



TRANSPORT ASSESSMENT

Land South of Chiswell Green Lane

Prepared for: Alban Developments Ltd and Alban Peter Pearson,
CALA Homes (Chiltern) Ltd & Redington Capital Ltd
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Executive Summary

Glanville Consultants has been appointed by Alban Developments Ltd and Alban Peter Pearson, CALA Homes (Chiltern) Ltd and Redington Capital Ltd, hereafter referred to as 'the Applicants', to provide transport support for an Outline planning application for a residential development on land to the south of Chiswell Green Lane. The development will incorporate up to 391 dwellings and allocate land for a 2 Form Entry (FE) primary school.

The site had been identified Draft Local Plan for St Albans City and District as one of the "Broad Locations" for development to contribute towards addressing housing, infrastructure and other development needs over the period 2020 to 2036. Through the plan making process, it was recognised as a suitable Broad Location for release from the Green Belt, with the expectation that it would deliver a minimum of 365 dwellings. Following the withdrawal of the Draft Local Plan from the Examination process, the City and District Council is preparing a new Local Plan and this site is being promoted once again for development.

The development will be formed of two land parcels separated by a green core containing amenity space. The northern parcel will incorporate around 55% of the dwellings (215) and the school, and will be accessed via two priority T-junctions on Chiswell Green Lane. The southern parcel will provide the remaining 45% dwellings (176) and will be accessed via an existing cul-de-sac on Forge End.

There will be no vehicular link between the two land parcels, although there will be pedestrian and cycle links between the two that also provide for emergency access. An assessment has been undertaken which shows that development traffic would be better distributed across the network without being focussed on a single link or junction, whilst a through route would encourage rat running to avoid the Watford Road / Chiswell Green Lane / Tippendell Lane junction. Consequently, the provision of a through link would significantly increase the volume of traffic using the southern site access on Forge End but it is considered that Chiswell Green Lane is better able to accommodate additional traffic than Forge End. Whilst rat-running could potentially be managed within the site, it is considered preferable not to have an interconnecting link between the land parcels.

The lack of a through link will not impact pedestrian and cycle permeability through the site and will still enable the diversion of an existing bus route into the development.

It is proposed to provide a pedestrian / cycle access via the existing cul-de-sac on Long Fallow and this will also provide an emergency access into the southern parcel.

The impact of the assessment has been assessed at the following off-site junctions:

1. Watford Road / Long Fallow – ghost island / right turn lane priority T-junction;
2. Watford Road / Forge End – priority T-junction;
3. Watford Road / Chiswell Green Lane / Tippendell Lane – double mini-roundabout
4. North Orbital Road / Tippendall Lane – roundabout;
5. North Orbital Road / Watford Road – roundabout; and
6. North Orbital Road / Watling Street / A414 – roundabout.

The increase in traffic flows at the above junctions indicate that only three would experience increases in traffic flows of over 5%. These junctions are the Forge End / Watford Road junction, the Watford Road / Long Fallow junction and the Watford Road / Chiswell Green Lane / Tippendell Lane double mini-roundabouts. Consequentially, the impact at the other three junctions would be smaller.

To assess the impact of the proposals at the three aforementioned junctions subject to increase in traffic of more than 5%, detailed junction capacity assessments have been undertaken using 2019 flows factored to a 2027 future year, as these base flows have not been impacted by the COVID pandemic. This shows that the Forge End and Long Fallow junctions with Watford Road would continue to operate within capacity at peak times and there would not be a severe impact at these junctions in accordance with paragraph 111 of the National Planning Policy Framework (NPPF).

The Watford Road / Chiswell Green Lane / Tippendell Lane double mini-roundabouts currently operate over capacity and would experience increased queuing and delays as a result of the development.

The proposals, however, include the provision of sustainable transport improvements to encourage residents and school pupils to utilise sustainable transport modes rather than using a private car use in line with NPPF paragraph 110. This will reduce the car-borne trip generation and reduce the impact at the off-site junctions identified above.

The proposed sustainable travel improvements include the following:

- the diversion of bus route 321 into the northern land parcel;
- improved cycle facilities on Chiswell Green Lane to link to the existing quiet road route on Stanley Avenue for cyclists travelling to / from St Albans;
- a footway / cycleway and Tiger crossing at the Watford Road / Forge End junction to provide a connection to Farringford Close which provides a quiet road link to National Cycle Route 6 and How Wood Station; and
- a footway / cycleway on Watford Road at its junction with Long Fallow to connect to the existing footway / cycleway to Watford.

It is anticipated that the above improvements will reduce the car mode share from 66% to 50% which will reduce the impact at the junctions identified above. The associated sensitivity test of junction capacity shows that following the implementation of these sustainable travel improvements, the impact at the aforementioned junctions cannot be considered as severe in accordance with paragraph 111 of the NPPF.

The Transport Assessment therefore concludes that the development proposals are acceptable in transport terms and therefore the Highway Authority should be able to make a positive recommendation to the Local Planning Authority in respect of the Outline application for the proposed development.

1.0 Introduction

- 1.1 This Transport Assessment has been prepared by Glanville Consultants on behalf of Alban Developments Ltd and Alban Peter Pearson, CALA Homes (Chiltern) Ltd and Redington Capital Ltd, hereafter referred to as 'the Applicants', to support an Outline planning application for a residential development on land to the south of Chiswell Green Lane. The development will incorporate up to 391 dwellings and will allocate land for a 2 Form Entry (2FE) primary school. The location of the site is shown within Appendix A whilst an illustrative site layout has been provided within Appendix B.
- 1.2 The proposed site is located to the south of Chiswell Green Lane and within the local authority area of St Albans City & District Council (SACDC). The highway authority for the area is Hertfordshire County Council (HCC).
- 1.3 The site had been identified in the Draft Local Plan for St Albans City and District as one of the "Broad Locations" for development to contribute towards addressing housing, infrastructure and other development needs over the period 2020 to 2036. Through the plan making process, it was recognised as a suitable Broad Location for release from the Green Belt, with the expectation that it would deliver a minimum of 365 dwellings. Following the withdrawal of the Draft Local Plan from the Examination process, the City and District Council is preparing a new Local Plan and this site is being promoted once again for development.
- 1.4 Following the withdrawal of the draft Local Plan in November 2020, the Applicants are keen to progress the development of the site outside of the Local Plan process due to the unmet housing need resulting from the Local Plan delays.
- 1.5 A significant amount of transport related assessment work has previously been undertaken to support the site's allocation within the withdrawn Local Plan, and it is therefore anticipated that the highway impacts have previously been reviewed by HCC. Consequently, this Transport Assessment will draw on the technical work previously undertaken and update it where required.
- 1.6 This Transport Assessments takes into account pre-application discussions undertaken with Hertfordshire County Council (HCC) including meetings held on the 27 August 2019, 14 December 2021 and 3 March 2022.
- 1.7 This Transport Assessment follows advice from Central Government in the form of the National Planning Policy Framework [NPPF] (July 2021) and the Planning Practice Guidance [NPPG] (March 2014).
- 1.8 The proposed development will be designed so as to promote sustainable travel and minimise the impact on the highway network within Chiswell Green and the local area. To reinforce this, separate Travel Plans for both the school and the residential developments have been submitted with the planning application, in parallel with this Transport Assessment.

2.0 Highway Policy Review

- 2.1 This section provides a brief review of the key national and local policy documents which underpin the development of the site from a transport and highways perspective, and which have been taken into account through both the layout development as well as the drafting of this Transport Assessment.

National Policy

NATIONAL PLANNING POLICY FRAMEWORK (NPPF) AND GUIDANCE (NPPG)

- 2.2 A key thread of national policy is to ensure the provision of a transport network that can meet the challenges of a growing economy and the increasing demand for travel but can also achieve social and environmental objectives to support strong but sustainable communities. The NPPF (July 2021) encourages a presumption in favour of sustainable development which is tailored to local circumstances.
- 2.3 The NPPF seeks to integrate planning and transport at the national, regional, strategic and local level in order to minimise the impacts of any development. It identifies that transport issues should be considered from the earliest stages of a project, such that:
- Potential impacts on transport networks can be addressed;
 - Opportunities from existing or proposed transport infrastructure can be realised;
 - Opportunities to promote walking, cycling and public transport use are identified and pursued;
 - The environmental impacts of the traffic and transport infrastructure can be identified, assessed and taken into account; and
 - High quality places can be designed once the patterns of movement, streets, parking and other transport issues have been considered.
- 2.4 The document also states that planning applications should:
- Support the appropriate mix of uses and, within larger sites, minimise the number and length of journeys needed for employment, shopping, leisure, education and other activities;
 - Actively involve the local highway authorities and other transport infrastructure providers such that strategies for supporting sustainable transport are aligned;
 - Identify and protect routes which are critical in developing infrastructure to widen transport choices; and
 - Provide high quality walking and cycling networks and supporting features such as cycle parking.
- 2.5 Likewise, developments should also ensure:
- Appropriate opportunities to promote sustainable transport modes can be taken up, given the type of development and its location;
 - Safe and suitable access can be achieved for all users;
 - The design of streets, parking areas and other transport elements meet national guidance; and
 - Any significant impact on capacity and congestion or on highway safety can be mitigated.

- 2.6 Paragraph 111 of the NPPF states that developments should only be refused on highway grounds if there is an unacceptable impact on highway safety or the residual cumulative impacts are severe. Therefore, in accordance with paragraph 112, developments should:
- Give priority to pedestrians and cyclists and have access to high quality public transport facilities;
 - Address the needs of people with disabilities and reduced mobility;
 - Create places that are safe, secure and attractive;
 - Allow the efficient delivery of goods and access by service and emergency vehicles; and
 - Be designed to enable the charging of plug-in and ultra-low emissions vehicles in safe, accessible and convenient locations.
- 2.7 NPPF paragraph 113 states that developments which generate significant traffic movements should provide a Travel Plan and be supported by a Transport Assessment.
- 2.8 It is therefore considered that the proposed development complies with national policy through promoting sustainable transport use. Similarly, the transport demands of the proposed development have been assessed within this Transport Assessment and therefore, the proposals comply with NPPF policy regarding assessing and managing future travel demand to and from the site.
- 2.9 The National Planning Practice Guidance (March 2014) provides further detail on the role of Transport Assessments and Statements. It states that '*the Transport Assessment....may propose mitigation measures where these are necessary to avoid unacceptable or "severe" impacts.*'

Local Planning Policy

- 2.10 The local policy documents relevant to the development proposal are as follows:
- St Albans Local Plan Review 'Saved' Policies (September 2007);
 - Hertfordshire Transport Plan 4 (2018)
 - Hertfordshire County Council – Guide to Developer Contributions (2021);
 - Hertfordshire County Council - Infrastructure & Funding Prospectus 2018-2031
 - Hertfordshire Active Travel Strategy;
 - Sustainable Modes of Travel Strategy; and
 - St Albans Revised Parking Policies & Standards (January 2002)
 - St Stephen Parish Neighbourhood Plan 2019-2036 – Submission (Regulation 19) Version (February 2021)

ST ALBANS DISTRICT LOCAL PLAN REVIEW 1994 – SAVED POLICIES (JULY 2020)

- 2.11 The St Albans Local Plan was adopted in 1994 to inform land use and development within the local area. SADC has been working towards replacing this document with a new Local Plan. The previous Draft Local Plan 2020-2036 (2018) was withdrawn in 2020 during the examination process. Consequently, a new Draft Local Plan is currently being prepared but until this is adopted, various policies for the adopted Local Plan have been saved and the relevant highway policies which are still formally recognised are set out below.

Policy 34 – Highway Considerations in Development Control

2.12 Developments which generate a significant amount of traffic or involves the creation of a new access onto the highway should only be permitted if the following are considered acceptable:

- Road safety for example visibility splays and turning radii;
- The environmental impact of traffic;
- Road capacity and hierarchy;
- Car parking provision; and
- Road safety, horizontal alignment and the impact on the local environment if there is an increase in traffic on local rural roads.

Policy 35 – Highway Improvements in Association with Development

2.13 Where the proposals will result in detrimental highway conditions, the highway effects should be mitigated either through highway improvements or highway contributions.

Policy 36a – Location of New Development in Relation to Public Transport Network

2.14 New developments will be considered based on their proximity to the public transport network and whether facilities will be provided within the development to cater for public transport use.

Policy 39 – Parking Standards, General Requirements

2.15 Residential developments should provide parking in accordance with Policy 40 of the Local Plan and that any parking should be acceptable in terms of visual impact, landscaping and the amenity of adjacent properties. All parking should be a minimum of 2.4m x 4.8m with 6m between rows of parking spaces or 7.3m for garages. Disabled parking should also be provided.

Policy 40 – Residential Development Parking Standards

2.16 This policy sets out the parking standards for residential developments (see Table 1). It should now be read in conjunction with the 'St Albans Revised Parking Policies and Standards (January 2002)' summarised within paragraphs 2.34 to 2.36.

Table 1: Residential Parking Provision

		Number of spaces per dwelling		
		Allocated	Unallocated	Total
1-bed	either	0	1.5	1.5
	or	1	0.5	1.5
2-bed	either	0	2	2
	or	1	1	2
	or	2	0.5	2.5
3-bed		2	0.5	2.5
This 4+ beds		3	0.5	3.5

- 2.17 The policy also states that allocated spaces should be located within the curtilage of individual dwellings where possible, whilst driveways should be at least 5.5m long. Unallocated spaces should be provided in small group of no more than 10 spaces and within 25m of the entrance of dwellings they serve

HERTFORDSHIRE LOCAL TRANSPORT PLAN 4 (MAY 2018)

- 2.18 The Hertfordshire Local Transport Plan sets out how transport can deliver a positive future for Hertfordshire. It covers the period up to 2031 and looks at providing safe and efficient travel, encouraging economic growth, meeting housing needs, improving public health and reducing environmental damage.

- 2.19 The policies relevant to the proposed development are as follows:

Policy 1 – Transport User Hierarchy

- 2.20 This policy focuses on encouraging the creation of built environments that encourage greater and safer use of sustainable transport modes. New developments should therefore consider, in the following order:

- Opportunities to reduce travel demand and the need to travel;
- Vulnerable road users
- Passenger transport user needs;
- Powered two wheelers; and
- Other motor vehicle needs.

Policy 2 – Influencing Land Use Planning

- 2.21 This policy states that HCC will encourage new development in areas served by, or with the potential to be served by, high quality passenger transport facilities and where key services can be accessed by walking and cycling.

Policy 3 – Travel Plans

- 2.22 This policy states that HCC will encourage the adoption of Travel Plans in order to assist in achieving modal shift away from the car.

Policy 5 – Development Management

- 2.23 Policy 5 states that HCC will work with developers to:
- Ensure the location and design of proposals reflects the LTP Transport User hierarchy (see Policy 1);
 - Ensure access arrangements are safe and suitable for all people;
 - Consider the adoption of access roads where they comply with the relevant standards;
 - Secure developer mitigation measures to limit the impacts of development on the transport network and resist developments where the impact is considered to be severe;
 - Require Travel Plans for developments in accordance with the Hertfordshire Travel Plan Guidance;

- Resist development that would severely affect the rural or residential character of a road.

Policy 6 – Accessibility

- 2.24 HCC will seek to increase accessibility to disadvantaged groups through reducing barriers and improving travel choice.

Policy 7 – Active Travel: Walking

- 2.25 HCC will seek to encourage and promote walking by implementing measures to give priority to pedestrians, delivering pedestrian infrastructure, promoting pedestrian routes and promoting walking as a recreational activity,

Policy 8 – Active Travel: Cycling

- 2.26 HCC will seek to encourage and promote walking by implementing infrastructure improvements, increase the priority of cyclists, improved safety for cyclists for example cycle training, support promotional campaigns and facilitating secure cycle parking.

Policy 9 – Buses

- 2.27 HCC will promote and support bus services to reduce private car use through supporting the delivery of infrastructure, providing and maintaining bus stops and working with partners to promote bus services.

Policy 19 – Emissions Reduction

- 2.28 HCC will reduce harmful levels of emissions through promoting a change in people's travel behaviour to encourage a modal shift away from the car towards walking, cycling and passenger transport.

HERTFORDSHIRE COUNTY COUNCIL – GUIDE TO DEVELOPER CONTRIBUTIONS (2021)

- 2.29 HCC's Guide to Developer Contributions sets out practical information to facilitate the production of an associated S106 Agreement. The transport related requirements are outlined within Technical Appendix 1 of the Guide.
- 2.30 Technical Appendix 1 has been prepared in conjunction with HCC's LTP4 and - Hertfordshire's 'Infrastructure & Funding Prospectus 2018-2031' which is discussed within paragraphs 2.33 to 2.36. This document states that the immediate and specific impacts of larger developments are mitigated via S278 agreements or funded via a CIL/S106 agreement and should be in line with the LTP4 where the infrastructure should be designed to actively encourage sustainable transport use.
- 2.31 It is understood that the contributions would be calculated based on the cumulative impact of the development based on the predicted sustainable trip generation associated with the development. Section 6 of the guide sets out how the contribution per dwelling would be calculated based on sustainable trips but states that this would only form the starting point for the development as each development should be assessed on its own merits for example what other mitigation is being proposed.

- 2.32 As paragraphs 56 & 57 of the NPPF makes it clear that planning conditions are preferred over obligations, the s278 works would typically be delivered through a planning condition including the site access works, capacity improvements, small infrastructure works, e.g. bus stops and the provision of amended highway networks such as cycleways and footways. Financial contributions would be sought through an obligation for subsidies towards a new or enhanced bus service, highway measures or sustainable transport improvements already identified by the Highway Authority and Travel Plan monitoring costs.

HERTFORDSHIRE'S INFRASTRUCTURE & FUNDING PROSPECTUS 2018-2031

- 2.33 This document sets out the predicted infrastructure improvements within Hertfordshire. Chapter 4.1 sets out the Transport Infrastructure improvements planned by HCC, and these are summarised below.

Strategic Roads

- 2.34 The regional and sub-regional strategic transport improvement section does not indicate that any mitigation is proposed for the Chiswell Green area with only improvements at the M25 junction 21 being proposed but it is not known if this incorporates Junction 21a. Figure 4.3 potentially identifies that Watford Road is a congested link, however, this may refer to the A405 North Orbital Road as it is difficult to tell from the small scale of the Figure. The documents identifies that there are 200 local road projects across the county that are committed or proposed but the document does not provide any further information to identify if Watford Road is included within this list.

Public Transport

- 2.35 Identified improvements to the public transport network in the vicinity of Chiswell Green include moderate enhancements to the Abbey Line, A405 bus priority at the M25 junction 21a and 70 local improvements across the county which are not specified in detail.

Active Modes

- 2.36 The walking and cycling improvements in the vicinity of the site include an A405 St Albans to Bricket Wood cycleway and over 300 smaller schemes in the county of which no further details are provided.

ACTIVE TRAVEL STRATEGY

- 2.37 A new Active Travel Strategy is currently being developed but it will aim to encourage walking and cycling within Hertfordshire in order to address environmental challenges, enhancing economic growth and improving the quality of life and public health. This will be achieved through physical measures such as improved infrastructure and cycle parking, traffic calming schemes and 20mph zones and non-physical measures such as targeted travel planning and cycle and driver training.

Sustainable Modes of Travel Strategy (August 2021)

- 2.38 The Sustainable Modes of Travel Strategy (SMoTS) has been produced by HCC to provide the vision for encouraging children and young people to travel to and from educational establishments by sustainable transport.

2.39 The aims of the SMoTS are:

- To reduce the use of the car for journeys to and from educational establishments;
- To improve accessibility to, from and between educational establishments;
- To improve child road safety;
- To improve health through active travel and therefore reduce congestion and pollution around schools; and
- To improve the quality of the local environment by reducing traffic in and around school sites.

2.40 The above aims will be achieved by:

- Improving walking and cycling routes;
- Support the delivery of passenger transport services;
- Promote the safer use of sustainable transport infrastructure;
- To inform pupils and parents/carers of the travel options available to them; and
- To offer engagement in the travel plan process, develop school Travel Plan guidance and to encourage partnership working and strengthen links to other plans and policies.

ST ALBANS REVISED PARKING POLICIES AND STANDARDS (JANUARY 2002)

- 2.41 This document sets out the revised parking standards for St Albans which provides additional requirements to the maximum parking standards set out within the Adopted Local Plan 'Saved Policies' document. This document sets out residential requirements based on a zonal approach, with the proposed development being located within Zone 1. This allows parking provision to be provided slightly below that outlined within Policy 40 of the 'saved policies' document if suitable justification can be provided.
- 2.42 The revised parking standards also identifies that for residential developments, 1 long term cycle space per unit should be provided if no garage or shed is provided for the dwelling.
- 2.43 For primary schools this document requires the following parking provision:
- 1 vehicle parking space per 2 staff plus 1 space per 15 students; and
 - 1 staff cycle space per 10 full time staff and 1 student space per 15 students.

ST STEPHEN PARISH NEIGHBOURHOOD PLAN 2019-2036 – SUBMISSION (REGULATION 19) VERSION (FEBRUARY 2021)

- 2.44 The site is located within the Parish of St Stephen and the local Parish Council has prepared a Neighbourhood Plan. At the time of writing this Transport Assessment, the Neighbourhood Plan has not been adopted but was submitted for consultation in 2021 with the intention of it being adopted in May 2022.
- 2.45 The relevant transport policies associated with the Neighbourhood Plan submission version are outlined below.

Policy S11: Improvements to Key Local Junctions and Pinch Points

- 2.46 Transport Assessments or Transport Statements for smaller sites, as per paragraph 111 of the NPPF, are required to address, to the satisfaction of the Highway Authority, the cumulative transport impact on road junctions and pinch points, in particular:
- Watford Road northbound (resulting in drivers diverting to Stanley Avenue and the Watford Road 'service road' to bypass Watford Road / Chiswell Green Lane / Tippendell Lane junction); and
 - Noke roundabout (A405 North Orbital Road / Watford Road junction).

Policy S12: Off-street Car Parking

- 2.47 Development that would result in an unacceptable loss of existing publicly available off-street car parking spaces will not be supported whilst proposals to increase off street parking to alleviate parking congestion at main village shopping areas will be supported.
- 2.48 Alongside new public car parking provision, the provision of dedicated covered and secure cycle parking facilities, preferably with e-bike charging points, and electric vehicle charging points will be supported.

Policy S13: Bus Services & Community Transport

- 2.49 Contributions from new major development will be used to support additional community bus services or, where appropriate, improvements to public transport infrastructure. These contributions will be collected through Section 106 Agreements or the Community Infrastructure Levy.

Policy S14: Provision for Walking, Cycling and Horse-riding

- 2.50 All new developments must incorporate safe, accessible pedestrian access with links from the development to existing footways and cycleways. Developments that enable delivery of the PROW Improvements Plan will be supported.
- 2.51 Developments that are located next to a footpath or cycleway will be expected to ensure its retention, and where possible it's enhancement, and not have any detrimental impact on the path. The impact of the additional traffic movements on the safety and flow of pedestrians should be addressed.

Design Guides

- 2.52 The following documents have been referred to in order to establish relevant guidance in terms of the evolution of the masterplan:
- Design Manual for Roads and Bridges – Department of Transport;
 - Manual for Streets – Department of Transport (2007);
 - Manual for Streets 2 – Department of Transport (2010);
 - The Herts Design Guide - Roads in Hertfordshire (2011); and
 - Bus Infrastructure in Hertfordshire – A Design Guide.
- 2.53 The above documents have all been reviewed and adhered to throughout the design of the site to ensure that the development accords with all relevant local design guidance.

