

Appendix 10.1 Transport Assessment





Transport Assessment

Land North East of Harpenden between Lower Luton Road, Bower Heath Lane and Common Lane

Crest Nicholson

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Executive Summary

- 1) SLR Consulting Ltd has been retained by Crest Nicholson to provide transport and mobility planning advice in support of an outline planning application for the Proposed Development at Land North East of Harpenden between Lower Luton Road, Bower Heath Lane and Common Lane. The applicant seeks outline planning consent with all matters reserved except for access, for the following:

“Outline Application for demolition of existing buildings and structures and construction of a mixed-use development comprising residential dwellings (including affordable housing), children’s home, elderly extra care facility, local centre (flexible retail/ health/ community use), sports pitches and associated building, green infrastructure and landscaping works (to include public open space and community growing space); primary school with early years provision, vehicular and active travel infrastructure (including pedestrian and cycle access) and diversion of Bower Heath Lane; drainage works; and related infrastructure. All matters reserved save for access from Lower Luton Road.”

- 2) The Transport Vision for the Site is to provide new homes in a sustainable environment with access to a variety of local services by a choice of transport modes thus reducing the demand for travel into the wider area and offering new residents a choice of mode of transport to the private car.
- 3) The associated transport infrastructure comprises:
 - A ghost island priority junction on to Lower Luton Road;
 - A signal-controlled toucan crossing on Lower Luton Road in the vicinity of the proposed site access junction;
 - A signal-controlled pedestrian crossing on Lower Luton Road in the vicinity of Porters Hill;
 - Gateway features on Lower Luton Road on the approaches to Batford;
 - Pedestrian and cycle connections to the existing Batford estate;
 - Parallel crossing on Westfield Road;
 - Improved crossing facility on Common Lane to facilitate pedestrian connection to Katherine Warington School;
 - Implementation of a 20mph zone within Batford accompanied by a series of raised tables at junctions within Batford;
 - Delivery of dropped kerbs and tactile paving at junction minor arms on key pedestrian routes in Harpenden;
 - An internal network of road, footpaths and cycleways;
 - All matters are reserved for subsequent approval with the exception of the access point on to Lower Luton Road.
- 4) The site is part of the wider NE Harpenden Broad Location B2 draft allocation within the St Albans City and District Council Draft Local Plan 2041, which also encompasses land to the south (adjacent to Lower Luton Road) and east (adjacent to Common Lane). The wider allocation is for:



- A comprehensive mixed-use development;
 - Residential (circa 750 homes, plus Extra Care provision);
 - 2 Form Entry Primary School (inc. Early Years);
 - Local Centre;
 - On-site sports provision;
 - Other green infrastructure; and
 - Improvements to transport infrastructure, including links to Katherine Warrington Secondary School.
- 5) In relation to transport measures, the draft Local Plan sets out the following key development requirements for the site:
- Contributions / enhancements to support relevant schemes in the LCWIP and GTPs as indicated in the TIA;
 - Support for improvements to walking facilities along Common Lane to mitigate impacts on this road, especially at school pick-up / drop-off times. This potentially needs to include footway / cycleway from site to Common Lane, then improved crossings and side junction improvements;
 - Support for improved access to Katherine Warrington school is required including active travel connections to the school through the site;
 - Support for links to / from and improvement of the Upper Lea Valley Way into Harpenden and out to Luton; and
 - Support for improvements to the Public Rights of Way that link into the wider network to enable recreational use.
- 6) As part of the pre-application process, a significant level of stakeholder engagement as part of formal consultations with Hertfordshire County Council and St Albans City and District Council has been undertaken. A public consultation event was also undertaken.
- 7) This report considers the accessibility of the site by all modes of transport; walking, cycling, public transport, and car. The report considers the impacts of the traffic associated with the Proposed Development on the surrounding highway network to identify whether there is any severe cumulative residual impact arising from the Proposed Development.
- 8) The assessment of highway capacity takes account of traffic growth and traffic associated with committed developments. Both capacity and safety of proposed accesses and the surrounding highway network are considered.
- 9) The approach and methodologies used are consistent with national and local guidance and the scope of the report was agreed with Hertfordshire County Council during pre-application discussions.
- 10) The local facilities within the site, especially the primary school will ensure that the transport demands of the development are minimised where possible and these facilities provide for both new residents on the site and for local existing residents of neighbouring Batford Estate.



- 11) The detailed internal layout of the Proposed Development will be agreed as part of a future detailed Reserved Matters planning application and will be designed with consideration of Manual for Street (MfS) design guidance and Hertfordshire highways design guidance to ensure that the Proposed Development is not dominated by vehicles and provides safe routes to ensure permeability for pedestrians and cyclists.
- 12) The roads within the site will accommodate refuse, emergency and service vehicles and buses will be able to route through the site, with bus stops located to suitably serve all areas of the development.
- 13) Car and cycle parking within the development will be provided with consideration of adopted standards and available car ownership data to ensure a balance is met between providing sufficient space to avoid on-road parking and avoiding designing a car-dominated development.
- 14) The site is accessible for pedestrians and cyclists and enhancements will be made to ensure pedestrian and cycle access both within the site and to local facilities have been identified. A route analysis has been undertaken to the local secondary school (Katherine Warrington School) to ensure the route is safe. Potential improvements on this route have been identified.
- 15) Framework Travel Plans have been prepared for both the residential units and the primary school to encourage the use of sustainable modes of transport: walking, cycling and public transport.
- 16) An assessment of the local roads and junctions around the site has been undertaken. This has shown that no off-site junction mitigation work is required to accommodate the traffic associated with the proposed development.
- 17) The construction of the Proposed Development will be phased and will be controlled by a Construction Environmental Management Plan that will include:
 - Detailed access arrangements from the highway network for phases of construction;
 - Routing of construction traffic to minimise the impact of the local residents and other road users;
 - The provision of measures on-site to ensure that there is no mud or dust on the public highway; and
 - Consideration of the need to restrict the hours of construction.
- 18) This is the Proposed Development of a strategic housing site with an allocation (within the draft Local Plan) which is in an accessible location. Safe access can be provided to the site and a package of mitigation measures has been identified which would mitigate the implications of traffic associated with the Proposed Development on both the local and strategic highway network.
- 19) A summary of the proposed mitigation package of transport measures associated with the Proposed Development to minimise transport demand, encourage the use of non-car modes of transport and to provide highway safety and capacity improvements is set out below:



- Proposed Sustainable Mitigation Measures:
 - Minor arm crossing improvements on key routes within the vicinity of the site (dropped kerbs and tactile paving where not provided);
 - New gateway features on Lower Luton Road on approach to Batford;
 - Pedestrian and cycle connections from the proposed development to the Batford estate;
 - Bus service route within the site combined with increased bus frequencies;
 - Residential and School Travel Plans;
 - Electric vehicle charging facilities;
 - Car club vehicles;
 - Cycle parking; and
 - Off-site Smarter Choices package for existing Batford residents.
 - Proposed Highway Mitigation Measures:
 - Site Access to Lower Luton Road;
 - Signal controlled crossing on Lower Luton Road delivered as part of the site access;
 - Signal controlled crossing on Lower Luton Road in proximity of Porters Hill;
 - Gateway features on Lower Luton Road on the approaches to Batford;
 - Parallel crossing on Westfield Road giving priority to pedestrians and cyclists on the Luton-Harpenden Greenway;
 - Improved crossing facility on Common Lane to facilitate pedestrian connection to Katherine Warrington School; and
 - Potential implementation of 20mph zone within Batford inclusive of network of raised tables.
- 20) The Proposed Development is consistent with both national and local policies, including the adopted and emerging Local Plan. There would not be a severe cumulative residual impact arising from traffic associated with the Proposed Development.
- 21) The Proposed Development of the site would be accessible with provision made for all modes of transport.
- 22) There would be adequate highway capacity to accommodate the predicted levels of traffic associated with the Proposed Development. A package of suitable mitigation measures has been identified to ensure that there is no severe residual impact in line with adopted policy.
- 23) As proposed, the development of the site, would be a sustainable development that would make a significant contribution to meeting housing needs in the area and would be highly accessible by all modes of transport. The proposed scheme is in accordance with planning policy and benefits from a draft allocation for residential development in the draft Local Plan.
- 24) There are no transport related reasons why the Proposed Development should not be granted planning consent.



