

Local Plan Technical Report

2018/2019 Infrastructure Delivery Plan Appendices

Part 7: Transport – West of Chiswell Green

Appendices 26 to 28

Appendix 26: Glanville Land at Chiswell Green Transport Assessment (February 2016)



TRANSPORT ASSESSMENT
Land at Chiswell Green, St Albans

Document History

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1.0 Introduction

- 1.1 This Transport Assessment has been prepared by Glanville Consultants on behalf of Catalyst Housing and Alban Developments in support of a proposed allocation within the St Albans Strategic Local Plan for residential development on land to the south of Chiswell Green Lane and to the west of Forge End and Long Fallow, Chiswell Green, St Albans.
- 1.2 The development proposals include up to 370 residential dwellings and a two-form entry primary school.
- 1.3 The site is identified as Site 8 within St Albans District and City Green Belt Review report and is being considered for potential release from the Metropolitan Green Belt for development.
- 1.4 It is proposed to access the site via a number of separate priority junctions on Chiswell Green Lane, Long Fallow and Forge End.
- 1.5 The report describes the existing site and scale of the proposed development. It assesses the change in traffic flows associated with the development, demonstrates that the proposed site access arrangements are adequate to serve the development, assesses the traffic impact of the proposals on the local highway network and considers the need for mitigation measures. The report also assesses the sustainability and the accessibility of the site by means other than the car.

2.0 Site Location and Description

Site Description

- 2.1 The site is located within the District of St Albans, Hertfordshire on the western fringe of the village of Chiswell Green on the outskirts of St Albans, approximately 3km to the south of the city centre.
- 2.2 The site is bounded by Chiswell Green Lane to the north, existing residential areas to the east, open agricultural land to the south and Miriam Road and the recently closed Butterfly World, which was a visitor attraction dedicated to butterflies, to the west.
- 2.3 As stated previously, the site forms Site S8 as referenced within the St Albans District and City Green Belt Review report and is currently considered for potential release from the St Albans Green Belt for development. Within this document, Site 8 was classed as the most suitable for potential Green Belt release and future development, ranked on Green Belt Purposes, Constraints, Integration and Sensitivity.
- 2.4 The site is largely undeveloped, however Chiswell Green Farm house, yard and garden are located in the north-eastern corner of the Site boundary, and a livery and associated infrastructure in the north-west. We also understand that an area of land, accessed off Forge End can also lawfully be used as a builder's compound.
- 2.5 The site can currently be accessed via Chiswell Green Lane and Forge End. In addition, two plots of land have remained undeveloped on Long Fallow and Forge End which are assumed to have been left as such to provide access to future development.
- 2.6 A location plan showing the site in relation to Chiswell Green is attached as Figure 1.

Local Highway Network

- 2.7 The immediate road network in the vicinity of the site is governed largely by B4630 Watford Road. This single carriageway road links the A405 to the south with Chiswell Green and continues further north to meet the A414 on the outskirts of St Albans.
- 2.8 The B4630 is subject to a 30mph speed limit, has frontage access to individual residential properties and forms junctions with side streets leading to pockets of residential development.
- 2.9 To the south, the B4630 Watford Road joins the A405, a dual carriageway also locally known as North Orbital Road providing links to the M25 and M1 approximately 2km southwest of the site.
- 2.10 To the north the A405 meets the A414, which is a dual carriageway that bypasses St Albans to its south and links Hemel Hempstead to the northwest with Hatfield to the northeast.
- 2.11 Two side streets off Watford Road that form part of this assessment are Forge End and Long Fallow. Both roads are generally 5.5m wide with 2m footways on both sides of the carriageway, are lit and subject to a 30mph speed limit.

- 2.12 Chiswell Green Lane is a residential road with a 30mph speed limit which increases to 60mph once the road leaves the built-up area of Chiswell Green and enters the countryside. The carriageway also narrows past that point, with dense vegetation on both sides of the road.

Proposed Development

- 2.13 The development proposes 370 residential dwellings comprising a mix of house types and tenures with associated parking, recreation and open space provision and a two-form entry primary school and community centre.
- 2.14 At this stage the exact mix of housing has not determined. It is understood that 50% will be 'affordable' properties in excess of the emerging policy requirement within the St Albans Publication Draft Strategic Local Plan (SLP).
- 2.15 For the primary school, it has been assumed there will be a reception year in addition to Years 1 – 6. As such, total pupil numbers have been based on 30 pupils per form, totalling 420 pupils for the school.
- 2.16 The proposed SLP allocation is accompanied by an illustrative concept masterplan, which is provided at Appendix A.

Discussion on Highways Access

- 2.17 Initial discussions with Hertfordshire County Council (HCC) have taken place to consider the access opportunities for the site.
- 2.18 The principle of a northern access onto Chiswell Green Lane to serve the northern part of the site has been discussed and agreed with HCC, subject to junction capacity testing of the Chiswell Green Lane/Watford Road roundabout.
- 2.19 The principle of three southern access junctions off Forge End and Long Fallow has also been agreed in principle. HCC has expressed a preference to use all three access points to the south to distribute the traffic over a wider area rather than concentrate on one location, with each access serving a separate pocket of development, and no vehicle link between the northern and southern areas.
- 2.20 It has been agreed that the site's movement framework be designed in accordance with Manual for Streets sustainable design principles, maximising linkages through the site for walking and cycling with connections between the northern and southern areas for pedestrians/cyclists and emergency vehicles. [A highway connectivity plan is provided as Appendix B.](#)
- 2.21 HCC has requested that the design of access junctions and the internal layout, cater for service vehicles, in particular waste collection.

Access Arrangements and Layout

- 2.22 As identified above, the principles of the access arrangements for the proposed development have been agreed with the local highway authority. Vehicle access is proposed via the following access junctions, as indicated in Appendix C.

1. Chiswell Green Lane / Site Access;
2. Forge End (North) / Site Access;
3. Forge End (South) / Site Access; and

4. Long Fallow / Site Access.

- 2.23 With the exception of the Chiswell Green Lane access junction, access can be achieved by extending the roads into the site from existing spurs/undeveloped land. The Chiswell Green Lane access will require some localised widening and hedge removal. Each of the proposed access junctions are described in detail below

Northern Access Junction – Site Access 1 (Chiswell Green Lane)

- 2.24 Vehicular and pedestrian access to the northern part of the site, serving 223 residential units and a two-form entry primary school, is proposed via a single access junction onto Chiswell Green Lane, as shown in Appendix D.
- 2.25 The Chiswell Green Lane/Site Access junction will be in the form of a simple priority ‘T’ junction, with Chiswell Green Lane as the major arm and the site access road as the minor arm of the junction.
- 2.26 As set out previously Chiswell Green Lane currently serves residential development to the east of the proposed development site and is subject to a 30mph speed limit. To the west, Chiswell Green Lane narrows and becomes more rural in nature with hedgerows on either side of the carriageway and is subject to the national speed limit.
- 2.27 The 30mph speed limit on Chiswell Green Lane currently extends westwards to a point just beyond where the proposed access junction is proposed, roughly halfway along the northern boundary of the site. Past this point heading west, the speed limit increases to the national speed limit.
- 2.28 Localised widening of Chiswell Green Lane is proposed in conjunction with the provision of a new priority junction with a 5.5m access road with 2m footways to serve the site. To the east, a new footway will extend across the full frontage of the site, tying in with the existing footway provision that runs along the southern edge of Chiswell Green Lane. In addition, it is proposed to relocate the existing informal parking provision which currently takes place on the verge on the south side of Chiswell Green Lane will be formalised within a new layby.
- 2.29 With the proposed alterations to Chiswell Green Lane visibility splays of 2.4m x 46m and 2.4m x 47.9m can be achieved to the left and right on exit from the site within land under the ownership/control of the land owner or the local highway authority, which are suitable for recorded 7 day 85th percentile speeds on Chiswell Green Lane of 32.2 and 31.3mph for eastbound and westbound vehicles respectively. Forward visibility of 47.9m can be achieved for vehicles turning right into the site from Chiswell Green Lane, which is suitable for approach speeds of up to 30mph.

Southern Access Junctions

- 2.30 In accordance with discussions with the local highway authority, it is proposed that the southern part of the site will be served by three separate accesses, two onto Forge End and one onto Long Fallow, serving a total of 147 residential units, as indicated in Appendix B.
- 2.31 As identified previously, the southern access junctions can be provided via three undeveloped parcels of land located in between existing residential properties on Forge End and Long Fallow. Details of each access junction are set out below.

Site Access 2 – Forge End (North)

- 2.32 As indicated in Photograph 1, there is an undeveloped plot of land between No. 12 and No.16 Forge End which is proposed as an access route into the southern part of the site.

Photograph 1: Site Access / Forge End (North)



- 2.33 The area of land identified in Photograph 1 is approximately 10.4 metres wide, which allows a 5.5m wide carriageway with 2m footways on either side to form one of the three southern access junctions, with the new footways tying in with the existing footway provision on Forge End, as shown in Appendix B.
- 2.34 Visibility splays of 2.4m x 43m can be achieved in both directions on exit from the site within land under the ownership/control of the land owner or the local highway authority, which are suitable for speeds of 30mph. Forward visibility of 43m can be achieved for vehicles turning right into the site from Forge End, which is suitable for approach speeds of up to 30mph. However, it is anticipated that vehicles would rarely perform this manoeuvre as Forge End is a no through route and extends only some 63m to the north of Access 2.

Site Access 3 – Forge End (South)

- 2.35 As indicated in Photograph 2, there is an undeveloped plot of land between No. 48 and No. 50 Forge End which is proposed as a second access route into the southern part of the site.

Photograph 2: Site Access / Forge End (South)



- 2.36 The area of land identified in Photograph 2 is approximately 13.5 metres wide, which comfortably allows a 5.5m wide carriageway with 2m footways on either side to form one of the three southern access junctions, with the new footways tying in with the existing footway provision on Forge End as shown in Appendix B.
- 2.37 Visibility splays of 2.4m x 43m can be achieved in both directions on exit from the site within land under the ownership/control of the land owner or the local highway authority, which are suitable for speeds of 30mph. Forward visibility of 43m can be achieved for vehicles turning right into the site from Forge End, which is suitable for approach speeds of up to 30mph.

Site Access 4 – Long Fallow

- 2.38 As indicated in Photograph 3, there is an undeveloped plot of land between No. 48 and No. 50 Long Fallow which is proposed as a third access route into the southern part of the site, as shown in Appendix B.

Photograph 3: Site Access / Long Fallow



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- 2.39 The area of land identified in Photograph 3 is approximately 10.7 metres wide, which allows a 5.5m wide carriageway with 2m footways on either side to form one of the three southern access junctions, with the new footways tying in with the existing footway provision on Long Fallow.
- 2.40 Visibility splays of 2.4m x 43m can be achieved to the right on exit from the site within land under the ownership/control of the land owner or the local highway authority, which are suitable for speeds of 30mph. Visibility to the left is limited as Long Fallow is a no through route and extends only some 17m to the east of Access 4.

Internal Site Layout

- 2.41 The site layout has been designed in accordance with Manual for Streets sustainable design principles, maximising linkages through the site for walking, cycling. As such, the Framework Plan shows a connection between the northern and southern areas pedestrians/cyclists and emergency vehicles only.
- 2.42 The principles of pedestrian and cycle access and parking provision are discussed further below.

Pedestrian and Cycle Access

- 2.43 The aim is to provide a pedestrian and cycle-friendly environment through the provision of necessary infrastructure within the site to encourage walking and cycling and the appropriate road cross sections and speed limits to support this.
- 2.44 There will be an excellent level of walking and cycling access provided at the four proposed access junction identified above. Each access junction will have 2m wide footways on both sides of the carriageway linking the site's internal footways with the existing footway provision within Chiswell Green.
- 2.45 It is proposed to extend the footpath along the southern side of Chiswell Green Lane to run along the entire length of the northern boundary of the site, tying in with the existing footway provision. This will provide direct access to the local amenities on Watford Road from the northern part of the site.
- 2.46 Walking and cycling will be promoted within the site with footways / cycleways linking the northern and southern parts of the site. The addition of a primary school on site will reduce the need for primary age pupils to travel off-site and reduce the level of school related traffic generated by the site.
- 2.47 The site is well located in terms of proximity to a number of local facilities within walking distance and access to bus links, which are located within 400m of the entrance to the site. Further details of local facilities are set out in Chapter 7 of this report.

Parking Provision

- 2.48 Whilst the forthcoming Strategic Local Plan is being consulted upon, St Albans City and District Revised Parking Policies and Standards, January 2002, remain the adopted parking standards. The standards set out the maximum parking provision for new residential developments throughout St Albans, and are as set out in Table 1.

Table 1: St Albans City and District Maximum Car Parking Standards

Dwelling Size (No. of Bedrooms)		Number of Spaces Required (per Dwelling)		
		Allocated	Unallocated	Total
1	either	0	1.5	1.5
	or	1	0.5	1.5
2	either	0	2	2
	or	1	1	2
	or	2	0.5	2.5
3		2	0.5	2.5
4 or more		3	0.5	3.5

- 2.49 Car parking provision within the proposed development will be provided in accordance with the adopted parking standards set out above. Details of the location and exact numbers of parking provision will be set out within a forthcoming planning application should the site be allocated for development within the Strategic Local Plan.

Refuse Collection

- 2.50 Refuse collection for the residential units would take place from within the site. The proposed layout will provide adequate turning space to allow a refuse vehicle to enter the site in forward gear, manoeuvre within the site and exit in forward gear.

3.0 Policy Context

3.1 The context for the Proposed Development is set out in national, regional and local planning guidance and policy. The key national guidance and policies are contained within:

- Manual for Streets / Manual for Streets 2
- National Planning Policy Framework (NPPF) March 2012

National Policy

Manual for Streets

3.2 The Department for Transport's 'Manual for Streets' replaced their general road and street design guidance manual 'DB32' in 2007 and specifically focuses on lightly trafficked residential streets and highways.

3.3 Manual for Streets (MfS1) states:

'A key consideration for achieving sustainable development is how the design can influence how people choose to travel. Designers and engineers need to respond to a wide range of policies aimed at making car use a matter of choice rather than habit or dependence. Local transport plans and movement strategies can directly inform the design process as part of the policy implementation process (page 41).'

'By creating linkages between new housing and local facilities and community infrastructure, the public transport network and established walking and cycling routes are fundamental to achieving more sustainable patterns of movement and to reducing people's reliance on the car (page 45).'

3.4 Manual for Streets 2 (MfS2) states:

'MfS2 builds on the guidance contained in MfS1, exploring in greater detail how and where its key principles can be applied to busier streets and non-trunk roads, thus helping to fill the perceived gap in design guidance between MfS1 and the Design Manual for Roads and Bridges (DMRB) (page 4).'

3.5 The Proposed Development has been developed in line with the principles and advice contained within Manual for Streets and Manual for Streets 2.

National Planning Policy Framework (NPPF, March 2012)

3.6 The National Planning Policy Framework was published in March 2012 and sets out the Government's planning policies for England and how these should be applied.

3.7 In terms of transport related policies it places the sustainability of development at the heart of the decision making process (para 14). The core principles (paragraph 17) include amongst other matters, the management of patterns of growth *'to make the fullest possible use of public transport, walking and cycling and focus significant development in locations which are or can be made sustainable'*.

- 3.8 The NPPF states that sustainable travel is about *'giving people a real choice about how they travel'*, with recognition given to the different travel needs of those who live in urban or rural areas.
- 3.9 It advises that the safety and security of accesses to the site are achieved for all people, and that *'development should only be prevented or refused on transport grounds where the residual cumulative impacts of development are severe'*. The bar as to what is unacceptable in transport impact terms, therefore, is set very high.
- 3.10 NPPF outlines the following objectives in regards to transport:
- facilitate economic growth by taking a positive approach to planning development;
 - make the fullest possible use of sustainable modes of travel; and
 - support reductions in greenhouse gas emissions and congestion, and promote accessibility through planning for the location and mix of development.
- 3.11 The principles discussed above are repeated again in NPPF Section 4, which deals specifically with *'promoting sustainable travel'*. It states that *'the transport system needs to be balanced in favour of sustainable transport mode, giving people a real choice about how they travel'*.
- 3.12 The NPPF states that a Transport Statement or Transport Assessment is required for all developments that generate a significant amount of movements, and that plans and decisions should take account of:
- the opportunities for sustainable transport modes, depending on the nature and location of the site, in order to reduce the need for major transport infrastructure;
 - achieving a safe and suitable access to the site for all people; and
 - whether *'improvements can be undertaken within the transport network that costs effectively limit the significant impacts of the development'*.
- 3.13 The NPPF states, *'plans should protect and exploit opportunities for the use of sustainable transport modes for the movements of goods or people. Therefore, developments should be located and designed where practical to:*
- *Accommodate the efficient delivery of goods and supplies;*
 - *Give priority to pedestrian and cycle movements, and have access to high quality public transport facilities;*
 - *Create safe and secure layouts which minimise conflicts between traffic and cyclists or pedestrians, avoiding street clutter and where appropriate establishing home zones;*
 - *Incorporate facilities for charging plug-in and other ultra-low emission vehicles; and*
 - *Consider the needs of people with disabilities by all modes of transport'*.
- 3.14 The NPPF states that local authorities should consider the accessibility of a development alongside the type, mix and use of the development as well as looking at local car ownership and the overall need to reduce the use of high emission vehicles when determining planning applications.

- 3.15 Further new and relevant National Guidance relating to Transport evidence bases in plan making has been published on the Planning Practice Guidance website -

<http://planningguidance.communities.gov.uk/blog/guidance/transport-evidence-bases-in-plan-making/transport-evidence-bases-in-plan-making-guidance/>

- 3.16 It states that the transport evidence should identify opportunities for encouraging a shift to more sustainable transport usage where it is reasonable to do so. It goes onto say that a robust assessment will establish evidence that may be useful in:

- Improving sustainable transport provision
- Enhancing accessibility
- Creating choice amongst different modes of transport
- Improving health and wellbeing
- Supporting economic vitality

Local Policy

- 3.17 This section considers the relevant transport policy background to the development proposals for the Site at Chiswell Green. At this feasibility stage, only a high-level overview has been provided. The key documents referred to herein as follows:

- The Green Belt Review Sites & Boundaries Study prepared for St Albans City and District Only Report, by SKM (Sinclair Knight Merz) (February 2014); and,
- St Albans City & District Council Strategic Local Plan 2011-2031, Publication Draft, 2016

The Green Belt Review Sites & Boundaries Study Report, SKM (February 2014)

- 3.18 In 2013, an independent review of the St Albans Green Belt was commissioned by St Albans City and District Council in order to inform its planning blueprint, the forthcoming Strategic Local Plan. Sinclair Knight Merz (SKM) was instructed to undertake a review of all potential housing development locations that might be considered for release from the green belt.

- 3.19 The independent review assessed local Green Belt land against the criteria set out in the National Planning Policy Framework (NPPF). The NPPF defines five purposes for Green Belt:

- To check unrestricted sprawl of large built-up areas;
- To prevent neighbouring towns merging into one another;
- To assist in safeguarding the countryside from encroachment;
- To preserve the setting and special character of historic towns; and,
- To assist in urban regeneration, by encouraging the recycling of derelict and other urban land.

- 3.20 The final version of Part Two of the Green Belt review, entitled *The Green Belt Review Sites & Boundaries Study*, was reported to the Council's Planning Policy Committee in March 2014. The document provides an assessment of the eight sites in the Green Belt which had been identified for further investigation in Part One of the review.

- 3.21 The site at Chiswell Green is part of one of the eight sites identified as suitable for potential release from the Green Belt for strategic development, contributing least towards the Green Belt. The report by SKM concludes that the land at Chiswell Green is most appropriate for residential-led development.
- 3.22 SKM recommends 60% of the 15 ha parcel be turned into housing, with the remainder supporting infrastructure such as infrastructure and open space. Depending on density, there could be between 270 and 450 homes built, should SKM's recommendations be taken forward in the emerging Strategic Local Plan.

St Albans City & District Council Strategic Local Plan 2011-2031, Publication Draft, 2016

- 3.23 St Albans Strategic Local Plan (SLP) Publication Draft is currently in consultation until 19 February 2016. The Strategy sets out the long-term planning strategy for the City and District of St Albans. It provides overarching policies and principles for what can be built and where over two decades.
- 3.24 With regard to transport, Policy SLP25 sets out the Transport Strategy for the plan period. In summary, the SLP aims to introduce:

'Measures which reduce the need for travel and encourage more sustainable travel, by public and community transport, walking and cycling are encouraged. Within this approach, appropriate measures to better use existing roads, reduce congestion and pollution and to ensure the free flow of traffic will be supported.'

- 3.25 Measures include:

- New development should be concentrated in accessible locations which will reduce the need to travel, encourage walking and cycling and where good public transport services can be provided or which connect into, maintain and improve the existing transport infrastructure and hierarchy.
- Improvements to the Abbey Line railway to increase frequency of service and enhance onward bus transport to St Albans City centre.
- Improved bus services, particularly in St Albans and from the villages to St Albans, Harpenden, London Colney and adjoining districts.
- Additional bus routes / services to ensure connectivity with development at Broad Locations.
- The introduction of hybrid and other low emission buses.
- Proposals and promotions to increase the proportion of utility trips made through walking and cycling; including implementation of Rights of Way Improvement Plans and new off-road cycle and walking routes; including alongside primary roads.
- Car parking standards will be based on a zonal approach and set out in the DLP.
- Travel plans are required for all major residential developments setting out measures to encourage people to use alternative modes of travel to the single-occupancy car.

Summary

3.25 It is considered that the proposed development complies with relevant national and local policies, as it is located in close proximity to existing public transport services, cycle infrastructure and pedestrian network:

- Promoting the use of more sustainable travel options;
- Promoting walking and cycling for shorter trips;
- Reducing, where practical, the need to travel by car; and
- Supporting necessary infrastructure improvements.

4.0 Baseline Traffic Conditions

4.1 A comprehensive data collection exercise was undertaken to establish baseline traffic conditions. A combination of junction turning counts and automatic traffic counts were undertaken as described below.

Junction Counts

4.2 Baseline traffic flows for the local road network have been taken from classified turning movements carried out at the following junctions on Tuesday 19 January 2016:

- Watford Road / Long Fallow – ghost island / right turn lane priority junction;
- Watford Road / Forge End – priority junction;
- Watford Road / Chiswell Green Lane / Tippendell Lane – double mini-roundabout;
- North Orbital Road / Tippendall Lane – roundabout;
- North Orbital Road / Watford Road – roundabout; and
- North Orbital Road / Watling Street – roundabout.

4.3 The results of the traffic surveys are included in full in Appendix D and the resulting traffic flow diagrams for the AM and PM peak hours in 2016 are included in Appendix E.

Background Traffic Growth

4.4 To ensure that the data remains relevant and robust, the traffic flows recorded by the surveys have been increased to 2021 through the application of appropriate growth factors derived from *TEMPRO* 6.2 (dataset 62) and incorporating growth factors from the National Traffic Model (NTM 09) as follows:

- 2016 to 2021 Weekday AM peak 1.0822
- 2016 to 2021 Weekday PM peak 1.0863

4.5 Growth has been applied to the 2016 baseline data to achieve the 2021 Future Year Traffic Flows. These are shown in Appendix F for the AM and PM peak respectively.

Automatic Traffic Counts

4.6 Automatic Traffic Counts (ATCs) were carried out on Chiswell Green Lane in the vicinity of the proposed northern access junction. These collected traffic volume and speed data for a continuous 7-day period that included the day of the junction counts.

4.7 The results of which are summarised in Table 2 and full results from the ATCs are included at Appendix G.

Table 2: Summary of Chiswell Green Lane ATC Speed Results

7 Day Average	Eastbound	Westbound
Average	24.7 mph	26.2 mph
85 th %ile	31.3 mph	32.2 mph

- 4.8 As identified above, the 85th percentile speed along Chiswell Green Lane in the vicinity of the proposed development is 31.3mph for eastbound traffic and 32.2mph westbound traffic. This is only marginally above the posted speed limit.

5.0 Traffic Generation and Assignment

5.1 This section describes the predicted traffic generation of the site under its proposed use and the assignment of this traffic on the local road network.

Traffic Generation

5.2 Up to 360 dwellings are proposed, plus 10 self-build plots. Of the 360 dwellings proposed, 50% (180 units) are expected to be offered for sale on the open-market and 50% (180 units) will be affordable. Given that a significant proportion of the proposed residential properties will be affordable, the traffic generation has been considered by looking at both private and affordable dwellings on a standalone basis as car ownership levels are usually different.

5.3 As set out in Chapter 2, the type of units is unknown at this stage, therefore trip rates for houses has been assumed as a worst case scenario.

5.4 The potential trip generation from the proposed development has been estimated using the TRICS 7 database. The full TRICS output is provided at Appendix H.

5.5 As set out previously, the site is largely undeveloped and therefore it has been assumed that it does not currently generate any vehicular traffic and that all development traffic will be new to the local and wider road network.

Houses Privately Owned

5.6 To determine trip rates for the proposed open-market houses, the TRICS database was interrogated under land-use class 'Residential' and sub-category 'Houses Privately Owned'. Sites within England with similar characteristics and locations (excluding Greater London) were chosen to generate average trip rates. The resulting weekday trip rates are shown in Table 3.

Table 3: Trip Rates per Dwelling (Houses Privately Owned)

Period	Trip Rates (per Dwelling)		
	Inbound	Outbound	Two-Way
AM Peak (08:00 to 09:00)	0.175	0.435	0.610
PM Peak (17:00 to 18:00)	0.393	0.226	0.619
Daily (07:00 to 19:00)	2.657	2.720	5.377

5.7 Using the trip rates in Table 3 the 180 privately owned houses assumed would generate the number of vehicular trips shown in Table 4.

Table 4: Traffic Generation of Privately Owned Houses

Period	Traffic Generation (Vehs)		
	Inbound	Outbound	Two-Way
AM Peak (08:00 to 09:00)	32	78	110
PM Peak (17:00 to 18:00)	71	41	111
Daily (07:00 to 19:00)	478	490	968

Affordable Houses

- 5.8 To determine trip rates associated with the proposed affordable houses, reference has been made to the TRICS database under the land-use category 'Residential' and sub-category 'Affordable / Local Authority Houses'. Sites within England, with similar characteristics and locations (excluding Greater London) to the development site were chosen to generate average trip rates. The resulting weekday trip rates are shown in Table 5.

Table 5: Trip Rates per Dwelling (Affordable Houses)

Period	Trip Rates (per Dwelling)		
	Inbound	Outbound	Two-Way
AM Peak (08:00 to 09:00)	0.178	0.326	0.504
PM Peak (17:00 to 18:00)	0.333	0.235	0.568
Daily (07:00 to 19:00)	2.437	2.455	4.892

- 5.9 Using the trip rates identified in Table 5, the 180 affordable houses assumed would generate the vehicular trips shown in Table 6.

Table 6: Traffic Generation of Affordable Houses

Period	Traffic Generation (Vehs)		
	Inbound	Outbound	Two-Way
AM Peak (08:00 to 09:00)	32	59	91
PM Peak (17:00 to 18:00)	60	42	102
Daily (07:00 to 19:00)	439	442	881

Primary School

- 5.10 To determine trip rates for the proposed primary school, the TRICS database was interrogated under land-use class 'Education' and sub-category 'Primary School'. Sites within England with similar characteristics and locations (excluding Greater London) were chosen to generate average trip rates. The resulting weekday trip rates are shown in Table 7.

Table 7: Trip Rates per Pupil (Primary School)

Period	Trip Rates (per Pupil)		
	Inbound	Outbound	Two-Way
AM Peak (08:00 to 09:00)	0.318	0.234	0.552
PM Peak (17:00 to 18:00)	0.012	0.031	0.043
Daily (07:00 to 19:00)	0.808	0.812	1.620

- 5.11 Using the trip rates in Table 7, the proposed two-form entry primary school (420 pupils) would generate the number of vehicular trips shown in Table 8 below.

Table 8: Estimated Traffic Generation of Primary School

Period	Traffic Generation (Vehs)		
	Inbound	Outbound	Two-Way
AM Peak (08:00 to 09:00)	134	98	232
PM Peak (17:00 to 18:00)	5	13	18
Daily (07:00 to 19:00)	339	341	680

Total Development Traffic Generation

- 5.12 On the basis of the traffic generation assessment outlined above, the proposed development is anticipated to give rise to the level of vehicular traffic set out in Table 9 below.

Table 9: Total Development Traffic Generation

Period	Traffic Generation		
	Inbound	Outbound	Two-Way
Housing			
AM Peak (08:00 to 09:00)	64	137	201
PM Peak (17:00 to 18:00)	131	73	214
Primary School			
AM Peak (08:00 to 09:00)	134	98	232
PM Peak (17:00 to 18:00)	5	13	18
Total Development			
AM Peak (08:00 to 09:00)	198	235	433
PM Peak (17:00 to 18:00)	136	96	232

- 5.13 The level of trip generation identified above is considered worst case as it does not include any reductions associated with the successful implementation of a Travel Plan to encourage the use of non-car modes.
- 5.14 In addition, the trip generation for the school assumes that all trips are external to the site. However, in reality, a number of pupils at the school will be living in the proposed housing development and therefore will not generate the same level of additional vehicular trips as the majority of pupils would walk to school or vehicle trips would be linked with other trips, to work for example.
- 5.15 When estimating the number of pupils that a new housing development will generate (pupil yield) Hertfordshire County Council takes account of the number of houses and flats that are suitable to accommodate children. The expected pupil yield from houses is 42 primary school pupils per one hundred homes (0.42 per dwelling). Based on the size of the development, it is predicted that 155 primary school pupils will be created as a result of the development.

Trip Assignment

- 5.16 The assignment of development trips has been based on 2011 Census 'Travel to Work' data for the St Albans area. This data has been interrogated in order to gain an understanding of the likely assignment of the traffic generation outlined above on the highway network.

- 5.17 As set out previously, the site is split into two parts, with no vehicular access between the two. The northern part of the site provides access to 223 residential units and the primary school. The southern part of the site provides access to 147 residential units.
- 5.18 In order to quantify the effect at the local junctions a judgement has been made on the anticipated assignment of development-generated traffic based on Census travel to work as set out in Appendix I.
- 5.19 Table 10 provides a breakdown of the estimated traffic generation for the full quantum of development in terms of likely destination in peak hours.

Table 10: Breakdown of Trips per Destination

Destination	Additional Two-Way Traffic (Vehs)	
	AM Peak	PM Peak
Luton	18	10
St Albans	100	55
Stevenage, Welwyn ,Hatfield	31	17
Chiswell Green	70	38
Westminster, City of London, Watford, Dacorum, Three Rivers, Barnet, Camden, Hillingdon	179	97
Hertsmere	39	22
Total	437	238

- 5.20 Development traffic has been assigned to the local road network based on the assumptions set out above and is illustrated on the network diagrams included in Appendix J.
- 5.21 These flows have been applied to the 2021 future year flows to establish the ‘with development’ flows as shown in Appendix J.

6.0 Highway Impact

6.1 This section of the Transport Assessment examines the forecast effect of the proposed development traffic on the local highway network area.

Junction Impact

6.2 In order to appraise the likely impact of the development on the local road network, the percentage increase in traffic in 2021 as a result of an additional 370 dwellings and primary school has been determined at the following junctions, as set out in Table 11:

- Watford Road / Long Fallow – ghost island / right turn lane priority junction;
- Watford Road / Forge End – priority junction;
- Watford Road / Chiswell Green Lane / Tippendell Lane – double mini-roundabout;
- North Orbital Road / Tippendall Lane – roundabout;
- North Orbital Road / Watford Road – roundabout; and
- North Orbital Road / Watling Street – roundabout.

Table 11: Increase in Traffic at Local Junctions in 2021

Junction	Without Develop (Vehs)	With Develop (Vehs)	Increase (Vehs)	Increase (%)
AM Peak (08:00 – 09:00)				
Watford Road / Long Fallow	1435	1554	119	8.3%
Watford Road / Forge End	1493	1681	188	12.6%
Watford Road / Chiswell Green Lane	1685	2056	371	22.0%
Watford Road / Tippendell Lane	1990	2156	166	8.3%
North Orbital Road / Tippendell Lane	2027	2108	81	4.0%
North Orbital Road / Watford Road	2662	2765	103	3.9%
North Orbital Road / Watling Street	4601	4653	52	1.1%
PM Peak (17:00 – 18:00)				
Watford Road / Long Fallow	1457	1586	129	8.9%
Watford Road / Forge End	1495	1602	107	7.2%
Watford Road / Chiswell Green Lane	1640	1821	181	11.0%
Watford Road / Tippendell Lane	1909	2017	108	5.7%
North Orbital Road / Tippendell Lane	2691	2760	69	2.6%
North Orbital Road / Watling Street	3470	3582	112	3.2%
Watford Road / Long Fallow	5434	5489	55	1.0%

6.3 It can be seen that the proposed development of 370 units and primary school would result in a relatively small increase in traffic at local junctions.

- 6.4 The greatest impact would be experienced at the Watford Road / Chiswell Green Lane mini roundabout, with an increase in traffic of 378 vehicles in the AM peak hour. The impact at other local junctions would be less, and reduce progressively with distance from the site as traffic disperses.
- 6.5 It is predicted that the development would increase traffic flows at local junctions by more than 5% at 4 of the 7 junctions assessed. As such, those junctions with greater than a 5% impact have been assessed using junction capacity modelling software. The impact of the development beyond these junctions is less and therefore further analysis is not deemed necessary at this time.

Junction Capacity Assessments

- 6.6 Junction capacity analysis has been undertaken at the following junctions:
- Watford Road / Long Fallow – ghost island / right turn lane priority junction
 - Watford Road / Forge End – priority junction
 - Watford Road / Chiswell Green Lane / Tippendell Lane – double mini-roundabout
 - Chiswell Green Lane / Site Access – priority junction
- 6.7 The junctions have been assessed using Junctions 9 software, which incorporates PICADY and ARCADY.
- 6.8 The output from these models is presented in terms of RFC – ratio of flow to capacity and queue lengths. It is widely accepted that RFCs of below 0.85 indicate that a junction is operating with spare capacity and RFCs between 0.85-1.0 indicate that a junction is approaching capacity. RFCs in excess of 1.0 generally mean that the junction experiences queuing and delay.
- 6.9 ARCADY is a computer software modelling programme which forecasts capacity, queuing and delay at roundabout junctions. The output from these models is presented in terms of RFC and Level of Service. The Level of Service (LOS) is based on the average delay per arriving vehicle. It uses the letters A to F as defined below:
- A = Free flow
 - B = Reasonably free flowing
 - C = Stable flow
 - D = Approaching unstable flow
 - E = Unstable flow
 - F = Forced or breakdown flow
- 6.10 The thresholds A to F are based on the queuing delay on each arm.
- 6.11 All junctions were assessed for the AM and PM peak periods, and for all scenarios.

Watford Road / Long Fallow – Ghost Island Right Turn Lane Priority Junction

- 6.12 The impact of the development at the Watford Road / Long Fallow junction has been considered in detail. The results of the assessment are summarised in Table 12 below and the full output files are included in Appendix K.

Table 12: Junctions 9 Results – Watford Road / Long Fallow

Arm	Movement	Weekday AM		Weekday PM	
		RFC	Q	RFC	Q
2016 – Surveyed					
A	Watford Road (South)	0.02	0	0.01	0
B	Long Fallow	0.01	0	0.00	0
C	Watford Road (North)	0.01	0	0.03	0
2021 – Do Nothing					
A	Watford Road (South)	0.02	0	0.01	0
B	Long Fallow	0.02	0	0.00	0
C	Watford Road (North)	0.02	0	0.03	0
2021 – With Development					
A	Watford Road (South)	0.05	0	0.03	0
B	Long Fallow	0.14	0.2	0.07	0.1
C	Watford Road (North)	0.02	0	0.06	0.1

- 6.13 With all RFC values much less than 0.85, and minimal queuing, the modelling results confirm that the junction will operate with significant spare capacity at peak times with the addition of traffic generated by the development.

Watford Road / Forge End – Priority Junction

- 6.14 The impact of the development at the Watford Road / Forge End junction has been considered in detail. The results of the assessment are summarised in Table 13 below and the full output files are included in Appendix L.

Table 13: Junctions 9 Results – Watford Road / Forge End

Arm	Movement	Weekday AM		Weekday PM	
		RFC	Q	RFC	Q
2016 – Surveyed					
A	Watford Road (South)	0.07	0.1	0.05	0.1
B	Forge End	0.03	0.0	0.03	0.0
C	Watford Road (North)	0.14	0.3	0.08	0.1
2021 – Do Nothing					
A	Watford Road (South)	0.07	0.1	0.06	0.1
B	Forge End	0.03	0.0	0.03	0.0
C	Watford Road (North)	0.16	0.5	0.10	0.2
2021 – With Development					
A	Watford Road (South)	0.10	0.1	0.08	0.1
B	Forge End	0.06	0.1	0.05	0.1
C	Watford Road (North)	0.20	0.7	0.13	0.3

- 6.15 With all RFC values much less than 0.85, and minimal queuing, the modelling results confirm that the junction will operate with significant spare capacity at peak times with the addition of traffic generated by the development.

Watford Road / Chiswell Green Lane / Tippendell Lane – Double Mini-Roundabout

- 6.16 The impact of the development at the Watford Road / Chiswell Green Lane / Tippendell Lane junction has been considered in detail.
- 6.17 The results of the base modelling have been validated against the surveyed queue lengths. In order to replicate the surveyed queues an intercept adjustment factor has been applied.
- 6.18 Junctions 9 over estimates the queue on the Watford Road (north) and Tippendell Lane approaches. As such, the following intercept adjustments set out in Table 14 have been input into the model.

Table 14: Intercept Adjustment Percentage

Junction	Movement	Intercept Adj (%)	
		AM	PM
Junction 2	Watford Road (North)	125	114
Junction 2	Tippendell Lane	117	86

- 6.19 The results of the assessment are summarised in Table 15 below and the full output files are included in Appendix M.

Table 15: Junctions 9 Results – Watford Road / Chiswell Green Lane

Junction	Movement	Weekday AM			Weekday PM		
		RFC	Q	Loss	RFC	Q	Loss
2016 – Surveyed							
Junction 1	Watford Road (North)	0.75	2.9	B	0.61	1.6	A
Junction 1	Watford Road (South)	0.70	2.2	B	0.79	3.5	C
Junction 1	Chiswell Green Lane	0.28	0.4	B	0.28	0.4	B
Junction 2	Watford Road (South)	0.50	1.0	A	0.48	0.9	A
Junction 2	Watford Road (North)	0.86	5.4	C	0.87	6.0	D
Junction 2	Tippendell Lane	0.90	5.8	F	0.88	5.1	F
2021 – Do Nothing							
Junction 1	Watford Road (North)	0.80	3.8	B	0.66	1.9	A
Junction 1	Watford Road (South)	0.75	2.9	B	0.86	5.4	C
Junction 1	Chiswell Green Lane	0.33	0.5	B	0.33	0.5	B
Junction 2	Watford Road (South)	0.55	1.2	A	0.53	1.1	A
Junction 2	Watford Road (North)	0.94	9.5	E	0.95	12.1	F
Junction 2	Tippendell Lane	1.06	14.2	F	1.04	14.4	F
2021 – With Development							
Junction 1	Watford Road (North)	0.87	5.7	C	0.70	2.3	B
Junction 1	Watford Road (South)	0.90	6.9	D	0.94	9.9	E
Junction 1	Chiswell Green Lane	0.75	2.7	D	0.49	0.9	C
Junction 2	Watford Road (South)	0.62	1.6	A	0.55	1.2	A
Junction 2	Watford Road (North)	0.99	14.8	F	1.00	20.0	F
Junction 2	Tippendell Lane	1.20	35.4	F	1.22	43.2	F

- 6.20 As set out in Table 15, the junction operates slightly over capacity in the 2016 Surveyed scenario. With the addition of predicted background traffic growth this situation is exacerbated and the performance of the junction deteriorates further in the 2021 Do Nothing scenario.
- 6.21 The addition of development traffic exacerbates the situation further and the performance of the junction worsens in the With Development scenario. It is important to note that once an RFC within a computer traffic model exceeds 0.9 to 1.0 the forecast queuing within the model increases exponentially and hence the output should be treated with caution.
- 6.22 In light of the results of the junction capacity modelling it is clear that some form of mitigation will be required at Watford Road / Chiswell Green Lane / Tippendell Lane double mini-roundabout, with or without development, to increase capacity and reduce queuing and delay.
- 6.23 Possible mitigation measures include a linked staggered signalised junction in place of the double mini-roundabout, which would provide the opportunity for traffic on the minor arms of the junction to gain access onto Watford Road more easily. Options for mitigation at this junction will be considered in detail at the planning application stage.

Chiswell Green Lane / Site Access – Priority Junction

- 6.24 The impact of the development at Chiswell Green Lane / Site Access junction has been considered in detail for the 2021 With Development scenario. The results of the assessment are summarised in Table 16 below and the full output files are included in Appendix N.

Table 16: Junctions 9 Results “2021 “With Development”

Arm	Movement	Weekday AM		Weekday PM	
		RFC	Q	RFC	Q
2021 – With Development					
B-C	Site Access – Chiswell Green Lane (West)	0.00	0.0	0.00	0.0
B-A	Site Access – Chiswell Green Lane (East)	0.41	0.7	0.15	0.2
C-AB	Chiswell Green Lane (West) – Site Access	0.00	0.0	0.00	0.0

- 6.25 With all RFC values much less than 0.85, and minimal queuing, the modelling results confirm that the proposed access junction will operate with significant spare capacity at peak times with the addition of traffic generated by the development.

Summary

- 6.26 The results of the junction modelling show that there are capacity issues at points within the corridor, specifically at the Watford Road / Chiswell Green Lane / Tippendell Lane double mini-roundabout without development, and the situation is exacerbated with development traffic. Potential highways improvements at this junction include staggered traffic signals in place of the existing double mini-roundabout, which could be offered as part of the mitigation package for the development. Options for mitigation at this junction will be looked at in detail at the planning application stage.

- 6.27 The ethos of the development is to encourage modal shift and travel by alternative modes of transport and looking at alternatives to the car to transport children to school, which will be encouraged through the Travel Plan as well as the improvements to pedestrian facilities in the area.

7.0 Road Safety

7.1 This section reviews the personal injury road traffic accidents that have occurred throughout the study area and identify any trends which might be accentuated as a result of the development.

Accident Review

7.2 Accident records for the five-year period to 30 September 2015 were obtained from Hertfordshire County Council. The records reveal that a total of 28 personal injury road traffic accidents occurred at the junctions within the study area during this period.

7.3 The accident records supplied by Hertfordshire County Council are non-confidential reports of personal injury road traffic accidents reported to the police during the aforementioned period. The accident data does not include causation factors or details of the accidents. As such, it is difficult to determine the cause and details of the accidents other than the severity, their location and date of the accidents. These accidents are summarised in the Table 17 and details are included in full in Appendix O.

Table 17: Accident Summary

Ref	Junction	Accident Severity			Total
		Slight	Serious	Fatal	
1	A405 North Orbital Road / Tippendell Lane Roundabout	8	0	0	8
2	A405 North Orbital Road / Garden Centre Junction	3	1	0	4
3	A405 North Orbital Road	0	1	0	1
4	A405 North Orbital Road / B4630 Watford Road Roundabout	2	2	0	4
5	Tippendell Lane	1	0	1	2
6	Tippendell Lane / B4630 Watford Road Mini-Roundabout	4	0	0	4
7	B4630 Watford Road / Petrol Station Junction	0	1	0	1
8	B4630 Watford Road / Long Fallow Junction	1	0	0	1
9	B4630 Watford Road	1	2	0	3
Total		20	7	1	28

7.4 Of the 28 accidents that occurred at junctions within the study area, 20 were classified as slight in terms of severity, with 7 classified as serious and 1 fatal accident during the previous 5 years. The accidents are discussed further below.

A405 North Orbital Road / Tippendell Lane Roundabout

- 7.5 The A405 North Orbital Road / Tippendell Lane Roundabout has the highest accident rate, with 8 accidents occurring during the five-year period, all of which were deemed to be slight in terms of severity.

A405 North Orbital Road / Garden Centre Junction

- 7.6 Four accidents occurred at the A405 North Orbital Road/Garden Centre junction, one of which was classed as serious with the remaining three accidents classed as slight.

- 7.7 The serious accident was a collision between a vehicle traveling along the A405 and a vehicle turning left out of the Garden Centre.

A405 North Orbital Road

- 7.8 Of the three accidents which occurred the A405 North Orbital Road, one was classed as serious while the other two were classed as slight.

- 7.9 The serious accident involved a motorcycle skidding and colliding with the rear end of a car.

A405 North Orbital Road / B4630 Watford Road Roundabout

- 7.10 Of the four accidents which occurred at the A405 North Orbital Road / B4630 Watford Road roundabout, two were classed as serious and two were classed as slight. One of the serious accidents involved a collisions between a vehicle and a bicycle. The other serious accident involved a motorcycle skidding and colliding with the offside of a car.

Tippendell Lane

- 7.11 Two accidents have occurred along Tippendell Lane during the 5 year period. One of which was classed as slight and the other was fatal.

- 7.12 The fatal accident involved a collision between a vehicle traveling along Tippendell Lane, a parked car and a pedestrian.

Tippendell Lane / B4630 Watford Road Mini-Roundabout

- 7.13 Four accidents occurred at Tippendell Lane / B4630 Watford Road mini-roundabout within the past 5 years, all of which were classed as slight.

B4630 Watford Road / Petrol Station Junction

- 7.14 There was one injury accident reported at B4630 Watford Road / Petrol Station junction which was deemed as serious. The accident involved a head-on collision between two cars.

B4630 Watford Road / Long Fallow Junction

- 7.15 Only one accident occurred at B4630 Watford Road / Long Fallow Junction within the past 5 years which was classed as slight.

B4630 Watford Road

- 7.16 Three accidents occurred along B4630 Watford Road, one of which was classed as slight while the other two were classed as serious.
- 7.17 The first of the serious accidents involved a single car colliding head-on with an object off the carriageway.
- 7.18 The other serious accident involved a car colliding with the rear end of a motorcycle.

Summary

- 7.19 There are no obvious accident clusters on the local highway network that give particular cause concern and it is considered unlikely that the proposed development would significantly worsen the existing highway safety record of the local highway network.
- 7.20 The causation of the accidents will be considered in detail at the planning application stage.

8.0 Sustainability

- 8.1 This section of the Transport Assessment appraises the site from the perspective of sustainable travel and accessibility on foot, by bicycle and via public transport.
- 8.2 Interrogation of 2011 Census data for Chiswell Green suggests that a significant proportion of residents (48%) travel to work by car and 2.5% travel as a passenger. However, 11.7% of residents travel by foot, cycle, public transport and 5.9% work from home. A large proportion (30.4%) of the population is recorded as not in employment, representing the unemployed and retired. The recorded split is set out in Table 18 below.

Table 18: Modal Split Based on 2011 Census Data

Mode	Share (%)
Work mainly at or from home	5.9%
Underground, metro, light rail, tram	1.1%
Train	5.9%
Bus, minibus or coach	1.1%
Taxi	0.3%
Motorcycle, scooter or moped	0.5%
Driving a car or van	48.0%
Passenger in a car or van	2.5%
Bicycle	0.6%
On foot	3.1%
Other method of travel to work	0.5%
Not in employment	30.4%

- 8.3 It follows, therefore, that new residents of Chiswell Green would be expected to have similar travel habits unless alternative travel provision or choice is created or promoted.
- 8.4 As such, there is scope to influence and alter travel habits of existing and future residents in this area by improving travel choice and creating a culture of travel which views other modes of travel as a viable alternative to the car.
- 8.5 Approximately 23% of the economically active population of Chiswell Green work in St Albans. This suggests that a similar proportion of residents of the proposed development would also do the same. Future residents would also not have to depend on the car to get to most of the other top employment destinations as demonstrated below.
- 8.6 The nearest major employment centres are St Albans, Hemel Hempstead a Watford, Luton and Welwyn Garden City.
- 8.7 The development will provide the necessary pedestrian and cycling infrastructure to promote and encourage cycling. Walking and cycling access into the site will be provided onto Chiswell Green Lane, Forge End and Long Fallow via the four proposed accesses.

- 8.8 National Statistics (National Travel Survey 2012) suggest that some 48% of all journeys during the morning peak hour are related to education. Of these education trips, travel by car accounts for 44% and 26% of journeys to primary and secondary schools respectively.
- 8.9 As such, the presence of a primary school on site should greatly reduce the number of education related trips generated by the site.

Walking and Cycling

Walking

- 8.10 It is general considered that up to 2km is a reasonable distance to walk to work or nearby facilities and amenities. This distance is illustrative and approximate, will vary by individual depending on their own personal mobility and fitness and will be influenced by their perception and prejudices towards such factors as local topography, their attitude towards particular travel modes and the cost and time of a journey. As such, a large proportion of Chiswell Green and the southern outskirts of the St Alban area is within acceptable walking distance of the site, as shown on Figure 2. The main local amenities are detailed below in Table 19.

Table 19: Local Amenities

Amenity	Distance from Proposed Access on Chiswell Green Lane
Local Public House	
The Three Hammers	350m
Retailers	
Hire One tool and hardware shop	350m
Chiswell Pharmacy	375m
Chiswell Fireplaces	400m
Nisa Today's convenience store	400m
Foodfare Convenience Store (including post office, newsagents and video hire)	550m
Restaurants / Cafés / Takeaway Outlets	
Rami Indian Restaurant	400m
Simmons Café	425m
Flamelight takeaway outlet	400m
Post Office	
Post Office (within Foodfare Convenience Store)	550m
Other	
Collinson Hall estate agents	375m
Hair HQ hair salon	550m
Medical Centres / Surgeries	
Midway Surgery	1,100m
Dental Practices	
Chiswell Green Dental Centre	450m
Schools / Nurseries	
Killigrew Primary and Nursery School	1,100m

Local Attractions	
Butterfly World	450m
Royal National Rose Society Gardens	500m

- 8.11 As such, a wide range of facilities and services are available within Chiswell Green that would be within walking distance of the development. In addition, Park Street and How Wood railway stations are within 2.5km of the site.
- 8.12 The local environment has a high degree of permeability for pedestrians with a dense and well developed network of footways which provide convenient and safe access to and from the sites. The footways provided are relatively wide, hard surfaced and in good condition, and there is a good level of street lighting to promote walking as a safe and viable option to travel to and from the sites.
- 8.13 We know that school children already typically walk to school. The National Travel survey 2012 explains that most (79%) primary school children living within 1.6 km (1 mile), and most (89%) secondary school children living within 1.6 km (1 mile) walk to school. Between 1.6km and 3.2km, or 1 and 2 miles, the walking statistics are 29% and 54% for primary and secondary school children respectively. The proposed development is located some 1,100m from the nearest primary school and 1.8km from the nearest secondary school. The site is therefore well located in terms of sustainable linkages to the nearby schools and the intention is to construct a new primary school as part of the development.
- 8.14 Footway provision in the local area is good with footways on one or both sides of the carriageway. Uncontrolled pedestrian crossing facilities are provided throughout the local area comprising dropped kerbs.
- 8.15 There is a footway running along the both sides of Chiswell Green Lane from the eastern most boundary of the proposed development site in an easterly direction towards Watford Road. However, there are no designated pedestrian facilities along the southern edge of Chiswell Green Lane along the frontage of the site and footway provision ceases entirely to the west.
- 8.16 There is a footway running along the both sides of Forge End and Long Fallow linking into the footway provision along Watford Road which is provided on sides of the carriageway and is segregated from the carriageway by a grass verge. These links provide direct links to the local schools, as well as links to other facilities and amenities offered in Chiswell Green.
- 8.17 There is a zebra crossing facility in-between the two roundabouts that form the Watford Road / Chiswell Green Lane / Tippendell Lane double mini-roundabout, with dropped kerbs and tactile paving to assist wheelchair users and the visually impaired. The crossing also offers a central refuse island.

Cycling

- 8.18 It is general considered that up to 5km is a reasonable distance to cycle to work or nearby facilities and amenities. This distance is illustrative and approximate, and will vary by individual depending on their own personal mobility and fitness and will be influenced by their perception and prejudices towards such factors as local topography, their attitude towards particular travel modes and the cost and time of a journey. This suggests that St Albans is within cycling distance of the site, as indicated in Figure 2.
- 8.19 The site benefits from being in close proximity to National Cycle Route 6, which is located approximately 600m to the east of the site running along the eastern fringe of Chiswell Green, parallel to Watford Road. National Route 6 is a long distance route running from Watford to Windermere. The route connects Chiswell Green with locations such as Luton and Watford, as well as many other locations and other National Cycle Routes.
- 8.20 An extract of the St Albans City & District Cycling Map illustrating cycle routes in the vicinity of the site is included in Appendix T which indicates that Chiswell Green Lane is classified as a 'suggested route' by local cyclists, providing additional links to surrounding areas.

Public Transport

Bus Services

- 8.21 Three bus routes run in close proximity to the site. Bus route 724 passes along the B4630 Watford Road and serves the Three Hammers bus stops, located 400m to the east, providing services to Harlow, Heathrow Airport, Hertford, Welwyn Garden City, St Albans, Hatfield and Watford. On weekdays, Arriva operates up to 3 hourly services in both directions.
- 8.22 Bus route 321 also passes along the B4630 Watford Road, serving the Three Hammers bus stops and providing connections to Watford, St Albans, Harpenden and Luton. On weekdays, Arriva runs up to four hourly services to St Albans and one hourly service to Luton.
- 8.23 Bus route 631 passes along the B4630 Watford Road, serving the northbound Three Hammers bus stop and providing connections to Garston, St Albans and New Greens Estate, operating 8 services per day, Monday to Saturday.
- 8.24 The nearest bus stops to the site are located on Watford Road, approximately 320m to the east of the Chiswell Green Lane access into the site. Further bus stops are located on Watford Road, approximately 400m to the east of the southern access junctions. The majority of the bus stops comprise flag and timetable arrangements, while also providing seating and shelter to protect waiting passengers from inclement weather. The bus routes that serve these stops are listed in Table 20 and indicated in Figure 2.

Table 20: Bus Service Summary (Correct as of February 2016)

Service No.	Route Description	Frequency		Operator
		Weekdays	Weekend	
724	Welwyn Garden City / St Albans-Watford / Heathrow Airport	1-3 services per hour	1 service per hour (Sat) 7 services per day (Sun)	Green Line (Operated by Arriva Harlow)
361	Garston / Bricket Wood / St Albans / New Greens Estate	8 services per day	8 services per day (Sat) No service (Sun)	Red Eagle
321	Luton / Harpenden / St Albans / Watford	1-6 services per hour	1-3 services per hour (Sat) 1-2 services per hour (Sun)	Arriva the Shires

- 8.25 Table 20 demonstrates that there is a good bus service provision in operation in proximity to the site. Future residents will benefit from access to the Watford Road stops as they are within a short walking distance of the sites.
- 8.26 The 724 bus route enables passengers to travel to Welwyn Garden City, St Albans and Watford. The 361 bus route enables passengers to travel to St Albans, while the 321 bus route allows passengers to travel to Luton, St Albans and Watford.

Rail Services

- 8.27 The provision of rail stations in the vicinity of the site is excellent. Park Street, How Wood, Bricket Wood, St Albans Abbey (located on the Abbey Line) and St Albans City Wood (located on the Midland Main Line) are all located within 3km of the site.
- 8.28 Improvements to the Abbey Line are proposed in the Draft SLP to increase frequency of service and enhance onward bus transport to St Albans City centre. Options for service frequency include conversion to light rail operation or installing a passing loop.

Park Street

- 8.29 Park Street is the nearest rail station, located approximately 2.5km to the east of the site. The station is operated by London Midland and provides services to St Albans Abbey and Watford Junction and London Euston.
- 8.30 The station is open 24 hours a day, 7 days a week and provides a car park, bicycle stands, customer help points and pay phones.

How Wood

- 8.31 The station is located approximately 2.4km to the south-east of the site. The station is operated by London Midland and provides services to Watford Junction and St Albans Abbey and London Euston. The station provides customer help points and pay phones.
- 8.32 Both Park Street and How Wood railway stations are roughly equidistant from the site within a walking journey time of approximately 30 minutes (assuming an average walking speed of 5km/h), along Chiswell Green Lane, Tippendell Lane and then Park Street Lane and Hyde Lane for How Wood railway station and Park Street for Park Street railway station respectively. Both stations are also served by regular bus services from Watford Road. Footways are provided along the whole length of the journey and a dedicated footbridge straddling the A405 North Orbital Road enables pedestrians to cross safely.

St Albans City

- 8.33 St Albans City railway station is located approximately 3km to the north-east of the site and is operated by Thameslink. The station provides direct services to London St Pancras International, London Blackfriars and Gatwick Airport, as well as Luton, Brighton, Three Bridges and Bedford.
- 8.34 The station is open 24 hours a day, 7 days a week and provides a comprehensive range of facilities including a car park, bicycle stands, ticket machines, customer help points, ATM machines, pay phones, a post box, refreshment facilities, a shop, waiting rooms and toilets.
- 8.35 A ticket office is also located within the station and the opening and closing times are as follows:
- Monday to Friday: 05:45 - 22:00
 - Saturday: 06:45 - 21:15
 - Sunday: 07:30 - 21:45

Summary

- 8.36 Given, the above, it is considered that the sites are in a sustainable and accessible location and are therefore capable of supporting a development of the scale and nature proposed in a suitable manner without reliance on travel by car.

Travel Plan

- 8.37 The implementation of a development-wide Travel Plan will further improve the sustainability of the site through promotion and raising awareness of more sustainable modes of travel. A Travel Plan is a management tool designed to enable the users of a site to make more informed decisions about their travel. It aims to increase the attractiveness of travelling by more sustainable modes thus minimising adverse impacts of travel on the surroundings.
- 8.38 This is achieved by setting out a strategy for eliminating the barriers that prevent residents of the development from using sustainable modes, within local policy aims. The Travel Plan will apply to both residents and visitors to the site.

8.39 The implementation of a well-designed, and properly managed Travel Plan can lead to an increase in the proportion of residents travelling by more sustainable modes.

9.0 Summary and Conclusion

9.1 This Transport Assessment has been prepared by Glanville Consultants on behalf of Catalyst Housing and Alban Developments in support of a proposed allocation within the St Albans Strategic Local Plan for residential development on land to the south of Chiswell Green Lane and to the west of Forge End and Long Fallow, Chiswell Green, St Albans. The principal findings of the assessment are summarised below.

- The site is split in to two separate land parcels totalling 14.2 hectares in area and is previously undeveloped.
- The proposal is for the development of up to 360 dwellings, plus 10 self-build plots. Of the 360 dwellings proposed, 50% (180 units) are expected to be offered for sale on the open-market and 50% (180 units) will be affordable.
- Access is proposed from Chiswell Green Lane, Forge End and Long Fallow, via four simple priority T- junctions. Each access junction has good visibility in both directions on exit from the site and will operate well within capacity at peak times.
- The development is expected to generate 433 two-way movements in the morning peak hour and 232 two-way movements in the evening peak hour. These movements will occur at the proposed access junctions and then disperse with distance travelled from the site.
- The proposed development is expected to increase traffic flows by more than 5% at the following junctions:
 - Watford Road / Long Fallow – ghost island / right turn lane priority junction;
 - Watford Road / Forge End – priority junction;
 - Watford Road / Chiswell Green Lane / Tippendell Lane – double mini-roundabout; and
 - Chiswell Green Lane / Site Access – priority junction.
- The capacity of the junctions identified above has been assessed in detail as these junctions will be subject to the greatest increase in traffic. Capacity assessments have confirmed that three of the four junctions assessed will operate within capacity at peaks times with the addition of traffic arising from the development.
- The results of the junction modelling show that there will be capacity issues at the Watford Road / Chiswell Green Lane / Tippendell Lane double mini-roundabout without development, and the situation would be exacerbated with the addition of development traffic.
- Potential improvements to the Watford Road / Chiswell Green Lane / Tippendell Lane junction to mitigate the effect of the development could include a staggered traffic signal controlled arrangement in place of the double mini-roundabout. Options for mitigation at this junction will be looked at in detail at the planning application stage.
- The site is accessible by a range of transport modes and is in a sustainable location with good access to a wide range of local facilities, amenities and employment opportunities.

- The effect of the development can be further reduced through the adoption of an effective Travel Plan – a management tool designed to minimise the adverse impacts of travel on the local environment and on-going initiatives with the local schools to reduce the existing burden on the network on school trips

Conclusion

- 9.2 In conclusion, it is considered that a package of measures could be proposed at the planning application stage to adequately mitigate the transport impact of the development such that the residual cumulative impact will not be severe. Therefore, the development of the site is considered acceptable in transport terms in the context of paragraph 32 of the National Planning Policy Framework.

Figures



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KEY
 Site location

1KM

Rev.	Description	Date	Chkd
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Glanville
 Cornerstone House
 62 Foxhall Road, Didcot
 Oxon, OX11 7AD
 Tel: (01235) 515550 Fax: (01235) 817799
 postbox@glanvillegroup.com www.glanvillegroup.com

Client :
Catalyst Housing Ltd

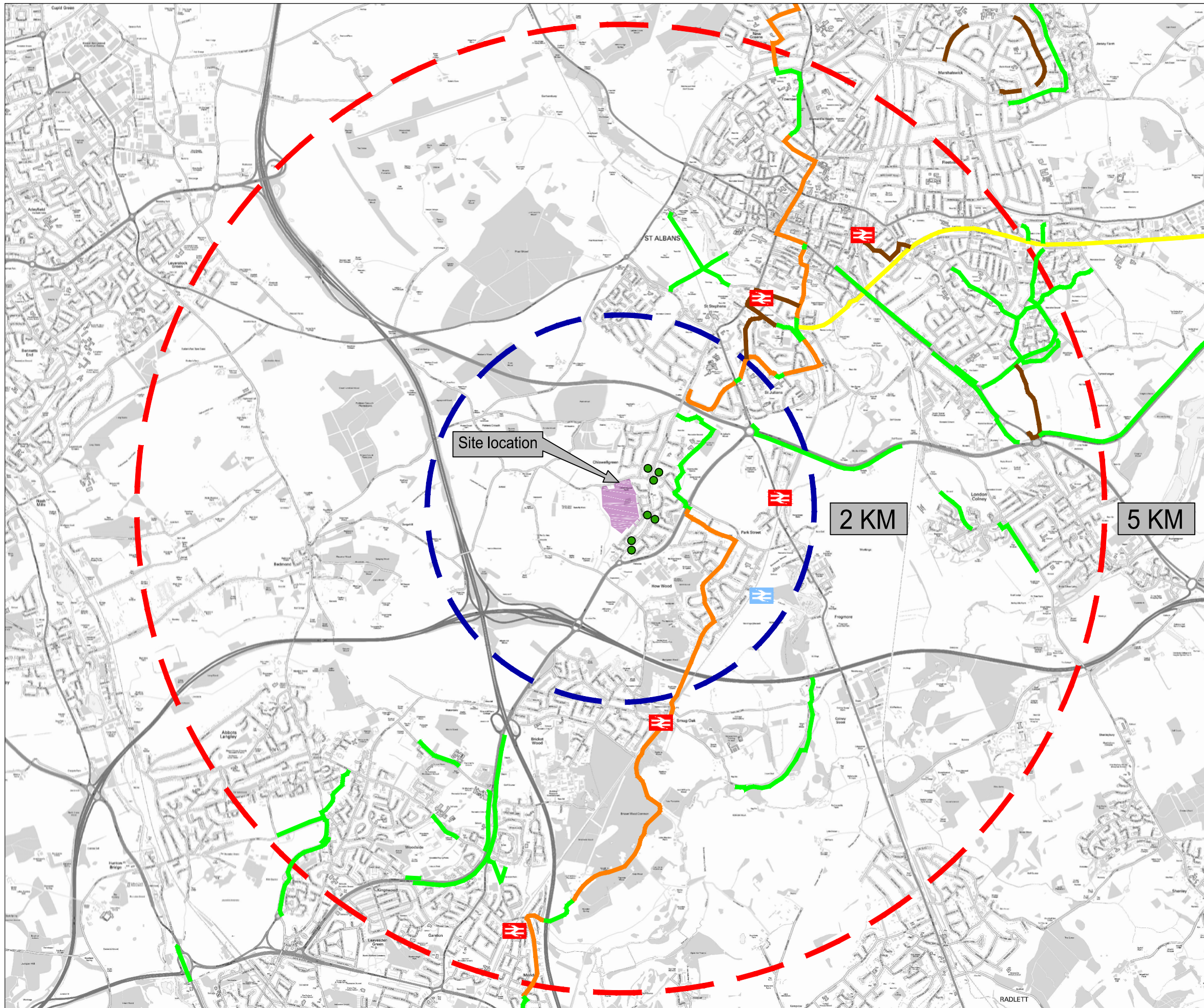
Project :
**Land at Chiswell Green
 St Albans**

Title :
Site Location Plan

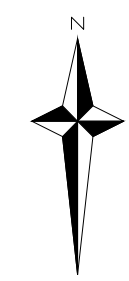
Project Engineer : O. Smith Scale : As Shown @ A3
 Project Director : J. Birch Date : January 2016

Status :

Drawing No. **Figure 1** Rev



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- KEY**
- Site location
 - Nearest rail station
 - Rail station
 - Nearest bus stops
 - Approximate area within acceptable walking distance
 - Approximate area within acceptable cycling distance
 - National Cycle Route 6
 - National Cycle Route 61
 - Local on road cycle paths
 - Local off road cycle paths

Site location

2 KM

5 KM

5KM

Rev.	Description	Date	Chkd
<b style="font-size: 1.2em;">Glanville Cornerstone House 62 Foxhall Road, Didcot Oxon, OX11 7AD Tel: (01235) 515550 Fax: (01235) 817799 postbox@glanvillegroup.com www.glanvillegroup.com			
Client : Catalyst Housing Ltd			
Project : Land at Chiswell Green St Albans			
Title : Sustainable Transport Facilities			
Project Engineer : O. Smith		Scale : As Shown @ A3	
Project Director : J. Birch		Date : January 2016	
Status :			

Drawing No. Figure 2 Rev

Appendices

Appendix A
Illustrative Framework Plan



KEY

- CHL/ADL proposed site allocation boundary
- Boundary to proposed school site
- Vehicular site access points
- Principal pedestrian and cycle connections
- Pedestrian, cycle & emergency access only
- Possible connection to Butterfly World and Rose Gardens
- Shared surface
- Area to be developed at 2 storeys
- Area to be developed at 2-3 storeys
- Self build plots
- Key worker units
- Community building
- 2FE School building
- 2FE School playing fields
- Private gardens
- Public open space
- Pedestrian priority public space
- Parks and amenity green space
- Recreation field
- LEAP
- Existing trees and structural planting
- Ecological Link
- Woodland walk
- Proposed trees
- Infiltration Basins
- Village centre/Local shops
- P Off-site Kerbside Parking

	Site Area	14.66 ha
P	Net Developable Area	8.66 ha
P	Net Residential Density	45.1 dph

Project
 Chiswell Green
 St Albans
 Drawing Title
 Illustrative Framework Plan

Date: 25.06.14	Scale: 1:2000@A1	Drawn by: BG	Check by: CA
Project No: 20504	1:4000@A3	Drawing No: PL-01	Revision: N

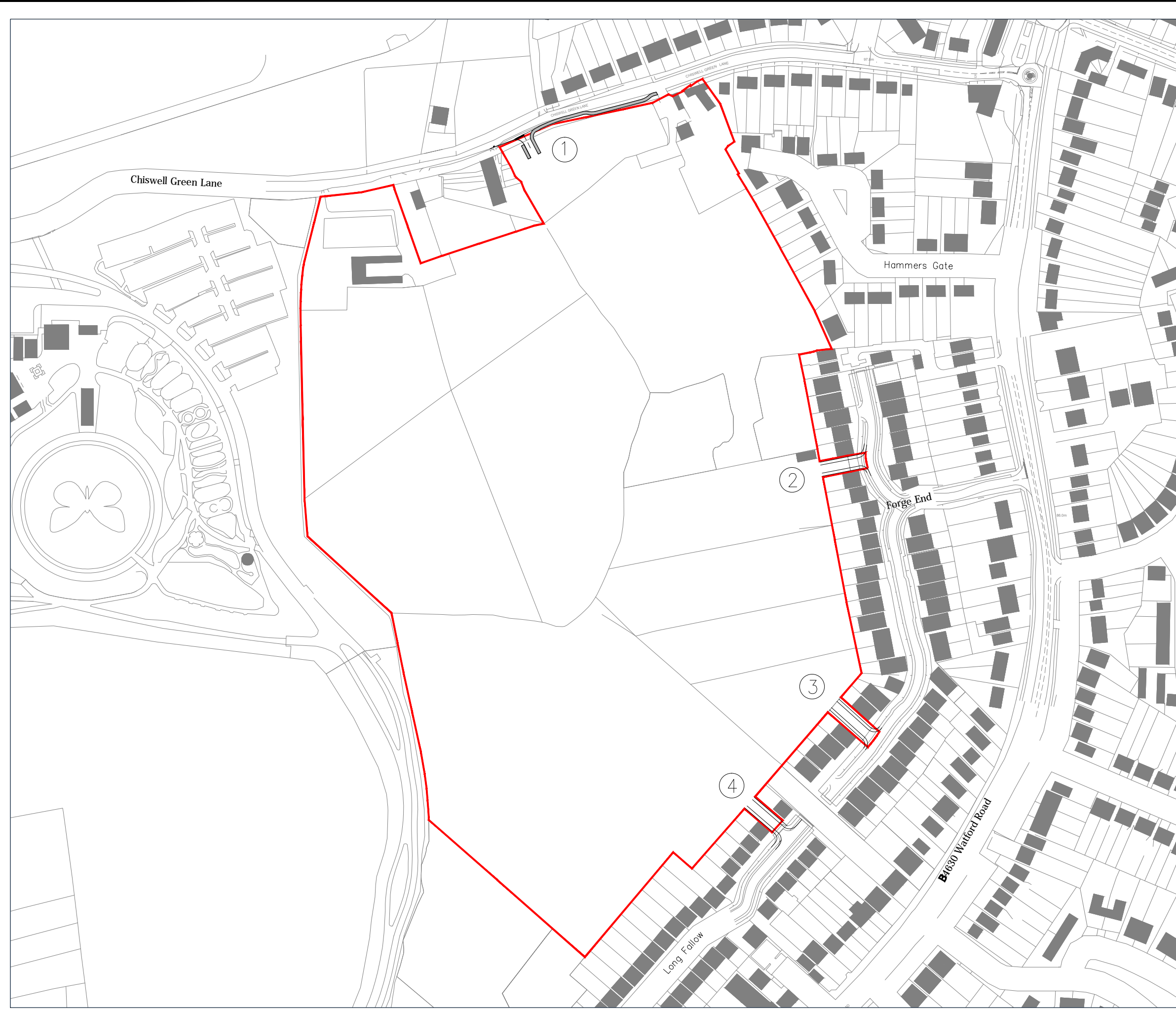


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Appendix B
Proposed Access Junctions



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KEY
 — Site Boundary

Rev.	Description	Date	Chkd
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Glanville
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 Tel: (01235) 515550 Fax: (01235) 817799
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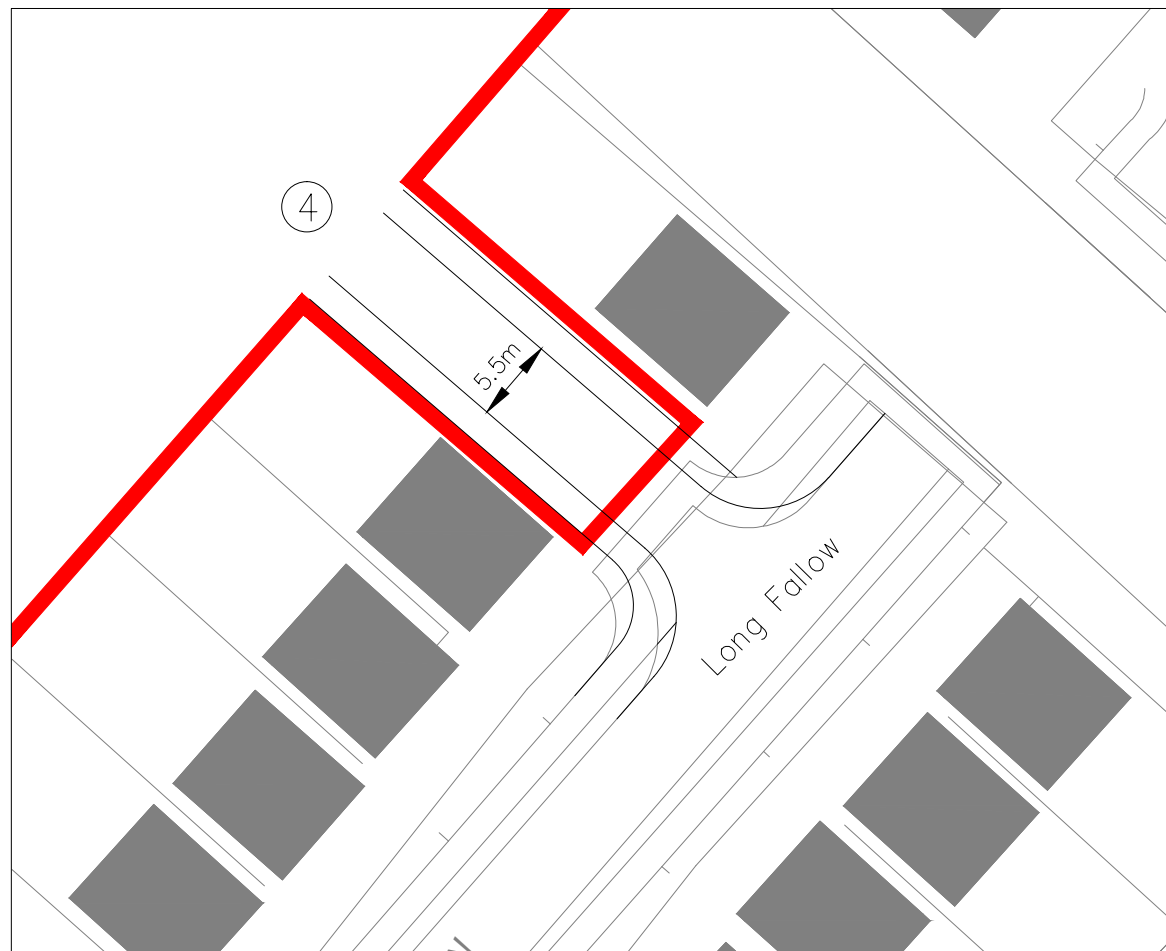
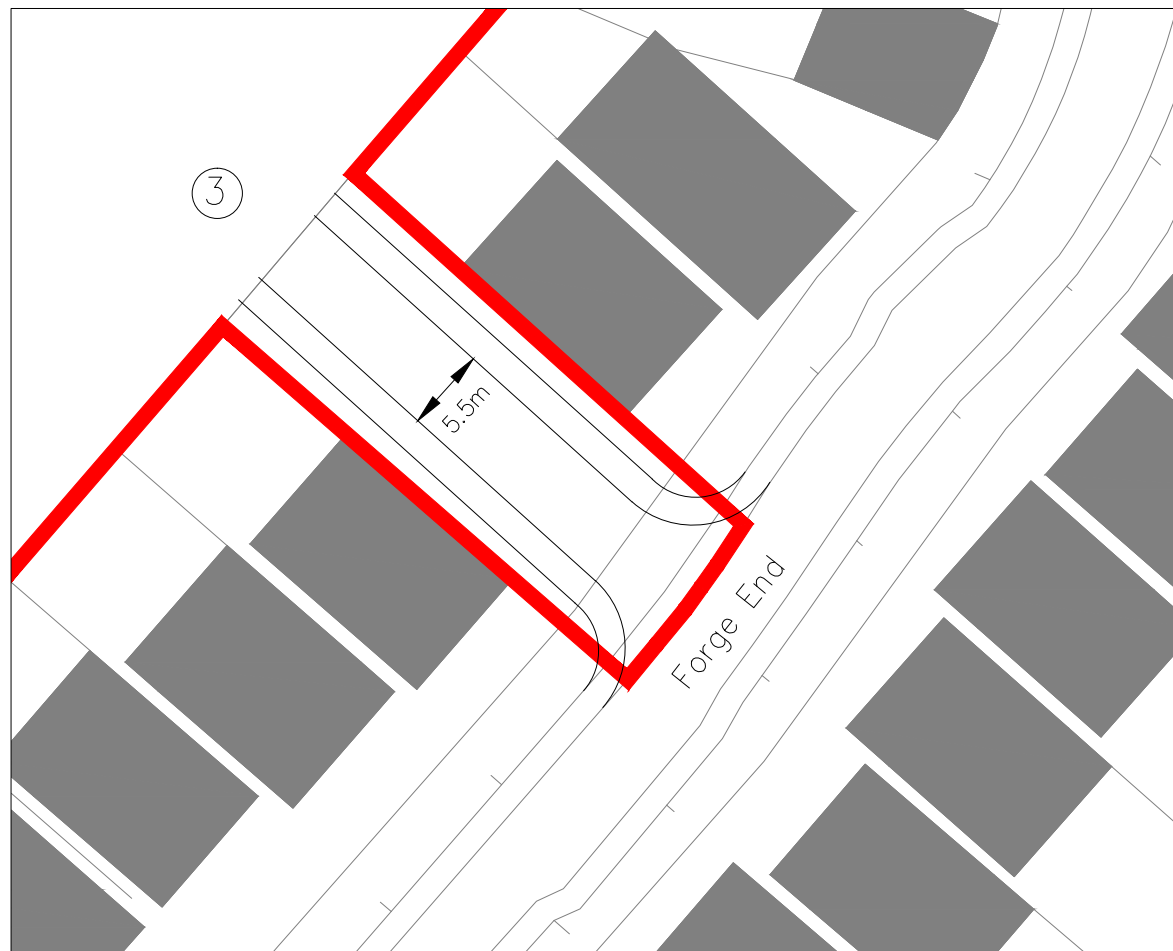
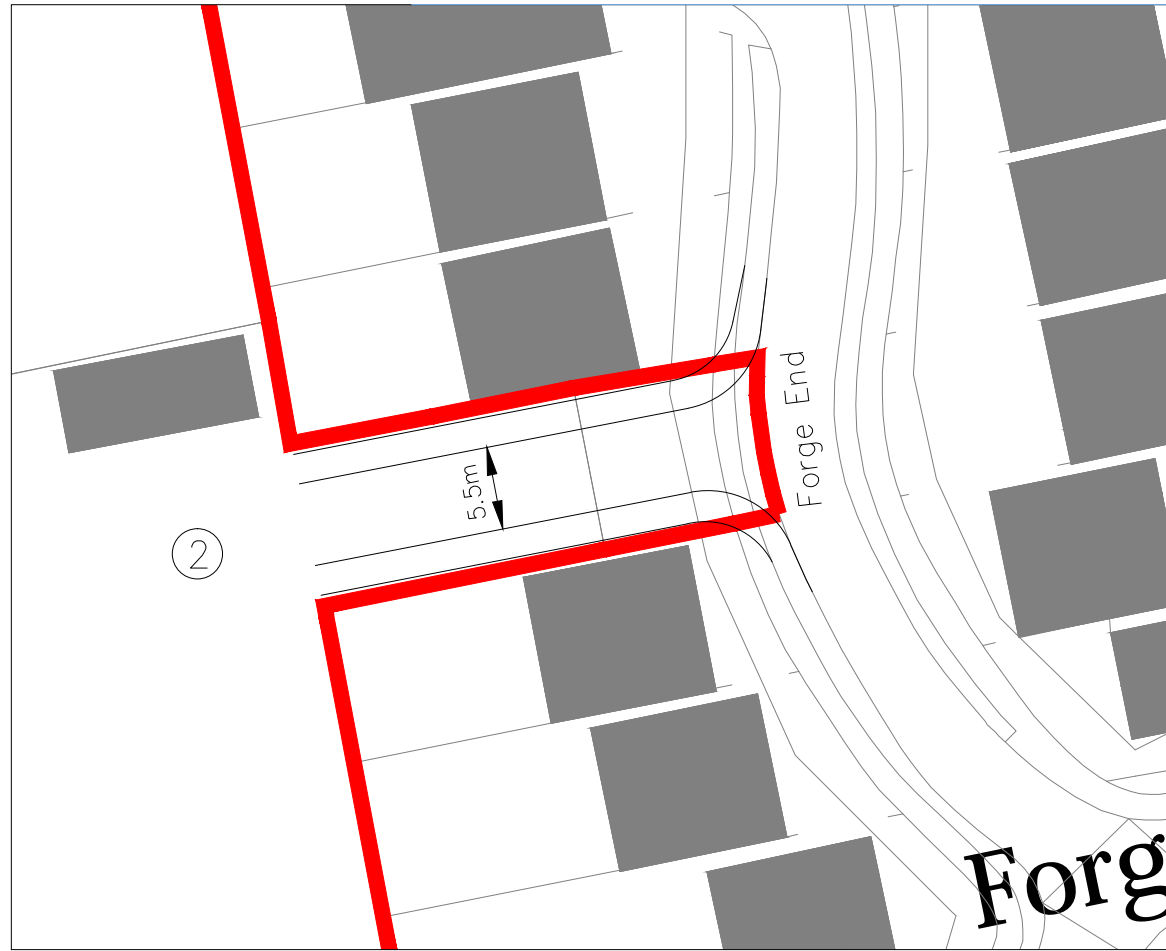
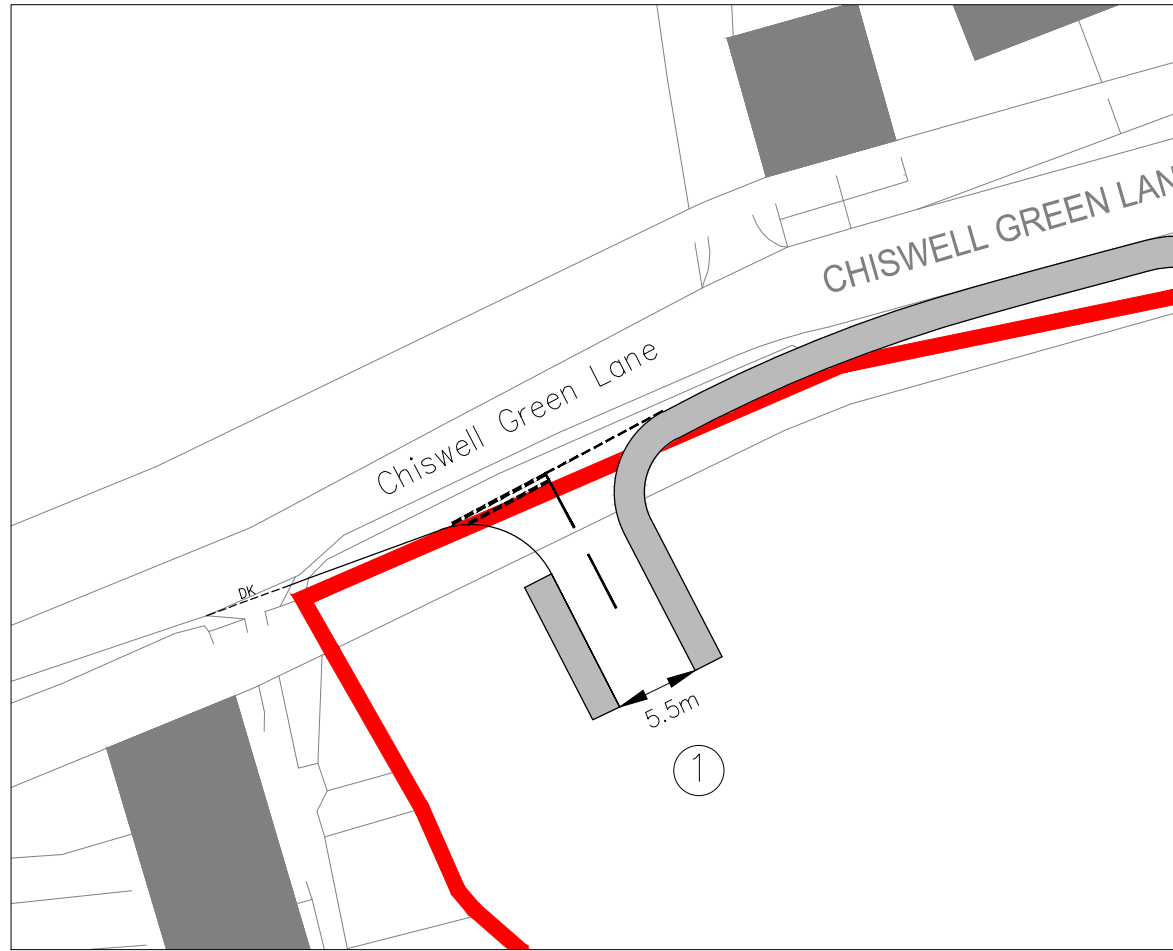
Client :
 Catalyst Housing Ltd