3.0 Existing Conditions

- 3.1 The site is sited to the west of Chiswell Green, which is a village in Hertfordshire around 1.1km southeast of St Albans and 7.9km north of Watford town centre. The proposed site is bordered to the north by Chiswell Green Lane, to the east by the residential roads Forge End and Long Fallow, and to the west by Miriam Lane and the former Butterfly World visitor attraction. The location of the site is shown within Appendix A.
- 3.2 The site is 1.48ha in size and currently comprises of agricultural land, a farmyard with stables and equine facilities and a derelict farmhouse and outbuildings. The agricultural land is divided into four separate fields separated with mature trees. In the northern half of the site, the fields are typically grazed by horses whilst the southern fields comprise unmanaged grassland.
- 3.3 Along the eastern boundary, there is a small woodland, but this does not form part of the site.
- 3.4 Around 80m northeast of the site is St Albans Polo Club. This site is located to the north of Chiswell Green Lane and an Outline planning application has recently been submitted for the provision of 330 affordable dwellings (SACDC planning reference 5/2021/3194).

Exiting Highway Conditions

Local Road Network

CHISWELL GREEN LANE

- 3.5 The northern boundary of the site is formed by Chiswell Green Lane. In the vicinity of the site, this is a residential road which provides vehicular and pedestrian access to the centre of Chiswell Green Lane. It is typically around 6.1m wide but narrows down to 3.7m in the vicinity of the site. The residential dwellings on Chiswell Green Lane have driveway access onto Chiswell Green Lane.
- 3.6 To the east of the site, there are footways on both sides of the road and the carriageway is illuminated. These are typically 2m wide but in the vicinity of the site, the northern footway narrows down to 1m outside numbers 46 and 48 Chiswell Green Lane. There is no footway on the southern side of the carriageway along the site's northern boundary.
- 3.7 To the west of the site, Chiswell Green Lane narrows down to between 3.7m and 4.1m in width, is not illuminated and there are no footways. In places it is typically only wide enough for one-way operation but there are occasional passing places. It provides a route to the village of Bedmond and Kings Langley, around 3.3km and 6.1km to the west respectively.

WATFORD ROAD

- 3.8 Chiswell Green Lane connects with Watford Road at a mini-roundabout junction, around 270m east of the site. Around 50m to the north of this junction, is a second mini-roundabout that provides a connection to Tippendell Lane. Tippendell Lane provides a northern route to the A405 North Orbital Road which is a dual carriageway and provides a connection to the A414 dual carriageway at the Park Street roundabout. To the south, Watford Road provides a route to Watford and the M25 junction 21a, whilst St Albans is accessible via this road to the north.
- 3.9 On both sides of Watford Road, there are two small parades of shops. The western shops are accessed via a side road off Chiswell Green Lane, whilst there is a small car park for the eastern shops, accessed off Tippendell Lane.
- 3.10 At the double mini-roundabout junction, there is a zebra crossing which provides access to the retail units on both sides of the road. Around 140m south of the Chiswell Green Lane junction, at the junction with Hammers Gate, there is a pelican crossing on Watford Road.

FORGE END

- 3.11 Along the eastern boundary is Forge End. This is a residential cul-de-sac, around 5.5m wide, which connects to Watford Road via a priority T-junction, around 270m south of the Chiswell Green Lane junction. This junction does not incorporate a ghost island right turn lane.
- 3.12 There are 1.5m footways on both sides of the road which provide pedestrian connections to the footways on Watford Road. The closest Watford Road pedestrian crossing to Forge End is the Pelican crossing adjacent to Hammers Gate (see paragraph 3.10). This is sited around 130m north of the Forge End junction.

LONG FALLOW

- 3.13 To the south-east of the site is Long Fallow, which is a second 6.3m wide cul-de-sac. On the approach to Watford Road, this road is 6.3m wide but it narrows down to 5.5m within the cul-de-sac. It connects with Watford Road around 190m north of the A405 North Orbital Road roundabout via a priority T-junction which incorporates a ghost island right turn lane.
- 3.14 There are 1.8m wide footways on both sides of Long Fallow which provides pedestrian connections to Watford Road. The closest Watford Road pedestrian crossing to Long Fallow is an uncontrolled crossing with a refuge island, around 140m north of the Long Fallow junction. There is also an uncontrolled crossing at the A405 North Orbital Road / Watford Road roundabout.

Strategic Road Network

- 3.15 The site has excellent connections to the strategic road network. Around 1.4km to the south of the site is the M25 Junction 21A which is accessible via Watford Road and currently suffers from congestion which stretches back to the A405 / Watford Road junction. 1.3km further south on Watford Road is the M1 Junction 6 which provides access to both northbound and southbound slip roads.
- 3.16 Similarly, the A405 North Orbital Road, accessed via Watford Road or Tippendell Lane, provides access to the A414 dual carriageway which traverses the southern boundary of St Albans and provides direct connections to the M1 northbound carriageway at Junction 8, around 5km to the north-west of the site, and the A1 Junction 3, around 8.5km to the north-east of the site.

Baseline Traffic Surveys

- 3.17 To ascertain the existing traffic volumes, turning count surveys were undertaken at the following junctions on Tuesday 19 January 2016, and the traffic surveys have been provided within Appendix C:
1. Watford / Long Fallow
 2. Watford Road / Forge End
 3. Watford Road / Tippendell Lane / Chiswell Green Lane
 4. A405 North Orbital Road / Tippendell Lane
 5. A405 North Orbital Road / Watford Road
 6. A405 North Orbital Road / A414 / Watling Street (Park Street roundabout)
- 3.18 The survey showed that the highway network peak hours were as follows:
- AM Peak hour = 07:15 to 08:15
 - PM peak hour = 17:00 to 18:00
- 3.19 In addition to the above turning count surveys, an ATC survey was undertaken on Chiswell Green Lane. The surveys were undertaken between Tuesday 12 January 2016 and Monday 18 January 2016 and a copy of the survey results has been provided within Appendix C.
- 3.20 These surveys showed that Chiswell Green Lane is relatively lightly trafficked, and the surveyed traffic flows are shown in Table 2.

Table 2: Traffic Flows on Chiswell Green Lane

Survey Site	5-day Average			7-day Average		
	Eastbound	Westbound	Two-way	Eastbound	Westbound	Two-way
AM Peak	46	48	94	37	38	75
PM Peak	46	35	82	39	30	69

Speed Surveys

- 3.21 The posted speed limit on Chiswell Green Lane is 30mph and to ascertain whether this limit is complied with by drivers, the aforementioned ATC surveys also incorporated a speed survey. A summary of the observed vehicle speeds on Chiswell Green Lane in the vicinity of the site are shown in Table 3.

Table 3: Surveyed Vehicle Speeds on Chiswell Green Lane

Survey Site	Mean Speed (mph)		85 th Percentile (mph)	
	Eastbound	Westbound	Eastbound	Westbound
Site 1 – Eastern Site	25.6	26.2	32.5	32.2
Site 2 – Western Site	24.7	24.2	31.3	31.3

- 3.22 The observed vehicle speeds summarised within Table 3 indicate that 85th percentile speeds up to 32.5mph were recorded and therefore the posted speed limit on Chiswell Green Lane is not typically complied with. However, the speed limit increases to 60mph outside number 48 Chiswell Green Lane and so it is considered likely that driver will be accelerating or decelerating at the survey locations to accord with the change in speed limit.

Highway Safety

- 3.23 To identify if there is a highway safety concern in the vicinity of the site, collision data for the latest five year period has been reviewed. Data from HCC has been assessed for Chiswell Green Lane and Watford Road and covers the period 1 July 2016 to 30 June 2021, whilst online data from Crashmap has been used to assess road safety on Tippendell Lane for the period 1 January 2016 to 31 December 2020.
- 3.24 The data shows that there have been 27 accidents within the study area over the latest five year period, with three serious collisions and 24 slight accidents. There were no collisions that resulted in a fatality. A location plan has been provided within Appendix D but a summary of the accident locations is outlined below:
- 3no. slight accidents on Chiswell Green Lane;
 - 1no. slight accident at the Watford Road / Chiswell Green Lane / Tippendell Lane junction;
 - 1no. slight accident at the Watford Road / Ragged Hall Lane junction;
 - 1 no. slight accident at the Watford Road / Forge End junction;
 - 1no serious accident at the Watford Road / Farringford Close;
 - 2no. serious and 8no. slight accidents at the A405 North Orbital Road / Watford Road roundabout; and
 - 1no serious and 9no. slight accidents at the A405 North Orbital Road / Tippendell Lane roundabout.
- 3.25 A summary of the collisions and the potential causes has been summarised below:

Chiswell Green Lane

- 3.26 Three slight accidents occurred on this road during the five year period. The collisions were as follows:
- a car turning left into Nokes Lane collided with a cyclist turning left onto Chiswell Green Lane;
 - a car collided head on with a refuse vehicle after both skidded on black ice; and
 - a car pulled into a passing place and a following car, which was travelling at speed, collided with the rear of the stationary vehicle.
- 3.27 The first accident listed above may have been caused by the driver / rider not looking properly or it may be due to reduced visibility at the junction. The junction, however, is in the shape of a 'Y' and therefore it is considered that one of the vehicles involved was using the wrong 'Y' stub for the turning movement that they were making which may not have been anticipated by the other driver / rider. However, this does not negate the fact that either visibility was impeded or one of the drivers / riders did not look properly. As only one accident occurred in this location over the five year period it is considered likely that driver error was more likely to have been the cause.
- 3.28 The remaining two accidents were caused by vehicles skidding on black ice or travelling too fast for the conditions. It is therefore considered that none of the drivers were travelling in a manner suitable to the road conditions and the narrow nature of Chiswell Green Lane.

Watford Road / Chiswell Green Lane / Tippendell Lane junction

- 3.29 Only one slight collision occurred at this junction over the five year period and this involved a rear end shunt between two cars travelling southbound. This is a typical accident observed at roundabouts and would have been caused by driver error through travelling too fast or a lack of attention.

Watford Road / Ragged Hall Lane

- 3.30 During the five year period there was only one slight accident at this junction. It involved a motorcyclist travelling southwest, undertaking a car using the cycle lane and hitting a pothole, causing the rider to lose control. Whilst the rider should not have been undertaking a car, the presence of a pothole in the cycle lane is a danger to all non-motorised road users and therefore it is important that it is fixed by HCC. As the accident occurred in May 2020, it is considered that such a pothole would have since been repaired.

Watford Road / Forge End

- 3.31 Only one slight collision occurred at this junction over the five year period assessed and this involved a stolen motorcycle, travelling north on Watford at speed and without lights, being hit by a car turning right into Forge End. Whilst such an accident would typically be the driver's fault by turning in front of an oncoming motorcycle, the lack of lights may have resulted in the motorcycle being difficult to see particularly if it was travelling at speed. Visibility at the junction is good as Watford Road is relatively straight, although there is a slight bend to the south of Forge End, and so it is considered that the lack of lights and excess speed was the main cause of the accident as it reduced the potential for the turning driver to see the motorcycle.

Watford Road / Farringford Close

- 3.32 During the five year period there was only one slight accident at this junction. It involved a car travelling northbound losing control and colliding with a car travelling southbound. The accident occurred in the dark and the wet and so a poor road surface may have been the cause, however there was no skidding involved in the accident and only one accident has occurred in this location over the last five years. Therefore, it is considered that either a lack of attention, a distraction within the car or potentially a medical incident would be the potential cause.

A405 North Orbital Road / Watford Road roundabout

- 3.33 Ten collisions occurred at this roundabout over the five year period, including two serious and eight slight accidents. The accidents involved the following:
- a serious accident involved a car travelling west on A405 collided with a cyclist crossing the carriageway;
 - the second serious accident involved a car travelling at speed on the A405 and was weaving in and out of traffic until it hit the roundabout and lost control. The driver was impaired by alcohol;
 - 2no. cars travelling west on A405 failed to give way to a cyclist on the circulatory and collided with the riders;
 - rear end shunt on the approach to the roundabout;
 - car travelling at speed entered the roundabout and hit the rear of a car travelling on the circulatory carriageway;
 - an HGV turning left out of petrol station hit a car which was also waiting to turn out of petrol station;
 - car changed lane on the circulatory carriageway and collided with the rear of an adjacent motorcycle;
 - car heading north-east on A405 changed lanes and collided with another car;
 - and
 - motorcycle changed lanes on the roundabout and collided with an adjacent car.
- 3.34 The two serious accidents were caused by driver error, either through being impaired by alcohol or by failing to stop before hitting a cyclist who was crossing the road. Whilst the driver may not have seen the cyclist, they should have been slowing down for the roundabout in any case and therefore they failed to start to break sufficiently in advance of the roundabout to be able to stop at the roundabout entry.

- 3.35 The slight accidents were all caused by driver error, either through a failure to pay attention, failing to look when changing lanes or travelling too fast. It is not considered that the collisions were the result of a deficiency in the highway.

A405 North Orbital Road / Tippendell Lane

- 3.36 One serious accident and nine slight accidents occurred at the A405 North Orbital Road junction with Tippendell Lane. A description of the collisions is summarised below:
- the serious accident occurred when a car overtook a cyclist and collided with the bicycle;
 - a car overtaking a goods vehicle, collided with it;
 - a car driver lost control and hit a crash barrier in the dark;
 - a car collided with a cyclist on the roundabout;
 - 2no. cars failed to give way at the roundabout and collided with another car
 - 3no. rear end shunts occurred between two cars;
 - a car was leaving the roundabout onto the eastern Tippendell Lane arm and collided with a car travelling west.

- 3.37 It is considered that all of the above accidents were caused by driver error, with drivers either failing to give way, failing to pay attention or travelling too fast to stop in time. It is considered that the accidents were not the result of any safety deficiency in the highway as the visibility at the roundabout is good.

Highway Safety Summary

- 3.38 The accident assessment has identified that in the vicinity of the site there have been 27 accidents, of which three resulted in serious injuries. It is considered that all but two of the accidents were caused by driver error. Out of these remaining two accidents, one was potentially caused by reduced visibility at the Chiswell Green Lane / Noke Lane junction, although it is not anticipated that any development flows will pass through this junction. The second accident was caused by a pothole in the Watford Road carriageway but it is considered that this pothole would have been repaired as the accident occurred in 2020 and no longer poses a problem. Based on this assessment it is considered that the development proposals would not have a detrimental impact on road safety.

4.0 Existing Sustainable Transport Accessibility

- 4.1 This section of the report appraises the proposed development from the perspective of sustainable travel and general accessibility. The site is located on the edge of Chiswell Green in a semi-rural location. The site's accessibility has therefore been considered in detail to ensure that residents and school students and staff can be encouraged to utilise sustainable transport modes.

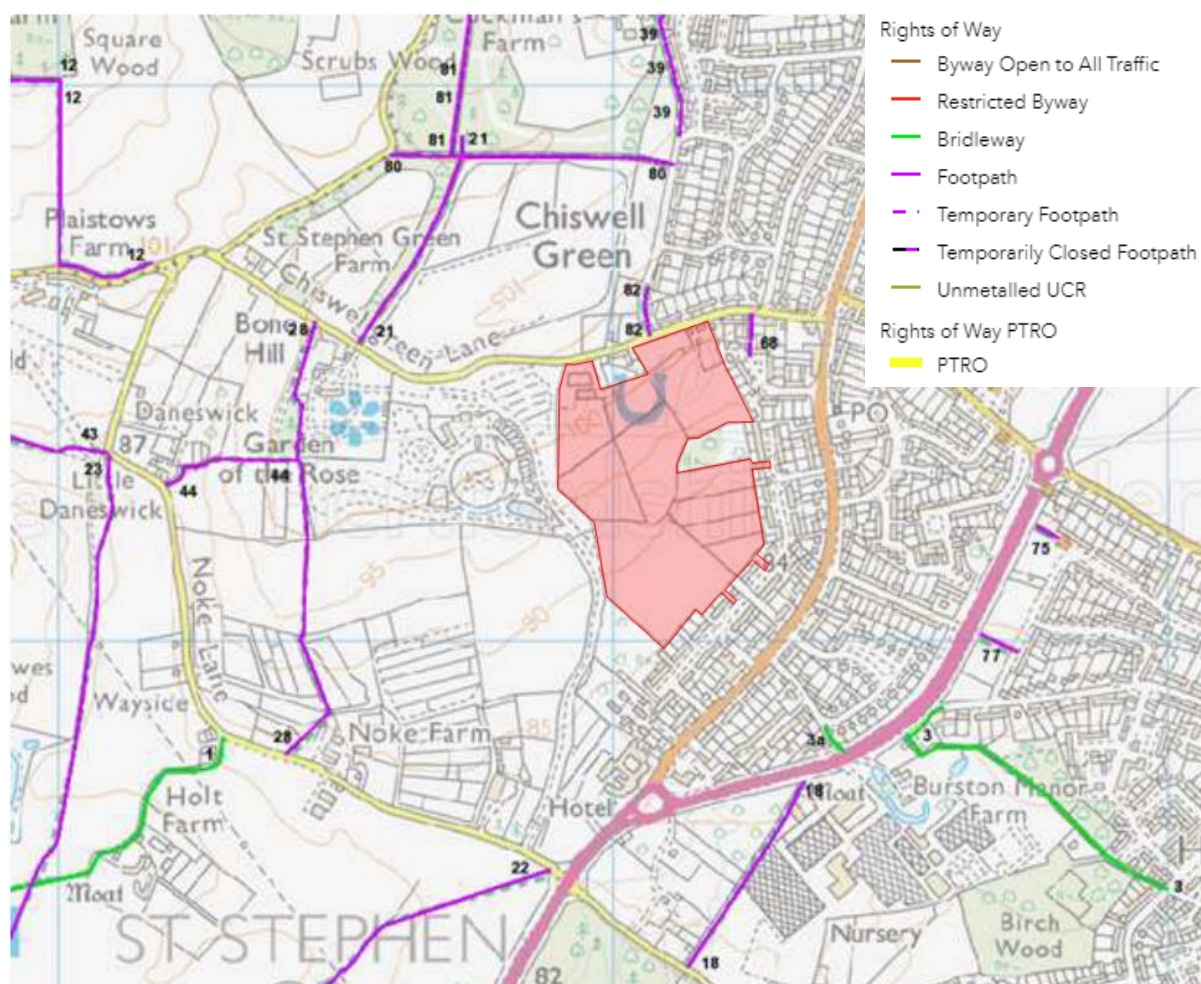
Walking

- 4.2 It is generally considered that 2 kilometres is an acceptable distance to walk to work or nearby facilities and amenities. This distance is illustrative and approximate and will vary by individual according to their personal mobility and fitness. It will also be influenced by their perception and prejudices on such factors as local topography and attitude towards particular travel modes. The destinations accessible within a 2km walking distance are shown within Appendix E.
- 4.3 The site is within walking distance of a number of key facilities including:
- Chiswell Green village centre
 - Killgrew Primary & Nursery School
 - Affinity Leisure Club at the Noke Hotel
 - How Wood railway station
 - Greenwood Park
 - Chiswell Green Co-op
 - Netherway Open Space
 - Park Street railway station
- 4.4 Within the site, 2m footways will be provided throughout the development which will connect the site to the off-site pedestrian infrastructure. There are existing footways on both sides of Chiswell Green Lane to the east of the development which connect the development to the centre of Chiswell Green and Watford Road. These are typically 2m wide but in the vicinity of the site, the northern footway narrows down to 1m. There is no footway on the southern side of the carriageway along the site's northern boundary or to the west of the site.
- 4.5 There is an existing Zebra crossing at the Watford Road / Chiswell Green Lane / Tippendell Lane, around 240m east of the site. Similarly, there is a Pelican crossing across Watford Road at its junction with Hammers Gate, around 140m south of the Chiswell Green Lane junction.
- 4.6 The southern site access connects to Forge End and there are existing footways on both sides of the Forge End cul-de-sac. These are around 1.5m wide and provide pedestrian connections to Watford Road. The closest Watford Road pedestrian crossing to Forge End is the Pelican crossing adjacent to Hammers Gate (see paragraph 4.5). This crossing is sited around 130m north of the Forge End junction.
- 4.7 It is proposed to provide a footway / cycleway link from the southern parcel to Long Fallow. There are 1.8m wide footways on both sides of Long Fallow which provide a pedestrian link to Watford Road. The closest Watford Road pedestrian crossing to Long Fallow is an uncontrolled crossing with a refuge island, around 140m north of the Long Fallow junction. There is also an uncontrolled crossing at the A405 North Orbital Road / Watford Road roundabout.

Public Rights of Way (PROW)

- 4.8 The existing PROW in the vicinity of the site have been identified utilising the online mapping provided on the HCC website. An extract of the PROW network in the vicinity of the site is shown in Image 1.

Image 1: Public Rights of Way in the Vicinity of the Site



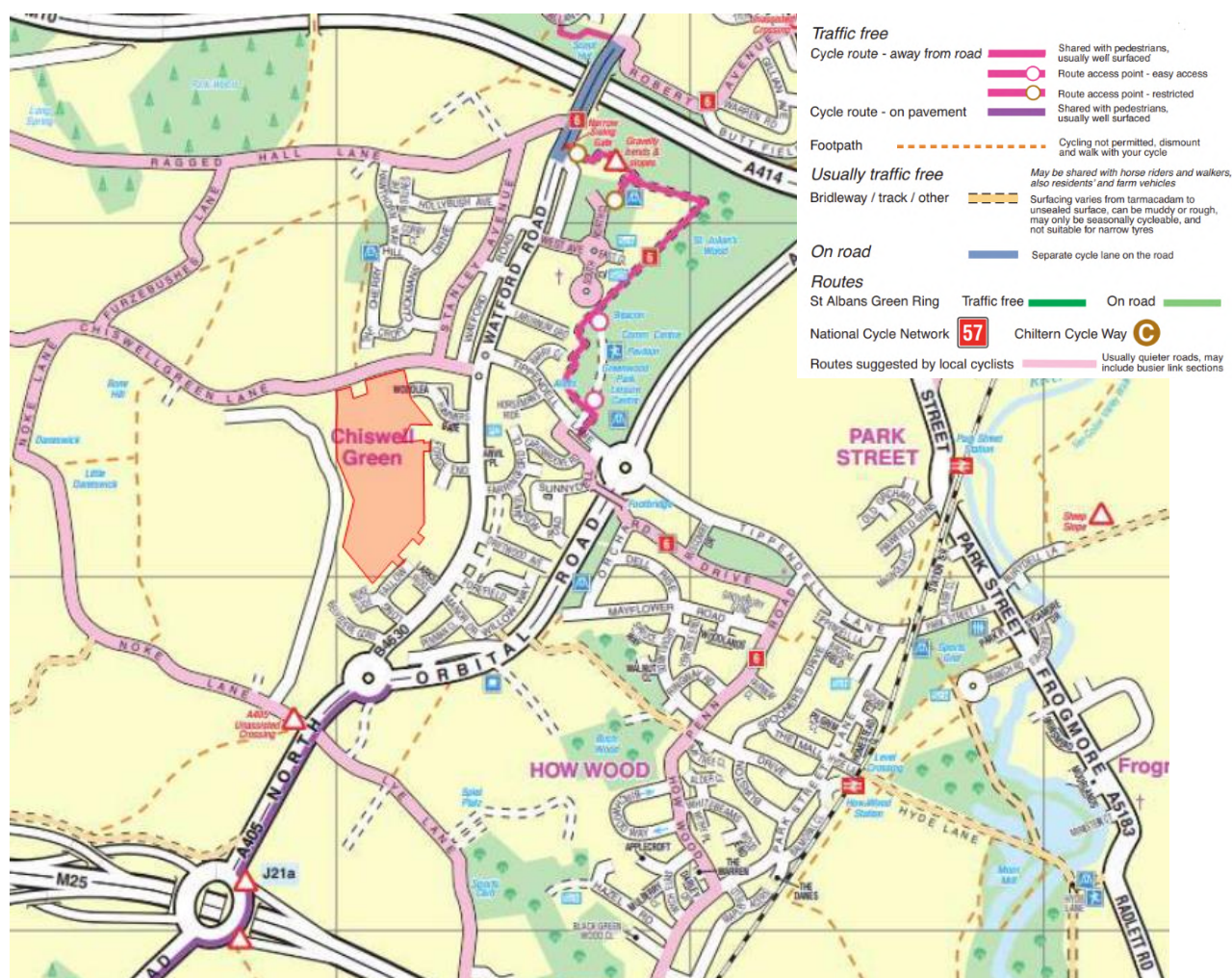
Note: Extract taken from <https://webmaps.hertfordshire.gov.uk/row/row.htm>

- 4.9 The closest PROW to the site is public footpath 82. This is sited to the north of the development and connects Chiswell Green Lane to The Croft. In the vicinity of Chiswell Green Lane, this starts as a 3.6m wide track but narrows to a 2.6m wide alleyway behind number 48 Chiswell Green Lane.
- 4.10 Similarly, there is an alleyway connecting Chiswell Green Lane to Hammers Gate around 80m east of the site. This is public footpath 68.
- 4.11 In addition to the above PROWs there are public footpaths around the western (21) and northern (80) boundaries of the Polo Club site. These provide additional routes to the north of Chiswell Green which also provide access to the southern edge of St Albans.
- 4.12 To the west of Butterfly World, there are two footpaths (28 and 44) which connect Chiswell Green Lane to Noke Lane and provide connections to the wider area.

