Shown in PCU
Growth Factor 2015-2021 AM 1.000 PM 1.000
Growth Factor 2015-2026 AM 1.000 PM 1.000
Growth Factor 2015-2036 AM 1.000 PM 1.000
REVISED
Base plus Medium Growth (8%)
Phase 1
Mattishall
Burgh Ln
Norwich Rd
Dereham Rd
Church Plain
Cemetery Rd
Swanton Rd
Theatre St
Kings Rd
Neatherd Rd
Matsell Way
Norwich St
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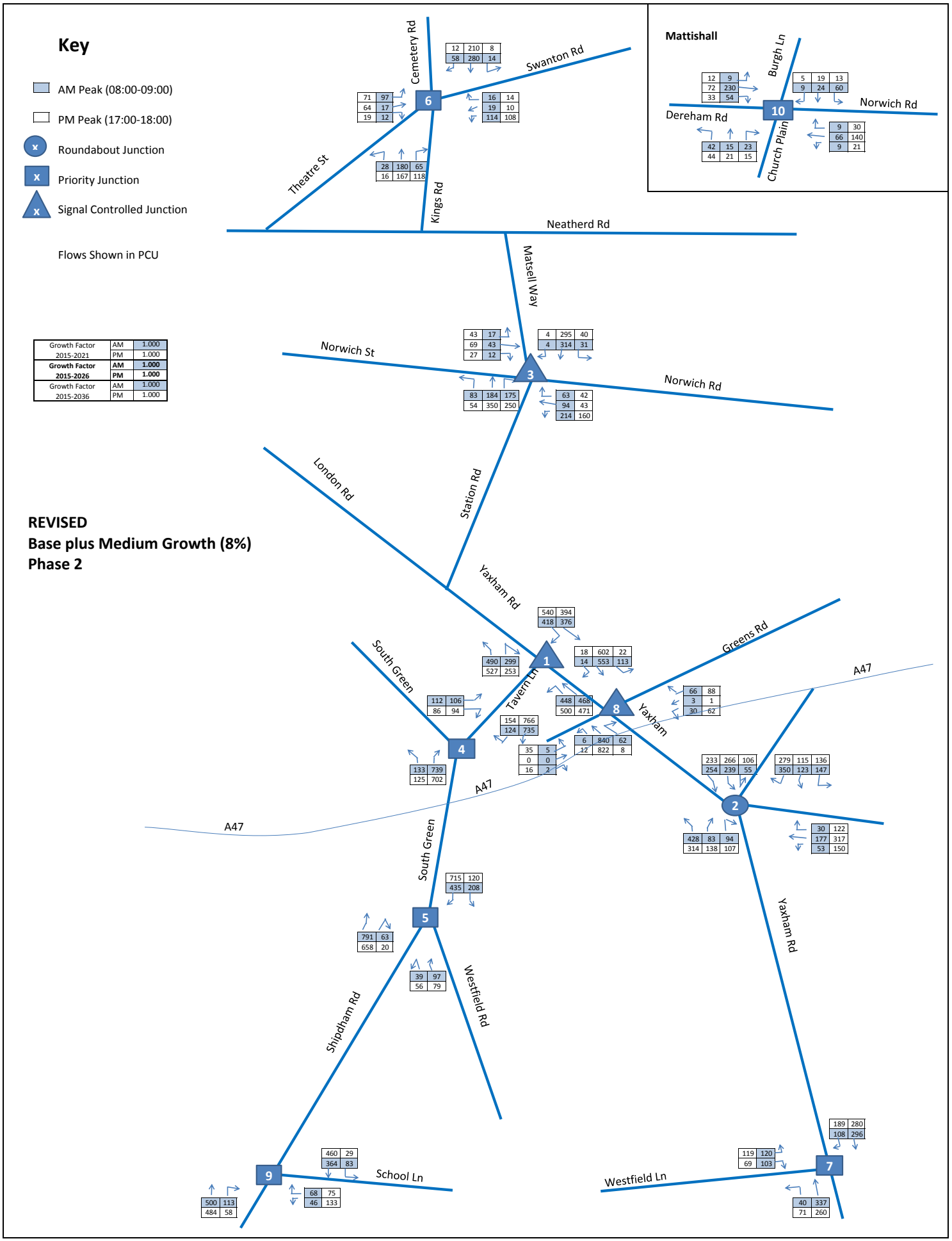
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Priority Junction
Signal Controlled Junction
Flows Shown in PCU
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Growth Factor 2015-2036 AM 1.000 PM 1.000
REVISED
Base plus Medium Growth (8%)
Phase 2
Mattishall
Burgh Ln
Norwich Rd
Dereham Rd
Church Plain
Cemetery Rd
Swanton Rd
Theatre St
Kings Rd
Neatherd Rd
Matsell Way
Norwich St
Norwich Rd
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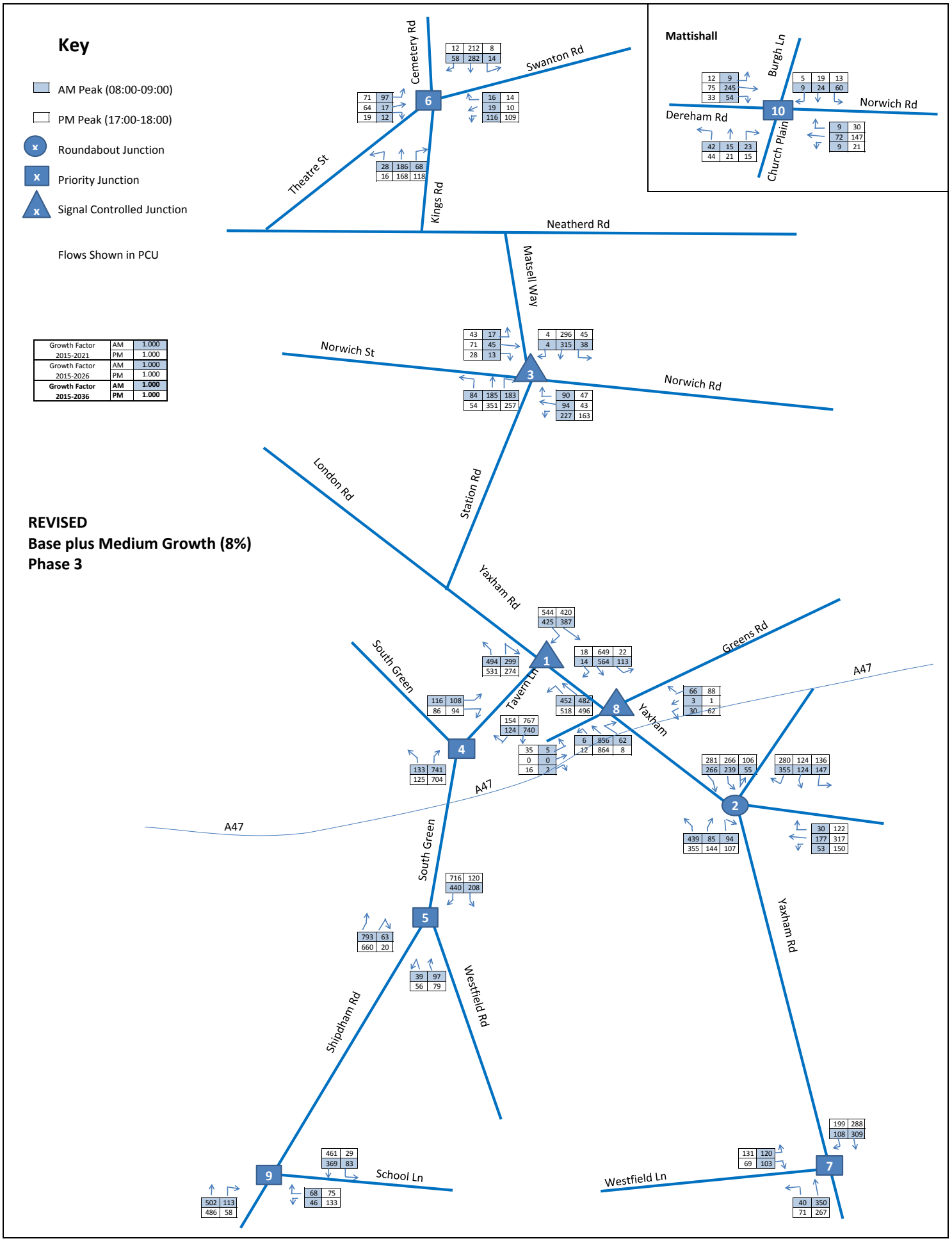
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PM Peak (17:00-18:00)
Roundabout Junction
Priority Junction
Signal Controlled Junction
Flows Shown in PCU
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Growth Factor 2015-2026 AM 1.000 PM 1.000
Growth Factor 2015-2036 AM 1.000 PM 1.000
REVISED
Base plus Medium Growth (8%)
Phase 3
Mattishall
Burgh Ln
Norwich Rd
Dereham Rd
Church Plain
Cemetery Rd
Swanton Rd
Theatre St
Kings Rd
Neatherd Rd
Matsell Way
Norwich St
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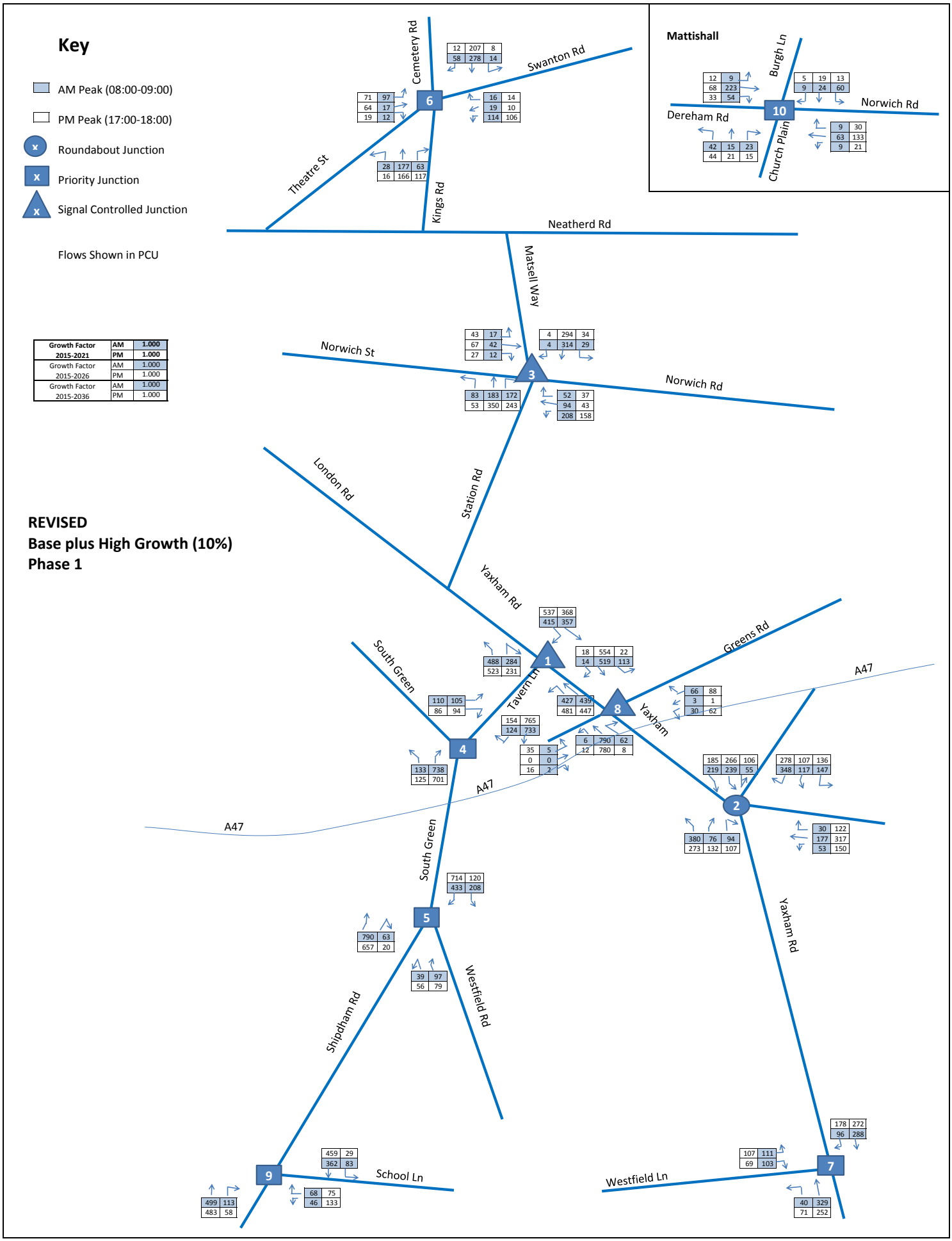
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Roundabout Junction
Priority Junction
Signal Controlled Junction
Flows Shown in PCU
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Growth Factor 2015-2026 AM 1.000 PM 1.000
Growth Factor 2015-2036 AM 1.000 PM 1.000
REVISED
Base plus High Growth (10%)
Phase 1
Mattishall
Burgh Ln
Norwich Rd
Dereham Rd
Church Plain
Cemetery Rd
Swanton Rd
Theatre St
Kings Rd
Neatherd Rd
Matsell Way
Norwich St
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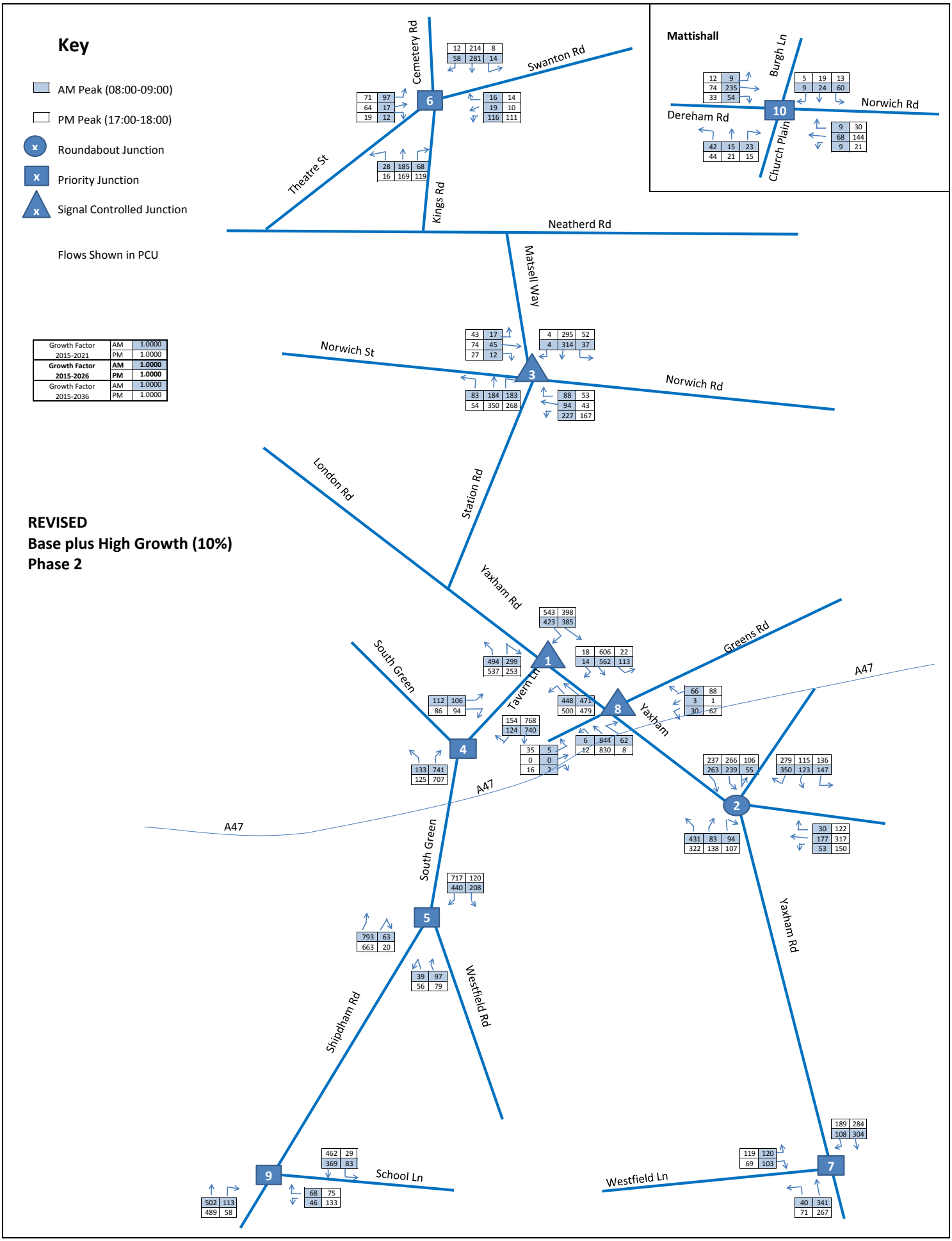
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Roundabout Junction
Priority Junction
Signal Controlled Junction
Flows Shown in PCU
Growth Factor 2015-2021 AM 1.0000 PM 1.0000
Growth Factor 2015-2026 AM 1.0000 PM 1.0000
Growth Factor 2015-2036 AM 1.0000 PM 1.0000
REVISED
Base plus High Growth (10%)
Phase 2
Mattishall
Burgh Ln
Norwich Rd
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Church Plain
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Swanton Rd
Theatre St
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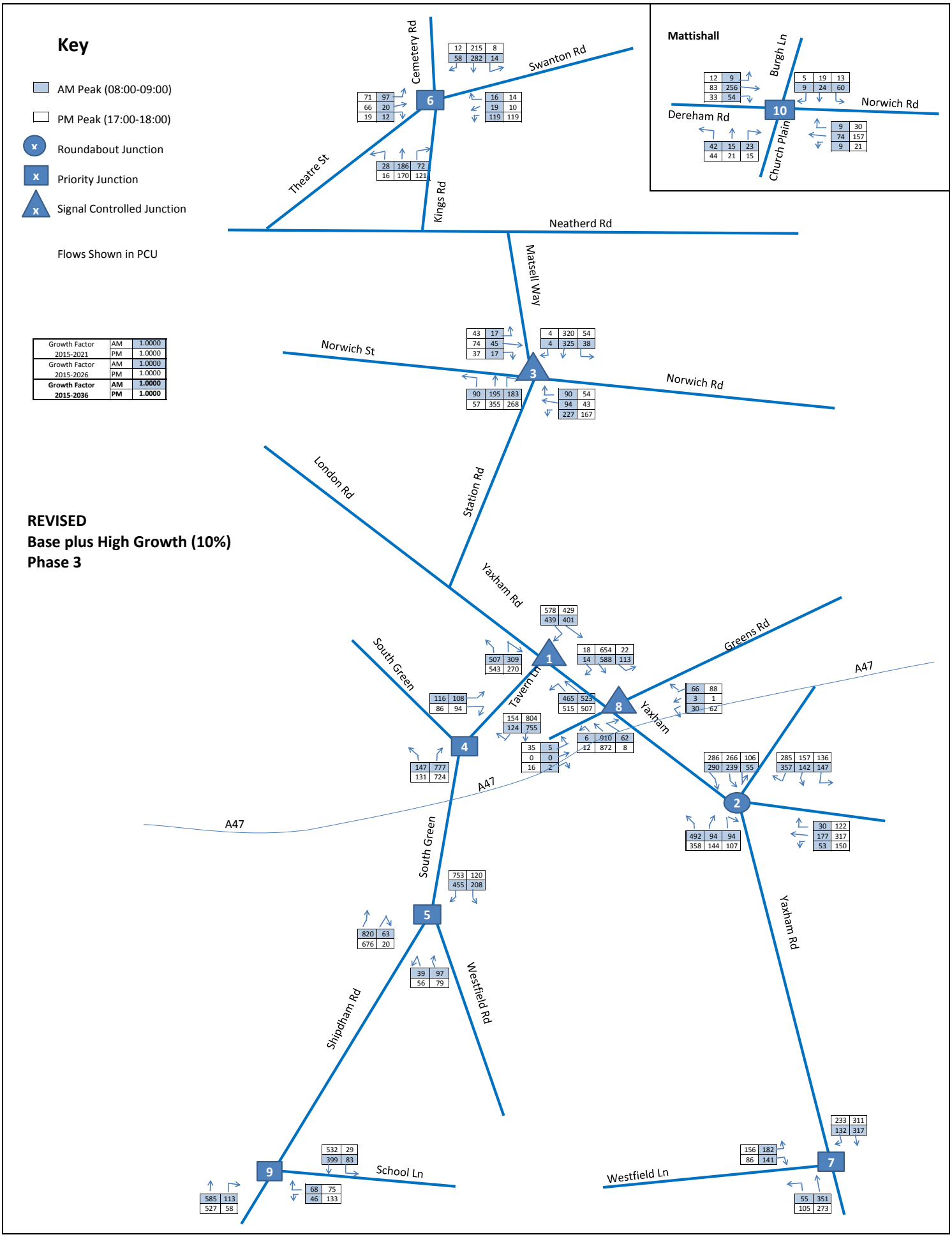
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Roundabout Junction
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Flows Shown in PCU
Growth Factor 2015-2021 AM 1.0000 PM 1.0000
Growth Factor 2015-2026 AM 1.0000 PM 1.0000
Growth Factor 2015-2036 AM 1.0000 PM 1.0000
REVISED
Base plus High Growth (10%)
Phase 3
Mattishall
Cemetery Rd
Swanton Rd
Theatre St
Kings Rd
Neatherd Rd
Matsell Way
Norwich St
Norwich Rd
Burgh Ln
Dereham Rd
Church Plain
London Rd
Station Rd
Yaxham Rd
South Green
Tavern Ln
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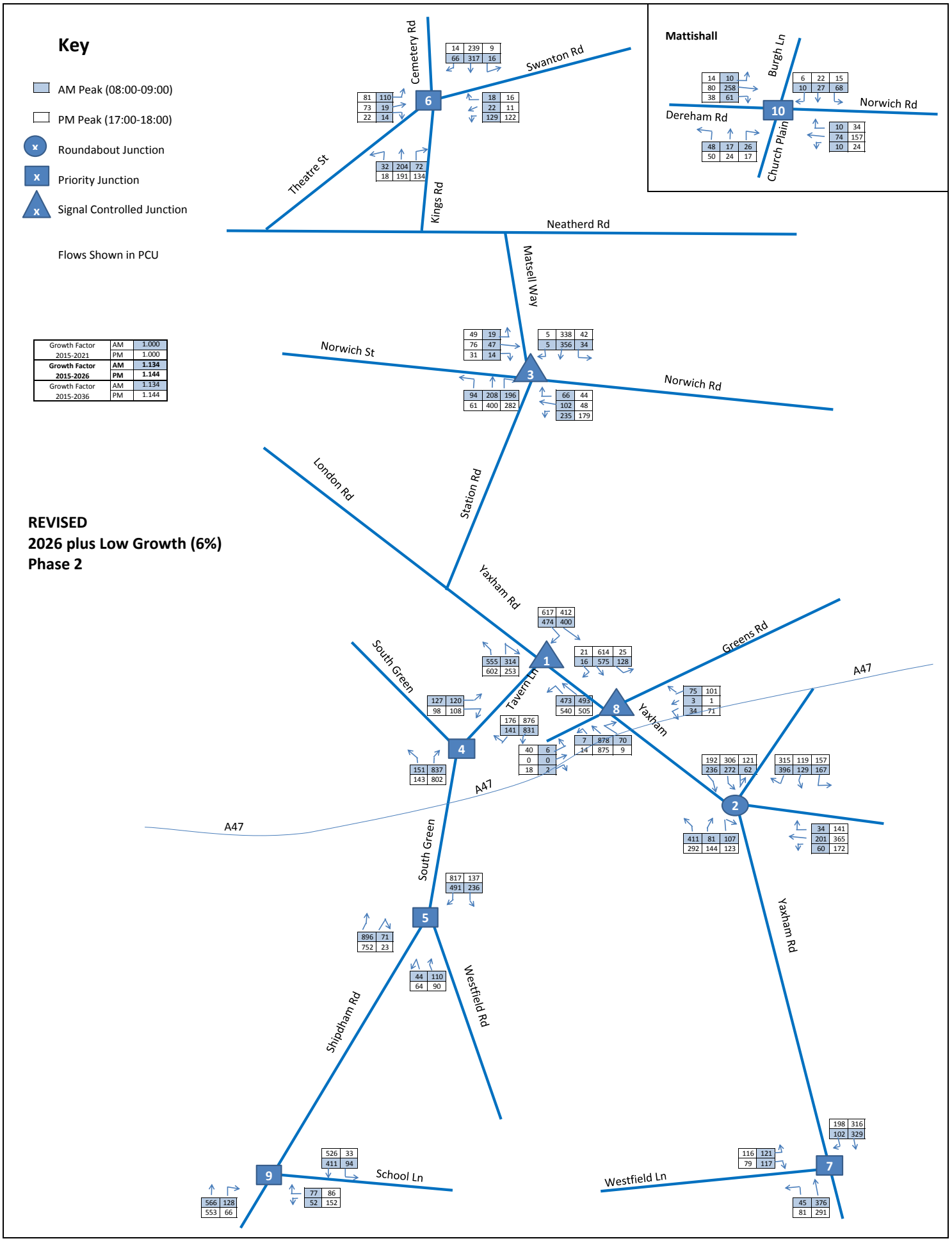
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PM Peak (17:00-18:00)
Roundabout Junction
Priority Junction
Signal Controlled Junction
Flows Shown in PCU
Growth Factor 2015-2021 AM 1.000 PM 1.000
Growth Factor 2015-2026 AM 1.134 PM 1.144
Growth Factor 2015-2036 AM 1.134 PM 1.144
REVISED
2026 plus Low Growth (6%)
Phase 2
Mattishall
Burgh Ln
Norwich Rd
Dereham Rd
Church Plain
Cemetery Rd
Swanton Rd
Theatre St
Kings Rd
Neatherd Rd
Matsell Way
Norwich St
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London Rd
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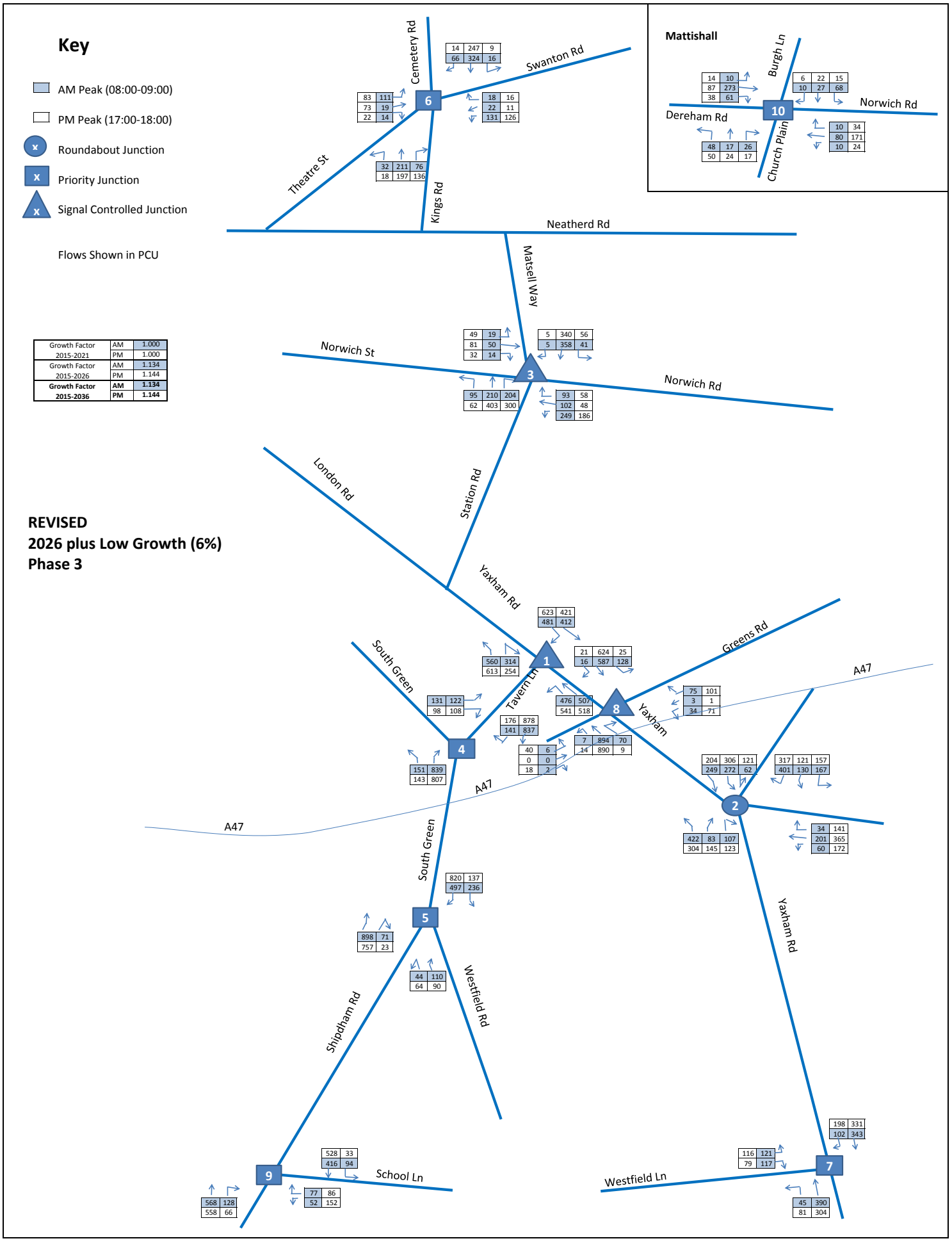
