Peter Evans Partnership
Transport Planning
& Highway Consultants

Proposed Retirement Community
Land at Burston Garden Centre
A405 North Orbital Road
St Albans, Hertfordshire

Castleoak Care Developments Ltd

Transport Assessment

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APPENDICES

1.0 INTRODUCTION

1.1 Aim of Assessment

1.1.1 This Transport Assessment accompanies a new planning application to St. Albans City and District Council on behalf of Castleoak Care Developments Ltd. to provide a residential retirement community for the elderly comprising assisted living apartments and care bungalows on land at Burston Garden Centre, St Albans. This is a smaller scheme with a lower traffic generation with the removal of the care home from previously refused proposals. Castleoak would build the development which would then be run by a specialist residential care provider.

1.1.2 The Assessment considers the accessibility of the site by car and non-car means and includes a review of the permitted development on the site. It provides an assessment of the transportation and highway related matters associated with the proposed development, which includes identifying the transport implications of the proposals on existing traffic and safety conditions. Background information on previous planning applications on the site including matters agreed with the Highway Authority, Hertfordshire County Council, is also reviewed.

1.1.3 A Travel Plan is provided separately with the application in line with current local and national policy.

1.2 Planning History

2018 Application

1.2.1 Planning application ref: 5/18/1324 for a retirement scheme comprising a 64-bed care home, 80 assisted living apartments and 45 care bungalows on the site was submitted in May 2018. A Transport Assessment, May 2018 was prepared by Peter Evans Partnership (PEP) to accompany the planning application.

1.2.2 The related off-site proposals were for signalisation of the existing main Burston Garden Centre access junction with the A405 North Orbital Road and provision of a new mini-roundabout at the internal site access/garden centre access. The signalisation scheme on the A405 was permitted in July 2015 and had been accepted by the Highway Authority at the time.

1.2.3 The application was refused by the Planning Authority in March 2019 for two reasons relating to development in the Green Belt and the relationship of the development to existing listed buildings on an adjacent site.

1.2.4 By the time the application was decided and following extensive discussions with PEP the Highway Authority was satisfied that all highway matters including on access, traffic generation, parking, servicing and capacity testing were agreed. There were therefore no highway related reasons for refusal of the previous retirement community scheme subject to planning conditions. A copy of the formal response of 'no objection' from Hertfordshire County Council and suggested highway conditions is provided at Appendix 1.

1.2.5 The refusal was appealed in August 2019 but dismissed by the Planning Inspector in January 2020 for reasons also related to Green Belt matters and effects on the character, appearance and heritage of the site. The Inspector confirmed that there were no concerns on traffic congestion and air pollution matters and that securing access improvements on the North Orbital Road as part of the development added weight in favour of the proposals. The Inspector also confirmed that the site is in a suitable location for services and facilities at How Wood, bus stops and a railway station.

Agreed Highway Matters

1.2.6 The matters agreed during the first planning application from a transport planning perspective include:

- the proposed mini-roundabout and new internal access road with 5.5m carriageway and 2m footway are acceptable;
- the swept path analysis for a large refuse vehicle in accordance with St Albans' specification and a car is satisfactory;
- the Highway Authority would adopt all infrastructure related to the signalised junction;
- existing garden centre traffic level was acceptable based on manual classified survey;
- proposed development traffic flows based on TRICS national database trip rates were acceptable;
- development traffic distribution based on A405 directional flows was acceptable;
- testing of proposed A405/main garden centre access junction with development traffic to 2023 is satisfactory and results do not raise capacity issues;
- the level of car and cycle parking proposed is satisfactory; and
- the Travel Plan is acceptable with initial targets based on 2011 Census data.

Signalised A405/Access Junction Discussions

1.2.7 During the planning application stage, meetings and discussions were held between PEP and highways development, design and safety officers at Hertfordshire County Council to review and agree detailed design principles for the proposed traffic signal arrangement at the A405/ garden centre access junction. The general layout of the approved signalised junction arrangement is provided at Appendix 2.

1.2.8 The technical information submitted by PEP to the Highway Authority comprises:

- Site access vertical alignment, PEP drawing no. 3019.09;
- 215m forward visibility envelopes, PEP drawing no. 3019.14;
- Signalised junction layout and visibility, PEP drawing no. 3019.15;
- Proposals for 60mph speed limit, PEP drawing no. 3019.16;
- Departures from Standard note and forms by PEP;
- Stage 1 Road Safety Audit by TMS; and
- Road Safety Response Report by PEP.

1.2.9 The agreed technical matters include:

- The design speed is 60mph based on a speed survey undertaken on the south westbound carriageway of the A405;
- A Departures from Standard in terms of forward visibility to the traffic signal junction and the existing 400m radius of the road would be acceptable to the Highway Authority based on the agreed 60mph design speed with mitigation proposals put forward;
- A Traffic Regulation Order (TRO) application to reduce the speed limit on the A405 from National (70mph) to 60mph would be submitted and funded by the developer;
- Mitigation proposals:
  - Superelevation change on 400m radius bend from 7% to 2.5% to allow 215m (60mph design speed) forward visibility to be achieved to the signal stop line and traffic signals from a driver eye height of 1.05m to object height of 1.05m.
  - Back of predicted vehicle queue visibility would be achieved from driver position height of 1.25m to object height of 1.05m over top of existing safety barrier (VRS). Higher eye height accepted by HCC because existing queuing on the A405 has not given rise to safety issues.
  - Double height traffic signal poles would be provided.
  - Traffic signal junction ahead warning signs in advance of the signals.
  - High PSV (68+) stone to be used on the resurfaced area of carriageway.
- 60mph speed limit scheme proposed between Noke roundabout to south west and Tippendell Lane roundabout to the north with 60mph repeater signs. Limit reverts to National speed limit at either end of the scheme subject to HCC confirmation as part of any wider strategy on speed limits; and
- Stage 1 RSA identified 4 problems and HCC accepted PEP's suggested actions in Response Report.

1.2.10 Other general changes that were requested to the signalised junction layout included:

- Maintenance layby added on left turn into site;
- Controlled crossing on Albany Mews replaced by uncontrolled crossing with tactile paving and 'Look left'/'Look right' road markings;
- Extent of proposed highway adoption on the site access road shown; and
- Above ground detector on site access signals with potential for Stop line loop.

1.3 Contents

1.3.1 The Transport Assessment continues:

- in Section 2 with a description of the existing transport context including a review of accessibility for all road users, road and safety conditions including updated safety records and permitted development;
- in Section 3 with a review of the relevant national and local transport policy;
- in Section 4 with a description of the transport elements of the application including details of access and layout;
- in Section 5 with an appraisal of the proposals from a transport perspective; and
- in Section 6 with our conclusions.

2.0 EXISTING TRANSPORT CONTEXT

2.1 Strategic Location

2.1.1 The site is south of the A405 North Orbital Road some 3.6km south of St Albans city centre and some 8km north of Watford town centre as shown at Appendix 3.

2.1.2 To the south of the site the A405 continues for some 1km where it meets the M25 London Orbital Motorway at junction 21A at a grade separated junction known as Bricket Wood. To the east of junction 21A the M25 continues for some 35km where it meets the M11 at junction 27. Some 900m west of the Bricket Wood junction the M25 meets the M1 at junction 21 known as the Chiswell Interchange.

2.1.3 To the north of the M25 the M1 provides a strategic link to Leeds via Milton Keynes, Leicester, Nottingham and Sheffield. To the south the M1 continues for some 21km where it meets the A406 North Circular Road at junction 1, known as Staples Corner.

2.1.4 The North Orbital Road continues north from the site as the A405 for some 1.7km and continues east as the A414 for some 7.2km where it meets the A1(M) and A1001 at a grade separated junction in Hatfield. The A405 and A414 meet at the Park Street roundabout with the north and south arms being the A5183 Watling Street.

2.1.5 To the west of the Park Street roundabout the A414 continues for some 4.5km where it joins the M1 at junction 8 with a northbound on-slip and southbound off-slip provided. To the north the A5183 continues for some 2.8km to St Albans city centre. To the south of the roundabout the A5183 continues for some 5.4km to Radlett.

2.1.6 To the south of the site the A405 continues south from the M25 for some 6.2km where it meets the A41 North Western Avenue at a grade separated roundabout. To the east the A41 continues towards Edgware. To the west of the junction the A41 continues for some 2.6km where it meets the M25 at junction 19.

2.2 Local Area

2.2.1 The site is on land in the eastern part of Burston Garden Centre. The site is bounded by two residential properties and a number of small business units to the north, woodland to the east (How Wood) and south (Birch Wood) and Burston Garden Centre to the west. Birchwood Bungalow care home is adjacent to the south eastern corner of the site and is served by a single track from How Wood to the south east. The local area and road network in the vicinity of the site are shown at Appendix 4.

2.2.2 The A405 North Orbital Road passes adjacent to Burston Garden Centre some 200m north west of the site and is dual carriageway and is subject to the national speed. To the north east the A405 continues for some 600m where it meets Tippendell Lane at a roundabout and for a further 900m where it meets the A414, A5183 North and A5183 South at the Park Street roundabout.

2.2.3 Some 280m west of Burston Garden Centre the A405 meets the B4630 Watford Road at a roundabout known as the Noke roundabout. Watford Road continues north east through Chiswell Green and north as St Stephen's Hill and the A5183 into St Albans city centre.

2.2.4 Access to Burston Garden Centre is provided off the A405 at a priority junction with a right turn lane provided in the central reserve. Only left turns out from the access on to the A405 are permitted. Some 20m east of the Burston Garden Centre access a left-in/left-out access is provided to serve two residential properties, The Limes and Burston Manor, as well as a number of small business units at Burston Manor Farm.

2.2.5 Opposite Burston Garden Centre is Albany Mews which is a one-way service road parallel to the eastbound carriageway of the A405 serving some seven residential properties and associated car parking off a courtyard arrangement and providing direct access to around five other residential properties. Entry to Albany Mews is off the A405 some 200m west of the garden centre access and the egress is immediately opposite the garden centre access. Albany Mews is separated from the A405 eastbound by a section of verge.

2.2.6 Some 520m east of Burston Garden Centre is the How Wood residential estate. Penn Road and How Wood provide the main spine road through the estate with Penn Road meeting Tippendell Lane some 610m east of the A405/Tippendell Lane roundabout. How Wood meets Park Street Lane some 670m south east of the site. Park Street lane continues south to Bricket Wood and north to Park Street.

2.3 Local Facilities

2.3.1 The Mercure St Albans Noke hotel is some 600m west of the site with access provided directly off the Noke roundabout.

2.3.2 A petrol filling station with convenience store and separate Starbucks coffee shop are some 500m west of the site on the A405 North Orbital Road. Separate entry and egress points are provided both off the eastbound side of the A405 and Watford Road.

2.3.3 A number of local retail units and services including a Cooperative food store, butchers, pharmacy, retail, take-aways and restaurants are provided on How Wood some 380m east of the site.

2.4 Existing Pedestrian and Cycle Facilities

2.4.1 A pedestrian footway is provided on the south side of the A405 from the Burston Garden Centre access some 320m west of the site to the Noke roundabout. At the roundabout dropped kerb crossing points are provided on each arm. A section of footway is provided along the north side of the A405 from the Noke roundabout and continues along Albany Mews.

2.4.2 Footway links are not provided into Burston Garden Centre from the A405 footway. An adopted footpath continues north east from the access to Burston Manor Park past The Limes and along the south side of the A405 to link to Mayflower Road in How Wood.

2.4.3 A bridleway reference 'St Stephen 003' meets the adopted footpath on the A405 at the northern corner of The Limes and continues south east adjacent to the eastern site boundary to meet How Wood some 300m south east of the site. The bridleway is surfaced in compacted gravel between the footpath on the A405 and Birchwood Bungalow. A bound surface is provided for the following 190m section between Birchwood Bungalow and How Wood and this provides vehicular access to Birchwood Bungalow. The bridleway is mainly unlit apart from one lighting column provided at Birchwood Bungalow.

2.4.4 Informal footpaths are provided between the bridleway and Ringway Road and Grovelands to the east on the How Wood estate.

2.4.5 How Wood is provided with pedestrian footways and street lighting on both sides of the carriageway.

2.4.6 Opposite the Burston Garden Centre access a section of bridleway, reference St Stephen 003A, is provided between Albany Mews and the footway on Manor Drive in Chiswell Green.

2.4.7 An uncontrolled staggered crossing point is provided on the A405 some 270m north of the adopted footpath at Mayflower Road with a section of footway provided in the central reserve between the staggered links. This connects footpath St Stephen 077 between Orchard Drive in How Wood and Driftwood Drive in Chiswell Green.

2.4.8 Public footpath reference St Stephen 018 passes along the west boundary of Burston Garden Centre between the footway on the A405 and Lye Lane to the south west.

2.4.9 National Cycle Route 6 between London and the Lake District via Watford, Northampton, Leicester and Manchester passes through the local area along Penn Road and How Wood south east of the site. Locally Route 6 is along a mix of on and off-road routes north to St Albans city centre and south to Watford. A foot/cycle bridge is provided across the A405 adjacent to the A405/Tippendell Lane roundabout as part of the Cycle Route 6.

2.4.10 The local cycle routes near the site are shown at Appendix 5.

2.5 Public Transport

Bus Services

2.5.1 Bus services operate along How Wood and Watford Road in Chiswell Green including:

How Wood 'Shops'		Service Frequency (minutes)					
Service No.	Route	Monday – Friday		Saturday		Sunday	
		Day	Eve	Day	Eve	Day	Eve
361	Bricket Wood – St Albans	60	-	60	-	-	-
635	Hitchin – Hatfield – Watford	60	-	-	-	-	-

Watford Road 'Long Fallow'		Service Frequency (minutes)					
Service No.	Route	Monday – Friday		Saturday		Sunday	
		Day	Eve	Day	Eve	Day	Eve
321	Luton – St Albans - Watford	20	30-60	20	30-60	60	60

2.5.2 The closest bus stops to the site are some 360m to the east on How Wood adjacent to the local shops and amenities. Both the north and southbound bus stops are provided with seating, shelters, raised kerbing and timetable information.

2.5.3 Further bus stops with raised kerbing and flags are provided on Watford Road at Long Fallow some 530m north west of the site.

2.5.4 Local bus services information including a routes plan and services summary is provided at Appendix 6.

Rail Services

2.5.5 How Wood railway station is some 800m east of the site accessible by footways adjacent to local streets. How Wood railway station serves trains between St Albans Abbey and Watford Junction with hourly services provided in each direction. Watford Junction provides links to Milton Keynes, Birmingham and central London.

2.6 Existing Site and Burston Garden Centre

2.6.1 The site is on land in the north eastern part of Burston Garden Centre. The garden centre, as well as horticultural plants and associated goods, sells indoor living and pet care products and aquatics and reptiles at the Hertfordshire Fisheries outlet on the site.

2.6.2 Burston Garden Centre operates Monday to Saturday between 09:00 and 18:00 and on Sunday between 10:30 and 16:30. A café/restaurant facility operates on site Monday to Saturday between 10:00 and 16:00 and on Sunday between 13:00 and 16:00.

2.6.3 The main car park in the northern part of the garden centre has some 122 spaces including four disabled bays. A separate car park with some 13 car spaces is provided between the garden centre access and Burston Manor Farm access.

2.6.4 The site is currently used as an agricultural/horticultural nursery and includes a number of outbuildings, hardstanding areas, irrigation systems and polytunnels. A service road is provided from the main garden centre access off the A405 and continues south east between the site and garden centre buildings.

2.7 Existing Traffic Flows

2.7.1 A traffic survey was undertaken at the Burston Garden Centre/A405 junction and Albany Mews egress on Wednesday 25th April 2018 and on Saturday 28th April 2018. These details were previously provided in the PEP TA, May 2018.

2.7.2 The morning and evening weekday peak traffic periods were identified as 07:00-08:00 and 17:00-18:00 respectively. The Saturday lunchtime peak period was 12:00-13:00.

Burston Garden Centre Flows

2.7.3 The peak hour traffic movements associated with Burston Garden Centre and Hertfordshire Fisheries were:

Peak	Time	Traffic Flows (Vehicles)		
		Arrivals	Departures	Two-way
Morning Peak Hour	07:00-08:00	23	2	25
Evening Peak Hour	17:00-18:00	21	36	57
Saturday Peak Hour	12:00-13:00	107	98	205

Burston Manor Farm Flows

2.7.4 The Burston Manor Farm access was not included within the traffic surveys. Given the limited development served from the access PEP has assumed the peak hour flows set out below:

Peak	Time	Traffic Flows (Vehicles)		
		Arrivals	Departures	Two-way
Morning Peak Hour	07:00-08:00	2	2	2
Evening Peak Hour	17:00-18:00	2	2	2
Saturday Peak Hour	12:00-13:00	2	2	2

Albany Mews Eastbound Traffic Movements

2.7.5 The traffic surveys also identified the existing level of vehicular movements from the egress at Albany Mews to the A405 North Orbital Road:

Time Period:	Time:	Albany Mews Departures:
Morning Peak Hour	07:00-08:00	4
Evening Peak Hour	17:00-18:00	3
Saturday Peak Hour	12:00-13:00	5

A405 North Orbital Road Traffic Flows

2.7.6 The traffic surveys also recorded directional traffic movements on the A405 North Orbital Road with the weekday morning and evening road network peaks and weekend peak set out below:

Peak	Time	Traffic Flows (Vehicles)		
		Eastbound (Vehicles)	Westbound (Vehicles)	Two-way (Vehicles)
Morning Peak Hour	07:00-08:00	1029	766	1795
Evening Peak Hour	17:00-18:00	1138	1045	2183
Saturday Peak Hour	12:00-13:00	1172	1379	2551

2.7.7 The peak hour turning counts are illustrated at Appendix 7.

2.8 Permitted Junction Improvement Scheme

2.8.1 Burston Garden Centre was granted planning consent (ref: 5/14/3049) by St Albans City and District Council in July 2015 for improvements to the garden centre and Burston Manor Farm accesses with the A405 with a signalised junction arrangement. No changes to the uses on the site were proposed. The permitted signalised site access arrangement with the A405 is shown at Appendix 8.

2.8.2 A transport Technical Note (TN) dated October 2014 prepared by Transport Planning Associates (TPA) was submitted with the planning application. The note considered the existing and proposed site access arrangements and capacity testing analysis using LinSig 3 was undertaken for a range of scenarios and cycle times. The TN concludes that the signalised junction would operate well within capacity under all the options tested and provides flexibility for additional traffic.

Permitted Junction Arrangement

2.8.3 The permitted scheme consists of a signal controlled arrangement of the existing junction that includes retention of a right turn lane on the A405 North Orbital Road for arrivals from the west to the site access. Traffic to the garden centre approaching the site access from the east would be provided with a deceleration lane some 110m long.