Project :
 Land at Chiswell Green
 St Albans

Title :
 Proposed Access Locations

Project Engineer : S. Royal Scale : 1: 2500 @ A3
 Project Director : J. Birch Date : January 2016
 Status : PRELIMINARY

Drawing No. 8151408/6104 Rev



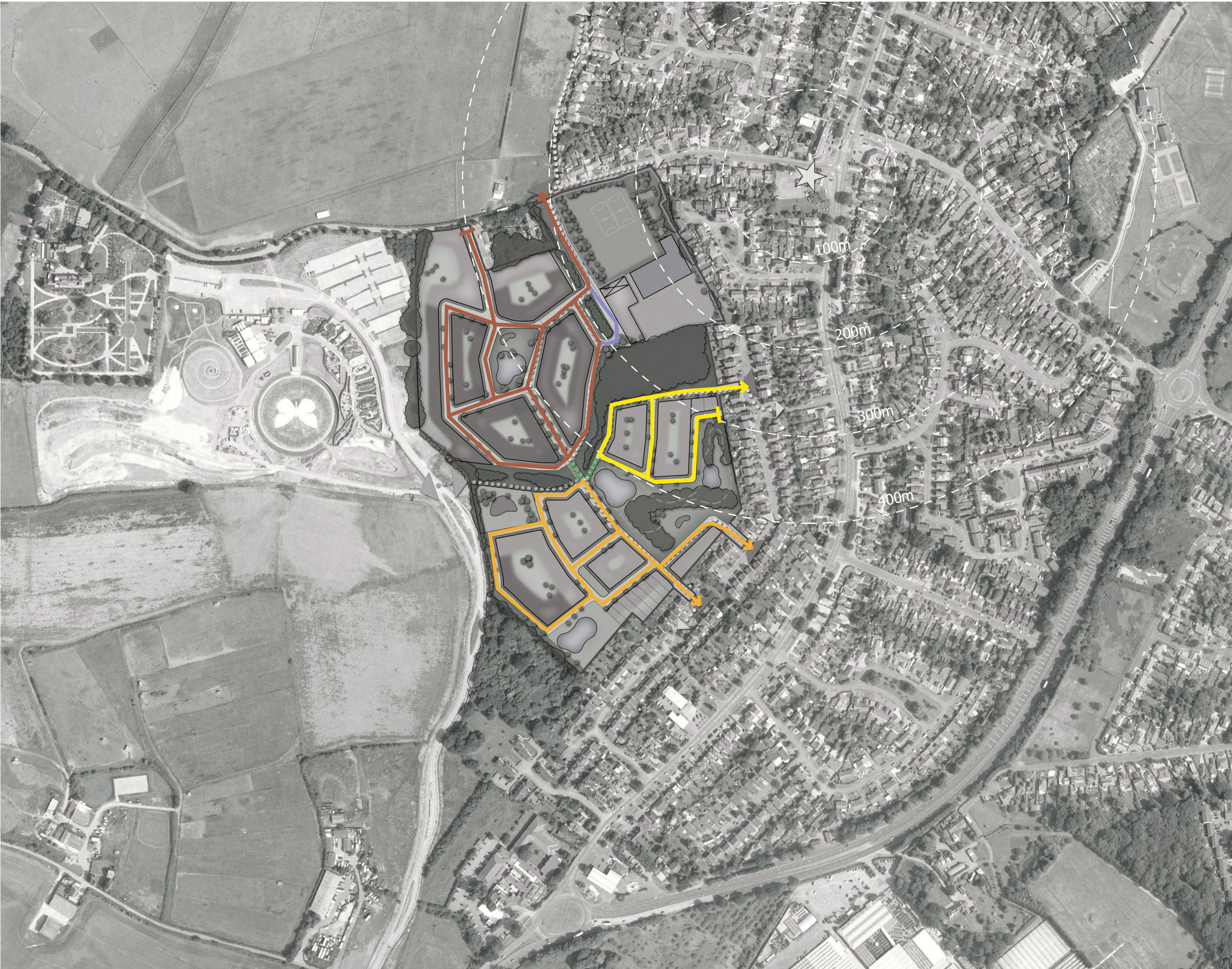
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KEY
 Site Boundary

Rev.	Description	Date	Chkd
 Glanville Cornerstone House 62 Foxhall Road, Didcot Oxon, OX11 7AD Tel: (01235) 515550 Fax: (01235) 817799 postbox@glanvillegroup.com www.glanvillegroup.com			
Client : Catalyst Housing Ltd			
Project : Land at Chiswell Green St Albans			
Title : Proposed Accesses			
Project Engineer : S. Royal		Scale : 1: 500 @ A3	
Project Director : J. Birch		Date : January 2016	
Status : PRELIMINARY			
Drawing No. 8151408/6105			Rev

Appendix C
Connectivity Plan



- KEY
- CHL/ADL proposed site allocation boundary
 - Vehicular site access route to northern parcel
 - Vehicular site access route to central parcel
 - Vehicular site access route to southern parcel
 - Vehicular site access to school drop off area
 - Pedestrian & cyclists only links

Project
Chiswell Green
St Albans

Drawing Title
Connectivity Plan

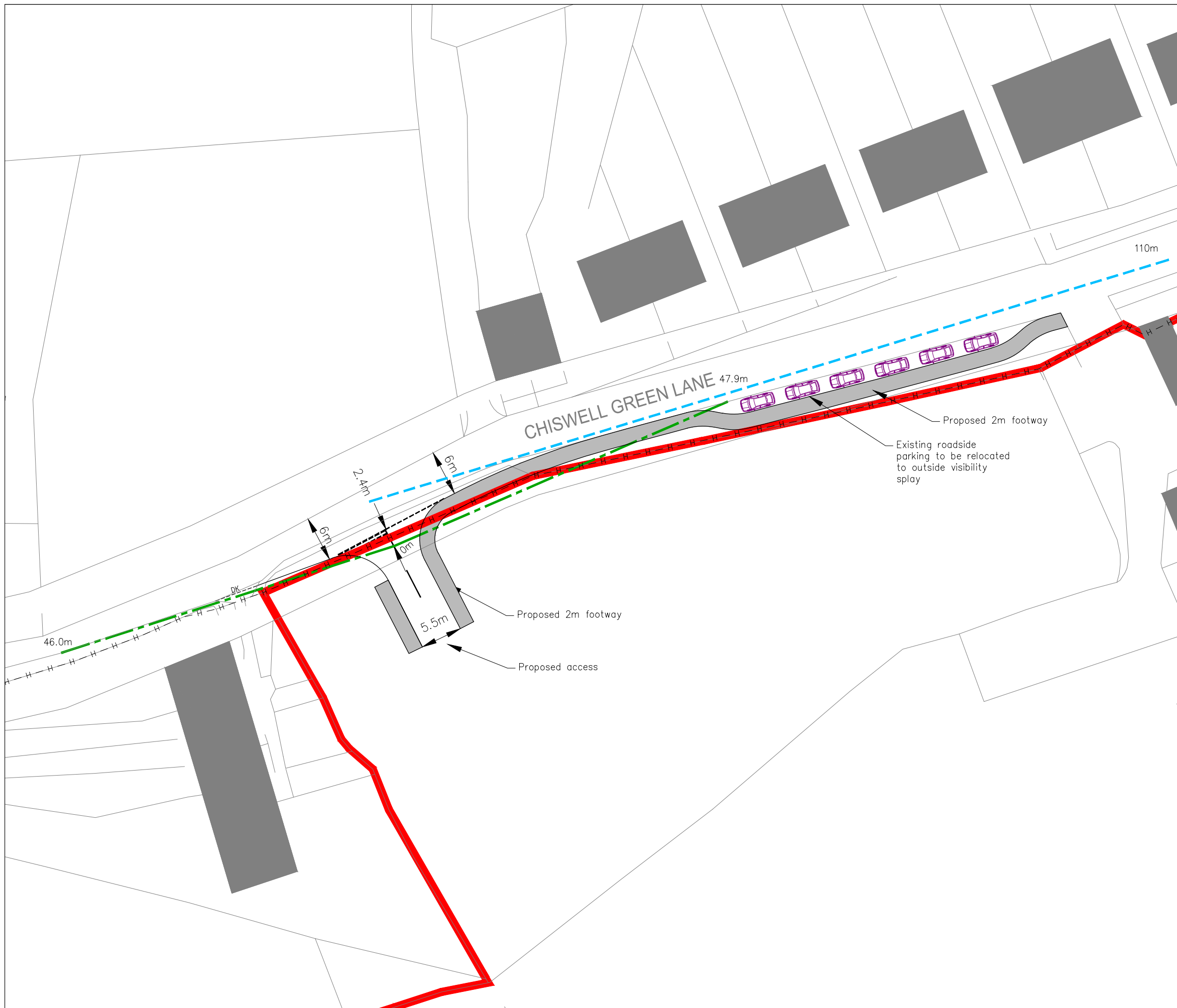
Date 14.10.15	Scale 1:2000@A1 1:4000@A3	Drawn by JF	Check by CA
Project No 20504	Drawing No PL-03		Revision C

Appendix D
Northern Access Junction

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- KEY**
- 2.4m x 'y'm visibility splays
 - Right turn forward visibility splay
 - Site boundary
 - H - H - Highway boundary
 - Parked cars



Rev.	Description	Date	Chkd
<div style="display: inline-block; vertical-align: middle; margin-left: 10px;"> <p>Glanville Cornerstone House 62 Foxhall Road, Didcot Oxon, OX11 7AD Tel: (01235) 515550 Fax: (01235) 817799 postbox@glanvillegroup.com www.glanvillegroup.com</p> </div>			
Client : Catalyst Housing Ltd			
Project : Land at Chiswell Green St Albans			
Title : Chiswell Green Lane Proposed Access & Visibility Splays			
Project Engineer : S. Royal		Scale :	1: 500 @ A3
Project Director : J. Birch		Date :	January 2016
Status : PRELIMINARY			
Drawing No. 8151408/6106			Rev

Appendix E
Manual Classified Counts

St Albans - Manual Traffic Survey, Tuesday 19th January 2016

Junction: (5) Watford Road / A405 / Hotel Access

Approach: Watford Road

TIME	Left to A405 (East)				Ahead to A405 (South)				Right to Hotel Access			
	LIGHT	HEAVY	BUS	TOTAL	LIGHT	HEAVY	BUS	TOTAL	LIGHT	HEAVY	BUS	TOTAL
0700 - 0715	12	0	0	12	119	1	0	120	0	0	0	0
0715 - 0730	14	0	0	14	141	1	1	143	0	0	0	0
0730 - 0745	15	0	0	15	166	0	1	167	0	0	0	0
0745 - 0800	13	0	0	13	197	1	1	199	0	0	0	0
Hourly Total	54	0	0	54	623	3	3	629	0	0	0	0
0800 - 0815	12	0	0	12	141	0	1	142	0	0	0	0
0815 - 0830	6	1	0	7	144	1	2	147	0	0	0	0
0830 - 0845	11	0	0	11	132	0	1	133	0	0	0	0
0845 - 0900	7	0	0	7	139	0	1	140	0	0	0	0
Hourly Total	36	1	0	37	556	1	5	562	0	0	0	0
0900 - 0915	4	0	0	4	133	2	1	136	0	0	0	0
0915 - 0930	8	0	0	8	121	0	1	122	0	0	0	0
0930 - 0945	6	0	0	6	132	1	0	133	0	0	0	0
0945 - 1000	8	0	0	8	119	1	0	120	0	0	0	0
Hourly Total	26	0	0	26	505	4	2	511	0	0	0	0

Session Total	116	1	0	117	1684	8	10	1702	0	0	0	0
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1500 - 1515	8	0	0	8	112	0	1	113	0	0	0	0
1515 - 1530	7	1	0	8	132	0	1	133	0	0	0	0
1530 - 1545	11	0	0	11	141	0	4	145	0	0	0	0
1545 - 1600	9	0	0	9	99	1	3	103	0	0	0	0
Hourly Total	35	1	0	36	484	1	9	494	0	0	0	0
1600 - 1615	10	0	0	10	140	0	2	142	0	0	0	0
1615 - 1630	6	1	0	7	138	0	1	139	0	0	0	0
1630 - 1645	9	0	0	9	139	0	2	141	0	0	0	0
1645 - 1700	12	0	0	12	133	0	1	134	0	0	0	0
Hourly Total	37	1	0	38	550	0	6	556	0	0	0	0
1700 - 1715	6	0	0	6	151	0	0	151	0	0	0	0
1715 - 1730	6	1	0	7	152	0	2	154	0	0	0	0
1730 - 1745	5	0	0	5	144	0	1	145	0	0	0	0
1745 - 1800	7	0	0	7	132	0	1	133	0	0	0	0
Hourly Total	24	1	0	25	579	0	4	583	0	0	0	0
1800 - 1815	3	0	0	3	122	0	1	123	0	0	0	0
1815 - 1830	3	0	0	3	109	0	2	111	0	0	0	0
1830 - 1845	6	0	0	6	114	1	1	116	0	0	0	0
1845 - 1900	2	0	0	2	126	0	1	127	0	0	0	0
Hourly Total	14	0	0	14	471	1	5	477	0	0	0	0

Session Total	110	3	0	113	2084	2	24	2110	0	0	0	0
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St Albans - Manual Traffic Survey, Tuesday 19th January 2016

Junction: (5) Watford Road / A405 / Hotel Access

Approach: A405 (East)

TIME	Left to A405 (South)				Ahead to Hotel Access				Right to Watford Road			
	LIGHT	HEAVY	BUS	TOTAL	LIGHT	HEAVY	BUS	TOTAL	LIGHT	HEAVY	BUS	TOTAL
0700 - 0715	151	7	0	158	0	0	0	0	7	0	0	7
0715 - 0730	172	10	0	182	0	0	0	0	4	0	0	4
0730 - 0745	180	9	0	189	0	0	0	0	8	1	0	9
0745 - 0800	133	7	1	141	0	0	0	0	6	1	0	7
Hourly Total	636	33	1	670	0	0	0	0	25	2	0	27
0800 - 0815	64	5	0	69	1	0	0	1	2	1	0	3
0815 - 0830	88	8	0	96	0	0	0	0	8	0	0	8
0830 - 0845	106	9	0	115	0	0	0	0	4	0	0	4
0845 - 0900	103	12	1	116	0	0	0	0	5	0	0	5
Hourly Total	361	34	1	396	1	0	0	1	19	1	0	20
0900 - 0915	71	4	2	77	1	0	0	1	3	1	0	4
0915 - 0930	84	7	0	91	1	0	0	1	2	0	0	2
0930 - 0945	88	6	0	94	0	0	0	0	3	0	0	3
0945 - 1000	83	4	1	88	0	0	0	0	5	1	0	6
Hourly Total	326	21	3	350	2	0	0	2	13	2	0	15

Session Total	1323	88	5	1416	3	0	0	3	57	5	0	62
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1500 - 1515	217	6	0	223	0	0	0	0	8	0	0	8
1515 - 1530	221	6	0	227	1	0	0	1	4	0	0	4
1530 - 1545	216	9	0	225	0	0	0	0	4	0	0	4
1545 - 1600	241	5	0	246	1	0	0	1	12	0	0	12
Hourly Total	895	26	0	921	2	0	0	2	28	0	0	28
1600 - 1615	237	8	0	245	2	0	0	2	16	0	0	16
1615 - 1630	233	11	0	244	1	0	0	1	11	0	0	11
1630 - 1645	228	10	0	238	0	0	0	0	9	0	0	9
1645 - 1700	219	9	0	228	0	0	0	0	7	0	0	7
Hourly Total	917	38	0	955	3	0	0	3	43	0	0	43
1700 - 1715	241	6	1	248	1	0	0	1	12	0	0	12
1715 - 1730	219	6	0	225	1	0	0	1	5	0	0	5
1730 - 1745	245	5	0	250	0	0	0	0	5	0	0	5
1745 - 1800	261	7	0	268	0	0	0	0	3	0	0	3
Hourly Total	966	24	1	991	2	0	0	2	25	0	0	25
1800 - 1815	244	3	0	247	0	0	0	0	5	0	0	5
1815 - 1830	251	5	0	256	0	0	0	0	6	0	0	6
1830 - 1845	228	4	0	232	0	0	0	0	6	0	0	6
1845 - 1900	209	7	0	216	0	0	0	0	3	0	0	3
Hourly Total	932	19	0	951	0	0	0	0	20	0	0	20

Session Total	3710	107	1	3818	7	0	0	7	116	0	0	116
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St Albans - Manual Traffic Survey, Tuesday 19th January 2016

Junction: (5) Watford Road / A405 / Hotel Access

Approach: A405 (South)

TIME	Left to Hotel Access				Ahead to Watford Road				Right to A405 (East)			
	LIGHT	HEAVY	BUS	TOTAL	LIGHT	HEAVY	BUS	TOTAL	LIGHT	HEAVY	BUS	TOTAL
0700 - 0715	0	0	0	0	109	1	1	111	121	8	1	130
0715 - 0730	0	0	0	0	164	0	0	164	129	11	1	141
0730 - 0745	0	0	0	0	133	0	0	133	130	9	0	139
0745 - 0800	0	0	0	0	141	1	0	142	141	6	0	147
Hourly Total	0	0	0	0	547	2	1	550	521	34	2	557
0800 - 0815	0	0	0	0	141	1	0	142	127	9	0	136
0815 - 0830	0	0	0	0	144	0	1	145	136	12	1	149
0830 - 0845	0	0	0	0	141	0	1	142	164	5	1	170
0845 - 0900	0	0	0	0	159	2	0	161	158	8	0	166
Hourly Total	0	0	0	0	585	3	2	590	585	34	2	621
0900 - 0915	1	0	0	1	120	0	1	121	180	8	2	190
0915 - 0930	0	0	0	0	110	0	1	111	171	7	1	179
0930 - 0945	1	0	0	1	120	1	0	121	161	7	1	169
0945 - 1000	0	0	0	0	101	0	0	101	162	5	0	167
Hourly Total	2	0	0	2	451	1	2	454	674	27	4	705

Session Total	2	0	0	2	1583	6	5	1594	1780	95	8	1883
----------------------	----------	----------	----------	----------	-------------	----------	----------	-------------	-------------	-----------	----------	-------------

1500 - 1515	0	0	0	0	132	0	2	134	189	4	0	193
1515 - 1530	1	0	0	1	144	0	1	145	185	5	0	190
1530 - 1545	1	0	0	1	146	0	1	147	203	5	0	208
1545 - 1600	0	0	0	0	151	1	1	153	211	6	0	217
Hourly Total	2	0	0	2	573	1	5	579	788	20	0	808
1600 - 1615	1	0	0	1	144	0	1	145	216	9	0	225
1615 - 1630	1	0	0	1	141	1	0	142	221	4	0	225
1630 - 1645	0	0	0	0	148	0	0	148	224	5	0	229
1645 - 1700	0	0	0	0	155	0	0	155	191	4	0	195
Hourly Total	2	0	0	2	588	1	1	590	852	22	0	874
1700 - 1715	0	0	0	0	178	0	0	178	203	11	0	214
1715 - 1730	0	0	0	0	162	0	0	162	205	9	0	214
1730 - 1745	0	0	0	0	194	0	0	194	197	12	0	209
1745 - 1800	0	0	0	0	171	1	0	172	212	10	0	222
Hourly Total	0	0	0	0	705	1	0	706	817	42	0	859
1800 - 1815	0	0	0	0	204	0	0	204	182	5	0	187
1815 - 1830	0	0	0	0	184	0	1	185	178	6	0	184
1830 - 1845	0	0	0	0	178	0	0	178	177	8	0	185
1845 - 1900	0	0	0	0	174	0	0	174	162	4	0	166
Hourly Total	0	0	0	0	740	0	1	741	699	23	0	722

Session Total	4	0	0	4	2606	3	7	2616	3156	107	0	3263
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St Albans - Manual Traffic Survey, Tuesday 19th January 2016

Junction: (5) Watford Road / A405 / Hotel Access

Approach: Hotel Access

TIME	Left to Watford Road				Ahead to A405 (East)				Right to A405 (South)			
	LIGHT	HEAVY	BUS	TOTAL	LIGHT	HEAVY	BUS	TOTAL	LIGHT	HEAVY	BUS	TOTAL
0700 - 0715	0	0	0	0	0	0	0	0	0	0	0	0
0715 - 0730	0	0	0	0	1	0	0	1	0	0	0	0
0730 - 0745	0	0	0	0	0	0	0	0	0	0	0	0
0745 - 0800	0	0	0	0	1	0	0	1	1	0	0	1
Hourly Total	0	0	0	0	2	0	0	2	1	0	0	1
0800 - 0815	1	0	0	1	0	0	0	0	2	0	0	2
0815 - 0830	0	0	0	0	0	0	0	0	0	0	0	0
0830 - 0845	0	0	0	0	0	0	0	0	0	0	0	0
0845 - 0900	0	0	0	0	1	0	0	1	1	0	0	1
Hourly Total	1	0	0	1	1	0	0	1	3	0	0	3
0900 - 0915	0	0	0	0	0	0	0	0	1	0	0	1
0915 - 0930	0	0	0	0	1	0	0	1	0	0	0	0
0930 - 0945	0	0	0	0	0	0	0	0	0	0	0	0
0945 - 1000	0	0	0	0	0	0	0	0	1	0	0	1
Hourly Total	0	0	0	0	1	0	0	1	2	0	0	2

Session Total	1	0	0	1	4	0	0	4	6	0	0	6
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1500 - 1515	0	0	0	0	0	0	0	0	0	0	0	0
1515 - 1530	0	0	0	0	1	0	0	1	0	0	0	0
1530 - 1545	0	0	0	0	0	0	0	0	1	0	0	1
1545 - 1600	0	0	0	0	0	0	0	0	1	0	0	1
Hourly Total	0	0	0	0	1	0	0	1	2	0	0	2
1600 - 1615	0	0	0	0	1	0	0	1	0	0	0	0
1615 - 1630	0	0	0	0	0	0	0	0	0	0	0	0
1630 - 1645	0	0	0	0	0	0	0	0	2	0	0	2
1645 - 1700	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	1	0	0	1	2	0	0	2
1700 - 1715	0	0	0	0	0	0	0	0	1	0	0	1
1715 - 1730	0	0	0	0	0	0	0	0	1	0	0	1
1730 - 1745	0	0	0	0	1	0	0	1	0	0	0	0
1745 - 1800	0	0	0	0	0	0	0	0	1	0	0	1
Hourly Total	0	0	0	0	1	0	0	1	3	0	0	3
1800 - 1815	0	0	0	0	0	0	0	0	0	0	0	0
1815 - 1830	0	0	0	0	0	0	0	0	0	0	0	0
1830 - 1845	0	0	0	0	0	0	0	0	0	0	0	0
1845 - 1900	0	0	0	0	0	0	0	0	0	0	0	0
Hourly Total	0	0	0	0	0	0	0	0	0	0	0	0

Session Total	0	0	0	0	3	0	0	3	7	0	0	7
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St Albans - Manual Traffic Survey, Tuesday 19th January 2016

Junction: (6) Watling Street / A414 / A405

Approach: Watling Street (North)

TIME	Left to A414 (East)				Ahead to Watling Street (South)				Right to A405				Last Right to A414 (West)			
	LIGHT	HEAVY	BUS	TOTAL	LIGHT	HEAVY	BUS	TOTAL	LIGHT	HEAVY	BUS	TOTAL	LIGHT	HEAVY	BUS	TOTAL
0700 - 0715	54	0	0	54	42	0	0	42	13	0	0	13	33	0	0	33
0715 - 0730	52	0	0	52	65	0	1	66	21	0	0	21	26	0	0	26
0730 - 0745	62	1	1	64	73	0	0	73	16	0	0	16	27	0	0	27
0745 - 0800	60	0	0	60	53	0	1	54	19	0	0	19	36	0	0	36
Hourly Total	228	1	1	230	233	0	2	235	69	0	0	69	122	0	0	122
0800 - 0815	60	1	1	62	34	0	0	34	13	0	0	13	43	0	0	43
0815 - 0830	37	0	1	38	40	0	1	41	17	0	0	17	29	0	0	29
0830 - 0845	49	0	0	49	21	0	0	21	16	0	0	16	29	0	0	29
0845 - 0900	35	0	2	37	31	0	1	32	15	0	0	15	29	1	0	30
Hourly Total	181	1	4	186	126	0	2	128	61	0	0	61	130	1	0	131
0900 - 0915	16	0	0	16	40	0	0	40	18	0	0	18	24	0	0	24
0915 - 0930	45	1	1	47	36	0	1	37	14	0	0	14	29	0	0	29
0930 - 0945	44	2	0	46	24	0	0	24	13	0	0	13	19	0	0	19
0945 - 1000	45	0	0	45	26	0	1	27	9	0	0	9	22	0	0	22
Hourly Total	150	3	1	154	126	0	2	128	54	0	0	54	94	0	0	94

Session Total	559	5	6	570	485	0	6	491	184	0	0	184	346	1	0	347
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1500 - 1515	38	0	1	39	28	0	0	28	35	0	0	35	25	0	2	27
1515 - 1530	63	0	0	63	38	0	0	38	44	0	0	44	37	0	0	37
1530 - 1545	71	0	0	71	31	0	1	32	39	0	0	39	30	0	0	30
1545 - 1600	53	0	0	53	27	0	2	29	40	0	0	40	34	0	0	34
Hourly Total	225	0	1	226	124	0	3	127	158	0	0	158	126	0	2	128
1600 - 1615	64	0	3	67	38	0	0	38	40	0	0	40	32	0	0	32
1615 - 1630	64	0	1	65	33	0	1	34	40	0	1	41	36	0	0	36
1630 - 1645	54	0	0	54	33	0	0	33	42	0	0	42	42	0	0	42
1645 - 1700	64	0	0	64	43	0	0	43	22	0	0	22	17	0	0	17
Hourly Total	246	0	4	250	147	0	1	148	144	0	1	145	127	0	0	127
1700 - 1715	58	0	0	58	42	0	1	43	33	0	0	33	31	0	0	31
1715 - 1730	45	0	1	46	36	0	0	36	33	0	0	33	33	0	0	33
1730 - 1745	58	0	0	58	39	0	0	39	39	0	0	39	38	0	0	38
1745 - 1800	47	0	0	47	46	0	1	47	35	0	0	35	31	0	0	31
Hourly Total	208	0	1	209	163	0	2	165	140	0	0	140	133	0	0	133
1800 - 1815	50	0	0	50	29	0	2	31	37	0	0	37	37	0	0	37
1815 - 1830	49	0	0	49	15	0	0	15	35	0	0	35	34	0	0	34
1830 - 1845	41	0	0	41	29	0	0	29	32	0	0	32	34	0	0	34
1845 - 1900	41	0	0	41	18	0	0	18	27	0	0	27	19	0	0	19
Hourly Total	181	0	0	181	91	0	2	93	131	0	0	131	124	0	0	124

Session Total	860	0	6	866	525	0	8	533	573	0	1	574	510	0	2	512
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St Albans - Manual Traffic Survey, Tuesday 19th January 2016

Junction: (6) Watling Street / A414 / A405

Approach: A414 (East)

TIME	First Left to Watling Street (South)				Second Left to A405				Ahead to A414 (West)				Right to Watling Street (North)			
	LIGHT	HEAVY	BUS	TOTAL	LIGHT	HEAVY	BUS	TOTAL	LIGHT	HEAVY	BUS	TOTAL	LIGHT	HEAVY	BUS	TOTAL
0700 - 0715	33	0	0	33	143	8	0	151	155	8	0	163	44	1	0	45
0715 - 0730	39	0	1	40	144	9	0	153	185	8	0	193	45	2	0	47
0730 - 0745	51	0	0	51	116	11	0	127	194	10	1	205	68	0	0	68
0745 - 0800	49	0	0	49	91	5	1	97	151	11	0	162	82	0	1	83
Hourly Total	172	0	1	173	494	33	1	528	685	37	1	723	239	3	1	243
0800 - 0815	36	0	1	37	66	6	0	72	89	4	0	93	71	0	1	72
0815 - 0830	27	0	0	27	62	5	0	67	124	8	0	132	80	0	2	82
0830 - 0845	37	1	1	39	73	8	0	81	134	7	0	141	65	1	0	66
0845 - 0900	31	0	0	31	77	11	1	89	143	6	0	149	56	0	0	56
Hourly Total	131	1	2	134	278	30	1	309	490	25	0	515	272	1	3	276
0900 - 0915	31	0	0	31	65	4	1	70	124	9	0	133	51	0	0	51
0915 - 0930	25	0	0	25	56	5	1	62	137	5	0	142	73	0	0	73
0930 - 0945	35	0	0	35	62	5	0	67	139	19	0	158	59	0	0	59
0945 - 1000	25	1	2	28	67	5	1	73	111	7	0	118	57	0	0	57
Hourly Total	116	1	2	119	250	19	3	272	511	40	0	551	240	0	0	240

Session Total	419	2	5	426	1022	82	5	1109	1686	102	1	1789	751	4	4	759
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1500 - 1515	28	0	0	28	178	4	0	182	123	13	0	136	81	0	1	82
1515 - 1530	43	1	0	44	161	6	0	167	122	11	0	133	81	0	2	83
1530 - 1545	29	0	0	29	165	4	0	169	161	6	0	167	79	0	1	80
1545 - 1600	31	0	1	32	197	4	0	201	163	9	0	172	62	0	0	62
Hourly Total	131	1	1	133	701	18	0	719	569	39	0	608	303	0	4	307
1600 - 1615	26	0	0	26	197	5	0	202	192	13	0	205	44	0	0	44
1615 - 1630	36	0	1	37	177	13	0	190	198	7	0	205	46	0	0	46
1630 - 1645	41	0	0	41	185	7	0	192	200	5	0	205	62	0	0	62
1645 - 1700	32	0	1	33	199	10	0	209	204	2	0	206	46	0	0	46
Hourly Total	135	0	2	137	758	35	0	793	794	27	0	821	198	0	0	198
1700 - 1715	35	0	0	35	201	5	0	206	203	10	0	213	60	0	0	60
1715 - 1730	39	0	1	40	203	2	0	205	202	8	0	210	53	0	0	53
1730 - 1745	40	0	0	40	200	5	0	205	199	4	0	203	47	0	0	47
1745 - 1800	26	0	1	27	213	6	0	219	214	3	0	217	47	0	1	48
Hourly Total	140	0	2	142	817	18	0	835	818	25	0	843	207	0	1	208
1800 - 1815	35	0	0	35	198	5	0	203	198	4	0	202	57	0	0	57
1815 - 1830	21	0	0	21	186	5	0	191	215	10	2	227	54	0	0	54
1830 - 1845	21	1	0	22	198	4	0	202	178	14	0	192	72	0	0	72
1845 - 1900	20	0	1	21	156	4	0	160	146	7	0	153	64	0	0	64
Hourly Total	97	1	1	99	738	18	0	756	737	35	2	774	247	0	0	247

Session Total	503	2	6	511	3014	89	0	3103	2918	126	2	3046	955	0	5	960
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St Albans - Manual Traffic Survey, Tuesday 19th January 2016

Junction: (6) Watling Street / A414 / A405

Approach: Watling Street (South)

TIME	First Left to A405				Second Left to A414 (West)				Ahead to Watling Street (North)				Right to A414 (East)			
	LIGHT	HEAVY	BUS	TOTAL	LIGHT	HEAVY	BUS	TOTAL	LIGHT	HEAVY	BUS	TOTAL	LIGHT	HEAVY	BUS	TOTAL
0700 - 0715	4	0	0	4	25	0	0	25	6	0	0	6	30	1	0	31
0715 - 0730	5	0	0	5	25	0	0	25	4	0	0	4	43	1	1	45
0730 - 0745	10	0	0	10	53	0	0	53	16	0	0	16	65	0	0	65
0745 - 0800	22	0	0	22	47	0	0	47	24	0	1	25	79	0	0	79
Hourly Total	41	0	0	41	150	0	0	150	50	0	1	51	217	2	1	220
0800 - 0815	17	0	0	17	32	0	0	32	25	0	3	28	75	1	1	77
0815 - 0830	14	0	0	14	49	2	0	51	33	0	1	34	61	2	0	63
0830 - 0845	14	0	0	14	45	0	0	45	24	0	0	24	52	0	0	52
0845 - 0900	13	0	0	13	45	0	0	45	21	0	1	22	38	0	0	38
Hourly Total	58	0	0	58	171	2	0	173	103	0	5	108	226	3	1	230
0900 - 0915	8	1	0	9	34	1	0	35	18	0	0	18	47	1	0	48
0915 - 0930	9	0	0	9	28	0	0	28	12	0	0	12	50	1	0	51
0930 - 0945	15	0	0	15	20	1	0	21	12	0	0	12	46	2	1	49
0945 - 1000	11	0	0	11	31	0	0	31	15	0	0	15	51	1	0	52
Hourly Total	43	1	0	44	113	2	0	115	57	0	0	57	194	5	1	200

Session Total	142	1	0	143	434	4	0	438	210	0	6	216	637	10	3	650
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1500 - 1515	5	1	0	6	23	0	0	23	16	0	0	16	51	0	0	51
1515 - 1530	8	0	0	8	31	0	0	31	18	0	1	19	59	0	0	59
1530 - 1545	11	0	0	11	29	0	0	29	16	0	1	17	71	1	0	72
1545 - 1600	3	0	0	3	27	1	0	28	11	0	0	11	62	2	0	64
Hourly Total	27	1	0	28	110	1	0	111	61	0	2	63	243	3	0	246
1600 - 1615	6	0	0	6	32	0	0	32	7	0	0	7	50	0	0	50
1615 - 1630	9	0	0	9	55	0	0	55	14	0	0	14	57	1	0	58
1630 - 1645	6	1	0	7	31	0	0	31	9	0	2	11	49	0	1	50
1645 - 1700	4	0	0	4	43	0	0	43	17	0	0	17	54	0	0	54
Hourly Total	25	1	0	26	161	0	0	161	47	0	2	49	210	1	1	212
1700 - 1715	1	0	0	1	37	0	0	37	18	0	1	19	50	0	0	50
1715 - 1730	4	0	0	4	43	0	0	43	12	0	0	12	64	0	1	65
1730 - 1745	3	0	0	3	52	0	0	52	18	0	0	18	58	0	0	58
1745 - 1800	4	0	0	4	45	2	1	48	14	0	1	15	55	1	0	56
Hourly Total	12	0	0	12	177	2	1	180	62	0	2	64	227	1	1	229
1800 - 1815	5	0	0	5	51	0	0	51	18	0	0	18	63	0	0	63
1815 - 1830	3	0	0	3	35	0	0	35	9	0	0	9	58	0	0	58
1830 - 1845	3	0	0	3	39	0	0	39	14	0	1	15	73	0	0	73
1845 - 1900	5	0	0	5	37	1	0	38	14	0	0	14	65	1	0	66
Hourly Total	16	0	0	16	162	1	0	163	55	0	1	56	259	1	0	260

Session Total	80	2	0	82	610	4	1	615	225	0	7	232	939	6	2	947
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St Albans - Manual Traffic Survey, Tuesday 19th January 2016

Junction: (6) Watling Street / A414 / A405

Approach: A405

TIME	First Left to A414 (West)				Second Left to Watling Street (North)				Right to A414 (East)				Last Right to Watling Street (South)			
	LIGHT	HEAVY	BUS	TOTAL	LIGHT	HEAVY	BUS	TOTAL	LIGHT	HEAVY	BUS	TOTAL	LIGHT	HEAVY	BUS	TOTAL
0700 - 0715	11	0	0	11	16	0	0	16	102	9	1	112	12	0	0	12
0715 - 0730	14	0	0	14	11	0	0	11	102	12	1	115	11	0	0	11
0730 - 0745	14	0	0	14	15	0	0	15	133	10	0	143	9	0	0	9
0745 - 0800	14	0	0	14	21	0	0	21	112	7	0	119	14	0	0	14
Hourly Total	53	0	0	53	63	0	0	63	449	38	2	489	46	0	0	46
0800 - 0815	23	0	0	23	24	0	0	24	103	9	0	112	11	0	0	11
0815 - 0830	15	0	0	15	22	0	0	22	102	12	1	115	13	0	0	13
0830 - 0845	13	0	0	13	21	0	0	21	112	8	0	120	13	0	0	13
0845 - 0900	6	0	0	6	25	0	0	25	112	3	0	115	14	0	0	14
Hourly Total	57	0	0	57	92	0	0	92	429	32	1	462	51	0	0	51
0900 - 0915	13	0	0	13	22	0	0	22	120	6	2	128	19	0	0	19
0915 - 0930	9	0	0	9	21	0	0	21	132	6	1	139	17	0	0	17
0930 - 0945	11	1	0	12	19	0	0	19	125	7	1	133	23	0	0	23
0945 - 1000	10	0	0	10	20	0	0	20	112	5	0	117	24	0	0	24
Hourly Total	43	1	0	44	82	0	0	82	489	24	4	517	83	0	0	83

Session Total	153	1	0	154	237	0	0	237	1367	94	7	1468	180	0	0	180
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1500 - 1515	12	0	0	12	42	0	0	42	114	5	0	119	17	0	0	17
1515 - 1530	11	0	0	11	40	0	0	40	112	4	0	116	25	0	0	25
1530 - 1545	5	0	0	5	32	0	0	32	145	6	0	151	20	0	0	20
1545 - 1600	13	0	0	13	30	0	0	30	175	5	0	180	19	0	0	19
Hourly Total	41	0	0	41	144	0	0	144	546	20	0	566	81	0	0	81
1600 - 1615	18	0	0	18	26	0	0	26	157	4	0	161	10	1	0	11
1615 - 1630	9	0	0	9	33	0	0	33	156	3	0	159	23	0	0	23
1630 - 1645	7	0	0	7	30	0	0	30	166	5	0	171	13	1	0	14
1645 - 1700	9	0	0	9	30	0	0	30	129	7	0	136	12	0	0	12
Hourly Total	43	0	0	43	119	0	0	119	608	19	0	627	58	2	0	60
1700 - 1715	7	0	0	7	34	0	0	34	144	11	0	155	18	0	0	18
1715 - 1730	12	0	0	12	26	0	0	26	131	13	0	144	15	0	0	15
1730 - 1745	24	0	0	24	29	0	0	29	134	8	0	142	13	0	0	13
1745 - 1800	24	3	1	28	24	0	0	24	121	7	0	128	13	0	0	13
Hourly Total	67	3	1	71	113	0	0	113	530	39	0	569	59	0	0	59
1800 - 1815	11	0	0	11	35	0	0	35	129	6	0	135	16	0	0	16
1815 - 1830	14	0	0	14	24	0	0	24	121	5	0	126	16	0	0	16
1830 - 1845	11	0	0	11	29	0	0	29	111	7	0	118	16	0	0	16
1845 - 1900	8	0	0	8	36	0	0	36	101	4	0	105	23	0	0	23
Hourly Total	44	0	0	44	124	0	0	124	462	22	0	484	71	0	0	71

Session Total	195	3	1	199	500	0	0	500	2146	100	0	2246	269	2	0	271
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St Albans - Manual Traffic Survey, Tuesday 19th January 2016

Junction: (6) Watling Street / A414 / A405

Approach: A414 (West)

TIME	Left to Watling Street (North)				Ahead to A414 (East)				Right to Watling Street (South)				Last Right to A405			
	LIGHT	HEAVY	BUS	TOTAL	LIGHT	HEAVY	BUS	TOTAL	LIGHT	HEAVY	BUS	TOTAL	LIGHT	HEAVY	BUS	TOTAL
0700 - 0715	2	0	0	2	122	2	0	124	16	0	0	16	14	0	0	14
0715 - 0730	5	0	0	5	138	3	0	141	8	1	0	9	7	4	0	11
0730 - 0745	4	0	0	4	160	6	1	167	23	0	0	23	9	0	0	9
0745 - 0800	18	0	0	18	146	3	0	149	32	0	0	32	16	2	0	18
Hourly Total	29	0	0	29	566	14	1	581	79	1	0	80	46	6	0	52
0800 - 0815	30	0	0	30	161	2	0	163	24	0	0	24	12	0	0	12
0815 - 0830	33	0	0	33	178	7	0	185	20	1	0	21	12	1	0	13
0830 - 0845	40	0	0	40	211	10	0	221	25	0	0	25	24	0	0	24
0845 - 0900	41	0	0	41	166	3	0	169	16	0	0	16	15	1	0	16
Hourly Total	144	0	0	144	716	22	0	738	85	1	0	86	63	2	0	65
0900 - 0915	35	0	0	35	151	4	0	155	19	0	0	19	17	1	0	18
0915 - 0930	33	1	0	34	172	10	0	182	18	0	0	18	13	0	0	13
0930 - 0945	16	0	0	16	119	8	2	129	22	0	0	22	12	0	0	12
0945 - 1000	18	0	0	18	121	9	0	130	18	0	0	18	15	0	0	15
Hourly Total	102	1	0	103	563	31	2	596	77	0	0	77	57	1	0	58

Session Total	275	1	0	276	1845	67	3	1915	241	2	0	243	166	9	0	175
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1500 - 1515	22	1	0	23	122	10	2	134	14	1	0	15	21	2	0	23
1515 - 1530	16	0	0	16	117	6	0	123	19	0	0	19	19	1	0	20
1530 - 1545	23	0	0	23	147	9	0	156	21	0	0	21	17	2	0	19
1545 - 1600	17	0	0	17	140	8	0	148	13	0	0	13	19	1	0	20
Hourly Total	78	1	0	79	526	33	2	561	67	1	0	68	76	6	0	82
1600 - 1615	14	0	0	14	174	9	1	184	12	1	0	13	16	3	0	19
1615 - 1630	17	0	0	17	148	12	0	160	21	0	0	21	25	0	0	25
1630 - 1645	14	0	0	14	192	2	0	194	17	1	0	18	19	2	0	21
1645 - 1700	22	0	0	22	205	5	0	210	14	0	0	14	8	0	0	8
Hourly Total	67	0	0	67	719	28	1	748	64	2	0	66	68	5	0	73
1700 - 1715	25	0	0	25	188	8	0	196	18	0	0	18	11	0	0	11
1715 - 1730	18	0	0	18	210	5	0	215	18	0	0	18	12	2	0	14
1730 - 1745	13	0	0	13	200	4	0	204	19	0	0	19	20	1	0	21
1745 - 1800	20	0	0	20	201	7	0	208	19	0	0	19	11	0	0	11
Hourly Total	76	0	0	76	799	24	0	823	74	0	0	74	54	3	0	57
1800 - 1815	25	0	0	25	138	4	0	142	12	0	0	12	19	1	0	20
1815 - 1830	20	0	0	20	152	3	0	155	14	0	0	14	32	1	0	33
1830 - 1845	24	0	0	24	165	3	0	168	22	0	0	22	15	2	0	17
1845 - 1900	21	0	0	21	140	8	0	148	19	0	0	19	24	0	0	24
Hourly Total	90	0	0	90	595	18	0	613	67	0	0	67	90	4	0	94

Session Total	311	1	0	312	2639	103	3	2745	272	3	0	275	288	18	0	306
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St Albans - Queue Survey, Tuesday 19th January 2016

Junction: (1) Watford Road / Long Fallow

Queues Measured as Stationary Vehicles (Maximum Observed in Period)

TIME	Queue Lengths (Vehicles)		
	Watford Rd (SB)	Watford Rd (NB)	Watford Rd (NB)
700	0	0	0
705	0	0	0
710	0	0	0
715	0	0	0
720	0	0	0
725	0	0	0
730	0	0	0
735	0	0	0
740	0	0	0
745	0	0	0
750	0	0	0
755	0	0	0
800	0	0	0
805	0	0	0
810	0	0	0
815	0	0	0
820	0	0	0
825	0	0	0
830	0	0	0
835	0	0	0
840	0	0	0
845	0	0	0
850	0	0	0
855	0	0	0
900	0	0	0
905	0	0	0
910	0	0	0
915	0	0	0
920	0	0	0
925	0	0	0
930	0	0	0
935	0	0	0
940	0	0	0
945	0	0	0
950	0	0	0
955	0	0	0

TIME	Queue Lengths (Vehicles)		
	Watford Rd (SB)	Watford Rd (NB)	Watford Rd (NB)
1500	0	0	0
1505	0	0	0
1510	0	0	0
1515	0	0	0
1520	0	0	0
1525	0	0	0
1530	0	0	0
1535	0	0	0
1540	0	0	0
1545	0	0	0
1550	0	0	0
1555	0	0	0
1600	0	0	0
1605	0	0	0
1610	0	0	0
1615	0	0	0
1620	0	0	0
1625	0	0	0
1630	0	0	0
1635	0	0	0
1640	0	0	0
1645	0	0	0
1650	0	0	0
1655	0	0	0
1700	0	0	0
1705	0	0	0
1710	0	0	0
1715	0	0	0
1720	0	0	0
1725	0	0	0
1730	0	0	0
1735	0	0	0
1740	0	0	0
1745	0	0	0
1750	0	0	0
1755	0	0	0
1800	0	0	0
1805	0	0	0
1810	0	0	0
1815	0	0	0
1820	0	0	0
1825	0	0	0
1830	0	0	0
1835	0	0	0
1840	0	0	0
1845	0	0	0
1850	0	0	0
1855	0	0	0

St Albans - Queue Survey, Tuesday 19th January 2016

Junction: (2) Watford Road / Forge End

Queues Measured as Stationary Vehicles (Maximum Observed in Period)

TIME	Queue Lengths (Vehicles)		
	Watford Rd (SB)	Watford Rd (NB)	Watford Rd (NB)
700	0	0	0
705	0	0	0
710	0	0	0
715	0	0	0
720	0	0	0
725	0	0	0
730	0	0	0
735	0	0	0
740	0	0	0
745	0	0	0
750	0	0	0
755	0	0	0
800	0	0	0
805	0	0	0
810	0	0	0
815	0	0	0
820	0	0	0
825	0	0	0
830	0	0	0
835	0	0	0
840	0	0	0
845	0	0	0
850	0	0	0
855	0	0	0
900	0	0	0
905	0	0	0
910	0	0	0
915	0	0	0
920	0	0	0
925	0	0	0
930	0	0	0
935	0	0	0
940	0	0	0
945	0	0	0
950	0	0	0
955	0	0	0

TIME	Queue Lengths (Vehicles)		
	Watford Rd (SB)	Watford Rd (NB)	Watford Rd (NB)
1500	0	0	0
1505	0	0	0
1510	0	0	0
1515	0	0	0
1520	0	0	0
1525	0	0	0
1530	0	0	0
1535	0	0	0
1540	0	0	0
1545	0	0	0
1550	0	0	0
1555	0	0	0
1600	0	0	0
1605	0	0	0
1610	0	0	0
1615	0	0	0
1620	0	0	0
1625	0	0	0
1630	0	0	0
1635	0	0	0
1640	0	0	0
1645	0	0	0
1650	0	0	0
1655	0	0	0
1700	0	0	0
1705	0	0	0
1710	0	0	0
1715	0	0	0
1720	0	0	0
1725	0	0	0
1730	0	0	0
1735	0	0	0
1740	0	0	0
1745	0	0	0
1750	0	0	0
1755	0	0	0
1800	0	0	0
1805	0	0	0
1810	0	0	0
1815	0	0	0
1820	0	0	0
1825	0	0	0
1830	0	0	0
1835	0	0	0
1840	0	0	0
1845	0	0	0
1850	0	0	0
1855	0	0	0

St Albans - Queue Survey, Tuesday 19th January 2016

Junction: (3) Watford Road / Tippendell Lane / Chiswell Green Lane

Queues Measured as Stationary Vehicles (Maximum Observed in Period)

TIME	Queue Lengths (Vehicles)			
	Watford Rd (SB)	Tippendell Lane	Watford Rd (NB)	Chiswell Green Lane
700	0	2	0	0
705	0	2	0	0
710	0	2	2	0
715	0	2	3	0
720	0	3	3	0
725	0	2	4	0
730	2	4	2	0
735	0	2	5	0
740	0	3	4	0
745	2	3	3	0
750	0	5	3	0
755	2	4	4	2
800	0	5	3	0
805	2	6	4	2
810	0	5	3	0
815	0	6	4	0
820	0	6	4	0
825	0	6	4	0
830	3	4	3	0
835	2	5	4	0
840	0	4	3	0
845	0	3	4	0
850	0	4	3	0
855	0	3	3	0
900	0	4	3	0
905	2	3	5	0
910	0	3	5	0
915	0	3	5	0
920	0	4	3	0
925	0	2	2	0
930	0	0	0	0
935	0	4	3	0
940	0	2	2	0
945	0	2	3	0
950	0	0	2	0
955	0	2	3	0

TIME	Queue Lengths (Vehicles)			
	Watford Rd (SB)	Tippendell Lane	Watford Rd (NB)	Chiswell Green Lane
1500	0	3	2	0
1505	0	2	5	0
1510	0	3	3	0
1515	0	2	2	0
1520	0	3	4	0
1525	0	3	3	0
1530	0	4	6	0
1535	0	3	3	0
1540	2	4	5	0
1545	0	4	5	0
1550	0	3	4	0
1555	0	4	3	0
1600	0	3	4	0
1605	0	5	3	0
1610	0	4	5	0
1615	2	3	5	0
1620	2	4	5	0
1625	2	3	6	2
1630	0	3	5	0
1635	0	3	6	0
1640	0	3	3	2
1645	0	4	4	2
1650	0	5	5	0
1655	2	3	4	0
1700	0	3	5	0
1705	0	3	5	0
1710	3	3	4	0
1715	2	3	5	0
1720	0	3	4	0
1725	2	0	4	2
1730	0	4	3	0
1735	0	2	3	0
1740	0	3	3	0
1745	0	2	2	2
1750	0	3	3	0
1755	0	2	2	0
1800	0	3	0	0
1805	0	3	2	2
1810	0	3	0	0
1815	0	2	2	0
1820	0	3	0	0
1825	0	2	2	0
1830	0	2	0	0
1835	0	2	0	0
1840	0	3	2	0
1845	0	2	3	0
1850	0	3	2	0
1855	0	3	2	0

St Albans - Queue Survey, Tuesday 19th January 2016

Junction: (4) A405 / Tippendall Lane

Queues Measured as Stationary Vehicles (Maximum Observed in Period)

TIME	Queue Lengths (Vehicles)			
	A405 (SB)	Tippendall Lane (WB)	A405 (NB)	Tippendall Lane (EB)
700	5	3	6	0
705	5	3	8	0
710	6	3	5	0
715	8	4	6	2
720	3	3	6	0
725	5	5	4	0
730	7	5	7	2
735	6	4	5	0
740	5	5	7	0
745	8	3	7	2
750	15	4	5	3
755	20+	4	6	2
800	20+	4	6	0
805	20+	5	6	0
810	20+	3	8	2
815	20+	5	7	0
820	20+	5	7	4
825	20+	5	7	2
830	20+	3	12	3
835	20+	4	14	3
840	20+	4	10	3
845	20+	4	16	2
850	20+	4	10	0
855	20+	4	10	3
900	20+	3	17	2
905	20+	5	12	0
910	20+	5	14	3
915	20+	5	8	0
920	20+	2	12	0
925	20+	2	10	0
930	20+	2	10	2
935	20+	2	7	3
940	20+	0	10	5
945	20+	0	9	2
950	15	0	7	3
955	17	2	5	3

TIME	Queue Lengths (Vehicles)			
	A405 (SB)	Tippendall Lane (WB)	A405 (NB)	Tippendall Lane (EB)
1500	8	2	2	0
1505	8	2	2	0
1510	6	2	2	0
1515	6	3	3	0
1520	7	2	2	0
1525	9	4	3	0
1530	10	5	2	3
1535	10	4	4	3
1540	5	3	4	3
1545	7	4	3	2
1550	4	4	4	3
1555	5	4	5	2
1600	7	5	3	3
1605	7	4	6	3
1610	8	4	5	4
1615	10	5	3	2
1620	6	5	4	4
1625	8	4	5	5
1630	6	3	3	6
1635	6	3	4	6
1640	7	3	6	5
1645	10	4	6	6
1650	10	3	7	4
1655	6	3	5	5
1700	8	3	8	5
1705	5	3	7	4
1710	6	4	8	5
1715	10	3	8	3
1720	6	4	5	4
1725	12	3	6	3
1730	8	3	4	3
1735	8	3	6	4
1740	8	3	5	3
1745	6	2	5	4
1750	9	3	4	3
1755	7	5	6	3
1800	8	4	3	3
1805	10	2	5	3
1810	6	3	4	2
1815	8	2	5	2
1820	7	3	4	2
1825	7	3	4	3
1830	7	3	4	2
1835	4	2	3	0
1840	5	3	4	2
1845	4	2	3	0
1850	3	3	4	0
1855	4	2	3	2

St Albans - Queue Survey, Tuesday 19th January 2016

Junction: (5) Watford Road / A405 / Hotel Access

Queues Measured as Stationary Vehicles (Maximum Observed in Period)

TIME	Queue Lengths (Vehicles)			
	Watford Rd	A405 (WB)	A405 (NB)	Hotel Access
700	6	6	0	0
705	6	7	0	0
710	5	10	0	0
715	6	10	0	0
720	5	9	2	0
725	4	7	0	0
730	5	8	0	0
735	5	9	0	0
740	6	10	0	0
745	5	15	2	0
750	6	20	0	0
755	4	30+	0	0
800	5	30+	0	0
805	5	30+	0	0
810	6	30+	0	0
815	5	30+	2	0
820	6	30+	3	0
825	5	30+	2	0
830	4	30+	0	0
835	5	30+	0	0
840	4	30+	0	0
845	4	30+	2	0
850	4	30+	0	0
855	3	30+	0	0
900	3	30+	3	0
905	3	30+	3	0
910	3	22	0	0
915	4	25	0	0
920	3	19	0	0
925	4	19	2	0
930	3	20	0	0
935	3	15	0	0
940	3	13	0	0
945	5	13	0	0
950	3	15	0	0
955	3	12	0	0

TIME	Queue Lengths (Vehicles)			
	Watford Rd	A405 (WB)	A405 (NB)	Hotel Access
1500	5	10	0	0
1505	6	12	0	0
1510	6	11	0	0
1515	8	10	2	0
1520	10	10	0	0
1525	10	9	0	0
1530	6	6	2	0
1535	10	8	0	0
1540	9	10	3	0
1545	10	15	2	0
1550	7	10	0	0
1555	6	10	2	0
1600	5	9	3	0
1605	6	12	4	0
1610	10	10	3	0
1615	10	10	2	0
1620	6	5	2	0
1625	8	6	0	0
1630	10	10	0	0
1635	8	9	0	0
1640	8	8	0	0
1645	7	8	0	0
1650	5	8	0	0
1655	6	8	0	0
1700	4	10	2	0
1705	5	12	0	0
1710	5	10	0	0
1715	6	7	0	0
1720	5	8	0	0
1725	4	6	3	0
1730	7	8	2	0
1735	7	9	0	0
1740	7	6	0	0
1745	10	5	0	0
1750	6	7	0	0
1755	4	5	3	0
1800	5	8	0	0
1805	3	8	0	0
1810	3	5	0	0
1815	5	8	2	0
1820	5	10	0	0
1825	6	6	0	0
1830	3	7	0	0
1835	4	6	0	0
1840	3	6	0	0
1845	4	6	0	0
1850	3	5	0	0
1855	3	6	0	0

St Albans - Queue Survey, Tuesday 19th January 2016

Junction: (6) Watling Street / A414 / A405

Queues Measured as Stationary Vehicles (Maximum Observed in Period)

TIME	Queue Lengths (Vehicles)				
	Watling St (SB)	A414 (WB)	Watling St (NB)	A405	A414 (EB)
700	6	10	3	11	5
705	4	12	4	7	4
710	9	10	5	8	3
715	8	11	6	7	5
720	7	12	3	9	5
725	4	15	4	6	3
730	10	21	7	12	4
735	8	30+	9	17	3
740	30+	30+	11	18	6
745	11	30+	5	20	6
750	30	30+	7	21	5
755	27	30+	7	25	2
800	30+	30+	6	16	10
805	30+	30+	4	12	20
810	30+	30+	9	10	22
815	30+	30+	7	11	18
820	30+	30+	7	10	12
825	30+	30+	5	10	30+
830	30+	30+	8	7	30+
835	30+	30+	7	5	15
840	28	30+	6	4	8
845	30+	30+	15	20	30+
850	30+	30+	5	12	30+
855	30+	30+	3	7	30+
900	30+	30+	5	11	30+
905	30+	30+	5	8	30+
910	30+	30+	5	8	30+
915	29	30+	4	12	30+
920	30+	30+	4	12	4
925	27	30+	6	5	10
930	4	30+	6	6	5
935	5	30+	7	5	5
940	6	29	5	3	8
945	6	28	9	10	8
950	2	11	6	12	8
955	5	7	6	4	6

TIME	Queue Lengths (Vehicles)				
	Watling St (SB)	A414 (WB)	Watling St (NB)	A405	A414 (EB)
1500	3	8	9	10	10
1505	7	12	4	10	8
1510	5	10	4	13	10
1515	10	10	9	14	8
1520	11	11	5	18	5
1525	25	8	5	12	10
1530	26	12	10	10	15
1535	25	6	11	21	8
1540	11	8	7	18	4
1545	6	11	6	18	9
1550	10	9	7	16	6
1555	23	3	6	14	8
1600	25	16	8	14	5
1605	30	23	12	10	5
1610	30+	21	15	8	9
1615	30+	20	19	10	8
1620	22	25	18	7	6
1625	7	23	8	9	12
1630	9	30+	6	10	15
1635	30	30+	12	11	10
1640	26	30+	13	12	8
1645	6	30+	16	6	5
1650	9	30+	8	12	10
1655	10	30+	6	7	15
1700	10	30+	8	13	8
1705	10	25	9	15	10
1710	10	25	10	20	4
1715	9	29	22	18	4
1720	25	14	25	17	5
1725	32	8	24	16	8
1730	30	9	26	20	8
1735	30+	15	24	22	3
1740	28	20	16	26	12
1745	14	26	22	18	12
1750	14	24	24	26	5
1755	7	26	24	25	5
1800	4	26	28	23	7
1805	7	24	27	25	4
1810	8	12	23	26	5
1815	4	10	19	26	6
1820	13	19	20	25	6
1825	4	14	22	28	6
1830	3	10	13	26	8
1835	6	6	12	28	15
1840	8	6	7	27	12
1845	2	7	12	27	5
1850	3	8	20	21	6
1855	2	6	17	20	10

St Albans - Manual Traffic Survey, Tuesday 19th January 2016

Junction: (1) Watford Road / Long Fallow

Approach: Watford Road (North)

TIME	Ahead to Watford Road (South)				Right to Long Fallow			
	LIGHT	HEAVY	BUS	TOTAL	LIGHT	HEAVY	BUS	TOTAL
0700 - 0715	129	0	0	129	1	0	0	1
0715 - 0730	158	1	1	160	0	0	0	0
0730 - 0745	176	0	1	177	2	0	0	2
0745 - 0800	208	1	0	209	1	0	0	1
Hourly Total	671	2	2	675	4	0	0	4
0800 - 0815	154	0	1	155	1	0	0	1
0815 - 0830	151	1	1	153	1	0	0	1
0830 - 0845	142	1	1	144	1	0	0	1
0845 - 0900	139	0	1	140	3	0	0	3
Hourly Total	586	2	4	592	6	0	0	6
0900 - 0915	141	2	0	143	2	0	0	2
0915 - 0930	129	1	2	132	0	0	0	0
0930 - 0945	131	1	0	132	2	0	0	2
0945 - 1000	127	0	0	127	1	0	0	1
Hourly Total	528	4	2	534	5	0	0	5

Session Total	1785	8	8	1801	15	0	0	15
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1500 - 1515	125	1	1	127	1	0	0	1
1515 - 1530	139	0	1	140	3	0	0	3
1530 - 1545	144	0	2	146	4	0	0	4
1545 - 1600	100	1	4	105	4	0	0	4
Hourly Total	508	2	8	518	12	0	0	12
1600 - 1615	154	0	2	156	3	0	0	3
1615 - 1630	147	1	2	150	1	0	0	1
1630 - 1645	151	0	1	152	1	0	0	1
1645 - 1700	148	0	1	149	2	0	0	2
Hourly Total	600	1	6	607	7	0	0	7
1700 - 1715	150	0	1	151	4	0	0	4
1715 - 1730	157	0	2	159	3	0	0	3
1730 - 1745	151	0	1	152	3	0	0	3
1745 - 1800	143	0	1	144	1	0	0	1
Hourly Total	601	0	5	606	11	0	0	11
1800 - 1815	127	0	1	128	3	0	0	3
1815 - 1830	121	0	1	122	2	0	0	2
1830 - 1845	119	1	2	122	1	0	0	1
1845 - 1900	123	0	1	124	1	0	0	1
Hourly Total	490	1	5	496	7	0	0	7

Session Total	2199	4	24	2227	37	0	0	37
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St Albans - Manual Traffic Survey, Tuesday 19th January 2016

Junction: (1) Watford Road / Long Fallow

Approach: Watford Road (South)

TIME	Left to Long Fallow				Ahead to Watford Road (North)			
	LIGHT	HEAVY	BUS	TOTAL	LIGHT	HEAVY	BUS	TOTAL
0700 - 0715	0	0	0	0	117	1	0	118
0715 - 0730	0	0	0	0	168	0	1	169
0730 - 0745	1	0	0	1	152	0	0	152
0745 - 0800	0	0	0	0	151	1	0	152
Hourly Total	1	0	0	1	588	2	1	591
0800 - 0815	1	0	0	1	138	2	0	140
0815 - 0830	1	0	0	1	149	1	1	151
0830 - 0845	2	0	0	2	144	1	0	145
0845 - 0900	2	0	0	2	158	0	1	159
Hourly Total	6	0	0	6	589	4	2	595
0900 - 0915	0	0	0	0	127	0	1	128
0915 - 0930	2	0	0	2	114	1	1	116
0930 - 0945	1	0	0	1	119	1	0	120
0945 - 1000	2	0	0	2	103	0	0	103
Hourly Total	5	0	0	5	463	2	2	467

Session Total	12	0	0	12	1640	8	5	1653
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1500 - 1515	1	0	0	1	139	0	3	142
1515 - 1530	3	0	0	3	141	0	0	141
1530 - 1545	2	0	0	2	145	0	0	145
1545 - 1600	5	0	0	5	157	1	3	161
Hourly Total	11	0	0	11	582	1	6	589
1600 - 1615	4	0	0	4	147	0	0	147
1615 - 1630	2	0	0	2	158	1	0	159
1630 - 1645	1	0	0	1	158	0	0	158
1645 - 1700	2	0	0	2	160	0	0	160
Hourly Total	9	0	0	9	623	1	0	624
1700 - 1715	4	0	0	4	186	0	0	186
1715 - 1730	3	0	0	3	166	0	0	166
1730 - 1745	4	0	0	4	184	0	0	184
1745 - 1800	2	0	0	2	171	1	0	172
Hourly Total	13	0	0	13	707	1	0	708
1800 - 1815	4	0	0	4	204	0	0	204
1815 - 1830	3	0	0	3	188	0	1	189
1830 - 1845	2	0	0	2	187	0	0	187
1845 - 1900	2	0	0	2	172	0	0	172
Hourly Total	11	0	0	11	751	0	1	752

Session Total	44	0	0	44	2663	3	7	2673
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St Albans - Manual Traffic Survey, Tuesday 19th January 2016

Junction: (1) Watford Road / Long Fallow

Approach: Long Fallow

TIME	Left to Watford Road (North)				Right to Watford Road (South)			
	LIGHT	HEAVY	BUS	TOTAL	LIGHT	HEAVY	BUS	TOTAL
0700 - 0715	0	0	0	0	1	0	0	1
0715 - 0730	1	0	0	1	0	0	0	0
0730 - 0745	2	0	0	2	0	0	0	0
0745 - 0800	0	0	0	0	1	0	0	1
Hourly Total	3	0	0	3	2	0	0	2
0800 - 0815	3	0	0	3	0	0	0	0
0815 - 0830	1	0	0	1	2	0	0	2
0830 - 0845	0	0	0	0	1	0	0	1
0845 - 0900	4	0	0	4	1	0	0	1
Hourly Total	8	0	0	8	4	0	0	4
0900 - 0915	2	0	0	2	1	0	0	1
0915 - 0930	2	0	0	2	1	0	0	1
0930 - 0945	2	0	0	2	1	0	0	1
0945 - 1000	1	0	0	1	1	0	0	1
Hourly Total	7	0	0	7	4	0	0	4

Session Total	18	0	0	18	10	0	0	10
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1500 - 1515	2	0	0	2	2	0	0	2
1515 - 1530	2	0	0	2	3	0	0	3
1530 - 1545	1	0	0	1	2	0	0	2
1545 - 1600	1	0	0	1	1	0	0	1
Hourly Total	6	0	0	6	8	0	0	8
1600 - 1615	2	0	0	2	1	0	0	1
1615 - 1630	2	0	0	2	1	0	0	1
1630 - 1645	1	0	0	1	0	0	0	0
1645 - 1700	2	0	0	2	1	0	0	1
Hourly Total	7	0	0	7	3	0	0	3
1700 - 1715	1	0	0	1	0	0	0	0
1715 - 1730	1	0	0	1	0	0	0	0
1730 - 1745	1	0	0	1	0	0	0	0
1745 - 1800	1	0	0	1	0	0	0	0
Hourly Total	4	0	0	4	0	0	0	0
1800 - 1815	1	0	0	1	0	0	0	0
1815 - 1830	0	0	0	0	0	0	0	0
1830 - 1845	2	0	0	2	1	0	0	1
1845 - 1900	1	0	0	1	0	0	0	0
Hourly Total	4	0	0	4	1	0	0	1

Session Total	21	0	0	21	12	0	0	12
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St Albans - Manual Traffic Survey, Tuesday 19th January 2016

Junction: (2) Watford Road / Forge End

Approach: Watford Road (North)

TIME	Ahead to Watford Road (South)				Right to Forge End			
	LIGHT	HEAVY	BUS	TOTAL	LIGHT	HEAVY	BUS	TOTAL
0700 - 0715	122	0	0	122	5	0	0	5
0715 - 0730	157	0	1	158	4	0	0	4
0730 - 0745	181	1	0	182	8	0	0	8
0745 - 0800	201	1	1	203	8	0	0	8
Hourly Total	661	2	2	665	25	0	0	25
0800 - 0815	155	0	1	156	11	0	0	11
0815 - 0830	151	0	1	152	5	0	0	5
0830 - 0845	141	1	0	142	9	0	0	9
0845 - 0900	137	1	1	139	4	0	0	4
Hourly Total	584	2	3	589	29	0	0	29
0900 - 0915	141	1	1	143	6	0	0	6
0915 - 0930	133	1	0	134	3	0	0	3
0930 - 0945	127	1	1	129	7	0	0	7
0945 - 1000	125	0	0	125	5	0	0	5
Hourly Total	526	3	2	531	21	0	0	21

Session Total	1771	7	7	1785	75	0	0	75
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1500 - 1515	125	1	1	127	5	0	0	5
1515 - 1530	139	0	1	140	4	0	0	4
1530 - 1545	144	0	2	146	6	0	0	6
1545 - 1600	100	1	4	105	3	0	0	3
Hourly Total	508	2	8	518	18	0	0	18
1600 - 1615	154	0	2	156	4	0	0	4
1615 - 1630	147	1	2	150	4	0	0	4
1630 - 1645	151	0	1	152	3	0	0	3
1645 - 1700	148	0	1	149	3	0	0	3
Hourly Total	600	1	6	607	14	0	0	14
1700 - 1715	150	0	1	151	2	0	0	2
1715 - 1730	157	0	2	159	6	0	0	6
1730 - 1745	161	0	1	162	4	0	0	4
1745 - 1800	141	0	1	142	5	0	0	5
Hourly Total	609	0	5	614	17	0	0	17
1800 - 1815	127	0	1	128	2	0	0	2
1815 - 1830	122	1	1	124	3	0	0	3
1830 - 1845	119	0	2	121	2	0	0	2
1845 - 1900	129	0	1	130	3	0	0	3
Hourly Total	497	1	5	503	10	0	0	10

Session Total	2214	4	24	2242	59	0	0	59
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St Albans - Manual Traffic Survey, Tuesday 19th January 2016

Junction: (2) Watford Road / Forge End

Approach: Watford Road (South)

TIME	Left to Forge End				Ahead to Watford Road (North)			
	LIGHT	HEAVY	BUS	TOTAL	LIGHT	HEAVY	BUS	TOTAL
0700 - 0715	0	0	0	0	119	1	1	121
0715 - 0730	1	0	0	1	152	0	0	152
0730 - 0745	1	0	0	1	161	1	0	162
0745 - 0800	0	0	0	0	157	0	0	157
Hourly Total	2	0	0	2	589	2	1	592
0800 - 0815	2	0	0	2	149	2	0	151
0815 - 0830	1	0	0	1	141	1	0	142
0830 - 0845	4	0	0	4	144	0	1	145
0845 - 0900	1	0	0	1	151	1	1	153
Hourly Total	8	0	0	8	585	4	2	591
0900 - 0915	1	0	0	1	122	0	0	122
0915 - 0930	1	0	0	1	114	1	1	116
0930 - 0945	0	0	0	0	119	0	0	119
0945 - 1000	2	0	0	2	109	1	0	110
Hourly Total	4	0	0	4	464	2	1	467

Session Total	14	0	0	14	1638	8	4	1650
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1500 - 1515	3	0	0	3	139	0	2	141
1515 - 1530	2	0	0	2	141	1	1	143
1530 - 1545	4	0	0	4	138	0	0	138
1545 - 1600	3	0	0	3	158	1	3	162
Hourly Total	12	0	0	12	576	2	6	584
1600 - 1615	0	0	0	0	147	0	0	147
1615 - 1630	0	0	0	0	148	0	0	148
1630 - 1645	3	0	0	3	158	1	1	160
1645 - 1700	5	0	0	5	159	0	0	159
Hourly Total	8	0	0	8	612	1	1	614
1700 - 1715	4	0	0	4	186	0	0	186
1715 - 1730	4	0	0	4	166	0	0	166
1730 - 1745	2	0	0	2	185	0	1	186
1745 - 1800	3	0	0	3	167	0	0	167
Hourly Total	13	0	0	13	704	0	1	705
1800 - 1815	3	0	0	3	190	0	0	190
1815 - 1830	4	0	0	4	187	0	0	187
1830 - 1845	1	0	0	1	185	1	0	186
1845 - 1900	2	0	0	2	171	0	1	172
Hourly Total	10	0	0	10	733	1	1	735

Session Total	43	0	0	43	2625	4	9	2638
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St Albans - Manual Traffic Survey, Tuesday 19th January 2016

Junction: (2) Watford Road / Forge End

Approach: Forge End

TIME	Left to Watford Road (North)				Right to Watford Road (South)			
	LIGHT	HEAVY	BUS	TOTAL	LIGHT	HEAVY	BUS	TOTAL
0700 - 0715	2	0	0	2	0	0	0	0
0715 - 0730	2	0	0	2	1	0	0	1
0730 - 0745	6	0	0	6	0	0	0	0
0745 - 0800	9	0	0	9	1	0	0	1
Hourly Total	19	0	0	19	2	0	0	2
0800 - 0815	3	0	0	3	2	0	0	2
0815 - 0830	6	0	0	6	2	0	0	2
0830 - 0845	10	0	0	10	1	0	0	1
0845 - 0900	7	0	0	7	6	0	0	6
Hourly Total	26	0	0	26	11	0	0	11
0900 - 0915	3	0	0	3	3	0	0	3
0915 - 0930	8	0	0	8	0	0	0	0
0930 - 0945	4	0	0	4	1	0	0	1
0945 - 1000	5	0	0	5	1	0	0	1
Hourly Total	20	0	0	20	5	0	0	5

Session Total	65	0	0	65	18	0	0	18
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1500 - 1515	3	0	0	3	1	0	0	1
1515 - 1530	5	0	0	5	2	0	0	2
1530 - 1545	6	0	0	6	2	0	0	2
1545 - 1600	5	0	0	5	1	0	0	1
Hourly Total	19	0	0	19	6	0	0	6
1600 - 1615	6	0	0	6	2	0	0	2
1615 - 1630	7	0	0	7	3	0	0	3
1630 - 1645	4	0	0	4	1	0	0	1
1645 - 1700	4	0	0	4	1	0	0	1
Hourly Total	21	0	0	21	7	0	0	7
1700 - 1715	5	0	0	5	2	0	0	2
1715 - 1730	6	0	0	6	2	0	0	2
1730 - 1745	7	0	0	7	1	0	0	1
1745 - 1800	3	0	0	3	1	0	0	1
Hourly Total	21	0	0	21	6	0	0	6
1800 - 1815	2	0	0	2	1	0	0	1
1815 - 1830	3	0	0	3	2	0	0	2
1830 - 1845	1	0	0	1	1	0	0	1
1845 - 1900	0	0	0	0	0	0	0	0
Hourly Total	6	0	0	6	4	0	0	4

Session Total	67	0	0	67	23	0	0	23
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St Albans - Manual Traffic Survey, Tuesday 19th January 2016

Junction: (3) Watford Road / Tippendell Lane / Chiswell Green Lane

Approach: Watford Road (North)

TIME	Left to Tippendell Lane				Ahead to Watford Road (South)				Right to Chiswell Green Lane			
	LIGHT	HEAVY	BUS	TOTAL	LIGHT	HEAVY	BUS	TOTAL	LIGHT	HEAVY	BUS	TOTAL
0700 - 0715	16	0	0	16	112	0	1	113	4	0	0	4
0715 - 0730	17	0	0	17	141	0	0	141	7	0	0	7
0730 - 0745	23	0	1	24	166	1	1	168	6	0	0	6
0745 - 0800	24	0	0	24	191	1	0	192	6	0	0	6
Hourly Total	80	0	1	81	610	2	2	614	23	0	0	23
0800 - 0815	31	0	0	31	139	0	1	140	4	0	0	4
0815 - 0830	41	0	0	41	133	0	1	134	8	0	0	8
0830 - 0845	36	0	0	36	135	1	1	137	5	0	0	5
0845 - 0900	35	0	0	35	114	0	0	114	6	0	0	6
Hourly Total	143	0	0	143	521	1	3	525	23	0	0	23
0900 - 0915	31	0	0	31	125	1	1	127	5	0	0	5
0915 - 0930	27	0	0	27	112	0	0	112	6	0	0	6
0930 - 0945	22	0	0	22	121	1	0	122	4	0	0	4
0945 - 1000	19	0	0	19	113	0	1	114	5	0	0	5
Hourly Total	99	0	0	99	471	2	2	475	20	0	0	20

Session Total	322	0	1	323	1602	5	7	1614	66	0	0	66
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1500 - 1515	38	0	0	38	112	0	1	113	4	0	0	4
1515 - 1530	33	0	0	33	125	0	1	126	4	0	0	4
1530 - 1545	29	0	1	30	126	0	2	128	3	0	0	3
1545 - 1600	41	1	0	42	91	0	4	95	7	0	0	7
Hourly Total	141	1	1	143	454	0	8	462	18	0	0	18
1600 - 1615	44	0	1	45	133	0	2	135	9	0	0	9
1615 - 1630	61	0	1	62	133	1	2	136	4	0	0	4
1630 - 1645	48	0	0	48	130	0	1	131	10	0	0	10
1645 - 1700	55	0	0	55	125	0	1	126	7	0	0	7
Hourly Total	208	0	2	210	521	1	6	528	30	0	0	30
1700 - 1715	53	0	0	53	144	0	1	145	6	0	0	6
1715 - 1730	57	1	0	58	141	0	2	143	6	0	0	6
1730 - 1745	40	0	0	40	144	0	1	145	8	0	0	8
1745 - 1800	42	0	1	43	128	0	1	129	4	0	0	4
Hourly Total	192	1	1	194	557	0	5	562	24	0	0	24
1800 - 1815	33	0	0	33	113	0	1	114	3	0	0	3
1815 - 1830	27	0	0	27	115	1	2	118	7	0	0	7
1830 - 1845	22	0	0	22	113	0	1	114	2	0	0	2
1845 - 1900	18	0	0	18	118	0	1	119	5	0	0	5
Hourly Total	100	0	0	100	459	1	5	465	17	0	0	17