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1.0 Introduction

- 1.1 SLR Consulting Ltd has been commissioned by Crest Nicholson to provide transport and mobility planning advice in relation to a proposed development site to at Land North East of Harpenden between Lower Luton Road, Bower Heath Lane and Common Lane, known as NE Harpenden (the site).
- 1.2 The site is part of the wider NE Harpenden draft allocation within the St Albans City and District Council draft Local Plan 2041, which also encompasses land to the south (adjacent to Lower Luton Road) and east (adjacent to Common Lane).
- 1.3 This Transport Assessment (TA) reviews the accessibility of the site, considers the development proposals in line with national and local planning policy documents, and forecasts the potential trip generation of the proposed development. The TA also investigates the potential impact of the proposed development (and the full allocation) on the surrounding transport network and investigates any measures to mitigate any impact.
- 1.4 The planning application that this TA accompanies is for a residential-led mixed-use development. The development description is as follows:

“Outline Application for demolition of existing buildings and structures and construction of a mixed-use development comprising residential dwellings (including affordable housing), children’s home, elderly extra care facility, local centre (flexible retail/ health/ community use), sports pitches and associated building, green infrastructure and landscaping works (to include public open space and community growing space); primary school with early years provision, vehicular and active travel infrastructure (including pedestrian and cycle access) and diversion of Bower Heath Lane; drainage works; and related infrastructure. All matters reserved save for access from Lower Luton Road.”
- 1.5 Supporting parameter plans are provided at **Appendix A** along with an illustrative masterplan showing how the development could come forward.
- 1.6 The wider NE Harpenden draft allocation is for up to a total of circa 750 residential dwellings plus the ancillary land uses included as part of the proposed development.

Report Structure

- 1.7 This TA explores the sustainable transport opportunities within the surrounding area, and how these opportunities can be best utilised and supported to deliver sustainable development and limit the use of the private car, specifically for single occupancy use. The use of single occupancy vehicles is the least efficient mode of transport in terms of people per square metre of highway, and greatest emphasis must be given to the promotion of the most efficient and sustainable modes of travel.
- 1.8 Whilst sustainable travel is the greatest priority, the residual vehicular impact of the proposed development is investigated in this TA. Detailed junction modelling assessments have been undertaken to determine the impact on the local highway network and identify whether any off-site highways mitigation is required.
- 1.9 This TA report has been prepared with the benefit of knowledge and experience gained through working on similar developments both locally and nationally, including working on the



promotion of the draft allocation of the NE Harpenden site within the St Albans City and District Local Plan for a number of years. In addition, the TA follows the Planning Practice Guidance, and follows the principles of National Planning Policy Framework (NPPF).

1.10 The remainder of this TA is structured as follows:

- **Section 2** – Existing Conditions;
- **Section 3** – Policy Context
- **Section 4** – Development Proposals
- **Section 5** – Trip Generation and Distribution
- **Section 6** – Highway Network Assessment; and
- **Section 7** – Summary and Conclusion.



2.0 Existing Conditions

Development Site

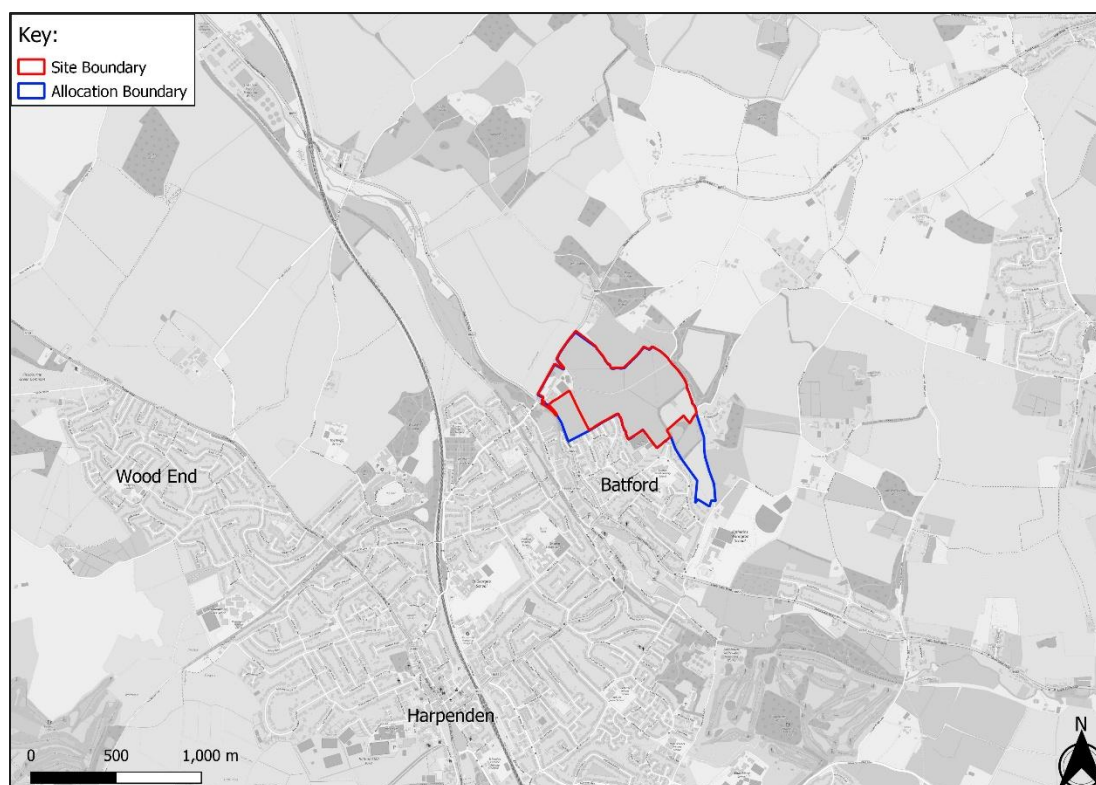
- 2.1 This section describes the NE Harpenden Local Plan allocation as well as the application site.

NE Harpenden Allocation

- 2.2 St Albans District and City Council is preparing a new emerging draft Local Plan. The NE Harpenden area has been allocated for development within the Regulation 19 draft St Albans District and City Council Local Plan 2041.
- 2.3 The emerging new Local Plan includes the Site within the North East Harpenden Broad Location B2 allocation for:
- A comprehensive mixed-use development;
 - Residential (circa 750 homes, plus Extra Care provision);
 - 2 Form Entry Primary School (inc. Early Years);
 - Local Centre;
 - On-site sports provision;
 - Other green infrastructure;
 - Improvements to transport infrastructure, including links to Katherine Warrington Secondary School.
- 2.4 A plan showing the development site (land to be developed by Crest), and the extent of the wider NE Harpenden allocation is provided in **Figure 2.1**.



Figure 2.1 - NE Harpenden Allocation Plan



The Proposed Development (Application Site)

- 2.5 The development application site is located within the administrative area of St Alban's District Council ('SADC') and comprises 32.94 hectares of land. The site is primarily agricultural / greenfield land. There is an active Equestrian Centre located in the western corner of the site, a number of the fields are used for horse grazing.
- 2.6 It forms the largest part of the NE Harpenden allocation and the proposed site will deliver the majority of the allocated dwellings. The location of the site is shown in **Figure 2.2**.



Figure 2.2 - Site Location Plan



- 2.7 The site is bound to the south by existing residential properties within the area of Batford, by Common Lane to the east, Bower Heath Lane to the west, and by agricultural land to the north comprising part of the Metropolitan Green Belt.

Access

- 2.8 There are currently a number of access points provided to the site in the form of private gated accesses to farm buildings and farmland. These are located on Common Land and Bower Heath Lane.
- 2.9 The development site is primarily agricultural / greenfield land , and it is expected that traffic associated with the existing land use is minimal.
- 2.10 The existing accesses will not be retained within the development proposals.

Sustainable Travel Conditions

- 2.11 This section outlines the existing transport conditions in the vicinity of the site in detail, including details of walking and cycling routes, local bus and rail services, and the local highway network.