2.8.4 The existing westbound and eastbound channels on the A405 would be provided with new signal heads. The egress from Albany Mews to the north of the A405 would also be provided with its own dedicated signal phase for eastbound traffic joining the A405.

2.8.5 The approved junction arrangement also includes new signal controlled Toucan crossing facilities and a footway along the west side of the garden centre access linking with the internal pedestrian route to the building. The crossing facilities would provide a pedestrian link between the bridleways on each side of the A405.

2.8.6 The Burston Manor Farm access off the A405 would be closed and a new access link provided from within the garden centre land via the smaller car park.

Existing and Committed Traffic Flows

2.8.7 The TPA TN October 2014 set out baseline traffic flow data on the A405 North Orbital Road extracted from the Milestone Transport Planning Transport Assessment (ref: 05/016), which accompanied planning application (refs: 5/2006/1680 and 5/2009/0708) for the Radlett Rail Freight Terminal some 2km east of the site.

2.8.8 The future 2022 baseline flows were agreed with Hertfordshire County Council and are set out below:

Peak	Time	2022 A405 Traffic Flows (Vehicles)		
		Eastbound (Vehicles / HGV)	Westbound (Vehicles / HGV)	Two-way (Vehicles / HGV)
Morning Peak Hour	07:00-08:00	1125 / 33	902 / 79	2027 / 112
Evening Peak Hour	17:00-18:00	1287 / 65	1485 / 52	2772 / 117
Saturday Peak Hour	12:00-13:00	1174 / 18	1395 / 32	2461 / 83

2.8.9 The committed development of the Radlett Rail Freight Terminal, which was approved at Planning Appeal set out the development traffic flows on the A405 past Burston Garden Centre site and are set out below:

Peak	Time	A405 Freight Terminal Traffic Flows (Vehicles)		
		Eastbound (Vehicles / HGV)	Westbound (Vehicles / HGV)	Two-way (Vehicles / HGV)
Morning Peak Hour	07:00-08:00	99 / 26	66 / 29	165 / 55
Evening Peak Hour	17:00-18:00	48 / 29	94 / 21	142 / 50

Highway Officer Comments on Permitted Junction

2.8.10 As part of the application consultation the highway officer at Hertfordshire County Council provided comments on the proposals and recommended no objection subject to planning conditions. The key comments included:

- *traffic signals in terms of capacity operate adequately with only minor delays;*
- *no impact on wider highway network; and*
- *pedestrian crossing facility a benefit;*

2.8.11 The highway officer's recommendation included planning condition:

- *"Notwithstanding the details indicated on the submitted drawings no works shall commence on site unless otherwise agreed in writing until a detailed scheme for the off-site highway improvement works as indicated on drawing titled Proposed Signalised Junction – Preliminary General Arrangement Ref 1401-77 101 Rev B have been submitted to and approved in writing by the Local Planning Authority in consultation with the Highway Authority."*

2.9 Safety Record

2.9.1 The safety record has been updated from the data originally provided in the PEP TA, May 2018. Hertfordshire County Council has provided additional personal injury accident data for the latest available five year period from 1st January 2015 to 31st December 2019 inclusive. The area of interest includes some 300m either side of the site access along the A405 North Orbital Road. The accident plot for the local area and accident details are provided at Appendix 9.

2.9.2 A total of five accidents have occurred within the search area in the 2015-2019 period of which four were recorded as slight and one fatal in severity.

2.9.3 Three of the slight accidents were the same and occurred when a car travelling south west in the outside lane on the A405 North Orbital Road collided with a car turning left out of the garden centre site access and crossing immediately to the outside lane.

2.9.4 The fourth slight accident occurred on the A405 some 20m south of the garden centre access. Both vehicles involved, a car and motorcycle, were travelling southbound towards to the Noke roundabout. A collision occurred when the car moved to the inside lane and failed to see the motorcyclist.

2.9.5 The fatal accident occurred some 300m north of the garden centre access and involved a car and pedal cyclist. Both vehicles were traveling southbound on the A405 on the approach to temporary roadworks when the cyclist in the outside lane moved into the path of the car in the inside lane.

2.10 Refused Scheme

2.10.1 The retirement scheme refused at Appeal in January 2020 comprised a 64-bed care home, 80 assisted living apartments and 45 care bungalows with a total of some 176 car parking spaces and some 60 cycle parking spaces provided across the site.

2.10.2 The site access proposals were for the existing junction off the A405 to be improved with a signalised scheme in accordance with a scheme permitted separately in 2015. The scheme included signal controlled pedestrian crossings.

2.10.3 Internally an existing service road was to be widened to provide the vehicular route to the site. A mini-roundabout was proposed at the junction of links to the site, garden centre and existing residences and business units at Burston Manor Farm.

2.10.4 Based on trip rates derived from the TRICS national database the total development traffic generation in the weekday and weekend local peak hours, as agreed with the Highway Authority, would be:

Peak Hours	**Total Development Trips**		
	Arrivals	**Departures**	**Two-way**
Morning Peak Hour (07:00-08:00)	13	6	19
Evening Peak Hour (17:00-18:00)	14	20	34
Saturday Peak Hour (12:00-13:00)	16	11	27

3.0 PLANNING POLICY

3.1 National Planning Policy Framework (NPPF)

3.1.1 The latest update of the National Planning Policy Framework (NPPF) was published in June 2019 with the removal of paragraph 209a.

3.1.2 NPPF 2019 retains 'at the heart of the Framework is a presumption in favour of sustainable development' (para 10 and 11).

3.1.3 In terms of transport it states that planning should actively manage patterns of growth in support of the opportunities to promote walking, cycling and public transport use (paras. 102 and 103). In assessing applications for development para. 108 notes assessments should ensure:

- *'appropriate opportunities to promote sustainable transport modes can be – or have been – taken up, given the type of development and its location;*
- *safe and suitable access to the site can be achieved for all users; and*
- *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.'*

3.1.4 The NPPF states specifically at paragraph 109 that *'development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts of development are severe.'*

3.1.5 Applications should also:

- give priority to pedestrian and cycle movements, and public transport access;
- address the needs of people with disabilities;
- create safe, secure and attractive places;
- allow for efficient delivery of goods, and access by emergency vehicles; and
- enable charging of plug-in and low emission vehicles (para. 110).

3.1.6 Local parking standards should also take into account site accessibility, availability and opportunity for public transport, mix of development and car ownership levels (para. 105).

3.2 St Albans City & District Council Local Plan

3.2.1 The St Albans & District Council Local Plan was adopted in 1994 and forms part of the statutory development plan for the district. The Local Plan expired in September 2007 and a number of transport related policies have been retained as 'saved' in part or whole in Chapter 5.

3.2.2 Figure 8 of the document sets out the existing road hierarchy which indicates that the A405 North Orbital Road is classified as a Primary Route within the district.

3.2.3 Saved Policy 34 sets out highway considerations in the development control process and states that the following would be considered:

- road safety – adequate visibility, turning radii and provision for pedestrian and cyclist and for disabled/disadvantaged people;
- road capacity – present and predicted future years; and
- road hierarchy – roads shall be designed to their position in the hierarchy.

3.2.4 Policy 39 sets out the District's standards and general requirements for parking provision and include:

- bicycles and motorcycles – parking provision may be required in larger developments; and
- parking layout – all parking areas must be marked out in bays. Parking spaces shall be a minimum of 2.4m x 4.8m. A minimum of 6m is required between rows of spaces.

3.2.5 Saved Policy 43 sets out the parking requirements for elderly persons accommodation:

Housing Category	**Parking requirement (Including Visitors)**
Independent dwelling for elderly (not warden controlled, may have 24 hour care alarm service)	1.25 spaces per dwelling (incl. at least 0.25 unallocated spaces)
Sheltered housing with resident warden	Residents: 0.8 spaces per dwelling

3.2.6 Policy 43 also indicates that the proposals will be assessed against the following criteria:

- sheltered housing – parking requirements for residents dwelling may be reduced to a minimum of 0.5 spaces per unit depending on:
    - tenure and nature of private scheme;
    - proportion of 1 and 2 bed dwellings;
    - topography of area; and
    - distance from facilities such as shops and buses.

3.2.7 Figure 9 of the Local Plan sets out the minimum dimensions for disabled persons parking bays which are 2.4m x 4.8m with a 1.2m safety margin between bays.

3.3 St Albans City and District: Revised Parking Polices and Standards

3.3.1 The Revised Parking Policies and Standards adopted in January 2002 sets out the City and District Council's parking requirements and supersedes Policies 39-50 of the District Local Plan Review 1994.

3.3.2 The 2002 document sets out the maximum car parking and minimum cycle parking requirements for new development including:

Use Class	Description	Maximum Car Parking Standards:	Minimum Cycle Parking Standards:
C3 Residential	Elderly persons accommodation	• Policy 43	• 1 short term space per 3 units • 1 long term space per 5 units

3.4 Chartered Institution of Highways and Transportation (CIHT)

3.4.1 The CIHT published 'Guidelines for Providing for Journeys on Foot' in 2000. This document indicates that the average length of a walking journey is 1 km. Table 3.2 of the guidelines provides advice on acceptable walking distances to various facilities as set out below:

	Suggested Acceptable Walking Distance (metres)	
	Commuting	Elsewhere
Desirable	500	400
Acceptable	1000	800
Preferred Maximum	2000	1200

3.4.2 For new developments it is also important to anticipate desire lines and associated crossing locations. The attractiveness of walking would be affected by ease of pedestrian access to the site and the location of buildings and access arrangements within the site.

3.4.3 The CIHT guidance 'Buses in Urban Developments' 2018, sets out the following recommended maximum walk distances to bus stops:

- Core bus corridors with two or more high frequency services – 500m;
- Single high-frequency routes (every 12 minutes or better) – 400m;
- Less frequent routes – 300m.

3.5 Department for Transport Guidance

3.5.1 Local Transport Note (LTN) 1/20, Cycle Infrastructure Design, July 2020 makes reference at para. 2.2.2 that '*Two out of every three personal trips are less than five miles in length - an achievable distance to cycle for most people'*.

4.0 PROPOSED DEVELOPMENT

4.1 Scheme Details

4.1.1 The development proposals on the site comprise a retirement community scheme with some 80 assisted living apartments in three linked buildings and 44 care bungalows.

4.1.2 The scheme would provide residents with self-contained and secure accommodation and enable residents to lead a lifestyle as independent as possible but with a level of care available on site tailored to meet their specific, individual needs. The level of care would be adjusted as resident needs change over time.

4.1.3 A communal 'Clubhouse' is proposed in the main assisted living building with facilities including a lounge, restaurant, café, library, gym, therapy room and cinema. A village green would be provided in the middle of the site with gardens in other parts of the site linked by paths and walkways.

4.1.4 The proposed site layout is shown at Appendix 10.

4.2 Proposed Site Access

A405 North Orbital Road / Site Access Junction

4.2.1 The existing site access junction of the Burston Garden Centre and the A405 North Orbital Road would be replaced with a new comprehensive signalised junction arrangement in accordance with the scheme agreed with the Highway Authority during the first application as shown at Appendix 2. This is based on the scheme permitted in 2015 with revisions as requested by the Highway Authority during discussions. The full detailed design for the new junction would be provided after a planning consent under a Section 278 agreement with the Highway Authority.

4.2.2 A signal controlled right turn lane would be provided on the A405 North Orbital Road for arrivals from the west to the Burston Garden Centre. The egress from Albany Mews onto the A405 would remain as a priority junction as with the existing arrangement. Traffic arriving to the Garden Centre from the north east would be provided with a deceleration lane some 110m long.

4.2.3 In terms of pedestrian facilities the new signalised arrangement would be provided with signal operated crossings, tactile paving and guard rail 'sheep pens' to cross the A405, garden centre access and the left turn deceleration lane. An uncontrolled crossing with dropped kerbs and tactile paving would be provided on Albany Mews to link the route with the signalised crossings on the A405.

4.2.4 New sections of footpath would link to the existing public footpath to the south of the A405 and provide a pedestrian route to the site.

4.2.5 A parking layby would be provided adjacent to the left turn deceleration lane to enable a vehicle to park for maintenance of the signals equipment.

4.2.6 An application for a Traffic Regulation Order would be made to Hertfordshire County Council to reduce the speed limit on the A405 from national (70mph) to 60mph between the Noke roundabout and the Tippendell Lane roundabout. If approved a signage scheme in accordance with the Traffic Signs Regulations and General Directions 2016 and other measures agreed with the Highway Authority would be implemented on the A405 to help enforce the 60mph.

Internal Mini-Roundabout Junction

4.2.7 A new internal mini-roundabout would be provided on the garden centre access some 21m from the A405 signalised junction with the four arms linking to the A405 site access, private road serving the residential and business units at Burston Manor Farm, the proposed retirement community and Burston Garden Centre.

4.2.8 Forward and junction visibility for vehicles on approach to and using the new mini-roundabout are in line with Manual for Streets guidance based on a 20mph design speed.

4.2.9 A new 2m wide pedestrian footway is to be provided along the west side of the main access link from the A405 to the new mini-roundabout linking to the pedestrian routes within the garden centre. A footpath is also proposed from the bridleway link to the east side of the mini-roundabout to provide a link to the site.

4.2.10 Pedestrian crossing points with dropped kerbs and tactile paving would be provided on the private road, garden centre and retirement community roundabout arms.

4.2.11 The proposed signalised junction layout and internal site mini-roundabout as previously agreed with the Highway Authority are shown at Appendix 2.

4.3 Internal Site Road Layout

4.3.1 A new 5.5m wide access road, known as The Avenue, with a 2m wide footway on the eastern side of the carriageway would be provided and continued south east from the new mini-roundabout for some 200m where it would turn and enter the development site at an arrival court. Traffic calming features such as narrowings at build-outs would be provided at 60m-70m intervals. A 2m wide service/verge margin would be provided on the western side of the new access road.

4.3.2 The internal access roads serving the development site would generally be between 4.8m and 5.5m in width in a mix of shared surface and traditional road design along spine roads known as Burston Lane and Hornbeam Lane. Parking aisles and parking courts would be provided off the spine roads to serve the two elements of the development scheme. A turning head arrangement is proposed at the end of Hornbeam Lane.

4.3.3 A new section of bridleway would be provided along the south eastern side of the site and Burston Garden Centre to provide a new link between the existing bridleway ref. St Stephen 003 along the eastern boundary of the site and the existing footpath ref. St Stephen 018 to Lye Lane. A link to the new bridleway from The Avenue and Burston Lane at the arrival court would also be provided.

4.3.4 A pedestrian link for residents, staff and visitors would be provided from the site to the St Stephen 003 bridleway.

4.4 Parking Provision

Car Parking

4.4.1 A site wide total of some 141 car parking spaces are proposed for resident and staff use including some nine disabled bays, 16 visitor spaces and a drop-off bay adjacent to the Clubhouse.

4.4.2 Parking bay dimensions would be 2.4m x 4.8m for perpendicular bays with a 6m aisle width between opposing rows and 2m x 6m for parallel bays.

4.4.3 Some 80 car parking spaces including nine disabled bays are proposed for the 80 assisted living apartments in the southern section of the site with parking spaces provided in courtyards.

4.4.4 Some 44 car parking spaces are proposed for the care bungalows with each unit having one dedicated space adjacent to the property. Some 17 car parking spaces would be available for visitors along the spine roads.

4.4.5 A number of car spaces would be provided with an electric vehicle charging point with power cable infrastructure provided at further spaces to enable additional chargers to be installed subject to future increased demand. The number of spaces would be agreed in discussion with the Planning and Highway Authorities.

Cycle Parking

4.4.6 Sheffield stands would be provided at each of the three assisted living unit buildings with around 24 cycle spaces available in total.

4.4.7 Additional Sheffield stands would be provided around the site adjacent to each group of bungalows for visitor use with an average of around one stand per five units to provide a total of some 18 cycle spaces.

4.5 Servicing

4.5.1 The assisted living buildings would typically be serviced by smaller delivery vehicles such as vans or 7.5T lorries with occasional visits required by a larger delivery lorry. Refuse collection would be undertaken typically 2-3 times per week with a single vehicle servicing the whole of the site.

4.5.2 Refuse/recycling bins for the assisted living buildings would be provided in a number of locations in the parking courts with a service entrance to the main building provided off Hornbeam Lane.

4.5.3 Communal refuse bins adjacent to groups of bungalows are proposed for waste disposal from the bungalows with collection by the refuse vehicle from the internal site roads.

4.5.4 Swept path analysis for typical delivery and refuse vehicles around the site is provided at Appendix 11. Side road and parking aisle junctions with the spine roads would be provided with corner radii to facilitate service vehicle turning manoeuvres.

4.6 Development Traffic Generation

4.6.1 Traffic generated by the retirement community development would be associated primarily with staff and visitor movements. Some residents in the apartments and bungalows would drive and keep their own cars on site but they are unlikely to travel in the morning and evening peak hours. Based on end operator advice and because of residents' varied levels of mobility typically no more than 50% of extra care residents in bungalows or assisted living units have a car on site. In practice this therefore results in low trip rates especially in the normal morning and evening peak hours.

4.6.2 The nature of extra care/assisted living type units is that residents are generally able to manage the majority of their activities independently but on occasion require assistance with certain tasks. The level of care required typically increases with age. This means that a lower level of staffing on site is required for assisted living accommodation compared with a residential care home.

4.6.3 Visitors would, typically in non-COVID times, be permitted to see residents at any time during the day and on any day of the week. Staff on site generally arrive and leave outside of peak periods because of the work shifts required to cover care and maintenance/housekeeping requirements over the whole day. This helps keep vehicle movements to the site spread throughout the day and minimises traffic generation in the local peak travel periods.

Weekday Traffic Generation

4.6.4 The TRICS 7.4.4 traffic survey database was reviewed in the 2018 PEP Transport Assessment to identify the likely level of traffic associated with the proposals of the previous retirement scheme. The Highway Authority confirmed that the trip rates used for retirement flats and sheltered accommodation sites were acceptable and these have therefore been applied to the current scheme of assisted living flats and care bungalows. The full TRICS data output is provided at Appendices 12.

4.6.5 On the basis of the TRICS trip rates the proposed 80 assisted living apartments would generate the following level of traffic in the local road network peak hours:

TRIPS Retirement Flats (80 rooms)	Arrivals		Departures		Two-way
	Rate/Bed	Trips	Rate/Bed	Trips	Trips
Morning Peak Hour (07:00-08:00)	0.054	4	0.026	2	6
Evening Peak Hour (17:00-18:00)	0.071	6	0.109	9	15

4.6.6 The 44 bungalows would generate the following level of development traffic in the peak hours:

TRIPS Sheltered Acc. (44 units)	Arrivals		Departures		Two-way
	Rate/Unit	Trips	Rate/Unit	Trips	Trips
Morning Peak Hour (07:00-08:00)	0.023	1	0.023	1	2
Evening Peak Hour (17:00-18:00)	0.116	5	0.140	6	11

4.6.7 The total development traffic generation in the local peak hours would therefore be:

Peak Hour	Weekday Combined Site Trips		
	Arrivals	Departures	Two-way
Morning Peak Hour (07:00-08:00)	5	3	8
Evening Peak Hour (17:00-18:00)	11	15	26

4.6.8 The development traffic generation across the day is set out in Appendix 13.

Weekend Traffic Generation

4.6.9 The TRICS database has limited weekend survey data and trip rates for retirement flats and does not include suitable weekend data for assisted living accommodation. On this basis weekend trip rates for sheltered accommodation sites were used in the 2018 application for the combined total of 125 care units (80 assisted living and 45 bungalow units). This approach and the trip rates used were accepted by the Highway Authority. The full TRICS data output is provided at Appendices 14.