Session Total	641	2	4	647	1991	2	24	2017	89	0	0	89
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St Albans - Manual Traffic Survey, Tuesday 19th January 2016

Junction: (3) Watford Road / Tippendell Lane / Chiswell Green Lane

Approach: Tippendell Lane

TIME	Left to Watford Road (South)				Ahead to Chiswell Green Lane				Right to Watford Road (North)			
	LIGHT	HEAVY	BUS	TOTAL	LIGHT	HEAVY	BUS	TOTAL	LIGHT	HEAVY	BUS	TOTAL
0700 - 0715	10	1	0	11	11	0	0	11	51	0	1	52
0715 - 0730	15	0	0	15	9	0	0	9	47	0	0	47
0730 - 0745	17	0	0	17	12	0	0	12	59	0	1	60
0745 - 0800	15	0	0	15	12	0	0	12	67	0	2	69
Hourly Total	57	1	0	58	44	0	0	44	224	0	4	228
0800 - 0815	18	0	0	18	15	0	0	15	69	0	2	71
0815 - 0830	19	0	0	19	19	0	0	19	64	0	1	65
0830 - 0845	23	0	0	23	14	0	0	14	80	0	0	80
0845 - 0900	17	1	0	18	11	0	0	11	79	0	0	79
Hourly Total	77	1	0	78	59	0	0	59	292	0	3	295
0900 - 0915	19	0	0	19	12	0	0	12	71	0	1	72
0915 - 0930	16	0	0	16	10	0	0	10	66	1	0	67
0930 - 0945	9	0	0	9	11	0	0	11	63	0	1	64
0945 - 1000	8	0	0	8	9	0	0	9	60	0	1	61
Hourly Total	52	0	0	52	42	0	0	42	260	1	3	264

Session Total	186	2	0	188	145	0	0	145	776	1	10	787
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1500 - 1515	9	0	0	9	19	0	0	19	39	0	1	40
1515 - 1530	7	0	0	7	12	0	0	12	44	0	0	44
1530 - 1545	7	1	0	8	16	0	0	16	45	1	1	47
1545 - 1600	11	0	0	11	17	0	0	17	46	0	2	48
Hourly Total	34	1	0	35	64	0	0	64	174	1	4	179
1600 - 1615	12	0	0	12	19	0	0	19	51	1	0	52
1615 - 1630	10	0	0	10	21	0	0	21	50	1	0	51
1630 - 1645	6	1	0	7	14	0	0	14	49	0	1	50
1645 - 1700	8	0	0	8	16	0	0	16	47	0	1	48
Hourly Total	36	1	0	37	70	0	0	70	197	2	2	201
1700 - 1715	4	1	0	5	19	0	0	19	38	0	1	39
1715 - 1730	9	0	0	9	15	0	0	15	41	1	0	42
1730 - 1745	13	0	0	13	11	0	0	11	32	0	0	32
1745 - 1800	7	0	0	7	14	0	0	14	29	0	1	30
Hourly Total	33	1	0	34	59	0	0	59	140	1	2	143
1800 - 1815	7	0	0	7	10	0	0	10	26	0	0	26
1815 - 1830	3	0	0	3	9	0	0	9	21	0	0	21
1830 - 1845	5	0	0	5	6	0	0	6	20	0	0	20
1845 - 1900	4	0	0	4	8	0	0	8	17	0	0	17
Hourly Total	19	0	0	19	33	0	0	33	84	0	0	84

Session Total	122	3	0	125	226	0	0	226	595	4	8	607
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St Albans - Manual Traffic Survey, Tuesday 19th January 2016

Junction: (3) Watford Road / Tippendell Lane / Chiswell Green Lane

Approach: Watford Road (South)

TIME	Left to Chiswell Green Lane				Ahead to Watford Road (North)				Right to Tippendell Lane			
	LIGHT	HEAVY	BUS	TOTAL	LIGHT	HEAVY	BUS	TOTAL	LIGHT	HEAVY	BUS	TOTAL
0700 - 0715	5	0	0	5	112	1	1	114	3	0	0	3
0715 - 0730	9	0	0	9	140	0	0	140	5	0	0	5
0730 - 0745	4	0	0	4	157	1	0	158	7	0	0	7
0745 - 0800	10	0	0	10	147	1	0	148	8	0	0	8
Hourly Total	28	0	0	28	556	3	1	560	23	0	0	23
0800 - 0815	19	0	0	19	131	1	0	132	9	0	0	9
0815 - 0830	11	0	0	11	125	1	0	126	6	0	0	6
0830 - 0845	12	0	0	12	131	0	1	132	8	0	0	8
0845 - 0900	10	0	0	10	143	1	1	145	7	0	0	7
Hourly Total	52	0	0	52	530	3	2	535	30	0	0	30
0900 - 0915	19	0	0	19	101	0	1	102	6	0	0	6
0915 - 0930	12	0	0	12	102	1	0	103	5	0	0	5
0930 - 0945	9	0	0	9	106	0	0	106	9	0	0	9
0945 - 1000	8	0	0	8	97	1	1	99	7	0	0	7
Hourly Total	48	0	0	48	406	2	2	410	27	0	0	27

Session Total	128	0	0	128	1492	8	5	1505	80	0	0	80
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1500 - 1515	7	0	0	7	123	0	2	125	5	0	0	5
1515 - 1530	5	0	0	5	131	1	1	133	9	0	0	9
1530 - 1545	5	0	0	5	132	0	1	133	11	0	0	11
1545 - 1600	9	0	0	9	133	0	2	135	13	0	0	13
Hourly Total	26	0	0	26	519	1	6	526	38	0	0	38
1600 - 1615	4	0	0	4	141	1	0	142	9	0	0	9
1615 - 1630	8	0	0	8	123	0	0	123	16	0	0	16
1630 - 1645	13	0	0	13	133	1	1	135	18	0	0	18
1645 - 1700	6	0	0	6	151	0	0	151	12	0	0	12
Hourly Total	31	0	0	31	548	2	1	551	55	0	0	55
1700 - 1715	12	0	0	12	161	0	0	161	13	0	0	13
1715 - 1730	15	0	0	15	145	1	1	147	9	0	0	9
1730 - 1745	9	0	0	9	172	0	0	172	12	0	0	12
1745 - 1800	12	0	0	12	149	0	0	149	10	0	0	10
Hourly Total	48	0	0	48	627	1	1	629	44	0	0	44
1800 - 1815	9	0	0	9	178	0	0	178	3	0	0	3
1815 - 1830	10	0	0	10	173	0	0	173	6	0	0	6
1830 - 1845	7	0	0	7	178	1	0	179	3	0	0	3
1845 - 1900	5	0	0	5	164	0	2	166	5	0	0	5
Hourly Total	31	0	0	31	693	1	2	696	17	0	0	17

Session Total	136	0	0	136	2387	5	10	2402	154	0	0	154
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St Albans - Manual Traffic Survey, Tuesday 19th January 2016

Junction: (3) Watford Road / Tippendell Lane / Chiswell Green Lane

Approach: Chiswell Green Lane

TIME	Left to Watford Road (North)				Ahead to Tippendell Lane				Right to Watford Road (South)			
	LIGHT	HEAVY	BUS	TOTAL	LIGHT	HEAVY	BUS	TOTAL	LIGHT	HEAVY	BUS	TOTAL
0700 - 0715	3	0	0	3	19	0	0	19	4	0	0	4
0715 - 0730	8	0	0	8	25	0	0	25	3	0	0	3
0730 - 0745	4	0	0	4	24	0	0	24	5	0	0	5
0745 - 0800	7	0	0	7	22	0	0	22	5	0	0	5
Hourly Total	22	0	0	22	90	0	0	90	17	0	0	17
0800 - 0815	4	0	0	4	18	0	0	18	6	0	0	6
0815 - 0830	9	0	0	9	16	0	0	16	3	0	0	3
0830 - 0845	4	0	0	4	12	0	0	12	2	0	0	2
0845 - 0900	5	0	0	5	19	0	0	19	6	0	0	6
Hourly Total	22	0	0	22	65	0	0	65	17	0	0	17
0900 - 0915	6	0	0	6	13	0	0	13	4	0	0	4
0915 - 0930	4	0	0	4	10	0	0	10	7	0	0	7
0930 - 0945	3	0	0	3	11	0	0	11	4	0	0	4
0945 - 1000	4	0	0	4	13	0	0	13	3	0	0	3
Hourly Total	17	0	0	17	47	0	0	47	18	0	0	18

Session Total	61	0	0	61	202	0	0	202	52	0	0	52
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1500 - 1515	4	0	0	4	9	0	0	9	5	0	0	5
1515 - 1530	7	0	0	7	14	0	0	14	11	0	0	11
1530 - 1545	3	0	0	3	10	0	0	10	13	0	0	13
1545 - 1600	6	0	0	6	12	0	0	12	8	0	0	8
Hourly Total	20	0	0	20	45	0	0	45	37	0	0	37
1600 - 1615	5	0	0	5	16	0	0	16	15	0	0	15
1615 - 1630	5	0	0	5	8	0	0	8	9	0	0	9
1630 - 1645	8	0	0	8	12	0	0	12	16	0	0	16
1645 - 1700	9	0	0	9	19	0	0	19	11	0	0	11
Hourly Total	27	0	0	27	55	0	0	55	51	0	0	51
1700 - 1715	3	0	0	3	13	0	0	13	12	0	0	12
1715 - 1730	6	0	0	6	11	0	0	11	10	0	0	10
1730 - 1745	4	0	0	4	10	0	0	10	8	0	0	8
1745 - 1800	7	0	0	7	14	0	0	14	12	0	0	12
Hourly Total	20	0	0	20	48	0	0	48	42	0	0	42
1800 - 1815	0	0	0	0	11	0	0	11	9	0	0	9
1815 - 1830	0	0	0	0	9	0	0	9	5	0	0	5
1830 - 1845	0	0	0	0	7	0	0	7	7	0	0	7
1845 - 1900	0	0	0	0	10	0	0	10	7	0	0	7
Hourly Total	0	0	0	0	37	0	0	37	28	0	0	28

Session Total	67	0	0	67	185	0	0	185	158	0	0	158
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St Albans - Manual Traffic Survey, Tuesday 19th January 2016

Junction: (4) A405 / Tippendall Lane

Approach: A405 (North)

TIME	Left to Tippendall Lane (East)				Ahead to A405 (South)				Right to Tippendall Lane (West)			
	LIGHT	HEAVY	BUS	TOTAL	LIGHT	HEAVY	BUS	TOTAL	LIGHT	HEAVY	BUS	TOTAL
0700 - 0715	9	0	0	9	144	8	0	152	15	0	0	15
0715 - 0730	11	0	0	11	151	11	0	162	12	0	0	12
0730 - 0745	9	0	0	9	132	12	0	144	13	0	0	13
0745 - 0800	15	0	0	15	115	6	1	122	18	1	0	19
Hourly Total	44	0	0	44	542	37	1	580	58	1	0	59
0800 - 0815	12	1	0	13	88	5	0	93	11	1	0	12
0815 - 0830	13	0	0	13	87	5	0	92	14	0	0	14
0830 - 0845	18	0	0	18	88	9	0	97	20	0	0	20
0845 - 0900	12	1	0	13	91	12	1	104	17	0	0	17
Hourly Total	55	2	0	57	354	31	1	386	62	1	0	63
0900 - 0915	16	1	0	17	74	6	1	81	18	0	0	18
0915 - 0930	11	0	0	11	63	5	1	69	14	0	0	14
0930 - 0945	8	0	0	8	76	4	0	80	16	0	0	16
0945 - 1000	6	0	0	6	77	5	1	83	20	0	0	20
Hourly Total	41	1	0	42	290	20	3	313	68	0	0	68

Session Total	140	3	0	143	1186	88	5	1279	188	2	0	190
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1500 - 1515	12	1	0	13	209	6	0	215	15	0	0	15
1515 - 1530	19	0	0	19	201	8	0	209	11	0	0	11
1530 - 1545	20	0	0	20	200	6	0	206	12	0	0	12
1545 - 1600	24	0	0	24	223	5	0	228	13	0	0	13
Hourly Total	75	1	0	76	833	25	0	858	51	0	0	51
1600 - 1615	22	0	0	22	225	8	0	233	13	0	0	13
1615 - 1630	26	0	0	26	214	12	0	226	13	1	0	14
1630 - 1645	24	1	0	25	215	9	0	224	14	0	0	14
1645 - 1700	12	0	0	12	200	10	0	210	10	0	0	10
Hourly Total	84	1	0	85	854	39	0	893	50	1	0	51
1700 - 1715	18	0	0	18	215	5	1	221	11	0	0	11
1715 - 1730	20	0	0	20	209	4	0	213	16	0	0	16
1730 - 1745	23	0	0	23	230	5	0	235	9	0	0	9
1745 - 1800	18	0	0	18	235	7	0	242	12	0	0	12
Hourly Total	79	0	0	79	889	21	1	911	48	0	0	48
1800 - 1815	17	0	0	17	228	6	0	234	12	0	0	12
1815 - 1830	20	0	0	20	231	5	0	236	7	0	0	7
1830 - 1845	19	0	0	19	221	4	0	225	9	0	0	9
1845 - 1900	15	0	0	15	190	6	0	196	6	0	0	6
Hourly Total	71	0	0	71	870	21	0	891	34	0	0	34

Session Total	309	2	0	311	3446	106	1	3553	183	1	0	184
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St Albans - Manual Traffic Survey, Tuesday 19th January 2016

Junction: (4) A405 / Tippendall Lane

Approach: Tippendall Lane (East)

TIME	Left to A405 (South)				Ahead to Tippendall Lane (West)				Right to A405 (North)			
	LIGHT	HEAVY	BUS	TOTAL	LIGHT	HEAVY	BUS	TOTAL	LIGHT	HEAVY	BUS	TOTAL
0700 - 0715	16	0	0	16	50	0	0	50	9	0	0	9
0715 - 0730	13	0	0	13	52	1	0	53	15	1	0	16
0730 - 0745	19	0	0	19	62	0	1	63	22	0	0	22
0745 - 0800	22	1	0	23	59	0	2	61	16	0	0	16
Hourly Total	70	1	0	71	223	1	3	227	62	1	0	63
0800 - 0815	15	0	0	15	83	0	1	84	19	0	0	19
0815 - 0830	11	0	0	11	83	0	1	84	22	0	0	22
0830 - 0845	10	1	0	11	88	0	1	89	21	0	0	21
0845 - 0900	9	0	0	9	89	0	1	90	15	0	0	15
Hourly Total	45	1	0	46	343	0	4	347	77	0	0	77
0900 - 0915	12	0	0	12	76	0	0	76	20	0	0	20
0915 - 0930	16	1	0	17	72	0	1	73	13	1	0	14
0930 - 0945	8	1	0	9	67	0	0	67	11	0	0	11
0945 - 1000	7	1	0	8	45	0	1	46	8	0	0	8
Hourly Total	43	3	0	46	260	0	2	262	52	1	0	53

Session Total	158	5	0	163	826	1	9	836	191	2	0	193
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1500 - 1515	10	1	0	11	41	0	1	42	7	0	0	7
1515 - 1530	13	0	0	13	47	0	0	47	3	0	0	3
1530 - 1545	17	0	0	17	53	1	0	54	5	0	0	5
1545 - 1600	16	0	0	16	50	0	1	51	8	1	0	9
Hourly Total	56	1	0	57	191	1	2	194	23	1	0	24
1600 - 1615	19	0	0	19	61	1	1	63	12	0	0	12
1615 - 1630	21	0	0	21	55	1	0	56	13	1	0	14
1630 - 1645	20	1	0	21	49	0	0	49	6	0	0	6
1645 - 1700	19	0	0	19	58	0	2	60	10	0	0	10
Hourly Total	79	1	0	80	223	2	3	228	41	1	0	42
1700 - 1715	15	0	0	15	56	1	0	57	12	0	0	12
1715 - 1730	24	0	0	24	44	0	0	44	9	0	0	9
1730 - 1745	22	0	0	22	41	1	1	43	8	0	0	8
1745 - 1800	19	0	0	19	33	0	0	33	10	0	0	10
Hourly Total	80	0	0	80	174	2	1	177	39	0	0	39
1800 - 1815	21	0	0	21	24	0	0	24	13	0	0	13
1815 - 1830	18	0	0	18	22	0	0	22	6	0	0	6
1830 - 1845	13	0	0	13	20	0	0	20	7	1	0	8
1845 - 1900	12	0	0	12	21	0	0	21	5	0	0	5
Hourly Total	64	0	0	64	87	0	0	87	31	1	0	32

Session Total	279	2	0	281	675	5	6	686	134	3	0	137
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St Albans - Manual Traffic Survey, Tuesday 19th January 2016

Junction: (4) A405 / Tippendall Lane

Approach: A405 (South)

TIME	Left to Tippendall Lane (West)				Ahead to A405 (North)				Right to Tippendall Lane (East)			
	LIGHT	HEAVY	BUS	TOTAL	LIGHT	HEAVY	BUS	TOTAL	LIGHT	HEAVY	BUS	TOTAL
0700 - 0715	5	0	0	5	117	9	1	127	14	0	0	14
0715 - 0730	7	0	0	7	113	11	1	125	19	0	0	19
0730 - 0745	9	0	0	9	126	9	0	135	17	1	0	18
0745 - 0800	5	0	0	5	122	7	0	129	22	0	0	22
Hourly Total	26	0	0	26	478	36	2	516	72	1	0	73
0800 - 0815	6	0	0	6	121	9	0	130	26	1	0	27
0815 - 0830	6	0	0	6	109	13	1	123	21	0	0	21
0830 - 0845	8	0	0	8	132	6	1	139	24	1	0	25
0845 - 0900	3	0	0	3	131	6	0	137	28	1	0	29
Hourly Total	23	0	0	23	493	34	2	529	99	3	0	102
0900 - 0915	3	0	0	3	157	7	1	165	13	0	0	13
0915 - 0930	7	0	0	7	157	6	2	165	20	0	0	20
0930 - 0945	4	0	0	4	148	7	1	156	17	1	0	18
0945 - 1000	5	0	0	5	144	5	0	149	15	0	0	15
Hourly Total	19	0	0	19	606	25	4	635	65	1	0	66

Session Total	68	0	0	68	1577	95	8	1680	236	5	0	241
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1500 - 1515	10	0	0	10	165	5	0	170	19	1	0	20
1515 - 1530	15	0	0	15	166	4	0	170	12	0	0	12
1530 - 1545	11	0	0	11	182	6	0	188	15	0	0	15
1545 - 1600	10	0	0	10	197	3	0	200	20	0	0	20
Hourly Total	46	0	0	46	710	18	0	728	66	1	0	67
1600 - 1615	7	0	0	7	185	3	0	188	22	0	0	22
1615 - 1630	12	0	0	12	192	6	0	198	23	1	0	24
1630 - 1645	5	0	0	5	206	5	0	211	28	1	0	29
1645 - 1700	6	0	0	6	161	8	0	169	26	0	0	26
Hourly Total	30	0	0	30	744	22	0	766	99	2	0	101
1700 - 1715	4	0	0	4	181	10	0	191	25	0	0	25
1715 - 1730	4	0	0	4	172	12	0	184	23	1	0	24
1730 - 1745	5	0	0	5	174	9	0	183	21	0	0	21
1745 - 1800	8	0	0	8	181	10	0	191	19	0	0	19
Hourly Total	21	0	0	21	708	41	0	749	88	1	0	89
1800 - 1815	6	0	0	6	171	6	0	177	17	0	0	17
1815 - 1830	4	0	0	4	160	5	0	165	18	0	0	18
1830 - 1845	3	0	0	3	151	8	0	159	20	0	0	20
1845 - 1900	4	0	0	4	150	4	0	154	15	0	0	15
Hourly Total	17	0	0	17	632	23	0	655	70	0	0	70

Session Total	114	0	0	114	2794	104	0	2898	323	4	0	327
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St Albans - Manual Traffic Survey, Tuesday 19th January 2016

Junction: (4) A405 / Tippendall Lane

Approach: Tippendall Lane (West)

TIME	Left to A405 (North)				Ahead to Tippendall Lane (East)				Right to A405 (South)			
	LIGHT	HEAVY	BUS	TOTAL	LIGHT	HEAVY	BUS	TOTAL	LIGHT	HEAVY	BUS	TOTAL
0700 - 0715	6	0	0	6	21	0	0	21	2	0	0	2
0715 - 0730	15	0	0	15	24	0	0	24	7	0	0	7
0730 - 0745	19	0	0	19	27	0	1	28	9	0	0	9
0745 - 0800	17	0	0	17	31	0	0	31	4	0	0	4
Hourly Total	57	0	0	57	103	0	1	104	22	0	0	22
0800 - 0815	18	0	0	18	36	0	0	36	3	0	0	3
0815 - 0830	22	0	0	22	32	0	0	32	3	0	0	3
0830 - 0845	13	0	0	13	40	0	0	40	7	0	0	7
0845 - 0900	9	0	0	9	41	1	0	42	3	0	0	3
Hourly Total	62	0	0	62	149	1	0	150	16	0	0	16
0900 - 0915	7	1	0	8	44	1	0	45	6	0	0	6
0915 - 0930	10	0	0	10	38	0	0	38	3	0	0	3
0930 - 0945	12	0	0	12	21	1	0	22	8	0	0	8
0945 - 1000	8	0	0	8	22	0	0	22	2	0	0	2
Hourly Total	37	1	0	38	125	2	0	127	19	0	0	19

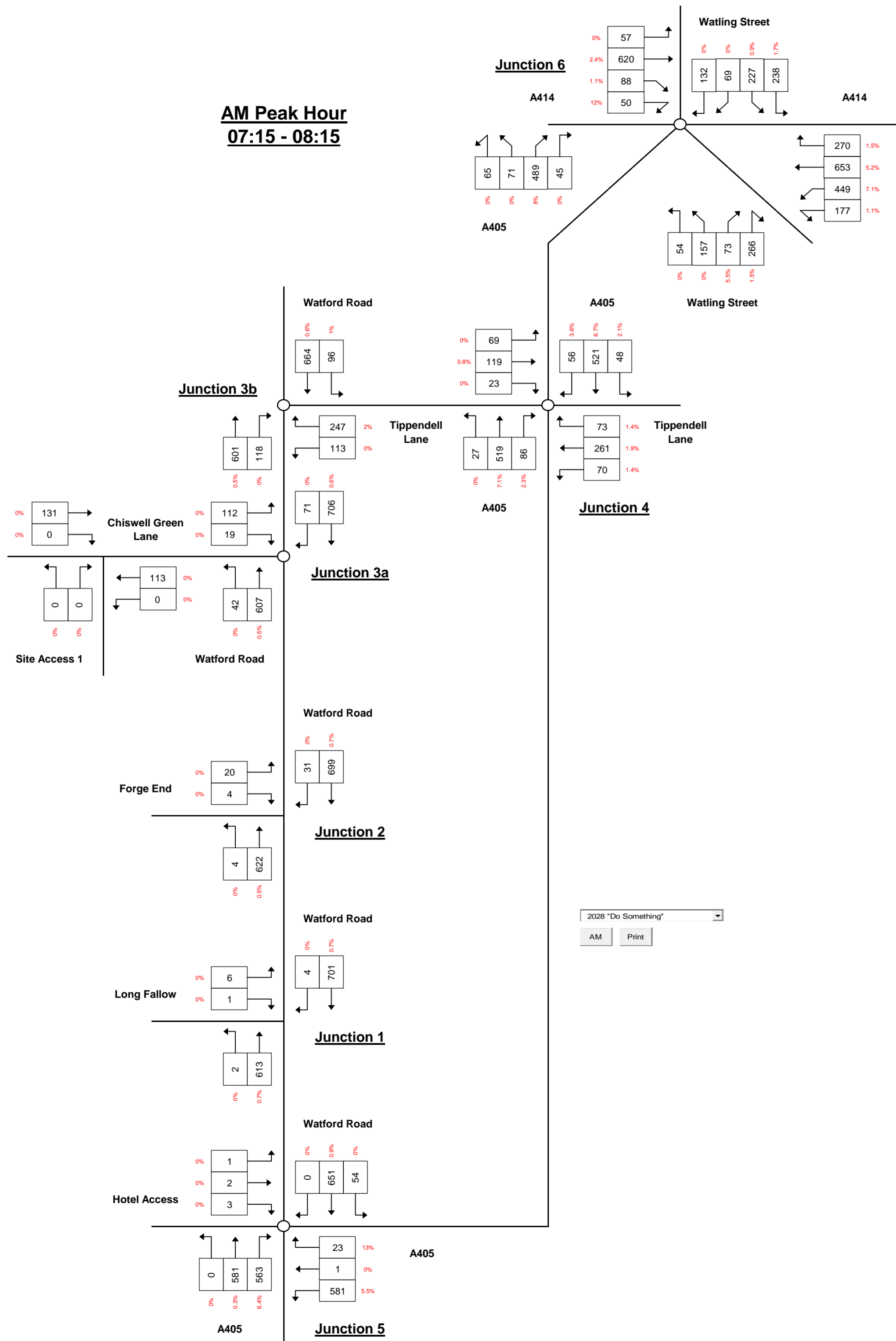
Session Total	156	1	0	157	377	3	1	381	57	0	0	57
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1500 - 1515	12	0	0	12	31	0	0	31	3	0	0	3
1515 - 1530	19	0	0	19	34	0	0	34	5	0	0	5
1530 - 1545	24	1	0	25	40	0	0	40	7	0	0	7
1545 - 1600	17	0	0	17	44	0	0	44	6	0	0	6
Hourly Total	72	1	0	73	149	0	0	149	21	0	0	21
1600 - 1615	13	0	0	13	45	0	0	45	8	0	0	8
1615 - 1630	18	0	0	18	67	1	1	69	7	0	1	8
1630 - 1645	7	0	0	7	66	0	0	66	5	0	0	5
1645 - 1700	9	0	0	9	61	0	0	61	4	0	0	4
Hourly Total	47	0	0	47	239	1	1	241	24	0	1	25
1700 - 1715	10	0	0	10	70	0	0	70	2	0	0	2
1715 - 1730	3	0	0	3	67	0	0	67	5	0	0	5
1730 - 1745	5	0	0	5	57	0	0	57	3	0	0	3
1745 - 1800	6	0	0	6	51	0	1	52	4	0	0	4
Hourly Total	24	0	0	24	245	0	1	246	14	0	0	14
1800 - 1815	5	0	0	5	41	0	0	41	2	0	0	2
1815 - 1830	9	0	0	9	33	0	0	33	5	0	0	5
1830 - 1845	7	0	0	7	20	0	0	20	2	0	0	2
1845 - 1900	5	0	0	5	24	0	0	24	4	0	0	4
Hourly Total	26	0	0	26	118	0	0	118	13	0	0	13

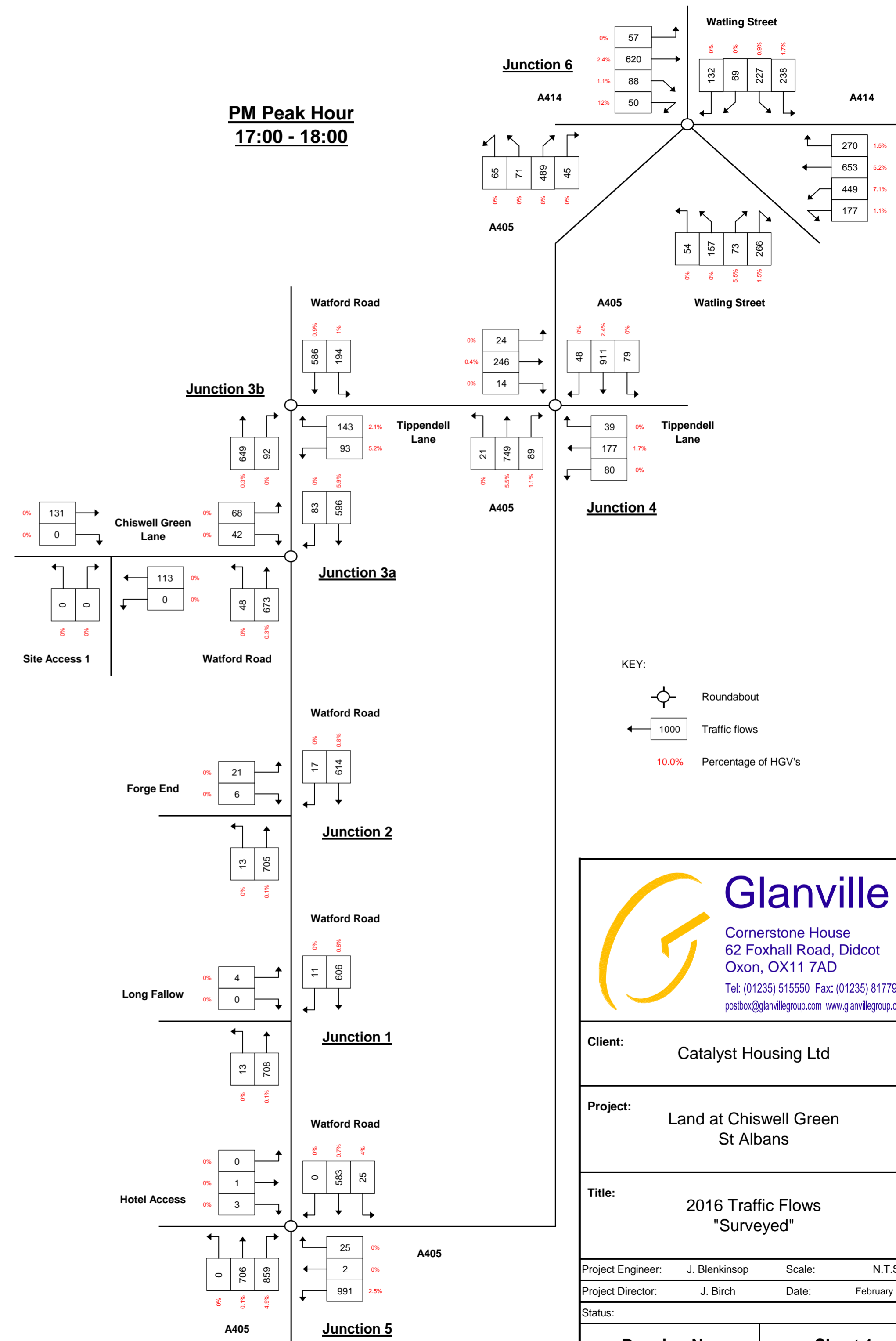
Session Total	169	1	0	170	751	1	2	754	72	0	1	73
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Appendix F
2016 Baseline Traffic Flows

AM Peak Hour
07:15 - 08:15



PM Peak Hour
17:00 - 18:00





Glanville
Cornerstone House
62 Foxhall Road, Didcot
Oxon, OX11 7AD
Tel: (01235) 515550 Fax: (01235) 817799
postbox@glanvillegroup.com www.glanvillegroup.com

Client: Catalyst Housing Ltd

Project: Land at Chiswell Green St Albans

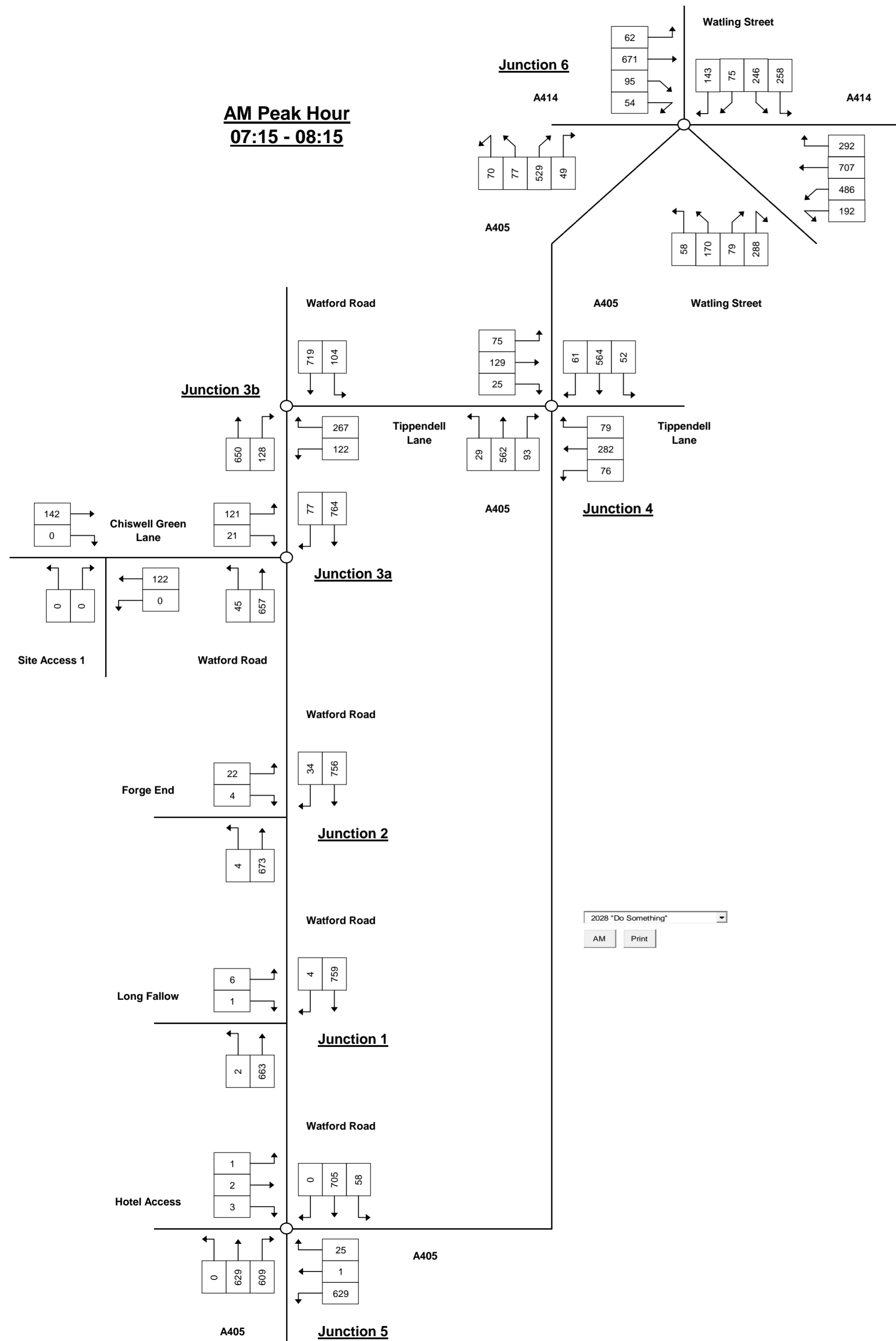
Title: 2016 Traffic Flows "Surveyed"

Project Engineer: J. Blenkinsop Scale: N.T.S
Project Director: J. Birch Date: February 2016
Status:

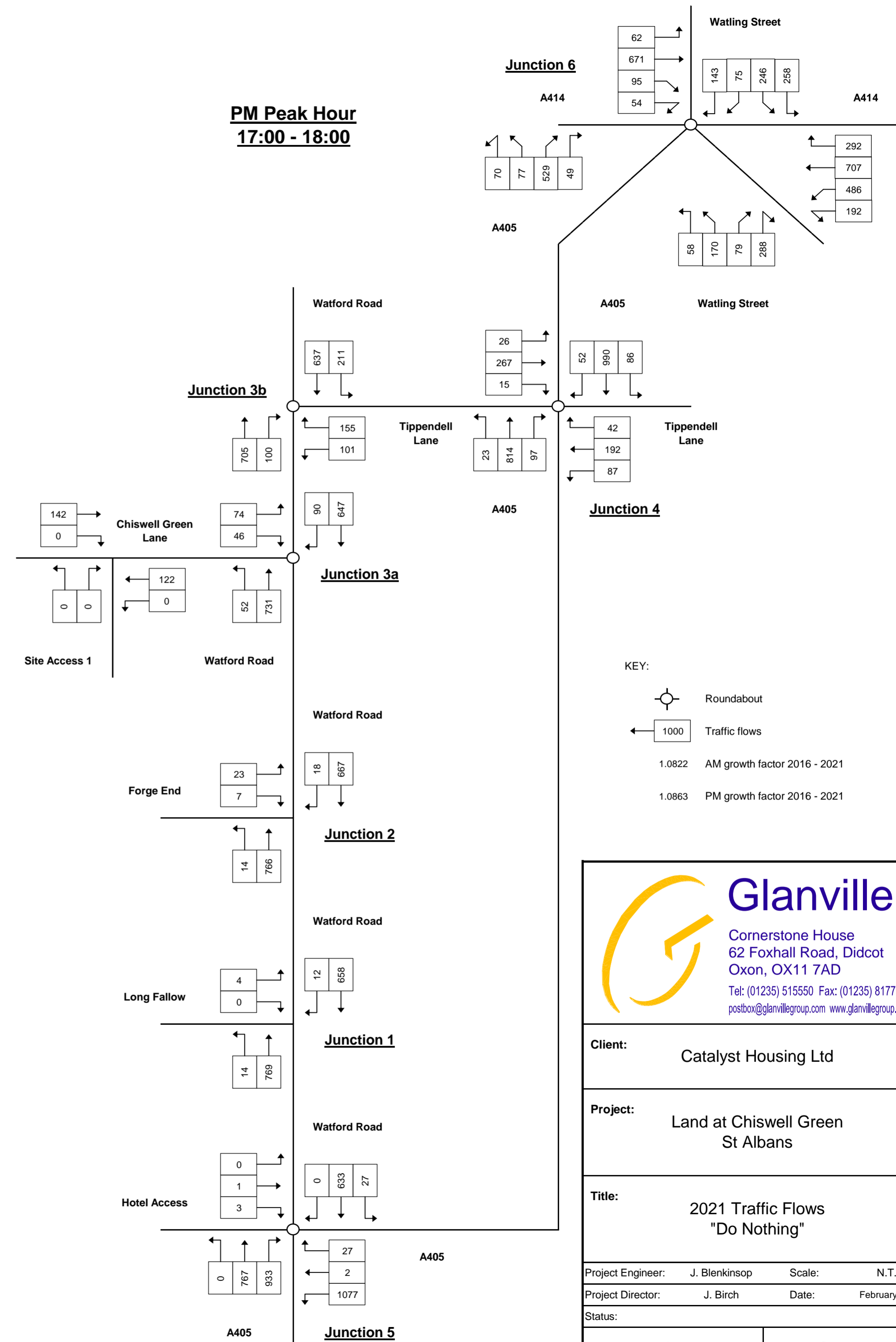
Drawing No.	Sheet 1
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Appendix G
2021 Future Year Traffic Flows (No Development)

AM Peak Hour
07:15 - 08:15



PM Peak Hour
17:00 - 18:00




Glanville
Cornerstone House
62 Foxhall Road, Didcot
Oxon, OX11 7AD
Tel: (01235) 515550 Fax: (01235) 817799
postbox@glanvillegroup.com www.glanvillegroup.com

Client: Catalyst Housing Ltd

Project: Land at Chiswell Green St Albans

Title: 2021 Traffic Flows "Do Nothing"

Project Engineer: J. Blenkinsop Scale: N.T.S
Project Director: J. Birch Date: February 2016
Status:

Drawing No.	Sheet 2
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Appendix H
Automatic Traffic Counts

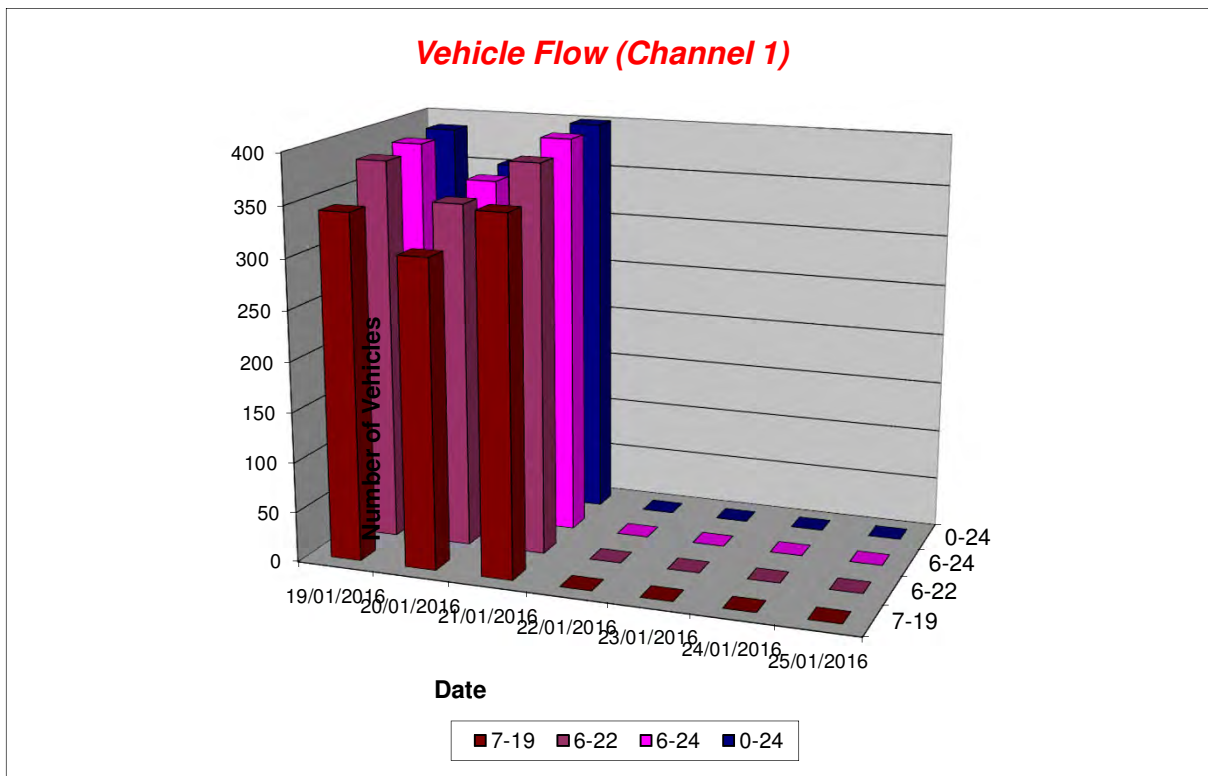
St Albans ATC, Chiswell Green Lane (Eastern Site)

Channel 1 - Westbound

Vehicle Flow

Week 2

Hr Ending	19/01/2016 Tuesday	20/01/2016 Wednesday	21/01/2016 Thursday	22/01/2016 Friday	23/01/2016 Saturday	24/01/2016 Sunday	25/01/2016 Monday	Weekday Average	Average
1	2	0	0	0	0	0	0	1	1
2	0	0	1	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0
6	1	3	2	0	0	0	0	2	2
7	8	15	15	0	0	0	0	13	13
8	28	49	46	0	0	0	0	41	41
9	36	41	55	0	0	0	0	44	44
10	37	30	27	0	0	0	0	31	31
11	21	20	26	0	0	0	0	22	22
12	23	22	26	0	0	0	0	24	24
13	34	25	22	0	0	0	0	27	27
14	26	9	22	0	0	0	0	19	19
15	16	10	17	0	0	0	0	14	14
16	33	27	29	0	0	0	0	30	30
17	30	35	34	0	0	0	0	33	33
18	45	17	35	0	0	0	0	32	32
19	14	21	14	0	0	0	0	16	16
20	16	13	5	0	0	0	0	11	11
21	9	2	7	0	0	0	0	6	6
22	3	6	6	0	0	0	0	5	5
23	1	2	6	0	0	0	0	3	3
24	4	7	5	0	0	0	0	5	5
7-19	343	306	353	0	0	0	0	334	334
6-22	379	342	386	0	0	0	0	369	369
6-24	384	351	397	0	0	0	0	377	377
0-24	387	354	400	0	0	0	0	380	380



St Albans ATC, Chiswell Green Lane (Eastern Site)

Channel 1 - Westbound

Average Speed

Week 2

Hr Ending	19/01/2016 Tuesday	20/01/2016 Wednesday	21/01/2016 Thursday	22/01/2016 Friday	23/01/2016 Saturday	24/01/2016 Sunday	25/01/2016 Monday
1	29.2	-	-	-	-	-	-
2	-	-	25.5	-	-	-	-
3	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-
5	-	-	-	-	-	-	-
6	5.0	14.3	34.2	-	-	-	-
7	22.4	29.7	27.0	-	-	-	-
8	25.5	29.9	29.9	-	-	-	-
9	25.0	28.4	28.9	-	-	-	-
10	27.2	29.0	26.1	-	-	-	-
11	26.7	25.0	23.6	-	-	-	-
12	23.6	27.7	25.0	-	-	-	-
13	27.0	19.3	24.0	-	-	-	-
14	29.2	28.6	26.2	-	-	-	-
15	27.5	29.0	23.4	-	-	-	-
16	26.1	23.7	25.5	-	-	-	-
17	23.8	26.9	24.1	-	-	-	-
18	27.5	27.4	30.5	-	-	-	-
19	27.8	26.7	26.9	-	-	-	-
20	28.9	25.3	25.0	-	-	-	-
21	24.9	25.5	27.6	-	-	-	-
22	32.2	28.0	30.5	-	-	-	-
23	25.5	29.2	27.6	-	-	-	-
24	22.4	29.4	32.5	-	-	-	-

10-12	25.1	26.4	24.3	-	-	-	-
14-16	26.6	25.2	24.7	-	-	-	-
0-24	26.3	27.0	26.9	-	-	-	-

7 Day Ave 26.7

Channel 1 - Westbound

85th Percentile

Hr Ending	19/01/2016 Tuesday	20/01/2016 Wednesday	21/01/2016 Thursday	22/01/2016 Friday	23/01/2016 Saturday	24/01/2016 Sunday	25/01/2016 Monday
1	33.7	-	-	-	-	-	-
2	-	-	-	-	-	-	-
3	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-
5	-	-	-	-	-	-	-
6	-	33.6	43.1	-	-	-	-
7	33.6	38.5	33.8	-	-	-	-
8	25.8	38.3	38.3	-	-	-	-
9	25.8	33.6	33.0	-	-	-	-
10	33.8	33.6	33.3	-	-	-	-
11	33.0	25.8	25.9	-	-	-	-
12	26.3	33.3	25.8	-	-	-	-
13	33.8	33.8	26.4	-	-	-	-
14	33.7	33.8	39.0	-	-	-	-
15	33.0	33.6	25.9	-	-	-	-
16	33.4	26.5	33.3	-	-	-	-
17	26.4	33.9	25.7	-	-	-	-
18	33.8	33.2	38.2	-	-	-	-
19	38.4	33.7	33.6	-	-	-	-
20	39.0	39.0	33.4	-	-	-	-
21	33.9	25.7	33.4	-	-	-	-
22	38.1	33.5	33.7	-	-	-	-
23	-	33.1	38.3	-	-	-	-
24	33.4	34.0	38.6	-	-	-	-

10-12	26.0	33.7	25.7	-	-	-	-
14-16	33.8	33.0	33.2	-	-	-	-
0-24	33.1	33.6	33.6	-	-	-	-

7 Day Ave 33.4

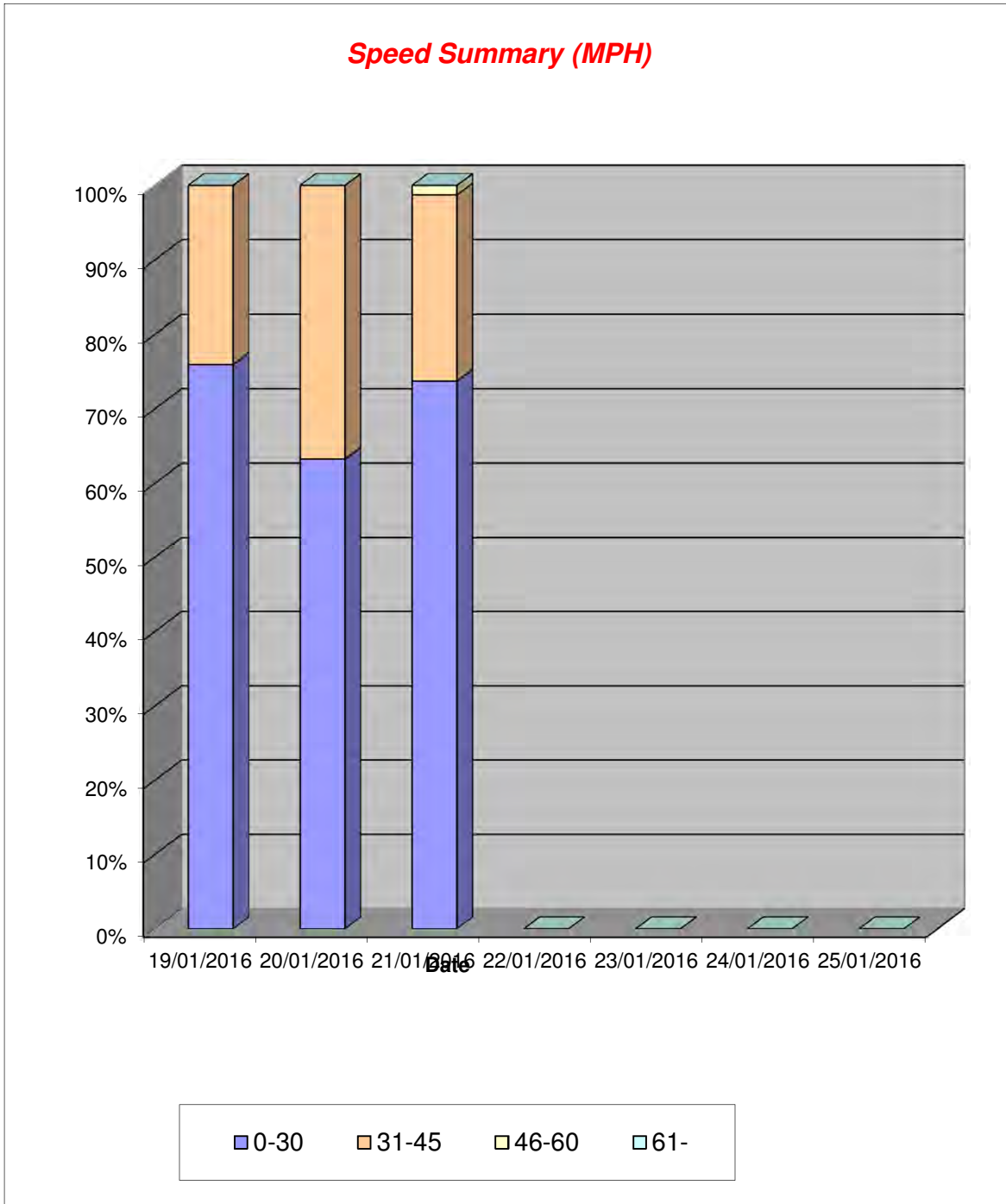
St Albans ATC, Chiswell Green Lane (Eastern Site)

Channel 1 - Westbound

Speed Summary

Week 2

Speed (MPH)	19/01/2016 Tuesday	20/01/2016 Wednesday	21/01/2016 Thursday	22/01/2016 Friday	23/01/2016 Saturday	24/01/2016 Sunday	25/01/2016 Monday
0-30	294	224	295	0	0	0	0
31-45	93	130	100	0	0	0	0
46-60	0	0	5	0	0	0	0
61-	0	0	0	0	0	0	0
TOTAL	387	354	400	0	0	0	0



St Albans ATC, Chiswell Green Lane (Eastern Site)

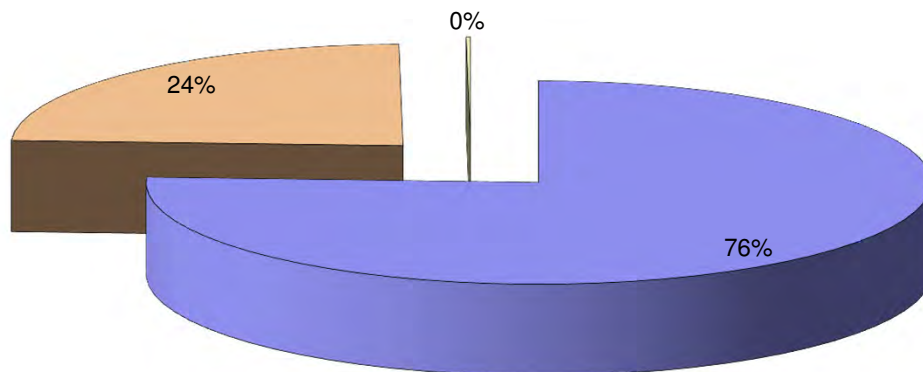
Channel 1 - Westbound

Vehicle Class

Week 2

Classes	Car / LGV / Caravan - 1	OGV1 / Bus - 2,3,5,6,7,12	OGV2 - 4,8,9,10,11,13	TOTAL - 1-13
19/01/2016				
7-19	270	72	1	343
6-22	297	81	1	379
6-24	302	81	1	384
0-24	304	82	1	387
20/01/2016				
7-19	228	78	0	306
6-22	256	86	0	342
6-24	265	86	0	351
0-24	267	87	0	354
21/01/2016				
7-19	253	100	0	353
6-22	283	103	0	386
6-24	292	104	1	397
0-24	294	105	1	400
22/01/2016				
7-19	0	0	0	0
6-22	0	0	0	0
6-24	0	0	0	0
0-24	0	0	0	0
23/01/2016				
7-19	0	0	0	0
6-22	0	0	0	0
6-24	0	0	0	0
0-24	0	0	0	0
24/01/2016				
7-19	0	0	0	0
6-22	0	0	0	0
6-24	0	0	0	0
0-24	0	0	0	0
25/01/2016				
7-19	0	0	0	0
6-22	0	0	0	0
6-24	0	0	0	0
0-24	0	0	0	0
Average				
7-19	107	36	0	143
6-22	119	39	0	158
6-24	123	39	0	162
0-24	124	39	0	163

Total Vehicle Class Distribution



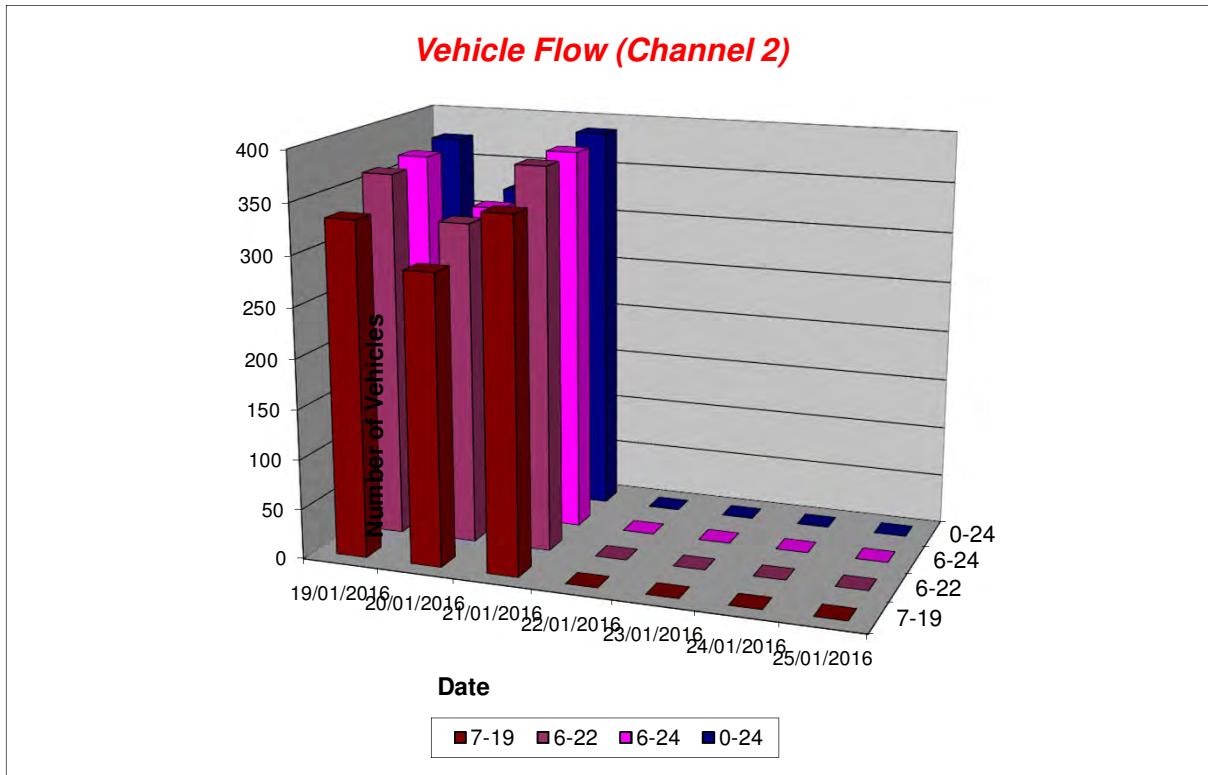
St Albans ATC, Chiswell Green Lane (Eastern Site)

Channel 2 - Eastbound

Vehicle Flow

Week 2

Hr Ending	19/01/2016 Tuesday	20/01/2016 Wednesday	21/01/2016 Thursday	22/01/2016 Friday	23/01/2016 Saturday	24/01/2016 Sunday	25/01/2016 Monday	Weekday Average	Average
1	1	0	2	0	0	0	0	1	1
2	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0
5	0	2	0	0	0	0	0	1	1
6	5	2	5	0	0	0	0	4	4
7	12	13	15	0	0	0	0	13	13
8	21	23	27	0	0	0	0	24	24
9	40	33	46	0	0	0	0	40	40
10	33	19	30	0	0	0	0	27	27
11	21	23	13	0	0	0	0	19	19
12	33	22	23	0	0	0	0	26	26
13	27	18	25	0	0	0	0	23	23
14	16	19	21	0	0	0	0	19	19
15	22	19	29	0	0	0	0	23	23
16	36	29	37	0	0	0	0	34	34
17	40	48	46	0	0	0	0	45	45
18	33	25	31	0	0	0	0	30	30
19	11	11	21	0	0	0	0	14	14
20	14	9	4	0	0	0	0	9	9
21	4	4	7	0	0	0	0	5	5
22	0	5	5	0	0	0	0	3	3
23	2	0	1	0	0	0	0	1	1
24	3	1	0	0	0	0	0	1	1
7-19	333	289	349	0	0	0	0	324	324
6-22	363	320	380	0	0	0	0	354	354
6-24	368	321	381	0	0	0	0	357	357
0-24	374	325	388	0	0	0	0	362	362



St Albans ATC, Chiswell Green Lane (Eastern Site)

Channel 2 - Eastbound

Average Speed

Week 2

Hr Ending	19/01/2016 Tuesday	20/01/2016 Wednesday	21/01/2016 Thursday	22/01/2016 Friday	23/01/2016 Saturday	24/01/2016 Sunday	25/01/2016 Monday
1	33.0	-	15.5	-	-	-	-
2	-	-	-	-	-	-	-
3	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-
5	-	33.0	-	-	-	-	-
6	17.5	15.5	25.5	-	-	-	-
7	25.9	23.0	25.2	-	-	-	-
8	24.5	27.2	27.8	-	-	-	-
9	28.2	25.7	26.5	-	-	-	-
10	25.7	25.9	28.5	-	-	-	-
11	27.3	24.6	24.0	-	-	-	-
12	26.2	24.6	25.8	-	-	-	-
13	25.9	27.3	26.6	-	-	-	-
14	27.8	27.6	21.7	-	-	-	-
15	23.7	26.7	25.1	-	-	-	-
16	25.8	25.7	24.6	-	-	-	-
17	25.9	25.9	25.4	-	-	-	-
18	27.6	27.9	32.0	-	-	-	-
19	30.3	27.8	29.0	-	-	-	-
20	24.4	27.7	29.2	-	-	-	-
21	17.9	23.0	27.6	-	-	-	-
22	-	22.4	23.5	-	-	-	-
23	33.0	-	25.5	-	-	-	-
24	21.3	38.0	-	-	-	-	-

10-12	26.6	24.6	25.2	-	-	-	-
14-16	25.0	26.1	24.8	-	-	-	-
0-24	26.1	26.1	26.4	-	-	-	-

7 Day Ave 26.2

Channel 2 - Eastbound

85th Percentile

Hr Ending	19/01/2016 Tuesday	20/01/2016 Wednesday	21/01/2016 Thursday	22/01/2016 Friday	23/01/2016 Saturday	24/01/2016 Sunday	25/01/2016 Monday
1	-	-	15.6	-	-	-	-
2	-	-	-	-	-	-	-
3	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-
5	-	33.5	-	-	-	-	-
6	26.0	16.0	38.8	-	-	-	-
7	33.9	25.9	26.0	-	-	-	-
8	33.3	33.4	38.8	-	-	-	-
9	33.8	33.3	33.6	-	-	-	-
10	25.9	33.1	33.8	-	-	-	-
11	33.3	33.2	33.0	-	-	-	-
12	33.9	26.5	33.2	-	-	-	-
13	33.6	38.1	33.1	-	-	-	-
14	38.6	33.4	25.6	-	-	-	-
15	33.4	38.4	25.8	-	-	-	-
16	33.1	33.5	25.6	-	-	-	-
17	33.6	33.2	33.0	-	-	-	-
18	33.7	33.5	38.5	-	-	-	-
19	38.9	33.3	33.7	-	-	-	-
20	26.3	33.6	33.5	-	-	-	-
21	25.5	26.0	33.8	-	-	-	-
22	-	33.2	25.6	-	-	-	-
23	33.5	-	-	-	-	-	-
24	33.9	-	-	-	-	-	-

10-12	33.4	26.2	33.7	-	-	-	-
14-16	33.7	33.5	26.0	-	-	-	-
0-24	33.5	33.4	33.4	-	-	-	-

7 Day Ave 33.4

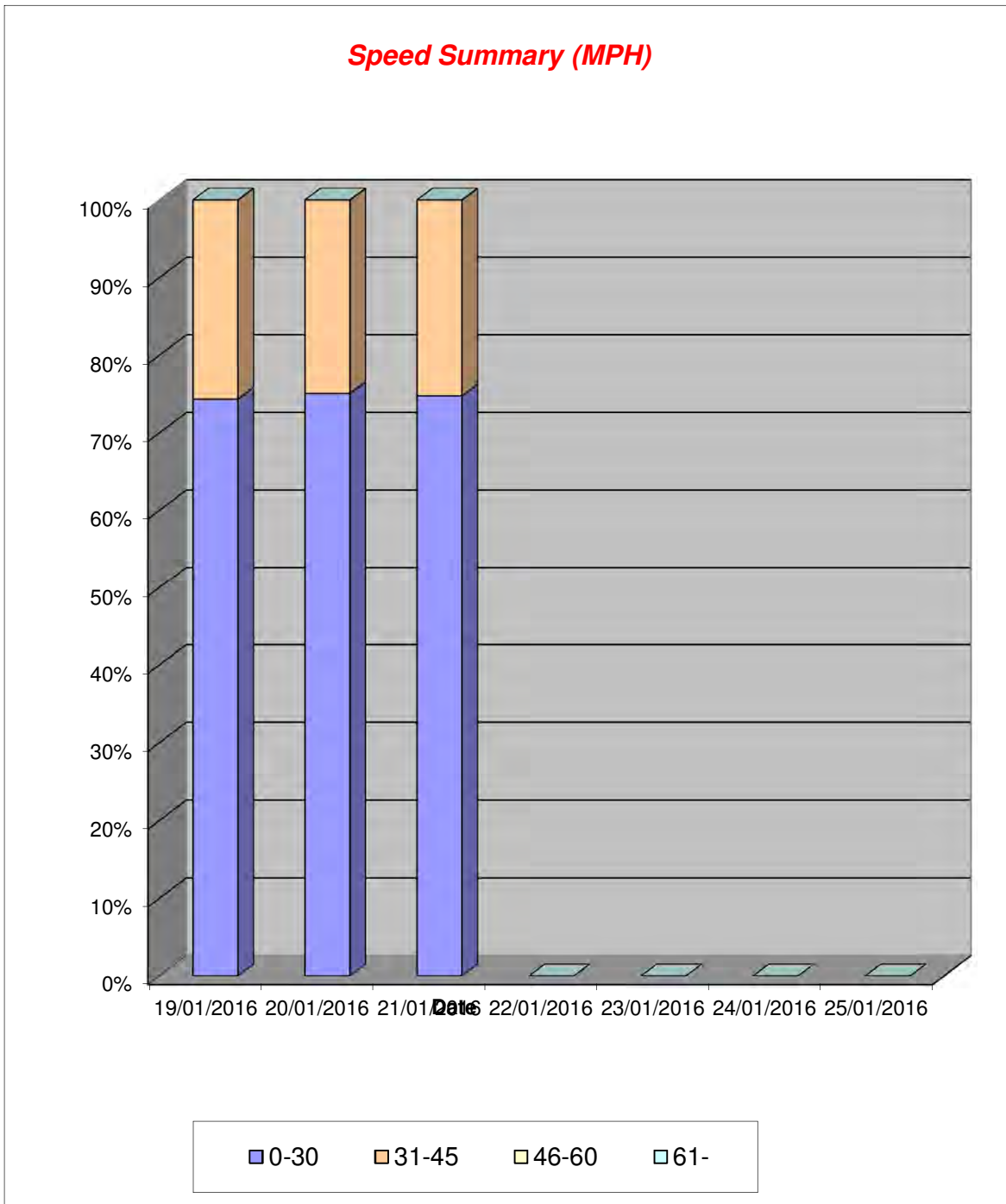
St Albans ATC, Chiswell Green Lane (Eastern Site)

Channel 2 - Eastbound

Speed Summary

Week 2

Speed (MPH)	19/01/2016 Tuesday	20/01/2016 Wednesday	21/01/2016 Thursday	22/01/2016 Friday	23/01/2016 Saturday	24/01/2016 Sunday	25/01/2016 Monday
0-30	278	244	290	0	0	0	0
31-45	96	81	98	0	0	0	0
46-60	0	0	0	0	0	0	0
61-	0	0	0	0	0	0	0
TOTAL	374	325	388	0	0	0	0



St Albans ATC, Chiswell Green Lane (Eastern Site)

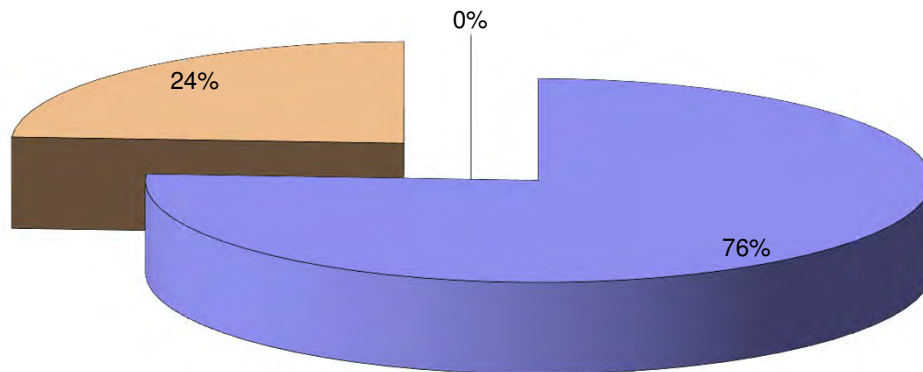
Channel 2 - Eastbound

Vehicle Class

Week 2

Classes Day / Time	Car / LGV / Caravan - 1	OGV1 / Bus - 2,3,5,6,7,12	OGV2 - 4,8,9,10,11,13	TOTAL - 1-13
19/01/2016				
7-19	275	58	0	333
6-22	299	64	0	363
6-24	304	64	0	368
0-24	309	65	0	374
20/01/2016				
7-19	194	95	0	289
6-22	218	102	0	320
6-24	219	102	0	321
0-24	223	102	0	325
21/01/2016				
7-19	261	88	0	349
6-22	287	93	0	380
6-24	288	93	0	381
0-24	294	94	0	388
22/01/2016				
7-19	0	0	0	0
6-22	0	0	0	0
6-24	0	0	0	0
0-24	0	0	0	0
23/01/2016				
7-19	0	0	0	0
6-22	0	0	0	0
6-24	0	0	0	0
0-24	0	0	0	0
24/01/2016				
7-19	0	0	0	0
6-22	0	0	0	0
6-24	0	0	0	0
0-24	0	0	0	0
25/01/2016				
7-19	0	0	0	0
6-22	0	0	0	0
6-24	0	0	0	0
0-24	0	0	0	0
Average				
7-19	104	34	0	139
6-22	115	37	0	152
6-24	116	37	0	153
0-24	118	37	0	155

Total Vehicle Class Distribution



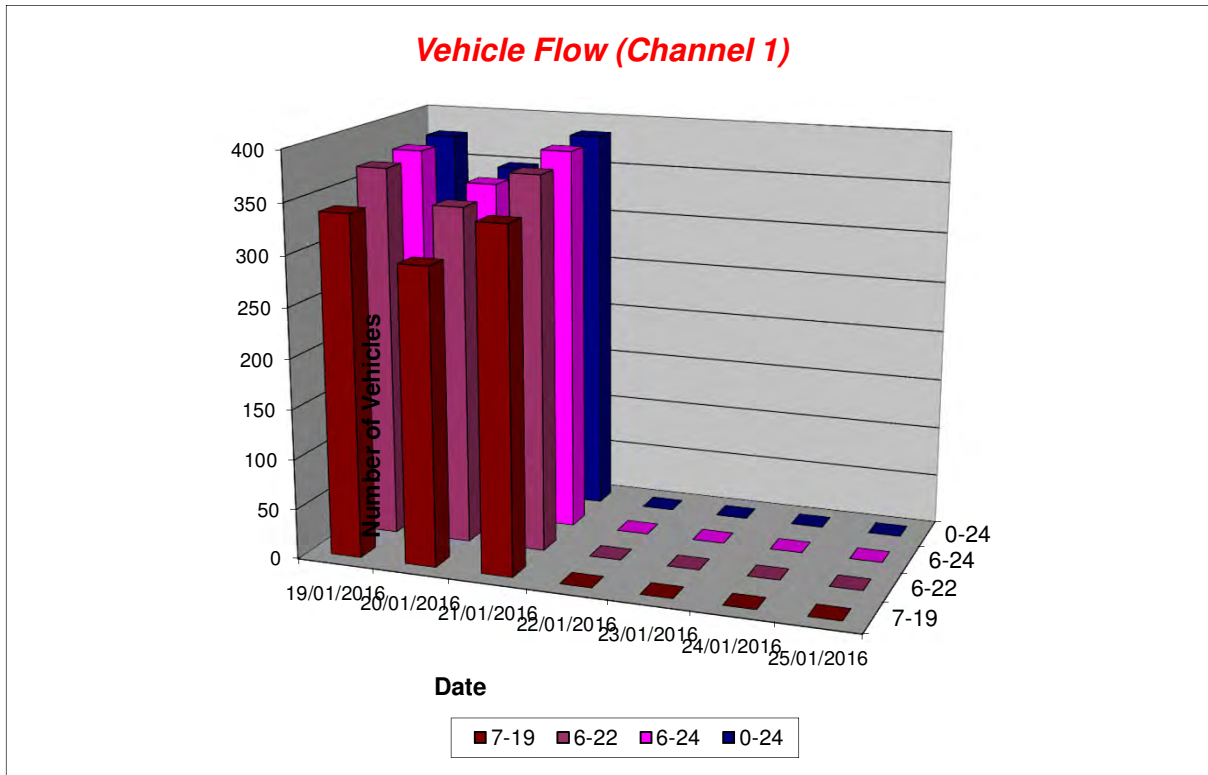
St Albans ATC, Chiswell Green Lane (Western Site)

Channel 1 - Westbound

Vehicle Flow

Week 2

Hr Ending	19/01/2016 Tuesday	20/01/2016 Wednesday	21/01/2016 Thursday	22/01/2016 Friday	23/01/2016 Saturday	24/01/2016 Sunday	25/01/2016 Monday	Weekday Average	Average
1	2	0	0	0	0	0	0	1	1
2	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0
6	1	3	3	0	0	0	0	2	2
7	7	19	14	0	0	0	0	13	13
8	20	51	44	0	0	0	0	38	38
9	41	51	51	0	0	0	0	48	48
10	47	25	26	0	0	0	0	33	33
11	19	27	25	0	0	0	0	24	24
12	24	14	26	0	0	0	0	21	21
13	38	23	22	0	0	0	0	28	28
14	19	8	23	0	0	0	0	17	17
15	13	10	17	0	0	0	0	13	13
16	20	24	27	0	0	0	0	24	24
17	31	34	31	0	0	0	0	32	32
18	53	11	34	0	0	0	0	33	33
19	14	17	14	0	0	0	0	15	15
20	10	13	6	0	0	0	0	10	10
21	10	3	6	0	0	0	0	6	6
22	3	6	6	0	0	0	0	5	5
23	1	5	6	0	0	0	0	4	4
24	4	4	4	0	0	0	0	4	4
7-19	339	295	340	0	0	0	0	325	325
6-22	369	336	372	0	0	0	0	359	359
6-24	374	345	382	0	0	0	0	367	367
0-24	377	348	385	0	0	0	0	370	370



St Albans ATC, Chiswell Green Lane (Western Site)

Channel 1 - Westbound

Average Speed

Week 2

Hr Ending	19/01/2016 Tuesday	20/01/2016 Wednesday	21/01/2016 Thursday	22/01/2016 Friday	23/01/2016 Saturday	24/01/2016 Sunday	25/01/2016 Monday
1	34.2	-	-	-	-	-	-
2	-	-	-	-	-	-	-
3	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-
5	-	-	-	-	-	-	-
6	5.0	11.8	29.7	-	-	-	-
7	23.7	25.4	23.9	-	-	-	-
8	23.4	24.2	27.5	-	-	-	-
9	22.8	23.2	26.4	-	-	-	-
10	23.5	26.5	25.2	-	-	-	-
11	25.6	23.9	23.7	-	-	-	-
12	22.4	25.5	22.8	-	-	-	-
13	25.4	18.5	18.7	-	-	-	-
14	23.4	31.1	23.8	-	-	-	-
15	21.7	32.2	23.0	-	-	-	-
16	22.8	23.6	20.9	-	-	-	-
17	25.0	23.9	22.8	-	-	-	-
18	27.2	29.1	25.9	-	-	-	-
19	26.4	24.3	26.0	-	-	-	-
20	26.8	20.1	22.2	-	-	-	-
21	24.0	22.2	28.0	-	-	-	-
22	25.5	28.8	28.0	-	-	-	-
23	25.5	25.5	28.0	-	-	-	-
24	22.4	30.5	29.2	-	-	-	-

10-12	23.8	24.5	23.2	-	-	-	-
14-16	22.3	26.2	21.7	-	-	-	-
0-24	24.4	24.3	24.5	-	-	-	-

7 Day Ave 24.4

Channel 1 - Westbound

85th Percentile

Hr Ending	19/01/2016 Tuesday	20/01/2016 Wednesday	21/01/2016 Thursday	22/01/2016 Friday	23/01/2016 Saturday	24/01/2016 Sunday	25/01/2016 Monday
1	43.7	-	-	-	-	-	-
2	-	-	-	-	-	-	-
3	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-
5	-	-	-	-	-	-	-
6	-	26.1	38.1	-	-	-	-
7	26.1	33.5	25.6	-	-	-	-
8	25.8	33.3	33.8	-	-	-	-
9	25.8	33.6	33.3	-	-	-	-
10	26.3	33.6	33.0	-	-	-	-
11	25.6	25.8	25.8	-	-	-	-
12	26.3	33.3	25.9	-	-	-	-
13	33.8	33.8	25.8	-	-	-	-
14	26.2	33.8	26.4	-	-	-	-
15	33.0	38.6	26.5	-	-	-	-
16	33.4	26.5	25.9	-	-	-	-
17	33.9	33.9	25.8	-	-	-	-
18	33.8	33.2	33.2	-	-	-	-
19	33.4	33.7	33.2	-	-	-	-
20	39.0	26.5	26.1	-	-	-	-
21	33.9	25.7	33.4	-	-	-	-
22	25.6	33.5	33.4	-	-	-	-
23	-	25.6	33.7	-	-	-	-
24	33.4	39.0	33.3	-	-	-	-

10-12	26.0	26.2	26.1	-	-	-	-
14-16	33.8	38.0	25.7	-	-	-	-
0-24	33.1	33.6	33.2	-	-	-	-

7 Day Ave 33.3

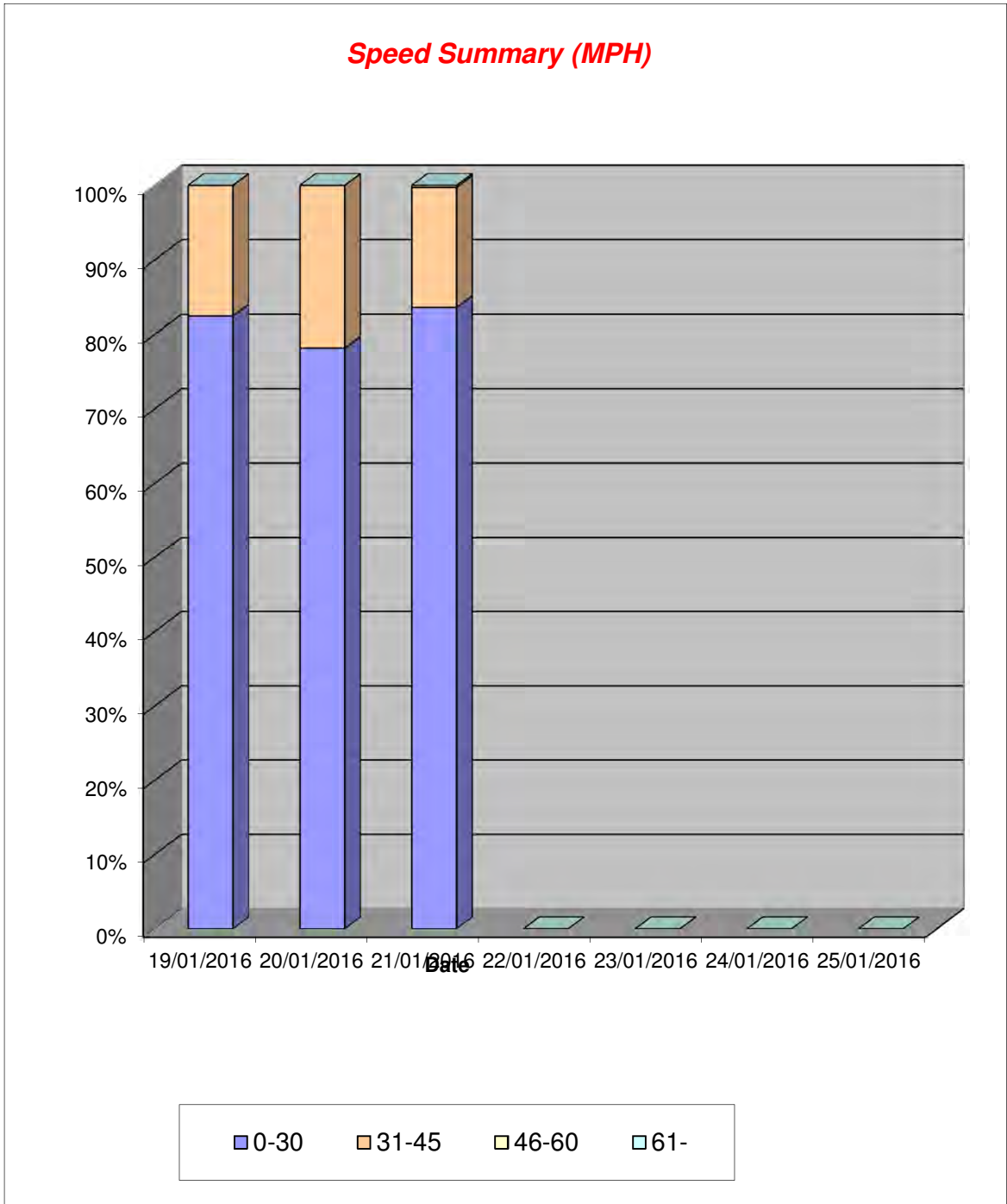
St Albans ATC, Chiswell Green Lane (Western Site)