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PM Peak (17:00-18:00)
Roundabout Junction
Priority Junction
Signal Controlled Junction
Flows Shown in PCU
Growth Factor 2015-2021 AM 1.000
Growth Factor 2015-2021 PM 1.000
Growth Factor 2015-2026 AM 1.134
Growth Factor 2015-2026 PM 1.144
Growth Factor 2015-2036 AM 1.134
Growth Factor 2015-2036 PM 1.144
REVISED
2026 plus Low Growth (6%)
Phase 3
Mattishall
Burgh Ln
Norwich Rd
Dereham Rd
Church Plain
Cemetery Rd
Swanton Rd
Theatre St
Kings Rd
Neatherd Rd
Matsell Way
Norwich St
Norwich Rd
London Rd
Station Rd
Yaxham Rd
South Green
Tavern Ln
Greens Rd
A47
Yaxham
A47
South Green
Yaxham Rd
Shipdham Rd
Westfield Rd
School Ln
Westfield Ln
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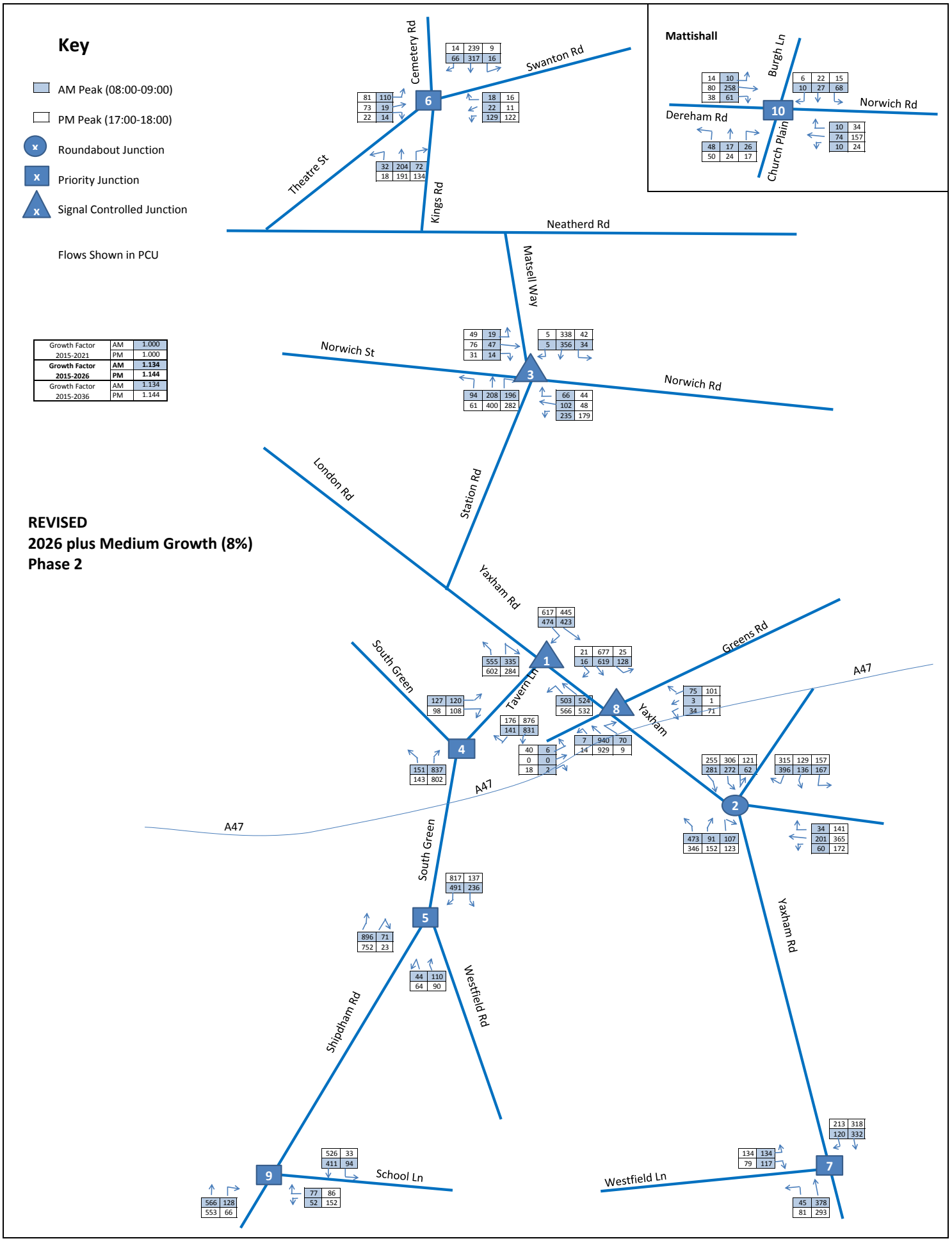
Key
AM Peak (08:00-09:00)
PM Peak (17:00-18:00)
Roundabout Junction
Priority Junction
Signal Controlled Junction
Flows Shown in PCU
Growth Factor 2015-2021 AM 1.000 PM 1.000
Growth Factor 2015-2026 AM 1.134 PM 1.144
Growth Factor 2015-2036 AM 1.134 PM 1.144
REVISED
2026 plus Medium Growth (8%)
Phase 2
Mattishall
Burgh Ln
Norwich Rd
Dereham Rd
Church Plain
Cemetery Rd
Swanton Rd
Theatre St
Kings Rd
Neatherd Rd
Matsell Way
Norwich St
Norwich Rd
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Yaxham Rd
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Tavern Ln
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Shipdham Rd
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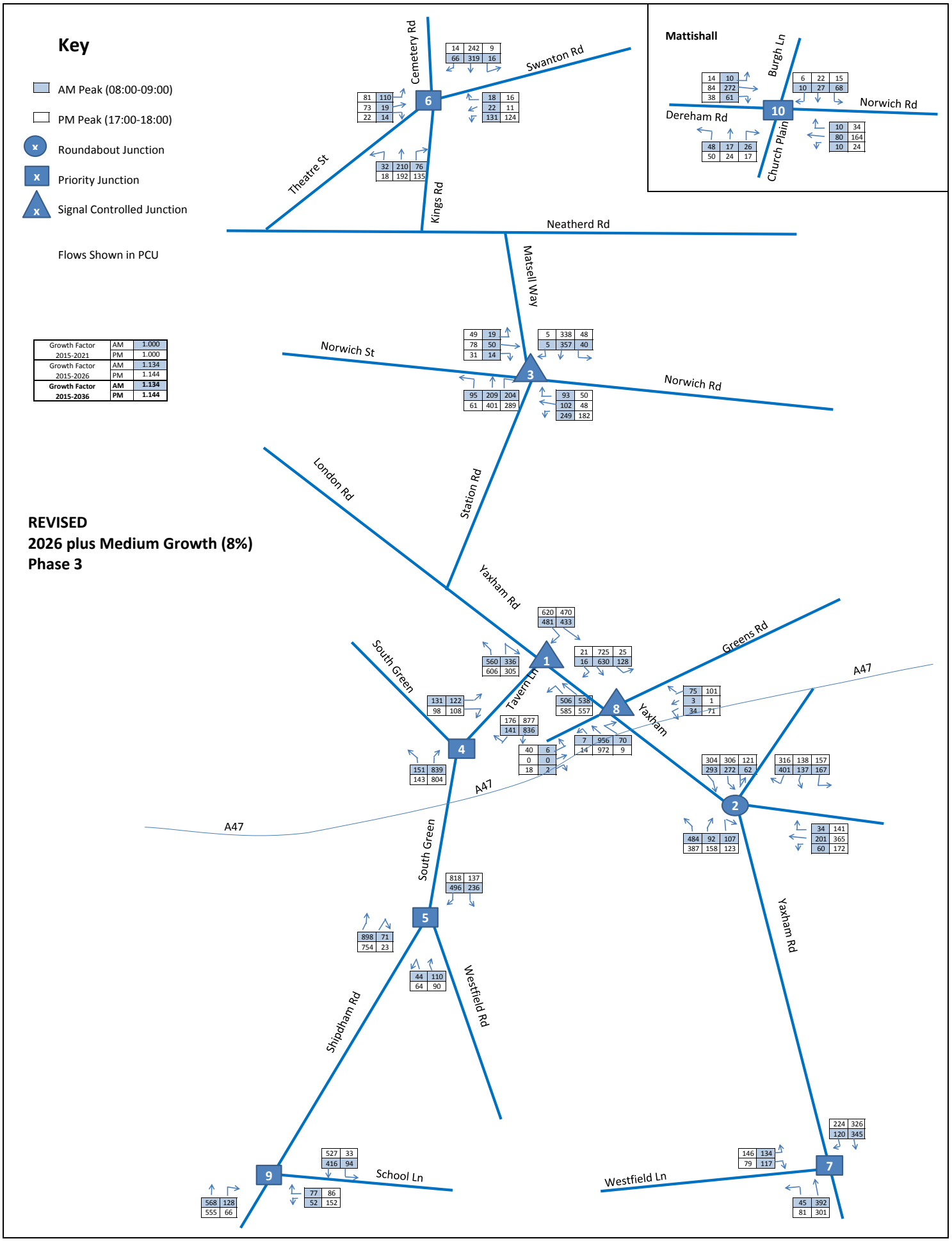
Key
AM Peak (08:00-09:00)
PM Peak (17:00-18:00)
Roundabout Junction
Priority Junction
Signal Controlled Junction
Flows Shown in PCU
Growth Factor 2015-2021 AM 1.000
Growth Factor 2015-2021 PM 1.000
Growth Factor 2015-2026 AM 1.134
Growth Factor 2015-2026 PM 1.144
Growth Factor 2015-2036 AM 1.134
Growth Factor 2015-2036 PM 1.144
REVISED
2026 plus Medium Growth (8%)
Phase 3
Mattishall
Burgh Ln
Norwich Rd
Dereham Rd
Church Plain
Cemetery Rd
Swanton Rd
Theatre St
Kings Rd
Neatherd Rd
Matsell Way
Norwich St
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Tavern Ln
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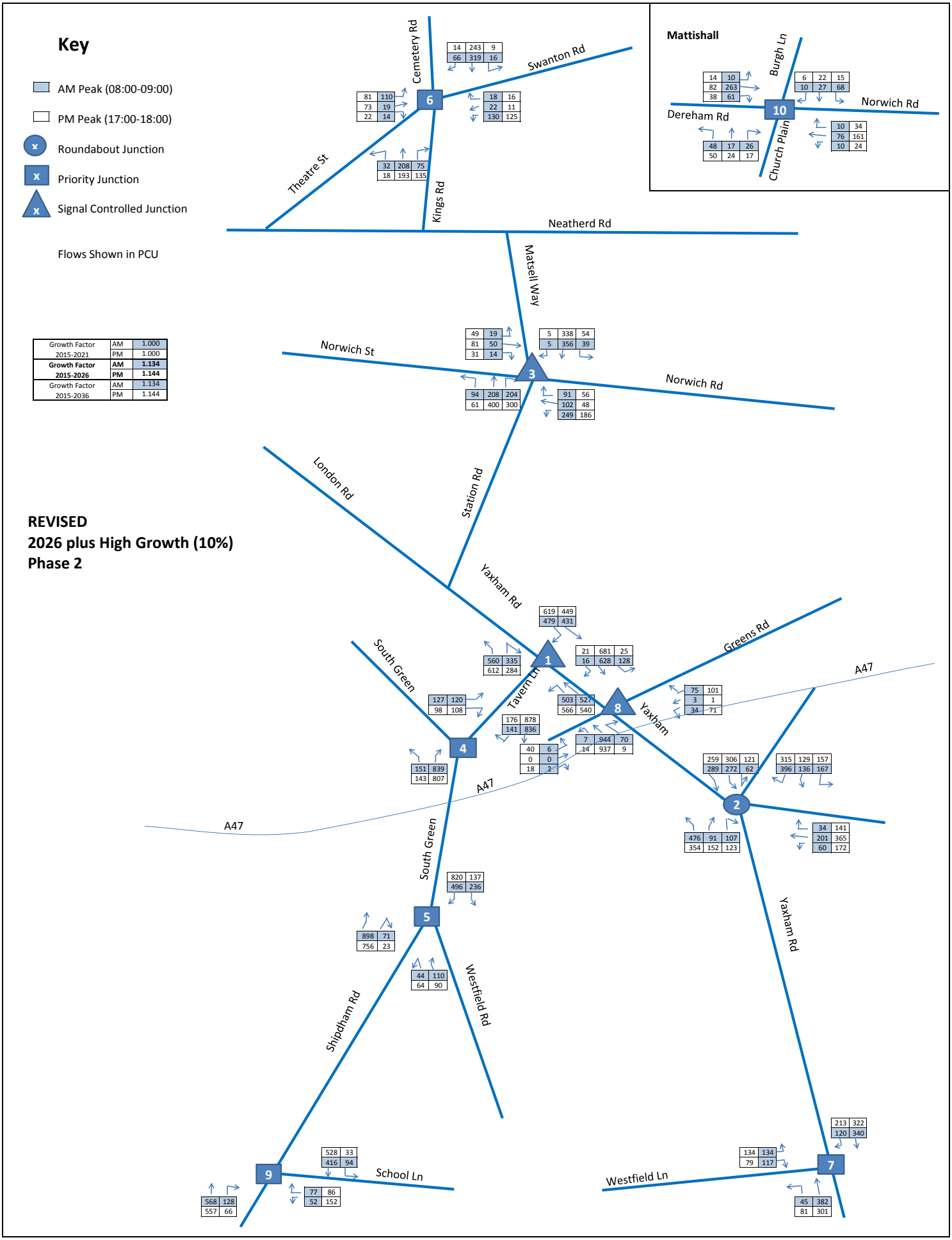
Key
AM Peak (08:00-09:00)
PM Peak (17:00-18:00)
Roundabout Junction
Priority Junction
Signal Controlled Junction
Flows Shown in PCU
Growth Factor 2015-2021 AM 1.000 PM 1.000
Growth Factor 2015-2026 AM 1.134 PM 1.144
Growth Factor 2015-2036 AM 1.134 PM 1.144
REVISED
2026 plus High Growth (10%)
Phase 2
Mattishall
Burgh Ln
Norwich Rd
Dereham Rd
Church Plain
Cemetery Rd
Swanton Rd
Theatre St
Kings Rd
Neatherd Rd
Matsell Way
Norwich St
Norwich Rd
London Rd
Station Rd
Yaxham Rd
South Green
Tavern Ln
Greens Rd
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Westfield Rd
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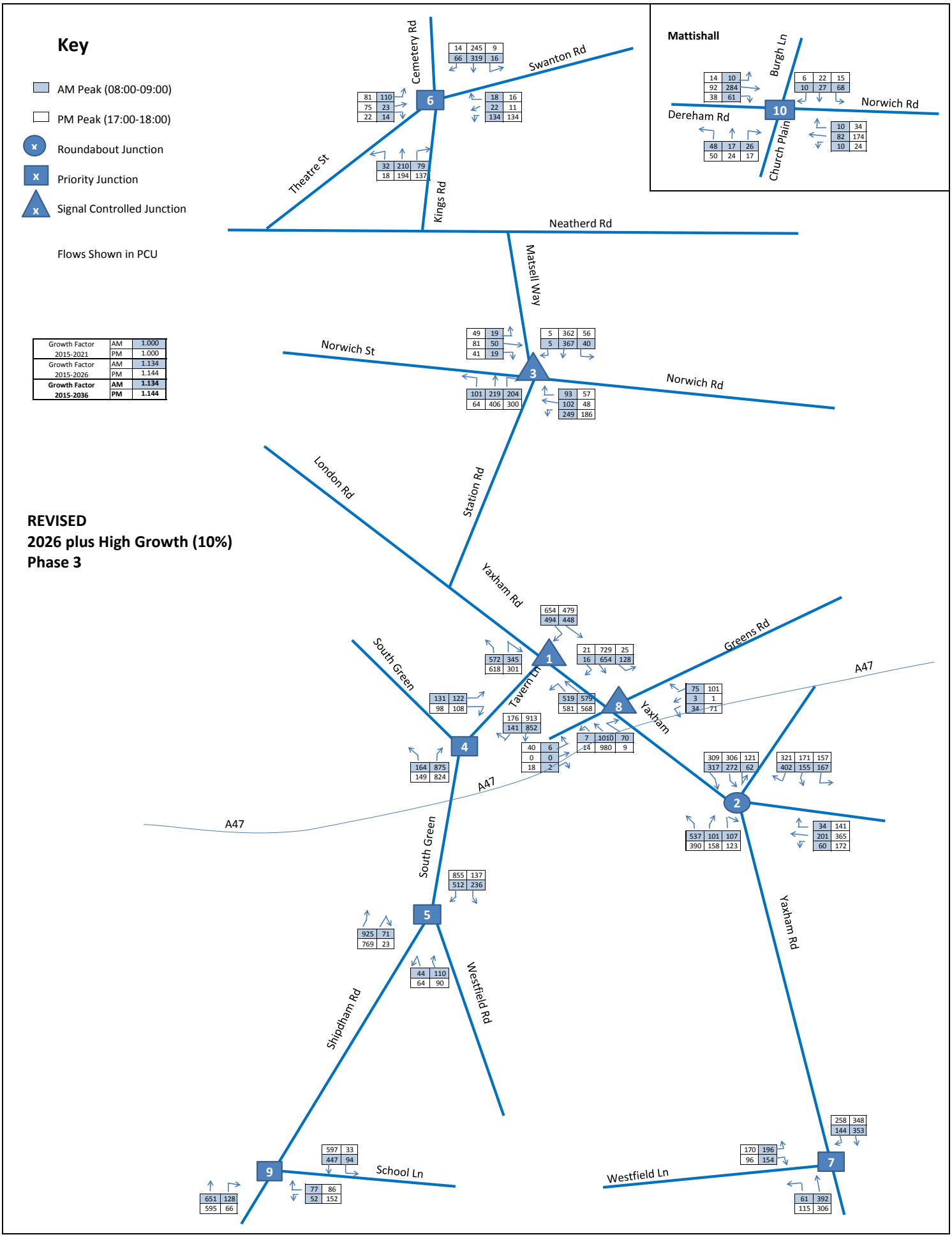
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AM Peak (08:00-09:00)
PM Peak (17:00-18:00)
Roundabout Junction
Priority Junction
Signal Controlled Junction
Flows Shown in PCU
Growth Factor 2015-2021 AM 1.000
Growth Factor 2015-2021 PM 1.000
Growth Factor 2015-2026 AM 1.134
Growth Factor 2015-2026 PM 1.144
Growth Factor 2015-2036 AM 1.134
Growth Factor 2015-2036 PM 1.144
REVISED
2026 plus High Growth (10%)
Phase 3
Mattishall
Burgh Ln
Norwich Rd
Dereham Rd
Church Plain
Cemetery Rd
Swanton Rd
Theatre St
Kings Rd
Neatherd Rd
Matsell Way
Norwich St
Norwich Rd
London Rd
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Shipdham Rd
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School Ln
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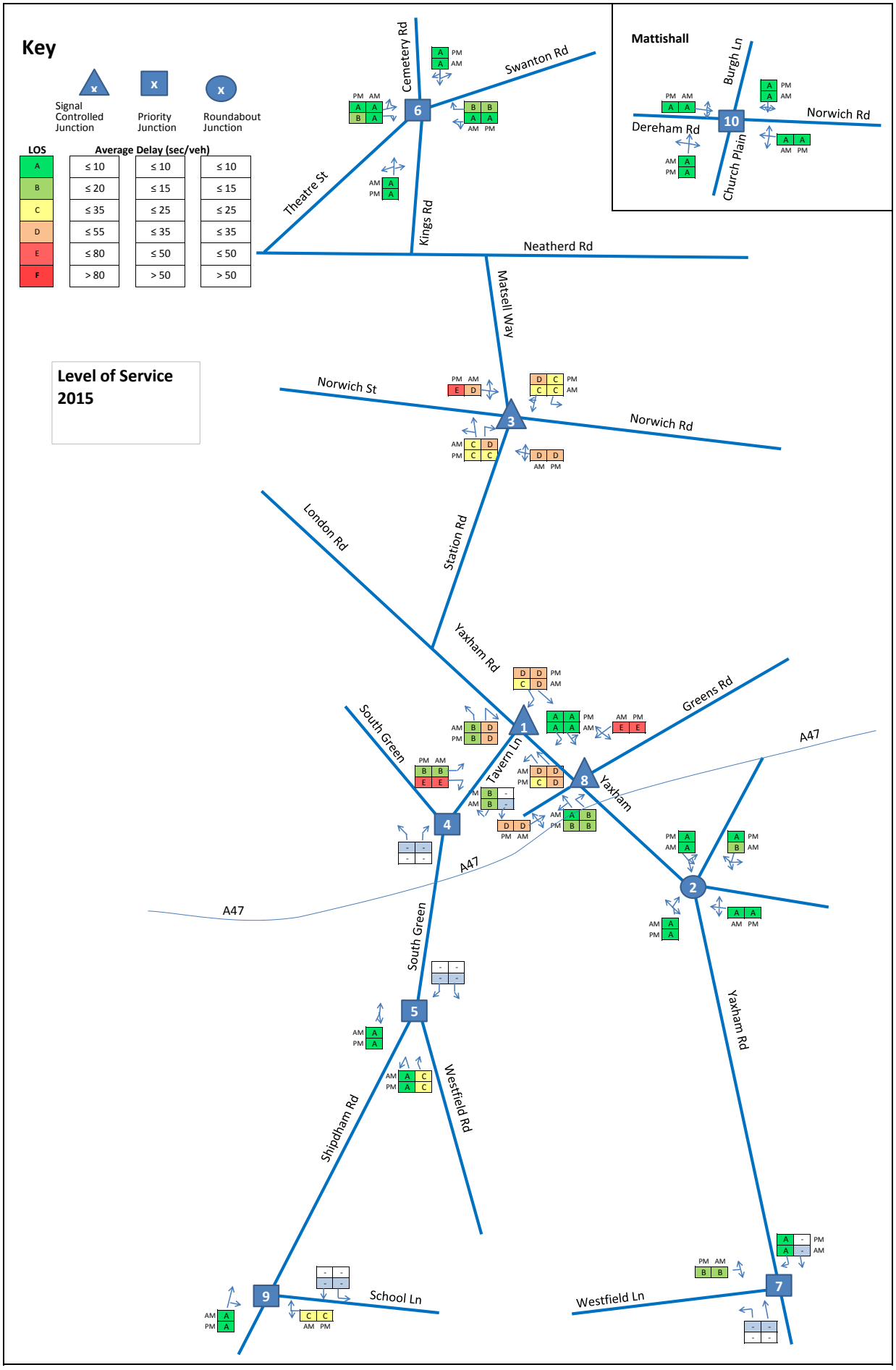
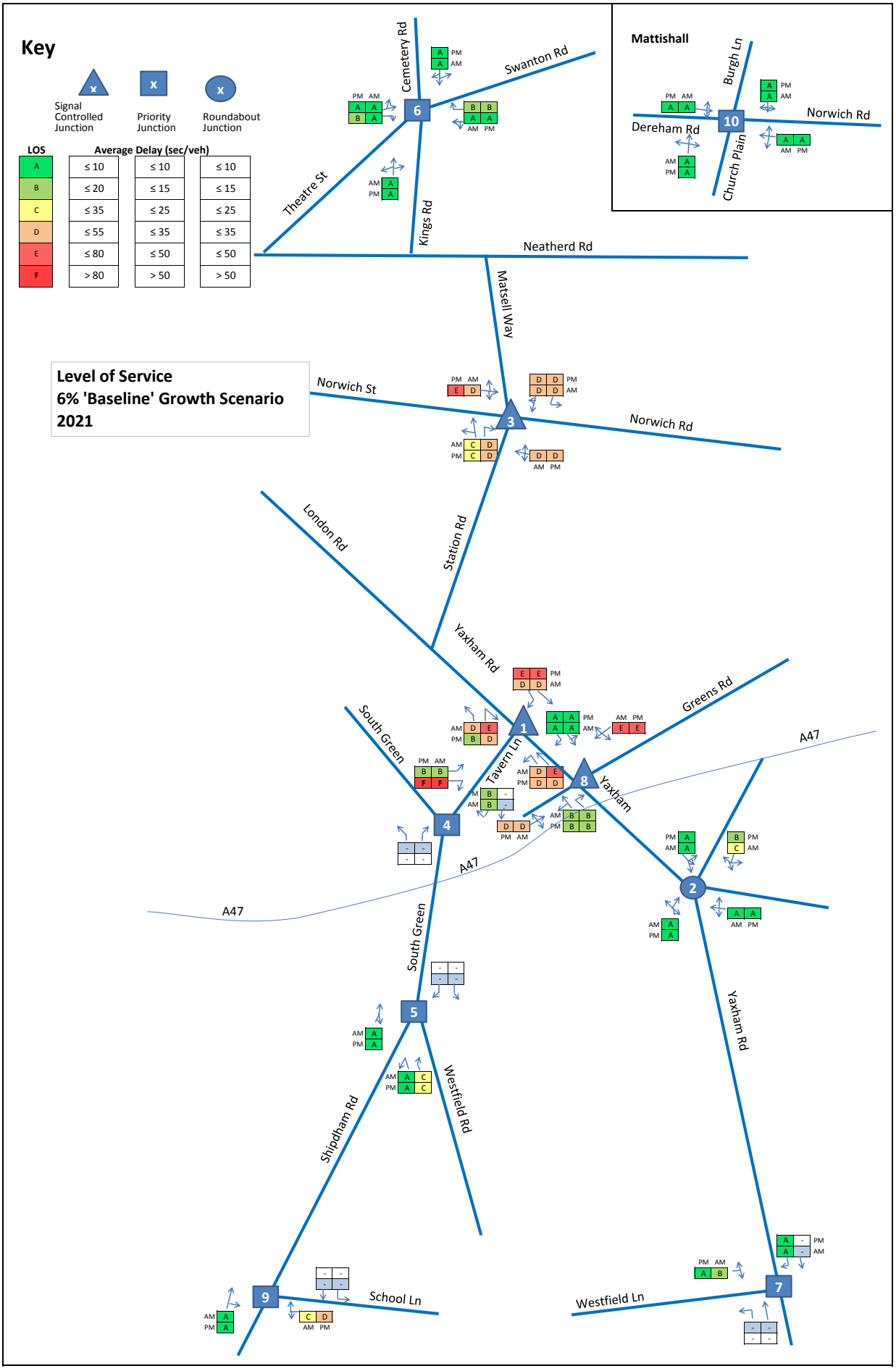
Appendix F - Junction Modelling Results