4.6.10 The combined total of 124 care units (80 assisted living and 44 bungalows) would generate the following level of traffic in the local road network Saturday peak hour:

TRIPS Retirement Flats (124 units)	Arrivals		Departures		Two-way
	Rate/Bed	Trips	Rate/Bed	Trips	Trips
Saturday Peak Hour (12:00-13:00)	0.100	13	0.067	8	21

4.6.11 The traffic generation across the day is set out in Appendix 15.

4.7 Development Traffic Distribution

4.7.1 Based on the surveyed east and westbound traffic on the A405 the likely distribution of the retirement community vehicle movements is 50% to and from the west and 50% to and from the east.

4.7.2 All development traffic leaving the site would turn left out of the Burston Garden Centre access on to the A405 with 50% turning around at the Noke roundabout and re-joining the A405 eastbound.

4.8 Staff Information

4.8.1 The nature of employment at care facilities is that staff are generally employed from the local area and a typical catchment area for both staff and residents is around five miles or eight kilometres. Practically this means that the majority of staff could come from St Albans, North Watford, south Hemel Hempstead, London Colney and Radlett.

4.8.2 The number of care staff on site would vary over the day and also according to the level of care needed by residents but a maximum of around 10-15 staff at any one time is likely.

4.8.3 Care staff arrivals and departures typically avoid the local peak traffic periods and are also staggered throughout the day to minimise congestion at staff shift changeover times.

4.9 Minibus and Car Club

4.9.1 A minibus would be provided on site to serve residents, in particular those without their own car. The minibus would make planned return trips to places such as local supermarkets, St Albans' market or eateries at Park Street and also be used for resident leisure trips.

4.9.2 A Car Club vehicle could be provided on site to enable residents without a car to have use of a vehicle for short periods of time on a flexible basis. This would be subject to discussions with the site operator and residents' of the retirement community to identify a viable demand and with national Car Club operators to consider the scheme.

4.10 Visitors

4.10.1 Visitors would typically be permitted to visit friends and relatives resident at the retirement community at any time during the day. Trips are likely to be shared with other trips such as shopping or journeys from work or school. This means that many of the vehicle trips to the site would already be on the wider road network in any event.

4.11 Travel Plan

4.11.1 A Travel Plan to promote sustainable means of travel to staff, visitors and residents would be adopted at the development. A Travel Plan is submitted separately with the planning application and considers measures and advice in line with Hertfordshire County Council's Travel Plan Guidance March 2020 including:

- a member of staff appointed as Travel Plan Coordinator to implement and manage the Travel Plan measures and monitoring;
- secure cycle parking for residents, staff and visitors;
- lockers, changing and shower facilities for staff;
- implementation of a car sharing scheme for staff;
- travel notice boards with up-to-date walking, cycling, bus and car share information; and
- travel information for visitors.

5.0 TRANSPORT APPRAISAL

5.1 Approach

5.1.1 Our appraisal of the proposed development assesses:

- accessibility by means of transport other than the car;
- suitability of the access, site layout and servicing arrangements;
- suitability of the car and cycle parking provision;
- traffic comparison with the permitted use; and
- accordance with policy.

5.2 Accessibility by Non-Car Means of Transport

5.2.1 The national and local policy approach to sustainable development is to ensure that new development is accessible by alternative means to the private car. A hierarchal approach is taken with low traffic generators such as a retirement development that are suitable for all types of location.

5.2.2 No issues were raised by the Highway Authority on accessibility related matters for the site during the previous planning application. The proposed improvements to pedestrian facilities for the revised scheme are the same as before.

5.2.3 The site is within walking and cycling distance of the residential areas of How Wood, Chiswell Green, south St Albans and northern Watford with links to buses available so that staff, residents and visitors do not need to rely solely on using the car. The site is therefore accessible.

5.2.4 The Travel Plan offers the opportunity to promote to staff, residents and visitors the benefits of sustainable alternatives to single car occupancy for travel and encourage trips on foot, by cycle, public transport and car sharing.

Pedestrians and Cyclists

5.2.5 How Wood and Chiswell Green are both within 1km of the site. Southern and central St Albans as well as Leavesden and northern Watford are within some 5km of the site. An existing network of footpaths are provided near the site and links from the site connect to local cycle routes.

5.2.6 There are currently no appropriate pedestrian crossing points on the A405 North Orbital Road between the existing bridleways and the garden centre. The agreed signalised scheme at the garden centre/A405 junction includes new signalised pedestrian crossings on the A405. This would improve the links from the site to Chiswell Green, the bus services on Watford Road and the convenience store at the petrol filling station for residents, staff and visitors. Local residents in the area would also benefit from the crossings for safer connections between How Wood and Chiswell Green.

5.2.7 Internal pedestrian facilities would link the site to the existing routes on the southern side of the A405, the bridleway to the east and therefore local amenities on How Wood. The new proposed bridleway along the south eastern site boundary would provide an improved link to Lye Lane.

5.2.8 The site location and local and proposed crossing facilities would therefore enable staff and visitors living in and around How Wood, Chiswell Green and Bricket Wood to walk or cycle to the retirement community.

Public Transport

5.2.9 Bus services operate on How Wood and the B4630 Watford Road some 360m and 530m respectively from the site which is a 5-7 minute walk. Suitable pedestrian routes to the south via public footpaths and the new crossing facilities on the A405 to the north offer links to the existing public transport infrastructure.

5.2.10 The minibus proposed on site would provide residents with communal transport to local facilities on planned trips and also as part of leisure trips out. This would help reduce and minimise the number of cars parked on site related to residents.

5.3 A405 Site Access Junction

5.3.1 The existing site access junction with the A405 North Orbital road would be significantly improved with the provision of the signalised arrangement in line with the junction scheme permitted in 2015. The signalised scheme would accord with the design prepared by PEP and agreed with the Highway Authority in discussions during the previous application.

5.3.2 The arrangement would allow traffic turning right in and left out of the garden centre to have a dedicated stage. The left turn lane would allow incoming southbound traffic turning left into the garden centre to slow down outside of the through lanes.

5.3.3 The signalised junction arrangement would address an existing safety concern between traffic emerging from the garden centre and westbound traffic on the A405. This would benefit existing garden centre users as well as residents, staff and visitors of the new retirement community.

5.3.4 The new pedestrian crossing facilities integrated within the signalised junction arrangement offer appropriate connections for pedestrians and cyclists crossing the A405 North Orbital Road. This includes for local residents using the bridleways as well as residents, staff and visitors related to the retirement community.

5.4 Internal Site Access Arrangement

5.4.1 The proposed access arrangement includes a new internal mini-roundabout at the A405 site access, Burston Garden Centre, Burston Manor Farm and proposed development access junction. The proposed mini-roundabout has been designed in line with guidance set out in the DMRB TD 54/07 'Design of Mini-Roundabouts'.

5.4.2 The new mini-roundabout is some 21m south of the site access junction with the A405. Given the proposed arrangement and development served by the roundabout arms there would unlikely be any turning movements that would oppose the incoming traffic from the A405 because traffic from the other three arms would all travel towards the A405. On this basis it is unlikely that queues would build up on the A405 arm and affect through flows on the A405 of westbound traffic.

5.4.3 The internal link from the mini-roundabout to Burston Manor Farm would allow the existing access directly off the A405 to be closed which would be a safety benefit.

5.5 Road Safety Audit

5.5.1 An independent Stage 1 Road Safety Audit of the proposed signalised scheme and mini-roundabout arrangement was undertaken by TMS Consultancy in January 2019 during the previous application. This was an update to an initial audit undertaken in April 2018 and provided in the TA, May 2018. A copy of the audit is provided at Appendix 16.

5.5.2 The Stage 1 audit identified four problems:

1. Potential collisions between vehicles and pedestrians at crossing.
2. Potential hazard to occupants of errant vehicles by street lighting.
3. Potential vehicle overshoot type collisions with pedestrians at Stop lines.
4. Potential skid hazards to vehicles by gullies at mini-roundabout location.

5.5.3 A Response Report as provided at Appendix 17 was prepared by PEP to confirm how each problem would be addressed during the detailed design and highways agreement process for technical approval:

1. Issues with overgrown vegetation in central reserve would be addressed as part of the detailed design process and construction.
2. Relocation of lighting columns to be considered with Herts. CC at detailed design stage.
3. Sub-standard gap between stop lines and pedestrian crossing studs to be addressed at detailed design stage.
4. Gullies are in a location where vehicles would be travelling slowly from the A405 but relocation would be considered subject to drainage requirements.

5.6 Internal Site Layout

5.6.1 The internal site access road, The Avenue, along the western side of the site and spine roads Burston Lane and Hornbeam Lane to serve the buildings and facilities on the site would be some 5.5m-6m wide to allow two-way vehicle movements. Turning heads would be incorporated into the internal road arrangements to allow service vehicles including a large refuse vehicle to turn around and return to the site egress in a forward gear. Swept path analysis confirms that large service vehicles can satisfactorily manoeuvre and turn around within the site to leave in a forward gear.

5.6.2 The site access and internal road arrangement proposals are therefore satisfactory to serve cars and service vehicles arriving at and circulating around the site.

5.7 Parking Review

Car Parking Provision

5.7.1 The Local Plan parking standards do not include a standard specifically for assisted living accommodation which has a level of staff on site to meet residents' needs. The most comparable use is sheltered housing which may only have one warden on site. Based on the parking standard for sheltered accommodation of 0.8 spaces per unit some 64 car parking spaces could be provided on site for the 80 assisted living apartments. However given the additional level of staffing required for the assisted living units the proposed 80 car spaces including nine disabled bays is an appropriate level of parking.

5.7.2 The parking requirement for the care bungalows is based on the St Albans standard for independent dwellings for elderly people of 1.25 spaces per unit. For the proposed 44 bungalows this would require some 55 spaces. The proposals are for one space per bungalow. However the proposed 17 visitor spaces would provide flexibility across the site for additional parking demand.

5.7.3 On balance the site wide proposed total of 141 car spaces is generally in line with the Council's parking requirements to serve the site and would provide flexibility for additional staff at the assisted living units and variance in visitor demand. The parking level is also in line with what was agreed with the Highway Authority for the previous application.

5.7.4 The size of car parking spaces throughout the development would be 2.4m x 4.8m with a minimum 6m aisle width adjacent to perpendicular bays and 2m x 6m for the few parallel bays proposed. The disabled bays are in accordance with the Equality Act 2010 with 1.2m safety margins provided and are proposed near building entrances for convenience.

5.7.5 The adoption of a Travel Plan with measures to promote walking, cycling, use of public transport and car sharing would also help minimise the demand for car parking.

5.7.6 Swept path analysis as provided at Appendix 11.4 confirms that a large car can enter and leave the parking courts and use end bays satisfactorily.

Cycle Parking

5.7.7 Based on the St Albans cycle parking guidance some 66 cycle parking spaces could be required for the assisted living units and bungalows. The proposals include some 46 cycle spaces across the site with around 24 spaces outside the assisted living buildings and a further 22 spaces spread over groups of bungalows. This in general accordance with the cycle parking levels agreed in the previous application with the Highway Authority.

5.7.8 Given the nature of the development for elderly residential use it is unlikely that many residents would have their own bicycles. In practice cycle parking would therefore only be required for staff and visitors. On balance the proposed 46 cycle spaces would be satisfactory for the scheme.

5.8 Trip Generation Review

5.8.1 The traffic generation for the existing and proposed uses has been assessed using trip rates from the TRICS database. The retirement community would generate some five arrivals and three departures in the morning peak hour and 11 arrivals and 15 departures in the evening peak hour. In the Saturday peak hour there would be some 13 vehicle arrivals and 8 departures. On average this equates to one vehicle movement every two to three minutes in the evening peak which is immaterial.

5.8.2 The Highway Authority has previously confirmed that the methodology and trip rates used are acceptable for the previous larger scheme and site location and that there are no concerns in terms of the traffic generated.

5.8.3 In principle because the site land is used by the garden centre mainly for storage and the plant nursery this would not in practice affect its current traffic generation to the retail and restaurant facilities and the fishery. On this basis no traffic has been discounted from the existing use.

5.8.4 A comparison between the previous and current proposals for the retirement community for the road network peak hours has been undertaken:

Peaks	**Vehicular Traffic Comparison (Two-way)**		
	Previous	**Current**	**Net Difference**
Morning Peak Hour (07:00-08:00)	19	8	-11
Evening Peak Hour (17:00-18:00)	34	26	-8
Saturday Peak Hour (12:00-13:00)	27	21	-6

5.8.5 The revised proposals with no care home would generate fewer vehicle movements in each of the Friday morning/evening and Saturday peak periods compared with the previous scheme which was in any case acceptable to the Highway Authority. In principle the new scheme should therefore also be acceptable in traffic generation terms.

5.9 Junction Capacity Testing

Year for Testing

5.9.1 The Highway Authority previously requested for testing to be undertaken for five years after the planning application. On this basis the current proposals have been tested for 2025 traffic levels.

Traffic Flows for Testing

5.9.2 The 2018 traffic surveys have been used as the base flows and growth has been added to derive the 2025 baseline flows using the Department for Transport TEMPRO (Trip End Model Presentation Program) computer program. Within TEMPRO the site is within the area of St Albans 019 but boarders 020 therefore an average has been taken. The area type 'Urban' and 'principal roads' categories were selected using the NTM (National Traffic Model) tool.

5.9.3 The growth rates determined are:

Year	Growth Factors		
	AM Peak Hour	PM Peak Hour	Sat Peak Hour
2018 - 2025	1.073838445	1.071022684	1.074923417

5.9.4 The traffic flows for testing include the 2018 surveyed flows growthed to 2025, the committed Radlett Rail Freight Terminal flows from the TPA Technical Note and the proposed retirement community development flows. The flows for peak hour testing are provided at Appendix 18.

LinSig Capacity Testing Analysis

5.9.5 The signalised site access / A405 North Orbital Road signalised junction has been tested using the LinSig computer program. Traffic signal junctions are typically considered by traffic engineers to have spare capacity when the degree of saturation is 90% or less on each arm. This relates to a Practical Reserve Capacity (PRC) of 0%. For degrees of saturation greater than 100% results are generally not reliable although junctions can still operate satisfactorily. In such cases a detailed examination of the queue lengths and their influence on other junctions is required.

5.9.6 The capacity testing provided the results as below:

Site Access / A405 North Orbital Road Junction				
Year	**Time**	**Scenario**	**PRC (%)**	**Mean Max Queue (PCU)**
2025	AM Peak (07:00-08:00)	Baseline + Dev + Permitted	156.9	4.4
	PM Peak (17:00-18:00)	Baseline + Dev + Permitted	78.7	9.6
	SAT Peak (12:00-13:00)	Baseline + Dev + Permitted	81.3	9.6

5.9.7 The results show that the site access / A405 North Orbital Road signalised junction has capacity in all scenarios with a mean max queue of 9.6.

5.9.8 The full LinSig capacity testing results are provided at Appendix 19.1.

ARCADY Capacity Testing Analysis

5.9.9 The site access roundabout has been tested using the Junctions 9 computer program which includes the latest ARCADY software. Roundabouts are typically considered by highway engineers to be operating satisfactorily in terms of capacity when the ratio to flow capacity (RFC) is below 0.85. The RFC is a measure of the extent to which junctions would operate in comparison with the theoretical capacity.

5.9.10 The results for the proposed site access roundabout are summarised below:

Proposed Internal Site Roundabout				
Year	**Time**	**Scenario**	**Max RFC**	**End Queue (Vehicles)**
2025	AM Peak (07:00-08:00)	Baseline + Development	0.04	0
	PM Peak (17:00-18:00)	Baseline + Development	0.05	
	SAT Peak (12:00-13:00)	Baseline + Development	0.15	

5.9.11 The results show that the internal site roundabout junction has capacity in all scenarios with no queueing recorded.

5.9.12 The ARCADY capacity test results summaries are provided at Appendix 19.2.

5.10 Road Safety Review

5.10.1 During the five year period reviewed five accidents have occurred on the A405 within 300m of the existing garden centre access. Of these accidents three involved vehicles leaving the garden centre access and crossing into the path of westbound vehicles on the A405 which led to a collision.

5.10.2 The proposed signalisation of the existing junction would allow vehicles leaving the garden centre to exit on a green light with oncoming westbound traffic held on a red light. Traffic turning right into the garden centre would also have a green light in the same phase to allow the manoeuvre to occur unopposed. This should prevent the chance of a collision between through traffic and traffic entering and leaving the garden centre.

5.10.3 The provision of the separate left turn lane would allow incoming southbound traffic to slow down outside of the nearside through lane and therefore significantly reduce the risk of a rear end shunt because of sudden braking by left turning vehicles.

5.10.4 The inclusion of signalised pedestrian crossings on the A405 at the junction would provide a safer facility for pedestrians and cyclists to cross and therefore a good link between the site and How Wood on the south side of the A405 and Chiswell Green on the north side.

5.10.5 In summary the provision of the permitted signalised junction to serve the existing garden centre and proposed retirement community would improve safety conditions for existing and future traffic as well as for pedestrians and cyclists crossing the A405.

5.10.6 The matters identified by the Stage 1 Road Safety Audit can be satisfactorily addressed as part of the detailed design process and at the construction stage in terms of maintaining overgrown vegetation. In terms of maintaining overgrown vegetation this could be designed out by using stones, concrete or blacktop surfacing.

5.10.7 The other two accidents recorded on the A405 were isolated incidents which do not represent a pattern or reoccurrence.

5.11 Servicing

5.11.1 Vehicle swept path analysis of the internal site access roads confirms that servicing of the development can be undertaken satisfactorily and vehicles can turn around within the site and leave in a forward gear.

5.12 Policy Appraisal

5.12.1 The proposals accord with the key requirements of the NPPF as the site is in a location served by a range of sustainable means of travel. The provision of the signalised pedestrian/cyclist crossing facility on the A405 would improve links between the adjacent residential areas and the site. The site is therefore accessible.

5.12.2 The proposed signalised junction arrangement as previously agreed with the Highway Authority and designed in accordance with the Design Manual for Roads and Bridges is in line with saved Policy 34 of the St Albans City and District Council Local Plan.

