Proposed Residential Development

Land North of Chiswell Green Lane, Chiswell Green, Hertfordshire, AL2 3AJ

Transport Assessment prepared on behalf of Headlands Way Limited

November 2021

MILESTONE TRANSPORT PLANNING

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1. Introduction

Scope of Transport Assessment

1.1 This Transport Assessment (TA) has been prepared by Milestone Transport Planning (MTP) on behalf of Headlands Way Limited ('*the applicant*') in support of an outline planning application with all matters reserved other than access for a development proposal comprising the erection of 330 residential units (Use Class C3) of mixed size and type together with associated cycle / refuse storage, car parking, and soft landscaping on land north of Chiswell Green Lane in Chiswell Green, Hertfordshire.

1.2 The site encompasses an area of 14.2 hectares located off the northern side of Chiswell Green Lane, opposite the former '*Butterfly World*' / '*The Gardens of The Rose*' tourist attractions, to the west of the predominately residential area of Chiswell Green. The majority of the site comprises a former polo field and a large metal barn with two small paddocks and stables situated in the south-eastern corner. The site was previously used by St Albans Polo Club and for hosting '*one-off*' polo charity events with visitors parking vehicles at the car park of the former Butterfly World visitor attraction, situated directly opposite.

1.3 The site is served by three separate access points located at the southern end of The Croft, off the western side of an access track connecting to the two paddocks / stables, which forms part of the Public Right of Way (Footpath 82), and off the northern side of Chiswell Green Lane, approximately 700-metres west of the double mini-roundabout junction with the B4630 Watford Road and Tippendell Lane. It is bounded to the west, north and in part to the east by sections of the Public Right of Way (PRoW) network (i.e. St Stephen Footpath No.'s 21, 80 and 82) and Chiswell Green Lane to the south.

1.4 In accordance with national, regional, and local planning objectives, which seek to encourage future households and visitors to travel by sustainable modes in favour of the private car for a variety of journey purposes, it is evident that the site benefits from being accessible on-foot and by cycle to public transport infrastructure / services, as well as a host of local amenities, which are likely to cater for their everyday needs.

1.5 The development proposals comprise the erection of 330 residential units (i.e. 32 x one-bed, 116 x two-bed, and 182 x three-bed, under Use Class C3), the creation of a new access off the northern side of Chiswell Green Lane, a separate emergency access off The Croft, and associated refuse / cycle storage, shared foot / cycleway infrastructure, car parking, public open space, a memorial garden, and soft landscaping. In keeping with the concept of "*local homes for local heroes*", all 330 residential units will be available for key workers (i.e. nurses, police officers, firefighters, teachers, military personnel, care workers and Local Government staff) in the form of home ownership affordable housing.

1.6 The purpose of the TA is to establish the multi-modal trip generating potential of the development proposals and associated impact on the local highway and transport networks over the course of a typical weekday and during the AM (08:00 – 09:00) and PM (17:00 – 18:00) peak hour periods. In addition to evaluating the site's accessibility credentials to establish the potential for future households and end-users to adopt sustainable travel patterns and behaviour for various journey purposes, the TA presents the proposed access, parking, delivery / servicing, and emergency vehicle arrangements in context with relevant national, regional, and local planning design guidance.

1.7 To inform the scope of the TA, the applicant conducted pre-planning consultation with the Local Highways Authority, Hertfordshire County Council (HCC) in August 2021. A pre-application scoping note that outlined the key transport planning and highways aspects of the emerging development proposals including an appraisal of the site's accessibility credentials by various travel modes; baseline highway conditions; proposed movement and access strategy; methodology for deriving the multi-modal trip generation and associated impact on the local highway and transport impacts; and mitigation measures was issued to HCC in advance of the meeting.

1.8 The key outcomes, which arose from the most recent pre-application consultation with HCC from a transport planning and highways perspective were as follows: -

- Initial concern was expressed on the site's accessibility credentials and compliance with Policy 1 of HCC's Local Transport Plan 4 (LTP4), specifically with regard to the potential walk distances from the site to local public transport infrastructure / services and amenities available in Chiswell Green village centre.
- Whilst the principle of the emerging development proposal being served by a single vehicular access off the northern side of Chiswell Green Lane together with an emergency access off the western side of The Croft was generally accepted, the applicant was advised to consult with Herts Fire & Rescue Service (HF&RS) to seek agreement.
- The provision of a visitor car park for the memorial park was initially opposed due to being non-policy compliant. However, the Local Planning Authority, St Albans City & District's (SADC's) Local Plan Policy 91(ii)c for low intensity leisure uses states *"c) Low Intensity Uses" will normally be permitted throughout the District. In open country, activities will normally be confined to a network of footpaths, bridleways and cycleways, and supplemented by small car parks and picnic sites."*
- With regards to the design of the proposed access arrangements, initial concern was expressed over the loss of an area of soft landscaping (grass verge / gravel) located off the southern side of Chiswell Green Lane, resulting from the realignment of the carriageway and provision of a shared foot / cycleway.
- The applicant was requested to liaise with HCC's PRoW Officer to establish whether there are any proposals to upgrade the network within the vicinity of the site.
- Regarding the scope of the TA, the applicant was advised to incorporate two other Committed Development sites (i.e. Radlett Rail Freight Terminal and the Hilton Hotel). The applicant was further advised to apply a '*COVID-19*' factor to the 2021 baseline traffic survey data, to reflect pre-COVID-19 conditions.

1.9 A copy of the minutes is attached at Appendix 1 of this report.

1.10 This report has been prepared in accordance with relevant national, regional, and local planning policies, most notably, the Ministry of Housing, Communities & Local Government's National Planning Policy Framework (NPPF) and the National Planning Practice Guidance on 'Travel Plans, Transport Assessments and Statements in Decision Making' (2014. Further reference is made to the Department for Transport's (DfT's) '*Manual for Streets 1*' (MfS1, 2007) and '*Manual for Streets 2– Wider Application of the Principles*' (MfS2, 2010) and HCC's '*Roads in Hertfordshire (RiH): Highways Design Guide*' (January 2011).

1.11 In addition to the TA, a RTP outlining a long-term strategy for encouraging future households and visitors to adopt sustainable travel patterns and behaviour, primarily focused on the 'active' modes of walking and cycling has been prepared by MTP in support of the planning application. This document should be read in conjunction with the TA.

1.12 In context of the guidelines within paragraph 111 of the NPPF (July 2021) it is considered that there are no residual cumulative impacts in terms of highway safety or the operational capacity of the surrounding transport network and therefore planning permission should not be withheld on transport planning and highway grounds.

Report Structure

1.13 The remainder of the TA is structured as follows: -

- Section 2 evaluates the development proposals in light of current national and local planning policies, to demonstrate compliance with the core principles.
- Section 3 describes the site's location in context with the local area, and its accessibility by a variety of travel modes to key local and regional destinations as well as a range of amenities available and accessible on-foot in both West and East Horsley village centres.
- Section 4 examines the operational and safety characteristics of the local highway network based on the results of several baseline traffic surveys and analysis of personal injury accident / collision data obtained from SCC.
- Section 5 summarises the key transport and highways aspects of the development proposals including the access, parking, delivery, and servicing strategy in context with national and local planning best practice design guidance.
- Section 6 assesses the multi-modal trip generation of the development proposal in comparison with the site's existing operation to establish the net impact on the surrounding local highway and transport networks over the course of a typical weekday and during the AM (08:00 – 09:00) and PM (17:00 – 18:00) peak hour periods.
- Section 7 outlines the proposed mitigation measures, which would be delivered as part of the development proposals, which include the provision of new hard infrastructure and the implementation of the Residential Travel Plan (RTP).
- Section 9 summaries the report's main findings, clearly stating that the development proposals would not have a "*severe*" impact on the local highway and transport networks, particularly to the conditions of amenity, capacity, and severity.

2. Policy Context

2.1 This section of the report provides a review of current national and local planning policies to demonstrate how the transport planning and highways aspects of the development proposals comply with the core aims and objectives.

National Planning Policy Framework (July 2021)

2.2 The Ministry of Planning, Communities and Local Government (MHCLG) initially published the National Planning Policy Framework (NPPF) in March 2012. This document was revised in July 2018, and updated in February 2018, and July 2021, respectively.

2.3 Promoting sustainable transport is a key thread of the NPPF and paragraph 104 highlights the importance of considering transport issues from the earliest stages of development proposals to ensure that:

- *a) "the potential impacts of development on transport networks can be addressed;*
- *b) opportunities from existing or proposed transport infrastructure, and changing transport technology and usage, are realised – for example in relation to the scale, location or density of development that can be accommodated;*
- *c) opportunities to promote walking, cycling and public transport use are identified and pursued;*
- *d) the environmental impacts of traffic and transport infrastructure can be identified, assessed and taken into account – including appropriate opportunities for avoiding and mitigating any adverse effects, and for net environmental gains; and*
- *e) patterns of movement, streets, parking and other transport considerations are integral to the design of schemes, and contribute to making high quality places."*

2.4 Paragraph 105 goes on to state that "*The planning system should actively manage patterns of growth…Significant development should be focused on locations which are or can be made sustainable, through limiting the need to travel and offering a genuine choice of transport modes…*"

2.5 Paragraph 108 states that "in assessing sites that may be allocated for development in plans, or specific applications for development, it should be ensured that:

- *a) appropriate opportunities to promote sustainable transport modes can be – or have been – taken up, given the type of development and its location;*
- *b) safe and suitable access to the site can be achieved for all users;*
- *c) the design of streets, parking areas, other transport elements and the content of associated standards reflects current national guidance, including the National Design Guide and the National Model Design Code; and*
- *d) any significant impacts from the development on the transport network (in terms of capacity and congestion), or on highway safety, can be cost effectively mitigated to an acceptable degree."*

2.6 Paragraph 111 continues to state that '*...development should only be prevented or refused on highway grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe*'.

2.7 Paragraph 112 requires that "applications for development should:

- *a) give priority first to pedestrian and cycle movements, both within the scheme and with neighbouring areas; and second - so far as possible – to facilitating access to high quality public transport, with layouts that maximise the catchment area for bus or other public transport services, and appropriate facilities that encourage public transport use;*
- *b) address the needs of people with disabilities and reduced mobility in relation to all modes of transport;*
- *c) create places that are safe, secure and attractive – which minimise the scope for conflicts between pedestrians, cyclists and vehicles, avoid unnecessary street clutter, and respond to local character and design standards;*
- *d) allow for the efficient delivery of goods, and access by service and emergency vehicles; and*
- *e) be designed to enable charging of plug-in and other ultra-low emission vehicles in safe, accessible and convenient locations."*

National Planning Practice Guidance (March 2014)

2.8 The Department for Communities and Local Government (DCLG) published the National Planning Practice Guidance (NPPG) on 6th March 2014, for the purposes of providing additional information in support of the NPPF. In addition to other planning matters, the NPPG contains specific guidance on "*Travel Plans, Transport Assessments and Statements in decision-making.*"

2.9 The guidance states that these documents should *"primarily focus on evaluating the potential transport impacts of a development proposal" and that they "can be used to establish whether the residual transport impacts of a proposed development are likely to be 'severe', which may be a reason for refusal, in accordance with the National Planning Policy Framework."*

a. The NPPG states that "Transport Assessments, Transport Statements and Travel Plans have a role in supporting national policy, which *"sets out that planning should actively manage patterns of growth in order to make the fullest possible use of public transport, waking and cycling, and focus significant development in locations which are or can be made sustainable."* More specifically, the NPPG states that *"Travel Plans, Transport Assessments and Statements can positively contribute to:*

- *Encouraging sustainable travel;*
- *Lessening traffic generation and its detrimental impacts;*
- *Reducing carbon emissions and climate impacts;*
- *Creating accessible, connected, inclusive communities;*
- *Improving health outcomes and quality of life;*
- *Improving road safety; and*
- *Reducing the need for new development to increase existing road capacity or provide new roads."*

Hertfordshire Local Transport Plan 4 (LTP4) (2018)

2.10 The Hertfordshire Local Transport Plan covers the period up to 2031 and sets out how transport can help deliver a positive future vision for Hertfordshire. As well as providing for safe and efficient travel, the Plan has a major input into wider policies such as economic growth, meeting housing needs, improving public health and reducing environmental damage. The Plan contains specific policies to help deliver local objectives.

2.11 LTP4 Policy 1 requires development proposals to prioritise the hierarchy of users where emphasis is placed on:

- Opportunities to reduce travel demand and the need for travel.
- Vulnerable road user needs (pedestrians and cyclists).
- Passenger Transport user needs.
- Powered two-wheeler (mopeds and motorbikes) user needs.
- Other motor vehicle needs.

2.12 Under LTP Policy 2 the County Council will encourage the location of new development in areas served by, or with the potential to be served by, high quality passenger transport facilities so they can form a real alternative to the car, and where key services can be accessed by walking and cycling.

2.13 Within Policy 3 of LTP4 '*Travel Plans and Behaviour Change*', the County Council will encourage the widespread adoption of travel plans through… (part B): Seeking the development, implementation and monitoring of travel plans as part of the planning process for new developments.

2.14 Policy 5: Development Management of LTP4 provides the framework within which the County Council will work with development promoters to:

- Ensure the location and design of proposals reflect the LTP Transport User Hierarchy and encourage movement by sustainable transport modes and reduced travel demand.
- Ensure access arrangements are safe, suitable for all people, built to an adequate standard and adhere to the county council's Highway Design Standards.
- Consider the adoption of access roads and internal road layouts where they comply with the appropriate adoption requirements and will offer demonstrable utility to the wider public. Where internal roads are not adopted the county council will expect suitable private management arrangements to be in place.
- Secure developer mitigation measures to limit the impacts of development on the transport network, and resist development where the residual cumulative impact of development is considered to be severe.
- Require a travel plan for developments according to the requirements of 'Hertfordshire's Travel Plan Guidance'.
- Only consider new accesses onto primary and main distributor roads where special circumstances can be demonstrated in favour of the proposals.

- Resist development that would either severely affect the rural or residential character of a road or other right of way, or which would severely affect safety on rural roads, local roads and rights of way especially for vulnerable road users. This should include other routes which are important for sustainable transport or leisure.
- Ensure that any new parking provision in new developments provides facilities for electric charging of vehicles, as well as shared mobility solutions such as car clubs and thought should be made for autonomous vehicles in the future.

St Albans City & District Council Local Plan Review '*Saved*' Policies (September 2007)

2.15 The St Albans City and District Local Plan was adopted in November 1994 as a guide to land use and development within the area. Under the Planning and Compulsory Purchase Act (2004) the current Local Plan is to be reviewed and replaced by Local Development Plan Documents (DPD's) and Supplementary Planning Documents (SPD'S).

2.16 In September 2007, the Secretary of State issued a formal Direction to St Albans City and District Council under Paragraph 1 (3) of the Schedule 8 to the Planning and Compulsory Purchase Act 2004 that saves specified policies within St Albans District Local Plan Review 1994, i.e. they are still formally recognised as part of the development plan for St Albans. Amongst the saved polices are a number relating to transportation (Chapter 5 of the Local Plan). The saved policies of Chapter 5, relevant to the proposed development are considered in the following paragraphs.

2.17 Policy 34 of the SALP titled 'Highways Considerations in Development Control', states *"Development likely to generate a significant amount of traffic, or which involves the creation or improvement the creation or improvement of an access onto the public highway, will not normally be permitted unless acceptable in terms of the following highway considerations:*

- *i) Road Safety. Particular requirements are adequate visibility, turning radii and provision for pedestrians and cyclists and for disabled and other disadvantaged people;*
- *ii) Environmental impact of traffic, especially in residential areas;*
- *iii) Road capacity, including present and predicted future year assessments;*
- *iv) Road hierarchy, new roads shall be of a design appropriate to their position in the hierarchy. New accesses to primary roads and main distributor roads (see Figure 8) will normally be resisted, but where access is permitted a high standard of provision will be required;*
- *v) Car parking provision. See Policies 39 – 50;*
- *vi) St. Albans City Centre restraint on development. See Policy 30;*
- *vii) Local rural roads. Particular regard will be had to increases in:*
    - *the risk of accidents, especially to pedestrians and cyclists;*
    - *the use of roads that are poor in terms of width, alignment or structural condition;*
    - *adverse impact on the local environment, either to the rural character of the road or residential properties alongside it……."*

2.18 Policy 35 Highway Improvements in Association with Development states *"in order to mitigate the highway effects of development proposals the District Council, in conjunction with the County Council where appropriate, will seek highway improvements or contributions to highway improvements and / or improvements to the public transport system from developers whose proposals would otherwise result in detrimental highway conditions."*

2.19 Policy 39 of the SALP relates to parking standards. In January 2002, the Council published Supplementary Planning Guidance (SPG) entitled 'Revised Parking Policies and Standards' (January 2002) that effectively superseded the SALP standards.

2.20 Policy 40 sets out car parking standards for residential developments. The recommended parking standards to be applied to the type of land use proposed as part of this development are discussed in full within Section 4 of this TS.

2.21 In addition, Policy 91 titled 'Location of Leisure Facilities' states: -

- *i) New leisure proposals and extensions to existing facilities will not normally be permitted unless acceptable in terms of location, access, car parking, environmental impact and safety;*
- *ii) Location: the following criteria will apply according to the intensity of use:*
    - *a) High Intensity Uses will normally be permitted in the towns of St. Albans and Harpenden provided that they do not add to traffic congestion for shopping and commercial users and subject to other policies of this Plan;*
    - *b) Medium Intensity Uses will normally be permitted as follows:*
        - *Type A: within towns and specified settlements (see Policy 2)*
        - Type B: in the Green Belt outside Landscape Conservation Areas (see Policy 96 and Figure 14). Within Landscape Conservation Areas, Type B uses will normally be permitted if they conform to Policy 104;
    - *C) Low Intensity Uses will normally be permitted throughout the District. In open country throughout the District. In open country, activities will normally be confined to a network of footpaths, bridleways and cycleways, and supplemented by small car parks and picnic sites;*
- *iii) Car Parking: this shall be provided on site, but exceptions may be made where there is adequate public car parking nearby…"*

Summary

2.22 The proceeding sections of the TA will demonstrate the acceptability of the development proposals in context with national and local transport planning policies, in turn demonstrating that there would be no material impact on the local highway network, particularly to the conditions of amenity, capacity and safety.

3. Site Accessibility Credentials

3.1 This section of the report provides an overview of the baseline conditions including a description of the site in context with the local area, its accessibility to various transport infrastructure / services and amenities available and accessible on-foot and by cycle in Chiswell Green village centre for the purposes of assessing the potential for future households and visitors to adopt sustainable travel patterns and behaviour for various journey purposes.

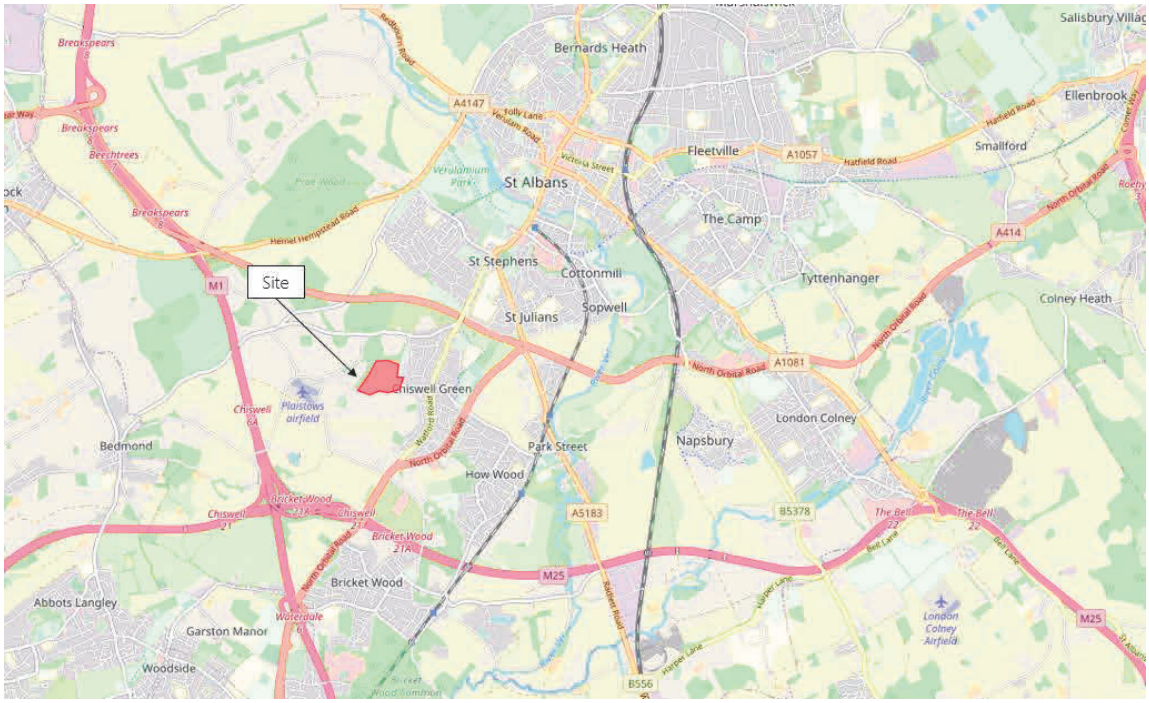
Site Location and Context

3.2 The application site comprises a rectilinear shaped parcel of land that encompasses an area of 14.2-hectares, located off the northern side of Chiswell Green Lane, opposite the former '*Butterfly World*' tourist attraction and western periphery of Chiswell Green, approximately 730-metres west of the village centre.

3.3 The majority of the site comprises a former polo field and a large metal barn with two small paddocks and stables situated in the south-eastern corner. The site was previously used by St Albans Polo Club and for hosting '*one-off*' polo charity events with visitors parking vehicles at the car park of the former Butterfly World visitor attraction, situated directly opposite.

3.4 The site boundaries are formed by Chiswell Green Lane to the south, and parts of the Public Right of Way (PRoW) network (i.e. St Stephens 21, 80 and 82) to the west, north, and in part to the east. The site's north-eastern boundary borders open undeveloped land, beyond which lies a number of dwellings located off the eastern side of The Croft and Cherry Hill. The site location in context with the local area is shown below in Figure 1.

Figure 1 Site Location Plan



Access by Non-Car Modes of Transport

3.5 The planning process at national, regional, and local level seeks to ensure that development proposals are in areas, where the need to travel will be minimised and opportunities for encouraging sustainable travel behaviour and patterns can be maximised. Consequently, this section of report assesses the existing provision of transport infrastructure and services by mode within the vicinity of the site.

Walking and Cycling Accessibility

3.6 In keeping with the semi-rural location and aesthetic, no footway is present along either side of the carriageway of Chiswell Green Lane, adjacent to and opposite the site's southern boundary.

3.7 However, as shown in Figure 2, a lit footway measuring circa 1.2 to 1.8-metres commences along the northern side of Chiswell Green Lane, near to the site's south-east corner and east of the access track that forms part of Footpath No. 82 (FP82). Grass verges are present at the back edge of footway in between vehicle crossovers connecting the private driveways of properties to Chiswell Green Lane. A 1.8-metre-wide footway is also present along the southern side of the carriageway of Chiswell Green Lane, commencing from the private access of Chiswell Green Farm.

Figure 2 View of Footway Infrastructure along Chiswell Green Lane

3.8 These footways extend in an easterly direction and adjoin the wider network at the intersection with Stanley Avenue where dropped kerbs are present, and the B4630 Watford Road. The footway on both the western and eastern sides of the B4630 Watford Road are separated from the carriageway by wide grass verges with semi-mature trees / vegetation. Where pedestrian desire lines interact with busier routes, suitable crossing facilities are provided, primarily in the form of dropped kerbs and tactile paving.

3.9 A Zebra Crossing with a refuge island is located circa 12.0-metres north and south of the double 3-arm mini-roundabout junction of the B4630 Watford Road / Chiswell Green Lane, and B4630 Watford Road / Tippendell Lane, respectively. This caters for the main west to east pedestrian desire line, in-turn providing safe and direct access to the nearest bus stop (Three Hammers Public House) served by southbound services heading towards Watford as well as range of local amenities located off the eastern side of the B4630 Watford Road and either side of Tippendell Lane.