Cycling

- 4.13 It is generally considered that 5 kilometres is an acceptable distance to cycle to work or nearby facilities and amenities. This distance is also illustrative and approximate, will vary by individual according to their personal mobility and fitness, and will be influenced by their perception and prejudices on such factors as local topography and attitude towards particular travel modes. The destinations accessible within a 5km cycling distance are shown within Figure 4.
- 4.14 Whilst not an exhaustive list it is considered that, in addition to those destinations listed in paragraph 4.3, the following are within a 5km cycling distance from the site:
- St Albans City Centre
 - St Albans City railway station
 - Bricket Wood railway station
 - Garston railway station
 - Verulamium Park
 - BRE Group
 - Parmiters Secondary School
 - St Michaels High School
 - Abbey View Retail Park
 - St Albans Abbey railway station
 - St Albans Cathedral
 - Garston
 - Westminster Lodge Leisure Centre
 - Watford Leisure Centre
 - Bricket Wood Common
 - Garston Manor School
 - Marlborough Academy
- 4.15 It is understood that there is currently no dedicated cycle infrastructure provided within the immediate vicinity of the site. However, there are quiet routes recommended by cyclists in the local area which provide connections to the dedicated cycle routes.
- 4.16 The St Albans Cycle Map has been provided within Appendix F and an extract is shown in Image 2 overleaf. This shows that Chiswell Green Lane and Stanley Avenue are listed as 'quiet routes recommended by cyclists' which provides a connection to the on-road mandatory cycle lane on Watford Road. This on-road cycle lane provides a cycle route across the bridge over the A414, towards St Albans.

Image 2: St Albans Cycle Map Extract



Note: Extract taken from www.stalbans.gov.uk/sites/default/files/attachments/St%20Albans%20Cycl%20Route%20Map%202019.pdf

- 4.17 Around 630m east of the site is National Cycle Route 6. This route is accessible from Tippendell Lane at the entrance to Greenwood Park. It provides a dedicated cycle route between Watford and St Albans in the local area and Uxbridge, Luton and Milton Keynes. It is a mix of on-road and off-road routes and crosses the A405 North Orbital Road via a bridge with cycle ramps immediately south of the Tippendell Lane junction.
- 4.18 To the south of the site, there is a footway / cycleway at the A405 North Orbital Road / Watford Road which heads south to provide access to Watford.
- 4.19 There are no dedicated cycle crossings in the vicinity of the site.

Public Transport

Buses

- 4.20 The closest bus stops are located on Watford Road and are sited as follows:

- 60m north of the Watford Road / Tippendell Lane junction for the northbound stop and 80m south of the Chiswell Green Lane junction for the southbound stop. These stops are around 420m east of the northern site access;
- 150m south of the Watford Road / Forge End junction, around 275m south east of the Forge End site access; and
- 35m north of the Watford Road / Long Fallow junction, around 300m south of the Long Fallow footway / cycleway access.

4.21 The Watford Road bus stops serve bus routes 321 and 724. In addition to these services, the bus stops on Watford Road in the vicinity of Tippendell Lane also serves route 361 which travels along Tippendell Lane to How Wood and Bricket Wood. A fourth bus service, route 635, is accessible from bus stops on the A405 North Orbital Road between the Watford Road roundabout and the M25 junction 21A, around 780m south of the Long Fallow footway / cycleway access.

4.22 The frequency and routes of these bus services are summarised within Table 4.

Table 4: Local Bus Routes & Bus Frequencies (correct as of February 2022)

Service	Operator	Route Description	Frequencies	
			Weekday	Weekend
321	Arriva	Luton, Harpenden, St Albans, Chiswell Green, Garston, Watford Junction Railway Station, Watford	3 per hour	3 per hour on Saturdays and hourly on Sundays
361	Red Eagle	Garston, Bricket Wood, How Wood, Chiswell Green, St Albans, New Greens	Hourly	Hourly on Saturdays and no service on Sundays
635	Uno Buses	Hitchin, Stevenage, Hatfield, Bricket Wood, Park Street, How Wood, Garston, Watford Junction railway station, Watford	Every 90 minutes	No service at weekends
724	Greenline	Heathrow Bus Station, Uxbridge, Denham, Maple Cross, Rickmansworth, Watford Junction railway station, Garston, Chiswell Green, St Albans, Hatfield, Welwyn Garden City, Hertford, Ware, Harlow	Hourly	Hourly on Saturdays and every two on Sundays

Note: routes and frequencies taken from <https://www.intalink.org.uk/>

Trains

4.23 The nearest railway stations to the site are situated to the east of Chiswell Green. These are How Wood and Park Street and are around 1.7km east of the centre of the site as the crow flies.

- 4.24 Both stations are situated on the Abbey Line, known locally as the Abbey Flyer, which provides an hourly service between St Albans Abbey Station to the north and Watford Junction station to the south, a journey of 16 minutes. In addition to the aforementioned stations, the route also serves Bricket Wood, Garston and Watford North. The first service is at 05:49 with the final service at 00:36, with 28 trains per day. A one-way ticket costs £6 during peak hours.
- 4.25 Frequent trains to London and other destinations are available from Watford Junction and St Albans City station, which is a 25 minute (2km) walk from St Albans Abbey Station or a short cycle or bus journey.
- 4.26 The Abbey Line is operated by London Northwestern Railway and is formed of a single track, hence the low frequency of services as only a single train is currently able to operate on the route. It is understood that in 2020, the government allocated funding for the provision of a passing loop to increase train frequencies, and this is currently progressing through the required approval processes.
- 4.27 Similarly, in the past, consideration has also been given to downgrading the link to a Light Rail tram link or a bus route in order to improve frequencies, but these have been rejected for the proposed passing loop.
- 4.28 The stations in the vicinity of the site are described below:

HOW WOOD RAILWAY STATION

- 4.29 How Wood railway station is located in How Wood to the southeast of Chiswell Green and is around a 2.7km cycle journey from the Chiswell Green Lane site access and 2.5km from the Forge End access.
- 4.30 The station is unmanned and has limited facilities comprising a covered bench and a telephone box. There are no ticket machines and so tickets can only be purchased online in advance. There is no car parking or cycle parking at the station.

PARK STREET RAILWAY STATION

- 4.31 Park Street railway station is located in Park Street to the east of Chiswell Green and is around a 2.5km cycle journey from the Chiswell Green site access and 2.4km from the Forge End access.
- 4.32 The station is unmanned and has limited facilities comprising a covered bench and a telephone box. There is a ticket machine where you can also collect pre-ordered tickets. There is a 23 space pay & display car park and 12 cycle parking spaces.

Additional Train Services

- 4.33 As outlined within paragraph 4.25, there are additional train services available from St Albans City station and Watford Junction. These stations are accessible via either the Abbey Line railway line or via a bus passing the site. As these stations, whilst further away from the site, are accessible to residents, the services accessible from these stations are discussed further below.

WATFORD JUNCTION

4.34 Watford Junction station is accessible directly via the Abbey Line or via bus routes 321 and 724 (see Table 4). It is located around 7.2km south of the site and provides services to London Euston in the south and Birmingham, Manchester, Glasgow and Edinburgh to the north. It is operated by London Northwest Railway, but the following operators also stop at Watford Junction whilst serving the listed destinations:

- London Northwestern Railway
 - London Euston 6 per hour
 - Hemel Hempstead 4 per hour
 - Milton Keynes Central 3 per hour
 - Northampton
 - Birmingham New Street 2 per hour
- London Overground;
 - London Euston 4 trains per hour
- Avanti West Coast;
 - Birmingham New Street 1 train per hour
 - Blackpool 1 train per hour
 - London Euston 2 per hour
 - Manchester Piccadilly 1 per day (additional services require a change at Milton Keynes)
 - Milton Keynes Central 1 per hour
 - Wolverhampton & Shrewsbury 1 train per hour
- Caledonian Sleeper
 - Aberdeen 1 train per day
 - Inverness 1 train per day
 - Fort William 1 train per day
 - Glasgow Central 1 train per day
 - Edinburgh Waverley 1 train per day

4.35 Watford Junction station has 354 cycle parking spaces, 750 parking spaces which are accessible 24 hours a day and disabled pick-up and drop-off spaces. The station also incorporates waiting rooms, retail units, coffee shops, photo booth, ticket machines and a taxi rank for six taxis. The station accepts Oyster cards for travel within London but there is a ticket office which is open between the following times:

- Monday to Friday: 05:30 to 23:00;
- Saturday: 05:30 to 23:00; and
- Sunday: 06:30 to 22:30.

4.36 The station also provides access to 19 local bus services serving the wider area. These bus services are accessible from a bus station located immediately outside the station.

ST ALBANS CITY STATION

4.37 St Albans City station is directly accessible via bus route 724 (see Table 4) or via bus route 321 which stops in the city centre and so there is a 1km walk (12 minutes) to the station. Alternatively, there are numerous bus connections between the city centre and the station. It is located around 3.7km northeast of the site and is located on the Thameslink and the Midland Main Line routes, providing services to London and Brighton in the south and Bedford to the north. The site access on Chiswell Green Lane is around a 4.8km cycle journey from the station. The railway station is operated by Govia Thameslink and serves the following destinations:

- | | |
|------------------------------------|--|
| • London St Pancras | 9 trains per hour |
| • London Blackfriars | 9 trains per hour |
| • London Bridge | 6 trains per hour |
| • Bedford | 4 trains per hour |
| • Luton | 6 trains per hour |
| • Brighton | 2 trains per hour (additional services require a change at East Croydon) |
| • Gatwick Airport via Redhill | 4 trains per hour |
| • Sutton | 2 trains per hour |
| • Rainham via Greenwich & Dartford | 1 train per hour |

4.38 St Albans City station has 1,150 cycle parking spaces, 1,574 parking spaces which are accessible 24 hours a day and disabled pick-up and drop-off spaces. The station also incorporates waiting rooms, retail units, coffee shops, ticket machines and a taxi rank for circa 20 taxis. There is a ticket office which is open between the following times:

- Monday to Friday: 05:45 to 22:00;
- Saturday: 06:45 to 21:15; and
- Sunday: 07:30 to 21:45.

4.39 The station also provides access to 19 local bus services serving the wider area. These bus services are accessible from a bus station located immediately outside the station.

4.40 In addition to the ticket office, the station facilities include ticket machines, a waiting room, a coffee shop, and toilet facilities.

5.0 Proposed Development

- 5.1 The Applicants are proposing the development of land to the south of Chiswell Green Lane to provide up to 391 dwellings and land for a 2 Form Entry (2FE) primary school. The application site is bordered to the north by Chiswell Green Lane, to the east by the residential roads of Forge End and Long Fallow, and to the west by Miriam Lane and the former Butterfly World visitor attraction. The location of the site is shown within Appendix A.
- 5.2 The site was the subject of a strategic site allocation within the Publication Draft of the St Albans Local Plan (September 2018). It formed Broad Location S6x and consisted of a minimum of 365 dwellings, a masterplanned development led by the council in collaboration with local communities, landowners and stakeholders, 40% affordable provision, a site for a 2FE Primary School and a 3% self-build provision.
- 5.3 The Draft Local Plan was withdrawn in 2020 during the examination process due to the 'soundness' test and a new Local Plan is currently being prepared. It is considered a high probability that this site would be re-allocated within the new draft Local Plan which is anticipated to be adopted in 2025. The unmet housing need resulting from the delay to the Local Plan, however, has resulted in this site being brought forward by the Applicants in advance of the adoption of the new Local Plan.
- 5.4 The development will provide up to 391 dwellings, of which 40% will be affordable and the provision of land for a new 2 Form Entry (2FE) Primary School with a capacity for 420 pupils. The school would be provided by HCC in the future when a need for additional school places is identified. Out of the 391 dwellings, 3% will consist of self build plots. It is proposed that the development will be landscape led and will include publicly accessible open space and children's play space. An illustrative site layout has been provided within Appendix B.
- 5.5 An indicative mix of the dwellings are as follows but as this Transport Assessment supports an Outline application, the actual mix may evolve prior to a future Reserved Matters application.
- 46no. 1-bed apartments (of which all will be affordable);
 - 35no. 2-bed apartments (of which 31 will be affordable);
 - 36no. 2-bed houses (of which 30 will be affordable);
 - 176no. 3-bed houses (of which 45 will be affordable);
 - 62no. 4-bed houses (of which 4 will be affordable); and
 - 36no. 5-bed houses (all of which will be private).
- 5.6 The site has been designed as two separate parcels. The northern parcel will provide 55% of the dwellings (215) and the primary school site, whilst the southern parcel will provide the remaining 45% of the dwellings (176).
- 5.7 There will be a green core separating the two parcels which will incorporate amenity space and pedestrian and cycle links between the two halves of the development. It is not proposed to provide a vehicular link between the land parcels and this approach is discussed further within paragraphs 5.16 to 5.18.

Pedestrian / Cycle Access

- 5.8 Pedestrian and cycle access will be achievable at the proposed site access junctions. In addition to these routes, a new 3.5m wide footway / cycleway will be provided off the southern Forge End cul-de-sac, in the vicinity of the triangle of protected trees along the site's south-eastern boundary. This access will be restricted to pedestrian / cycle use with vehicular access controlled through a removable bollard to allow maintenance access as required. The layout of this pedestrian / cycleway link is shown within Appendix G but the route through the trees and how it ties into the internal road network will be developed further as part of the Reserved Matters application.
- 5.9 There will also be a 4.1m wide pedestrian / cycle access off the Long Fallow cul-de-sac. This access will double as an emergency access and will have vehicular access restricted through the provision of removable bollards. A design for this connection has been provided within Appendix G.
- 5.10 The proposals provide good pedestrian / cycle permeability through the development which will link both parcels and will provide a public through route between Forge End, Long Fallow and Chiswell Green Lane.

Site Access

- 5.11 It is proposed to provide three vehicular accesses to the development. Two of these accesses will be provided on Chiswell Green Lane and will provide access to the northern parcel and the primary school. The southern land parcel will be accessed from a new junction onto the Forge End cul-de-sac. These accesses are described in more detail below.

Northern Land Parcel

- 5.12 The proposed site access arrangement for the northern parcel is shown within Appendix G and will consist of two priority T-junctions. These junctions will serve the northern half of the residential development and the primary school.
- 5.13 These junctions will be formed as priority T-junctions and will incorporate localised widening of the existing carriageway on Chiswell Green Lane to 6.1m to accommodate the additional flows associated with the development. In addition to this, the northern footway will be widened to 2m outside of numbers 46 and 48 Chiswell Green Lane.
- 5.14 The junctions consist of 7m wide carriageway narrowing down to 5.5m within the site. Radii of 10m have been provided at the junction to assist refuse vehicles and buses entering and departing the site. A swept path assessment has been provided within Appendix H.
- 5.15 It is noted that there is existing on-street parking in the vicinity of the junctions for local residents. A site visit at 11am on Sunday 6 February 2022 identified that six vehicles were parked in this location (see Images 3 & 4), whilst old Google Streetview imagery indicates that up to eight vehicles have been parked there in the past. Consequently, 10 perpendicular parking spaces have been provided within the junction arrangement to replace this displaced parking. As the existing informal parking is typically perpendicular to the carriageway, it is considered that the proposals would reflect the existing situation.

Images 3: Existing On-street Parking on Chiswell Green Lane Looking East



Image 4: Existing On-street Parking on Chiswell Green Lane Looking West



- 5.16 It should be noted that the existing vehicular access on the northern side of Chiswell Green Lane only provides access to a grass field within the Polo Club site and is a Public Footpath. Consequently, it is considered that a suitable junction separation is not required. The visibility splays shown in Appendix G for the northern access junction are based on a speed survey undertaken in 2016 (see Table 3) which showed 85th percentile speeds of 31.3mph (46m) eastbound and 32.2mph (47.9m) westbound.

Southern Land Parcel

- 5.17 The access to the southern land parcel will connect with the existing Forge End cul-de-sac which in turn will provide access to Watford Road. This junction will take the form of a priority T-junction and will utilise an existing 10m wide gap between numbers 12 and 16 Forge End. It is proposed that this access will consist of a 5.5m wide carriageway with a 2m wide footway on one side of the carriageway. An illustrative layout for this junction is shown within Appendix G and a swept path assessment has been provided within Appendix H.
- 5.18 In addition to the proposed vehicular access, a footway / cycleway link will be provided at the southern end of Forge End at the existing gap between house numbers 46 and 50 Forge End. A similar pedestrian / cycle access is proposed to Long Fallow. This will be provided through the existing gap in the houses between numbers 30 and 34 Long Fallow. It is proposed that this access will double as an emergency access and so will be 4.1m wide, with access controlled through removable bollards. A layout for both of these pedestrian / cycle accesses has been provided within Appendix G whilst a fire tender swept path for the Long Fallow access has been provided within Appendix H.

Provision of a Through Link

- 5.19 It is not proposed to provide a vehicular through link between the two land parcels, but there would be pedestrian and cycle permeability and an emergency link. It is considered that the lack of a through link will not inhibit the permeability of the site by sustainable modes and will not impede the provision of improved bus accessibility for the wider site through the provision of a bus route within the northern parcel.
- 5.20 The provision of two separate land parcels would enable development traffic to be better distributed across the local road network without being focussed on a single link or junction thereby minimising the impact on the local community. An assessment has been undertaken to assess the impact of providing a through link (see Appendix I) and this concludes that the provision of a through link would increase the number of vehicles using the Forge End site access. Similarly, it would encourage rat-running as vehicles try to avoid the Watford Road / Chiswell Green Lane / Tippendell Lane double mini-roundabout by traversing the site to access Stanley Avenue and Ragged Hall Lane.
- 5.21 As a through link would increase traffic using Forge End, it is considered that Chiswell Green Lane is better able to accommodate additional traffic than Forge End and therefore it is considered that accessing the two land parcels separately would have less of an impact on the local community than if a through link were provided.

Swept Path and Visibility Assessment

- 5.22 As this is an Outline application with all matters reserved except for access, the site layout is illustrative and will develop as part of the Reserved matters application. The layout has been developed to allow access by the vehicles listed below, whilst the same vehicle types will be used to assess the internal site layout as part of the future Reserved Matters application when the layout will be finalised.
- a large car;
 - a supermarket home delivery vehicle;
 - a 10.2m refuse vehicle (see paragraph 5.24); and
 - a fire tender.
- 5.23 Similarly, a visibility assessment will be provided based on a design speed of 20mph, however, there are some bends which operate as traffic calming features, and these would have a forward visibility requirement based on a speed of 15mph.

Servicing and Deliveries

Refuse Vehicles

- 5.24 SACDC operates a kerbside collection routine that will be extended to serve the proposed development. For the houses, refuse will be collected from the kerb outside the plots whilst apartment refuse will be collected at ground level from each block's communal bin store.
- 5.25 The site layout has therefore been developed so that refuse vehicle access accords with the requirements set out within Manual for Streets, namely:
- a maximum reverse distance of 12m for refuse collection vehicles, although longer distances can be considered if reversing routes are straight and free from obstacles or visual obstructions;
 - residents should not be required to carry waste more than 30m to the storage point; and
 - a maximum wheel distance of 25m for household refuse and 15m for larger Eurobins provided within the apartments.
- 5.26 The illustrative site layout has therefore been designed to ensure sufficient space to enable refuse vehicles to enter and leave the site in forward gear in accordance with the requirements set out above.
- 5.27 SACDC's 'Refuse Collection and Recycling Requirements for New Developments and Change of Use' guidance identifies that St Albans is serviced by an 8m long refuse vehicle. However, the site access swept path assessment shown in Appendix H has been based on a 11.2m refuse vehicle.
- 5.28 As part of the school's future planning application, a Delivery and Servicing Management Plan will be provided to ensure that deliveries are managed to reduce the impact on the local community and road network.

Emergency Access

- 5.29 The site access swept path assessment for a fire tender is shown within Appendix H. This shows that a fire tender can arrive and depart the site in forward gear. The emergency access has been designed in accordance with the Approved Document Part B and has also been tracked for a fire tender (see Appendix G). The Reserved Matters application will show that fire tenders can get to within 45m of all part of each dwelling based on hose distance. Where fire tenders must reverse, the distance will be restricted to 20m in accordance with Manual for Streets guidance.

6.0 Parking Strategy

- 6.1 This chapter summarises the potential parking requirements of the development. As this Transport Assessment is supporting an Outline application, the parking provision will be confirmed as part of the future Reserved Matters application when the layout is finalised. It can be confirmed, however, that parking for both the residential development and the primary school will be provided in accordance with the 'St Albans Revised Parking Policies and Standards', however, a preliminary provision is outlined within this chapter.

Vehicle Parking

- 6.2 Policy 40 of the 'St Albans Local Plan Saved Policies' document identifies the following residential requirements:

Table 5: Residential Parking Provision

		Number of spaces per dwelling		
		Allocated	Unallocated	Total
1-bed	either	0	1.5	1.5
	or	1	0.5	1.5
2-bed	either	0	2	2
	or	1	1	2
	or	2	0.5	2.5
3-bed		2	0.5	2.5
4+ beds		3	0.5	3.5

- 6.3 Based on the indicative dwelling mix identified within paragraph 5.3, the following parking requirements would be required:

Table 6: Residential Parking Provision

Dwelling Size	No Of Dwellings	Number of spaces per dwelling		
		Allocated	Unallocated	Total
1-bed	46	0 or	69 or	69 or
		46	23	69
2-bed	71	0 or	142 or	142 or
		71 or	71 or	142 or
		142	36	178
3-bed	176	352	88	440
4+ beds	98	294	49	343

- 6.4 The parking provision outlined within Table 6 indicates that, based on the current accommodation mix, between 994 and 1,030 parking spaces could be provided depending on the number of allocated spaces. However, the Revised Parking Standards do allow for some reduction on the requirements set out within Policy 40 (see paragraph 2.34 of this Transport Assessment).

- 6.5 For the primary school, there should be one space per two staff members plus one space per 15 students.