Key
Signal Controlled Junction
Priority Junction
Roundabout Junction
LOS
Average Delay (sec/veh)
A ≤ 10 ≤ 10 ≤ 10
B ≤ 20 ≤ 15 ≤ 15
C ≤ 35 ≤ 25 ≤ 25
D ≤ 55 ≤ 35 ≤ 35
E ≤ 80 ≤ 50 ≤ 50
F > 80 > 50 > 50
Level of Service
6% 'Baseline' Growth Scenario
2021
Mattishall
Burgh Ln
Dereham Rd
Norwich Rd
Church Plain
Cemetery Rd
Swanton Rd
Theatre St
Kings Rd
Neatherd Rd
Matsell Way
Norwich St
Norwich Rd
London Rd
Station Rd
Yaxham Rd
Greens Rd
South Green
Tavern Ln
Yaxham
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South Green
Shipdham Rd
Westfield Rd
Yaxham Rd
School Ln
Westfield Ln
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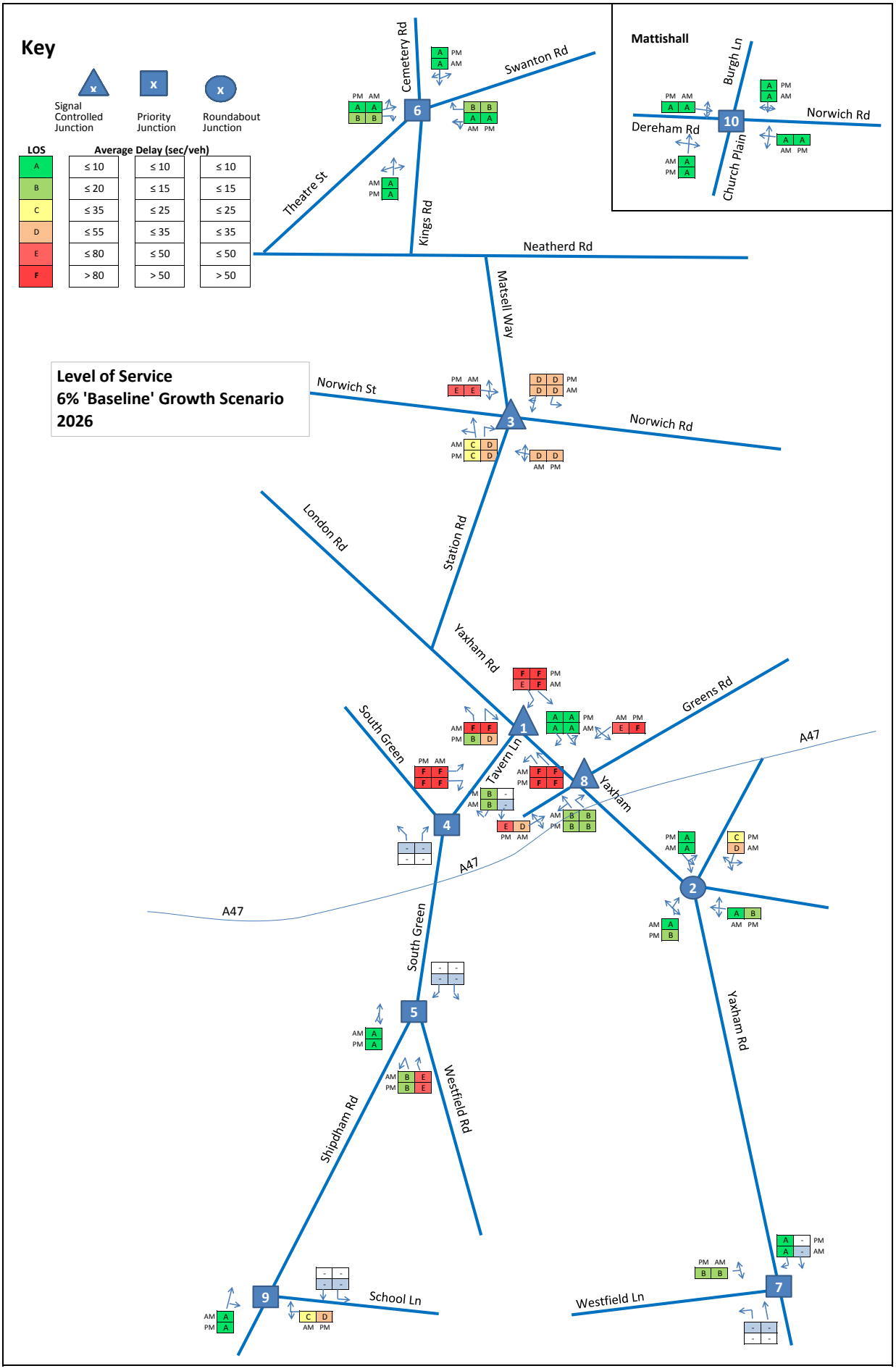
Key
Signal Controlled Junction
Priority Junction
Roundabout Junction
LOS
Average Delay (sec/veh)
A ≤ 10 ≤ 10 ≤ 10
B ≤ 20 ≤ 15 ≤ 15
C ≤ 35 ≤ 25 ≤ 25
D ≤ 55 ≤ 35 ≤ 35
E ≤ 80 ≤ 50 ≤ 50
F > 80 > 50 > 50
Level of Service
6% 'Baseline' Growth Scenario
2026
Mattishall
Burgh Ln
Norwich Rd
Dereham Rd
Church Plain
Cemetery Rd
Swanton Rd
Theatre St
Kings Rd
Neatherd Rd
Matsell Way
Norwich St
Norwich Rd
London Rd
Station Rd
Yaxham Rd
Greens Rd
South Green
Tavern Ln
Yaxham
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South Green
Shipdham Rd
Westfield Rd
School Ln
Westfield Ln
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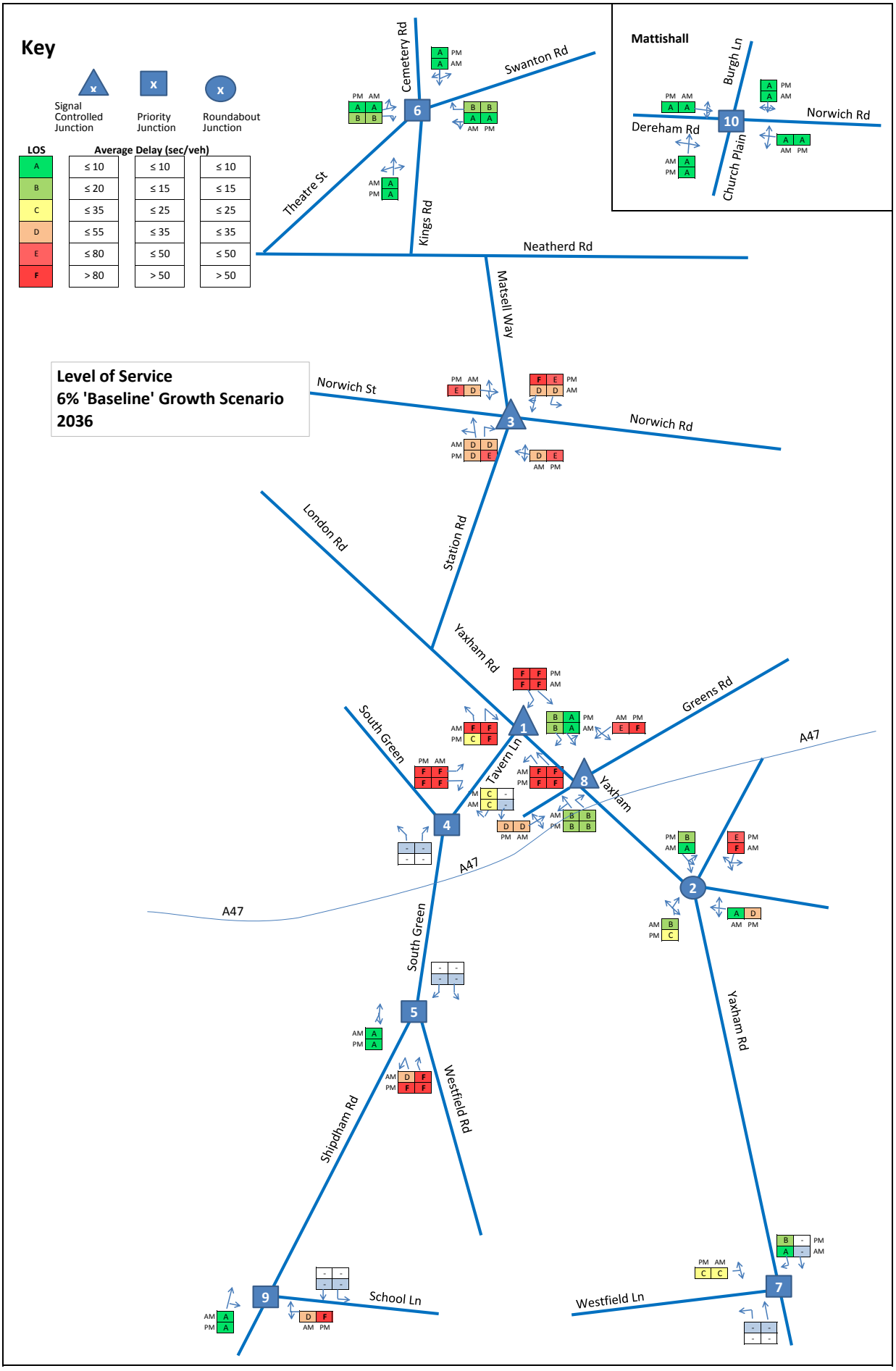
Key
Signal Controlled Junction
Priority Junction
Roundabout Junction
LOS
Average Delay (sec/veh)
A ≤ 10 ≤ 10 ≤ 10
B ≤ 20 ≤ 15 ≤ 15
C ≤ 35 ≤ 25 ≤ 25
D ≤ 55 ≤ 35 ≤ 35
E ≤ 80 ≤ 50 ≤ 50
F > 80 > 50 > 50
Level of Service
6% 'Baseline' Growth Scenario
2036
Mattishall
Burgh Ln
Dereham Rd
Norwich Rd
Church Plain
Cemetery Rd
Swanton Rd
Theatre St
Kings Rd
Neatherd Rd
Matsell Way
Norwich St
Norwich Rd
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Station Rd
Yaxham Rd
Greens Rd
South Green
Tavern Ln
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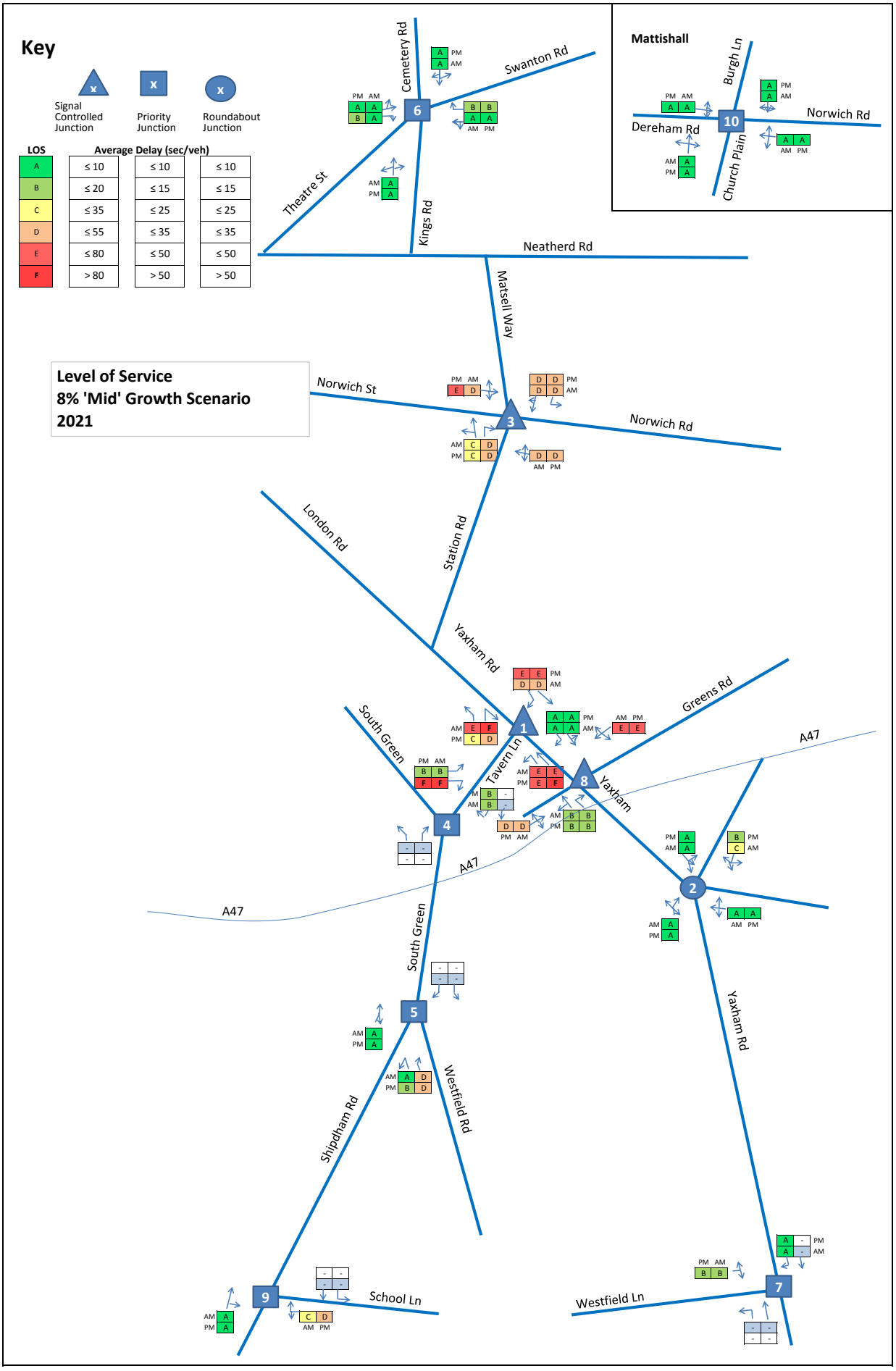
Key
Signal Controlled Junction
Priority Junction
Roundabout Junction
LOS
Average Delay (sec/veh)
A ≤ 10 ≤ 10 ≤ 10
B ≤ 20 ≤ 15 ≤ 15
C ≤ 35 ≤ 25 ≤ 25
D ≤ 55 ≤ 35 ≤ 35
E ≤ 80 ≤ 50 ≤ 50
F > 80 > 50 > 50
Level of Service
8% 'Mid' Growth Scenario
2021
Mattishall
Burgh Ln
Norwich Rd
Dereham Rd
Church Plain
Cemetery Rd
Swanton Rd
Theatre St
Kings Rd
Neatherd Rd
Matsell Way
Norwich St
Norwich Rd
London Rd
Station Rd
Yaxham Rd
Greens Rd
South Green
Tavern Ln
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School Ln
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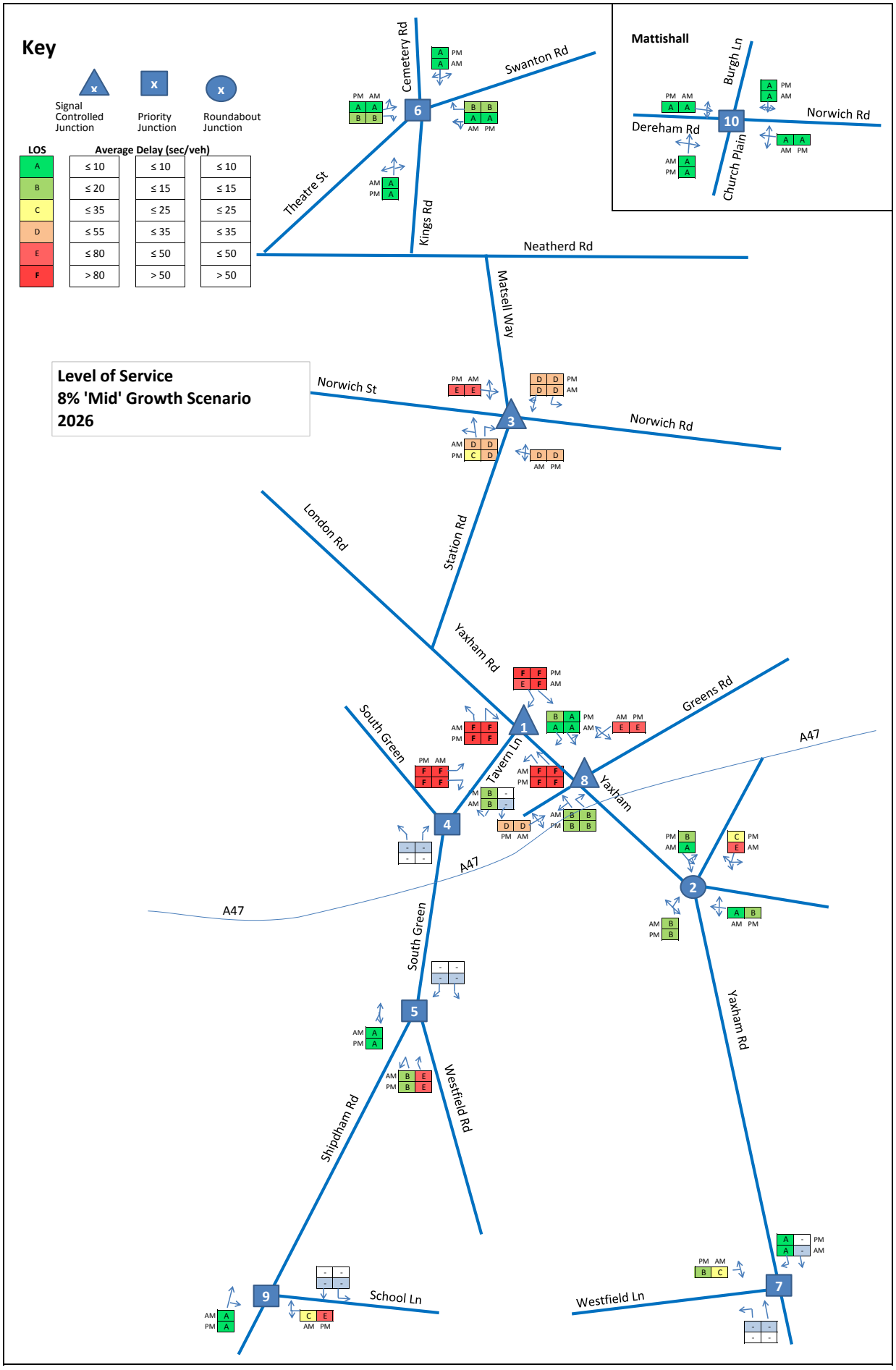
Key
Signal Controlled Junction
Priority Junction
Roundabout Junction
LOS
Average Delay (sec/veh)
A ≤ 10 ≤ 10 ≤ 10
B ≤ 20 ≤ 15 ≤ 15
C ≤ 35 ≤ 25 ≤ 25
D ≤ 55 ≤ 35 ≤ 35
E ≤ 80 ≤ 50 ≤ 50
F > 80 > 50 > 50
Level of Service
8% 'Mid' Growth Scenario
2026
Mattishall
Burgh Ln
Norwich Rd
Dereham Rd
Church Plain
Cemetery Rd
Swanton Rd
Theatre St
Kings Rd
Neatherd Rd
Matsell Way
Norwich St
Norwich Rd
London Rd
Station Rd
Yaxham Rd
Greens Rd
South Green
Tavern Ln
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South Green
Shipdham Rd
Westfield Rd
Yaxham Rd
School Ln
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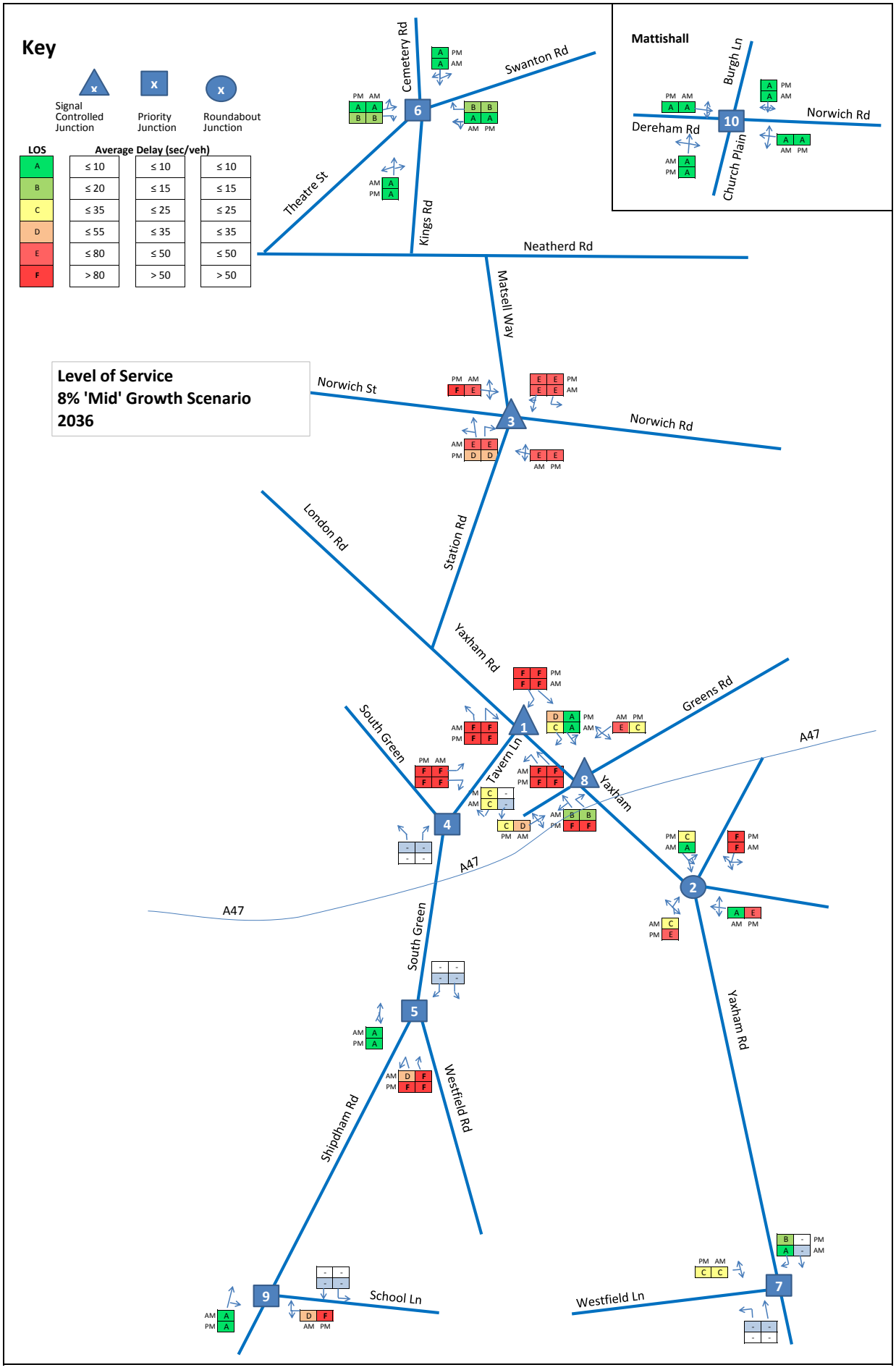
Key
Signal Controlled Junction
Priority Junction
Roundabout Junction
LOS
Average Delay (sec/veh)
A ≤ 10 ≤ 10 ≤ 10
B ≤ 20 ≤ 15 ≤ 15
C ≤ 35 ≤ 25 ≤ 25
D ≤ 55 ≤ 35 ≤ 35
E ≤ 80 ≤ 50 ≤ 50
F > 80 > 50 > 50
Level of Service
8% 'Mid' Growth Scenario
2036
Mattishall
Burgh Ln
Norwich Rd
Dereham Rd
Church Plain
Cemetery Rd
Swanton Rd
Theatre St
Kings Rd
Neatherd Rd
Matsell Way
Norwich St
London Rd
Station Rd
Yaxham Rd
Greens Rd
South Green
Tavern Ln
Yaxham
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Shipdham Rd
Westfield Rd
School Ln
Westfield Ln
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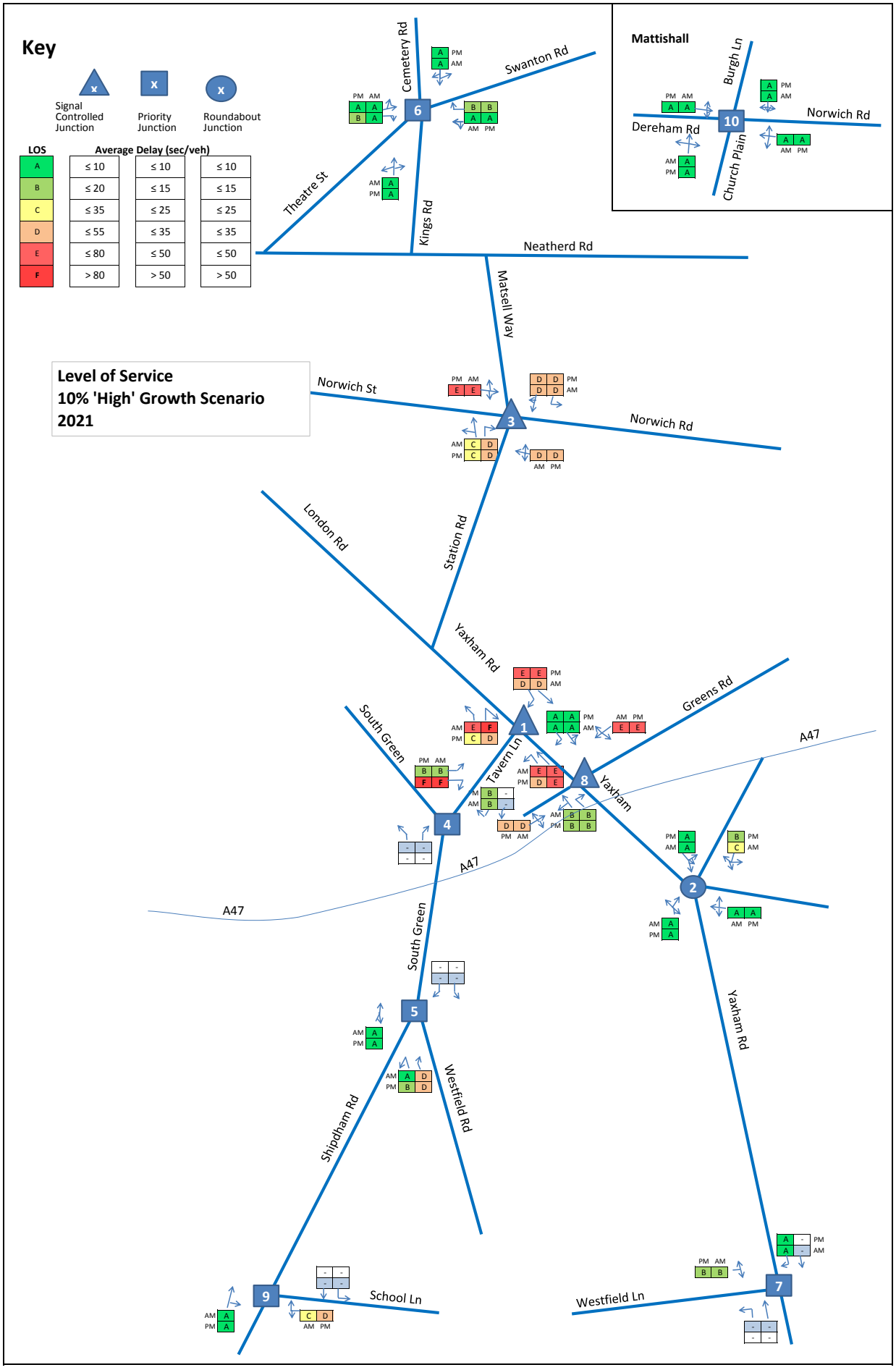
Key
Signal Controlled Junction
Priority Junction
Roundabout Junction
LOS
Average Delay (sec/veh)
A ≤ 10 ≤ 10 ≤ 10
B ≤ 20 ≤ 15 ≤ 15
C ≤ 35 ≤ 25 ≤ 25
D ≤ 55 ≤ 35 ≤ 35
E ≤ 80 ≤ 50 ≤ 50
F > 80 > 50 > 50
Level of Service
10% 'High' Growth Scenario
2021
Mattishall
Burgh Ln
Norwich Rd
Dereham Rd
Church Plain
Cemetery Rd
Swanton Rd
Theatre St
Kings Rd
Neatherd Rd
Matsell Way
Norwich St
Norwich Rd
London Rd
Station Rd
Yaxham Rd
Greens Rd
South Green
Tavern Ln
Yaxham
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Shipdham Rd
Westfield Rd
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School Ln
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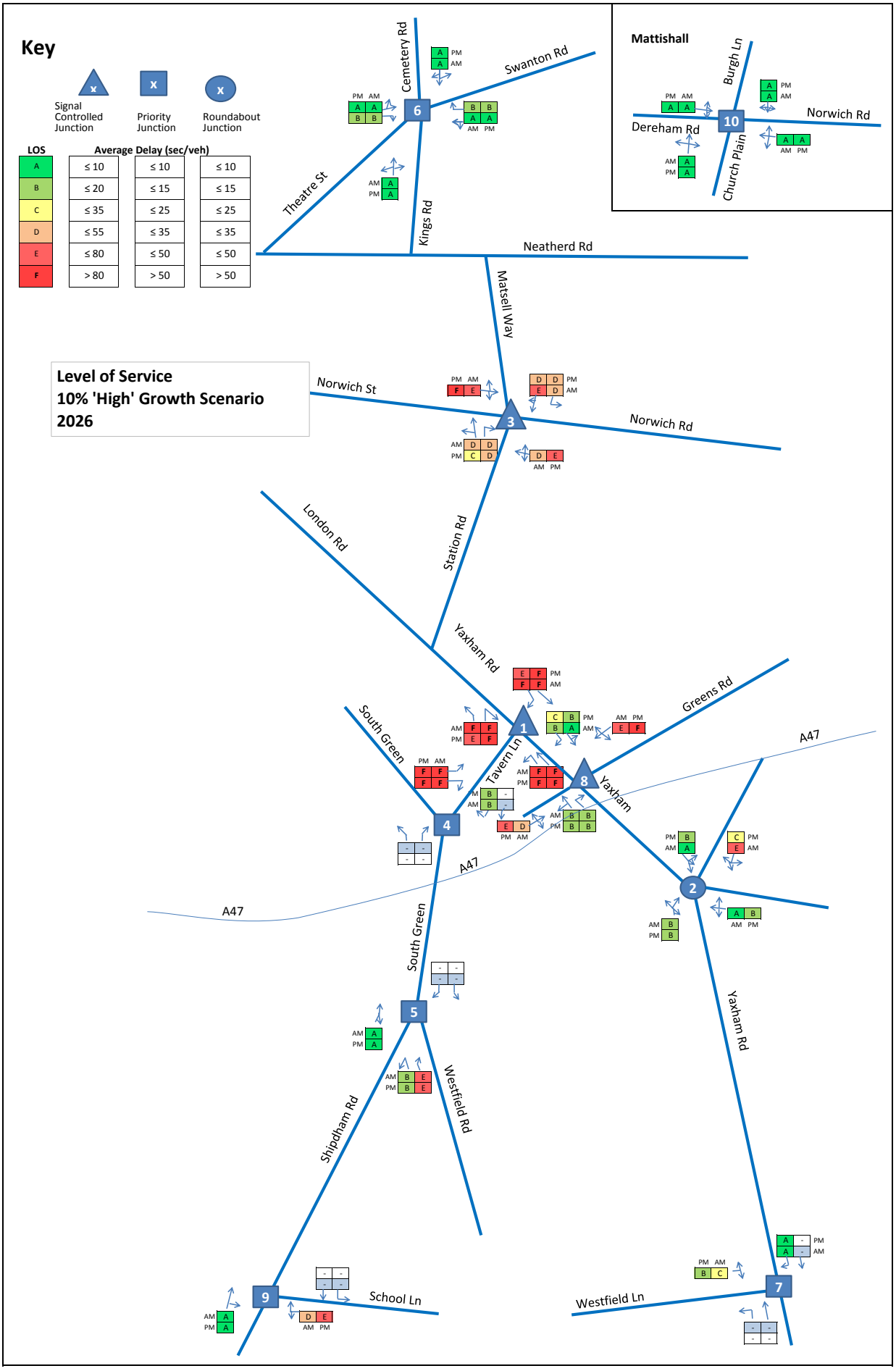
Key
Signal Controlled Junction
Priority Junction
Roundabout Junction
LOS
Average Delay (sec/veh)
A ≤ 10 ≤ 10 ≤ 10
B ≤ 20 ≤ 15 ≤ 15
C ≤ 35 ≤ 25 ≤ 25
D ≤ 55 ≤ 35 ≤ 35
E ≤ 80 ≤ 50 ≤ 50
F > 80 > 50 > 50
Level of Service
10% 'High' Growth Scenario
2026
Mattishall
Burgh Ln
Norwich Rd
Dereham Rd
Church Plain
Cemetery Rd
Swanton Rd
Theatre St
Kings Rd
Neatherd Rd
Matsell Way
Norwich St
Norwich Rd
London Rd
Station Rd
Yaxham Rd
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Tavern Ln
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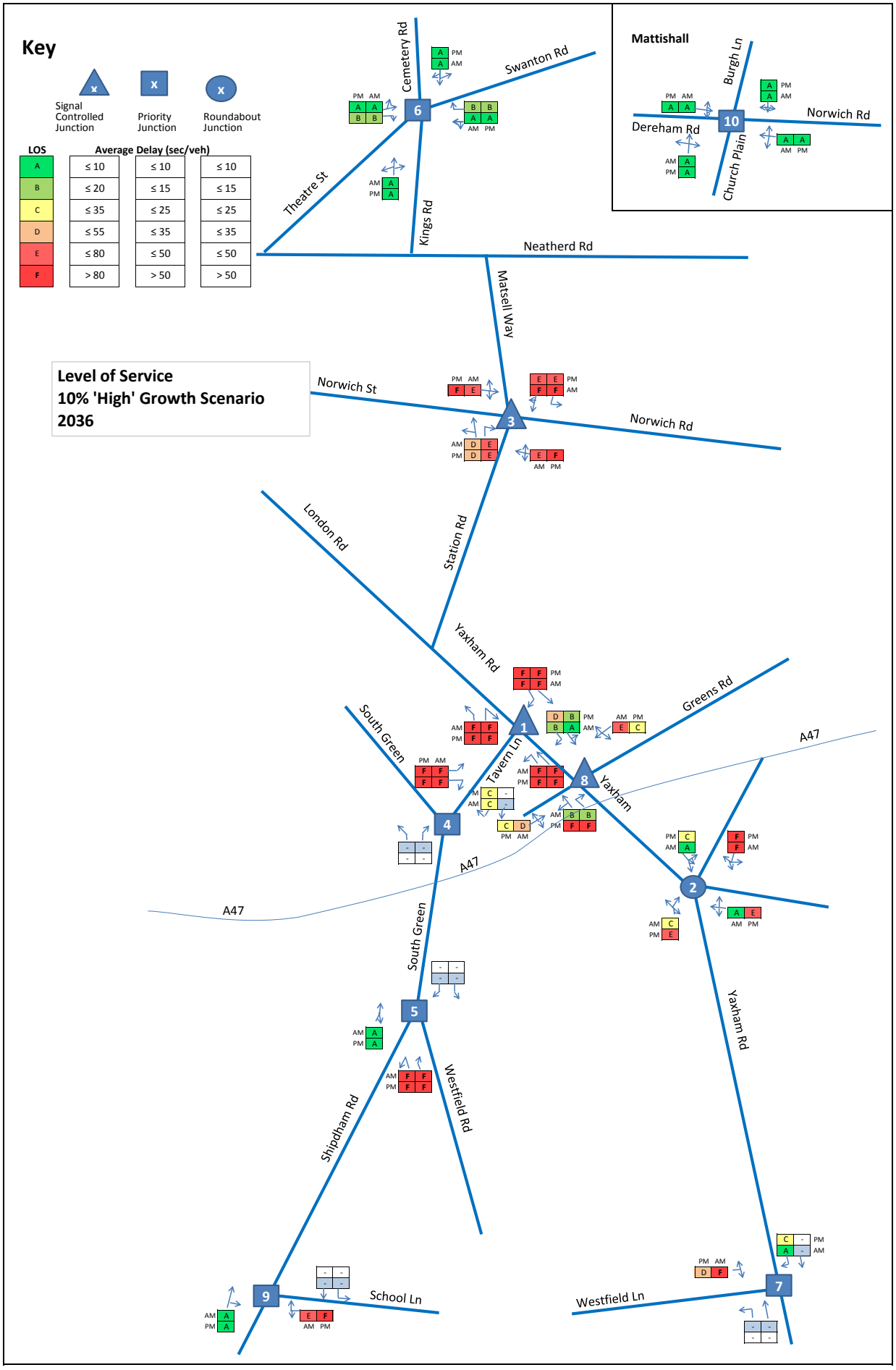
Key
Signal Controlled Junction
Priority Junction
Roundabout Junction
LOS
Average Delay (sec/veh)
A ≤ 10 ≤ 10 ≤ 10
B ≤ 20 ≤ 15 ≤ 15
C ≤ 35 ≤ 25 ≤ 25
D ≤ 55 ≤ 35 ≤ 35
E ≤ 80 ≤ 50 ≤ 50
F > 80 > 50 > 50
Level of Service
10% 'High' Growth Scenario
2036
Mattishall
Burgh Ln
Dereham Rd
Norwich Rd
Church Plain
Cemetery Rd
Swanton Rd
Theatre St
Kings Rd
Neatherd Rd
Matsell Way
Norwich St
Norwich Rd
London Rd
Station Rd
Yaxham Rd
Greens Rd
South Green
Tavern Ln
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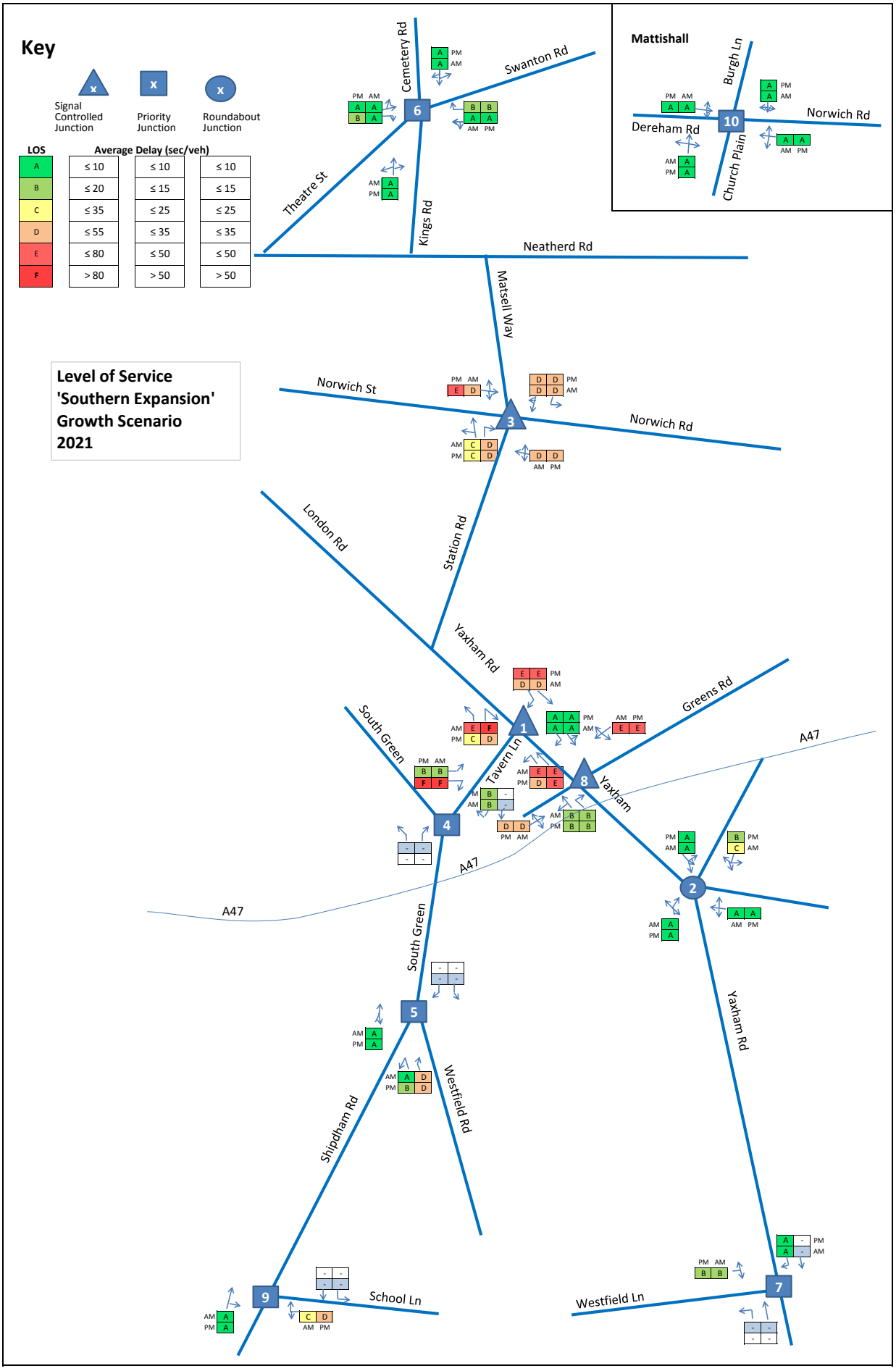
Key
Signal Controlled Junction
Priority Junction
Roundabout Junction
LOS
Average Delay (sec/veh)
A ≤ 10 ≤ 10 ≤ 10
B ≤ 20 ≤ 15 ≤ 15
C ≤ 35 ≤ 25 ≤ 25
D ≤ 55 ≤ 35 ≤ 35
E ≤ 80 ≤ 50 ≤ 50
F > 80 > 50 > 50
Level of Service 'Southern Expansion' Growth Scenario 2021
Mattishall
Burgh Ln
Norwich Rd
Dereham Rd
Church Plain
10
Cemetery Rd
Swanton Rd
6
Theatre St
Kings Rd
Neatherd Rd
Matsell Way
Norwich St
Norwich Rd
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London Rd
Station Rd
Yaxham Rd
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Greens Rd
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Tavern Ln
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Shipdham Rd
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Yaxham Rd
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School Ln
Westfield Ln
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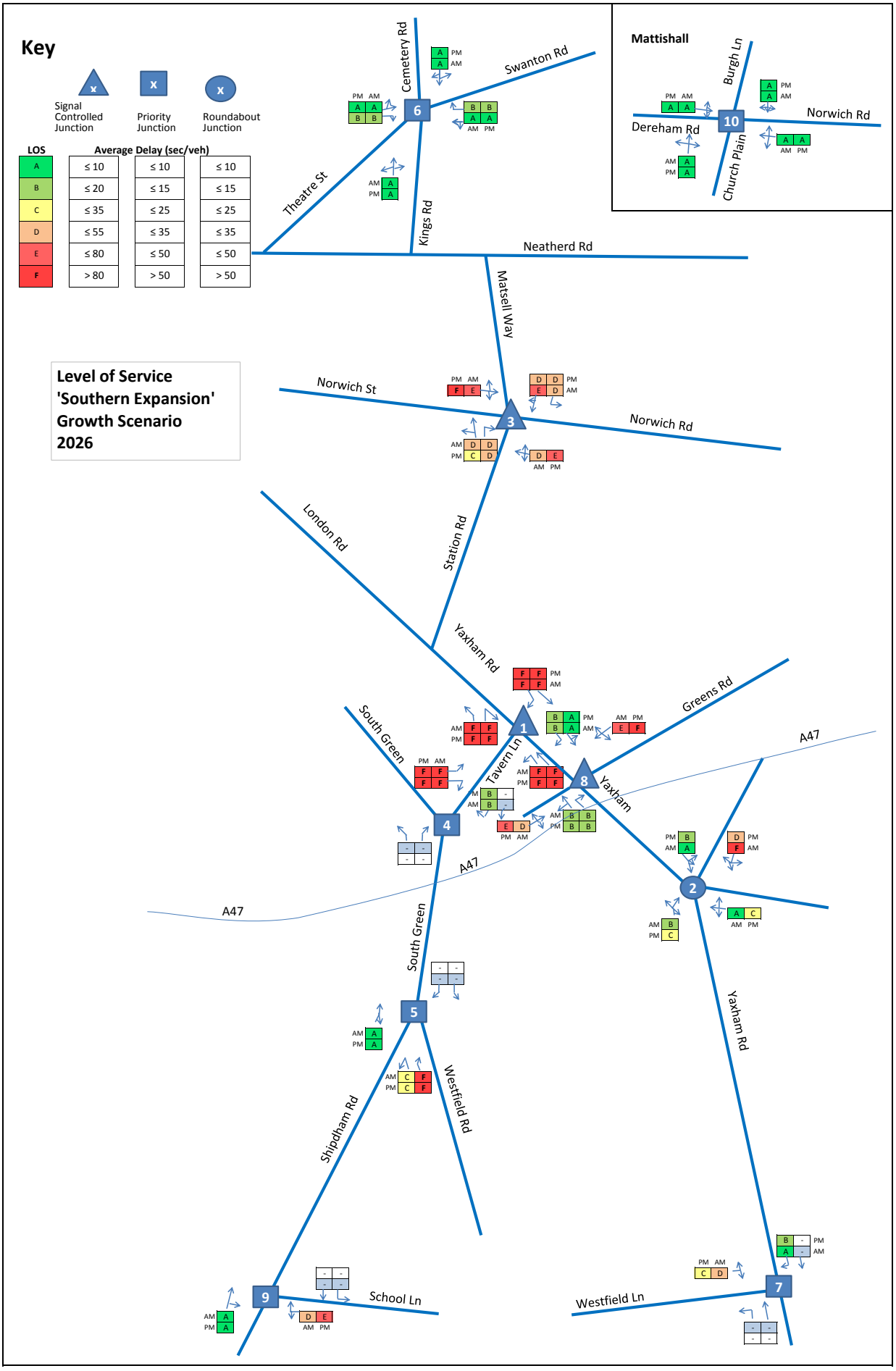
Key
Signal Controlled Junction
Priority Junction
Roundabout Junction
LOS
Average Delay (sec/veh)
A ≤ 10 ≤ 10 ≤ 10
B ≤ 20 ≤ 15 ≤ 15
C ≤ 35 ≤ 25 ≤ 25
D ≤ 55 ≤ 35 ≤ 35
E ≤ 80 ≤ 50 ≤ 50
F > 80 > 50 > 50
Level of Service 'Southern Expansion' Growth Scenario 2026
Mattishall
Burgh Ln
Dereham Rd
Norwich Rd
Church Plain
Cemetery Rd
Swanton Rd
Theatre St
Kings Rd
Neatherd Rd
Matsell Way
Norwich St
Norwich Rd
London Rd
Station Rd
Yaxham Rd
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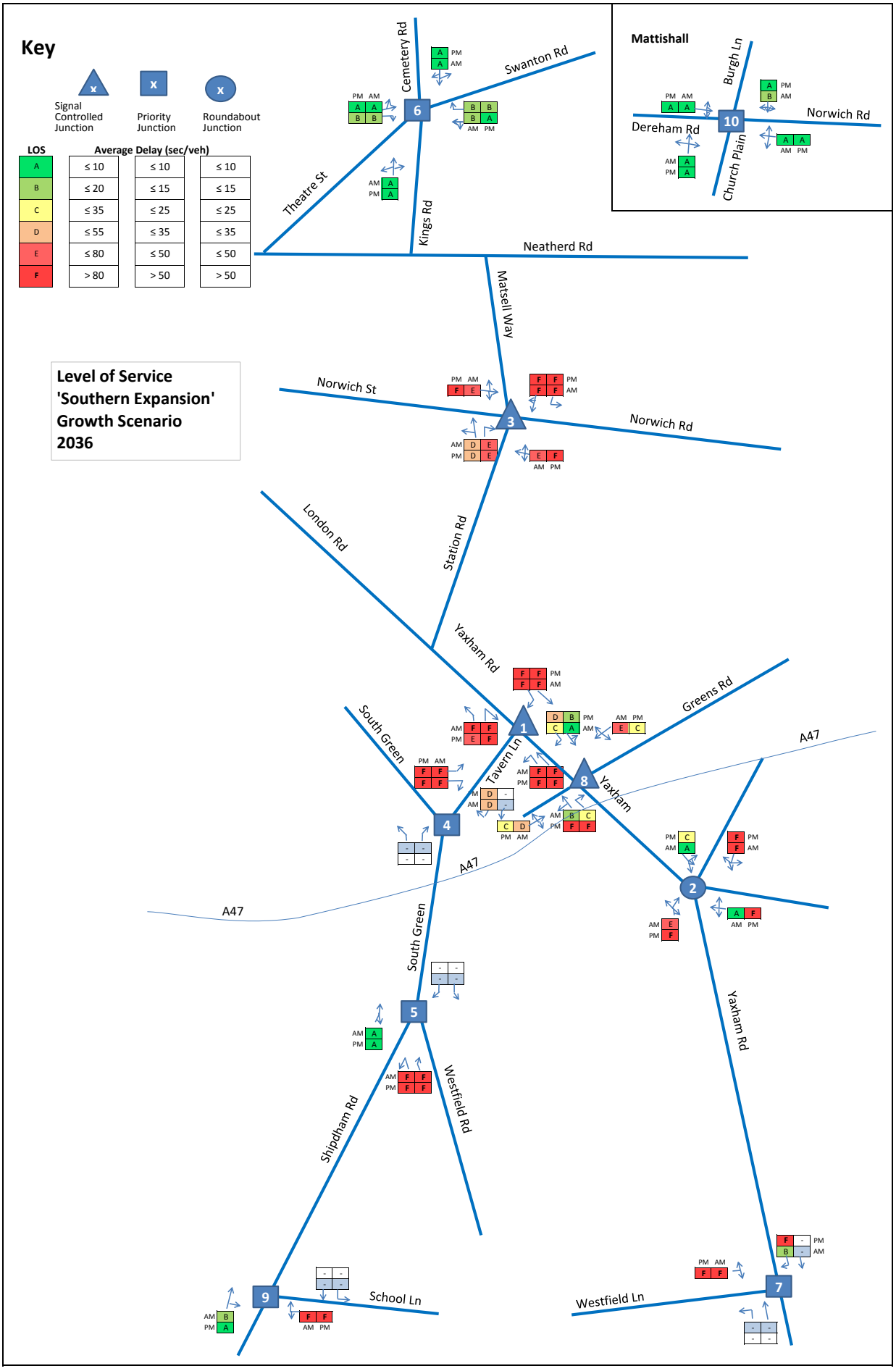
Key
Signal Controlled Junction
Priority Junction
Roundabout Junction
LOS
Average Delay (sec/veh)
A ≤ 10 ≤ 10 ≤ 10
B ≤ 20 ≤ 15 ≤ 15
C ≤ 35 ≤ 25 ≤ 25
D ≤ 55 ≤ 35 ≤ 35
E ≤ 80 ≤ 50 ≤ 50
F > 80 > 50 > 50
Level of Service 'Southern Expansion' Growth Scenario 2036
Mattishall
Burgh Ln
Norwich Rd
Dereham Rd
Church Plain
Cemetery Rd
Swanton Rd
Theatre St
Kings Rd
Neatherd Rd
Matsell Way
Norwich St
Norwich Rd
London Rd
Station Rd
Yaxham Rd
Greens Rd
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South Green
Shipdham Rd
Westfield Rd
School Ln
Westfield Ln
Yaxham Rd
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Scenario Summary