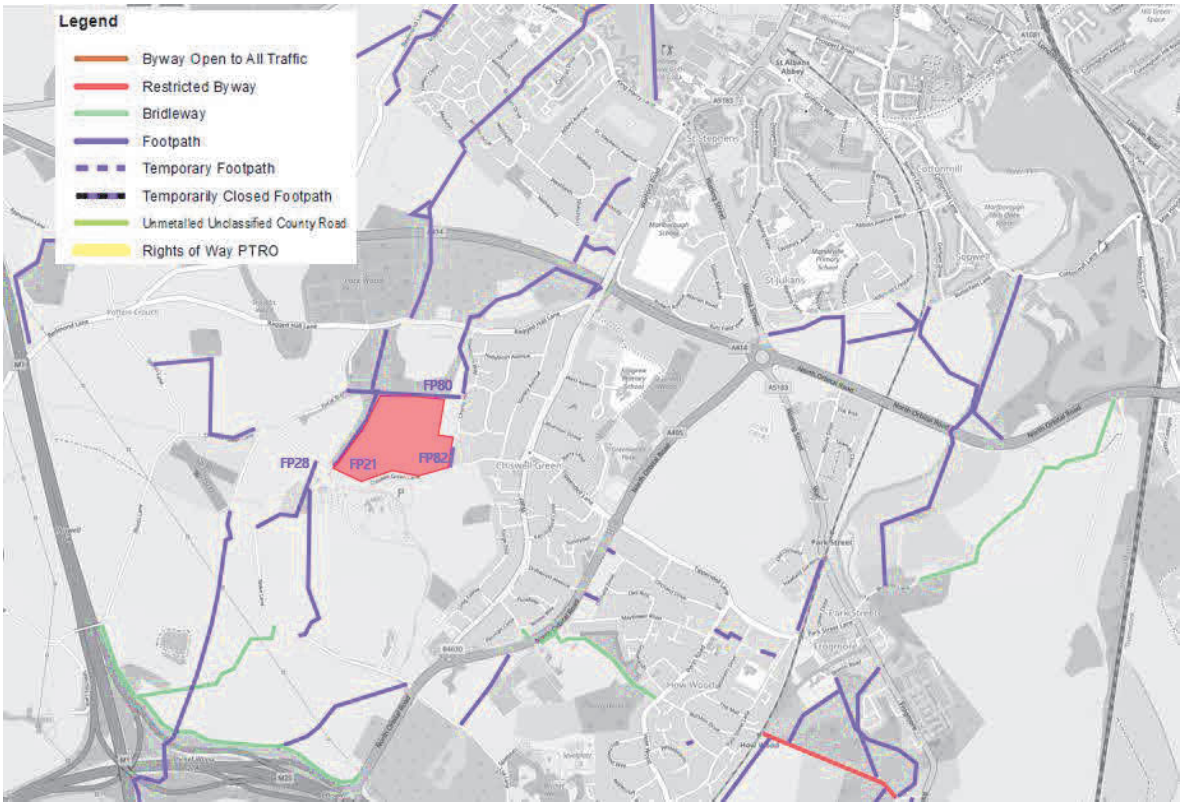
Figure 3 View of Footway Infrastructure along The Croft and the B4630 Watford Road

3.10 A Pelican Crossing with dropped kerbs and tactile paving is situated approximately 135.0-metres south of the 3-arm mini-roundabout junction of the B4630 Watford Road / Chiswell Green Lane, and this facilities safe and direct access to Watford Road Post Office and Shell Petrol Station.

3.11 Other than for a short gap in provision at the western end of Chiswell Green Lane, it is evident that the existing pedestrian environment provides safe and direct access to the nearest bus stops and range of amenities situated off either side of the B4630 Watford Road and predominantly residential area of Chiswell Green and How Wood.

3.12 In addition to the formal footway infrastructure, the site benefits from being directly accessible on-foot to the Public Right of Way (PRoW) network. As shown in Figure 4, the site is bounded to the west, north, and east by footpaths (i.e. St Stephen 021, St Stephen 080, and St Stephen 082). These provide alternative north to south and east to west walking routes to the predominately residential area of St Stephens, south of St Albans city centre and Chiswell Green, respectively.

Figure 4 Public Right of Way Network Plan



3.13 The St Stephen 021 footpath (FP21) measures circa 2.0-metres in width and commences off the northern side of Chiswell Green Lane, opposite the property known as Bone Hill and heads in a north-easterly direction for a distance of circa 380.0-metres. It intersects with the St Stephen 080 footpath, which runs adjacent to the site's northern boundary (see Figure 5).

Figure 5 View of the St Stephen 021 Footpath and Intersection with the St Stephen 080 Footpath

3.14 The St Stephen 080 footpath (FP80) commences off the western side of Cherry Hill, running alongside the play area / recreation ground and heads in a westerly direction for a distance of circa 400.0-metres, where it intersects with the St Stephen 021 (FP21) and St Stephen 081 (FP81) footpaths, prior to terminating at the junction of Furzebushes Lane circa 110.0-metres to the west. The St Stephen 080 footpath has a variable width of between 3.0 and 4.0-metres.

Figure 6 View of the St Stephen 080 Footpath

3.15 The St Stephen 081 footpath (FP81) measures circa 4.0-metres in width and commences at the junction with FP80, and heads in a northerly direction for a distance of circa 290.0-metres prior to terminating at the junction with Ragged Hall Lane. This adjoins to the St Michael Rural 008 footpath, which heads northwards via a footbridge over the A414, before connecting to a series of other footpaths (i.e. St Albans City 035, St Albans City 087, and then St Albans City 034), the latter running in a north-easterly direction towards the St Stephens residential area and St Albans City Centre beyond.

Figure 7 View of the St Stephen 081 Footpath Looking Northwards to Ragged Hall Lane

3.16 The St Stephen 082 footpath (FP82) commences off the northern side of Chiswell Green Lane, adjacent to the two paddocks situated in the site's south-east corner and to the west of several private dwellings (No. 48 Chiswell Green Lane and 29 The Croft) for a distance of circa 85.0-metres, prior to terminating at the junction with The Croft.

3.17 As shown in Figure 8, it mostly comprises of an unmetalled track / rough verge and bounds the site's easter boundary and access point to the southern-most paddock. The St Stephen 082 Footpath has an initial width of 3.5-metres narrowing to 2.7-metres at the northern end.

Figure 8 View of the St Stephen 082 Footpath Heading Northwards to The Croft

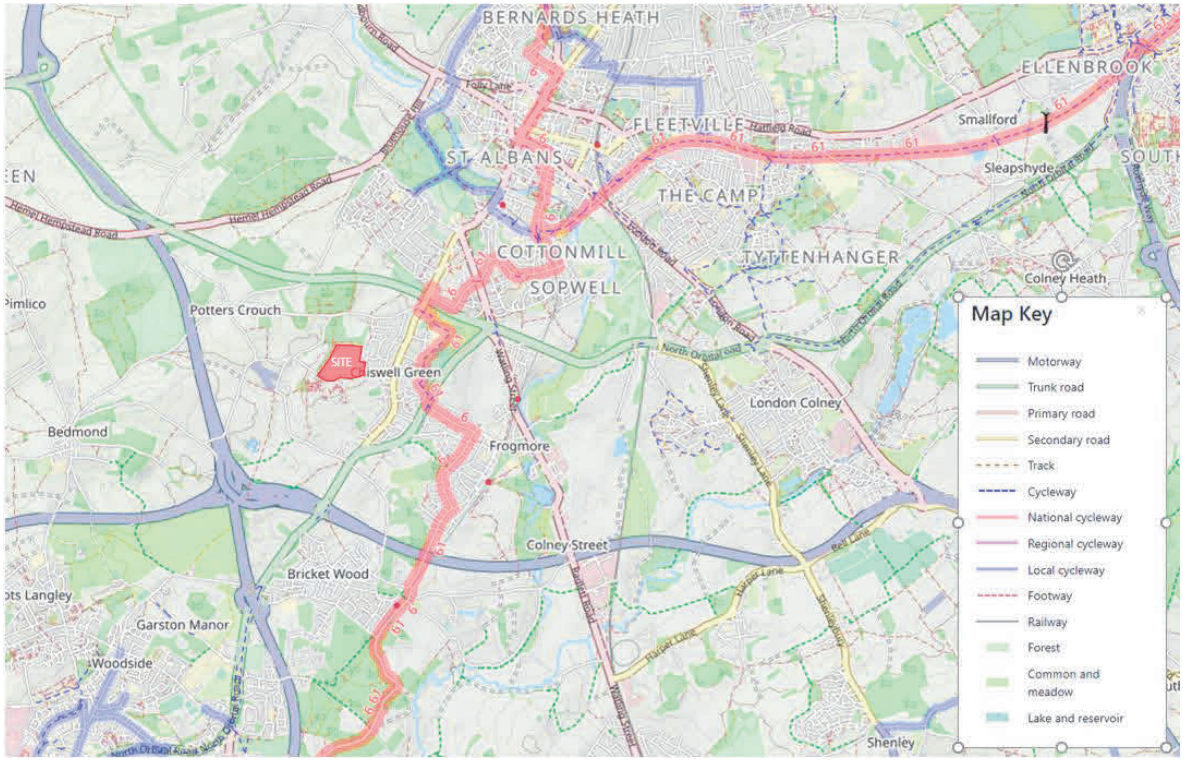
3.18 An addition footpath (St Stephen 068) commences off the southern side of Chiswell Green Lane circa 20.0-metres west of the give-way priority junction with Stanley Avenue. This heads in a southerly direction for a distance of 75.0-metres before emerging onto the residential cul-de-sac of Hammers Gate and western side of the B4630 Watford Road, near to the Pelican Crossing facility. On a local level, it provides a short walking route to Watford Road Post Office.

3.19 Whilst there is no dedicated cycling infrastructure in the immediate vicinity of the site, it is noteworthy that Furzebushes Lane, Chiswell Green Lane, Stanley Avenue, and Ragged Hall Lane are recognised by the Local Planning Authority's, St Albans City & District's (SADC's) Cycling Map, as *"routes suggested by local cyclists along usually quieter roads."* These parts of the local highway network are also likely to experience low vehicular speeds over the course of a typical weekday. A copy of SADC's Cycling Map is attached at Appendix 2 of this report.

3.20 When this is considered in context with the carriageway width of Chiswell Green Lane (see section 4) and other parts of the local highway network, which are generally of sufficient width to accommodate both vehicular traffic and cycle movements in a safe and convenient manner, it is evident that the existing conditions would provide a favourable environment for cyclists undertaking various journey purposes.

3.21 National Cycle Network (NCN) Route 6, which comprises of both on and off-carriageway sections is accessible via the north-eastern side of Tippendell Lane, at the junction with Greenwood Park, approximately 750.0-metres east of the site (i.e. a 3-minute cycle journey). On a local level, NCN Route 6 connects Chiswell Green to St Albans City Centre and Watford (via the district centres of How Wood and Bricket Wood) to the north and south, respectively.

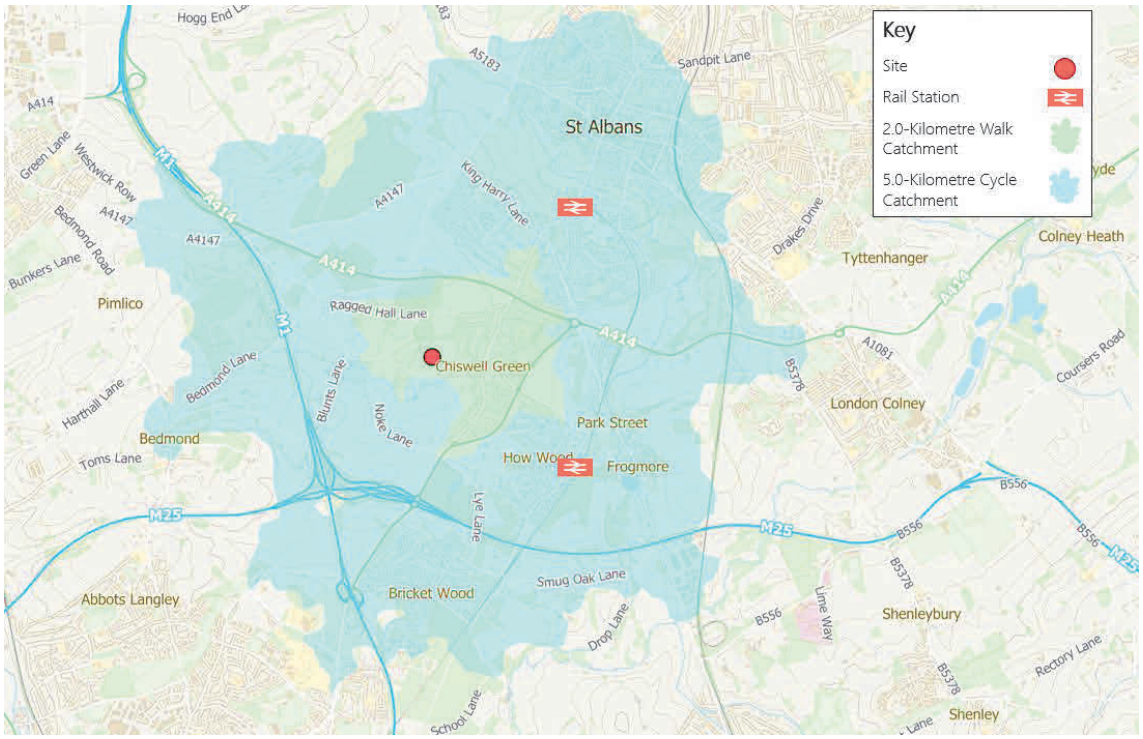
Figure 9 Local Cycle Route Plan



3.22 The Chartered Institute of Highways and Transportation's (CIHT's) publication *'Providing for Journeys on Foot'* (2000), states the average length of a walk journey is 1.0 kilometre. It further suggests a preferred maximum walking distance of 2.0 kilometres for commuting / school journeys and 1.2 kilometres for other journey destinations. Other national planning guidance / best practice publications have previously recommended a maximum distance of 5.0 kilometres for reasonably fit individuals to cycle to / from workplace destinations.

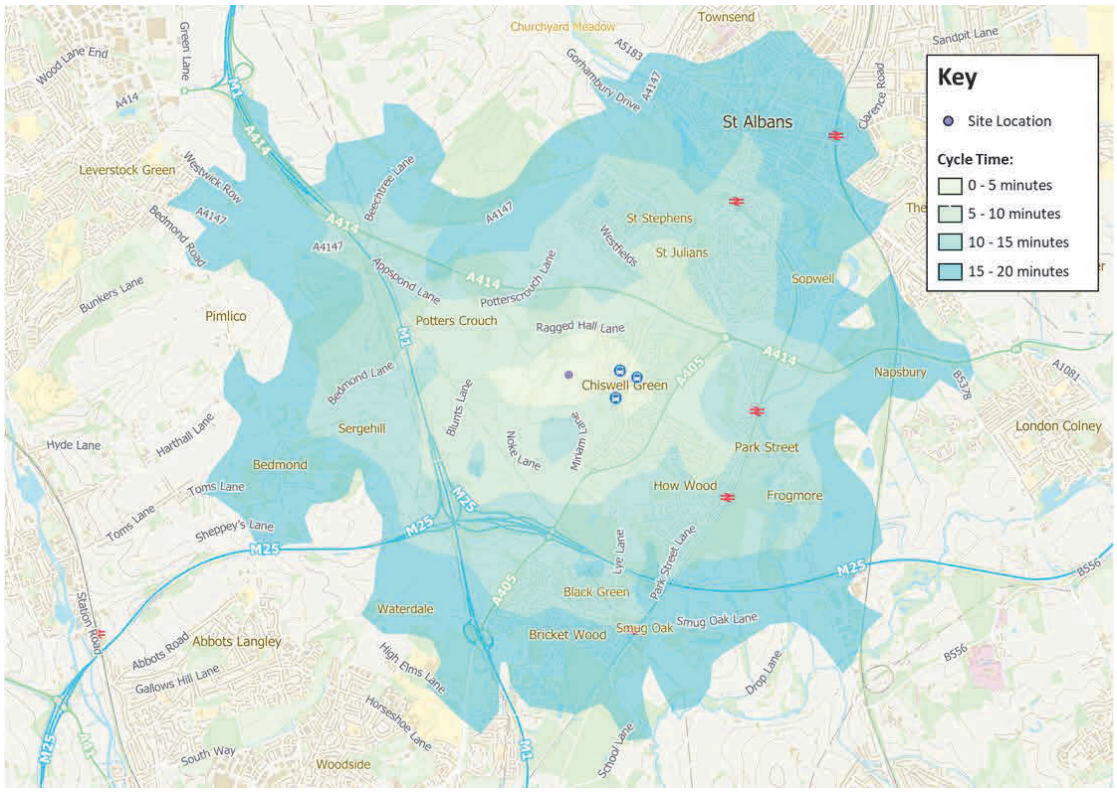
3.23 As shown in Figure 10, it is evident that the entire urban area of Chiswell Green is accessible on-foot within a 2.0-kilometre walk distance of the site. In addition, the neighbouring district centres of How Wood, Park Wood and Bricket Wood) and St Albans city centre including a number of rail stations situated on the '*Abbey Line*' are accessible by cycle within a 5.0-kilometre cycle distance of the site.

Figure 10 Walk and Cycle Catchment Plan



3.24 Figure 11 reveals that the majority of the residential area of Chiswell Green is accessible by cycle within a 5-minute cycle distance of the site, when measured from the centre. The neighbouring district centres of How Wood and Park Street including the rail stations are within a 10 to 15-minute cycle journey time of the site. St Albans city centre and Bricket Wood are accessible by cycle within a 15 to 20-minute cycle journey time of the site.

Figure 11 Estimated Cycle Journey Times to Local and Regional Destinations



3.25 In summary, the existing pedestrian and cycle facilities in the area are of a good standard and offer connections to key local and regional destinations, which would encourage day-to-day walking and cycling journeys. The proposed development could easily connect to these facilities as part of a package of sustainable transport measures.

Public Transport Accessibility

Bus Services

3.26 The nearest bus stops (near and opposite the Three Hammers Public House) are located on either side of the B4630 Watford Road, approximately 650 and 700-metres (a 10-minute walk time) east of the site as measured mid-way along the site's southern frontage with Chiswell Green Lane, respectively. Both the northbound and southbound bus stops benefit from having sheltered seating, flagpoles with timetable information.

3.27 These stops are served by route no. 321 (Arriva, the Shires), which operates between Luton to Watford via Harpenden, St Albans, and Chiswell Green on a frequency of 1 service every 20-minutes, Monday to Saturday; and hourly on a Sunday. On a typical weekday, the first and last bus service operating to Luton Station Interchange Stand 8 departs the northbound bus stop (near Three Hammers Public House) at 06:00 and 23:42, respectively. The first and last bus service operating to Watford Market Stop J departs the southbound bus stop (opposite the Three Hammers Public House) at 05:57 and 23:46, respectively.

3.28 Route no. 724 (Greenline), which operates between Harlow and Heathrow Airport (via Watford, St Albans, Hatfield, Welwyn Garden City, Hertford & Ware) on a frequency of 1 service every 2 hours, Monday to Saturday, and every 2 hours on a Sunday is also available from the nearest bus stops. On a typical weekday, the first and last bus service to Heathrow Airport departs the southbound bus stop at 04:28 and 21:05. Further, the first and last bus service to Harlow departs the northbound bus stop at 07:41 and 23:39, respectively.

3.29 In addition, route no. 361 (Red Eagle Buses), which operates between Garston / Bricket Wood to New Greens Estate / St Albans on a frequency of 1 service every hour, Monday to Saturday is available from the northbound bus stop.

3.30 A summary of all bus services accessible on-foot from bus stops located along either side of the B4630 Watford Road and Tippendell Lane including destinations served and frequency is shown in Table 3.

Table 3 Summary of Services Accessible from the Three Hammers Public House Bus Stops

Bus No.	Direction/Destination	First Bus	Last Bus	Frequency
321	St Albans, Harpenden, Luton	06:00	23:42	3 per hour, Monday to Saturday, and hourly on a Sunday
	Watford	05:57	23:46	
361	St Albans	07:51	16:58	1 per hour, Monday to Saturday
	Bricket Wood	08:31	17:32	
724	Watford Junction, Rickmansworth, Uxbridge, Heathrow Airport	04:28	21:05	1 per hour, Monday to Saturday, and 1 every two hours on a Sunday
	St Albans, Hatfield, Welwyn Garden City, Hertford, Harlow	07:41	23:49	

3.31 It is noteworthy that bus service 321 directly serves Luton, St Albans Abbey, and Watford Junction rail stations, thereby providing opportunities for interchange with mainline rail and London Overground (LO) services operating to a host of local, regional, and national destinations including Birmingham, Clapham Junction, Liverpool, London, Manchester, Milton Keynes, Wolverhampton, and Glasgow.

3.32 Whilst the location of the nearest bus stops located along either side of the B4630 Watford Road and Tippendell Lane are beyond the CIHT's recommended maximum walking distance of 300-metres for what is defined as '*less frequent routes*', as set out in the '*Buses in Urban Developments*' (January 2018) publication, it is noteworthy that there a number of factors, which may influence future households and visitors to travel by bus to / from the proposed development.

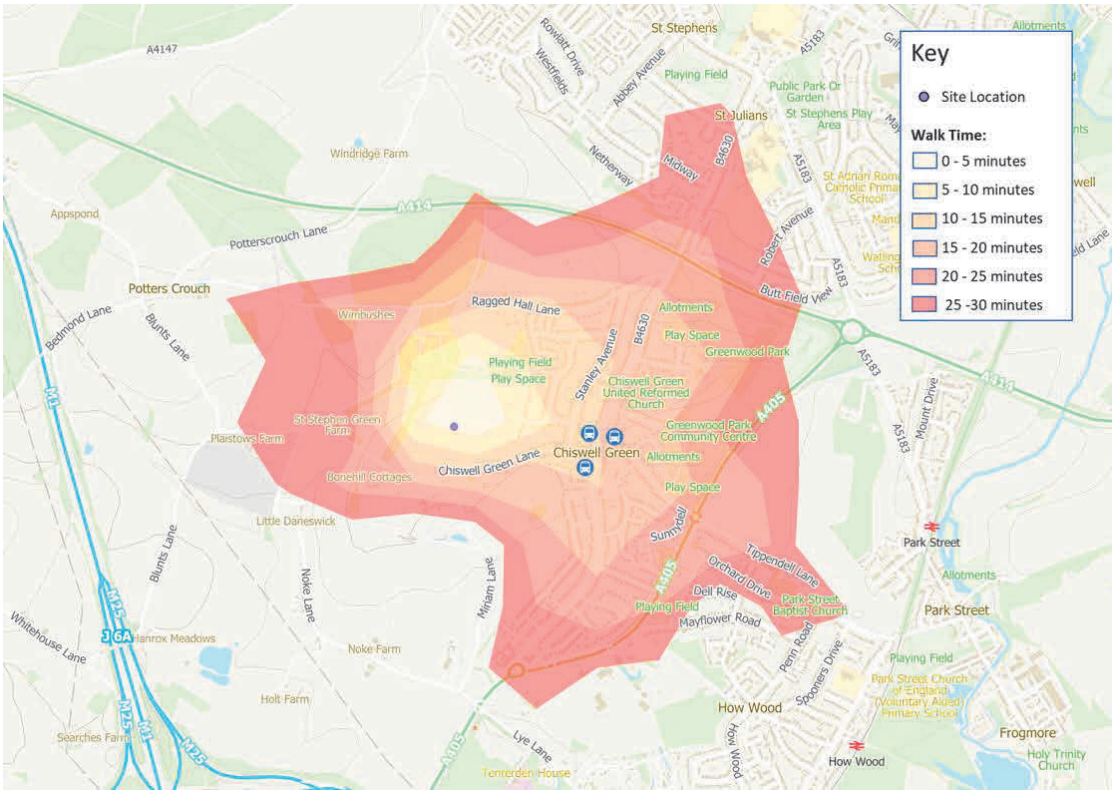
3.33 Importantly, future households are likely to accept slightly longer walk distances to reach bus services, which are fast and direct, more frequent, and to stops serving a wider range of destinations. Further, the topographical, quality and safety of a walking route is also likely to have an influence. For example, safe routes, which are well overlooked will be perceived as less onerous than isolated and poorly lit routes, and level routes with no steep gradients.

3.34 As outlined earlier in this section of the report, the nearest bus stops (near and opposite the Three Hammers Public House) are served by bus route 321, which provides frequent and direct access to a host of local and regional destinations. These services operate over an extensive part of a typical weekday / end, thereby providing a realistic mode of travel for households undertaking shift work with early starts / late finishes. The typical bus journey time to Harpenden, Luton, St Albans, and Watford is 20, 45, 5, and 32 minutes respectively.

3.35 The potential walking route from the site to the nearest bus stops (near and opposite the Three Hammers Public House) is via Chiswell Green Lane, which as demonstrated earlier in this section of the report is well-lit / overlooked by existing dwellings and is over a level gradient.

3.36 As shown in Figure 12, the nearest bus stops (near and opposite the Three Hammers Public House) located along the B4630 Watford Road are within a 10 to 15-minute walk journey time of the centre of the site.

Figure 12 Estimated Walk Journey Times to Local Bus Stops



3.37 It is therefore concluded that the quality and frequency of the existing routes is likely to influence a significant proportion of future households to travel by bus to gain access to education, employment, leisure, and retail destinations, thereby reducing dependency on use of the private car for various journey purposes.

Rail Services

3.38 How Wood rail station is located at the southern end of Hyde Lane, approximately 2.6-kilometres (a 34-minute walk and 12-minute cycle journey time) south-east of the site. It forms part of the '*Abbey Line*' branch, a single-track route between St Albans Abbey and Watford Junction. The route is operated by London Northwestern Railway. Services run hourly in each direction with journey times being 10 and 28 minutes to St Albans Abbey and Watford Junction stations respectively.