Accessible Parking

- 6.6 The parking guidance states that for residential developments, every dwelling which has been built to mobility standards should be provided within an accessible space. For individual dwellings, it is considered that the driveways will be designed to accommodate disabled drivers. For apartments, a suitable provision will be provided based on the number of apartments built for disabled residents.
- 6.7 Accessible parking within the school site will be identified as part of the school's Reserved Matters application. The current parking standards, however, require individual spaces for each disabled employee plus 2 spaces or 5% of the total capacity, whichever is greater.

Electric Vehicle Charging Points (EVCP)

- 6.8 Whilst EVCP will be provided, SACDC's planning policy or their parking standards, do not set out a specific provision for EV charging points. Consequently, as part of a future Reserved Matters application, EVCPs will be provided in accordance with the Building Regulations Approved Document S.

Cycle Parking

- 6.9 Cycle parking will be provided in accordance with the 'St Albans Revised Parking Policies and Standards'. For residential dwellings, this comprises, one space per dwelling if no garage or shed is provided.
- 6.10 For the primary school, there should be at least 1 space per 10 full time members of staff and one space per 15 students.

7.0 Sustainable Transport Improvements

- 7.1 This section of the Transport Assessment outlines the proposed sustainable transport improvements which are being proposed in order to affect a modal shift away from the use of private vehicles and to reduce the impact on the off-site highway network. The predicted impact on mode shares and vehicular trip generation is outlined within Chapter 10 of this Transport Assessment.

Pedestrian / Cycle Infrastructure Improvements

Chiswell Green Lane

- 7.2 There is an existing on-road mandatory cycle lane on Watford Road to the north of Chiswell Green Lane. This cycle lane provides access to St Albans to the north and forms part of National Cycle Route 6.
- 7.3 Currently this on-road route commences just south of the Ragged Hall Lane junction but is only an on-road route across the bridge over the A414. To the north of the bridge National Cycle Route 6 follows quiet roads recommended by cyclists to the St Albans Green Ring on Griffiths Way. National Cycle Route 6 then heads north into the City Centre via Cottonmill Lane, whilst it also connects with the Alban Way (National Cycle Route 61) on Griffiths Way. Both of these routes provide cycle routes into St Albans City Centre, to St Albans City Station and the wider area to the north (route 6 to Harpenden) and east (route 61 to Hatfield) of St Albans.
- 7.4 The National Cycle Route 6 mandatory cycle lane on Watford Road is accessible via Stanley Avenue. Both Ragged Hall Lane and Stanley Avenue are classified on the St Albans Cycle Map (see Image 2) as 'quiet routes' recommended by cyclists.
- 7.5 Consequently, to connect the site to this route, it is proposed to provide a 1m wide on-road advisory cycle lanes along Chiswell Green Lane. Currently, Chiswell Green Lane is around 6.1m wide and therefore the provision of a 1.5m lane is not feasible as it would reduce the carriageway width to 3.1m. Therefore, it is proposed to provide 1m cycle lanes and retain a 4.1m wide carriageway. The Chiswell Green Lane proposals are shown within Appendix J.
- 7.6 It is proposed that the existing zebra crossing on Watford Road at its junction with Tippendell Lane and Chiswell Green Lane will be upgraded to a Tiger crossing (a zebra crossing with an adjacent cycle crossing). This will provide improved access to the shops and whilst no improvements are being proposed along Tippendell Lane, it will provide an improved route for more confident cyclists to National Cycle Route 6 at Greenwood Park.
- 7.7 The provision of a 3m wide footway / cycleway lane has been considered but the presence of buried utilities, an above ground junction box and telegraph poles would require the exiting footway to be widened into the carriageway due to the cost of relocating the services. This would reduce the carriageway down to 5.5m which is considered insufficient width for the proposed bus route diversion which is discussed further within paragraphs 7.9 to 7.11.

Watford Road / Forge End

- 7.8 The St Albans cycle map extract shown within Image 2, indicates that there is a 'quiet route' between Tippendell Lane and How Wood. This route also forms part of National Cycle Route 6 and provides access to How Wood railway station and Greenwood Park.
- 7.9 It is therefore considered that there is the potential to class Farringford Road and Carisbrooke Road as a 'quiet road' and provide a new Tiger crossing at the Watford Road / Forge End junction, whilst widening the footways to 3m wide footway / cycleways. The improvements are shown in Appendix J and would provide an improved connection to the National Cycle Route from the southern parcel, but it is anticipated that residents in the northern parcel, and less confident cyclists, would also use this route to avoid the Watford Road / Tippendell Lane double mini-roundabout. Consequently, it is considered that this route will be popular with families with young children heading to and from Greenwood Park.

Watford Road / Long Fallow

- 7.10 There is an existing footway / cycleway at the A405 North Orbital Road junction with Watford Road which provides an off-road route towards Watford. It is therefore considered that connecting this route to the proposed footway / cycleway access on Long Fallow will provide a continuous cycle route between the site and Watford to the south.
- 7.11 Consequently, it is proposed to widen the eastern Watford Road footway into a 3m wide footway / cycleway and provide an uncontrolled crossing linking the improved footway to Long Fallow, which is lightly trafficked and therefore would be classified as a 'quiet road'. The proposals are shown within Appendix J and would be accessible to all residents within the site, via the cycle routes that will be provided within the development, which will be confirmed during the Reserved Matters application.

Bus Provision

- 7.12 Chapter 6.5 of Section 2 of the Hertfordshire Design Guide 'Roads in Hertfordshire' states that preferably all occupied parts of a development should be within a 400m walking distance (5-minute walk) of a bus stop. The plan provided within Appendix K shows the location of the existing bus stops in comparison to the site. This shows that the majority of the development is outside of the 400m walking distance with only the dwellings closest to the site accesses or the Long Fallow footway / cycle access being within the required distance.
- 7.13 It is therefore proposed that bus route 321 is diverted into the northern development parcel via Chiswell Green Lane. The bus will then turn follow the loop in the centre of the site and depart via Chiswell Green Lane without the need to turn around. The proposed bus route and the location of the bus stops are shown within Appendix L.
- 7.14 In accordance with the 'Bus Infrastructure in Hertfordshire – A Design Guide' the bus route within the site will be 6.75m wide.

8.0 Trip Generation and Distribution

8.1 This section reviews the trip generation and trip distribution associated with the development.

Trip Generation

Residential Trip Generation

8.2 To calculate the trip generation associated with the residential dwellings, trip rates have been extracted from the TRICS database. Whilst there are apartments within the development, the trip rates have been based on houses as these typically have a higher trip generation and therefore reflect a worst case assessment,

8.3 The TRICS sites for both private and affordable dwellings have been selected based on the following parameters:

- Sites within the South East, East Anglia, East Midlands and West Midlands;
- Between 150 to 500 dwellings;
- Weekday surveys within an edge of town location;
- Population within 1 mile: 5,000 to 25,000; and
- Population within 5 miles: 25,000 to 250,000.

8.4 The affordable dwelling trip rates include sites within England, with the exception of Greater London, due to a lack of sites.

8.5 The trip rates and the trip generation based on 235 private dwellings (60%) and 156 affordable dwellings (40%) is shown in Table 7, whilst the TRICS outputs have been provided within Appendix M.

Table 7: Proposed Residential Trip Rates and Trip Generation

Land Use		Trip Rates (per dwelling)			Trip Generation		
		In	Out	2-way	In	Out	2-way
Private Dwellings	AM Peak	0.140	0.400	0.540	33	94	127
	PM Peak	0.374	0.143	0.517	88	34	122
	Daily	2.367	2.363	4.730	556	555	1,111
Affordable Dwellings	AM Peak	0.120	0.269	0.389	19	42	61
	PM Peak	0.114	0.090	0.204	18	14	32
	Daily	1.746	1.751	3.497	272	273	545
Total	AM Peak	-	-	-	52	136	188
	PM Peak	-	-	-	106	48	154
	Daily	-	-	-	828	828	1,656

- 8.6 It is proposed that the development will be split into two separate land parcels. The northern land parcel will contain around 55% of the dwellings whilst the southern parcel will consist of 45% of the dwellings. Consequently, the trip generation outlined in Table 7 has been split between the two parcels and the resultant trip generation is shown in Table 8.

Table 8: Proposed Residential Trip Rates and Trip Generation

Land Use		Northern Parcel			Southern Parcel		
		In	Out	2-way	In	Out	2-way
Private Dwellings	AM Peak	18	52	70	15	42	57
	PM Peak	48	19	67	40	15	55
	Daily	306	305	611	250	250	500
Affordable Dwellings	AM Peak	10	23	33	9	19	28
	PM Peak	10	8	18	8	6	14
	Daily	150	150	300	122	123	245
Total	AM Peak	28	75	103	24	61	85
	PM Peak	58	27	85	48	21	69
	Daily	456	455	911	372	373	745

Primary School Trip Generation

- 8.7 As with the residential use, the school trip generation has been calculated using trip rates extracted from the TRICS database. The sites have been selected based on the same parameters outlined in paragraph 8.3 although suburban sites have been included for the school due to a lack of sites. The resultant trip rates and trip generation is shown in Table 9, whilst the TRICS outputs have been provided within Appendix M.

Table 9: Proposed Primary School Trip Rates and Trip Generation

Land Use		Trip Rates (per pupil)			Trip Generation		
		In	Out	2-way	In	Out	2-way
Primary School	AM Peak	0.262	0.230	0.492	110	97	207
	PM Peak	0.014	0.024	0.038	6	10	16
	Daily	0.704	0.705	1.409	296	296	592

- 8.8 The school afternoon peak will occur outside of the network PM peak hour and so it is considered that the AM peak hour will provide a worst-case assessment of the school impact.

8.9 Based on Table 1 of HCC's 'Guide to the Hertfordshire Demographic Model', around 85 primary school pupils (20%) would live within the development, based on 21.8 students per 100 houses. The school trip generation outlined in Table 9, however, does not take into account any internalisation associated with the proposed development, other than that incorporated within the TRICS survey, or the adjacent Polo Club development within which there may be a further 72 pupils should it receive planning consent. Consequently, the school trip generation reflects a worst-case scenario.

8.10 The school is located within the northern parcel and so there will be no school related vehicle trips travelling to or from the southern parcel.

Total Trip Generation

8.11 The total trip generation has been calculated by combining Tables 7 and 9 and the resultant total trip generation is shown in Table 10.

Table 10: Total Trip Generation

	Trip Generation		
	In	Out	2-way
AM Peak	162	233	395
PM Peak	112	58	170
Daily	1,124	1,124	2,250

8.12 The total trip generation has been split between land parcels and the resultant split is shown in Table 11.

Table 11: Total Trip Generation Split between Land Parcels

Land Use		Northern Parcel			Southern Parcel		
		In	Out	2-way	In	Out	2-way
Residential Trips	AM Peak	28	75	103	24	61	85
	PM Peak	58	27	85	48	21	69
	Daily	456	455	911	372	373	745
School Trips	AM Peak	110	97	207	-	-	-
	PM Peak	6	10	16	-	-	-
	Daily	296	296	592	-	-	-
Total	AM Peak	138	172	310	24	61	85
	PM Peak	64	37	101	48	21	69
	Daily	752	751	1,503	372	373	745

Trip Distribution

Residential Flows

- 8.13 The proposed residential vehicular trips shown in Table 11 have been distributed onto the off-site highway network using 'Origin and Destination' information extracted from the 2011 Census for the Chiswell Green District (St Albans 020). The Census data shows the workplace destinations for people living within Chiswell Green as set out in Table 12.

Table 12: 2011 Census Destinations for Chiswell Green Residents

Destination	Area Code	Number of Residents	Percentage	Direction
St Albans (as per split below)	E41000132	192	39%	
St Albans / Harpenden	-	110	23%	North Via Watford Road
North East St Albans	-	1	0%	North East via A414
East St Albans	-	10	2%	North East via A414
South East St Albans	-	2	1%	North East via A414
North of Redbourn	-	1	0%	North west via A414
Smallford / Colney Heath	-	8	2%	North East via A414
London Colney	-	7	1%	North East via A414
Park Street / How Wood	-	11	2%	East via Tippendell Lane
Chiswell Green south	-	35	7%	South via Watford Road & Tippendell Lane
Bricket Wood	-	7	1%	South via Watford Road
Westminster, City of London	E41000324	49	10%	South via M25
Hertsmere	E41000130	44	9%	50% east via Tippendell Lane & 50% via Watford Road South
Watford	E41000135	42	8%	South via A405
Welwyn Hatfield	E41000136	38	6%	North East via A414
Dacorum	E41000128	28	4%	South via M25
Luton	E41000032	20	4%	North west via A414
Three Rivers	E41000134	19	4%	South via M25
Barnet	E41000294	18	3%	South via M25
Camden	E41000298	17	2%	South via M25
Stevenage	E41000133	11	2%	North East via A414
Hillingdon	E41000308	10	9%	South via M25

- 8.14 The residential trip distribution outlined in Table 12 has been applied to the relevant vehicle routings and these are shown in Table 13.

Table 13: 2011 Census Vehicular Routings

Destination	Route	Percentage
Watford Road North	St Albans	23.0%
Watford Road South	Watford, M25 & 50% Hertsmere	44.5%
Tippendell Lane East	50% Hertsmere	3.0%
Chiswell Green	Stanley Avenue	5%
Luton	A414 (West) via A405 North	4.0%
Welwyn Hatfield / Stevenage	A414 (East) via A405 North	20.5%

- 8.15 The narrow nature of Chiswell Green Lane to the west of the site will make this route unattractive and reduce rat-running by residents.

Primary School Flows

- 8.16 As the primary school would be a new establishment, there is no existing information on where students will be travelling from. Consequently, an assumption has been made based on where students are likely to be living. These assumptions are as follows:
- Watford Road South (southern half of Chiswell Green and Bricket Wood) 40%
 - Tippendell Lane (north-eastern Chiswell Green, How Wood and Park Street) 20%
 - Stanley Avenue (northern / north-western Chiswell Green) 40%
- 8.17 The residential and school trips have been assigned to the highway network based on the distribution outlined above and is shown in Appendix N.

9.0 Highway Impact Assessment

- 9.1 This section assesses the predicted impact of the development on both the site access junctions and the off-site junctions. It also identifies the study area and scenarios used within the assessment.

Assessment Scope

- 9.2 For the Outline application, the assessment will reflect a 2027 assessment year which represents five years after a 2022 planning application. Consequently, the proposed assessment scenarios will be:

- 2016 survey year;
- 2027 future year without development; and
- 2027 future year with development.

- 9.3 The impact assessment will assess the development's impact at the following junctions:

1. Watford Road / Long Fallow – ghost island / right turn lane priority T-junction;
2. Watford Road / Forge End – priority T-junction;
3. Watford Road / Chiswell Green Lane / Tippendell Lane – double mini-roundabout
4. North Orbital Road / Tippendall Lane – roundabout;
5. North Orbital Road / Watford Road – roundabout; and
6. North Orbital Road / Watling Street / A414 – roundabout.

Background Traffic

- 9.4 Due to the COVID-19 pandemic and the associated impact on travel patterns, it is not known if driver behaviour and traffic patterns have either returned to normal or have settled down into a long-term pattern. Consequently, the assessment within this Transport Assessment has utilised the 2016 turning counts that were undertaken as part of the original allocation work and increased to the assessment year using growth factors extracted from TEMPRO 7.2b. It is considered that using these flows will provide a robust assessment as it will provide accurate turning counts prior to the traffic patterns being adversely affected by the restrictions and lockdowns. Similarly, it will also not take into account any increases in home working, therefore providing a more robust assessment until the long-term impact of any changes in travel behaviour are known.
- 9.5 The proposed growth factors extracted from TEMPRO 7.2b using the NTM AF15 dataset for a principal road within area 'E02004943 : St Albans 020' are set out in Table 14.

Table 14: Proposed Growth Factors

	AM Peak	PM Peak
2016 to 2027	1.0957	1.0977

- 9.6 The base traffic counts and the 2027 future year flows are shown within Appendix N.

Percentage Impact Assessment

- 9.7 To provide a high-level assessment of the junctions located within the study area outlined within paragraph 9.3, a percentage impact assessment has been undertaken to identify the increase in traffic flows at each junction. The percentage Impact assessment is shown in Table 15.

Table 15: Increase in Two-way Traffic at Local Junctions in 2027

	Without Dev. (Vehs)	With Dev. (Vehs)	Two-way Increase (Vehs)	Two-way Increase (%)
AM Peak (08:00 to 09:00)				
1. Watford Road / Long Fallow	1,454	1,537	83	5.7%
2. Watford Road / Forge End	1,512	1,734	222	14.7%
3a. Watford Road / Chiswell Green Lane	1,707	2,050	343	20.1%
3b. Watford Road / Tippendell Lane	2,016	2,168	152	7.5%
4. North Orbital Road / Tippendell Lane	2,052	2,110	58	2.8%
5. North Orbital Road / Watford Road	2,695	2,778	83	3.1%
6. North Orbital Road / Watling Street	4,656	4,702	46	1.0%
PM Peak (17:00 to 18:00)				
1. Watford Road / Long Fallow	1,472	1,541	69	4.7%
2. Watford Road / Forge End	1,511	1,626	115	7.6%
3a. Watford Road / Chiswell Green Lane	1,658	1,791	133	8.0%
3b. Watford Road / Tippendell Lane	1,928	2,010	82	4.3%
4. North Orbital Road / Tippendell Lane	2,719	2,761	42	1.5%
5. North Orbital Road / Watling Street	3,506	3,575	69	2.0%
6. Watford Road / Long Fallow	5,490	5,528	38	0.7%

- 9.8 The percentage impact shown in Table 15 indicates that only the off-site junctions within central Chiswell Green would experience increases in traffic flows of greater than 5%. These junctions are as follows:

1. Watford Road / Long Fallow – ghost island / right turn lane priority T-junction;
2. Watford Road / Forge End – priority T-junction; and
3. Watford Road / Chiswell Green Lane / Tippendell Lane – double mini-roundabout

- 9.9 Consequently, detailed junction capacity assessments have been undertaken for these three junctions and the proposed site accesses on Chiswell Green Lane. As the Forge End access connects with a small cul-de-sac of 18 dwellings, it is considered that site access would operate within capacity. However, the Watford Road / Forge End junction will be assessed, as noted above.

Junction Capacity Assessments

- 9.10 As outlined within paragraph 9.8, junction capacity assessments have been undertaken for the three off-site junctions which experience a greater than 5% increase in traffic flows and the two site access junctions on Chiswell Green Lane.
- 9.11 The junction capacity models have been prepared using the ARCADY (roundabouts) and PICADY (priority T-junctions) modules within Junctions 9. Both the PICADY and ARCADY modelling software presents the key results in terms of the Ratio of Flow to Capacity (RFC), queue lengths and predicted delay. It is generally accepted that RFC values of 0.85 or less indicate that a junction is operating within capacity as this gives some margin for error in the prediction of capacity and variations in traffic flow. Therefore, junctions are only identified as operating over capacity if this value is exceeded.
- 9.12 The results of the PICADY and ARCADY modelling for the site access and the off-site junctions are outlined below.

Northern Parcel – Eastern Site Access Junction

- 9.13 To assess the capacity of the eastern site access junction a PICADY model has been created based on the junction arrangement shown in Appendix G. It has been assumed that 50% of the development traffic will use the eastern junction and 50% the western junction as it is anticipated that school traffic would use both accesses.
- 9.14 The resultant PICADY modelling results are shown within Table 16 whilst the PICADY outputs have been provided within Appendix O.

Table 16: Northern Parcel Eastern Site Access – PICADY Results

Scenario	Approach	AM Peak			PM Peak		
		RFC	Queue (veh)	Delay (s)	RFC	Queue (veh)	Delay (s)
2027 with Dev't	Site Access Left Turn	0.00	0.0	0.00	0.00	0.0	0.00
	Site Access Right Turn	0.19	0.2	9.87	0.04	0.0	7.86
	Chiswell Green Lane Right Turn	0.00	0.0	0.00	0.00	0.0	0.00
	Junction Delay	1.48			0.42		

- 9.15 The junction capacity results shown in Table 16 indicates that the junction would operate significantly within capacity with negligible queueing and delay if 50% of the northern parcel is accessed via this junction, however the modelling indicates that there is sufficient spare capacity to accommodate additional development traffic if the distribution is different to that previously outlined.

Northern Parcel – Western Site Access Junction

- 9.16 To assess the capacity of the eastern site access junction a PICADY model has been created based on the junction arrangement shown in Appendix G.

- 9.17 As outlined within paragraph 9.13, the junction modelling assumes that 50% of the northern parcel and school traffic would use each access junction. The resultant PICADY modelling results are shown within Table 17 whilst the PICADY outputs have been provided within Appendix O.

Table 17: Northern Parcel Western Site Access – PICADY Results

Scenario	Approach	AM Peak			PM Peak		
		RFC	Queue (veh)	Delay (s)	RFC	Queue (veh)	Delay (s)
2027 with Dev't	Site Access Left Turn	0.00	0.0	0.00	0.00	0.0	0.00
	Site Access Right Turn	0.18	0.2	9.09	0.04	0.0	7.68
	Chiswell Green Lane Right Turn	0.00	0.0	0.00	0.00	0.0	0.00
	Junction Delay	1.87			0.48		

- 9.18 The junction capacity results shown in Table 17 indicates that the junction would operate significantly within capacity with negligible queueing and delay if 50% of the northern parcel is accessed via this junction. However, the modelling indicates that there is sufficient spare capacity to accommodate additional development traffic if the distribution is different to that assumed.

Junction 1 - Watford Road / Long Fallow

- 9.19 This junction consists of a priority T-junction with a ghost island and so a PICADY model has been produced within Junctions 9. The resultant capacity assessment is shown within Table 18, whilst the PICADY outputs have been provided within Appendix O.

Table 18: Watford Road / Long Fallow – Existing Layout PICADY Results

Scenario	Approach	AM Peak			PM Peak		
		RFC	Queue (veh)	Delay (s)	RFC	Queue (veh)	Delay (s)
2016 Survey	Long Fallow Left Turn	0.02	0.0	6.81	0.01	0.0	7.05
	Long Fallow Right Turn	0.01	0.0	13.24	0.00	0.0	0.00
	Watford Road Right Turn	0.01	0.0	6.79	0.03	0.0	7.44
	Junction Delay	0.06			0.08		
2027 without Dev't	Long Fallow Left Turn	0.02	0.0	7.04	0.01	0.0	7.33
	Long Fallow Right Turn	0.02	0.0	14.73	0.00	0.0	0.00
	Watford Road Right Turn	0.02	0.0	7.00	0.03	0.0	7.74
	Junction Delay	0.06			0.08		
2027 with Dev't	Long Fallow Left Turn	0.02	0.0	7.13	0.01	0.0	7.52
	Long Fallow Right Turn	0.02	0.0	15.71	0.00	0.0	0.00
	Watford Road Right Turn	0.02	0.0	7.08	0.03	0.0	7.95
	Junction Delay	0.06			0.08		

- 9.20 The junction capacity assessment results shown in Table 18 indicate that the junction would operate significantly within capacity during both 'with' and 'without' development in 2027. Consequently, no mitigation is considered necessary at this junction.

Junction 2 - Watford Road / Forge End

- 9.21 This junction consists of a priority T-junction with a ghost island and provides access to the southern site access. A PICADY model has been produced within Junctions 9 and the resultant capacity assessment is shown within Table 19, whilst the PICADY outputs have been provided within Appendix O.