Channel 1 - Westbound

Speed Summary

Week 2

Speed (MPH)	19/01/2016 Tuesday	20/01/2016 Wednesday	21/01/2016 Thursday	22/01/2016 Friday	23/01/2016 Saturday	24/01/2016 Sunday	25/01/2016 Monday
0-30	311	272	322	0	0	0	0
31-45	66	76	62	0	0	0	0
46-60	0	0	1	0	0	0	0
61-	0	0	0	0	0	0	0
TOTAL	377	348	385	0	0	0	0



St Albans ATC, Chiswell Green Lane (Western Site)

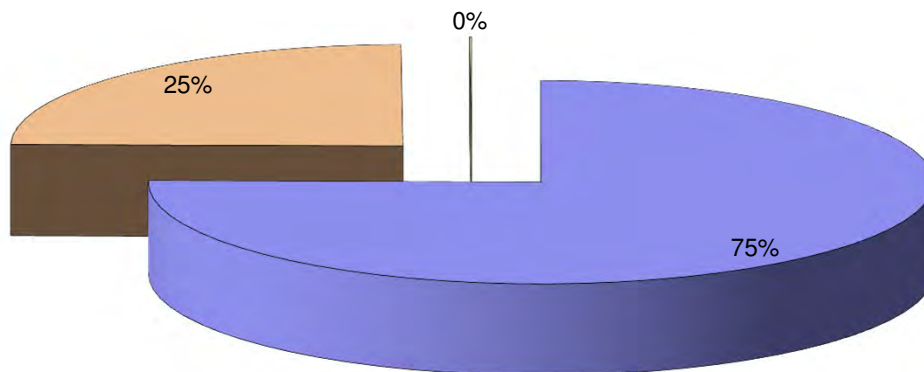
Channel 1 - Westbound

Vehicle Class

Week 2

Classes Day / Time	Car / LGV / Caravan - 1	OGV1 / Bus - 2,3,5,6,7,12	OGV2 - 4,8,9,10,11,13	TOTAL - 1-13
19/01/2016				
7-19	253	85	1	339
6-22	274	94	1	369
6-24	277	96	1	374
0-24	279	97	1	377
20/01/2016				
7-19	215	80	0	295
6-22	249	87	0	336
6-24	257	88	0	345
0-24	259	89	0	348
21/01/2016				
7-19	258	82	0	340
6-22	288	84	0	372
6-24	296	86	0	382
0-24	297	88	0	385
22/01/2016				
7-19	0	0	0	0
6-22	0	0	0	0
6-24	0	0	0	0
0-24	0	0	0	0
23/01/2016				
7-19	0	0	0	0
6-22	0	0	0	0
6-24	0	0	0	0
0-24	0	0	0	0
24/01/2016				
7-19	0	0	0	0
6-22	0	0	0	0
6-24	0	0	0	0
0-24	0	0	0	0
25/01/2016				
7-19	0	0	0	0
6-22	0	0	0	0
6-24	0	0	0	0
0-24	0	0	0	0
Average				
7-19	104	35	0	139
6-22	116	38	0	154
6-24	119	39	0	157
0-24	119	39	0	159

Total Vehicle Class Distribution



St Albans ATC, Chiswell Green Lane (Western Site)

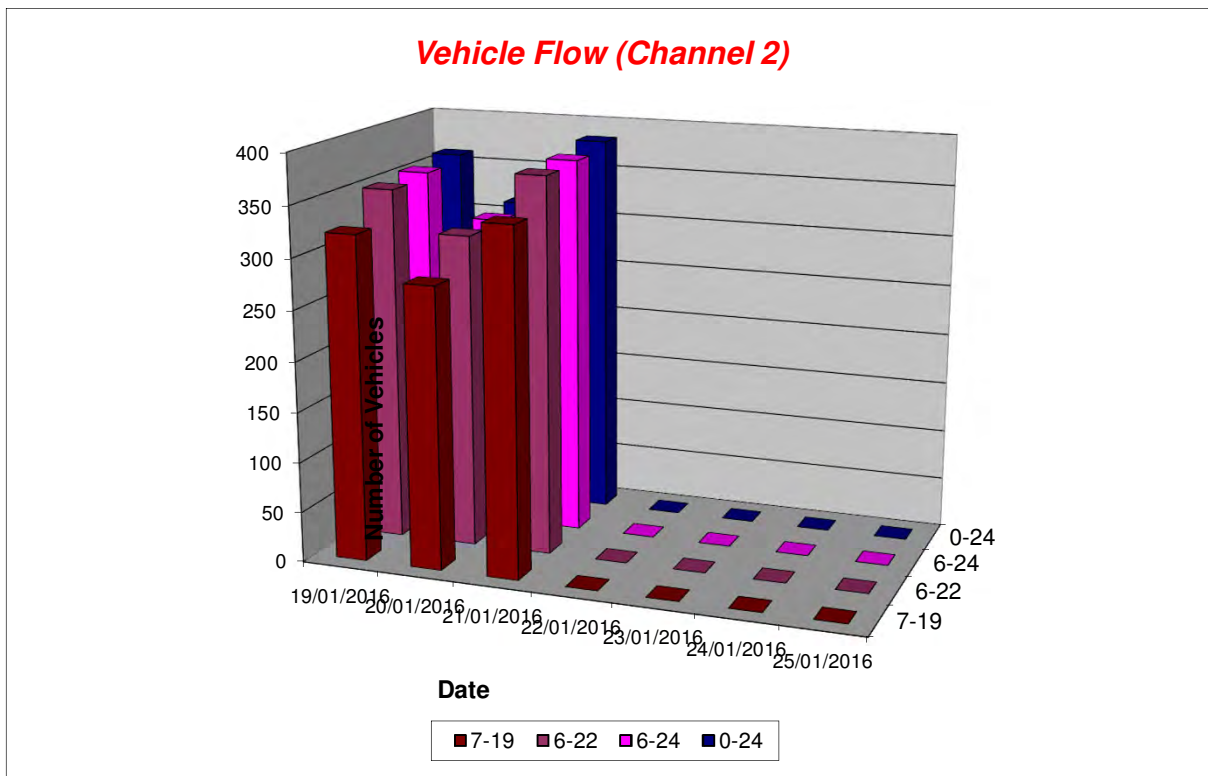
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Channel 2 - Eastbound

Vehicle Flow

Week 2

Hr Ending	19/01/2016 Tuesday	20/01/2016 Wednesday	21/01/2016 Thursday	22/01/2016 Friday	23/01/2016 Saturday	24/01/2016 Sunday	25/01/2016 Monday	Weekday Average	Average
1	0	0	0	0	0	0	0	0	0
2	0	0	2	0	0	0	0	1	1
3	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0
6	6	3	5	0	0	0	0	5	5
7	10	15	14	0	0	0	0	13	13
8	20	28	27	0	0	0	0	25	25
9	52	33	43	0	0	0	0	43	43
10	37	14	28	0	0	0	0	26	26
11	20	12	15	0	0	0	0	16	16
12	24	18	22	0	0	0	0	21	21
13	23	16	25	0	0	0	0	21	21
14	17	17	20	0	0	0	0	18	18
15	23	17	29	0	0	0	0	23	23
16	27	24	37	0	0	0	0	29	29
17	35	60	42	0	0	0	0	46	46
18	33	29	33	0	0	0	0	32	32
19	11	11	21	0	0	0	0	14	14
20	13	9	5	0	0	0	0	9	9
21	5	3	8	0	0	0	0	5	5
22	1	5	5	0	0	0	0	4	4
23	3	0	1	0	0	0	0	1	1
24	1	1	1	0	0	0	0	1	1
7-19	322	279	342	0	0	0	0	314	314
6-22	351	311	374	0	0	0	0	345	345
6-24	355	312	376	0	0	0	0	348	348
0-24	361	315	383	0	0	0	0	353	353



St Albans ATC, Chiswell Green Lane (Western Site)

Channel 2 - Eastbound

Average Speed

Week 2

Hr Ending	19/01/2016 Tuesday	20/01/2016 Wednesday	21/01/2016 Thursday	22/01/2016 Friday	23/01/2016 Saturday	24/01/2016 Sunday	25/01/2016 Monday
1	-	-	-	-	-	-	-
2	-	-	33.0	-	-	-	-
3	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-
5	-	-	-	-	-	-	-
6	18.8	15.5	19.5	-	-	-	-
7	25.0	20.0	24.2	-	-	-	-
8	22.5	25.4	27.7	-	-	-	-
9	26.4	24.8	24.9	-	-	-	-
10	24.2	23.9	27.6	-	-	-	-
11	24.6	24.2	25.8	-	-	-	-
12	24.0	23.7	25.2	-	-	-	-
13	23.9	25.8	24.9	-	-	-	-
14	25.6	26.1	21.5	-	-	-	-
15	26.6	24.2	24.6	-	-	-	-
16	24.9	25.7	23.1	-	-	-	-
17	25.1	25.1	25.8	-	-	-	-
18	22.7	28.3	28.7	-	-	-	-
19	26.6	27.1	27.4	-	-	-	-
20	23.7	27.2	30.0	-	-	-	-
21	19.4	22.2	26.4	-	-	-	-
22	33.0	22.9	21.5	-	-	-	-
23	33.0	-	25.5	-	-	-	-
24	15.5	38.0	25.5	-	-	-	-

10-12	24.3	23.9	25.4	-	-	-	-
14-16	25.7	25.1	23.8	-	-	-	-
0-24	24.6	25.1	25.5	-	-	-	-

7 Day Ave 25.1

Channel 2 - Eastbound

85th Percentile

Hr Ending	19/01/2016 Tuesday	20/01/2016 Wednesday	21/01/2016 Thursday	22/01/2016 Friday	23/01/2016 Saturday	24/01/2016 Sunday	25/01/2016 Monday
1	-	-	-	-	-	-	-
2	-	-	33.5	-	-	-	-
3	-	-	-	-	-	-	-
4	-	-	-	-	-	-	-
5	-	-	-	-	-	-	-
6	26.1	16.0	25.9	-	-	-	-
7	33.1	26.0	33.1	-	-	-	-
8	26.0	33.5	38.8	-	-	-	-
9	33.9	33.4	33.5	-	-	-	-
10	25.8	25.9	33.8	-	-	-	-
11	33.8	33.3	33.6	-	-	-	-
12	33.4	25.6	33.8	-	-	-	-
13	25.8	25.9	33.0	-	-	-	-
14	33.9	34.0	25.7	-	-	-	-
15	33.6	33.1	33.1	-	-	-	-
16	33.6	33.4	25.6	-	-	-	-
17	25.9	33.4	33.3	-	-	-	-
18	33.1	33.5	33.1	-	-	-	-
19	33.6	33.2	33.0	-	-	-	-
20	26.2	33.5	33.5	-	-	-	-
21	26.4	25.8	26.5	-	-	-	-
22	-	33.6	26.0	-	-	-	-
23	33.0	-	-	-	-	-	-
24	-	-	-	-	-	-	-

10-12	33.9	25.7	33.2	-	-	-	-
14-16	33.4	33.9	26.2	-	-	-	-
0-24	33.7	33.7	33.5	-	-	-	-

7 Day Ave 33.6

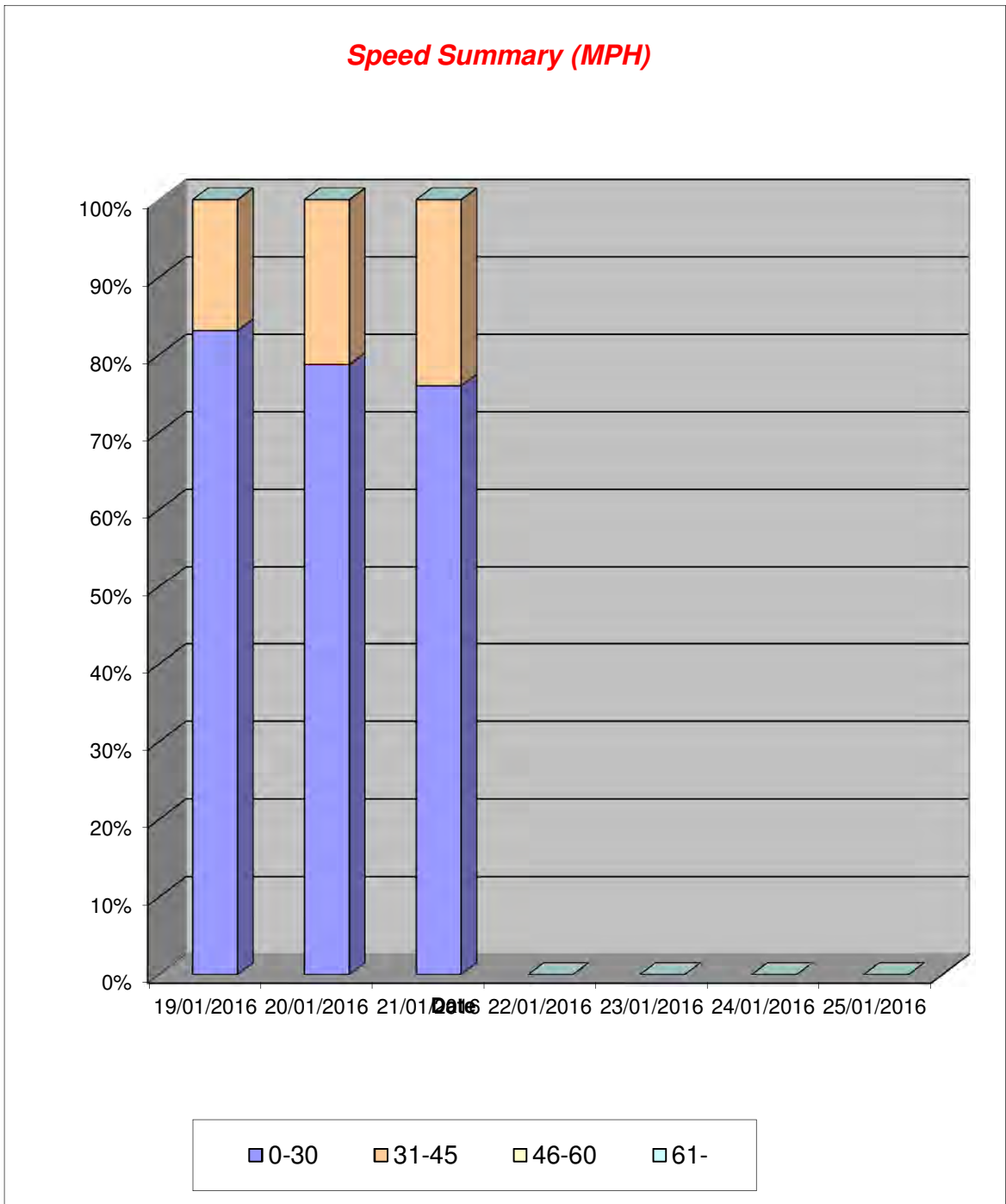
St Albans ATC, Chiswell Green Lane (Western Site)

Channel 2 - Eastbound

Speed Summary

Week 2

Speed (MPH)	19/01/2016 Tuesday	20/01/2016 Wednesday	21/01/2016 Thursday	22/01/2016 Friday	23/01/2016 Saturday	24/01/2016 Sunday	25/01/2016 Monday
0-30	300	248	291	0	0	0	0
31-45	61	67	92	0	0	0	0
46-60	0	0	0	0	0	0	0
61-	0	0	0	0	0	0	0
TOTAL	361	315	383	0	0	0	0



St Albans ATC, Chiswell Green Lane (Western Site)

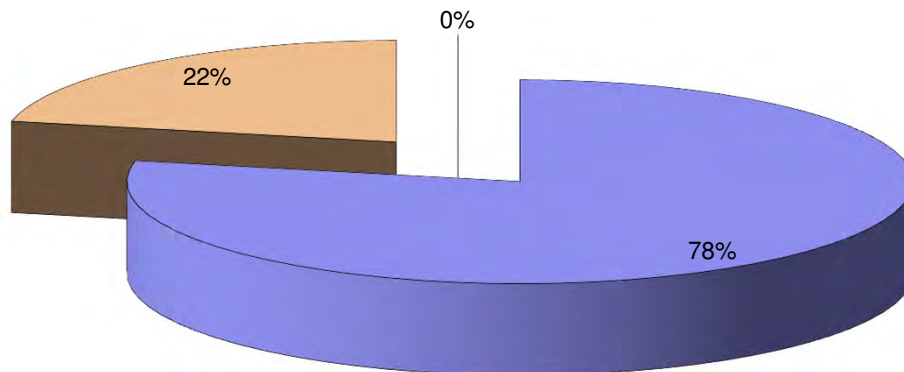
Channel 2 - Eastbound

Vehicle Class

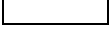
Week 2

Classes Day / Time	Car / LGV / Caravan - 1	OGV1 / Bus - 2,3,5,6,7,12	OGV2 - 4,8,9,10,11,13	TOTAL - 1-13
19/01/2016				
7-19	259	63	0	322
6-22	280	71	0	351
6-24	284	71	0	355
0-24	290	71	0	361
20/01/2016				
7-19	210	69	0	279
6-22	232	79	0	311
6-24	233	79	0	312
0-24	236	79	0	315
21/01/2016				
7-19	267	75	0	342
6-22	296	78	0	374
6-24	297	79	0	376
0-24	303	80	0	383
22/01/2016				
7-19	0	0	0	0
6-22	0	0	0	0
6-24	0	0	0	0
0-24	0	0	0	0
23/01/2016				
7-19	0	0	0	0
6-22	0	0	0	0
6-24	0	0	0	0
0-24	0	0	0	0
24/01/2016				
7-19	0	0	0	0
6-22	0	0	0	0
6-24	0	0	0	0
0-24	0	0	0	0
25/01/2016				
7-19	0	0	0	0
6-22	0	0	0	0
6-24	0	0	0	0
0-24	0	0	0	0
Average				
7-19	105	30	0	135
6-22	115	33	0	148
6-24	116	33	0	149
0-24	118	33	0	151

Total Vehicle Class Distribution



St Albans ATC, Watford Road

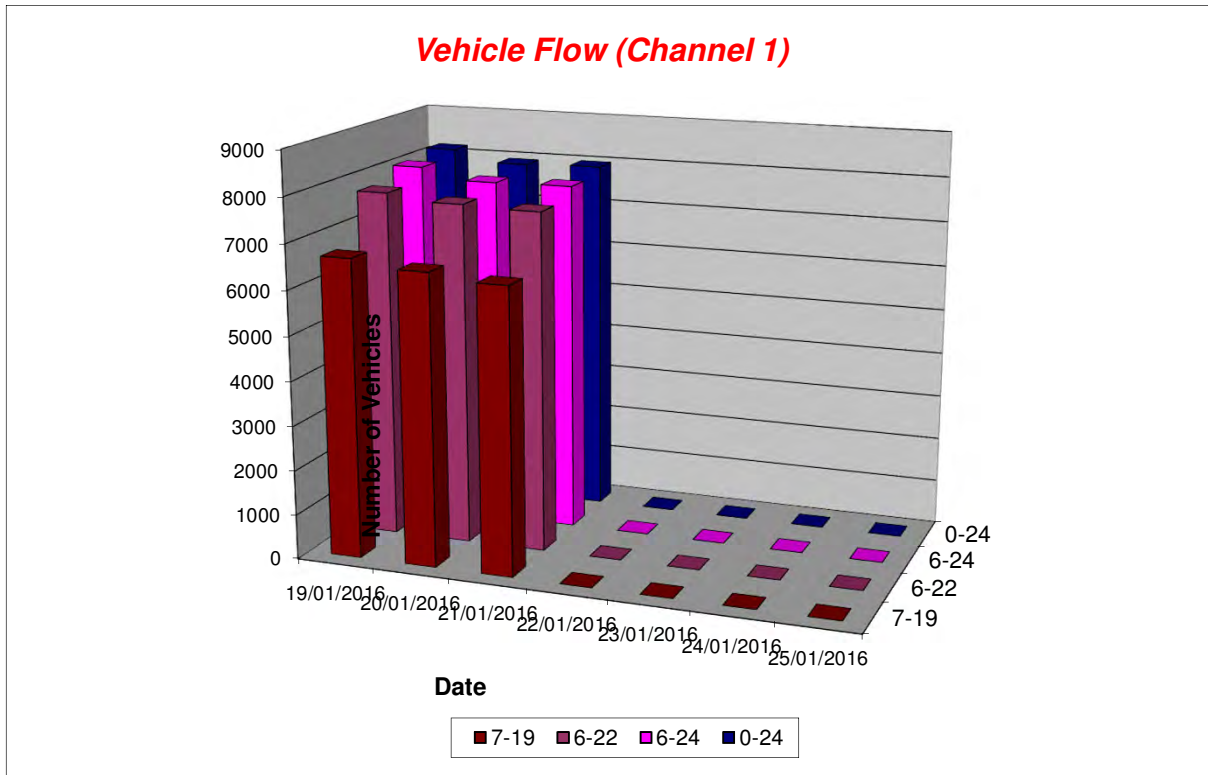


Channel 1 - Northbound

Vehicle Flow

Week 2

Hr Ending	19/01/2016 Tuesday	20/01/2016 Wednesday	21/01/2016 Thursday	22/01/2016 Friday	23/01/2016 Saturday	24/01/2016 Sunday	25/01/2016 Monday	Weekday Average	Average
1	29	17	27	0	0	0	0	24	24
2	16	16	14	0	0	0	0	15	15
3	7	7	6	0	0	0	0	7	7
4	9	5	13	0	0	0	0	9	9
5	15	21	24	0	0	0	0	20	20
6	54	61	65	0	0	0	0	60	60
7	151	211	148	0	0	0	0	170	170
8	589	652	644	0	0	0	0	628	628
9	605	603	523	0	0	0	0	577	577
10	471	444	476	0	0	0	0	464	464
11	403	422	356	0	0	0	0	394	394
12	444	383	401	0	0	0	0	409	409
13	475	387	425	0	0	0	0	429	429
14	398	434	405	0	0	0	0	412	412
15	589	442	478	0	0	0	0	503	503
16	596	650	544	0	0	0	0	597	597
17	633	626	637	0	0	0	0	632	632
18	716	733	708	0	0	0	0	719	719
19	751	733	767	0	0	0	0	750	750
20	458	439	606	0	0	0	0	501	501
21	295	284	298	0	0	0	0	292	292
22	188	182	162	0	0	0	0	177	177
23	155	120	163	0	0	0	0	146	146
24	131	58	83	0	0	0	0	91	91
7-19	6670	6509	6364	0	0	0	0	6514	6514
6-22	7762	7625	7578	0	0	0	0	7655	7655
6-24	8048	7803	7824	0	0	0	0	7892	7892
0-24	8178	7930	7973	0	0	0	0	8027	8027



St Albans ATC, Watford Road

Channel 1 - Northbound

Average Speed

Week 2

Hr Ending	19/01/2016 Tuesday	20/01/2016 Wednesday	21/01/2016 Thursday	22/01/2016 Friday	23/01/2016 Saturday	24/01/2016 Sunday	25/01/2016 Monday
1	38.3	37.0	38.6	-	-	-	-
2	41.4	34.2	41.8	-	-	-	-
3	38.4	36.9	39.7	-	-	-	-
4	35.8	37.0	37.4	-	-	-	-
5	36.3	36.5	39.5	-	-	-	-
6	36.1	36.3	36.8	-	-	-	-
7	35.9	36.1	37.0	-	-	-	-
8	32.9	31.2	32.0	-	-	-	-
9	33.0	29.3	26.1	-	-	-	-
10	34.2	34.1	35.2	-	-	-	-
11	33.5	34.3	35.6	-	-	-	-
12	33.8	33.3	33.7	-	-	-	-
13	34.0	34.0	34.6	-	-	-	-
14	35.0	33.1	33.0	-	-	-	-
15	34.2	34.1	34.9	-	-	-	-
16	32.9	33.3	33.2	-	-	-	-
17	32.5	32.9	33.5	-	-	-	-
18	32.2	33.6	31.8	-	-	-	-
19	33.9	34.3	32.7	-	-	-	-
20	34.1	34.7	34.4	-	-	-	-
21	35.2	36.5	35.1	-	-	-	-
22	37.0	36.2	36.7	-	-	-	-
23	35.2	37.1	35.7	-	-	-	-
24	37.4	37.2	37.5	-	-	-	-

10-12	33.7	33.8	34.6	-	-	-	-
14-16	33.5	33.6	34.0	-	-	-	-
0-24	33.8	33.5	33.4	-	-	-	-

7 Day Ave 33.6

Channel 1 - Northbound

85th Percentile

Hr Ending	19/01/2016 Tuesday	20/01/2016 Wednesday	21/01/2016 Thursday	22/01/2016 Friday	23/01/2016 Saturday	24/01/2016 Sunday	25/01/2016 Monday
1	48.7	38.6	49.0	-	-	-	-
2	48.5	43.3	53.4	-	-	-	-
3	43.6	48.3	48.3	-	-	-	-
4	38.3	38.8	43.2	-	-	-	-
5	38.3	43.8	48.2	-	-	-	-
6	43.8	43.6	43.6	-	-	-	-
7	43.0	44.0	43.4	-	-	-	-
8	38.8	38.9	38.4	-	-	-	-
9	38.8	38.2	38.7	-	-	-	-
10	38.7	38.7	38.3	-	-	-	-
11	38.0	39.0	43.6	-	-	-	-
12	38.4	38.2	38.2	-	-	-	-
13	38.9	38.5	38.2	-	-	-	-
14	38.8	38.1	38.6	-	-	-	-
15	38.4	39.0	38.1	-	-	-	-
16	39.0	38.7	38.5	-	-	-	-
17	38.9	38.0	38.9	-	-	-	-
18	38.1	38.6	38.3	-	-	-	-
19	38.9	38.1	38.8	-	-	-	-
20	38.4	38.1	38.4	-	-	-	-
21	38.5	43.8	38.3	-	-	-	-
22	43.8	43.3	43.9	-	-	-	-
23	43.1	43.0	43.6	-	-	-	-
24	43.6	43.3	43.6	-	-	-	-

10-12	38.5	38.4	38.4	-	-	-	-
14-16	38.3	38.3	38.1	-	-	-	-
0-24	38.6	38.9	38.6	-	-	-	-

7 Day Ave 38.7

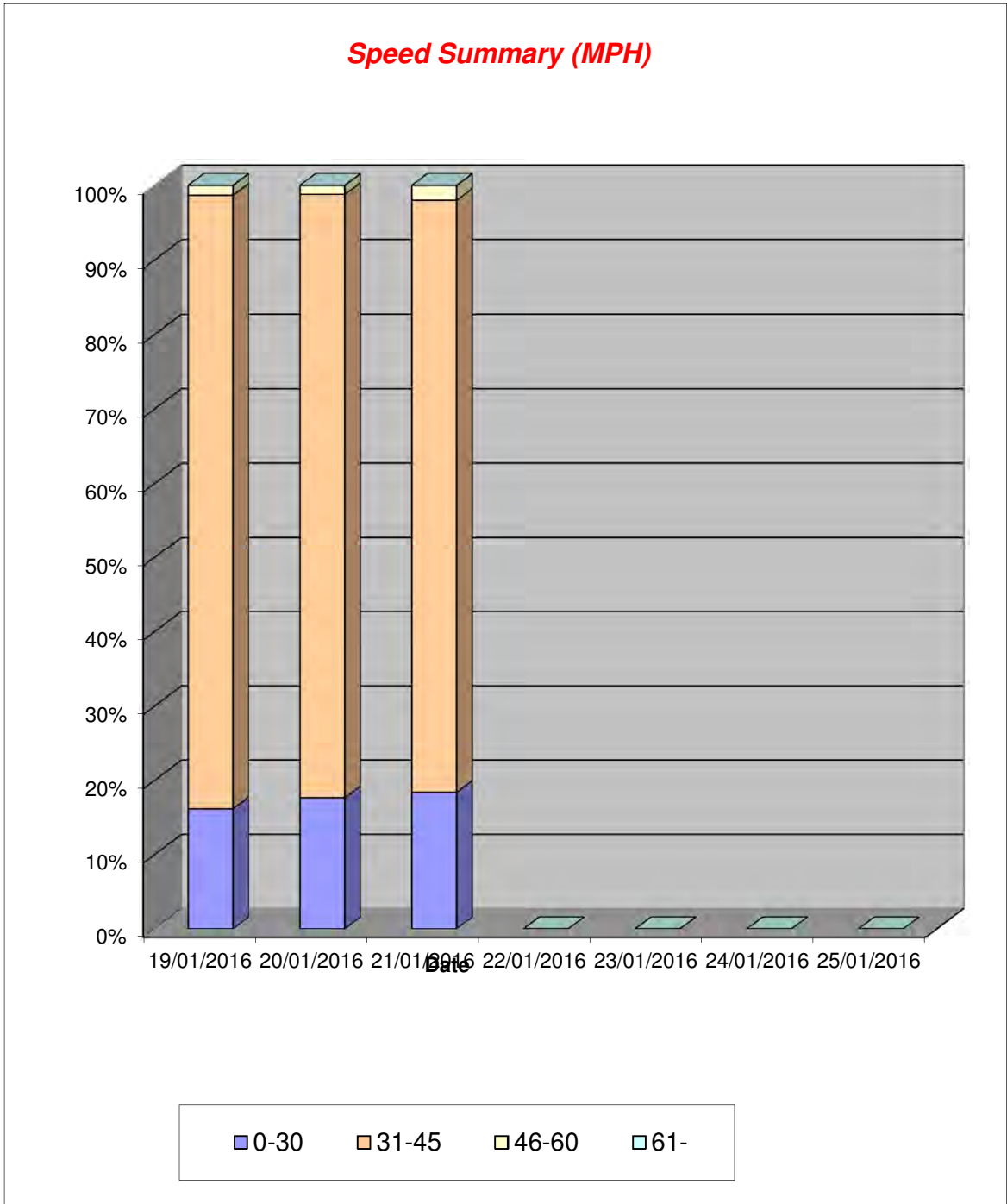
St Albans ATC, Watford Road

Channel 1 - Northbound

Speed Summary

Week 2

Speed (MPH)	19/01/2016 Tuesday	20/01/2016 Wednesday	21/01/2016 Thursday	22/01/2016 Friday	23/01/2016 Saturday	24/01/2016 Sunday	25/01/2016 Monday
0-30	1322	1399	1467	0	0	0	0
31-45	6749	6436	6348	0	0	0	0
46-60	107	95	158	0	0	0	0
61-	0	0	0	0	0	0	0
TOTAL	8178	7930	7973	0	0	0	0



St Albans ATC, Watford Road

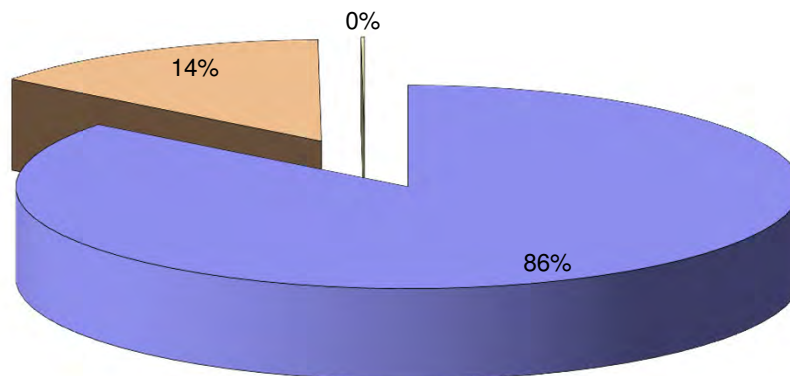
Channel 1 - Northbound

Vehicle Class

Week 2

Day / Time	Classes	Car / LGV / Caravan - 1	OGV1 / Bus - 2,3,5,6,7,12	OGV2 - 4,8,9,10,11,13	TOTAL - 1-13
19/01/2016					
7-19		5818	846	6	6670
6-22		6799	957	6	7762
6-24		7046	996	6	8048
0-24		7145	1027	6	8178
20/01/2016					
7-19		5527	969	13	6509
6-22		6489	1123	13	7625
6-24		6631	1159	13	7803
0-24		6731	1186	13	7930
21/01/2016					
7-19		5351	999	14	6364
6-22		6391	1171	16	7578
6-24		6609	1199	16	7824
0-24		6712	1245	16	7973
22/01/2016					
7-19		0	0	0	0
6-22		0	0	0	0
6-24		0	0	0	0
0-24		0	0	0	0
23/01/2016					
7-19		0	0	0	0
6-22		0	0	0	0
6-24		0	0	0	0
0-24		0	0	0	0
24/01/2016					
7-19		0	0	0	0
6-22		0	0	0	0
6-24		0	0	0	0
0-24		0	0	0	0
25/01/2016					
7-19		0	0	0	0
6-22		0	0	0	0
6-24		0	0	0	0
0-24		0	0	0	0
Average					
7-19		2385	402	5	2792
6-22		2811	464	5	3281
6-24		2898	479	5	3382
0-24		2941	494	5	3440

Total Vehicle Class Distribution



St Albans ATC, Watford Road

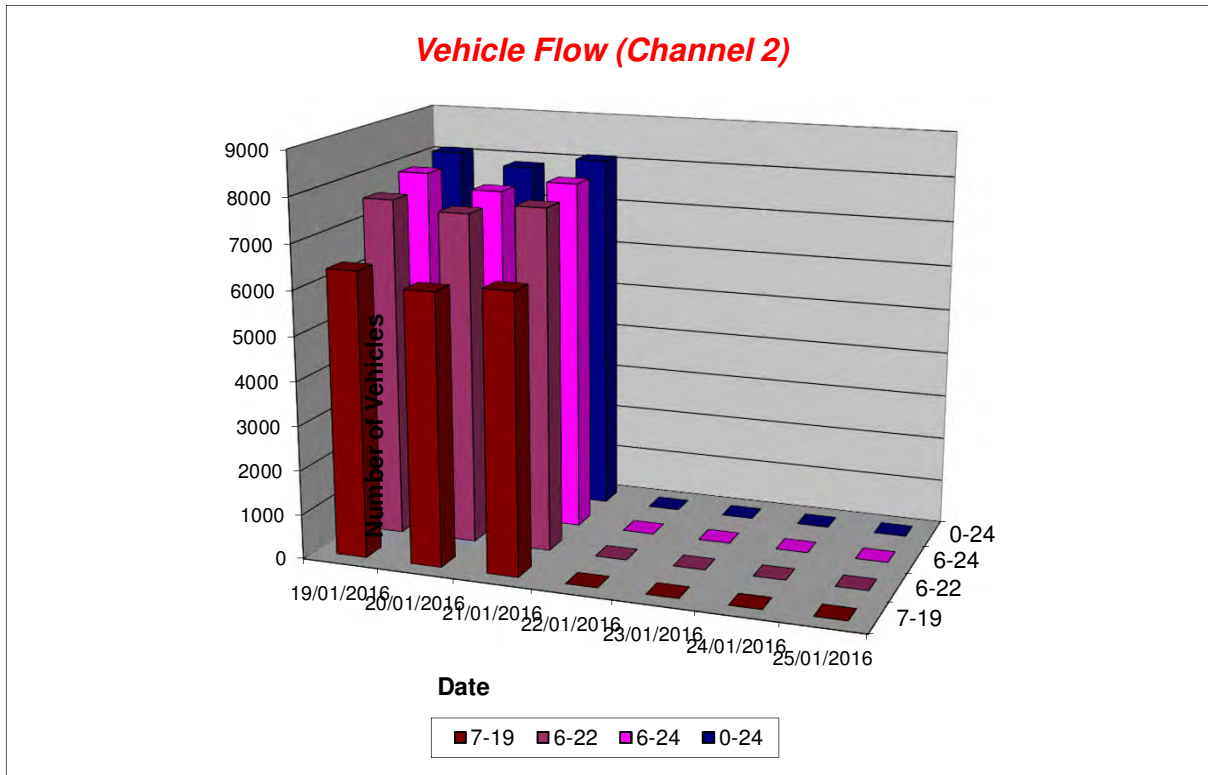


Channel 2 - Southbound

Vehicle Flow

Week 2

Hr Ending	19/01/2016 Tuesday	20/01/2016 Wednesday	21/01/2016 Thursday	22/01/2016 Friday	23/01/2016 Saturday	24/01/2016 Sunday	25/01/2016 Monday	Weekday Average	Average
1	31	20	19	0	0	0	0	23	23
2	14	15	16	0	0	0	0	15	15
3	6	6	5	0	0	0	0	6	6
4	12	13	12	0	0	0	0	12	12
5	31	37	20	0	0	0	0	29	29
6	102	162	160	0	0	0	0	141	141
7	472	558	604	0	0	0	0	545	545
8	677	687	790	0	0	0	0	718	718
9	589	543	635	0	0	0	0	589	589
10	536	498	551	0	0	0	0	528	528
11	474	474	457	0	0	0	0	468	468
12	416	412	421	0	0	0	0	416	416
13	484	484	427	0	0	0	0	465	465
14	509	400	415	0	0	0	0	441	441
15	461	405	426	0	0	0	0	431	431
16	518	566	520	0	0	0	0	535	535
17	610	530	546	0	0	0	0	562	562
18	615	594	559	0	0	0	0	589	589
19	512	497	501	0	0	0	0	503	503
20	343	348	373	0	0	0	0	355	355
21	219	242	246	0	0	0	0	236	236
22	174	181	191	0	0	0	0	182	182
23	180	109	142	0	0	0	0	144	144
24	117	73	75	0	0	0	0	88	88
7-19	6401	6090	6248	0	0	0	0	6246	6246
6-22	7609	7419	7662	0	0	0	0	7563	7563
6-24	7906	7601	7879	0	0	0	0	7795	7795
0-24	8102	7854	8111	0	0	0	0	8022	8022



St Albans ATC, Watford Road

Channel 2 - Southbound

Average Speed

Week 2

Hr Ending	19/01/2016 Tuesday	20/01/2016 Wednesday	21/01/2016 Thursday	22/01/2016 Friday	23/01/2016 Saturday	24/01/2016 Sunday	25/01/2016 Monday
1	37.5	36.6	40.4	-	-	-	-
2	39.2	38.5	36.8	-	-	-	-
3	35.9	36.8	42.5	-	-	-	-
4	40.3	41.8	37.4	-	-	-	-
5	37.3	39.6	41.6	-	-	-	-
6	38.0	38.3	38.3	-	-	-	-
7	33.4	33.6	33.3	-	-	-	-
8	32.5	32.0	32.0	-	-	-	-
9	32.9	32.2	32.8	-	-	-	-
10	32.8	33.4	33.1	-	-	-	-
11	34.2	34.3	33.4	-	-	-	-
12	34.0	33.5	32.9	-	-	-	-
13	33.6	32.8	33.3	-	-	-	-
14	34.3	34.0	33.0	-	-	-	-
15	33.6	33.6	33.9	-	-	-	-
16	32.7	33.1	32.4	-	-	-	-
17	31.6	32.5	32.1	-	-	-	-
18	32.2	31.4	31.5	-	-	-	-
19	32.8	32.7	32.1	-	-	-	-
20	33.6	33.8	33.2	-	-	-	-
21	34.9	34.4	34.0	-	-	-	-
22	34.2	34.8	34.1	-	-	-	-
23	33.4	34.9	35.7	-	-	-	-
24	35.0	38.5	34.8	-	-	-	-

10-12	34.1	33.9	33.2	-	-	-	-
14-16	33.1	33.3	33.1	-	-	-	-
0-24	33.3	33.3	33.0	-	-	-	-

7 Day Ave 33.2

Channel 2 - Southbound

85th Percentile

Hr Ending	19/01/2016 Tuesday	20/01/2016 Wednesday	21/01/2016 Thursday	22/01/2016 Friday	23/01/2016 Saturday	24/01/2016 Sunday	25/01/2016 Monday
1	43.7	43.9	48.7	-	-	-	-
2	43.9	43.7	43.9	-	-	-	-
3	43.8	43.5	48.5	-	-	-	-
4	53.0	53.4	43.1	-	-	-	-
5	43.5	43.1	48.8	-	-	-	-
6	43.9	43.8	43.4	-	-	-	-
7	38.4	38.5	38.5	-	-	-	-
8	38.7	38.8	38.5	-	-	-	-
9	38.5	38.6	38.2	-	-	-	-
10	38.5	38.8	38.3	-	-	-	-
11	38.5	38.0	38.1	-	-	-	-
12	38.4	38.2	38.6	-	-	-	-
13	38.4	38.1	38.2	-	-	-	-
14	38.3	38.1	38.9	-	-	-	-
15	38.1	38.3	38.1	-	-	-	-
16	38.2	38.1	38.4	-	-	-	-
17	39.0	38.0	38.3	-	-	-	-
18	38.1	38.5	38.9	-	-	-	-
19	38.4	38.7	38.8	-	-	-	-
20	38.4	38.5	38.3	-	-	-	-
21	38.5	38.8	38.7	-	-	-	-
22	38.2	38.1	43.3	-	-	-	-
23	38.5	38.2	43.1	-	-	-	-
24	43.3	43.7	38.0	-	-	-	-

10-12	38.6	38.5	38.3	-	-	-	-
14-16	38.5	38.4	38.8	-	-	-	-
0-24	38.2	38.1	38.3	-	-	-	-

7 Day Ave 38.2

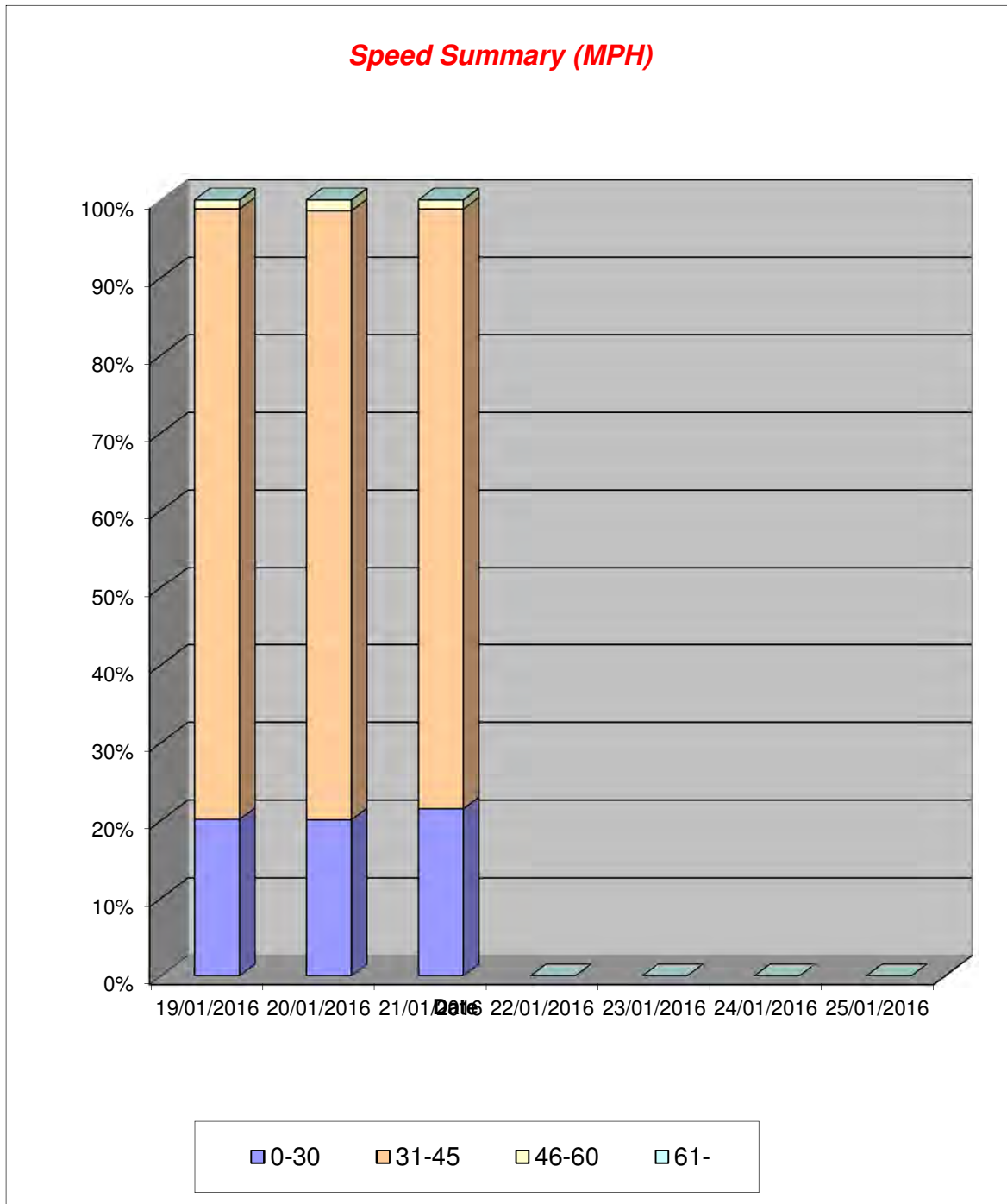
St Albans ATC, Watford Road

Channel 2 - Southbound

Speed Summary

Week 2

Speed (MPH)	19/01/2016 Tuesday	20/01/2016 Wednesday	21/01/2016 Thursday	22/01/2016 Friday	23/01/2016 Saturday	24/01/2016 Sunday	25/01/2016 Monday
0-30	1630	1577	1743	0	0	0	0
31-45	6379	6169	6274	0	0	0	0
46-60	93	108	94	0	0	0	0
61-	0	0	0	0	0	0	0
TOTAL	8102	7854	8111	0	0	0	0



St Albans ATC, Watford Road

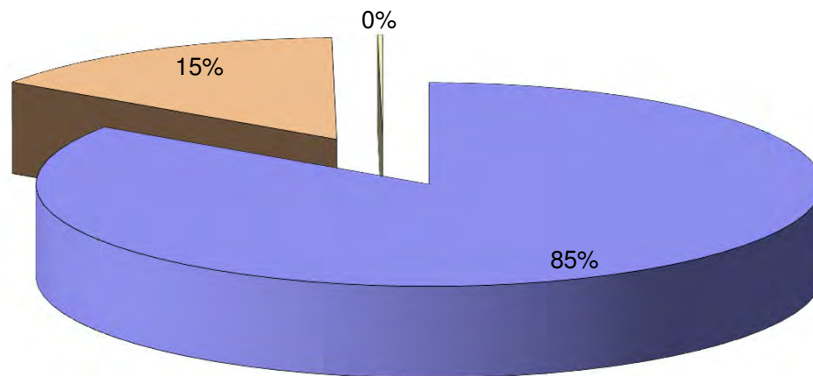
Channel 2 - Southbound

Vehicle Class

Week 2

Day / Time	Classes	Car / LGV / Caravan - 1	OGV1 / Bus - 2,3,5,6,7,12	OGV2 - 4,8,9,10,11,13	TOTAL - 1-13
19/01/2016					
7-19		5474	922	5	6401
6-22		6489	1108	12	7609
6-24		6754	1140	12	7906
0-24		6900	1190	12	8102
20/01/2016					
7-19		5162	919	9	6090
6-22		6267	1132	20	7419
6-24		6437	1144	20	7601
0-24		6618	1216	20	7854
21/01/2016					
7-19		5289	952	7	6248
6-22		6476	1169	17	7662
6-24		6661	1201	17	7879
0-24		6822	1272	17	8111
22/01/2016					
7-19		0	0	0	0
6-22		0	0	0	0
6-24		0	0	0	0
0-24		0	0	0	0
23/01/2016					
7-19		0	0	0	0
6-22		0	0	0	0
6-24		0	0	0	0
0-24		0	0	0	0
24/01/2016					
7-19		0	0	0	0
6-22		0	0	0	0
6-24		0	0	0	0
0-24		0	0	0	0
25/01/2016					
7-19		0	0	0	0
6-22		0	0	0	0
6-24		0	0	0	0
0-24		0	0	0	0
Average					
7-19		2275	399	3	2677
6-22		2747	487	7	3241
6-24		2836	498	7	3341
0-24		2906	525	7	3438

Total Vehicle Class Distribution



Appendix I
TRICS Output

Calculation Reference: AUDIT-225601-160120-0119

TRIP RATE CALCULATION SELECTION PARAMETERS:

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

Selected regions and areas:

02	SOUTH EAST	
	EX ESSEX	1 days
	WS WEST SUSSEX	1 days
04	EAST ANGLIA	
	SF SUFFOLK	1 days
05	EAST MIDLANDS	
	LN LINCOLNSHIRE	1 days
08	NORTH WEST	
	CH CHESHIRE	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: 150 to 237 (units:)
 Range Selected by User: 150 to 250 (units:)

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/07 to 11/12/14

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:

Tuesday	3 days
Thursday	2 days

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

Selected survey types:

Manual count	5 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 undertaken using machines.

Selected Locations:

Edge of Town	5
--------------	---

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:

Residential Zone	5
------------------	---

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.

Filtering Stage 3 selection:

Use Class:

C3	5 days
----	--------

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS®.

Population within 1 mile:

5,001 to 10,000	1 days
10,001 to 15,000	1 days
15,001 to 20,000	2 days
20,001 to 25,000	1 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

75,001 to 100,000	1 days
100,001 to 125,000	2 days
125,001 to 250,000	2 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

0.6 to 1.0	1 days
1.1 to 1.5	4 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

Yes	1 days
No	4 days

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

LIST OF SITES relevant to selection parameters

1	CH-03-A-02 SYDNEY ROAD	HOUSES/FLATS		CESHIRE
	CREWE			
	Edge of Town			
	Residential Zone			
	Total Number of dwellings:		174	
	Survey date: TUESDAY		14/10/08	Survey Type: MANUAL
2	EX-03-A-01 MILTON ROAD	SEMI -DET.		ESSEX
	CORRINGHAM			
	STANFORD-LE-HOPE			
	Edge of Town			
	Residential Zone			
	Total Number of dwellings:		237	
	Survey date: TUESDAY		13/05/08	Survey Type: MANUAL
3	LN-03-A-01 BRANT ROAD	MIXED HOUSES		LINCOLNSHIRE
	BRACEBRIDGE			
	LINCOLN			
	Edge of Town			
	Residential Zone			
	Total Number of dwellings:		150	
	Survey date: TUESDAY		15/05/07	Survey Type: MANUAL
4	SF-03-A-02 STOKE PARK DRIVE	SEMI DET./TERRACED		SUFFOLK
	MAIDENHALL			
	IPSWICH			
	Edge of Town			
	Residential Zone			
	Total Number of dwellings:		230	
	Survey date: THURSDAY		24/05/07	Survey Type: MANUAL
5	WS-03-A-04 HILLS FARM LANE	MIXED HOUSES		WEST SUSSEX
	BROADBRIDGE HEATH			
	HORSHAM			
	Edge of Town			
	Residential Zone			
	Total Number of dwellings:		151	
	Survey date: THURSDAY		11/12/14	Survey Type: MANUAL

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED
VEHICLES

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	5	188	0.100	5	188	0.315	5	188	0.415
08:00 - 09:00	5	188	0.175	5	188	0.435	5	188	0.610
09:00 - 10:00	5	188	0.165	5	188	0.189	5	188	0.354
10:00 - 11:00	5	188	0.153	5	188	0.210	5	188	0.363
11:00 - 12:00	5	188	0.184	5	188	0.172	5	188	0.356
12:00 - 13:00	5	188	0.184	5	188	0.188	5	188	0.372
13:00 - 14:00	5	188	0.191	5	188	0.157	5	188	0.348
14:00 - 15:00	5	188	0.193	5	188	0.197	5	188	0.390
15:00 - 16:00	5	188	0.346	5	188	0.225	5	188	0.571
16:00 - 17:00	5	188	0.305	5	188	0.201	5	188	0.506
17:00 - 18:00	5	188	0.393	5	188	0.226	5	188	0.619
18:00 - 19:00	5	188	0.268	5	188	0.205	5	188	0.473
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			2.657			2.720			5.377

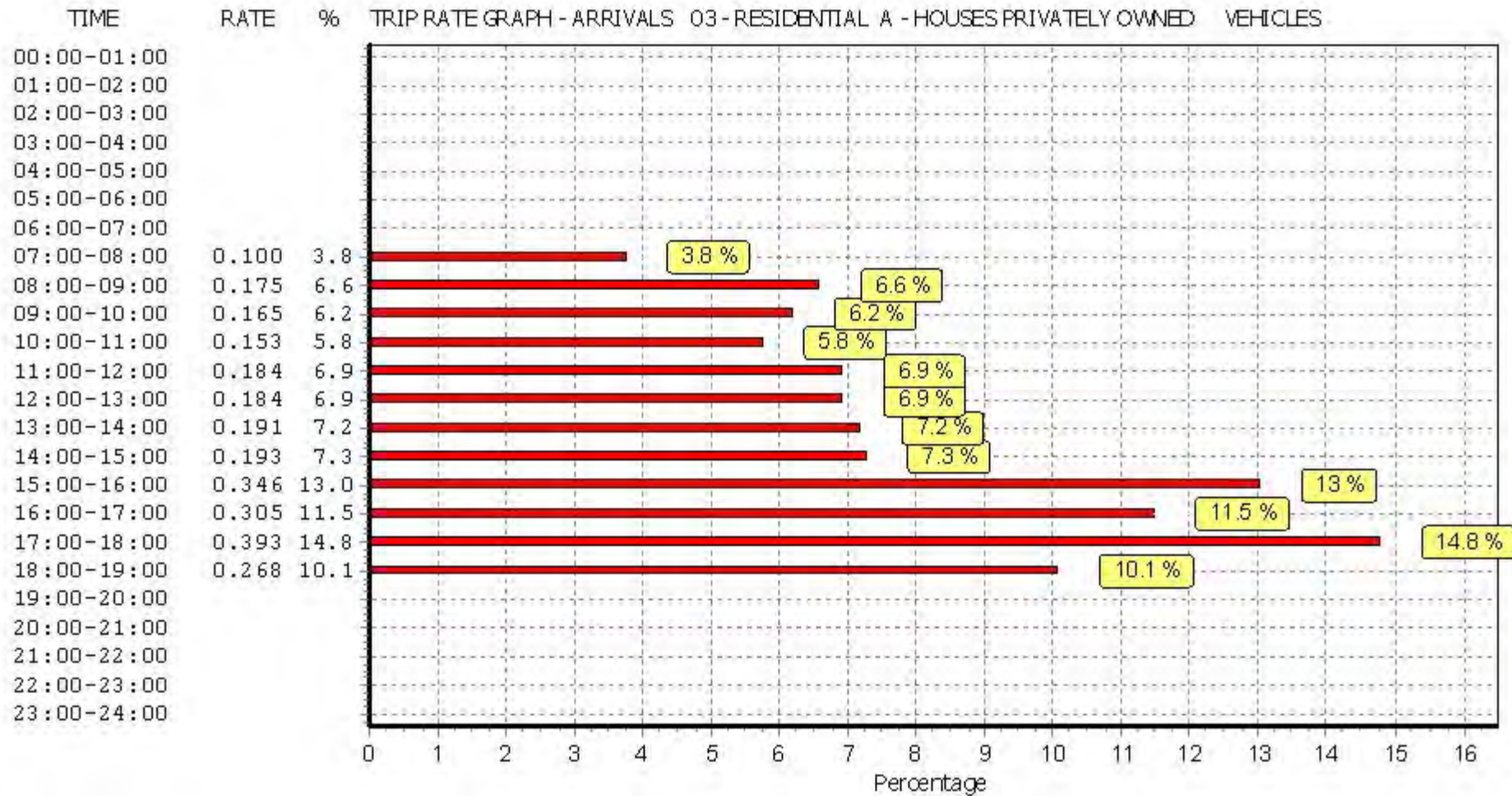
This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.

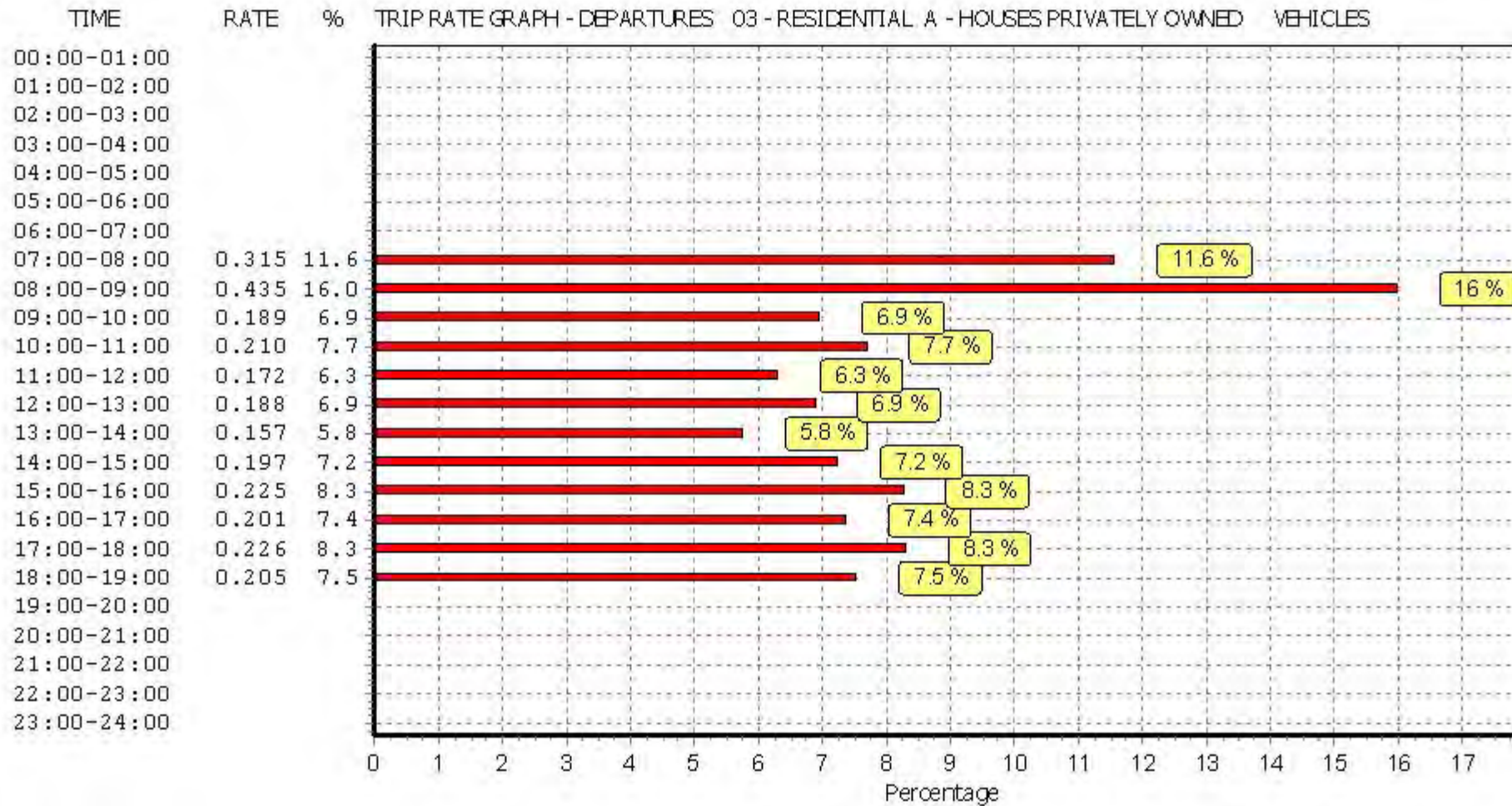
Parameter summary

Trip rate parameter range selected: 150 - 237 (units:)
 Survey date date range: 01/01/07 - 11/12/14
 Number of weekdays (Monday-Friday): 5
 Number of Saturdays: 0
 Number of Sundays: 0
 Surveys manually removed from selection: 0

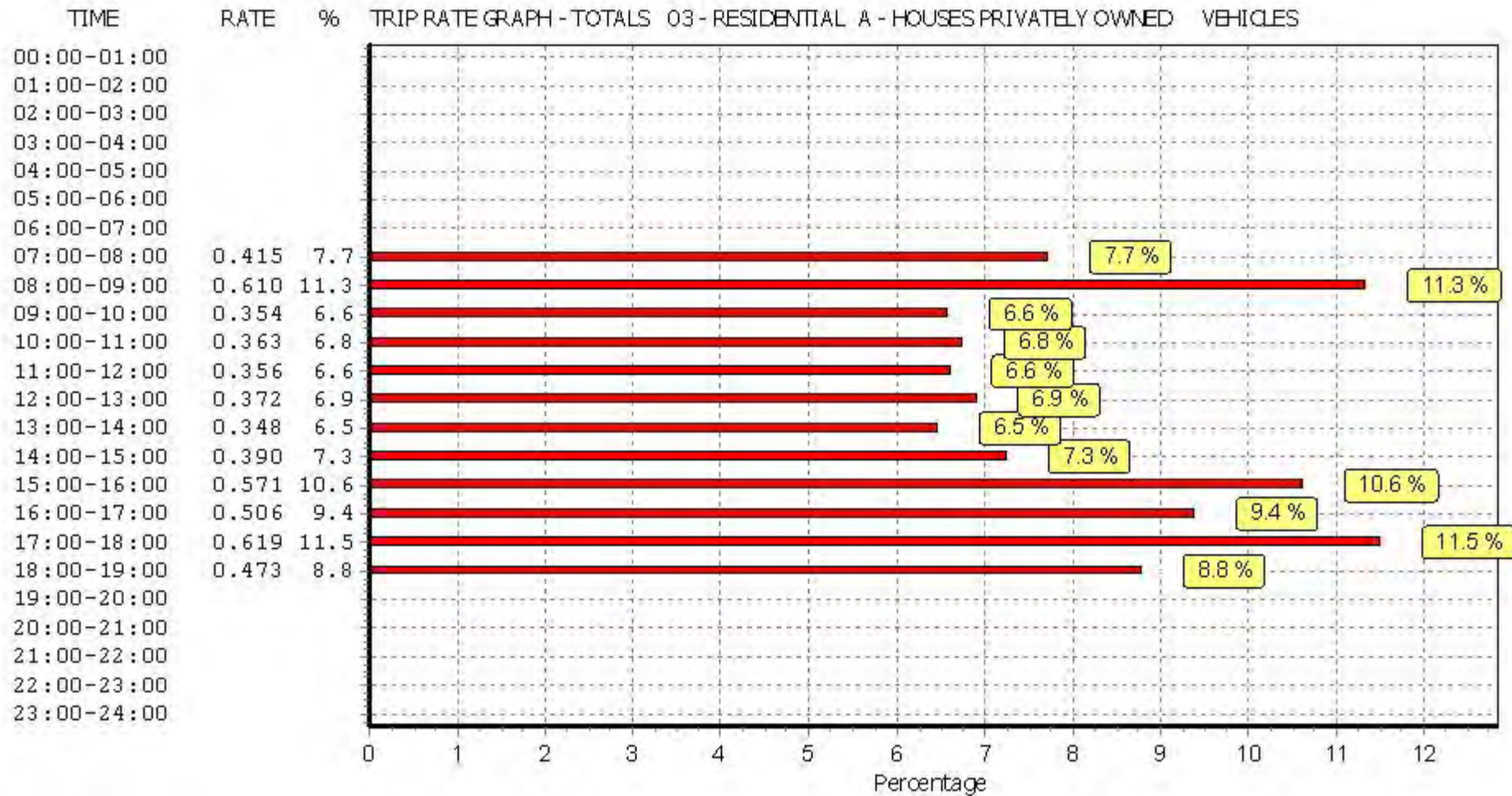
This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed, but in addition there is an additional column showing the percentage of the total trip rate by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed, but in addition there is an additional column showing the percentage of the total trip rate by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed, but in addition there is an additional column showing the percentage of the total trip rate by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.

Calculation Reference: AUDIT-225601-160120-0136

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 03 - RESIDENTIAL
 Category : B - AFFORDABLE/LOCAL AUTHORITY HOUSES
 VEHICLES

Selected regions and areas:

06	WEST MIDLANDS	
	WM WEST MIDLANDS	1 days
07	YORKSHIRE & NORTH LINCOLNSHIRE	
	WY WEST YORKSHIRE	1 days
08	NORTH WEST	
	MS MERSEYSIDE	1 days
09	NORTH	
	NB NORTHUMBERLAND	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:	16 to 97 (units:)
Range Selected by User:	14 to 473 (units:)

Public Transport Provision:

Selection by:	Include all surveys
---------------	---------------------

Date Range:	01/01/07 to 19/09/13
-------------	----------------------

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	2 days
Tuesday	2 days

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

Selected survey types:

Manual count	4 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 undertaken using machines.

Selected Locations:

Edge of Town	4
--------------	---

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:

Residential Zone	4
------------------	---

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.

Filtering Stage 3 selection:

Use Class:

C3 4 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS®.

Population within 1 mile:

1,001 to 5,000	1 days
5,001 to 10,000	1 days
10,001 to 15,000	1 days
15,001 to 20,000	1 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

5,001 to 25,000	1 days
75,001 to 100,000	1 days
125,001 to 250,000	1 days
250,001 to 500,000	1 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

0.6 to 1.0 4 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

No 4 days

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

LIST OF SITES relevant to selection parameters

1	MS-03-B-01 TARBOCK ROAD SPEKE LIVERPOOL Edge of Town Residential Zone Total Number of dwellings: 16 Survey date: TUESDAY 18/06/13	TERRACED	MERSEYSIDE	Survey Type: MANUAL
2	NB-03-B-01 WESTLEA BEDLINGTON Edge of Town Residential Zone Total Number of dwellings: 97 Survey date: MONDAY 19/11/12	SEMI DET. & TERRACED	NORTHUMBERLAND	Survey Type: MANUAL
3	WM-03-B-01 YORKMINSTER DRIVE CHELMSLEY WOOD BIRMINGHAM Edge of Town Residential Zone Total Number of dwellings: 97 Survey date: MONDAY 17/10/11	SEMI DET./TERRACED	WEST MIDLANDS	Survey Type: MANUAL
4	WY-03-B-02 WHITEACRE STREET DEIGHTON HUDDERSFIELD Edge of Town Residential Zone Total Number of dwellings: 54 Survey date: TUESDAY 17/09/13	MIXED HOUSES	WEST YORKSHIRE	Survey Type: MANUAL

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

TRIP RATE for Land Use 03 - RESIDENTIAL/B - AFFORDABLE/LOCAL AUTHORITY HOUSES
VEHICLES

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	4	66	0.083	4	66	0.212	4	66	0.295
08:00 - 09:00	4	66	0.178	4	66	0.326	4	66	0.504
09:00 - 10:00	4	66	0.163	4	66	0.235	4	66	0.398
10:00 - 11:00	4	66	0.170	4	66	0.197	4	66	0.367
11:00 - 12:00	4	66	0.174	4	66	0.197	4	66	0.371
12:00 - 13:00	4	66	0.189	4	66	0.159	4	66	0.348
13:00 - 14:00	4	66	0.174	4	66	0.140	4	66	0.314
14:00 - 15:00	4	66	0.254	4	66	0.220	4	66	0.474
15:00 - 16:00	4	66	0.223	4	66	0.197	4	66	0.420
16:00 - 17:00	4	66	0.288	4	66	0.163	4	66	0.451
17:00 - 18:00	4	66	0.333	4	66	0.235	4	66	0.568
18:00 - 19:00	4	66	0.208	4	66	0.174	4	66	0.382
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			2.437			2.455			4.892

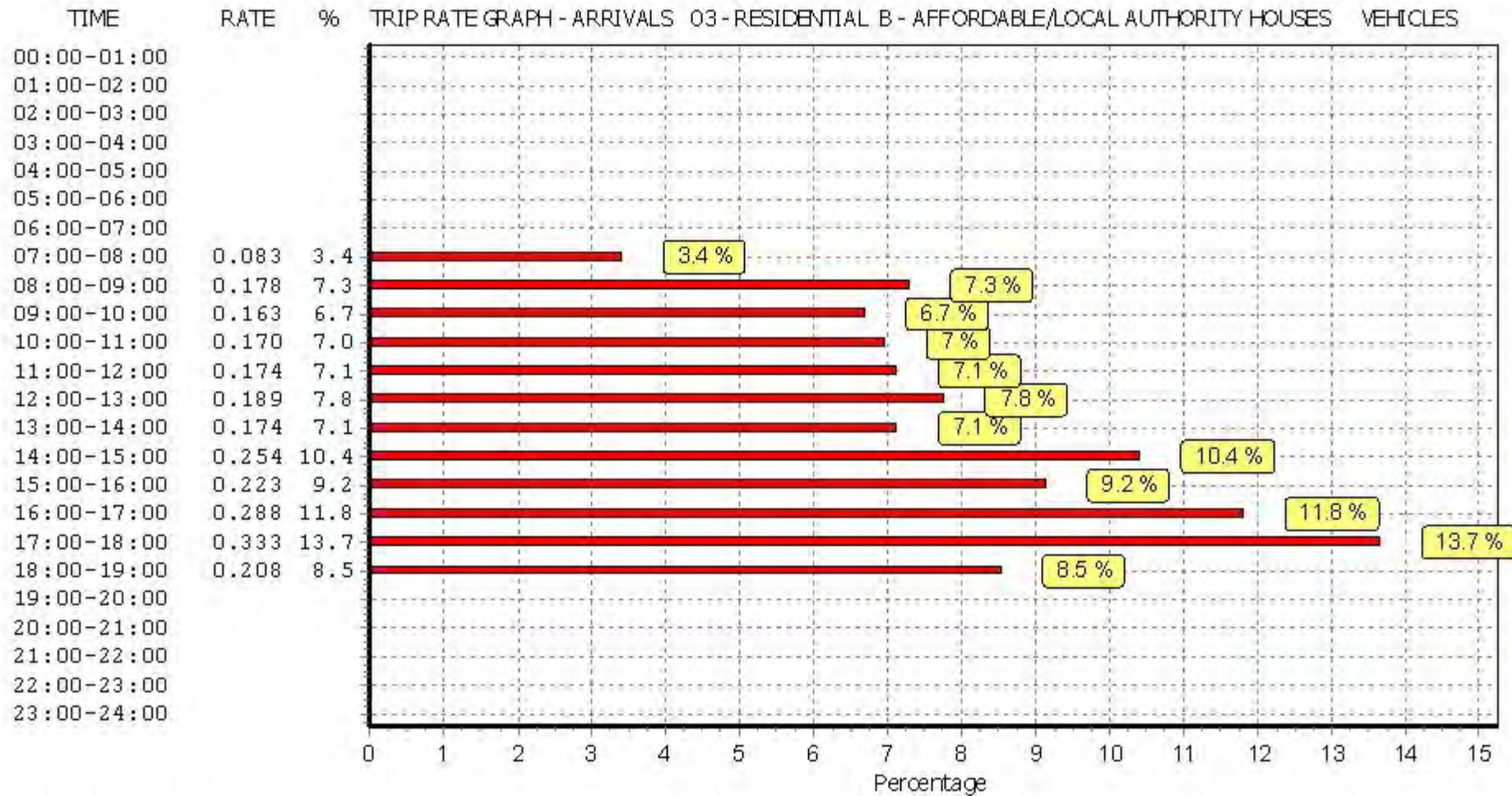
This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: $COUNT/TRP*FACT$. Trip rates are then rounded to 3 decimal places.

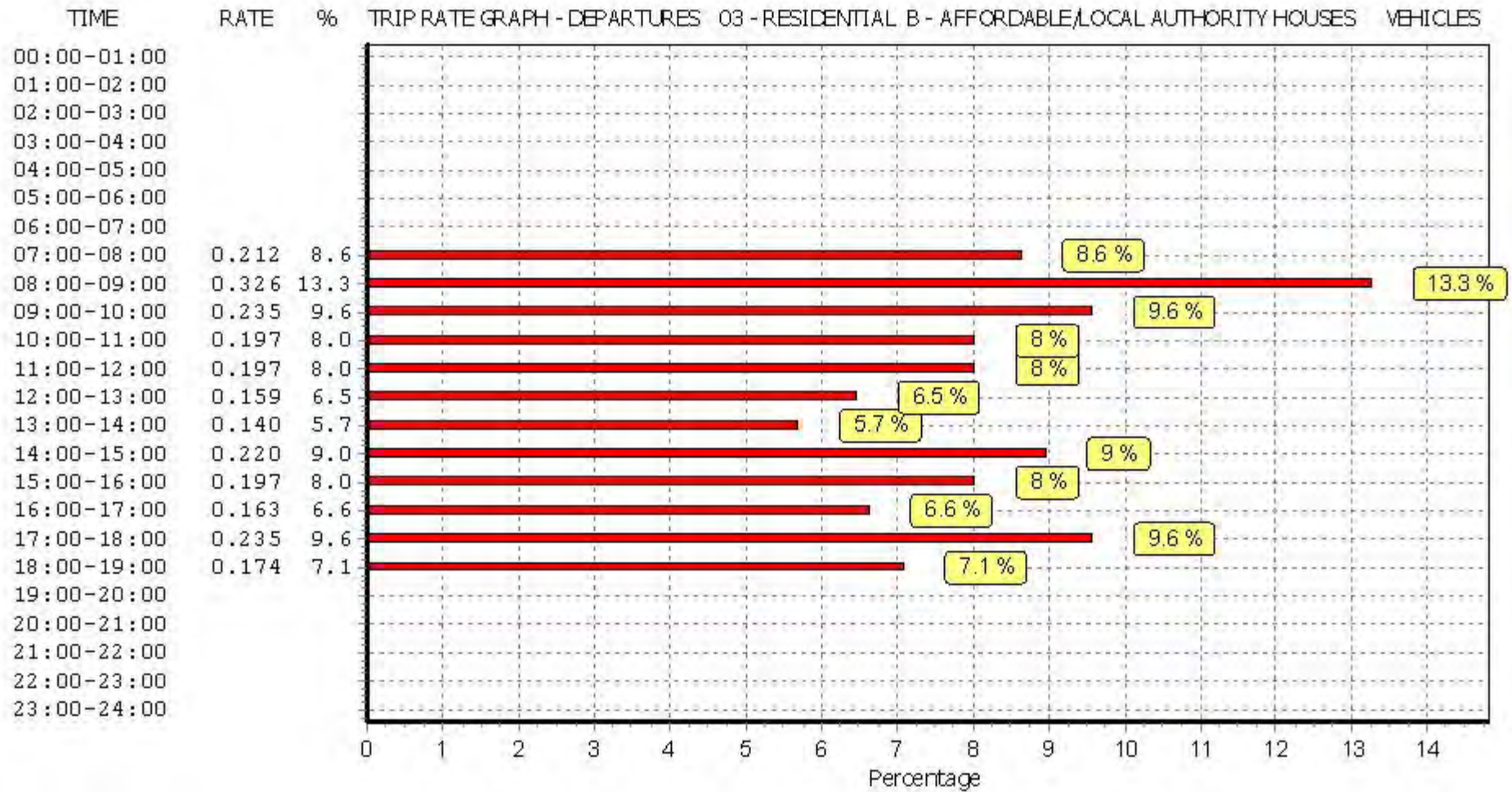
Parameter summary

Trip rate parameter range selected: 16 - 97 (units:)
 Survey date date range: 01/01/07 - 19/09/13
 Number of weekdays (Monday-Friday): 4
 Number of Saturdays: 0
 Number of Sundays: 0
 Surveys manually removed from selection: 0

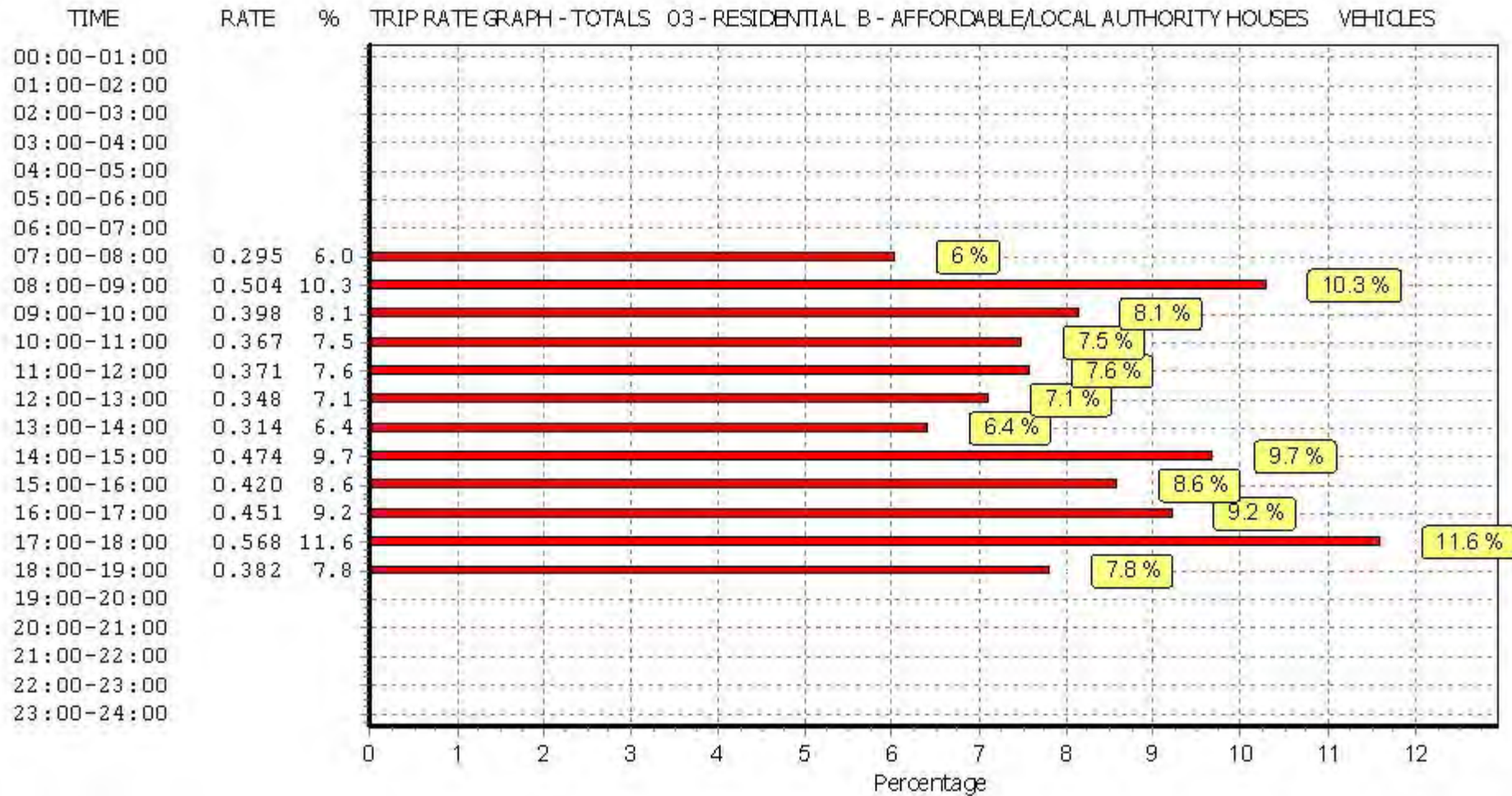
This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are shown. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed, but in addition there is an additional column showing the percentage of the total trip rate by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed, but in addition there is an additional column showing the percentage of the total trip rate by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.



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Calculation Reference: AUDIT-225601-160120-0123

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 04 - EDUCATION
 Category : A - PRIMARY
 VEHICLES

Selected regions and areas:

05	EAST MIDLANDS	
	LE LEICESTERSHIRE	1 days
	NR NORTHAMPTONSHIRE	2 days
07	YORKSHIRE & NORTH LINCOLNSHIRE	
	WY WEST YORKSHIRE	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 pupils
Actual Range:	370 to 400 (units:)
Range Selected by User:	350 to 450 (units:)

Public Transport Provision:

Selection by:	Include all surveys
---------------	---------------------

Date Range:	01/01/07 to 30/10/14
-------------	----------------------

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:

Wednesday	2 days
Thursday	2 days

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

Selected survey types:

Manual count	4 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 undertaken using machines.

Selected Locations:

Suburban Area (PPS6 Out of Centre)	3
Edge of Town	1

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:

Residential Zone	3
No Sub Category	1

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.

Filtering Stage 3 selection:

Use Class:

D1	4 days
----	--------

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS®.