3.39 Bricket Wood station is also situated along the '*Abbey Line*', one stop closer to Watford, and is located circa 4.2-kilometres south of the site (i.e. a 16-minute cycle journey time) of the site.

3.40 Watford Junction rail station provides numerous opportunities for interchange with other mainline rail and London Overground (LO) services operating to a wide range of local and regional destinations including Clapham Junction, Edinburgh, Liverpool, London, Manchester, Milton Keynes, and Wolverhampton.

3.41 It is noteworthy that there are proposals to i) reopen a passing loop at Bricket Wood; ii) run trains which bypass certain stations; iii) convert the line to light rail operation; and iv) convert the line to a guided busway. The installation of a passing loop and / or conversion of the '*Abbey Line*' to a guided busway would enable higher service frequencies to be provided and increase the attractiveness of this mode to future households and other end-users.

3.42 St Albans City rail station is situated off the western side of Station Way, approximately 5.0-kilometres north-east of the site (a 20-minute cycle journey). The station is operated by Thameslink and facilitates access to a host of local, regional, and national destinations including Bedford, Brighton, Gatwick Airport, Luton, Sutton, and Wimbledon.

3.43 As shown in Table 3.1, the nearby rail stations of Bricket Wood, St Albans Abbey, and St Albans City benefit from having dedicated cycle parking spaces. The presence of these facilities will enable future households to travel by a multitude of modes for journeys to various workplace destinations.

Table 3.1 Summary of Cycle Parking Facilities Available at Nearest Rail Stations

Station	Cycle Parking Facilities
Bricket Wood	12 cycle parking spaces on Platform 1
How Wood	0 cycle parking spaces
St Albans Abbey	20 cycle parking spaces on Platform 1
St Albans City	1,150 secure and covered cycle parking spaces adjacent to Platforms 1 and 4

Accessibility to Local Amenities

3.44 The CIHT cites a maximum acceptable walking distance for day-to-day amenities of around 2.0-kilometres, whilst other best practice guidance suggests that cycling has the most potential to replace vehicle journeys under 5.0-kilometres in length.

3.45 When applying the above-mentioned thresholds to the centre of the site, it is evident, as shown in Table 3.2 and Figure 13, that a wide range of local amenities, which are likely to cater for the everyday needs of future households are within the maximum walking and cycling distances.

Table 3.2 Summary of Local Amenities Accessible On-Foot and By Cycle

Type of Amenity	Destination	Distance (Kilometres)	Walk Journey Time /mins	Cycle Journey Time /mins
Convenience	Co-op Foodstore	0.6	7	3
	Simmons Bakers	0.7	9	3
	Watford Road Post Office & Convenience Store	0.8	9	3
Education	Killigrew Primary and Nursery School	1.3	16	5
	How Wood Primary	2.1	*24*	8
	St Colomba's College	2.4	*30*	8
	The Marlborough Science Academy	2.7	*34*	10
Employment	St Albans City Centre	4.0	-	15
Faith	Homewood United Reformed Church	1.0	13	4
	St Stephens Church	2.3	*29*	8
Healthcare	Globe Pharmacy	0.65	8	3
	Midway Surgery	1.3	16	5
Leisure and Fitness	Chiswell Green Livery Yard & Riding School	0.2	2	1
	Greenwood Park & Lawn Tennis Club	1.2	15	4
	Westminster Lodge Leisure Centre & Track	2.8	*35*	9
	Abbey Theatre	2.8	*35*	9
Retail	Abbey View Retail Park	3.1	-	10
	St Albans City Centre	4.0	-	15

Figure 13 Local Amenities Plan

Summary

3.46 The review of the baseline conditions demonstrates:

- The site benefits from being accessible on-foot, by cycle and by public transport infrastructure and services, which combine to provide a good level of connectivity to a host of local and regional destinations as well as a wide range of amenities likely to cater for the everyday needs of future households.
- Consequently, in accordance with the main aims and objectives of national, regional, and local planning policy, the development proposals would provide numerous opportunities for future households and other end-users to adopt long-term sustainable travel patterns and behaviour for various journey purposes.

4. Baseline Highway Conditions

4.1 This section of the report describes the local highway network including consideration of the operational and safety characteristics of Chiswell Green Lane and the B4630 Watford Road, through analysing traffic flow and personal injury accident data.

Existing Access Arrangements

4.2 The site is served by three separate access points located off the northern side of Chiswell Green Lane and off the western side of The Croft.

Primary Access

4.3 The site's primary access, which facilitates vehicular movements to / from the polo field and large metal barn takes the form of a simple priority junction located off the northern side of Chiswell Lane Green, approximately 650-metres west of the 3-arm double mini-roundabout junction with the B4630 Watford Road and Tippendell Lane.

4.4 As shown in Figure 14, the site's primary access is gated and set-back from the edge of the carriageway of Chiswell Green Lane by circa 6.0-metres, to accommodate the length of a standard sized car, free of the highway.

Figure 14 View of Site's Accesses off the Northern Side of Chiswell Green Lane

4.5 Due to being partially positioned on the inside of a bend, and presence of mature vegetation car driver inter-visibility with other motorised and non-motorised users is slightly restricted (see Figure 15), particularly to the right (leading traffic direction). However, in context of the negligible number of vehicular movements generated by the site's existing operation, as well as those observed along Chiswell Green Lane, this is not considered to have a material impact on highway safety.

Figure 15 Car Driver Sight Lines from Site's Primary Access off Chiswell Green Lane

Secondary Accesses

4.6 Vehicular access to the paddock situated in the south-eastern corner of the site is via an unmetalled track measuring circa 3.5-metres in width and simple priority junction, off the northern side of Chiswell Green Lane, approximately 350-metres east of the primary access.

4.7 The access track forms part of the PRoW (i.e. St Stephens 082), which beyond the access to the paddock continues in a northerly direction towards The Croft.

4.8 An additional field access that takes the form of a bellmouth junction with a concrete surface is located off the western side of The Croft, approximately 80.0-metres south of the junction with Cherry Hill.

Figure 16 View of Secondary Access off The Croft

4.9 Similar to the site's main access, the paddocks are likely to be subject to an immaterial number of vehicular movements over the course of a typical weekday.

Local Highway Network

4.10 Within the vicinity of the site, Chiswell Green Lane comprises a narrow unlit lane, approximately 1.6-kilometres in length and with a carriageway width varying between 3.5 to 5.5-metres. In keeping with the semi-rural aesthetic, no footways are present.

4.11 The section of Chiswell Green Lane that abuts the site's southern boundary is subject to the national speed limit (i.e. 60-mph for single carriageway roads) with the transition to the 30-mph posted speed limit situated adjacent to the property of No. 48 Chiswell Green Lane, and secondary access to the paddock situated in the south-east corner. Notwithstanding this, given the horizontal alignment of Chiswell Green Lane, it is unlikely that motorist users would travel at speeds in excess of 40-mph.

4.12 As shown in Figure 17, the section of carriageway adjacent to the property of No. 48 Chiswell Green and secondary access narrows to circa 3.5-metres in width, restricting vehicular traffic flow to one-way operation and further reducing the potential for motorised users to travel at speeds above 30-mph.

Figure 17 View of Chiswell Green Lane

4.13 As well as providing direct access to the large metal barn and polo field, Chiswell Green Lane serves the former '*The Garden of the Rose*' visitor attraction, Chiswell Green Riding School, Bone Hill (Bonehill Cottages and The Mansion House), St Stephen Green Farm, and Plaistows Farm / Airfield to the west, a car park for the co-op foodstore and Three Hammers Public House and residential dwellings to the east.

4.14 The DfT Circular 02/2006 '*Quiet Lane and Homes Zones (England) Regulations 2006*' defines the characteristics of routes, which may be considered acceptable for designation as Quiet Lanes. Paragraph 4 defines as "*minor rural roads or networks of minor rural roads appropriate for shared use by walkers, cyclists, horse riders and other vehicles*." It further states, under paragraph 7 that "*designated Quiet Lanes should have no more than about 1000 motor vehicles per day. Vehicle speeds should be kept to levels appropriate to the mix of uses and activities expected to take place, usually with the 85th percentile speed below 35 mph*."

4.15 Whilst Chiswell Green Lane is not designated as a '*Quiet Lane*', due to the lightly trafficked nature and low speed environment present along this section of highway, it is likely to attract a significant number of pedestrian / cycle and equestrian movements over the course of a typical weekday.

4.16 Chiswell Green Lane intersects with the B4630 Watford Road and Tippendell Lane via two double mini-roundabout junctions, approximately 650-metres east of the site's primary access. The B4630 Watford Road is defined as a Secondary Distributor Road within the SACDC Local Plan and extends northwards from The Noke Roundabout, leading through Chiswell Green to link-up with St Albans city centre via the A5183 Stephens Hill double mini-roundabout junction.

4.17 In the vicinity of The Noke Roundabout, the B4630 Watford Road is a wide single carriageway road of between 7.3 and 8.5 metres in width. Footways of approximately 2.0-metres in width and street lighting is provided on both sides of the carriageway.

4.18 The A405 North Orbital Road is a strategic, regional route and defined as a Primary Road within the SACDC Local Plan. The A405 North Orbital Road is a dual two-lane carriageway with each lane measuring circa 7.0-metres in width and is subject to the national speed limit. The carriageway is provided with street lighting and is divided by a wide grassed central reservation.

4.19 The A405 North Orbital Road forms a roundabout junction with the B4630 Watford Road (herein referred to as The Noke Roundabout). The roundabout also provides access to The Noke Thistle Hotel on its north-western side and dropped kerb access to the site. The Noke roundabout is oval-shaped and the circulatory carriageway is provided with sufficient width to accommodate two lanes past each approach arm. The A405 North Orbital Road is provided with two lanes on both approaches to and exit from the roundabout. The B4360 Watford Road is provided with a flared single lane approach and both of the accesses to The Noke Thistle Hotel and the development site are single lane approaches.

4.20 The roundabout is subject to a committed improvement scheme associated with a new hotel development to the south (planning reference 5/2015/0722), known as '*Copsewood*'. This approved application alters the arrangement of the roundabout to allow a fifth arm to the south, which is intended to provide the main vehicular access to the new hotel development.

4.21 To the north-east of the site, the A405 North Orbital Road connects with the A414 at the Park Street Roundabout, which in turn links to the M1 to the west and to the A1 (M) to the east. To the south-west, the A405 North Orbital Road meets the M25 at Junction 21A at a large, grade separated roundabout providing access to the M25 in both directions, as well as the A405 to the south, which allows connections to the M1, via Junction 6. It is understood that the M25 Junction 21A is subject to an improvement scheme, promoted by National Highways. However, no firm details of what this scheme consists of are available at present.

Highway Safety Analysis

4.22 To enable a review of the road safety record in the immediate vicinity of the site, Personal Injury Accident (PIA) data (or collision data) for the latest five-year period ending 30th June 2021 was obtained from HCC.

4.23 PIAs are classified as '*slight*', '*serious*' and '*fatal*' depending on the severity of the injuries sustained. Analysis has been undertaken to ascertain whether there are any trends in the types or location of recorded accidents on the local highway network within the vicinity of the site.

4.24 The study area for the PIA analysis encompassed: -

- The full extent of Chiswell Green Lane between the B4630 Watford Road and Blunts Lane.
- A section of the B4630 Watford Road extending between the bridge over the A414 (East/Westbound) to the Noke Roundabout junction and all intervening intersections.
- The Noke Roundabout junction and associated approach arms.

4.25 A total of 18 PIAs were recorded in the study area including 3 classified as '*serious*' and 15 as '*slight*' (minor). There were 0 '*fatal*' incidents recorded within the study area. A summary of each recorded PIA together with a location plan is attached at Appendix 3 of this report.

4.26 In terms of collision type, a total of 16 (89%) involved collisions between multiple road users, 7 of these (39%) being between cars, 4 (22%) between vehicles and cyclists, 4 (22%) between vehicles and motorcycles and 2 (11%) between vehicles and HGVs. Of the 2 single vehicle incidents, one involved a vehicle with the other involving a motorcycle.

4.27 Of the 3 '*serious*' PIAs which occurred, 2 occurred at the 4-arm Noke Roundabout junction between the B4630 Watford Road and the A414 North Orbital Road. The incidents are described in greater detail below:

4.28 The first '*serious*' involved a pedal cyclist that was traversing the roundabout being hit by a vehicle entering the roundabout travelling west out of the North Orbital Road which had failed to look. It resulted in the cyclist being seriously injured.

4.29 The second '*serious*' involved a single vehicle weaving recklessly through traffic losing control and entering the roundabout central reservation injuring themselves. The driver was noted to be under the influence of alcohol.

4.30 The third '*serious*' incident took place on the B430 Watford Road where a vehicle swerved across the carriageway and hit another vehicle travelling in the opposite direction, causing it to spin-out and collide with a lamp post, leaving the passenger of the hit vehicle seriously injured.

4.31 Of the 15 '*slight*' incidents, 9 of these occurred at the Noke Roundabout junction with 3 in close proximity. The remaining 3 occurred on the B4630 Watford Road and on Chiswell Green Lane.

4.32 From reviewing the descriptions of each PIA it can be deduced that the predominant cause was human error. Most notably, the failure of the car driver to look was referenced in 5 incidences with reckless driving or speeding a factor in another 5 reported PIAS. Wet weather was attributable to 2 of the incidents.

4.33 When this is examined in light of the evidence outlined in Section 6 of the report, which demonstrates that the development proposals would generate a moderate number of vehicular traffic movements over the course of a typical weekday as well as during the AM (08:00 – 09:00) and PM (17:00 – 18:00) peak hour periods, it is clear that the existing trend in PIAs with regards to location and severity would not be exacerbated.

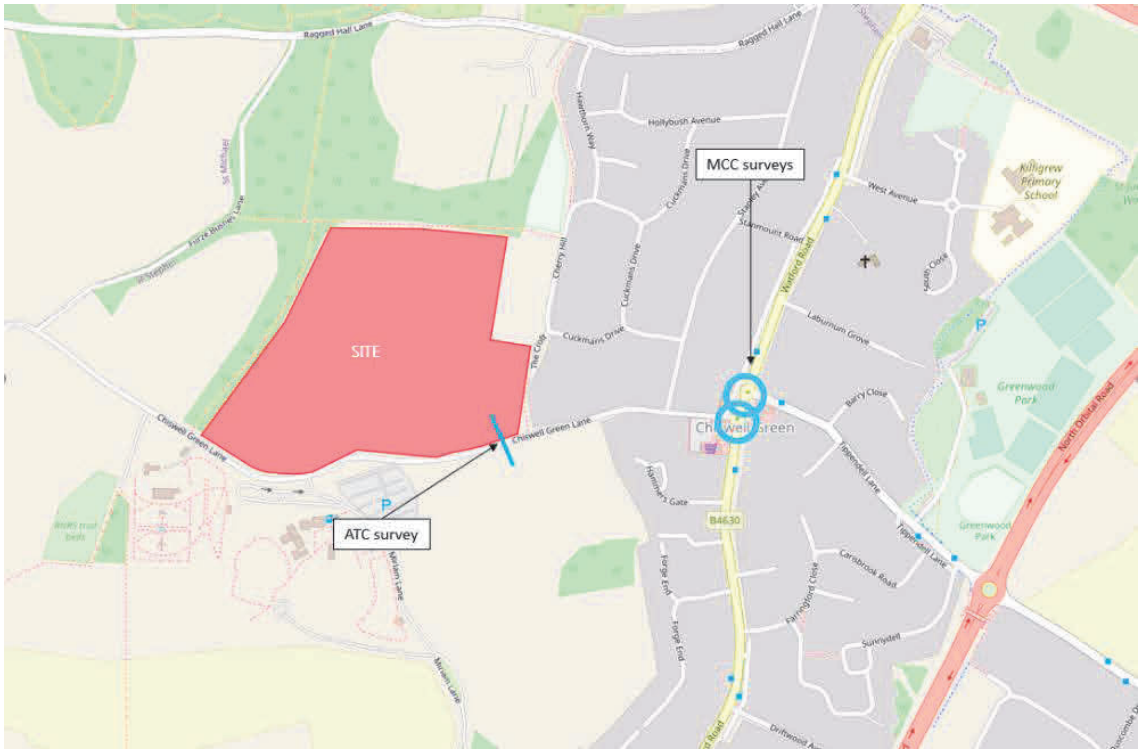
4.34 Consequently, it is concluded that the development proposals would not have a '*severe*' impact on the local highway network, particularly in regards to the conditions of highways safety within the vicinity of the site.

Baseline Traffic Survey Data

4.35 When assessing the potential vehicular traffic implications of a residential development proposal, it is generally accepted by Transport Planning practitioners that the critical periods are the weekday AM (08:00 – 09:00) and PM (17:00 – 18:00) peak hour periods. It is during these periods that the level of vehicular traffic associated with the development proposals as well as that on the local highway network is likely to be at its greatest.

4.36 As shown in Figure 18, the study area encompassed Chiswell Green Lane (vicinity of the site's proposed access) and the double mini-roundabout junctions of the B4630 Watford Road / Tippendell Lane.

Figure 18 Baseline Traffic Data Requirements Plan



4.37 MTP commissioned an independent company (Streetwise Services Limited) to conduct Manual Classified Count (MCC) surveys as during the peak periods (07:00 – 10:00, 16:00 – 19:00) on Thursday 9th September 2021. MTP also commissioned an ATC survey on Chiswell Green Lane for a 7-day period commencing on the 9th September 2021.

4.38 A summary of the 2021 survey results (vehicular movements-only) is presented in Tables 4.1 to 4.3, and a full copy is attached at Appendix 4 of this report.

MCC

4.39 The results of the MCC surveys revealed that the AM and PM peak hours periods for each of the junctions were as follows:

- The 4-arm Mini-Roundabout Junction of the B4630 Watford Road / Tippendell Lane / Local Shops;
    - AM (07:45 – 08:45)
    - PM (17:15 – 18:15)
- The 3-arm Mini-Roundabout Junction of the B4630 Watford Road / Tippendell Lane / Chiswell Green Lane
    - AM (07:45 – 08:45)
    - PM (17:15 – 18:15)

B4630 Watford Road / Tippendell Lane / Local Shops 4-Arm Mini-Roundabout Junction

4.40 As shown in Table 4.1, the results of the MCC survey revealed that the B4630 Watford Road (South) and B4630 Watford Road (North) experience a high volume of vehicular traffic movements during the AM (07:45 – 08:45) and PM (17:15 – 18:15) peak hour periods, respectively.

4.41 Most notably, a total of 1,170 and 1,174 two-way vehicular movements (equivalent to 20 per minute) during the weekday AM peak hour (07:45 – 08:45) period were observed along the sections of the B4630 Watford Road (South) and (North) of the mini-roundabout junction with Tippendell Lane. During the PM peak hour (17:15 – 18:15), a total of 1,434 and 1,726 two-way movements (equivalent to 24 and 29 per minute were observed along the sections of the B4630 Watford Road (South) and (North) of the mini-roundabout junction with Tippendell Lane.

4.42 A total of 691 and 636 two-way vehicular movements (equating to 12 and 11 per minute) were observed along Tippendell Lane during the weekday AM (07:45 – 08:45) and PM (17:15 – 18:15) peak hour periods, respectively.

4.43 The parade of shops situated off the south-eastern corner of the B463 Watford Road / Tippendell Lane roundabout junction experienced a low number (i.e. 30 and 20) two-way vehicular movements during the weekday AM (07:45 – 08:45) and PM (17:15 – 18:15) peak hour periods, respectively.

Table 4.1 B4630 Watford Road / Tippendell Lane / Local Shops 4-Arm Mini-Rdbt Junction

Arm	Movement	Time Periods	
		AM (07:45 – 08:45)	PM (17:15 – 18:15)
B4630 Watford Road (North)	Left to Tippendell Lane	202	179
	Left to Local Shop Access	4	2
	Straight Ahead to B4630 Watford Road (South)	416	508
Tippendell Lane	Left to Local Shop Access	6	2
	Left to B4630 Watford Road (South)	130	101
	Right to B4630 Watford Road (North)	277	281
Local Shop Access	Left to B4630 Watford Road (South)	8	3
	Right to B4630 Watford Road (North)	4	4
	Right to Tippendell Lane	4	5
B4630 Watford Road (South)	Straight Ahead to B4630 Watford Road (North)	547	752
	Right to Tippendell Lane	67	61
	Right to Local Shop Access	4	6
TOTALS		1,669	1,904

B4630 Watford Road / Chiswell Green Lane 4-Arm Mini-Rdbt Junction

4.44 As shown in Table 4.2, the results of the MCC survey revealed that the B4630 Watford Road (South) and B4630 Watford Road (North) experience a high volume of vehicular traffic movements during the AM (07:45 – 08:45) and PM (17:15 – 18:15) peak hour periods, respectively.

4.45 Most notably, a total of 1,170 and 1,174 two-way vehicular movements (equivalent to 20 per minute) during the weekday AM peak hour (07:45 – 08:45) period were observed along the sections of the B4630 Watford Road (South) and (North) of the mini-roundabout junction with Chiswelll Green Lane. During the PM peak hour (17:15 – 18:15), a total of 1,357 and 826 two-way movements (equivalent to 23 and 14 per minute were observed, respectively.

4.46 A total of 410 and 314 two-way vehicular movements (equating to 7 and 5 per minute) were observed along Chiswell Green Lane during the weekday AM (07:45 – 08:45) and PM (17:15 – 18:15) peak hour periods, respectively.

Table 4.2 B4630 Watford Road / Chiswell Green Lane 4-Arm Mini-Rdbt Junction

Arm	Movement	Time Periods	
		AM (07:45 – 08:45)	PM (17:15 – 18:15)
B4630 Watford Road (North)	Straight Ahead to B4630 Watford Road (South)	418	509
	Right to Chiswell Green Lane	136	104
Chiswell Green Lane	Left to B4630 Watford Road (North)	71	94
	Right to B4630 Watford Road (South)	43	46
B4630 Watford Road (South)	Left to Chiswell Green Lane	160	70
	Straight Ahead to B4630 Watford Road (North)	549	731
TOTALS		1,377	1,554

ATC

4.47 To assess the operational characteristics of Chiswell Green Lane and inform the geometric design of the site's proposed access, an Automatic Traffic Counter (ATC) was installed for a 7-day period commencing the 9th September 2021. The ATC gathered both classified volumetric and vehicular speed data for a 7-day period.

4.48 As shown in Figure 19, the ATC was attached to the transition zone signage of the 30-mph / national speed limit along Chiswell Green Lane.

Figure 19 View of ATC Installed along Chiswell Green Lane

4.49 Table 4.3 provides a summary of the observed two-way, average weekday flows and 85th percentile speeds within the vicinity of the site's proposed access. A copy of the results is attached at Appendix 5 of this report.

Table 4.3 Summary of ATC Survey along Chiswell Green Lane

Direction	Daily (00:00 – 24:00) 5 Day Ave.	AM Peak (08:00 – 09:00) 5 Day Ave.	PM Peak (17:00 – 18:00) 5 Day Ave.	Average Speed*	85th Percentile Speed*
Eastbound	418	41	42	22.9	28.4
Westbound	317	28	25	23.4	28.2
TOTALS	735	69	67	-	-

* Based on 7-Day Average

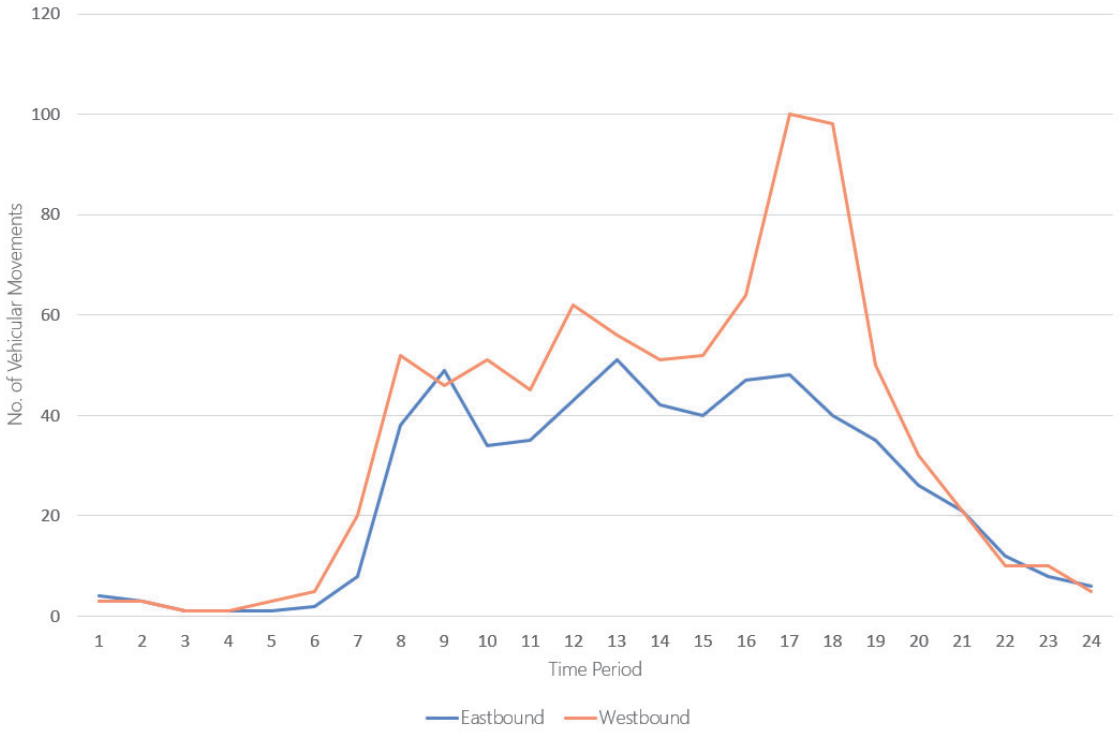
4.50 The results of the ATC survey reveal that the section of Chiswell Green Lane adjacent to the site's southern frontage experiences a low volume of vehicular movements over the course of a typical weekday.