Table 19: Watford Road / Forge End – Existing Layout PICADY Results

Scenario	Approach	AM Peak			PM Peak		
		RFC	Queue (veh)	Delay (s)	RFC	Queue (veh)	Delay (s)
2016 Survey	Forge End Left Turn	0.07	0.1	7.01	0.05	0.1	7.37
	Forge End Right Turn	0.03	0.0	14.32	0.03	0.0	14.22
	Watford Road Right Turn	0.14	0.3	4.41	0.08	0.1	4.28
	Junction Delay	0.48			0.33		
2027 without Dev't	Forge End Left Turn	0.07	0.1	7.27	0.06	0.1	7.72
	Forge End Right Turn	0.03	0.0	15.94	0.03	0.0	15.85
	Watford Road Right Turn	0.16	0.5	4.38	0.10	0.2	4.16
	Junction Delay	0.53			0.35		
2027 with Dev't	Forge End Left Turn	0.16	0.2	8.6573	0.09	0.1	8.2834
	Forge End Right Turn	0.15	0.2	20.3031	0.08	0.1	17.6569
	Watford Road Right Turn	0.23	0.9	4.5455	0.21	0.7	4.64
	Junction Delay	1.1921			0.8084		

- 9.22 The junction capacity assessment results shown in Table 19 indicates that the junction would operate significantly within capacity during both 'with' and 'without' development in 2027. Consequently, no mitigation is considered necessary at this junction.

Junction 3 - Watford Road / Chiswell Green Lane / Tippendell Lane

- 9.23 This junction consists of double mini-roundabouts and so a linked ARCADY model has been produced within Junctions 9. The resultant capacity assessment is shown within Table 20, whilst the ARCADY outputs have been provided within Appendix O.

Table 20: Watford Road / Chiswell Green Lane / Tippendell Lane – Existing Layout ARCADY Results

Scenario	Junction	Approach	AM Peak			PM Peak		
			RFC	Queue (veh)	Delay (s)	RFC	Queue (veh)	Delay (s)
2016 Survey	Southern Junction	Watford Road North	0.70	2.3	9.53	0.57	1.4	7.53
		Watford Road South	0.68	2.1	11.32	0.77	3.2	15.54
		Chiswell Green Lane	0.28	0.4	10.85	0.28	0.4	10.81
		Junction Delay	10.39			11.58		
	Northern junction	Watford Road South	0.51	1.0	4.79	0.48	0.9	4.25
		Watford Road North	0.86	5.4	22.58	0.87	6.0	27.67
		Tippendell Lane	0.81	3.6	34.50	0.79	3.2	46.29
		Junction Delay	18.00			20.45		
2027 without Dev't	Southern Junction	Watford Road North	0.76	3.0	11.67	0.62	1.7	8.28
		Watford Road South	0.75	2.9	14.24	0.86	5.1	22.73
		Chiswell Green Lane	0.34	0.5	12.87	0.33	0.5	12.79
		Junction Delay	12.84			15.48		
	Northern junction	Watford Road South	0.56	1.3	5.43	0.53	1.1	4.73
		Watford Road North	0.95	10.7	39.16	0.96	13.8	56.72
		Tippendell Lane	0.97	9.1	72.93	0.94	7.9	107.98
		Junction Delay	32.70			42.02		
2027 with Dev't	Southern Junction	Watford Road North	0.82	4.2	15.75	0.67	1.9	9.11
		Watford Road South	0.88	6.1	27.48	0.91	8.0	33.53
		Chiswell Green Lane	0.76	2.8	34.66	0.43	0.7	15.21
		Junction Delay	23.33			21.00		
	Northern junction	Watford Road South	0.63	1.7	6.47	0.55	1.2	4.89
		Watford Road North	1.00	16.2	55.61	1.00	20.0	77.03
		Tippendell Lane	1.07	16.9	115.85	1.09	20.7	285.66
		Junction Delay	47.54			77.91		

9.24 The ARCADY results shown in Table 20 indicate that the northern mini-roundabout junction would exceed capacity in the 2027 'without development' scenario on the Watford Road north and Tippendell Lane approaches during both peak hours. Similarly, the Watford Road South approach at the southern roundabout would slightly exceed capacity in the PM peak hour.

9.25 When the development flows are added, both mini-roundabouts would continue to exceed capacity during both peak hours. During the pre-application consultation with HCC, it was understood, however, that rather than making capacity improvements, HCC's preference is for sustainable transport improvements to reduce both development related single car use and to reduce the volume of background traffic. This is in accordance with paragraphs 110 and 112 of the NPPF and Policy 1 of the Hertfordshire Local Transport Plan 4.

- 9.26 As outlined within Chapter 7 of this Transport Assessment, various sustainable transport improvements are proposed, including cycle improvements and the diversion of a bus route into the site. Consequently, a sensitivity test has been undertaken to assess the potential impact of these improvements and this is discussed within Chapter 10 of this Transport Assessment.

10.0 Sensitivity Test

- 10.1 This section provides two sensitivity tests to assess the predicted impact of the sustainable transport improvements on the three junctions outlined within Chapter 7 and the potential impact of the development if the adjacent Polo Club application (SACDC reference 5/2021/3194) is consented.

Sensitivity Test – Impact of Sustainable Transport Improvements

- 10.2 As outlined, within Chapter 7, it is proposed that various sustainable transport improvements are implemented as part of the proposed development. To assess the potential impact of these improvements, a sensitivity test has been undertaken based on a reduced vehicular trip rate.
- 10.3 To reduce the trip rates, the existing 'journey to work' modal splits for the area in which the site is located have been extracted from the 2011 Census. The site is situated within the north-eastern corner of the St Stephen ward, however, this ward includes Bricket Wood to the south and a large rural area to the west which are likely to have different travel characteristics to the site. Consequently, the existing journey to work modal splits has been extracted from the 2011 Census based on the following 'Lower Level' output areas:
- St Albans 020B (E01023730) – Chiswell Green North; and
 - St Albans 020C (E01023731) – Chiswell Green South.
- 10.4 The site is actually located within lower output area 'St Albans 020D' (E01023732), however, this encompasses the rural area between the western boundary of Chiswell Green and Bedmond and therefore the modal splits would be different to those within the existing built-up area.
- 10.5 The existing modal splits for the site are therefore shown in Table 21.

Table 21: Predicted Transport Modal Split for Residents (2011 Census)

Mode of Transport	St Albans 020B (E01023730)	St Albans 020C (E01023731)	Combined Areas
Single Occupancy Vehicle	64%	69%	66%
Car / Van Passenger	4%	4%	4%
Motorcycle	1%	1%	1%
Bus	2%	2%	2%
Train	13%	9%	11%
Cycle	1%	1%	1%
Walk	5%	5%	5%
Other	1%	1%	1%
Work from Home	9%	8%	9%

Note: The above excludes residents not in employment.

- 10.6 As outlined within paragraph 7.10, it is proposed that the 321 bus service is diverted into the site, whilst there are cycle infrastructure improvements on Chiswell Green Lane and at the Watford Road / Forge End and Watford Road / Long Fallow junctions to connect the site to the existing off-site cycle routes. Consequently, it is considered that these improvements will help residents change from private car use to bus, walking and cycling modes.
- 10.7 In addition to the increase in sustainable transport, it is also considered that there will be an increase in working from home as a result of the COVID-19 pandemic. Therefore, the potential modal shift is shown in Table 22.

Table 22: Predicted Change in Vehicular Modal Split for Residents (2011 Census)

Mode of Transport	Existing Mode Share	Proposed Change in Mode Share	Revised Mode Share
Single Occupancy Vehicle	66%	-16%	50%
Car / Van Passenger	4%	0%	4%
Motorcycle	1%	0%	1%
Bus	2%	+4%	6%
Train	11%	0%	11%
Cycle	1%	+4%	5%
Walk	5%	+3%	8%
Other	1%	0%	0%
Work from Home	9%	+10%	19%

Note: The above excludes residents not in employment.

- 10.8 The above modal shares indicate that there would be a 21% reduction in private car use. This equates to a 14% reduction in vehicular trip rates (21% of 66% equals 14%). Consequently, the vehicular trip rates shown in Tables 7 have been reduced by 14% and the reduced residential trip rates and trip generation is shown in Table 23. It has also been assumed that the school trip rates will decrease by the same amount and so the trip rates shown in Table 9 have also been reduced by 14%.
- 10.9 The mode share outlined in Table 22 have been incorporated as targets within the Travel Plan. These targets can be adjusted or additional initiatives and measures can be implemented to reduce private car use further than that identified in Table 22, as required.

Table 23: Reduced Residential Trip Rates and Trip Generation

		Trip Rates (per dwelling / pupil)			Trip Generation		
		Arrivals	Departures	Two-way	Arrivals	Departures	Two-way
Private Houses	AM Peak	0.120	0.344	0.464	28	81	109
	PM Peak	0.322	0.123	0.445	76	29	105
	Daily	2.036	2.032	4.068	478	478	956
Affordable Houses	AM Peak	0.103	0.231	0.335	16	36	52
	PM Peak	0.098	0.077	0.175	15	12	27
	Daily	1.502	1.506	3.007	234	235	469
Primary School	AM Peak	0.225	0.198	0.423	95	83	178
	PM Peak	0.012	0.021	0.033	5	9	14
	Daily	0.605	0.606	1.212	254	255	509
Total	AM Peak	-	-	-	139	200	339
	PM Peak	-	-	-	96	50	146
	Daily	-	-	-	966	968	1,934

10.10 The net change in vehicular trips when compared to Table 7 and Table 9 is shown in Table 24.

Table 24: Net Change in Vehicular Trip Generation

		Trip Rates (per dwelling / pupil)		
		Arrivals	Departures	Two-way
Private Houses	AM Peak	-5	-13	-18
	PM Peak	-12	-5	-17
	Daily	-78	-77	-155
Affordable Houses	AM Peak	-3	-6	-9
	PM Peak	-3	-2	-5
	Daily	-38	-38	-76
Primary School	AM Peak	-15	-14	-29
	PM Peak	-1	-1	-2
	Daily	-42	-41	-83
Total	AM Peak	-23	-33	-56
	PM Peak	-16	-8	-24
	Daily	-158	-156	-314

10.11 Following the reduction in the trip generation, the revised flows have been distributed to the network in accordance with Table 24 and the resultant flow assignment is shown in Appendix P. The percentage impact assessment shown in Table 15 has been revised and the resultant assessment is shown in Table 25.

Table 25: Increase in Two-way Traffic at Local Junctions in 2027 (Reduced Vehicular Trip Rates)

	Without Dev. (Vehs)	With Dev. (Vehs)	Two-way Increase (Vehs)	Two-way Increase (%)
AM Peak (08:00 to 09:00)				
Watford Road / Long Fallow	1,454	1,526	72	5.0%
Watford Road / Forge End	1,512	1,703	191	12.6%
Watford Road / Chiswell Green Lane	1,707	2,000	293	17.2%
Watford Road / Tippendell Lane	2,016	2,149	133	6.6%
North Orbital Road / Tippendell Lane	2,052	2,103	51	2.5%
North Orbital Road / Watford Road	2,695	2,767	72	2.7%
North Orbital Road / Watling Street	4,656	4,696	40	0.9%
PM Peak (17:00 to 18:00)				
Watford Road / Long Fallow	1,472	1,530	58	3.9%
Watford Road / Forge End	1,511	1,608	97	6.4%
Watford Road / Chiswell Green Lane	1,658	1,774	116	7.0%
Watford Road / Tippendell Lane	1,928	1,997	69	3.6%
North Orbital Road / Tippendell Lane	2,719	2,756	37	1.4%
North Orbital Road / Watling Street	3,506	3,564	58	1.7%
Watford Road / Long Fallow	5,490	5,523	33	0.6%

- 10.12 The percentage impact assessment shown in Table 25 indicates that following the implementation of the sustainable travel improvements outlined within Chapter 7, the increase in flows at the Watford Road / Long Fallow junction would reduce to 5% in the AM peak hour. The Watford Road / Forge End and the Watford Road / Chiswell Green Lane / Tippendell Lane junction would continue to experience an increase in traffic flows in excess of 5%.

Junction 1 – Watford Road / Long Fallow – Sensitivity Test

- 10.13 The PICADY model for the Watford Road / Long Fallow junction has been updated to reflect the reduced traffic flows. The updated capacity results are shown in Table 26, whilst the PICADY outputs have been provided within Appendix Q.

Table 26: Watford Road / Long Fallow – Existing Layout PICADY Results (Reduced Vehicular Trip Rates)

Scenario	Approach	AM Peak			PM Peak		
		RFC	Queue (veh)	Delay (s)	RFC	Queue (veh)	Delay (s)
2027 without Dev't	Long Fallow Left Turn	0.02	0.0	7.04	0.01	0.0	7.33
	Long Fallow Right Turn	0.02	0.0	14.73	0.00	0.0	0.00
	Watford Road Right Turn	0.02	0.0	7.00	0.03	0.0	7.74
	Junction Delay	0.06			0.08		
2027 with Dev't	Long Fallow Left Turn	0.02	0.0	7.12	0.01	0.0	7.49
	Long Fallow Right Turn	0.02	0.0	15.56	0.00	0.0	0.00
	Watford Road Right Turn	0.02	0.0	7.07	0.03	0.0	7.91
	Junction Delay	0.06			0.08		

- 10.14 The junction capacity results outlined within Table 26 indicates that the junction would continue to operate within capacity with minimal queueing and delays.

Junction 2 – Watford Road / Forge End – Sensitivity Test

- 10.15 The PICADY model for the Watford Road / Forge End junction has been updated to reflect the reduced traffic flows. The updated capacity results are shown in Table 27, whilst the PICADY outputs have been provided within Appendix Q.

Table 27: Watford Road / Forge End – Existing Layout PICADY Results (Reduced Vehicular Trip Rates)

Scenario	Approach	AM Peak			PM Peak		
		RFC	Queue (veh)	Delay (s)	RFC	Queue (veh)	Delay (s)
2027 without Dev't	Forge End Left Turn	0.07	0.1	7.27	0.06	0.1	7.72
	Forge End Right Turn	0.03	0.0	15.94	0.03	0.0	15.85
	Watford Road Right Turn	0.16	0.5	4.38	0.10	0.2	4.16
	Junction Delay	0.53			0.35		
2027 with Dev't	Forge End Left Turn	0.14	0.2	8.42	0.09	0.1	8.24
	Forge End Right Turn	0.13	0.1	19.34	0.07	0.1	17.38
	Watford Road Right Turn	0.22	0.8	4.55	0.19	0.6	4.55
	Junction Delay	1.11			0.75		

- 10.16 The junction capacity results outlined within Table 27 indicates that the junction would continue to operate within capacity with minimal queueing and delays.

Junction 3 - Watford Road / Chiswell Green Lane / Tippendell Lane – Sensitivity Test

- 10.17 The ARCADY model for the Watford Road / Chiswell Green Lane / Tippendell Lane junction has been updated to reflect the reduced traffic flows. The updated capacity results are shown in Table 28, whilst the PICADY outputs have been provided within Appendix Q.

Table 28: Watford Road / Chiswell Green Lane / Tippendell Lane – Existing Layout ARCADY Results (Reduced Vehicular Trips Rates)

Scenario	Junction	Approach	AM Peak			PM Peak		
			RFC	Queue (veh)	Delay (s)	RFC	Queue (veh)	Delay (s)
2027 without Dev't	Southern Junction	Watford Road North	0.76	3.0	11.67	0.62	1.7	8.28
		Watford Road South	0.75	2.9	14.24	0.86	5.1	22.73
		Chiswell Green Lane	0.34	0.5	12.87	0.33	0.5	12.79
	Junction Delay		12.84			15.48		
	Northern junction	Watford Road South	0.56	1.3	5.43	0.53	1.1	4.73
		Watford Road North	0.95	10.7	39.16	0.96	13.8	56.72
		Tippendell Lane	0.97	9.1	72.93	0.94	7.9	107.98
	Junction Delay		32.70			42.02		
2027 with Dev't	Southern Junction	Watford Road North	0.82	4.1	15.32	0.66	1.9	8.98
		Watford Road South	0.86	5.4	24.42	0.90	7.1	30.39
		Chiswell Green Lane	0.71	2.2	29.10	0.41	0.7	14.61
	Junction Delay		20.97			19.41		
	Northern junction	Watford Road South	0.62	1.6	6.32	0.54	1.2	4.85
		Watford Road North	0.99	15.6	53.68	0.99	18.6	72.75
		Tippendell Lane	1.06	16.2	110.03	1.07	18.0	252.19
	Junction Delay		45.71			70.95		

10.18 The results shown in Table 28 indicate that the junction would still exceed capacity despite the provision of the sustainable transport improvements when compared to the results outlined within Table 20. However, the junction would operate better than if the improvements were not made. Following the COVID-19 pandemic, it is considered that home or hybrid working will continue and therefore the amount of traffic on the local road network will be less than has been assumed based on traffic surveys undertaken prior to the pandemic. As such, the impact at this junction would be less in reality than presented above.

10.19 In addition to the above, the development will incorporate a Travel Plan for both the residential development and the potential school which will have targets set for reducing single car use. Therefore, the targets and Travel Plan initiatives can be further tailored to reduce private car use further.

11.0 Construction Management Plan

- 11.1 It is expected that a Construction Management Plan (CMP) will be a requirement of a Planning Condition. This is because construction traffic routing is often a sensitive issue and this is particularly true in the vicinity of the proposed site due to the number of residential developments in the vicinity of the development.
- 11.2 A CMP would identify the routes to be used by construction traffic to access the site. These routes will need to be agreed with both HCC and SACDC following the granting of any planning consent and prior to construction commencing on site so as to minimise the amount of potential construction traffic travelling through sensitive locations. It is currently considered that construction will be signed to utilise the, with such vehicles being restricted from using Tippendell Lane.
- 11.3 It is anticipated, however, that heavy vehicles will be limited to the strategic road network as much as possible and avoiding less strategic roads such as Tippendell Lane. Consequently, it is anticipated that the routing of heavy construction vehicles will be via A405 North Orbital Road and Watford Road to provide access to the M1, M25, A1 and the A414.
- 11.4 At this stage it is considered premature to undertake a detailed assessment of construction vehicle impact, given that any such impact is largely dictated by the phasing, final layout and build programme of the development itself.
- 11.5 The Applicants will put in place measures to ensure the disturbance to the local road network is minimised. Mitigation measures employed on similar projects include wheel washing facilities and delivery management systems to ensure delivery vehicles are not held waiting on the local road network and vehicle movements at peak hours are limited.
- 11.6 It is also anticipated that the Applicants will register the scheme on the 'Considerate Constructors Scheme' (www.ccscheme.org.uk). This scheme provides a 'Code of Considerate Practice', which has been designed to encourage best practice beyond statutory requirements in order to minimise the impact on the general public, the workforce and the environment. It also provides facilities for logging and passing on complaints.
- 11.7 The times and days of construction will be finalised as part of the CMP, however it is considered that construction times will be as follows:
- Monday to Friday 08:00 to 18:00
 - Saturday 08:00 to 13:00
 - Sunday / Bank Holiday No working proposed
- 11.8 Based on previous experience, it is anticipated that approximately 90% of employees will travel outside of the peak hours. Likewise, to minimise the impact of deliveries and waste removal, it is considered that heavy vehicles will be restricted to traveling to and from the Site during the off peak periods. The actual timings and restrictions will be agreed following planning consent, as part of the CMP negotiations.

- 11.9 The construction vehicles will range from cars and small vans up to larger articulated vehicles. It is proposed that a full analysis of the estimated impact of construction traffic will be submitted as part of the CMP to discharge the relevant planning condition. This will include tracking of the various vehicles to ensure the proposed routes are viable, anticipated quantities of vehicles throughout each stage of the build process and details of the proposed mitigation measures.
- 11.10 It should be noted that the impact of construction traffic will be over a short term construction period.

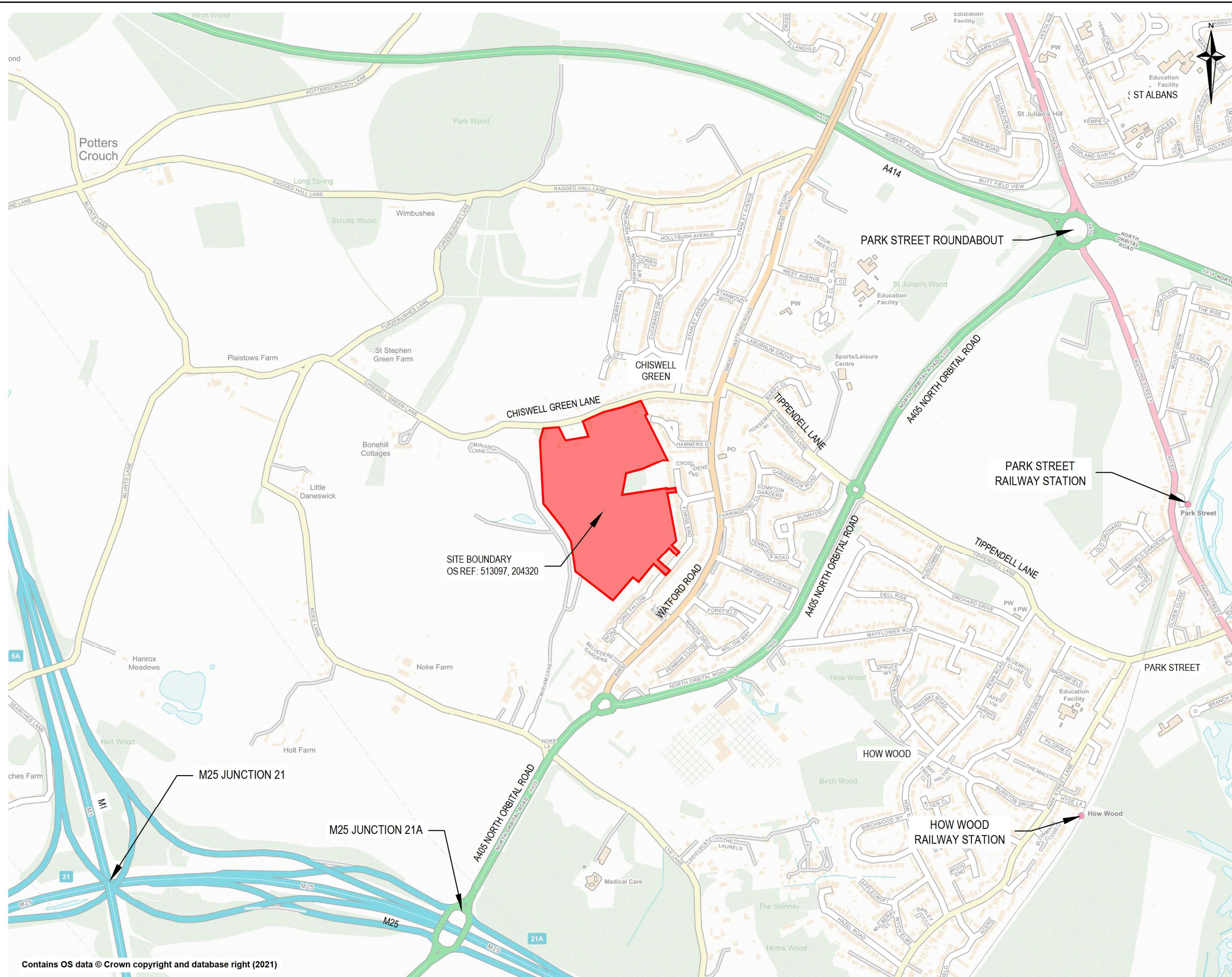
12.0 Conclusions

- 12.1 This Transport Assessment has been prepared by Glanville Consultants on behalf of Alban Developments Ltd and Alban Peter Pearson, CALA Homes (Chiltern) Ltd and Redington Capital Ltd, to accompany an Outline planning application for a proposed residential development on land to the south of Chiswell Green Lane.
- 12.2 It is proposed to provide up to 391 dwellings on agricultural land to the south of Chiswell Green Lane. There will be two land parcels with 55% of the dwellings within the northern parcel and 45% in the southern parcel. There will be no vehicular link between the two parcels but there will be pedestrian and cyclist permeability.
- 12.3 A summary of the finding of the Transport Assessment has been provided within the Executive Summary at the beginning of this report.
- 12.4 In conclusion, the proposed residential and school layout and site access has been designed to accommodate the anticipated vehicle types that will be serving the site. Safe access and a safe internal layout is proposed whilst parking will be provided in accordance with Policy 40 of the St Albans Local Plan Saved Policies and the 'St Albans Revised Parking Policies and Standards', requirements. Sustainable transport improvements will be provided which connect with the existing off-site cycle network and it is proposed to divert an existing bus route within the site. Travel Plans have been provided for the residential and primary school land uses. These improvements accord with the requirements of paragraphs 110, 112 and 113 of the NPPF and will reduce the development's impact to a non-severe level in accordance with paragraph 111 of the NPPF.
- 12.5 Given the above, it is concluded that the development proposals are acceptable in transport terms and therefore the Highway Authority should be able to make a positive recommendation to the Local Planning Authority in respect of the Outline application for the proposed development.