Population within 1 mile:

15,001 to 20,000	2 days
25,001 to 50,000	2 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

125,001 to 250,000	2 days
250,001 to 500,000	1 days
500,001 or More	1 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

0.6 to 1.0	1 days
1.1 to 1.5	3 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

No	4 days
----	--------

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

LIST OF SITES relevant to selection parameters

1	LE-04-A-02 BEAUFORT WAY OADBY LEICESTER Edge of Town Residential Zone Total Number of pupils: Survey date: THURSDAY	PRIMARY SCHOOL 380 30/10/14	LEICESTERSHIRE Survey Type: MANUAL
2	NR-04-A-01 GRANGE ROAD EASTFIELD PARK NORTHAMPTON Suburban Area (PPS6 Out of Centre) No Sub Category Total Number of pupils: Survey date: WEDNESDAY	PRIMARY SCH. 376 23/05/07	NORTHAMPTONSHIRE Survey Type: MANUAL
3	NR-04-A-02 DAYRELL ROAD NORTHAMPTON Suburban Area (PPS6 Out of Centre) Residential Zone Total Number of pupils: Survey date: WEDNESDAY	PRIMARY SCHOOL 400 26/11/08	NORTHAMPTONSHIRE Survey Type: MANUAL
4	WY-04-A-01 SHAKESPEARE AVENUE LEEDS Suburban Area (PPS6 Out of Centre) Residential Zone Total Number of pupils: Survey date: THURSDAY	PRIMARY SCHOOL 370 19/09/13	WEST YORKSHIRE Survey Type: MANUAL

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

TRIP RATE for Land Use 04 - EDUCATION/A - PRIMARY
VEHICLES

Calculation factor: 1 PUPILS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate	No. Days	Ave. PUPILS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	4	382	0.035	4	382	0.010	4	382	0.045
08:00 - 09:00	4	382	0.318	4	382	0.234	4	382	0.552
09:00 - 10:00	4	382	0.035	4	382	0.065	4	382	0.100
10:00 - 11:00	4	382	0.012	4	382	0.012	4	382	0.024
11:00 - 12:00	4	382	0.016	4	382	0.016	4	382	0.032
12:00 - 13:00	4	382	0.038	4	382	0.043	4	382	0.081
13:00 - 14:00	4	382	0.015	4	382	0.016	4	382	0.031
14:00 - 15:00	4	382	0.048	4	382	0.022	4	382	0.070
15:00 - 16:00	4	382	0.238	4	382	0.275	4	382	0.513
16:00 - 17:00	4	382	0.035	4	382	0.075	4	382	0.110
17:00 - 18:00	4	382	0.012	4	382	0.031	4	382	0.043
18:00 - 19:00	3	375	0.006	3	375	0.013	3	375	0.019
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.808			0.812			1.620

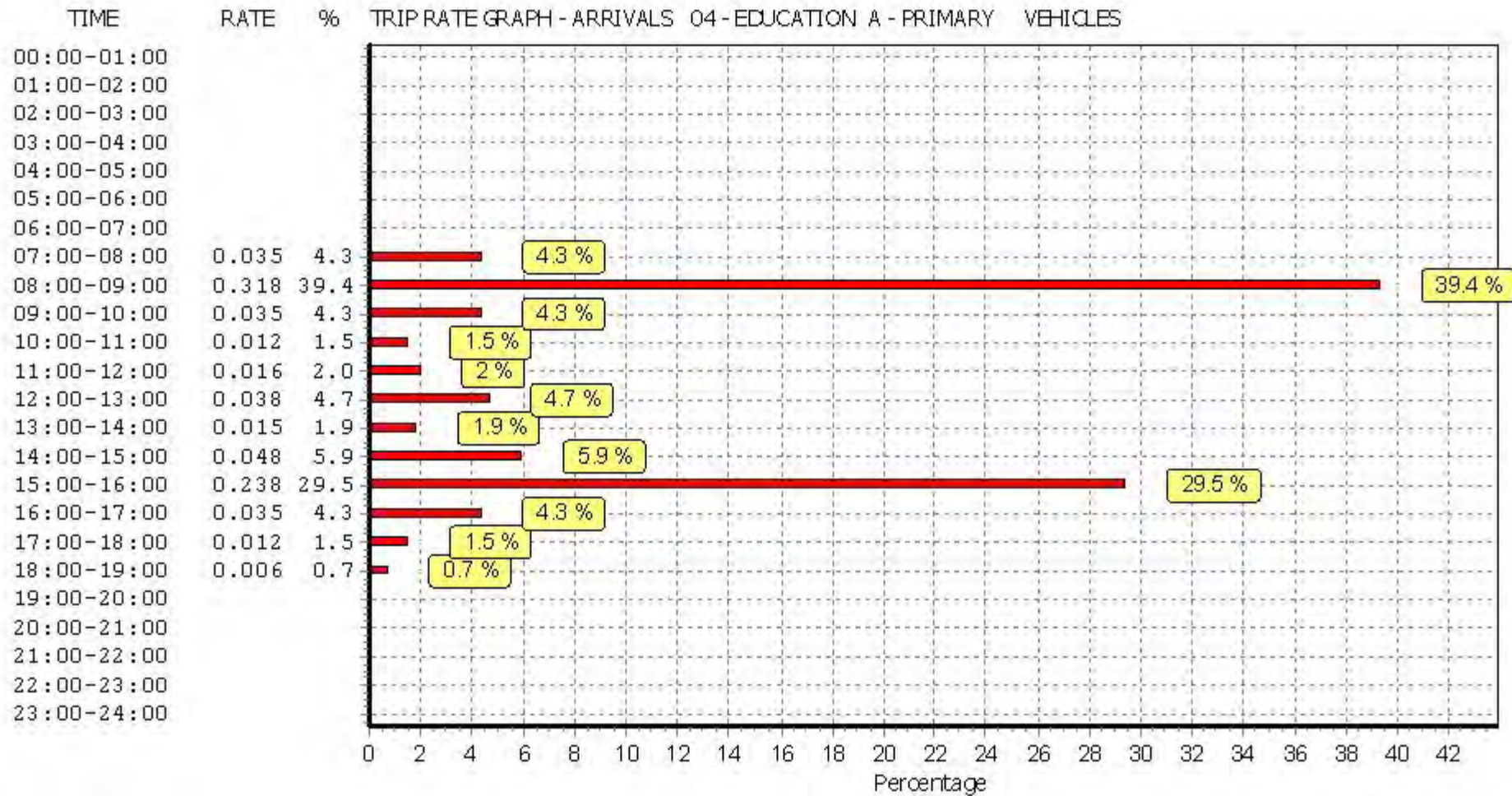
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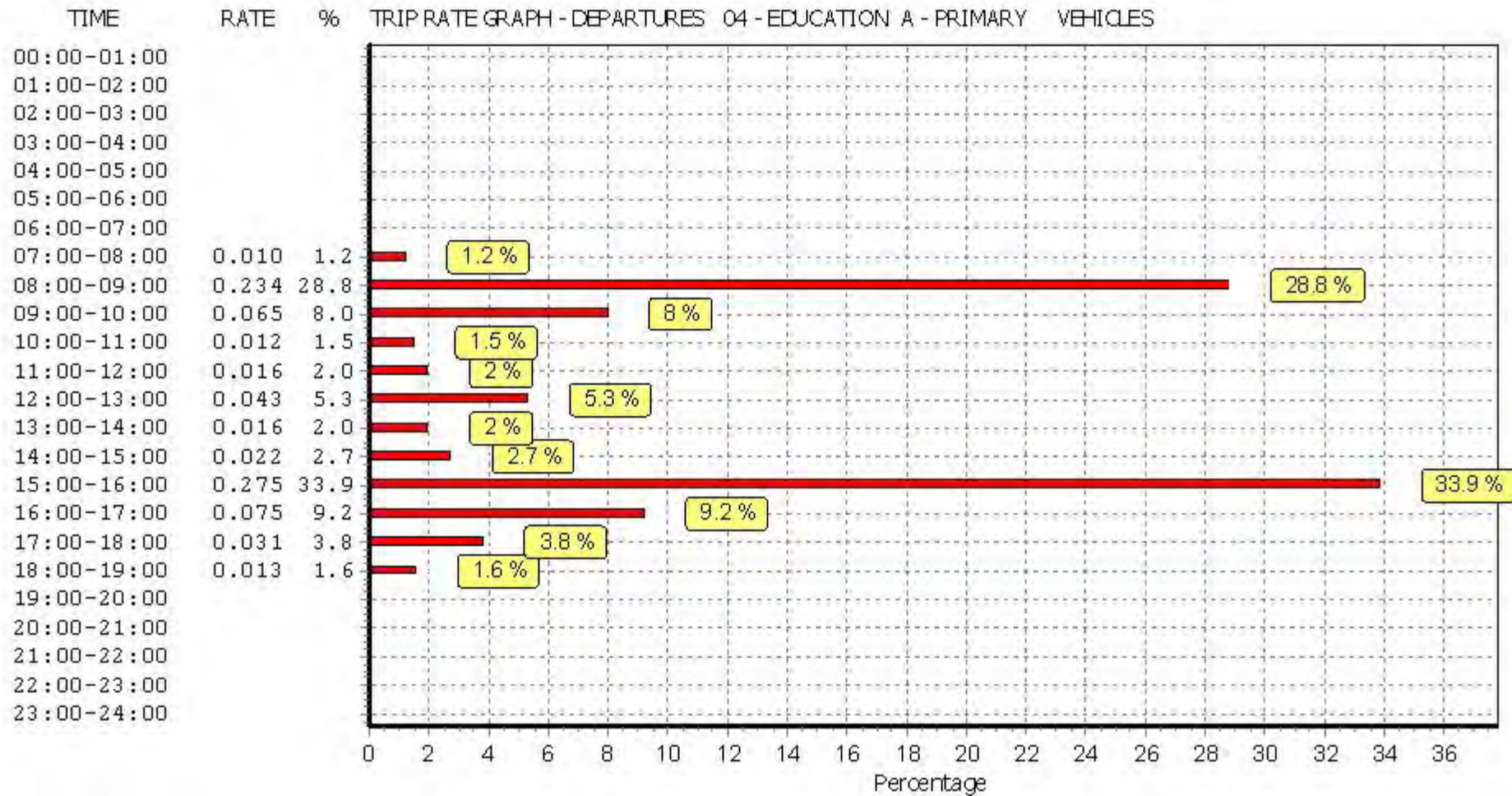
Parameter summary

Trip rate parameter range selected: 370 - 400 (units:)
 Survey date date range: 01/01/07 - 30/10/14
 Number of weekdays (Monday-Friday): 4
 Number of Saturdays: 0
 Number of Sundays: 0
 Surveys manually removed from selection: 0

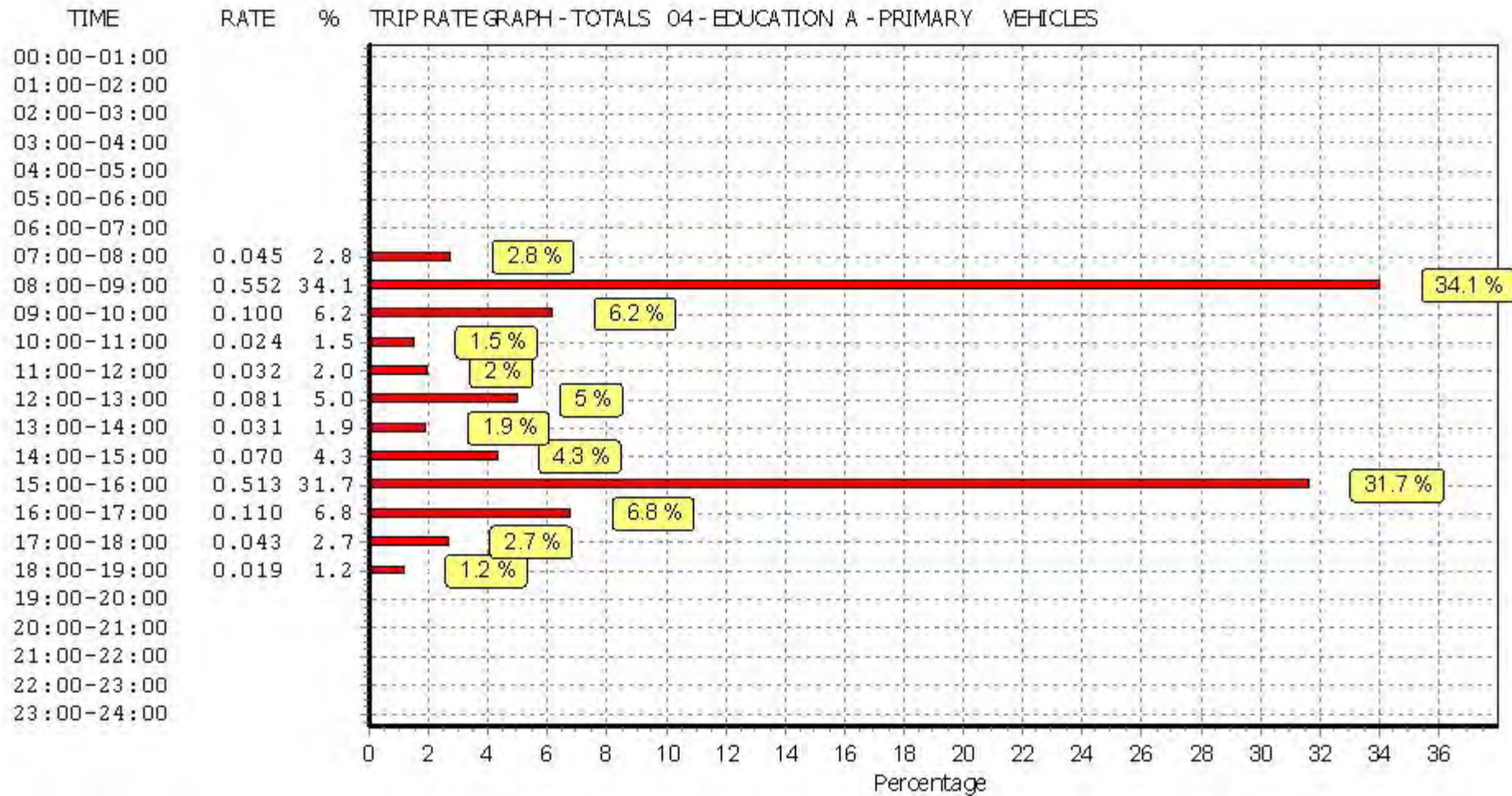
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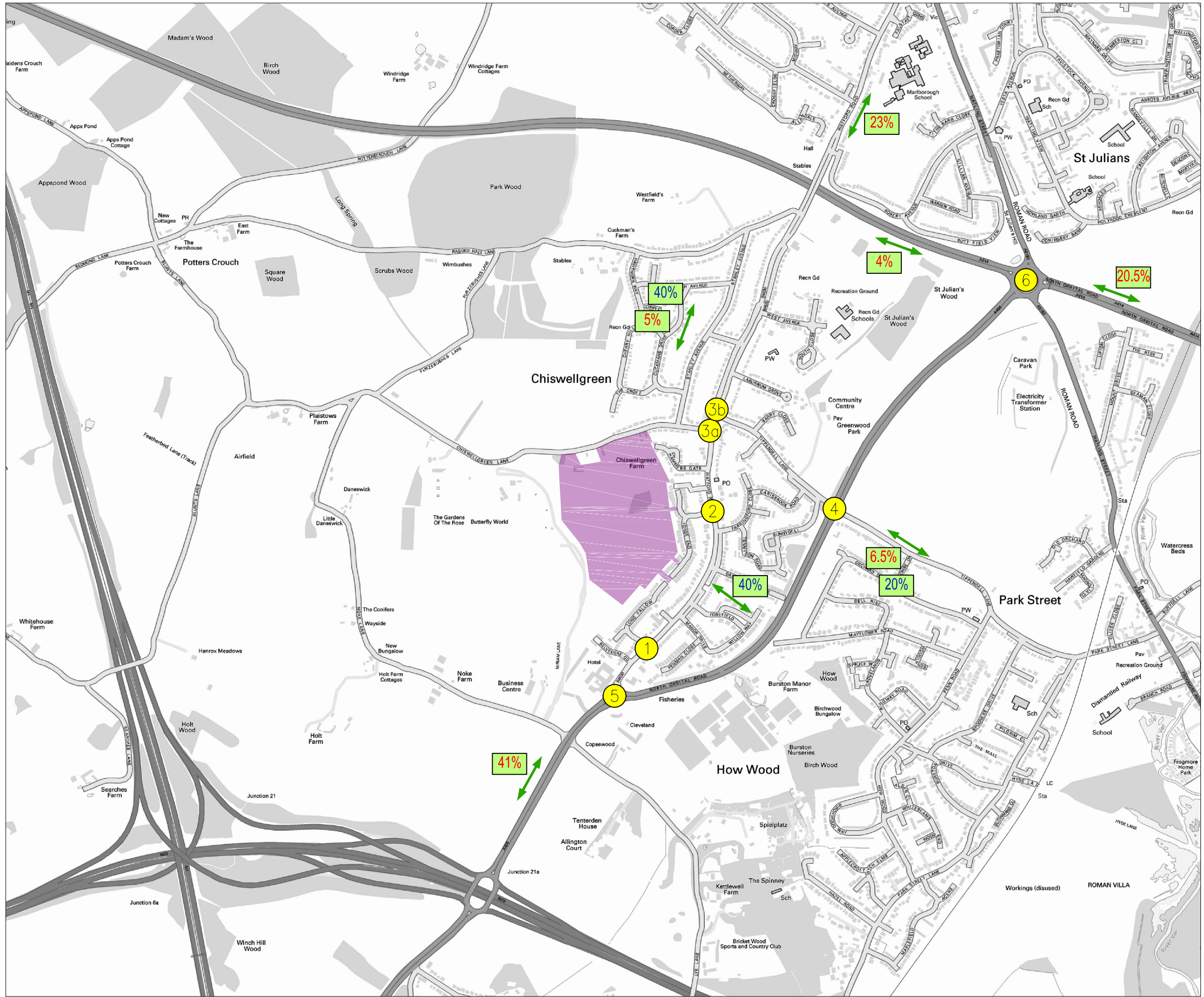


This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed, but in addition there is an additional column showing the percentage of the total trip rate by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.

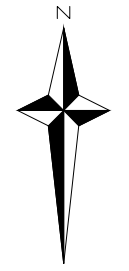


This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed, but in addition there is an additional column showing the percentage of the total trip rate by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.

Appendix J
Development Traffic Assignment Percentages



NOTE
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- KEY
- Site location
 - Junctions surveyed by Glanville
 - Flows showing percentage distribution of residential development traffic
 - Flows showing percentage distribution of school development traffic

Rev.	Description	Date	Chkd
------	-------------	------	------

Glanville
 Cornerstone House
 62 Foxhall Road, Didcot
 Oxon, OX11 7AD
 Tel: (01235) 515550 Fax: (01235) 817799
 postbox@glanvillegroup.com www.glanvillegroup.com

Client :
 Catalyst Housing Ltd

Project :
 Land at Chiswell Green
 St Albans

Title :
 Percentage Distribution of
 Development Traffic

Project Engineer : O. Smith Scale : As Shown @ A3
 Project Director : J. Birch Date : January 2016

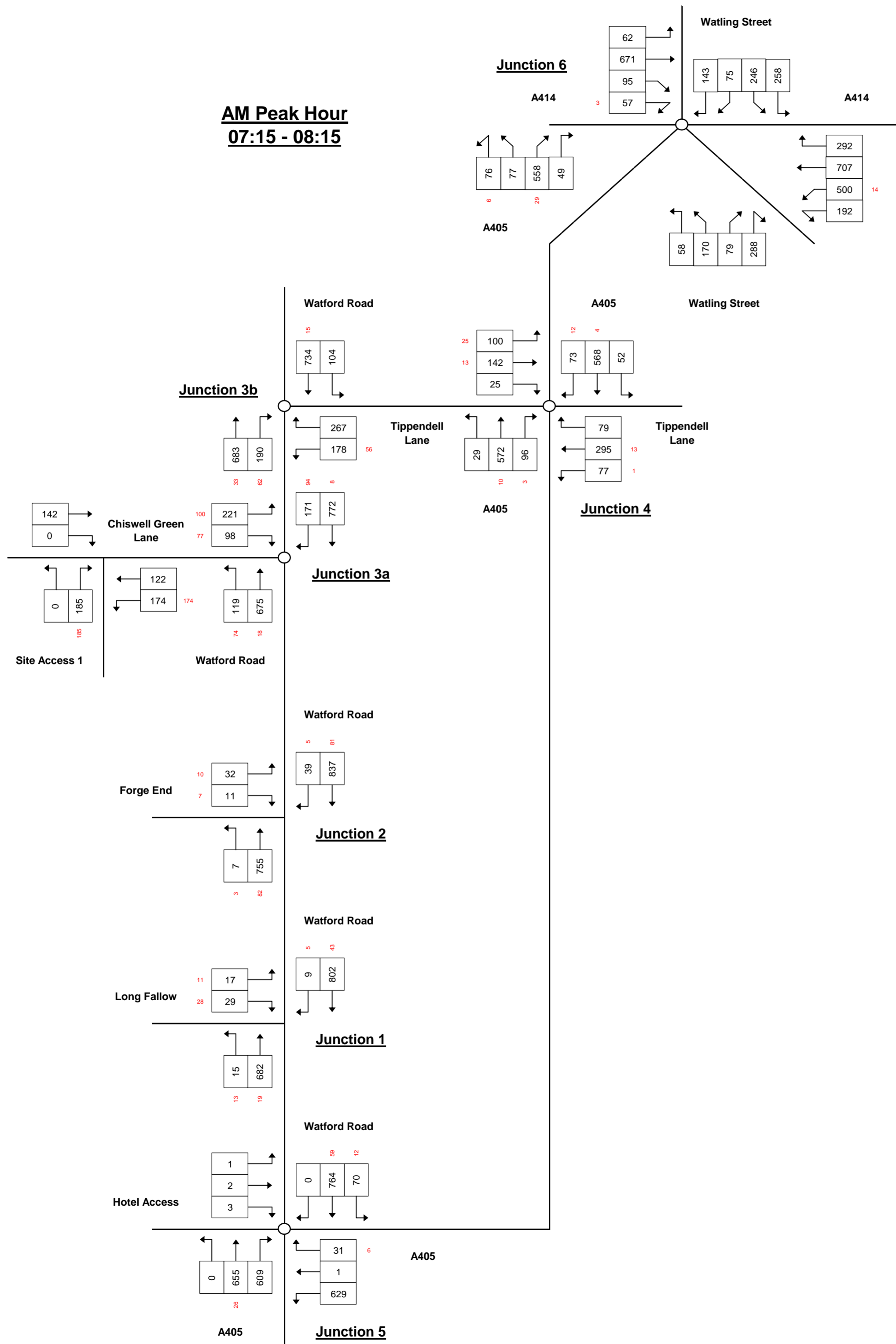
Status :

Drawing No.	Appendix I	Rev
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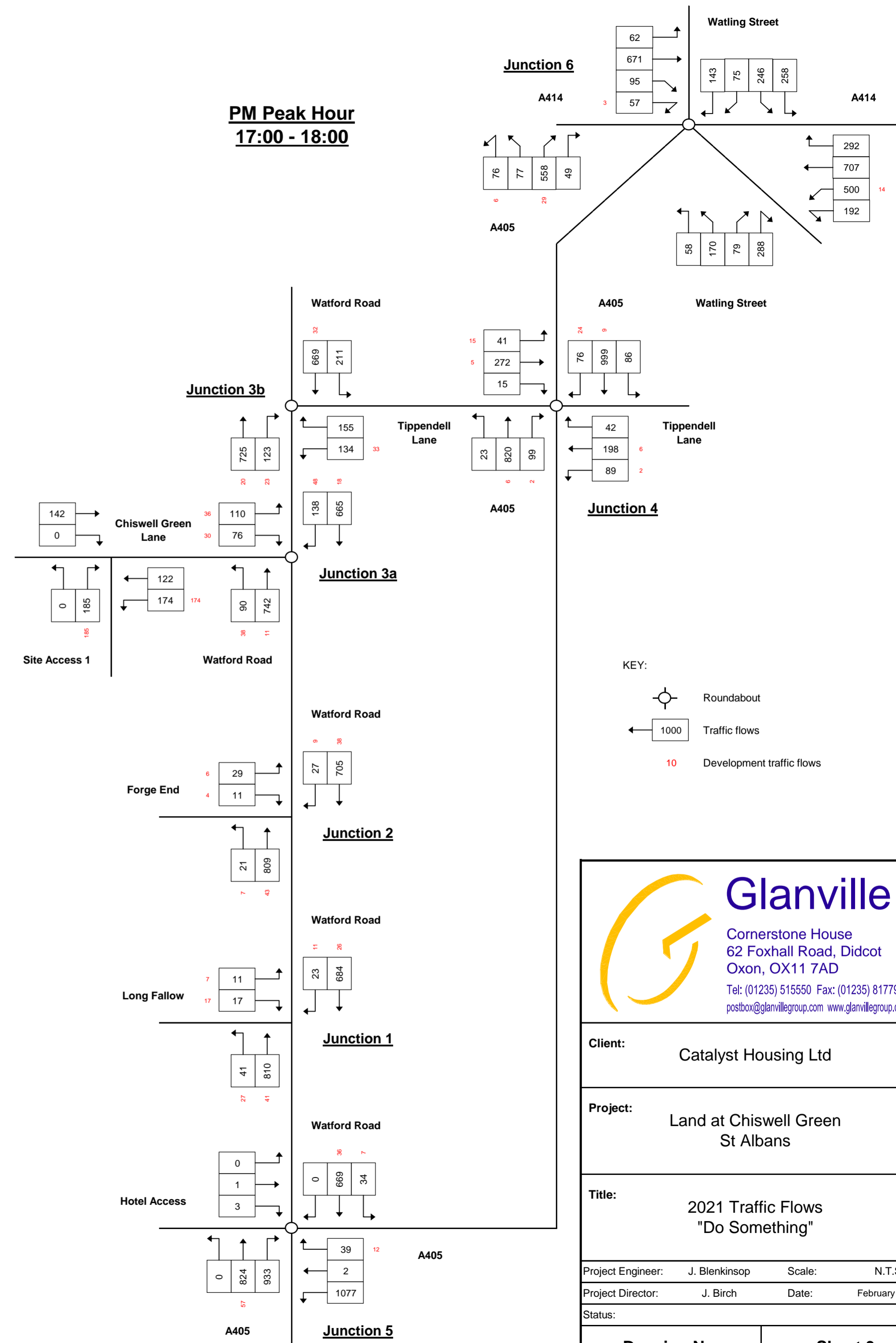
1KM


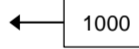

Appendix K
2021 Future Year Traffic Flows (With Development)

AM Peak Hour
07:15 - 08:15



PM Peak Hour
17:00 - 18:00



KEY:
 Roundabout
 Traffic flows
 Development traffic flows



Glanville
 Cornerstone House
 62 Foxhall Road, Didcot
 Oxon, OX11 7AD
 Tel: (01235) 515550 Fax: (01235) 817799
 postbox@glanvillegroup.com www.glanvillegroup.com

Client: Catalyst Housing Ltd

Project: Land at Chiswell Green St Albans

Title: 2021 Traffic Flows "Do Something"

Project Engineer: J. Blenkinsop Scale: N.T.S.
 Project Director: J. Birch Date: February 2016

Status:

Drawing No. Sheet 3

Appendix L

Junctions 9 – Watford Road / Long Fallow

Junctions 9
PICADY 9 - Priority Intersection Module
Version: 9.0.1.4646 [] © Copyright TRL Limited, 2016
For sales and distribution information, program advice and maintenance, contact TRL: Tel: +44 (0)1344 770758 email: software@trl.co.uk Web: http://www.trlsoftware.co.uk
The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution

Filename: Junction 1 - 16.02.04.j9
Path: M:\2015\8151408(6)_Transport(5)_Traffic Analysis\Junction Capacity Models
Report generation date: 09/02/2016 10:27:01

- »2016 - Surveyed, AM
- »2016 - Surveyed, PM
- »2021 - Do Nothing, AM
- »2021 - Do Nothing, PM
- »2021 - Do Something, AM
- »2021 - Do Something, PM

Summary of junction performance

	AM				PM			
	Queue (Veh)	Delay (s)	RFC	LOS	Queue (Veh)	Delay (s)	RFC	LOS
2016 - Surveyed								
Stream B-C	0.0	6.81	0.02	A	0.0	7.05	0.01	A
Stream B-A	0.0	13.24	0.01	B	0.0	0.00	0.00	A
Stream C-AB	0.0	6.79	0.01	A	0.0	7.44	0.03	A
2021 - Do Nothing								
Stream B-C	0.0	7.01	0.02	A	0.0	7.30	0.01	A
Stream B-A	0.0	14.44	0.02	B	0.0	0.00	0.00	A
Stream C-AB	0.0	6.95	0.02	A	0.0	7.70	0.03	A
2021 - Do Something								
Stream B-C	0.0	7.83	0.05	A	0.0	7.98	0.03	A
Stream B-A	0.2	17.76	0.14	C	0.1	16.78	0.07	C
Stream C-AB	0.0	7.31	0.02	A	0.1	8.22	0.06	A

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

File summary

File Description

Title	(untitled)
Location	
Site number	
Date	26/01/2016
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	UKJJBlenkinsop
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	mph	Veh	Veh	perTimeSegment	s	-Min	perMin

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

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D1	2016 - Surveyed	AM	DIRECT	08:00	09:00	60	15	✓
D2	2016 - Surveyed	PM	DIRECT	17:00	18:00	60	15	✓
D3	2021 - Do Nothing	AM	DIRECT	08:00	09:00	60	15	✓
D4	2021 - Do Nothing	PM	DIRECT	17:00	18:00	60	15	✓
D5	2021 - Do Something	AM	DIRECT	08:00	09:00	60	15	✓
D6	2021 - Do Something	PM	DIRECT	17:00	18:00	60	15	✓

Analysis Set Details

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

2016 - Surveyed, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	Junction 1	T-Junction	Two-way	0.06	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	Watford Road (South)		Major
B	Long Fallow		Minor
C	Watford Road (North)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Width for right turn (m)	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
Watford Road (North)	6.90		✓	2.90	127.0	✓	7.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor arm type	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate flare length	Flare length (PCU)	Visibility to left (m)	Visibility to right (m)
Long Fallow	One lane plus flare	10.00	5.50	3.60	3.10	3.10	✓	1.00	35	43

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (Veh/TS)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	124.331	0.087	0.220	0.138	0.314
1	B-C	178.394	0.105	0.266	-	-
1	C-B	174.210	0.259	0.259	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D1	2016 - Surveyed	AM	DIRECT	08:00	09:00	60	15	✓

Vehicle mix varies over time	Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	✓	✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
Watford Road (South)		DIRECT	✓	100.000
Long Fallow		DIRECT	✓	100.000
Watford Road (North)		DIRECT	✓	100.000

Origin-Destination Data

Demand (Veh/TS)

		To		
		Watford Road (South)	Long Fallow	Watford Road (North)
08:00 - 08:15	From	Watford Road (South)	0.00	169.00
		Long Fallow	0.00	1.00
		Watford Road (North)	160.00	0.00

Demand (Veh/TS)

		To		
		Watford Road (South)	Long Fallow	Watford Road (North)
08:15 - 08:30	From	Watford Road (South)	0.00	152.00
		Long Fallow	0.00	2.00
		Watford Road (North)	177.00	0.00

Demand (Veh/TS)

		To		
		Watford Road (South)	Long Fallow	Watford Road (North)
08:30 - 08:45	From	Watford Road (South)	0.00	152.00
		Long Fallow	1.00	0.00
		Watford Road (North)	209.00	1.00

Demand (Veh/TS)

		To		
		Watford Road (South)	Long Fallow	Watford Road (North)
08:45 - 09:00	From	Watford Road (South)	0.00	140.00
		Long Fallow	0.00	3.00
		Watford Road (North)	155.00	1.00

Vehicle Mix

Heavy Vehicle Percentages

		To		
		Watford Road (South)	Long Fallow	Watford Road (North)
08:00 - 08:15	From	Watford Road (South)	0	1
		Long Fallow	0	0
		Watford Road (North)	1	0

Heavy Vehicle Percentages

08:15 - 08:30

		To		
		Watford Road (South)	Long Fallow	Watford Road (North)
From	Watford Road (South)	0	0	0
	Long Fallow	0	0	0
	Watford Road (North)	1	0	0

Heavy Vehicle Percentages

08:30 - 08:45

		To		
		Watford Road (South)	Long Fallow	Watford Road (North)
From	Watford Road (South)	0	0	1
	Long Fallow	0	0	0
	Watford Road (North)	0	0	0

Heavy Vehicle Percentages

08:45 - 09:00

		To		
		Watford Road (South)	Long Fallow	Watford Road (North)
From	Watford Road (South)	0	0	1
	Long Fallow	0	0	0
	Watford Road (North)	1	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/TS)	Total Junction Arrivals (Veh)
B-C	0.02	6.81	0.0	A	1.50	6.00
B-A	0.01	13.24	0.0	B	0.25	1.00
C-AB	0.01	6.79	0.0	A	1.00	4.00
C-A					175.25	701.00
A-B					0.50	2.00
A-C					153.25	613.00

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	1.00	1.00	133.05	0.008	0.99	0.0	0.0	6.814	A
B-A	0.00	0.00	64.42	0.000	0.00	0.0	0.0	0.000	A
C-AB	0.00	0.00	259.86	0.000	0.00	0.0	0.0	0.000	A
C-A	160.00	160.00			160.00				
A-B	0.00	0.00			0.00				
A-C	169.00	169.00			169.00				

08:15 - 08:30

Stream	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	2.00	2.00	137.91	0.015	1.99	0.0	0.0	6.621	A
B-A	0.00	0.00	65.44	0.000	0.00	0.0	0.0	0.000	A
C-AB	2.00	2.00	134.52	0.015	1.99	0.0	0.0	6.790	A
C-A	177.00	177.00			177.00				
A-B	1.00	1.00			1.00				
A-C	152.00	152.00			152.00				

08:30 - 08:45

Stream	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	0.00	0.00	121.96	0.000	0.01	0.0	0.0	0.000	A
B-A	1.00	1.00	68.93	0.015	0.99	0.0	0.0	13.242	B
C-AB	1.00	1.00	134.38	0.007	1.01	0.0	0.0	6.747	A
C-A	209.00	209.00			209.00				
A-B	0.00	0.00			0.00				
A-C	152.00	152.00			152.00				

08:45 - 09:00

Stream	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	3.00	3.00	140.72	0.021	2.98	0.0	0.0	6.534	A
B-A	0.00	0.00	71.15	0.000	0.01	0.0	0.0	0.000	A
C-AB	1.00	1.00	137.27	0.007	1.00	0.0	0.0	6.606	A
C-A	155.00	155.00			155.00				
A-B	1.00	1.00			1.00				
A-C	140.00	140.00			140.00				

2016 - Surveyed, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	Junction 1	T-Junction	Two-way	0.08	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D2	2016 - Surveyed	PM	DIRECT	17:00	18:00	60	15	✓

Vehicle mix varies over time	Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	✓	✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
Watford Road (South)		DIRECT	✓	100.000
Long Fallow		DIRECT	✓	100.000
Watford Road (North)		DIRECT	✓	100.000

Origin-Destination Data

Demand (Veh/TS)

		To		
		Watford Road (South)	Long Fallow	Watford Road (North)
17:00 - 17:15	From			
	Watford Road (South)	0.00	4.00	186.00
	Long Fallow	0.00	0.00	1.00
	Watford Road (North)	151.00	4.00	0.00

Demand (Veh/TS)

		To		
		Watford Road (South)	Long Fallow	Watford Road (North)
17:15 - 17:30	From			
	Watford Road (South)	0.00	3.00	166.00
	Long Fallow	0.00	0.00	1.00
	Watford Road (North)	159.00	3.00	0.00

Demand (Veh/TS)

17:30 - 17:45

		To		
		Watford Road (South)	Long Fallow	Watford Road (North)
From	Watford Road (South)	0.00	4.00	184.00
	Long Fallow	0.00	0.00	1.00
	Watford Road (North)	152.00	3.00	0.00

Demand (Veh/TS)

17:45 - 18:00

		To		
		Watford Road (South)	Long Fallow	Watford Road (North)
From	Watford Road (South)	0.00	2.00	172.00
	Long Fallow	0.00	0.00	1.00
	Watford Road (North)	144.00	1.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

17:00 - 17:15

		To		
		Watford Road (South)	Long Fallow	Watford Road (North)
From	Watford Road (South)	0	0	0
	Long Fallow	0	0	0
	Watford Road (North)	1	0	0

Heavy Vehicle Percentages

17:15 - 17:30

		To		
		Watford Road (South)	Long Fallow	Watford Road (North)
From	Watford Road (South)	0	0	0
	Long Fallow	0	0	0
	Watford Road (North)	1	0	0

Heavy Vehicle Percentages

17:30 - 17:45

		To		
		Watford Road (South)	Long Fallow	Watford Road (North)
From	Watford Road (South)	0	0	0
	Long Fallow	0	0	0
	Watford Road (North)	1	0	0

Heavy Vehicle Percentages

17:45 - 18:00

		To		
		Watford Road (South)	Long Fallow	Watford Road (North)
From	Watford Road (South)	0	0	1
	Long Fallow	0	0	0
	Watford Road (North)	1	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/TS)	Total Junction Arrivals (Veh)
B-C	0.01	7.05	0.0	A	1.00	4.00
B-A	0.00	0.00	0.0	A	0.00	0.00
C-AB	0.03	7.44	0.0	A	2.75	11.00
C-A					151.50	606.00
A-B					3.25	13.00
A-C					177.00	708.00

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	1.00	1.00	128.56	0.008	0.99	0.0	0.0	7.054	A
B-A	0.00	0.00	60.70	0.000	0.00	0.0	0.0	0.000	A
C-AB	4.00	4.00	124.92	0.032	3.97	0.0	0.0	7.439	A
C-A	151.00	151.00			151.00				
A-B	4.00	4.00			4.00				
A-C	186.00	186.00			186.00				

17:15 - 17:30

Stream	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	1.00	1.00	133.98	0.007	1.00	0.0	0.0	6.769	A
B-A	0.00	0.00	64.37	0.000	0.00	0.0	0.0	0.000	A
C-AB	3.00	3.00	130.37	0.023	3.01	0.0	0.0	7.066	A
C-A	159.00	159.00			159.00				
A-B	3.00	3.00			3.00				
A-C	166.00	166.00			166.00				

17:30 - 17:45

Stream	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	1.00	1.00	129.09	0.008	1.00	0.0	0.0	7.025	A
B-A	0.00	0.00	61.31	0.000	0.00	0.0	0.0	0.000	A
C-AB	3.00	3.00	125.44	0.024	3.00	0.0	0.0	7.349	A
C-A	152.00	152.00			152.00				
A-B	4.00	4.00			4.00				
A-C	184.00	184.00			184.00				

17:45 - 18:00

Stream	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	1.00	1.00	132.03	0.008	1.00	0.0	0.0	6.867	A
B-A	0.00	0.00	65.49	0.000	0.00	0.0	0.0	0.000	A
C-AB	1.00	1.00	128.62	0.008	1.02	0.0	0.0	7.055	A
C-A	144.00	144.00			144.00				
A-B	2.00	2.00			2.00				
A-C	172.00	172.00			172.00				

2021 - Do Nothing, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	Junction 1	T-Junction	Two-way	0.06	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D3	2021 - Do Nothing	AM	DIRECT	08:00	09:00	60	15	✓

Vehicle mix varies over time	Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	✓	✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
Watford Road (South)		DIRECT	✓	100.000
Long Fallow		DIRECT	✓	100.000
Watford Road (North)		DIRECT	✓	100.000

Origin-Destination Data

Demand (Veh/TS)

		To			
		Watford Road (South)	Long Fallow	Watford Road (North)	
08:00 - 08:15	From				
	Watford Road (South)	0.00	0.00	183.00	
	Long Fallow	0.00	0.00	1.00	
	Watford Road (North)	173.00	0.00	0.00	

Demand (Veh/TS)

		To			
		Watford Road (South)	Long Fallow	Watford Road (North)	
08:15 - 08:30	From				
	Watford Road (South)	0.00	1.00	164.00	
	Long Fallow	0.00	0.00	2.00	
	Watford Road (North)	192.00	2.00	0.00	

Demand (Veh/TS)

		To		
		Watford Road (South)	Long Fallow	Watford Road (North)
08:30 - 08:45	From	Watford Road (South)	0.00	164.00
		Long Fallow	1.00	0.00
		Watford Road (North)	226.00	0.00

Demand (Veh/TS)

		To		
		Watford Road (South)	Long Fallow	Watford Road (North)
08:45 - 09:00	From	Watford Road (South)	0.00	152.00
		Long Fallow	0.00	3.00
		Watford Road (North)	168.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

		To		
		Watford Road (South)	Long Fallow	Watford Road (North)
08:00 - 08:15	From	Watford Road (South)	0	1
		Long Fallow	0	0
		Watford Road (North)	1	0

Heavy Vehicle Percentages

		To		
		Watford Road (South)	Long Fallow	Watford Road (North)
08:15 - 08:30	From	Watford Road (South)	0	0
		Long Fallow	0	0
		Watford Road (North)	1	0

Heavy Vehicle Percentages

		To		
		Watford Road (South)	Long Fallow	Watford Road (North)
08:30 - 08:45	From	Watford Road (South)	0	1
		Long Fallow	0	0
		Watford Road (North)	0	0

Heavy Vehicle Percentages

		To		
		Watford Road (South)	Long Fallow	Watford Road (North)
08:45 - 09:00	From	Watford Road (South)	0	1
		Long Fallow	0	0
		Watford Road (North)	1	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/TS)	Total Junction Arrivals (Veh)
B-C	0.02	7.01	0.0	A	1.50	6.00
B-A	0.02	14.44	0.0	B	0.25	1.00
C-AB	0.02	6.95	0.0	A	1.00	4.00
C-A					189.75	759.00
A-B					0.50	2.00
A-C					165.75	663.00

Main Results for each time segment
08:00 - 08:15

Stream	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	1.00	1.00	129.29	0.008	0.99	0.0	0.0	7.014	A
B-A	0.00	0.00	59.49	0.000	0.00	0.0	0.0	0.000	A
C-AB	0.00	0.00	252.52	0.000	0.00	0.0	0.0	0.000	A
C-A	173.00	173.00			173.00				
A-B	0.00	0.00			0.00				
A-C	183.00	183.00			183.00				

08:15 - 08:30

Stream	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	2.00	2.00	134.72	0.015	1.99	0.0	0.0	6.780	A
B-A	0.00	0.00	60.70	0.000	0.00	0.0	0.0	0.000	A
C-AB	2.00	2.00	131.41	0.015	1.98	0.0	0.0	6.954	A
C-A	192.00	192.00			192.00				
A-B	1.00	1.00			1.00				
A-C	164.00	164.00			164.00				

08:30 - 08:45

Stream	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	0.00	0.00	119.07	0.000	0.01	0.0	0.0	0.000	A
B-A	1.00	1.00	63.29	0.016	0.98	0.0	0.0	14.442	B
C-AB	1.00	1.00	131.24	0.008	1.01	0.0	0.0	6.910	A
C-A	226.00	226.00			226.00				
A-B	0.00	0.00			0.00				
A-C	164.00	164.00			164.00				

08:45 - 09:00

Stream	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	3.00	3.00	137.50	0.022	2.98	0.0	0.0	6.690	A
B-A	0.00	0.00	66.67	0.000	0.02	0.0	0.0	0.000	A
C-AB	1.00	1.00	134.12	0.007	1.00	0.0	0.0	6.762	A
C-A	168.00	168.00			168.00				
A-B	1.00	1.00			1.00				
A-C	152.00	152.00			152.00				

2021 - Do Nothing, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	Junction 1	T-Junction	Two-way	0.08	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D4	2021 - Do Nothing	PM	DIRECT	17:00	18:00	60	15	✓

Vehicle mix varies over time	Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	✓	✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
Watford Road (South)		DIRECT	✓	100.000
Long Fallow		DIRECT	✓	100.000
Watford Road (North)		DIRECT	✓	100.000

Origin-Destination Data

Demand (Veh/TS)

		To		
		Watford Road (South)	Long Fallow	Watford Road (North)
17:00 - 17:15	From			
	Watford Road (South)	0.00	4.00	202.00
	Long Fallow	0.00	0.00	1.00
	Watford Road (North)	164.00	4.00	0.00

Demand (Veh/TS)

		To		
		Watford Road (South)	Long Fallow	Watford Road (North)
17:15 - 17:30	From			
	Watford Road (South)	0.00	3.00	180.00
	Long Fallow	0.00	0.00	1.00
	Watford Road (North)	173.00	3.00	0.00

Demand (Veh/TS)

17:30 - 17:45

		To		
		Watford Road (South)	Long Fallow	Watford Road (North)
From	Watford Road (South)	0.00	4.00	200.00
	Long Fallow	0.00	0.00	1.00
	Watford Road (North)	165.00	3.00	0.00

Demand (Veh/TS)

17:45 - 18:00

		To		
		Watford Road (South)	Long Fallow	Watford Road (North)
From	Watford Road (South)	0.00	2.00	187.00
	Long Fallow	0.00	0.00	1.00
	Watford Road (North)	156.00	1.00	0.00

Vehicle Mix
Heavy Vehicle Percentages

17:00 - 17:15

		To		
		Watford Road (South)	Long Fallow	Watford Road (North)
From	Watford Road (South)	0	0	0
	Long Fallow	0	0	0
	Watford Road (North)	1	0	0

Heavy Vehicle Percentages

17:15 - 17:30

		To		
		Watford Road (South)	Long Fallow	Watford Road (North)
From	Watford Road (South)	0	0	0
	Long Fallow	0	0	0
	Watford Road (North)	1	0	0

Heavy Vehicle Percentages

17:30 - 17:45

		To		
		Watford Road (South)	Long Fallow	Watford Road (North)
From	Watford Road (South)	0	0	0
	Long Fallow	0	0	0
	Watford Road (North)	1	0	0

Heavy Vehicle Percentages

17:45 - 18:00

		To		
		Watford Road (South)	Long Fallow	Watford Road (North)
From	Watford Road (South)	0	0	1
	Long Fallow	0	0	0
	Watford Road (North)	1	0	0

Results
Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/TS)	Total Junction Arrivals (Veh)
B-C	0.01	7.30	0.0	A	1.00	4.00
B-A	0.00	0.00	0.0	A	0.00	0.00
C-AB	0.03	7.70	0.0	A	2.75	11.00
C-A					164.50	658.00
A-B					3.25	13.00
A-C					192.25	769.00

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	1.00	1.00	124.31	0.008	0.99	0.0	0.0	7.297	A
B-A	0.00	0.00	55.36	0.000	0.00	0.0	0.0	0.000	A
C-AB	4.00	4.00	120.77	0.033	3.97	0.0	0.0	7.704	A
C-A	164.00	164.00			164.00				
A-B	4.00	4.00			4.00				
A-C	202.00	202.00			202.00				

17:15 - 17:30

Stream	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	1.00	1.00	130.26	0.008	1.00	0.0	0.0	6.964	A
B-A	0.00	0.00	59.34	0.000	0.00	0.0	0.0	0.000	A
C-AB	3.00	3.00	126.74	0.024	3.01	0.0	0.0	7.276	A
C-A	173.00	173.00			173.00				
A-B	3.00	3.00			3.00				
A-C	180.00	180.00			180.00				

17:30 - 17:45

Stream	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	1.00	1.00	124.84	0.008	1.00	0.0	0.0	7.266	A
B-A	0.00	0.00	55.97	0.000	0.00	0.0	0.0	0.000	A
C-AB	3.00	3.00	121.29	0.025	3.00	0.0	0.0	7.607	A
C-A	165.00	165.00			165.00				
A-B	4.00	4.00			4.00				
A-C	200.00	200.00			200.00				

17:45 - 18:00

Stream	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	1.00	1.00	128.01	0.008	1.00	0.0	0.0	7.085	A
B-A	0.00	0.00	60.48	0.000	0.00	0.0	0.0	0.000	A
C-AB	1.00	1.00	124.69	0.008	1.02	0.0	0.0	7.277	A
C-A	156.00	156.00			156.00				
A-B	2.00	2.00			2.00				
A-C	187.00	187.00			187.00				

2021 - Do Something, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	Junction 1	T-Junction	Two-way	0.46	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D5	2021 - Do Something	AM	DIRECT	08:00	09:00	60	15	✓

Vehicle mix varies over time	Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	✓	✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
Watford Road (South)		DIRECT	✓	100.000
Long Fallow		DIRECT	✓	100.000
Watford Road (North)		DIRECT	✓	100.000

Origin-Destination Data

Demand (Veh/TS)

		To		
		Watford Road (South)	Long Fallow	Watford Road (North)
08:00 - 08:15	From			
	Watford Road (South)	0.00	3.00	188.00
	Long Fallow	7.00	0.00	4.00
	Watford Road (North)	184.00	1.00	0.00

Demand (Veh/TS)

		To		
		Watford Road (South)	Long Fallow	Watford Road (North)
08:15 - 08:30	From			
	Watford Road (South)	0.00	4.00	169.00
	Long Fallow	7.00	0.00	5.00
	Watford Road (North)	203.00	3.00	0.00

Demand (Veh/TS)

		To		
		Watford Road (South)	Long Fallow	Watford Road (North)
08:30 - 08:45	From	Watford Road (South)	0.00	169.00
		Long Fallow	8.00	3.00
		Watford Road (North)	237.00	2.00
				0.00

Demand (Veh/TS)

		To		
		Watford Road (South)	Long Fallow	Watford Road (North)
08:45 - 09:00	From	Watford Road (South)	0.00	157.00
		Long Fallow	7.00	6.00
		Watford Road (North)	179.00	2.00
				0.00

Vehicle Mix

Heavy Vehicle Percentages

		To		
		Watford Road (South)	Long Fallow	Watford Road (North)
08:00 - 08:15	From	Watford Road (South)	0	1
		Long Fallow	0	0
		Watford Road (North)	1	0
				0

Heavy Vehicle Percentages

		To		
		Watford Road (South)	Long Fallow	Watford Road (North)
08:15 - 08:30	From	Watford Road (South)	0	0
		Long Fallow	0	0
		Watford Road (North)	1	0
				0

Heavy Vehicle Percentages

		To		
		Watford Road (South)	Long Fallow	Watford Road (North)
08:30 - 08:45	From	Watford Road (South)	0	1
		Long Fallow	0	0
		Watford Road (North)	0	0
				0

Heavy Vehicle Percentages

		To		
		Watford Road (South)	Long Fallow	Watford Road (North)
08:45 - 09:00	From	Watford Road (South)	0	1
		Long Fallow	0	0
		Watford Road (North)	1	0
				0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/TS)	Total Junction Arrivals (Veh)
B-C	0.05	7.83	0.0	A	4.50	18.00
B-A	0.14	17.76	0.2	C	7.25	29.00
C-AB	0.02	7.31	0.0	A	2.00	8.00
C-A					200.75	803.00
A-B					3.50	14.00
A-C					170.75	683.00

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	4.00	4.00	118.85	0.034	3.97	0.0	0.0	7.831	A
B-A	7.00	7.00	64.92	0.108	6.88	0.0	0.1	15.476	C
C-AB	1.00	1.00	124.17	0.008	0.99	0.0	0.0	7.305	A
C-A	184.00	184.00			184.00				
A-B	3.00	3.00			3.00				
A-C	188.00	188.00			188.00				

08:15 - 08:30

Stream	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	5.00	5.00	125.53	0.040	4.99	0.0	0.0	7.466	A
B-A	7.00	7.00	65.51	0.107	7.00	0.1	0.1	15.382	C
C-AB	3.00	3.00	129.33	0.023	2.98	0.0	0.0	7.123	A
C-A	203.00	203.00			203.00				
A-B	4.00	4.00			4.00				
A-C	169.00	169.00			169.00				

08:30 - 08:45

Stream	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	3.00	3.00	119.53	0.025	3.02	0.0	0.0	7.724	A
B-A	8.00	8.00	58.59	0.137	7.96	0.1	0.2	17.765	C
C-AB	2.00	2.00	129.15	0.015	2.01	0.0	0.0	7.080	A
C-A	237.00	237.00			237.00				
A-B	3.00	3.00			3.00				
A-C	169.00	169.00			169.00				

08:45 - 09:00

Stream	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	6.00	6.00	129.88	0.046	5.98	0.0	0.0	7.264	A
B-A	7.00	7.00	71.53	0.098	7.04	0.2	0.1	13.968	B
C-AB	2.00	2.00	132.04	0.015	2.00	0.0	0.0	6.923	A
C-A	179.00	179.00			179.00				
A-B	4.00	4.00			4.00				
A-C	157.00	157.00			157.00				

2021 - Do Something, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	Junction 1	T-Junction	Two-way	0.35	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D6	2021 - Do Something	PM	DIRECT	17:00	18:00	60	15	✓

Vehicle mix varies over time	Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	✓	✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
Watford Road (South)		DIRECT	✓	100.000
Long Fallow		DIRECT	✓	100.000
Watford Road (North)		DIRECT	✓	100.000

Origin-Destination Data

Demand (Veh/TS)

		To		
		Watford Road (South)	Long Fallow	Watford Road (North)
17:00 - 17:15	From			
	Watford Road (South)	0.00	11.00	212.00
	Long Fallow	4.00	0.00	3.00
	Watford Road (North)	171.00	7.00	0.00

Demand (Veh/TS)

		To		
		Watford Road (South)	Long Fallow	Watford Road (North)
17:15 - 17:30	From			
	Watford Road (South)	0.00	10.00	190.00
	Long Fallow	4.00	0.00	3.00
	Watford Road (North)	180.00	6.00	0.00

Demand (Veh/TS)

17:30 - 17:45

		To		
		Watford Road (South)	Long Fallow	Watford Road (North)
From	Watford Road (South)	0.00	11.00	210.00
	Long Fallow	4.00	0.00	3.00
	Watford Road (North)	172.00	6.00	0.00

Demand (Veh/TS)

17:45 - 18:00

		To		
		Watford Road (South)	Long Fallow	Watford Road (North)
From	Watford Road (South)	0.00	9.00	197.00
	Long Fallow	4.00	0.00	3.00
	Watford Road (North)	163.00	4.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

17:00 - 17:15

		To		
		Watford Road (South)	Long Fallow	Watford Road (North)
From	Watford Road (South)	0	0	0
	Long Fallow	0	0	0
	Watford Road (North)	1	0	0

Heavy Vehicle Percentages

17:15 - 17:30

		To		
		Watford Road (South)	Long Fallow	Watford Road (North)
From	Watford Road (South)	0	0	0
	Long Fallow	0	0	0
	Watford Road (North)	1	0	0

Heavy Vehicle Percentages

17:30 - 17:45

		To		
		Watford Road (South)	Long Fallow	Watford Road (North)
From	Watford Road (South)	0	0	0
	Long Fallow	0	0	0
	Watford Road (North)	1	0	0

Heavy Vehicle Percentages

17:45 - 18:00

		To		
		Watford Road (South)	Long Fallow	Watford Road (North)
From	Watford Road (South)	0	0	1
	Long Fallow	0	0	0
	Watford Road (North)	1	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/TS)	Total Junction Arrivals (Veh)
B-C	0.03	7.98	0.0	A	3.00	12.00
B-A	0.07	16.78	0.1	C	4.00	16.00
C-AB	0.06	8.22	0.1	A	5.75	23.00
C-A					171.50	686.00
A-B					10.25	41.00
A-C					202.25	809.00

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	3.00	3.00	115.73	0.026	2.97	0.0	0.0	7.980	A
B-A	4.00	4.00	57.50	0.070	3.93	0.0	0.1	16.777	C
C-AB	7.00	7.00	116.36	0.060	6.94	0.0	0.1	8.221	A
C-A	171.00	171.00			171.00				
A-B	11.00	11.00			11.00				
A-C	212.00	212.00			212.00				

17:15 - 17:30

Stream	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	3.00	3.00	121.48	0.025	3.00	0.0	0.0	7.598	A
B-A	4.00	4.00	62.04	0.064	4.00	0.1	0.1	15.509	C
C-AB	6.00	6.00	122.33	0.049	6.01	0.1	0.1	7.738	A
C-A	180.00	180.00			180.00				
A-B	10.00	10.00			10.00				
A-C	190.00	190.00			190.00				

17:30 - 17:45

Stream	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	3.00	3.00	116.16	0.026	3.00	0.0	0.0	7.952	A
B-A	4.00	4.00	58.21	0.069	4.00	0.1	0.1	16.599	C
C-AB	6.00	6.00	116.88	0.051	6.00	0.1	0.1	8.116	A
C-A	172.00	172.00			172.00				
A-B	11.00	11.00			11.00				
A-C	210.00	210.00			210.00				

17:45 - 18:00

Stream	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	3.00	3.00	119.34	0.025	3.00	0.0	0.0	7.737	A
B-A	4.00	4.00	63.31	0.063	4.00	0.1	0.1	15.175	C
C-AB	4.00	4.00	120.26	0.033	4.02	0.1	0.0	7.743	A
C-A	163.00	163.00			163.00				
A-B	9.00	9.00			9.00				
A-C	197.00	197.00			197.00				

Appendix M
Junctions 9 – Watford Road / Forge End

Junctions 9
PICADY 9 - Priority Intersection Module
Version: 9.0.1.4646 [] © Copyright TRL Limited, 2016
For sales and distribution information, program advice and maintenance, contact TRL: Tel: +44 (0)1344 770758 email: software@trl.co.uk Web: http://www.trlsoftware.co.uk
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Filename: Junction 2 - 16.02.04.j9
Path: M:\2015\8151408(6)_Transport(5)_Traffic Analysis\Junction Capacity Models
Report generation date: 09/02/2016 10:29:37

- »2016 - Surveyed, AM
- »2016 - Surveyed, PM
- »2021 - Do Nothing, AM
- »2021 - Do Nothing, PM
- »2021 - Do Something, AM
- »2021 - Do Something, PM

Summary of junction performance

	AM				PM			
	Queue (Veh)	Delay (s)	RFC	LOS	Queue (Veh)	Delay (s)	RFC	LOS
2016 - Surveyed								
Stream B-C	0.1	7.01	0.07	A	0.1	7.37	0.05	A
Stream B-A	0.0	14.32	0.03	B	0.0	14.22	0.03	B
Stream C-AB	0.3	4.41	0.14	A	0.1	4.28	0.08	A
2021 - Do Nothing								
Stream B-C	0.1	7.24	0.07	A	0.1	7.69	0.06	A
Stream B-A	0.0	15.74	0.03	C	0.0	15.64	0.03	C
Stream C-AB	0.5	4.40	0.16	A	0.2	4.17	0.10	A
2021 - Do Something								
Stream B-C	0.1	7.94	0.10	A	0.1	8.12	0.08	A
Stream B-A	0.1	18.56	0.06	C	0.1	17.13	0.05	C
Stream C-AB	0.7	4.38	0.20	A	0.3	4.22	0.13	A

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

File summary

File Description

Title	(untitled)
Location	
Site number	
Date	26/01/2016
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	UKJJBlenkinsop
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	mph	Veh	Veh	perTimeSegment	s	-Min	perMin

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

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D1	2016 - Surveyed	AM	DIRECT	08:00	09:00	60	15	✓
D2	2016 - Surveyed	PM	DIRECT	17:00	18:00	60	15	✓
D3	2021 - Do Nothing	AM	DIRECT	08:00	09:00	60	15	✓
D4	2021 - Do Nothing	PM	DIRECT	17:00	18:00	60	15	✓
D5	2021 - Do Something	AM	DIRECT	08:00	09:00	60	15	✓
D6	2021 - Do Something	PM	DIRECT	17:00	18:00	60	15	✓

Analysis Set Details

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

2016 - Surveyed, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Minor arm flare	Forge End - Minor arm geometry	Is flare very short? Estimated flare length is zero but has been increased to 1 because a zero flare length is not allowed.

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	Junction 2	T-Junction	Two-way	0.48	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	Watford Road (South)		Major
B	Forge End		Minor
C	Watford Road (North)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
Watford Road (North)	7.75			109.0	✓	0.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor arm type	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate flare length	Flare length (PCU)	Visibility to left (m)	Visibility to right (m)
Forge End	One lane plus flare	10.00	4.60	2.80	2.80	2.80	✓	1.00	38	85

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (Veh/TS)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	136.508	0.092	0.232	0.146	0.332
1	B-C	174.335	0.099	0.250	-	-
1	C-B	159.272	0.228	0.228	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D1	2016 - Surveyed	AM	DIRECT	08:00	09:00	60	15	✓

Vehicle mix varies over time	Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	✓	✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
Watford Road (South)		DIRECT	✓	100.000
Forge End		DIRECT	✓	100.000
Watford Road (North)		DIRECT	✓	100.000

Origin-Destination Data

Demand (Veh/TS)

		To			
		Watford Road (South)	Forge End	Watford Road (North)	
08:00 - 08:15	From	Watford Road (South)	0.00	1.00	152.00
		Forge End	1.00	0.00	2.00
		Watford Road (North)	158.00	4.00	0.00

Demand (Veh/TS)

		To			
		Watford Road (South)	Forge End	Watford Road (North)	
08:15 - 08:30	From	Watford Road (South)	0.00	1.00	162.00
		Forge End	0.00	0.00	6.00
		Watford Road (North)	182.00	8.00	0.00

Demand (Veh/TS)

		To			
		Watford Road (South)	Forge End	Watford Road (North)	
08:30 - 08:45	From	Watford Road (South)	0.00	0.00	157.00
		Forge End	1.00	0.00	9.00
		Watford Road (North)	203.00	8.00	0.00

Demand (Veh/TS)

		To			
		Watford Road (South)	Forge End	Watford Road (North)	
08:45 - 09:00	From	Watford Road (South)	0.00	2.00	151.00
		Forge End	2.00	0.00	3.00
		Watford Road (North)	156.00	11.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

		To			
		Watford Road (South)	Forge End	Watford Road (North)	
08:00 - 08:15	From	Watford Road (South)	0	0	0
		Forge End	0	0	0
		Watford Road (North)	1	0	0

Heavy Vehicle Percentages

08:15 - 08:30

		To		
		Watford Road (South)	Forge End	Watford Road (North)
From	Watford Road (South)	0	0	1
	Forge End	0	0	0
	Watford Road (North)	1	0	0

Heavy Vehicle Percentages

08:30 - 08:45

		To		
		Watford Road (South)	Forge End	Watford Road (North)
From	Watford Road (South)	0	0	0
	Forge End	0	0	0
	Watford Road (North)	1	0	0

Heavy Vehicle Percentages

08:45 - 09:00

		To		
		Watford Road (South)	Forge End	Watford Road (North)
From	Watford Road (South)	0	0	1
	Forge End	0	0	0
	Watford Road (North)	1	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/TS)	Total Junction Arrivals (Veh)
B-C	0.07	7.01	0.1	A	5.00	20.00
B-A	0.03	14.32	0.0	B	1.00	4.00
C-AB	0.14	4.41	0.3	A	26.25	104.99
C-A					156.25	625.01
A-B					1.00	4.00
A-C					155.50	622.00

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	2.00	2.00	135.85	0.015	1.99	0.0	0.0	6.723	A
B-A	1.00	1.00	76.47	0.013	0.99	0.0	0.0	11.921	B
C-AB	11.87	11.87	238.27	0.050	11.80	0.0	0.1	3.973	A
C-A	150.13	150.13			150.13				
A-B	1.00	1.00			1.00				
A-C	152.00	152.00			152.00				

08:15 - 08:30

Stream	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	6.00	6.00	137.34	0.044	5.97	0.0	0.0	6.848	A
B-A	0.00	0.00	63.77	0.000	0.01	0.0	0.0	0.000	A
C-AB	28.29	28.29	254.04	0.111	28.12	0.1	0.2	3.984	A
C-A	161.71	161.71			161.71				
A-B	1.00	1.00			1.00				
A-C	162.00	162.00			162.00				

08:30 - 08:45

Stream	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	9.00	9.00	137.43	0.065	8.98	0.0	0.1	7.006	A
B-A	1.00	1.00	63.84	0.016	0.98	0.0	0.0	14.316	B
C-AB	32.39	32.39	270.34	0.120	32.36	0.2	0.3	3.784	A
C-A	178.61	178.61			178.61				
A-B	0.00	0.00			0.00				
A-C	157.00	157.00			157.00				

08:45 - 09:00

Stream	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	3.00	3.00	142.98	0.021	3.05	0.1	0.0	6.433	A
B-A	2.00	2.00	75.23	0.027	1.99	0.0	0.0	12.286	B
C-AB	32.44	32.44	236.75	0.137	32.37	0.3	0.3	4.413	A
C-A	134.56	134.56			134.56				
A-B	2.00	2.00			2.00				
A-C	151.00	151.00			151.00				

2016 - Surveyed, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Minor arm flare	Forge End - Minor arm geometry	Is flare very short? Estimated flare length is zero but has been increased to 1 because a zero flare length is not allowed.

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	Junction 2	T-Junction	Two-way	0.33	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D2	2016 - Surveyed	PM	DIRECT	17:00	18:00	60	15	✓

Vehicle mix varies over time	Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	✓	✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
Watford Road (South)		DIRECT	✓	100.000
Forge End		DIRECT	✓	100.000
Watford Road (North)		DIRECT	✓	100.000

Origin-Destination Data

Demand (Veh/TS)

		To		
		Watford Road (South)	Forge End	Watford Road (North)
17:00 - 17:15	From			
	Watford Road (South)	0.00	4.00	186.00
	Forge End	2.00	0.00	5.00
	Watford Road (North)	151.00	2.00	0.00

Demand (Veh/TS)

		To		
		Watford Road (South)	Forge End	Watford Road (North)
17:15 - 17:30	From			
	Watford Road (South)	0.00	4.00	166.00
	Forge End	2.00	0.00	6.00
	Watford Road (North)	159.00	6.00	0.00

Demand (Veh/TS)

17:30 - 17:45

		To		
		Watford Road (South)	Forge End	Watford Road (North)
From	Watford Road (South)	0.00	2.00	186.00
	Forge End	1.00	0.00	7.00
	Watford Road (North)	162.00	4.00	0.00

Demand (Veh/TS)

17:45 - 18:00

		To		
		Watford Road (South)	Forge End	Watford Road (North)
From	Watford Road (South)	0.00	3.00	167.00
	Forge End	1.00	0.00	3.00
	Watford Road (North)	142.00	5.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

17:00 - 17:15

		To		
		Watford Road (South)	Forge End	Watford Road (North)
From	Watford Road (South)	0	0	0
	Forge End	0	0	0
	Watford Road (North)	1	0	0

Heavy Vehicle Percentages

17:15 - 17:30

		To		
		Watford Road (South)	Forge End	Watford Road (North)
From	Watford Road (South)	0	0	0
	Forge End	0	0	0
	Watford Road (North)	1	0	0

Heavy Vehicle Percentages

17:30 - 17:45

		To		
		Watford Road (South)	Forge End	Watford Road (North)
From	Watford Road (South)	0	0	1
	Forge End	0	0	0
	Watford Road (North)	1	0	0

Heavy Vehicle Percentages

17:45 - 18:00

		To		
		Watford Road (South)	Forge End	Watford Road (North)
From	Watford Road (South)	0	0	0
	Forge End	0	0	0
	Watford Road (North)	1	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/TS)	Total Junction Arrivals (Veh)
B-C	0.05	7.37	0.1	A	5.25	21.00
B-A	0.03	14.22	0.0	B	1.50	6.00
C-AB	0.08	4.28	0.1	A	12.71	50.85
C-A					145.04	580.15
A-B					3.25	13.00
A-C					176.25	705.00

Main Results for each time segment
17:00 - 17:15

Stream	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	5.00	5.00	127.13	0.039	4.96	0.0	0.0	7.365	A
B-A	2.00	2.00	69.25	0.029	1.97	0.0	0.0	13.372	B
C-AB	5.94	5.94	227.65	0.026	5.91	0.0	0.0	4.059	A
C-A	147.06	147.06			147.06				
A-B	4.00	4.00			4.00				
A-C	186.00	186.00			186.00				

17:15 - 17:30

Stream	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	6.00	6.00	132.51	0.045	5.99	0.0	0.0	7.112	A
B-A	2.00	2.00	70.80	0.028	2.00	0.0	0.0	13.083	B
C-AB	18.33	18.33	236.51	0.078	18.22	0.0	0.1	4.122	A
C-A	146.67	146.67			146.67				
A-B	4.00	4.00			4.00				
A-C	166.00	166.00			166.00				

17:30 - 17:45

Stream	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	7.00	7.00	129.07	0.054	6.99	0.0	0.1	7.371	A
B-A	1.00	1.00	64.31	0.016	1.01	0.0	0.0	14.220	B
C-AB	12.88	12.88	235.87	0.055	12.94	0.1	0.1	4.039	A
C-A	153.12	153.12			153.12				
A-B	2.00	2.00			2.00				
A-C	186.00	186.00			186.00				

17:45 - 18:00

Stream	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	3.00	3.00	132.88	0.023	3.03	0.1	0.0	6.934	A
B-A	1.00	1.00	73.41	0.014	1.00	0.0	0.0	12.429	B
C-AB	13.70	13.70	224.14	0.061	13.68	0.1	0.1	4.278	A
C-A	133.30	133.30			133.30				
A-B	3.00	3.00			3.00				
A-C	167.00	167.00			167.00				

2021 - Do Nothing, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Minor arm flare	Forge End - Minor arm geometry	Is flare very short? Estimated flare length is zero but has been increased to 1 because a zero flare length is not allowed.

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	Junction 2	T-Junction	Two-way	0.53	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D3	2021 - Do Nothing	AM	DIRECT	08:00	09:00	60	15	✓

Vehicle mix varies over time	Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	✓	✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
Watford Road (South)		DIRECT	✓	100.000
Forge End		DIRECT	✓	100.000
Watford Road (North)		DIRECT	✓	100.000

Origin-Destination Data

Demand (Veh/TS)

		To			
		Watford Road (South)	Forge End	Watford Road (North)	
08:00 - 08:15	From				
	Watford Road (South)	0.00	1.00	164.00	
	Forge End	1.00	0.00	2.00	
	Watford Road (North)	171.00	4.00	0.00	

Demand (Veh/TS)

		To			
		Watford Road (South)	Forge End	Watford Road (North)	
08:15 - 08:30	From				
	Watford Road (South)	0.00	1.00	175.00	
	Forge End	0.00	0.00	6.00	
	Watford Road (North)	197.00	9.00	0.00	

Demand (Veh/TS)

08:30 - 08:45

		To		
		Watford Road (South)	Forge End	Watford Road (North)
From	Watford Road (South)	0.00	0.00	170.00
	Forge End	1.00	0.00	10.00
	Watford Road (North)	220.00	9.00	0.00

Demand (Veh/TS)

08:45 - 09:00

		To		
		Watford Road (South)	Forge End	Watford Road (North)
From	Watford Road (South)	0.00	2.00	163.00
	Forge End	2.00	0.00	3.00
	Watford Road (North)	169.00	12.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

08:00 - 08:15

		To		
		Watford Road (South)	Forge End	Watford Road (North)
From	Watford Road (South)	0	0	0
	Forge End	0	0	0
	Watford Road (North)	1	0	0

Heavy Vehicle Percentages

08:15 - 08:30

		To		
		Watford Road (South)	Forge End	Watford Road (North)
From	Watford Road (South)	0	0	1
	Forge End	0	0	0
	Watford Road (North)	1	0	0

Heavy Vehicle Percentages

08:30 - 08:45

		To		
		Watford Road (South)	Forge End	Watford Road (North)
From	Watford Road (South)	0	0	0
	Forge End	0	0	0
	Watford Road (North)	1	0	0

Heavy Vehicle Percentages

08:45 - 09:00

		To		
		Watford Road (South)	Forge End	Watford Road (North)
From	Watford Road (South)	0	0	1
	Forge End	0	0	0
	Watford Road (North)	1	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/TS)	Total Junction Arrivals (Veh)
B-C	0.07	7.24	0.1	A	5.25	21.00
B-A	0.03	15.74	0.0	C	1.00	4.00
C-AB	0.16	4.40	0.5	A	32.49	129.95
C-A					165.26	661.05
A-B					1.00	4.00
A-C					168.00	672.00

Main Results for each time segment
08:00 - 08:15

Stream	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	2.00	2.00	132.83	0.015	1.98	0.0	0.0	6.878	A
B-A	1.00	1.00	71.77	0.014	0.99	0.0	0.0	12.715	B
C-AB	13.13	13.13	245.96	0.053	13.04	0.0	0.1	3.863	A
C-A	161.87	161.87			161.87				
A-B	1.00	1.00			1.00				
A-C	164.00	164.00			164.00				

08:15 - 08:30

Stream	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	6.00	6.00	133.96	0.045	5.97	0.0	0.0	7.029	A
B-A	0.00	0.00	58.59	0.000	0.01	0.0	0.0	0.000	A
C-AB	35.85	35.85	263.28	0.136	35.59	0.1	0.3	3.954	A
C-A	170.15	170.15			170.15				
A-B	1.00	1.00			1.00				
A-C	175.00	175.00			175.00				

08:30 - 08:45

Stream	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	10.00	10.00	134.18	0.075	9.97	0.0	0.1	7.243	A
B-A	1.00	1.00	58.14	0.017	0.98	0.0	0.0	15.740	C
C-AB	41.81	41.81	281.19	0.149	41.75	0.3	0.4	3.766	A
C-A	187.19	187.19			187.19				
A-B	0.00	0.00			0.00				
A-C	170.00	170.00			170.00				

08:45 - 09:00

Stream	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	3.00	3.00	139.74	0.021	3.06	0.1	0.0	6.586	A
B-A	2.00	2.00	70.06	0.029	1.99	0.0	0.0	13.219	B
C-AB	39.17	39.17	244.50	0.160	39.11	0.4	0.5	4.395	A
C-A	141.83	141.83			141.83				
A-B	2.00	2.00			2.00				
A-C	163.00	163.00			163.00				

2021 - Do Nothing, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Minor arm flare	Forge End - Minor arm geometry	Is flare very short? Estimated flare length is zero but has been increased to 1 because a zero flare length is not allowed.

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	Junction 2	T-Junction	Two-way	0.35	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D4	2021 - Do Nothing	PM	DIRECT	17:00	18:00	60	15	✓

Vehicle mix varies over time	Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	✓	✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
Watford Road (South)		DIRECT	✓	100.000
Forge End		DIRECT	✓	100.000
Watford Road (North)		DIRECT	✓	100.000

Origin-Destination Data

Demand (Veh/TS)

		To		
		Watford Road (South)	Forge End	Watford Road (North)
17:00 - 17:15	From			
	Watford Road (South)	0.00	4.00	202.00
	Forge End	2.00	0.00	5.00
	Watford Road (North)	164.00	2.00	0.00

Demand (Veh/TS)

		To		
		Watford Road (South)	Forge End	Watford Road (North)
17:15 - 17:30	From			
	Watford Road (South)	0.00	4.00	180.00
	Forge End	2.00	0.00	7.00
	Watford Road (North)	173.00	7.00	0.00

Demand (Veh/TS)

17:30 - 17:45

		To		
		Watford Road (South)	Forge End	Watford Road (North)
From	Watford Road (South)	0.00	2.00	202.00
	Forge End	1.00	0.00	8.00
	Watford Road (North)	176.00	4.00	0.00

Demand (Veh/TS)

17:45 - 18:00

		To		
		Watford Road (South)	Forge End	Watford Road (North)
From	Watford Road (South)	0.00	3.00	181.00
	Forge End	1.00	0.00	3.00
	Watford Road (North)	154.00	5.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

17:00 - 17:15

		To		
		Watford Road (South)	Forge End	Watford Road (North)
From	Watford Road (South)	0	0	0
	Forge End	0	0	0
	Watford Road (North)	1	0	0

Heavy Vehicle Percentages

17:15 - 17:30

		To		
		Watford Road (South)	Forge End	Watford Road (North)
From	Watford Road (South)	0	0	0
	Forge End	0	0	0
	Watford Road (North)	1	0	0

Heavy Vehicle Percentages

17:30 - 17:45

		To		
		Watford Road (South)	Forge End	Watford Road (North)
From	Watford Road (South)	0	0	1
	Forge End	0	0	0
	Watford Road (North)	1	0	0

Heavy Vehicle Percentages

17:45 - 18:00

		To		
		Watford Road (South)	Forge End	Watford Road (North)
From	Watford Road (South)	0	0	0
	Forge End	0	0	0
	Watford Road (North)	1	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/TS)	Total Junction Arrivals (Veh)
B-C	0.06	7.69	0.1	A	5.75	23.00
B-A	0.03	15.64	0.0	C	1.50	6.00
C-AB	0.10	4.17	0.2	A	15.03	60.13
C-A					156.22	624.87
A-B					3.25	13.00
A-C					191.25	765.00

Main Results for each time segment
17:00 - 17:15

Stream	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	5.00	5.00	123.07	0.041	4.96	0.0	0.0	7.618	A
B-A	2.00	2.00	63.67	0.031	1.97	0.0	0.0	14.578	B
C-AB	6.62	6.62	234.96	0.028	6.59	0.0	0.0	3.941	A
C-A	159.38	159.38			159.38				
A-B	4.00	4.00			4.00				
A-C	202.00	202.00			202.00				

17:15 - 17:30

Stream	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	7.00	7.00	129.25	0.054	6.99	0.0	0.1	7.361	A
B-A	2.00	2.00	64.84	0.031	2.00	0.0	0.0	14.324	B
C-AB	23.90	23.90	244.78	0.098	23.74	0.0	0.2	4.072	A
C-A	156.10	156.10			156.10				
A-B	4.00	4.00			4.00				
A-C	180.00	180.00			180.00				

17:30 - 17:45

Stream	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	8.00	8.00	125.08	0.064	7.99	0.1	0.1	7.686	A
B-A	1.00	1.00	58.55	0.017	1.01	0.0	0.0	15.645	C
C-AB	14.52	14.52	244.03	0.060	14.62	0.2	0.1	3.926	A
C-A	165.48	165.48			165.48				
A-B	2.00	2.00			2.00				
A-C	202.00	202.00			202.00				

17:45 - 18:00

Stream	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	3.00	3.00	129.35	0.023	3.04	0.1	0.0	7.127	A
B-A	1.00	1.00	68.47	0.015	1.00	0.0	0.0	13.338	B
C-AB	15.09	15.09	230.81	0.065	15.08	0.1	0.1	4.173	A
C-A	143.91	143.91			143.91				
A-B	3.00	3.00			3.00				
A-C	181.00	181.00			181.00				

2021 - Do Something, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Minor arm flare	Forge End - Minor arm geometry	Is flare very short? Estimated flare length is zero but has been increased to 1 because a zero flare length is not allowed.

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	Junction 2	T-Junction	Two-way	0.73	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D5	2021 - Do Something	AM	DIRECT	08:00	09:00	60	15	✓

Vehicle mix varies over time	Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	✓	✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
Watford Road (South)		DIRECT	✓	100.000
Forge End		DIRECT	✓	100.000
Watford Road (North)		DIRECT	✓	100.000

Origin-Destination Data

Demand (Veh/TS)

		To			
		Watford Road (South)	Forge End	Watford Road (North)	
08:00 - 08:15	From				
	Watford Road (South)	0.00	2.00	185.00	
	Forge End	3.00	0.00	5.00	
	Watford Road (North)	191.00	5.00	0.00	

Demand (Veh/TS)

		To			
		Watford Road (South)	Forge End	Watford Road (North)	
08:15 - 08:30	From				
	Watford Road (South)	0.00	2.00	196.00	
	Forge End	2.00	0.00	9.00	
	Watford Road (North)	217.00	10.00	0.00	

Demand (Veh/TS)

08:30 - 08:45

		To		
		Watford Road (South)	Forge End	Watford Road (North)
From	Watford Road (South)	0.00	1.00	191.00
	Forge End	3.00	0.00	13.00
	Watford Road (North)	240.00	10.00	0.00

Demand (Veh/TS)

08:45 - 09:00

		To		
		Watford Road (South)	Forge End	Watford Road (North)
From	Watford Road (South)	0.00	3.00	184.00
	Forge End	4.00	0.00	6.00
	Watford Road (North)	189.00	13.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

08:00 - 08:15

		To		
		Watford Road (South)	Forge End	Watford Road (North)
From	Watford Road (South)	0	0	0
	Forge End	0	0	0
	Watford Road (North)	1	0	0

Heavy Vehicle Percentages

08:15 - 08:30

		To		
		Watford Road (South)	Forge End	Watford Road (North)
From	Watford Road (South)	0	0	1
	Forge End	0	0	0
	Watford Road (North)	1	0	0

Heavy Vehicle Percentages

08:30 - 08:45

		To		
		Watford Road (South)	Forge End	Watford Road (North)
From	Watford Road (South)	0	0	0
	Forge End	0	0	0
	Watford Road (North)	1	0	0

Heavy Vehicle Percentages

08:45 - 09:00

		To		
		Watford Road (South)	Forge End	Watford Road (North)
From	Watford Road (South)	0	0	1
	Forge End	0	0	0
	Watford Road (North)	1	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/TS)	Total Junction Arrivals (Veh)
B-C	0.10	7.94	0.1	A	8.25	33.00
B-A	0.06	18.56	0.1	C	3.00	12.00
C-AB	0.20	4.38	0.7	A	43.11	172.43
C-A					175.64	702.57
A-B					2.00	8.00
A-C					189.00	756.00

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	5.00	5.00	125.98	0.040	4.96	0.0	0.0	7.435	A
B-A	3.00	3.00	64.10	0.047	2.95	0.0	0.0	14.717	B
C-AB	19.33	19.33	257.63	0.075	19.20	0.0	0.1	3.775	A
C-A	176.67	176.67			176.67				
A-B	2.00	2.00			2.00				
A-C	185.00	185.00			185.00				

08:15 - 08:30

Stream	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	9.00	9.00	125.15	0.072	8.96	0.0	0.1	7.743	A
B-A	2.00	2.00	53.13	0.038	2.01	0.0	0.0	17.606	C
C-AB	47.36	47.36	275.38	0.172	46.98	0.1	0.5	3.944	A
C-A	179.64	179.64			179.64				
A-B	2.00	2.00			2.00				
A-C	196.00	196.00			196.00				

08:30 - 08:45

Stream	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	13.00	13.00	126.26	0.103	12.96	0.1	0.1	7.941	A
B-A	3.00	3.00	51.45	0.058	2.98	0.0	0.1	18.561	C
C-AB	55.63	55.63	293.58	0.189	55.53	0.5	0.6	3.789	A
C-A	194.37	194.37			194.37				
A-B	1.00	1.00			1.00				
A-C	191.00	191.00			191.00				

08:45 - 09:00

Stream	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	6.00	6.00	132.70	0.045	6.07	0.1	0.0	7.112	A
B-A	4.00	4.00	61.65	0.065	3.99	0.1	0.1	15.609	C
C-AB	50.11	50.11	256.28	0.196	50.07	0.6	0.7	4.382	A
C-A	151.89	151.89			151.89				
A-B	3.00	3.00			3.00				
A-C	184.00	184.00			184.00				

2021 - Do Something, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Minor arm flare	Forge End - Minor arm geometry	Is flare very short? Estimated flare length is zero but has been increased to 1 because a zero flare length is not allowed.