4.51 The average total daily flow (AADT) comprised of 735 two-way movements (418 eastbound and 317 westbound). Of these, a total of 69 and 67 two-way vehicular movements were observed during the weekday AM (08:00 – 09:00) and PM (17:00 – 18:00) peak hour periods, equating to circa 1 two-way movement every minute.

4.52 As shown in Figure 20, based on a 7-day average, the predominant (59%) flow of vehicular traffic movements along Chiswell Green Lane was in a westbound direction. Significantly more vehicular movements were observed in a westbound direction during the PM peak period of 16:00 – 19:00.

4.53 The 85th percentile speeds were observed to be 28.4 and 28.2-mph in an east and westbound direction respectively, well below the 30-mph and 60-mph posted speed limit. As mentioned previously, the narrow configuration of Chiswell Green Lane and restricted forward visibility is likely to influence motorised users to travel at low speeds.

Figure 20 Daily Profile of Vehicular Movements along Chiswell Green Lane



Baseline Junction Capacity Assessments

4.54 To establish the current performance of key local junctions during the AM and PM peak hour periods, the '2021 Base' flows were modelled using the 'Junctions 9' tool, which comprises PICADY / ARCADY software.

4.55 PICADY / ARCADY provide an assessment of the operational capacity of a junction through the Ratio of Flow to Capacity (RFC) with commonly accepted standards of a junction with RFC values of 0.85-0.9 and below considered to be operating within its theoretical capacity and junctions with RFC values over this suggest they may be operating at the higher end of their capacity. A copy of the junction capacity assessment outputs is attached at Appendix 13 of this report.

B4630 Watford Road / Chiswell Green Lane / Tippendell Lane Double Mini-Roundabout Junction

4.56 Table 4.4 reveals that under the surveyed conditions, the southern arm (B4630 Watford Road) of the 3-arm roundabout junction of the B4630 Watford Road / Chiswell Green Lane operates near to its maximum theoretical capacity during the weekday AM and PM peak hour periods.

4.57 In addition, the results demonstrate that the northern and eastern arms of the 3-arm roundabout junction of the B4630 Watford Road / Tippendell Lane operate

Table 4.4 B4630 WR / TL / CGN Lane Double Mini-Rdbt Junc – 2021 Base

Arm	AM Peak Hour (07:45 – 08:45)			PM Peak Hour (17:15 – 18:15)		
	RFC	Queue (PCU)	Delay (S)	RFC	Queue (PCU)	Delay (S)
Southern						
Watford Road (S)	0.90	7.3	36.14	0.99	18.5	77.22
Chiswell Green Lane	0.33	0.5	13.92	0.58	1.3	31.24
Watford Road	0.51	1.0	6.30	0.55	1.2	6.70
Northern						
Watford Road (N)	0.87	6.0	33.63	0.95	11.3	57.11
Tippendell Lane	1.00	15.0	117.83	1.03	17.6	144.52
Watford Road	0.55	1.2	6.59	0.72	2.5	10.50

Summary

4.58 The review of the baseline highway conditions reveals that: -

- Chiswell Green Lane experiences a low volume of vehicular traffic movements throughout the weekday AM (08:00 – 09:00) and PM (17:00 – 18:00) peak hour period, equivalent to circa 1 two-way movement every minute, respectively. The 85th percentile speeds of vehicles travelling in an east and westbound direction, adjacent to the site's southern frontage was observed to below the 30-mph / 60-mph posted speed limit.
- The results of the baseline junction capacity assessments demonstrate that 4 of the arms of the double mini-roundabout junction of the B4630 Watford Road / Chiswell Green Lane / Tippendell Lane operate close to or over capacity during the weekday AM and PM peak hour periods.
- The review of highway safety revealed that no PIAs occurred within the vicinity of the site's proposed access along Chiswell Green Lane. The majority of the PIAs were recorded on the approach arms of '*The Noke Roundabout*' junction.

5. Proposed Development and Access Strategy

Overview

5.1 The development proposals comprise the erection of up to 330 residential units (i.e. 32 x one-bed, 116 x two-bed, and 182 x three-bed, Under Use Class C3) together with the creation of a new access, internal roads / footpaths, car parking, cycle / refuse storage, public open space, and soft landscaping together with other supporting infrastructure and utilities on land north of Chiswell Green Lane in Chiswell Green, Hertfordshire

5.2 A proposed masterplan layout plan, prepared by Tom Gristwood Architects is attached as Appendix 6 of this report. As shown in Table 5.1, 100% of the residential units would be comprised of affordable housing.

Table 5.1 Schedule of Accommodation

Description / House Type	No. of Units	%
1-Bedroom Dwelling	32	10%
2-Bedroom Dwelling	116	35%
3-Bedroom Dwelling	182	55%
TOTAL	330	100%

Proposed Movement and Access Strategy

5.1 The proposed development is supported by a comprehensive Movement and Access Strategy (MAS) developed in the context of the current policy framework. This will provide a balanced approach between the various road user functions, taking account of constraints and opportunities. The MAS has been informed by key guiding principles, including:

- The promotion of road safety;
- Sustainability - minimising impact on the environment;
- Integration with the local community, promoting accessibility by non-car modes of travel; and
- The operational efficiency of the local and strategic networks.

5.2 The following sub-sections provide further detail in respect of the MAS by road user function.

Proposed Access Arrangements

Primary Access

5.3 Vehicular, pedestrian and cycle access to the proposed development would be achieved by the creation of a priority give-way junction located off the northern side of Chiswell Green Lane, approximately 45.0 and 400.0-metres west of the access track forming FB82 and the double mini-roundabout junction with the B4630 Watford Road / Tippendell Lane, respectively.

5.4 As shown on Drawing No. 21-086 / 001 Rev B (attached), the geometric design of the access would take the form of a bellmouth junction with 6.0-metre kerb radii and a 5.5-metre-wide access road, sufficient to accommodate the simultaneous entry and exit movements of various sized vehicles.

5.5 As part of the proposed access design, a short section of the carriageway of Chiswell Green Lane to the east of the site's access would be narrowed to 3.5-metres in width, to promote one-way operation (priority afforded to westbound traffic movements). This feature would influence motorised users to travel at low speeds (i.e. sub-30-mph) in both an east and westbound direction along Chiswell Green Lane.

5.6 The existing 30-mph posted speed limit would also be extended to a point beyond the west of the site's proposed access to ensure car drivers are afforded sufficient inter-visibility with other motorised and non-motorised users. The section of Chiswell Green Lane to the west would remain unchanged / maintained as a quiet rural lane, to discourage motorised users from '*rat running*' to local destinations (e.g. Bedmond).

5.7 The design of the proposed access would require the full utilisation of the public highway, and result in the displacement of parked vehicles, likely to be in association with No.'s 46 and 48 Chiswell Green Lane. To compensate for the loss of off-street parking, the design includes the provision of 3 parallel parking bays within a section of the public highway located off the southern side of the carriageway. The provision of these spaces would require the removal of two mature trees.

5.8 To inform the design and optimum position of the access, the 85th percentile speeds from the ATC survey along Chiswell Green Lane, was used to calculate the required visibility splays based on the stopping sight distance formula, as set out in the DfT's '*Manual for Streets 1*' (MfS1) publication.

Visibility / Sight Line Requirements

5.9 Guidance on the visibility splay requirements for existing and proposed junctions and accesses is set out in the DfT's MfS2 '*Wider Application of the Principles*' (September 2010) publication.

5.10 Section 10 of the MfS2 document titled '*Visibility*' defines stopping sight distances as the *"the distance drivers need to be able to see ahead and they can stop within from a given speed. It is calculated from the speed of the vehicle, the time required for a driver to identify a hazard and then begin to brake (the perception-reaction time), and the vehicle's rate of deceleration."*

5.11 Paragraph 10.4.1 states that *"the visibility splay at a junction ensures that there is adequate inter-visibility between vehicles on the major and minor arms."*

5.12 When establishing visibility at a junction / access, there are two key dimensions to consider known as the '*X*' and '*Y*' distances. The '*X*' distance is measured from the nearside edge of the carriageway back to the position of a car driver's eye line, which is commonly accepted to be 2.4-metres and at a height of 1.05-metres above the carriageway of the minor road. The '*Y*' distance represents the distance that a car driver emerging from a minor arm can see approaching traffic to the left and right along the main alignment. It is measured from the centre line of the access to the nearside kerb of the main aim.

5.13 With reference to the existing traffic conditions and semi-rural nature of Chiswell Green Lane in the vicinity of the proposed access, it is considered appropriate to apply the MfS1 stopping sight distance parameters (i.e. perception-reaction time of 1.5 seconds and a deceleration rate of 0.45g (4.41m/s^2) for determining the visibility splay requirements in the leading (right of access) and trailing (left of access) direction.

5.14 As noted previously, the 85th percentile speeds in an east and westbound direction along Chiswell Green Lane were marginally below the 30-mph posted speed limit. However, as shown on shown on Drawing No. 21-086 / 001 Rev B (attached), visibility splays measuring 2.4-metres (X-distance) x 43.0-metres (Y-distance) can be achieved to the right (leading traffic direction) and left (trailing traffic direction) edge of carriageway within land under the applicants' full control and extent of publicly maintainable highway, a copy of which is attached at Appendix 7 of this report.

5.15 On the basis that the design of the proposed access can achieve visibility splays in excess of the observed speeds and the stopping distance parameters set out in the DfT's MfS1 publication, it is considered that car drivers would be afforded sufficient inter-visibility with other road users, thereby enabling safe manoeuvres to be undertaken at the two-way priority junction with Chiswell Green Lane.

Secondary Access

5.16 A secondary emergency vehicle access measuring circa 5.0-metres in width would be located off the western side of The Croft. Pedestrians and cyclists would be prohibited from using the emergency vehicle access.

Internal Layout

5.17 The internal layout of the masterplan would reflect the principles of MfS1 and Policy 1 of HCC's LTP4 publication by creating a layout with safe routes for vehicular traffic, but which ultimately promotes the interests of residents as pedestrians and cyclists, providing optimal access to local amenities and sustainable transport connections.

5.18 The aim is to encourage the use of walking and cycling within the proposed development and to surrounding amenities. This will be achieved by combining the provision of new and improved infrastructure and with the implementation of a Residential Travel Plan.

5.19 Achieving an increase in walking and cycling will be accomplished through the following broad strategy:

- Provide a continuous network;
- Maximise convenience by ensuring that all routes reflect desire lines of movement;
- Ensure that usable, comfortable places are created and that crossing places are level;
- Make routes clear and easy to follow with good sightlines and signage, and;
- Create spaces that are safe, active, and accessible to all.

5.20 Overall, a high-quality environment for both pedestrians and cyclists will be created internally that provides direct connections within the site and beyond, creating a development that is permeable with coherent, safe routes that reflect desire lines of the residents.

Shared Foot / Cycleway

5.21 The design of the proposed access would also incorporate a shared foot / cycleway measuring 3.0-metres in width on the eastern side of the proposed access road. This would connect to a new shared foot / cycleway running in an easterly direction along the full length of the northern side of Chiswell Green Lane and tie into existing infrastructure either side of the double mini-roundabout junction of the B4630 Watford Road / Tippendell Lane.

5.22 As shown on Drawing No. 21-086 / 002 (attached), the width of the carriageway way of Chiswell Green Lane would be reduced to 5.5-metres, to accommodate a raised table feature at the intersection with Stanley Avenue and allow priority to be afforded to pedestrians and cyclists over motorised users. Further this would enable existing trees and a telegraph pole currently located in the highway verge to be retained. The provision of this feature would also discourage future households from '*rat-running*' via Stanley Avenue, in attempting to gain access to the B4630 Watford Road through bypassing the double mini-roundabout junctions.

5.23 A similar raised table feature would be provided at the junction of Chiswell Green Lane and Watford Road (Minor), the latter providing direct access to the parade of shops located off the western side of the B4630 Watford Road. It is proposed that the shared foot / cycleway would extend around the north-western corner of the mini-roundabout junction of the B4630 Watford Road / Chiswell Green Lane, prior to adjoining an upgraded Zebra Crossing positioned on a raised table.

5.24 The footway located along the eastern side of the Zebra Crossing would be upgraded to a shared foot / cycleway and widened to circa 5.5-metres in width. This would continue in a north-easterly direction to a shared space raised table at the junction of Tippendell Lane and access road serving the parade of shops situated off the eastern side of the B4630 Watford Road. Bollards would be installed at the back edge of the shared foot / cycleway to prevent encroachment from motorised users accessing the local shops.

5.25 The footway along the eastern side of the access road serving the local shops would comprise of dropped kerbs to enable vehicles to enter and exit the area of hardstanding that is used for parking, adjacent to the main entrances.

5.26 The provision of this new infrastructure would provide convenient, direct, and safe walking and cycling routes to public transport infrastructure / services as well as a range of amenities available in Chiswell Green village centre and beyond.

Proposed Parking Arrangements

Car

5.27 Guidance on car parking standards for residential development proposals is detailed in SACDC's Local Plan Review 1994 ("*saved*" policies), and '*Revised Parking Policies and Standards*' (January 2002) documents.

5.28 Policy 40 of the current adopted Local Plan specifies the following maximum standards for residential development proposals:

- 1-bedroom dwellings (including studios): 1.5 spaces (either 1.5 unallocated, or 1 allocated and 0.5 unallocated).
- 2-bedroom dwellings: either 2 spaces (either 2 unallocated or 1 allocated and 1 unallocated) or 2.5 spaces (2 allocated and 0.5 unallocated).
- 3-bedroom dwellings: 2 allocated and 0.5 unallocated.
- 4 or more-bedroom dwellings: 3 allocated and 0.5 unallocated spaces.

5.29 The '*Revised Parking Policies and Standards*' document presents a zonal approach for the implementation of maximum parking standards. For residential development proposals situated in Zone 1 (which includes the site), the guidance states that while applicants are required to meet the above-mentioned standards, the Council may accept schemes slightly below the standards.

5.30 When applying the above-mentioned car and cycle parking standards to the current iteration of the masterplan, a total of 791 car parking spaces including 626 allocated and 165 unallocated (visitor) spaces would be required to ensure compliance.

5.31 To determine the existing car ownership of households in the local area, 2011 Census data on '*car or van availability*' for St Albans 020 Middle Layer Super Output Areas (MSOA), in which the site is located, have been extracted from the Nomis website and averaged. The car ownership is presented in Table 4.2, while a copy of the 2011 Census output is attached as Appendix 8 of this report.

Table 5.2 2011 Car Ownership Data (St Albans 020 MSOA)

Cars	Number of cars	%
All categories: Car or Van availability	3,080	100%
No cars or vans in household	243	8%
1 car or van in household	1,113	36%
2 cars or vans in household	1,242	40%
3 cars or vans in household	313	10%
4 or more cars or vans in household	169	5%

5.32 Analysis of the 2011 Census car ownership data reveals that the average number of cars per household is 1.7. Based on the reasonable assumption that future households would adopt similar levels of car ownership, a development comprising of 330 residential units would require a total of 559 car parking spaces would be required to satisfy potential demand.

5.33 However, since the development proposals are only indicative in nature, the provision of car parking in accordance with SADC's car parking standards and current levels of car ownership of existing households from the 2011 census will be considered in greater detail, as part of a Reserved Matters (RM) planning application.

5.34 In addition, the proposed masterplan shows the provision of a dedicated car parking facility for the memorial park located in the site's south-eastern corner. This facility would prevent the potential for visitors to park vehicles along either side of the carriageway. Further, it would be gated to prevent the misuse by non-visitors.

Cycle

5.35 Regarding cycle parking, the adopted standards require 1 long-term cycle space per residential unit in the form of garages / sheds for houses and communal covered stores for apartments. In addition, 1 short-term space per 3 units plus 1 long-term space per 5 units is also required.

5.36 To ensure compliance with adopted cycle parking standards, it is envisaged that the emerging masterplan for a development proposal would provide sufficient space for the storage of cycles within the curtilage of each residential unit, in the form of garages / garden sheds for each of the houses. For flats / apartments and the commercial uses, dedicated sheltered cycle stores will be provided to accommodate the cycle parking space requirement.

5.37 As previously mentioned, the proposed level and type of cycle parking will be considered in greater detail as part of the RM planning application.

Proposed Delivery / Servicing Arrangements

Waste Refuse and Recycling

5.38 Waste refuse and recycling collections for the proposed development would predominately take place on-street within the internal road layout.

5.39 Bin stores would be located conveniently throughout the site to ensure compliance with the maximum carry distances for both residents (i.e. 30-metres) and waste operatives (i.e. 25-metres), as recommended in '*Schedule 1, Part H of the Building Regulations 1*' (2000), as outlined in the DfT's MfS1 guidance.

5.40 As shown on Drawing No. 21-086 / TK01 Rev A (attached), it is evident that a large refuse truck can enter, exit, and turn within the proposed masterplan layout in a safe and convenient manner without overrunning adjacent footways, parking spaces or areas of soft landscaping.

Emergency Access

5.41 With regards to emergency access, '*The Building Regulations Approved Document B Section B5 Access and Facilities for the Fire Service*' document states that *"there should be vehicle access for a pump appliance within 45m of every dwelling entrance for flats / maisonettes."*

5.42 Based on the layout of the masterplan, and as shown on Drawing No. 21-086 / TK02 Rev A (attached), a fire tender truck can access all of the residential units comprising the within the 45.0-metre threshold.

5.43 Consequently, it is concluded that the proposed masterplan layout is acceptable for delivery / servicing and emergency vehicles access.

6. Multi-Modal Trip Generation & Impact Assessment

6.1 This section of the report sets out the methodology for assessing the multi-modal trip generating potential of the development proposal and associated impact on the surrounding local highway and transport networks over the course of a weekday and during the AM (08:00 – 09:00) and PM (17:00 – 18:00) peak hour periods.

Existing Site Operation

6.2 As noted previously in Section 3, the site currently comprises open arable fields, which would generate a low number of vehicular traffic movements over the course of a typical weekday. Given the immaterial trip generating characteristics, it is not considered necessary to deduct these from the anticipated traffic generation of the development proposals. Consequently, for the purposes of presenting a robust assessment, all trips associated with the development proposals would be 'new' to the local highway and transport networks.

Proposed Site Operation

6.3 The TRICS database (Version 7.8.1) was interrogated to identify sites with similar characteristics in regards to location, accessibility to public transport services and on-site parking provision, under the land use category *'03 Residential – M – Mixed Private / Affordable Housing'* for the purposes of establishing the anticipated person / multi-modal trip generation of the development proposals.

6.4 A summary of the total person trip rates and corresponding movements over the course of a typical weekday (07:00 – 19:00) as well as during the AM (08:00 – 09:00) and PM (17:00 – 18:00) peak hour periods for the development proposals is set out in Table 6.1. A copy of the TRICS Outputs is attached at Appendix 9 of this report.

6.5 Table 6.1 reveals that the development proposals would have the potential to generate in the order of 2,584 two-way person trips over the course of a typical weekday including 296 and 242 during the AM (08:00 – 09:00) and PM (17:00 – 18:00) peak hour periods, respectively.

Table 6.1 Person Trip Rates / Generation – 'Mixed Private / Affordable Housing' (330-Units)

Time Period	Trip Rates			Total Person Movements		
	Arrivals	Departures	Total	Arrivals	Departures	Total
AM Peak	0.191	0.705	0.896	63	233	296
PM Peak	0.446	0.287	0.733	147	95	242
Daily	3.907	3.922	7.829	1,289	1,294	2,584

6.6 To determine the likely multi-modal trip generating potential of the development proposals, the total person movements of the residential use have been cross referenced with '*Method of travel to work*' data from the 2011 Census for the '*St Albans 020*' Middle Super Output Area (MSOA) in which the site is located within. This data was extracted from the Nomis website. The modal split of journeys to work is presented in Table 6.2, whilst a copy of the 2011 Census output is appended at Appendix 10 of this report.

Table 6.2 2011 Census Method of Travel to Work Modal Split (St Albans 020 MSOA)

Mode	Count	%
Car Driver	2,639	75%
Car Passenger	138	4%
Public Transport Users	445	13%
Pedestrians	168	5%
Cyclists	33	1%
Other	78	2%
TOTAL		100%

*Includes Motorcycle, Scooter / Moped, Taxi and Other

6.7 It is evident from reviewing Table 6.2 that approximately three quarters (75%) of all households living within the area surrounding the site are dependent on travelling by private car for their journey to / from various workplace destinations. An additional 13% regularly travel by public transport (9% by train, 2% by underground, and 2% by bus / minibus / coach. Approximately 6% travel by the '*active*' modes of walking and cycling.

6.8 As shown in Table 6.3, the development proposals would have the potential to generate a total of 2,584 two-way person trips over the course of a typical weekday. Approximately 1,947 of these would be undertaken by private car, 328 by public transport, and 148 by the '*active*' modes of walking and cycling.

Table 6.3 Daily (07:00-19:00) Trip Generation - *'Mixed Private / Affordable Housing'* (330-Units)

Mode	Arrivals		Departures		Total	
	Trip Rate	No. Trips	Trip Rate	No. Trips	Trip Rate	No. Trips
Car Driver	2.945	972	2.956	976	5.901	1947
Car Passenger	0.154	51	0.155	51	0.309	102
Public Transport	0.497	164	0.499	165	0.995	328
Pedestrians	0.187	62	0.188	62	0.376	124
Cyclists	0.037	12	0.037	12	0.074	24
Other	0.124	41	0.124	41	0.248	82
TOTAL	3.907	1,289	3.922	1,294	7.829	2,584

6.9 As indicated in Table 6.4, the development proposals would have the potential to generate in the order of 296 and 242 two-way person trip movements during the AM (08:00 – 09:00) and PM (17:00 – 18:00) peak hour periods respectively. Of these, approximately 223 and 182 would comprise private car trips, 38 and 31 by public transport and 17 and 14 by the '*active*' modes of walking and cycling.

Table 6.4 AM & PM Peak Trip Generation - *'Mixed Private / Affordable Housing'* (330-Units)

Mode	AM Peak (08:00-09:00)				PM Peak (17:00-18:00)			
	Arrivals		Departures		Arrivals		Departures	
	Trip Rate	No. Trips	Trip Rate	No. Trips	Trip Rate	No. Trips	Trip Rate	No. Trips
Car Driver	0.144	48	0.531	175	0.336	111	0.216	71
Car Passenger	0.008	2	0.028	9	0.018	6	0.011	4
Public Transport	0.024	8	0.090	30	0.057	19	0.036	12
Pedestrians	0.009	3	0.034	11	0.021	7	0.014	5
Cyclists	0.002	1	0.007	2	0.004	1	0.003	1
Other	0.006	2	0.022	7	0.014	5	0.009	3
TOTAL	0.191	63	0.705	233	0.446	147	0.287	95

6.10 The anticipated vehicular traffic generation of the development proposals would equate to an additional 3 to 4 two-way movements per minute along Chiswell Green Lane during the weekday AM (08:00 – 09:00) and PM (17:00 – 18:00) peak hour periods, respectively.

Trip Distribution

6.11 The distribution of vehicular traffic movements likely to be generated by the development proposals has been based on origin-destination dataset 'Location of Usual Residence and Place of Work by Method of Travel to Work' (WU03EW) for the St Albans 020 MSOA, which encompasses the site. This dataset was extracted from the 2011 Census via the Nomis (Official Labour Market Statistics) website.

6.12 This approach is considered to be representative of local characteristics of trip origins and destinations from the existing residential areas of Chiswell Green, Bricket Wood and How Wood.

6.13 Table 6.5 summarises the geographic extent / range of destinations (i.e. 30 trips or more) in which households living in the St Albans 020 MSOA regularly travel for journeys to work. The full output is attached at Appendix 11 of this report.

Table 6.5 Car / Van Driver Travel to Work Destinations (St Albans 020)

Middle Super Output Area / Destination	Count	%
St Albans 020 – Bricket Wood, Chiswell Green, and How Wood, and Park Street	123	9.9%
St Albans 012 - St Albans City Centre	117	9.4%
Watford 009 - Watford City Centre	85	6.9%
St Albans 014 - St Albans Abbey West/St Stephens	53	4.3%
St Albans 019 - How Wood	51	4.1%
Welwyn Hatfield 010 - Hatfield West	50	4.0%
Dacorum 013 – Adeyfield / Hemel Hempsted East	41	3.3%
Watford 005 - Watford North	35	2.8%
St Albans 017 - South St Albans Abbey	33	2.7%
St Albans 011 - Fleetville	31	2.5%
Other	622	50.1%
TOTAL	1,241	100%

Trip Assignment

6.14 To inform the assignment of vehicular trips onto the local highway network, Google Maps software has been used to identify the most likely routes from the site to the key local and regional destinations identified in the trip distribution exercise.