5.12.3 The effect of the development traffic on existing conditions is not material and therefore is not 'severe', in line with paragraph 109 of the NPPF and the St Albans City and District Council Local Plan saved Policy 34, given the marginal increase in traffic in the morning and evening weekday and afternoon weekend peak hours.

5.12.4 The internal site layout takes into account the guidance information for road design from the Hertfordshire Design Guide 3rd Edition. Swept path analysis demonstrates that the site can be serviced satisfactorily by large refuse and delivery vehicles.

5.12.5 The level of car parking proposed is in general accordance with saved Policy 43 of the St Albans City and District Council Local Plan parking guidance and meets the operational needs of the occupiers of the retirement community development.

5.12.6 Technically a Travel Plan is not required for the development given the low numbers of staff that are likely to be on site. However a Travel Plan has in any event been prepared and is submitted with the planning application.

6.0 CONCLUSIONS

6.1 The proposed retirement community development is smaller and with less development traffic than the scheme proposed in the previous planning application with the care home no longer included. The Highway Authority raised no objections to the previous scheme and there were no highway reasons for refusal.

6.2 The signalised improvement scheme for the existing site access junction with the A405 North Orbital Road was agreed in discussions with the Highway Authority during the previous application. The agreed scheme would be implemented and would improve local safety conditions for through traffic, existing garden centre users and future development traffic. This remains a significant benefit of the scheme.

6.3 The provision of signalised crossings on the A405 at the site access junction would improve facilities and safety conditions for all pedestrians and cyclists in the local area as well as residents, staff and visitors related to the retirement community and provide a link between existing bridleways. This remains a significant benefit of the scheme.

6.4 The proposed internal mini-roundabout and access road would provide a satisfactory arrangement to manage the existing garden centre and retirement community traffic movements.

6.5 The addition of the development traffic to the local road network in the peak periods is not material and local traffic and safety conditions would be improved with the provision of the new signalised site access/A405 junction. The development traffic levels for the previous application scheme were accepted by the Highway Authority. On the basis of the reduced scheme and consequent lower traffic generation the new proposals should also be acceptable in terms of traffic generation.

6.6 Junction capacity testing confirms that the signalised A405/access junction as well as internal mini-roundabout would operate satisfactorily.

6.7 The proposed level of car parking is satisfactory to serve the operational needs of the retirement community based on the nature of the scheme and is in general accordance with the St Albans Local Plan parking guidance. The Highway Authority previously agreed the parking provision.

6.8 Satisfactory servicing and turning facilities are proposed within the site to enable large service vehicles to enter, turn around within the site and leave again in a forward gear.

6.9 The site is accessible by foot and cycle from the local residential areas as well as existing bus services which are also within a five minute walk from the site.

The adoption of a Travel Plan at the site would encourage the use of sustainable travel modes including walking, cycling, bus use and car sharing by staff to maximise non-single occupancy car travel from the outset.

APPENDICES

Ms Sarah Smith
St Albans City and District Council
Civic Centre
St Peters Street
St Albans
Hertfordshire
AL1 3JE

County Hall
Pegs Lane
Hertford
Hertfordshire
SG13 8DN
Email: hertsdirect@hertscc.gov.uk
Website: www.hertsdirect.org

Our Ref:
Your Ref: 5/2018/1324

Date: 1 February 2019

Dear Ms Smith

Burston Garden Centre, North Orbital Road, Chiswell Green, St Albans AL2 2DS

Demolition of all existing horticultural structures and redevelopment of the site to provide a new retirement community comprising a 64-bedroom care home, 125 assisted living bungalows and apartments, a community clubhouse together with associated access

Application No. 5/2018/1324

Decision

Notice is given under article 10 of the Town and Country Planning (General Development Procedure) Order 1995 that the Hertfordshire County Council as Highway Authority does not wish to object to this planning application.

Updated Comments

Following the highway authority's previous assessment dated 6 September 2018, the applicant has provided additional details.

Our previous concerns related primarily to the junction and whether it is possible to satisfy all design requirements. We have met the applicant on several occasions to develop the proposed junction which finally led to the design being considered by a specific review panel. The outcome of the panel was the production of a final design which the highway authority can support.

The scheme amendments are included within the latest revisions to the drawings,

Drawing Number 3019.14 - 215m FORWARD VISIBILITY ENVELOPES AND LONGITUDINAL SECTIONS

Drawing Number 3019.15 - PERMITTED SIGNALISED JUNCTION AND PROPOSED SITEACCESS ARRANGEMENT WITH 215m FORWARD VISIBILITY ENVELOPE AND SPEED MITIGATION MEASURES

Drawing Number 3019.16 - PROPOSALS FOR 60mph SPEED LIMIT ON A405 NORTH ORBITAL ROAD

In addition, the applicant has provided updated safety audit.

Therefore, in summary, the highway authority's concerns have been dealt with and should the planning authority move towards granting planning permission we would recommend the following planning conditions,

RECOMMENDED PLANNING CONDITIONS

North Orbital Road (A405) Junction

Condition 1

Existing Access – Improved

Prior to the first occupation hereby permitted the vehicular access at North Orbital Road shall be upgraded in accordance with drawings numbered. *3019.14, 3019.15 and 3019.16*. Prior to use arrangements shall be made for surface water drainage to be intercepted and disposed of separately so that it does not discharge from or onto the highway carriageway.

Reason: To ensure construction of a satisfactory access and in the interests of highway safety, traffic movement and amenity in accordance with Policy 5 of *Hertfordshire's Local Transport Plan* (adopted 2018).

Rights of Way

Condition 2 (Part A)

Notwithstanding the details indicated on the submitted drawings no works shall commence on site unless otherwise agreed in writing until a Rights of Way Improvement Plan for the off-site and on-site Rights of Way improvement works has/have been submitted to and approved in writing by the Local Planning Authority.

Reason: To ensure that the highway improvement works are designed to an appropriate standard in the interest of highway safety and to protect the environment of the local highway corridor.

Condition 2 (Part B)

Prior to the first occupation/use of the development hereby permitted the off-site and on-site Rights of Way improvement plan works (including any associated highway works) referred to in Part A of this condition shall be completed to the written satisfaction of the Local Planning Authority.

Reason: To ensure that the highway network is adequate to cater for the development proposed.

Travel Plan

Condition 3 (Part A)

Upon commencement of construction of the development hereby permitted an Interim Travel Plan shall be submitted to and approved by the Local Planning Authority.

Reason: To ensure that the development offers a wide range of travel choices to reduce the impact of travel and transport on the environment.

Condition 3 (Part B)

No part of the development hereby permitted shall be occupied prior to implementation of the Interim Travel Plan referred to in Part A of this condition. Following 75% of occupation an approved Full Travel Plan based on the Interim Travel Plan referred to in Part A of this condition shall be submitted to and approved in writing by the Local Planning Authority. The approved Full Travel Plan shall be implemented in accordance with the timetable and targets contained therein and shall continue to be implemented as long as any part of the development is occupied subject to approved modifications agreed by the Local Planning Authority as part of the annual review.

Reason: To ensure that the development offers a wide range of travel choices to reduce the impact of travel and transport on the environment.

Construction Management Plan / Statement

Condition 4

No development shall commence until a Construction Management Plan (or Construction Method Statement) has been submitted to and approved in writing by the Local Planning Authority. Thereafter the construction of the development shall only be carried out in accordance with the approved Plan. The Construction Management Plan / Statement shall include details of*:

a. Access arrangements to the site;
b. Traffic management requirements
c. Construction and storage compounds (including areas designated for car parking, loading / unloading and turning areas);
d. Siting and details of wheel washing facilities;
e. Cleaning of site entrances, site tracks and the adjacent public highway;
f. Provision of sufficient on-site parking prior to commencement of construction activities;
g. Post construction restoration/reinstatement of the working areas and temporary access to the public highway;

h. where works cannot be contained wholly within the site a plan should be submitted showing the site layout on the highway including extent of hoarding, pedestrian routes and remaining road width for vehicle movements.

Reason: In order to protect highway safety and the amenity of other users of the public highway and rights of way in accordance with Policies 5, 12, 17 and 22 of *Hertfordshire's Local Transport Plan* (adopted 2018).

Planning obligations

There is a requirement for the Travel Plan to be included in a S106, Hertfordshire County Council require a single payment of £6,000 to monitor the results of the Travel Plan and work with the Travel Plan Coordinator to achieve targets.

Yours sincerely

James Dale
Area Highways Development Manager

1:500 @ A3

N

Permitted A405/access junction signalised scheme

Proposed uncontrolled pedestrian crossing with Look Left/Look Right markings

Left turn diverge lane

Proposed 6m primary signal poles with two signal heads on each pole mounted at different heights

Existing road retained as footway/cycleway

Revised access link to residential properties and business units

Footway link to new A405 pedestrian crossing

Proposed above ground detector on site access traffic signal with potential stop line loop

Proposed traffic signal maintenance bay

Proposed mini-roundabout

5.5m wide access road with 2m footway and 2m margin

ALBANY MEWS

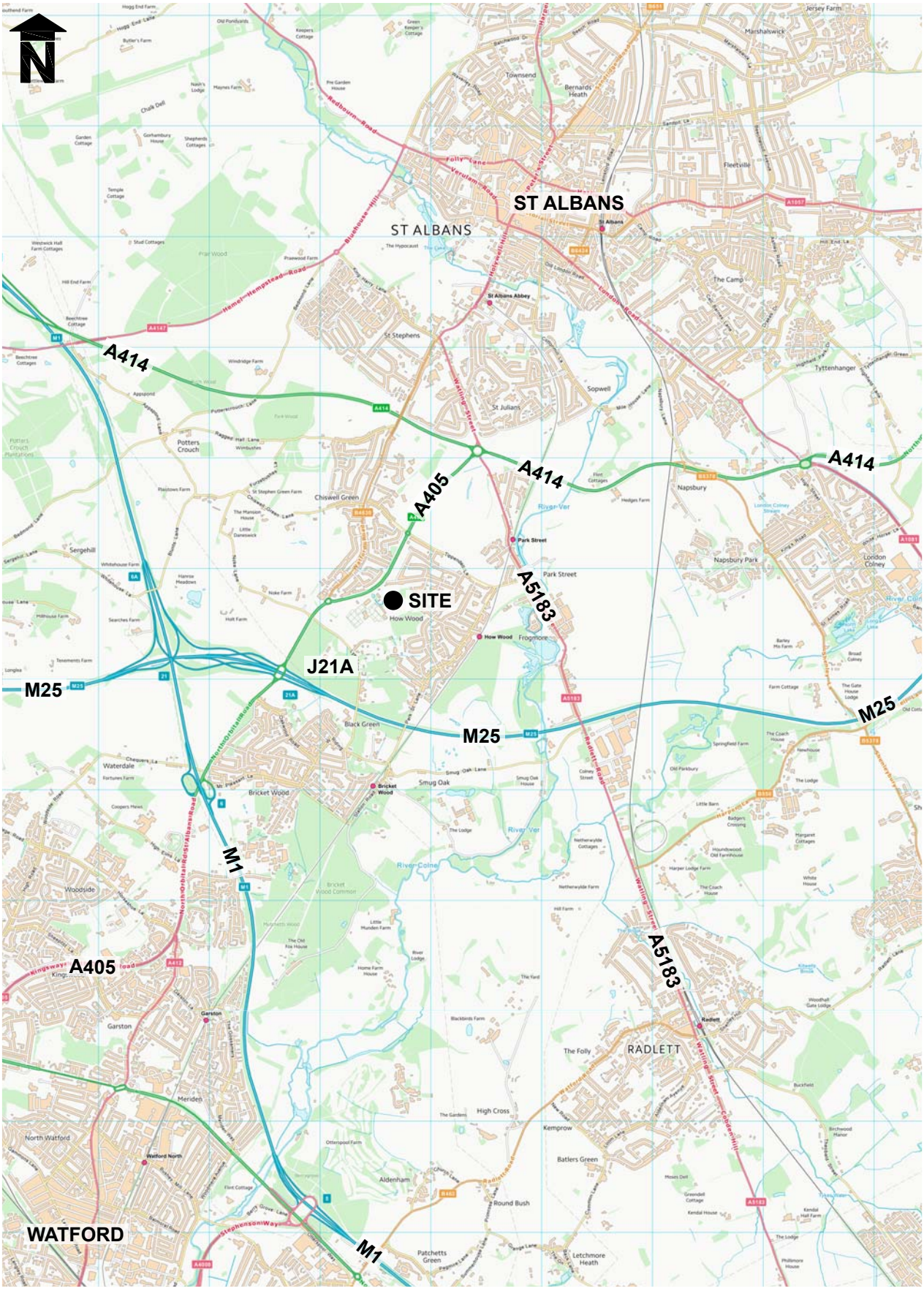
NORTH ORBITAL ROAD (A405)

NO ENTRY

BASE DRAWING PROVIDED BY PEP DRAWING NO. 3019.19A, DATED 21.10.19
NOTE: REPRODUCED FROM THE ORDNANCE SURVEY MAP WITH THE PERMISSION OF THE CONTROLLER OF HMSO. © CROWN COPYRIGHT LICENCE NO. 100009597

APPENDIX 2
Agreed Signalised Junction Layout

1 : 50,000 @ A4



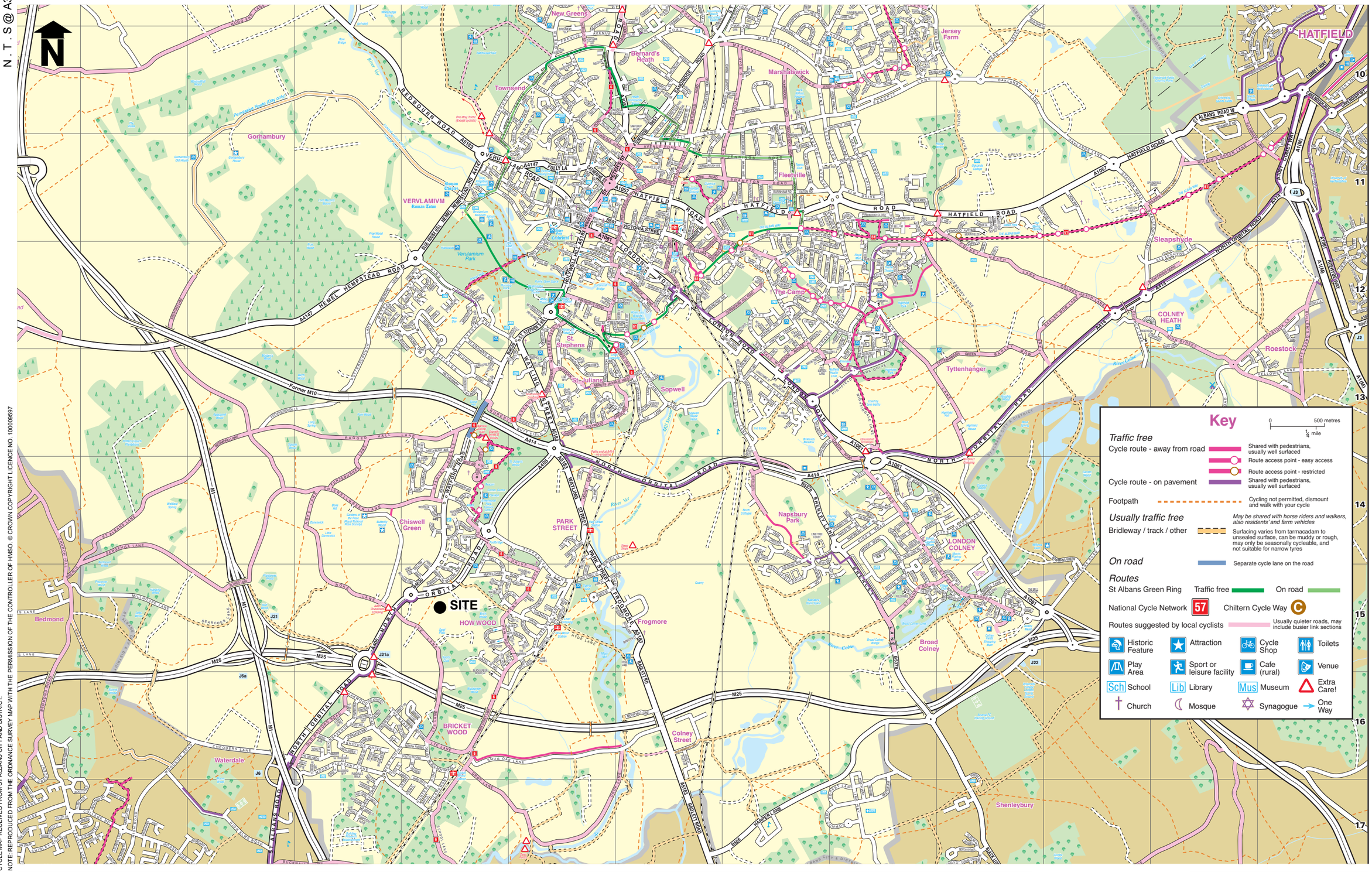
1 : 10,000 @ A3

Key

- Site
- Burston Garden Centre
- Mercure Hotel
- High Street shops
- Train Station
- P.F.S
- Bus Stop

CHISWELL GREEN
Chiswell Green Lane
Watford Road
A405
NORTH ORBITAL ROAD
Tippendell Lane
A5183 Watling Street
A5183 Park Street
River Ver
Park Street
Mercure St Albans Hotel
Shell P.F.S
B4630
SITE
Burston Garden Centre
How Wood
Penn Road
Park Street Lane
Lye Lane
M25
M25 21A
Frogmore
A5183 Frogmore
Hanrox Meadows
Noke Farm
Holt Farm
Winch Hill Wood
Medical Care
The Spinney
Home Wood
Sports/Leisure Centre
Blackgreen Wood
Five Acres
Birch Wood
Education Facility
Sports/Leisure Centre

N . T . S @ A3



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

Bridleway / track / other — *May be shared with horse riders and walkers, also residents' and farm vehicles*
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