Walking

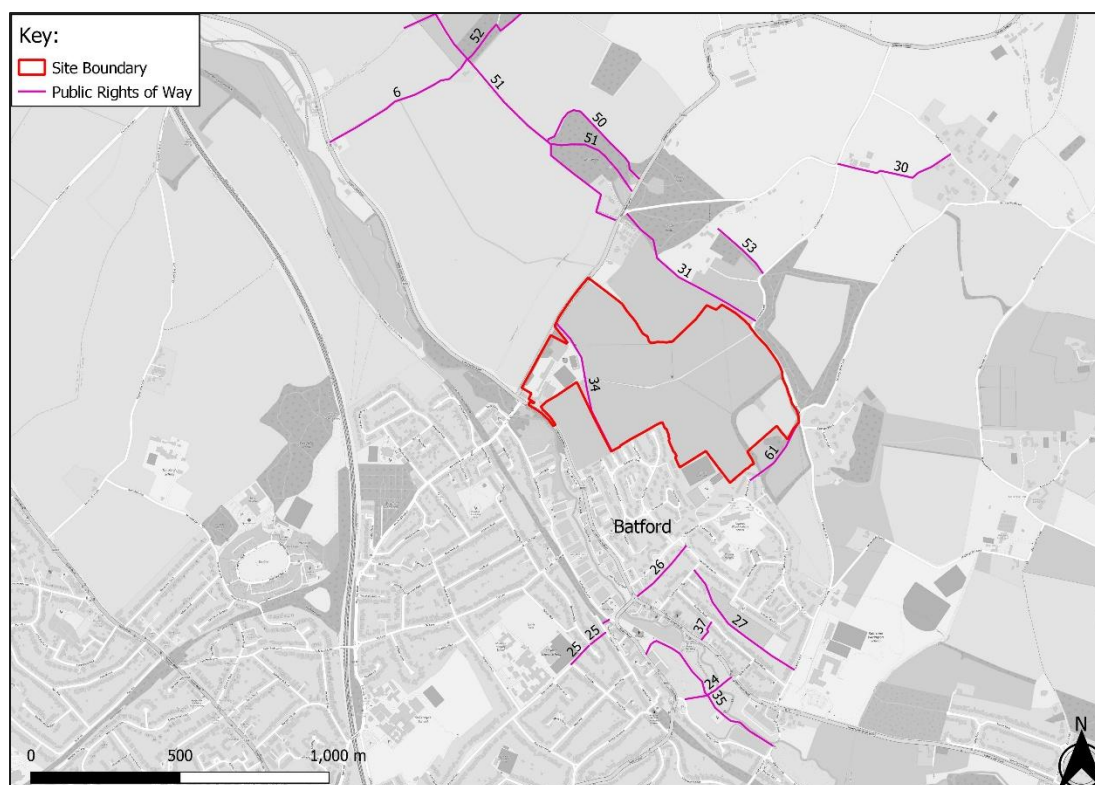
- 2.12 The site is well located in terms of existing walking routes. Given the nature of the area as a predominantly residential area, there is provision of pedestrian footways typically on both sides of the carriageway with streetlighting provided.



- 2.13 Within immediate vicinity of the site, Lower Luton Road benefits from pedestrian footways on both sides of the carriageway in an eastbound direction. No pedestrian footways are provided in a westbound direction however it is unlikely that pedestrians would travel in this direction regardless of whether a footway was available. Lower Luton Road junctions with Porters Hill and Pickford Hill both benefit from dropped kerbs with tactile paving, however the Co-op Food access and junction with St Martins Close does not provide tactile paving. There are no crossing facilities to enable pedestrians to cross Lower Luton Road until reaching the Lower Luton Road/Station Road roundabout whereby a signalised crossing is provided.
- 2.14 Westfield Road provides pedestrian footways on both sides of the carriageway and streetlighting is present. To facilitate crossing of Westfield Road an informal crossing with dropped kerbs and tactile paving is provided at the junction with Lower Luton Road. To the southwest of The Red Cow public house the footway on the northbound side of the carriageway ends for a distance of approximately 70m. Pedestrians are able to utilise footways on the opposite side of the carriageway.
- 2.15 No pedestrian footways are provided on Bower Heath Lane or Common Lane on the boundaries of the site owing to their rural nature. It is unlikely that a significant number of pedestrian trips would be made on these roads with the exception of leisure trips as there are no local facilities accessed from these roads.
- 2.16 Roads within the neighbouring Batford residential area benefit from pedestrian footways on at least one side of the carriageway and streetlighting is present. Within Batford minor arm crossings at junctions are mixed in terms of pedestrian facilities, with some crossings providing dropped kerbs and others not. Tactile paving at junction crossings have not been observed in this area with the exception of the minor arms of junctions connecting to Common Lane.
- 2.17 In addition to pedestrian footways, there are a number of Public Rights of Way (PRoW) within the vicinity of the site routing in a variety of directions. **Figure 2.3** highlights the existing PRoW routes using the HCC PRoW map as a reference.



Figure 2.3 - HCC PRow Map Extract

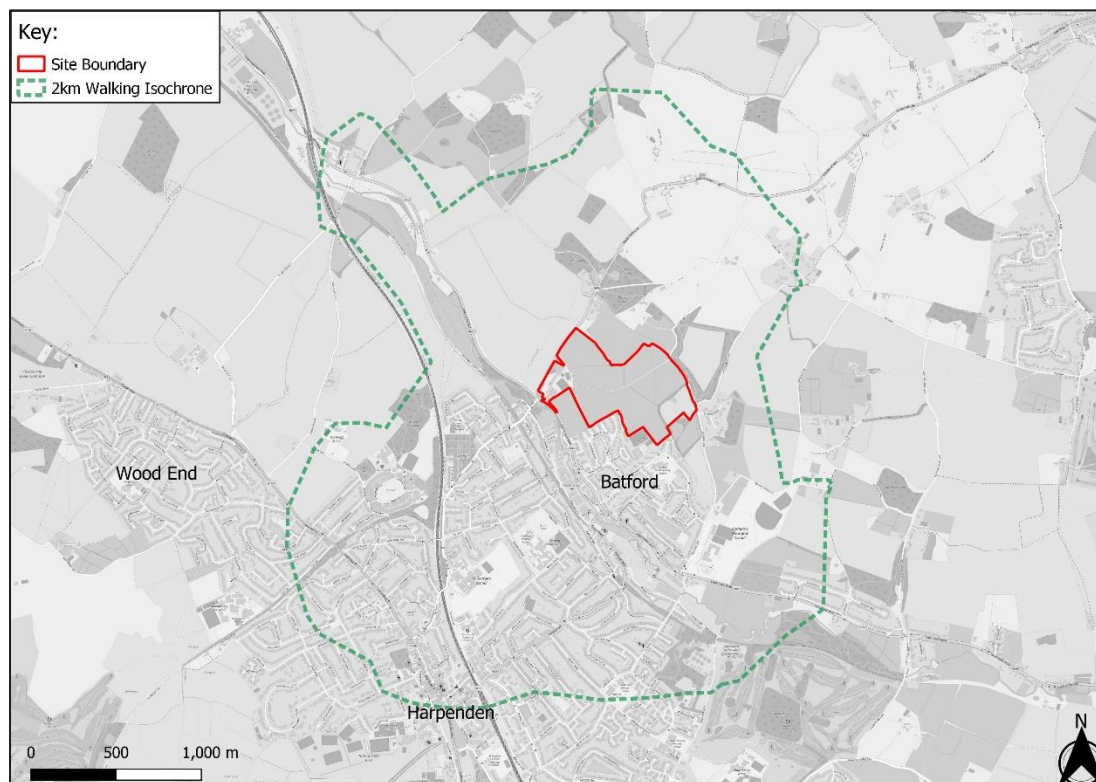


- 2.18 The PRow within the vicinity of the site comprise of a mixture of cut-through links and footpaths through fields.
- 2.19 The distance people are prepared to walk will vary depending on journey type, journey purpose, and personal preference. National Travel Survey data for 2020 shows that 93% of walking trip are made up to a distance of 2 miles (3.2km) with 63% of walking trips being up to 1 mile (1.6km). Although it has now been superseded by the National Planning Policy Framework, the Planning Policy Guidance 13 quoted 2km as a trip distance offering the best opportunity for a switch to walking.
- 2.20 A study published in Local Transport Today (LTT 13-26th October 2017) established 85th percentile and average distances walked by people to access a number of services. It details that the distance up to which people would ordinarily walk as being the 85th percentile. The study suggested that it is the 85th percentile distance that should be used as the defining criteria for accessibility of new development. The study suggests that for all journey purposes for residential developments, the average distance is 1,150m. However, the 85th percentile, which is referred to as the distance up to which people would ordinarily walk, is 1,950m.
- 2.21 Table 4.1 within the Welsh Government Active Travel Act Guidance document suggests that many users are likely to walk up to 2 miles (equivalent to approximately 3.2km) for utility journeys, whilst some users may walk up to 3 miles (equivalent to approximately 4.8km). Whilst the site does not sit within Wales and therefore the guidance does not relate to the proposed development, it provides evidence that pedestrians are willing to walk longer distances.



- 2.22 On the basis of the above, a walking isochrone is included in **Figure 2.4** which provides isochrones up to 2km (achievable within 25 minutes at walking speed of 1.4m/s). This should not be considered an upper limit and pedestrians may choose to walk further than this.