Appendices

Appendix A

Approximate Site Boundary



KEY

SITE LOCATION

FOR INFORMATION ONLY

12	SITE BOUNDARY UPDATED	25/02/2022	JB
11	FIRST ISSUE	02/12/2021	JB
Rev.	Description	Date	Chkd

Glanville

3 Grovelands Business Centre
Boundary Way
Hemel Hempstead, Herts. HP2 7TE
Tel: (01442) 835999 Fax: (01442) 258924
postbox@glanvillegroup.com
www.glanvillegroup.com

Client :
CALA HOMES &
REDLINGTON CAPITAL

Project :
LAND WEST OF CHISWELL GREEN

Title :
SITE LOCATION

Project Engineer : DK Scale : 1:10,000 @ A3
Project Director : JB Date : DECEMBER 2021
Status : INFORMATION

Drawing No. 8210856-1007 Rev 12

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Appendix B

Illustrative Site Layout



Key:

- 1. Drainage strategy: SUDS/Swale
- 2. Children Play Areas
- 3. General Amenity Areas

Illustrative Masterplan
Land South of Chiswell Green Lane
St Albans

A1

JOB N°: LHC61860
DATE: 30.03.2022
SCALE: 1:1000
DRAWING N°: REDC01-NCB-ZZ-22-08-A-0210-05-P1
Illustrative masterplan

DRAWN BY: CA/ES
REVIEWED BY: POR
APPROVED BY: POR
REVISION:
29.03.2022 (P1d) Issued for comments
30.03.2022 (P1) Issued for planning approval



Note: This drawing and schedule is based on the information supplied by others. The accuracy of third party information has been checked but cannot be guaranteed. The contractor has taken place with this planning authority and as such the above proposed should not be used as a basis for financial or commercial transactions.



Appendix C

2016 Traffic Surveys

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

	Left to Watford Road (North)				Right to Watford Road (South)			
TIME	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
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

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

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

Approach: Tippendell Lane

	Left to Watford Road (South)				Ahead to Chiswell Green Lane				Right to Watford Road (North)			
TIME	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
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

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
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

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

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

Approach: Chiswell Green Lane

	Left to Watford Road (North)				Ahead to Tippendell Lane				Right to Watford Road (South)			
TIME	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

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

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
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

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
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

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
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

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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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
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

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
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

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

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

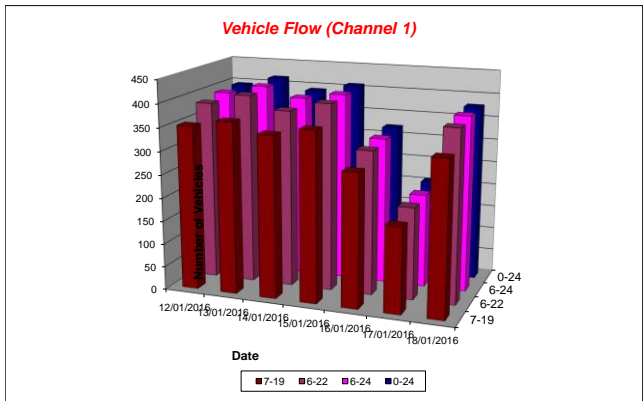
Session Total	275	1	0	276	1845	67	3	1915	241	2	0	243	166	9	0	175
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1500 - 1515	22	1	0	23	122	10	2	134	14	1	0	15	21	2	0	23
1515 - 1530	16	0	0	16	117	6	0	123	19	0	0	19	19	1	0	20
1530 - 1545	23	0	0	23	147	9	0	156	21	0	0	21	17	2	0	19
1545 - 1600	17	0	0	17	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

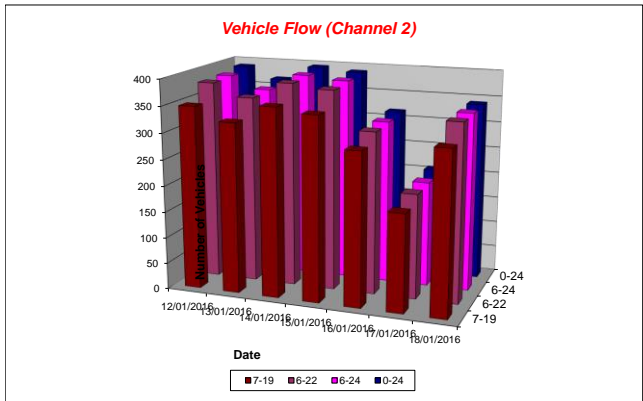
Session Total	311	1	0	312	2639	103	3	2745	272	3	0	275	288	18	0	306
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St Albans ATC, Chiswell Green Lane (Eastern Site)

Channel 1 - Westbound								Vehicle Flow		Week 1	
	12/01/2016	13/01/2016	14/01/2016	15/01/2016	16/01/2016	17/01/2016	18/01/2016	5 Day Ave	7 Day Ave		
Hr Ending	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday				
1	0	0	0	3	2	0	0	1	1		
2	1	0	0	0	1	3	0	0	1		
3	0	1	0	0	1	1	0	0	0		
4	0	0	0	0	2	0	0	0	0		
5	0	1	0	0	0	0	0	0	0		
6	2	2	1	1	0	1	2	2	2		
7	14	10	9	9	4	1	16	12	9		
8	36	50	34	31	5	1	52	41	30		
9	55	45	61	35	15	11	44	48	38		
10	33	33	45	39	28	19	28	36	32		
11	23	22	13	18	36	29	23	20	23		
12	23	16	21	29	37	17	19	22	23		
13	24	24	21	37	45	24	27	27	29		
14	21	21	19	24	37	19	16	20	22		
15	22	15	14	13	21	15	11	15	16		
16	32	25	30	32	20	15	26	29	26		
17	32	40	28	38	12	18	39	35	30		
18	33	44	40	48	20	10	21	37	31		
19	18	32	20	19	9	5	22	22	18		
20	9	15	8	12	12	6	16	12	11		
21	5	8	7	12	6	5	2	7	6		
22	4	6	9	4	2	3	7	6	5		
23	4	3	6	1	2	2	2	3	3		
24	4	3	6	3	4	1	5	4	3		
7-19	352	367	346	363	285	183	328	351	318		
6-22	384	406	379	400	309	198	359	388	349		
6-24	388	408	381	395	305	195	359	385	356		
0-24	395	415	392	408	321	206	378	398	359		



Channel 2 - Eastbound								Vehicle Flow		Week 1	
Hr Ending	12/01/2016 Tuesday	13/01/2016 Wednesday	14/01/2016 Thursday	15/01/2016 Friday	16/01/2016 Saturday	17/01/2016 Sunday	18/01/2016 Monday	5 Day Ave	7 Day Ave		
1	1	0	0	1	2	0	0	0	1		
2	0	0	0	0	2	2	0	0	0		
3	0	1	0	0	0	1	0	0	0		
4	0	0	1	0	0	0	0	0	0		
5	0	1	0	0	0	1	0	0	0		
6	6	6	3	3	0	1	2	4	3		
7	16	10	11	12	2	1	13	12	9		
8	35	29	33	19	6	1	29	29	22		
9	42	44	61	44	19	7	39	46	37		
10	26	34	30	23	14	23	27	24	24		
11	20	22	17	24	29	16	21	21	21		
12	22	27	26	31	21	25	25	26	25		
13	21	15	21	27	42	20	17	20	23		
14	25	11	21	24	25	21	20	24	24		
15	27	26	22	25	26	10	19	24	22		
16	34	34	32	36	27	21	25	32	30		
17	47	47	40	46	24	20	51	46	39		
18	30	28	20	33	21	18	23	28	26		
19	20	21	23	13	9	9	15	18	16		
20	4	12	9	12	7	6	8	9	8		
21	7	7	4	7	8	3	4	6	6		
22	4	3	6	0	1	4	5	4	3		
23	2	2	1	2	1	2	0	1	1		
24	0	1	2	3	2	0	1	1	1		
7-19	349	324	358	349	291	186	308	338	309		
6-22	380	356	388	380	309	200	338	368	336		
6-24	382	359	391	385	312	202	339	371	339		
0-24	389	367	395	389	316	207	341	376	343		

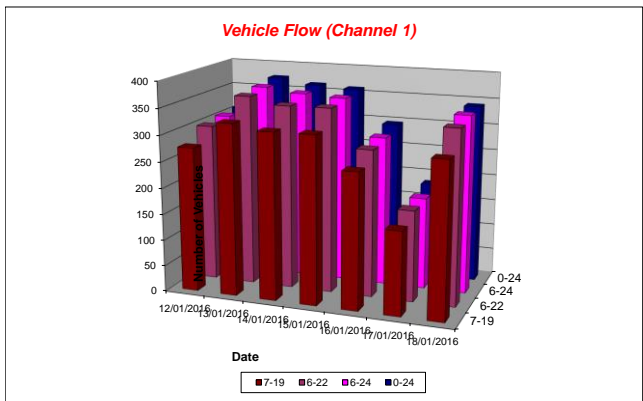


St Albans ATC, Chiswell Green Lane (Eastern Site)

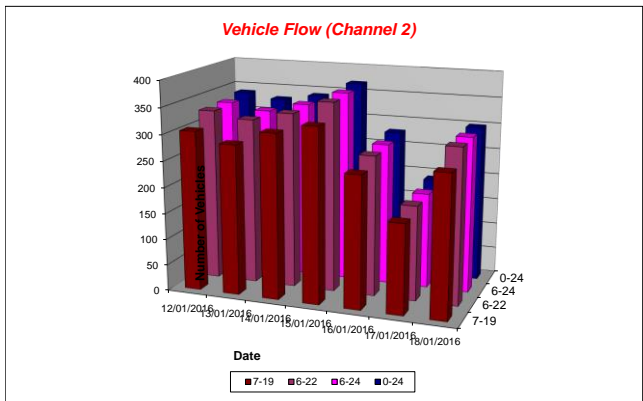
Channel 1 - Westbound							Average Speed		Week 1
	12/01/2016 Tuesday	13/01/2016 Wednesday	14/01/2016 Thursday	15/01/2016 Friday	16/01/2016 Saturday	17/01/2016 Sunday	18/01/2016 Monday		
Hr Ending									
1	-	-	-	32.2	24.2	-	-		
2	25.5	-	-	-	15.5	12.0	-		
3	-	33.0	-	-	25.5	15.5	-		
4	-	-	-	-	29.2	-	-		
5	-	33.0	-	-	-	-	-		
6	34.2	24.2	53.0	5.0	-	25.5	19.0		
7	27.1	28.8	29.4	26.1	26.8	15.5	29.4		
8	28.8	28.4	25.5	25.5	17.5	25.5	29.4		
9	29.3	30.2	27.9	24.9	21.5	19.1	27.6		
10	26.5	26.3	27.8	27.1	24.4	19.7	29.0		
11	23.8	27.5	27.8	26.9	25.3	22.7	24.2		
12	25.0	24.6	26.2	24.1	26.0	23.0	27.6		
13	23.3	23.0	28.1	28.0	25.5	26.0	22.9		
14	26.0	24.2	28.4	29.5	22.7	25.2	28.9		
15	23.0	23.3	21.0	26.7	25.4	23.5	29.4		
16	24.9	24.1	26.7	28.0	23.2	25.3	24.8		
17	24.0	26.4	25.0	24.6	26.1	24.5	27.3		
18	30.3	32.0	27.3	28.1	23.6	26.0	29.5		
19	27.9	28.2	26.7	28.7	27.1	31.0	28.0		
20	26.9	24.1	26.7	28.0	23.2	30.1	26.6		
21	27.0	22.6	32.3	25.7	25.5	28.5	25.5		
22	29.2	21.2	27.2	32.4	29.2	24.7	28.7		
23	28.6	29.2	24.2	25.5	33.0	25.5	29.2		
24	32.4	25.5	33.0	24.7	20.5	33.0	29.5		
10-12	24.4	26.3	26.8	25.2	25.7	22.8	25.7		
14-18	25.1	27.4	27.5	27.9	26.3	26.3	33.9		
0-24	26.7	27.1	27.0	26.6	24.7	23.9	27.5		
7 Day Ave							26.2		

St Albans ATC, Chiswell Green Lane (Western Site)

Channel 1 - Westbound								Vehicle Flow		Week 1	
Hr Ending	12/01/2016 Tuesday	13/01/2016 Wednesday	14/01/2016 Thursday	15/01/2016 Friday	16/01/2016 Saturday	17/01/2016 Sunday	18/01/2016 Monday	5 Day Ave	7 Day Ave		
1	0	0	2	3	4	0	0	1	1		
2	0	0	0	0	2	4	0	0	0	1	
3	0	2	0	0	1	1	0	0	0	1	
4	0	0	0	0	3	1	0	0	0	1	
5	0	2	1	0	0	0	0	1	2	0	
6	3	2	1	1	0	1	2	2	1	1	
7	10	9	7	6	3	2	16	10	8		
8	23	42	25	23	6	1	45	32	24		
9	46	48	62	34	13	7	44	47	36		
10	21	38	40	40	23	18	25	33	29		
11	20	20	11	16	31	30	26	19	22		
12	16	19	16	23	41	12	19	19	21		
13	18	16	19	34	42	24	20	21	25		
14	21	15	17	25	29	14	9	17	19		
15	20	14	14	15	16	11	10	15	14		
16	28	17	24	23	15	13	23	23	20		
17	29	37	24	26	12	16	34	30	25		
18	22	33	42	45	21	10	15	31	27		
19	12	28	23	14	9	3	23	20	16		
20	5	11	10	11	10	7	14	10	10		
21	5	10	5	13	7	4	3	7	7		
22	5	6	11	3	2	2	5	6	5		
23	3	2	5	1	2	1	3	3	4		
24	2	3	5	4	4	1	5	4	3		
7-19	276	327	317	318	258	159	293	306	278		
6-22	301	363	350	351	280	174	331	339	307		
6-24	324	398	386	388	326	198	358	348	313		
0-24	309	374	364	360	296	183	341	350	318		



Channel 2 - Eastbound								Vehicle Flow		Week 1	
Hr Ending	12/01/2016 Tuesday	13/01/2016 Wednesday	14/01/2016 Thursday	15/01/2016 Friday	16/01/2016 Saturday	17/01/2016 Sunday	18/01/2016 Monday	5 Day Ave	7 Day Ave		
1	0	0	0	1	2	0	0	0	0	0	0
2	0	0	0	0	2	2	0	0	0	1	1
3	2	2	0	0	0	2	0	0	1	1	1
4	0	0	1	0	0	0	0	0	0	0	0
5	0	1	0	0	1	2	0	0	0	1	1
6	5	6	2	4	2	1	2	4	3	3	3
7	11	10	6	10	1	1	11	10	7	7	7
8	30	27	29	20	7	1	25	26	20		
9	39	42	56	48	18	8	27	42	34		
10	24	12	33	32	26	13	17	24	22		
11	25	14	15	19	25	15	17	18	19		
12	18	19	20	28	19	26	16	20	21		
13	15	11	19	26	40	21	16	17	21		
14	19	10	22	34	33	20	24	19	22		
15	22	31	17	25	17	5	14	22	19		
16	28	24	32	24	21	14	26	27	24		
17	42	48	32	43	17	22	50	43	36		
18	29	31	21	32	21	14	25	28	25		
19	14	17	17	10	7	8	15	15	13		
20	4	11	6	12	6	4	8	8	7		
21	6	7	2	6	8	2	3	5	5		
22	3	3	7	1	1	3	6	4	3		
23	1	2	1	2	1	2	0	1	1		
24	1	1	2	2	3	0	1	1	1		
7-19	305	286	313	331	251	171	288	301	275		
6-22	329	317	334	360	267	181	296	327	298		
6-24	331	330	337	364	271	183	297	330	300		
0-24	338	329	340	369	278	190	299	335	306		



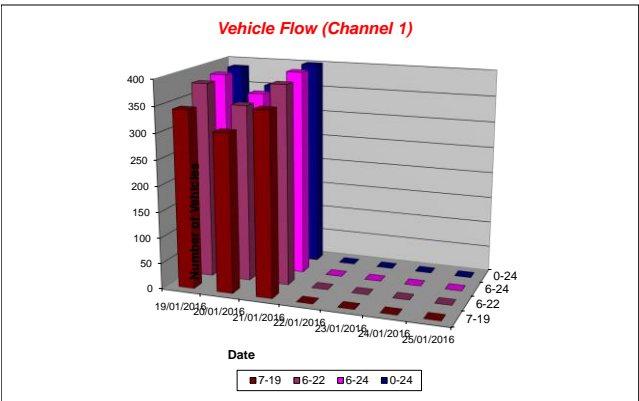
St Albans ATC, Chiswell Green Lane (Western Site)

Channel 1 - Westbound								Average Speed		Week 1				
12/01/2016 Tuesday		13/01/2016 Wednesday		14/01/2016 Thursday		15/01/2016 Friday		16/01/2016 Saturday		17/01/2016 Sunday		18/01/2016 Monday		
Hr Ending				33.0		31.3		18.0						
1		-		-		-		15.5		15.4		-		
2		-		25.5		-		25.5		15.5		-		
3		-		-		-		25.5		38.0		-		
4		-		29.2		33.0		-		-		-		
5		29.7		15.5		48.0		5.0		-		25.5 15.2		
6		24.0		23.6		26.2		25.1		24.7		15.5 25.8		
7		27.3		25.7		24.3		24.0		18.4		25.5 24.9		
8		26.6		28.0		23.9		24.0		23.2		18.4 23.9		
9		26.1		25.0		25.8		24.8		21.7		19.2 26.4		
10		23.8		25.4		26.9		25.0		23.2		21.8 21.9		
11		23.0		24.2		25.3		22.7		25.0		18.8 25.0		
12		20.9		20.3		26.4		25.9		24.8		22.4 19.1		
13		23.9		20.8		26.1		25.3		21.3		22.8 29.7		
14		23.1		25.0		21.4		22.2		24.1		23.5 30.0		
15		21.6		24.2		23.5		24.5		24.7		24.7 23.9		
16		22.2		25.1		22.1		23.9		23.8		21.7 23.3		
17		26.4		30.6		25.8		26.0		24.2		25.5 29.2		
18		26.1		27.7		23.3		26.2		22.7		24.7 24.5		
19		25.0		20.7		24.7		25.7		20.8		28.7 22.1		
20		28.5		17.4		28.5		24.2		25.1		23.0 22.2		
21		28.5		13.6		26.0		25.5		25.5		20.5 26.5		
22		28.0		25.5		17.5		25.5		33.0		25.5 25.5		
23		29.2		22.2		32.0		24.9		23.0		25.5 29.5		
24														
10-12		23.4		24.8		25.9		23.6		24.2		21.0 23.2		
13-15		25.2		24.9		27.7		27.3		24.3		24.1 25.7		
0-24		24.6		25.1		24.8		24.6		23.4		22.1 24.5		
												7 Day Ave		24.2

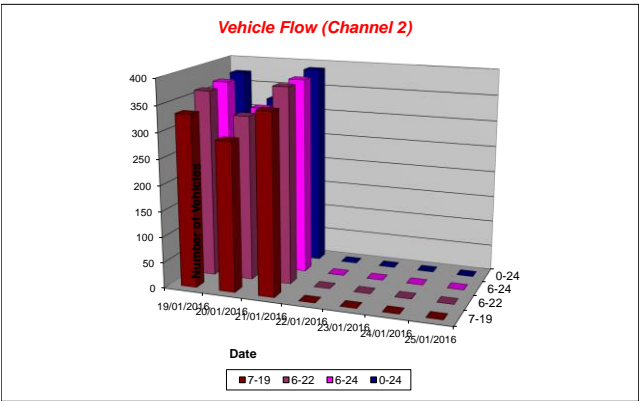
Channel 1 - Westbound					85th Percentile				
Hr Ending	12/01/2016 Tuesday	13/01/2016 Wednesday	14/01/2016 Thursday	15/01/2016 Friday	16/01/2016 Saturday	17/01/2016 Sunday	18/01/2016 Monday		
1	-	-	33.1	43.9	25.9	-	-		
2	-	-	-	-	15.8	25.5	-		
3	-	25.6	-	-	-	-	-		
4	-	-	-	-	25.7	-	-		
5	-	33.6	-	-	-	-	-		
6	38.7	16.0	-	-	-	-	25.7		
7	33.5	25.8	33.0	33.8	34.0	15.8	33.3		
8	33.6	33.6	25.8	25.9	33.1	33.1	33.1		
9	33.3	33.6	25.9	25.8	25.9	25.5	33.6		
10	33.3	33.3	33.3	33.9	25.9	26.0	33.2		
11	26.3	33.3	33.9	26.1	26.0	26.2	26.4		
12	26.5	33.8	34.0	38.1	33.2	26.0	33.2		
13	26.3	26.3	33.4	33.4	33.5	26.3	25.9		
14	33.8	26.1	33.3	33.1	25.8	25.6	33.3		
15	26.2	34.0	33.2	26.1	33.6	25.7	38.9		
16	25.5	26.4	33.7	26.7	26.0	26.3	33.3		
17	25.9	33.2	26.1	33.9	25.7	26.0	33.3		
18	33.9	38.7	33.4	33.8	33.9	33.4	33.7		
19	33.8	34.0	33.4	33.0	33.7	33.1	33.3		
20	33.4	25.7	33.7	38.5	26.0	38.7	25.6		
21	34.0	26.0	33.3	33.9	25.9	26.4	25.5		
22	33.9	25.6	33.6	25.9	25.6	26.0	33.3		
23	33.1	26.5	25.7	-	33.8	-	26.3		
24	33.9	26.2	43.2	33.5	26.0	-	38.3		
10-12	25.9	33.0	33.6	26.0	33.8	25.9	25.7		
13-15	33.9	39.1	33.1	33.0	32.9	38.6	33.6		
0-24	33.8	33.1	34.0	33.4	26.3	26.0	33.3		
7 Day Ave							31.3		

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	387	354	400	0	0	0	0	377	377	
0-24	387	354	400	0	0	0	0	380	380	



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	Weekend 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		
	368	321	361	0	0	0	0	357	357		
0-24	374	325	388	0	0	0	0	362	362		