User and Project Details

Project:	**A094136 – Dereham Transport Strategy**
Title:	**Report Stage 3 – Revised Flows**
Location:	Dereham – Yaxham Road / Tavern Lane
File name:	01-Yaxham_Rd-Tavern_Ln-Rev Growth.lsg3x
Author:	AC
Company:	WYG
Address:	
Notes:	

Scenario Summary

Scenarios

Number	Scenario Name	Flow Group	Network Control Plan	Time	Cycle Time (s)	PRC (%)	Delay (pcuHr)
1	2015 PM	2015 PM	Network Control Plan 1	17:00 - 18:00	90	-9.5	31.78
2	2015 AM	2015 AM	Network Control Plan 1	08:00 - 09:00	90	-9.4	37.67
3	2015 AM + PH1 LG	2015 AM + PH1 LG	Network Control Plan 1	08:00 - 09:00	90	-10.5	39.77
4	2015 PM + PH1 LG	2015 PM + PH1 LG	Network Control Plan 1	17:00 - 18:00	90	-12.4	39.36
5	2015 AM + PH2 LG	2015 AM + PH2 LG	Network Control Plan 1	08:00 - 09:00	90	-12.1	46.54
6	2015 PM + PH2 LG	2015 PM + PH2 LG	Network Control Plan 1	17:00 - 18:00	90	-13.6	45.14
7	2015 AM + PH3 LG	2015 AM + PH3 LG	Network Control Plan 1	08:00 - 09:00	90	-15.5	66.30
8	2015 PM + PH3 LG	2015 PM + PH3 LG	Network Control Plan 1	17:00 - 18:00	90	-16.5	60.74
9	2015 AM + PH1 MG	2015 AM + PH1 MG	Network Control Plan 1	08:00 - 09:00	90	-13.0	53.08
10	2015 PM + PH1 MG	2015 PM + PH1 MG	Network Control Plan 1	17:00 - 18:00	90	-15.5	52.35
11	2015 AM + PH2 MG	2015 AM + PH2 MG	Network Control Plan 1	08:00 - 09:00	90	-19.0	96.72
12	2015 PM + PH2 MG	2015 PM + PH2 MG	Network Control Plan 1	17:00 - 18:00	90	-17.8	108.36
13	2015 AM + PH3 MG	2015 AM + PH3 MG	Network Control Plan 1	08:00 - 09:00	90	-22.5	119.97
14	2015 PM + PH3 MG	2015 PM + PH3 MG	Network Control Plan 1	17:00 - 18:00	90	-19.4	126.67
15	2015 AM + PH1 HG	2015 AM + PH1 HG	Network Control Plan 1	08:00 - 09:00	90	-13.0	53.08
16	2015 PM + PH1 HG	2015 PM + PH1 HG	Network Control Plan 1	17:00 - 18:00	90	-15.5	52.35
17	2015 AM + PH2 HG	2015 AM + PH2 HG	Network Control Plan 1	08:00 - 09:00	90	-21.8	107.83
18	2015 PM + PH2 HG	2015 PM + PH2 HG	Network Control Plan 1	17:00 - 18:00	90	-18.8	122.18
19	2015 AM + PH3 HG	2015 AM + PH3 HG	Network Control Plan 1	08:00 - 09:00	90	-32.1	176.71
20	2015 PM + PH3 HG	2015 PM + PH3 HG	Network Control Plan 1	17:00 - 18:00	90	-26.9	175.30
21	2026 AM + PH2 LG	2026 AM + PH2 LG	Network Control Plan 1	08:00 - 09:00	90	-26.9	136.82
22	2026 PM + PH2 LG	2026 PM + PH2 LG	Network Control Plan 1	17:00 - 18:00	90	-29.4	144.12
23	2026 AM + PH3 LG	2026 AM + PH3 LG	Network Control Plan 1	08:00 - 09:00	90	-30.4	165.78
24	2026 PM + PH3 LG	2026 PM + PH3 LG	Network Control Plan 1	17:00 - 18:00	90	-32.3	159.07
25	2026 AM + PH2 MG	2026 AM + PH2 MG	Network Control Plan 1	08:00 - 09:00	90	-33.8	227.50
26	2026 PM + PH2 MG	2026 PM + PH2 MG	Network Control Plan 1	17:00 - 18:00	90	-37.3	205.61
27	2026 AM + PH3 MG	2026 AM + PH3 MG	Network Control Plan 1	08:00 - 09:00	90	-37.3	253.36
28	2026 PM + PH3 MG	2026 PM + PH3 MG	Network Control Plan 1	17:00 - 18:00	90	-40.7	235.82
29	2026 AM + PH2 HG	2026 PM + PH2 HG	Network Control Plan 1	17:00 - 18:00	90	-39.3	212.00
30	2026 PM + PH2 HG	2026 PM + PH2 HG	Network Control Plan 1	17:00 - 18:00	90	-39.3	222.20
31	2026 AM + PH3 HG	2026 AM + PH3 HG	Network Control Plan 1	08:00 - 09:00	90	-46.2	320.21
32	2026 PM + PH3 HG	2026 PM + PH3 HG	Network Control Plan 1	17:00 - 18:00	90	-46.7	298.98

Scenario Summary

User and Project Details

Project:	**A094136 – Dereham Transport Strategy**
Title:	**Report Stage 3 – Revised Flows**
Location:	Dereham – Yaxham Road / Tavern Lane as shown in Figure 10
File name:	01-Yaxham_Rd-Tavern_Ln-Option 1 Rev Growth.lsg3x
Author:	AC
Company:	WYG
Address:	
Notes:	

Scenario Summary

Scenarios

Number	Scenario Name	Flow Group	Network Control Plan	Time	Cycle Time (s)	PRC (%)	Delay (pcuHr)
1	2015 AM	2015 AM	Network Control Plan 1	08:00 - 09:00	90	11.8	24.71
2	2015 PM	2015 PM	Network Control Plan 1	17:00 - 18:00	90	1.5	29.80
3	2015 AM + PH1 LG	2015 AM + PH1 LG	Network Control Plan 1	08:00 - 09:00	90	10.7	25.52
4	2015 PM + PH1 LG	2015 PM + PH1 LG	Network Control Plan 1	17:00 - 18:00	90	-0.9	31.43
5	2015 AM + PH2 LG	2015 AM + PH2 LG	Network Control Plan 1	08:00 - 09:00	90	10.2	25.84
6	2015 PM + PH2 LG	2015 PM + PH2 LG	Network Control Plan 1	17:00 - 18:00	90	-1.2	31.97
7	2015 AM + PH3 LG	2015 AM + PH3 LG	Network Control Plan 1	08:00 - 09:00	90	8.2	26.78
8	2015 PM + PH3 LG	2015 PM + PH3 LG	Network Control Plan 1	17:00 - 18:00	90	-1.8	33.17
9	2015 AM + PH1 MG	2015 AM + PH1 MG	Network Control Plan 1	08:00 - 09:00	90	7.7	26.42
10	2015 PM + PH1 MG	2015 PM + PH1 MG	Network Control Plan 1	17:00 - 18:00	90	-1.3	33.93
11	2015 AM + PH2 MG	2015 AM + PH2 MG	Network Control Plan 1	08:00 - 09:00	90	4.5	28.52
12	2015 PM + PH2 MG	2015 PM + PH2 MG	Network Control Plan 1	17:00 - 18:00	90	-5.5	41.13
13	2015 AM + PH3 MG	2015 AM + PH3 MG	Network Control Plan 1	08:00 - 09:00	90	2.1	29.61
14	2015 PM + PH3 MG	2015 PM + PH3 MG	Network Control Plan 1	17:00 - 18:00	90	-6.9	43.07
15	2015 AM + PH1 HG	2015 AM + PH1 HG	Network Control Plan 1	08:00 - 09:00	90	7.7	26.42
16	2015 PM + PH1 HG	2015 PM + PH1 HG	Network Control Plan 1	17:00 - 18:00	90	-1.3	33.93
17	2015 AM + PH2 HG	2015 AM + PH2 HG	Network Control Plan 1	08:00 - 09:00	90	3.9	28.90
18	2015 PM + PH2 HG	2015 PM + PH2 HG	Network Control Plan 1	17:00 - 18:00	90	-6.1	41.72
19	2015 AM + PH3 HG	2015 AM + PH3 HG	Network Control Plan 1	08:00 - 09:00	90	-3.5	34.34
20	2015 PM + PH3 HG	2015 PM + PH3 HG	Network Control Plan 1	17:00 - 18:00	90	-10.7	61.18
21	2026 AM + PH2 LG	2026 AM + PH2 LG	Network Control Plan 1	08:00 - 09:00	90	-2.8	35.88
22	2026 PM + PH2 LG	2026 PM + PH2 LG	Network Control Plan 1	17:00 - 18:00	90	-15.2	84.19
23	2026 AM + PH3 LG	2026 AM + PH3 LG	Network Control Plan 1	08:00 - 09:00	90	-4.5	37.91
24	2026 PM + PH3 LG	2026 PM + PH3 LG	Network Control Plan 1	17:00 - 18:00	90	-15.7	92.20
25	2026 AM + PH2 MG	2026 AM + PH2 MG	Network Control Plan 1	08:00 - 09:00	90	-7.1	42.27
26	2026 PM + PH2 MG	2026 PM + PH2 MG	Network Control Plan 1	17:00 - 18:00	90	-18.3	135.66
27	2026 AM + PH3 MG	2026 AM + PH3 MG	Network Control Plan 1	08:00 - 09:00	90	-9.7	45.05
28	2026 PM + PH3 MG	2026 PM + PH3 MG	Network Control Plan 1	17:00 - 18:00	90	-21.4	139.40
29	2026 AM + PH2 HG	2026 AM + PH2 HG	Network Control Plan 1	08:00 - 09:00	90	-8.2	43.32
30	2026 PM + PH2 HG	2026 PM + PH2 HG	Network Control Plan 1	17:00 - 18:00	90	-21.0	133.38
31	2026 AM + PH3 HG	2026 AM + PH3 HG	Network Control Plan 1	08:00 - 09:00	90	-15.4	75.30
32	2026 PM + PH3 HG	2026 PM + PH3 HG	Network Control Plan 1	17:00 - 18:00	90	-20.5	188.37

Scenario Summary

User and Project Details

Project:	**A094136 – Dereham Transport Strategy**
Title:	**Report Stage 3 – Revised Flows**
Location:	Dereham – Yaxham Road / Tavern Lane as shown in Figure 11
File name:	01-Yaxham_Rd-Tavern_Ln-AC Opt2 Rev Growth.lsg3x
Author:	AC
Company:	WYG
Address:	
Notes:	

Scenario Summary

Scenarios

Number	Scenario Name	Flow Group	Network Control Plan	Time	Cycle Time (s)	PRC (%)	Delay (pcuHr)
1	2015 AM	2015 AM	2015-AM-PM	08:00 - 09:00	80	29.7	19.39
2	2015 PM	2015 PM	2015-AM-PM	17:00 - 18:00	80	23.4	22.44
3	2015 AM + PH1 LG	2015 AM + PH1 LG	2015-AM-PM	08:00 - 09:00	80	28.6	19.77
4	2015 PM + PH1 LG	2015 PM + PH1 LG	2015-AM-PM	17:00 - 18:00	80	23.3	23.15
5	2015 AM + PH2 LG	2015 AM + PH2 LG	2015-AM-PM	08:00 - 09:00	80	26.6	20.16
6	2015 PM + PH2 LG	2015 PM + PH2 LG	2015-AM-PM	17:00 - 18:00	80	22.4	23.44
7	2015 AM + PH3 LG	2015 AM + PH3 LG	2015-AM-PM	08:00 - 09:00	80	25.6	20.78
8	2015 PM + PH3 LG	2015 PM + PH3 LG	2015-AM-PM	17:00 - 18:00	80	20.0	24.20
9	2015 AM + PH1 MG	2015 AM + PH1 MG	2015-AM-PM	08:00 - 09:00	80	26.8	20.36
10	2015 PM + PH1 MG	2015 PM + PH1 MG	2015-AM-PM	17:00 - 18:00	80	21.7	23.77
11	2015 AM + PH2 MG	2015 AM + PH2 MG	2015-AM-PM	08:00 - 09:00	80	23.1	21.70
12	2015 PM + PH2 MG	2015 PM + PH2 MG	2015-AM-PM	17:00 - 18:00	80	18.4	25.74
13	2015 AM + PH3 MG	2015 AM + PH3 MG	2015-AM-PM	08:00 - 09:00	80	20.0	22.31
14	2015 PM + PH3 MG	2015 PM + PH3 MG	2015-AM-PM	17:00 - 18:00	80	16.4	26.53
15	2015 AM + PH1 HG	2015 AM + PH1 HG	2015-AM-PM	08:00 - 09:00	80	26.8	20.36
16	2015 PM + PH1 HG	2015 PM + PH1 HG	2015-AM-PM	17:00 - 18:00	80	21.7	23.77
17	2015 AM + PH2 HG	2015 AM + PH2 HG	2015-AM-PM	08:00 - 09:00	80	22.2	21.96
18	2015 PM + PH2 HG	2015 PM + PH2 HG	2015-AM-PM	17:00 - 18:00	80	16.4	26.20
19	2015 AM + PH3 HG	2015 AM + PH3 HG	2015-AM-PM	08:00 - 09:00	80	13.8	24.54
20	2015 PM + PH3 HG	2015 PM + PH3 HG	2015-AM-PM	17:00 - 18:00	80	12.9	28.71
21	2026 AM + PH2 LG	2026 AM + PH2 LG	2015-AM-PM	08:00 - 09:00	80	11.9	25.08
22	2026 PM + PH2 LG	2026 PM + PH2 LG	2015-AM-PM	17:00 - 18:00	80	7.1	31.88
23	2026 AM + PH3 LG	2026 AM + PH3 LG	2015-AM-PM	08:00 - 09:00	80	10.9	26.01
24	2026 PM + PH3 LG	2026 PM + PH3 LG	2015-AM-PM	17:00 - 18:00	80	5.3	33.04
25	2026 AM + PH3 MG	2026 AM + PH3 MG	2015-AM-PM	08:00 - 09:00	80	7.5	28.31
26	2026 PM + PH3 MG	2026 PM + PH3 MG	2015-AM-PM	17:00 - 18:00	80	2.3	35.37
27	2026 AM + PH2 MG	2026 AM + PH2 MG	2015-AM-PM	08:00 - 09:00	80	8.6	27.36
28	2026 PM + PH2 MG	2026 PM + PH2 MG	2015-AM-PM	17:00 - 18:00	80	3.7	34.65
29	2026 AM + PH2 HG	2026 AM + PH2 HG	2015-AM-PM	08:00 - 09:00	80	7.9	27.74
30	2026 PM + PH2 HG	2026 PM + PH2 HG	2015-AM-PM	17:00 - 18:00	80	3.2	34.85
31	2026 AM + PH3 HG	2026 AM + PH3 HG	2015-AM-PM	08:00 - 09:00	80	1.9	31.96
32	2026 PM + PH3 HG	2026 PM + PH3 HG	2015-AM-PM	17:00 - 18:00	80	-0.1	40.02

Scenario Summary

User and Project Details

Project:	**A094136 – Dereham Transport Strategy**
Title:	**Report Stage 3 – Revised Flows**
Location:	Dereham – South Green / Tavern Lane as shown in Figure 13
File name:	04-South Green Tavern Lane.lsg3x
Author:	AC
Company:	WYG
Address:	
Notes:	

Scenario Summary

Scenarios

Number	Scenario Name	Flow Group	Network Control Plan	Time	Cycle Time (s)	PRC (%)	Delay (pcuHr)
1	2015 AM	2015 AM	Network Control Plan 1	08:00 - 09:00	90	26.3	10.70
2	2015 PM	2015 PM	Network Control Plan 1	17:00 - 18:00	90	20.3	10.76
3	2015 AM + PH1 LG	2015 AM + PH1 LG	Network Control Plan 1	08:00 - 09:00	90	25.6	10.83
4	2015 PM + PH1 LG	2015 PM + PH1 LG	Network Control Plan 1	17:00 - 18:00	90	18.5	10.96
5	2015 AM + PH2 LG	2015 AM + PH2 LG	Network Control Plan 1	08:00 - 09:00	90	25.0	10.93
6	2015 PM + PH2 LG	2015 PM + PH2 LG	Network Control Plan 1	17:00 - 18:00	90	18.0	11.15
7	2015 AM + PH3 LG	2015 AM + PH3 LG	Network Control Plan 1	08:00 - 09:00	90	23.8	11.07
8	2015 PM + PH3 LG	2015 PM + PH3 LG	Network Control Plan 1	17:00 - 18:00	90	17.6	11.37
9	2015 AM + PH1 MG	2015 AM + PH1 MG	Network Control Plan 1	08:00 - 09:00	90	25.6	10.86
10	2015 PM + PH1 MG	2015 PM + PH1 MG	Network Control Plan 1	17:00 - 18:00	90	18.5	10.99
11	2015 AM + PH2 MG	2015 AM + PH2 MG	Network Control Plan 1	08:00 - 09:00	90	25.0	10.93
12	2015 PM + PH2 MG	2015 PM + PH2 MG	Network Control Plan 1	17:00 - 18:00	90	18.0	11.15
13	2015 AM + PH3 MG	2015 AM + PH3 MG	Network Control Plan 1	08:00 - 09:00	90	23.8	11.07
14	2015 PM + PH3 MG	2015 PM + PH3 MG	Network Control Plan 1	17:00 - 18:00	90	17.9	11.31
15	2015 AM + PH1 HG	2015 AM + PH1 HG	Network Control Plan 1	08:00 - 09:00	90	25.6	10.86
16	2015 PM + PH1 HG	2015 PM + PH1 HG	Network Control Plan 1	17:00 - 18:00	90	18.5	10.99
17	2015 AM + PH2 HG	2015 AM + PH2 HG	Network Control Plan 1	08:00 - 09:00	90	25.0	11.00
18	2015 PM + PH2 HG	2015 PM + PH2 HG	Network Control Plan 1	17:00 - 18:00	90	17.8	11.22
19	2015 AM + PH3 HG	2015 AM + PH3 HG	Network Control Plan 1	08:00 - 09:00	90	22.3	11.76
20	2015 PM + PH3 HG	2015 PM + PH3 HG	Network Control Plan 1	17:00 - 18:00	90	14.9	12.02
21	2026 AM + PH2 LG	2026 AM + PH2 LG	Network Control Plan 1	08:00 - 09:00	90	9.7	15.04
22	2026 PM + PH2 LG	2026 PM + PH2 LG	Network Control Plan 1	17:00 - 18:00	90	3.2	16.06
23	2026 AM + PH3 LG	2026 AM + PH3 LG	Network Control Plan 1	08:00 - 09:00	90	8.7	15.30
24	2026 PM + PH3 LG	2026 PM + PH3 LG	Network Control Plan 1	17:00 - 18:00	90	3.0	16.41
25	2026 AM + PH2 MG	2026 AM + PH2 MG	Network Control Plan 1	08:00 - 09:00	90	9.7	15.04
26	2026 PM + PH2 MG	2026 PM + PH2 MG	Network Control Plan 1	17:00 - 18:00	90	3.2	16.06
27	2026 AM + PH3 MG	2026 AM + PH3 MG	Network Control Plan 1	08:00 - 09:00	90	8.8	15.42
28	2026 PM + PH3 MG	2026 PM + PH3 MG	Network Control Plan 1	17:00 - 18:00	90	3.1	16.34
29	2026 AM + PH2 HG	2026 AM + PH2 HG	Network Control Plan 1	08:00 - 09:00	90	9.7	15.16
30	2026 PM + PH2 HG	2026 PM + PH2 HG	Network Control Plan 1	17:00 - 18:00	90	3.2	16.27
31	2026 AM + PH3 HG	2026 AM + PH3 HG	Network Control Plan 1	08:00 - 09:00	90	8.7	16.45
32	2026 PM + PH3 HG	2026 PM + PH3 HG	Network Control Plan 1	17:00 - 18:00	90	1.4	18.05

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.0.0.4211 []

Filename: 02B-Yaxham_Rd-A47.j9
Path: \\LEICESTER12\3501Data\Projects\A094136 - Dereham Transport Strategy\calculations\Capacity Analysis\Stage2\NoBackgroundGrowth-2016-05-16
Report generation date: 04/08/2016 14:04:26

Summary of junction performance

	AM					PM				
	Queue (PCU)	Delay (s)	RFC	LOS	Junction LOS	Queue (PCU)	Delay (s)	RFC	LOS	Junction LOS
2015 Base Traffic										
Arm A	0.5	2.99	0.35	A	A	0.4	2.76	0.30	A	A
Arm B	0.4	4.82	0.28	A		1.5	8.12	0.61	A	
Arm C	0.9	6.23	0.48	A		0.9	6.67	0.47	A	
Arm D	0.8	5.14	0.44	A		1.1	6.45	0.52	A	
Base Plus Low Growth (6%) - Phase 1										
Arm A	0.6	3.02	0.36	A	A	0.4	2.79	0.30	A	A
Arm B	0.4	4.84	0.28	A		1.4	7.91	0.59	A	
Arm C	1.0	6.60	0.51	A		1.1	7.47	0.53	A	
Arm D	0.8	5.16	0.44	A		1.0	6.42	0.51	A	
Base Plus Low Growth (6%) - Phase 2										
Arm A	0.6	3.06	0.36	A		0.4	2.81	0.31	A	

Arm B	0.4	4.89	0.28	A	A	1.4	8.04	0.59	A	A
Arm C	1.1	6.76	0.52	A		1.1	7.63	0.54	A	
Arm D	0.8	5.22	0.45	A		1.1	6.52	0.52	A	
	Base Plus Low Growth (6%) - Phase 3									
Arm A	0.6	3.10	0.37	A	A	0.5	2.84	0.31	A	A
Arm B	0.4	4.97	0.28	A		1.5	8.22	0.60	A	
Arm C	1.2	6.99	0.54	A		1.2	7.89	0.55	A	
Arm D	0.8	5.34	0.46	A		1.1	6.68	0.53	A	
	Base Plus Medium Growth (8%) - Phase 1									
Arm A	0.6	3.07	0.37	A	A	0.5	2.84	0.31	A	A
Arm B	0.4	4.93	0.28	A		1.5	8.21	0.60	A	
Arm C	1.2	6.98	0.54	A		1.2	7.89	0.55	A	
Arm D	0.8	5.31	0.45	A		1.1	6.74	0.53	A	
	Base Plus Medium Growth (8%) - Phase 2									
Arm A	0.6	3.17	0.38	A	A	0.5	2.96	0.32	A	A
Arm B	0.4	5.11	0.29	A		1.6	8.93	0.62	A	
Arm C	1.5	7.93	0.59	A		1.5	8.92	0.60	A	
Arm D	0.9	5.67	0.49	A		1.4	7.54	0.58	A	
	Base Plus Medium Growth (8%) - Phase 3									
Arm A	0.6	3.22	0.38	A	A	0.5	3.08	0.34	A	A
Arm B	0.4	5.19	0.29	A		1.7	9.79	0.64	A	
Arm C	1.5	8.25	0.61	A		1.9	10.26	0.66	B	
Arm D	1.0	5.80	0.50	A		1.7	8.55	0.63	A	
	Base Plus High Growth (10%) - Phase 1									
Arm A	0.6	3.07	0.37	A	A	0.5	2.84	0.31	A	A
Arm B	0.4	4.93	0.28	A		1.5	8.21	0.60	A	
Arm C	1.2	6.98	0.54	A		1.2	7.89	0.55	A	
Arm D	0.8	5.31	0.45	A		1.1	6.74	0.53	A	
	Base Plus High Growth (10%) - Phase 2									
Arm A	0.6	3.19	0.38	A	A	0.5	2.96	0.32	A	A
Arm B	0.4	5.15	0.29	A		1.6	8.98	0.62	A	
Arm C	1.5	8.00	0.60	A		1.6	9.12	0.61	A	
Arm D	1.0	5.75	0.49	A		1.4	7.61	0.59	A	
	Base Plus High Growth (10%) - Phase 3									
Arm A	0.7	3.34	0.40	A	A	0.6	3.21	0.36	A	A
Arm B	0.4	5.39	0.30	A		1.9	10.52	0.65	B	
Arm C	2.0	9.78	0.67	A		1.9	10.45	0.66	B	
Arm D	1.1	6.11	0.52	A		1.7	8.66	0.64	A	

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Junction LOS and Junction Delay are demand-weighted averages.

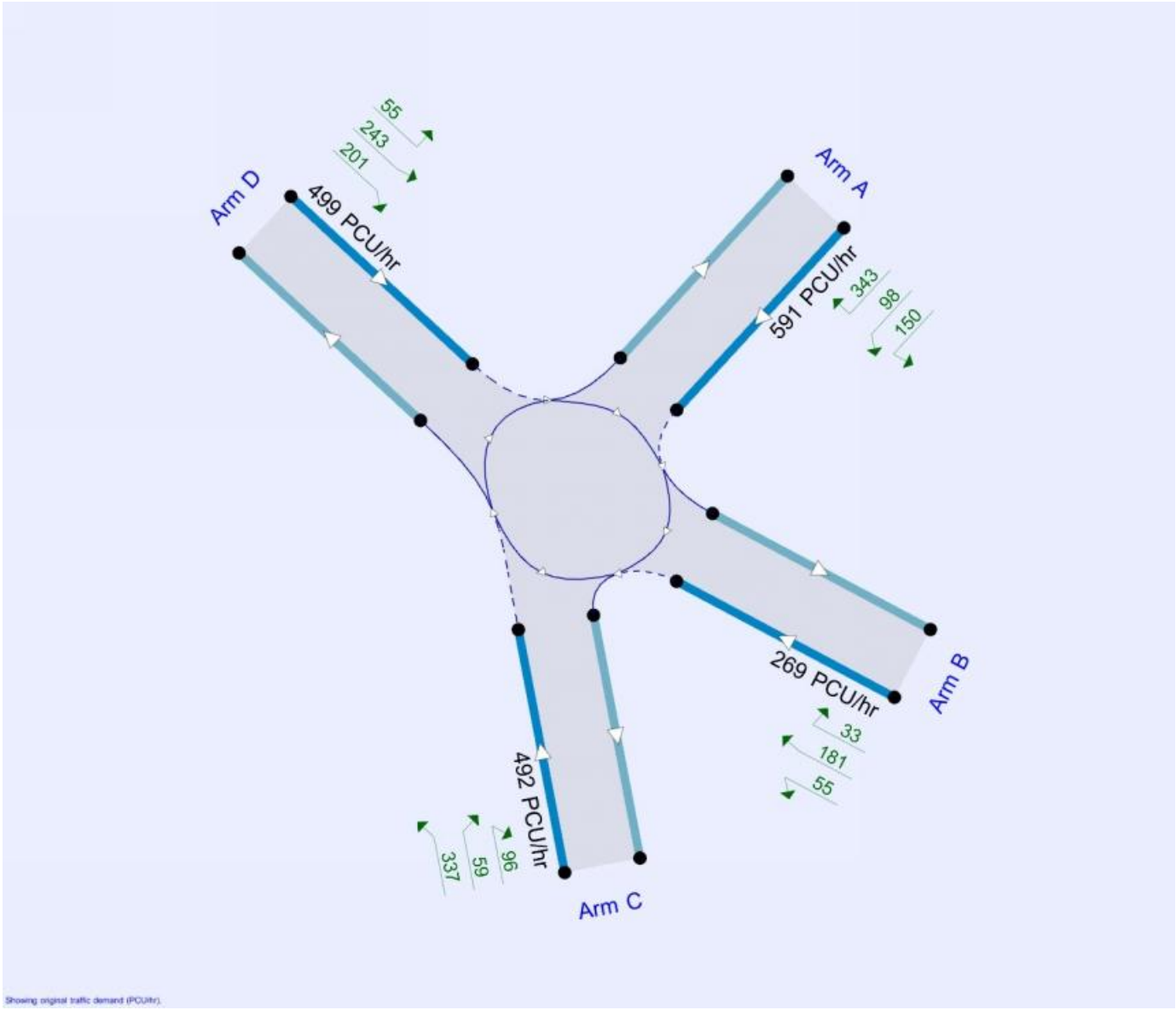
File summary

File Description

Title	02-Yaxham Rd / A47 Slip Road / Kingston Rd
Location	Dereham - Tesco Roundabout
Site number	02
Date	11/11/2015
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	A094136
Enumerator	WYG"petr.jandik
Description	Report - Stage 3 Tesco Roundabout with two lanes at A47 slip road. Scheme shown in Figure 14.

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin



The junction diagram reflects the last run of Junctions.

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				0.85	36.00	20.00

Demand Set Summary

Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)	Run automatically
2015 Base Traffic	AM	ONE HOUR	07:45	09:15	15	✓
2015 Base Traffic	PM	ONE HOUR	16:45	18:15	15	✓
Base Plus Low Growth (6%) - Phase 1	AM	ONE HOUR	07:45	09:15	15	✓
Base Plus Low Growth (6%) - Phase 1	PM	ONE HOUR	16:45	18:15	15	✓
Base Plus Low Growth (6%) - Phase 2	AM	ONE HOUR	07:45	09:15	15	✓
Base Plus Low Growth (6%) - Phase 2	PM	ONE HOUR	16:45	18:15	15	✓
Base Plus Low Growth (6%) - Phase 3	AM	ONE HOUR	07:45	09:15	15	✓
Base Plus Low Growth (6%) - Phase 3	PM	ONE HOUR	16:45	18:15	15	✓
Base Plus Medium Growth (8%) - Phase 1	AM	ONE HOUR	07:45	09:15	15	✓
Base Plus Medium Growth (8%) - Phase 1	PM	ONE HOUR	16:45	18:15	15	✓
Base Plus Medium Growth (8%) - Phase 2	AM	ONE HOUR	07:45	09:15	15	✓
Base Plus Medium Growth (8%) - Phase 2	PM	ONE HOUR	16:45	18:15	15	✓
Base Plus Medium Growth (8%) - Phase 3	AM	ONE HOUR	07:45	09:15	15	✓
Base Plus Medium Growth (8%) - Phase 3	PM	ONE HOUR	16:45	18:15	15	✓
Base Plus High Growth (10%) - Phase 1	AM	ONE HOUR	07:45	09:15	15	✓
Base Plus High Growth (10%) - Phase 1	PM	ONE HOUR	16:45	18:15	15	✓
Base Plus High Growth (10%) - Phase 2	AM	ONE HOUR	07:45	09:15	15	✓
Base Plus High Growth (10%) - Phase 2	PM	ONE HOUR	16:45	18:15	15	✓
Base Plus High Growth (10%) - Phase 3	AM	ONE HOUR	07:45	09:15	15	✓
Base Plus High Growth (10%) - Phase 3	PM	ONE HOUR	16:45	18:15	15	✓

2015 Base Traffic, AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	100.000	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
02	Yaxham Rd / A47 Slip Road / Kingston Rd	Standard Roundabout	A,B,C,D	4.70	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
A	A47 Slip Road	
B	Kingston Rd - W	
C	Yaxham Rd - S	
D	Yaxham Rd - N	

Capacity Options

Arm	Minimum capacity (PCU/hr)	Maximum capacity (PCU/hr)	Assume flat start profile	Initial queue (PCU)
A	0.00	99999.00		0.00
B	0.00	99999.00		0.00
C	0.00	99999.00		0.00
D	0.00	99999.00		0.00

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
A	6.60	7.40	5.0	20.3	51.0	13.0	
B	3.60	5.90	7.8	19.8	51.0	33.5	
C	3.80	5.30	6.5	28.0	51.0	22.2	
D	4.50	4.50	0.0	24.4	51.0	33.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A	0.732	2289.104
B	0.550	1431.045
C	0.573	1470.817
D	0.540	1361.329

The slope and intercept shown above include any corrections and adjustments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2015 Base Traffic	AM	ONE HOUR	07:45	09:15	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	591.00	100.000
B		ONE HOUR	✓	269.00	100.000
C		ONE HOUR	✓	492.00	100.000
D		ONE HOUR	✓	499.00	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	0.000	150.000	98.000	343.000
	B	33.000	0.000	55.000	181.000
	C	59.000	96.000	0.000	337.000
	D	55.000	243.000	201.000	0.000

Proportions

		To			
		A	B	C	D
From	A	0.00	0.25	0.17	0.58
	B	0.12	0.00	0.20	0.67
	C	0.12	0.20	0.00	0.68
	D	0.11	0.49	0.40	0.00

Vehicle Mix

Heavy Vehicle proportion

		To			
		A	B	C	D
From	A	0	0	0	0
	B	0	0	0	0
	C	0	0	0	0
	D	0	0	0	0

Average PCU Per Veh

		To			
		A	B	C	D
From	A	1.000	1.000	1.000	1.000
	B	1.000	1.000	1.000	1.000
	C	1.000	1.000	1.000	1.000
	D	1.000	1.000	1.000	1.000

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	0.35	2.99	0.5	A	542.31	813.47
B	0.28	4.82	0.4	A	246.84	370.26
C	0.48	6.23	0.9	A	451.47	677.20
D	0.44	5.14	0.8	A	457.89	686.84

Main Results for each time segment

Main results: (07:45-08:00)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	444.94	111.23	404.75	1992.94	0.223	443.79	110.18	0.0	0.3	2.323	A
B	202.52	50.63	481.81	1166.08	0.174	201.68	366.72	0.0	0.2	3.729	A
C	370.40	92.60	418.01	1231.43	0.301	368.69	265.49	0.0	0.4	4.164	A
D	375.67	93.92	140.90	1285.25	0.292	374.03	645.81	0.0	0.4	3.943	A

Main results: (08:00-08:15)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	531.30	132.82	484.85	1934.32	0.275	530.93	131.98	0.3	0.4	2.565	A
B	241.83	60.46	576.66	1113.92	0.217	241.56	439.12	0.2	0.3	4.126	A
C	442.30	110.57	500.31	1184.30	0.373	441.64	317.91	0.4	0.6	4.843	A
D	448.59	112.15	168.77	1270.20	0.353	448.06	773.18	0.4	0.5	4.376	A

Main results: (08:15-08:30)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	650.70	162.68	593.46	1854.85	0.351	650.06	161.53	0.4	0.5	2.986	A
B	296.17	74.04	706.00	1042.80	0.284	295.70	537.52	0.3	0.4	4.815	A
C	541.70	135.43	612.52	1120.04	0.484	540.37	389.18	0.6	0.9	6.197	A
D	549.41	137.35	206.51	1249.82	0.440	548.47	946.37	0.5	0.8	5.127	A

Main results: (08:30-08:45)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	650.70	162.68	594.53	1854.06	0.351	650.70	161.84	0.5	0.5	2.990	A
B	296.17	74.04	706.84	1042.33	0.284	296.17	538.38	0.4	0.4	4.824	A
C	541.70	135.43	613.26	1119.62	0.484	541.68	389.75	0.9	0.9	6.228	A
D	549.41	137.35	206.98	1249.56	0.440	549.39	947.95	0.8	0.8	5.141	A

Main results: (08:45-09:00)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	531.30	132.82	486.53	1933.09	0.275	531.93	132.47	0.5	0.4	2.571	A
B	241.83	60.46	577.99	1113.19	0.217	242.29	440.47	0.4	0.3	4.137	A
C	442.30	110.57	501.47	1183.64	0.374	443.62	318.81	0.9	0.6	4.872	A
D	448.59	112.15	169.48	1269.82	0.353	449.51	775.61	0.8	0.6	4.393	A

Main results: (09:00-09:15)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	444.94	111.23	407.15	1991.18	0.223	445.30	110.84	0.4	0.3	2.330	A
B	202.52	50.63	483.82	1164.98	0.174	202.79	368.63	0.3	0.2	3.744	A
C	370.40	92.60	419.77	1230.43	0.301	371.08	266.84	0.6	0.4	4.193	A
D	375.67	93.92	141.78	1284.77	0.292	376.21	649.06	0.6	0.4	3.965	A

2015 Base Traffic, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	100.000	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
02	Yaxham Rd / A47 Slip Road / Kingston Rd	Standard Roundabout	A,B,C,D	6.11	A

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Capacity Options

[same as above]

Roundabout Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2015 Base Traffic	PM	ONE HOUR	16:45	18:15	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	496.00	100.000
B		ONE HOUR	✓	620.00	100.000
C		ONE HOUR	✓	436.00	100.000
D		ONE HOUR	✓	541.00	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	0.000	148.000	97.000	251.000
	B	134.000	0.000	156.000	330.000
	C	102.000	113.000	0.000	221.000
	D	106.000	279.000	156.000	0.000

Proportions

		To			
		A	B	C	D
From	A	0.00	0.30	0.20	0.51
	B	0.22	0.00	0.25	0.53
	C	0.23	0.26	0.00	0.51
	D	0.20	0.52	0.29	0.00

Vehicle Mix

Heavy Vehicle proportion

		To			
		A	B	C	D
From	A	0	0	0	0
	B	0	0	0	0
	C	0	0	0	0
	D	0	0	0	0

Average PCU Per Veh

		To			
		A	B	C	D
From	A	1.000	1.000	1.000	1.000
	B	1.000	1.000	1.000	1.000
	C	1.000	1.000	1.000	1.000
	D	1.000	1.000	1.000	1.000

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	0.30	2.76	0.4	A	455.14	682.71
B	0.61	8.12	1.5	A	568.92	853.38
C	0.47	6.67	0.9	A	400.08	600.12
D	0.52	6.45	1.1	A	496.43	744.65