6.15 As shown in Table 6.6, it is evident that the majority (96.8%) of vehicular traffic generated by the development proposals would travel in an easterly direction along Chiswell Green Lane towards the double mini-roundabout junctions with the B4630 Watford Road / Tippendell Lane. This would equate to a total of 218 and 178 two-way vehicular movements during the weekday AM (08:00 – 09:00) and PM (17:00 – 18:00) peak hour periods, respectively. Only a small proportion (3.2%) of vehicular traffic, equating to 4 two-way movements would travel to / from the proposed development via the western section of Chiswell Green Lane.

6.16 Beyond the mini-roundabout junction of the B4630 Watford Road / Chiswell Green Lane, approximately 66% of vehicular traffic would head in a northerly direction. On reaching the mini-roundabout junction of the B4630 Watford Road / Tippendell Lane, approximately 43% of vehicular traffic would turn right and head in a south-easterly direction along Tippendell Lane and the A405 North Orbital Road. A total of 23% of vehicular traffic would head in a northerly direction along the B4630 Watford Road.

6.17 Approximately 32% of vehicular traffic (equivalent to 71 and 58 two-way movements) would head in a north / southbound direction along the B4630 Watford Road to / from The Noke Roundabout junction during the weekday AM (08:00 – 09:00) and PM (17:00 – 18:00) peak hour periods, respectively.

Table 6.6 Trip Distribution Summary

Route Reference	Route Description	%
A	Chiswell Green Lane (East) and B4630 Watford Road (North)	23.4%
B	Chiswell Green Lane (East), B4630 Watford Road (North), Tippendell Lane, and A405 North Orbital Road (North)	30.3%
C	Chiswell Green Lane (East), B4630 Watford Road (North), and Tippendell Lane	11.5%
D	Chiswell Green Lane (East), B4630 Watford Road (South), and A405 North Orbital Road (South)	31.6%
E	Chiswell Green Lane (West)	3.2%
TOTALS		100%

7. Highway and Transport Impact Assessment

7.1 This section of the TA assesses the impact of development-related trips on the capacity, safety and operational and safety characteristics of the surrounding highway and transport networks.

Committed Development

7.2 In accordance with HCC's pre-application advice, the highway impact assessment includes the following committed developments: -

- Radlett Rail Freight Terminal; and
- The Hilton Hotel situated off The Noke Roundabout junction

7.3 Following a review of the planning application (Reference: 5/09/0708) for the approved rail freight interchange, public open space, and community forest sites, off the A406 North Orbital Road, it was concluded that the development proposal would not have a material impact on the local highway network comprising the study area of the TA.

7.4 The approved development (Planning Application Reference: 5/2015/0722) located off The Noke Roundabout comprised the erection of a 150-bed 4-star hotel with associated function centre and parking for 170 cars, realignment of roundabout and retention of a bungalow at Copsewood.

7.5 Details on the anticipated traffic generation of the approved Hilton Hotel development during the weekday AM (08:00 – 09:00) and PM (17:00 – 18:00) peak hour periods were extracted from the TA submitted in support of the approved planning application.

Future Year Scenarios

7.6 Traffic growth predictions for the proposed assessment years were taken from Trip End Model Program (TEMPro) v7.2c to predict the level of background traffic growth within the local area between the surveyed years and a future year, set at 2026 (five years from the application year).

7.7 Table 7.1 presents a summary of the growth rates, which are included at Appendix 12 of this report. The growth rates were based on the following parameters:

- Result type - Trip ends by time period;
- Transport mode – Car driver;
- Trip end type – Origin/Destination;
- Area type – Urban;
- Road type – All;
- Area it serves – Region; and
- MSOA 'St Albans 020'

Table 7.1 TEMPro Outputs

Baseline	Future Year	AM Peak Growth Factor	PM Peak Growth Factor
2021	2026	1.0663	1.0672

7.8 It is considered that that growth factors obtained from TEMPro v7.2c are extremely robust for the purposes of this assessment given that:

- It assumes that future increases in car ownership and traffic patterns would be unaffected by the COVID-19 pandemic, and;
- Future working patterns would return to pre COVID-19 pandemic conditions without change.

Junction Capacity Analysis

7.9 This section of the report assesses the potential impact of the development proposals on the capacity of the following junctions during the AM and PM peak hour periods.

- Chiswell Green Lane / Proposed Site's Access; and
- B4630 Watford Road / Chiswell Green Lane / Tippendell Lane Double-Mini-Roundabout Junction.

7.10 As noted previously, the results of the MCC survey undertaken at the 3-arm mini-roundabout junction of the B4630 Watford Road / Chiswell Green Lane, revealed that the B4630 Watford Road experiences in the order of 1,357 and 1,170 two-way vehicular movements during the weekday AM (08:00 – 09:00) and PM (17:00 – 18:00) peak hour periods, respectively.

7.11 The development proposals are anticipated to generate in the order of 71 and 58 two-way vehicular movements along the B4630 Watford Road during the weekday AM (08:00 – 09:00) and PM (17:00 – 18:00) peak hour periods, respectively. In comparison with the observed baseline traffic flows, this equates to circa 5%. On this basis, and following pre-application advice with HCC Highways, it is not considered necessary to assess the impact of the development proposals on the 4-arm Noke Roundabout junction.

7.12 The industry standard junction modelling tool, Junctions 9, which consists of PICADY, and ARCADY has been used to determine the operations of junctions with existing recorded traffic levels and forecast future traffic flows based on TEMPro.

7.13 PICADY and ARCADY provide an assessment of the operational capacity of a junction through the Ratio of Flow to Capacity (RFC) with commonly accepted standards of a junction with RFC values of 0.85-0.9 and below considered to be operating within its theoretical capacity and junctions with RFC values over this suggest they may be operating at the higher end of their capacity. All junction capacity assessment outputs are provided at Appendix 13 of this report.

7.14 The sequence of Flow Diagrams, which show the calculated traffic flows are summarised in Table 7.2. A copy of the Flow Diagrams is attached at Appendix 14 of this report.

Table 7.2 Sequence of Traffic Flow Diagrams

Figure No.	Description
1 & 2	2021 Surveyed Flows AM and PM Peak Hour Periods
3 & 4	2026 Surveyed Flows AM and PM Peak Hour Periods
5 & 6	Committed Development AM and PM Peak Hour Periods
7	Development Distribution
8 & 9	Development AM Peak and PM Peak Hour Flows
10 & 11	Future Year 2026 + Committed + Development AM and PM Peak Hour Flows

7.15 Analysis has been undertaken to make comparison between '2026 *Base' and '2026 Base + Committed Development + Development*' traffic conditions on the local highway network within the vicinity of the site under the future assessment year of 2026 (5-years post application).

7.16 The purpose of the junction capacity assessments is to establish the potential impact of development-related traffic flows during the weekday AM and PM peak hour periods, which based on the results of the MCC surveys are identified as being broadly 08:00 – 09:00 and 17:00 – 18:00.

Chiswell Green Lane / Site's Access Give-Way Priority Junction

7.17 It is evident from Table 7.3 that the site's proposed priority give-way junction off the northern side of Chiswell Green Lane would operate within capacity with minimal queue lengths and delays on the minor arm (site access) during the '*2026 Base + Committed Development + Development*' future year scenarios.

Table 7.3 Chiswell Green Lane / Site's Access – '2026 Base + Committed Development + Dev''

Arm	AM Peak		PM Peak	
	Max RFC	Queue (Veh)	Max RFC	Queue (Veh)
Stream B-AC*	0.31	0.4	0.13	0.1
Stream C-AB*	0.08	0.1	0.19	0.3

A = Chiswell Green Lane (West), B = Site's Access, C = Chiswell Green Lane (East)

B4630 Watford Road / Chiswell Green Lane / Tippendell Lane Double Mini-Roundabout Junction

7.18 Table 7.4 provides a summary of the results for the '*2026 Base*' and '*2026 Base + Committed Development + Development*' scenarios for the double mini-roundabout junction of the B4630 Watford Road / Chiswell Green Lane / Tippendell Lane.

7.19 Table 7.4 reveals that under the '*2026 Base*' scenario 2-arms (i.e. B4630 Watford Road North and South) of the northern mini-roundabout junction, and 1-arm (Tippendell Lane) of the southern mini-roundabout junction operate close to or near capacity, as reflected in the RFC values exceeding the 0.85 threshold, in turn leading to excessive queue lengths and delays during the weekday AM (07:45 – 08:45) and PM (17:15 – 18:15) peak hour periods, respectively.

Table 7.4 B4630 WR / TL / CGN Lane Double Mini-Rdbt Junc – '2026 Base + Com'd + Dev'

Orientation	Arm	AM Peak Hour (07:45 – 08:45)			PM Peak Hour (17:15 – 18:15)		
		RFC	Queue (Veh)	Delay (S)	RFC	Queue (Veh)	Delay (S)
2026 Base							
Southern	Watford Road (S)	096	13.4	60.97	1.06	38.8	139.59
	Chiswell Green Lane	0.37	0.6	15.70	0.64	1.6	37.86
	Watford Road	0.54	1.1	6.63	0.57	1.3	7.01
Northern	Watford Road (N)	0.93	10.0	52.90	1.01	22.4	99.32
	Tippendell Lane	1.11	31.8	218.91	1.14	34.2	255.02
	Watford Road	0.58	1.4	7.05	0.74	2.8	11.15
2026 Base + Committed Development + Development							
Southern	Watford Road (S)	1.00	20.1	85.96	1.15	74.2	293.85
	Chiswell Green Lane	0.83	4.1	52.15	0.91	6.1	102.07
	Watford Road	0.57	1.3	7.37	0.61	1.5	7.75
Northern	Watford Road (N)	1.00	19.3	94.72	1.06	36.4	148.70
	Tippendell Lane	1.15	40.2	274.71	1.27	62.6	529.43
	Watford Road	0.66	1.9	8.52	0.71	2.4	10.01

7.20 Within the '*2026 Base + Committed Development + Development*' scenario, there would be a material worsening on the operational performance of all arms of the junction during the weekday AM (07:45 – 08:45) and PM (17:15 – 18:15) peak hour periods, respectively. However, the B4630 Watford Road North and South arms of both the southern and northern mini-roundabout junctions would operate within capacity.

7.21 As acknowledged in the pre-application discussions with HCC Highways, due to the lack of highway boundary available on either side of the double mini-roundabout junctions, there is little or no scope to enhance the performance of the double mini-roundabout junctions through increasing the entry width and effective flare length of several of the approach arms.

7.22 Notwithstanding this, and as mentioned in Section 5 of the report, the development proposals would deliver substantial enhancements to the walking and cycling environment in Chiswell Green village centre. The provision of the pedestrian and cycle infrastructural measures would provide a more balanced travel demand for future households and visitors to the proposed development, in accordance with the main aspirations of national, regional, and local planning policy, most notably the NPPF and Policy 1 of the HCC's LTP4).

Transport Impact

7.23 With regard to person trip movements undertaken on-foot, both as primary and secondary modes of travel, it is evident that the adjoining highway links in the vicinity of the site have lit footways, which are of sufficient width and constructed to a good standard.

7.24 As noted in Section 5, the pedestrian and cyclist environment surrounding the application site would be enhanced through the provision of a shared foot / cycleway along the full length of the northern side of Chiswell Green Lane, which would provide convenient, direct, and safe access on-foot and by cycle to local public transport infrastructure / services and range of amenities situated in Chiswell Green village centre.

7.25 When assessing the potential impact of development proposals on the local public transport network, it is noteworthy that the site benefits from being within walking distance of bus stops located either side of the B4630 Watford Road and Tippendell Lane. These are served by bus services, which operate on a frequent basis, providing access to a host of local and regional destinations.

7.26 Given that the development proposals would have the potential to generate a total of 37 and 30 two-way movements by public transport during the AM (08:00 – 09:0) and PM (17:00 – 18:00) peak hour periods, it is considered that this demand can be easily accommodated on existing bus routes.

8. Mitigation Summary

Preamble

8.1 The application of the hierarchical approach of LTP4 Policy 1 is a guiding feature of the planning and design stages of the proposed development on land north of Chiswell Green Lane ensuring that priority is given to more sustainable forms of transport and opportunities to reduce travel demand over motor vehicle access.

8.2 The TA has set out a comprehensive package of measures in the form of a Movement & Access Strategy that is a series of tailored transport solutions to ensure that places of residence, work and leisure within the site are fully accessible but also ensures efficient, reliable, and legible travel connections to existing settlements and transport hubs, encouraging sustainable travel choices and removing physical and psychological barriers to movement.

8.3 Accordingly, the Movement & Access Strategy delivers a package of mitigation that combines hard interventions (infrastructure such as improved footways, cycleways and crossing facilities) and soft interventions (travel planning, promotions, and marketing) to achieve meaningful changes in travel behaviour and an ambitious shift in modal share targets.

8.4 In accordance with LTP4 Policy 1, the Movement & Access Strategy delivers:

- Measures to reduce the need to travel including super-fast broad connectivity and a broad range of local services and facilities within a walkable and cyclable neighbourhood.
- Infrastructural improvements to the pedestrian and cyclist environment along Chiswell Green Lane and village centre, to offset highway capacity constraints and provide a more balanced travel demand for future households and visitors.
- Travel Plan measures and incentives including community website, travel information packs, car sharing promotional strategies.
- The development of a comprehensive network of on-site '*Greenways*' (traffic-free segregated pedestrian and cycle routes) and recreational footpaths connecting key land uses on and off-site.
- A commitment to upgrade the PRoW's bordering the site.
- Cycle parking in accordance with SADC's adopted standards.
- Inclusion of electric vehicle charging facilities.

8.5 To supplement the Movement & Access Strategy, off-site works are proposed to enhance the pedestrian and cycling environment around the double mini-roundabout junction of the B4630 Watford Road / Chiswell Green Lane / Tippendell Lane to influence future households to adopt sustainable travel patterns / behaviour for various journey purposes in favour of the private car and overcome highway capacity constraints.

Travel Plan Interventions / Smarter Choices

8.6 Described in full detail within the Residential Travel Plan (RTP) that accompanies the TA, Table 8.1 provides a summary of '*hard*' infrastructural and '*soft*' behavioural measures that are aimed at improving smarter travel choices and reducing the need to travel.

Table 8.1 Summary of Mitigation Package – Travel Plan Interventions / Smarter Choices

Intervention	Timescale for Delivery
Super-fast broadband connectivity to all dwellings & commercial properties	From 1st occupation of Phase 1 and phased within development programme
Appointment of Travel Plan Coordinator / Travel Plan Steering Group & ongoing financial support to deliver measures / County monitoring fees	Prior to 1st occupation of Phase 1 and maintained for a minimum period of 5 yrs. after which it is anticipated that transfer of TPC role is made to TP Steering Group
Distribution of Travel Information Packs around residences and employment locations throughout the proposed development	From 1st occupation of Phase 1 and phased within development programme
Establishment of Community web resource, car sharing & cycle forums and personalised travel planning tools	Prior to 1st occupation of Phase 1
Communal fast-charge electric vehicle charging points	From 1st occupation of Phase 1 and phased within development programme

8.7 In accordance with national and local planning policy objectives, this section of the report sets out a strategy for encouraging future households of the proposed development to adopt long-term sustainable travel patterns and behaviour, primarily through the preparation / implementation of a Residential Travel Plan (RTP).

Aims and Objectives

8.8 The main aim of the RTP is to reduce the dependency of households of the proposed development to travel by private car, in turn leading to a corresponding increase in those travelling by more sustainable modes (e.g. public transport and the '*active*' modes of walking and cycling) for various journey purposes including work, shopping and leisure related trips.

8.9 The principal objectives of the RTP are therefore:

- To increase the proportion of new households travelling by public transport for various journey purposes, with particular emphasis on commuter trips to and from the proposed development;
- To promote a range of '*soft*' information-led measures that will facilitate a reduction in vehicular traffic arising from the proposed development, thereby encouraging the use of sustainable modes;
- To promote the financial, environmental, and personal health benefits associated with the 'active' modes of walking and cycling; and
- To promote the RTP and encourage new households to participate within national, regional, and local travel awareness campaigns including '*Bike, Walk and Liftshare Week*'.

Provisional Mode Share Targets

8.10 The main target of the RTP would aim to seek a 10% reduction in the proportion of future households travelling by private car on a typical weekday (07:00 to 19:00). Provisional mode share targets, based on the anticipated vehicular traffic generation of the development proposals, as set out in Section 6 of this report is presented within the RTP.

8.11 As part of the monitoring and review strategy, household travel surveys will be undertaken on a biennial basis (i.e. once every two years) to determine whether the set mode share targets have been achieved after the fifth year of implementation.

Measures and Initiatives

8.12 In order to achieve the mode share targets, a number of '*hard*' infrastructural and '*soft*' information-led measures would be implemented prior to the proposed development becoming occupied. These measures would be broadly categorised under the following headings:

- Travel Information;
- Car Sharing;
- Public Transport;
- Walking and Cycling;
- Promotion / Marketing; and
- On-site Infrastructure.

8.13 Whilst the proposed measures are primarily tailored towards new households at the proposed development, it is recognised that other end-users (i.e. visitors) will also benefit from the provision of new infrastructure and information.

Management

8.14 Prior to the proposed development becoming occupied, a Travel Plan Co-ordinator would be appointed by the applicant to oversee and manage the RTP over an initial 5-year time period. The TPC would be responsible for undertaking the following key tasks:

- On-going promotion / marketing of the RTP and associated measures including the preparation of Travel Welcome Packs;
- Organising the implementation of household travel surveys to be undertaken on a biennial basis, following the establishment of baseline travel patterns and behaviour;
- Preparing biennial monitoring reports, which summarise the results of the surveys as well as progress towards achieving the set targets; and
- Acting as the main point of contact for all households.

9. Summary & Conclusions

9.1 This TA has been prepared by MTP on behalf of the applicant in support of an outline planning application with all matters reserved other than access for a development proposal comprising the erection of 330 residential units (Use Class C3) of mixed size and type together with associated cycle / refuse storage, car parking, and soft landscaping on land north of Chiswell Green Lane in Chiswell Green, Hertfordshire.

9.2 In summary, the report demonstrates:

- The development proposals comply with the core principles of various current national, regional, and local planning policies, most notably in respect of providing new households and other end-users with opportunities to adopt sustainable travel patterns and behaviour for various journey purposes, thereby negating the need for them to own a vehicle and travel by private car.
- The application site benefits from being accessible on-foot and by cycle to local public transport infrastructure / services available from bus stops situated off the B4630 Watford Road, Tippendell Lane, which are served by a number of services operating on a frequent basis to a host of local and regional destinations. In addition, a range of amenities, which are likely to cater for the everyday needs of future households are available and accessible on-foot and by cycle within the maximum recommended distances, prescribed by the CIHT and other national planning best practice guidance.
- The review of PIA data reveals that there are no significant safety issues with the existing local highway network within the vicinity of the site. In light of the anticipated multi-modal trip generating potential of the development proposals, it is concluded that the existing trend / pattern with regards to location, collision type and severity would not be exacerbated.
- The design of the proposed access incorporates the provision of new pedestrian and cyclist infrastructure including shared foot / cycleways and crossing points, which would substantially enhance the pedestrian environment along Chiswell Green Lane and encourage future households to travel on-foot for short journeys.
- The design of the proposed access achieves visibility splays in excess of the observed speeds of vehicles and the DfT's MfS1 stopping sight distance parameters. Consequently, car drivers would be afforded sufficient inter-visibility with other motorised and non-motorised road users, thereby enabling safe manoeuvres to be undertaken at the proposed give-way priority junction.
- The design of the masterplan / internal layout can facilitate the operation of all servicing and delivery vehicles in a safe and convenient manner.
- The development proposals would have the potential to generate in the order of 222 and 182 two-way vehicular traffic movements during the weekday AM (08:00 – 09:00) and PM (17:00 – 18:00) peak hour periods, respectively. This modest level of traffic equates to 4 additional vehicular movements every minute and as such would not have a '*severe*' residual cumulative impact on the operational and safety characteristics of Chiswell Green Lane and adjoining local highway network, particularly to the conditions of amenity, capacity, and safety.

- Whilst the results of the junction capacity assessment demonstrate that under the '*2026 Base + Committed Development + Development*' scenario, the development proposals would affect the operational performance of some of the arms of the double mini-roundabout junction of the B4630 Watford Road / Chiswell Green Lane / Tippendell Lane during the weekday AM and PM peak periods, this would be off-set by the proposed enhancements to the pedestrian and cycling environment.
- The provision of the pedestrian and cycle infrastructural measures would provide a more balanced travel demand for future households and visitors to the proposed development, in accordance with the main aspirations of national, regional, and local planning policy, most notably the NPPF and Policy 1 of the HCC's LTP4).
- Future households and visitors would be actively encouraged to adopt sustainable travel patterns through the implementation of a RTP containing a mixture of '*hard*' infrastructural and '*soft*' information-led measures for various journey purposes, further minimising the impact of the development proposals on the local highway network.

9.3 In the context of the guidelines within paragraph 111 of the NPPF (July 2021) it is considered that there are no residual cumulative impacts in terms of highway safety or the operational capacity of the surrounding transport network and therefore planning permission should not be withheld on transport planning and highway grounds.

Appendix 1

Project:	Land North of Chiswell Green Lane, Chiswell Green, Hertfordshire, AL2 3AJ		
File Ref:	21-086		
Meeting Date:	02 August 2021 (14:00-15:00)		
Venue:	MS Teams		
Present:	James Dale Anthony Collier Tony Wares Ed Hill	Hertfordshire County Council (HCC) Hertfordshire County Council (HCC) Milestone Transport Planning (MTP) Milestone Transport Planning (MTP)	JD AC TW EH
Apologies	Brian Parker	McPartland Planning Limited	BP
Circulation:	Tom Gristwood Steven Collins	Tom Gristwood Architects Client / Applicant	TG SC

Points of Discussion	**Action**
Introductions	
1.1 Prior to the meeting, TW circulated an Agenda and copy of the Pre-Application Scoping Note to all invitees, which detailed the key transport planning and highways aspects of the emerging development proposals on land north of Chiswell Green Lane, Chiswell Green in Hertfordshire.	
1.2 The Pre-Scoping Note summarised the key transport and highways aspects of the emerging development including a consideration of: -	
• The site's accessibility credentials and potential for future households to adopt sustainable travel patterns and behaviour for a variety of journey purposes.	
• The baseline conditions of the local highway network with regards to operational and safety characteristics.	
• A description of the proposed access, parking, delivery / servicing, and emergency access arrangements.	

- An assessment of the multi-modal trip generation and associated impact on the local highway and transport networks over the course of a typical weekday including the AM and PM peak hour periods.

1.3 A copy of the emerging masterplan (Drawing SK_22.06.2021_01), prepared by Tom Gristwood Architects was also appended to the Pre-Scoping Note.

1.4 Following introductions, TW provided an update on the emerging development proposals, most notably with regards to the design of the site's access and pedestrian / cycle connectivity to the Public Right of Way (PRoW) network and wider Chiswell Green Lane settlement area. TW stated the planning strategy (i.e. outline planning application with all matters reserved other than access) as well as confirmed that 100% of the proposed residential units would comprise of affordable housing.

1.5 Since the previous MS Teams conversation with HCC Highways that was conducted on 15th April 2021, TW stated that the design of the site's proposed access and emerging masterplan had evolved to reflect the key points of the discussion. In summary, this included: -

- The provision of a secondary access point to accommodate pedestrians, cyclists, and emergency vehicles, as the emerging scheme comprised of 300-units.

- The section of carriageway adjacent to the proposed access off Chiswell Green Lane would be widened to facilitate two-way flow in a safe and convenient manner. A road narrowing feature with priority afforded to westbound motorists would be incorporated into the design to reduce vehicular speeds and enhance highway safety.

- The section of carriageway to the west of the site's proposed access would remain as a narrow rural lane to discourage motorised users from using Chiswell Green Lane as a '*rat-run*' to gain access to Bedmond. In turn, this would enhance the safety of non-motorised / vulnerable users (i.e. pedestrians, cyclists, and equestrians) utilising Chiswell Green Lane.

- The creation of off-street parking spaces for the households / tenants of No.'s 46 and 48 Chiswell Green Lane, to prevent the manifestation of errant parking along the southern side of the carriageway.

- The extension of the existing 30-mph speed limit to a point west of the site's proposed access. As well as reducing the speed of vehicles on approach to the site's access, this measure would reduce the length of visibility splays, required to enable safe manoeuvres to be undertaken.

- The incorporation of a shared foot / cycleway along the northern side of Chiswell Green Lane, to reflect the main pedestrian and cycle desire lines, and provide a direct and convenient route from the residential development to amenities situated in the district centre of Chiswell Green and beyond.