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	Junction 2	T-Junction	Two-way	0.51	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D6	2021 - Do Something	PM	DIRECT	17:00	18:00	60	15	✓

Vehicle mix varies over time	Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	✓	✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
Watford Road (South)		DIRECT	✓	100.000
Forge End		DIRECT	✓	100.000
Watford Road (North)		DIRECT	✓	100.000

Origin-Destination Data

Demand (Veh/TS)

		To			
		Watford Road (South)	Forge End	Watford Road (North)	
17:00 - 17:15	From				
	Watford Road (South)	0.00	6.00	213.00	
	Forge End	3.00	0.00	7.00	
	Watford Road (North)	174.00	4.00	0.00	

Demand (Veh/TS)

		To			
		Watford Road (South)	Forge End	Watford Road (North)	
17:15 - 17:30	From				
	Watford Road (South)	0.00	6.00	191.00	
	Forge End	3.00	0.00	9.00	
	Watford Road (North)	183.00	9.00	0.00	

Demand (Veh/TS)

17:30 - 17:45

		To		
		Watford Road (South)	Forge End	Watford Road (North)
From	Watford Road (South)	0.00	4.00	213.00
	Forge End	2.00	0.00	10.00
	Watford Road (North)	186.00	6.00	0.00

Demand (Veh/TS)

17:45 - 18:00

		To		
		Watford Road (South)	Forge End	Watford Road (North)
From	Watford Road (South)	0.00	5.00	192.00
	Forge End	2.00	0.00	5.00
	Watford Road (North)	164.00	7.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

17:00 - 17:15

		To		
		Watford Road (South)	Forge End	Watford Road (North)
From	Watford Road (South)	0	0	0
	Forge End	0	0	0
	Watford Road (North)	1	0	0

Heavy Vehicle Percentages

17:15 - 17:30

		To		
		Watford Road (South)	Forge End	Watford Road (North)
From	Watford Road (South)	0	0	0
	Forge End	0	0	0
	Watford Road (North)	1	0	0

Heavy Vehicle Percentages

17:30 - 17:45

		To		
		Watford Road (South)	Forge End	Watford Road (North)
From	Watford Road (South)	0	0	1
	Forge End	0	0	0
	Watford Road (North)	1	0	0

Heavy Vehicle Percentages

17:45 - 18:00

		To		
		Watford Road (South)	Forge End	Watford Road (North)
From	Watford Road (South)	0	0	0
	Forge End	0	0	0
	Watford Road (North)	1	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/TS)	Total Junction Arrivals (Veh)
B-C	0.08	8.12	0.1	A	7.75	31.00
B-A	0.05	17.13	0.1	C	2.50	10.00
C-AB	0.13	4.22	0.3	A	23.70	94.78
C-A					159.55	638.21
A-B					5.25	21.00
A-C					202.25	809.00

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	7.00	7.00	119.38	0.059	6.94	0.0	0.1	8.000	A
B-A	3.00	3.00	59.03	0.051	2.95	0.0	0.1	16.034	C
C-AB	14.45	14.45	240.63	0.060	14.35	0.0	0.1	3.977	A
C-A	163.55	163.55			163.55				
A-B	6.00	6.00			6.00				
A-C	213.00	213.00			213.00				

17:15 - 17:30

Stream	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	9.00	9.00	125.36	0.072	8.99	0.1	0.1	7.732	A
B-A	3.00	3.00	60.44	0.050	3.00	0.1	0.1	15.669	C
C-AB	33.52	33.52	250.43	0.134	33.29	0.1	0.3	4.147	A
C-A	158.48	158.48			158.48				
A-B	6.00	6.00			6.00				
A-C	191.00	191.00			191.00				

17:30 - 17:45

Stream	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	10.00	10.00	120.85	0.083	9.99	0.1	0.1	8.117	A
B-A	2.00	2.00	54.56	0.037	2.01	0.1	0.0	17.133	C
C-AB	23.81	23.81	249.85	0.095	23.94	0.3	0.2	3.990	A
C-A	168.19	168.19			168.19				
A-B	4.00	4.00			4.00				
A-C	213.00	213.00			213.00				

17:45 - 18:00

Stream	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	5.00	5.00	125.44	0.040	5.05	0.1	0.0	7.480	A
B-A	2.00	2.00	64.20	0.031	2.01	0.0	0.0	14.473	B
C-AB	23.01	23.01	236.36	0.097	23.01	0.2	0.2	4.222	A
C-A	147.99	147.99			147.99				
A-B	5.00	5.00			5.00				
A-C	192.00	192.00			192.00				

Appendix N

Junctions 9 – Watford Road / Chiswell Green Lane / Tippendell Lane

<h1>Junctions 9</h1>
ARCADY 9 - Roundabout Module
Version: 9.0.1.4646 [] © Copyright TRL Limited, 2016
For sales and distribution information, program advice and maintenance, contact TRL: Tel: +44 (0)1344 770758 email: software@trl.co.uk Web: http://www.trlsoftware.co.uk
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Filename: Junction 3 - AM - 16.02.04.j9
Path: M:\2015\8151408\6)_Transport\5)_Traffic Analysis\Junction Capacity Models
Report generation date: 09/02/2016 10:31:10

- »2016 - Surveyed, AM
- »2021 - Do Nothing, AM
- »2021 - Do Something, AM

Summary of junction performance

	AM			
	Queue (Veh)	Delay (s)	RFC	LOS
2016 - Surveyed				
Junction 3a - Watford Road (North)	2.9	12.10	0.75	B
Junction 3a - Watford Road (South)	2.2	11.96	0.70	B
Junction 3a - Chiswell Green Lane	0.4	10.85	0.28	B
Junction 3b - Watford Road (South)	1.0	4.77	0.50	A
Junction 3b - Watford Road (North)	5.4	22.58	0.86	C
Junction 3b - Tippendell Lane	5.8	53.92	0.90	F
2021 - Do Nothing				
Junction 3a - Watford Road (North)	3.8	14.72	0.80	B
Junction 3a - Watford Road (South)	2.9	14.66	0.75	B
Junction 3a - Chiswell Green Lane	0.5	12.45	0.33	B
Junction 3b - Watford Road (South)	1.2	5.29	0.55	A
Junction 3b - Watford Road (North)	9.5	35.64	0.94	E
Junction 3b - Tippendell Lane	14.2	107.72	1.06	F
2021 - Do Something				
Junction 3a - Watford Road (North)	5.7	21.80	0.87	C
Junction 3a - Watford Road (South)	6.9	31.52	0.90	D
Junction 3a - Chiswell Green Lane	2.7	32.49	0.75	D
Junction 3b - Watford Road (South)	1.6	6.22	0.62	A
Junction 3b - Watford Road (North)	14.8	51.74	0.99	F
Junction 3b - Tippendell Lane	35.4	254.54	1.20	F

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

File summary

File Description

Title	(untitled)
Location	
Site number	
Date	26/01/2016
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	UKJJBlenkinsop
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	mph	Veh	Veh	perTimeSegment	s	-Min	perMin

Analysis Options

Mini-roundabout model	Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
JUNCTIONS 9	5.75				0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D1	2016 - Surveyed	AM	DIRECT	08:00	09:00	60	15	✓
D3	2021 - Do Nothing	AM	DIRECT	08:00	09:00	60	15	✓
D5	2021 - Do Something	AM	DIRECT	08:00	09:00	60	15	✓

Analysis Set Details

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

2016 - Surveyed, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Mini-roundabout	Junction 3a	Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms A and B have 90% of the total flow for the roundabout for one or more time segments]
Warning	Mini-roundabout	Junction 3b	Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms A and B have 82% of the total flow for the roundabout for one or more time segments]
Warning	Linked Roundabout	Junction 3a - Watford Road (North)	If the distance between linked junctions is small, results should be treated with caution. The linked junctions will be modelled as separate junctions, but the real behaviour may be that of a complex system with interactions that cannot be modelled.
Warning	Linked Roundabout	Junction 3b - Watford Road (South)	If the distance between linked junctions is small, results should be treated with caution. The linked junctions will be modelled as separate junctions, but the real behaviour may be that of a complex system with interactions that cannot be modelled.

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	Junction 3a	Mini-roundabout	A,B,C	11.94	B
2	Junction 3b	Mini-roundabout	A,B,C	21.82	C

Junction Network Options

Driving side	Lighting	Road surface	In London
Left	Normal/unknown	Normal/unknown	

Arms

Arms

Junction	Arm	Name	Description
Junction 3a	A	Watford Road (North)	
	B	Watford Road (South)	
	C	Chiswell Green Lane	
Junction 3b	A	Watford Road (South)	
	B	Watford Road (North)	
	C	Tippendell Lane	

Mini Roundabout Geometry

Junction	Arm	Approach road half-width (m)	Minimum approach road half-width (m)	Entry width (m)	Effective flare length (m)	Distance to next arm (m)	Entry corner kerb line distance (m)	Gradient over 50m (%)	Kerbed central island
Junction 3a	Watford Road (North)	5.20	5.20	5.60	2.0	15.70	14.80	0.0	✓
	Watford Road (South)	4.40	4.40	5.80	1.2	11.90	8.00	0.0	✓
	Chiswell Green Lane	3.50	3.50	4.50	1.8	14.00	6.80	0.0	
Junction 3b	Watford Road (South)	5.20	5.20	6.50	7.4	18.80	19.90	0.0	✓
	Watford Road (North)	3.80	3.80	4.60	0.4	12.80	8.20	0.0	✓
	Tippendell Lane	3.40	3.40	5.10	1.4	15.20	9.00	0.0	

Slope / Intercept / Capacity

Arm Intercept Adjustments

Junction	Arm	Type	Reason	Percentage intercept adjustment (%)
Junction 3a	Watford Road (North)	None		
	Watford Road (South)	None		
	Chiswell Green Lane	None		
Junction 3b	Watford Road (South)	None		
	Watford Road (North)	Percentage		125.00
	Tippendell Lane	Percentage		117.00

Roundabout Slope and Intercept used in model

Junction	Arm	Final slope	Final intercept (PCU/TS)
Junction 3a	Watford Road (North)	0.594	300.394
	Watford Road (South)	0.544	255.059
	Chiswell Green Lane	0.623	219.322
Junction 3b	Watford Road (South)	0.883	437.644
	Watford Road (North)	0.514	275.100
	Tippendell Lane	0.620	231.704

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	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D1	2016 - Surveyed	AM	DIRECT	08:00	09:00	60	15	✓

Vehicle mix varies over time	Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	✓	✓	HV Percentages	2.00	✓

Linked Arm Data

Junction	Arm	Feeding Junction	Feeding Arm	Link Type	Flow source	Uniform flow (Veh/TS)	Flow multiplier (%)	Internal storage space (PCU)
Junction 3a	Watford Road (North)	2	A	Simple (vertical queueing)	Normal	0.00	100.00	
Junction 3b	Watford Road (South)	1	A	Simple (vertical queueing)	Normal	0.00	100.00	

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
Junction 3a	Watford Road (North)	✓			
	Watford Road (South)		DIRECT	✓	100.000
	Chiswell Green Lane		DIRECT	✓	100.000
Junction 3b	Watford Road (South)	✓			
	Watford Road (North)		DIRECT	✓	100.000
	Tippendell Lane		DIRECT	✓	100.000

Origin-Destination Data

Demand (Veh/TS)

Junction 3a 08:00 - 08:15

		To		
		Watford Road (North)	Watford Road (South)	Chiswell Green Lane
From	Watford Road (North)	0.00	156.00	16.00
	Watford Road (South)	145.00	0.00	9.00
	Chiswell Green Lane	33.00	3.00	0.00

Demand (Veh/TS)

Junction 3a 08:15 - 08:30

		To		
		Watford Road (North)	Watford Road (South)	Chiswell Green Lane
From		0.00	185.00	18.00
	Watford Road (North)	0.00	185.00	18.00
	Watford Road (South)	165.00	0.00	4.00
	Chiswell Green Lane	28.00	5.00	0.00

Demand (Veh/TS)

Junction 3a 08:30 - 08:45

		To		
		Watford Road (North)	Watford Road (South)	Chiswell Green Lane
From		0.00	207.00	18.00
	Watford Road (North)	0.00	207.00	18.00
	Watford Road (South)	156.00	0.00	10.00
	Chiswell Green Lane	29.00	5.00	0.00

Demand (Veh/TS)

Junction 3a 08:45 - 09:00

		To		
		Watford Road (North)	Watford Road (South)	Chiswell Green Lane
From		0.00	158.00	19.00
	Watford Road (North)	0.00	158.00	19.00
	Watford Road (South)	141.00	0.00	19.00
	Chiswell Green Lane	22.00	6.00	0.00

Demand (Veh/TS)

Junction 3b 08:00 - 08:15

		To		
		Watford Road (South)	Watford Road (North)	Tippendell Lane
From		0.00	148.00	30.00
	Watford Road (South)	0.00	148.00	30.00
	Watford Road (North)	148.00	0.00	17.00
	Tippendell Lane	24.00	47.00	0.00

Demand (Veh/TS)

Junction 3b 08:15 - 08:30

		To		
		Watford Road (South)	Watford Road (North)	Tippendell Lane
From		0.00	162.00	31.00
	Watford Road (South)	0.00	162.00	31.00
	Watford Road (North)	174.00	0.00	24.00
	Tippendell Lane	29.00	60.00	0.00

Demand (Veh/TS)

Junction 3b 08:30 - 08:45

		To		
		Watford Road (South)	Watford Road (North)	Tippendell Lane
From		0.00	155.00	30.00
	Watford Road (South)	0.00	155.00	30.00
	Watford Road (North)	198.00	0.00	24.00
	Tippendell Lane	27.00	69.00	0.00

Demand (Veh/TS)

Junction 3b 08:45 - 09:00

		To		
		Watford Road (South)	Watford Road (North)	Tippendell Lane
From		0.00	136.00	27.00
	Watford Road (South)	0.00	136.00	27.00
	Watford Road (North)	144.00	0.00	31.00
	Tippendell Lane	33.00	71.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

Junction 3a 08:00 - 08:15

		To		
		Watford Road (North)	Watford Road (South)	Chiswell Green Lane
From		0	0	0
	Watford Road (North)	0	0	0
	Watford Road (South)	0	0	0
	Chiswell Green Lane	0	0	0

Heavy Vehicle Percentages
Junction 3a 08:15 - 08:30

		To		
		Watford Road (North)	Watford Road (South)	Chiswell Green Lane
From	Watford Road (North)	0	1	0
	Watford Road (South)	1	0	0
	Chiswell Green Lane	0	0	0

Heavy Vehicle Percentages
Junction 3a 08:30 - 08:45

		To		
		Watford Road (North)	Watford Road (South)	Chiswell Green Lane
From	Watford Road (North)	0	1	0
	Watford Road (South)	1	0	0
	Chiswell Green Lane	0	0	0

Heavy Vehicle Percentages
Junction 3a 08:45 - 09:00

		To		
		Watford Road (North)	Watford Road (South)	Chiswell Green Lane
From	Watford Road (North)	0	1	0
	Watford Road (South)	1	0	0
	Chiswell Green Lane	0	0	0

Heavy Vehicle Percentages
Junction 3b 08:00 - 08:15

		To		
		Watford Road (South)	Watford Road (North)	Tippendell Lane
From	Watford Road (South)	0	0	0
	Watford Road (North)	0	0	0
	Tippendell Lane	0	0	0

Heavy Vehicle Percentages
Junction 3b 08:15 - 08:30

		To		
		Watford Road (South)	Watford Road (North)	Tippendell Lane
From	Watford Road (South)	0	1	0
	Watford Road (North)	1	0	4
	Tippendell Lane	0	2	0

Heavy Vehicle Percentages
Junction 3b 08:30 - 08:45

		To		
		Watford Road (South)	Watford Road (North)	Tippendell Lane
From	Watford Road (South)	0	1	0
	Watford Road (North)	1	0	0
	Tippendell Lane	0	3	0

Heavy Vehicle Percentages
Junction 3b 08:45 - 09:00

		To		
		Watford Road (South)	Watford Road (North)	Tippendell Lane
From	Watford Road (South)	0	1	0
	Watford Road (North)	1	0	0
	Tippendell Lane	0	3	0

Results

Results Summary for whole modelled period

Junction	Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/TS)	Total Junction Arrivals (Veh)
Junction 3a	Watford Road (North)	0.75	12.10	2.9	B	193.44	773.77
	Watford Road (South)	0.70	11.96	2.2	B	162.25	649.01
	Chiswell Green Lane	0.28	10.85	0.4	B	32.75	131.00
Junction 3b	Watford Road (South)	0.50	4.77	1.0	A	179.28	717.10
	Watford Road (North)	0.86	22.58	5.4	C	190.00	760.00
	Tippendell Lane	0.90	53.92	5.8	F	90.01	360.02

Main Results for each time segment

08:00 - 08:15

Junction	Arm	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Throughput (exit side) (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
Junction 3a	Watford Road (North)	170.15	170.15	2.97	298.63	0.570	168.85	176.13	0.0	1.3	6.870	A
	Watford Road (South)	154.00	154.00	15.71	246.52	0.625	152.38	156.11	0.0	1.6	9.408	A
	Chiswell Green Lane	36.00	36.00	143.48	129.92	0.277	35.62	24.61	0.0	0.4	9.506	A
Junction 3b	Watford Road (South)	176.13	176.13	46.35	396.70	0.444	175.34	170.15	0.0	0.8	4.051	A
	Watford Road (North)	165.00	165.00	29.55	259.90	0.635	163.31	192.13	0.0	1.7	9.166	A
	Tippendell Lane	71.00	71.00	146.48	140.96	0.504	70.01	46.38	0.0	1.0	12.522	B

08:15 - 08:30

Junction	Arm	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Throughput (exit side) (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
Junction 3a	Watford Road (North)	201.12	201.12	4.97	294.77	0.682	200.34	192.39	1.3	2.1	9.449	A
	Watford Road (South)	169.00	169.00	17.77	243.05	0.695	168.42	187.54	1.6	2.2	11.956	B
	Chiswell Green Lane	33.00	33.00	164.38	115.88	0.285	32.98	21.81	0.4	0.4	10.853	B
Junction 3b	Watford Road (South)	192.41	192.41	59.00	381.30	0.505	192.19	201.24	0.8	1.0	4.755	A
	Watford Road (North)	198.00	198.00	30.88	255.76	0.774	196.49	220.32	1.7	3.2	14.804	B
	Tippendell Lane	89.00	89.00	172.70	122.03	0.729	87.54	54.66	1.0	2.4	25.099	D

08:30 - 08:45

Junction	Arm	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Throughput (exit side) (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
Junction 3a	Watford Road (North)	222.10	222.10	5.00	294.71	0.754	221.27	185.09	2.1	2.9	12.101	B
	Watford Road (South)	166.00	166.00	17.72	243.14	0.683	166.01	208.55	2.2	2.2	11.681	B
	Chiswell Green Lane	34.00	34.00	156.09	121.09	0.281	34.00	27.64	0.4	0.4	10.334	B
Junction 3b	Watford Road (South)	185.10	185.10	66.54	373.98	0.495	185.12	222.18	1.0	1.0	4.767	A
	Watford Road (North)	222.00	222.00	30.02	257.35	0.863	219.80	221.64	3.2	5.4	22.582	C
	Tippendell Lane	96.00	96.00	195.99	106.79	0.899	92.73	53.82	2.4	5.7	53.919	F

08:45 - 09:00

Junction	Arm	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Throughput (exit side) (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
Junction 3a	Watford Road (North)	180.41	180.41	6.00	294.20	0.613	181.70	163.41	2.9	1.6	8.089	A
	Watford Road (South)	160.00	160.00	19.43	242.36	0.660	160.18	168.28	2.2	2.0	10.988	B
	Chiswell Green Lane	28.00	28.00	141.29	130.40	0.215	28.12	38.32	0.4	0.3	8.809	A
Junction 3b	Watford Road (South)	163.46	163.46	72.73	368.40	0.444	163.64	180.55	1.0	0.8	4.400	A
	Watford Road (North)	175.00	175.00	27.10	259.02	0.676	178.25	209.27	5.4	2.2	11.560	B
	Tippendell Lane	104.00	104.00	147.05	136.88	0.760	106.23	58.31	5.7	3.5	31.129	D

2021 - Do Nothing, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Mini-roundabout	Junction 3a	Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms A and B have 90% of the total flow for the roundabout for one or more time segments]
Warning	Mini-roundabout	Junction 3b	Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms A and B have 82% of the total flow for the roundabout for one or more time segments]
Warning	Linked Roundabout	Junction 3a - Watford Road (North)	If the distance between linked junctions is small, results should be treated with caution. The linked junctions will be modelled as separate junctions, but the real behaviour may be that of a complex system with interactions that cannot be modelled.
Warning	Linked Roundabout	Junction 3b - Watford Road (South)	If the distance between linked junctions is small, results should be treated with caution. The linked junctions will be modelled as separate junctions, but the real behaviour may be that of a complex system with interactions that cannot be modelled.

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	Junction 3a	Mini-roundabout	A,B,C	14.51	B
2	Junction 3b	Mini-roundabout	A,B,C	38.04	E

Junction Network Options

Driving side	Lighting	Road surface	In London
Left	Normal/unknown	Normal/unknown	

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D3	2021 - Do Nothing	AM	DIRECT	08:00	09:00	60	15	✓

Vehicle mix varies over time	Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	✓	✓	HV Percentages	2.00	✓

Linked Arm Data

Junction	Arm	Feeding Junction	Feeding Arm	Link Type	Flow source	Uniform flow (Veh/TS)	Flow multiplier (%)	Internal storage space (PCU)
Junction 3a	Watford Road (North)	2	A	Simple (vertical queueing)	Normal	0.00	100.00	
Junction 3b	Watford Road (South)	1	A	Simple (vertical queueing)	Normal	0.00	100.00	

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
Junction 3a	Watford Road (North)	✓			
	Watford Road (South)		DIRECT	✓	100.000
	Chiswell Green Lane		DIRECT	✓	100.000
Junction 3b	Watford Road (South)	✓			
	Watford Road (North)		DIRECT	✓	100.000
	Tippendell Lane		DIRECT	✓	100.000

Origin-Destination Data

Demand (Veh/TS)

		To		
		Watford Road (North)	Watford Road (South)	Chiswell Green Lane
Junction 3a 08:00 - 08:15	From			
	Watford Road (North)	0.00	169.00	17.00
	Watford Road (South)	157.00	0.00	10.00
	Chiswell Green Lane	36.00	3.00	0.00

Demand (Veh/TS)

		To		
		Watford Road (North)	Watford Road (South)	Chiswell Green Lane
Junction 3a 08:15 - 08:30	From			
	Watford Road (North)	0.00	200.00	19.00
	Watford Road (South)	179.00	0.00	4.00
	Chiswell Green Lane	30.00	5.00	0.00

Demand (Veh/TS)

		To		
		Watford Road (North)	Watford Road (South)	Chiswell Green Lane
Junction 3a 08:30 - 08:45	From			
	Watford Road (North)	0.00	224.00	19.00
	Watford Road (South)	169.00	0.00	11.00
	Chiswell Green Lane	31.00	5.00	0.00

Demand (Veh/TS)

		To		
		Watford Road (North)	Watford Road (South)	Chiswell Green Lane
Junction 3a 08:45 - 09:00	From			
	Watford Road (North)	0.00	171.00	21.00
	Watford Road (South)	153.00	0.00	21.00
	Chiswell Green Lane	24.00	6.00	0.00

Demand (Veh/TS)

		To		
		Watford Road (South)	Watford Road (North)	Tippendell Lane
Junction 3b 08:00 - 08:15	From			
	Watford Road (South)	0.00	160.00	32.00
	Watford Road (North)	160.00	0.00	18.00
	Tippendell Lane	26.00	51.00	0.00

Demand (Veh/TS)

		To		
		Watford Road (South)	Watford Road (North)	Tippendell Lane
Junction 3b 08:15 - 08:30	From			
	Watford Road (South)	0.00	175.00	34.00
	Watford Road (North)	188.00	0.00	26.00
	Tippendell Lane	31.00	65.00	0.00

Demand (Veh/TS)

		To		
		Watford Road (South)	Watford Road (North)	Tippendell Lane
Junction 3b 08:30 - 08:45	From			
	Watford Road (South)	0.00	168.00	32.00
	Watford Road (North)	214.00	0.00	26.00
	Tippendell Lane	29.00	75.00	0.00

Demand (Veh/TS)

		To		
		Watford Road (South)	Watford Road (North)	Tippendell Lane
Junction 3b 08:45 - 09:00	From			
	Watford Road (South)	0.00	147.00	29.00
	Watford Road (North)	156.00	0.00	34.00
	Tippendell Lane	36.00	77.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

		To		
		Watford Road (North)	Watford Road (South)	Chiswell Green Lane
Junction 3a 08:00 - 08:15	From			
	Watford Road (North)	0	0	0
	Watford Road (South)	0	0	0
	Chiswell Green Lane	0	0	0

Heavy Vehicle Percentages

		To		
		Watford Road (North)	Watford Road (South)	Chiswell Green Lane
Junction 3a 08:15 - 08:30	From			
	Watford Road (North)	0	1	0
	Watford Road (South)	1	0	0
	Chiswell Green Lane	0	0	0

Heavy Vehicle Percentages

		To		
		Watford Road (North)	Watford Road (South)	Chiswell Green Lane
Junction 3a 08:30 - 08:45	From			
	Watford Road (North)	0	1	0
	Watford Road (South)	1	0	0
	Chiswell Green Lane	0	0	0

Heavy Vehicle Percentages

		To		
		Watford Road (North)	Watford Road (South)	Chiswell Green Lane
Junction 3a 08:45 - 09:00	From			
	Watford Road (North)	0	1	0
	Watford Road (South)	1	0	0
	Chiswell Green Lane	0	0	0

Heavy Vehicle Percentages

		To		
		Watford Road (South)	Watford Road (North)	Tippendell Lane
Junction 3b 08:00 - 08:15	From			
	Watford Road (South)	0	0	0
	Watford Road (North)	0	0	0
	Tippendell Lane	0	0	0

Heavy Vehicle Percentages

		To		
		Watford Road (South)	Watford Road (North)	Tippendell Lane
Junction 3b 08:15 - 08:30	From			
	Watford Road (South)	0	1	0
	Watford Road (North)	1	0	4
	Tippendell Lane	0	2	0

Heavy Vehicle Percentages

		To		
		Watford Road (South)	Watford Road (North)	Tippendell Lane
Junction 3b 08:30 - 08:45	From			
	Watford Road (South)	0	1	0
	Watford Road (North)	1	0	0
	Tippendell Lane	0	3	0

Heavy Vehicle Percentages

		To		
		Watford Road (South)	Watford Road (North)	Tippendell Lane
Junction 3b 08:45 - 09:00	From			
	Watford Road (South)	0	1	0
	Watford Road (North)	1	0	0
	Tippendell Lane	0	3	0

Results

Results Summary for whole modelled period

Junction	Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/TS)	Total Junction Arrivals (Veh)
Junction 3a	Watford Road (North)	0.80	14.72	3.8	B	208.51	834.04
	Watford Road (South)	0.75	14.66	2.9	B	176.00	704.00
	Chiswell Green Lane	0.33	12.45	0.5	B	35.00	140.00
Junction 3b	Watford Road (South)	0.55	5.29	1.2	A	194.11	776.45
	Watford Road (North)	0.94	35.64	9.5	E	205.50	822.00
	Tippendell Lane	1.06	107.72	14.2	F	97.51	390.06

Main Results for each time segment

08:00 - 08:15

Junction	Arm	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Throughput (exit side) (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
Junction 3a	Watford Road (North)	183.65	183.65	2.96	298.63	0.615	182.09	190.66	0.0	1.6	7.625	A
	Watford Road (South)	167.00	167.00	16.64	246.01	0.679	164.96	168.41	0.0	2.0	10.852	B
	Chiswell Green Lane	39.00	39.00	155.09	122.69	0.318	38.54	26.52	0.0	0.5	10.640	B
Junction 3b	Watford Road (South)	190.66	190.66	50.14	393.35	0.485	189.73	183.65	0.0	0.9	4.400	A
	Watford Road (North)	178.00	178.00	31.62	258.84	0.688	175.88	208.25	0.0	2.1	10.598	B
	Tippendell Lane	77.00	77.00	158.09	133.76	0.576	75.70	49.41	0.0	1.3	15.183	C

08:15 - 08:30

Junction	Arm	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Throughput (exit side) (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
Junction 3a	Watford Road (North)	215.75	215.75	4.97	294.77	0.732	214.69	208.09	1.6	2.6	11.090	B
	Watford Road (South)	183.00	183.00	18.63	242.58	0.754	182.14	201.03	2.0	2.9	14.656	B
	Chiswell Green Lane	35.00	35.00	178.08	107.27	0.326	34.98	22.69	0.5	0.5	12.446	B
Junction 3b	Watford Road (South)	208.11	208.11	63.03	377.72	0.551	207.83	215.88	0.9	1.2	5.289	A
	Watford Road (North)	214.00	214.00	33.81	254.28	0.842	211.44	237.05	2.1	4.7	19.881	C
	Tippendell Lane	96.00	96.00	185.79	113.94	0.843	93.12	59.46	1.3	4.2	38.839	E

08:30 - 08:45

Junction	Arm	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Throughput (exit side) (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
Junction 3a	Watford Road (North)	236.00	236.00	5.00	294.70	0.801	234.86	200.12	2.6	3.7	14.724	B
	Watford Road (South)	180.00	180.00	18.39	242.78	0.741	180.00	221.48	2.9	2.9	14.350	B
	Chiswell Green Lane	36.00	36.00	169.12	112.89	0.319	36.00	29.27	0.5	0.5	11.708	B
Junction 3b	Watford Road (South)	200.13	200.13	67.64	372.99	0.537	200.17	236.08	1.2	1.2	5.211	A
	Watford Road (North)	240.00	240.00	32.03	256.32	0.936	235.21	235.78	4.7	9.5	35.643	E
	Tippendell Lane	104.00	104.00	209.67	98.42	1.057	94.05	57.58	4.2	14.1	107.724	F

08:45 - 09:00

Junction	Arm	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Throughput (exit side) (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
Junction 3a	Watford Road (North)	198.64	198.64	6.00	294.21	0.675	200.25	177.50	3.7	2.1	9.736	A
	Watford Road (South)	174.00	174.00	21.79	241.09	0.722	174.21	184.46	2.9	2.7	13.526	B
	Chiswell Green Lane	30.00	30.00	153.35	122.81	0.244	30.14	42.64	0.5	0.3	9.728	A
Junction 3b	Watford Road (South)	177.55	177.55	80.40	361.47	0.491	177.74	198.79	1.2	1.0	4.903	A
	Watford Road (North)	190.00	190.00	29.28	257.91	0.737	196.52	228.86	9.5	3.0	16.030	C
	Tippendell Lane	113.00	113.00	162.02	127.70	0.885	117.16	63.78	14.1	10.0	90.108	F

2021 - Do Something, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Mini-roundabout	Junction 3a	Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms A and B have 82% of the total flow for the roundabout for one or more time segments]
Warning	Mini-roundabout	Junction 3b	Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms A and B have 81% of the total flow for the roundabout for one or more time segments]
Warning	Linked Roundabout	Junction 3a - Watford Road (North)	If the distance between linked junctions is small, results should be treated with caution. The linked junctions will be modelled as separate junctions, but the real behaviour may be that of a complex system with interactions that cannot be modelled.
Warning	Linked Roundabout	Junction 3b - Watford Road (South)	If the distance between linked junctions is small, results should be treated with caution. The linked junctions will be modelled as separate junctions, but the real behaviour may be that of a complex system with interactions that cannot be modelled.

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	Junction 3a	Mini-roundabout	A,B,C	27.34	D
2	Junction 3b	Mini-roundabout	A,B,C	74.88	F

Junction Network Options

Driving side	Lighting	Road surface	In London
Left	Normal/unknown	Normal/unknown	

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D5	2021 - Do Something	AM	DIRECT	08:00	09:00	60	15	✓

Vehicle mix varies over time	Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	✓	✓	HV Percentages	2.00	✓

Linked Arm Data

Junction	Arm	Feeding Junction	Feeding Arm	Link Type	Flow source	Uniform flow (Veh/TS)	Flow multiplier (%)	Internal storage space (PCU)
Junction 3a	Watford Road (North)	2	A	Simple (vertical queueing)	Normal	0.00	100.00	
Junction 3b	Watford Road (South)	1	A	Simple (vertical queueing)	Normal	0.00	100.00	

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
Junction 3a	Watford Road (North)	✓			
	Watford Road (South)		DIRECT	✓	100.000
	Chiswell Green Lane		DIRECT	✓	100.000
Junction 3b	Watford Road (South)	✓			
	Watford Road (North)		DIRECT	✓	100.000
	Tippendell Lane		DIRECT	✓	100.000

Origin-Destination Data

Demand (Veh/TS)

Junction 3a 08:00 - 08:15

		To		
		Watford Road (North)	Watford Road (South)	Chiswell Green Lane
From		0.00	171.00	41.00
	Watford Road (North)	0.00	171.00	41.00
	Watford Road (South)	162.00	0.00	29.00
	Chiswell Green Lane	61.00	22.00	0.00

Demand (Veh/TS)

Junction 3a 08:15 - 08:30

		To		
		Watford Road (North)	Watford Road (South)	Chiswell Green Lane
From		0.00	202.00	43.00
	Watford Road (North)	0.00	202.00	43.00
	Watford Road (South)	184.00	0.00	23.00
	Chiswell Green Lane	55.00	24.00	0.00

Demand (Veh/TS)

Junction 3a 08:30 - 08:45

		To		
		Watford Road (North)	Watford Road (South)	Chiswell Green Lane
From		0.00	226.00	43.00
	Watford Road (North)	0.00	226.00	43.00
	Watford Road (South)	174.00	0.00	30.00
	Chiswell Green Lane	56.00	24.00	0.00

Demand (Veh/TS)

Junction 3a 08:45 - 09:00

		To		
		Watford Road (North)	Watford Road (South)	Chiswell Green Lane
From		0.00	173.00	45.00
	Watford Road (North)	0.00	173.00	45.00
	Watford Road (South)	158.00	0.00	40.00
	Chiswell Green Lane	49.00	25.00	0.00

Demand (Veh/TS)

Junction 3b 08:00 - 08:15

		To		
		Watford Road (South)	Watford Road (North)	Tippendell Lane
From		0.00	168.00	48.00
	Watford Road (South)	0.00	168.00	48.00
	Watford Road (North)	164.00	0.00	18.00
	Tippendell Lane	40.00	51.00	0.00

Demand (Veh/TS)

Junction 3b 08:15 - 08:30

		To		
		Watford Road (South)	Watford Road (North)	Tippendell Lane
From		0.00	183.00	50.00
	Watford Road (South)	0.00	183.00	50.00
	Watford Road (North)	192.00	0.00	26.00
	Tippendell Lane	45.00	65.00	0.00

Demand (Veh/TS)

Junction 3b 08:30 - 08:45

		To		
		Watford Road (South)	Watford Road (North)	Tippendell Lane
From		0.00	176.00	48.00
	Watford Road (South)	0.00	176.00	48.00
	Watford Road (North)	218.00	0.00	26.00
	Tippendell Lane	43.00	75.00	0.00

Demand (Veh/TS)

Junction 3b 08:45 - 09:00

		To		
		Watford Road (South)	Watford Road (North)	Tippendell Lane
From		0.00	155.00	45.00
	Watford Road (South)	0.00	155.00	45.00
	Watford Road (North)	160.00	0.00	34.00
	Tippendell Lane	50.00	77.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

		To		
		Watford Road (North)	Watford Road (South)	Chiswell Green Lane
Junction 3a 08:00 - 08:15	From			
	Watford Road (North)	0	0	0
	Watford Road (South)	0	0	0
	Chiswell Green Lane	0	0	0

Heavy Vehicle Percentages

		To		
		Watford Road (North)	Watford Road (South)	Chiswell Green Lane
Junction 3a 08:15 - 08:30	From			
	Watford Road (North)	0	1	0
	Watford Road (South)	1	0	0
	Chiswell Green Lane	0	0	0

Heavy Vehicle Percentages

		To		
		Watford Road (North)	Watford Road (South)	Chiswell Green Lane
Junction 3a 08:30 - 08:45	From			
	Watford Road (North)	0	1	0
	Watford Road (South)	1	0	0
	Chiswell Green Lane	0	0	0

Heavy Vehicle Percentages

		To		
		Watford Road (North)	Watford Road (South)	Chiswell Green Lane
Junction 3a 08:45 - 09:00	From			
	Watford Road (North)	0	1	0
	Watford Road (South)	1	0	0
	Chiswell Green Lane	0	0	0

Heavy Vehicle Percentages

		To		
		Watford Road (South)	Watford Road (North)	Tippendell Lane
Junction 3b 08:00 - 08:15	From			
	Watford Road (South)	0	0	0
	Watford Road (North)	0	0	0
	Tippendell Lane	0	0	0

Heavy Vehicle Percentages

		To		
		Watford Road (South)	Watford Road (North)	Tippendell Lane
Junction 3b 08:15 - 08:30	From			
	Watford Road (South)	0	1	0
	Watford Road (North)	1	0	4
	Tippendell Lane	0	2	0

Heavy Vehicle Percentages

		To		
		Watford Road (South)	Watford Road (North)	Tippendell Lane
Junction 3b 08:30 - 08:45	From			
	Watford Road (South)	0	1	0
	Watford Road (North)	1	0	0
	Tippendell Lane	0	3	0

Heavy Vehicle Percentages

		To		
		Watford Road (South)	Watford Road (North)	Tippendell Lane
Junction 3b 08:45 - 09:00	From			
	Watford Road (South)	0	1	0
	Watford Road (North)	1	0	0
	Tippendell Lane	0	3	0

Results

Results Summary for whole modelled period

Junction	Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/TS)	Total Junction Arrivals (Veh)
Junction 3a	Watford Road (North)	0.87	21.80	5.7	C	223.73	894.93
	Watford Road (South)	0.90	31.52	6.9	D	200.00	800.01
	Chiswell Green Lane	0.75	32.49	2.7	D	79.00	316.00
Junction 3b	Watford Road (South)	0.62	6.22	1.6	A	223.07	892.30
	Watford Road (North)	0.99	51.74	14.8	F	209.50	838.00
	Tippendell Lane	1.20	254.54	35.4	F	111.55	446.19

Main Results for each time segment

08:00 - 08:15

Junction	Arm	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Throughput (exit side) (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
Junction 3a	Watford Road (North)	200.80	200.80	21.46	287.64	0.698	198.57	218.13	0.0	2.2	9.873	A
	Watford Road (South)	191.00	191.00	38.40	234.17	0.816	187.03	181.62	0.0	4.0	17.838	C
	Chiswell Green Lane	83.00	83.00	158.63	120.48	0.689	80.95	66.80	0.0	2.0	21.784	C
Junction 3b	Watford Road (South)	218.13	218.13	49.83	393.62	0.554	216.90	200.80	0.0	1.2	5.059	A
	Watford Road (North)	182.00	182.00	48.20	250.31	0.727	179.47	218.53	0.0	2.5	12.304	B
	Tippendell Lane	91.00	91.00	161.72	131.52	0.692	88.91	65.95	0.0	2.1	20.252	C

08:15 - 08:30

Junction	Arm	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Throughput (exit side) (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
Junction 3a	Watford Road (North)	230.86	230.86	23.72	283.98	0.813	229.09	236.00	2.2	4.0	15.877	C
	Watford Road (South)	207.00	207.00	40.25	231.16	0.896	204.23	212.56	4.0	6.7	30.243	D
	Chiswell Green Lane	79.00	79.00	181.38	105.20	0.751	78.34	63.10	2.0	2.7	32.492	D
Junction 3b	Watford Road (South)	235.93	235.93	60.73	379.98	0.621	235.54	230.89	1.2	1.6	6.216	A
	Watford Road (North)	218.00	218.00	50.55	245.80	0.887	214.25	245.72	2.5	6.3	25.829	D
	Tippendell Lane	110.00	110.00	188.74	112.32	0.980	102.88	76.06	2.1	9.2	68.768	F

08:30 - 08:45

Junction	Arm	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Throughput (exit side) (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
Junction 3a	Watford Road (North)	246.21	246.21	24.01	283.74	0.868	244.49	230.12	4.0	5.7	21.797	C
	Watford Road (South)	204.00	204.00	39.14	231.79	0.880	203.87	229.36	6.7	6.9	31.518	D
	Chiswell Green Lane	80.00	80.00	174.13	109.74	0.729	80.00	68.88	2.7	2.7	30.295	D
Junction 3b	Watford Road (South)	230.05	230.05	61.33	378.91	0.607	230.10	246.17	1.6	1.6	6.052	A
	Watford Road (North)	244.00	244.00	49.31	247.50	0.986	235.55	242.13	6.3	14.7	51.743	F
	Tippendell Lane	118.00	118.00	210.37	98.27	1.202	97.14	74.49	9.2	30.1	195.904	F

08:45 - 09:00

Junction	Arm	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Throughput (exit side) (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
Junction 3a	Watford Road (North)	217.06	217.06	25.24	283.14	0.767	219.30	208.22	5.7	3.5	14.561	B
	Watford Road (South)	198.00	198.00	45.00	228.76	0.866	198.09	199.53	6.9	6.8	29.822	D
	Chiswell Green Lane	74.00	74.00	158.45	119.61	0.619	75.00	84.64	2.7	1.7	20.609	C
Junction 3b	Watford Road (South)	208.19	208.19	74.74	366.79	0.568	208.42	217.09	1.6	1.3	5.691	A
	Watford Road (North)	194.00	194.00	46.88	248.92	0.779	204.90	236.29	14.7	3.8	24.377	C
	Tippendell Lane	127.00	127.00	170.00	123.07	1.032	121.82	81.78	30.1	35.2	254.545	F

Junctions 9
ARCADY 9 - Roundabout Module
Version: 9.0.1.4646 [] © Copyright TRL Limited, 2016
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Filename: Junction 3 - PM - 16.02.04.j9
Path: M:\2015\8151408\6)_Transport\5)_Traffic Analysis\Junction Capacity Models
Report generation date: 09/02/2016 10:32:25

- »2016 - Surveyed, PM
- »2021 - Do Nothing, PM
- »2021 - Do Something, PM

Summary of junction performance

	PM			
	Queue (Veh)	Delay (s)	RFC	LOS
2016 - Surveyed				
Junction 3a - Watford Road (North)	1.6	8.75	0.61	A
Junction 3a - Watford Road (South)	3.5	16.76	0.79	C
Junction 3a - Chiswell Green Lane	0.4	10.81	0.28	B
Junction 3b - Watford Road (South)	0.9	4.26	0.48	A
Junction 3b - Watford Road (North)	6.0	27.67	0.87	D
Junction 3b - Tippendell Lane	5.1	76.32	0.88	F
2021 - Do Nothing				
Junction 3a - Watford Road (North)	1.9	9.58	0.66	A
Junction 3a - Watford Road (South)	5.4	23.98	0.86	C
Junction 3a - Chiswell Green Lane	0.5	12.53	0.33	B
Junction 3b - Watford Road (South)	1.1	4.66	0.53	A
Junction 3b - Watford Road (North)	12.1	51.10	0.95	F
Junction 3b - Tippendell Lane	14.4	212.08	1.04	F
2021 - Do Something				
Junction 3a - Watford Road (North)	2.3	10.79	0.70	B
Junction 3a - Watford Road (South)	9.7	40.47	0.94	E
Junction 3a - Chiswell Green Lane	0.9	16.61	0.49	C
Junction 3b - Watford Road (South)	1.2	4.85	0.55	A
Junction 3b - Watford Road (North)	20.0	77.76	1.00	F
Junction 3b - Tippendell Lane	40.4	556.05	1.22	F

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

File summary

File Description

Title	(untitled)
Location	
Site number	
Date	26/01/2016
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	UKJBlenkinsop
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	mph	Veh	Veh	perTimeSegment	s	-Min	perMin

Analysis Options

Mini-roundabout model	Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
JUNCTIONS 9	5.75				0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D2	2016 - Surveyed	PM	DIRECT	17:00	18:00	60	15	✓
D4	2021 - Do Nothing	PM	DIRECT	17:00	18:00	60	15	✓
D6	2021 - Do Something	PM	DIRECT	17:00	18:00	60	15	✓

Analysis Set Details

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

2016 - Surveyed, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Mini-roundabout	Junction 3a	Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms A and B have 93% of the total flow for the roundabout for one or more time segments]
Warning	Mini-roundabout	Junction 3b	Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms A and B have 85% of the total flow for the roundabout for one or more time segments]
Warning	Linked Roundabout	Junction 3a - Watford Road (North)	If the distance between linked junctions is small, results should be treated with caution. The linked junctions will be modelled as separate junctions, but the real behaviour may be that of a complex system with interactions that cannot be modelled.
Warning	Linked Roundabout	Junction 3b - Watford Road (South)	If the distance between linked junctions is small, results should be treated with caution. The linked junctions will be modelled as separate junctions, but the real behaviour may be that of a complex system with interactions that cannot be modelled.

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	Junction 3a	Mini-roundabout	A,B,C	12.71	B
2	Junction 3b	Mini-roundabout	A,B,C	24.58	C

Junction Network Options

Driving side	Lighting	Road surface	In London
Left	Normal/unknown	Normal/unknown	

Arms

Arms

Junction	Arm	Name	Description
Junction 3a	A	Watford Road (North)	
	B	Watford Road (South)	
	C	Chiswell Green Lane	
Junction 3b	A	Watford Road (South)	
	B	Watford Road (North)	
	C	Tippendell Lane	

Mini Roundabout Geometry

Junction	Arm	Approach road half-width (m)	Minimum approach road half-width (m)	Entry width (m)	Effective flare length (m)	Distance to next arm (m)	Entry corner kerb line distance (m)	Gradient over 50m (%)	Kerbed central island
Junction 3a	Watford Road (North)	5.20	5.20	5.60	2.0	15.70	14.80	0.0	✓
	Watford Road (South)	4.40	4.40	5.80	1.2	11.90	8.00	0.0	✓
	Chiswell Green Lane	3.50	3.50	4.50	1.8	14.00	6.80	0.0	
Junction 3b	Watford Road (South)	5.20	5.20	6.50	7.4	18.80	19.90	0.0	✓
	Watford Road (North)	3.80	3.80	4.60	0.4	12.80	8.20	0.0	✓
	Tippendell Lane	3.40	3.40	5.10	1.4	15.20	9.00	0.0	

Slope / Intercept / Capacity

Arm Intercept Adjustments

Junction	Arm	Type	Reason	Percentage intercept adjustment (%)
Junction 3a	Watford Road (North)	None		
	Watford Road (South)	None		
	Chiswell Green Lane	None		
Junction 3b	Watford Road (South)	None		
	Watford Road (North)	Percentage		114.00
	Tippendell Lane	Percentage		86.00

Roundabout Slope and Intercept used in model

Junction	Arm	Final slope	Final intercept (PCU/TS)
Junction 3a	Watford Road (North)	0.594	300.394
	Watford Road (South)	0.544	255.059
	Chiswell Green Lane	0.623	219.322
Junction 3b	Watford Road (South)	0.883	437.644
	Watford Road (North)	0.514	250.892
	Tippendell Lane	0.620	170.312

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	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D2	2016 - Surveyed	PM	DIRECT	17:00	18:00	60	15	✓

Vehicle mix varies over time	Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	✓	✓	HV Percentages	2.00	✓

Linked Arm Data

Junction	Arm	Feeding Junction	Feeding Arm	Link Type	Flow source	Uniform flow (Veh/TS)	Flow multiplier (%)	Internal storage space (PCU)
Junction 3a	Watford Road (North)	2	A	Simple (vertical queueing)	Normal	0.00	100.00	
Junction 3b	Watford Road (South)	1	A	Simple (vertical queueing)	Normal	0.00	100.00	

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
Junction 3a	Watford Road (North)	✓			
	Watford Road (South)		DIRECT	✓	100.000
	Chiswell Green Lane		DIRECT	✓	100.000
Junction 3b	Watford Road (South)	✓			
	Watford Road (North)		DIRECT	✓	100.000
	Tippendell Lane		DIRECT	✓	100.000

Origin-Destination Data

Demand (Veh/TS)

Junction 3a 17:00 - 17:15

		To		
		Watford Road (North)	Watford Road (South)	Chiswell Green Lane
From	Watford Road (North)	0.00	150.00	25.00
	Watford Road (South)	174.00	0.00	12.00
	Chiswell Green Lane	16.00	12.00	0.00

Demand (Veh/TS)

Junction 3a 17:15 - 17:30

		To		
		Watford Road (North)	Watford Road (South)	Chiswell Green Lane
From		0.00	152.00	21.00
	Watford Road (North)	0.00	152.00	21.00
	Watford Road (South)	156.00	0.00	15.00
	Chiswell Green Lane	17.00	10.00	0.00

Demand (Veh/TS)

Junction 3a 17:30 - 17:45

		To		
		Watford Road (North)	Watford Road (South)	Chiswell Green Lane
From		0.00	158.00	19.00
	Watford Road (North)	0.00	158.00	19.00
	Watford Road (South)	184.00	0.00	9.00
	Chiswell Green Lane	14.00	8.00	0.00

Demand (Veh/TS)

Junction 3a 17:45 - 18:00

		To		
		Watford Road (North)	Watford Road (South)	Chiswell Green Lane
From		0.00	136.00	18.00
	Watford Road (North)	0.00	136.00	18.00
	Watford Road (South)	159.00	0.00	12.00
	Chiswell Green Lane	21.00	12.00	0.00

Demand (Veh/TS)

Junction 3b 17:00 - 17:15

		To		
		Watford Road (South)	Watford Road (North)	Tippendell Lane
From		0.00	164.00	26.00
	Watford Road (South)	0.00	164.00	26.00
	Watford Road (North)	151.00	0.00	53.00
	Tippendell Lane	24.00	39.00	0.00

Demand (Veh/TS)

Junction 3b 17:15 - 17:30

		To		
		Watford Road (South)	Watford Road (North)	Tippendell Lane
From		0.00	153.00	20.00
	Watford Road (South)	0.00	153.00	20.00
	Watford Road (North)	149.00	0.00	58.00
	Tippendell Lane	24.00	42.00	0.00

Demand (Veh/TS)

Junction 3b 17:30 - 17:45

		To		
		Watford Road (South)	Watford Road (North)	Tippendell Lane
From		0.00	176.00	22.00
	Watford Road (South)	0.00	176.00	22.00
	Watford Road (North)	153.00	0.00	40.00
	Tippendell Lane	24.00	32.00	0.00

Demand (Veh/TS)

Junction 3b 17:45 - 18:00

		To		
		Watford Road (South)	Watford Road (North)	Tippendell Lane
From		0.00	156.00	24.00
	Watford Road (South)	0.00	156.00	24.00
	Watford Road (North)	133.00	0.00	43.00
	Tippendell Lane	21.00	30.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

Junction 3a 17:00 - 17:15

		To		
		Watford Road (North)	Watford Road (South)	Chiswell Green Lane
From		0	21	0
	Watford Road (North)	0	21	0
	Watford Road (South)	0	0	0
	Chiswell Green Lane	0	0	0

Heavy Vehicle Percentages

		To			
		Watford Road (North)	Watford Road (South)	Chiswell Green Lane	
Junction 3a 17:15 - 17:30	From	Watford Road (North)	0	1	0
		Watford Road (South)	1	0	0
		Chiswell Green Lane	0	0	0

Heavy Vehicle Percentages

		To			
		Watford Road (North)	Watford Road (South)	Chiswell Green Lane	
Junction 3a 17:30 - 17:45	From	Watford Road (North)	0	1	0
		Watford Road (South)	0	0	0
		Chiswell Green Lane	0	0	0

Heavy Vehicle Percentages

		To			
		Watford Road (North)	Watford Road (South)	Chiswell Green Lane	
Junction 3a 17:45 - 18:00	From	Watford Road (North)	0	1	0
		Watford Road (South)	0	0	0
		Chiswell Green Lane	0	0	0

Heavy Vehicle Percentages

		To			
		Watford Road (South)	Watford Road (North)	Tippendell Lane	
Junction 3b 17:00 - 17:15	From	Watford Road (South)	0	0	0
		Watford Road (North)	1	0	0
		Tippendell Lane	20	3	0

Heavy Vehicle Percentages

		To			
		Watford Road (South)	Watford Road (North)	Tippendell Lane	
Junction 3b 17:15 - 17:30	From	Watford Road (South)	0	1	0
		Watford Road (North)	1	0	2
		Tippendell Lane	0	2	0

Heavy Vehicle Percentages

		To			
		Watford Road (South)	Watford Road (North)	Tippendell Lane	
Junction 3b 17:30 - 17:45	From	Watford Road (South)	0	0	0
		Watford Road (North)	1	0	0
		Tippendell Lane	0	0	0

Heavy Vehicle Percentages

		To			
		Watford Road (South)	Watford Road (North)	Tippendell Lane	
Junction 3b 17:45 - 18:00	From	Watford Road (South)	0	0	0
		Watford Road (North)	1	0	2
		Tippendell Lane	0	3	0

Results

Results Summary for whole modelled period

Junction	Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/TS)	Total Junction Arrivals (Veh)
Junction 3a	Watford Road (North)	0.61	8.75	1.6	A	163.82	655.29
	Watford Road (South)	0.79	16.76	3.5	C	180.25	721.00
	Chiswell Green Lane	0.28	10.81	0.4	B	27.50	110.00
Junction 3b	Watford Road (South)	0.48	4.26	0.9	A	184.64	738.55
	Watford Road (North)	0.87	27.67	6.0	D	195.00	780.02
	Tippendell Lane	0.88	76.32	5.1	F	58.99	235.97

Main Results for each time segment

17:00 - 17:15

Junction	Arm	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Throughput (exit side) (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
Junction 3a	Watford Road (North)	148.54	148.54	11.86	248.60	0.598	147.09	186.99	0.0	1.4	8.748	A
	Watford Road (South)	186.00	186.00	21.01	243.63	0.763	182.98	137.94	0.0	3.0	14.213	B
	Chiswell Green Lane	28.00	28.00	171.18	112.66	0.249	27.67	32.82	0.0	0.3	10.550	B
Junction 3b	Watford Road (South)	186.99	186.99	36.22	404.69	0.462	186.14	169.35	0.0	0.9	4.103	A
	Watford Road (North)	204.00	204.00	25.47	236.04	0.864	198.68	196.88	0.0	5.3	21.719	C
	Tippendell Lane	63.00	63.00	147.06	71.52	0.881	58.50	77.09	0.0	4.5	57.492	F

17:15 - 17:30

Junction	Arm	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Throughput (exit side) (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
Junction 3a	Watford Road (North)	172.77	172.77	10.03	291.37	0.592	172.72	173.52	1.4	1.5	7.587	A
	Watford Road (South)	171.00	171.00	21.00	241.47	0.708	171.49	161.75	3.0	2.5	12.968	B
	Chiswell Green Lane	27.00	27.00	156.52	120.84	0.223	27.03	35.98	0.3	0.3	9.599	A
Junction 3b	Watford Road (South)	173.53	173.53	41.49	396.74	0.437	173.59	172.45	0.9	0.8	4.034	A
	Watford Road (North)	207.00	207.00	20.09	237.56	0.872	206.33	195.00	5.3	6.0	27.671	D
	Tippendell Lane	66.00	66.00	148.62	75.91	0.864	65.32	77.79	4.5	5.2	76.324	F

17:30 - 17:45

Junction	Arm	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Throughput (exit side) (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
Junction 3a	Watford Road (North)	177.88	177.88	8.01	293.02	0.607	177.81	197.00	1.5	1.5	7.799	A
	Watford Road (South)	193.00	193.00	19.11	244.64	0.789	192.05	166.72	2.5	3.5	16.760	C
	Chiswell Green Lane	22.00	22.00	182.99	105.29	0.209	22.02	28.17	0.3	0.3	10.814	B
Junction 3b	Watford Road (South)	197.03	197.03	33.25	408.20	0.483	196.88	177.93	0.8	0.9	4.256	A
	Watford Road (North)	193.00	193.00	21.88	237.73	0.812	194.30	208.25	6.0	4.7	21.403	C
	Tippendell Lane	56.00	56.00	153.59	74.13	0.755	57.59	62.59	5.2	3.6	58.377	F

17:45 - 18:00

Junction	Arm	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Throughput (exit side) (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
Junction 3a	Watford Road (North)	156.20	156.20	11.96	290.72	0.537	156.54	181.01	1.5	1.2	6.724	A
	Watford Road (South)	171.00	171.00	18.28	245.12	0.698	172.07	150.22	3.5	2.4	12.505	B
	Chiswell Green Lane	33.00	33.00	160.08	119.58	0.276	32.89	30.28	0.3	0.4	10.370	B
Junction 3b	Watford Road (South)	181.01	181.01	31.10	409.40	0.442	181.14	156.23	0.9	0.8	3.946	A
	Watford Road (North)	176.00	176.00	24.13	235.58	0.747	177.58	188.10	4.7	3.1	15.925	C
	Tippendell Lane	51.00	51.00	134.36	84.85	0.602	52.97	67.34	3.6	1.6	29.712	D

2021 - Do Nothing, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Mini-roundabout	Junction 3a	Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms A and B have 93% of the total flow for the roundabout for one or more time segments]
Warning	Mini-roundabout	Junction 3b	Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms A and B have 85% of the total flow for the roundabout for one or more time segments]
Warning	Linked Roundabout	Junction 3a - Watford Road (North)	If the distance between linked junctions is small, results should be treated with caution. The linked junctions will be modelled as separate junctions, but the real behaviour may be that of a complex system with interactions that cannot be modelled.
Warning	Linked Roundabout	Junction 3b - Watford Road (South)	If the distance between linked junctions is small, results should be treated with caution. The linked junctions will be modelled as separate junctions, but the real behaviour may be that of a complex system with interactions that cannot be modelled.

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	Junction 3a	Mini-roundabout	A,B,C	16.65	C
2	Junction 3b	Mini-roundabout	A,B,C	53.94	F

Junction Network Options

Driving side	Lighting	Road surface	In London
Left	Normal/unknown	Normal/unknown	

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D4	2021 - Do Nothing	PM	DIRECT	17:00	18:00	60	15	✓

Vehicle mix varies over time	Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	✓	✓	HV Percentages	2.00	✓

Linked Arm Data

Junction	Arm	Feeding Junction	Feeding Arm	Link Type	Flow source	Uniform flow (Veh/TS)	Flow multiplier (%)	Internal storage space (PCU)
Junction 3a	Watford Road (North)	2	A	Simple (vertical queueing)	Normal	0.00	100.00	
Junction 3b	Watford Road (South)	1	A	Simple (vertical queueing)	Normal	0.00	100.00	

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
Junction 3a	Watford Road (North)	✓			
	Watford Road (South)		DIRECT	✓	100.000
	Chiswell Green Lane		DIRECT	✓	100.000
Junction 3b	Watford Road (South)	✓			
	Watford Road (North)		DIRECT	✓	100.000
	Tippendell Lane		DIRECT	✓	100.000

Origin-Destination Data

Demand (Veh/TS)

		To		
		Watford Road (North)	Watford Road (South)	Chiswell Green Lane
Junction 3a 17:00 - 17:15	From			
	Watford Road (North)	0.00	163.00	27.00
	Watford Road (South)	189.00	0.00	13.00
	Chiswell Green Lane	17.00	13.00	0.00

Demand (Veh/TS)

		To		
		Watford Road (North)	Watford Road (South)	Chiswell Green Lane
Junction 3a 17:15 - 17:30	From			
	Watford Road (North)	0.00	165.00	23.00
	Watford Road (South)	169.00	0.00	16.00
	Chiswell Green Lane	18.00	11.00	0.00

Demand (Veh/TS)

		To		
		Watford Road (North)	Watford Road (South)	Chiswell Green Lane
Junction 3a 17:30 - 17:45	From			
	Watford Road (North)	0.00	172.00	21.00
	Watford Road (South)	200.00	0.00	10.00
	Chiswell Green Lane	15.00	9.00	0.00

Demand (Veh/TS)

		To		
		Watford Road (North)	Watford Road (South)	Chiswell Green Lane
Junction 3a 17:45 - 18:00	From			
	Watford Road (North)	0.00	148.00	20.00
	Watford Road (South)	173.00	0.00	13.00
	Chiswell Green Lane	23.00	13.00	0.00

Demand (Veh/TS)

		To		
		Watford Road (South)	Watford Road (North)	Tippendell Lane
Junction 3b 17:00 - 17:15	From			
	Watford Road (South)	0.00	178.00	28.00
	Watford Road (North)	164.00	0.00	58.00
	Tippendell Lane	26.00	42.00	0.00

Demand (Veh/TS)

		To		
		Watford Road (South)	Watford Road (North)	Tippendell Lane
Junction 3b 17:15 - 17:30	From			
	Watford Road (South)	0.00	166.00	22.00
	Watford Road (North)	162.00	0.00	63.00
	Tippendell Lane	26.00	46.00	0.00

Demand (Veh/TS)

		To		
		Watford Road (South)	Watford Road (North)	Tippendell Lane
Junction 3b 17:30 - 17:45	From			
	Watford Road (South)	0.00	191.00	24.00
	Watford Road (North)	166.00	0.00	43.00
	Tippendell Lane	26.00	35.00	0.00

Demand (Veh/TS)

		To		
		Watford Road (South)	Watford Road (North)	Tippendell Lane
Junction 3b 17:45 - 18:00	From			
	Watford Road (South)	0.00	169.00	26.00
	Watford Road (North)	144.00	0.00	47.00
	Tippendell Lane	23.00	33.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

		To			
		Watford Road (North)	Watford Road (South)	Chiswell Green Lane	
Junction 3a 17:00 - 17:15	From	Watford Road (North)	0	21	0
		Watford Road (South)	0	0	0
		Chiswell Green Lane	0	0	0

Heavy Vehicle Percentages

		To			
		Watford Road (North)	Watford Road (South)	Chiswell Green Lane	
Junction 3a 17:15 - 17:30	From	Watford Road (North)	0	1	0
		Watford Road (South)	1	0	0
		Chiswell Green Lane	0	0	0

Heavy Vehicle Percentages

		To			
		Watford Road (North)	Watford Road (South)	Chiswell Green Lane	
Junction 3a 17:30 - 17:45	From	Watford Road (North)	0	1	0
		Watford Road (South)	0	0	0
		Chiswell Green Lane	0	0	0

Heavy Vehicle Percentages

		To			
		Watford Road (North)	Watford Road (South)	Chiswell Green Lane	
Junction 3a 17:45 - 18:00	From	Watford Road (North)	0	1	0
		Watford Road (South)	0	0	0
		Chiswell Green Lane	0	0	0

Heavy Vehicle Percentages

		To			
		Watford Road (South)	Watford Road (North)	Tippendell Lane	
Junction 3b 17:00 - 17:15	From	Watford Road (South)	0	0	0
		Watford Road (North)	1	0	0
		Tippendell Lane	20	3	0

Heavy Vehicle Percentages

		To			
		Watford Road (South)	Watford Road (North)	Tippendell Lane	
Junction 3b 17:15 - 17:30	From	Watford Road (South)	0	1	0
		Watford Road (North)	1	0	2
		Tippendell Lane	0	2	0

Heavy Vehicle Percentages

		To			
		Watford Road (South)	Watford Road (North)	Tippendell Lane	
Junction 3b 17:30 - 17:45	From	Watford Road (South)	0	0	0
		Watford Road (North)	1	0	0
		Tippendell Lane	0	0	0

Heavy Vehicle Percentages

		To			
		Watford Road (South)	Watford Road (North)	Tippendell Lane	
Junction 3b 17:45 - 18:00	From	Watford Road (South)	0	0	0
		Watford Road (North)	1	0	2
		Tippendell Lane	0	3	0

Results

Results Summary for whole modelled period

Junction	Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/TS)	Total Junction Arrivals (Veh)
Junction 3a	Watford Road (North)	0.66	9.58	1.9	A	177.54	710.15
	Watford Road (South)	0.86	23.98	5.4	C	195.75	782.99
	Chiswell Green Lane	0.33	12.53	0.5	B	29.75	119.00
Junction 3b	Watford Road (South)	0.53	4.66	1.1	A	200.13	800.54
	Watford Road (North)	0.95	51.10	12.1	F	211.76	847.04
	Tippendell Lane	1.04	212.08	14.4	F	64.24	256.95

Main Results for each time segment

17:00 - 17:15

Junction	Arm	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Throughput (exit side) (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
Junction 3a	Watford Road (North)	157.38	157.38	12.83	248.08	0.634	155.70	201.70	0.0	1.7	9.578	A
	Watford Road (South)	202.00	202.00	22.13	243.03	0.831	197.64	146.40	0.0	4.4	18.384	C
	Chiswell Green Lane	30.00	30.00	184.93	104.10	0.288	29.60	34.85	0.0	0.4	12.019	B
Junction 3b	Watford Road (South)	201.70	201.70	36.52	404.41	0.499	200.71	179.65	0.0	1.0	4.397	A
	Watford Road (North)	222.00	222.00	27.28	235.12	0.944	212.57	209.96	0.0	9.4	32.203	D
	Tippendell Lane	68.00	68.00	157.04	65.80	1.033	59.13	82.82	0.0	8.9	93.784	F

17:15 - 17:30

Junction	Arm	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Throughput (exit side) (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
Junction 3a	Watford Road (North)	185.02	185.02	11.04	290.74	0.635	184.93	187.85	1.7	1.7	8.504	A
	Watford Road (South)	185.00	185.00	22.66	240.58	0.769	185.82	173.30	4.4	3.5	16.725	C
	Chiswell Green Lane	29.00	29.00	169.85	112.46	0.258	29.04	38.64	0.4	0.4	10.795	B
Junction 3b	Watford Road (South)	187.85	187.85	42.09	396.19	0.474	187.93	184.36	1.0	0.9	4.323	A
	Watford Road (North)	225.00	225.00	22.01	236.60	0.951	222.37	208.01	9.4	12.1	51.100	F
	Tippendell Lane	72.00	72.00	160.28	68.38	1.041	66.16	84.10	8.9	14.7	186.774	F

17:30 - 17:45

Junction	Arm	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Throughput (exit side) (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
Junction 3a	Watford Road (North)	192.57	192.57	9.01	292.44	0.659	192.41	213.11	1.7	1.9	8.978	A
	Watford Road (South)	210.00	210.00	20.96	243.62	0.862	208.15	180.46	3.5	5.4	23.976	C
	Chiswell Green Lane	24.00	24.00	198.10	95.86	0.250	24.01	31.01	0.4	0.3	12.531	B
Junction 3b	Watford Road (South)	213.14	213.14	35.97	405.70	0.525	212.96	192.61	0.9	1.1	4.664	A
	Watford Road (North)	209.00	209.00	23.78	236.74	0.883	212.11	225.15	12.1	9.0	39.853	E
	Tippendell Lane	61.00	61.00	167.56	65.28	0.932	61.02	68.33	14.7	14.7	212.083	F

17:45 - 18:00

Junction	Arm	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Throughput (exit side) (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
Junction 3a	Watford Road (North)	175.28	175.28	12.96	290.14	0.604	175.61	197.84	1.9	1.6	7.884	A
	Watford Road (South)	186.00	186.00	20.89	243.70	0.763	187.95	167.68	5.4	3.4	16.674	C
	Chiswell Green Lane	36.00	36.00	174.93	110.32	0.326	35.86	33.90	0.3	0.5	12.063	B
Junction 3b	Watford Road (South)	197.84	197.84	39.45	401.97	0.492	197.96	175.35	1.1	1.0	4.413	A
	Watford Road (North)	191.00	191.00	26.37	234.46	0.815	195.12	211.04	9.0	4.8	24.714	C
	Tippendell Lane	56.00	56.00	147.47	76.98	0.730	67.34	74.03	14.7	3.3	108.984	F

2021 - Do Something, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Mini-roundabout	Junction 3a	Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms A and B have 90% of the total flow for the roundabout for one or more time segments]
Warning	Mini-roundabout	Junction 3b	Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms A and B have 84% of the total flow for the roundabout for one or more time segments]
Warning	Linked Roundabout	Junction 3a - Watford Road (North)	If the distance between linked junctions is small, results should be treated with caution. The linked junctions will be modelled as separate junctions, but the real behaviour may be that of a complex system with interactions that cannot be modelled.
Warning	Linked Roundabout	Junction 3b - Watford Road (South)	If the distance between linked junctions is small, results should be treated with caution. The linked junctions will be modelled as separate junctions, but the real behaviour may be that of a complex system with interactions that cannot be modelled.