Main Results for each time segment

Main results: (16:45-17:00)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	373.41	93.35	410.56	1988.68	0.188	372.49	256.19	0.0	0.2	2.226	A
B	466.77	116.69	378.22	1223.05	0.382	464.32	404.83	0.0	0.6	4.729	A
C	328.24	82.06	535.99	1163.87	0.282	326.68	306.55	0.0	0.4	4.292	A
D	407.29	101.82	261.45	1220.16	0.334	405.30	601.23	0.0	0.5	4.407	A

Main results: (17:00-17:15)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	445.89	111.47	491.88	1929.17	0.231	445.62	306.93	0.2	0.3	2.426	A
B	557.37	139.34	452.68	1182.10	0.472	556.29	484.82	0.6	0.9	5.743	A
C	391.96	97.99	641.82	1103.26	0.355	391.33	367.14	0.4	0.5	5.052	A
D	486.35	121.59	313.20	1192.21	0.408	485.61	719.95	0.5	0.7	5.089	A

Main results: (17:15-17:30)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	546.11	136.53	601.83	1848.72	0.295	545.63	375.41	0.3	0.4	2.763	A
B	682.63	170.66	554.16	1126.30	0.606	680.14	593.31	0.9	1.5	8.023	A
C	480.04	120.01	785.12	1021.19	0.470	478.73	449.17	0.5	0.9	6.620	A
D	595.65	148.91	383.07	1154.48	0.516	594.18	880.79	0.7	1.1	6.408	A

Main results: (17:30-17:45)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	546.11	136.53	603.33	1847.63	0.296	546.10	376.52	0.4	0.4	2.765	A
B	682.63	170.66	554.90	1125.89	0.606	682.56	594.53	1.5	1.5	8.116	A
C	480.04	120.01	787.18	1020.02	0.471	480.02	450.29	0.9	0.9	6.666	A
D	595.65	148.91	384.23	1153.86	0.516	595.62	882.96	1.1	1.1	6.448	A

Main results: (17:45-18:00)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	445.89	111.47	494.14	1927.52	0.231	446.36	308.57	0.4	0.3	2.432	A
B	557.37	139.34	453.83	1181.47	0.472	559.84	486.67	1.5	0.9	5.815	A
C	391.96	97.99	644.86	1101.52	0.356	393.26	368.81	0.9	0.6	5.091	A
D	486.35	121.59	314.92	1191.28	0.408	487.80	723.19	1.1	0.7	5.129	A

Main results: (18:00-18:15)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	373.41	93.35	413.34	1986.64	0.188	373.69	258.02	0.3	0.2	2.231	A
B	466.77	116.69	379.85	1222.15	0.382	467.89	407.18	0.9	0.6	4.781	A
C	328.24	82.06	539.27	1161.99	0.282	328.89	308.47	0.6	0.4	4.325	A
D	407.29	101.82	263.31	1219.15	0.334	408.06	604.85	0.7	0.5	4.442	A

Base Plus Low Growth (6%) - Phase 1, AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	100.000	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
02	Yaxham Rd / A47 Slip Road / Kingston Rd	Standard Roundabout	A,B,C,D	4.83	A

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Capacity Options

[same as above]

Roundabout Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)	Run automatically
D3	Base Plus Low Growth (6%) - Phase 1	AM	ONE HOUR	07:45	09:15	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	604.94	100.000
B		ONE HOUR	✓	260.00	100.000
C		ONE HOUR	✓	523.66	100.000
D		ONE HOUR	✓	498.35	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	0.000	147.000	111.933	346.004
	B	30.000	0.000	53.000	177.000
	C	70.335	94.000	0.000	359.327
	D	55.000	239.000	204.352	0.000

Proportions

		To			
		A	B	C	D
From	A	0.00	0.24	0.19	0.57
	B	0.12	0.00	0.20	0.68
	C	0.13	0.18	0.00	0.69
	D	0.11	0.48	0.41	0.00

Vehicle Mix

Heavy Vehicle proportion

		To			
		A	B	C	D
From	A	0	0	0	0
	B	0	0	0	0
	C	0	0	0	0
	D	0	0	0	0

Average PCU Per Veh

		To			
		A	B	C	D
From	A	1.000	1.000	1.000	1.000
	B	1.000	1.000	1.000	1.000
	C	1.000	1.000	1.000	1.000
	D	1.000	1.000	1.000	1.000

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	0.36	3.02	0.6	A	555.10	832.65
B	0.28	4.84	0.4	A	238.58	357.87
C	0.51	6.60	1.0	A	480.52	720.78
D	0.44	5.16	0.8	A	457.30	685.94

Main Results for each time segment

Main results: (07:45-08:00)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	455.43	113.86	402.75	1994.40	0.228	454.25	116.42	0.0	0.3	2.336	A
B	195.74	48.94	497.04	1157.71	0.169	194.93	359.96	0.0	0.2	3.735	A
C	394.24	98.56	415.01	1233.15	0.320	392.37	276.96	0.0	0.5	4.272	A
D	375.19	93.80	145.63	1282.70	0.292	373.54	661.76	0.0	0.4	3.952	A

Main results: (08:00-08:15)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	543.83	135.96	482.47	1936.06	0.281	543.45	139.46	0.3	0.4	2.585	A
B	233.73	58.43	594.88	1103.90	0.212	233.48	431.03	0.2	0.3	4.135	A
C	470.76	117.69	496.72	1186.36	0.397	470.02	331.64	0.5	0.7	5.020	A
D	448.01	112.00	174.44	1267.14	0.354	447.48	792.30	0.4	0.5	4.389	A

Main results: (08:15-08:30)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	666.05	166.51	590.52	1857.00	0.359	665.38	170.66	0.4	0.6	3.019	A
B	286.27	71.57	728.30	1030.53	0.278	285.81	527.60	0.3	0.4	4.830	A
C	576.56	144.14	608.12	1122.56	0.514	575.01	405.99	0.7	1.0	6.556	A
D	548.70	137.17	213.43	1246.09	0.440	547.75	969.70	0.5	0.8	5.149	A

Main results: (08:30-08:45)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	666.05	166.51	591.62	1856.20	0.359	666.04	171.02	0.6	0.6	3.024	A
B	286.27	71.57	729.18	1030.05	0.278	286.26	528.47	0.4	0.4	4.839	A
C	576.56	144.14	608.86	1122.14	0.514	576.53	406.58	1.0	1.0	6.597	A
D	548.70	137.17	213.96	1245.80	0.440	548.68	971.43	0.8	0.8	5.163	A

Main results: (08:45-09:00)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	543.83	135.96	484.17	1934.82	0.281	544.49	140.00	0.6	0.4	2.590	A
B	233.73	58.43	596.26	1103.14	0.212	234.19	432.39	0.4	0.3	4.144	A
C	470.76	117.69	497.88	1185.69	0.397	472.30	332.57	1.0	0.7	5.058	A
D	448.01	112.00	175.24	1266.71	0.354	448.94	794.94	0.8	0.6	4.406	A

Main results: (09:00-09:15)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	455.43	113.86	405.16	1992.63	0.229	455.81	117.14	0.4	0.3	2.342	A
B	195.74	48.94	499.12	1156.57	0.169	196.00	361.86	0.3	0.2	3.750	A
C	394.24	98.56	416.76	1232.15	0.320	395.00	278.36	0.7	0.5	4.305	A
D	375.19	93.80	146.58	1282.18	0.293	375.73	665.18	0.6	0.4	3.975	A

Base Plus Low Growth (6%) - Phase 1, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	100.000	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
02	Yaxham Rd / A47 Slip Road / Kingston Rd	Standard Roundabout	A,B,C,D	6.20	A

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Capacity Options

[same as above]

Roundabout Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)	Run automatically
D4	Base Plus Low Growth (6%) - Phase 1	PM	ONE HOUR	16:45	18:15	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	513.90	100.000
B		ONE HOUR	✓	589.00	100.000
C		ONE HOUR	✓	488.19	100.000
D		ONE HOUR	✓	535.54	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	0.000	136.000	101.257	276.643
	B	122.000	0.000	150.000	317.000
	C	126.322	107.000	0.000	254.864
	D	106.000	266.000	163.537	0.000

Proportions

		To			
		A	B	C	D
From	A	0.00	0.26	0.20	0.54
	B	0.21	0.00	0.25	0.54
	C	0.26	0.22	0.00	0.52
	D	0.20	0.50	0.31	0.00

Vehicle Mix

Heavy Vehicle proportion

		To			
		A	B	C	D
From	A	0	0	0	0
	B	0	0	0	0
	C	0	0	0	0
	D	0	0	0	0

Average PCU Per Veh

		To			
		A	B	C	D
From	A	1.000	1.000	1.000	1.000
	B	1.000	1.000	1.000	1.000
	C	1.000	1.000	1.000	1.000
	D	1.000	1.000	1.000	1.000

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	0.30	2.79	0.4	A	471.56	707.35
B	0.59	7.91	1.4	A	540.48	810.72
C	0.53	7.47	1.1	A	447.97	671.95
D	0.51	6.42	1.0	A	491.42	737.13

Main Results for each time segment

Main results: (16:45-17:00)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	386.89	96.72	401.95	1994.98	0.194	385.93	265.41	0.0	0.2	2.236	A
B	443.43	110.86	406.32	1207.60	0.367	441.13	381.57	0.0	0.6	4.682	A
C	367.53	91.88	536.54	1163.55	0.316	365.70	310.90	0.0	0.5	4.502	A
D	403.18	100.80	266.15	1217.62	0.331	401.21	636.09	0.0	0.5	4.399	A

Main results: (17:00-17:15)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	461.99	115.50	481.58	1936.71	0.239	461.70	317.97	0.2	0.3	2.440	A
B	529.50	132.37	486.30	1163.61	0.455	528.50	456.97	0.6	0.8	5.658	A
C	438.87	109.72	642.45	1102.90	0.398	438.08	372.36	0.5	0.7	5.408	A
D	481.44	120.36	318.84	1189.16	0.405	480.71	761.69	0.5	0.7	5.076	A

Main results: (17:15-17:30)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	565.81	141.45	589.19	1857.97	0.305	565.32	388.90	0.3	0.4	2.785	A
B	648.50	162.13	595.33	1103.66	0.588	646.22	559.18	0.8	1.4	7.830	A
C	537.50	134.38	785.97	1020.71	0.527	535.75	455.58	0.7	1.1	7.396	A
D	589.64	147.41	389.90	1150.79	0.512	588.19	931.81	0.7	1.0	6.382	A

Main results: (17:30-17:45)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	565.81	141.45	590.70	1856.86	0.305	565.81	390.09	0.4	0.4	2.787	A
B	648.50	162.13	596.12	1103.22	0.588	648.44	560.39	1.4	1.4	7.913	A
C	537.50	134.38	787.89	1019.61	0.527	537.46	456.67	1.1	1.1	7.466	A
D	589.64	147.41	391.18	1150.10	0.513	589.60	934.17	1.0	1.0	6.422	A

Main results: (17:45-18:00)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	461.99	115.50	483.86	1935.04	0.239	462.48	319.73	0.4	0.3	2.446	A
B	529.50	132.37	487.54	1162.93	0.455	531.76	458.80	1.4	0.8	5.725	A
C	438.87	109.72	645.30	1101.27	0.399	440.61	374.00	1.1	0.7	5.464	A
D	481.44	120.36	320.73	1188.15	0.405	482.86	765.18	1.0	0.7	5.116	A

Main results: (18:00-18:15)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	386.89	96.72	404.72	1992.96	0.194	387.18	267.33	0.3	0.2	2.241	A
B	443.43	110.86	408.07	1206.64	0.367	444.47	383.83	0.8	0.6	4.729	A
C	367.53	91.88	539.70	1161.74	0.316	368.34	312.83	0.7	0.5	4.541	A
D	403.18	100.80	268.11	1216.56	0.331	403.93	639.94	0.7	0.5	4.433	A

Base Plus Low Growth (6%) - Phase 2, AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	100.000	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
02	Yaxham Rd / A47 Slip Road / Kingston Rd	Standard Roundabout	A,B,C,D	4.91	A

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Capacity Options

[same as above]

Roundabout Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)	Run automatically
D5	Base Plus Low Growth (6%) - Phase 2	AM	ONE HOUR	07:45	09:15	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	612.94	100.000
B		ONE HOUR	✓	260.00	100.000
C		ONE HOUR	✓	532.73	100.000
D		ONE HOUR	✓	503.58	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	0.000	147.000	115.545	350.395
	B	30.000	0.000	53.000	177.000
	C	73.311	94.000	0.000	365.419
	D	55.000	239.000	209.582	0.000

Proportions

		To			
		A	B	C	D
From	A	0.00	0.24	0.19	0.57
	B	0.12	0.00	0.20	0.68
	C	0.14	0.18	0.00	0.69
	D	0.11	0.47	0.42	0.00

Vehicle Mix

Heavy Vehicle proportion

		To			
		A	B	C	D
From	A	0	0	0	0
	B	0	0	0	0
	C	0	0	0	0
	D	0	0	0	0

Average PCU Per Veh

		To			
		A	B	C	D
From	A	1.000	1.000	1.000	1.000
	B	1.000	1.000	1.000	1.000
	C	1.000	1.000	1.000	1.000
	D	1.000	1.000	1.000	1.000

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	0.36	3.06	0.6	A	562.44	843.67
B	0.28	4.89	0.4	A	238.58	357.87
C	0.52	6.76	1.1	A	488.84	733.26
D	0.45	5.22	0.8	A	462.10	693.14

Main Results for each time segment

Main results: (07:45-08:00)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	461.45	115.36	406.66	1991.54	0.232	460.25	118.64	0.0	0.3	2.347	A
B	195.74	48.94	506.96	1152.25	0.170	194.93	359.95	0.0	0.2	3.756	A
C	401.07	100.27	418.30	1231.27	0.326	399.15	283.59	0.0	0.5	4.317	A
D	379.12	94.78	147.85	1281.49	0.296	377.45	669.60	0.0	0.4	3.975	A

Main results: (08:00-08:15)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	551.02	137.75	487.15	1932.63	0.285	550.63	142.12	0.3	0.4	2.605	A
B	233.73	58.43	606.76	1097.37	0.213	233.47	431.02	0.2	0.3	4.166	A
C	478.91	119.73	500.66	1184.10	0.404	478.14	339.58	0.5	0.7	5.094	A
D	452.71	113.18	177.11	1265.70	0.358	452.17	801.69	0.4	0.6	4.422	A

Main results: (08:15-08:30)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	674.86	168.71	596.24	1852.81	0.364	674.17	173.92	0.4	0.6	3.053	A
B	286.27	71.57	742.83	1022.54	0.280	285.80	527.57	0.3	0.4	4.883	A
C	586.55	146.64	612.94	1119.80	0.524	584.91	415.70	0.7	1.1	6.710	A
D	554.45	138.61	216.67	1244.33	0.446	553.48	981.17	0.6	0.8	5.203	A

Main results: (08:30-08:45)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	674.86	168.71	597.37	1851.98	0.364	674.85	174.30	0.6	0.6	3.057	A
B	286.27	71.57	743.75	1022.03	0.280	286.26	528.47	0.4	0.4	4.892	A
C	586.55	146.64	613.69	1119.37	0.524	586.51	416.32	1.1	1.1	6.755	A
D	554.45	138.61	217.23	1244.03	0.446	554.44	982.97	0.8	0.8	5.220	A

Main results: (08:45-09:00)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	551.02	137.75	488.91	1931.35	0.285	551.70	142.70	0.6	0.4	2.610	A
B	233.73	58.43	608.20	1096.58	0.213	234.20	432.41	0.4	0.3	4.176	A
C	478.91	119.73	501.84	1183.42	0.405	480.54	340.55	1.1	0.7	5.135	A
D	452.71	113.18	177.94	1265.25	0.358	453.66	804.44	0.8	0.6	4.440	A

Main results: (09:00-09:15)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	461.45	115.36	409.12	1989.74	0.232	461.84	119.39	0.4	0.3	2.356	A
B	195.74	48.94	509.10	1151.08	0.170	196.01	361.87	0.3	0.2	3.769	A
C	401.07	100.27	420.07	1230.25	0.326	401.86	285.03	0.7	0.5	4.349	A
D	379.12	94.78	148.83	1280.97	0.296	379.68	673.11	0.6	0.4	3.996	A

Base Plus Low Growth (6%) - Phase 2, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	100.000	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
02	Yaxham Rd / A47 Slip Road / Kingston Rd	Standard Roundabout	A,B,C,D	6.29	A

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Capacity Options

[same as above]

Roundabout Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)	Run automatically
D6	Base Plus Low Growth (6%) - Phase 2	PM	ONE HOUR	16:45	18:15	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	519.47	100.000
B		ONE HOUR	✓	589.00	100.000
C		ONE HOUR	✓	496.21	100.000
D		ONE HOUR	✓	541.38	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	0.000	136.000	104.581	278.892
	B	122.000	0.000	150.000	317.000
	C	129.136	107.000	0.000	260.073
	D	106.000	266.000	169.382	0.000

Proportions

		To			
		A	B	C	D
From	A	0.00	0.26	0.20	0.54
	B	0.21	0.00	0.25	0.54
	C	0.26	0.22	0.00	0.52
	D	0.20	0.49	0.31	0.00

Vehicle Mix

Heavy Vehicle proportion

		To			
		A	B	C	D
From	A	0	0	0	0
	B	0	0	0	0
	C	0	0	0	0
	D	0	0	0	0

Average PCU Per Veh

		To			
		A	B	C	D
From	A	1.000	1.000	1.000	1.000
	B	1.000	1.000	1.000	1.000
	C	1.000	1.000	1.000	1.000
	D	1.000	1.000	1.000	1.000

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	0.31	2.81	0.4	A	476.68	715.02
B	0.59	8.04	1.4	A	540.48	810.72
C	0.54	7.63	1.1	A	455.33	683.00
D	0.52	6.52	1.1	A	496.78	745.17

Main Results for each time segment

Main results: (16:45-17:00)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	391.09	97.77	406.32	1991.78	0.196	390.11	267.51	0.0	0.2	2.246	A
B	443.43	110.86	414.87	1202.89	0.369	441.11	381.56	0.0	0.6	4.711	A
C	373.57	93.39	538.22	1162.59	0.321	371.69	317.77	0.0	0.5	4.540	A
D	407.58	101.90	268.25	1216.48	0.335	405.58	641.66	0.0	0.5	4.429	A

Main results: (17:00-17:15)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	467.00	116.75	486.81	1932.88	0.242	466.70	320.49	0.2	0.3	2.455	A
B	529.50	132.37	496.55	1157.98	0.457	528.48	456.96	0.6	0.8	5.709	A
C	446.08	111.52	644.45	1101.75	0.405	445.27	380.58	0.5	0.7	5.477	A
D	486.69	121.67	321.36	1187.81	0.410	485.94	768.36	0.5	0.7	5.124	A

Main results: (17:15-17:30)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	571.95	142.99	595.57	1853.30	0.309	571.44	391.96	0.3	0.4	2.806	A
B	648.50	162.13	607.86	1096.76	0.591	646.17	559.15	0.8	1.4	7.947	A
C	546.34	136.58	788.40	1019.32	0.536	544.49	465.63	0.7	1.1	7.553	A
D	596.07	149.02	392.95	1149.15	0.519	594.57	939.94	0.7	1.1	6.475	A

Main results: (17:30-17:45)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	571.95	142.99	597.14	1852.16	0.309	571.94	393.18	0.4	0.4	2.811	A
B	648.50	162.13	608.69	1096.31	0.592	648.44	560.39	1.4	1.4	8.035	A
C	546.34	136.58	790.36	1018.19	0.537	546.29	466.76	1.1	1.1	7.628	A
D	596.07	149.02	394.28	1148.43	0.519	596.04	942.37	1.1	1.1	6.516	A

Main results: (17:45-18:00)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	467.00	116.75	489.17	1931.16	0.242	467.50	322.30	0.4	0.3	2.459	A
B	529.50	132.37	497.84	1157.27	0.458	531.82	458.83	1.4	0.9	5.778	A
C	446.08	111.52	647.37	1100.08	0.405	447.91	382.29	1.1	0.7	5.536	A
D	486.69	121.67	323.31	1186.75	0.410	488.17	771.97	1.1	0.7	5.163	A

Main results: (18:00-18:15)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	391.09	97.77	409.14	1989.72	0.197	391.38	269.46	0.3	0.2	2.254	A
B	443.43	110.86	416.68	1201.90	0.369	444.49	383.84	0.9	0.6	4.759	A
C	373.57	93.39	541.41	1160.76	0.322	374.42	319.75	0.7	0.5	4.582	A
D	407.58	101.90	270.24	1215.41	0.335	408.35	645.59	0.7	0.5	4.464	A

Base Plus Low Growth (6%) - Phase 3, AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	100.000	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
02	Yaxham Rd / A47 Slip Road / Kingston Rd	Standard Roundabout	A,B,C,D	5.04	A

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Capacity Options

[same as above]

Roundabout Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)	Run automatically
D7	Base Plus Low Growth (6%) - Phase 3	AM	ONE HOUR	07:45	09:15	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	618.56	100.000
B		ONE HOUR	✓	260.00	100.000
C		ONE HOUR	✓	546.31	100.000
D		ONE HOUR	✓	516.52	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	0.000	147.000	116.773	354.790
	B	30.000	0.000	53.000	177.000
	C	74.903	94.000	0.000	377.404
	D	55.000	239.000	222.518	0.000

Proportions

		To			
		A	B	C	D
From	A	0.00	0.24	0.19	0.57
	B	0.12	0.00	0.20	0.68
	C	0.14	0.17	0.00	0.69
	D	0.11	0.46	0.43	0.00

Vehicle Mix

Heavy Vehicle proportion

		To			
		A	B	C	D
From	A	0	0	0	0
	B	0	0	0	0
	C	0	0	0	0
	D	0	0	0	0

Average PCU Per Veh

		To			
		A	B	C	D
From	A	1.000	1.000	1.000	1.000
	B	1.000	1.000	1.000	1.000
	C	1.000	1.000	1.000	1.000
	D	1.000	1.000	1.000	1.000

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	0.37	3.10	0.6	A	567.60	851.41
B	0.28	4.97	0.4	A	238.58	357.87
C	0.54	6.99	1.2	A	501.30	751.95
D	0.46	5.34	0.8	A	473.97	710.95

Main Results for each time segment

Main results: (07:45-08:00)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	465.69	116.42	416.33	1984.46	0.235	464.46	119.83	0.0	0.3	2.366	A
B	195.74	48.94	520.86	1144.61	0.171	194.92	359.93	0.0	0.2	3.787	A
C	411.29	102.82	421.59	1229.38	0.335	409.29	294.19	0.0	0.5	4.379	A
D	388.86	97.22	149.03	1280.86	0.304	387.13	681.85	0.0	0.4	4.021	A

Main results: (08:00-08:15)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	556.07	139.02	498.75	1924.15	0.289	555.68	143.55	0.3	0.4	2.630	A
B	233.73	58.43	623.42	1088.21	0.215	233.47	431.01	0.2	0.3	4.211	A
C	491.12	122.78	504.60	1181.84	0.416	490.30	352.29	0.5	0.7	5.199	A
D	464.34	116.08	178.52	1264.93	0.367	463.77	816.37	0.4	0.6	4.491	A

Main results: (08:15-08:30)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	681.05	170.26	610.41	1842.44	0.370	680.34	175.65	0.4	0.6	3.096	A
B	286.27	71.57	763.21	1011.33	0.283	285.79	527.54	0.3	0.4	4.958	A
C	601.50	150.37	617.75	1117.04	0.538	599.72	431.24	0.7	1.1	6.935	A
D	568.70	142.17	218.39	1243.40	0.457	567.66	999.08	0.6	0.8	5.320	A

Main results: (08:30-08:45)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	681.05	170.26	611.61	1841.56	0.370	681.04	176.05	0.6	0.6	3.101	A
B	286.27	71.57	764.18	1010.80	0.283	286.26	528.47	0.4	0.4	4.968	A
C	601.50	150.37	618.53	1116.60	0.539	601.46	431.91	1.1	1.2	6.988	A
D	568.70	142.17	218.98	1243.09	0.457	568.68	1001.01	0.8	0.8	5.337	A

Main results: (08:45-09:00)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	556.07	139.02	500.61	1922.79	0.289	556.78	144.15	0.6	0.4	2.636	A
B	233.73	58.43	624.94	1087.37	0.215	234.21	432.45	0.4	0.3	4.223	A
C	491.12	122.78	505.82	1181.14	0.416	492.88	353.33	1.2	0.7	5.243	A
D	464.34	116.08	179.41	1264.45	0.367	465.35	819.29	0.8	0.6	4.510	A

Main results: (09:00-09:15)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	465.69	116.42	418.89	1982.58	0.235	466.09	120.59	0.4	0.3	2.374	A
B	195.74	48.94	523.10	1143.38	0.171	196.01	361.88	0.3	0.2	3.800	A
C	411.29	102.82	423.39	1228.35	0.335	412.14	295.72	0.7	0.5	4.414	A
D	388.86	97.22	150.04	1280.31	0.304	389.45	685.49	0.6	0.4	4.043	A

Base Plus Low Growth (6%) - Phase 3, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	100.000	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
02	Yaxham Rd / A47 Slip Road / Kingston Rd	Standard Roundabout	A,B,C,D	6.46	A

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Capacity Options

[same as above]

Roundabout Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)	Run automatically
D8	Base Plus Low Growth (6%) - Phase 3	PM	ONE HOUR	16:45	18:15	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	524.27	100.000
B		ONE HOUR	✓	589.00	100.000
C		ONE HOUR	✓	509.46	100.000
D		ONE HOUR	✓	553.20	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	0.000	136.000	107.341	280.931
	B	122.000	0.000	150.000	317.000
	C	129.875	107.000	0.000	272.588
	D	106.000	266.000	181.195	0.000

Proportions

		To			
		A	B	C	D
From	A	0.00	0.26	0.20	0.54
	B	0.21	0.00	0.25	0.54
	C	0.25	0.21	0.00	0.54
	D	0.19	0.48	0.33	0.00

Vehicle Mix

Heavy Vehicle proportion

		To			
		A	B	C	D
From	A	0	0	0	0
	B	0	0	0	0
	C	0	0	0	0
	D	0	0	0	0

Average PCU Per Veh

		To			
		A	B	C	D
From	A	1.000	1.000	1.000	1.000
	B	1.000	1.000	1.000	1.000
	C	1.000	1.000	1.000	1.000
	D	1.000	1.000	1.000	1.000

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	0.31	2.84	0.5	A	481.08	721.62
B	0.60	8.22	1.5	A	540.48	810.72
C	0.55	7.89	1.2	A	467.49	701.24
D	0.53	6.68	1.1	A	507.62	761.43

Main Results for each time segment

Main results: (16:45-17:00)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	394.70	98.68	415.15	1985.33	0.199	393.71	268.05	0.0	0.2	2.261	A
B	443.43	110.86	427.32	1196.05	0.371	441.09	381.54	0.0	0.6	4.754	A
C	383.55	95.89	539.73	1161.72	0.330	381.59	328.68	0.0	0.5	4.604	A
D	416.47	104.12	268.79	1216.19	0.342	414.41	652.54	0.0	0.5	4.478	A

Main results: (17:00-17:15)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	471.31	117.83	497.39	1925.14	0.245	471.01	321.14	0.2	0.3	2.475	A
B	529.50	132.37	511.46	1149.78	0.461	528.46	456.94	0.6	0.8	5.785	A
C	458.00	114.50	646.27	1100.71	0.416	457.13	393.65	0.5	0.7	5.587	A
D	497.31	124.33	322.00	1187.46	0.419	496.52	781.40	0.5	0.7	5.205	A

Main results: (17:15-17:30)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	577.24	144.31	608.47	1843.86	0.313	576.71	392.71	0.3	0.5	2.839	A
B	648.50	162.13	626.09	1086.74	0.597	646.08	559.10	0.8	1.4	8.124	A
C	560.93	140.23	790.58	1018.07	0.551	558.93	481.59	0.7	1.2	7.807	A
D	609.08	152.27	393.70	1148.74	0.530	607.49	955.81	0.7	1.1	6.630	A

Main results: (17:30-17:45)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	577.24	144.31	610.14	1842.64	0.313	577.23	393.99	0.5	0.5	2.844	A
B	648.50	162.13	626.98	1086.25	0.597	648.43	560.39	1.4	1.5	8.220	A
C	560.93	140.23	792.61	1016.91	0.552	560.88	482.81	1.2	1.2	7.891	A
D	609.08	152.27	395.09	1147.99	0.531	609.04	958.39	1.1	1.1	6.679	A

Main results: (17:45-18:00)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	471.31	117.83	499.90	1923.31	0.245	471.83	323.03	0.5	0.3	2.480	A
B	529.50	132.37	512.84	1149.02	0.461	531.90	458.89	1.5	0.9	5.855	A
C	458.00	114.50	649.27	1098.99	0.417	459.98	395.47	1.2	0.7	5.650	A
D	497.31	124.33	324.04	1186.36	0.419	498.88	785.21	1.1	0.7	5.249	A

Main results: (18:00-18:15)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	394.70	98.68	418.07	1983.18	0.199	395.01	270.04	0.3	0.2	2.266	A
B	443.43	110.86	429.22	1195.00	0.371	444.51	383.86	0.9	0.6	4.805	A
C	383.55	95.89	542.97	1159.87	0.331	384.45	330.76	0.7	0.5	4.649	A
D	416.47	104.12	270.82	1215.09	0.343	417.29	656.60	0.7	0.5	4.516	A

Base Plus Medium Growth (8%) - Phase 1, AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	100.000	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
02	Yaxham Rd / A47 Slip Road / Kingston Rd	Standard Roundabout	A,B,C,D	5.03	A

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Capacity Options

[same as above]

Roundabout Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)	Run automatically
D9	Base Plus Medium Growth (8%) - Phase 1	AM	ONE HOUR	07:45	09:15	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	611.93	100.000
B		ONE HOUR	✓	260.00	100.000
C		ONE HOUR	✓	549.70	100.000
D		ONE HOUR	✓	513.15	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	0.000	147.000	117.223	347.704
	B	30.000	0.000	53.000	177.000
	C	75.575	94.000	0.000	380.127
	D	55.000	239.000	219.152	0.000

Proportions

		To			
		A	B	C	D
From	A	0.00	0.24	0.19	0.57
	B	0.12	0.00	0.20	0.68
	C	0.14	0.17	0.00	0.69
	D	0.11	0.47	0.43	0.00

Vehicle Mix

Heavy Vehicle proportion

		To			
		A	B	C	D
From	A	0	0	0	0
	B	0	0	0	0
	C	0	0	0	0
	D	0	0	0	0

Average PCU Per Veh

		To			
		A	B	C	D
From	A	1.000	1.000	1.000	1.000
	B	1.000	1.000	1.000	1.000
	C	1.000	1.000	1.000	1.000
	D	1.000	1.000	1.000	1.000

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	0.37	3.07	0.6	A	561.51	842.27
B	0.28	4.93	0.4	A	238.58	357.87
C	0.54	6.98	1.2	A	504.42	756.62
D	0.45	5.31	0.8	A	470.88	706.32

Main Results for each time segment

Main results: (07:45-08:00)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	460.69	115.17	413.81	1986.30	0.232	459.49	120.34	0.0	0.3	2.354	A
B	195.74	48.94	513.36	1148.73	0.170	194.92	359.94	0.0	0.2	3.770	A
C	413.84	103.46	416.28	1232.42	0.336	411.84	292.01	0.0	0.5	4.376	A
D	386.33	96.58	149.54	1280.58	0.302	384.61	678.57	0.0	0.4	4.011	A

Main results: (08:00-08:15)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	550.11	137.53	495.73	1926.36	0.286	549.72	144.15	0.3	0.4	2.615	A
B	233.73	58.43	614.44	1093.15	0.214	233.47	431.01	0.2	0.3	4.186	A
C	494.17	123.54	498.24	1185.49	0.417	493.35	349.67	0.5	0.7	5.194	A
D	461.31	115.33	179.13	1264.60	0.365	460.75	812.45	0.4	0.6	4.475	A

Main results: (08:15-08:30)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	673.74	168.44	606.72	1845.15	0.365	673.05	176.39	0.4	0.6	3.070	A
B	286.27	71.57	752.22	1017.38	0.281	285.79	527.54	0.3	0.4	4.917	A
C	605.23	151.31	609.97	1121.50	0.540	603.45	428.04	0.7	1.2	6.925	A
D	564.99	141.25	219.13	1243.00	0.455	563.97	994.29	0.6	0.8	5.294	A

Main results: (08:30-08:45)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	673.74	168.44	607.91	1844.27	0.365	673.74	176.79	0.6	0.6	3.074	A
B	286.27	71.57	753.17	1016.85	0.282	286.26	528.47	0.4	0.4	4.927	A
C	605.23	151.31	610.73	1121.06	0.540	605.19	428.70	1.2	1.2	6.978	A
D	564.99	141.25	219.72	1242.69	0.455	564.97	996.20	0.8	0.8	5.311	A

Main results: (08:45-09:00)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	550.11	137.53	497.57	1925.01	0.286	550.80	144.76	0.6	0.4	2.622	A
B	233.73	58.43	615.92	1092.33	0.214	234.20	432.44	0.4	0.3	4.197	A
C	494.17	123.54	499.43	1184.80	0.417	495.93	350.69	1.2	0.7	5.238	A
D	461.31	115.33	180.01	1264.13	0.365	462.31	815.35	0.8	0.6	4.495	A

Main results: (09:00-09:15)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	460.69	115.17	416.35	1984.44	0.232	461.08	121.10	0.4	0.3	2.363	A
B	195.74	48.94	515.55	1147.53	0.171	196.01	361.88	0.3	0.2	3.786	A
C	413.84	103.46	418.05	1231.41	0.336	414.70	293.52	0.7	0.5	4.412	A
D	386.33	96.58	150.54	1280.04	0.302	386.90	682.20	0.6	0.4	4.033	A

Base Plus Medium Growth (8%) - Phase 1, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	100.000	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
02	Yaxham Rd / A47 Slip Road / Kingston Rd	Standard Roundabout	A,B,C,D	6.48	A

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Capacity Options

[same as above]

Roundabout Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)	Run automatically
D10	Base Plus Medium Growth (8%) - Phase 1	PM	ONE HOUR	16:45	18:15	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	520.20	100.000
B		ONE HOUR	✓	589.00	100.000
C		ONE HOUR	✓	511.37	100.000
D		ONE HOUR	✓	556.74	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	0.000	136.000	106.557	277.643
	B	122.000	0.000	150.000	317.000
	C	131.502	107.000	0.000	272.864
	D	106.000	266.000	184.737	0.000

Proportions

		To			
		A	B	C	D
From	A	0.00	0.26	0.20	0.53
	B	0.21	0.00	0.25	0.54
	C	0.26	0.21	0.00	0.53
	D	0.19	0.48	0.33	0.00

Vehicle Mix

Heavy Vehicle proportion

		To			
		A	B	C	D
From	A	0	0	0	0
	B	0	0	0	0
	C	0	0	0	0
	D	0	0	0	0

Average PCU Per Veh

		To			
		A	B	C	D
From	A	1.000	1.000	1.000	1.000
	B	1.000	1.000	1.000	1.000
	C	1.000	1.000	1.000	1.000
	D	1.000	1.000	1.000	1.000

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	0.31	2.84	0.5	A	477.34	716.02
B	0.60	8.21	1.5	A	540.48	810.72
C	0.55	7.89	1.2	A	469.24	703.86
D	0.53	6.74	1.1	A	510.87	766.31

Main Results for each time segment

Main results: (16:45-17:00)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	391.63	97.91	417.79	1983.39	0.197	390.65	269.27	0.0	0.2	2.259	A
B	443.43	110.86	426.91	1196.28	0.371	441.09	381.54	0.0	0.6	4.753	A
C	384.98	96.25	537.26	1163.14	0.331	383.02	330.74	0.0	0.5	4.604	A
D	419.14	104.79	270.00	1215.53	0.345	417.05	650.28	0.0	0.5	4.497	A

Main results: (17:00-17:15)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	467.65	116.91	500.56	1922.82	0.243	467.35	322.59	0.2	0.3	2.473	A
B	529.50	132.37	510.98	1150.04	0.460	528.46	456.94	0.6	0.8	5.782	A
C	459.71	114.93	643.31	1102.40	0.417	458.84	396.12	0.5	0.7	5.587	A
D	500.49	125.12	323.46	1186.67	0.422	499.69	778.69	0.5	0.7	5.233	A