Figure 2.4 - 2km Walking Isochrone



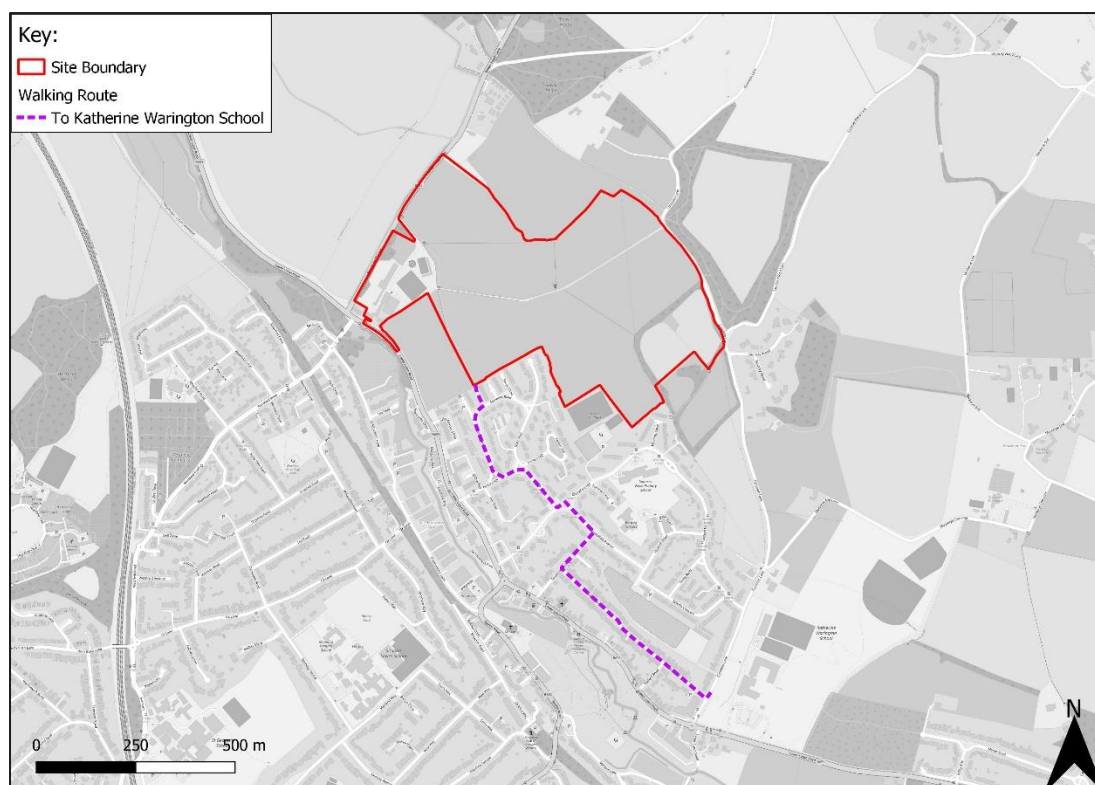
- 2.23 The walking isochrone presented indicates that the majority of Harpenden is accessible within a 2km walk of the site. Harpenden provides access to a number of local facilities including retail, education and employment opportunities.
- 2.24 An audit has been undertaken to assess the quality of the routes between the site and various locations that are expected to be used by a significant proportion of pedestrians, owing to the facilities available and the distance from the site. The routes considered are as follows:
- To Katherine Warington School;
 - To Harpenden Town Centre via Westfield Road;
 - To Harpenden Town Centre via Manland Way; and
 - To Harpenden Railway Station.

To Katherine Warington School

- 2.25 The route to Katherine Warington School via the pedestrian access connecting to Turners Close measures approximately 1.2km in length and follows Northfield Road, Porters Hill, Noke Shot, Roundfield Avenue, Southview Road and Salisbury Road. **Figure 2.5** shows this route visually.



Figure 2.5 - Walking Route to Katherine Warrington School



- 2.26 There is an alternative route available that passes adjacent to allotments adjacent to Salisbury Road, however this route is unlit, narrow and does not benefit from natural surveillance and is unlikely to be used for these reasons. This route would not be recommended for use within a sustainable travel information pack issued to residents. The route via the allotments does not offer any time-saving benefits and is only marginally shorter than the suggested route identified.
- 2.27 At the start of the walking route to Katherine Warrington School, footways are provided on both sides of Turner's Close. However, the footway provision on the western edge of the carriageway appears overgrown with vegetation and features limited width of less than 1.5m on some sections. Pedestrians using the footway on the eastern edge will need to cross over to the western edge at Turner's Close/ Someries Road junction to continue their journey using footways along Someries Road. However, no dropped kerbs and tactile paving were observed at this potential crossing point.
- 2.28 The walking route continues west and then south to join Northfield Road via a passage through Barely Rise/ Northfield junction. This junction features a splitter island which lacks reflective bollards, dropped kerbs and tactile paving provisions as seen in **Photograph 2.1**.
- 2.29 A street view image from Google Maps also shows instances of vehicle parking on existing footways along Northfield Road which could pose safety and movement challenges to pedestrians.



Photograph 2.1: Street View of Turner's Close and Northfield Rd / Barely Rise Junction



- 2.30 Further along this route, dropped kerbs are present at crossings close to the Noke Shot and Roundfield Avenue junctions with Pickford Hill. However, no tactile pavings were observed as shown in **Photograph 2.2**.

Photograph 2.2: Street View of Pickford Hill Junctions with Noke Shot and Roundfield Avenue



- 2.31 Limited number of streetlamps were observed along sections of Noke Shot and Salisbury Road. However, the footway sections through these roads are well-overlooked by adjoining buildings along the roads and it is considered the footways will benefit from light from the adjoining buildings. Footway parking was also observed along Salisbury (see **Photograph 2.3**).



Photograph 2.3: Street View of Salisbury Road

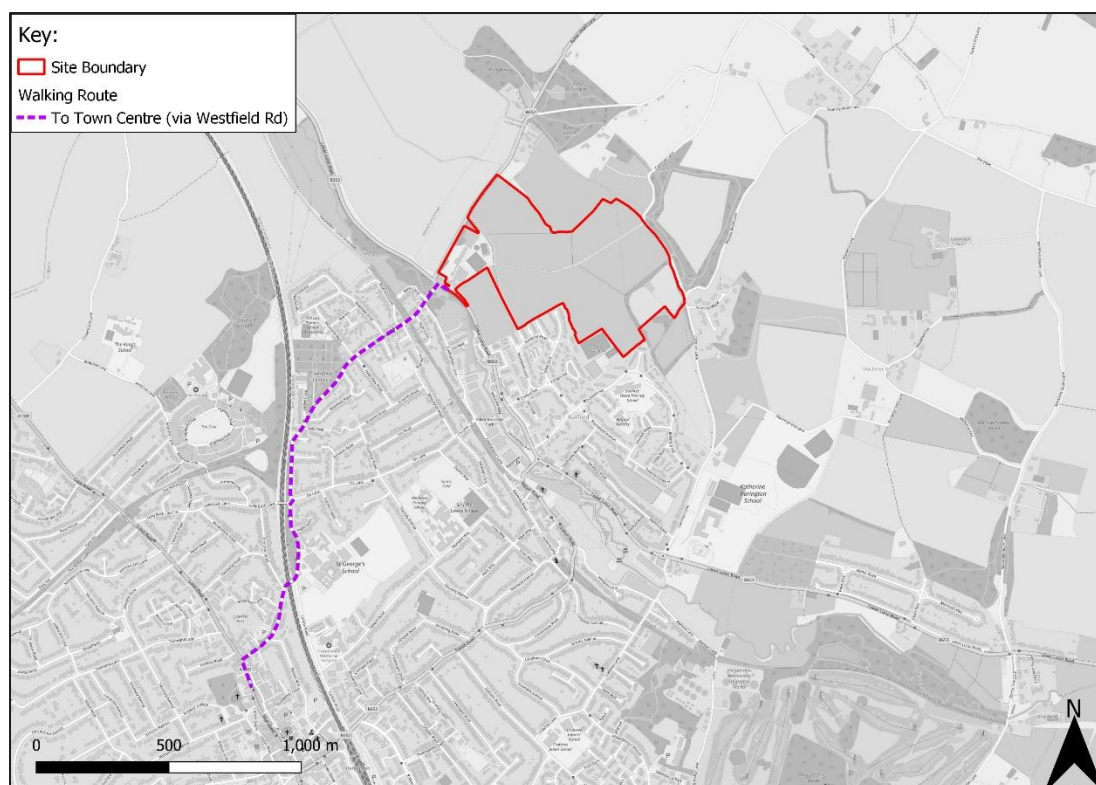


To Harpenden Town Centre (via Westfield Road)

- 2.32 The route to Harpenden Town Centre via Westfield Road from the vehicular site access junction on Lower Luton Road measures approximately 1.9km in length and follows Westfield Road and Sun Lane before reaching the town centre. **Figure 2.6** shows this route visually.



Figure 2.6 - Walking Route to Town Centre (via Westfield Road)



- 2.33 Along this walking route, footways were observed on both sides of Lower Luton Road carriageway. However, no pedestrian crossings were provided close to the proposed vehicular site access to facilitate crossing to Westfield Road or to the existing bus stop from Westfield Road. It is worthy of note that there is an existing traffic island close to this proposed access location, but this island does not have sufficient width, dropped kerbs and tactile paving to safely support pedestrian crossing as shown in **Photograph 2.4**.
- 2.34 As part of the development proposals, a signalised crossing will be provided at this location along Lower Luton Road to forestall any potential conflicts between vehicular and pedestrian traffic at this location as detailed in **Drawing 141499_SK13** and provided in **Appendix B**.