Junction Network

Junctions

Junction	Name	Junction Type	Arm order	Junction Delay (s)	Junction LOS
1	Junction 3a	Mini-roundabout	A,B,C	25.08	D
2	Junction 3b	Mini-roundabout	A,B,C	117.66	F

Junction Network Options

Driving side	Lighting	Road surface	In London
Left	Normal/unknown	Normal/unknown	

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D6	2021 - Do Something	PM	DIRECT	17:00	18:00	60	15	✓

Vehicle mix varies over time	Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	✓	✓	HV Percentages	2.00	✓

Linked Arm Data

Junction	Arm	Feeding Junction	Feeding Arm	Link Type	Flow source	Uniform flow (Veh/TS)	Flow multiplier (%)	Internal storage space (PCU)
Junction 3a	Watford Road (North)	2	A	Simple (vertical queueing)	Normal	0.00	100.00	
Junction 3b	Watford Road (South)	1	A	Simple (vertical queueing)	Normal	0.00	100.00	

Demand overview (Traffic)

Junction	Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
Junction 3a	Watford Road (North)	✓			
	Watford Road (South)		DIRECT	✓	100.000
	Chiswell Green Lane		DIRECT	✓	100.000
Junction 3b	Watford Road (South)	✓			
	Watford Road (North)		DIRECT	✓	100.000
	Tippendell Lane		DIRECT	✓	100.000

Origin-Destination Data

Demand (Veh/TS)

		To		
		Watford Road (North)	Watford Road (South)	Chiswell Green Lane
Junction 3a 17:00 - 17:15	From			
	Watford Road (North)	0.00	168.00	39.00
	Watford Road (South)	192.00	0.00	23.00
	Chiswell Green Lane	26.00	21.00	0.00

Demand (Veh/TS)

		To		
		Watford Road (North)	Watford Road (South)	Chiswell Green Lane
Junction 3a 17:15 - 17:30	From			
	Watford Road (North)	0.00	170.00	35.00
	Watford Road (South)	172.00	0.00	26.00
	Chiswell Green Lane	27.00	19.00	0.00

Demand (Veh/TS)

		To		
		Watford Road (North)	Watford Road (South)	Chiswell Green Lane
Junction 3a 17:30 - 17:45	From			
	Watford Road (North)	0.00	177.00	33.00
	Watford Road (South)	203.00	0.00	20.00
	Chiswell Green Lane	24.00	17.00	0.00

Demand (Veh/TS)

		To		
		Watford Road (North)	Watford Road (South)	Chiswell Green Lane
Junction 3a 17:45 - 18:00	From			
	Watford Road (North)	0.00	153.00	32.00
	Watford Road (South)	176.00	0.00	23.00
	Chiswell Green Lane	32.00	21.00	0.00

Demand (Veh/TS)

		To		
		Watford Road (South)	Watford Road (North)	Tippendell Lane
Junction 3b 17:00 - 17:15	From			
	Watford Road (South)	0.00	183.00	34.00
	Watford Road (North)	172.00	0.00	58.00
	Tippendell Lane	34.00	42.00	0.00

Demand (Veh/TS)

		To		
		Watford Road (South)	Watford Road (North)	Tippendell Lane
Junction 3b 17:15 - 17:30	From			
	Watford Road (South)	0.00	171.00	28.00
	Watford Road (North)	170.00	0.00	63.00
	Tippendell Lane	34.00	46.00	0.00

Demand (Veh/TS)

		To		
		Watford Road (South)	Watford Road (North)	Tippendell Lane
Junction 3b 17:30 - 17:45	From			
	Watford Road (South)	0.00	196.00	30.00
	Watford Road (North)	174.00	0.00	43.00
	Tippendell Lane	34.00	35.00	0.00

Demand (Veh/TS)

		To		
		Watford Road (South)	Watford Road (North)	Tippendell Lane
Junction 3b 17:45 - 18:00	From			
	Watford Road (South)	0.00	174.00	32.00
	Watford Road (North)	152.00	0.00	47.00
	Tippendell Lane	31.00	33.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

		To			
		Watford Road (North)	Watford Road (South)	Chiswell Green Lane	
Junction 3a 17:00 - 17:15	From	Watford Road (North)	0	21	0
		Watford Road (South)	0	0	0
		Chiswell Green Lane	0	0	0

Heavy Vehicle Percentages

		To			
		Watford Road (North)	Watford Road (South)	Chiswell Green Lane	
Junction 3a 17:15 - 17:30	From	Watford Road (North)	0	1	0
		Watford Road (South)	1	0	0
		Chiswell Green Lane	0	0	0

Heavy Vehicle Percentages

		To			
		Watford Road (North)	Watford Road (South)	Chiswell Green Lane	
Junction 3a 17:30 - 17:45	From	Watford Road (North)	0	1	0
		Watford Road (South)	0	0	0
		Chiswell Green Lane	0	0	0

Heavy Vehicle Percentages

		To			
		Watford Road (North)	Watford Road (South)	Chiswell Green Lane	
Junction 3a 17:45 - 18:00	From	Watford Road (North)	0	1	0
		Watford Road (South)	0	0	0
		Chiswell Green Lane	0	0	0

Heavy Vehicle Percentages

		To			
		Watford Road (South)	Watford Road (North)	Tippendell Lane	
Junction 3b 17:00 - 17:15	From	Watford Road (South)	0	0	0
		Watford Road (North)	1	0	0
		Tippendell Lane	20	3	0

Heavy Vehicle Percentages

		To			
		Watford Road (South)	Watford Road (North)	Tippendell Lane	
Junction 3b 17:15 - 17:30	From	Watford Road (South)	0	1	0
		Watford Road (North)	1	0	2
		Tippendell Lane	0	2	0

Heavy Vehicle Percentages

		To			
		Watford Road (South)	Watford Road (North)	Tippendell Lane	
Junction 3b 17:30 - 17:45	From	Watford Road (South)	0	0	0
		Watford Road (North)	1	0	0
		Tippendell Lane	0	0	0

Heavy Vehicle Percentages

		To			
		Watford Road (South)	Watford Road (North)	Tippendell Lane	
Junction 3b 17:45 - 18:00	From	Watford Road (South)	0	0	0
		Watford Road (North)	1	0	2
		Tippendell Lane	0	3	0

Results

Results Summary for whole modelled period

Junction	Arm	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/TS)	Total Junction Arrivals (Veh)
Junction 3a	Watford Road (North)	0.70	10.79	2.3	B	189.26	757.04
	Watford Road (South)	0.94	40.47	9.7	E	208.75	834.98
	Chiswell Green Lane	0.49	16.61	0.9	C	46.75	187.00
Junction 3b	Watford Road (South)	0.55	4.85	1.2	A	211.55	846.19
	Watford Road (North)	1.00	77.76	20.0	F	219.76	879.05
	Tippendell Lane	1.22	556.05	40.4	F	72.04	288.17

Main Results for each time segment

17:00 - 17:15

Junction	Arm	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Throughput (exit side) (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
Junction 3a	Watford Road (North)	166.67	166.67	20.64	246.17	0.677	164.65	211.38	0.0	2.0	10.791	B
	Watford Road (South)	215.00	215.00	31.02	238.19	0.903	208.09	154.27	0.0	6.9	25.820	D
	Chiswell Green Lane	47.00	47.00	185.83	103.54	0.454	46.19	53.28	0.0	0.8	15.491	C
Junction 3b	Watford Road (South)	211.38	211.38	32.60	407.98	0.518	210.32	188.18	0.0	1.1	4.529	A
	Watford Road (North)	230.00	230.00	32.95	232.21	0.991	216.35	209.96	0.0	13.6	41.565	E
	Tippendell Lane	76.00	76.00	161.79	62.45	1.217	58.99	87.51	0.0	17.0	153.284	F

17:15 - 17:30

Junction	Arm	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Throughput (exit side) (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
Junction 3a	Watford Road (North)	194.71	194.71	19.06	286.13	0.679	194.59	200.05	2.0	2.1	9.823	A
	Watford Road (South)	198.00	198.00	33.27	234.99	0.843	198.99	180.38	6.9	5.9	25.931	D
	Chiswell Green Lane	46.00	46.00	173.03	110.47	0.416	46.08	59.23	0.8	0.7	13.997	B
Junction 3b	Watford Road (South)	200.00	200.00	36.34	401.38	0.498	200.06	193.11	1.1	1.0	4.471	A
	Watford Road (North)	233.00	233.00	28.17	233.52	0.998	226.66	208.23	13.6	20.0	77.759	F
	Tippendell Lane	80.00	80.00	165.62	64.27	1.213	63.83	89.21	17.0	33.1	385.646	F

17:30 - 17:45

Junction	Arm	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Throughput (exit side) (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
Junction 3a	Watford Road (North)	202.45	202.45	16.99	287.87	0.703	202.24	223.28	2.1	2.3	10.472	B
	Watford Road (South)	223.00	223.00	31.81	237.70	0.938	219.20	187.42	5.9	9.7	40.472	E
	Chiswell Green Lane	41.00	41.00	199.29	95.11	0.431	40.98	51.71	0.7	0.7	16.614	C
Junction 3b	Watford Road (South)	223.34	223.34	32.81	408.32	0.547	223.15	202.41	1.0	1.2	4.855	A
	Watford Road (North)	217.00	217.00	29.63	233.71	0.928	220.05	226.33	20.0	17.0	72.576	F
	Tippendell Lane	69.00	69.00	174.98	60.46	1.134	60.24	74.70	33.1	41.9	556.053	F

17:45 - 18:00

Junction	Arm	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Circulating flow (Veh/TS)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Throughput (exit side) (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
Junction 3a	Watford Road (North)	193.34	193.34	20.93	285.59	0.677	193.50	211.48	2.3	2.1	9.798	A
	Watford Road (South)	199.00	199.00	33.43	236.88	0.840	202.80	181.00	9.7	5.9	28.588	D
	Chiswell Green Lane	53.00	53.00	179.61	107.41	0.493	52.80	56.62	0.7	0.9	16.425	C
Junction 3b	Watford Road (South)	211.48	211.48	34.80	406.54	0.520	211.58	193.34	1.2	1.1	4.620	A
	Watford Road (North)	199.00	199.00	32.84	231.24	0.861	208.60	213.54	17.0	7.4	45.601	E
	Tippendell Lane	64.00	64.00	159.97	69.80	0.926	68.18	81.47	41.9	37.7	526.949	F

Appendix O

Junctions 9 – Chiswell Green Lane / Site Access

Junctions 9
PICADY 9 - Priority Intersection Module
Version: 9.0.1.4646 [] © Copyright TRL Limited, 2016
For sales and distribution information, program advice and maintenance, contact TRL: Tel: +44 (0)1344 770758 email: software@trl.co.uk Web: http://www.trlsoftware.co.uk
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Filename: Main Site Access - 16.02.05.j9
Path: M:\2015\8151408(6)_Transport(5)_Traffic Analysis\Junction Capacity Models
Report generation date: 09/02/2016 10:33:22

- »2016 - Surveyed, AM
- »2016 - Surveyed, PM
- »2021 - Do Nothing, AM
- »2021 - Do Nothing, PM
- »2021 - Do Something, AM
- »2021 - Do Something, PM

Summary of junction performance

	AM				PM			
	Queue (Veh)	Delay (s)	RFC	LOS	Queue (Veh)	Delay (s)	RFC	LOS
2016 - Surveyed								
Stream B-C	0.0	0.00	0.00	A	0.0	0.00	0.00	A
Stream B-A	0.0	0.00	0.00	A	0.0	0.00	0.00	A
Stream C-AB	0.0	0.00	0.00	A	0.0	0.00	0.00	A
2021 - Do Nothing								
Stream B-C	0.0	0.00	0.00	A	0.0	0.00	0.00	A
Stream B-A	0.0	0.00	0.00	A	0.0	0.00	0.00	A
Stream C-AB	0.0	0.00	0.00	A	0.0	0.00	0.00	A
2021 - Do Something								
Stream B-C	0.0	0.00	0.00	A	0.0	0.00	0.00	A
Stream B-A	0.7	13.42	0.41	B	0.2	9.12	0.15	A
Stream C-AB	0.0	0.00	0.00	A	0.0	0.00	0.00	A

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

File summary

File Description

Title	(untitled)
Location	
Site number	
Date	26/01/2016
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	UKJJBlenkinsop
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	mph	Veh	Veh	perTimeSegment	s	-Min	perMin

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

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D1	2016 - Surveyed	AM	DIRECT	08:00	09:00	60	15	✓
D2	2016 - Surveyed	PM	DIRECT	17:00	18:00	60	15	✓
D3	2021 - Do Nothing	AM	DIRECT	08:00	09:00	60	15	✓
D4	2021 - Do Nothing	PM	DIRECT	17:00	18:00	60	15	✓
D5	2021 - Do Something	AM	DIRECT	08:00	09:00	60	15	✓
D6	2021 - Do Something	PM	DIRECT	17:00	18:00	60	15	✓

Analysis Set Details

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

2016 - Surveyed, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Minor arm flare	Main Site Access - Minor arm geometry	Is flare very short? Estimated flare length is zero but has been increased to 1 because a zero flare length is not allowed.
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	Main Site Access	T-Junction	Two-way	0.00	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	Chiswell Green Lane (East)		Major
B	Main Site Access		Minor
C	Chiswell Green Lane (West)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
Chiswell Green Lane (West)	6.00			110.0	✓	0.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor arm type	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate flare length	Flare length (PCU)	Visibility to left (m)	Visibility to right (m)
Main Site Access	One lane plus flare	8.19	2.81	2.75	2.75	2.75	✓	1.00	46	48

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (Veh/TS)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	129.424	0.094	0.238	0.150	0.340
1	B-C	181.441	0.111	0.281	-	-
1	C-B	159.416	0.247	0.247	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D1	2016 - Surveyed	AM	DIRECT	08:00	09:00	60	15	✓

Vehicle mix varies over time	Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	✓	✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
Chiswell Green Lane (East)		DIRECT	✓	100.000
Main Site Access		DIRECT	✓	100.000
Chiswell Green Lane (West)		DIRECT	✓	100.000

Origin-Destination Data

Demand (Veh/TS)

		To		
		Chiswell Green Lane (East)	Main Site Access	Chiswell Green Lane (West)
08:00 - 08:15	From	Chiswell Green Lane (East)	0.00	25.00
		Main Site Access	0.00	0.00
		Chiswell Green Lane (West)	36.00	0.00

Demand (Veh/TS)

		To		
		Chiswell Green Lane (East)	Main Site Access	Chiswell Green Lane (West)
08:15 - 08:30	From	Chiswell Green Lane (East)	0.00	22.00
		Main Site Access	0.00	0.00
		Chiswell Green Lane (West)	33.00	0.00

Demand (Veh/TS)

		To		
		Chiswell Green Lane (East)	Main Site Access	Chiswell Green Lane (West)
08:30 - 08:45	From	Chiswell Green Lane (East)	0.00	28.00
		Main Site Access	0.00	0.00
		Chiswell Green Lane (West)	34.00	0.00

Demand (Veh/TS)

		To		
		Chiswell Green Lane (East)	Main Site Access	Chiswell Green Lane (West)
08:45 - 09:00	From	Chiswell Green Lane (East)	0.00	38.00
		Main Site Access	0.00	0.00
		Chiswell Green Lane (West)	28.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

		To		
		Chiswell Green Lane (East)	Main Site Access	Chiswell Green Lane (West)
08:00 - 08:15	From	Chiswell Green Lane (East)	0	0
		Main Site Access	0	0
		Chiswell Green Lane (West)	0	0

Heavy Vehicle Percentages

08:15 - 08:30

		To		
		Chiswell Green Lane (East)	Main Site Access	Chiswell Green Lane (West)
From	Chiswell Green Lane (East)	0	0	0
	Main Site Access	0	0	0
	Chiswell Green Lane (West)	0	0	0

Heavy Vehicle Percentages

08:30 - 08:45

		To		
		Chiswell Green Lane (East)	Main Site Access	Chiswell Green Lane (West)
From	Chiswell Green Lane (East)	0	0	0
	Main Site Access	0	0	0
	Chiswell Green Lane (West)	0	0	0

Heavy Vehicle Percentages

08:45 - 09:00

		To		
		Chiswell Green Lane (East)	Main Site Access	Chiswell Green Lane (West)
From	Chiswell Green Lane (East)	0	0	0
	Main Site Access	0	0	0
	Chiswell Green Lane (West)	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/TS)	Total Junction Arrivals (Veh)
B-C	0.00	0.00	0.0	A	0.00	0.00
B-A	0.00	0.00	0.0	A	0.00	0.00
C-AB	0.00	0.00	0.0	A	0.00	0.00
C-A					32.75	131.00
A-B					0.00	0.00
A-C					28.25	113.00

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	0.00	0.00	174.41	0.000	0.00	0.0	0.0	0.000	A
B-A	0.00	0.00	118.07	0.000	0.00	0.0	0.0	0.000	A
C-AB	0.00	0.00	153.24	0.000	0.00	0.0	0.0	0.000	A
C-A	36.00	36.00			36.00				
A-B	0.00	0.00			0.00				
A-C	25.00	25.00			25.00				

08:15 - 08:30

Stream	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	0.00	0.00	175.25	0.000	0.00	0.0	0.0	0.000	A
B-A	0.00	0.00	119.23	0.000	0.00	0.0	0.0	0.000	A
C-AB	0.00	0.00	153.98	0.000	0.00	0.0	0.0	0.000	A
C-A	33.00	33.00			33.00				
A-B	0.00	0.00			0.00				
A-C	22.00	22.00			22.00				

08:30 - 08:45

Stream	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	0.00	0.00	173.57	0.000	0.00	0.0	0.0	0.000	A
B-A	0.00	0.00	117.65	0.000	0.00	0.0	0.0	0.000	A
C-AB	0.00	0.00	152.50	0.000	0.00	0.0	0.0	0.000	A
C-A	34.00	34.00			34.00				
A-B	0.00	0.00			0.00				
A-C	28.00	28.00			28.00				

08:45 - 09:00

Stream	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	0.00	0.00	170.76	0.000	0.00	0.0	0.0	0.000	A
B-A	0.00	0.00	116.17	0.000	0.00	0.0	0.0	0.000	A
C-AB	0.00	0.00	150.03	0.000	0.00	0.0	0.0	0.000	A
C-A	28.00	28.00			28.00				
A-B	0.00	0.00			0.00				
A-C	38.00	38.00			38.00				

2016 - Surveyed, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Minor arm flare	Main Site Access - Minor arm geometry	Is flare very short? Estimated flare length is zero but has been increased to 1 because a zero flare length is not allowed.
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	Main Site Access	T-Junction	Two-way	0.00	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D2	2016 - Surveyed	PM	DIRECT	17:00	18:00	60	15	✓

Vehicle mix varies over time	Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	✓	✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
Chiswell Green Lane (East)		DIRECT	✓	100.000
Main Site Access		DIRECT	✓	100.000
Chiswell Green Lane (West)		DIRECT	✓	100.000

Origin-Destination Data

Demand (Veh/TS)

		To		
		Chiswell Green Lane (East)	Main Site Access	Chiswell Green Lane (West)
17:00 - 17:15	From			
	Chiswell Green Lane (East)	0.00	0.00	37.00
	Main Site Access	0.00	0.00	0.00
	Chiswell Green Lane (West)	28.00	0.00	0.00

Demand (Veh/TS)

		To		
		Chiswell Green Lane (East)	Main Site Access	Chiswell Green Lane (West)
17:15 - 17:30	From			
	Chiswell Green Lane (East)	0.00	0.00	36.00
	Main Site Access	0.00	0.00	0.00
	Chiswell Green Lane (West)	27.00	0.00	0.00

Demand (Veh/TS)

		To		
		Chiswell Green Lane (East)	Main Site Access	Chiswell Green Lane (West)
17:30 - 17:45	From	Chiswell Green Lane (East)	0.00	28.00
		Main Site Access	0.00	0.00
		Chiswell Green Lane (West)	22.00	0.00

Demand (Veh/TS)

		To		
		Chiswell Green Lane (East)	Main Site Access	Chiswell Green Lane (West)
17:45 - 18:00	From	Chiswell Green Lane (East)	0.00	30.00
		Main Site Access	0.00	0.00
		Chiswell Green Lane (West)	33.00	0.00

Vehicle Mix
Heavy Vehicle Percentages

		To		
		Chiswell Green Lane (East)	Main Site Access	Chiswell Green Lane (West)
17:00 - 17:15	From	Chiswell Green Lane (East)	0	0
		Main Site Access	0	0
		Chiswell Green Lane (West)	0	0

Heavy Vehicle Percentages

		To		
		Chiswell Green Lane (East)	Main Site Access	Chiswell Green Lane (West)
17:15 - 17:30	From	Chiswell Green Lane (East)	0	0
		Main Site Access	0	0
		Chiswell Green Lane (West)	0	0

Heavy Vehicle Percentages

		To		
		Chiswell Green Lane (East)	Main Site Access	Chiswell Green Lane (West)
17:30 - 17:45	From	Chiswell Green Lane (East)	0	0
		Main Site Access	0	0
		Chiswell Green Lane (West)	0	0

Heavy Vehicle Percentages

		To		
		Chiswell Green Lane (East)	Main Site Access	Chiswell Green Lane (West)
17:45 - 18:00	From	Chiswell Green Lane (East)	0	0
		Main Site Access	0	0
		Chiswell Green Lane (West)	0	0

Results
Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/TS)	Total Junction Arrivals (Veh)
B-C	0.00	0.00	0.0	A	0.00	0.00
B-A	0.00	0.00	0.0	A	0.00	0.00
C-AB	0.00	0.00	0.0	A	0.00	0.00
C-A					27.50	110.00
A-B					0.00	0.00
A-C					32.75	131.00

Main Results for each time segment
17:00 - 17:15

Stream	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	0.00	0.00	171.04	0.000	0.00	0.0	0.0	0.000	A
B-A	0.00	0.00	116.41	0.000	0.00	0.0	0.0	0.000	A
C-AB	0.00	0.00	150.27	0.000	0.00	0.0	0.0	0.000	A
C-A	28.00	28.00			28.00				
A-B	0.00	0.00			0.00				
A-C	37.00	37.00			37.00				

17:15 - 17:30

Stream	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	0.00	0.00	171.32	0.000	0.00	0.0	0.0	0.000	A
B-A	0.00	0.00	116.80	0.000	0.00	0.0	0.0	0.000	A
C-AB	0.00	0.00	150.52	0.000	0.00	0.0	0.0	0.000	A
C-A	27.00	27.00			27.00				
A-B	0.00	0.00			0.00				
A-C	36.00	36.00			36.00				

17:30 - 17:45

Stream	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	0.00	0.00	173.57	0.000	0.00	0.0	0.0	0.000	A
B-A	0.00	0.00	119.45	0.000	0.00	0.0	0.0	0.000	A
C-AB	0.00	0.00	152.50	0.000	0.00	0.0	0.0	0.000	A
C-A	22.00	22.00			22.00				
A-B	0.00	0.00			0.00				
A-C	28.00	28.00			28.00				

17:45 - 18:00

Stream	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	0.00	0.00	173.01	0.000	0.00	0.0	0.0	0.000	A
B-A	0.00	0.00	117.33	0.000	0.00	0.0	0.0	0.000	A
C-AB	0.00	0.00	152.00	0.000	0.00	0.0	0.0	0.000	A
C-A	33.00	33.00			33.00				
A-B	0.00	0.00			0.00				
A-C	30.00	30.00			30.00				

2021 - Do Nothing, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Minor arm flare	Main Site Access - Minor arm geometry	Is flare very short? Estimated flare length is zero but has been increased to 1 because a zero flare length is not allowed.
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	Main Site Access	T-Junction	Two-way	0.00	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D3	2021 - Do Nothing	AM	DIRECT	08:00	09:00	60	15	✓

Vehicle mix varies over time	Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	✓	✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
Chiswell Green Lane (East)		DIRECT	✓	100.000
Main Site Access		DIRECT	✓	100.000
Chiswell Green Lane (West)		DIRECT	✓	100.000

Origin-Destination Data

Demand (Veh/TS)

		To		
		Chiswell Green Lane (East)	Main Site Access	Chiswell Green Lane (West)
08:00 - 08:15	From			
	Chiswell Green Lane (East)	0.00	0.00	27.00
	Main Site Access	0.00	0.00	0.00
	Chiswell Green Lane (West)	39.00	0.00	0.00

Demand (Veh/TS)

		To		
		Chiswell Green Lane (East)	Main Site Access	Chiswell Green Lane (West)
08:15 - 08:30	From			
	Chiswell Green Lane (East)	0.00	0.00	24.00
	Main Site Access	0.00	0.00	0.00
	Chiswell Green Lane (West)	36.00	0.00	0.00

Demand (Veh/TS)

		To		
		Chiswell Green Lane (East)	Main Site Access	Chiswell Green Lane (West)
08:30 - 08:45	From	Chiswell Green Lane (East)	0.00	30.00
		Main Site Access	0.00	0.00
		Chiswell Green Lane (West)	37.00	0.00

Demand (Veh/TS)

		To		
		Chiswell Green Lane (East)	Main Site Access	Chiswell Green Lane (West)
08:45 - 09:00	From	Chiswell Green Lane (East)	0.00	41.00
		Main Site Access	0.00	0.00
		Chiswell Green Lane (West)	30.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

		To		
		Chiswell Green Lane (East)	Main Site Access	Chiswell Green Lane (West)
08:00 - 08:15	From	Chiswell Green Lane (East)	0	0
		Main Site Access	0	0
		Chiswell Green Lane (West)	0	0

Heavy Vehicle Percentages

		To		
		Chiswell Green Lane (East)	Main Site Access	Chiswell Green Lane (West)
08:15 - 08:30	From	Chiswell Green Lane (East)	0	0
		Main Site Access	0	0
		Chiswell Green Lane (West)	0	0

Heavy Vehicle Percentages

		To		
		Chiswell Green Lane (East)	Main Site Access	Chiswell Green Lane (West)
08:30 - 08:45	From	Chiswell Green Lane (East)	0	0
		Main Site Access	0	0
		Chiswell Green Lane (West)	0	0

Heavy Vehicle Percentages

		To		
		Chiswell Green Lane (East)	Main Site Access	Chiswell Green Lane (West)
08:45 - 09:00	From	Chiswell Green Lane (East)	0	0
		Main Site Access	0	0
		Chiswell Green Lane (West)	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/TS)	Total Junction Arrivals (Veh)
B-C	0.00	0.00	0.0	A	0.00	0.00
B-A	0.00	0.00	0.0	A	0.00	0.00
C-AB	0.00	0.00	0.0	A	0.00	0.00
C-A					35.50	142.00
A-B					0.00	0.00
A-C					30.50	122.00

Main Results for each time segment
08:00 - 08:15

Stream	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	0.00	0.00	173.85	0.000	0.00	0.0	0.0	0.000	A
B-A	0.00	0.00	117.14	0.000	0.00	0.0	0.0	0.000	A
C-AB	0.00	0.00	152.75	0.000	0.00	0.0	0.0	0.000	A
C-A	39.00	39.00			39.00				
A-B	0.00	0.00			0.00				
A-C	27.00	27.00			27.00				

08:15 - 08:30

Stream	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	0.00	0.00	174.69	0.000	0.00	0.0	0.0	0.000	A
B-A	0.00	0.00	118.31	0.000	0.00	0.0	0.0	0.000	A
C-AB	0.00	0.00	153.49	0.000	0.00	0.0	0.0	0.000	A
C-A	36.00	36.00			36.00				
A-B	0.00	0.00			0.00				
A-C	24.00	24.00			24.00				

08:30 - 08:45

Stream	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	0.00	0.00	173.01	0.000	0.00	0.0	0.0	0.000	A
B-A	0.00	0.00	116.73	0.000	0.00	0.0	0.0	0.000	A
C-AB	0.00	0.00	152.00	0.000	0.00	0.0	0.0	0.000	A
C-A	37.00	37.00			37.00				
A-B	0.00	0.00			0.00				
A-C	30.00	30.00			30.00				

08:45 - 09:00

Stream	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	0.00	0.00	169.91	0.000	0.00	0.0	0.0	0.000	A
B-A	0.00	0.00	115.15	0.000	0.00	0.0	0.0	0.000	A
C-AB	0.00	0.00	149.29	0.000	0.00	0.0	0.0	0.000	A
C-A	30.00	30.00			30.00				
A-B	0.00	0.00			0.00				
A-C	41.00	41.00			41.00				

2021 - Do Nothing, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Minor arm flare	Main Site Access - Minor arm geometry	Is flare very short? Estimated flare length is zero but has been increased to 1 because a zero flare length is not allowed.
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	Main Site Access	T-Junction	Two-way	0.00	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D4	2021 - Do Nothing	PM	DIRECT	17:00	18:00	60	15	✓

Vehicle mix varies over time	Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	✓	✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
Chiswell Green Lane (East)		DIRECT	✓	100.000
Main Site Access		DIRECT	✓	100.000
Chiswell Green Lane (West)		DIRECT	✓	100.000

Origin-Destination Data

Demand (Veh/TS)

17:00 - 17:15

		To		
		Chiswell Green Lane (East)	Main Site Access	Chiswell Green Lane (West)
From	Chiswell Green Lane (East)	0.00	0.00	40.00
	Main Site Access	0.00	0.00	0.00
	Chiswell Green Lane (West)	30.00	0.00	0.00

Demand (Veh/TS)

17:15 - 17:30

		To		
		Chiswell Green Lane (East)	Main Site Access	Chiswell Green Lane (West)
From	Chiswell Green Lane (East)	0.00	0.00	39.00
	Main Site Access	0.00	0.00	0.00
	Chiswell Green Lane (West)	29.00	0.00	0.00

Demand (Veh/TS)

		To		
		Chiswell Green Lane (East)	Main Site Access	Chiswell Green Lane (West)
17:30 - 17:45	From	Chiswell Green Lane (East)	0.00	30.00
		Main Site Access	0.00	0.00
		Chiswell Green Lane (West)	24.00	0.00

Demand (Veh/TS)

		To		
		Chiswell Green Lane (East)	Main Site Access	Chiswell Green Lane (West)
17:45 - 18:00	From	Chiswell Green Lane (East)	0.00	33.00
		Main Site Access	0.00	0.00
		Chiswell Green Lane (West)	36.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

		To		
		Chiswell Green Lane (East)	Main Site Access	Chiswell Green Lane (West)
17:00 - 17:15	From	Chiswell Green Lane (East)	0	0
		Main Site Access	0	0
		Chiswell Green Lane (West)	0	0

Heavy Vehicle Percentages

		To		
		Chiswell Green Lane (East)	Main Site Access	Chiswell Green Lane (West)
17:15 - 17:30	From	Chiswell Green Lane (East)	0	0
		Main Site Access	0	0
		Chiswell Green Lane (West)	0	0

Heavy Vehicle Percentages

		To		
		Chiswell Green Lane (East)	Main Site Access	Chiswell Green Lane (West)
17:30 - 17:45	From	Chiswell Green Lane (East)	0	0
		Main Site Access	0	0
		Chiswell Green Lane (West)	0	0

Heavy Vehicle Percentages

		To		
		Chiswell Green Lane (East)	Main Site Access	Chiswell Green Lane (West)
17:45 - 18:00	From	Chiswell Green Lane (East)	0	0
		Main Site Access	0	0
		Chiswell Green Lane (West)	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/TS)	Total Junction Arrivals (Veh)
B-C	0.00	0.00	0.0	A	0.00	0.00
B-A	0.00	0.00	0.0	A	0.00	0.00
C-AB	0.00	0.00	0.0	A	0.00	0.00
C-A					29.75	119.00
A-B					0.00	0.00
A-C					35.50	142.00

Main Results for each time segment
17:00 - 17:15

Stream	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	0.00	0.00	170.19	0.000	0.00	0.0	0.0	0.000	A
B-A	0.00	0.00	115.39	0.000	0.00	0.0	0.0	0.000	A
C-AB	0.00	0.00	149.53	0.000	0.00	0.0	0.0	0.000	A
C-A	30.00	30.00			30.00				
A-B	0.00	0.00			0.00				
A-C	40.00	40.00			40.00				

17:15 - 17:30

Stream	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	0.00	0.00	170.47	0.000	0.00	0.0	0.0	0.000	A
B-A	0.00	0.00	115.78	0.000	0.00	0.0	0.0	0.000	A
C-AB	0.00	0.00	149.78	0.000	0.00	0.0	0.0	0.000	A
C-A	29.00	29.00			29.00				
A-B	0.00	0.00			0.00				
A-C	39.00	39.00			39.00				

17:30 - 17:45

Stream	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	0.00	0.00	173.01	0.000	0.00	0.0	0.0	0.000	A
B-A	0.00	0.00	118.68	0.000	0.00	0.0	0.0	0.000	A
C-AB	0.00	0.00	152.00	0.000	0.00	0.0	0.0	0.000	A
C-A	24.00	24.00			24.00				
A-B	0.00	0.00			0.00				
A-C	30.00	30.00			30.00				

17:45 - 18:00

Stream	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	0.00	0.00	172.16	0.000	0.00	0.0	0.0	0.000	A
B-A	0.00	0.00	116.16	0.000	0.00	0.0	0.0	0.000	A
C-AB	0.00	0.00	151.26	0.000	0.00	0.0	0.0	0.000	A
C-A	36.00	36.00			36.00				
A-B	0.00	0.00			0.00				
A-C	33.00	33.00			33.00				

2021 - Do Something, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Minor arm flare	Main Site Access - Minor arm geometry	Is flare very short? Estimated flare length is zero but has been increased to 1 because a zero flare length is not allowed.
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	Main Site Access	T-Junction	Two-way	3.96	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D5	2021 - Do Something	AM	DIRECT	08:00	09:00	60	15	✓

Vehicle mix varies over time	Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	✓	✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
Chiswell Green Lane (East)		DIRECT	✓	100.000
Main Site Access		DIRECT	✓	100.000
Chiswell Green Lane (West)		DIRECT	✓	100.000

Origin-Destination Data

Demand (Veh/TS)

		To		
		Chiswell Green Lane (East)	Main Site Access	Chiswell Green Lane (West)
08:00 - 08:15	From			
	Chiswell Green Lane (East)	0.00	44.00	27.00
	Main Site Access	46.00	0.00	0.00
	Chiswell Green Lane (West)	39.00	0.00	0.00

Demand (Veh/TS)

		To		
		Chiswell Green Lane (East)	Main Site Access	Chiswell Green Lane (West)
08:15 - 08:30	From			
	Chiswell Green Lane (East)	0.00	44.00	24.00
	Main Site Access	46.00	0.00	0.00
	Chiswell Green Lane (West)	36.00	0.00	0.00

Demand (Veh/TS)

		To		
		Chiswell Green Lane (East)	Main Site Access	Chiswell Green Lane (West)
08:30 - 08:45	From	Chiswell Green Lane (East)	0.00	30.00
		Main Site Access	44.00	0.00
		Chiswell Green Lane (West)	37.00	0.00

Demand (Veh/TS)

		To		
		Chiswell Green Lane (East)	Main Site Access	Chiswell Green Lane (West)
08:45 - 09:00	From	Chiswell Green Lane (East)	0.00	41.00
		Main Site Access	46.00	0.00
		Chiswell Green Lane (West)	30.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

		To		
		Chiswell Green Lane (East)	Main Site Access	Chiswell Green Lane (West)
08:00 - 08:15	From	Chiswell Green Lane (East)	0	0
		Main Site Access	0	0
		Chiswell Green Lane (West)	0	0

Heavy Vehicle Percentages

		To		
		Chiswell Green Lane (East)	Main Site Access	Chiswell Green Lane (West)
08:15 - 08:30	From	Chiswell Green Lane (East)	0	0
		Main Site Access	0	0
		Chiswell Green Lane (West)	0	0

Heavy Vehicle Percentages

		To		
		Chiswell Green Lane (East)	Main Site Access	Chiswell Green Lane (West)
08:30 - 08:45	From	Chiswell Green Lane (East)	0	0
		Main Site Access	0	0
		Chiswell Green Lane (West)	0	0

Heavy Vehicle Percentages

		To		
		Chiswell Green Lane (East)	Main Site Access	Chiswell Green Lane (West)
08:45 - 09:00	From	Chiswell Green Lane (East)	0	0
		Main Site Access	0	0
		Chiswell Green Lane (West)	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/TS)	Total Junction Arrivals (Veh)
B-C	0.00	0.00	0.0	A	0.00	0.00
B-A	0.41	13.42	0.7	B	46.00	184.00
C-AB	0.00	0.00	0.0	A	0.00	0.00
C-A					35.50	142.00
A-B					44.00	176.00
A-C					30.50	122.00

Main Results for each time segment
08:00 - 08:15

Stream	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	0.00	0.00	139.64	0.000	0.00	0.0	0.0	0.000	A
B-A	46.00	46.00	115.04	0.400	45.35	0.0	0.7	12.801	B
C-AB	0.00	0.00	141.87	0.000	0.00	0.0	0.0	0.000	A
C-A	39.00	39.00			39.00				
A-B	44.00	44.00			44.00				
A-C	27.00	27.00			27.00				

08:15 - 08:30

Stream	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	0.00	0.00	140.28	0.000	0.00	0.0	0.0	0.000	A
B-A	46.00	46.00	116.22	0.396	46.00	0.7	0.7	12.815	B
C-AB	0.00	0.00	142.62	0.000	0.00	0.0	0.0	0.000	A
C-A	36.00	36.00			36.00				
A-B	44.00	44.00			44.00				
A-C	24.00	24.00			24.00				

08:30 - 08:45

Stream	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	0.00	0.00	138.67	0.000	0.00	0.0	0.0	0.000	A
B-A	46.00	46.00	114.61	0.401	45.99	0.7	0.7	13.111	B
C-AB	0.00	0.00	141.13	0.000	0.00	0.0	0.0	0.000	A
C-A	37.00	37.00			37.00				
A-B	44.00	44.00			44.00				
A-C	30.00	30.00			30.00				

08:45 - 09:00

Stream	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	0.00	0.00	135.89	0.000	0.00	0.0	0.0	0.000	A
B-A	46.00	46.00	113.01	0.407	45.99	0.7	0.7	13.421	B
C-AB	0.00	0.00	138.42	0.000	0.00	0.0	0.0	0.000	A
C-A	30.00	30.00			30.00				
A-B	44.00	44.00			44.00				
A-C	41.00	41.00			41.00				

2021 - Do Something, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Minor arm flare	Main Site Access - Minor arm geometry	Is flare very short? Estimated flare length is zero but has been increased to 1 because a zero flare length is not allowed.
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs.

Junction Network

Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	Main Site Access	T-Junction	Two-way	1.49	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time period length (min)	Time segment length (min)	Run automatically
D6	2021 - Do Something	PM	DIRECT	17:00	18:00	60	15	✓

Vehicle mix varies over time	Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)	O-D data varies over time
✓	✓	✓	HV Percentages	2.00	✓

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Scaling Factor (%)
Chiswell Green Lane (East)		DIRECT	✓	100.000
Main Site Access		DIRECT	✓	100.000
Chiswell Green Lane (West)		DIRECT	✓	100.000

Origin-Destination Data

Demand (Veh/TS)

17:00 - 17:15

		To		
		Chiswell Green Lane (East)	Main Site Access	Chiswell Green Lane (West)
From	Chiswell Green Lane (East)	0.00	22.00	40.00
	Main Site Access	17.00	0.00	0.00
	Chiswell Green Lane (West)	30.00	0.00	0.00

Demand (Veh/TS)

17:15 - 17:30

		To		
		Chiswell Green Lane (East)	Main Site Access	Chiswell Green Lane (West)
From	Chiswell Green Lane (East)	0.00	22.00	39.00
	Main Site Access	17.00	0.00	0.00
	Chiswell Green Lane (West)	29.00	0.00	0.00

Demand (Veh/TS)

		To			
		Chiswell Green Lane (East)	Main Site Access	Chiswell Green Lane (West)	
17:30 - 17:45	From	Chiswell Green Lane (East)	0.00	22.00	30.00
		Main Site Access	17.00	0.00	0.00
		Chiswell Green Lane (West)	24.00	0.00	0.00

Demand (Veh/TS)

		To			
		Chiswell Green Lane (East)	Main Site Access	Chiswell Green Lane (West)	
17:45 - 18:00	From	Chiswell Green Lane (East)	0.00	22.00	33.00
		Main Site Access	17.00	0.00	0.00
		Chiswell Green Lane (West)	36.00	0.00	0.00

Vehicle Mix

Heavy Vehicle Percentages

		To			
		Chiswell Green Lane (East)	Main Site Access	Chiswell Green Lane (West)	
17:00 - 17:15	From	Chiswell Green Lane (East)	0	0	0
		Main Site Access	0	0	0
		Chiswell Green Lane (West)	0	0	0

Heavy Vehicle Percentages

		To			
		Chiswell Green Lane (East)	Main Site Access	Chiswell Green Lane (West)	
17:15 - 17:30	From	Chiswell Green Lane (East)	0	0	0
		Main Site Access	0	0	0
		Chiswell Green Lane (West)	0	0	0

Heavy Vehicle Percentages

		To			
		Chiswell Green Lane (East)	Main Site Access	Chiswell Green Lane (West)	
17:30 - 17:45	From	Chiswell Green Lane (East)	0	0	0
		Main Site Access	0	0	0
		Chiswell Green Lane (West)	0	0	0

Heavy Vehicle Percentages

		To			
		Chiswell Green Lane (East)	Main Site Access	Chiswell Green Lane (West)	
17:45 - 18:00	From	Chiswell Green Lane (East)	0	0	0
		Main Site Access	0	0	0
		Chiswell Green Lane (West)	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/TS)	Total Junction Arrivals (Veh)
B-C	0.00	0.00	0.0	A	0.00	0.00
B-A	0.15	9.12	0.2	A	17.00	68.00
C-AB	0.00	0.00	0.0	A	0.00	0.00
C-A					29.75	119.00
A-B					22.00	88.00
A-C					35.50	142.00

Main Results for each time segment
17:00 - 17:15

Stream	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	0.00	0.00	148.37	0.000	0.00	0.0	0.0	0.000	A
B-A	17.00	17.00	115.37	0.147	16.83	0.0	0.2	9.118	A
C-AB	0.00	0.00	144.10	0.000	0.00	0.0	0.0	0.000	A
C-A	30.00	30.00			30.00				
A-B	22.00	22.00			22.00				
A-C	40.00	40.00			40.00				

17:15 - 17:30

Stream	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	0.00	0.00	148.58	0.000	0.00	0.0	0.0	0.000	A
B-A	17.00	17.00	115.76	0.147	17.00	0.2	0.2	9.112	A
C-AB	0.00	0.00	144.35	0.000	0.00	0.0	0.0	0.000	A
C-A	29.00	29.00			29.00				
A-B	22.00	22.00			22.00				
A-C	39.00	39.00			39.00				

17:30 - 17:45

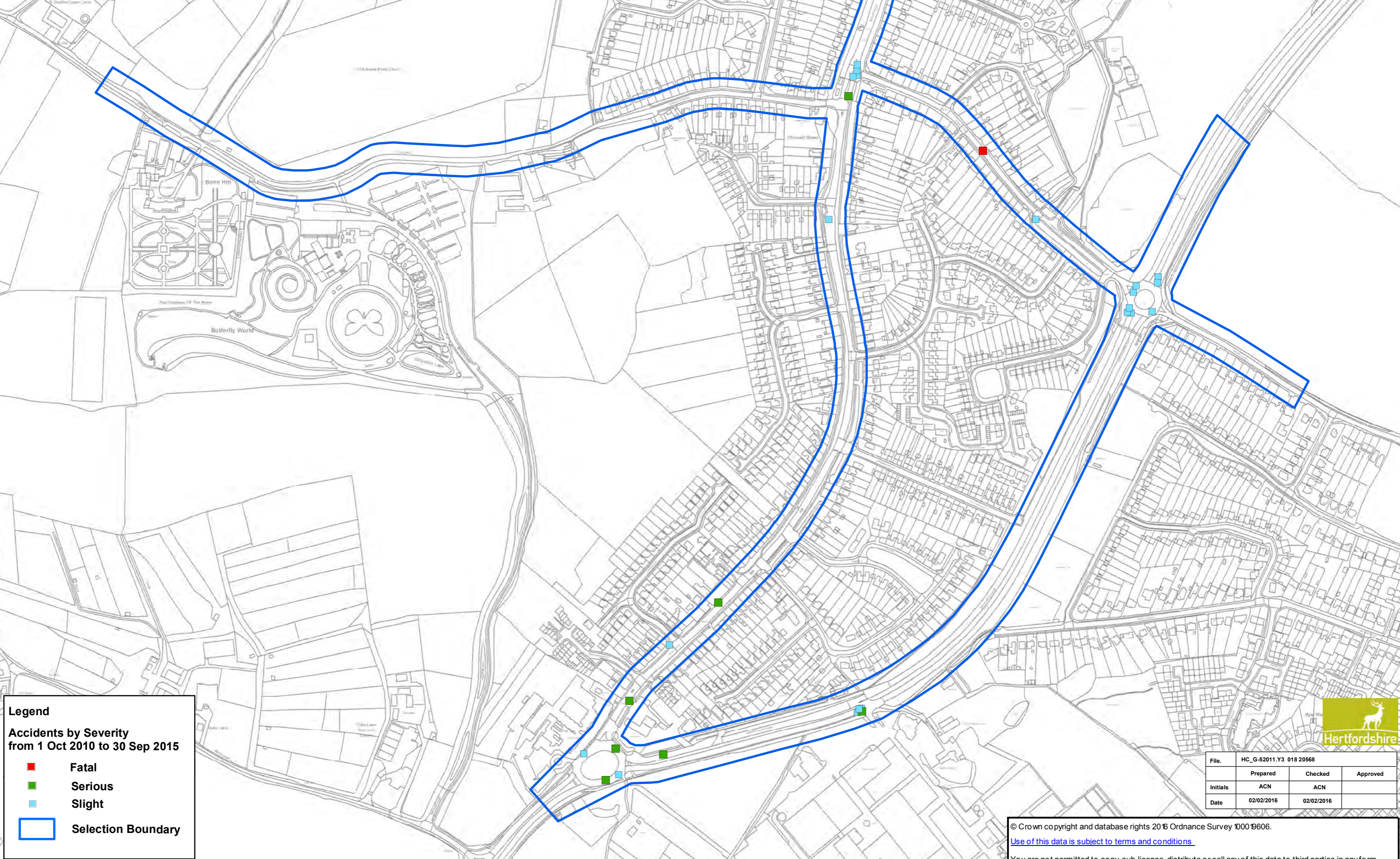
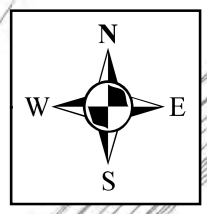
Stream	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	0.00	0.00	150.96	0.000	0.00	0.0	0.0	0.000	A
B-A	17.00	17.00	118.71	0.143	17.00	0.2	0.2	8.849	A
C-AB	0.00	0.00	146.57	0.000	0.00	0.0	0.0	0.000	A
C-A	24.00	24.00			24.00				
A-B	22.00	22.00			22.00				
A-C	30.00	30.00			30.00				

17:45 - 18:00

Stream	Total Demand (Veh/TS)	Junction Arrivals (Veh)	Capacity (Veh/TS)	RFC	Throughput (Veh/TS)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-C	0.00	0.00	150.09	0.000	0.00	0.0	0.0	0.000	A
B-A	17.00	17.00	116.15	0.146	17.00	0.2	0.2	9.076	A
C-AB	0.00	0.00	145.83	0.000	0.00	0.0	0.0	0.000	A
C-A	36.00	36.00			36.00				
A-B	22.00	22.00			22.00				
A-C	33.00	33.00			33.00				

Appendix P
5 Year Injury Only Accident Statistics

A405 North Orbital Road, B4630 Watford Road Tippendell Lane & Chiswell Green Lane Chiswell Green



Legend
Accidents by Severity
from 1 Oct 2010 to 30 Sep 2015

- Fatal
- Serious
- Slight
- Selection Boundary



File:	HC_G-52011.Y3 018 20568		
	Prepared	Checked	Approved
Initials:	ACN	ACN	
Date:	02/02/2016	02/02/2016	

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Full Non Confidential Accident Report

Date Produced: 02-Feb-16

Set Name (if saved) : 20568

Set Total : 28

Accident Details:

Acc Ref: 2015-4100F0590 1st / 2nd Rd: A405/05 B4630/2 Jun Detail: R/bout Weather: Fine Num Cas: 1
Day of Week: Thu Parish: St. Step Jun Control: Giveaway Light: Day Num Peds: 0
Date: 10/09/2015 17:20:00 District: StAlbs Spec Conditions: None Road Surface: Dry Num Vehicles: 2
Acc Severity: Serious Speed Limit: 60mph C/way Hazard: None C/way Type: R/bout Ped Xing: Npernox
A405 Noke Hotel Rbt Chiswell Green J/w B4630 Watford Road On Site: Yes
Easting: 513095 Northing: 203724

Casualty Details

Acc Ref: 2015-4100F0590 Cas Class: Driver Car Passenger: No Cas Severity: Serious Ped Movement: Notped
Veh Ref: 2 Cas Age: 48 PSV Passenger: No Road User Class: Motorcyclists Ped Location: Notped
Cas Ref: 1 Cas Gender: Male Seat Belt: Notapp School Pupil: Ped Work on Rd: Notped

Vehicle Details

Acc Ref: 144333 Maneouvre: Ahead Skidding: None Impact Point: Offside Driver Breath Test: Negati Driver Age: 22
Veh Ref: 1 Location: Carw Object in Cway: None From: N Hit and Run: Nothtrun
Veh Type: Car Junction: Et/about Object off Cway: None To: Sw Driver Gender: Male
Foreign Veh: Towing; None velwy: No J Purpose: Tofrowrk Driver Severity: None
Acc Ref: Maneouvre: Ahead Skidding: Skidded Impact Point: Nearside Driver Breath Test: Ntprov Driver Age: 48
Veh Ref: 2 Location: Carw Object in Cway: None From: Sw Hit and Run: Nothtrun
Veh Type: Mc>500 Junction: Middle Object off Cway: None To: Se Driver Gender: Male
Foreign Veh: Towing; None velwy: Offside J Purpose: Tofrowrk Driver Severity: Serious

Accident Details:

Acc Ref: 2015-4100F0446	1st / 2nd Rd: B4630/2 NONE	Jun Detail: Notjunct	Weather: Fine	Num Cas: 1
Day of Week: Tue	Parish: St. Step	Jun Control: Notjunct	Light: Day	Num Peds: 0
Date: 14/07/2015 16:30:00	District: StAlbs	Spec Conditions: None	Road Surface: Dry	Num Vehicles: 2
Acc Severity: Slight	Speed Limit: 30mph	C/way Hazard: None	C/way Type: Single	Ped Xing: Nperpelx
B4630 Watford Road Chiswell Green Approx 24m South J/w U958 Hammers Gate				On Site: Yes
Easting: 513377	Northing: 204424			

Casualty Details

Acc Ref: 2015-4100F0446	Cas Class: Driver	Car Passenger: No	Cas Severity: Slight	Ped Movement: Notped
Veh Ref: 2	Cas Age: 30	PSV Passenger: No	Road User Class: Motorcyclists	Ped Location: Notped
Cas Ref: 1	Cas Gender: Male	Seat Belt: Notapp	School Pupil:	Ped Work on Rd: Notped

Vehicle Details

Acc Ref: 143951	Manoeuvre: Starting	Skidding: None	Impact Point: Front	Driver Breath Test: Notreq	Driver Age: 82
Veh Ref: 1	Location: Lelb	Object in Cway: None	From: Sw	Hit and Run: Nothtrun	
Veh Type: Car	Junction: Notjunct	Object off Cway None	To: N	Driver Gender: Male	
Foreign Veh:	Towing; None	velwy No	J Purpose: Other	Driver Severity: None	
Acc Ref:	Manoeuvre: Otakesta	Skidding: None	Impact Point: Front	Driver Breath Test: Notreq	Driver Age: 30
Veh Ref: 2	Location: Carw	Object in Cway: None	From: S	Hit and Run: Nothtrun	
Veh Type: Mc>500	Junction: Notjunct	Object off Cway None	To: N	Driver Gender: Male	
Foreign Veh:	Towing; None	velwy No	J Purpose: Other	Driver Severity: Slight	

Accident Details:

Acc Ref: 2015-4100C0760	1st / 2nd Rd: B4630/2 C81/10	Jun Detail: Mini	Weather: Fine	Num Cas: 1
Day of Week: Mon	Parish: St. Step	Jun Control: Giveway	Light: Day	Num Peds: 0
Date: 13/07/2015 20:45:00	District: StAlbs	Spec Conditions: None	Road Surface: Dry	Num Vehicles: 3
Acc Severity: Slight	Speed Limit: 30mph	C/way Hazard: None	C/way Type: Single	Ped Xing: Nperzebx

B4630 Watford Road St Albans Mini Rbt J/w C81 Tippendell Lane

Eastings: 513415	Northing: 204629	On Site: No
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Casualty Details

Acc Ref: 2015-4100C0760	Cas Class: Driver	Car Passenger: No	Cas Severity: Slight	Ped Movement: Notped
Veh Ref: 1	Cas Age: 18	PSV Passenger: No	Road User Class: Car Users	Ped Location: Notped
Cas Ref: 1	Cas Gender: Male	Seat Belt: Wornnot	School Pupil:	Ped Work on Rd: Notped

Vehicle Details

Acc Ref: 143905	Manoeuvre: Waitahea	Skidding: None	Impact Point: Back	Driver Breath Test: Notcon	Driver Age: 18
Veh Ref: 1	Location: Carw	Object in Cway: None	From: N	Hit and Run: Nothtrun	
Veh Type: Car	Junction: Approach	Object off Cway None	To: S	Driver Gender: Male	
Foreign Veh:	Towing; None	velwy No	J Purpose: Unknown	Driver Severity: Slight	

Acc Ref:	Manoeuvre: Stopping	Skidding: None	Impact Point: Front	Driver Breath Test: Notcon	Driver Age: 30
Veh Ref: 2	Location: Carw	Object in Cway: None	From: N	Hit and Run: Nothtrun	
Veh Type: Gdltwght	Junction: Approach	Object off Cway None	To: S	Driver Gender: Male	
Foreign Veh:	Towing; None	velwy No	J Purpose: Unknown	Driver Severity: None	

Acc Ref:	Manoeuvre: Ahead	Skidding: None	Impact Point: Nearside	Driver Breath Test: Notcon	Driver Age: 18
Veh Ref: 3	Location: Carw	Object in Cway: None	From: S	Hit and Run: Nothtrun	
Veh Type: Car	Junction: Middle	Object off Cway None	To: E	Driver Gender: Male	
Foreign Veh:	Towing; None	velwy No	J Purpose: Unknown	Driver Severity: None	

Accident Details:

Acc Ref: 2015-4100F0386	1st / 2nd Rd: A405/05 C81/10	Jun Detail: R/bout	Weather: Fine	Num Cas: 2
Day of Week: Sun	Parish: St. Step	Jun Control: Giveway	Light: Day	Num Peds: 0
Date: 28/06/2015 18:31:00	District: StAlbs	Spec Conditions: None	Road Surface: Dry	Num Vehicles: 3
Acc Severity: Slight	Speed Limit: 60mph	C/way Hazard: None	C/way Type: R/bout	Ped Xing: Npernox
A405 North Orbital Road St Albans Rbt J/w C81 Tippendell Road				On Site: Yes
Easting: 513784	Northing: 204336			

Casualty Details

Acc Ref: 2015-4100F0386	Cas Class: Driver	Car Passenger: No	Cas Severity: Slight	Ped Movement: Notped
Veh Ref: 2	Cas Age: 20	PSV Passenger: No	Road User Class: Car Users	Ped Location: Notped
Cas Ref: 1	Cas Gender: Female	Seat Belt: Wornnot	School Pupil:	Ped Work on Rd: Notped
Acc Ref: 2015-4100F0386	Cas Class: Driver	Car Passenger: No	Cas Severity: Slight	Ped Movement: Notped
Veh Ref: 1	Cas Age: 86	PSV Passenger: No	Road User Class: Car Users	Ped Location: Notped
Cas Ref: 2	Cas Gender: Male	Seat Belt: Wornnot	School Pupil:	Ped Work on Rd: Notped

Vehicle Details

Acc Ref: 143691	Manoeuvre: Ahead	Skidding: None	Impact Point: Offside	Driver Breath Test: Negati	Driver Age: 86
Veh Ref: 1	Location: Carw	Object in Cway: None	From: Nw	Hit and Run: Nothtrun	
Veh Type: Car	Junction: Er/about	Object off Cway: None	To: Se	Driver Gender: Male	
Foreign Veh:	Towing; None	velwey No	J Purpose: Other	Driver Severity: Slight	
Acc Ref:	Manoeuvre: Ahead	Skidding: None	Impact Point: Front	Driver Breath Test: Negati	Driver Age: 20
Veh Ref: 2	Location: Carw	Object in Cway: None	From: S	Hit and Run: Nothtrun	
Veh Type: Car	Junction: Middle	Object off Cway: None	To: N	Driver Gender: Female	
Foreign Veh:	Towing; None	velwey No	J Purpose: Other	Driver Severity: Slight	
Acc Ref:	Manoeuvre: Ahead	Skidding: None	Impact Point: Offside	Driver Breath Test: Notcon	Driver Age:
Veh Ref: 3	Location: Carw	Object in Cway: None	From: S	Hit and Run: Hit&run	
Veh Type: Gdhvwght	Junction: Middle	Object off Cway: None	To: N	Driver Gender: Unknown	
Foreign Veh:	Towing; Articula	velwey No	J Purpose: Work	Driver Severity: None	

Accident Details:

Acc Ref: 2015-4100F0375	1st / 2nd Rd: A405/05 B4630/2	Jun Detail: R/bout	Weather: Fine	Num Cas: 1
Day of Week: Mon	Parish: St. Step	Jun Control: Giveway	Light: Day	Num Peds: 0
Date: 22/06/2015 18:19:00	District: StAlbs	Spec Conditions: None	Road Surface: Dry	Num Vehicles: 2
Acc Severity: Slight	Speed Limit: 60mph	C/way Hazard: None	C/way Type: R/bout	Ped Xing: Npercntr
A405 North Orbital Road St Albans Rbt J/w B4630 Watford Road				On Site: Yes
Easting: 513053	Northing: 203717			

Casualty Details

Acc Ref: 2015-4100F0375	Cas Class: Passenge	Car Passenger: Frontsea	Cas Severity: Slight	Ped Movement: Notped
Veh Ref: 1	Cas Age: 44	PSV Passenger: No	Road User Class: Goods Vehicles	Ped Location: Notped
Cas Ref: 1	Cas Gender: Male	Seat Belt: Notworn	School Pupil:	Ped Work on Rd: Notped

Vehicle Details

Acc Ref: 143690	Manoeuvre: Waitahea	Skidding: None	Impact Point: Offside	Driver Breath Test: Notreq	Driver Age: 36
Veh Ref: 1	Location: Carw	Object in Cway: None	From: W	Hit and Run: Nothtrun	
Veh Type: Gdltwght	Junction: Middle	Object off Cway None	To: Ne	Driver Gender: Male	
Foreign Veh:	Towing; None	velwy No	J Purpose: Unknown	Driver Severity: None	
Acc Ref:	Manoeuvre: Otakesta	Skidding: None	Impact Point: Nearside	Driver Breath Test: Notreq	Driver Age: 58
Veh Ref: 2	Location: Carw	Object in Cway: None	From: W	Hit and Run: Nothtrun	
Veh Type: Otherv	Junction: Middle	Object off Cway None	To: Ne	Driver Gender: Female	
Foreign Veh:	Towing; None	velwy No	J Purpose: Work	Driver Severity: None	

Accident Details:

Acc Ref: 2015-4100F0259	1st / 2nd Rd: A405/05 A405/05	Jun Detail: R/bout	Weather: Fine	Num Cas: 1
Day of Week: Mon	Parish: St. Step	Jun Control: Giveway	Light: Day	Num Peds: 0
Date: 13/04/2015 06:44:00	District: StAlbs	Spec Conditions: None	Road Surface: Dry	Num Vehicles: 2
Acc Severity: Slight	Speed Limit: 60mph	C/way Hazard: None	C/way Type: R/bout	Ped Xing: Npernox
A405 Tippendell Lane Rbt St Albans J/w A405 North Orbital Road				On Site: Yes
Easting: 513775	Northing: 204307			

Casualty Details

Acc Ref: 2015-4100F0259	Cas Class: Driver	Car Passenger: No	Cas Severity: Slight	Ped Movement: Notped
Veh Ref: 2	Cas Age: 20	PSV Passenger: No	Road User Class: Motorcyclists	Ped Location: Notped
Cas Ref: 1	Cas Gender: Male	Seat Belt: Notapp	School Pupil:	Ped Work on Rd: Notped

Vehicle Details

Acc Ref: 143424	Manoeuvre: Ahead	Skidding: None	Impact Point: Front	Driver Breath Test: Negati	Driver Age: 69
Veh Ref: 1	Location: Carw	Object in Cway: None	From: S	Hit and Run: Nothtrun	
Veh Type: Car	Junction: Er/about	Object off Cway None	To: N	Driver Gender: Male	
Foreign Veh:	Towing; None	velwy No	J Purpose: Work	Driver Severity: None	
Acc Ref:	Manoeuvre: Turnrigh	Skidding: None	Impact Point: Nearside	Driver Breath Test: Negati	Driver Age: 20
Veh Ref: 2	Location: Carw	Object in Cway: None	From: E	Hit and Run: Nothtrun	
Veh Type: Mc<=125	Junction: Middle	Object off Cway None	To: N	Driver Gender: Male	
Foreign Veh:	Towing; None	velwy No	J Purpose: Work	Driver Severity: Slight	

Accident Details:

Acc Ref: 2015-4100F0207	1st / 2nd Rd: A405 NONE	Jun Detail: Entrance	Weather: Fine	Num Cas: 2
Day of Week: Tue	Parish: Ststephe	Jun Control: Gwy/unct	Light: Daystlts	Num Peds: 0
Date: 24/03/2015 11:14:00	District: StAlbs	Spec Conditions: None	Road Surface: Dry	Num Vehicles: 2
Acc Severity: Slight	Speed Limit: 70mph	C/way Hazard: None	C/way Type: Dual	Ped Xing: Npernox

A405 North Orbital Road St Albans At Exit From Burston Garden Centre & Approx 330m Ne A405 Noke Rbt

Easting: 513417	Northing: 203776	On Site: Yes
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Casualty Details

Acc Ref: 2015-4100F0207	Cas Class: Driver	Car Passenger: No	Cas Severity: Slight	Ped Movement: Notped
Veh Ref: 1	Cas Age: 37	PSV Passenger: No	Road User Class: Car Users	Ped Location: Notped
Cas Ref: 1	Cas Gender: Female	Seat Belt: Yes	School Pupil: Other	Ped Work on Rd:

Acc Ref: 2015-4100F0207	Cas Class: Driver	Car Passenger: No	Cas Severity: Slight	Ped Movement: Notped
Veh Ref: 2	Cas Age: 26	PSV Passenger: No	Road User Class: Car Users	Ped Location: Notped
Cas Ref: 2	Cas Gender: Male	Seat Belt: Yes	School Pupil: Other	Ped Work on Rd:

Vehicle Details

Acc Ref: 143183	Manoeuvre: Turnleft	Skidding: Skidded	Impact Point: Offside	Driver Breath Test: Notreq	Driver Age: 37
Veh Ref: 1	Location: Carw	Object in Cway: None	From: E	Hit and Run: Nothtrun	
Veh Type: Car+3whl	Junction: Emain	Object off Cway: None	To: W	Driver Gender: Female	
Foreign Veh: Notfirv	Towing: None	velcwy: No	J Purpose: Other	Driver Severity: Slight	

Acc Ref:	Manoeuvre: Ahead	Skidding: Skidded	Impact Point: Front	Driver Breath Test: Notreq	Driver Age: 26
Veh Ref: 2	Location: Carw	Object in Cway: None	From: E	Hit and Run: Nothtrun	
Veh Type: Car+3whl	Junction: Middle	Object off Cway: None	To: W	Driver Gender: Male	
Foreign Veh: Notfirv	Towing: None	velcwy: No	J Purpose: Other	Driver Severity: Slight	

Accident Details:

Acc Ref: 2014-4100F0459	1st / 2nd Rd: B4630/2 C81/10	Jun Detail: Mini	Weather: Fine	Num Cas: 1
Day of Week: Thu	Parish: Ststephe	Jun Control: Gwy/unct	Light: Daystlts	Num Peds: 0
Date: 17/07/2014 18:00:00	District: StAlbs	Spec Conditions: None	Road Surface: Dry	Num Vehicles: 2
Acc Severity: Slight	Speed Limit: 30mph	C/way Hazard: None	C/way Type: Single	Ped Xing: Nperzebx

B4630 Watford Road St Albans Mini Rbt J/w C81 Tippendell Lane **On Site:** No-otc

Eastings: 513409	Northing: 204613
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Casualty Details

Acc Ref: 2014-4100F0459	Cas Class: Driver	Car Passenger: No	Cas Severity: Slight	Ped Movement: Notped
Veh Ref: 2	Cas Age: 34	PSV Passenger: No	Road User Class: Cyclists	Ped Location: Notped
Cas Ref: 1	Cas Gender: Male	Seat Belt: Notapp	School Pupil: Other	Ped Work on Rd:

Vehicle Details

Acc Ref: 141463	Manoeuvre: Starting	Skidding: None	Impact Point: Offside	Driver Breath Test: Notcon	Driver Age: 33
Veh Ref: 1	Location: Carw	Object in Cway: None	From: Se	Hit and Run: Nothtrun	
Veh Type: Car+3whl	Junction: Er/about	Object off Cway None	To: Ne	Driver Gender: Female	
Foreign Veh: Notfrv	Towing; None	velwy No	J Purpose: Other	Driver Severity: None	

Acc Ref:	Manoeuvre: Ahead	Skidding: None	Impact Point: Front	Driver Breath Test: Notapp	Driver Age: 34
Veh Ref: 2	Location: Carw	Object in Cway: None	From: Ne	Hit and Run: Nothtrun	
Veh Type: Bicycle	Junction: Middle	Object off Cway None	To: Sw	Driver Gender: Male	
Foreign Veh: Notfrv	Towing; None	velwy No	J Purpose: Other	Driver Severity: Slight	

Accident Details:

Acc Ref: 2014-4100F0359	1st / 2nd Rd: C81/10	Jun Detail: Notjunct	Weather: Fine	Num Cas: 1
Day of Week: Mon	Parish: Ststephe	Jun Control: Notjunct	Light: Daystlts	Num Peds: 1
Date: 23/06/2014 09:01:00	District: StAlbs	Spec Conditions: None	Road Surface: Dry	Num Vehicles: 2
Acc Severity: Fatal	Speed Limit: 30mph	C/way Hazard: None	C/way Type: Single	Ped Xing: Npernox
C81 Tippendell Lane St Albans Outside No 25 & Approx 38m Se J/w 3026 Horsemans Ride				On Site: Yes
Easting: 513581	Northing: 204515			

Casualty Details

Acc Ref: 2014-4100F0359	Cas Class: Pedestri	Car Passenger: Ped	Cas Severity: Fatal	Ped Movement: Xnrmask
Veh Ref: 1	Cas Age: 55	PSV Passenger: Ped	Road User Class: Pedestrians	Ped Location: Elsewher
Cas Ref: 1	Cas Gender: Male	Seat Belt: Notapp	School Pupil: Other	Ped Work on Rd: No

Vehicle Details

Acc Ref: 141259	Manoeuvre: Ahead	Skidding: None	Impact Point: Nearside	Driver Breath Test: Negati	Driver Age: 66
Veh Ref: 1	Location: Carw	Object in Cway: None	From: Nw	Hit and Run: Nothtrun	
Veh Type: Car+3whl	Junction: Notjunct	Object off Cway None	To: Se	Driver Gender: Male	
Foreign Veh: Notfrv	Towing; None	velwy No	J Purpose: Other	Driver Severity: None	
Acc Ref:	Manoeuvre: Parked	Skidding: None	Impact Point: None	Driver Breath Test: Notcon	Driver Age: 51
Veh Ref: 2	Location: Carw	Object in Cway: None	From: Still	Hit and Run: Nothtrun	
Veh Type: Gdltwght	Junction: Notjunct	Object off Cway None	To: Still	Driver Gender: Male	
Foreign Veh: Notfrv	Towing; None	velwy No	J Purpose: Other	Driver Severity: None	

Accident Details:

Acc Ref: 2014-4100F0350	1st / 2nd Rd: A405/05 C81/10	Jun Detail: R/bout	Weather: Fine	Num Cas: 1
Day of Week: Thu	Parish: Ststephe	Jun Control: Gwy/unct	Light: Daystlts	Num Peds: 0
Date: 12/06/2014 13:17:00	District: StAlbs	Spec Conditions: None	Road Surface: Dry	Num Vehicles: 2
Acc Severity: Slight	Speed Limit: 60mph	C/way Hazard: None	C/way Type: R/bout	Ped Xing: Nperfbrg
A405 North Orbital Road/tippendell Lane Rbt St Albans J/w C81 Tippendell Lane				On Site: Yes
Easting: 513780	Northing: 204328			

Casualty Details

Acc Ref: 2014-4100F0350	Cas Class: Driver	Car Passenger: No	Cas Severity: Slight	Ped Movement: Notped
Veh Ref: 2	Cas Age: 23	PSV Passenger: No	Road User Class: Car Users	Ped Location: Notped
Cas Ref: 1	Cas Gender: Female	Seat Belt: Unknown	School Pupil: Other	Ped Work on Rd:

Vehicle Details

Acc Ref: 141250	Manoeuvre: Starting	Skidding: None	Impact Point: Offside	Driver Breath Test: Negati	Driver Age: 59
Veh Ref: 1	Location: Carw	Object in Cway: None	From: Sw	Hit and Run: Nothtrun	
Veh Type: Gdmdwght	Junction: Middle	Object off Cway None	To: Ne	Driver Gender: Male	
Foreign Veh: Frv/lhd	Towing; Articula	velwy No	J Purpose: Work	Driver Severity: None	
Acc Ref:	Manoeuvre: Starting	Skidding: None	Impact Point: Nearside	Driver Breath Test: Negati	Driver Age: 23
Veh Ref: 2	Location: Carw	Object in Cway: Ctrr/bt	From: Sw	Hit and Run: Nothtrun	
Veh Type: Car+3whl	Junction: Middle	Object off Cway Otherobj	To: Ne	Driver Gender: Female	
Foreign Veh: Notfrv	Towing; None	velwy Offside	J Purpose: Other	Driver Severity: Slight	

Accident Details:

Acc Ref: 2014-4100F0242	1st / 2nd Rd: A405/05 A405	Jun Detail: R/bout	Weather: Fine	Num Cas: 1
Day of Week: Mon	Parish: Ststephe	Jun Control: Gwy/unct	Light: Daystlts	Num Peds: 0
Date: 21/04/2014 16:25:00	District: StAlbs	Spec Conditions: None	Road Surface: Dry	Num Vehicles: 2
Acc Severity: Slight	Speed Limit: 70mph	C/way Hazard: None	C/way Type: Dual	Ped Xing: Nperfbrg
A405 North Orbital Road St Albans J/w A405 Tippendell Lane Rbt				On Site: Yes
Easting: 513772	Northing: 204301			

Casualty Details

Acc Ref: 2014-4100F0242	Cas Class: Passenge	Car Passenger: Frontsea	Cas Severity: Slight	Ped Movement: Notped
Veh Ref: 2	Cas Age: 35	PSV Passenger: No	Road User Class: Car Users	Ped Location: Notped
Cas Ref: 1	Cas Gender: Female	Seat Belt: Yes	School Pupil: Other	Ped Work on Rd:

Vehicle Details

Acc Ref: 140764	Manoeuvre: Waitahea	Skidding: Skidded	Impact Point: Back	Driver Breath Test: Negati	Driver Age: 32
Veh Ref: 1	Location: Carw	Object in Cway: None	From: S	Hit and Run: Nothtrun	
Veh Type: Gdltwght	Junction: Approach	Object off Cway None	To: N	Driver Gender: Male	
Foreign Veh: Notfrv	Towing; None	velwvy No	J Purpose: Work	Driver Severity: None	
<hr/>					
Acc Ref:	Manoeuvre: Stopping	Skidding: Skidded	Impact Point: Front	Driver Breath Test: Negati	Driver Age: 36
Veh Ref: 2	Location: Carw	Object in Cway: None	From: S	Hit and Run: Nothtrun	
Veh Type: Car+3whl	Junction: Approach	Object off Cway None	To: N	Driver Gender: Male	
Foreign Veh: Notfrv	Towing; None	velwvy No	J Purpose: Other	Driver Severity: None	

Accident Details:

Acc Ref: 2014-4100F0210	1st / 2nd Rd: A405/06 A405/05	Jun Detail: R/bout	Weather: Fine	Num Cas: 1
Day of Week: Sat	Parish: Ststephe	Jun Control: Gwy/unct	Light: Darklit	Num Peds: 0
Date: 05/04/2014 22:25:00	District: StAlbs	Spec Conditions: None	Road Surface: Dry	Num Vehicles: 2
Acc Severity: Slight	Speed Limit: 70mph	C/way Hazard: None	C/way Type: Dual	Ped Xing: Npernox
A405 North Orbital Road St Albans J/w A405 Tippendell Lane Rbt				On Site: Yes
Easting: 513812	Northing: 204340			

Casualty Details

Acc Ref: 2014-4100F0210	Cas Class: Driver	Car Passenger: No	Cas Severity: Slight	Ped Movement: Notped
Veh Ref: 1	Cas Age: 26	PSV Passenger: No	Road User Class: Motorcyclists	Ped Location: Notped
Cas Ref: 1	Cas Gender: Male	Seat Belt: Notapp	School Pupil: Other	Ped Work on Rd:

Vehicle Details

Acc Ref: 140759	Manoeuvre: Ahead	Skidding: Skidded	Impact Point: Front	Driver Breath Test: Negati	Driver Age: 26
Veh Ref: 1	Location: Carw	Object in Cway: None	From: N	Hit and Run: Nothtrun	
Veh Type: Mc>500	Junction: Approach	Object off Cway Sidcrash	To: S	Driver Gender: Male	
Foreign Veh: Notfrv	Towing; None	velwy Aheadjun	J Purpose: Other	Driver Severity: Slight	
<hr/>					
Acc Ref:	Manoeuvre: Stopping	Skidding: None	Impact Point: Back	Driver Breath Test: Negati	Driver Age: 42
Veh Ref: 2	Location: Carw	Object in Cway: None	From: N	Hit and Run: Nothtrun	
Veh Type: Mc>500	Junction: Approach	Object off Cway None	To: S	Driver Gender: Male	
Foreign Veh: Notfrv	Towing; None	velwy No	J Purpose: Other	Driver Severity: None	

Accident Details:

Acc Ref: 2013-4100F0664	1st / 2nd Rd: A405/05	Jun Detail: Entrance	Weather: Fine	Num Cas: 2
Day of Week: Tue	Parish: Ststephe	Jun Control: Gwy/unct	Light: Daystlts	Num Peds: 0
Date: 08/10/2013 16:20:00	District: StAlbs	Spec Conditions: None	Road Surface: Dry	Num Vehicles: 2
Acc Severity: Serious	Speed Limit: 70mph	C/way Hazard: None	C/way Type: Dual	Ped Xing: Npernox
A405 North Orbital Road St Albans At Exit From Burston Garden Centre & Approx 345m East J/w A405 Noke Rbt				On Site: Yes
Easting: 513421	Northing: 203773			

Casualty Details

Acc Ref: 2013-4100F0664	Cas Class: Driver	Car Passenger: No	Cas Severity: Serious	Ped Movement: Notped
Veh Ref: 1	Cas Age: 82	PSV Passenger: No	Road User Class: Car Users	Ped Location: Notped
Cas Ref: 1	Cas Gender: Female	Seat Belt: Yes	School Pupil: Other	Ped Work on Rd:
Acc Ref: 2013-4100F0664	Cas Class: Driver	Car Passenger: No	Cas Severity: Slight	Ped Movement: Notped
Veh Ref: 2	Cas Age: 24	PSV Passenger: No	Road User Class: Car Users	Ped Location: Notped
Cas Ref: 2	Cas Gender: Female	Seat Belt: Yes	School Pupil: Other	Ped Work on Rd:

Vehicle Details

Acc Ref: 139416	Manoeuvre: Turnleft	Skidding: None	Impact Point: Offside	Driver Breath Test: Ntprov	Driver Age: 82
Veh Ref: 1	Location: Carw	Object in Cway: None	From: Se	Hit and Run: Nothtrun	
Veh Type: Car+3whl	Junction: Emain	Object off Cway: None	To: Sw	Driver Gender: Female	
Foreign Veh: Notfirv	Towing: None	velcwy: No	J Purpose: Other	Driver Severity: Serious	
Acc Ref:	Manoeuvre: Leftbend	Skidding: None	Impact Point: Front	Driver Breath Test: Negati	Driver Age: 24
Veh Ref: 2	Location: Carw	Object in Cway: None	From: Ne	Hit and Run: Nothtrun	
Veh Type: Car+3whl	Junction: Exit	Object off Cway: None	To: Sw	Driver Gender: Female	
Foreign Veh: Notfirv	Towing: None	velcwy: No	J Purpose: Other	Driver Severity: Slight	

Accident Details:

Acc Ref: 2013-4100F0616	1st / 2nd Rd: U1260/1 C81/10	Jun Detail: T	Weather: Fine	Num Cas: 1
Day of Week: Wed	Parish: Ststephe	Jun Control: Gwy/unct	Light: Daystlts	Num Peds: 0
Date: 18/09/2013 15:30:00	District: StAlbs	Spec Conditions: None	Road Surface: Dry	Num Vehicles: 2
Acc Severity: Slight	Speed Limit: 30mph	C/way Hazard: None	C/way Type: Single	Ped Xing: Npernox

U1260 Tippendell Lane St Albans J/w C81 Tippendell Lane

Easting: 513651	Northing: 204424	On Site: Yes
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Casualty Details

Acc Ref: 2013-4100F0616	Cas Class: Driver	Car Passenger: No	Cas Severity: Slight	Ped Movement: Notped
Veh Ref: 1	Cas Age: 14	PSV Passenger: No	Road User Class: Cyclists	Ped Location: Notped
Cas Ref: 1	Cas Gender: Female	Seat Belt: Notapp	School Pupil: Toorfrom	Ped Work on Rd:

Vehicle Details

Acc Ref: 139228	Manoeuvre: Ahead	Skidding: None	Impact Point: Front	Driver Breath Test: Notapp	Driver Age: 14
Veh Ref: 1	Location: Carw	Object in Cway: None	From: Nw	Hit and Run: Nothtrun	
Veh Type: Bicycle	Junction: Middle	Object off Cway None	To: Se	Driver Gender: Female	
Foreign Veh: Notfrv	Towing; None	velwy No	J Purpose: Ridesch	Driver Severity: Slight	

Acc Ref:	Manoeuvre: Turnrigh	Skidding: None	Impact Point: Offside	Driver Breath Test: Notreq	Driver Age: 55
Veh Ref: 2	Location: Carw	Object in Cway: None	From: Ne	Hit and Run: Nothtrun	
Veh Type: Car+3whl	Junction: Middle	Object off Cway None	To: Sw	Driver Gender: Female	
Foreign Veh: Notfrv	Towing; None	velwy No	J Purpose: Work	Driver Severity: None	

Accident Details:

Acc Ref: 2013-4100F0468	1st / 2nd Rd: A405/06 A405/05	Jun Detail: R/bout	Weather: Fine	Num Cas: 1
Day of Week: Thu	Parish: Ststephe	Jun Control: Gwy/unct	Light: Daystlts	Num Peds: 0
Date: 18/07/2013 12:00:00	District: StAlbs	Spec Conditions: None	Road Surface: Dry	Num Vehicles: 1
Acc Severity: Slight	Speed Limit: 70mph	C/way Hazard: None	C/way Type: Dual	Ped Xing: Npernox

A405 North Orbital Road St Albans Approx 20m North J/w A405 Tippendell Lanerbt

Eastings: 513813	Northing: 204348	On Site: Yes
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Casualty Details

Acc Ref: 2013-4100F0468	Cas Class: Passenge	Car Passenger: Frontsea	Cas Severity: Slight	Ped Movement: Notped
Veh Ref: 1	Cas Age: 19	PSV Passenger: No	Road User Class: Car Users	Ped Location: Notped
Cas Ref: 1	Cas Gender: Female	Seat Belt: Yes	School Pupil: Other	Ped Work on Rd:

Vehicle Details

Acc Ref: 138849	Manoeuvre: Ahead	Skidding: Skidovtu	Impact Point: Front	Driver Breath Test: Negati	Driver Age: 20
Veh Ref: 1	Location: Carw	Object in Cway: None	From: Ne	Hit and Run: Nothtrun	
Veh Type: Car+3whl	Junction: Approach	Object off Cway Ctrcrash	To: Sw	Driver Gender: Male	
Foreign Veh: Notfrv	Towing: None	velewy Offctrbo	J Purpose: Other	Driver Severity: None	

Accident Details:

Acc Ref: 2013-4100F0279	1st / 2nd Rd: A405/05 C81/20	Jun Detail: R/bout	Weather: Fine	Num Cas: 1
Day of Week: Sun	Parish: Ststephe	Jun Control: Gwy/unct	Light: Darklit	Num Peds: 0
Date: 28/04/2013 01:30:00	District: StAlbs	Spec Conditions: None	Road Surface: Dry	Num Vehicles: 2
Acc Severity: Slight	Speed Limit: 60mph	C/way Hazard: None	C/way Type: R/bout	Ped Xing: Npernox

A405 North Orbital Road St Albans Rbt J/w C81 Tippendell Lane

Easting: 513805	Northing: 204302	On Site: Yes
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Casualty Details

Acc Ref: 2013-4100F0279	Cas Class: Driver	Car Passenger: No	Cas Severity: Slight	Ped Movement: Notped
Veh Ref: 2	Cas Age: 28	PSV Passenger: No	Road User Class: Car Users	Ped Location: Notped
Cas Ref: 1	Cas Gender: Male	Seat Belt: Yes	School Pupil: Other	Ped Work on Rd:

Vehicle Details

Acc Ref: 138351	Manoeuvre: Ahead	Skidding: None	Impact Point: Front	Driver Breath Test: Positiv	Driver Age: 22
Veh Ref: 1	Location: Carw	Object in Cway: None	From: W	Hit and Run: Hit&run	
Veh Type: Car+3whl	Junction: Er/about	Object off Cway None	To: E	Driver Gender: Male	
Foreign Veh: Notfrv	Towing; None	velwy No	J Purpose: Other	Driver Severity: None	

Acc Ref:	Manoeuvre: Ahead	Skidding: None	Impact Point: Front	Driver Breath Test: Notreq	Driver Age: 28
Veh Ref: 2	Location: Carw	Object in Cway: Ctrr/bt	From: N	Hit and Run: Nothtrun	
Veh Type: Car+3whl	Junction: Middle	Object off Cway Sign/ats	To: S	Driver Gender: Male	
Foreign Veh: Notfrv	Towing; None	velwy No	J Purpose: Other	Driver Severity: Slight	

Accident Details:

Acc Ref: 2013-4100F0058	1st / 2nd Rd: A405/05 A405/05	Jun Detail: R/bout	Weather: Fine	Num Cas: 1
Day of Week: Tue	Parish: Ststephe	Jun Control: Gwy/unct	Light: Daystlts	Num Peds: 0
Date: 29/01/2013 14:25:00	District: StAlbs	Spec Conditions: None	Road Surface: Wet	Num Vehicles: 2
Acc Severity: Slight	Speed Limit: 60mph	C/way Hazard: None	C/way Type: R/bout	Ped Xing: Npercntr
A405 Noke Hotel Rbt, St Albans J/w A405 North Orbital Road & B4630 Watford Road				On Site: Yes
Easting: 513099	Northing: 203689			

Casualty Details

Acc Ref: 2013-4100F0058	Cas Class: Driver	Car Passenger: No	Cas Severity: Slight	Ped Movement: Notped
Veh Ref: 2	Cas Age: 31	PSV Passenger: No	Road User Class: Cyclists	Ped Location: Notped
Cas Ref: 1	Cas Gender: Female	Seat Belt: Notapp	School Pupil: Other	Ped Work on Rd:

Vehicle Details

Acc Ref: 137818	Manoeuvre: Starting	Skidding: None	Impact Point: Front	Driver Breath Test: Notreq	Driver Age: 69
Veh Ref: 1	Location: Carw	Object in Cway: None	From: E	Hit and Run: Nothtrun	
Veh Type: Car+3whl	Junction: Er/about	Object off Cway None	To: W	Driver Gender: Male	
Foreign Veh: Notfrv	Towing; None	velwy No	J Purpose: Other	Driver Severity: None	
Acc Ref:	Manoeuvre: Ahead	Skidding: None	Impact Point: Nearside	Driver Breath Test: Notapp	Driver Age: 31
Veh Ref: 2	Location: Carw	Object in Cway: None	From: N	Hit and Run: Nothtrun	
Veh Type: Bicycle	Junction: Middle	Object off Cway None	To: S	Driver Gender: Female	
Foreign Veh: Notfrv	Towing; None	velwy No	J Purpose: Tofrowrk	Driver Severity: Slight	

Accident Details:

Acc Ref: 2012-4100F0926	1st / 2nd Rd: B4630/2 C81/10	Jun Detail: R/bout	Weather: Fine	Num Cas: 1
Day of Week: Tue	Parish: Ststephe	Jun Control: Gwy/unct	Light: Darklit	Num Peds: 0
Date: 11/12/2012 16:50:00	District: StAlbs	Spec Conditions: None	Road Surface: Dry	Num Vehicles: 2
Acc Severity: Slight	Speed Limit: 30mph	C/way Hazard: None	C/way Type: R/bout	Ped Xing: Npernox
B4630 Watford Road, St Albans Rbt J/w C81 Tippendell Road				On Site: Yes
Easting: 513414	Northing: 204621			

Casualty Details

Acc Ref: 2012-4100F0926	Cas Class: Driver	Car Passenger: No	Cas Severity: Slight	Ped Movement: Notped
Veh Ref: 2	Cas Age: 20	PSV Passenger: No	Road User Class: Car Users	Ped Location: Notped
Cas Ref: 1	Cas Gender: Male	Seat Belt: Yes	School Pupil: Other	Ped Work on Rd:

Vehicle Details

Acc Ref: 137486	Manoeuvre: Ahead	Skidding: None	Impact Point: Front	Driver Breath Test: Negati	Driver Age: 39
Veh Ref: 1	Location: Carw	Object in Cway: None	From: N	Hit and Run: Nothtrun	
Veh Type: Car+3whl	Junction: Er/about	Object off Cway None	To: S	Driver Gender: Male	
Foreign Veh: Notfrv	Towing; None	velcwy No	J Purpose: Other	Driver Severity: None	
Acc Ref:	Manoeuvre: Turnrigh	Skidding: None	Impact Point: Nearside	Driver Breath Test: Negati	Driver Age: 20
Veh Ref: 2	Location: Carw	Object in Cway: None	From: S	Hit and Run: Nothtrun	
Veh Type: Car+3whl	Junction: Lr/about	Object off Cway None	To: E	Driver Gender: Male	
Foreign Veh: Notfrv	Towing; None	velcwy No	J Purpose: Other	Driver Severity: Slight	

Accident Details:

Acc Ref: 2012-4100F0825	1st / 2nd Rd: B4630/2 U938/10	Jun Detail: R/bout	Weather: Fine	Num Cas: 1
Day of Week: Sun	Parish: Ststephe	Jun Control: Gwy/unct	Light: Daystlts	Num Peds: 0
Date: 18/11/2012 13:15:00	District: StAlbs	Spec Conditions: None	Road Surface: Dry	Num Vehicles: 2
Acc Severity: Serious	Speed Limit: 30mph	C/way Hazard: None	C/way Type: Single	Ped Xing: Nperzebx
B4630 Watford Road, St Albans Approx 12m North Rbt J/w Chiswell Green Lane				On Site: Yes
Easting: 513403	Northing: 204587			

Casualty Details

Acc Ref: 2012-4100F0825	Cas Class: Driver	Car Passenger: No	Cas Severity: Serious	Ped Movement: Notped
Veh Ref: 2	Cas Age: 30	PSV Passenger: No	Road User Class: Motorcyclists	Ped Location: Notped
Cas Ref: 1	Cas Gender: Female	Seat Belt: Notapp	School Pupil: Other	Ped Work on Rd:

Vehicle Details

Acc Ref: 137243	Manoeuvre: Starting	Skidding: None	Impact Point: Front	Driver Breath Test: Notreq	Driver Age: 40
Veh Ref: 1	Location: Carw	Object in Cway: None	From: Ne	Hit and Run: Nothtrun	
Veh Type: Car+3whl	Junction: Approach	Object off Cway: None	To: Sw	Driver Gender: Male	
Foreign Veh: Notfrv	Towing; None	velcwy No	J Purpose: Other	Driver Severity: None	
Acc Ref:	Manoeuvre: Stopping	Skidding: None	Impact Point: Back	Driver Breath Test: Notreq	Driver Age: 30
Veh Ref: 2	Location: Carw	Object in Cway: None	From: Ne	Hit and Run: Nothtrun	
Veh Type: Mc<=125	Junction: Approach	Object off Cway: None	To: Sw	Driver Gender: Female	
Foreign Veh: Notfrv	Towing; None	velcwy No	J Purpose: Other	Driver Severity: Serious	

Accident Details:

Acc Ref: 2012-4100F0670	1st / 2nd Rd: A405/05	Jun Detail: Notjunct	Weather: Fine	Num Cas: 1
Day of Week: Fri	Parish: Ststephe	Jun Control: Notjunct	Light: Daystlts	Num Peds: 0
Date: 21/09/2012 09:35:00	District: StAlbs	Spec Conditions: None	Road Surface: Wet	Num Vehicles: 2
Acc Severity: Serious	Speed Limit: 70mph	C/way Hazard: None	C/way Type: Dual	Ped Xing: Npernox

A405 North Orbital Road, St Albans Approx 50m East J/w A405 Noke Hotel Rbt

Eastings: 513158	Northing: 203716	On Site: Yes
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Casualty Details