Main results: (17:15-17:30)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	572.75	143.19	612.34	1841.03	0.311	572.23	394.49	0.3	0.4	2.835	A
B	648.50	162.13	625.49	1087.07	0.597	646.09	559.09	0.8	1.4	8.118	A
C	563.02	140.76	786.96	1020.14	0.552	561.02	484.61	0.7	1.2	7.807	A
D	612.98	153.24	395.49	1147.78	0.534	611.35	952.50	0.7	1.1	6.691	A

Main results: (17:30-17:45)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	572.75	143.19	614.04	1839.79	0.311	572.75	395.78	0.4	0.5	2.840	A
B	648.50	162.13	626.39	1086.57	0.597	648.43	560.39	1.4	1.5	8.214	A
C	563.02	140.76	788.99	1018.98	0.553	562.97	485.84	1.2	1.2	7.892	A
D	612.98	153.24	396.88	1147.03	0.534	612.94	955.08	1.1	1.1	6.740	A

Main results: (17:45-18:00)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	467.65	116.91	503.11	1920.96	0.243	468.16	324.50	0.5	0.3	2.478	A
B	529.50	132.37	512.37	1149.28	0.461	531.90	458.90	1.5	0.9	5.852	A
C	459.71	114.93	646.31	1100.69	0.418	461.70	397.96	1.2	0.7	5.652	A
D	500.49	125.12	325.51	1185.56	0.422	502.10	782.50	1.1	0.7	5.281	A

Main results: (18:00-18:15)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	391.63	97.91	420.75	1981.22	0.198	391.94	271.26	0.3	0.2	2.266	A
B	443.43	110.86	428.82	1195.22	0.371	444.51	383.86	0.9	0.6	4.801	A
C	384.98	96.25	540.49	1161.29	0.332	385.88	332.84	0.7	0.5	4.647	A
D	419.14	104.79	272.05	1214.43	0.345	419.97	654.33	0.7	0.5	4.535	A

Base Plus Medium Growth (8%) - Phase 2, AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	100.000	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
02	Yaxham Rd / A47 Slip Road / Kingston Rd	Standard Roundabout	A,B,C,D	5.51	A

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Capacity Options

[same as above]

Roundabout Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)	Run automatically
D11	Base Plus Medium Growth (8%) - Phase 2	AM	ONE HOUR	07:45	09:15	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	620.14	100.000
B		ONE HOUR	✓	260.00	100.000
C		ONE HOUR	✓	604.73	100.000
D		ONE HOUR	✓	547.98	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	0.000	147.000	122.745	350.395
	B	30.000	0.000	53.000	177.000
	C	82.911	94.000	0.000	427.819
	D	55.000	239.000	253.982	0.000

Proportions

		To			
		A	B	C	D
From	A	0.00	0.24	0.20	0.57
	B	0.12	0.00	0.20	0.68
	C	0.14	0.16	0.00	0.71
	D	0.10	0.44	0.46	0.00

Vehicle Mix

Heavy Vehicle proportion

		To			
		A	B	C	D
From	A	0	0	0	0
	B	0	0	0	0
	C	0	0	0	0
	D	0	0	0	0

Average PCU Per Veh

		To			
		A	B	C	D
From	A	1.000	1.000	1.000	1.000
	B	1.000	1.000	1.000	1.000
	C	1.000	1.000	1.000	1.000
	D	1.000	1.000	1.000	1.000

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	0.38	3.17	0.6	A	569.05	853.58
B	0.29	5.11	0.4	A	238.58	357.87
C	0.59	7.93	1.5	A	554.91	832.37
D	0.49	5.67	0.9	A	502.84	754.26

Main Results for each time segment

Main results: (07:45-08:00)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	466.87	116.72	439.84	1967.25	0.237	465.63	125.81	0.0	0.3	2.395	A
B	195.74	48.94	545.59	1131.01	0.173	194.91	359.89	0.0	0.2	3.842	A
C	455.27	113.82	418.27	1231.28	0.370	452.95	322.23	0.0	0.6	4.611	A
D	412.55	103.14	155.00	1277.64	0.323	410.66	716.22	0.0	0.5	4.143	A

Main results: (08:00-08:15)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	557.49	139.37	526.94	1903.52	0.293	557.08	150.71	0.3	0.4	2.673	A
B	233.73	58.43	653.05	1071.91	0.218	233.46	430.97	0.2	0.3	4.293	A
C	543.64	135.91	500.64	1184.11	0.459	542.61	385.88	0.6	0.8	5.602	A
D	492.62	123.16	185.68	1261.07	0.391	491.98	857.57	0.5	0.6	4.677	A

Main results: (08:15-08:30)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	682.79	170.70	644.82	1817.26	0.376	682.04	184.37	0.4	0.6	3.170	A
B	286.27	71.57	799.45	991.40	0.289	285.76	527.41	0.3	0.4	5.098	A
C	665.82	166.46	612.88	1119.83	0.595	663.43	472.33	0.8	1.4	7.846	A
D	603.34	150.83	227.06	1238.73	0.487	602.13	1049.26	0.6	0.9	5.645	A

Main results: (08:30-08:45)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	682.79	170.70	646.25	1816.22	0.376	682.78	184.86	0.6	0.6	3.175	A
B	286.27	71.57	800.56	990.79	0.289	286.26	528.47	0.4	0.4	5.109	A
C	665.82	166.46	613.69	1119.37	0.595	665.76	473.12	1.4	1.5	7.934	A
D	603.34	150.83	227.79	1238.33	0.487	603.32	1051.66	0.9	0.9	5.668	A

Main results: (08:45-09:00)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	557.49	139.37	529.12	1901.92	0.293	558.23	151.45	0.6	0.4	2.682	A
B	233.73	58.43	654.78	1070.96	0.218	234.23	432.57	0.4	0.3	4.304	A
C	543.64	135.91	501.90	1183.39	0.459	546.01	387.11	1.5	0.9	5.670	A
D	492.62	123.16	186.76	1260.48	0.391	493.81	861.15	0.9	0.6	4.704	A

Main results: (09:00-09:15)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	466.87	116.72	442.68	1965.18	0.238	467.29	126.66	0.4	0.3	2.403	A
B	195.74	48.94	548.04	1129.66	0.173	196.02	361.92	0.3	0.2	3.858	A
C	455.27	113.82	420.09	1230.24	0.370	456.34	323.97	0.9	0.6	4.659	A
D	412.55	103.14	156.12	1277.03	0.323	413.22	720.32	0.6	0.5	4.172	A

Base Plus Medium Growth (8%) - Phase 2, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	100.000	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
02	Yaxham Rd / A47 Slip Road / Kingston Rd	Standard Roundabout	A,B,C,D	7.17	A

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Capacity Options

[same as above]

Roundabout Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)	Run automatically
D12	Base Plus Medium Growth (8%) - Phase 2	PM	ONE HOUR	16:45	18:15	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	530.27	100.000
B		ONE HOUR	✓	589.00	100.000
C		ONE HOUR	✓	558.61	100.000
D		ONE HOUR	✓	604.98	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	0.000	136.000	115.381	278.892
	B	122.000	0.000	150.000	317.000
	C	137.536	107.000	0.000	314.073
	D	106.000	266.000	232.982	0.000

Proportions

		To			
		A	B	C	D
From	A	0.00	0.26	0.22	0.53
	B	0.21	0.00	0.25	0.54
	C	0.25	0.19	0.00	0.56
	D	0.18	0.44	0.39	0.00

Vehicle Mix

Heavy Vehicle proportion

		To			
		A	B	C	D
From	A	0	0	0	0
	B	0	0	0	0
	C	0	0	0	0
	D	0	0	0	0

Average PCU Per Veh

		To			
		A	B	C	D
From	A	1.000	1.000	1.000	1.000
	B	1.000	1.000	1.000	1.000
	C	1.000	1.000	1.000	1.000
	D	1.000	1.000	1.000	1.000

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	0.32	2.96	0.5	A	486.59	729.88
B	0.62	8.93	1.6	A	540.48	810.72
C	0.60	8.92	1.5	A	512.59	768.88
D	0.58	7.54	1.4	A	555.14	832.71

Main Results for each time segment

Main results: (16:45-17:00)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	399.22	99.80	453.82	1957.03	0.204	398.20	273.72	0.0	0.3	2.308	A
B	443.43	110.86	470.55	1172.27	0.378	441.02	381.46	0.0	0.6	4.907	A
C	420.55	105.14	538.13	1162.64	0.362	418.30	373.44	0.0	0.6	4.822	A
D	455.46	113.87	274.46	1213.13	0.375	453.08	681.97	0.0	0.6	4.723	A

Main results: (17:00-17:15)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	476.70	119.18	543.76	1891.22	0.252	476.38	327.94	0.3	0.3	2.544	A
B	529.50	132.37	563.27	1121.28	0.472	528.38	456.86	0.6	0.9	6.061	A
C	502.18	125.54	644.36	1101.80	0.456	501.12	447.29	0.6	0.8	5.981	A
D	543.87	135.97	328.81	1183.78	0.459	542.89	816.67	0.6	0.8	5.609	A

Main results: (17:15-17:30)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	583.84	145.96	664.96	1802.53	0.324	583.28	400.88	0.3	0.5	2.951	A
B	648.50	162.13	689.39	1051.93	0.616	645.76	558.85	0.9	1.6	8.804	A
C	615.04	153.76	788.08	1019.50	0.603	612.41	547.08	0.8	1.5	8.784	A
D	666.10	166.52	401.85	1144.34	0.582	663.99	998.64	0.8	1.4	7.461	A

Main results: (17:30-17:45)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	583.84	145.96	667.13	1800.94	0.324	583.83	402.41	0.5	0.5	2.957	A
B	648.50	162.13	690.59	1051.27	0.617	648.42	560.38	1.6	1.6	8.928	A
C	615.04	153.76	790.35	1018.20	0.604	614.96	548.66	1.5	1.5	8.923	A
D	666.10	166.52	403.51	1143.45	0.583	666.04	1001.79	1.4	1.4	7.537	A

Main results: (17:45-18:00)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	476.70	119.18	546.98	1888.85	0.252	477.26	330.18	0.5	0.3	2.552	A
B	529.50	132.37	565.10	1120.28	0.473	532.23	459.14	1.6	0.9	6.149	A
C	502.18	125.54	647.70	1099.89	0.457	504.80	449.63	1.5	0.9	6.077	A
D	543.87	135.97	331.22	1182.48	0.460	545.95	821.28	1.4	0.9	5.673	A

Main results: (18:00-18:15)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	399.22	99.80	457.27	1954.50	0.204	399.54	275.89	0.3	0.3	2.315	A
B	443.43	110.86	472.86	1171.00	0.379	444.60	383.94	0.9	0.6	4.965	A
C	420.55	105.14	541.51	1160.71	0.362	421.66	375.95	0.9	0.6	4.878	A
D	455.46	113.87	276.68	1211.93	0.376	456.48	686.49	0.9	0.6	4.773	A

Base Plus Medium Growth (8%) - Phase 3, AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	100.000	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
02	Yaxham Rd / A47 Slip Road / Kingston Rd	Standard Roundabout	A,B,C,D	5.67	A

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Capacity Options

[same as above]

Roundabout Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)	Run automatically
D13	Base Plus Medium Growth (8%) - Phase 3	AM	ONE HOUR	07:45	09:15	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	625.76	100.000
B		ONE HOUR	✓	260.00	100.000
C		ONE HOUR	✓	617.88	100.000
D		ONE HOUR	✓	559.86	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	0.000	147.000	123.973	354.790
	B	30.000	0.000	53.000	177.000
	C	84.503	94.000	0.000	439.377
	D	55.000	239.000	265.858	0.000

Proportions

		To			
		A	B	C	D
From	A	0.00	0.23	0.20	0.57
	B	0.12	0.00	0.20	0.68
	C	0.14	0.15	0.00	0.71
	D	0.10	0.43	0.47	0.00

Vehicle Mix

Heavy Vehicle proportion

		To			
		A	B	C	D
From	A	0	0	0	0
	B	0	0	0	0
	C	0	0	0	0
	D	0	0	0	0

Average PCU Per Veh

		To			
		A	B	C	D
From	A	1.000	1.000	1.000	1.000
	B	1.000	1.000	1.000	1.000
	C	1.000	1.000	1.000	1.000
	D	1.000	1.000	1.000	1.000

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	0.38	3.22	0.6	A	574.21	861.32
B	0.29	5.19	0.4	A	238.58	357.87
C	0.61	8.25	1.5	A	566.98	850.47
D	0.50	5.80	1.0	A	513.74	770.60

Main Results for each time segment

Main results: (07:45-08:00)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	471.11	117.78	448.72	1960.76	0.240	469.85	126.99	0.0	0.3	2.412	A
B	195.74	48.94	558.70	1123.80	0.174	194.90	359.87	0.0	0.2	3.872	A
C	465.17	116.29	421.56	1229.40	0.378	462.76	332.04	0.0	0.6	4.682	A
D	421.49	105.37	156.18	1277.00	0.330	419.53	728.14	0.0	0.5	4.189	A

Main results: (08:00-08:15)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	562.55	140.64	537.58	1895.73	0.297	562.13	152.13	0.3	0.4	2.699	A
B	233.73	58.43	668.75	1063.28	0.220	233.45	430.96	0.2	0.3	4.337	A
C	555.46	138.87	504.58	1181.86	0.470	554.37	397.63	0.6	0.9	5.726	A
D	503.30	125.83	187.09	1260.31	0.399	502.62	871.85	0.5	0.7	4.747	A

Main results: (08:15-08:30)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	688.98	172.24	657.80	1807.76	0.381	688.21	186.09	0.4	0.6	3.214	A
B	286.27	71.57	818.64	980.85	0.292	285.75	527.37	0.3	0.4	5.176	A
C	680.30	170.07	617.70	1117.08	0.609	677.71	486.70	0.9	1.5	8.145	A
D	616.41	154.10	228.76	1237.81	0.498	615.13	1066.65	0.7	1.0	5.770	A

Main results: (08:30-08:45)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	688.98	172.24	659.32	1806.65	0.381	688.97	186.61	0.6	0.6	3.220	A
B	286.27	71.57	819.82	980.20	0.292	286.26	528.47	0.4	0.4	5.187	A
C	680.30	170.07	618.53	1116.60	0.609	680.23	487.55	1.5	1.5	8.246	A
D	616.41	154.10	229.54	1237.38	0.498	616.39	1069.21	1.0	1.0	5.796	A

Main results: (08:45-09:00)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	562.55	140.64	539.89	1894.05	0.297	563.31	152.91	0.6	0.4	2.706	A
B	233.73	58.43	670.58	1062.27	0.220	234.24	432.62	0.4	0.3	4.351	A
C	555.46	138.87	505.87	1181.11	0.470	558.03	398.95	1.5	0.9	5.802	A
D	503.30	125.83	188.24	1259.68	0.400	504.56	875.66	1.0	0.7	4.774	A

Main results: (09:00-09:15)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	471.11	117.78	451.65	1958.61	0.241	471.53	127.87	0.4	0.3	2.421	A
B	195.74	48.94	561.25	1122.40	0.174	196.03	361.94	0.3	0.2	3.887	A
C	465.17	116.29	423.41	1228.34	0.379	466.31	333.86	0.9	0.6	4.730	A
D	421.49	105.37	157.33	1276.37	0.330	422.19	732.39	0.7	0.5	4.219	A

Base Plus Medium Growth (8%) - Phase 3, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	100.000	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
02	Yaxham Rd / A47 Slip Road / Kingston Rd	Standard Roundabout	A,B,C,D	8.05	A

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Capacity Options

[same as above]

Roundabout Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)	Run automatically
D14	Base Plus Medium Growth (8%) - Phase 3	PM	ONE HOUR	16:45	18:15	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	540.35	100.000
B		ONE HOUR	✓	589.00	100.000
C		ONE HOUR	✓	605.85	100.000
D		ONE HOUR	✓	653.23	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	0.000	136.000	124.205	280.140
	B	122.000	0.000	150.000	317.000
	C	143.571	107.000	0.000	355.282
	D	106.000	266.000	281.227	0.000

Proportions

		To			
		A	B	C	D
From	A	0.00	0.25	0.23	0.52
	B	0.21	0.00	0.25	0.54
	C	0.24	0.18	0.00	0.59
	D	0.16	0.41	0.43	0.00

Vehicle Mix

Heavy Vehicle proportion

		To			
		A	B	C	D
From	A	0	0	0	0
	B	0	0	0	0
	C	0	0	0	0
	D	0	0	0	0

Average PCU Per Veh

		To			
		A	B	C	D
From	A	1.000	1.000	1.000	1.000
	B	1.000	1.000	1.000	1.000
	C	1.000	1.000	1.000	1.000
	D	1.000	1.000	1.000	1.000

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	0.34	3.08	0.5	A	495.83	743.75
B	0.64	9.79	1.7	A	540.48	810.72
C	0.66	10.26	1.9	B	555.94	833.91
D	0.63	8.55	1.7	A	599.41	899.12

Main Results for each time segment

Main results: (16:45-17:00)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	406.80	101.70	489.81	1930.69	0.211	405.74	278.17	0.0	0.3	2.360	A
B	443.43	110.86	514.17	1148.29	0.386	440.94	381.38	0.0	0.6	5.073	A
C	456.12	114.03	539.00	1162.14	0.392	453.56	416.11	0.0	0.6	5.062	A
D	491.78	122.95	278.92	1210.72	0.406	489.07	713.64	0.0	0.7	4.971	A

Main results: (17:00-17:15)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	485.76	121.44	586.91	1859.64	0.261	485.41	333.28	0.3	0.4	2.619	A
B	529.50	132.37	615.54	1092.54	0.485	528.28	456.78	0.6	0.9	6.365	A
C	544.65	136.16	645.41	1101.21	0.495	543.35	498.42	0.6	1.0	6.437	A
D	587.24	146.81	334.14	1180.90	0.497	586.04	854.61	0.7	1.0	6.039	A

Main results: (17:15-17:30)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	594.93	148.73	717.40	1764.16	0.337	594.31	407.18	0.4	0.5	3.075	A
B	648.50	162.13	753.18	1016.85	0.638	645.37	558.53	0.9	1.7	9.610	A
C	667.06	166.76	789.13	1018.90	0.655	663.57	609.42	1.0	1.8	10.033	B
D	719.22	179.80	408.12	1140.96	0.630	716.46	1044.58	1.0	1.7	8.425	A

Main results: (17:30-17:45)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	594.93	148.73	720.22	1762.09	0.338	594.92	409.04	0.5	0.5	3.083	A
B	648.50	162.13	754.78	1015.97	0.638	648.39	560.36	1.7	1.7	9.786	A
C	667.06	166.76	791.70	1017.42	0.656	666.92	611.47	1.8	1.9	10.260	B
D	719.22	179.80	410.13	1139.87	0.631	719.12	1048.50	1.7	1.7	8.551	A

Main results: (17:45-18:00)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	485.76	121.44	591.04	1856.61	0.262	486.37	335.96	0.5	0.4	2.629	A
B	529.50	132.37	617.95	1091.22	0.485	532.63	459.46	1.7	1.0	6.482	A
C	544.65	136.16	649.14	1099.07	0.496	548.15	501.43	1.9	1.0	6.574	A
D	587.24	146.81	337.03	1179.34	0.498	589.97	860.26	1.7	1.0	6.135	A

Main results: (18:00-18:15)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	406.80	101.70	493.83	1927.75	0.211	407.15	280.53	0.4	0.3	2.369	A
B	443.43	110.86	516.94	1146.77	0.387	444.71	384.04	1.0	0.6	5.136	A
C	456.12	114.03	542.54	1160.12	0.393	457.49	419.10	1.0	0.7	5.135	A
D	491.78	122.95	281.32	1209.42	0.407	493.04	718.70	1.0	0.7	5.033	A

Base Plus High Growth (10%) - Phase 1, AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	100.000	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
02	Yaxham Rd / A47 Slip Road / Kingston Rd	Standard Roundabout	A,B,C,D	5.03	A

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Capacity Options

[same as above]

Roundabout Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)	Run automatically
D15	Base Plus High Growth (10%) - Phase 1	AM	ONE HOUR	07:45	09:15	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	611.93	100.000
B		ONE HOUR	✓	260.00	100.000
C		ONE HOUR	✓	549.70	100.000
D		ONE HOUR	✓	513.15	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	0.000	147.000	117.223	347.704
	B	30.000	0.000	53.000	177.000
	C	75.575	94.000	0.000	380.127
	D	55.000	239.000	219.152	0.000

Proportions

		To			
		A	B	C	D
From	A	0.00	0.24	0.19	0.57
	B	0.12	0.00	0.20	0.68
	C	0.14	0.17	0.00	0.69
	D	0.11	0.47	0.43	0.00

Vehicle Mix

Heavy Vehicle proportion

		To			
		A	B	C	D
From	A	0	0	0	0
	B	0	0	0	0
	C	0	0	0	0
	D	0	0	0	0

Average PCU Per Veh

		To			
		A	B	C	D
From	A	1.000	1.000	1.000	1.000
	B	1.000	1.000	1.000	1.000
	C	1.000	1.000	1.000	1.000
	D	1.000	1.000	1.000	1.000

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	0.37	3.07	0.6	A	561.51	842.27
B	0.28	4.93	0.4	A	238.58	357.87
C	0.54	6.98	1.2	A	504.42	756.62
D	0.45	5.31	0.8	A	470.88	706.32

Main Results for each time segment

Main results: (07:45-08:00)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	460.69	115.17	413.81	1986.30	0.232	459.49	120.34	0.0	0.3	2.354	A
B	195.74	48.94	513.36	1148.73	0.170	194.92	359.94	0.0	0.2	3.770	A
C	413.84	103.46	416.28	1232.42	0.336	411.84	292.01	0.0	0.5	4.376	A
D	386.33	96.58	149.54	1280.58	0.302	384.61	678.57	0.0	0.4	4.011	A

Main results: (08:00-08:15)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	550.11	137.53	495.73	1926.36	0.286	549.72	144.15	0.3	0.4	2.615	A
B	233.73	58.43	614.44	1093.15	0.214	233.47	431.01	0.2	0.3	4.186	A
C	494.17	123.54	498.24	1185.49	0.417	493.35	349.67	0.5	0.7	5.194	A
D	461.31	115.33	179.13	1264.60	0.365	460.75	812.45	0.4	0.6	4.475	A

Main results: (08:15-08:30)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	673.74	168.44	606.72	1845.15	0.365	673.05	176.39	0.4	0.6	3.070	A
B	286.27	71.57	752.22	1017.38	0.281	285.79	527.54	0.3	0.4	4.917	A
C	605.23	151.31	609.97	1121.50	0.540	603.45	428.04	0.7	1.2	6.925	A
D	564.99	141.25	219.13	1243.00	0.455	563.97	994.29	0.6	0.8	5.294	A

Main results: (08:30-08:45)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	673.74	168.44	607.91	1844.27	0.365	673.74	176.79	0.6	0.6	3.074	A
B	286.27	71.57	753.17	1016.85	0.282	286.26	528.47	0.4	0.4	4.927	A
C	605.23	151.31	610.73	1121.06	0.540	605.19	428.70	1.2	1.2	6.978	A
D	564.99	141.25	219.72	1242.69	0.455	564.97	996.20	0.8	0.8	5.311	A

Main results: (08:45-09:00)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	550.11	137.53	497.57	1925.01	0.286	550.80	144.76	0.6	0.4	2.622	A
B	233.73	58.43	615.92	1092.33	0.214	234.20	432.44	0.4	0.3	4.197	A
C	494.17	123.54	499.43	1184.80	0.417	495.93	350.69	1.2	0.7	5.238	A
D	461.31	115.33	180.01	1264.13	0.365	462.31	815.35	0.8	0.6	4.495	A

Main results: (09:00-09:15)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	460.69	115.17	416.35	1984.44	0.232	461.08	121.10	0.4	0.3	2.363	A
B	195.74	48.94	515.55	1147.53	0.171	196.01	361.88	0.3	0.2	3.786	A
C	413.84	103.46	418.05	1231.41	0.336	414.70	293.52	0.7	0.5	4.412	A
D	386.33	96.58	150.54	1280.04	0.302	386.90	682.20	0.6	0.4	4.033	A

Base Plus High Growth (10%) - Phase 1, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	100.000	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
02	Yaxham Rd / A47 Slip Road / Kingston Rd	Standard Roundabout	A,B,C,D	6.48	A

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Capacity Options

[same as above]

Roundabout Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)	Run automatically
D16	Base Plus High Growth (10%) - Phase 1	PM	ONE HOUR	16:45	18:15	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	520.20	100.000
B		ONE HOUR	✓	589.00	100.000
C		ONE HOUR	✓	511.37	100.000
D		ONE HOUR	✓	556.74	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	0.000	136.000	106.557	277.643
	B	122.000	0.000	150.000	317.000
	C	131.502	107.000	0.000	272.864
	D	106.000	266.000	184.737	0.000

Proportions

		To			
		A	B	C	D
From	A	0.00	0.26	0.20	0.53
	B	0.21	0.00	0.25	0.54
	C	0.26	0.21	0.00	0.53
	D	0.19	0.48	0.33	0.00

Vehicle Mix

Heavy Vehicle proportion

		To			
		A	B	C	D
From	A	0	0	0	0
	B	0	0	0	0
	C	0	0	0	0
	D	0	0	0	0

Average PCU Per Veh

		To			
		A	B	C	D
From	A	1.000	1.000	1.000	1.000
	B	1.000	1.000	1.000	1.000
	C	1.000	1.000	1.000	1.000
	D	1.000	1.000	1.000	1.000

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	0.31	2.84	0.5	A	477.34	716.02
B	0.60	8.21	1.5	A	540.48	810.72
C	0.55	7.89	1.2	A	469.24	703.86
D	0.53	6.74	1.1	A	510.87	766.31

Main Results for each time segment

Main results: (16:45-17:00)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	391.63	97.91	417.79	1983.39	0.197	390.65	269.27	0.0	0.2	2.259	A
B	443.43	110.86	426.91	1196.28	0.371	441.09	381.54	0.0	0.6	4.753	A
C	384.98	96.25	537.26	1163.14	0.331	383.02	330.74	0.0	0.5	4.604	A
D	419.14	104.79	270.00	1215.53	0.345	417.05	650.28	0.0	0.5	4.497	A

Main results: (17:00-17:15)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	467.65	116.91	500.56	1922.82	0.243	467.35	322.59	0.2	0.3	2.473	A
B	529.50	132.37	510.98	1150.04	0.460	528.46	456.94	0.6	0.8	5.782	A
C	459.71	114.93	643.31	1102.40	0.417	458.84	396.12	0.5	0.7	5.587	A
D	500.49	125.12	323.46	1186.67	0.422	499.69	778.69	0.5	0.7	5.233	A

Main results: (17:15-17:30)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	572.75	143.19	612.34	1841.03	0.311	572.23	394.49	0.3	0.4	2.835	A
B	648.50	162.13	625.49	1087.07	0.597	646.09	559.09	0.8	1.4	8.118	A
C	563.02	140.76	786.96	1020.14	0.552	561.02	484.61	0.7	1.2	7.807	A
D	612.98	153.24	395.49	1147.78	0.534	611.35	952.50	0.7	1.1	6.691	A

Main results: (17:30-17:45)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	572.75	143.19	614.04	1839.79	0.311	572.75	395.78	0.4	0.5	2.840	A
B	648.50	162.13	626.39	1086.57	0.597	648.43	560.39	1.4	1.5	8.214	A
C	563.02	140.76	788.99	1018.98	0.553	562.97	485.84	1.2	1.2	7.892	A
D	612.98	153.24	396.88	1147.03	0.534	612.94	955.08	1.1	1.1	6.740	A

Main results: (17:45-18:00)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	467.65	116.91	503.11	1920.96	0.243	468.16	324.50	0.5	0.3	2.478	A
B	529.50	132.37	512.37	1149.28	0.461	531.90	458.90	1.5	0.9	5.852	A
C	459.71	114.93	646.31	1100.69	0.418	461.70	397.96	1.2	0.7	5.652	A
D	500.49	125.12	325.51	1185.56	0.422	502.10	782.50	1.1	0.7	5.281	A

Main results: (18:00-18:15)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	391.63	97.91	420.75	1981.22	0.198	391.94	271.26	0.3	0.2	2.266	A
B	443.43	110.86	428.82	1195.22	0.371	444.51	383.86	0.9	0.6	4.801	A
C	384.98	96.25	540.49	1161.29	0.332	385.88	332.84	0.7	0.5	4.647	A
D	419.14	104.79	272.05	1214.43	0.345	419.97	654.33	0.7	0.5	4.535	A

Base Plus High Growth (10%) - Phase 2, AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	100.000	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
02	Yaxham Rd / A47 Slip Road / Kingston Rd	Standard Roundabout	A,B,C,D	5.57	A

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Capacity Options

[same as above]

Roundabout Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)	Run automatically
D17	Base Plus High Growth (10%) - Phase 2	AM	ONE HOUR	07:45	09:15	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	620.14	100.000
B		ONE HOUR	✓	260.00	100.000
C		ONE HOUR	✓	608.20	100.000
D		ONE HOUR	✓	556.60	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	0.000	147.000	122.745	350.395
	B	30.000	0.000	53.000	177.000
	C	82.911	94.000	0.000	431.289
	D	55.000	239.000	262.601	0.000

Proportions

		To			
		A	B	C	D
From	A	0.00	0.24	0.20	0.57
	B	0.12	0.00	0.20	0.68
	C	0.14	0.15	0.00	0.71
	D	0.10	0.43	0.47	0.00

Vehicle Mix

Heavy Vehicle proportion

		To			
		A	B	C	D
From	A	0	0	0	0
	B	0	0	0	0
	C	0	0	0	0
	D	0	0	0	0

Average PCU Per Veh

		To			
		A	B	C	D
From	A	1.000	1.000	1.000	1.000
	B	1.000	1.000	1.000	1.000
	C	1.000	1.000	1.000	1.000
	D	1.000	1.000	1.000	1.000

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	0.38	3.19	0.6	A	569.05	853.58
B	0.29	5.15	0.4	A	238.58	357.87
C	0.60	8.00	1.5	A	558.10	837.14
D	0.49	5.75	1.0	A	510.75	766.12

Main Results for each time segment

Main results: (07:45-08:00)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	466.87	116.72	446.29	1962.54	0.238	465.63	125.80	0.0	0.3	2.402	A
B	195.74	48.94	552.04	1127.46	0.174	194.91	359.88	0.0	0.2	3.857	A
C	457.88	114.47	418.27	1231.28	0.372	455.54	328.68	0.0	0.6	4.627	A
D	419.04	104.76	154.99	1277.64	0.328	417.10	718.81	0.0	0.5	4.174	A

Main results: (08:00-08:15)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	557.49	139.37	534.67	1897.87	0.294	557.08	150.71	0.3	0.4	2.685	A
B	233.73	58.43	660.78	1067.66	0.219	233.46	430.96	0.2	0.3	4.314	A
C	546.76	136.69	500.63	1184.12	0.462	545.72	393.61	0.6	0.8	5.630	A
D	500.37	125.09	185.67	1261.07	0.397	499.70	860.67	0.5	0.7	4.724	A

Main results: (08:15-08:30)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	682.79	170.70	654.26	1810.36	0.377	682.03	184.36	0.4	0.6	3.189	A
B	286.27	71.57	808.90	986.21	0.290	285.76	527.39	0.3	0.4	5.136	A
C	669.64	167.41	612.87	1119.84	0.598	667.21	481.78	0.8	1.5	7.910	A
D	612.83	153.21	227.05	1238.73	0.495	611.57	1053.03	0.7	1.0	5.728	A

Main results: (08:30-08:45)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	682.79	170.70	655.74	1809.28	0.377	682.78	184.86	0.6	0.6	3.195	A
B	286.27	71.57	810.05	985.58	0.290	286.26	528.47	0.4	0.4	5.147	A
C	669.64	167.41	613.69	1119.37	0.598	669.58	482.61	1.5	1.5	8.001	A
D	612.83	153.21	227.79	1238.33	0.495	612.80	1055.47	1.0	1.0	5.754	A

Main results: (08:45-09:00)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	557.49	139.37	536.92	1896.22	0.294	558.24	151.46	0.6	0.4	2.693	A
B	233.73	58.43	662.57	1066.68	0.219	234.24	432.59	0.4	0.3	4.328	A
C	546.76	136.69	501.91	1183.39	0.462	549.18	394.90	1.5	0.9	5.699	A
D	500.37	125.09	186.77	1260.48	0.397	501.61	864.31	1.0	0.7	4.753	A

Main results: (09:00-09:15)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	466.87	116.72	449.19	1960.41	0.238	467.29	126.66	0.4	0.3	2.413	A
B	195.74	48.94	554.55	1126.08	0.174	196.02	361.93	0.3	0.2	3.873	A
C	457.88	114.47	420.10	1230.24	0.372	458.97	330.48	0.9	0.6	4.675	A
D	419.04	104.76	156.12	1277.03	0.328	419.73	722.94	0.7	0.5	4.203	A

Base Plus High Growth (10%) - Phase 2, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	100.000	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
02	Yaxham Rd / A47 Slip Road / Kingston Rd	Standard Roundabout	A,B,C,D	7.26	A

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Capacity Options

[same as above]

Roundabout Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)	Run automatically
D18	Base Plus High Growth (10%) - Phase 2	PM	ONE HOUR	16:45	18:15	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	530.27	100.000
B		ONE HOUR	✓	589.00	100.000
C		ONE HOUR	✓	566.41	100.000
D		ONE HOUR	✓	608.98	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	0.000	136.000	115.381	278.892
	B	122.000	0.000	150.000	317.000
	C	137.536	107.000	0.000	321.874
	D	106.000	266.000	236.982	0.000

Proportions

		To			
		A	B	C	D
From	A	0.00	0.26	0.22	0.53
	B	0.21	0.00	0.25	0.54
	C	0.24	0.19	0.00	0.57
	D	0.17	0.44	0.39	0.00

Vehicle Mix

Heavy Vehicle proportion

		To			
		A	B	C	D
From	A	0	0	0	0
	B	0	0	0	0
	C	0	0	0	0
	D	0	0	0	0

Average PCU Per Veh

		To			
		A	B	C	D
From	A	1.000	1.000	1.000	1.000
	B	1.000	1.000	1.000	1.000
	C	1.000	1.000	1.000	1.000
	D	1.000	1.000	1.000	1.000

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	0.32	2.96	0.5	A	486.59	729.88
B	0.62	8.98	1.6	A	540.48	810.72
C	0.61	9.12	1.6	A	519.75	779.62
D	0.59	7.61	1.4	A	558.81	838.22

Main Results for each time segment

Main results: (16:45-17:00)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	399.22	99.80	456.80	1954.84	0.204	398.19	273.72	0.0	0.3	2.311	A
B	443.43	110.86	473.54	1170.63	0.379	441.01	381.45	0.0	0.6	4.919	A
C	426.42	106.61	538.13	1162.64	0.367	424.13	376.43	0.0	0.6	4.860	A
D	458.47	114.62	274.46	1213.13	0.378	456.06	687.80	0.0	0.6	4.740	A

Main results: (17:00-17:15)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	476.70	119.18	547.33	1888.60	0.252	476.38	327.94	0.3	0.3	2.549	A
B	529.50	132.37	566.86	1119.31	0.473	528.37	456.86	0.6	0.9	6.081	A
C	509.19	127.30	644.36	1101.81	0.462	508.09	450.87	0.6	0.8	6.052	A
D	547.46	136.87	328.80	1183.79	0.462	546.47	823.65	0.6	0.9	5.639	A

Main results: (17:15-17:30)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	583.84	145.96	669.31	1799.34	0.324	583.27	400.85	0.3	0.5	2.958	A
B	648.50	162.13	693.77	1049.52	0.618	645.74	558.82	0.9	1.6	8.856	A
C	623.63	155.91	788.06	1019.51	0.612	620.88	551.45	0.8	1.5	8.968	A
D	670.50	167.63	401.80	1144.37	0.586	668.35	1007.13	0.9	1.4	7.527	A

Main results: (17:30-17:45)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	583.84	145.96	671.53	1797.71	0.325	583.83	402.41	0.5	0.5	2.965	A
B	648.50	162.13	695.00	1048.85	0.618	648.42	560.37	1.6	1.6	8.984	A
C	623.63	155.91	790.35	1018.20	0.612	623.54	553.06	1.5	1.6	9.116	A
D	670.50	167.63	403.51	1143.45	0.586	670.44	1010.38	1.4	1.4	7.607	A