Photograph 2.4: Street View of Lower Luton Road Adjacent to Vehicular Site Access



- 2.35 The footway on the southern edge of the Lower Luton Road carriageway cuts across the verge mirroring pedestrian desire lines to and from Westfield Road at the Lower Luton Road/ Westfield Road junction as shown in **Photograph 2.5**.

Photograph 2.5: Lower Luton Road/ Westfield Road Junction



- 2.36 Pedestrian headed to the town centre from the site will naturally use the footway provision on the eastern edge of the Westfield Road carriageway. At the Westfield Road/ Coldharbour Lane junction, dropped kerbs were observed on the footway section leading to the junction but none are provided on the footway after the junction. No tactile paving was observed at this crossing point. A local pub (The Red Cow) is located adjacent this junction. A crossing is provided before the junction enabling stop overs to the pub. However, no crossings are provided after the pub/ junction to enable visitors to the pub to rejoin the route to the town centre. Although dropped kerbs are in place in front of the pub, it is unlikely to be used informally as a crossing point as it faces the junction directly (see **Photograph 2.6**).



Photograph 2.6: Street View of Westfield Road/ Coldharbour Lane Junction



- 2.37 Double yellow lines were in place at this section of the route precluding any occurrences of on-street parking or footway parking.
- 2.38 Further along the route, most of the junctions of adjoining roads along Westfield Road feature dropped kerbs at crossings with no tactile paving. In contrast, most junctions of adjoining roads along Sun Lane section feature dropped kerbs equipped with tactile paving at crossings with the exception of the Pigeonwick and Bower Way junctions.
- 2.39 The Sun Lane/ Pigeonwick junction features a wide corner radius which may elicit a deviation from desire lines with potential safety and journey time implications for pedestrians as detailed within Figure 6.3 and paragraph 6.3.12 of Manual for Streets¹. Also, bollards were observed in place at this junction (see **Photograph 2.7**). Whereas this may improve the safety of pedestrians from turning traffic, it could also potentially obstruct movement especially for wheelchair and mobility scooter users.

¹ <https://assets.publishing.service.gov.uk/media/5a7e0035ed915d74e6223743/pdfmanforstreets.pdf>



Photograph 2.7: Street View of Sun Lane/ Pigeonwick Junction

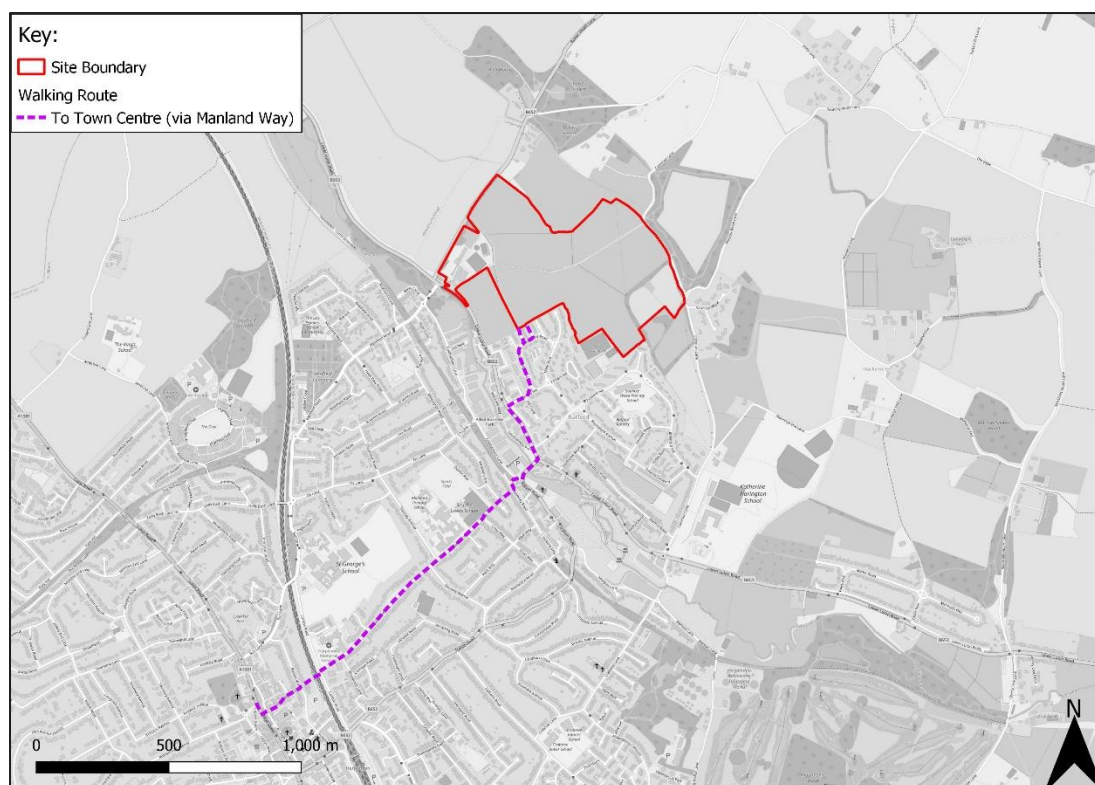


To Harpenden Town Centre (via Manland Way)

- 2.40 The route to Harpenden Town Centre via Manland Way from the pedestrian access connection to Turners Close measures approximately 2.0km in length and follows Northfield Road, Porters Hill, Lower Luton Road, Station Road, Waveney Road , Manland Way and Stewart Road before reaching the town centre. **Figure 2.7** shows this route visually.



Figure 2.7 - Walking Route to Town Centre via Manland Way



- 2.41 Along this walking route to the town centre, footway provisions were observed on both sides of the carriageway along the Porters Hill – Coldharbour Lane section with dropped kerbs and tactile paving provided at junctions with adjoining roads and at signalised crossings.
- 2.42 Public Footpath 25 which connects Coldharbour Lane with Manland Way via Waveney Road routes is well-overlooked and lit by adjoining buildings along most of its length. However, along Manland Way and Stewart Road dropped kerbs and tactile paving were not observed on most junctions of adjoining roads as can be seen in **Photograph 2.8**.

Photograph 2.8: Street View of Manland Way and Stewart Road



- 2.43 The route continues along a very short section on Carlton Road leading to a footbridge (as shown in **Photograph 2.9**) which connects Footpath 19. Footpath 19 then joins Thompson Close on the route to the town centre.

Photograph 2.9: Footbridge Between Carlton Road and Footpath 19



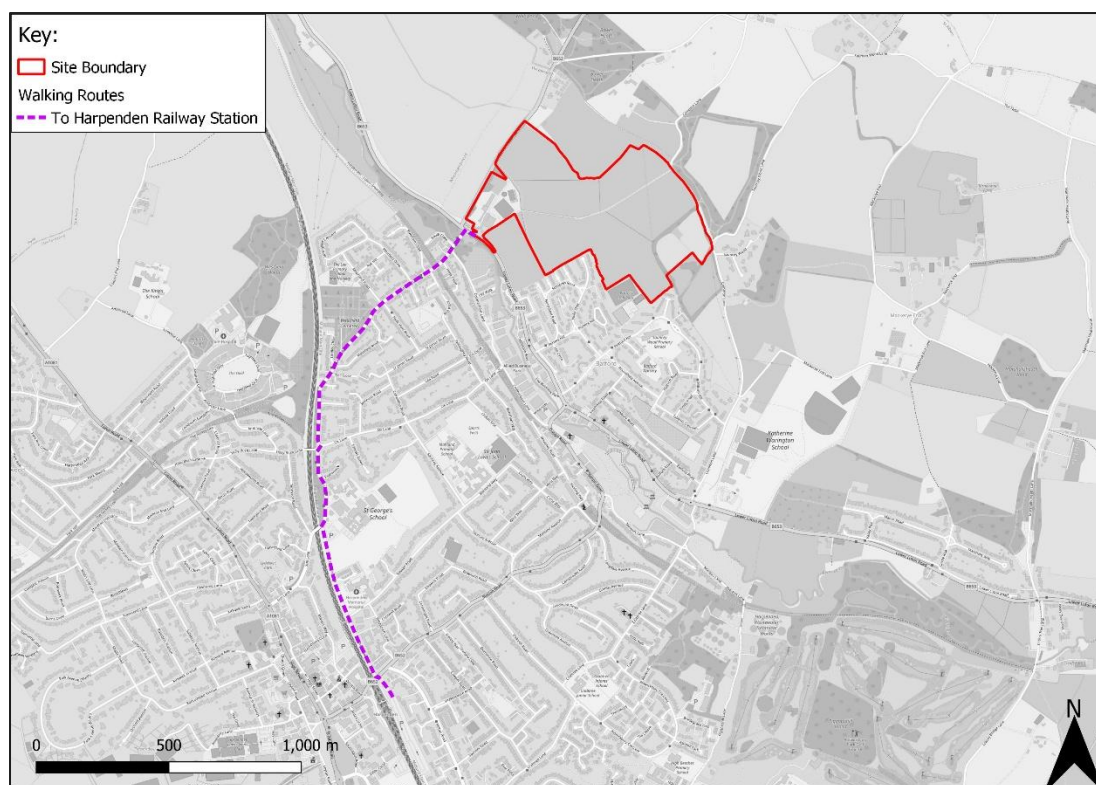
- 2.44 The rest of the sections along this route feature predominantly high-quality pedestrian infrastructure provision. However, as this route does not provide step-free access to the town centre, it is considered unsuitable for mobility impaired individuals therefore not recommended.