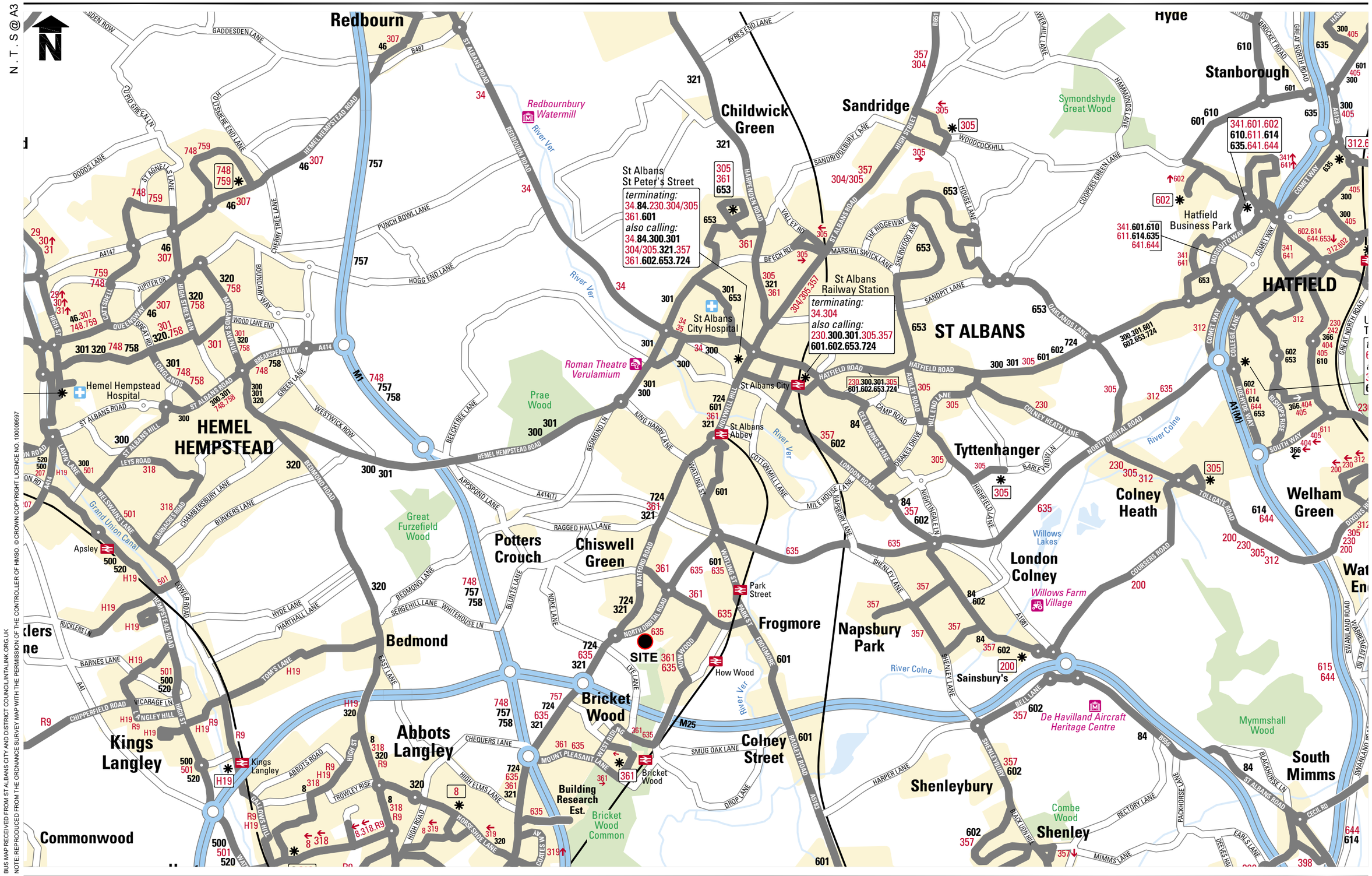
Routes

St Albans Green Ring — Traffic free / On road

National Cycle Network 57 — Chiltern Cycle Way C

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


N
N. T. S @ A3
Redbourn
Redbournbury Watermill
Childwick Green
Sandridge
Symondshyde Great Wood
Hyde
Stanborough
Hatfield Business Park
HATFIELD
ST ALBANS
St Albans St Peter's Street
terminating:
34.84.230.304/305
361.601
also calling:
34.84.300.301
304/305.321.357
361.602.653.724
St Albans Railway Station
terminating:
34.304
also calling:
230.300.301.305.357
601.602.653.724
St Albans City Hospital
St Albans City
St Albans Abbey
Roman Theatre Verulamium
Prae Wood
Hemel Hempstead Hospital
HEMEL HEMPSTEAD
Apsley
Grand Union Canal
Great Furzefield Wood
Potters Crouch
Chiswell Green
Bedmond
Abbots Langley
Kings Langley
Commonwood
Tyttenhanger
Colney Heath
Welham Green
Willows Lakes
London Colney
Willows Farm Village
Napsbury Park
Frogmore
How Wood
Park Street
SITE
Bricket Wood
Colney Street
Shenleybury
Sainsbury's
De Havilland Aircraft Heritage Centre
Mymmshall Wood
South Mimms
Shenley
Combe Wood
Bricket Wood Common
Building Research Est.
River Ver
River Colne
M1
M25
A1(M)
A414
A4147
A405
A1081
A5183
B487
B651
B653
ST ALBANS ROAD
REDBOURN ROAD
HEMEL HEMPSTEAD ROAD
HIGH STREET
HATFIELD ROAD
COMET WAY
GREAT NORTH ROAD
COLNEY HEATH LANE
NORTH ORBITAL ROAD
SHENLEY LANE
SANDPIT LANE
OAKLANDS LANE
COLLEGE LANE
ROCKWELL GREEN
WATLING STREET
WATFORD ROAD
LONDON ROAD
COURSERS ROAD
TOLLGATE ROAD
SWANLAND ROAD
WARREN GATE DR
SOUTH WAY
BELL LANE
SHENLEY RUDY
HARPER LANE
MIMMS LANE
RECTORY LANE
PACKHORSE LANE
BLACKHORSE LN
CECIL RD
ST ALBANS ROAD
HARPENDEN ROAD
SANDRIDGEBURY LANE
COOPERS GREEN LANE
HOUSE LANE
THE RIDGEWAY
SHERWOOD AVE
MARSHALSWICK LANE
BEECH RD
VALLEY RD
WOODCOCKHILL
HARMONDS LANE
AYRES END LANE
GADDESDEN LANE
DODDS LANE
PUNCH BOWL LANE
HOGG END LANE
CHERRY TREE LANE
BOUNDARY WAY
JUPITER DR
GATESDELL
QUEENSWAY
HIGH STREET GN
MAYLANDS AVENUE
WOOD LANE END
BREAKSPEAR WAY
LONGLANDS
GREEN LANE
WESTWICK ROW
ST ALBANS HILL
LEYS ROAD
BEECHTREE LANE
BEDMOND ROAD
APPSPOND LANE
A414(T)
RAGGED HALL LANE
BEESWAINS LANE
BARNACKS ROAD
CHAMBERSBURY LANE
BUNKERS LANE
LOWER RD
HYDE LANE
HARTHALL LANE
SERGEHILL LANE
WHITEHOUSE LN
BLUNTS LANE
NOKE LANE
EAST LANE
LYE LANE
HOWWOOD
FROGMORE
RUCKLERS LN
BARNES LANE
TOMS LANE
VICARAGE LN
LANGLEY HILL
CHIPPERFIELD ROAD
ABBOTS ROAD
TROWLEY RISE
GALLOWS HILL
HIGH ELMS LANE
HIGH ROAD
HORSESHOE LANE
CHEQUERS LANE
MOUNT PLEASANT LANE
WEST RIDING
SMUG OAK LANE
DROP LANE
HOLLET ROAD
KING HARRY LANE
BEDMOND LN
COTTONMILL LANE
MILE HOUSE LANE
NAPSBURY LANE
NIGHTINGALE LN
HIGHFIELD LANE
CELL BARNES LANE
DRAKES DRIVE
ASHLEY ROAD
HILL END LANE
CAMP ROAD
MOWLIN
BARLEY
BROCKET ROAD
COMET WAY
MOSQUITO WAY
ROCKWELL HILL
WHITE HILL
HIGH ST
ST ALBANS HILL
ST AGNELLS LANE
HEMEL HEMPSTEAD ROAD
OUTSMERE END LANE
POND GREEN LN
LAWN LANE
ON RD
ON ROAD
RUCKLERS LN
HIGH ST
BLACK LION HILL
DEEDES LANE
EARLS LANE
CHESHAM WAY
ABBOTS WAY
CHESHAM RD
BUS MAP RECEIVED FROM ST ALBANS CITY AND DISTRICT COUNCIL/INTALINK.ORG.UK
NOTE: REPRODUCED FROM THE ORDINANCE SURVEY MAP WITH THE PERMISSION OF THE CONTROLLER OF HMSO. © CROWN COPYRIGHT LICENCE NO. 100009597

3019 – ST ALBANS, BURSTON GARDEN CENTRE

Bus Route: St Albans – How Wood – Bricket Wood

Route Number 361 **Operator: Red Eagle**

	Approximate Bus Frequency (minutes)		
	Mon - Fri	Saturday	Sunday
Early	-	-	-
Peaks	60	60	-
Daytime	60	60	-
Evening	-	-	-

	First	Last
Mon – Fri	07:46	16:53
Saturday	09:11	17:11
Sunday	-	-

Bus Route: Hitchin – Hatfield – How Wood – Watford

Route Number 635 **Operator: Uno**

	Approximate Bus Frequency (minutes)		
	Mon - Fri	Saturday	Sunday
Early	60	-	-
Peaks	60	-	-
Daytime	60	-	-
Evening	-	-	-

	First	Last
Mon – Fri	07:06	19:47
Saturday	-	-
Sunday	-	-

Bus Route: Luton – St Albans – How Wood - Watford

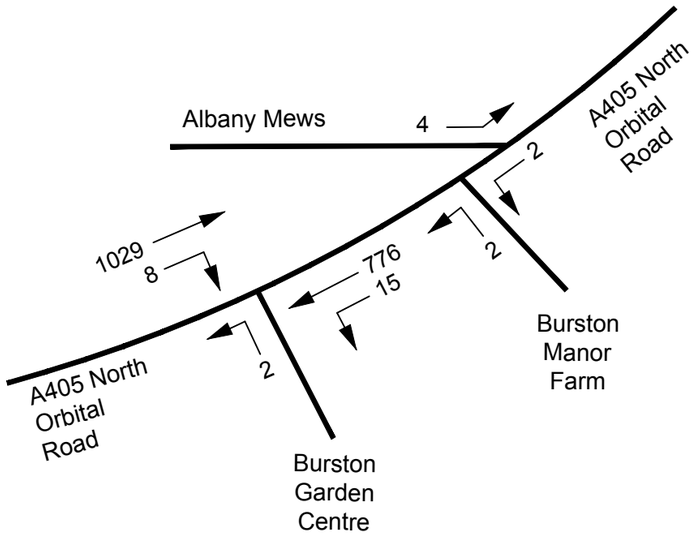
Route Number 321 **Operator: Arriva**

	Approximate Bus Frequency (minutes)		
	Mon - Fri	Saturday	Sunday
Early	20	20	-
Peaks	20	20	60
Daytime	20	20	60
Evening	60	60	60

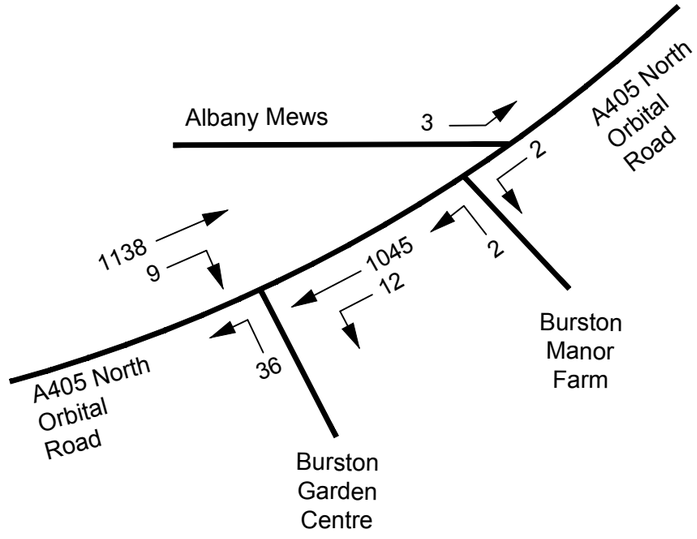
	First	Last
Mon – Fri	05:58	23:46
Saturday	07:18	23:46
Sunday	08:33	23:46

N. T. S @ A3

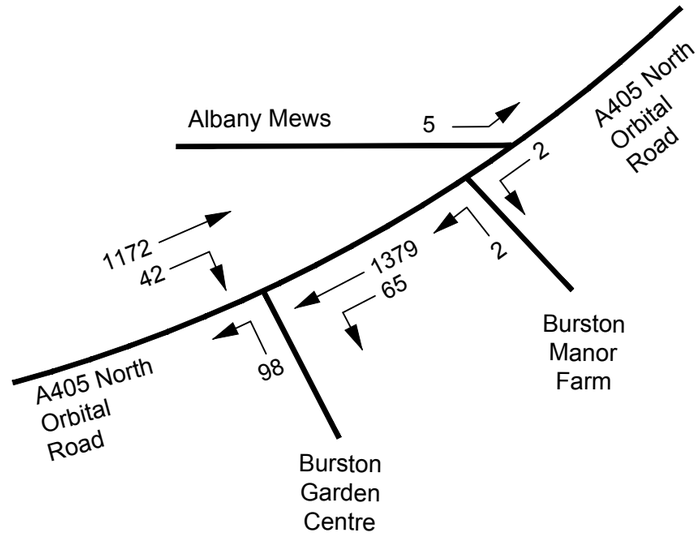
Morning Peak 07:00-08:00



Evening Peak 17:00-18:00



Saturday Peak 12:00-13:00



A1 ORIGINAL PLOT SIZE

N. T. S @ A3

Topographical survey undertaken by: McIlwhin Hughes Land Surveyors drawing no. 10627 / 1 - 5

NOTES:

1. All details are to be checked on site by the Contractor prior to the commencement of the works.
2. All dimensions in metres unless otherwise stated. Measurements to all lines are to be centre line. DO NOT SCALE from this drawing.
3. All levels in metres above ordnance datum unless otherwise stated.
4. TPA cannot be held responsible for the accuracy of the topographical survey.
5. All works to be undertaken in accordance with Manual of Contract Documents for Highway Works (MCHW). If there is any ambiguity between the Specification and the Drawings, the Contractor shall immediately inform the Engineer.
6. Traffic management to be in accordance with Chapter 8 of the Traffic Signs Manual and all relevant codes of practice.
7. All tiling diagram numbers refer to the Traffic Signs Regulations & General Directions 2002.

KEY:

- Full Carriageway Construction
- Carriageway Regrading / Resurfacing
- Full Footway Construction
- Partial Footway Construction / Resurfacing
- Driveway construction - TBC
- Areas of landscaping
- Grass crash overrun zone
- High friction surface min. 50m on approach to stop line. Increased to 100m on westbound approach, and 40m on eastbound approach to include queue lengths in accordance with HD 28/06.
- New Kerbing
- New Edging
- Hand restraint system
- Soft edge
- Tactile paving - controlled crossing
- Signal arrangement. Note: High level secondary signal heads to be installed on the A405 approaches.
- MOVA detector loops

Rev	Date	Item	Drawn by	Checked by	Approved by
B	03-06-14	Minor amendments in accordance with comments from HCC	RC	TD	RL
A	03-06-14	Annotations to various items amended	RC	TD	RL

Bristol
Cheltenham
Cardiff
London
Welwyn Garden City

tpa Transport Planning Associates

Studio Four
57 Brandreth Road
Welwyn Garden City
AL7 3AX
01707 393 200
www.tpa.uk.com

CLIENT: Burston

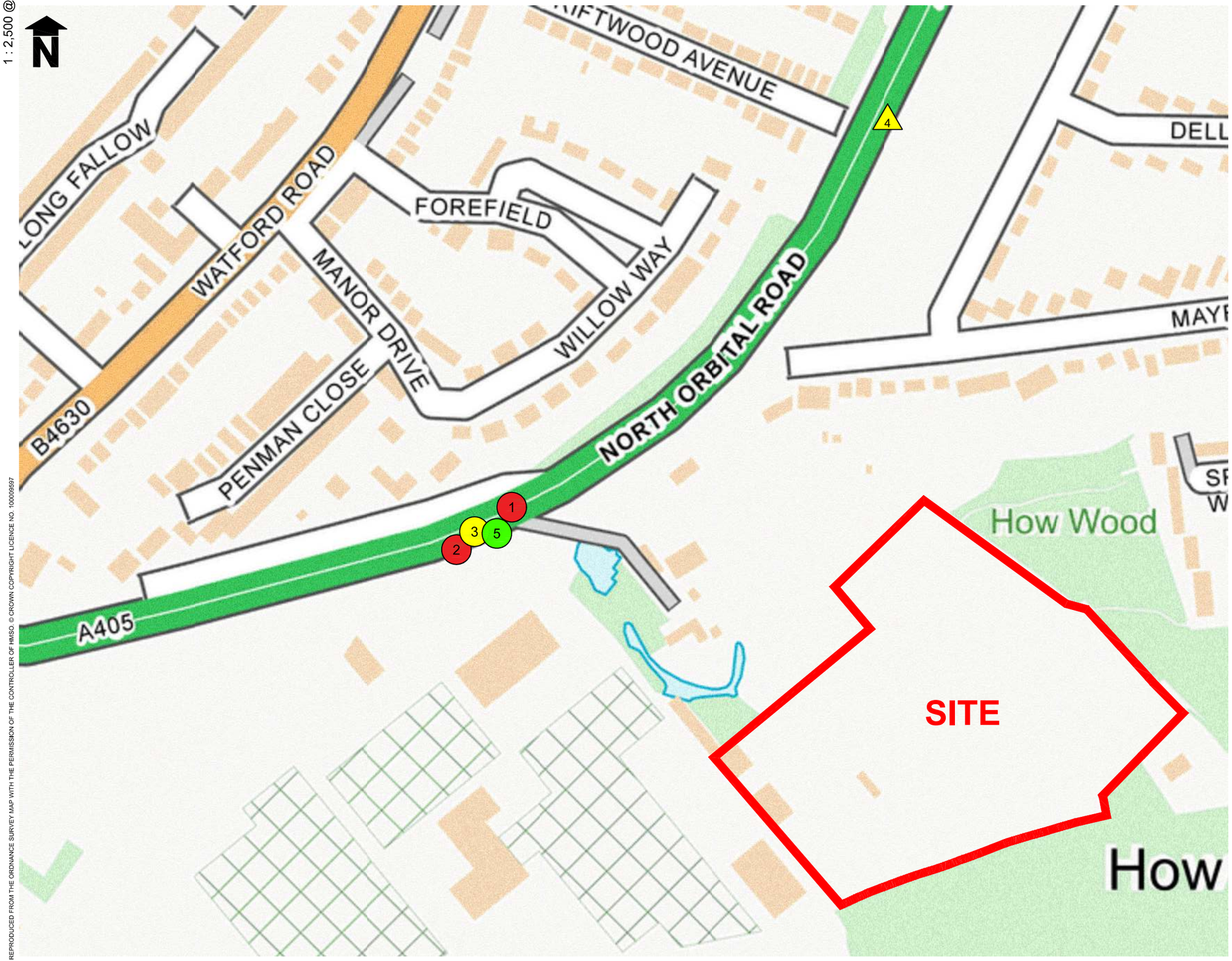
PROJECT: Burston Commercial Wholesale Horticultural & Retail Site, St Albans, Herts

TITLE: Proposed Signalised Junction - Preliminary General Arrangement

STATUS: PRELIMINARY

SCALE:	DATE:	DRAWN:	CHECKED:	APPROVED:
1:250	11.09.14	RC	TD	RL

1 : 2,500 @ A3



Accident Record Plot

HERTFORDSHIRE

Data Source : HERTFORDSHIRE COUNTY COUNCIL
Data Received 16/09/20 for Period 01/01/15 to 31/12/19

Plot Key :

Time Period	Slight	Serious	Fatal
01-01-19 to 31-12-19	●	■	▲
01-01-18 to 31-12-18	●	■	▲
01-01-17 to 31-12-17	●	■	▲
01-01-16 to 31-12-16	●	■	▲
01-01-15 to 31-12-15	●	■	▲

Accident Reference No : 1

Accident Summary

Ref No.	Date	Time	Day/Night	Severity	Location & Details
1	24.03.15	11:14	Day	Slight	**A405 NORTH ORBITAL ROAD ST ALBANS AT EXIT FROM BURSTON GARDEN CENTRE,** V2 Travelling west on North Orbital Road in lane 2. V1 has left Garden Centre & pulled into lane 2 across path V2 & V2 collided o/s V1
2	12.10.15	07:00	Day	Slight	**A405 NORTH ORBITAL ROAD CHISWELL GREEN,** V1 (LGV) and V2 (motorcycle) travelling south west on North Orbital Road, V2 lane 1, V1 changed lane to left & n/s of v1 & o/s V2 have collided.
3	27.04.16	12:00	Day	Slight	**A405 NORTH ORBITAL ROAD ST ALBANS EXIT FROM BURSTON GARDEN CENTRE,** V1 has turned left onto North orbital road from Burston Garden Centre into lane 1. V1 then proceeded to change lane to right & f/o/s V1 has collided with f/n/s V2 in lane 2.
4	28.04.16	21:46	Night	Fatal	**A405 NORTH ORBITAL ROAD CHISWELL GREEN,** **V1** in lane 1 has collided with V2 (cyclist) which has changed lane to the left, into the path of V1 from lane 2, which was closed for road works.
5	21.03.17	14:51	Day	Slight	**A405 NORTH ORBITAL ROAD ST ALBANS AT EXIT FROM BURSTON GARDEN CENTRE,** V2 travelling south west on North Orbital Road in o/s lane, has collided with rear of V1 which has pulled out of the Garden Centre across the path of V2.