- The provision of pedestrian and cycle links to the existing PRoW network that borders the site's western, northern, and eastern boundaries.

Initial Feedback / Comments on Masterplan

1.6 JD explained that AC was responsible for assessing potential sites, which are being promoted through St Albans City and District Council's (SADC's) emerging Local Plan. JD is the Area Manager in HCC's Development Management Team, and as such would provide comments once an application has been submitted.

1.7 Both JD and AC stated that they had not reviewed the Pre-Scoping Note in detail, prior to the meeting, although offered the following comments: -

Loss of Off-Street Parking

- Initial concern was expressed over the loss of an area of soft landscaping (grass verge / gravel) located off the southern side of Chiswell Green Lane, resulting from the realignment of the carriageway and provision of a shared foot / cycleway.

- It was noted that this area is currently used by local residents for parking vehicles, perpendicular to the carriageway. It was estimated that the localised widening of the carriageway would have the potential to remove 9-10 spaces.

- However, TW stated that other than No.'s 46 and 48 Chiswell Green Lane, the majority of properties located along the northern side of the carriageway benefit from having off-street parking in the form of private driveways and garages. TW highlighted that the design would not prevent local residents from parking on-street, and that the increased widening of the carriageway to 5.5-metres would provide sufficient space for larger vehicles to travel in a safe and convenient manner.

- In addition, the design of the site's proposed access (Drawing No. 21086/001 Rev A) demonstrated how 3 parallel bays measuring 2.4 x 6.0-metres in size, could be accommodated off the southern side of the carriageway within the publicly maintainable highway. However, the provision of these spaces would require the removal of several trees.

Provision of a Single Access

- Whilst it was acknowledged that the Department for Transport's (DfT's) Manual for Streets 1 (MfS1) publication removes the restriction on the number of units that can be served from a single point of access, JD queried whether a development proposal of over 300 residential units would be acceptable to Hertfordshire Fire and Rescue Service (HF&RS).

- TW confirmed that the masterplan would comprise of up to 330 residential units and incorporate the provision of an emergency access off the western side of The Croft cul-de-sac. JD queried whether the site's red line boundary encompassed The Croft.

- Given the low-density nature of the masterplan, JD expressed caution on the potential for the site to accommodate additional residential units, particularly from an emergency vehicle access perspective. The low-density nature of the proposals did not appear to subscribe to the traditional appearance of affordable housing.

- Consequently, MTP were advised to contact HF&RS so that they can conduct a risk assessment of the masterplan, as well as establish response times.

Accessibility

- AC queried whether it would be realistic for future households to regular travel by bus to / from the proposed development, particularly with regards to the distances and associated walk journey times to the nearest bus stops and end-destinations (e.g. education establishments in Chiswell Green How Wood and St Albans and employment opportunities such as Hatfield Business Park (24/7 operation). AC stated that the distances should be measured from the furthest-most unit.

- TW confirmed that the nearest bus stops are located either side of the B4630 Watford Road and Tippendell Lane, within a 500-metre walk distance of the site. However, it is not clear whether this has been measured from the centre of the site.

- These stops are served by bus routes 321 and 724, which operate on a regular basis (i.e. 4 and 1 services per hour) and provide access to a host of local and regional destinations including Harlow, Heathrow Airport, Luton, and Watford. The bus stops also benefit from the provision of a shelter, seating, a flagpole, and timetable information, and this provide an attractive waiting area for patrons.

- TW suggested that MTP could prepare an isochrone plan using Basemap software to demonstrate walk and cycle journey times to / from the nearest bus stops and mainline rail stations.

- AC noted that the site's accessibility credentials were more favourable than other sites, which have been promoted through SADC's Local Plan / '*Call-for-Sites*' process.

- Whilst it is not anticipated that a planning application for a mixed-use development of circa 170 residential units and a 2FE primary school on land off Forge End, Fallowfields will be submitted to SADC in the near future, TW recognised that the presence of a new primary school would greatly enhance the site's accessibility credentials.

Adjacent Third-Party Land

- AC queried whether the rectangular shaped parcel of land located to the west of The Croft / Cherry Hill cul-de-sac and adjacent to the site's eastern and northern boundaries would be promoted for residential development. TW confirmed that this parcel of land was not under the control of the applicant.

- Given the site's location adjacent to the existing settlement boundary of Chiswell Green, AC considered that it would be suitable for accommodating a residential development.

Memorial Car Park

- AC noted the presence of the memorial car park in the south-east corner of the masterplan. It was suggested that this feature would not be policy compliant since it encourage visitors to travel by car as opposed to the more sustainable means such as public transport, walking and cycling.

- In addition, AC acknowledged the difficulty in assessing the potential vehicular trip generation characteristics of the memorial park as well as ensuring that there would be a sufficient number of car parking spaces. Consequently, AC advised MTP to remove the memorial car park from the masterplan, unless SADC recognised the wider community benefit of this feature.

Public Rights of Way

- AC and JD advised MTP to contact HCC's PRoW Officer to determine if there are any aspirations amongst local rambler groups to upgrade footpaths located on the site's eastern, northern, and western boundaries to

bridleways.

Baseline Traffic Surveys

1.8 TW commenced discussion by seeking HCC's views on the validity of gathering baseline traffic count data for the local highway network surrounding the site. As acknowledged in MTP's Pre-Scoping Note, the government restrictions to the COVID-19 pandemic and promotion of homeworking practices earlier this year, had a noticeable impact on daily traffic patterns and behaviour.

1.9 JD advised MTP to contact Gary Beaumont and David Hart from HCC's Transport Traffic and Data Team to confirm whether traffic volumes observed on the local highway network had returned to pre-COVID-19 levels. If so, HCC Highways would have no reason to question the results of baseline surveys undertaken during a neutral time period in 2021.

1.10 Following liaison with HCC's Transport Traffic and Data Team, MTP were advised to review HCC's Interactive Map to identify whether any ad-hoc traffic surveys or programmed vehicle surveys had been undertaken in the vicinity of the site. This review revealed the following traffic survey data: -

- MCCs (27 & 28th March 2019) for the two-mini roundabout junctions of the B4630 Watford Road / Chiswell Green Lane, and B4630 Watford Road / Tippendell Lane. However, this data is spread over two days due to issues with the M25 and is therefore limited.
- Traffic flow and speed survey data for the B4630 Watford Road and Tippendell Road.
- No ATC data available for Chiswell Green Lane.

1.11 A review of SADC's planning portal revealed that historic traffic flow data (October 2014) in the form of manual classified counts (MCCs) were conducted at the two mini-roundabout junctions along the B4630 Watford Road and other junctions along Chiswell Green Lane. This data was used to support a Transport Assessment, prepared by BWB, as part of a planning application (Reference: 5/2015/3124) for a Co-op convenience foodstore at the former The Three Hammers Public House, 210 Watford Road in Chiswell Green.

1.12 Given the amount of time that has elapsed since the 2014 surveys, JD recommended gathering refreshed data in support of a TA, subject to HCC's Transport Traffic and Data Team confirming 2021 traffic volumes as being representative of pre-COVID-19 pandemic conditions.

1.13 TW queried whether it would be necessary to undertake an ATC survey to

inform the geometric design of the site's proposed access. JD stated that this would be very useful, especially in justifying the extension of the 30-mph posted speed limit within the derestricted (60-mph) section to the west.

1.14 JD advised that the traffic surveys would need to be undertaken during a neutral time period (i.e. school half-term). Consequently, the earliest time in which the surveys could be undertaken is 6th September.

Multi-Modal Trip Assessment

1.15 Based on using the *'03 Residential – Mixed Affordable Housing*' category from the TRICS database (Version 7.8.1) cross-referenced with '*Method of Travel to Work*' data from the 2011 Census, TW stated that the development proposals would have the potential to generate in the order of 2,560 person trips over the course of a typical weekday including 293 and 240 during the AM (08:00 – 09:00) and PM (17:00 – 18:00) peak hour periods, respectively. Of these, 221 and 181 two-way movements would be undertaken by private car. This equates to 18 and 15 vehicular movements every 5-minutes.

Scope of Highway Impact Assessment

1.16 As outlined in the Pre-Scoping Note, the distribution of vehicular trips onto the local highway network will be based on the 2011 census dataset '*location of usual residence and place of work by method of travel*' for the St Albans 020 middle super output area.

1.17 TW queried whether there were any Committed Development sites, which needed to be included within the Highway Impact Assessment. JD stated that the development proposals at Radlett Rail Freight Terminal and the Hilton Hotel situated off The Noke Roundabout junction would need to be included.

1.18 JD confirmed that a Future Forecast Year of 2026 would be acceptable. The study area for conducting junction capacity assessments would incorporate the double mini-roundabout junctions of the B4630 Watford Road / Chiswell Green Lane / Tippendell Lane, and The Noke Roundabout.

Mitigation

1.19 TW stated that a Residential Travel Plan (RTP) containing a raft of 'hard' infrastructural and 'soft' behavioural measures would be prepared by MTP in support of the planning application.

Key Actions

1.1 The key actions are as follows:

- MTP to prepare minutes of the pre-application meeting and circulate to other members of the project team.
- EH to prepare walk isochrone map to illustrate actual walk journey times to the nearest bus stops located off the B4630 Watford Road.
- TW and EH to liaise with HCC's Transport Traffic and Data Team to seek agreement on conducting an ATC and MCC survey along Chiswell Green Lane and the two mini-roundabout junctions along the B4630 Watford Road / Tippendell Lane week commencing 6th September 2021.
- MTP to liaise with HF&RS to seek agreement on the provision of a single point of access off Chiswell Green Lane and separate emergency access off The Croft.
- MTP to liaise with HCC's PRoW Officer to ascertain whether there are any proposals to upgrade the PRoW network within the vicinity of the site.
- JD & AC to review and the site's proposed access design including the provision of a shared foot / cycleway along the northern side of Chiswell Green Lane and confirm in-principle support.
- JD and AC to review the multi-modal trip generation of the emerging development proposals, methodology for distributing / assigning trips to the local highway network, and scope of study area for undertaking junction capacity assessments and confirm that this is acceptable to HCC Highways.
- JD and AC to confirm whether an independent Stage 1 Road Safety Audit (RSA) and Designer's Response would need to be undertaken of the site's proposed access design.

---------- End of Meeting ----------

Appendix 2

St Albans City & District Cycling Map

Key

0 500 metres
¼ mile

Traffic free

- Cycle route - away from road: Shared with pedestrians, usually well surfaced
- Route access point - easy access
- Route access point - restricted
- Cycle route - on pavement: Shared with pedestrians, usually well surfaced
- Footpath: Cycling not permitted, dismount and walk with your cycle

Usually traffic free

May be shared with horse riders and walkers, also residents' and farm vehicles

- Bridleway / track / other: Surfacing varies from tarmacadam to unsealed surface, can be muddy or rough, may only be seasonally cycleable, and not suitable for narrow tyres

On road

- Separate cycle lane on the road

Routes

- St Albans Green Ring: Traffic free / On road
- National Cycle Network 57
- Chiltern Cycle Way
- Routes suggested by local cyclists: Usually quieter roads, may include busier link sections

Historic Feature · Attraction · Cycle Shop · Toilets
Play Area · Sport or leisure facility · Cafe (rural) · Venue
Sch School · Lib Library · Mus Museum · Extra Care!
Church · Mosque · Synagogue · One Way

Welcome to this revised St Albans City & District Cycling Map. This new edition features the **St Albans Green Ring,** a continuous walking and cycling route covering 6.5 miles of open space, parks, nature reserves, and heritage sites.

For more maps and further information on cycling in the district, go to
www.stalbans.gov.uk/cycling

If you have any suggestions for improving cycling provisions in the district, such as additional cycle parking locations or new cycle routes, please contact us at
contactus@stalbans.gov.uk

ST ALBANS CYCLE CAMPAIGN

St Albans District Council is grateful for assistance given by members of the St Albans Cycle Campaign with this map revision. **www.stacc.org.uk**

This map shows the **National Cycle Networks (NCN)** within the district.
To see the whole network, visit **www.sustrans.org.uk/ncn/map**

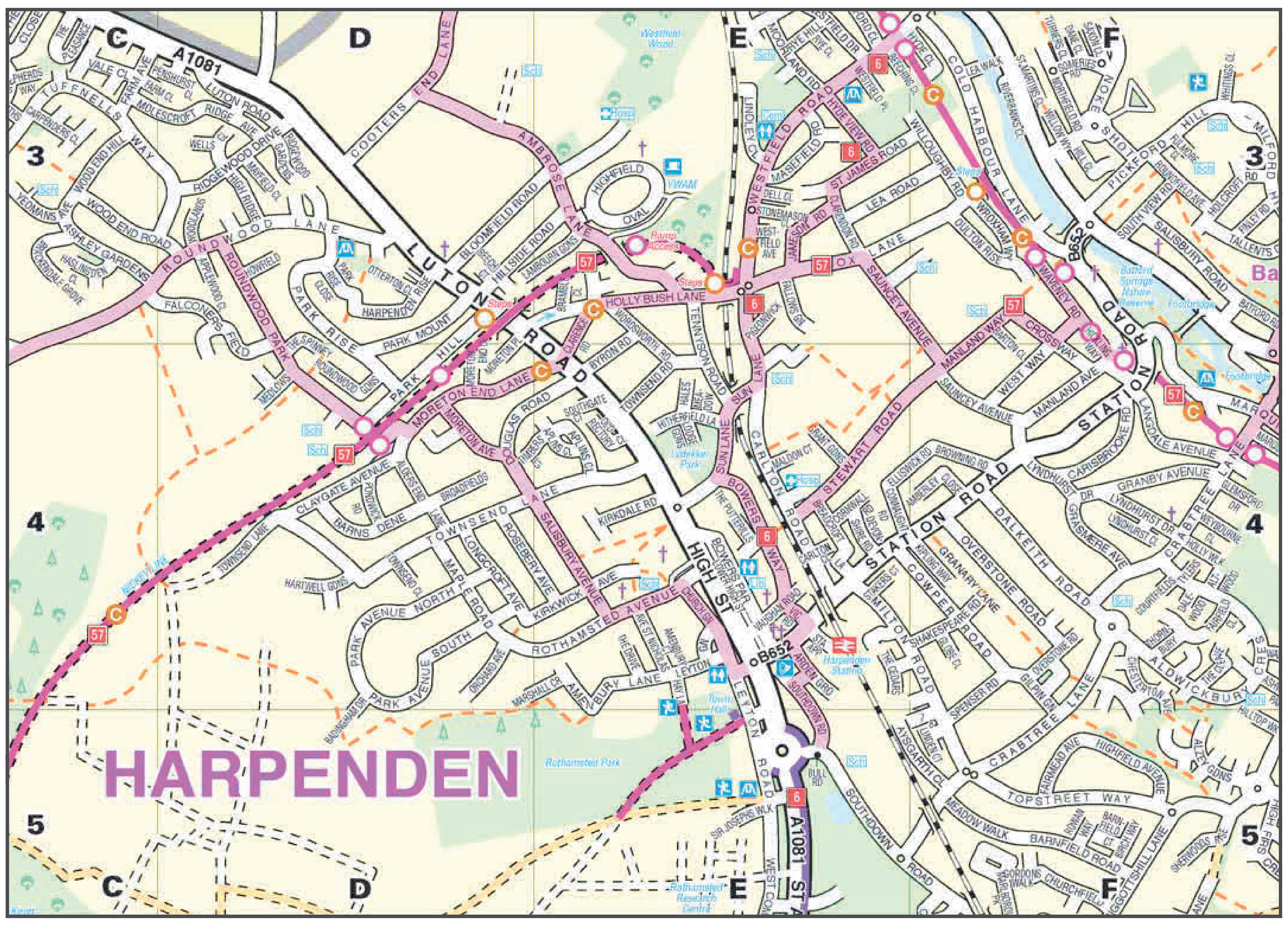
This map also shows part of the **Chiltern Cycleway.** To see the whole of the 170 mile circular route visit **www.chilternsaonb.org/explore-enjoy/chilterns-cycleway**

Signs and symbols - common signs relating to cycling

For all traffic signs and road markings, and rules of the road, refer to the Highway Code- **https://www.gov.uk/highway-code/contents**

St Albans City & District Council

July 2019



St Albans City & District
Cycling Map

Your guide to cycle routes in St Albans District

St Albans City & District Council

Appendix 3

B4630 Watford Road Chiswell Green

Legend

Accidents by Severity from 1 Jul 2016 to 30 Jun 2021

- Fatal
- Serious
- Slight

Selection Boundary

N W E S

Long Spring
Westfield's Farm
Square Wood
Scrubs Wood
Wimbushes
Cuckman's Farm
Allot Gdns
Recreation Ground
Greenwood Park
St Julian's Wood
Killigrew Primary And Nursery School
Greenwood Park Community Centre
Chiswell Green
St Albans polo Club
St Stephen Green Farm
Plaistows Farm
Airfield
Bone Hill
Edland Pavilion
The Mansion House
The Gardens Of The Rose
Chrysalis Lake
Chiswellgreen Farm
Little Daneswick
The Conifers
Keepers Lodge
Noke Farm
Caravan
Hanrox Meadows
Fishing
Holt Wood
Holt Farm
Moat
Cleveland
Burston Manor Farm
Moat
How Wood
Meadowside
Hall
Pav
PO
PW

RAGGED HALL LANE
FURZEBUSHES LANE
CHISWELL GREEN LANE
NOKE LANE
BLUNTS LANE
MIRIAM LANE
WATFORD ROAD
NORTH ORBITAL ROAD
A405
A414
BUTT FIELD VIEW
CYCLE WAY
HOLLYBUSH AVENUE
STANLEY AVENUE
STANMOUNT RD
CHERRY HILL
CHURCHILL DRIVE
THE CROFT
LABURNUM GROVE
BARRY CLOSE
HAWTHORN WAY
HAWTHORN CORBY CU
WEST AVENUE
NORTH CL
SOUTH
CARISBROOK ROAD
SUNNYDELL
TIPPENDELL LANE
ORCHARD DRIVE
DELL RISE
MAYFLOWER ROAD
OREFIELD
WILLOW WAY
LONG FALLOW
FORGE END
PENMAN CLOSE
MANOR PARK
ROSEDALE GARDENS
SPRUCE WAY
GROVELANDS

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

Hertfordshire

Full Confidential Accident Report

Date Produced: *20-Oct-21*

Set Name (if saved) : 25276 **Set Total :** 18

Accident Details:

Acc Ref:	2021-411058804	**1st / 2nd Rd:**	C79/35 C79/40	**Jun Detail:**	T	**Weather:**	Fine	**Num Cas:**	1
Day of Week:	Sun	**Parish:**		**Jun Control:**	Giveway	**Light:**	Day	**Num Peds:**	0
Date:	06/06/2021 10:50:00	**District:**	EHerts	**Spec Conditions:**	None	**Road Surface:**	Dry	**Num Vehicles:**	2
Acc Severity:	Slight	**Speed Limit:**	60mph	**C/way Hazard:**	None	**C/way Type:**	Single	**Ped Xing:**	Npernox
C79 Noke Lane St Albans J/w C79 Chiswell Green Lane								**On Site:**	Yes

V1 Car Trav Ne On Chiswell Green Lane Has Turned Right Into Noke Lane And Collided With V2 P/c Trav Nw On Noke Lane Beginning To Turn Left Onto Chiswell Green Lane Causing Rider V2 To Fall

Easting: 512184 **Northing:** 204667

Contributory Factors

Participant	Confidence	Factor 1	2	3	4	5	6
V 1	A	Rdlayvis					
V 2	A		Badrdlay				

Casualty Details

Acc Ref:	2021-411058804	**Cas Class:**	Driver	**Car Passenger:**	No	**Cas Severity:**	Slight	**Ped Movement:**	Notped
Veh Ref:	2	**Cas Age:**	44	**PSV Passenger:**	No	**Road User Class:**	Cyclists	**Ped Location:**	Notped
Cas Ref:	1	**Cas Gender:**	Female	**Seat Belt:**	Notapp	**School Pupil:**		**Ped Work on Rd:**	Notped

Vehicle Details

Acc Ref:	156092	**Maneouvre:**	Turnrigh	**Skiding:**	None	**Impact Point:**	Front	**Driver Breath Test:**	Notreq	**Driver Age:**	29
Veh Ref:	1	**Location:**	Carw	**Object in Cway:**	None	**From:**	Sw	**Hit and Run:**	Nothtrun		
Veh Type:	Car	**Junction:**	Lmain	**Object off Cway**	None	**To:**	Se	**Driver Gender:**	Male		
Foreign Veh:		**Towing;**	None	**velcwy**	No	**J Purpose:**	Tofrowrk	**Driver Severity:**	None		
Acc Ref:		**Maneouvre:**	Turnleft	**Skiding:**	None	**Impact Point:**	Front	**Driver Breath Test:**	Notap	**Driver Age:**	44
Veh Ref:	2	**Location:**	Carw	**Object in Cway:**	None	**From:**	Se	**Hit and Run:**	Nothtrun		
Veh Type:	Bicycle	**Junction:**	Approach	**Object off Cway**	None	**To:**	Sw	**Driver Gender:**	Female		
Foreign Veh:		**Towing;**	None	**velcwy**	No	**J Purpose:**	Other	**Driver Severity:**	Slight		

Accident Details:

Acc Ref:	2021-411031979	**1st / 2nd Rd:**	A405/05 A405/05	**Jun Detail:**	R/bout	**Weather:**	Fine	**Num Cas:**	1
Day of Week:	Tue	**Parish:**		**Jun Control:**	Giveway	**Light:**	Day	**Num Peds:**	0
Date:	23/03/2021 17:05:00	**District:**	StAlbs	**Spec Conditions:**	None	**Road Surface:**	Dry	**Num Vehicles:**	2
Acc Severity:	Serious	**Speed Limit:**	60mph	**C/way Hazard:**	None	**C/way Type:**	R/bout	**Ped Xing:**	Npercntr
A405 Noke Hotel Rbt St Albans J/w A405 North Orbital Road								**On Site:**	Yes

V1 Car Trav West On North Orbital Road Has Entered Rbt & Collided With Rear V2 P/c Trav Across Jct Unseating Rider V2

Easting: 513102 **Northing:** 203689

Contributory Factors

Participant	Confidence	Factor 1	2	3	4	5	6
V 1	A	Flookdri	Misspeed				
V 1	B			Statvehi			

Casualty Details

Acc Ref:	2021-411031979	**Cas Class:**	Driver	**Car Passenger:**	No	**Cas Severity:**	Serious	**Ped Movement:**	Notped
Veh Ref:	2	**Cas Age:**	23	**PSV Passenger:**	No	**Road User Class:**	Cyclists	**Ped Location:**	Notped
Cas Ref:	1	**Cas Gender:**	Male	**Seat Belt:**	Notapp	**School Pupil:**		**Ped Work on Rd:**	Notped

Vehicle Details

Acc Ref:	155797	**Maneouvre:**	Starting	**Skiding:**	None	**Impact Point:**	Front	**Driver Breath Test:**	Notreq	**Driver Age:**	59
Veh Ref:	1	**Location:**	Carw	**Object in Cway:**	None	**From:**	E	**Hit and Run:**	Nothtrun		
Veh Type:	Car	**Junction:**	Er/about	**Object off Cway**	None	**To:**	W	**Driver Gender:**	Female		
Foreign Veh:		**Towing;**	None	**velcwy**	No	**J Purpose:**	Other	**Driver Severity:**	None		
Acc Ref:		**Maneouvre:**	Ahead	**Skiding:**	None	**Impact Point:**	Back	**Driver Breath Test:**	Notap	**Driver Age:**	23
Veh Ref:	2	**Location:**	Carw	**Object in Cway:**	None	**From:**	N	**Hit and Run:**	Nothtrun		
Veh Type:	Bicycle	**Junction:**	Middle	**Object off Cway**	None	**To:**	W	**Driver Gender:**	Male		
Foreign Veh:		**Towing;**	None	**velcwy**	No	**J Purpose:**	Other	**Driver Severity:**	Serious		

Accident Details:

Acc Ref:	2021-411017994	**1st / 2nd Rd:**	C79/40	C79/30	**Jun Detail:**	T	**Weather:**	Other	**Num Cas:**	1
Day of Week:	Fri	**Parish:**			**Jun Control:**	Giveway	**Light:**	Day	**Num Peds:**	0
Date:	22/01/2021 10:58:00	**District:**	StAlbs		**Spec Conditions:**	None	**Road Surface:**	Frostice	**Num Vehicles:**	2
Acc Severity:	Slight	**Speed Limit:**	60mph		**C/way Hazard:**	None	**C/way Type:**	Single	**Ped Xing:**	Npernox

C79 Chiswell Green Lane St Albans Approx 10m Ne J/w C79 Noke Lane **On Site:** Yes

V1 Car Trav Ne On R/h Bend On Chiswell Green Lane, V2 Refuse Disposal Lorry Trav In Opposite Direction Have Both Skidded On Black Ice & Collided O/s To O/s