To Harpenden Railway Station

- 2.45 The pedestrian route to Harpenden Railway Station from the vehicular site access junction on Lower Luton Road measures approximately 2.1km in length and follows Westfield Road and Sun Lane before reaching the town centre. **Figure 2.8** shows this route visually.



Figure 2.8 - Pedestrian Route to Harpenden Railway Station



- 2.46 Alternatively, pedestrians may choose to route via Manland Way using the pedestrian access on Turners Close. This route would generally follow the route to Harpenden Town Centre (via Manland Way) and is therefore considered as a suitable alternative.
- 2.47 Both options route through Carlton Road which features a one-sided footway provision with dropped kerbs at crossings. However, these dropped kerb provisions at crossings along Carlton Road are not fitted with tactile paving (see **Photograph 2.10**). The section of the walking route through Carlton Road also lacks natural surveillance but is well lit by streetlamps provided at regular intervals.



Photograph 2.10: Street View of Carlton Road/ Maldon Court Junction



- 2.48 A signal-controlled crossing is provided close to the Carlton Road/ Station Road junction enabling pedestrians to cross into the station safely. Guardrails are also provided on the approach to this crossing as shown in **Photograph 2.11**.



Photograph 2.11: Signalised Crossing Close to the Carlton Road/ Station Road Junction



Cycling

- 2.49 The site is well connected in terms of existing cycle provisions. National Cycle Network (NCN) route 6 and route 57 are both accessible within a short distance of the site.
- 2.50 NCN 6 is accessible from Westfield Road and provides direct access towards Luton to the north and is generally traffic free for the majority of the route between Harpenden and Luton. NCN 6 is a direct route and the distance between Westfield Road (where future residents will join NCN 6) and the outskirts of Luton via NCN 6 is approximately 6km.
- 2.51 NCN 57 is accessible from Ambrose Lane and provides a direct route to Redbourne and onwards to Hemel Hempstead. The entire route is traffic free. The distance between the site access and Ambrose Lane is 1.5km and can be reached by following Westfield Road and Hollybush Lane. The distance between the site and Redbourne via NCN 57 is 6km and Hemel Hempstead is accessible within a 10km cycle. Chilterns Cycleway² follows the route between NCN 6 and NCN 57 suggesting that Westfield Road is a suitable route for cyclists. A number of cyclists were observed to be using Westfield Road during the site visit undertaken.
- 2.52 There are limited formal on-road cycle facilities within the vicinity of the site, however the nature of the area is residential and streetlighting is typically provided. The posted speed limit of roads in the vicinity of the site are typically 30mph and this coupled with low traffic volumes

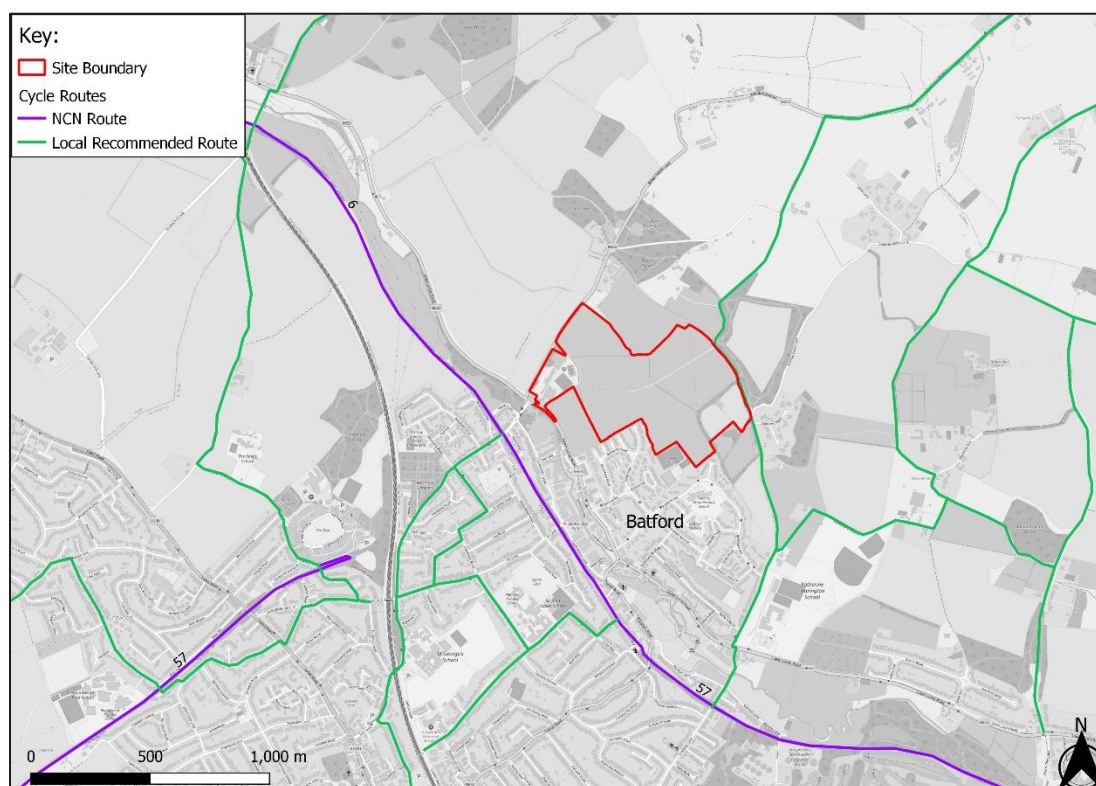
² <https://www.chilterns.org.uk/visit-chilterns/explore-our-map/>



and roads wide enough to allow vehicles to safely pass cyclists is conducive to cyclists travelling on road and mixing with vehicles.

- 2.53 **Figure 2.9** presents the cycle routes that are available within the vicinity of the site. The plan shows National Cycle Network (NCN) routes and also local cycle routes which are mapped based on the St Albans City and District Cycling Map³ which highlights routes on quieter roads suggested for cycling by local cyclists.

Figure 2.9 - Cycle Route Map



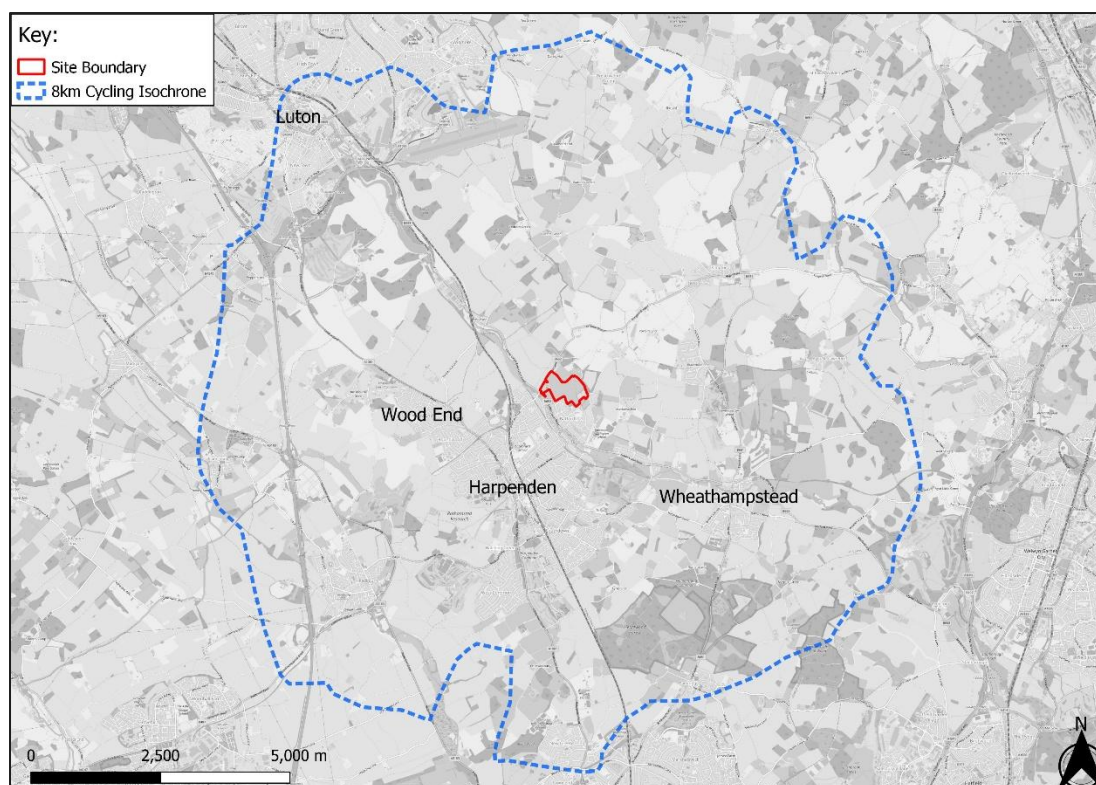
- 2.54 Central government research states that for journeys between 5km and 8km cycling has the potential to replace car trips. An 8km cycled distance is equivalent to a 30-minute journey (assuming a reasonable cycling speed of 4.2m/s). A cycling isochrone is included at **Figure 2.10**. In reality, and particularly with the introduction and increased uptake of electric bikes, the distance people are prepared to cycle is increasing and journeys to work by bike often exceed 8km. This is also reflected by Table 4.1 of the Welsh Government Active Travel Guidance document which indicates that some e-bike users are likely to travel distances of up to 15 miles (equivalent to approximately 24km).
- 2.55 The opportunity for commuting by bike will depend on personal preference and the type of facilities available to cyclists at the end of their journey such as shower and laundry facilities and bike storage (albeit that e-bikes can reduce the requirement for showers and changing facilities).