1 : 1,000 @ A3

N

Existing bridleway

Burston Manor

The Avenue

Village Green

Hornbeam Lane

Bins

Burston Lane

Clubhouse

Service entrance

Birchwood Bungalow

Turning head

Burston Garden Centre

Arrival Court

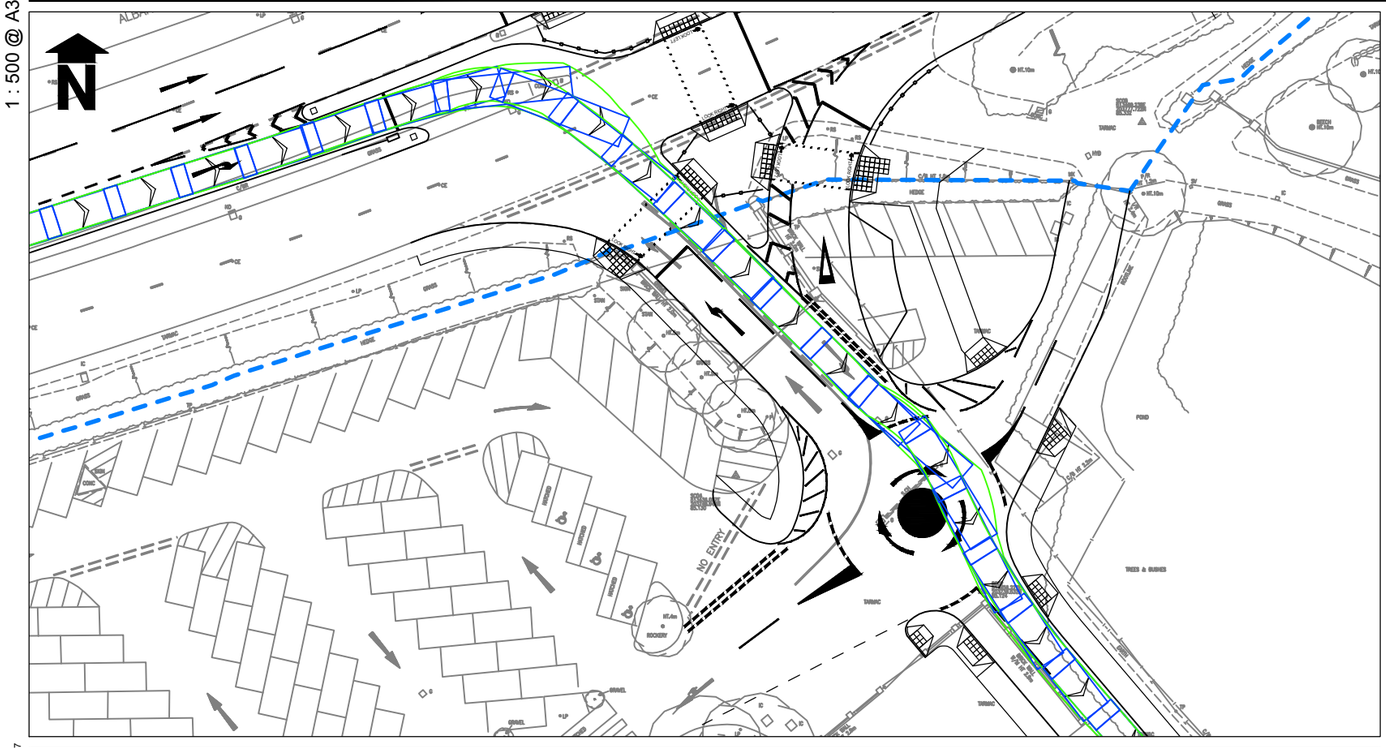
New bridleway

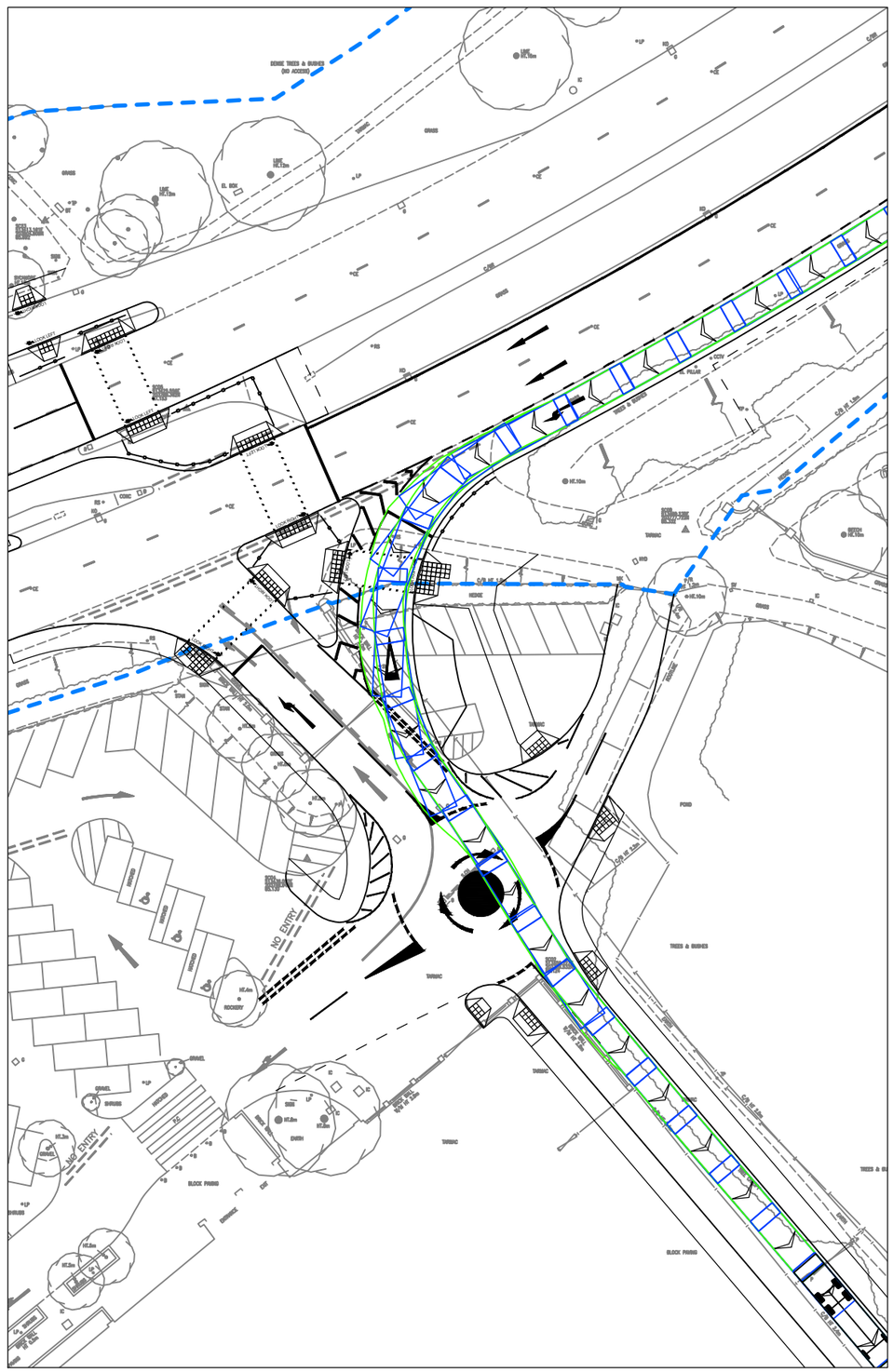
Assisted Living Blocks

Link to new bridleway

APPENDIX 10
Proposed Site Layout

1 : 500 @ A3





APPENDIX 11.1
Swept Paths - Large Refuse Vehicle

1 : 500 @ A3

APPENDIX 11.2
Swept Paths - Large Refuse Vehicle

pep

1 : 500 @ A3

APPENDIX 11.3
Swept Paths - 10m Delivery Lorry

pep

1 : 500 @ A3

APPENDIX 11.4
Swept Paths - Large Estate Car

Calculation Reference: AUDIT-811401-180103-0126

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 03 - RESIDENTIAL
Category : F - SHELTERED ACCOMMODATION

VEHICLES

Selected regions and areas:

02	**SOUTH EAST**		
	ES	EAST SUSSEX	1 days
06	**WEST MIDLANDS**		
	WK	WARWICKSHIRE	1 days

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

Secondary Filtering selection:

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

Parameter: Number of dwellings
Actual Range: 14 to 29 (units:)
Range Selected by User: 14 to 124 (units:)

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/09 to 25/05/15

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

Selected survey days:

Monday	1 days
Thursday	1 days

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

Selected survey types:

Manual count	2 days
Directional ATC Count	0 days

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

Selected Locations:

Edge of Town	1
Neighbourhood Centre (PPS6 Local Centre)	1

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

Selected Location Sub Categories:

Residential Zone	1
No Sub Category	1

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

Secondary Filtering selection:

Use Class:

C3	2 days

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

Secondary Filtering selection (Cont.):

Population within 1 mile:

10,001 to 15,000	1 days
25,001 to 50,000	1 days

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

Population within 5 miles:

50,001 to 75,000	1 days
100,001 to 125,000	1 days

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

Car ownership within 5 miles:

0.6 to 1.0	1 days
1.1 to 1.5	1 days

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

Travel Plan:

No	2 days

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

PTAL Rating:

No PTAL Present	2 days

This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

1 ES-03-F-01 SHELTERED HOU. EAST SUSSEX
STAR ROAD
OLD TOWN
EASTBOURNE
Neighbourhood Centre (PPS6 Local Centre)
No Sub Category
Total Number of dwellings: 29
Survey date: MONDAY *30/11/09* *Survey Type: MANUAL*

2 WK-03-F-01 SHELTERED HOUSING WARWICKSHIRE
NORTHUMBERLAND ROAD
MILVERTON
LEAMINGTON SPA
Edge of Town
Residential Zone
Total Number of dwellings: 14
Survey date: THURSDAY *25/10/12* *Survey Type: MANUAL*

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

TRIP RATE for Land Use 03 - RESIDENTIAL/F - SHELTERED ACCOMMODATION
VEHICLES
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	2	22	0.023	2	22	0.023	2	22	0.046
08:00 - 09:00	2	22	0.093	2	22	0.093	2	22	0.186
09:00 - 10:00	2	22	0.209	2	22	0.140	2	22	0.349
10:00 - 11:00	2	22	0.186	2	22	0.186	2	22	0.372
11:00 - 12:00	2	22	0.256	2	22	0.163	2	22	0.419
12:00 - 13:00	2	22	0.256	2	22	0.233	2	22	0.489
13:00 - 14:00	2	22	0.279	2	22	0.349	2	22	0.628
14:00 - 15:00	2	22	0.140	2	22	0.140	2	22	0.280
15:00 - 16:00	2	22	0.163	2	22	0.116	2	22	0.279
16:00 - 17:00	2	22	0.140	2	22	0.140	2	22	0.280
17:00 - 18:00	2	22	0.116	2	22	0.140	2	22	0.256
18:00 - 19:00	2	22	0.047	2	22	0.093	2	22	0.140
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			1.908			1.816			3.724

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

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

Calculation Reference: AUDIT-811401-180103-0107

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 03 - RESIDENTIAL
Category : N - RETIREMENT FLATS

VEHICLES

Selected regions and areas:

02	**SOUTH EAST**		
	KC	KENT	1 days
	OX	OXFORDSHIRE	1 days
	SC	SURREY	1 days
03	**SOUTH WEST**		
	DV	DEVON	1 days
	NS	NORTH SOMERSET	1 days
04	**EAST ANGLIA**		
	CA	CAMBRIDGESHIRE	1 days
07	**YORKSHIRE & NORTH LINCOLNSHIRE**		
	NY	NORTH YORKSHIRE	1 days
	SY	SOUTH YORKSHIRE	1 days
10	**WALES**		
	VG	VALE OF GLAMORGAN	1 days

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

Secondary Filtering selection:

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

Parameter: Number of dwellings
Actual Range: 28 to 137 (units:)
Range Selected by User: 28 to 149 (units:)

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/09 to 17/10/16

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

Selected survey days:

Monday	3 days
Tuesday	1 days
Wednesday	3 days
Thursday	2 days

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

Selected survey types:

Manual count	9 days
Directional ATC Count	0 days

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

Selected Locations:

Suburban Area (PPS6 Out of Centre)	5
Edge of Town	4

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

Selected Location Sub Categories:

Residential Zone	9

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

Secondary Filtering selection:

Use Class:

Not Known	1 days
C3	4 days

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

Population within 1 mile:

1,001 to 5,000	1 days
5,001 to 10,000	1 days
10,001 to 15,000	1 days
15,001 to 20,000	2 days
20,001 to 25,000	2 days
25,001 to 50,000	2 days

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

Population within 5 miles:

5,001 to 25,000	1 days
50,001 to 75,000	1 days
100,001 to 125,000	2 days
125,001 to 250,000	5 days

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

Car ownership within 5 miles:

0.6 to 1.0	2 days
1.1 to 1.5	7 days

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

Travel Plan:

Yes	2 days
No	7 days

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

PTAL Rating:

No PTAL Present	9 days

This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

1 CA-03-N-02 RETIREMENT FLATS CAMBRIDGESHIRE
DOGSTHORPE ROAD

PETERBOROUGH
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 32
Survey date: MONDAY *17/10/16* *Survey Type: MANUAL*

2 DV-03-N-01 RETIREMENT VILLAGE DEVON
ST MARYCHURCH ROAD
ST MARYCHURCH
TORQUAY
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 45
Survey date: TUESDAY *29/09/15* *Survey Type: MANUAL*

3 KC-03-N-06 RETIREMENT VILLAGE KENT
RUMFIELDS ROAD

BROADSTAIRS
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 40
Survey date: THURSDAY *19/11/15* *Survey Type: MANUAL*

4 NS-03-N-01 RETIREMENT VILLAGE NORTH SOMERSET
DIAMOND BATCH
WORLE
WESTON SUPER MARE
Edge of Town
Residential Zone
Total Number of dwellings: 137
Survey date: THURSDAY *24/09/15* *Survey Type: MANUAL*

5 NY-03-N-01 RETIREMENT FLATS NORTH YORKSHIRE
EASTGATE

PICKERING
Edge of Town
Residential Zone
Total Number of dwellings: 30
Survey date: MONDAY *26/09/16* *Survey Type: MANUAL*

6 OX-03-N-01 RETIREMENT VILLAGE OXFORDSHIRE
RUSKIN ROAD
EASINGTON
BANBURY
Edge of Town
Residential Zone
Total Number of dwellings: 70
Survey date: WEDNESDAY *11/11/15* *Survey Type: MANUAL*

7 SC-03-N-01 RETIREMENT VILLAGE SURREY
WESTFIELD ROAD

WOKING
Edge of Town
Residential Zone
Total Number of dwellings: 39
Survey date: WEDNESDAY *18/11/15* *Survey Type: MANUAL*

8 SY-03-N-01 RETIREMENT FLATS SOUTH YORKSHIRE
MOSS CLOSE
WICKERSLEY
NEAR ROTHERHAM
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 28
Survey date: WEDNESDAY *19/12/12* *Survey Type: MANUAL*

9 VG-03-N-01 RETIREMENT FLATS VALE OF GLAMORGAN
BRADFORD PLACE

PENARTH
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 46
Survey date: MONDAY *16/07/12* *Survey Type: MANUAL*

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

TRIP RATE for Land Use 03 - RESIDENTIAL/N - RETIREMENT FLATS
VEHICLES
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	9	52	0.054	9	52	0.026	9	52	0.080
08:00 - 09:00	9	52	0.107	9	52	0.064	9	52	0.171
09:00 - 10:00	9	52	0.152	9	52	0.105	9	52	0.257
10:00 - 11:00	9	52	0.139	9	52	0.141	9	52	0.280
11:00 - 12:00	9	52	0.146	9	52	0.148	9	52	0.294
12:00 - 13:00	9	52	0.116	9	52	0.148	9	52	0.264
13:00 - 14:00	9	52	0.133	9	52	0.150	9	52	0.283
14:00 - 15:00	9	52	0.146	9	52	0.158	9	52	0.304
15:00 - 16:00	9	52	0.116	9	52	0.146	9	52	0.262
16:00 - 17:00	9	52	0.128	9	52	0.116	9	52	0.244
17:00 - 18:00	9	52	0.071	9	52	0.109	9	52	0.180
18:00 - 19:00	9	52	0.069	9	52	0.056	9	52	0.125
19:00 - 20:00	5	66	0.036	5	66	0.051	5	66	0.087
20:00 - 21:00	5	66	0.030	5	66	0.051	5	66	0.081
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			1.443			1.469			2.912