Main results: (17:45-18:00)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	476.70	119.18	550.63	1886.18	0.253	477.26	330.22	0.5	0.3	2.557	A
B	529.50	132.37	568.73	1118.28	0.473	532.25	459.17	1.6	0.9	6.173	A
C	509.19	127.30	647.72	1099.88	0.463	511.94	453.26	1.6	0.9	6.150	A
D	547.46	136.87	331.26	1182.46	0.463	549.59	828.39	1.4	0.9	5.706	A

Main results: (18:00-18:15)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	399.22	99.80	460.30	1952.29	0.204	399.54	275.90	0.3	0.3	2.318	A
B	443.43	110.86	475.89	1169.34	0.379	444.61	383.95	0.9	0.6	4.974	A
C	426.42	106.61	541.52	1160.70	0.367	427.57	378.98	0.9	0.6	4.917	A
D	458.47	114.62	276.69	1211.93	0.378	459.51	692.40	0.9	0.6	4.790	A

Base Plus High Growth (10%) - Phase 3, AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	100.000	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
02	Yaxham Rd / A47 Slip Road / Kingston Rd	Standard Roundabout	A,B,C,D	6.35	A

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Capacity Options

[same as above]

Roundabout Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)	Run automatically
D19	Base Plus High Growth (10%) - Phase 3	AM	ONE HOUR	07:45	09:15	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	645.59	100.000
B		ONE HOUR	✓	260.00	100.000
C		ONE HOUR	✓	679.17	100.000
D		ONE HOUR	✓	583.81	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	0.000	147.000	141.994	356.595
	B	30.000	0.000	53.000	177.000
	C	93.553	94.000	0.000	491.621
	D	55.000	239.000	289.813	0.000

Proportions

		To			
		A	B	C	D
From	A	0.00	0.23	0.22	0.55
	B	0.12	0.00	0.20	0.68
	C	0.14	0.14	0.00	0.72
	D	0.09	0.41	0.50	0.00

Vehicle Mix

Heavy Vehicle proportion

		To			
		A	B	C	D
From	A	0	0	0	0
	B	0	0	0	0
	C	0	0	0	0
	D	0	0	0	0

Average PCU Per Veh

		To			
		A	B	C	D
From	A	1.000	1.000	1.000	1.000
	B	1.000	1.000	1.000	1.000
	C	1.000	1.000	1.000	1.000
	D	1.000	1.000	1.000	1.000

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	0.40	3.34	0.7	A	592.40	888.61
B	0.30	5.39	0.4	A	238.58	357.87
C	0.67	9.78	2.0	A	623.22	934.83
D	0.52	6.11	1.1	A	535.72	803.57

Main Results for each time segment

Main results: (07:45-08:00)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	486.03	121.51	466.60	1947.67	0.250	484.71	133.74	0.0	0.3	2.458	A
B	195.74	48.94	591.49	1105.77	0.177	194.89	359.82	0.0	0.2	3.949	A
C	511.32	127.83	422.89	1228.64	0.416	508.49	363.48	0.0	0.7	4.980	A
D	439.52	109.88	162.91	1273.36	0.345	437.43	768.48	0.0	0.5	4.296	A

Main results: (08:00-08:15)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	580.37	145.09	559.02	1880.05	0.309	579.92	160.22	0.3	0.4	2.769	A
B	233.73	58.43	708.03	1041.68	0.224	233.44	430.91	0.2	0.3	4.453	A
C	610.56	152.64	506.18	1180.94	0.517	609.17	435.30	0.7	1.1	6.281	A
D	524.84	131.21	195.16	1255.95	0.418	524.08	920.19	0.5	0.7	4.913	A

Main results: (08:15-08:30)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	710.81	177.70	683.91	1788.66	0.397	709.96	195.89	0.4	0.7	3.332	A
B	286.27	71.57	866.67	954.44	0.300	285.72	527.20	0.3	0.4	5.378	A
C	747.78	186.95	619.63	1115.97	0.670	744.13	532.76	1.1	2.0	9.588	A
D	642.79	160.70	238.46	1232.57	0.522	641.33	1125.30	0.7	1.1	6.074	A

Main results: (08:30-08:45)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	710.81	177.70	685.68	1787.36	0.398	710.80	196.57	0.7	0.7	3.343	A
B	286.27	71.57	868.02	953.69	0.300	286.26	528.46	0.4	0.4	5.393	A
C	747.78	186.95	620.52	1115.46	0.670	747.66	533.76	2.0	2.0	9.779	A
D	642.79	160.70	239.49	1232.01	0.522	642.76	1128.68	1.1	1.1	6.109	A

Main results: (08:45-09:00)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	580.37	145.09	561.70	1878.09	0.309	581.21	161.22	0.7	0.4	2.779	A
B	233.73	58.43	710.11	1040.53	0.225	234.28	432.79	0.4	0.3	4.467	A
C	610.56	152.64	507.55	1180.15	0.517	614.22	436.84	2.0	1.1	6.403	A
D	524.84	131.21	196.65	1255.15	0.418	526.27	925.12	1.1	0.7	4.950	A

Main results: (09:00-09:15)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	486.03	121.51	469.79	1945.34	0.250	486.49	134.73	0.4	0.3	2.469	A
B	195.74	48.94	594.29	1104.23	0.177	196.04	361.99	0.3	0.2	3.964	A
C	511.32	127.83	424.80	1227.54	0.417	512.78	365.54	1.1	0.7	5.048	A
D	439.52	109.88	164.22	1272.65	0.345	440.30	773.36	0.7	0.5	4.330	A

Base Plus High Growth (10%) - Phase 3, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	100.000	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
02	Yaxham Rd / A47 Slip Road / Kingston Rd	Standard Roundabout	A,B,C,D	8.26	A

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Capacity Options

[same as above]

Roundabout Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)	Run automatically
D20	Base Plus High Growth (10%) - Phase 3	PM	ONE HOUR	16:45	18:15	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	577.86	100.000
B		ONE HOUR	✓	589.00	100.000
C		ONE HOUR	✓	609.01	100.000
D		ONE HOUR	✓	658.09	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	0.000	136.000	156.865	284.991
	B	122.000	0.000	150.000	317.000
	C	143.790	107.000	0.000	358.221
	D	106.000	266.000	286.087	0.000

Proportions

		To			
		A	B	C	D
From	A	0.00	0.24	0.27	0.49
	B	0.21	0.00	0.25	0.54
	C	0.24	0.18	0.00	0.59
	D	0.16	0.40	0.43	0.00

Vehicle Mix

Heavy Vehicle proportion

		To			
		A	B	C	D
From	A	0	0	0	0
	B	0	0	0	0
	C	0	0	0	0
	D	0	0	0	0

Average PCU Per Veh

		To			
		A	B	C	D
From	A	1.000	1.000	1.000	1.000
	B	1.000	1.000	1.000	1.000
	C	1.000	1.000	1.000	1.000
	D	1.000	1.000	1.000	1.000

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	0.36	3.21	0.6	A	530.25	795.38
B	0.65	10.52	1.9	B	540.48	810.72
C	0.66	10.45	1.9	B	558.84	838.26
D	0.64	8.66	1.7	A	603.87	905.81

Main Results for each time segment

Main results: (16:45-17:00)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	435.04	108.76	493.44	1928.04	0.226	433.88	278.32	0.0	0.3	2.409	A
B	443.43	110.86	545.95	1130.81	0.392	440.87	381.36	0.0	0.6	5.199	A
C	458.50	114.62	542.58	1160.09	0.395	455.91	444.25	0.0	0.6	5.094	A
D	495.44	123.86	279.06	1210.65	0.409	492.70	719.43	0.0	0.7	4.995	A

Main results: (17:00-17:15)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	519.48	129.87	591.25	1856.46	0.280	519.09	333.45	0.3	0.4	2.692	A
B	529.50	132.37	653.58	1071.62	0.494	528.20	456.76	0.6	1.0	6.608	A
C	547.49	136.87	649.70	1098.75	0.498	546.16	532.09	0.6	1.0	6.499	A
D	591.61	147.90	334.32	1180.81	0.501	590.39	861.54	0.7	1.0	6.085	A

Main results: (17:15-17:30)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	636.23	159.06	722.67	1760.30	0.361	635.53	407.32	0.4	0.6	3.199	A
B	648.50	162.13	799.71	991.26	0.654	645.02	558.48	1.0	1.8	10.293	B
C	670.53	167.63	794.19	1016.00	0.660	666.93	650.55	1.0	1.9	10.208	B
D	724.57	181.14	408.25	1140.89	0.635	721.74	1052.88	1.0	1.7	8.530	A

Main results: (17:30-17:45)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	636.23	159.06	725.56	1758.18	0.362	636.22	409.27	0.6	0.6	3.207	A
B	648.50	162.13	801.43	990.31	0.655	648.37	560.35	1.8	1.9	10.517	B
C	670.53	167.63	797.03	1014.38	0.661	670.39	652.77	1.9	1.9	10.455	B
D	724.57	181.14	410.36	1139.75	0.636	724.47	1057.05	1.7	1.7	8.663	A

Main results: (17:45-18:00)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	519.48	129.87	595.50	1853.36	0.280	520.18	336.26	0.6	0.4	2.703	A
B	529.50	132.37	656.16	1070.20	0.495	532.99	459.51	1.9	1.0	6.743	A
C	547.49	136.87	653.80	1096.40	0.499	551.11	535.35	1.9	1.0	6.646	A
D	591.61	147.90	337.34	1179.17	0.502	594.41	867.56	1.7	1.0	6.187	A

Main results: (18:00-18:15)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	435.04	108.76	497.51	1925.05	0.226	435.43	280.72	0.4	0.3	2.418	A
B	443.43	110.86	548.89	1129.19	0.393	444.79	384.06	1.0	0.7	5.270	A
C	458.50	114.62	546.27	1157.98	0.396	459.90	447.42	1.0	0.7	5.166	A
D	495.44	123.86	281.51	1209.32	0.410	496.72	724.65	1.0	0.7	5.060	A

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.0.0.4211 []

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Filename: 02B-Yaxham_Rd-A47.j9
Path: \\LEICESTER12\3501Data\Projects\A094136 - Dereham Transport Strategy\calculations\Capacity Analysis\Stage2\2026BackgroundGrowth-2016-05-19
Report generation date: 04/08/2016 14:07:52

Summary of junction performance

	AM					PM				
	Queue (PCU)	Delay (s)	RFC	LOS	Junction LOS	Queue (PCU)	Delay (s)	RFC	LOS	Junction LOS
2026 Plus Low Growth (6%) - Phase 2										
Arm A	0.7	3.49	0.42	A	A	0.6	3.16	0.36	A	A
Arm B	0.5	5.59	0.34	A		2.4	11.76	0.71	B	
Arm C	1.6	8.70	0.61	A		1.8	10.64	0.65	B	
Arm D	1.0	5.99	0.51	A		1.5	8.24	0.61	A	
2026 Plus Low Growth (6%) - Phase 3										
Arm A	0.8	3.54	0.43	A	A	0.6	3.20	0.37	A	A
Arm B	0.5	5.69	0.34	A		2.5	12.15	0.72	B	
Arm C	1.7	9.09	0.63	A		1.9	11.16	0.66	B	
Arm D	1.1	6.14	0.52	A		1.6	8.50	0.62	A	
2026 Plus Medium Growth (8%) - Phase 2										
Arm A	0.8	3.64	0.44	A	A	0.6	3.35	0.38	A	B
Arm B	0.5	5.87	0.35	A		2.8	13.76	0.74	B	
Arm C	2.2	10.76	0.69	B		2.5	13.33	0.72	B	
Arm D	1.2	6.59	0.55	A		2.0	9.94	0.68	A	
2026 Plus Medium Growth (8%) - Phase 3										
Arm A	0.8	3.70	0.44	A	A	0.7	3.51	0.40	A	B
Arm B	0.5	5.98	0.35	A		3.2	15.87	0.77	C	
Arm C	2.3	11.34	0.70	B		3.3	16.49	0.77	C	
Arm D	1.3	6.76	0.56	A		2.6	11.77	0.73	B	
2026 Plus High Growth (10%) - Phase 2										
Arm A	0.8	3.67	0.44	A	A	0.6	3.36	0.38	A	B
Arm B	0.5	5.92	0.35	A		2.8	13.89	0.74	B	
Arm C	2.2	10.88	0.69	B		2.6	13.76	0.73	B	
Arm D	1.3	6.70	0.56	A		2.1	10.06	0.68	B	
2026 Plus High Growth (10%) - Phase 3										
Arm A	0.9	3.86	0.46	A	A	0.7	3.67	0.42	A	B
Arm B	0.6	6.25	0.36	A		3.6	17.85	0.79	C	
Arm C	3.2	14.42	0.77	B		3.4	16.98	0.78	C	
Arm D	1.4	7.18	0.59	A		2.6	11.97	0.73	B	

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Junction LOS and Junction Delay are demand-weighted averages.

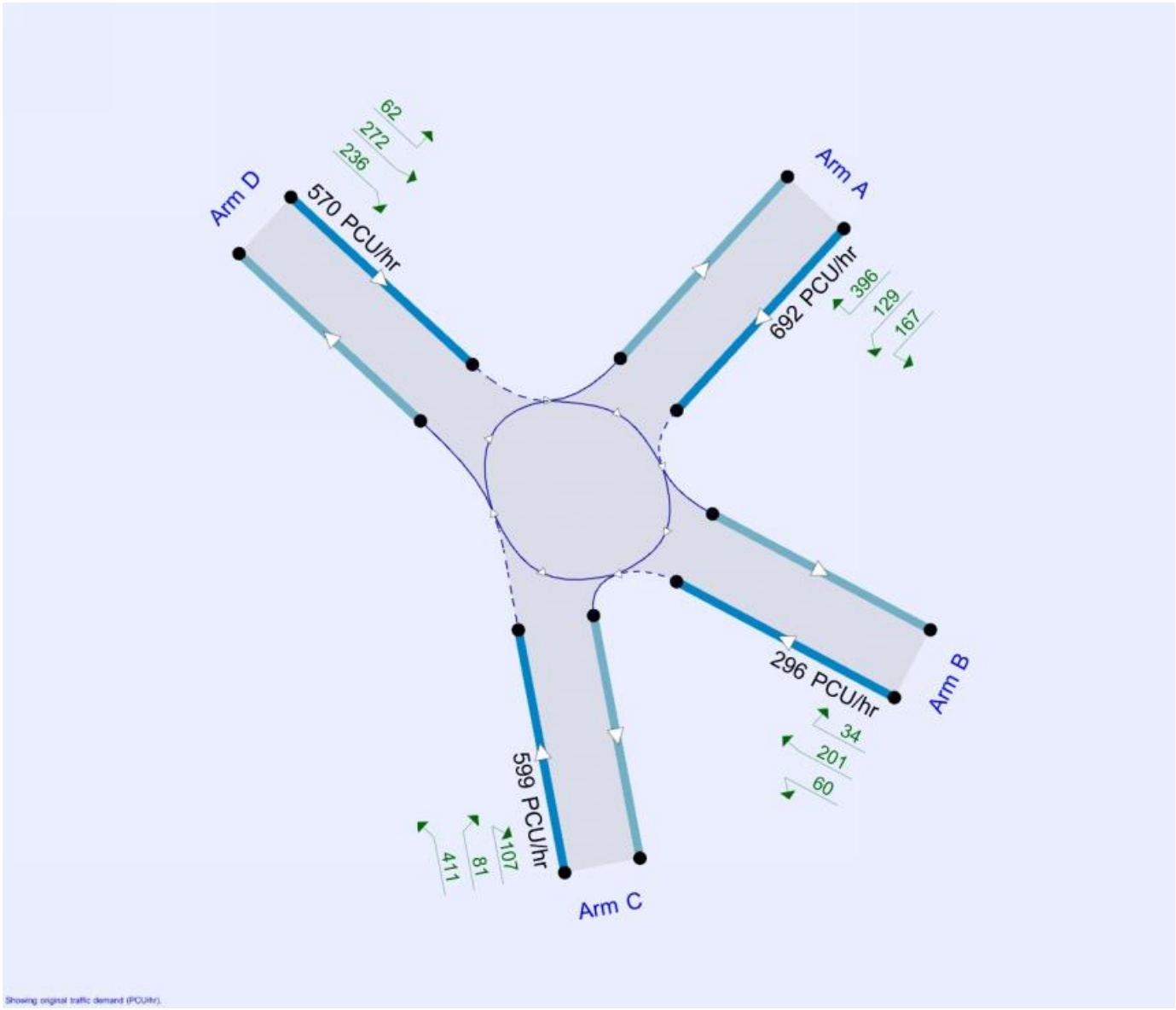
File summary

File Description

Title	02-Yaxham Rd / A47 Slip Road / Kingston Rd
Location	Dereham - Tesco Roundabout
Site number	02
Date	11/11/2015
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	A094136
Enumerator	WYG"petr.jandik
Description	Report - Stage 3 Tesco Roundabout with two lanes at A47 slip road. Scheme shown in Figure 14.

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin



The junction diagram reflects the last run of Junctions.

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				0.85	36.00	20.00

Demand Set Summary

Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)	Run automatically
2026 Plus Low Growth (6%) - Phase 2	AM	ONE HOUR	07:45	09:15	15	✓
2026 Plus Low Growth (6%) - Phase 2	PM	ONE HOUR	16:45	18:15	15	✓
2026 Plus Low Growth (6%) - Phase 3	AM	ONE HOUR	07:45	09:15	15	✓
2026 Plus Low Growth (6%) - Phase 3	PM	ONE HOUR	16:45	18:15	15	✓
2026 Plus Medium Growth (8%) - Phase 2	AM	ONE HOUR	07:45	09:15	15	✓
2026 Plus Medium Growth (8%) - Phase 2	PM	ONE HOUR	16:45	18:15	15	✓
2026 Plus Medium Growth (8%) - Phase 3	AM	ONE HOUR	07:45	09:15	15	✓
2026 Plus Medium Growth (8%) - Phase 3	PM	ONE HOUR	16:45	18:15	15	✓
2026 Plus High Growth (10%) - Phase 2	AM	ONE HOUR	07:45	09:15	15	✓
2026 Plus High Growth (10%) - Phase 2	PM	ONE HOUR	16:45	18:15	15	✓
2026 Plus High Growth (10%) - Phase 3	AM	ONE HOUR	07:45	09:15	15	✓
2026 Plus High Growth (10%) - Phase 3	PM	ONE HOUR	16:45	18:15	15	✓

2026 Plus Low Growth (6%) - Phase 2, AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	100.000	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
02	Yaxham Rd / A47 Slip Road / Kingston Rd	Standard Roundabout	A,B,C,D	5.88	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
A	A47 Slip Road	
B	Kingston Rd - W	
C	Yaxham Rd - S	
D	Yaxham Rd - N	

Capacity Options

Arm	Minimum capacity (PCU/hr)	Maximum capacity (PCU/hr)	Assume flat start profile	Initial queue (PCU)
A	0.00	99999.00		0.00
B	0.00	99999.00		0.00
C	0.00	99999.00		0.00
D	0.00	99999.00		0.00

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Exit only
A	6.60	7.40	5.0	20.3	51.0	13.0	
B	3.60	5.90	7.8	19.8	51.0	33.5	
C	3.80	5.30	6.5	28.0	51.0	22.2	
D	4.50	4.50	0.0	24.4	51.0	33.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A	0.732	2289.104
B	0.550	1431.045
C	0.573	1470.817
D	0.540	1361.329

The slope and intercept shown above include any corrections and adjustments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)	Run automatically
D5	2026 Plus Low Growth (6%) - Phase 2	AM	ONE HOUR	07:45	09:15	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	692.02	100.000
B		ONE HOUR	✓	295.99	100.000
C		ONE HOUR	✓	598.56	100.000
D		ONE HOUR	✓	570.35	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	0.000	167.070	128.657	396.288
	B	34.415	0.000	60.359	201.218
	C	81.206	106.845	0.000	410.510
	D	62.359	271.513	236.476	0.000

Proportions

		To			
		A	B	C	D
From	A	0.00	0.24	0.19	0.57
	B	0.12	0.00	0.20	0.68
	C	0.14	0.18	0.00	0.69
	D	0.11	0.48	0.41	0.00

Vehicle Mix

Heavy Vehicle proportion

		To			
		A	B	C	D
From	A	0	0	0	0
	B	0	0	0	0
	C	0	0	0	0
	D	0	0	0	0

Average PCU Per Veh

		To			
		A	B	C	D
From	A	1.000	1.000	1.000	1.000
	B	1.000	1.000	1.000	1.000
	C	1.000	1.000	1.000	1.000
	D	1.000	1.000	1.000	1.000

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	0.42	3.49	0.7	A	635.01	952.51
B	0.34	5.59	0.5	A	271.61	407.41
C	0.61	8.70	1.6	A	549.25	823.87
D	0.51	5.99	1.0	A	523.36	785.04

Main Results for each time segment

Main results: (07:45-08:00)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	520.99	130.25	460.65	1952.03	0.267	519.53	133.33	0.0	0.4	2.511	A
B	222.84	55.71	571.30	1116.87	0.200	221.85	408.89	0.0	0.2	4.018	A
C	450.63	112.66	474.12	1199.30	0.376	448.24	319.02	0.0	0.6	4.778	A
D	429.39	107.35	166.62	1271.36	0.338	427.36	755.74	0.0	0.5	4.255	A

Main results: (08:00-08:15)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	622.11	155.53	551.88	1885.27	0.330	621.60	159.73	0.4	0.5	2.847	A
B	266.09	66.52	683.82	1054.99	0.252	265.74	489.66	0.2	0.3	4.559	A
C	538.09	134.52	567.51	1145.81	0.470	536.98	382.05	0.6	0.9	5.902	A
D	512.73	128.18	199.60	1253.55	0.409	512.01	904.89	0.5	0.7	4.849	A

Main results: (08:15-08:30)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	761.92	190.48	675.23	1795.01	0.424	760.95	195.36	0.5	0.7	3.478	A
B	325.89	81.47	837.03	970.73	0.336	325.23	599.15	0.3	0.5	5.571	A
C	659.03	164.76	694.67	1072.99	0.614	656.31	467.59	0.9	1.6	8.583	A
D	627.97	156.99	244.01	1229.57	0.511	626.59	1106.98	0.7	1.0	5.957	A

Main results: (08:30-08:45)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	761.92	190.48	676.91	1793.79	0.425	761.91	195.94	0.7	0.7	3.487	A
B	325.89	81.47	838.32	970.03	0.336	325.88	600.50	0.5	0.5	5.588	A
C	659.03	164.76	695.74	1072.38	0.615	658.95	468.46	1.6	1.6	8.703	A
D	627.97	156.99	244.91	1229.08	0.511	627.94	1109.78	1.0	1.0	5.988	A

Main results: (08:45-09:00)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	622.11	155.53	554.41	1883.42	0.330	623.07	160.59	0.7	0.5	2.860	A
B	266.09	66.52	685.79	1053.91	0.252	266.74	491.69	0.5	0.3	4.578	A
C	538.09	134.52	569.15	1144.87	0.470	540.80	383.38	1.6	0.9	5.987	A
D	512.73	128.18	200.92	1252.84	0.409	514.09	909.04	1.0	0.7	4.883	A

Main results: (09:00-09:15)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	520.99	130.25	463.75	1949.76	0.267	521.50	134.27	0.5	0.4	2.520	A
B	222.84	55.71	573.94	1115.42	0.200	223.19	411.31	0.3	0.3	4.037	A
C	450.63	112.66	476.32	1198.04	0.376	451.79	320.81	0.9	0.6	4.831	A
D	429.39	107.35	167.89	1270.67	0.338	430.13	760.22	0.7	0.5	4.288	A

2026 Plus Low Growth (6%) - Phase 2, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	100.000	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
02	Yaxham Rd / A47 Slip Road / Kingston Rd	Standard Roundabout	A,B,C,D	8.54	A

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Capacity Options

[same as above]

Roundabout Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)	Run automatically
D6	2026 Plus Low Growth (6%) - Phase 2	PM	ONE HOUR	16:45	18:15	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	590.95	100.000
B		ONE HOUR	✓	678.34	100.000
C		ONE HOUR	✓	559.04	100.000
D		ONE HOUR	✓	619.34	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	0.000	157.327	118.559	315.061
	B	141.309	0.000	172.480	364.553
	C	143.835	123.283	0.000	291.919
	D	121.275	306.204	191.861	0.000

Proportions

		To			
		A	B	C	D
From	A	0.00	0.27	0.20	0.53
	B	0.21	0.00	0.25	0.54
	C	0.26	0.22	0.00	0.52
	D	0.20	0.49	0.31	0.00

Vehicle Mix

Heavy Vehicle proportion

		To			
		A	B	C	D
From	A	0	0	0	0
	B	0	0	0	0
	C	0	0	0	0
	D	0	0	0	0

Average PCU Per Veh

		To			
		A	B	C	D
From	A	1.000	1.000	1.000	1.000
	B	1.000	1.000	1.000	1.000
	C	1.000	1.000	1.000	1.000
	D	1.000	1.000	1.000	1.000

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	0.36	3.16	0.6	A	542.26	813.39
B	0.71	11.76	2.4	B	622.46	933.69
C	0.65	10.64	1.8	B	512.98	769.47
D	0.61	8.24	1.5	A	568.32	852.48

Main Results for each time segment

Main results: (16:45-17:00)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	444.90	111.22	465.22	1948.68	0.228	443.72	304.23	0.0	0.3	2.392	A
B	510.69	127.67	469.24	1172.99	0.435	507.64	439.69	0.0	0.8	5.386	A
C	420.87	105.22	615.13	1118.55	0.376	418.48	361.76	0.0	0.6	5.125	A
D	466.27	116.57	305.71	1196.26	0.390	463.74	727.90	0.0	0.6	4.898	A

Main results: (17:00-17:15)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	531.25	132.81	557.43	1881.21	0.282	530.86	364.49	0.3	0.4	2.666	A
B	609.82	152.45	561.67	1122.17	0.543	608.18	526.62	0.8	1.2	6.981	A
C	502.56	125.64	736.57	1049.00	0.479	501.32	433.29	0.6	0.9	6.559	A
D	556.77	139.19	366.24	1163.57	0.479	555.68	871.66	0.6	0.9	5.911	A

Main results: (17:15-17:30)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	650.64	162.66	681.39	1790.51	0.363	649.94	445.15	0.4	0.6	3.155	A
B	746.87	186.72	687.39	1053.03	0.709	742.19	643.94	1.2	2.3	11.411	B
C	615.51	153.88	899.99	955.41	0.644	612.12	529.59	0.9	1.8	10.383	B
D	681.91	170.48	447.09	1119.91	0.609	679.44	1065.02	0.9	1.5	8.127	A

Main results: (17:30-17:45)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	650.64	162.66	684.02	1788.58	0.364	650.63	447.38	0.6	0.6	3.162	A
B	746.87	186.72	688.64	1052.34	0.710	746.66	646.02	2.3	2.4	11.756	B
C	615.51	153.88	903.70	953.29	0.646	615.37	531.60	1.8	1.8	10.642	B
D	681.91	170.48	449.58	1118.57	0.610	681.83	1069.49	1.5	1.5	8.239	A

Main results: (17:45-18:00)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	531.25	132.81	561.30	1878.38	0.283	531.94	367.70	0.6	0.4	2.676	A
B	609.82	152.45	563.56	1121.13	0.544	614.53	529.68	2.4	1.2	7.172	A
C	502.56	125.64	741.88	1045.96	0.480	505.97	436.21	1.8	0.9	6.707	A
D	556.77	139.19	369.78	1161.66	0.479	559.22	878.07	1.5	0.9	5.999	A

Main results: (18:00-18:15)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	444.90	111.22	468.99	1945.92	0.229	445.29	306.89	0.4	0.3	2.399	A
B	510.69	127.67	471.54	1171.73	0.436	512.42	442.74	1.2	0.8	5.476	A
C	420.87	105.22	619.53	1116.02	0.377	422.18	364.43	0.9	0.6	5.197	A
D	466.27	116.57	308.47	1194.76	0.390	467.42	733.24	0.9	0.6	4.956	A

2026 Plus Low Growth (6%) - Phase 3, AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	100.000	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
02	Yaxham Rd / A47 Slip Road / Kingston Rd	Standard Roundabout	A,B,C,D	6.08	A

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Capacity Options

[same as above]

Roundabout Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)	Run automatically
D7	2026 Plus Low Growth (6%) - Phase 3	AM	ONE HOUR	07:45	09:15	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	697.64	100.000
B		ONE HOUR	✓	295.99	100.000
C		ONE HOUR	✓	612.14	100.000
D		ONE HOUR	✓	583.28	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	0.000	167.070	129.885	400.683
	B	34.415	0.000	60.359	201.218
	C	82.797	106.845	0.000	422.495
	D	62.359	271.513	249.412	0.000

Proportions

		To			
		A	B	C	D
From	A	0.00	0.24	0.19	0.57
	B	0.12	0.00	0.20	0.68
	C	0.14	0.17	0.00	0.69
	D	0.11	0.47	0.43	0.00

Vehicle Mix

Heavy Vehicle proportion

		To			
		A	B	C	D
From	A	0	0	0	0
	B	0	0	0	0
	C	0	0	0	0
	D	0	0	0	0

Average PCU Per Veh

		To			
		A	B	C	D
From	A	1.000	1.000	1.000	1.000
	B	1.000	1.000	1.000	1.000
	C	1.000	1.000	1.000	1.000
	D	1.000	1.000	1.000	1.000

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	0.43	3.54	0.8	A	640.17	960.25
B	0.34	5.69	0.5	A	271.61	407.41
C	0.63	9.09	1.7	A	561.71	842.56
D	0.52	6.14	1.1	A	535.23	802.85

Main Results for each time segment

Main results: (07:45-08:00)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	525.22	131.30	470.31	1944.96	0.270	523.74	134.51	0.0	0.4	2.531	A
B	222.84	55.71	585.19	1109.23	0.201	221.84	408.86	0.0	0.2	4.053	A
C	460.85	115.21	477.41	1197.41	0.385	458.37	329.62	0.0	0.6	4.856	A
D	439.13	109.78	167.80	1270.72	0.346	437.03	767.98	0.0	0.5	4.308	A

Main results: (08:00-08:15)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	627.16	156.79	563.47	1876.79	0.334	626.64	161.15	0.4	0.5	2.877	A
B	266.09	66.52	700.46	1045.84	0.254	265.74	489.64	0.2	0.3	4.612	A
C	550.30	137.57	571.45	1143.56	0.481	549.12	394.75	0.6	0.9	6.043	A
D	524.36	131.09	201.01	1252.79	0.419	523.60	919.55	0.5	0.7	4.932	A

Main results: (08:15-08:30)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	768.11	192.03	689.36	1784.67	0.430	767.11	197.07	0.5	0.8	3.534	A
B	325.89	81.47	857.38	959.54	0.340	325.21	599.09	0.3	0.5	5.669	A
C	673.97	168.49	699.48	1070.24	0.630	671.01	483.12	0.9	1.7	8.951	A
D	642.21	160.55	245.69	1228.66	0.523	640.74	1124.79	0.7	1.1	6.109	A

Main results: (08:30-08:45)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	768.11	192.03	691.14	1783.37	0.431	768.10	197.69	0.8	0.8	3.545	A
B	325.89	81.47	858.75	958.79	0.340	325.88	600.49	0.5	0.5	5.687	A
C	673.97	168.49	700.58	1069.61	0.630	673.88	484.05	1.7	1.7	9.091	A
D	642.21	160.55	246.66	1228.14	0.523	642.18	1127.80	1.1	1.1	6.143	A

Main results: (08:45-09:00)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	627.16	156.79	566.16	1874.82	0.335	628.16	162.06	0.8	0.5	2.891	A
B	266.09	66.52	702.56	1044.69	0.255	266.76	491.76	0.5	0.3	4.631	A
C	550.30	137.57	573.14	1142.59	0.482	553.26	396.18	1.7	0.9	6.140	A
D	524.36	131.09	202.42	1252.03	0.419	525.80	923.98	1.1	0.7	4.966	A

Main results: (09:00-09:15)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	525.22	131.30	473.53	1942.60	0.270	525.75	135.48	0.5	0.4	2.541	A
B	222.84	55.71	587.95	1107.71	0.201	223.20	411.33	0.3	0.3	4.073	A
C	460.85	115.21	479.65	1196.13	0.385	462.08	331.50	0.9	0.6	4.914	A
D	439.13	109.78	169.11	1270.02	0.346	439.91	772.62	0.7	0.5	4.342	A

2026 Plus Low Growth (6%) - Phase 3, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	100.000	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
02	Yaxham Rd / A47 Slip Road / Kingston Rd	Standard Roundabout	A,B,C,D	8.84	A

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Capacity Options

[same as above]

Roundabout Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)	Run automatically
D8	2026 Plus Low Growth (6%) - Phase 3	PM	ONE HOUR	16:45	18:15	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	595.75	100.000
B		ONE HOUR	✓	678.34	100.000
C		ONE HOUR	✓	572.29	100.000
D		ONE HOUR	✓	631.15	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	0.000	157.327	121.319	317.101
	B	141.309	0.000	172.480	364.553
	C	144.573	123.283	0.000	304.435
	D	121.275	306.204	203.675	0.000

Proportions

		To			
		A	B	C	D
From	A	0.00	0.26	0.20	0.53
	B	0.21	0.00	0.25	0.54
	C	0.25	0.22	0.00	0.53
	D	0.19	0.49	0.32	0.00

Vehicle Mix

Heavy Vehicle proportion

		To			
		A	B	C	D
From	A	0	0	0	0
	B	0	0	0	0
	C	0	0	0	0
	D	0	0	0	0

Average PCU Per Veh

		To			
		A	B	C	D
From	A	1.000	1.000	1.000	1.000
	B	1.000	1.000	1.000	1.000
	C	1.000	1.000	1.000	1.000
	D	1.000	1.000	1.000	1.000

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	0.37	3.20	0.6	A	546.67	820.00
B	0.72	12.15	2.5	B	622.46	933.69
C	0.66	11.16	1.9	B	525.14	787.72
D	0.62	8.50	1.6	A	579.16	868.74

Main Results for each time segment

Main results: (16:45-17:00)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	448.51	112.13	474.03	1942.24	0.231	447.31	304.76	0.0	0.3	2.405	A
B	510.69	127.67	481.68	1166.16	0.438	507.61	439.67	0.0	0.8	5.442	A
C	430.85	107.71	616.63	1117.68	0.385	428.36	372.65	0.0	0.6	5.204	A
D	475.17	118.79	306.24	1195.97	0.397	472.55	738.76	0.0	0.7	4.958	A

Main results: (17:00-17:15)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	535.56	133.89	567.99	1873.48	0.286	535.17	365.12	0.3	0.4	2.690	A
B	609.82	152.45	576.57	1113.97	0.547	608.14	526.59	0.8	1.2	7.092	A
C	514.48	128.62	738.37	1047.97	0.491	513.16	446.34	0.6	1.0	6.715	A
D	567.39	141.85	366.87	1163.23	0.488	566.25	884.66	0.7	0.9	6.021	A

Main results: (17:15-17:30)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	655.93	163.98	694.20	1781.13	0.368	655.20	445.82	0.4	0.6	3.196	A
B	746.87	186.72	705.58	1043.03	0.716	741.97	643.83	1.2	2.4	11.767	B
C	630.10	157.53	902.06	954.22	0.660	626.39	545.49	1.0	1.9	10.859	B
D	694.91	173.73	447.74	1119.56	0.621	692.28	1080.71	0.9	1.6	8.372	A

Main results: (17:30-17:45)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	655.93	163.98	697.02	1779.07	0.369	655.92	448.18	0.6	0.6	3.204	A
B	746.87	186.72	706.92	1042.29	0.717	746.64	646.01	2.4	2.5	12.152	B
C	630.10	157.53	905.93	952.01	0.662	629.94	547.64	1.9	1.9	11.163	B
D	694.91	173.73	450.38	1118.14	0.621	694.82	1085.49	1.6	1.6	8.496	A

Main results: (17:45-18:00)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	535.56	133.89	572.12	1870.46	0.286	536.28	368.50	0.6	0.4	2.699	A
B	609.82	152.45	578.60	1112.86	0.548	614.76	529.80	2.5	1.2	7.299	A
C	514.48	128.62	743.90	1044.80	0.492	518.22	449.46	1.9	1.0	6.885	A
D	567.39	141.85	370.61	1161.21	0.489	570.01	891.50	1.6	1.0	6.115	A