3

<https://www.stalbans.gov.uk/sites/default/files/attachments/St%20Albans%20Cycl%20Route%20Map%202019.pdf>



Figure 2.10 - 8km Cycling Isochrone



- 2.56 The cycling isochrone indicates that within an 8km cycle from the site the entirety of Harpenden and Wheathampstead can be reached. The centre of Luton and London Luton Airport are also accessible within an 8km cycle.

Bus

- 2.57 There are two local bus stops which benefit from differing bus services. The closest bus stop is located immediately adjacent to the site access on Lower Luton Road and offers access to the number 357 bus service and is infrequently served by the 366, 367, 612 and 807 bus service. The other bus stop is located on Westfield Road approximately 100m from the site access and offers more frequent access to the 366 and 367 bus services and is infrequently served by the 45 and 807 bus services.
- 2.58 The bus stops on both Lower Luton Road and Westfield Road currently benefit from flag and pole bus stops with timetable information. **Photograph 2.12** shows the existing arrangement on Westfield Road as an example of the arrangement provided.



Photograph 2.12: Westfield Road Bus Stop



2.59 **Table 2.1** summarises the weekday timings, route and frequencies of the bus services that operate at the Lower Luton Road bus stops. **Table 2.2** presents the same information for bus services that operate at the Westfield Road bus stops.

Table 2.1 - Lower Luton Road Bus Services

Service	Route	First/Last	Average Frequency
357 (Red Rose Travel)	Harpenden – Borehamwood	06:37 / 18:34 (S/B)	1 per hour
		08:14 / 19:50 (N/B)	
366 (Centrebus (South))	Luton – South Hatfield	N/A (S/B)	1 per day (N/B only)
		10:09 / 10:09 (N/B)	
367 (Centrebus (South))	Luton – South Hatfield	N/A (S/B)	1 per day (N/B only)
		08:07 / 08:07	
612 (Uno)	Luton – Hatfield	07:50 / 07:50 (S/B)	1 per day
		17:37 / 17:37 (N/B)	
807 (Red Eagle)	Markyate – Harpenden	08:19 / 08:26 (S/B)	2 per day (S/B only)
		N/A (N/B)	



Table 2.2 - Westfield Road Bus Services

Service	Route	First/Last	Average Frequency
45 (Centrebus South))	Stevenage - Luton	15:52 / 18:17 (S/B)	1 per day for N/B and 2 per day for S/B
		08:29 / 08:29 (N/B)	
357 (Red Rose Travel)	Harpenden – Borehamwood	08:15 / 19:51 (S/B)	1 per hour
		06:37 / 18:34 (N/B)	
366 (Centrebus South))	Luton – South Hatfield	11:10 / 17:50 (S/B)	Typically 1 per 2 hours)
		08:24 / 18:00 (N/B)	
367 (Centrebus South))	Luton – South Hatfield	08:08 / 08:08 (S/B)	1 per day
		N/A (N/B)	
807 (Red Eagle)	Markyate – Harpenden	N/A (S/B)	1 per day (N/B only)
		15:40 (N/B)	

- 2.60 As can be seen from **Table 2.1** and **Table 2.2**, there are bus services operating between the site and the centre of Harpenden plus additional destinations. This offers a realistic opportunity for journeys to be made by bus.
- 2.61 Using the 357 service, the centre of Harpenden can be accessed within a bus journey of approximately 5 minutes and the centre of St Albans can be accessed within a bus journey of approximately 30 minutes.

Rail

- 2.62 The nearest railway station to the site is Harpenden railway station, located approximately 2.2km to the south of the site access. This is considered to be within an acceptable cycling distance and for many this would be within an acceptable walking distance. The likely route to Harpenden railway station follows Westfield Road, Sun Lane and Carlton Road. There are pedestrian footways provided adjacent to all of the roads on the route between the site and Harpenden railway station.
- 2.63 Harpenden railway station benefits from 548 cycle parking spaces situated on platform 1 and 4 and within the station car park. The station also benefits from a ticket office, ticket machines, refreshment facilities, seating and waiting areas and step free access for all platforms.
- 2.64 The station provides a total of 674 car parking spaces. The 366 bus that operates within the vicinity of the site also serves Harpenden railway station which can be accessed within a bus journey of 6 minutes, enabling a sustainable multi-modal journey to and from the railway station.



- 2.65 Several destinations can be reached within a realistic travel time of Harpenden railway station, including Bedford, Luton and London. These are likely to be key destinations for future commuters from the proposed development, and destinations for a variety of leisure trips. Direct services are also available to destinations further afield including Three Bridges, Rainsford and Brighton.
- 2.66 The key direct services which operate from Harpenden railway station are summarised in **Table 2.3**. This accounts for direct weekday services only.

Table 2.3 - Harpenden Railway Station Services

Destination	Key Calling Points	First / Last	Typical Frequency (Direct Services)	Duration (Direct Service)
Luton	Luton Airport Parkway	24 hour service available	7 per hour	9 - 13 mins
Bedford	Luton, Flitwick	24 hour service available	5 per hour	33 - 35 mins
Three Bridges	St Albans City, London St Pancras Intl, Gatwick Airport	24 hour service available	4 per hour	1hr 17 mins – 1hr 35 mins
Brighton	St Albans City, London St Pancras Intl, Gatwick Airport	03:49/00:18	2 per hour	1hr 51 mins
Rainham (Kent)*	St Albans City, London St Pancras Intl, Gravesend, Rochester, Gillingham	06:34/19:34	2 per hour	2hr 20 mins

*The direct service to Rainham is a local stopping service which results in a longer journey time than the indirect service via London St Pancras International (approx. 1hr 30 min journey time).

- 2.67 As is demonstrated by **Table 2.3**, a significant number of key destinations are accessible from Harpenden railway station and this offers a realistic opportunity for journeys to be made by train by future residents of the site.
- 2.68 Harpenden railway station also provides services throughout the night towards Luton, Bedford and Three Bridges which also call at locations including, but not limited to, London St Pancras International, Gatwick Airport and St Albans City. Whilst the night time frequencies are less than during the weekday peak hour periods, the provision of these services gives the opportunity for rail travel by future residents to a variety of destinations regardless of work patterns, or for evening and night time activities.

Local Facilities

- 2.69 There are a number of existing key facilities and amenities within easy walking and cycling distance of the proposed development, negating the need for residents to use their car. It is likely that given the proximity to existing local facilities, some future residents will choose to not own a car. A selection of the key local facilities is summarised within **Table 2.4**.