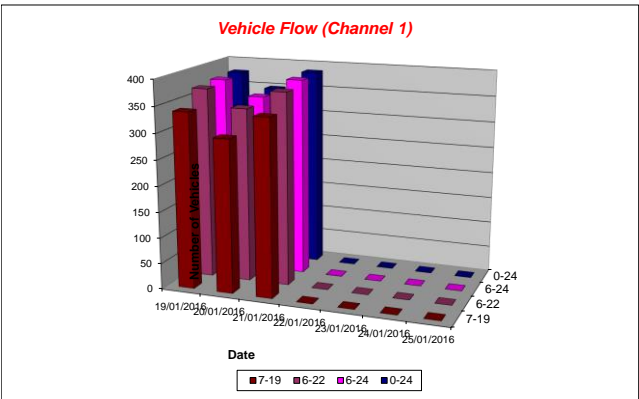
St Albans ATC, Chiswell Green Lane (Eastern Site)

Channel 1 - Westbound				Average Speed				Week 2	
	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		
Hr Ending									
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	26.9	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	-	-	-	-		
14-19	26.6	31.9	28.7	-	-	-	-		
0-24	26.3	27.0	26.9	-	-	-	-		

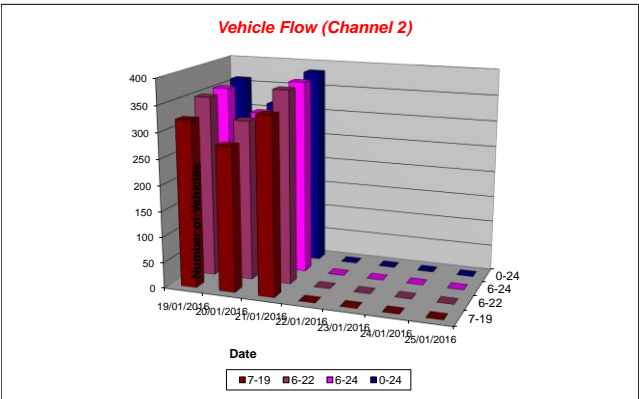
Channel 1 - Westbound				85th Percentile							
Hr Ending	19/01/2016 Tuesday	20/01/2016 Wednesday	21/01/2016 Thursday	22/01/2016 Friday	23/01/2016 Saturday	24/01/2016 Sunday	25/01/2016 Monday				
1	33.7	-	-	-	-	-	-				
2	-	-	-	-	-	-	-				
3	-	-	-	-	-	-	-				
4	-	-	-	-	-	-	-				
5	-	-	-	-	-	-	-				
6	-	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	33.8	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	-	-	-	-				
12-18	33.8	33.6	35.2	-	-	-	-				
0-24	33.1	33.6	33.6	-	-	-	-				
							7 Day Ave	33.4			

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	377	348	385	0	0	0	0	367	367		
0-24	377	348	385	0	0	0	0	370	370		



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	10	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		
	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 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	-	-	-	-	
14-19	22.3	35.2	31.7	-	-	-	-	
0-24	24.4	24.3	24.5	-	-	-	-	
				7 Day Avg			24.4	

Appendix D

Accident Data

B4630 Watford Road Chiswell Green

Legend

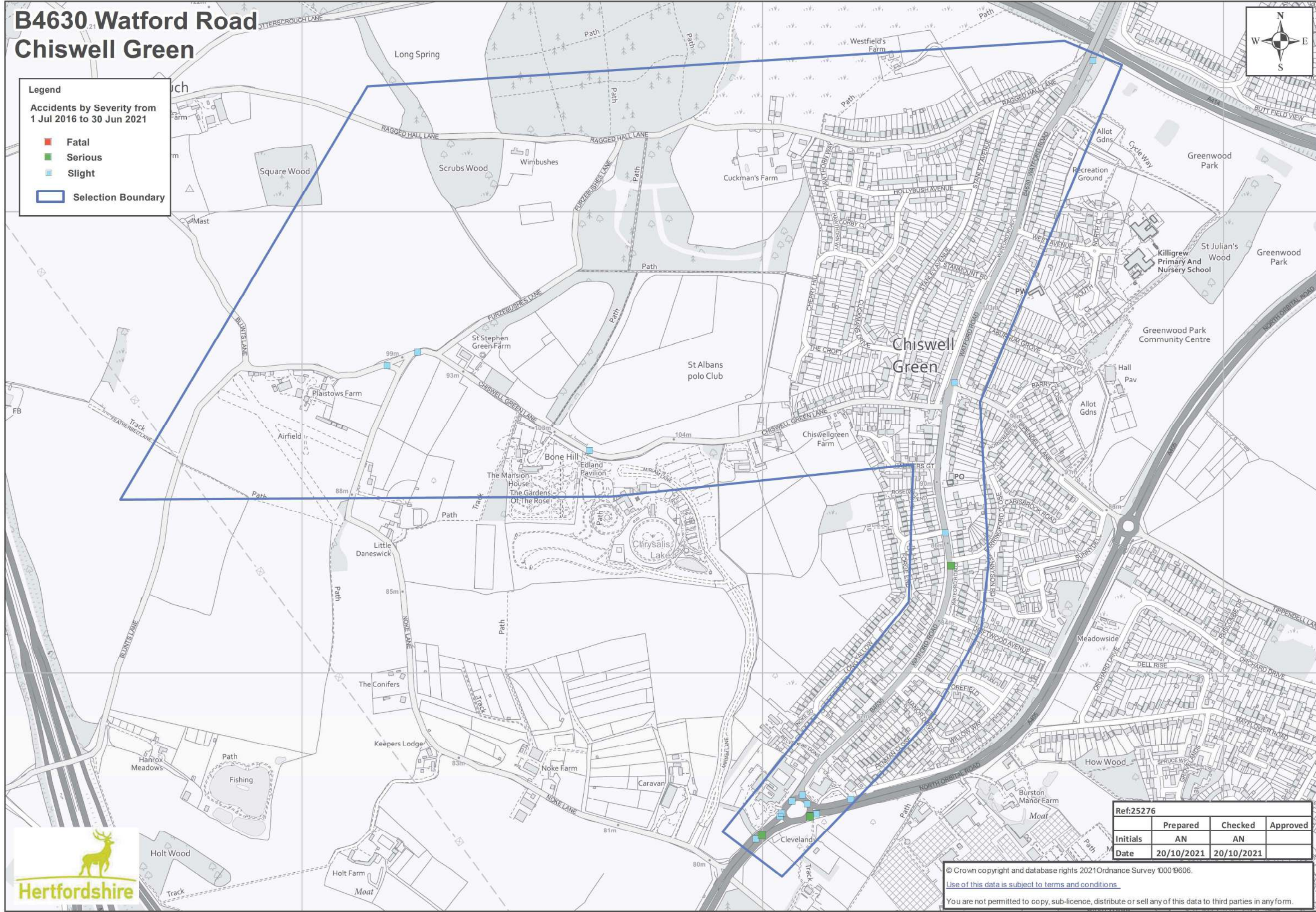
Accidents by Severity from
1 Jul 2016 to 30 Jun 2021

Fatal

Serious

Slight

Selection Boundary

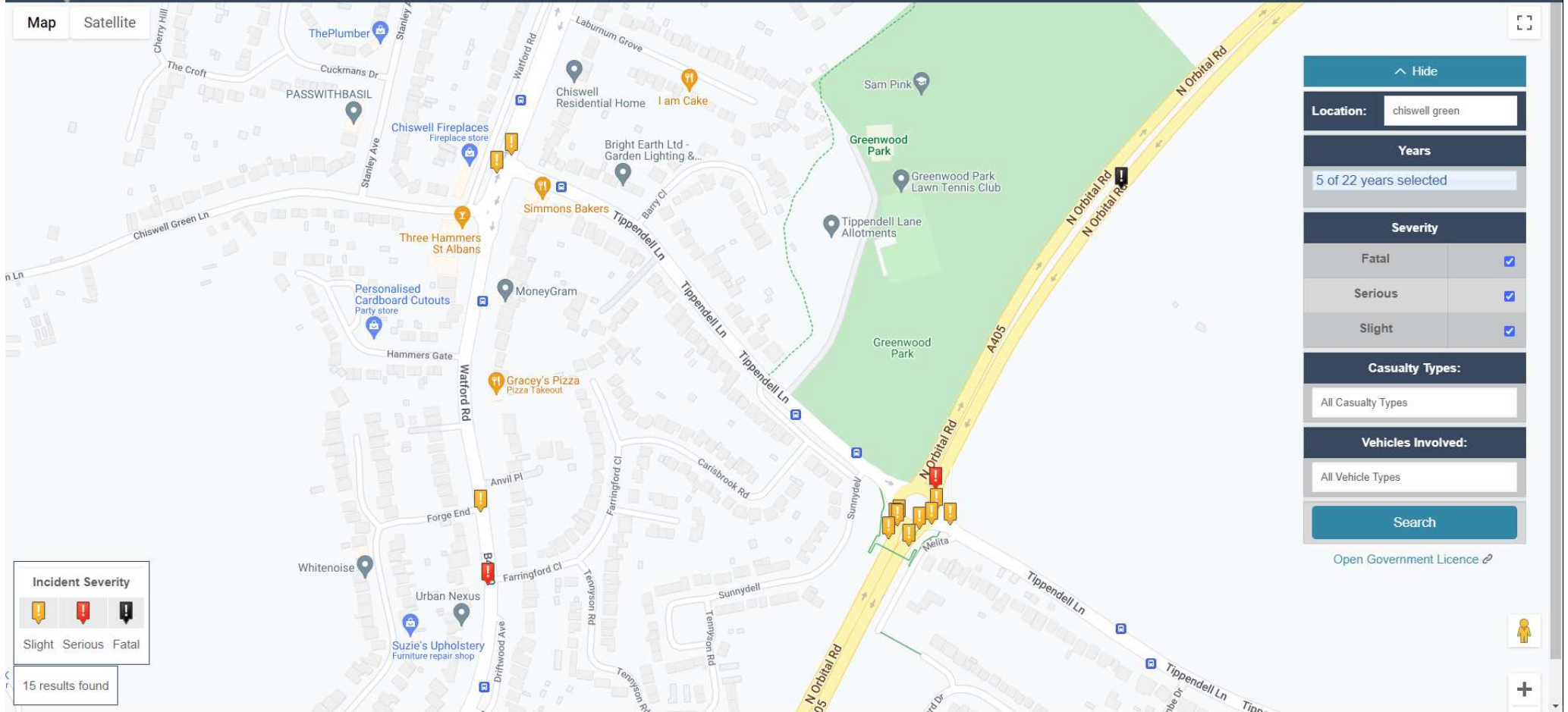


Ref:25276			
	Prepared	Checked	Approved
Initials	AN	AN	
Date	20/10/2021	20/10/2021	

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Map

Satellite



Incident Severity

Slight Serious Fatal

15 results found

Hide

Location: chiswell green

Years

5 of 22 years selected

Severity

Fatal ☒ Serious ☒ Slight ☒

Casualty Types:

All Casualty Types

Vehicles Involved:

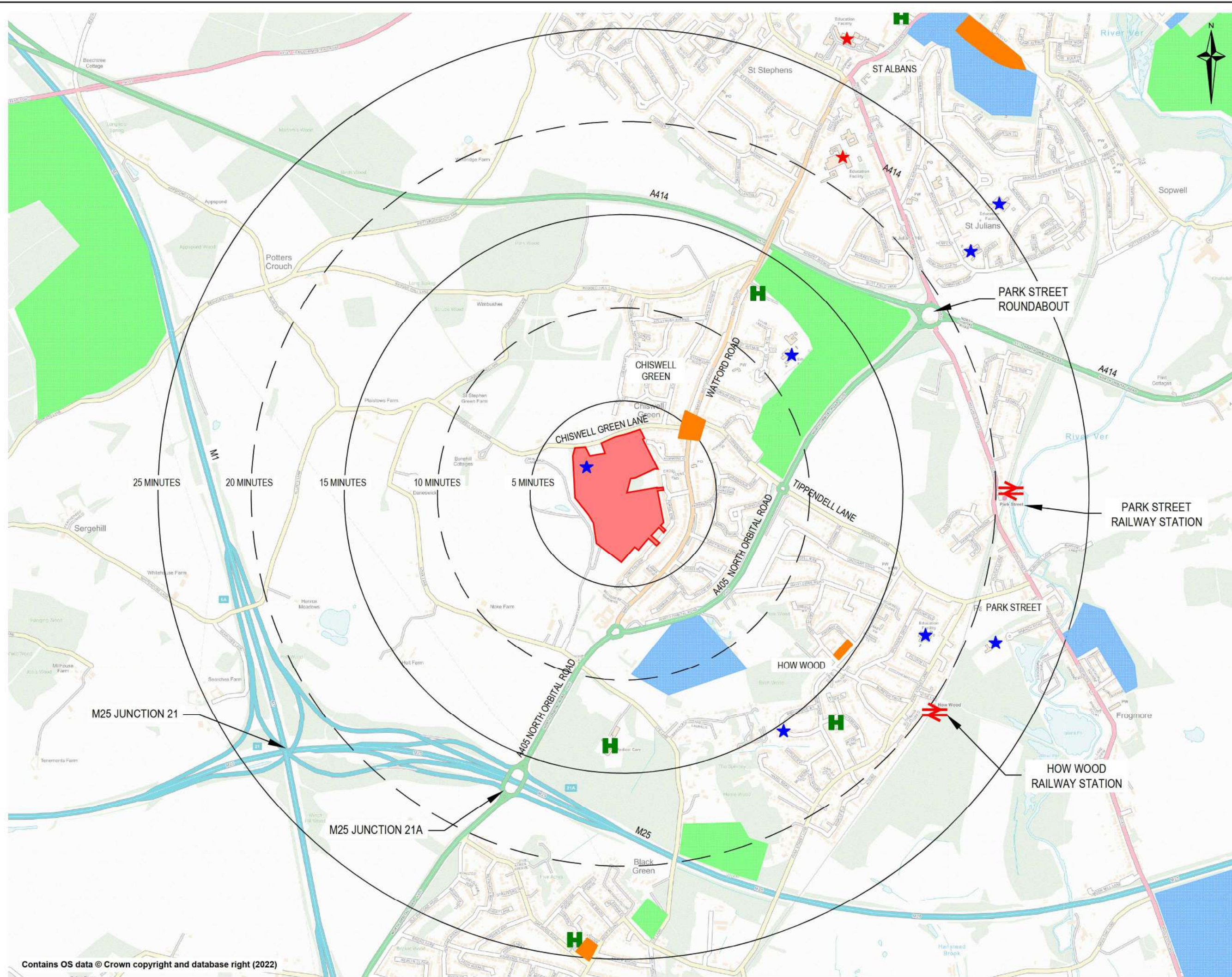
All Vehicle Types

Search

Open Government Licence

Appendix E

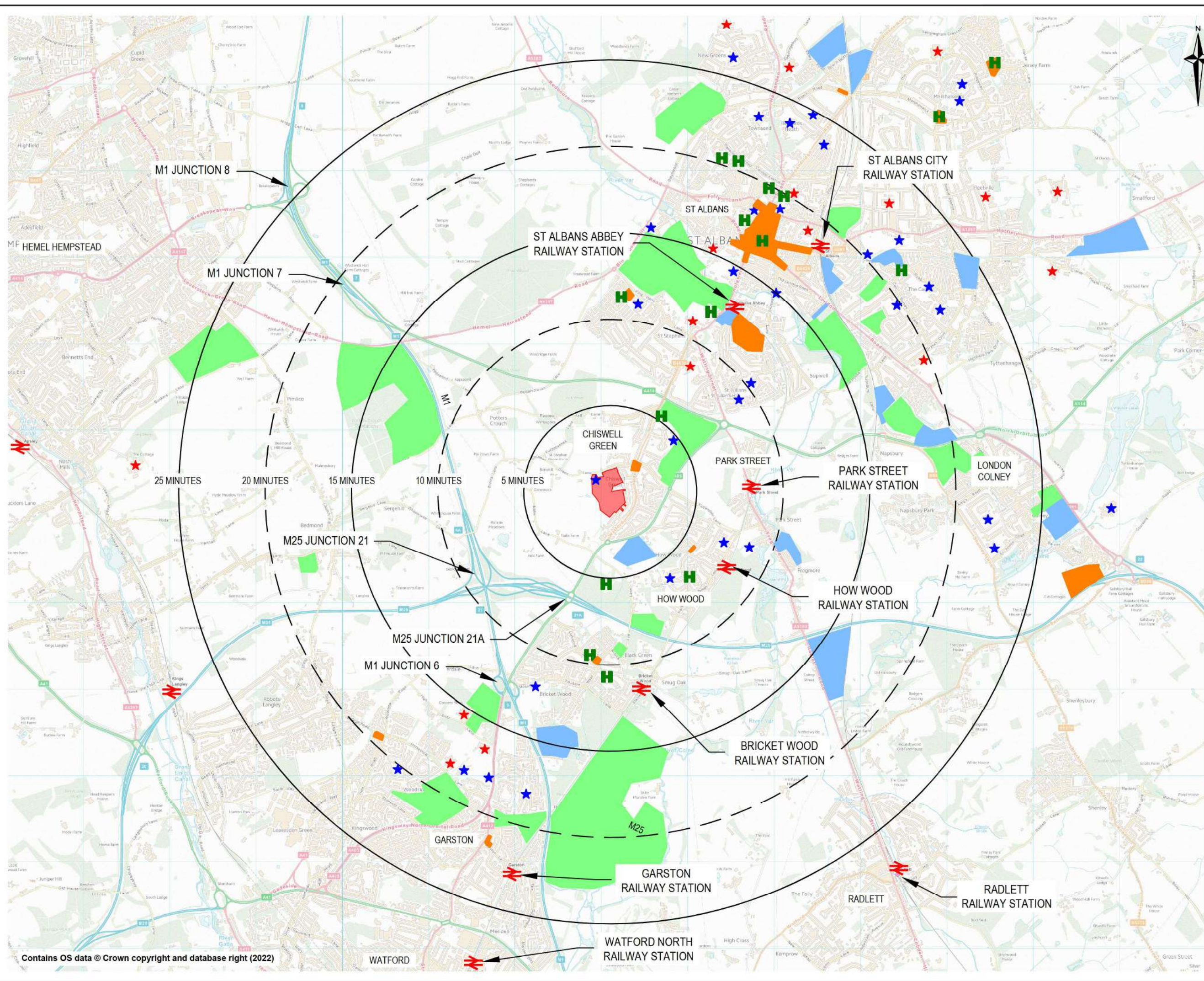
Walking & Cycling Catchment Plans



- KEY**
- SITE LOCATION
 - 2km (25 MINUTES) WALKING CATCHMENT
 - RAILWAY STATION
 - PRIMARY SCHOOL
 - SECONDARY SCHOOL
 - HEALTH FACILITY / PHARMACY
 - RETAIL AREA
 - EMPLOYMENT AREA
 - LEISURE FACILITIES

FOR INFORMATION ONLY

11	FIRST ISSUE	24/01/2022	JB
Rev.	Description	Date	Chkd
 Glanville 3 Grovelands Business Centre Boundary Way Hemel Hempstead, Herts. HP2 7TE Tel: (01442) 835999 Fax: (01442) 258924 postbox@glanvillegroup.com www.glanvillegroup.com			
Client :		CALA HOMES & REDLINGTON CAPITAL	
Project :		LAND WEST OF CHISWELL GREEN	
Title :		DESTINATIONS WITHIN A REASONABLE WALKING DISTANCE	
Project Engineer :		DK	Scale: 1:15,000 @ A3
Project Director :		JB	Date: JANUARY 2022
Status :		INFORMATION	
Drawing No. 8210856-1010			Rev 11



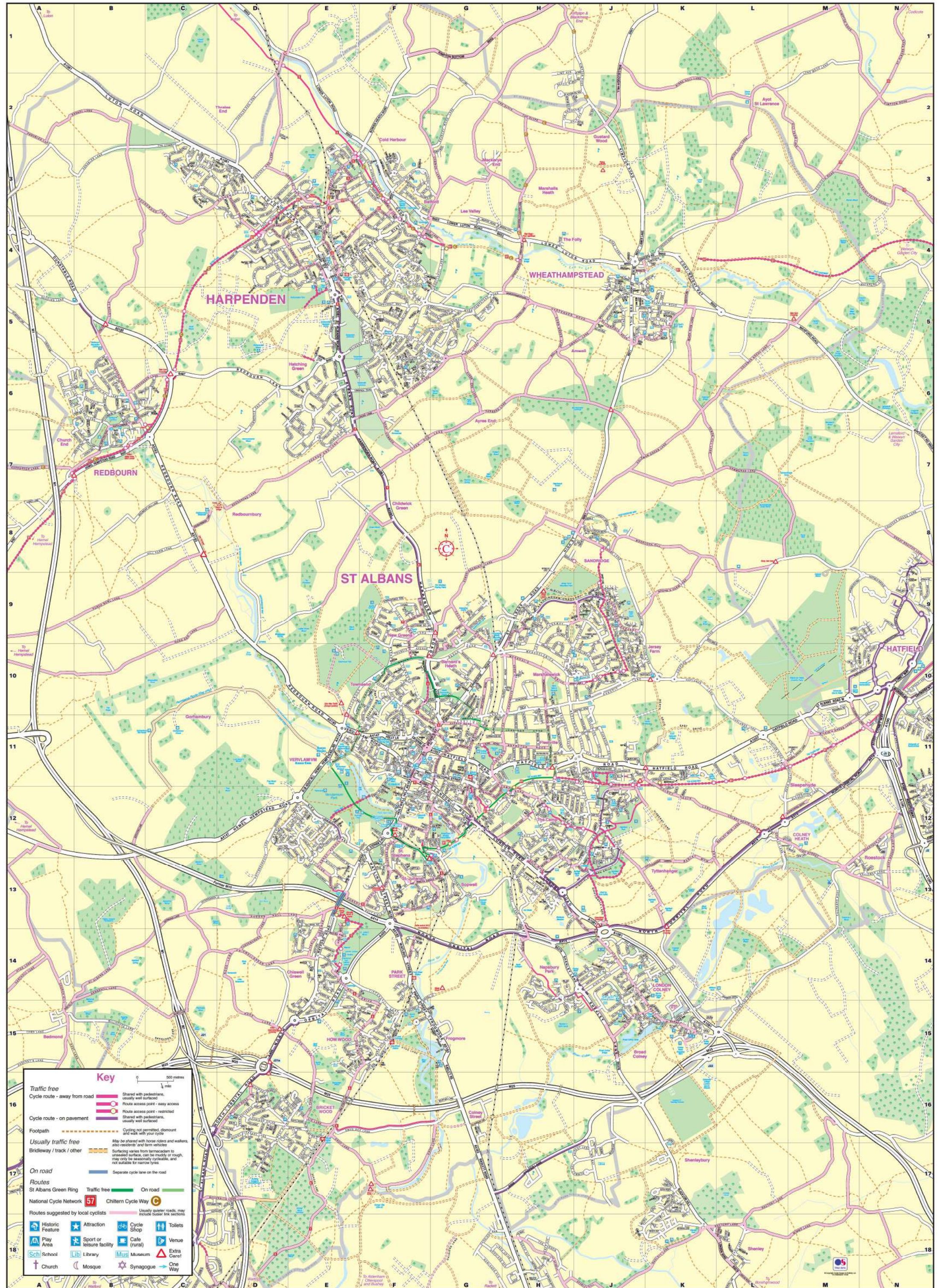
- KEY**
- SITE LOCATION
 - 5km (25 MINUTES) CYCLING CATCHMENT
 - RAILWAY STATION
 - PRIMARY SCHOOL
 - SECONDARY SCHOOL
 - HEALTH FACILITY / PHARMACY
 - RETAIL AREA
 - EMPLOYMENT AREA
 - LEISURE FACILITIES