Main results: (18:00-18:15)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	448.51	112.13	477.95	1939.37	0.231	448.91	307.48	0.4	0.3	2.417	A
B	510.69	127.67	484.09	1164.83	0.438	512.47	442.78	1.2	0.8	5.532	A
C	430.85	107.71	621.11	1115.12	0.386	432.25	375.45	1.0	0.6	5.284	A
D	475.17	118.79	309.06	1194.44	0.398	476.37	744.29	1.0	0.7	5.021	A

2026 Plus Medium Growth (8%) - Phase 2, AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	100.000	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
02	Yaxham Rd / A47 Slip Road / Kingston Rd	Standard Roundabout	A,B,C,D	6.82	A

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Capacity Options

[same as above]

Roundabout Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)	Run automatically
D11	2026 Plus Medium Growth (8%) - Phase 2	AM	ONE HOUR	07:45	09:15	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	699.22	100.000
B		ONE HOUR	✓	295.99	100.000
C		ONE HOUR	✓	670.56	100.000
D		ONE HOUR	✓	614.75	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	0.000	167.070	135.857	396.288
	B	34.415	0.000	60.359	201.218
	C	90.806	106.845	0.000	472.910
	D	62.359	271.513	280.876	0.000

Proportions

		To			
		A	B	C	D
From	A	0.00	0.24	0.19	0.57
	B	0.12	0.00	0.20	0.68
	C	0.14	0.16	0.00	0.71
	D	0.10	0.44	0.46	0.00

Vehicle Mix

Heavy Vehicle proportion

		To			
		A	B	C	D
From	A	0	0	0	0
	B	0	0	0	0
	C	0	0	0	0
	D	0	0	0	0

Average PCU Per Veh

		To			
		A	B	C	D
From	A	1.000	1.000	1.000	1.000
	B	1.000	1.000	1.000	1.000
	C	1.000	1.000	1.000	1.000
	D	1.000	1.000	1.000	1.000

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	0.44	3.64	0.8	A	641.61	962.42
B	0.35	5.87	0.5	A	271.61	407.41
C	0.69	10.76	2.2	B	615.32	922.98
D	0.55	6.59	1.2	A	564.10	846.16

Main Results for each time segment

Main results: (07:45-08:00)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	526.41	131.60	493.80	1927.77	0.273	524.91	140.48	0.0	0.4	2.564	A
B	222.84	55.71	609.90	1095.64	0.203	221.82	408.80	0.0	0.3	4.116	A
C	504.83	126.21	474.09	1199.32	0.421	501.95	357.64	0.0	0.7	5.142	A
D	462.81	115.70	173.74	1267.51	0.365	460.53	802.30	0.0	0.6	4.448	A

Main results: (08:00-08:15)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	628.58	157.15	591.63	1856.19	0.339	628.04	168.30	0.4	0.5	2.929	A
B	266.09	66.52	730.08	1029.55	0.258	265.72	489.58	0.3	0.3	4.711	A
C	602.82	150.70	567.48	1145.83	0.526	601.32	428.32	0.7	1.1	6.592	A
D	552.65	138.16	208.14	1248.94	0.442	551.79	960.67	0.6	0.8	5.157	A

Main results: (08:15-08:30)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	769.85	192.46	723.62	1759.60	0.438	768.80	205.71	0.5	0.8	3.630	A
B	325.89	81.47	893.56	939.65	0.347	325.17	598.85	0.3	0.5	5.850	A
C	738.30	184.58	694.59	1073.04	0.688	734.16	524.15	1.1	2.1	10.495	B
D	676.85	169.21	254.21	1224.07	0.553	675.12	1174.55	0.8	1.2	6.536	A

Main results: (08:30-08:45)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	769.85	192.46	725.77	1758.03	0.438	769.84	206.50	0.8	0.8	3.642	A
B	325.89	81.47	895.12	938.79	0.347	325.88	600.48	0.5	0.5	5.873	A
C	738.30	184.58	695.74	1072.38	0.688	738.14	525.26	2.1	2.2	10.756	B
D	676.85	169.21	255.46	1223.39	0.553	676.81	1178.42	1.2	1.2	6.586	A

Main results: (08:45-09:00)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	628.58	157.15	594.83	1853.84	0.339	629.62	169.45	0.8	0.5	2.944	A
B	266.09	66.52	732.46	1028.24	0.259	266.80	491.99	0.5	0.4	4.733	A
C	602.82	150.70	569.24	1144.83	0.527	606.98	430.02	2.2	1.1	6.743	A
D	552.65	138.16	209.93	1247.97	0.443	554.35	966.29	1.2	0.8	5.204	A

Main results: (09:00-09:15)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	526.41	131.60	497.36	1925.17	0.273	526.96	141.57	0.5	0.4	2.577	A
B	222.84	55.71	612.91	1093.99	0.204	223.22	411.40	0.4	0.3	4.135	A
C	504.83	126.21	476.36	1198.02	0.421	506.41	359.77	1.1	0.7	5.218	A
D	462.81	115.70	175.22	1266.72	0.365	463.71	807.54	0.8	0.6	4.489	A

2026 Plus Medium Growth (8%) - Phase 2, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	100.000	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
02	Yaxham Rd / A47 Slip Road / Kingston Rd	Standard Roundabout	A,B,C,D	10.22	B

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Capacity Options

[same as above]

Roundabout Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)	Run automatically
D12	2026 Plus Medium Growth (8%) - Phase 2	PM	ONE HOUR	16:45	18:15	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	601.75	100.000
B		ONE HOUR	✓	678.34	100.000
C		ONE HOUR	✓	621.44	100.000
D		ONE HOUR	✓	682.94	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	0.000	157.327	129.359	315.061
	B	141.309	0.000	172.480	364.553
	C	152.235	123.283	0.000	345.919
	D	121.275	306.204	255.461	0.000

Proportions

		To			
		A	B	C	D
From	A	0.00	0.26	0.21	0.52
	B	0.21	0.00	0.25	0.54
	C	0.24	0.20	0.00	0.56
	D	0.18	0.45	0.37	0.00

Vehicle Mix

Heavy Vehicle proportion

		To			
		A	B	C	D
From	A	0	0	0	0
	B	0	0	0	0
	C	0	0	0	0
	D	0	0	0	0

Average PCU Per Veh

		To			
		A	B	C	D
From	A	1.000	1.000	1.000	1.000
	B	1.000	1.000	1.000	1.000
	C	1.000	1.000	1.000	1.000
	D	1.000	1.000	1.000	1.000

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	0.38	3.35	0.6	A	552.17	828.26
B	0.74	13.76	2.8	B	622.46	933.69
C	0.72	13.33	2.5	B	570.24	855.36
D	0.68	9.94	2.0	A	626.68	940.02

Main Results for each time segment

Main results: (16:45-17:00)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	453.03	113.26	512.63	1913.99	0.237	451.79	310.40	0.0	0.3	2.459	A
B	510.69	127.67	524.87	1142.40	0.447	507.49	439.55	0.0	0.8	5.642	A
C	467.85	116.96	615.00	1118.62	0.418	465.00	417.36	0.0	0.7	5.487	A
D	514.15	128.54	311.88	1192.92	0.431	511.15	768.13	0.0	0.7	5.257	A

Main results: (17:00-17:15)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	540.96	135.24	614.25	1839.63	0.294	540.53	371.88	0.3	0.4	2.771	A
B	609.82	152.45	628.33	1085.51	0.562	607.98	526.46	0.8	1.3	7.510	A
C	558.66	139.66	736.40	1049.09	0.533	557.02	499.91	0.7	1.1	7.290	A
D	613.95	153.49	373.61	1159.59	0.529	612.51	919.81	0.7	1.1	6.563	A

Main results: (17:15-17:30)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	662.53	165.63	750.18	1740.17	0.381	661.75	453.63	0.4	0.6	3.337	A
B	746.87	186.72	768.66	1008.33	0.741	741.07	643.27	1.3	2.7	13.189	B
C	684.21	171.05	899.12	955.91	0.716	679.09	610.62	1.1	2.4	12.773	B
D	751.93	187.98	455.46	1115.40	0.674	748.35	1122.76	1.1	2.0	9.712	A

Main results: (17:30-17:45)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	662.53	165.63	753.96	1737.40	0.381	662.52	456.56	0.6	0.6	3.348	A
B	746.87	186.72	770.52	1007.31	0.741	746.56	645.96	2.7	2.8	13.762	B
C	684.21	171.05	903.61	953.34	0.718	683.92	613.46	2.4	2.5	13.326	B
D	751.93	187.98	458.74	1113.62	0.675	751.78	1128.80	2.0	2.0	9.939	A

Main results: (17:45-18:00)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	540.96	135.24	619.74	1835.62	0.295	541.74	376.06	0.6	0.4	2.785	A
B	609.82	152.45	631.09	1083.99	0.563	615.71	530.38	2.8	1.3	7.782	A
C	558.66	139.66	742.80	1045.43	0.534	563.88	504.01	2.5	1.2	7.556	A
D	613.95	153.49	378.26	1157.08	0.531	617.53	928.42	2.0	1.1	6.714	A

Main results: (18:00-18:15)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	453.03	113.26	517.26	1910.60	0.237	453.46	313.41	0.4	0.3	2.472	A
B	510.69	127.67	527.79	1140.79	0.448	512.65	442.93	1.3	0.8	5.750	A
C	467.85	116.96	619.72	1115.91	0.419	469.60	420.73	1.2	0.7	5.584	A
D	514.15	128.54	315.00	1191.24	0.432	515.68	774.33	1.1	0.8	5.342	A

2026 Plus Medium Growth (8%) - Phase 3, AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	100.000	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
02	Yaxham Rd / A47 Slip Road / Kingston Rd	Standard Roundabout	A,B,C,D	7.08	A

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Capacity Options

[same as above]

Roundabout Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)	Run automatically
D13	2026 Plus Medium Growth (8%) - Phase 3	AM	ONE HOUR	07:45	09:15	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	704.84	100.000
B		ONE HOUR	✓	295.99	100.000
C		ONE HOUR	✓	683.71	100.000
D		ONE HOUR	✓	626.62	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	0.000	167.070	137.085	400.683
	B	34.415	0.000	60.359	201.218
	C	92.397	106.845	0.000	484.468
	D	62.359	271.513	292.751	0.000

Proportions

		To			
		A	B	C	D
From	A	0.00	0.24	0.19	0.57
	B	0.12	0.00	0.20	0.68
	C	0.14	0.16	0.00	0.71
	D	0.10	0.43	0.47	0.00

Vehicle Mix

Heavy Vehicle proportion

		To			
		A	B	C	D
From	A	0	0	0	0
	B	0	0	0	0
	C	0	0	0	0
	D	0	0	0	0

Average PCU Per Veh

		To			
		A	B	C	D
From	A	1.000	1.000	1.000	1.000
	B	1.000	1.000	1.000	1.000
	C	1.000	1.000	1.000	1.000
	D	1.000	1.000	1.000	1.000

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	0.44	3.70	0.8	A	646.77	970.16
B	0.35	5.98	0.5	A	271.61	407.41
C	0.70	11.34	2.3	B	627.38	941.08
D	0.56	6.76	1.3	A	575.00	862.50

Main Results for each time segment

Main results: (07:45-08:00)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	530.64	132.66	502.66	1921.29	0.276	529.12	141.66	0.0	0.4	2.584	A
B	222.84	55.71	623.00	1088.44	0.205	221.81	408.78	0.0	0.3	4.148	A
C	514.73	128.68	477.37	1197.44	0.430	511.75	367.44	0.0	0.7	5.230	A
D	471.76	117.94	174.92	1266.88	0.372	469.40	814.20	0.0	0.6	4.502	A

Main results: (08:00-08:15)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	633.64	158.41	602.25	1848.41	0.343	633.08	169.71	0.4	0.5	2.960	A
B	266.09	66.52	745.77	1020.92	0.261	265.71	489.56	0.3	0.4	4.765	A
C	614.64	153.66	571.42	1143.58	0.537	613.05	440.07	0.7	1.1	6.765	A
D	563.32	140.83	209.55	1248.18	0.451	562.42	974.92	0.6	0.8	5.243	A

Main results: (08:15-08:30)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	776.04	194.01	736.54	1750.14	0.443	774.95	207.40	0.5	0.8	3.688	A
B	325.89	81.47	912.73	929.11	0.351	325.15	598.77	0.4	0.5	5.953	A
C	752.78	188.19	699.39	1070.29	0.703	748.24	538.50	1.1	2.3	11.023	B
D	689.93	172.48	255.85	1223.18	0.564	688.09	1191.78	0.8	1.3	6.705	A

Main results: (08:30-08:45)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	776.04	194.01	738.83	1748.47	0.444	776.03	208.25	0.8	0.8	3.701	A
B	325.89	81.47	914.39	928.20	0.351	325.88	600.47	0.5	0.5	5.976	A
C	752.78	188.19	700.58	1069.61	0.704	752.59	539.69	2.3	2.3	11.337	B
D	689.93	172.48	257.20	1222.45	0.564	689.88	1195.96	1.3	1.3	6.759	A

Main results: (08:45-09:00)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	633.64	158.41	605.66	1845.92	0.343	634.71	170.94	0.8	0.5	2.974	A
B	266.09	66.52	748.29	1019.54	0.261	266.82	492.08	0.5	0.4	4.788	A
C	614.64	153.66	573.23	1142.54	0.538	619.21	441.88	2.3	1.2	6.936	A
D	563.32	140.83	211.47	1247.14	0.452	565.13	980.97	1.3	0.8	5.291	A

Main results: (09:00-09:15)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	530.64	132.66	506.35	1918.59	0.277	531.20	142.78	0.5	0.4	2.595	A
B	222.84	55.71	626.13	1086.72	0.205	223.22	411.43	0.4	0.3	4.170	A
C	514.73	128.68	479.68	1196.11	0.430	516.41	369.67	1.2	0.8	5.308	A
D	471.76	117.94	176.44	1266.06	0.373	472.69	819.65	0.8	0.6	4.544	A

2026 Plus Medium Growth (8%) - Phase 3, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	100.000	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
02	Yaxham Rd / A47 Slip Road / Kingston Rd	Standard Roundabout	A,B,C,D	12.10	B

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Capacity Options

[same as above]

Roundabout Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)	Run automatically
D14	2026 Plus Medium Growth (8%) - Phase 3	PM	ONE HOUR	16:45	18:15	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	611.82	100.000
B		ONE HOUR	✓	678.34	100.000
C		ONE HOUR	✓	668.68	100.000
D		ONE HOUR	✓	731.18	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	0.000	157.327	138.182	316.310
	B	141.309	0.000	172.480	364.553
	C	158.269	123.283	0.000	387.128
	D	121.275	306.204	303.706	0.000

Proportions

		To			
		A	B	C	D
From	A	0.00	0.26	0.23	0.52
	B	0.21	0.00	0.25	0.54
	C	0.24	0.18	0.00	0.58
	D	0.17	0.42	0.42	0.00

Vehicle Mix

Heavy Vehicle proportion

		To			
		A	B	C	D
From	A	0	0	0	0
	B	0	0	0	0
	C	0	0	0	0
	D	0	0	0	0

Average PCU Per Veh

		To			
		A	B	C	D
From	A	1.000	1.000	1.000	1.000
	B	1.000	1.000	1.000	1.000
	C	1.000	1.000	1.000	1.000
	D	1.000	1.000	1.000	1.000

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	0.40	3.51	0.7	A	561.42	842.12
B	0.77	15.87	3.2	C	622.46	933.69
C	0.77	16.49	3.3	C	613.59	920.39
D	0.73	11.77	2.6	B	670.95	1006.42

Main Results for each time segment

Main results: (16:45-17:00)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	460.61	115.15	548.55	1887.71	0.244	459.32	314.82	0.0	0.3	2.518	A
B	510.69	127.67	568.44	1118.44	0.457	507.37	439.43	0.0	0.8	5.860	A
C	503.42	125.85	615.83	1118.14	0.450	500.18	459.98	0.0	0.8	5.796	A
D	550.47	137.62	316.30	1190.54	0.462	547.07	799.71	0.0	0.9	5.566	A

Main results: (17:00-17:15)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	550.01	137.50	657.27	1808.15	0.304	549.56	377.14	0.3	0.4	2.860	A
B	609.82	152.45	680.53	1056.80	0.577	607.79	526.30	0.8	1.3	7.981	A
C	601.13	150.28	737.37	1048.54	0.573	599.10	550.95	0.8	1.3	7.973	A
D	657.32	164.33	378.87	1156.75	0.568	655.55	957.60	0.9	1.3	7.156	A

Main results: (17:15-17:30)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	673.63	168.41	801.87	1702.34	0.396	672.76	459.40	0.4	0.7	3.493	A
B	746.87	186.72	832.13	973.43	0.767	739.89	642.50	1.3	3.1	14.983	B
C	736.23	184.06	899.58	955.65	0.770	728.99	672.44	1.3	3.1	15.410	C
D	805.05	201.26	461.08	1112.36	0.724	800.19	1167.49	1.3	2.5	11.354	B

Main results: (17:30-17:45)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	673.63	168.41	806.94	1698.64	0.397	673.61	463.10	0.7	0.7	3.511	A
B	746.87	186.72	834.67	972.04	0.768	746.41	645.88	3.1	3.2	15.872	C
C	736.23	184.06	904.88	952.61	0.773	735.68	676.20	3.1	3.3	16.492	C
D	805.05	201.26	465.25	1110.11	0.725	804.78	1175.31	2.5	2.6	11.765	B

Main results: (17:45-18:00)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	550.01	137.50	664.60	1802.79	0.305	550.87	382.43	0.7	0.4	2.879	A
B	609.82	152.45	684.28	1054.74	0.578	617.00	531.19	3.2	1.4	8.353	A
C	601.13	150.28	744.91	1044.22	0.576	608.65	556.36	3.3	1.4	8.401	A
D	657.32	164.33	384.81	1153.55	0.570	662.22	968.76	2.6	1.3	7.397	A

Main results: (18:00-18:15)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	460.61	115.15	553.98	1883.73	0.245	461.07	318.13	0.4	0.3	2.530	A
B	510.69	127.67	571.95	1116.51	0.457	512.88	443.11	1.4	0.9	5.986	A
C	503.42	125.85	620.84	1115.27	0.451	505.63	463.98	1.4	0.8	5.925	A
D	550.47	137.62	319.74	1188.68	0.463	552.38	806.73	1.3	0.9	5.673	A

2026 Plus High Growth (10%) - Phase 2, AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	100.000	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
02	Yaxham Rd / A47 Slip Road / Kingston Rd	Standard Roundabout	A,B,C,D	6.90	A

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Capacity Options

[same as above]

Roundabout Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)	Run automatically
D17	2026 Plus High Growth (10%) - Phase 2	AM	ONE HOUR	07:45	09:15	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	699.22	100.000
B		ONE HOUR	✓	295.99	100.000
C		ONE HOUR	✓	674.03	100.000
D		ONE HOUR	✓	623.37	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	0.000	167.070	135.857	396.288
	B	34.415	0.000	60.359	201.218
	C	90.806	106.845	0.000	476.379
	D	62.359	271.513	289.495	0.000

Proportions

		To			
		A	B	C	D
From	A	0.00	0.24	0.19	0.57
	B	0.12	0.00	0.20	0.68
	C	0.13	0.16	0.00	0.71
	D	0.10	0.44	0.46	0.00

Vehicle Mix

Heavy Vehicle proportion

		To			
		A	B	C	D
From	A	0	0	0	0
	B	0	0	0	0
	C	0	0	0	0
	D	0	0	0	0

Average PCU Per Veh

		To			
		A	B	C	D
From	A	1.000	1.000	1.000	1.000
	B	1.000	1.000	1.000	1.000
	C	1.000	1.000	1.000	1.000
	D	1.000	1.000	1.000	1.000

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	0.44	3.67	0.8	A	641.61	962.42
B	0.35	5.92	0.5	A	271.61	407.41
C	0.69	10.88	2.2	B	618.50	927.75
D	0.56	6.70	1.3	A	572.01	858.02

Main Results for each time segment

Main results: (07:45-08:00)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	526.41	131.60	500.23	1923.06	0.274	524.90	140.48	0.0	0.4	2.573	A
B	222.84	55.71	616.35	1092.10	0.204	221.82	408.79	0.0	0.3	4.133	A
C	507.44	126.86	474.08	1199.32	0.423	504.54	364.09	0.0	0.7	5.160	A
D	469.30	117.33	173.74	1267.51	0.370	466.97	804.88	0.0	0.6	4.485	A

Main results: (08:00-08:15)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	628.58	157.15	599.35	1850.54	0.340	628.03	168.29	0.4	0.5	2.943	A
B	266.09	66.52	737.81	1025.30	0.260	265.72	489.57	0.3	0.3	4.737	A
C	605.94	151.48	567.48	1145.83	0.529	604.42	436.05	0.7	1.1	6.630	A
D	560.39	140.10	208.13	1248.94	0.449	559.51	963.77	0.6	0.8	5.215	A

Main results: (08:15-08:30)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	769.85	192.46	733.03	1752.72	0.439	768.79	205.70	0.5	0.8	3.656	A
B	325.89	81.47	903.00	934.46	0.349	325.16	598.82	0.3	0.5	5.901	A
C	742.12	185.53	694.58	1073.05	0.692	737.89	533.59	1.1	2.2	10.608	B
D	686.34	171.59	254.19	1224.08	0.561	684.54	1178.28	0.8	1.3	6.649	A

Main results: (08:30-08:45)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	769.85	192.46	735.25	1751.09	0.440	769.84	206.50	0.8	0.8	3.667	A
B	325.89	81.47	904.61	933.57	0.349	325.88	600.48	0.5	0.5	5.923	A
C	742.12	185.53	695.74	1072.38	0.692	741.95	534.75	2.2	2.2	10.880	B
D	686.34	171.59	255.46	1223.39	0.561	686.30	1182.23	1.3	1.3	6.702	A

Main results: (08:45-09:00)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	628.58	157.15	602.66	1848.12	0.340	629.63	169.46	0.8	0.5	2.958	A
B	266.09	66.52	740.26	1023.95	0.260	266.81	492.03	0.5	0.4	4.758	A
C	605.94	151.48	569.25	1144.82	0.529	610.19	437.82	2.2	1.1	6.787	A
D	560.39	140.10	209.95	1247.96	0.449	562.17	969.49	1.3	0.8	5.264	A

Main results: (09:00-09:15)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	526.41	131.60	503.88	1920.40	0.274	526.96	141.57	0.5	0.4	2.586	A
B	222.84	55.71	619.42	1090.40	0.204	223.22	411.41	0.4	0.3	4.154	A
C	507.44	126.86	476.36	1198.01	0.424	509.04	366.28	1.1	0.7	5.238	A
D	469.30	117.33	175.22	1266.71	0.370	470.23	810.18	0.8	0.6	4.524	A

2026 Plus High Growth (10%) - Phase 2, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	100.000	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
02	Yaxham Rd / A47 Slip Road / Kingston Rd	Standard Roundabout	A,B,C,D	10.40	B

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Capacity Options

[same as above]

Roundabout Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)	Run automatically
D18	2026 Plus High Growth (10%) - Phase 2	PM	ONE HOUR	16:45	18:15	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	601.75	100.000
B		ONE HOUR	✓	678.34	100.000
C		ONE HOUR	✓	629.24	100.000
D		ONE HOUR	✓	686.94	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	0.000	157.327	129.359	315.061
	B	141.309	0.000	172.480	364.553
	C	152.235	123.283	0.000	353.720
	D	121.275	306.204	259.461	0.000

Proportions

		To			
		A	B	C	D
From	A	0.00	0.26	0.21	0.52
	B	0.21	0.00	0.25	0.54
	C	0.24	0.20	0.00	0.56
	D	0.18	0.45	0.38	0.00

Vehicle Mix

Heavy Vehicle proportion

		To			
		A	B	C	D
From	A	0	0	0	0
	B	0	0	0	0
	C	0	0	0	0
	D	0	0	0	0

Average PCU Per Veh

		To			
		A	B	C	D
From	A	1.000	1.000	1.000	1.000
	B	1.000	1.000	1.000	1.000
	C	1.000	1.000	1.000	1.000
	D	1.000	1.000	1.000	1.000

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	0.38	3.36	0.6	A	552.17	828.26
B	0.74	13.89	2.8	B	622.46	933.69
C	0.73	13.76	2.6	B	577.40	866.10
D	0.68	10.06	2.1	B	630.35	945.52

Main Results for each time segment

Main results: (16:45-17:00)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	453.03	113.26	515.61	1911.81	0.237	451.79	310.39	0.0	0.3	2.463	A
B	510.69	127.67	527.86	1140.76	0.448	507.49	439.54	0.0	0.8	5.657	A
C	473.72	118.43	615.00	1118.62	0.423	470.82	420.35	0.0	0.7	5.533	A
D	517.16	129.29	311.87	1192.93	0.434	514.13	773.94	0.0	0.8	5.280	A

Main results: (17:00-17:15)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	540.96	135.24	617.82	1837.02	0.294	540.53	371.86	0.3	0.4	2.777	A
B	609.82	152.45	631.91	1083.54	0.563	607.97	526.44	0.8	1.3	7.539	A
C	565.67	141.42	736.39	1049.10	0.539	563.98	503.48	0.7	1.2	7.392	A
D	617.54	154.39	373.59	1159.60	0.533	616.09	926.78	0.8	1.1	6.606	A

Main results: (17:15-17:30)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	662.53	165.63	754.47	1737.03	0.381	661.75	453.55	0.4	0.6	3.346	A
B	746.87	186.72	773.02	1005.94	0.742	741.00	643.19	1.3	2.7	13.300	B
C	692.80	173.20	899.07	955.94	0.725	687.39	614.96	1.2	2.5	13.145	B
D	756.33	189.08	455.34	1115.46	0.678	752.67	1131.12	1.1	2.0	9.824	A

Main results: (17:30-17:45)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	662.53	165.63	758.35	1734.19	0.382	662.52	456.55	0.6	0.6	3.358	A
B	746.87	186.72	774.92	1004.89	0.743	746.55	645.96	2.7	2.8	13.888	B
C	692.80	173.20	903.61	953.34	0.727	692.48	617.86	2.5	2.6	13.756	B
D	756.33	189.08	458.73	1113.63	0.679	756.17	1137.36	2.0	2.1	10.059	B

Main results: (17:45-18:00)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	540.96	135.24	623.45	1832.90	0.295	541.74	376.14	0.6	0.4	2.791	A
B	609.82	152.45	634.74	1081.98	0.564	615.79	530.46	2.8	1.3	7.817	A
C	565.67	141.42	742.86	1045.40	0.541	571.20	507.67	2.6	1.2	7.676	A
D	617.54	154.39	378.39	1157.01	0.534	621.21	935.68	2.1	1.2	6.765	A

Main results: (18:00-18:15)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	453.03	113.26	520.31	1908.37	0.237	453.46	313.42	0.4	0.3	2.474	A
B	510.69	127.67	530.82	1139.13	0.448	512.67	442.94	1.3	0.8	5.766	A
C	473.72	118.43	619.73	1115.91	0.425	475.54	423.76	1.2	0.7	5.637	A
D	517.16	129.29	315.02	1191.23	0.434	518.71	780.26	1.2	0.8	5.364	A

2026 Plus High Growth (10%) - Phase 3, AM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	100.000	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
02	Yaxham Rd / A47 Slip Road / Kingston Rd	Standard Roundabout	A,B,C,D	8.31	A

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Capacity Options

[same as above]

Roundabout Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)	Run automatically
D19	2026 Plus High Growth (10%) - Phase 3	AM	ONE HOUR	07:45	09:15	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	724.67	100.000
B		ONE HOUR	✓	295.99	100.000
C		ONE HOUR	✓	745.00	100.000
D		ONE HOUR	✓	650.58	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	0.000	167.070	155.106	402.489
	B	34.415	0.000	60.359	201.218
	C	101.447	106.845	0.000	536.712
	D	62.359	271.513	316.706	0.000

Proportions

		To			
		A	B	C	D
From	A	0.00	0.23	0.21	0.56
	B	0.12	0.00	0.20	0.68
	C	0.14	0.14	0.00	0.72
	D	0.10	0.42	0.49	0.00

Vehicle Mix

Heavy Vehicle proportion

		To			
		A	B	C	D
From	A	0	0	0	0
	B	0	0	0	0
	C	0	0	0	0
	D	0	0	0	0

Average PCU Per Veh

		To			
		A	B	C	D
From	A	1.000	1.000	1.000	1.000
	B	1.000	1.000	1.000	1.000
	C	1.000	1.000	1.000	1.000
	D	1.000	1.000	1.000	1.000

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	0.46	3.86	0.9	A	664.97	997.45
B	0.36	6.25	0.6	A	271.61	407.41
C	0.77	14.42	3.2	B	683.63	1025.44
D	0.59	7.18	1.4	A	596.98	895.47

Main Results for each time segment

Main results: (07:45-08:00)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	545.57	136.39	520.51	1908.23	0.286	543.97	148.39	0.0	0.4	2.637	A
B	222.84	55.71	655.77	1070.42	0.208	221.79	408.71	0.0	0.3	4.237	A
C	560.88	140.22	478.69	1196.68	0.469	557.39	398.87	0.0	0.9	5.601	A
D	489.79	122.45	181.63	1263.26	0.388	487.28	854.46	0.0	0.6	4.624	A

Main results: (08:00-08:15)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	651.46	162.86	623.65	1832.75	0.355	650.86	177.77	0.4	0.5	3.044	A
B	266.09	66.52	785.03	999.33	0.266	265.70	489.48	0.3	0.4	4.905	A
C	669.74	167.44	573.01	1142.67	0.586	667.67	477.72	0.9	1.4	7.545	A
D	584.86	146.21	217.56	1243.85	0.470	583.86	1023.12	0.6	0.9	5.447	A

Main results: (08:15-08:30)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	797.87	199.47	762.41	1731.22	0.461	796.67	217.02	0.5	0.8	3.847	A
B	325.89	81.47	960.68	902.74	0.361	325.10	598.40	0.4	0.6	6.223	A
C	820.26	205.07	701.29	1069.20	0.767	813.43	584.49	1.4	3.1	13.717	B
D	716.30	179.08	265.22	1218.12	0.588	714.21	1249.50	0.9	1.4	7.114	A

Main results: (08:30-08:45)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	797.87	199.47	765.17	1729.20	0.461	797.85	218.18	0.8	0.9	3.865	A
B	325.89	81.47	962.58	901.69	0.361	325.88	600.44	0.6	0.6	6.251	A
C	820.26	205.07	702.56	1068.47	0.768	819.87	585.90	3.1	3.2	14.422	B
D	716.30	179.08	267.11	1217.10	0.589	716.24	1255.32	1.4	1.4	7.184	A

Main results: (08:45-09:00)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	651.46	162.86	627.72	1829.78	0.356	652.65	179.44	0.9	0.6	3.060	A
B	266.09	66.52	787.90	997.76	0.267	266.88	492.47	0.6	0.4	4.930	A
C	669.74	167.44	574.94	1141.56	0.587	676.73	479.83	3.2	1.4	7.856	A
D	584.86	146.21	220.23	1242.41	0.471	586.92	1031.44	1.4	0.9	5.510	A

Main results: (09:00-09:15)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	545.57	136.39	524.54	1905.28	0.286	546.18	149.68	0.6	0.4	2.651	A
B	222.84	55.71	659.20	1068.53	0.209	223.24	411.52	0.4	0.3	4.260	A
C	560.88	140.22	481.07	1195.32	0.469	563.09	401.37	1.4	0.9	5.715	A
D	489.79	122.45	183.39	1262.30	0.388	490.83	860.78	0.9	0.6	4.672	A

2026 Plus High Growth (10%) - Phase 3, PM

Data Errors and Warnings

No errors or warnings

Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	100.000	100.000

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
02	Yaxham Rd / A47 Slip Road / Kingston Rd	Standard Roundabout	A,B,C,D	12.69	B

Junction Network Options

[same as above]

Arms

Arms

[same as above]

Capacity Options

[same as above]

Roundabout Geometry

[same as above]

Slope / Intercept / Capacity

[same as above]

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)	Run automatically
D20	2026 Plus High Growth (10%) - Phase 3	PM	ONE HOUR	16:45	18:15	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	649.33	100.000
B		ONE HOUR	✓	678.34	100.000
C		ONE HOUR	✓	671.84	100.000
D		ONE HOUR	✓	736.05	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	D
From	A	0.000	157.327	170.843	321.160
	B	141.309	0.000	172.480	364.553
	C	158.488	123.283	0.000	390.068
	D	121.275	306.204	308.567	0.000

Proportions

		To			
		A	B	C	D
From	A	0.00	0.24	0.26	0.49
	B	0.21	0.00	0.25	0.54
	C	0.24	0.18	0.00	0.58
	D	0.16	0.42	0.42	0.00

Vehicle Mix

Heavy Vehicle proportion

		To			
		A	B	C	D
From	A	0	0	0	0
	B	0	0	0	0
	C	0	0	0	0
	D	0	0	0	0

Average PCU Per Veh

		To			
		A	B	C	D
From	A	1.000	1.000	1.000	1.000
	B	1.000	1.000	1.000	1.000
	C	1.000	1.000	1.000	1.000
	D	1.000	1.000	1.000	1.000

Results

Results Summary for whole modelled period

Arm	Max RFC	Max delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A	0.42	3.67	0.7	A	595.84	893.75
B	0.79	17.85	3.6	C	622.46	933.69
C	0.78	16.98	3.4	C	616.49	924.74
D	0.73	11.97	2.6	B	675.41	1013.11

Main Results for each time segment

Main results: (16:45-17:00)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	488.85	122.21	552.17	1885.06	0.259	487.45	314.95	0.0	0.3	2.573	A
B	510.69	127.67	600.21	1100.97	0.464	507.27	439.41	0.0	0.9	6.031	A
C	505.80	126.45	619.39	1116.11	0.453	502.52	488.10	0.0	0.8	5.838	A
D	554.13	138.53	316.43	1190.47	0.465	550.69	805.48	0.0	0.9	5.597	A

Main results: (17:00-17:15)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	583.73	145.93	661.60	1804.98	0.323	583.23	377.29	0.3	0.5	2.944	A
B	609.82	152.45	718.55	1035.89	0.589	607.63	526.28	0.9	1.4	8.363	A
C	603.97	150.99	741.60	1046.12	0.577	601.89	584.59	0.8	1.3	8.065	A
D	661.69	165.42	379.01	1156.67	0.572	659.88	964.47	0.9	1.3	7.220	A

Main results: (17:15-17:30)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	714.93	178.73	807.05	1698.56	0.421	713.94	459.32	0.5	0.7	3.653	A
B	746.87	186.72	878.60	947.88	0.788	738.78	642.39	1.4	3.4	16.606	C
C	739.71	184.93	904.05	953.09	0.776	732.19	713.33	1.3	3.2	15.783	C
D	810.40	202.60	460.98	1112.41	0.729	805.39	1175.25	1.3	2.6	11.537	B

Main results: (17:30-17:45)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	714.93	178.73	812.26	1694.74	0.422	714.91	463.29	0.7	0.7	3.673	A
B	746.87	186.72	881.31	946.39	0.789	746.26	645.86	3.4	3.6	17.851	C
C	739.71	184.93	910.11	949.62	0.779	739.10	717.46	3.2	3.4	16.982	C
D	810.40	202.60	465.44	1110.01	0.730	810.12	1183.76	2.6	2.6	11.975	B

Main results: (17:45-18:00)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	583.73	145.93	669.16	1799.45	0.324	584.71	382.97	0.7	0.5	2.967	A
B	609.82	152.45	722.56	1033.69	0.590	618.23	531.32	3.6	1.5	8.832	A
C	603.97	150.99	750.23	1041.17	0.580	611.81	590.55	3.4	1.4	8.532	A
D	661.69	165.42	385.38	1153.23	0.574	666.75	976.66	2.6	1.4	7.476	A

Main results: (18:00-18:15)

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	LOS
A	488.85	122.21	557.69	1881.02	0.260	489.37	318.36	0.5	0.4	2.589	A
B	510.69	127.67	603.92	1098.93	0.465	513.06	443.14	1.5	0.9	6.168	A
C	505.80	126.45	624.65	1113.09	0.454	508.07	492.33	1.4	0.8	5.973	A
D	554.13	138.53	319.96	1188.56	0.466	556.08	812.75	1.4	0.9	5.708	A