Easting: 512251 **Northing:** 204696

Contributory Factors

Participant	Confidence	Factor 1	2	3	4	5	6
V 1	A	Slipweat		Lostcont			
V 1	B		Stopping		Badrdlay		
V 2	A					Slipweat	
V 2	B						Badrdlay

Casualty Details

Acc Ref:	2021-411017994	**Cas Class:**	Driver	**Car Passenger:**	No	**Cas Severity:**	Slight	**Ped Movement:**	Notped
Veh Ref:	1	**Cas Age:**	29	**PSV Passenger:**	No	**Road User Class:**	Car Users	**Ped Location:**	Notped
Cas Ref:	1	**Cas Gender:**	Male	**Seat Belt:**	Unknown	**School Pupil:**		**Ped Work on Rd:**	Notped

Vehicle Details

Acc Ref:	155605	**Maneouvre:**	Rightben	**Skiding:**	Skidded	**Impact Point:**	Offside	**Driver Breath Test:**	Notreq	**Driver Age:**	29
Veh Ref:	1	**Location:**	Carw	**Object in Cway:**	None	**From:**	Sw	**Hit and Run:**	Nothtrun		
Veh Type:	Car	**Junction:**	Exit	**Object off Cway**	None	**To:**	Se	**Driver Gender:**	Male		
Foreign Veh:		**Towing;**	None	**velcwy**	No	**J Purpose:**	Work	**Driver Severity:**	Slight		
Acc Ref:		**Maneouvre:**	Leftbend	**Skiding:**	Skidded	**Impact Point:**	Offside	**Driver Breath Test:**	Notreq	**Driver Age:**	63
Veh Ref:	2	**Location:**	Carw	**Object in Cway:**	None	**From:**	Se	**Hit and Run:**	Nothtrun		
Veh Type:	Otherv	**Junction:**	Approach	**Object off Cway**	None	**To:**	Sw	**Driver Gender:**	Male		
Foreign Veh:		**Towing;**	None	**velcwy**	No	**J Purpose:**	Work	**Driver Severity:**	None		

Accident Details:

Acc Ref:	2021-411013891	**1st / 2nd Rd:**	A405/05 A405/05	**Jun Detail:**	R/bout	**Weather:**	Fine	**Num Cas:**	1
Day of Week:	Mon	**Parish:**		**Jun Control:**	Giveway	**Light:**	Day	**Num Peds:**	0
Date:	04/01/2021 09:42:00	**District:**	StAlbs	**Spec Conditions:**	None	**Road Surface:**	Dry	**Num Vehicles:**	2
Acc Severity:	Slight	**Speed Limit:**	60mph	**C/way Hazard:**	None	**C/way Type:**	R/bout	**Ped Xing:**	Npercntr
A405 The Noke Hotel Rbt St Albans J/w A405 North Orbital Road								**On Site:**	Yes

V1 Car Trav West On North Orbital Road Has Entered Rbt & Collided With N/s V2 P/c Trav South Across Jct Causing Rider V2 To Fall

Easting: 513103 **Northing:** 203691

Contributory Factors

Participant	Confidence	Factor 1	2	3	4	5	6
V 1	B	Flookdri					
V 2	B		Poorindi				

Casualty Details

Acc Ref:	2021-411013891	**Cas Class:**	Driver	**Car Passenger:**	No	**Cas Severity:**	Slight	**Ped Movement:**	Notped
Veh Ref:	2	**Cas Age:**	64	**PSV Passenger:**	No	**Road User Class:**	Cyclists	**Ped Location:**	Notped
Cas Ref:	1	**Cas Gender:**	Male	**Seat Belt:**	Notapp	**School Pupil:**		**Ped Work on Rd:**	Notped

Vehicle Details

Acc Ref:	155491	**Maneouvre:**	Ahead	**Skiding:**	None	**Impact Point:**	Front	**Driver Breath Test:**	Negati	**Driver Age:**	29
Veh Ref:	1	**Location:**	Carw	**Object in Cway:**	None	**From:**	E	**Hit and Run:**	Nothtrun		
Veh Type:	Car	**Junction:**	Er/about	**Object off Cway**	None	**To:**	W	**Driver Gender:**	Female		
Foreign Veh:		**Towing;**	None	**velcwy**	No	**J Purpose:**	Unknown	**Driver Severity:**	None		
Acc Ref:		**Maneouvre:**	Ahead	**Skiding:**	None	**Impact Point:**	Nearside	**Driver Breath Test:**	Notap	**Driver Age:**	64
Veh Ref:	2	**Location:**	Carw	**Object in Cway:**	None	**From:**	N	**Hit and Run:**	Nothtrun		
Veh Type:	Bicycle	**Junction:**	Middle	**Object off Cway**	None	**To:**	W	**Driver Gender:**	Male		
Foreign Veh:		**Towing;**	None	**velcwy**	No	**J Purpose:**	Unknown	**Driver Severity:**	Slight		

Accident Details:

Acc Ref:	2020-411006131	**1st / 2nd Rd:**	B4630/2 A405/05	**Jun Detail:**	R/bout	**Weather:**	Fine	**Num Cas:**	1
Day of Week:	Thu	**Parish:**		**Jun Control:**	Giveway	**Light:**	Day	**Num Peds:**	0
Date:	19/11/2020 13:38:00	**District:**	StAlbs	**Spec Conditions:**	None	**Road Surface:**	Dry	**Num Vehicles:**	2
Acc Severity:	Slight	**Speed Limit:**	30mph	**C/way Hazard:**	None	**C/way Type:**	Single	**Ped Xing:**	Npercntr
B4630 Watford Road St Albans J/w A405 The Noke Hotel Rbt								**On Site:**	Yes

Both Vs Cars Trav Sw On Watford Road. V1 Slows On Approach To Rbt & V2 Has Collided With Rear V1. V2 Fts

Easting: 513086 **Northing:** 203735

Casualty Details

Acc Ref:	2020-411006131	**Cas Class:**	Driver	**Car Passenger:**	No	**Cas Severity:**	Slight	**Ped Movement:**	Notped
Veh Ref:	1	**Cas Age:**	23	**PSV Passenger:**	No	**Road User Class:**	Car Users	**Ped Location:**	Notped
Cas Ref:	1	**Cas Gender:**	Female	**Seat Belt:**	Unknown	**School Pupil:**		**Ped Work on Rd:**	Notped

Vehicle Details

Acc Ref:	155342	**Maneouvre:**	Stopping	**Skiding:**	None	**Impact Point:**	Back	**Driver Breath Test:**	Notreq	**Driver Age:**	23
Veh Ref:	1	**Location:**	Carw	**Object in Cway:**	None	**From:**	Ne	**Hit and Run:**	Nothtrun		
Veh Type:	Car	**Junction:**	Approach	**Object off Cway**	None	**To:**	Sw	**Driver Gender:**	Female		
Foreign Veh:		**Towing;**	None	**velcwy**	No	**J Purpose:**	Work	**Driver Severity:**	Slight		

Acc Ref:		**Maneouvre:**	Ahead	**Skiding:**	None	**Impact Point:**	Front	**Driver Breath Test:**	Notcon	**Driver Age:**	
Veh Ref:	2	**Location:**	Carw	**Object in Cway:**	None	**From:**	Ne	**Hit and Run:**	Hit&run		
Veh Type:	Car	**Junction:**	Approach	**Object off Cway**	None	**To:**	Sw	**Driver Gender:**	Unknown		
Foreign Veh:		**Towing;**	None	**velcwy**	No	**J Purpose:**	Unknown	**Driver Severity:**	None		

Accident Details:

Acc Ref:	2020-410992598	**1st / 2nd Rd:**	A405/05 NONE	**Jun Detail:**	Entrance	**Weather:**	Rain	**Num Cas:**	1
Day of Week:	Wed	**Parish:**		**Jun Control:**	Giveway	**Light:**	Day	**Num Peds:**	0
Date:	21/10/2020 09:30:00	**District:**	StAlbs	**Spec Conditions:**	None	**Road Surface:**	Wet	**Num Vehicles:**	2
Acc Severity:	Slight	**Speed Limit:**	60mph	**C/way Hazard:**	None	**C/way Type:**	Dual	**Ped Xing:**	Npernox

A405 North Orbital Road St Albans At Exit From Shell Garage & Approx 90m East J/w A405 Noke Rbt **On Site:** No

Both Vs Waiting To Enter North Orbital Road From Garage. V1 Artic Hgv Has Pulled Out To Turn Left And N/s V1 Has Collided With O/s V2 Car

Easting: 513190 **Northing:** 203726

Casualty Details

Acc Ref:	2020-410992598	**Cas Class:**	Driver	**Car Passenger:**	No	**Cas Severity:**	Slight	**Ped Movement:**	Notped
Veh Ref:	2	**Cas Age:**	20	**PSV Passenger:**	No	**Road User Class:**	Car Users	**Ped Location:**	Notped
Cas Ref:	1	**Cas Gender:**	Male	**Seat Belt:**	Unknown	**School Pupil:**		**Ped Work on Rd:**	Notped

Vehicle Details

Acc Ref:	155165	**Maneouvre:**	Turnleft	**Skiding:**	None	**Impact Point:**	Nearside	**Driver Breath Test:**	Notcon	**Driver Age:**	
Veh Ref:	1	**Location:**	Carw	**Object in Cway:**	None	**From:**	N	**Hit and Run:**	Nothtrun		
Veh Type:	Gdhvwght	**Junction:**	Emain	**Object off Cway**	None	**To:**	E	**Driver Gender:**	Male		
Foreign Veh:		**Towing;**	Articula	**velcwy**	No	**J Purpose:**	Unknown	**Driver Severity:**	None		
Acc Ref:		**Maneouvre:**	Waitleft	**Skiding:**	None	**Impact Point:**	Offside	**Driver Breath Test:**	Notcon	**Driver Age:**	20
Veh Ref:	2	**Location:**	Carw	**Object in Cway:**	None	**From:**	N	**Hit and Run:**	Nothtrun		
Veh Type:	Car	**Junction:**	Approach	**Object off Cway**	None	**To:**	E	**Driver Gender:**	Male		
Foreign Veh:		**Towing;**	None	**velcwy**	No	**J Purpose:**	Other	**Driver Severity:**	Slight		

Accident Details:

Acc Ref:	2020-410954328	**1st / 2nd Rd:**	B4630/3 NONE	**Jun Detail:**	Notjunct	**Weather:**	Fine	**Num Cas:**	1
Day of Week:	Sat	**Parish:**		**Jun Control:**	Notjunct	**Light:**	Day	**Num Peds:**	0
Date:	30/05/2020 13:30:00	**District:**	StAlbs	**Spec Conditions:**	Surfdefe	**Road Surface:**	Dry	**Num Vehicles:**	1
Acc Severity:	Slight	**Speed Limit:**	30mph	**C/way Hazard:**	None	**C/way Type:**	Dual	**Ped Xing:**	Npernox
B4630 Watford Road St Albans Approx 55m Ne J/w U40 Ragged Hall Lane Chiswell Green								**On Site:**	Yes

V1 M/c 125cc Trav Sw On St Albans Road Undertaking Uk Veh In Cyclelane Has Hit Pot Hole In Road Causing Rider To Lose Control & Fall From M/c

Easting: 513716 **Northing:** 205328

Contributory Factors

Participant	Confidence	Factor 1	2	3	4	5	6
V 1	A		Lostcont	Badroad			
V 1	B	Speeding					

Casualty Details

Acc Ref:	2020-410954328	**Cas Class:**	Driver	**Car Passenger:**	No	**Cas Severity:**	Slight	**Ped Movement:**	Notped
Veh Ref:	1	**Cas Age:**	19	**PSV Passenger:**	No	**Road User Class:**	Motorcyclists	**Ped Location:**	Notped
Cas Ref:	1	**Cas Gender:**	Male	**Seat Belt:**	Notapp	**School Pupil:**		**Ped Work on Rd:**	Notped

Vehicle Details

Acc Ref:	154712	**Maneouvre:**	Otakenea	**Skiding:**	None	**Impact Point:**	Front	**Driver Breath Test:**	Negati	**Driver Age:**	19
Veh Ref:	1	**Location:**	Cycl	**Object in Cway:**	None	**From:**	Ne	**Hit and Run:**	Nothtrun		
Veh Type:	Mc<=125	**Junction:**	Notjunct	**Object off Cway**	None	**To:**	Sw	**Driver Gender:**	Male		
Foreign Veh:		**Towing;**	None	**velcwy**	No	**J Purpose:**	Unknown	**Driver Severity:**	Slight		

Accident Details:

Acc Ref:	2020-410948335	**1st / 2nd Rd:**	A405/05 A405/05	**Jun Detail:**	R/bout	**Weather:**	Fine	**Num Cas:**	1
Day of Week:	Sun	**Parish:**		**Jun Control:**	Giveway	**Light:**	Day	**Num Peds:**	0
Date:	01/03/2020 12:00:00	**District:**	StAlbs	**Spec Conditions:**	None	**Road Surface:**	Dry	**Num Vehicles:**	2
Acc Severity:	Slight	**Speed Limit:**	40mph	**C/way Hazard:**	None	**C/way Type:**	R/bout	**Ped Xing:**	Npercntr
A405 Noke Rbt Chiswell Green J/w A405 North Orbital Road								**On Site:**	Yes

Both Vs Negotiating Rbt To Trav Ne On North Orbital Road. V1 Car Has Changed Lane To Left Colliding With Rear V2 M/c Over 500cc Causing V2 To Leave C/way O/s Colliding With Lamp Post On Centre Island

Easting: 513096 **Northing:** 203716

Contributory Factors

Participant	Confidence	Factor 1	2	3	4	5	6
V 1	B	Flookdri	Misspeed	Poorturn			

Casualty Details

Acc Ref:	2020-410948335	**Cas Class:**	Driver	**Car Passenger:**	No	**Cas Severity:**	Slight	**Ped Movement:**	Notped
Veh Ref:	2	**Cas Age:**	21	**PSV Passenger:**	No	**Road User Class:**	Motorcyclists	**Ped Location:**	Notped
Cas Ref:	1	**Cas Gender:**	Male	**Seat Belt:**	Notapp	**School Pupil:**		**Ped Work on Rd:**	Notped

Vehicle Details

Acc Ref:	154490	**Maneouvre:**	Chglnlef	**Skiding:**	None	**Impact Point:**	Front	**Driver Breath Test:**	Notreq	**Driver Age:**	39
Veh Ref:	1	**Location:**	Carw	**Object in Cway:**	None	**From:**	Sw	**Hit and Run:**	Nothtrun		
Veh Type:	Car	**Junction:**	Lr/about	**Object off Cway**	None	**To:**	Ne	**Driver Gender:**	Female		
Foreign Veh:		**Towing;**	None	**velcwy**	No	**J Purpose:**	Unknown	**Driver Severity:**	None		
Acc Ref:		**Maneouvre:**	Ahead	**Skiding:**	None	**Impact Point:**	Back	**Driver Breath Test:**	Notreq	**Driver Age:**	21
Veh Ref:	2	**Location:**	Carw	**Object in Cway:**	Kerb	**From:**	Sw	**Hit and Run:**	Nothtrun		
Veh Type:	Mc>500	**Junction:**	Middle	**Object off Cway**	Lamppost	**To:**	Ne	**Driver Gender:**	Male		
Foreign Veh:		**Towing;**	None	**velcwy**	Offside	**J Purpose:**	Unknown	**Driver Severity:**	Slight		

Accident Details:

Acc Ref:	2019-410890861	**1st / 2nd Rd:**	A405/04 NONE	**Jun Detail:**	Notjunct	**Weather:**	Fine	**Num Cas:**	1
Day of Week:	Wed	**Parish:**		**Jun Control:**	Notjunct	**Light:**	Day	**Num Peds:**	0
Date:	16/10/2019 11:22:00	**District:**	StAlbs	**Spec Conditions:**	Atsout	**Road Surface:**	Dry	**Num Vehicles:**	2
Acc Severity:	Slight	**Speed Limit:**	30mph	**C/way Hazard:**	None	**C/way Type:**	Dual	**Ped Xing:**	Npernox
A405 North Orbital Road St Albans Approx 75m Sw J/w A405 The Noke Rbt								**On Site:**	No

Both Vs Cars Trav Ne On North Orbital Road. V2 Has Changed Lane To Left & Collided With N/s V1. V1 Fts

Easting: 512985 **Northing:** 203640

Casualty Details

Acc Ref:	2019-410890861	**Cas Class:**	Driver	**Car Passenger:**	No	**Cas Severity:**	Slight	**Ped Movement:**	Notped
Veh Ref:	2	**Cas Age:**	26	**PSV Passenger:**	No	**Road User Class:**	Car Users	**Ped Location:**	Notped
Cas Ref:	1	**Cas Gender:**	Female	**Seat Belt:**	Wornnot	**School Pupil:**		**Ped Work on Rd:**	Notped

Vehicle Details

Acc Ref:	153476	**Maneouvre:**	Waitahea	**Skiding:**	None	**Impact Point:**	Offside	**Driver Breath Test:**	Notcon	**Driver Age:**	
Veh Ref:	1	**Location:**	Carw	**Object in Cway:**	None	**From:**	Sw	**Hit and Run:**	Hit&run		
Veh Type:	Car	**Junction:**	Notjunct	**Object off Cway**	None	**To:**	Ne	**Driver Gender:**	Unknown		
Foreign Veh:		**Towing;**	None	**velcwy**	No	**J Purpose:**	Unknown	**Driver Severity:**	None		
Acc Ref:		**Maneouvre:**	Chglnrig	**Skiding:**	None	**Impact Point:**	Nearside	**Driver Breath Test:**	Notcon	**Driver Age:**	26
Veh Ref:	2	**Location:**	Carw	**Object in Cway:**	None	**From:**	Sw	**Hit and Run:**	Nothtrun		
Veh Type:	Car	**Junction:**	Notjunct	**Object off Cway**	None	**To:**	Ne	**Driver Gender:**	Female		
Foreign Veh:		**Towing;**	None	**velcwy**	No	**J Purpose:**	Unknown	**Driver Severity:**	Slight		

Accident Details:

Acc Ref:	2019-410855780	**1st / 2nd Rd:**	6U938/1 NONE	**Jun Detail:**	Notjunct	**Weather:**	Rain	**Num Cas:**	1
Day of Week:	Wed	**Parish:**		**Jun Control:**	Notjunct	**Light:**	Day	**Num Peds:**	0
Date:	08/05/2019 17:00:00	**District:**	StAlbs	**Spec Conditions:**	None	**Road Surface:**	Wet	**Num Vehicles:**	2
Acc Severity:	Slight	**Speed Limit:**	60mph	**C/way Hazard:**	None	**C/way Type:**	Single	**Ped Xing:**	Npernox
U938 Chiswell Green Lane St Albans Approx 395m Se J/w U40 Furzebushes Lane								**On Site:**	Yes

Both Vs Cars. V2 Trav Nw On Chiswell Green Lane Has Pulled Into Passing Point Of Narrow Coutnry Lane. V1 Trav Se At Speed Has Collided With Rear V2 Before Leaving C/way N/s Up Steep Grass Bank & Overturning

Easting: 512624 **Northing:** 204483

Contributory Factors

Participant	Confidence	Factor 1	2	3	4	5	6
V 1	B	Reckdriv	Toofast				

Casualty Details

Acc Ref:	2019-410855780	**Cas Class:**	Driver	**Car Passenger:**	No	**Cas Severity:**	Slight	**Ped Movement:**	Notped
Veh Ref:	1	**Cas Age:**	19	**PSV Passenger:**	No	**Road User Class:**	Car Users	**Ped Location:**	Notped
Cas Ref:	1	**Cas Gender:**	Male	**Seat Belt:**	Unknown	**School Pupil:**		**Ped Work on Rd:**	Notped

Vehicle Details

Acc Ref:	152870	**Maneouvre:**	Ahead	**Skiding:**	Overturn	**Impact Point:**	Front	**Driver Breath Test:**	Notreq	**Driver Age:**	19
Veh Ref:	1	**Location:**	Carw	**Object in Cway:**	None	**From:**	Nw	**Hit and Run:**	Nothtrun		
Veh Type:	Car	**Junction:**	Notjunct	**Object off Cway**	None	**To:**	Se	**Driver Gender:**	Male		
Foreign Veh:		**Towing;**	None	**velcwy**	Nearside	**J Purpose:**	Other	**Driver Severity:**	Slight		
Acc Ref:		**Maneouvre:**	Waitahea	**Skiding:**	None	**Impact Point:**	Back	**Driver Breath Test:**	Notreq	**Driver Age:**	36
Veh Ref:	2	**Location:**	Carw	**Object in Cway:**	None	**From:**	Se	**Hit and Run:**	Nothtrun		
Veh Type:	Car	**Junction:**	Notjunct	**Object off Cway**	None	**To:**	Nw	**Driver Gender:**	Male		
Foreign Veh:		**Towing;**	None	**velcwy**	No	**J Purpose:**	Tofrowrk	**Driver Severity:**	None		

Accident Details:

Acc Ref: 2019-410821638	**1st / 2nd Rd:** B4630/2 6U1351/	**Jun Detail:**	T	**Weather:**	Fine	**Num Cas:**	1
Day of Week: Tue	**Parish:**	**Jun Control:**	Giveway	**Light:**	Darknone	**Num Peds:**	0
Date: 26/02/2019 18:19:00	**District:** StAlbs	**Spec Conditions:**	None	**Road Surface:**	Dry	**Num Vehicles:**	2
Acc Severity: Slight	**Speed Limit:** 30mph	**C/way Hazard:**	None	**C/way Type:**	Single	**Ped Xing:**	Npernox
B4630 Watford Road Chiswell Green J/w U1351 Forge End						**On Site:**	Yes

V1 Stolen M/c Under 125cc Trav North On Watford Road At Speed With No Lights Or Reflectives Has Collided With N/s V2 Car Trav South & Turning Right Into Forge End Across Path V1.