FOR INFORMATION ONLY

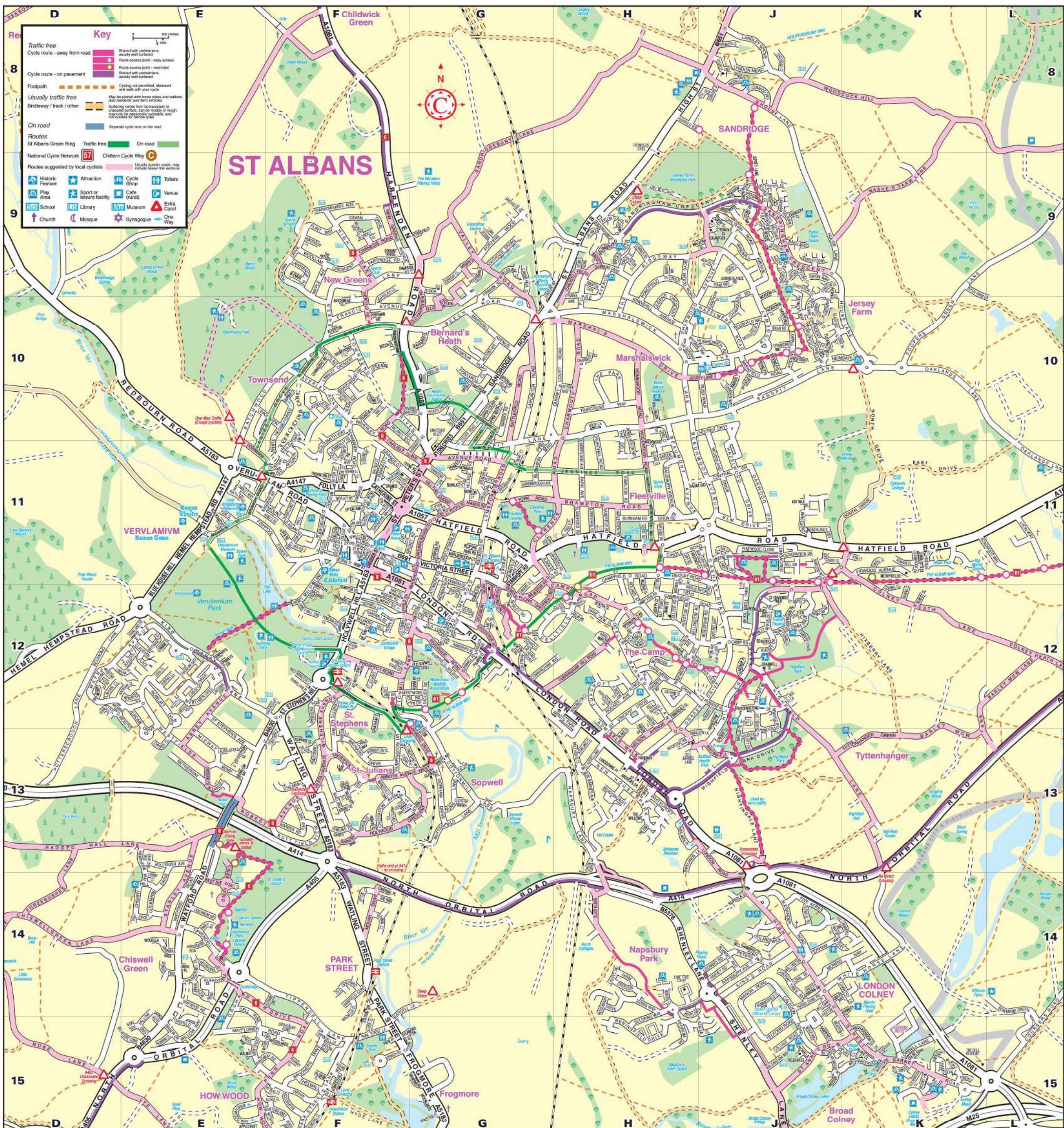
11	FIRST ISSUE	24/01/2022	JB
Rev.	Description	Date	Chkd
<div><div></div><div>Glanville 3 Grovelands Business Centre Boundary Way Hemel Hempstead, Herts. HP2 7TE Tel: (01442) 835999 Fax: (01442) 258924 postbox@glanvillegroup.com www.glanvillegroup.com</div></div>			
Client:	CALA HOMES & REDLINGTON CAPITAL		
Project:	LAND WEST OF CHISWELL GREEN		
Title:	DESTINATIONS WITHIN A REASONABLE CYCLING DISTANCE		
Project Engineer:	DK	Scale:	1:15,000 @ A3
Project Director:	JB	Date:	JANUARY 2022
Status:	INFORMATION		
Drawing No.	8210856-1011	Rev	11

Appendix F

St Albans Cycle Map

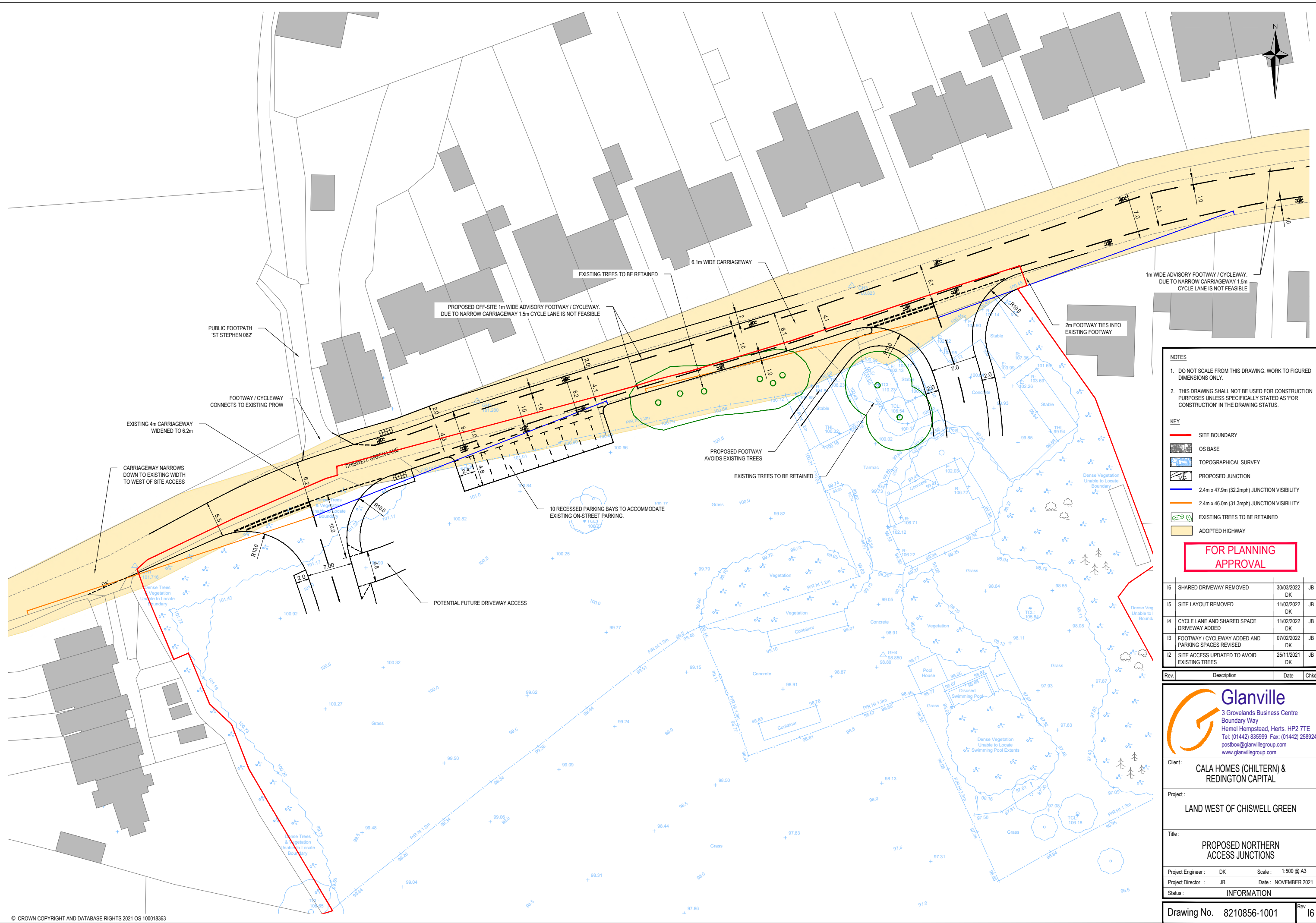


St Albans City & District Cycling Map



Appendix G

Site Access Arrangements



- NOTES**
- DO NOT SCALE FROM THIS DRAWING. WORK TO FIGURED DIMENSIONS ONLY.
 - THIS DRAWING SHALL NOT BE USED FOR CONSTRUCTION PURPOSES UNLESS SPECIFICALLY STATED AS 'FOR CONSTRUCTION' IN THE DRAWING STATUS.

- KEY**
- SITE BOUNDARY
 - OS BASE
 - TOPOGRAPHICAL SURVEY
 - PROPOSED JUNCTION
 - 2.4m x 47.9m (32.2mph) JUNCTION VISIBILITY
 - 2.4m x 46.0m (31.3mph) JUNCTION VISIBILITY
 - EXISTING TREES TO BE RETAINED
 - ADOPTED HIGHWAY

FOR PLANNING APPROVAL

16	SHARED DRIVEWAY REMOVED	30/03/2022 DK	JB
15	SITE LAYOUT REMOVED	11/03/2022 DK	JB
14	CYCLE LANE AND SHARED SPACE DRIVEWAY ADDED	11/02/2022 DK	JB
13	FOOTWAY / CYCLEWAY ADDED AND PARKING SPACES REVISED	07/02/2022 DK	JB
12	SITE ACCESS UPDATED TO AVOID EXISTING TREES	25/11/2021 DK	JB

Rev.	Description	Date	Chkd
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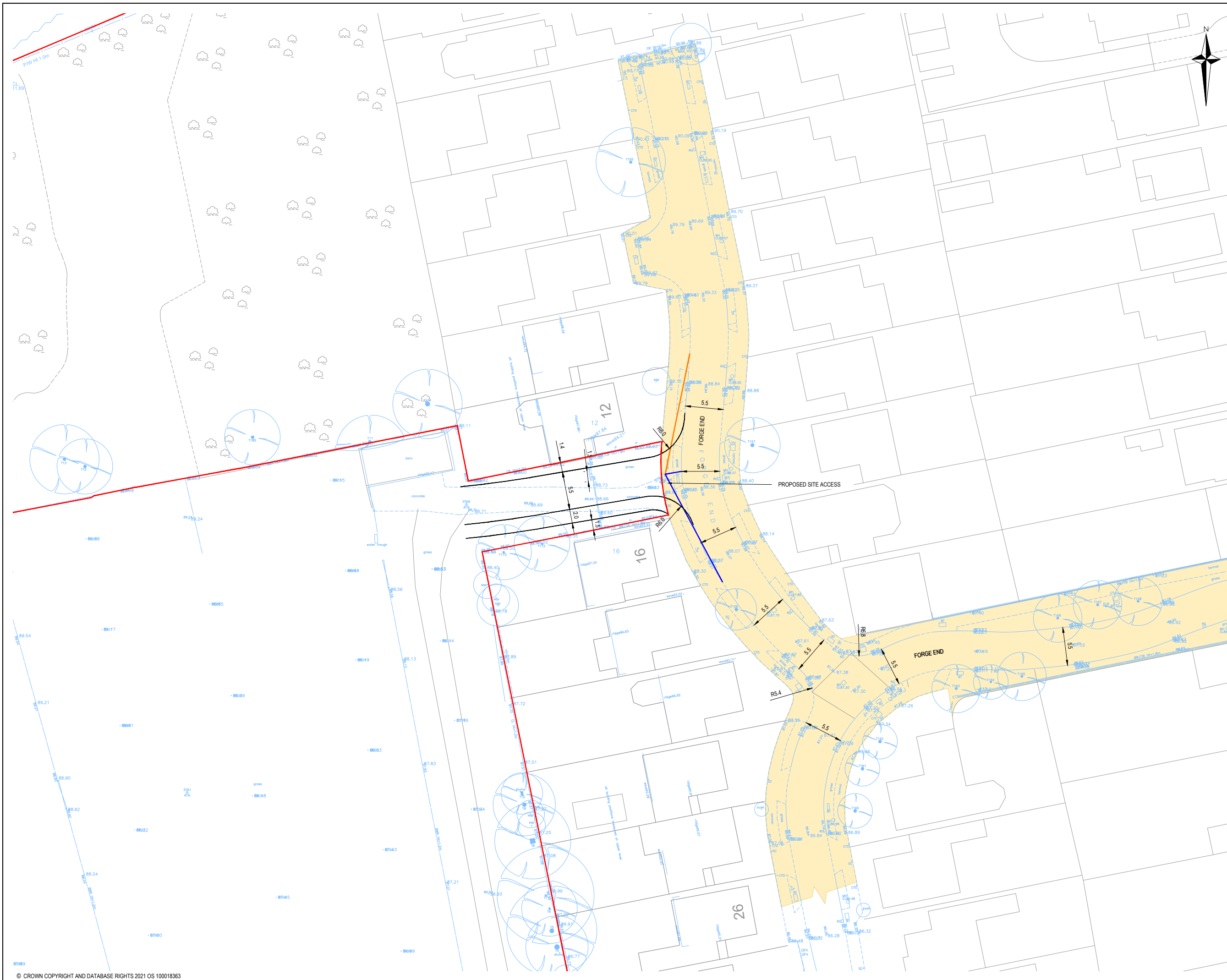
Glanville
3 Grovelands Business Centre
Boundary Way
Hemel Hempstead, Herts. HP2 7TE
Tel: (01442) 835999 Fax: (01442) 258924
postbox@glanvillegroup.com
www.glanvillegroup.com

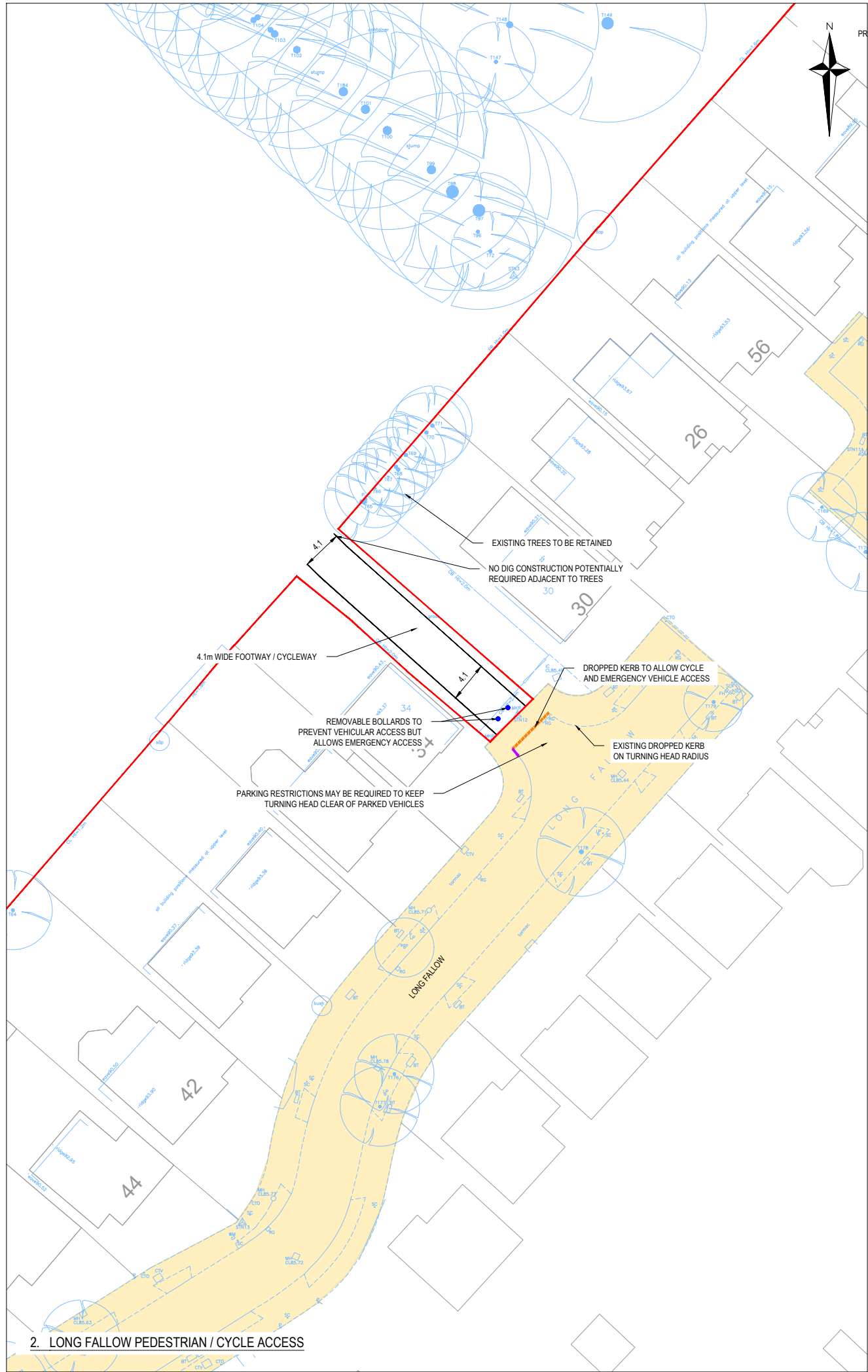
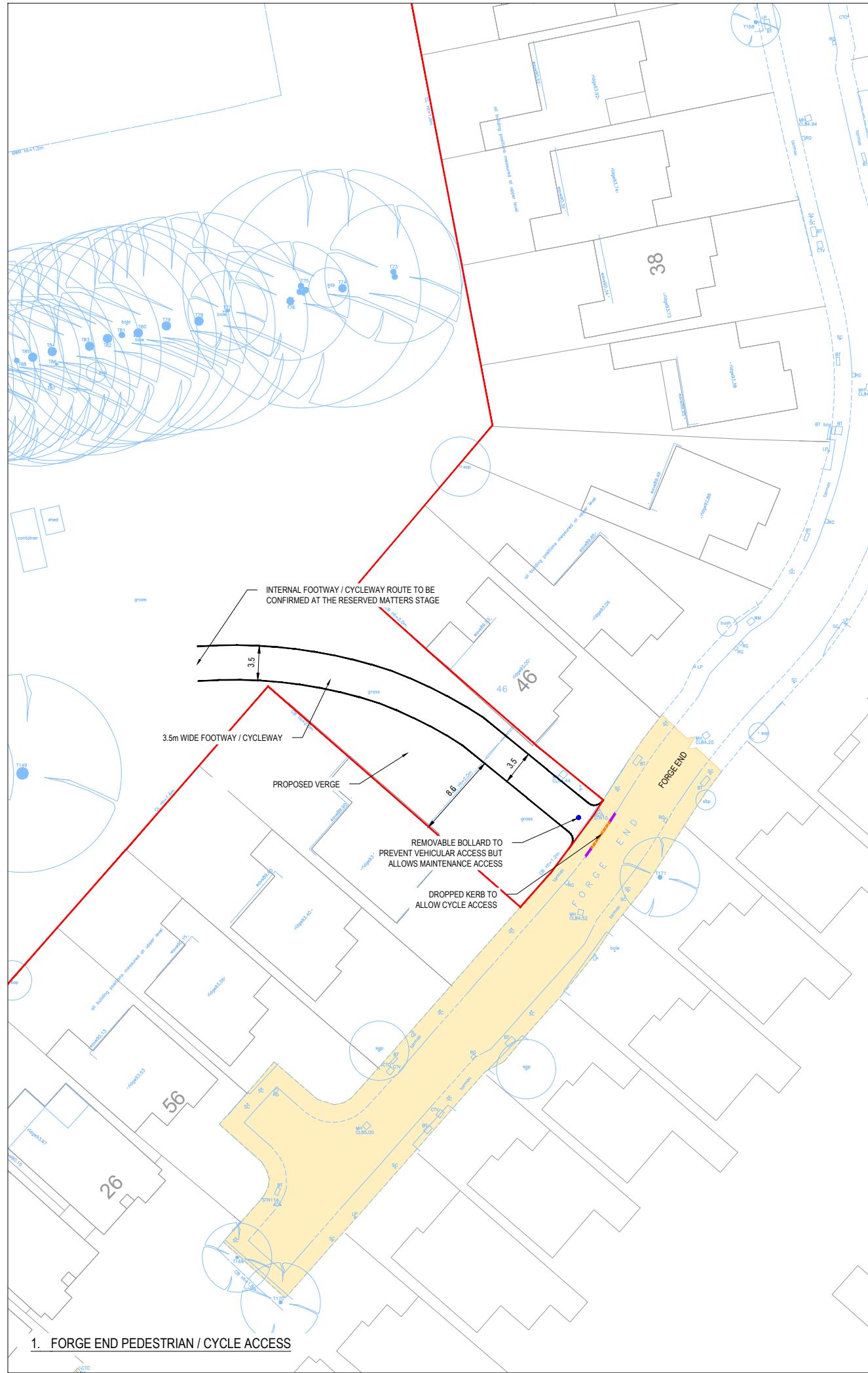
Client : **CALA HOMES (CHILTERN) & REDINGTON CAPITAL**

Project : **LAND WEST OF CHISWELL GREEN**

Title : **PROPOSED NORTHERN ACCESS JUNCTIONS**

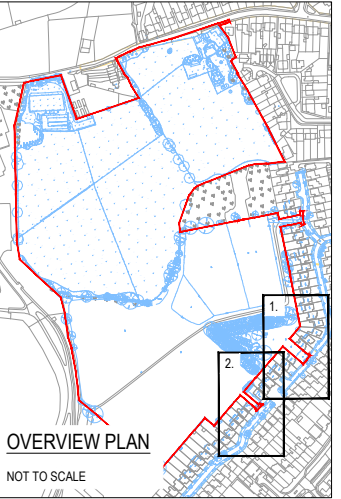
Project Engineer :	DK	Scale :	1:500 @ A3
Project Director :	JB	Date :	NOVEMBER 2021
Status :	INFORMATION		





- NOTES
- DO NOT SCALE FROM THIS DRAWING. WORK TO FIGURED DIMENSIONS ONLY.
 - THIS DRAWING SHALL NOT BE USED FOR CONSTRUCTION PURPOSES UNLESS SPECIFICALLY STATED AS 'FOR CONSTRUCTION' IN THE DRAWING STATUS.
 - THE SITE LAYOUT IS TO BE CONFIRMED AS PART OF THE RESERVED MATTERS APPLICATION.

- KEY
- SITE BOUNDARY
 - OS BASE
 - TOPOGRAPHICAL SURVEY
 - PROPOSED FOOTWAY / CYCLEWAY
 - DROPPED KERB
 - TRANSITION KERB
 - REMOVABLE BOLLARD
 - ADOPTED HIGHWAY



FOR PLANNING
APPROVAL

13	LONG FALLOW ACCESS ADDED	30/03/2022 DK	JB
12	FOOTWAY / CYCLEWAY ALIGNMENT UPDATED	29/03/2022 DK	JB
11	FIRST ISSUE	11/03/2022 DK	JB

Rev.	Description	Date	Chkd
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Tel: (01442) 835999 Fax: (01442) 258924
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www.glanvillegroup.com

Client : CALA HOMES (CHILTERN) &
REDINGTON CAPITAL

Project : LAND WEST OF CHISWELL GREEN

Title : PROPOSED FORGE END & LONG FALLOW
PEDESTRIAN / CYCLE ACCESS

Project Engineer :	DK	Scale :	1:500 @ A3
Project Director :	JB	Date :	MARCH 2022
Status :	INFORMATION		

Drawing No. 8210856-1021

Rev 13