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

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

3019 BURSTON GARDEN CENTRE, ST. ALBANS

TRICS Analysis
7.4.4

Trip Generation for Proposed Development

RETIREMENT FLATS

Trip Rate per bed **80** APARTMENTS

	Land Use Vehicle Type				
	Arrivals		Departures		Total
	Trip Rate	Trips	Trip Rate	Trips	Trips
00:00 -01:00					
01:00 -02:00					
02:00 -03:00					
03:00 -04:00					
04:00 -05:00					
05:00 -06:00					
06:00 -07:00					
07:00 -08:00	0.054	4	0.026	2	6
08:00 -09:00	0.107	9	0.064	5	14
09:00 -10:00	0.152	12	0.105	8	20
10:00 -11:00	0.139	11	0.141	11	22
11:00 -12:00	0.146	12	0.148	12	24
12:00 -13:00	0.116	9	0.148	12	21
13:00 -14:00	0.133	11	0.150	12	23
14:00 -15:00	0.146	12	0.158	13	25
15:00 -16:00	0.116	9	0.146	12	21
16:00 -17:00	0.128	10	0.116	9	19
17:00 -18:00	0.071	6	0.109	9	15
18:00 -19:00	0.069	6	0.056	4	10
19:00 -20:00	0.036	3	0.051	4	7
20:00 -21:00	0.030	2	0.051	4	6
21:00 -22:00					
22:00 -23:00					
23:00 -24:00					
Totals	1.443	**116**	1.469	**117**	**233**

SHELTERED ACCOMMODATION

Trip Rate per unit **44** UNITS

	Land Use Vehicle Type				
	Arrivals		Departures		Total
	Trip Rate	Trips	Trip Rate	Trips	Trips
00:00 -01:00					
01:00 -02:00					
02:00 -03:00					
03:00 -04:00					
04:00 -05:00					
05:00 -06:00					
06:00 -07:00					
07:00 -08:00	0.023	1	0.023	1	2
08:00 -09:00	0.093	4	0.093	4	8
09:00 -10:00	0.209	9	0.14	6	15
10:00 -11:00	0.186	8	0.186	8	16
11:00 -12:00	0.256	11	0.163	7	18
12:00 -13:00	0.256	11	0.233	10	21
13:00 -14:00	0.279	12	0.349	15	27
14:00 -15:00	0.140	6	0.14	6	12
15:00 -16:00	0.163	7	0.116	5	12
16:00 -17:00	0.140	6	0.14	6	12
17:00 -18:00	0.116	5	0.14	6	11
18:00 -19:00	0.047	2	0.093	4	6
19:00 -20:00					
20:00 -21:00					
21:00 -22:00					
22:00 -23:00					
23:00 -24:00					
	1.908	**82**	1.816	**78**	**160**

TOTAL DEVELOPMENT

	Arrivals	Departures	Two-way
	Trips	Trips	Trips
00:00 -01:00			
01:00 -02:00			
02:00 -03:00			
03:00 -04:00			
04:00 -05:00			
05:00 -06:00			
06:00 -07:00			
07:00 -08:00	5	3	8
08:00 -09:00	13	9	22
09:00 -10:00	21	14	35
10:00 -11:00	19	19	38
11:00 -12:00	23	19	42
12:00 -13:00	20	22	42
13:00 -14:00	23	27	50
14:00 -15:00	18	19	37
15:00 -16:00	16	17	33
16:00 -17:00	16	15	31
17:00 -18:00	11	15	26
18:00 -19:00	8	8	16
19:00 -20:00	3	4	7
20:00 -21:00	2	4	6
21:00 -22:00			
22:00 -23:00			
23:00 -24:00			
Totals	**198**	**195**	**393**

Filtering Summary

Land Use	03/F	RESIDENTIAL/SHELTERED ACCOMMODATION
Selected Trip Rate Calculation Parameter Range	14-124 DWELLS	
Actual Trip Rate Calculation Parameter Range	30-30 DWELLS	
Date Range	Minimum: 01/01/00	Maximum: 28/04/17
Days of the week selected	Saturday	1
Main Location Types selected	Suburban Area (PPS6 Out of Centre)	1
Population <1 Mile ranges selected	5,001 to 10,000	1
Population <5 Mile ranges selected	50,001 to 75,000	1
Car Ownership <5 Mile ranges selected	0.6 to 1.0	1
PTAL Rating	No PTAL Present	1

Calculation Reference: AUDIT-811401-180427-0422

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 03 - RESIDENTIAL
Category : F - SHELTERED ACCOMMODATION
VEHICLES

Selected regions and areas:
09 NORTH
CB CUMBRIA 1 days

Secondary Filtering selection:

Parameter: Number of dwellings
Actual Range: 30 to 30 (units:)
Range Selected by User: 14 to 124 (units:)

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/00 to 28/04/17

Selected survey days:
Saturday 1 days

Selected survey types:
Manual count 1 days
Directional ATC Count 0 days

Selected Locations:
Suburban Area (PPS6 Out of Centre) 1

Selected Location Sub Categories:
Residential Zone 1

Secondary Filtering selection:

Use Class:
C3 1 days

Population within 1 mile:
5,001 to 10,000 1 days

Population within 5 miles:
50,001 to 75,000 1 days

Car ownership within 5 miles:
0.6 to 1.0 1 days

Travel Plan:
No 1 days

PTAL Rating:
No PTAL Present 1 days

LIST OF SITES relevant to selection parameters

Site(1):	CB-03-F-01	Site area:	0.30 hect
Development Name:	SHELTERED HOUSING	Number of dwellings:	30
Location:	CARLISLE	Housing density:	
Postcode:	CA1 2TT		
Main Location Type:	Suburban Area (PPS6 Out of Centre)	Survey Date:	25/10/03
Sub-Location Type:	Residential Zone	Survey Day:	Saturday
PTAL:	n/a	Parking Spaces:	12

Trip Rates for Key Periods		Trips per 1 dwells DWELLS	
Period	Inbound	Outbound	Total
0800-0900	0.033	0.000	0.033
1700-1800	0.033	0.033	0.066

TRIP RATE for Land Use 03 - RESIDENTIAL/F - SHELTERED ACCOMMODATION
VEHICLES
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	1	30	0.000	1	30	0.000	1	30	0.000
08:00 - 09:00	1	30	0.033	1	30	0.000	1	30	0.033
09:00 - 10:00	1	30	0.067	1	30	0.067	1	30	0.134
10:00 - 11:00	1	30	0.100	1	30	0.000	1	30	0.100
11:00 - 12:00	1	30	0.000	1	30	0.067	1	30	0.067
12:00 - 13:00	1	30	0.100	1	30	0.067	1	30	0.167
13:00 - 14:00	1	30	0.067	1	30	0.133	1	30	0.200
14:00 - 15:00	1	30	0.100	1	30	0.133	1	30	0.233
15:00 - 16:00	1	30	0.100	1	30	0.100	1	30	0.200
16:00 - 17:00	1	30	0.067	1	30	0.067	1	30	0.134
17:00 - 18:00	1	30	0.033	1	30	0.033	1	30	0.066
18:00 - 19:00	1	30	0.000	1	30	0.033	1	30	0.033
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.667			0.700			1.367

3019 BURSTON GARDEN CENTRE, ST. ALBANS

TRICS Analysis

7.5.1

1) WEEKEND TRAFFIC GEN. REQUESTED BY H/W OFFICER

2) LIMITED SITE SELECTION FOR WEEKEND TRAFFIC MOVEMENTS RESULTED IN USING SHELT. ACC. IN PLACE OF ASISTED LIVING ACC. (80 + 44 = 124)

Trip Generation for Proposed Development

SHELTERED ACCOMMODATION

Trip Rate per unit **124** UNITS

	Land Use Vehicle Type Arrivals		Departures		Total	
	Trip Rate	Trips	Trip Rate	Trips	Trip Rate	Trips
00:00 -01:00	0	0	0.000	0	0.000	0
01:00 -02:00	0	0	0.000	0	0.000	0
02:00 -03:00	0	0	0.000	0	0.000	0
03:00 -04:00	0	0	0.000	0	0.000	0
04:00 -05:00	0	0	0.000	0	0.000	0
05:00 -06:00	0	0	0.000	0	0.000	0
06:00 -07:00	0	0	0.000	0	0.000	0
07:00 -08:00	0.000	0	0.000	0	0.000	0
08:00 -09:00	0.033	4	0.000	0	0.033	4
09:00 -10:00	0.067	8	0.067	8	0.134	16
10:00 -11:00	0.100	12	0.000	0	0.100	12
11:00 -12:00	0.000	0	0.067	8	0.067	8
12:00 -13:00	0.100	12	0.067	8	0.167	20
13:00 -14:00	0.067	8	0.133	16	0.200	24
14:00 -15:00	0.100	12	0.133	16	0.233	28
15:00 -16:00	0.100	12	0.100	12	0.200	24
16:00 -17:00	0.067	8	0.067	8	0.134	16
17:00 -18:00	0.033	4	0.033	4	0.066	8
18:00 -19:00	0.000	0	0.033	4	0.033	4
19:00 -20:00	0	0	0.000	0	0.000	0
20:00 -21:00	0	0	0.000	0	0.000	0
21:00 -22:00	0	0	0.000	0	0.000	0
22:00 -23:00	0	0	0.000	0	0.000	0
23:00 -24:00	0	0	0.000	0	0.000	0
Totals	0.667	**80**	0.700	**84**	1.367	**164**

pep

TMS

safer roads for everyone

Burston Garden Centre, St Albans, Hertfordshire

Road Safety Audit Stage 1

on behalf of Peter Evans Partnership Ltd

TMS reference no: 14700

Date: 14th January 2019

THE CHARTERED INSTITUTION OF HIGHWAYS & TRANSPORTATION

INSTITUTE OF HIGHWAY ENGINEERS

QMS ISO 9001 REGISTERED

Unit 1b, Sovereign Court 2,
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Burston Garden Centre, St Albans, Hertfordshire

Road Safety Audit Stage 1

1. Introduction

1.1 This report describes a Stage 1 Road Safety Audit carried out on proposed highway works in association with the development at Burston Garden Centre, St Albans, Hertfordshire, on behalf of Peter Evans Partnership Ltd. The audit was carried out on 14th January 2019 in the offices of TMS Consultancy. This RSA1 report supersedes TMS 14189, previously carried out in April 2018.

1.2 The audit team members were as follows:

Audit Team Leader

Darren Newbold – MSc, BSc (Hons), MCIHT, MSoRSA
Highways England Approved RSA Certificate of Competency
Senior Engineer, TMS Consultancy

Audit Team Member

Andy Paul - BEng (Hons), MCIHT
Highways England Approved RSA Certificate of Competency
Road Safety Consultant

1.3 The audit comprised an examination of the documents listed in **Appendix A**. The Road Safety Audit was undertaken in accordance with the Brief provided by Mark Callaghan of Peter Evans Partnership Ltd.

1.4 The site was visited by the Audit Team on 23rd April 2018 at 12.15pm. The weather was cloudy and dry. Traffic flows were moderate. No Pedestrian and cycle flows were observed.

1.5 The terms of reference of the Road Safety Audit are as described in GG 119 (GG 119 superseded HD 19/15 in November 2018). The team has examined and reported only on the road safety implications of the scheme as presented and has not examined or verified the compliance of the design to any other criteria.

1.6 All of the problems described in this report are considered by the audit team to require action in order to improve the safety of the scheme and minimise collision occurrence.

1.7 A scheme drawing is included in **Appendix B**, where the locations of specific problems are referenced. A location plan of the scheme is also included in this Appendix.

1.8 The scheme consists of proposed highway works in association with the development at Burston Garden Centre, St Albans, Hertfordshire. Works include:

- Proposed traffic signal junction at the existing priority junction of Burston Garden Centre and A405 North Orbital Road;
- Internal access arrangements, including a mini-roundabout to serve the Care Village Scheme.

1.9 **Road Safety Audit Response Report**

Following the completion of the road safety audit, the design team should prepare a road safety audit response report in collaboration with the Overseeing Organisation.

The response report should incorporate the following:

- **Decision Log** spreadsheet, where each Problem and Recommendation in the Safety Audit report is reiterated
- In the Decision Log, a response should be provided by the Design Team and Overseeing Organisation for each problem raised in the RSA report, together with an agreed action

Further information is provided in **GG 119 Sections 4.11 to 4.19** and **Appendix F** (where a road safety audit response report template is available).

The response report should be produced and finalised within *one month* of the issue of the RSA report. A copy of the response report should be issued to the Safety Audit Team for information.

2. Items resulting from this Stage 1 Audit

2.1 PROBLEM

Location – Proposed traffic signal junction; pedestrian crossing over westbound A405

Summary: Potential collisions between vehicles and pedestrians

Inter-visibility between pedestrians at the crossing point within the central reserve (intending to cross the westbound A405) and westbound drivers may be restricted due to the long grass within the central reserve. Poor inter-visibility may lead to collisions between vehicles and pedestrians.

RECOMMENDATION

Adequate inter-visibility should be provided to and from the crossing point which require cutting back and / or removal of vegetation within the central reserve.

2.2 PROBLEM

General – street furniture

Summary: Potential hazard to occupants of errant vehicles

There is a line of street lighting columns on the southern verge of the A405 that will be close to the carriageway edge because of the widening on the westbound carriageway to provide the left turn lane. The lighting columns may be a hazard to the occupants of an errant vehicles that may strike one of the lighting columns.

RECOMMENDATION

At detailed design stage the lighting columns should either be suitably relocated and replaced by passively safe lighting columns. Alternatively, the existing lighting columns may require protection.

In addition to this, all traffic signal hardware to be provided for the signal junction should also be passively safe.

2.3 PROBLEM

Location – A405 approaches to the traffic signal junction

Summary: Potential vehicle overshoot type collisions with pedestrians

`From the scale of the drawings provided for the audit, it is difficult to determine the distance between the stop lines and pedestrian crossing studs at the various pedestrian crossings. Given the high-speed nature of the road, if late braking vehicles overshoot the stop line, insufficient distance between the stop line and pedestrian crossing studs may increase the likelihood of collisions between vehicles and pedestrians.

RECOMMENDATION

A 3m gap should be provided between the stop lines and pedestrian crossing studs.

2.4 PROBLEM

Location – Proposed mini-roundabout

Summary: Potential skid hazards to vehicles

There are several gullies within the Garden Centre site that will be within the southbound approach and circulatory carriageway of the proposed mini-roundabout. The gullies, if they remain in situ, will be a potential skid hazard to vehicles, particularly two wheeled vehicles, negotiating the mini roundabout.

RECOMMENDATION

At detailed design stage the drainage gullies should be relocated.

2.5 OTHER ISSUES

In the original Stage 1 Road Safety Audit (TMS No. 14189), the Auditors highlighted (Problem 2.1) that there may not be sufficient Stopping Sight Distance (SSD) to the traffic signal heads. To mitigate against this issue, the design will incorporate the following:

- Change in super elevation around the bend, allowing a 215m SSD to be achieved;
- Reduction of speed limit from national speed to 60mph;
- Provision of a high PSV (68+) surface on approach to the signal junction;
- Traffic signal warning signs;
- Double height traffic signal poles.

The audit team is satisfied that this Problem has been resolved and therefore not raised again within this Stage 1 Road Safety Audit.

3. Audit Team Statement

We certify that the terms of reference of the road safety audit are as described in GG 119 (formerly HD 19/15).

Audit Team Leader

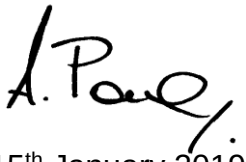
Darren Newbold – MSc, BSc (Hons), MCIHT, MSoRSA
Highways England Approved RSA Certificate of Competency
Senior Engineer, TMS Consultancy

Signed 

Date 15th January 2019

Audit Team Member

Andy Paul - BEng (Hons), MCIHT
Highways England Approved RSA Certificate of Competency
Road Safety Consultant

Signed 

Date 15th January 2019

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Appendix A

Documents Examined:

- Drawing No. 3019.15
- Drawing No. 3019.14
- Drawing No. 3019.16

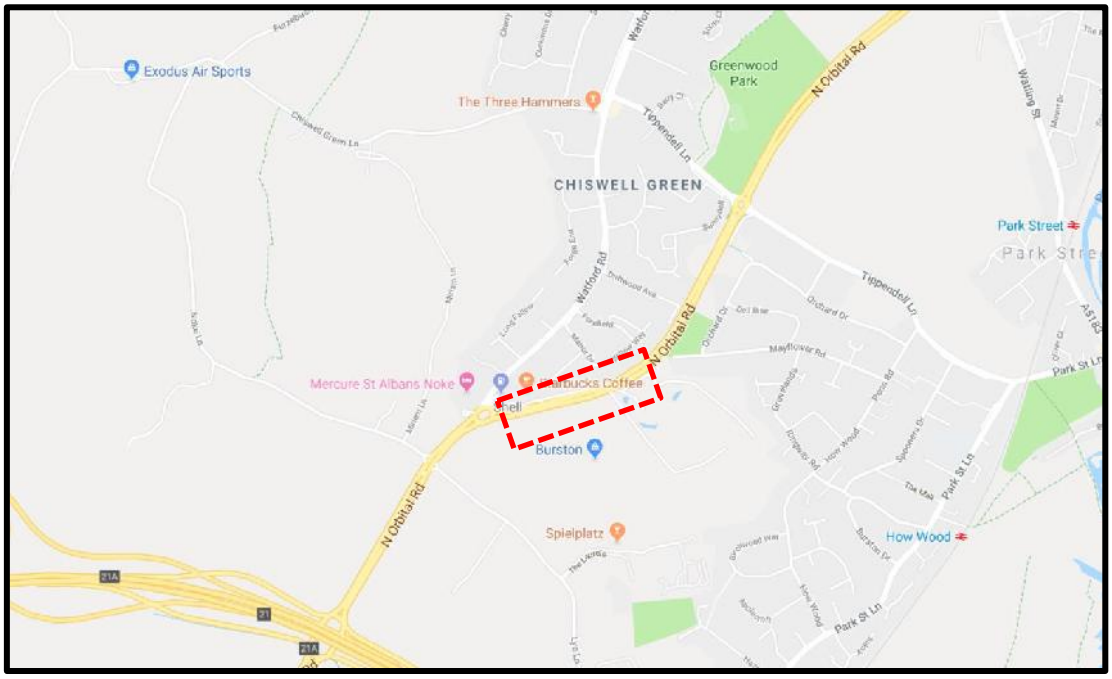
Other Information Provided:

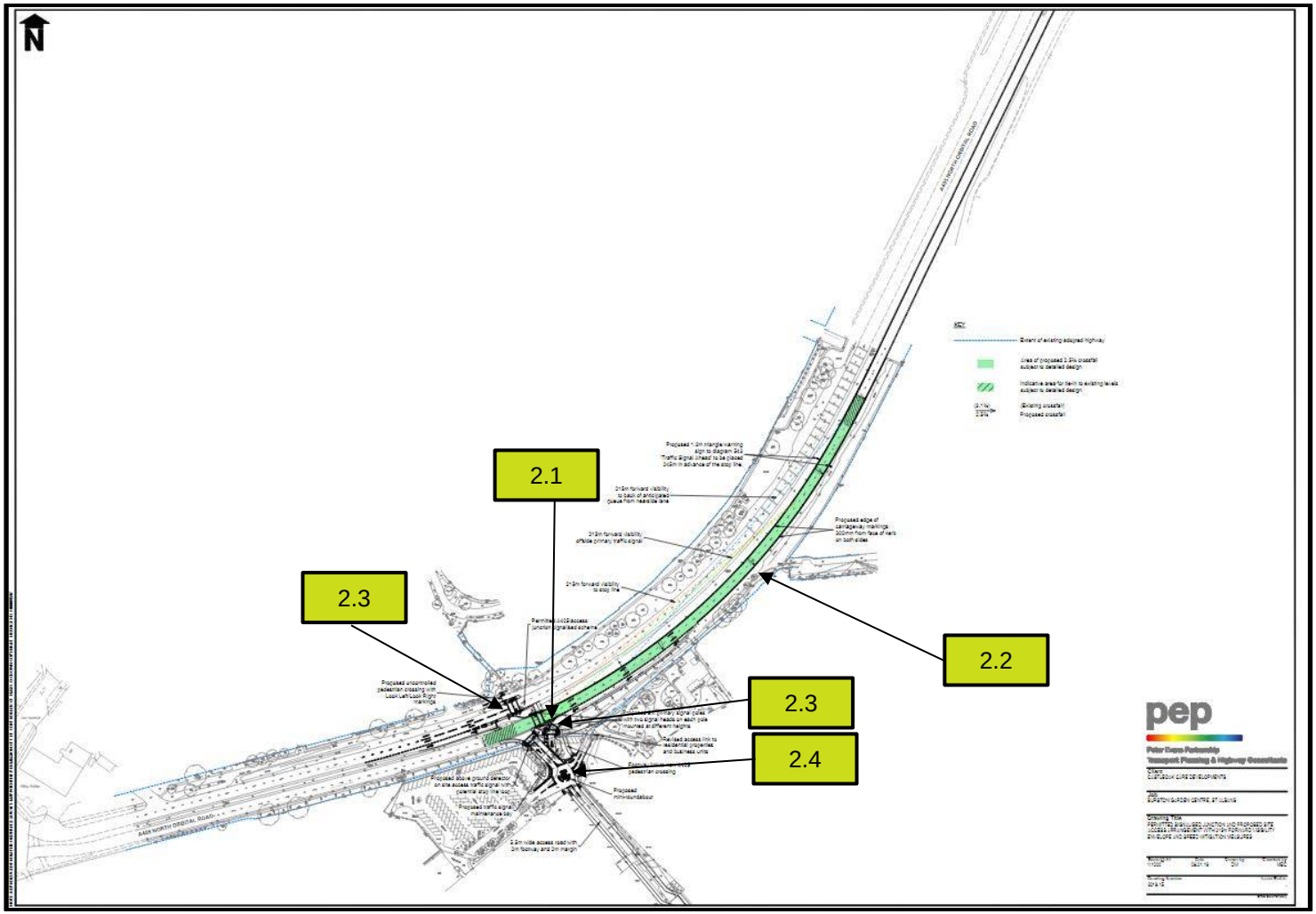
- Checklist of Information
- 2 X Application for Departure from Standard (WCS-D-F054)
- Departures Report

Appendix B

Please refer to the following page for a plan illustrating the locations of the problems identified as part of this audit (location numbers refer to paragraph numbers in the report).

The location of the scheme is shown below:

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2.1
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pep

pep

Peter Evans Partnership
Transport Planning
& Highway Consultants

Proposed Retirement Village
Land at Burston Garden Centre
A405 North Orbital Road
St Albans, Hertfordshire

Castleoak Care Developments

Road Safety Audit Response Report to
TMS Stage 1 Road Safety Audit
Proposed Signalised Junction and Site Access

First Issue for Overseeing Organisation Response

January 2019

CELEBRATING 35 YEARS
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PROJECT DETAILS

Project	Proposed Retirement Village Land at Burston Garden Centre, A405 North Orbital Road, St Albans, Hertfordshire
Report Title	Road Safety Audit Response Report - Stage 1 Proposed Signalised Junction and Site Access
Date	15th January 2019
Document Reference	U:\Projects\3019 St Albans, Burston Garden Centre\3019 Reports\3019 PEP Reports\3019 RSA Designer Response\3019 Road Safety Response Report Stage 1 Issue 1 Jan 19.docx
Prepared by	Peter Evans Partnership
On Behalf of	Castleoak Care Developments

Project	Proposed Retirement Village Land at Burston Garden Centre, A405 North Orbital Road, St Albans, Hertfordshire
Prepared by	
Name	Mark Callaghan
Position	Director
Signed	
Date	add
Approved by	
Name	Andrew Kenyon
Position	Director
Signed	
Date	add

KEY PERSONNEL

Overseeing Organisation	Hertfordshire County Council - James Dale
RSA Team	Darren Newbold and Andy Paul - TMS
Design Organisation	Andrew Kenyon

1.0 INTRODUCTION

1.1 On 14th January 2019 TMS undertook a Stage 1 Road Safety Audit (RSA) of a proposed signalisation scheme of an existing site access junction serving Burston Garden Centre on the A405 North Orbital Road.

1.2 The TMS RSA is an updated audit from April 2018, whereby the design proposals have been amended to include design mitigation proposals for identified Departures from Standard. The original TMS audit identified five problems, with problem 2.1 relating to stopping sight distance and late braking. With the mitigation proposals put forward the new TMS audit at section 2.5 indicates that this problem has been addressed.

1.3 The new TMS RSA audit raised four problems with the highway proposals. This Road Safety Audit Response Report addresses the matters raised by the RSA.

2.0 ITEMS RESULTING FROM THIS STAGE 1 AUDIT

2.1 Problem 1

Location – Proposed traffic signal junction; pedestrian crossing over westbound A405

Summary: Potential collisions between vehicles and pedestrians

Inter-visibility between pedestrians at the crossing point within the central reserve (intending to cross the westbound A405) and westbound drivers may be restricted due to the long grass within the central reserve. Poor inter-visibility may lead to collisions between vehicles and pedestrians.

Recommendation

Adequate inter-visibility should be provided to and from the crossing point which require cutting back and / or removal of vegetation within the central reserve.

Design Organisation Response

Overgrown vegetation in the central reserve would be addressed as part of the detailed design process and at construction of the signalised scheme, the grass would be cut back and maintained.

Overseeing Organisation Response

[add]

Agreed RSA Action

Identify on the detailed drawings cutting back of vegetation/grass and review as part of Stage 2 and 3 road safety audits.

2.2 Problem 2

General – street furniture

Summary: Potential hazard to occupants of errant vehicles

There is a line of street lighting columns on the southern verge of the A405 that will be close to the carriageway edge because of the widening on the westbound carriageway to provide the left turn lane. The lighting columns may be a hazard to the occupants of an errant vehicles that may strike one of the lighting columns.

Recommendation

At detailed design stage the lighting columns should either be suitably relocated and replaced by passively safe lighting columns. Alternatively, the existing lighting columns may require protection.

In addition to this, all traffic signal hardware to be provided for the signal junction should also be passively safe.

Design Organisation Response

The requirement to relocate lighting columns adjacent to the left turn lane would be considered in discussion with Street Lighting and safety engineers at Hertfordshire County Council as part of the detailed design process. This would include consideration to the provision of passively safe traffic signal poles based on Hertfordshire County Council's specification for traffic signal design.

A review of the safety record indicates that there have been no collisions with existing lighting columns which are currently unprotected and non-passive. Columns relocated as result of the left turn lane widening proposals would be further set back from the mainline which is a benefit.

Overseeing Organisation Response

add

Agreed RSA Action

add

2.3 Problem 3

Location – A405 approaches to the traffic signal junction

Summary: Potential vehicle overshoot type collisions with pedestrians

From the scale of the drawings provided for the audit, it is difficult to determine the distance between the stop lines and pedestrian crossing studs at the various pedestrian crossings. Given the high-speed nature of the road, if late braking vehicles overshoot the stop line, insufficient distance between the stop line and pedestrian crossing studs may increase the likelihood of collisions between vehicles and pedestrians.

Recommendation

A 3m gap should be provided between the stop lines and pedestrian crossing studs.

Design Organisation Response

A 3m gap will be provided between the stop line and pedestrian crossing locations. This will be shown at the detailed design stage and reviewed at the Stage 2 road safety audit.

Overseeing Organisation Response

add

Agreed RSA Action

A 3m gap between stop line and crossings locations to be provided at detailed design stage.

2.4 Problem 4

Location – Proposed mini-roundabout

Summary: Potential skid hazards to vehicles

There are several gullies within the Garden Centre site that will be within the southbound approach and circulatory carriageway of the proposed mini-roundabout. The gullies, if they remain in situ, will be a potential skid hazard to vehicles, particularly two wheeled vehicles, negotiating the mini roundabout.

Recommendation

At detailed design stage the drainage gullies should be relocated.

Design Organisation Response

The road gullies are outside the proposed area for adoption and are a matter for the developer to consider at the detailed design stage. However mini roundabout and approach road levels will be revised to provide a suitable approach to the signals. This will require alterations to gullies which can be relocated.

Overseeing Organisation Response

add

Agreed RSA Action

add

3.0 DESIGN ORGANISATION AND OVERSEEING ORGANISATION STATEMENTS

3.1 On behalf of the design organisation I certify that:

The RSA actions identified in response to the road safety audit problems in this road safety audit have been discussed and agreed with the Overseeing Organisation.

Name: Andrew Kenyon

Signed

Position Director

Date add

3.2 On behalf of the Overseeing Organisation I certify that:

The RSA actions identified in response to the road safety audit problems in this road safety audit have been discussed and agreed with the design organisation; and

The agreed RSA actions will be progressed.

Name: James Dale

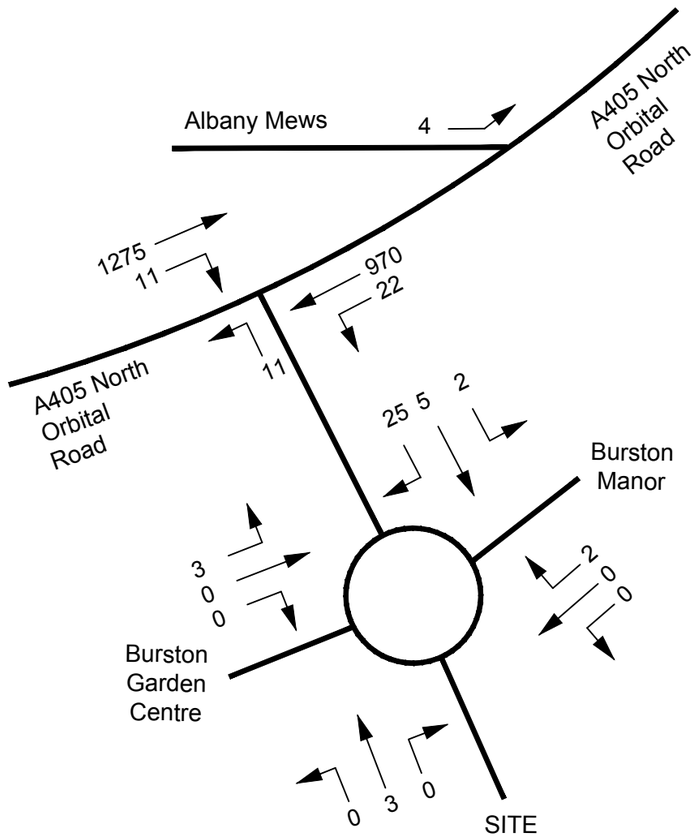
Signed

Position add

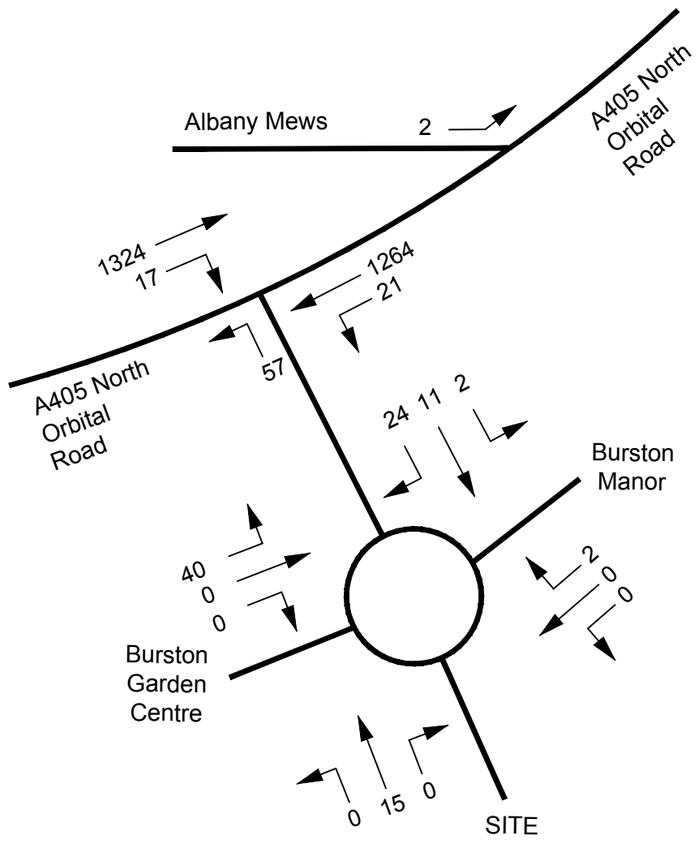
Date [add]

N

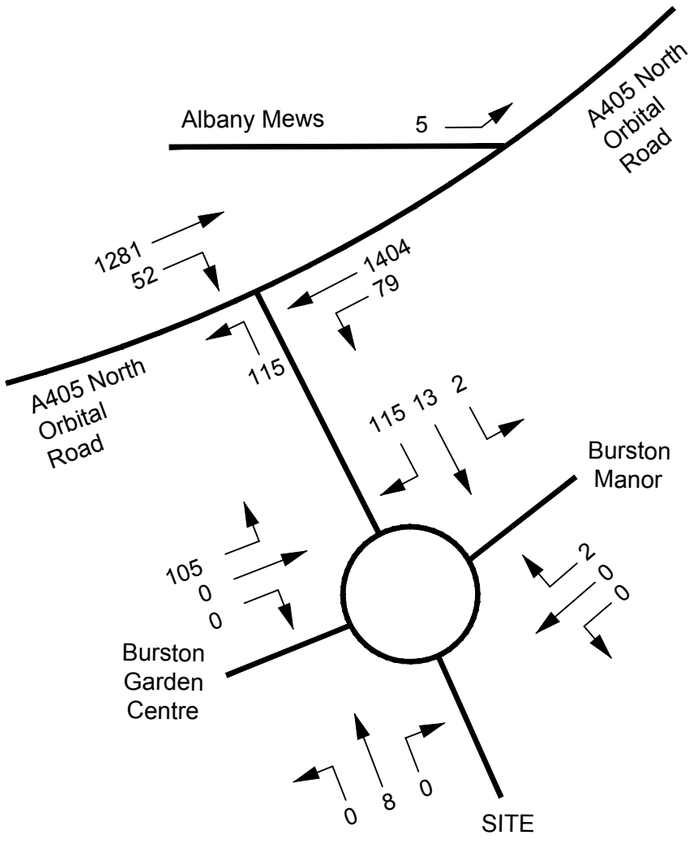
Morning Peak 07:00-08:00



Evening Peak 17:00-18:00



Saturday Peak 12:00-13:00



Proposed Retirement Community, St Albans

LINSIG ANALYSIS RESULTS SUMMARY

A405 North Orbital Road / Site Access Signalised Junction

Arm	Link Name
1/2 + 1/1	A405 East Left/Ahead
1/3	A405 East Ahead
4/1	A405 West Ahead
4/2 + 4/3	A405 West Right/Ahead
6/1	Proposed Site Access Left
7/1	Albany Mews

2023 AM Baseline + Permitted + Development

Arm	Degree of Saturation (%)	Mean Max Queue (PCU)
1/2 + 1/1	27.9	3.6
1/3	27.0	3.6
4/1	34.5	4.4
4/2 + 4/3	35.0	4.4
6/1	7.0	0.3
7/1	0.9	0.0

PRC Over All Lanes (%): 156.9

2023 PM Baseline + Permitted + Development

Arm	Degree of Saturation (%)	Mean Max Queue (PCU)
1/2 + 1/1	50.1	9.3
1/3	47.8	9.6
4/1	38.8	5.3
4/2 + 4/3	40.9	5.1
6/1	50.4	4.0
7/1	1.5	0.0

PRC Over All Lanes (%): 78.7

2023 Saturday Baseline + Development

Arm	Degree of Saturation (%)	Mean Max Queue (PCU)
1/2 + 1/1	49.6	9.3
1/3	47.3	9.6
4/1	38.1	5.1
4/2 + 4/3	40.1	5.0
6/1	47.8	4.0
7/1	1.4	0.0

PRC Over All Lanes (%): 81.3

Proposed Retirement Community, St Albans

JUNCTIONS 9 ANALYSIS RESULTS SUMMARY

Site Access Roundabout

Arm	Link Name
Arm 1	A405
Arm 2	Burston Manor Farm
Arm 3	Site Access
Arm 4	Burston Garden Centre

2023 AM Baseline + Permitted + Development

Arm	RFC	Queue (PCU)
Arm 1	0.04	0.0
Arm 2	0.00	0.0
Arm 3	0.00	0.0
Arm 4	0.00	0.0

2023 PM Baseline + Permitted + Development

Arm	RFC	Queue (PCU)
Arm 1	0.04	0.0
Arm 2	0.00	0.0
Arm 3	0.02	0.0
Arm 4	0.05	0.0

2023 Saturday Baseline + Development

Arm	RFC	Queue (PCU)
Arm 1	0.15	0.2
Arm 2	0.00	0.0
Arm 3	0.01	0.0
Arm 4	0.12	0.1