Easting: 513395 **Northing:** 204304

Contributory Factors

Participant	Confidence	Factor 1	2	3	4	5	6
V 1	A	Stolenve		Badlites		Poorlits	Darkcyc
V 1	B		Toofast				
V 2	B				Flookdri		

Casualty Details

Acc Ref: 2019-410821638	**Cas Class:** Driver	**Car Passenger:**	No	**Cas Severity:**	Slight	**Ped Movement:**	Notped
Veh Ref: 1	**Cas Age:** 18	**PSV Passenger:**	No	**Road User Class:**	Motorcyclists	**Ped Location:**	Notped
Cas Ref: 2	**Cas Gender:** Male	**Seat Belt:**	Notapp	**School Pupil:**		**Ped Work on Rd:**	Notped

Vehicle Details

Acc Ref:	152125	**Maneouvre:**	Ahead	**Skiding:**	Skidded	**Impact Point:**	Front	**Driver Breath Test:**	Notreq	**Driver Age:**	18
Veh Ref:	1	**Location:**	Carw	**Object in Cway:**	Kerb	**From:**	S	**Hit and Run:**	Nothtrun		
Veh Type:	Mc<=125	**Junction:**	Middle	**Object off Cway**	None	**To:**	N	**Driver Gender:**	Male		
Foreign Veh:		**Towing;**	None	**velcwy**	Nearside	**J Purpose:**	Other	**Driver Severity:**	Slight		
Acc Ref:		**Maneouvre:**	Turnrigh	**Skiding:**	None	**Impact Point:**	Nearside	**Driver Breath Test:**	Notreq	**Driver Age:**	48
Veh Ref:	2	**Location:**	Carw	**Object in Cway:**	None	**From:**	N	**Hit and Run:**	Nothtrun		
Veh Type:	Car	**Junction:**	Lmain	**Object off Cway**	None	**To:**	W	**Driver Gender:**	Female		
Foreign Veh:		**Towing;**	None	**velcwy**	No	**J Purpose:**	Tofrowrk	**Driver Severity:**	None		

Accident Details:

Acc Ref:	2018-410805247	**1st / 2nd Rd:**	A405/04 A405/05	**Jun Detail:**	R/bout	**Weather:**	Fine	**Num Cas:**	1
Day of Week:	Thu	**Parish:**		**Jun Control:**	Giveway	**Light:**	Day	**Num Peds:**	0
Date:	13/12/2018 16:30:00	**District:**	StAlbs	**Spec Conditions:**	None	**Road Surface:**	Dry	**Num Vehicles:**	2
Acc Severity:	Slight	**Speed Limit:**	70mph	**C/way Hazard:**	None	**C/way Type:**	Dual	**Ped Xing:**	Npernox
A405 North Orbital Road Chiswell Green Rbt J/w B4630 Watford Road								**On Site:**	No

V2 Car Ne/ Bound On A405 Waiting To Enter Rbt Was Hit In The Back By V1 Car. V1 F T S

Easting: 513037 **Northing:** 203689

Casualty Details

Acc Ref:	2018-410805247	**Cas Class:**	Driver	**Car Passenger:**	No	**Cas Severity:**	Slight	**Ped Movement:**	Notped
Veh Ref:	2	**Cas Age:**	63	**PSV Passenger:**	No	**Road User Class:**	Car Users	**Ped Location:**	Notped
Cas Ref:	1	**Cas Gender:**	Male	**Seat Belt:**	Unknown	**School Pupil:**		**Ped Work on Rd:**	Notped

Vehicle Details

Acc Ref:	152401	**Maneouvre:**	Ahead	**Skiding:**	None	**Impact Point:**	Front	**Driver Breath Test:**	Notcon	**Driver Age:**	51
Veh Ref:	1	**Location:**	Carw	**Object in Cway:**	None	**From:**	Sw	**Hit and Run:**	Hit&run		
Veh Type:	Car	**Junction:**	Approach	**Object off Cway**	None	**To:**	Ne	**Driver Gender:**	Male		
Foreign Veh:		**Towing;**	None	**velcwy**	No	**J Purpose:**	Unknown	**Driver Severity:**	None		
Acc Ref:		**Maneouvre:**	Waitahea	**Skiding:**	None	**Impact Point:**	Back	**Driver Breath Test:**	Notcon	**Driver Age:**	63
Veh Ref:	2	**Location:**	Carw	**Object in Cway:**	None	**From:**	Sw	**Hit and Run:**	Nothtrun		
Veh Type:	Car	**Junction:**	Approach	**Object off Cway**	None	**To:**	Ne	**Driver Gender:**	Male		
Foreign Veh:		**Towing;**	None	**velcwy**	No	**J Purpose:**	Unknown	**Driver Severity:**	Slight		

Accident Details:

Acc Ref:	2018-410801618	**1st / 2nd Rd:**	B4630/2 6U952/1	**Jun Detail:**	Multiple	**Weather:**	Other	**Num Cas:**	1
Day of Week:	Sat	**Parish:**		**Jun Control:**	Giveway	**Light:**	Darklit	**Num Peds:**	0
Date:	27/10/2018 16:28:00	**District:**	StAlbs	**Spec Conditions:**	None	**Road Surface:**	Wet	**Num Vehicles:**	2
Acc Severity:	Serious	**Speed Limit:**	30mph	**C/way Hazard:**	None	**C/way Type:**	Single	**Ped Xing:**	Npernox
B4630 Watford Road Chiswell Green O/s No 270 Est 10m South J/w Farringford Close								**On Site:**	Yes

V1 Car Trav North On Watford Road V2 Car Trav South. V1 Veered Across C/way Into The Path Of Oncoming V2 & Collided With R/o/s Wheel Causing V2 To Spin Full Circle Leave C/way N/s & Collide With A Lamp Post

Easting: 513408 **Northing:** 204233

Casualty Details

Acc Ref:	2018-410801618	**Cas Class:**	Passenge	**Car Passenger:**	Frontsea	**Cas Severity:**	Serious	**Ped Movement:**	Notped
Veh Ref:	2	**Cas Age:**	58	**PSV Passenger:**	No	**Road User Class:**	Car Users	**Ped Location:**	Notped
Cas Ref:	2	**Cas Gender:**	Female	**Seat Belt:**	Unknown	**School Pupil:**		**Ped Work on Rd:**	Notped

Vehicle Details

Acc Ref:	152388	**Maneouvre:**	Ahead	**Skiding:**	None	**Impact Point:**	Front	**Driver Breath Test:**	Notreq	**Driver Age:**	43
Veh Ref:	1	**Location:**	Carw	**Object in Cway:**	None	**From:**	S	**Hit and Run:**	Nothtrun		
Veh Type:	Car	**Junction:**	Approach	**Object off Cway**	None	**To:**	N	**Driver Gender:**	Male		
Foreign Veh:		**Towing;**	None	**velcwy**	Nearside	**J Purpose:**	Other	**Driver Severity:**	None		
Acc Ref:		**Maneouvre:**	Ahead	**Skiding:**	None	**Impact Point:**	Front	**Driver Breath Test:**	Notreq	**Driver Age:**	67
Veh Ref:	2	**Location:**	Carw	**Object in Cway:**	None	**From:**	N	**Hit and Run:**	Nothtrun		
Veh Type:	Car	**Junction:**	Exit	**Object off Cway**	Lamppost	**To:**	S	**Driver Gender:**	Male		
Foreign Veh:		**Towing;**	None	**velcwy**	Nearside	**J Purpose:**	Other	**Driver Severity:**	None		

Accident Details:

Acc Ref:	2018-410324307	**1st / 2nd Rd:**	A405/05 A405/05	**Jun Detail:**	R/bout	**Weather:**	Fine	**Num Cas:**	1
Day of Week:	Sun	**Parish:**		**Jun Control:**	Giveway	**Light:**	Day	**Num Peds:**	0
Date:	05/08/2018 13:35:00	**District:**	StAlbs	**Spec Conditions:**	None	**Road Surface:**	Dry	**Num Vehicles:**	2
Acc Severity:	Slight	**Speed Limit:**	70mph	**C/way Hazard:**	None	**C/way Type:**	Dual	**Ped Xing:**	Npercntr
A405 North Orbital Road St Albans J/w A405 Noke Rbt								**On Site:**	Yes

V1 Car Trav West On North Orbital Road Has Moved Off To Enter Rbt & Collided With O/s V2 P/c Riding Across C/way From V1 N/s Trav North

Easting: 513116 **Northing:** 203695

Contributory Factors

Participant	Confidence	Factor 1	2	3	4	5	6
V 1	A	Flookdri	Reckdriv				

Casualty Details

Acc Ref:	2018-410324307	**Cas Class:**	Driver	**Car Passenger:**	No	**Cas Severity:**	Slight	**Ped Movement:**	Notped
Veh Ref:	2	**Cas Age:**	34	**PSV Passenger:**	No	**Road User Class:**	Cyclists	**Ped Location:**	Notped
Cas Ref:	1	**Cas Gender:**	Male	**Seat Belt:**	Notapp	**School Pupil:**		**Ped Work on Rd:**	Notped

Vehicle Details

Acc Ref:	151427	**Maneouvre:**	Starting	**Skiding:**	None	**Impact Point:**	Front	**Driver Breath Test:**	Negati	**Driver Age:**	81
Veh Ref:	1	**Location:**	Carw	**Object in Cway:**	None	**From:**	E	**Hit and Run:**	Nothtrun		
Veh Type:	Car	**Junction:**	Approach	**Object off Cway**	None	**To:**	W	**Driver Gender:**	Male		
Foreign Veh:		**Towing;**	None	**velcwy**	No	**J Purpose:**	Other	**Driver Severity:**	None		

Acc Ref:		**Maneouvre:**	Ahead	**Skiding:**	None	**Impact Point:**	Offside	**Driver Breath Test:**	Notap	**Driver Age:**	34
Veh Ref:	2	**Location:**	Carw	**Object in Cway:**	None	**From:**	S	**Hit and Run:**	Nothtrun		
Veh Type:	Bicycle	**Junction:**	Middle	**Object off Cway**	None	**To:**	N	**Driver Gender:**	Male		
Foreign Veh:		**Towing;**	None	**velcwy**	No	**J Purpose:**	Other	**Driver Severity:**	Slight		

Accident Details:

Acc Ref:	2017-410258113	**1st / 2nd Rd:**	A405/05 B4630/2	**Jun Detail:**	R/bout	**Weather:**	Fine	**Num Cas:**	1
Day of Week:	Sun	**Parish:**		**Jun Control:**	Giveway	**Light:**	Day	**Num Peds:**	0
Date:	24/09/2017 16:04:00	**District:**	StAlbs	**Spec Conditions:**	None	**Road Surface:**	Dry	**Num Vehicles:**	2
Acc Severity:	Slight	**Speed Limit:**	70mph	**C/way Hazard:**	None	**C/way Type:**	R/bout	**Ped Xing:**	Npernox
A405 The Noke Hotel Rbt Chiswell Green J/w B4630watford Road								**On Site:**	No

Both Vs Trav Ne On North Orbital Road Across Rbt When V1 M/c Over 500cc Has Changed Lane To Left & Collided With O/s V2 Car Causing V1 To Hit N/s Kerb & Leave C/way N/s Into Sign

Easting: 513063 **Northing:** 203722

Contributory Factors

Participant	Confidence	Factor 1	2	3	4	5	6
V 1	A	Tooclose	Flookdri				
V 1	B				Poorturn		Poorindi
V 2	B			Flookdri		Poorindi	

Casualty Details

Acc Ref:	2017-410258113	**Cas Class:**	Driver	**Car Passenger:**	No	**Cas Severity:**	Slight	**Ped Movement:**	Notped
Veh Ref:	1	**Cas Age:**	52	**PSV Passenger:**	No	**Road User Class:**	Motorcyclists	**Ped Location:**	Notped
Cas Ref:	1	**Cas Gender:**	Male	**Seat Belt:**	Notapp	**School Pupil:**		**Ped Work on Rd:**	Notped

Vehicle Details

Acc Ref:	149480	**Maneouvre:**	Chglnlef	**Skiding:**	Skidded	**Impact Point:**	Nearside	**Driver Breath Test:**	Negati	**Driver Age:**	52
Veh Ref:	1	**Location:**	Carw	**Object in Cway:**	Kerb	**From:**	Sw	**Hit and Run:**	Nothtrun		
Veh Type:	Mc>500	**Junction:**	Middle	**Object off Cway**	Sign/ats	**To:**	Ne	**Driver Gender:**	Male		
Foreign Veh:		**Towing;**	None	**velcwy**	Offside	**J Purpose:**	Unknown	**Driver Severity:**	Slight		
Acc Ref:		**Maneouvre:**	Ahead	**Skiding:**	None	**Impact Point:**	Offside	**Driver Breath Test:**	Notreq	**Driver Age:**	53
Veh Ref:	2	**Location:**	Carw	**Object in Cway:**	None	**From:**	Sw	**Hit and Run:**	Nothtrun		
Veh Type:	Car	**Junction:**	Middle	**Object off Cway**	None	**To:**	Ne	**Driver Gender:**	Male		
Foreign Veh:		**Towing;**	None	**velcwy**	No	**J Purpose:**	Unknown	**Driver Severity:**	None		

Accident Details:

Acc Ref: 2017-410198454	**1st / 2nd Rd:** A405/05 A405/04	**Jun Detail:**	R/bout	**Weather:**	Fine	**Num Cas:**	1
Day of Week: Fri	**Parish:**	**Jun Control:**	Giveway	**Light:**	Day	**Num Peds:**	0
Date: 16/06/2017 06:49:00	**District:** StAlbs	**Spec Conditions:**	None	**Road Surface:**	Dry	**Num Vehicles:**	2
Acc Severity: Slight	**Speed Limit:** 60mph	**C/way Hazard:**	None	**C/way Type:**	R/bout	**Ped Xing:**	Npernox
A405 Noke Hotel Rbt St Albans J/w A405 North Orbital Road						**On Site:**	Yes

Both Vs Cars. V1 Trav Ne On North Orbital Road Has Entered Rbt At Speed & Collided With Rear V2 Negotiating Rbt Trav Nw Across Jct

Easting: 513041 **Northing:** 203696

Contributory Factors

Participant	Confidence	Factor 1	2	3	4	5	6
V 1	A		Dissign			Sun	
V 1	B	Speeding		Flookdri			Distrout
V 2	B				Poorindi		

Casualty Details

Acc Ref: 2017-410198454	**Cas Class:** Driver	**Car Passenger:**	No	**Cas Severity:**	Slight	**Ped Movement:**	Notped
Veh Ref: 2	**Cas Age:** 60	**PSV Passenger:**	No	**Road User Class:**	Car Users	**Ped Location:**	Notped
Cas Ref: 1	**Cas Gender:** Female	**Seat Belt:**	Unknown	**School Pupil:**		**Ped Work on Rd:**	Notped

Vehicle Details

Acc Ref:	148583	**Maneouvre:**	Starting	**Skiding:**	None	**Impact Point:**	Front	**Driver Breath Test:**	Notreq	**Driver Age:**	27
Veh Ref:	1	**Location:**	Carw	**Object in Cway:**	None	**From:**	Sw	**Hit and Run:**	Nothtrun		
Veh Type:	Car	**Junction:**	Er/about	**Object off Cway**	None	**To:**	N	**Driver Gender:**	Male		
Foreign Veh:		**Towing;**	None	**velcwy**	No	**J Purpose:**	Work	**Driver Severity:**	None		
Acc Ref:		**Maneouvre:**	Ahead	**Skiding:**	None	**Impact Point:**	Back	**Driver Breath Test:**	Ntprov	**Driver Age:**	60
Veh Ref:	2	**Location:**	Carw	**Object in Cway:**	None	**From:**	E	**Hit and Run:**	Nothtrun		
Veh Type:	Car	**Junction:**	Middle	**Object off Cway**	None	**To:**	N	**Driver Gender:**	Female		
Foreign Veh:		**Towing;**	None	**velcwy**	No	**J Purpose:**	Other	**Driver Severity:**	Slight		

Accident Details:

Acc Ref: 2017-410148280	**1st / 2nd Rd:** B4630/2 C81/10	**Jun Detail:**	Mini	**Weather:**	Rain	**Num Cas:**	1
Day of Week: Mon	**Parish:**	**Jun Control:**	Giveway	**Light:**	Day	**Num Peds:**	0
Date: 16/01/2017 08:12:00	**District:** StAlbs	**Spec Conditions:**	None	**Road Surface:**	Wet	**Num Vehicles:**	2
Acc Severity: Slight	**Speed Limit:** 30mph	**C/way Hazard:**	None	**C/way Type:**	Single	**Ped Xing:**	Npercntr
B4630 Watford Road St Albans Mini Rbt J/w C81 Tippendell Lane						**On Site:**	No

Both Vs Cars Trav South On Watford Road. V2 Waiting To Enter Mini Rbt & V1 As Collided With Rear V2

Easting: 513416 **Northing:** 204630

Contributory Factors

Participant	Confidence	Factor 1	2	3	4	5	6
V 1	A	Slipweat					
V 1	B		Reckdriv				

Casualty Details

Acc Ref: 2017-410148280	**Cas Class:** Driver	**Car Passenger:**	No	**Cas Severity:**	Slight	**Ped Movement:**	Notped
Veh Ref: 2	**Cas Age:** 26	**PSV Passenger:**	No	**Road User Class:**	Car Users	**Ped Location:**	Notped
Cas Ref: 1	**Cas Gender:** Female	**Seat Belt:**	Unknown	**School Pupil:**		**Ped Work on Rd:**	Notped

Vehicle Details

Acc Ref:	148081	**Maneouvre:**	Ahead	**Skiding:**	None	**Impact Point:**	Front	**Driver Breath Test:**	Notcon	**Driver Age:**	34
Veh Ref:	1	**Location:**	Carw	**Object in Cway:**	None	**From:**	N	**Hit and Run:**	Nothtrun		
Veh Type:	Taxi	**Junction:**	Approach	**Object off Cway**	None	**To:**	S	**Driver Gender:**	Male		
Foreign Veh:		**Towing;**	None	**velcwy**	No	**J Purpose:**	Unknown	**Driver Severity:**	None		
Acc Ref:		**Maneouvre:**	Waitahea	**Skiding:**	None	**Impact Point:**	Back	**Driver Breath Test:**	Notcon	**Driver Age:**	26
Veh Ref:	2	**Location:**	Carw	**Object in Cway:**	None	**From:**	N	**Hit and Run:**	Nothtrun		
Veh Type:	Car	**Junction:**	Approach	**Object off Cway**	None	**To:**	S	**Driver Gender:**	Female		
Foreign Veh:		**Towing;**	None	**velcwy**	No	**J Purpose:**	Work	**Driver Severity:**	Slight		

Accident Details:

Acc Ref:	2016-410140499	**1st / 2nd Rd:**	A405/04 NONE	**Jun Detail:**	Notjunct	**Weather:**	Fine	**Num Cas:**	1
Day of Week:	Fri	**Parish:**		**Jun Control:**	Notjunct	**Light:**	Darklit	**Num Peds:**	0
Date:	23/12/2016 22:00:00	**District:**	StAlbs	**Spec Conditions:**	None	**Road Surface:**	Wet	**Num Vehicles:**	1
Acc Severity:	Serious	**Speed Limit:**	70mph	**C/way Hazard:**	None	**C/way Type:**	Dual	**Ped Xing:**	Npernox
A405 North Orbital Road Chiswell Green Approx 115m Ne J/w C79 Lye Lane								**On Site:**	Yes

V1 Car Trav Sw On North Orbital Road At Excess Speed Weaving In And Out Of Traffic. At Noke Rbt V1 Has Hit Rbt, Lost Control & Come To Rest Further Along C/way On Central Reservation Colliding With A Lamp Post. Driver V1 Alcohol Impaired

Easting: 512998 **Northing:** 203648

Contributory Factors

Participant	Confidence	Factor 1	2	3	4	5	6
V 1	A	Speeding	Alcydriv	Slipweat			

Casualty Details

Acc Ref:	2016-410140499	**Cas Class:**	Driver	**Car Passenger:**	No	**Cas Severity:**	Serious	**Ped Movement:**	Notped
Veh Ref:	1	**Cas Age:**	17	**PSV Passenger:**	No	**Road User Class:**	Car Users	**Ped Location:**	Notped
Cas Ref:	1	**Cas Gender:**	Male	**Seat Belt:**	Unknown	**School Pupil:**		**Ped Work on Rd:**	Notped

Vehicle Details

Acc Ref:	147342	**Maneouvre:**	Ahead	**Skiding:**	Skidovtu	**Impact Point:**	Front	**Driver Breath Test:**	Ntprov	**Driver Age:**	17
Veh Ref:	1	**Location:**	Carw	**Object in Cway:**	None	**From:**	Ne	**Hit and Run:**	Nothtrun		
Veh Type:	Car	**Junction:**	Notjunct	**Object off Cway**	Lamppost	**To:**	Sw	**Driver Gender:**	Male		
Foreign Veh:		**Towing;**	None	**velcwy**	Offctrbo	**J Purpose:**	Unknown	**Driver Severity:**	Serious		

Appendix 4

Chiswell Green Lane, Chiswell Green: Queue Length Survey - Thursday, 09 September 2021

Produced by Streetwise Services Ltd.

Junction: **A - (North) B4630 Watford Road / B - Tippendell Lane / C - Access Road / D - (South) B4630 Watford Road**

CLASSIFICATION	PCU
CAR	1.0
LGV	1.0
OGV1	1.5
OGV2	2.3
BUS	2.0
P/CYCLE	0.2
M/CYCLE	0.4

Chiswell Green Lane, Chiswell Green - Manual Traffic Survey: Thursday, 09 September 2021

Produced by Streetwise Services Ltd.

Junction: A - (North) B4630 Watford Road / B - Tippendell Lane / C - Access Road / D - (South) B4630 Watford Road

Approach: A - (North) B4630 Watford Road

	A to B									
TIME	CAR	LGV	OGV1	OGV2	BUS	P/CYCLE	M/CYCLE	PCU	TOTAL	CAR
07:00 - 07:15	9	0	0	0	0	0	0	9.0	9	2
07:15 - 07:30	18	1	2	0	0	0	0	22.0	21	0
07:30 - 07:45	10	4	0	0	0	0	0	14.0	14	0
07:45 - 08:00	35	2	1	1	0	0	0	40.8	39	0
Hourly Total	**72**	**7**	**3**	**1**	**0**	**0**	**0**	**86**	**83**	**2**
08:00 - 08:15	29	0	0	0	0	0	0	29.0	29	2
08:15 - 08:30	51	3	1	0	0	1	0	55.7	56	1
08:30 - 08:45	75	3	1	0	0	1	0	79.7	80	1
08:45 - 09:00	39	4	0	0	1	0	0	45.0	44	5
Hourly Total	**194**	**10**	**2**	**0**	**1**	**2**	**0**	**209**	**209**	**9**
09:00 - 09:15	38	3	2	0	0	0	0	44.0	43	4
09:15 - 09:30	25	3	0	0	0	0	1	28.4	29	2
09:30 - 09:45	27	4	1	0	0	0	0	32.5	32	2
09:45 - 10:00	23	4	0	0	1	0	0	29.0	28	2
Hourly Total	**113**	**14**	**3**	**0**	**1**	**0**	**1**	**134**	**132**	**10**
Session Total	**379**	**31**	**8**	**1**	**2**	**2**	**1**	**429**	**424**	**21**
16:00 - 16:15	51	6	1	1	1	0	0	62.8	60	1
16:15 - 16:30	39	5	0	0	2	0	0	48.0	46	0
16:30 - 16:45	36	4	0	0	1	0	0	42.0	41	1
16:45 - 17:00	51	1	0	0	0	1	0	52.2	53	0
Hourly Total	**177**	**16**	**1**	**1**	**4**	**1**	**0**	**205**	**200**	**2**
17:00 - 17:15	43	7	0	0	0	1	0	50.2	51	3
17:15 - 17:30	31	2	0	0	1	0	1	35.4	35	2
17:30 - 17:45	47	2	0	0	1	1	0	51.2	51	0
17:45 - 18:00	50	2	0	0	0	0	0	52.0	52	0
Hourly Total	**171**	**13**	**0**	**0**	**2**	**2**	**1**	**188**	**189**	**5**
18:00 - 18:15	42	1	0	0	0	1	1	43.6	45	0
18:15 - 18:30	38	2	0	0	0	1	0	40.2	41	1
18:30 - 18:45	15	1	0	0	0	0	1	16.4	17	0
18:45 - 19:00	32	2	0	0	0	0	0	34.0	34	0
Hourly Total	**127**	**6**	**0**	**0**	**0**	**2**	**2**	**134**	**137**	**1**
Session Total	**475**	**35**	**1**	**1**	**6**	**5**	**3**	**527**	**526**	**8**

A to C

LGV	OGV1	OGV2	BUS	P/CYCLE	M/CYCLE	PCU	TOTAL
0	0	0	0	0	0	2.0	2
0	0	0	0	0	0	0.0	0
2	1	0	0	0	0	3.5	3
0	0	0	0	0	0	0.0	0
2	1	0	0	0	0	6	5
0	0	0	0	0	0	2.0	2
0	0	0	0	0	0	1.0	1
0	0	0	0	0	0	1.0	1
0	0	0	0	0	0	5.0	5
0	0	0	0	0	0	9	9
1	0	0	0	0	0	5.0	5
1	0	0	0	0	0	3.0	3
0	0	0	0	0	0	2.0	2
0	0	0	0	0	0	2.0	2
2	0	0	0	0	0	12	12
4	1	0	0	0	0	27	26
0	0	0	0	0	0	1.0	1
1	0	0	0	0	0	1.0	1
1	0	0	0	0	0	2.0	2
1	0	0	0	0	0	1.0	1
3	0	0	0	0	0	5	5
1	0	0	0	0	0	4.0	4
0	0	0	0	0	0	2.0	2
0	0	0	0	0	0	0.0	0
0	0	0	0	0	0	0.0	0
1	0	0	0	0	0	6	6
0	0	0	0	0	0	0.0	0
0	0	0	0	0	0	1.0	1
0	0	0	0	0	0	0.0	0
1	0	0	0	0	0	1.0	1
1	0	0	0	0	0	2	2
5	0	0	0	0	0	13	13

A to D								
CAR	LGV	OGV1	OGV2	BUS	P/CYCLE	M/CYCLE	PCU	TOTAL
77	12	2	1	0	1	2	**95.3**	**95**
97	15	3	0	1	0	1	**118.9**	**117**
94	14	0	2	1	2	2	**115.8**	**115**
79	8	3	0	0	0	0	**91.5**	**90**
347	**49**	**8**	**3**	**2**	**3**	**5**	**422**	**417**
90	14	1	0	5	0	0	**115.5**	**110**
100	4	2	0	0	1	0	**107.2**	**107**
96	10	0	1	3	0	1	**114.7**	**111**
91	4	0	0	0	0	1	**95.4**	**96**
377	**32**	**3**	**1**	**8**	**1**	**2**	**433**	**424**
90	15	2	1	1	1	2	**113.3**	**112**
88	10	2	1	1	0	1	**105.7**	**103**
81	11	2	0	2	0	1	**99.4**	**97**
86	7	1	0	0	0	1	**94.9**	**95**
345	**43**	**7**	**2**	**4**	**1**	**5**	**414**	**407**
1069	**124**	**18**	**6**	**14**	**5**	**12**	**1269**	**1248**
104	11	3	0	1	0	2	**122.3**	**121**
97	15	0	0	1	1	1	**114.6**	**115**
99	6	0	0	3	0	1	**111.4**	**109**
112	19	0	0	1	0	0	**133.0**	**132**
412	**51**	**3**	**0**	**6**	**1**	**4**	**482**	**477**
125	10	0	0	1	0	1	**137.4**	**137**
104	5	1	0	1	2	2	**113.7**	**115**
124	8	1	0	1	1	3	**136.9**	**138**
135	6	0	0	1	0	0	**143.0**	**142**
488	**29**	**2**	**0**	**4**	**3**	**6**	**531**	**532**
114	5	1	0	1	1	2	**123.5**	**124**
90	5	0	0	2	0	1	**99.4**	**98**
76	4	2	0	1	0	1	**85.4**	**84**
80	2	0	0	1	0	0	**84.0**	**83**
360	**16**	**3**	**0**	**5**	**1**	**4**	**393**	**389**
1260	**96**	**8**	**0**	**15**	**5**	**14**	**1406**	**1398**