Acc Ref: 2012-4100F0670	Cas Class: Driver	Car Passenger: No	Cas Severity: Serious	Ped Movement: Notped
Veh Ref: 1	Cas Age: 20	PSV Passenger: No	Road User Class: Motorcyclists	Ped Location: Notped
Cas Ref: 1	Cas Gender: Male	Seat Belt: Notapp	School Pupil: Other	Ped Work on Rd:

Vehicle Details

Acc Ref: 136722	Manoeuvre: Leftbend	Skidding: Skidded	Impact Point: Front	Driver Breath Test: Negati	Driver Age: 20
Veh Ref: 1	Location: Carw	Object in Cway: None	From: Sw	Hit and Run: Nothtrun	
Veh Type: Mc<=125	Junction: Notjunct	Object off Cway None	To: Ne	Driver Gender: Male	
Foreign Veh: Notfrv	Towing; None	velwy No	J Purpose: Other	Driver Severity: Serious	

Acc Ref:	Manoeuvre: Leftbend	Skidding: None	Impact Point: Back	Driver Breath Test: Negati	Driver Age: 40
Veh Ref: 2	Location: Carw	Object in Cway: None	From: Sw	Hit and Run: Nothtrun	
Veh Type: Car+3whl	Junction: Notjunct	Object off Cway None	To: Ne	Driver Gender: Male	
Foreign Veh: Notfrv	Towing; None	velwy No	J Purpose: Other	Driver Severity: None	

Accident Details:

Acc Ref: 2012-4100F0495	1st / 2nd Rd: A405/05 A405/05	Jun Detail: R/bout	Weather: Fine	Num Cas: 1
Day of Week: Tue	Parish: Ststephe	Jun Control: Gwy/unct	Light: Daystlts	Num Peds: 0
Date: 24/07/2012 20:14:00	District: StAlbs	Spec Conditions: None	Road Surface: Dry	Num Vehicles: 2
Acc Severity: Serious	Speed Limit: 60mph	C/way Hazard: None	C/way Type: R/bout	Ped Xing: Npercntr
A405 Noke Hotel Rbt St Albans J/w A405 North Orbital Road				On Site: Yes
Easting: 513082	Northing: 203682			

Casualty Details

Acc Ref: 2012-4100F0495	Cas Class: Driver	Car Passenger: No	Cas Severity: Serious	Ped Movement: Notped
Veh Ref: 2	Cas Age: 20	PSV Passenger: No	Road User Class: Motorcyclists	Ped Location: Notped
Cas Ref: 1	Cas Gender: Male	Seat Belt: Notapp	School Pupil: Other	Ped Work on Rd:

Vehicle Details

Acc Ref: 136341	Manoeuvre: Rightben	Skidding: None	Impact Point: Front	Driver Breath Test: Negati	Driver Age: 51
Veh Ref: 1	Location: Carw	Object in Cway: None	From: E	Hit and Run: Nothtrun	
Veh Type: Car+3whl	Junction: Er/about	Object off Cway None	To: W	Driver Gender: Male	
Foreign Veh: Notfrv	Towing; None	velcwy No	J Purpose: Other	Driver Severity: None	
<hr/>					
Acc Ref:	Manoeuvre: Rightben	Skidding: None	Impact Point: Back	Driver Breath Test: Ntprov	Driver Age: 20
Veh Ref: 2	Location: Carw	Object in Cway: None	From: Ne	Hit and Run: Nothtrun	
Veh Type: Mc<=125	Junction: Middle	Object off Cway None	To: W	Driver Gender: Male	
Foreign Veh: Notfrv	Towing; None	velcwy No	J Purpose: Tofrowrk	Driver Severity: Serious	

Accident Details:

Acc Ref: 2012-4100F0370	1st / 2nd Rd: A405/05	Jun Detail: Entrance	Weather: Fine	Num Cas: 2
Day of Week: Fri	Parish: Ststephe	Jun Control: Gwy/unct	Light: Daystlts	Num Peds: 0
Date: 18/05/2012 14:50:00	District: StAlbs	Spec Conditions: None	Road Surface: Dry	Num Vehicles: 2
Acc Severity: Slight	Speed Limit: 70mph	C/way Hazard: None	C/way Type: Dual	Ped Xing: Npernox

A405 North Orbital Road St Albans Outside Burston Garden Centre & Approx 325m East J/w A405 Noke Hotel Rbt

Eastings: 513415	Northing: 203772	On Site: Yes
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Casualty Details

Acc Ref: 2012-4100F0370	Cas Class: Driver	Car Passenger: No	Cas Severity: Slight	Ped Movement: Notped
Veh Ref: 1	Cas Age: 44	PSV Passenger: No	Road User Class: Car Users	Ped Location: Notped
Cas Ref: 1	Cas Gender: Female	Seat Belt: Yes	School Pupil: Other	Ped Work on Rd:

Acc Ref: 2012-4100F0370	Cas Class: Driver	Car Passenger: No	Cas Severity: Slight	Ped Movement: Notped
Veh Ref: 2	Cas Age: 56	PSV Passenger: No	Road User Class: Car Users	Ped Location: Notped
Cas Ref: 2	Cas Gender: Female	Seat Belt: Yes	School Pupil: Other	Ped Work on Rd:

Vehicle Details

Acc Ref: 136006	Manoeuvre: Ahead	Skidding: None	Impact Point: Front	Driver Breath Test: Notreq	Driver Age: 44
Veh Ref: 1	Location: Carw	Object in Cway: None	From: Ne	Hit and Run: Nothtrun	
Veh Type: Car+3whl	Junction: Approach	Object off Cway Ctrcrash	To: Sw	Driver Gender: Female	
Foreign Veh: Notfirv	Towing; None	velcwy Offctre	J Purpose: Other	Driver Severity: Slight	

Acc Ref:	Manoeuvre: Waitleft	Skidding: None	Impact Point: Offside	Driver Breath Test: Notreq	Driver Age: 56
Veh Ref: 2	Location: Carw	Object in Cway: None	From: Se	Hit and Run: Nothtrun	
Veh Type: Car+3whl	Junction: Emain	Object off Cway None	To: Nw	Driver Gender: Female	
Foreign Veh: Notfirv	Towing; None	velcwy No	J Purpose: Other	Driver Severity: Slight	

Accident Details:

Acc Ref: 2011-4100F0263	1st / 2nd Rd: A405/05 A405/05	Jun Detail: R/bout	Weather: Fine	Num Cas: 2
Day of Week: Thu	Parish: Ststephe	Jun Control: Gwy/unct	Light: Daystlts	Num Peds: 0
Date: 14/04/2011 10:45:00	District: StAlbs	Spec Conditions: None	Road Surface: Dry	Num Vehicles: 2
Acc Severity: Slight	Speed Limit: 70mph	C/way Hazard: None	C/way Type: Dual	Ped Xing: Npernox

A405 North Orbital Road, St Albans Est 8m Sw Of A405 Rbt J/w Tippendell Lane

Eastings: 513777	Northing: 204300	On Site: No-otc
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Casualty Details

Acc Ref: 2011-4100F0263	Cas Class: Driver	Car Passenger: No	Cas Severity: Slight	Ped Movement: Notped
Veh Ref: 2	Cas Age: 25	PSV Passenger: No	Road User Class: Car Users	Ped Location: Notped
Cas Ref: 1	Cas Gender: Male	Seat Belt: Yes	School Pupil: Other	Ped Work on Rd:

Acc Ref: 2011-4100F0263	Cas Class: Passenge	Car Passenger: Frontsea	Cas Severity: Slight	Ped Movement: Notped
Veh Ref: 2	Cas Age: 17	PSV Passenger: No	Road User Class: Car Users	Ped Location: Notped
Cas Ref: 2	Cas Gender: Male	Seat Belt: Yes	School Pupil: Other	Ped Work on Rd:

Vehicle Details

Acc Ref: 133207	Manoeuvre: Ahead	Skidding: None	Impact Point: Front	Driver Breath Test: Notcon	Driver Age: 28
Veh Ref: 1	Location: Carw	Object in Cway: None	From: Sw	Hit and Run: Nothtrun	
Veh Type: Car+3whl	Junction: Approach	Object off Cway: None	To: Ne	Driver Gender: Male	
Foreign Veh: Notfirv	Towing: None	velcwy: No	J Purpose: Other	Driver Severity: None	

Acc Ref:	Manoeuvre: Waitahea	Skidding: None	Impact Point: Back	Driver Breath Test: Notcon	Driver Age: 25
Veh Ref: 2	Location: Carw	Object in Cway: None	From: Sw	Hit and Run: Nothtrun	
Veh Type: Car+3whl	Junction: Approach	Object off Cway: None	To: Ne	Driver Gender: Male	
Foreign Veh: Notfirv	Towing: None	velcwy: No	J Purpose: Work	Driver Severity: Slight	

Accident Details:

Acc Ref: 2011-4100F0252	1st / 2nd Rd: B4630/2	Jun Detail: Entrance	Weather: Fine	Num Cas: 1
Day of Week: Sat	Parish: Ststephe	Jun Control: Gwy/unct	Light: Daystlts	Num Peds: 0
Date: 09/04/2011 17:29:00	District: StAlbs	Spec Conditions: None	Road Surface: Dry	Num Vehicles: 1
Acc Severity: Serious	Speed Limit: 30mph	C/way Hazard: None	C/way Type: Single	Ped Xing: Npernox

B4630 Watford Road, Chiswell Green 43m Sw Of J/w Larks Ridge, Outside Car Showroom (no 318)

Easting: 513231	Northing: 203917	On Site: Yes
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Casualty Details

Acc Ref: 2011-4100F0252	Cas Class: Driver	Car Passenger: No	Cas Severity: Serious	Ped Movement: Notped
Veh Ref: 1	Cas Age: 69	PSV Passenger: No	Road User Class: Car Users	Ped Location: Notped
Cas Ref: 1	Cas Gender: Male	Seat Belt: Unknown	School Pupil: Other	Ped Work on Rd:

Vehicle Details

Acc Ref: 133099	Manoeuvre: Turnleft	Skidding: None	Impact Point: Front	Driver Breath Test: Ntprov	Driver Age: 69
Veh Ref: 1	Location: Carw	Object in Cway: None	From: Sw	Hit and Run: Nothtrun	
Veh Type: Car+3whl	Junction: Approach	Object off Cway Otherobj	To: Nw	Driver Gender: Male	
Foreign Veh: Notfrv	Towing; None	velewy Nearside	J Purpose: Other	Driver Severity: Serious	

Accident Details:

Acc Ref: 2011-4100F0190	1st / 2nd Rd: B4630/2	Jun Detail: Entrance	Weather: Fine	Num Cas: 2
Day of Week: Sat	Parish: Ststephe	Jun Control: Gwy/unct	Light: Darklit	Num Peds: 0
Date: 12/03/2011 22:40:00	District: StAlbs	Spec Conditions: None	Road Surface: Dry	Num Vehicles: 2
Acc Severity: Serious	Speed Limit: 30mph	C/way Hazard: None	C/way Type: Single	Ped Xing: Npercntr

B4630 Watford Road, Chiswell Green 30m Sw Of J/w Belvedere Gardens At J/w Entrance To Petrol Station Forecourt

Eastings: 513113	Northing: 203787	On Site: Yes
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Casualty Details

Acc Ref: 2011-4100F0190	Cas Class: Driver	Car Passenger: No	Cas Severity: Serious	Ped Movement: Notped
Veh Ref: 1	Cas Age: 19	PSV Passenger: No	Road User Class: Motorcyclists	Ped Location: Notped
Cas Ref: 1	Cas Gender: Male	Seat Belt: Notapp	School Pupil: Other	Ped Work on Rd:

Acc Ref: 2011-4100F0190	Cas Class: Driver	Car Passenger: No	Cas Severity: Slight	Ped Movement: Notped
Veh Ref: 2	Cas Age: 70	PSV Passenger: No	Road User Class: Car Users	Ped Location: Notped
Cas Ref: 2	Cas Gender: Male	Seat Belt: Unknown	School Pupil: Other	Ped Work on Rd:

Vehicle Details

Acc Ref: 132950	Manoeuvre: Ahead	Skidding: None	Impact Point: Front	Driver Breath Test: Ntprov	Driver Age: 19
Veh Ref: 1	Location: Carw	Object in Cway: None	From: Ne	Hit and Run: Nothtrun	
Veh Type: Mc<=125	Junction: Middle	Object off Cway: None	To: Sw	Driver Gender: Male	
Foreign Veh: Notfirv	Towing: None	velcwy: No	J Purpose: Other	Driver Severity: Serious	

Acc Ref:	Manoeuvre: Turnrigh	Skidding: None	Impact Point: Front	Driver Breath Test: Negati	Driver Age: 70
Veh Ref: 2	Location: Carw	Object in Cway: None	From: Sw	Hit and Run: Nothtrun	
Veh Type: Car+3whl	Junction: Lmain	Object off Cway: None	To: Se	Driver Gender: Male	
Foreign Veh: Notfirv	Towing: None	velcwy: No	J Purpose: Other	Driver Severity: Slight	

Accident Details:

Acc Ref: 2011-4100F0166	1st / 2nd Rd: B4630/2	Jun Detail: Entrance	Weather: Fine	Num Cas: 1
Day of Week: Fri	Parish: Ststephe	Jun Control: Gwy/unct	Light: Daystlts	Num Peds: 1
Date: 04/03/2011 09:30:00	District: StAlbs	Spec Conditions: None	Road Surface: Dry	Num Vehicles: 1
Acc Severity: Slight	Speed Limit: 30mph	C/way Hazard: None	C/way Type: Single	Ped Xing: Npernox

B4630 Watford Road, Chiswell Green On Sw Corner At J/w Long Fallow

Eastings: 513166	Northing: 203861	On Site: No-otc
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Casualty Details

Acc Ref: 2011-4100F0166	Cas Class: Pedestri	Car Passenger: Ped	Cas Severity: Slight	Ped Movement: Unknown
Veh Ref: 1	Cas Age: 45	PSV Passenger: Ped	Road User Class: Pedestrians	Ped Location: Footway
Cas Ref: 1	Cas Gender: Male	Seat Belt: Notapp	School Pupil: Other	Ped Work on Rd: Yes

Vehicle Details

Acc Ref: 132942	Manoeuvre: Reverse	Skidding: None	Impact Point: Back	Driver Breath Test: Notcon	Driver Age: 37
Veh Ref: 1	Location: Fway	Object in Cway: None	From: Nw	Hit and Run: Nothtrun	
Veh Type: Car+3whl	Junction: Emain	Object off Cway: None	To: Se	Driver Gender: Female	
Foreign Veh: Notfrv	Towing: None	velewy: No	J Purpose: Other	Driver Severity: None	

Accident Details:

Acc Ref: 2011-4100F0153	1st / 2nd Rd: A405/05	Jun Detail: Entrance	Weather: Fine	Num Cas: 1
Day of Week: Wed	Parish: Ststephe	Jun Control: Gwy/unct	Light: Daystlts	Num Peds: 0
Date: 26/01/2011 14:00:00	District: StAlbs	Spec Conditions: None	Road Surface: Dry	Num Vehicles: 2
Acc Severity: Slight	Speed Limit: 70mph	C/way Hazard: None	C/way Type: Dual	Ped Xing: Npernox

A405 North Orbital Road, St Albans 333m Ne Of Rbt J/w B4630 Watford Road Atj/w Exit From Nursery

Eastings: 513420	Northing: 203777	On Site: Yes
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Casualty Details

Acc Ref: 2011-4100F0153	Cas Class: Driver	Car Passenger: No	Cas Severity: Slight	Ped Movement: Notped
Veh Ref: 1	Cas Age: 63	PSV Passenger: No	Road User Class: Car Users	Ped Location: Notped
Cas Ref: 1	Cas Gender: Female	Seat Belt: Yes	School Pupil: Other	Ped Work on Rd:

Vehicle Details

Acc Ref: 132521	Manoeuvre: Turnleft	Skidding: None	Impact Point: Back	Driver Breath Test: Notreq	Driver Age: 63
Veh Ref: 1	Location: Carw	Object in Cway: None	From: Se	Hit and Run: Nothtrun	
Veh Type: Car+3whl	Junction: Emain	Object off Cway None	To: Sw	Driver Gender: Female	
Foreign Veh: Notfrv	Towing; None	velwy No	J Purpose: Other	Driver Severity: Slight	

Acc Ref:	Manoeuvre: Rightben	Skidding: None	Impact Point: Front	Driver Breath Test: Notreq	Driver Age: 62
Veh Ref: 2	Location: Carw	Object in Cway: None	From: Ne	Hit and Run: Nothtrun	
Veh Type: Gdltwght	Junction: Middle	Object off Cway None	To: Sw	Driver Gender: Male	
Foreign Veh: Notfrv	Towing; None	velwy No	J Purpose: Work	Driver Severity: None	

Accident Details:

Acc Ref: 2010-4100F0903	1st / 2nd Rd: B4630/2 C81/10	Jun Detail: Mini	Weather: Fine	Num Cas: 1
Day of Week: Fri	Parish: Ststephe	Jun Control: Gwy/unct	Light: Daystlts	Num Peds: 0
Date: 26/11/2010 15:17:00	District: StAlbs	Spec Conditions: None	Road Surface: Dry	Num Vehicles: 2
Acc Severity: Slight	Speed Limit: 30mph	C/way Hazard: None	C/way Type: R/bout	Ped Xing: Nperzebx

B4630 Watford Road, Chiswell Green Mini Rbt J/w Tippendale Lane

Eastings: 513415	Northing: 204615	On Site: Yes
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Casualty Details

Acc Ref: 2010-4100F0903	Cas Class: Driver	Car Passenger: No	Cas Severity: Slight	Ped Movement: Notped
Veh Ref: 2	Cas Age: 19	PSV Passenger: No	Road User Class: Cyclists	Ped Location: Notped
Cas Ref: 1	Cas Gender: Male	Seat Belt: Notapp	School Pupil: Other	Ped Work on Rd:

Vehicle Details

Acc Ref: 132171	Manoeuvre: Turnrigh	Skidding: None	Impact Point: Offside	Driver Breath Test: Negati	Driver Age: 47
Veh Ref: 1	Location: Carw	Object in Cway: None	From: Se	Hit and Run: Nothtrun	
Veh Type: Car+3whl	Junction: Er/about	Object off Cway None	To: Ne	Driver Gender: Female	
Foreign Veh: Notfrv	Towing; None	velwy No	J Purpose: Other	Driver Severity: None	

Acc Ref:	Manoeuvre: Ahead	Skidding: None	Impact Point: Front	Driver Breath Test: Negati	Driver Age: 19
Veh Ref: 2	Location: Carw	Object in Cway: None	From: Ne	Hit and Run: Nothtrun	
Veh Type: Bicycle	Junction: Middle	Object off Cway None	To: Sw	Driver Gender: Male	
Foreign Veh: Notfrv	Towing; None	velwy No	J Purpose: Ridesch	Driver Severity: Slight	



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- Civil Engineering
- Transport & Highways
- Geomatics (Land Surveying)
- Building Surveying
- CDM Consultants

Appendix 27: Glanville Land at Chiswell Green Transport Assessment Addendum
(October 2018)

LAND AT CHISWELL GREEN, ST ALBANS

TRANSPORT ASSESSMENT ADDENDUM

1.0 Introduction

- 1.1 This Transport Assessment Addendum has been prepared by Glanville Consultants on behalf of Adrian Irving and Alban Developments to support promotion of a site west of Chiswell Green as a Broad Location for development in the St Albans City & District Council Local Plan 2020-2036.
- 1.2 Glanville produced a Transport Assessment (reference TR8151408/OS/DW/011) in January 2016 in support of development at the site when it was not included within the Local Plan as drafted at that time. The Local Plan was subsequently withdrawn, and St Albans City & District Council are progressing a new Local Plan which now includes the site.
- 1.3 The current Local Plan process has reached the Regulation 19 consultation stage and this Addendum therefore presents an update of the 2016 Transport Assessment (herein referred to as the TA), with a view to establishing whether any material changes have altered its findings and conclusions. As such, this report should be read in conjunction with the TA, as much of its content remains relevant to the site.

2.0 Site Description and Proposed Development

Site Description

- 2.1 The site extents remain as previously considered by the TA. It is bounded by Chiswell Green Lane to the north, existing residential areas to the east, open agricultural land to the south and Miriam Road and the former Butterfly World visitor attraction to the west.
- 2.2 The local road network also remains largely unchanged since 2016, as broadly set-out below.
- 2.3 B4630 Watford Road is a single carriageway road to the east of the site. It links the A405 to the south with the A414 on the outskirts of St Albans to the north.
- 2.4 There are two side streets to the west of Watford Road, Forge End and Long Fallow, which are cul-de-sacs with residential properties on both sides, located along the eastern site boundary.
- 2.5 To the south, the B4630 Watford Road joins the A405, a dual carriageway also locally known as North Orbital Road providing links to the M25 and M1 approximately 2km southwest of the site.
- 2.6 Chiswell Green Lane to the north of the site is a residential road with a 30mph speed limit which increases to 60mph once the road leaves the built-up area of Chiswell Green and enters the countryside.

Proposed Development

- 2.7 The TA assessed the impact of 370 residential dwellings and a two-form entry primary school on the local highway network. It was assumed that 50% (185) of the development would be 'affordable', although the exact mix of housing had not been determined.
- 2.8 A development masterplan is currently being developed and the housing mix now envisaged, based on Albans City & District Council's Strategic Housing Market Assessment (SHMA) October 2015, is as follows:
- 1-Bed 51 Dwellings
 - 2-Bed 80 Dwellings
 - 3-Bed 208 Dwellings
 - 4-Bed 26 Dwellings
- 2.9 The above mix is broken down into affordable and private as follows:
- Private 219 dwellings
 - Social Rented 44 dwellings
 - Affordable Rented 44 dwellings
 - Subsidised Home Ownership 58 dwellings
- 2.10 Based on the above, 40% of the 365 dwellings (146) are anticipated to be 'affordable' and this Addendum therefore includes updated traffic generation figures and corresponding impact assessment in the following section. A two-form entry primary school is still proposed.
- 2.11 The masterplan continues to envisage three parcels of development, with access to Chiswell Green Lane, Forge End and Forge End / Long Fallow respectively (four access points). Pedestrian and cycle connections would be provided between parcels, but no vehicular through-traffic would be permitted through the site. This would prevent rat-running and spread the impact of development traffic across the network.
- 2.12 The TA provides a detailed assessment of the suitability of the above access points, and concludes that safe and convenient access to the site can be achieved. There is no reason to believe this would not still be the case.

3.0 Updated Traffic Impact Assessment

Traffic Generation

- 3.1 As noted, the envisaged housing mix has been developed further and it is therefore appropriate to update the estimated traffic generation. This is set out in the following series of tables, with the trip rates provided originating from the TA.

Table 1: Trip Rates (Houses Privately Owned)

Period	Trip Rates (per Dwelling)		
	Inbound	Outbound	Two-Way
AM Peak (08:00 to 09:00)	0.175	0.435	0.610
PM Peak (17:00 to 18:00)	0.393	0.226	0.619
Daily (07:00 to 19:00)	2.657	2.720	5.377

Table 2: Traffic Generation – 219 Private Dwellings

Period	Traffic Generation (Vehs)		
	Inbound	Outbound	Two-Way
AM Peak (08:00 to 09:00)	38	95	134
PM Peak (17:00 to 18:00)	86	49	136
Daily (07:00 to 19:00)	581	596	1,178

Table 3: Trip Rates (Affordable Houses)

Period	Trip Rates (per Dwelling)		
	Inbound	Outbound	Two-Way
AM Peak (08:00 to 09:00)	0.178	0.326	0.504
PM Peak (17:00 to 18:00)	0.333	0.235	0.568
Daily (07:00 to 19:00)	2.437	2.455	4.892

Table 4: Traffic Generation – 146 Affordable Houses

Period	Traffic Generation (Vehs)		
	Inbound	Outbound	Two-Way
AM Peak (08:00 to 09:00)	26	48	74
PM Peak (17:00 to 18:00)	49	34	83
Daily (07:00 to 19:00)	356	358	714

- 3.2 On the basis of the above assessment, the updated traffic generation is summarised in the following table.

Table 5: Updated Total Development Traffic Generation

Period	Traffic Generation		
	Inbound	Outbound	Two-Way
370 Residential Units			
AM Peak (08:00 to 09:00)	64	143	208
PM Peak (17:00 to 18:00)	135	83	219
420 Pupil Primary School*			
AM Peak (08:00 to 09:00)	134	98	232
PM Peak (17:00 to 18:00)	5	13	18
Total Development			
AM Peak (08:00 to 09:00)	198	241	440
PM Peak (17:00 to 18:00)	140	96	237

*Unchanged from Table 8 of the 2016 Transport Assessment

- 3.3 It should be noted that not all of the above school trips are likely to materialise on the public highway because Herfordshire County Council estimate 155 out of 420 primary school pupil places provided being associated with the development itself. Therefore around 37% of school trips would be replaced with a walking / cycling trip, or be linked with an outbound residential car trip in the AM peak, for example.
- 3.4 In addition, no allowance has been made for any flats that may be included in the final development mix, which the TRICS database indicates typically generate fewer vehicle trips than houses.

- 3.5 As such, as with the original TA, Table 5 can be taken as a ‘worst case’ in terms of the impact on the local and wider highway network.

Trip Assignment

- 3.6 The development trips outlined in Table 5 have been assigned to the network in the same proportions as outlined in Section 5 of the TA. The corresponding updated flow diagrams are included at Appendix A.

Background Traffic Growth

- 3.7 In the TA, the traffic flows recorded during surveys in 2016 were increased to 2021 levels through the application of growth factors derived from *TEMPRO* 6.2 (dataset 62), which incorporates growth factors from the National Traffic Model (NTM 09).

- 3.8 It is considered appropriate to now assess the impact of the development with an updated assessment year of 2023 (five years from the submission of this report). Updated growth factors have therefore been derived from the latest version of the *TEMPRO* software, version 7.2 (dataset 72), which incorporates growth factors from the National Traffic Model AF15 dataset. The revised growth rates are as follows:

- 2016 to 2023 Weekday AM Peak 1.0939 (9.4%)
- 2016 to 2023 Weekday PM Peak 1.0838 (8.4%)

- 3.9 *TEMPRO* uses planning data (the anticipated number of houses to be built in an area and number of new jobs) which is made available to the Department for Transport (who are the developers of the software) by the relevant local Planning Authority. As such, the above growth rates include traffic arising from both consented and anticipated housing growth in the area.

Updated Percentage Impact Assessment

- 3.10 Comparing the 2023 traffic flows for each junction within the TA’s Study Area, with and without development, provides the percentage uplift in traffic anticipated, as outlined in the following table.

Table 6: Traffic Impact Assessment 2023

Junction	Without Develop (Vehs)	With Develop (Vehs)	Increase (Vehs)	Increase (%)
AM Peak (08:00 – 09:00)				
Watford Road / Long Fallow	1452	1569	117	8.1
Watford Road / Forge End	1509	1696	187	12.4
Watford Road / Chiswell Green Lane	1704	2072	368	21.6
Watford Road / Tippendell Lane	2011	2177	166	8.3
North Orbital Road / Tippendell Lane	2049	2128	79	3.9
North Orbital Road / Watford Road	2691	2794	101	3.8
North Orbital Road / Watling Street	4647	4698	51	1.1
PM Peak (17:00 – 18:00)				
Watford Road / Long Fallow	1454	1577	123	8.5
Watford Road / Forge End	1491	1594	103	6.9
Watford Road / Chiswell Green Lane	1637	1811	174	10.6
Watford Road / Tippendell Lane	1904	2009	105	5.5
North Orbital Road / Tippendell Lane	2685	2751	66	2.5
North Orbital Road / Watling Street	3462	3569	107	3.1
Watford Road / Long Fallow	5421	5473	52	1.0

- 3.11 It can be seen from the above that the greatest development impact continues to be at the Watford Road / Chiswell Green Lane mini-roundabout, which forms part of a double-mini arrangement with Watford Road / Tippendell Lane.
- 3.12 The TA found that this junction was already operating over capacity in 2016 and this worsens with the addition of development traffic. This would continue to be the case with the revised development mix and additional background traffic growth to 2023.
- 3.13 The TA concludes that a possible mitigation strategy at the above junctions could take the form of a linked staggered signalised junction in place of the double mini-roundabouts. It remains appropriate for this to be developed at the planning application stage, when the full accommodation schedule / development mix is known, further work has been undertaken regarding the internalised school trips, and the sustainable travel strategy has been fully developed (see Section 4 of this report).
- 3.14 The TA found no other capacity constraints on the network, with junction modelling having been undertaken at all junctions experiencing over a 5% increase in traffic in the with-development scenario. The results outlined above do not indicate any changes in this regard.

4.0 Sustainability

- 4.1 The site is in a sustainable location, with a range of local amenities within walking distance of the site identified within the TA. The greater range of facilities typical of a city location are within cycling distance of St Albans.

- 4.2 A package of sustainable transport measures is now proposed, aimed at discouraging the reliance on the private car, and to reduce car ownership and emissions. Measures anticipated are as follows:
- School Travel Plan;
 - Residential Travel Plan;
 - Car Club Scheme;
 - Electric Vehicle Charging Points; and
 - Financial Contributions towards:
 - Improvements to National Cycle Route 6
 - Local Bus Services
 - Cycle Parking at How Wood Station
- 4.3 There are a number of railway stations in the vicinity of the site, which is a significant benefit of the location. Those most likely to be used by residents of the development are:
- How Wood Station and Park Street Station are the closest to the site. Both stations are located on the Abbey Line, which is served by London Northwestern Railway providing services between Watford Junction and St Albans Abbey.
 - St Albans City is the nearest main line station, being on the Midland Main Line, which runs between London St Pancras International and Sheffield. There are also direct services to Gatwick Airport, Luton Airport and Brighton.

Walking and Cycling Audit

- 4.4 A review of the optimum walking and cycling routes from the site to the local train stations has been undertaken as set out below. The routes and station locations are also illustrated on the sustainability plan provided at Appendix B.

Route 1 – Route to How Wood Station:

Crossing Watford Road at the existing Zebra crossing, onto Tippendell Lane, which crosses the A405 via an existing footbridge and continues to Park Street Lane, where the station is located, approximately 500m from this junction.

- 4.5 According to Google maps, this route takes approximately 28 minutes to walk and 9 minutes to cycle.
- 4.6 The Zebra crossing on Watford Road is in visibly poor/worn condition as can be seen in Photo 1.

Photo 1 – Zebra crossing on Watford Road



- 4.7 Much of Tippendell Lane between Watford Road and the A405 has good footway provision, at 1.8m wide on both sides of the carriageway with only occasional narrowing due to the presence of grass verges. The route is also well-lit.
- 4.8 The footbridge which crosses the A405 is accessible by both pedestrians and cyclists as both steps and ramps exist, avoiding the need for cyclists to navigate the busy, fast flowing roundabout below.
- 4.9 After crossing the A405, there is only footway provision on the right hand side of Tippendell Lane, which whilst initially 1.8m wide, narrows to 1m after approximately 300m. Where the footway narrows down to 1m, there is some overgrown vegetation encroaching onto the footway.
- 4.10 Cyclists may prefer to connect onto National Cycle Route 6 after crossing the A405, avoiding much of Tippendell Lane, and instead turning onto Spooners Drive, then Burston Drive, emerging opposite the station. Refer to Photo 2.

Photo 2 – Section of National Cycle Route 6 which runs parallel to Tippendell Lane



- 4.11 At various points along Tippendell Lane, the footway surface is in poor condition and there are several crossing points with a lack of suitable dropped kerb provision.
- 4.12 After turning right onto Park Street Lane, there is excellent footway provision on the western side. The 1.8m wide footway is protected by a 2m grass verge and slightly raised above the carriageway for pedestrian safety. See Photo 3.

Photo 3 – Footway provision along Park Street Lane



Route 2 – Route to Park Street Station:

Same as Route 1 to How Wood Station, however rather than turning right onto Park Street Lane, the route continues straight on from Tippendell Lane onto Park Street Lane, turning left onto Park Street, continuing approximately 500m to the station.

- 4.13 According to Google Maps, this route takes approximately 30 minutes to walk and 10 minutes to cycle.

- 4.14 After continuing straight onto Park Street Lane, there are 1.8m wide footways along both sides of the road, with good dropped kerb provision where appropriate. In addition there are multiple pedestrian crossing locations, both signalised and un-signalised, along the route. The route is also well-lit by street lighting.

Route 3 – Route to St Albans City Station:

Via Watford Road, continuing onto St Stephen's Hill, taking the second exit at the roundabout onto Griffiths Way, continuing on National Cycle Route 61, after approximately 1 mile, turn left onto Charrington Place and continue on towards City Station.

- 4.15 According to Google Maps, this route takes approximately 20 minutes to cycle.
- 4.16 There is excellent, coloured on-street cycle lane provision along much of Watford Road and the overbridge which crosses the A414. Refer to Photo 4.

Photo 4 – Cycle lane provision along Watford Road Bridge



- 4.17 National Cycle Route 61 is accessible at the end of Griffiths Way, offering an excellent route into St Albans City Centre, with a mix of traffic free paths and some on road sections.
- 4.18 After turning off NCR61, cycle lanes are present along Charrington Place up towards the station.

Proposed Improvements

Routes 1 & 2

- 4.19 It is envisaged that the existing Zebra crossing located between the mini-roundabouts on Watford Road will become signalised as part of mitigation works required at these junctions.
- 4.20 Various sections along the footway on Tippendell Lane, between Watford Road and Park Street Lane, have been identified as benefiting from minor improvement works. Refer to Photos 5, 6, 7 and 8.

Photos 5 & 6 – Route would benefit from dropped kerbs and repairs



Photos 7 & 8 – Overgrown vegetation encroaching onto the already narrow footway



- 4.21 Whilst arguably a maintenance issue, it is proposed to repair sections of the route as well as provide dropped kerbs where currently not provided and widen sections where feasible.

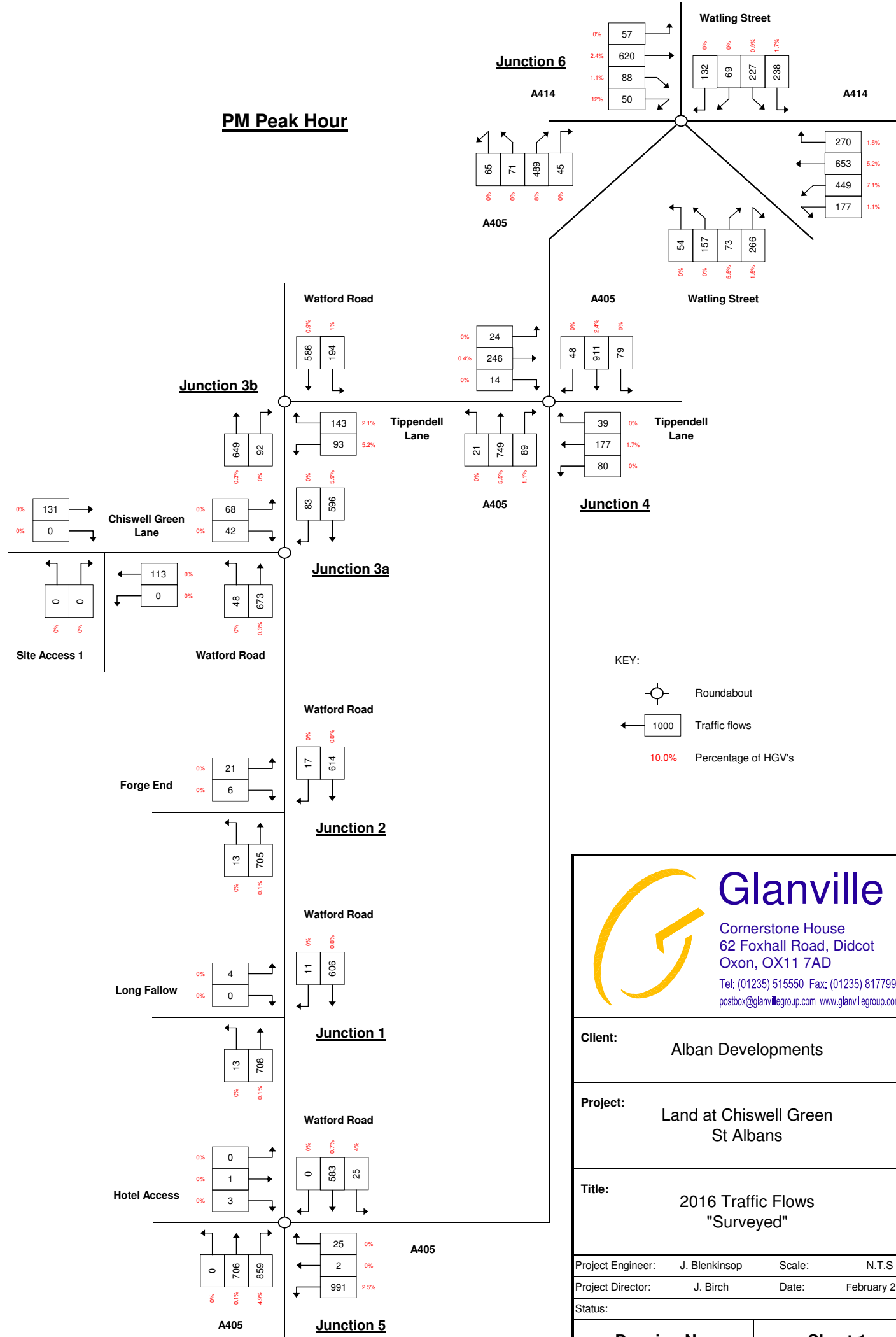
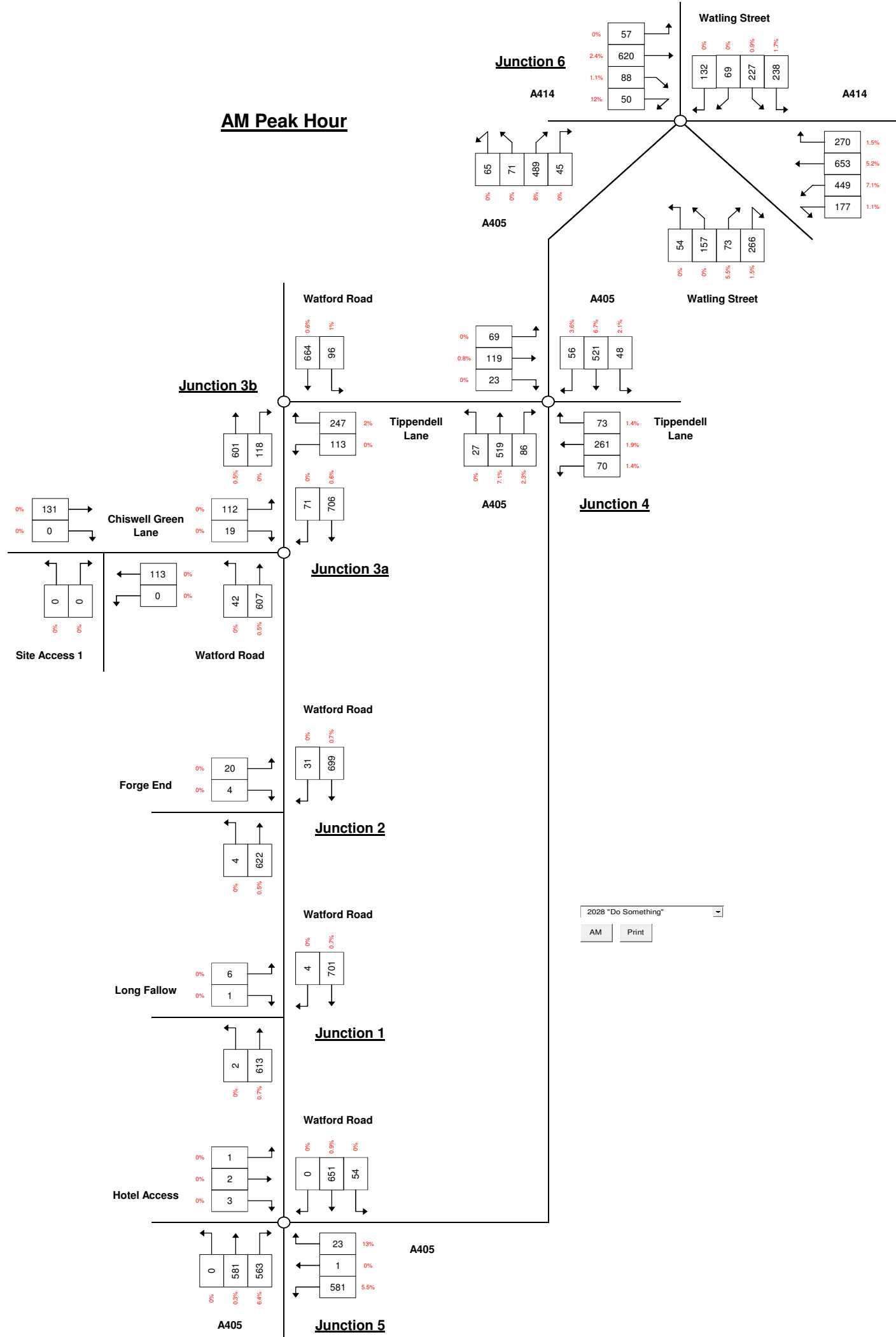
Route 3

- 4.22 No significant deficiencies were identified along this cycling route and therefore no upgrades are considered necessary.

5.0 Summary and Conclusion

- 5.1 This Transport Assessment Addendum has been prepared by Glanville Consultants to support promotion of a site west of Chiswell Green as a Broad Location for development in the St Albans City & District Council Local Plan 2020-2036.
- 5.2 This Addendum presents an update of the Transport Assessment prepared in support of development at the site when it was not included within the Local Plan as drafted at that time.
- 5.3 Following an update of the Traffic Impact Assessment, only the Watford Road / Chiswell Green Lane mini-roundabout, which forms part of a double-mini arrangement with Watford Road / Tippendell Lane, continues to be identified as requiring mitigation measures.
- 5.4 Mitigation envisaged is a linked staggered signalised junction in place of the double mini-roundabouts. As part of these works, the existing Zebra crossing would be upgraded and signalised. It remains appropriate for these works to be developed at the planning application stage.
- 5.5 A package of sustainable transport measures are proposed, aimed at discouraging the reliance on the private car, and to reduce car ownership and emissions. These will be developed at the planning application stage.
- 5.6 A Walking and Cycling Audit has been undertaken of three key routes to the local railway stations. Following this, footway improvements to Tippendell Lane, between Watford Road and Park Street Lane are proposed.
- 5.7 It is concluded that the proposed development is in accordance with the National Planning Policy Framework, which is in favour of sustainable development and advises that *'Development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe'*.
- 5.8 In light of the evidence presented in this report, it is considered that the development would not have a detrimental impact on highway safety and the transport impacts cannot be regarded as severe and the site should therefore continue to be promoted within the Local Plan.

Appendix A
Flow Diagrams



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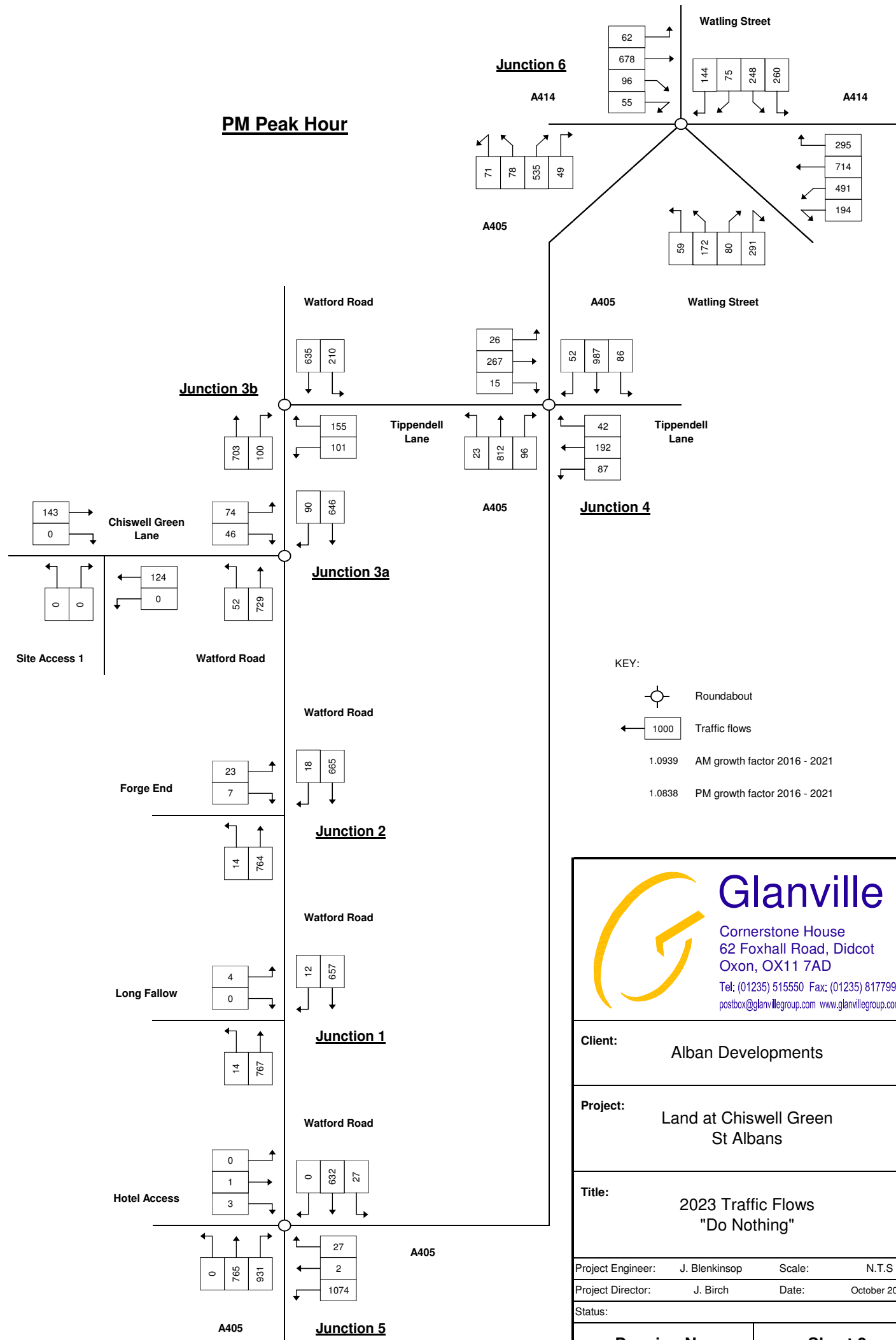
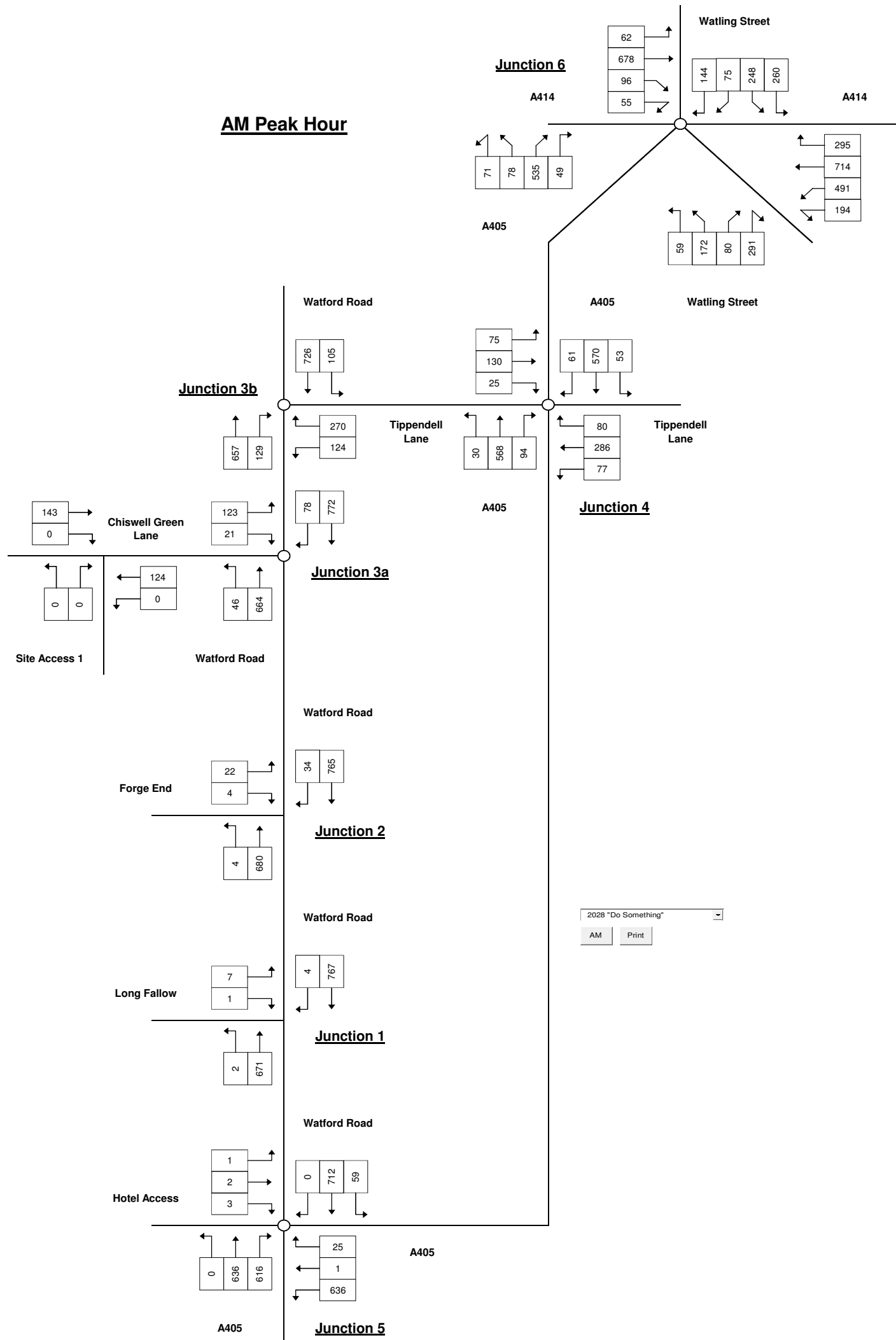
Project: Land at Chiswell Green St Albans

Title: 2016 Traffic Flows "Surveyed"

Project Engineer: J. Blenkinsop **Scale:** N.T.S
Project Director: J. Birch **Date:** February 2016

Status:

Drawing No. **Sheet 1**



- KEY:
- Roundabout
 - Traffic flows
 - 1.0939 AM growth factor 2016 - 2021
 - 1.0838 PM growth factor 2016 - 2021

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Client: Alban Developments

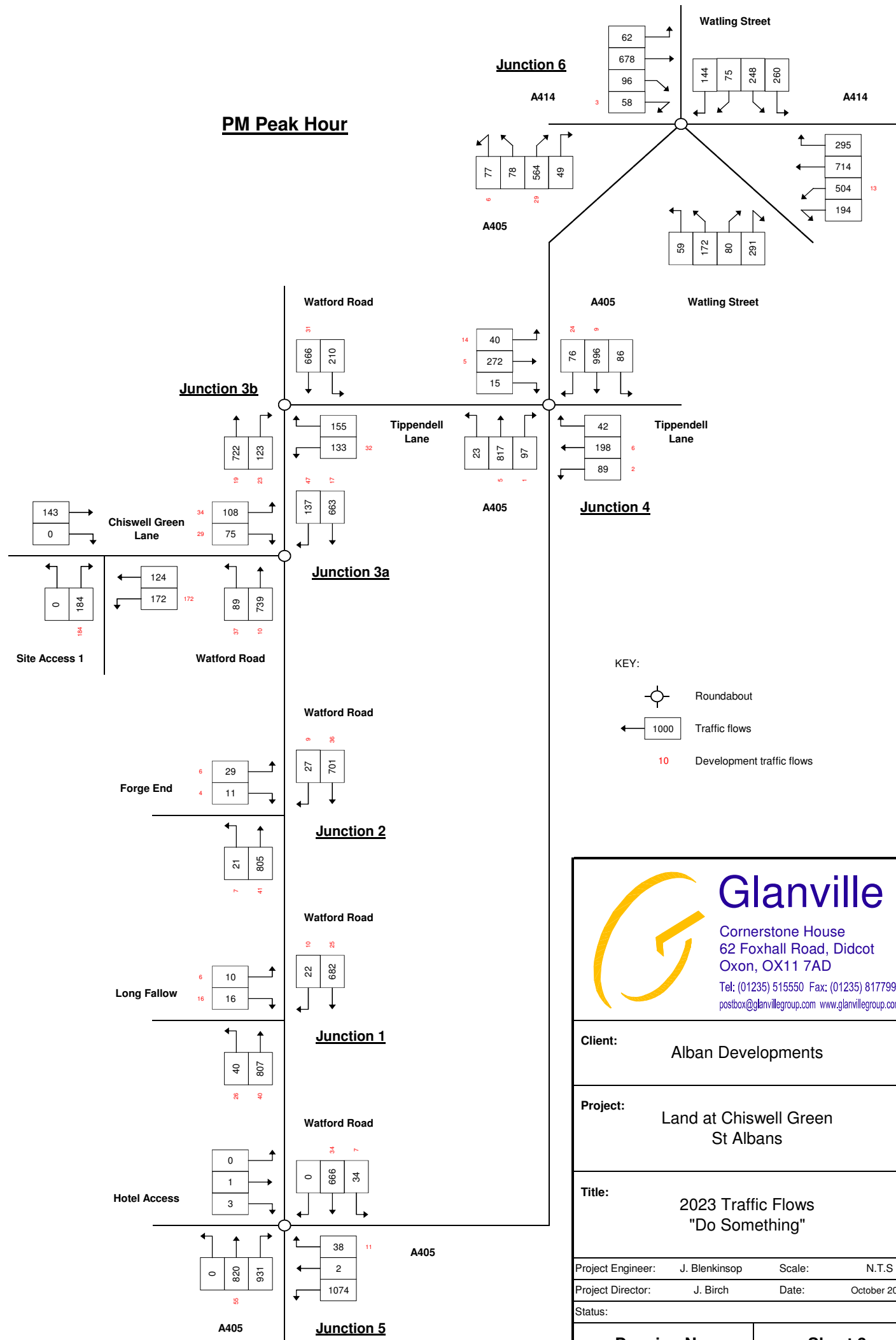
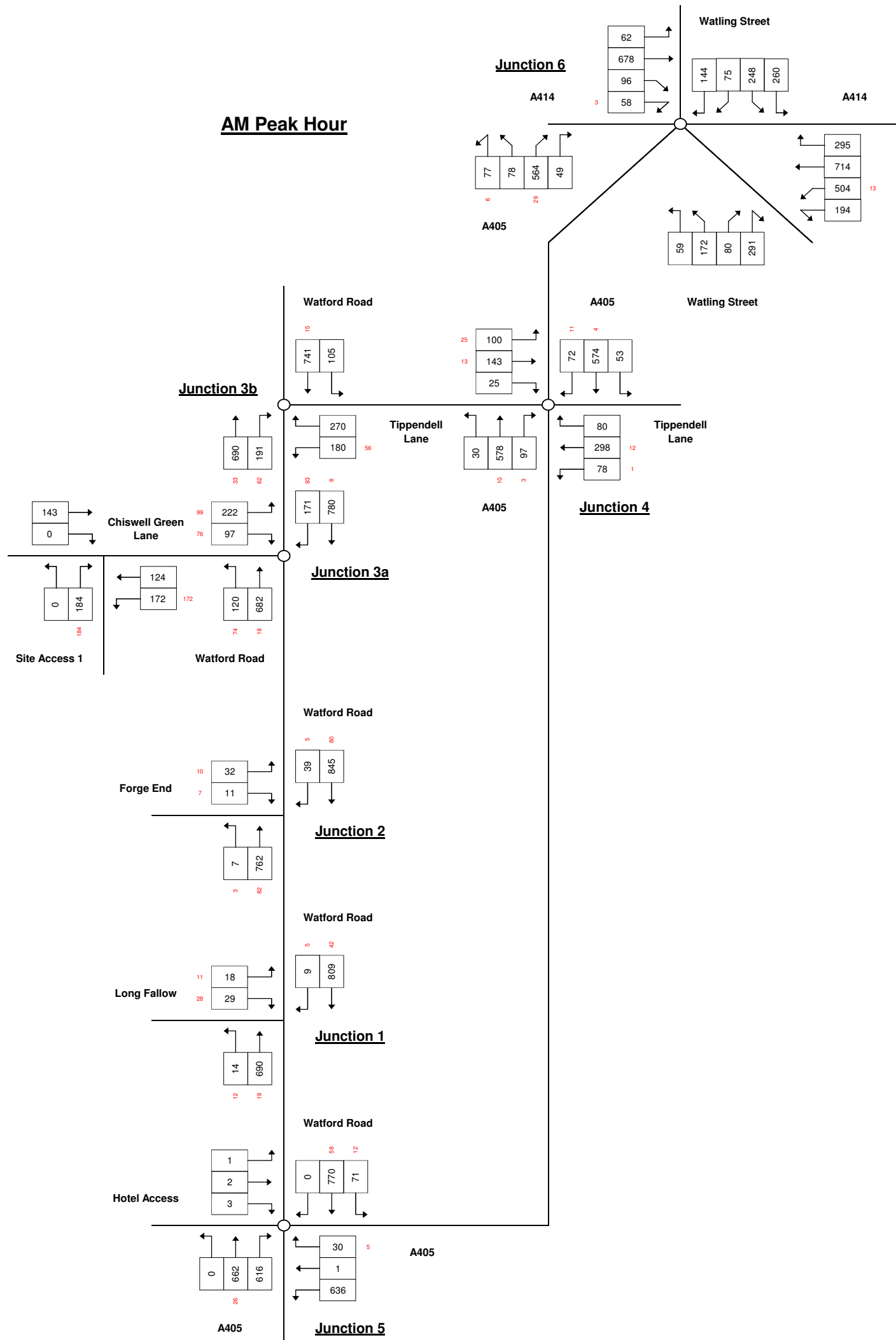
Project: Land at Chiswell Green St Albans

Title: 2023 Traffic Flows "Do Nothing"

Project Engineer: J. Blenkinsop Scale: N.T.S.
 Project Director: J. Birch Date: October 2018

Status:

Drawing No. Sheet 2



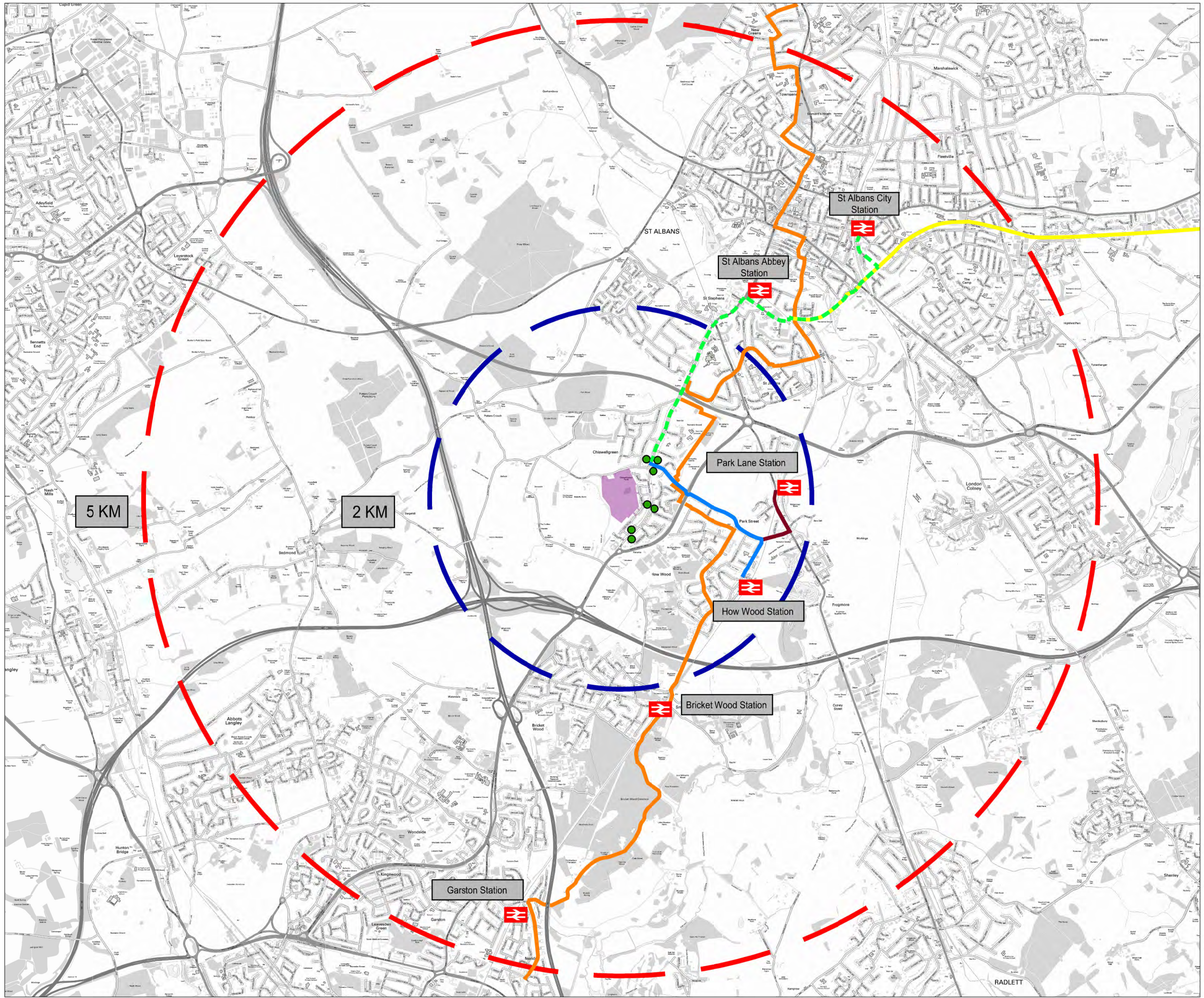
KEY:

- Roundabout
- Traffic flows
- 10 Development traffic flows

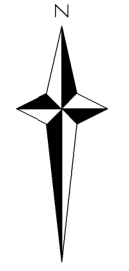
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Client:	Alban Developments
Project:	Land at Chiswell Green St Albans
Title:	2023 Traffic Flows "Do Something"
Project Engineer:	J. Blenkinsop
Project Director:	J. Birch
Scale:	N.T.S
Date:	October 2018
Status:	

Appendix B
Sustainability



NOTE
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- KEY
- Rail stations
 - Bus stops
 - Approximate area within acceptable walking distance
 - Approximate area within acceptable cycling distance
 - National Cycle Route 6
 - National Cycle Route 61
 - Route 1 to How Wood Station
 - Route 2 to Park Lane Station
 - Route 3 to St Albans City Station

Rev.	Description	Date	Chkd
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Client :
 Alban Developments

Project :
 Land at Chiswell Green
 St Albans

Title :
 Sustainability

Project Engineer : T. Cussen Scale : As Shown @ A3
 Project Director : J. Birch Date : October 2018

Status :

Drawing No. 8180910/6101 Rev

5KM

Appendix 28: Transport Extract of West of Chiswell Green Landowner/Developer
Representations Regulation 19 Consultation (October 2018)

Land to the west of Chiswell Green

St Albans City & District Local Plan 2020-2036 Publication Draft (Regulation 19)

10/18

Joint Representations prepared by JB Planning Associates and Adrian Irving (Trustee) on behalf of Alban Developments Ltd and Adrian Irving (Trustee)



jb planning associates

Chells Manor, Chells Lane, Stevenage, Herts, SG2 7AA

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tel 01438 312130 fax 01438 312131

4 **Development Proposals and Policy S6x) Criteria**

- 4.1 An Illustrative Design Brochure (see **Appendix 4**) has been prepared for the Site to illustrate the emerging development proposals, including the delivery of circa 365 dwellings; a 2 form entry primary school; a flexibly design community facility; recreation and open space provision.
- 4.2 The proposals have been developed having regard to the draft Broad Location Policy requirements (Policy S6x), as discussed in further detail below.

Housing

- 4.3 The Illustrative Design Brochure demonstrates that a minimum of 365 dwellings can be delivered at an average net density in excess of 40dph.
- 4.4 All new housing will be provided in a range of types (including flats and family sized housing), in accordance with the housing mix specified in Appendix 6 of the Local Plan Publication Draft (or such in accordance with more recent housing needs evidence provided by SACDC).
- 4.5 At least 40% of all new housing delivered on site will be affordable and will conform with the proportions of social rent, affordable rent and subsidised home ownership described in Appendix 6. Land reserved for affordable housing will be pepper-potted across the site in a manner that enables efficient management by a Registered Provider.
- 4.6 A minimum of 3% of the market homes provided will be self-build plots, and whilst not a requirement of draft policy S6(x), it is also proposed that a minimum of 5% of the new housing (Class C3 use) will be designated as retirement housing (55+ years old) that conforms to Building Reg Part M4(2) standards, subject to market testing.

Primary School

- 4.7 A 2-hectare serviced site for a 2FE primary school, including early years provision and associated playing field, has been identified towards the north-east corner of the site.

- 4.8** Further consideration will need to be given to the appropriate siting of the school through the masterplan process.
- 4.9** With regard to the delivery of the school, an appropriate CIL or S106 education contribution in accordance with Reg. 122 of the CIL Regulations will be provided.
- 4.10** We consider that this proposal for the provision of land to accommodate a 2FE primary school, together with an appropriate level of funding for the school commensurate with the impact arising from the Site's development, would offer a substantial community benefit to the locality, in view of the established deficit in primary school places and the identified challenges in expanding existing schools. It provides a further exceptional circumstance to which significant weight should be attributed to justify the Site being released from the Green Belt.

Community Facilities, Recreational Space and Public Open Space

- 4.11** Land for a flexibly designed community facility has been incorporated into the Illustrative Design proposals, and it is intended that further discussions over potential uses will take place as part of the collaborative masterplanning exercise with the local community and other stakeholders.
- 4.12** Recreation space and public open space will be delivered and sustainably managed in accordance with Policy L28 of the Local Plan Publication Draft. Table 1 of this Policy requires approximately 3.4 hectares of open space to be provided, and this can be achieved. Whilst understood that the use of recreation space will be discussed further through the collaborative masterplanning exercise, it is noted that the priority provision for West of Chiswell Green (as set out in Policy L28) is strategic plan, teenage areas, and children's play areas. It is also recognised that the new school playing fields will be treated as designated Local Green Space (Policy L21).
- 4.13** A tree survey has already been undertaken to inform the development of the masterplan and ensure that important trees and landscape features can be retained.

Highways and Public Transport

- 4.14** Four potential access points have been identified from Chiswell Green Lane to the north and the residential estate roads (Forge End and Long Fallow) to the east. All of these roads lead to the main arterial route through Chiswell Green, the Watford Road (B4630).
- 4.15** At this stage, the preference of HCC Highways is for all four access points to be used in order to distribute the traffic, and for the access points to serve discrete parts of development. Vehicular access from one part of the development to another would thus be prevented, although, sustainable links will be provided for walking and cycling. If required emergency vehicular access linking the accesses between Chiswell Green Lane and Forge End/Long Fallow will be provided. This proposed access strategy is demonstrated by the highway connectivity plan found at section 6 of the Illustrative Design Brochure (see **Appendix 4**).

Design and sustainability

- 4.16** The design principles of Policy L23 will be met, and as part of the collaborative masterplanning process, opportunities taken to create a new residential neighbourhood with a coherent and distinctive character.
- 4.17** In accordance with Policy L25, an energy strategy will be provided and will incorporate best practice solutions. Measures to improve the environmental performance and reducing carbon emissions of the development may include communal heating systems, solar photovoltaic panels, passive design measures and rainwater harvesting.
- 4.18** The Flood Risk Assessment provided (at **Appendix 7**) reveals the use of infiltration drainage techniques are likely to be feasible, and on this basis SuDS features will form the basis of the masterplan.

Policy S6x) Criteria

4.19 To conclude this section, the table below provides a summary of the development proposals for the site in relation to the draft Policy S6x) criteria.

Criterion	Response	
1) Masterplanned development led by the Council in collaboration with local communities, landowners and other stakeholders	✓	The Land Owners will collaborate with the Council, local communities and other stakeholders over the evolution of a masterplan.
2) Minimum capacity 365 dwellings	✓	The illustrative design brochure demonstrates that a minimum of 365 dwellings can be delivered at an average net density in excess of 40dph.
3) Minimum 40% Affordable Housing in accordance with Policy L3.	✓	At least 40% of all new housing delivered on site will be affordable and will conform with the proportions of social rent, affordable rent and subsidised home ownership described in Appendix 6.
4) Minimum overall net density 40 dwellings per hectare.	✓	See response to 2) above.
5) Housing size, type and mix as set out in Policy L1 and Appendix 6.	✓	All new housing will be provided in a range of types and sizes, in accordance with the housing mix specified in Appendix 6.
6) Retention of important trees and landscape features.	✓	A tree survey has been undertaken to ensure that important trees and landscape features can be retained

7) Recreation space and public open space.	✓	Recreation space and public open space will be delivered and sustainably managed.
8) A site for and appropriate contributions towards a 2 Fe primary school, including Early Years provision	✓	A 2-hectare serviced site for a 2 Fe primary school, including early years provision, and associated playing field will be set aside and an appropriate CIL or S106 education contribution in accordance with Reg. 122 of the CIL Regulations will be provided.
9) Transport network (including walking and cycling links) and public transport services upgrades/improvements.	✓	To discourage reliance on making trips by private car and reduce car ownership levels within the development compared to Chiswell Green, a package of sustainable transport measures is proposed including residential and school travel plans, a car club scheme, electric vehicle charging points, contributions to improvements to NCN Route 6, local bus services and cycle parking facilities at How Wood Station.
10) 3% of homes provided to be self-build housing	✓	3% of the market homes provided will be self-build plots.
11) Sufficient assets to provide sustainable management of community facilities, open spaces and parklands	✓	See response to 7) above.
12) Excellence in design, energy efficiency and water management	✓	As part of the collaborative masterplanning process opportunities will be taken to create a new residential neighbourhood with a



		coherent and distinctive character. SuDs features will form the basis of the masterplan.
13) Appropriate renewable energy production and supply mechanisms.	✓	An energy strategy will be provided and will incorporate best practice solutions.

5 **Technical Evidence to Support Allocation**

- 5.1** A comprehensive suite of technical documents have been prepared by an expert consultant team in order to demonstrate that West of Chiswell Green Broad Location is free from constraint and is available, suitable and deliverable. The findings of these assessments are summarised below.
- 5.2** These technical documents were largely prepared in support of representations submitted in January 2016 on behalf of Catalyst Housing Ltd and ADL in support of the promotion of the site as a Broad Location for Development in the Strategic Local Plan. Catalyst Housing Ltd no longer has an interest in part of the site, and it has confirmed that it is agreeable to the landowners Albans Developments Ltd and Adrian Irving (Trustee) continuing to use the reports for the promotion of the site as a Broad Location for Development in the Local Plan 2020-2036.
- 5.3** ADL and Adrian Irving (Trustee) understand that the SACDC will shortly be commencing discussions with the promoters of the Broad Locations over the preparation of masterplans. As part of this process, a comprehensive review of technical work completed to date will be undertaken and updates and/or further work commissioned where necessary. To assist, ADL and Adrian Irving (Trustee) have begun to consider where this is necessary with respect to masterplanning the West of Chiswell Green Broad location, and a transport technical note and updated Preliminary Ecological Appraisal have already been commissioned (as discussed further below).

Transport Assessment and Addendum (Appendices 5 and 6)

- 5.4** The Transport Assessment (TA)² (**Appendix 5**) establishes the volume of traffic likely to be generated by the development; models existing traffic flows on the immediate highway network; and outlines what highway improvements would need to be made to accommodate the development.
- 5.5** Consistent with advice provided by HCC Highways, the TA describes how the road layout shown on the Illustrative Design Concept (**Appendix 4**) seeks to

² 'Transport Assessment, Land at Chiswell Green, St Albans', (February 2016), Glanville Consultants

distribute traffic as evenly as possible between the four access points onto the surrounding highway network. Glanville has considered the capacity of all of the junction points with Watford Road in the Transport Assessment and determined that all have significant spare capacity apart from the Watford Road / Chiswell Green Lane double mini-roundabout, where there are existing capacity issues. In this regard, the development of the Site presents an opportunity to secure improvements to this junction to mitigate the effects of the development.

- 5.6** The TA also identifies that the Site is accessible by a range of transport modes and is in a sustainable location with good access to a wide range of local facilities, amenities and employment opportunities. The effect of the development can be further reduced through the adoption of an effective Travel Plan.
- 5.7** The Transport Assessment Addendum (**Appendix 6**) presents the findings of a recent review of the Transport Assessment to establish whether there are any material changes which have taken place since it was prepared in 2016 that would alter its conclusions. It finds that there have not been any material changes, and the conclusions of the original TA remain valid. Further consideration is also given in the note to the accessibility of local railway stations from the site, and it is demonstrated that Part Street, How Wood and St Albans City Station are all within a reasonable walking and cycling distance. Potential improvements to these routes are identified.

Flood Risk Assessment, including Drainage Strategy (Appendix 7)

- 5.8** The Flood Risk Assessment³ identifies that the Site is located within Flood Zone 1, which the NPPF considers to be the most suitable zone for development in terms of flood risk. An assessment of the risk posed by all likely sources of flooding has been undertaken, and a conclusion reached that the Site is not considered to be at risk from any potential sources.
- 5.9** A surface water drainage strategy is proposed which utilises sustainable surface water drainage strategy techniques, including the use of porous

³ 'Flood Risk Assessment, Land at Chiswell Green, St Albans', (January 2016), Glanville Consultants

ALBAN
DEVELOPMENTS LTD.

Adrian Irving
(Trustee)

Land to the west of Chiswell
Broad Location, St Albans (Policy S6x)
Illustrative Design Brochure

October 2018

**BARTON
WILLMORE**

3 SITE OPPORTUNITIES & CONSTRAINTS

The site itself is well-defined by field boundaries that would be retained and enhanced in any future development. Existing planting within the site can also be retained and enhanced as part of a generous landscape strategy. Within the gently rolling landscape, a comprehensive Landscape and Visual Impact Assessment has identified areas suitable for 2 to 2.5 storey development and 2.5 to 3 storey development as shown.

Potential vehicular access points are also shown with potential access points from Chiswell Green Lane, Long Fallow and Forge End.

The Site's proximity to centre of Chiswell Green renders the north-west corner particularly suited to a community function. Opportunity for a serviced site for a new primary school is available and will be delivered subject to the requirements of the education authority.

- 













































Opportunity for new school relating to Chiswell Green centre.

Existing Cottages. Frontages to be respected.

Existing blocks close to boundary. Adequate overlooking distances to be maintained

Existing woodland

Existing Tree Belts/ Groups of trees to be retained

Existing Group of trees. To be retained where possible

Western Boundary enhanced with woodland/ tree planting to create robust boundary to Settlement Edge

Treatment of boundary vegetation to achieve appropriate edge condition to adjacent property

Existing off-site landscape framework

Boundary suited to frontage

Boundary suited to backing onto

Proposed Allocation

Settlement Boundary

Main existing roads

Existing Public Right of Way

Open green spaces

Green Belt

Existing Facilities

Area considered suitable for 2.5-3 storey development

Area considered suitable for 2-2.5 storey development

Opportunity for pedestrian/cycle/ vehicle access to Butterfly World, subject to land owners agreement.

Opportunity for vehicle/pedestrian/cycle link through site

Previously developed land within the site



Constraints & Opportunities Plan. Not to scale.

4 DESIGN CONCEPT

The Design Concept opposite has emerged from the analysis on the preceding pages of this document. It shows a development that is fronted by a serviced site for a potential new primary school site, with residential areas identified as a set of parcels defined by retained and enhanced hedgerows that act as a linking green network through the site. Larger parcels are provided with their own neighbourhood open spaces in addition to the wider network.

Access points at Chiswell Green Lane, Long Fallow and Forge End are utilised.

-  Proposed Allocation
-  Existing Settlement Boundary
-  Main existing roads
-  Potential cycling and pedestrian links
-  Vehicular/cycle/pedestrian access
-  Existing Public Rights of Way
-  Open Spaces
-  Woodland
-  Tree Belts
-  Butterfly World
-  Existing facilities
-  Approx. area of 2.5-3 storey development
-  Approx. area of 2-2.5 storey development





Concept Diagram.

5 FRAMEWORK PLAN

The Framework Plan gives an illustrative vision of how the Design Concept could be realised. The green network and public open spaces provide a range of recreational and amenity spaces along with enhanced habitat that do not rely on private woodland. A proposed ecological link bisects the site using existing woodland & proposed enhanced planting. Surface water management is incorporated into the landscape structure through a network of infiltration basins.

Development is envisaged as a range of terraced homes with garden area contained to the rear, plus some detached and semi-detached dwellings and clusters of apartments. This represents an efficient use of land whilst respecting the semi-rural character of Chiswell Green. It is proposed to be realised with innovative and bespoke architectural solutions. Development will take the form of perimeter blocks with rear gardens facing onto one another. The architectural language would be designed to harmonise with the appearance of the adjacent local neighbourhoods.

The total proposed site allocation measures 14.66 ha. Within this, 8.40 ha comprises the net residential area that would have a density of 44.0 dwellings per hectare. The serviced site for the Primary School occupies 2 ha, including an associated playing field, in accordance with Department of Education standards. Areas of open space amounting to 4.26 ha make up the remainder of the proposed allocation.

In addition to general housing needs, a serviced site for a Primary School has been reserved adjacent to Chiswell Green Lane. The playing field for this will

provide an attractive entrance to the development as well as a green buffer to the street scene. A non residential facility is proposed adjacent to the school, and key worker housing is proposed at key strategic points throughout the site. Overall the layout is characterised by a high degree of pedestrian permeability between the proposed development and the existing community, opening up connections along green routes from Chiswell Green Lane, Long Fallow and Forge End. We have also suggested the possibility of a pedestrian or vehicular connection to the "Butterfly World" and "The Gardens of the Rose" sites, subject to a suitable access agreement with the neighbouring private landowners.

Note: Housing mix has been devised to reflect Appendix 6 of the St Albans City and District Local Plan 2020-2036 Publication Draft (2018)

Tenure	1 Bed	2 Bed	3 Bed	4+ Bed	Total
Affordable Rent	6 (14%)	10 (22%)	25 (57%)	3 (7%)	44
Social Rent	6 (14%)	10 (22%)	25 (57%)	3 (7%)	44
Subsidised Home Ownership	8 (14%)	13 (22%)	33 (57%)	4 (7%)	58
Market Housing	31 (14%)	48 (22%)	125 (57%)	15 (7%)	219 (inc. 7 (3%) self-build homes)
All sectors	51 (14%)	80 (22%)	208 (57%)	26 (7%)	365

 CHL/ADL proposed site allocation boundary	 Self build plots	 Recreation field
 Boundary to proposed school site	 Key worker units	 LEAP
 Vehicular site access points	 Non Residential Use	 Existing trees and structural planting
 Principal pedestrian and cycle connections	 School building	 Ecological Link
 Pedestrian, cycle & emergency access only	 School playing field	 Woodland walk
 Possible connection to Butterfly World and Rose Gardens	 Private gardens	 Proposed trees
 Shared surface	 Public open space	 Infiltration Basins
 Area to be developed at 2 storeys	 Pedestrian priority public space	 Village centre/Local shops
 Area to be developed at 2-3 storeys	 Parks and amenity green space	








Proposed Framework Plan. Not to scale.

6 VEHICULAR NETWORKS

Considerable thought has been given to the appropriate level of vehicular permeability within the site. To disperse traffic utilising the existing highway network, the proposed layout envisages three networks, with the northern parcel of homes served by Chiswell Green Lane, the Eastern served from Forge End, and the southern from Forge End/Long Fallow.

Pedestrian and cycle connections would be provided between each network to ensure a comprehensive and attractive green network within the site. Vehicular through-traffic between each network would be avoided to prevent possible “rat-running” and limited to emergency vehicles only.

-  Vehicular site access route to northern parcel
-  Vehicular site access route to central parcel
-  Vehicular site access route to southern parcel
-  Vehicular site access to school drop off area
-  Pedestrian & cyclists only links



Proposed Connectivity Plan. Not to scale.