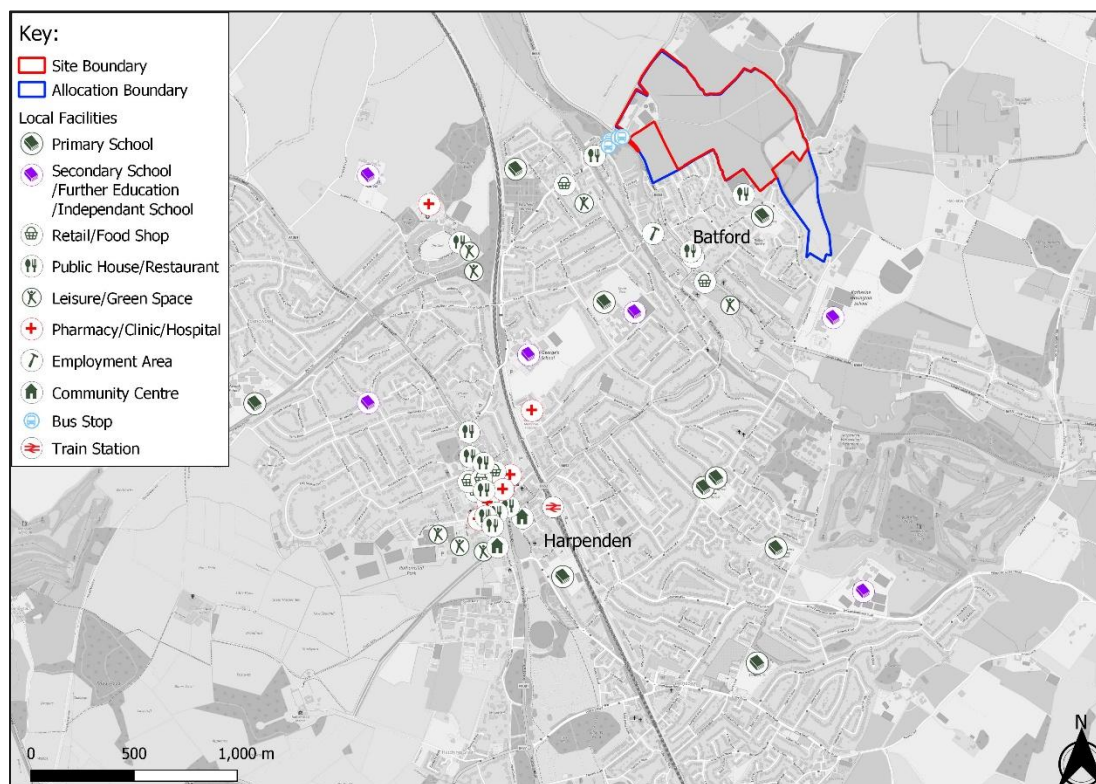
Table 2.4: Local Facilities

FACILITY TYPE	FACILITY NAME	WALKING DISTANCE (M)	WALKING JOURNEY TIME (MINS)	CYCLING JOURNEY TIME (MINS)
Education	Sauncey Wood Primary School	600	7	2
	Lea Primary School & Nursery	650	8	3
	Batford Nursery School	850	10	3
	Katherine Warrington School	1200	14	5
Retail and Food	Best-One Convenience Store	400	5	2
	Tesco	700	8	3
Public House/ Restaurant	The Red Cow	170	2	1
	The Cherry Tree Restaurant	850	10	3
Pharmacy/Clinic/ Hospital	Harpenden Memorial Hospital	1700	20	7
	The Elms Medical Practice	1800	22	7
Leisure and Green Space	Westfield Recreation Ground	400	5	2
Employment	Lea Business Park	550	7	2
Community Centre	Park Hall	2400	29	10
Public Transport	Westfield Road bus stops	100	1	0
	Harpenden railway station	2200	26	9



- 2.70 As can be seen from **Table 2.4**, there are a number of key facilities and amenities within easy walking and cycling distance of the proposed development including supermarkets, medical facilities, educational facilities and leisure locations. The locations of these facilities, plus additional facilities, are shown in **Figure 2.11**. **Table 2.4** and **Figure 2.11** show only a selection of key local facilities and in reality there is greater provision than is shown within the plan, further increasing the potential for trips to be undertaken by active travel modes.

Figure 2.11 - Local Facilities Plan



- 2.71 The delivery of on-site facilities will further reduce the need for future residents to undertake journeys outside of the local area. At this stage it is expected that community uses including a primary school, convenience store, medical centre and open green spaces will be delivered alongside the proposed development. This will also benefit existing residents within the surrounding areas who will no longer be required to travel further distances for these uses.

Local Highway Network

Lower Luton Road

- 2.72 Lower Luton Road abuts the site to the west and it is proposed that the site access will be taken from Lower Luton Road.
- 2.73 In the vicinity of the site Lower Luton Road is subject to a speed limit of 30mph. The speed limit increase to 40mph at a distance approximately 50m to the west of the Lower Luton Road junction with Bower Heath Lane.



- 2.74 Lower Luton Road provides a continuous route between the outskirts of Luton to the west, and Wheathampstead to the east.
- 2.75 Lower Luton Road benefits from pedestrian footways on both sides of the carriageway in the vicinity of the site, and these continue towards Station Road and the centre of Harpenden to the east. To the west the footways end at the Bower Heath Lane junction, however it is unlikely that any pedestrians would choose to travel along Lower Luton Road to the west of Bower Heath Lane. In the vicinity of the site Lower Luton Road is residential by nature and benefits from streetlighting.
- 2.76 An Automatic Traffic Count (ATC) traffic survey was undertaken on Lower Luton Road in the vicinity of the proposed location of the site access. This recorded traffic flows and traffic speeds on this part of the network.
- 2.77 The ATC observed typical two-way peak hour traffic flows in the vicinity of 1,100 vehicles and 85th percentile speeds of approximately 32mph, which is broadly in line with the posted speed limit.

Bower Heath Lane

- 2.78 Bower Heath Lane is located to the north west of the proposed development. It is not proposed that any vehicular access will be provided from the site to Bower Heath Lane.
- 2.79 Bower Heath Lane is a rural single carriageway lane that provides access towards Kimpton. The road is subject to the national speed limit, which in this case is 60mph. Given the nature of the road (narrow rural lane) it is unlikely that speeds of 60mph can be achieved on this part of the network. Bower Heath Lane does not benefit from streetlighting.
- 2.80 There are no pedestrian provisions on Bower Heath Lane, however, it is unlikely that any pedestrians would need to travel on foot on Bower Heath Lane.
- 2.81 A Manual Classified Count (MCC) survey was undertaken at the Bower Heath Lane/Lower Luton Road/Westfield Road junction. This recorded peak hour traffic flows on Bower Heath Lane on approach to or from the junction.
- 2.82 The MCC survey found that peak hour two-way vehicle flows on the Bower Heath Lane arm of this junction were at most 170 vehicles. This is considered to be a lightly-trafficked route.

Common Lane

- 2.83 Common Lane bounds the north eastern boundary of the proposed development. It is not proposed that any vehicular access will be provided from the site to Common Lane.
- 2.84 Common Lane is a single carriageway rural lane that provides access between Bower Heath Lane and Lower Luton Road in the vicinity of Katherine Warrington School.
- 2.85 Beyond the junction with Millford Hill, Common Lane is subject to the national speed limit which in this location is 60mph. The section between Millford Hill and Lower Luton Road is subject to a speed limit of 30mph.



- 2.86 Pedestrian footways are present on Common Lane between Lower Luton Road and Millford Hill on the western side of the carriageway. It is likely that future residents of the site will travel on foot to Katherine Warington School and therefore will traverse on Common Lane. These pedestrians would be able to utilise pedestrian footways for the entirety of the journey. Streetlighting is provided on Common Lane in areas where footways are provided.
- 2.87 An MCC survey was undertaken at the Common Lane/Lower Luton Road junction. This recorded peak hour traffic flows on Common Lane on approach to or from the junction. It should be noted that it is unlikely that this survey is representative of the rural lane section of Common Lane, but is representative of flows in the vicinity of Katherine Warington School.
- 2.88 The MCC survey found that the peak hour two-way vehicle flows on the Common Lane arm of this junction were at most 207 vehicles. This is also considered to be a lightly trafficked route. The rural section of Common Lane is likely to experience lower traffic flows.

Westfield Road

- 2.89 Westfield Road is located to the south west of the site. Westfield Road does not directly abut any boundary of the site.
- 2.90 Westfield Road is a single carriageway road which provides access from Lower Luton Road towards the centre of Harpenden. It is expected that Westfield Road will be utilised by many travelling to Harpenden town centre by all modes.
- 2.91 The speed limit for the entirety of Westfield Road is 30mph and pedestrian footways are provided on both sides of the carriageway with the exception of a short section near The Red Cow whereby footways are only provided on the eastern side of the carriageway for a distance of approximately 40m. Westfield Road is residential by nature and streetlighting is provided along the route.
- 2.92 An MCC survey was undertaken at the Westfield Road/Lower Luton Road/Bower Heath Lane junction. This recorded peak hour traffic flows on Westfield Road on approach to or from the junction. The survey is representative of flows at the junction and there may be some variation of flows on approach to the centre of Harpenden.
- 2.93 The MCC survey found that peak hour two-way vehicle flows on the Westfield Road arm of this junction were at most 413 vehicles.

Station Road

- 2.94 Station Road is located to the south of the proposed development. Station Road does not directly abut any boundary of the site.
- 2.95 Station Road is a single carriageway route which provides access from Lower Luton Road to the centre of Harpenden and the A1081. It is expected that Station Road will be used by most travelling to Harpenden railway station.
- 2.96 The speed limit on Station Road is 30mph for the entirety and pedestrian footways are provided on both sides of the carriageway. The footway in some locations narrows due to physical constraints including immediately north of the Manland Avenue junction whereby a



bridge is provided and the footways available narrows. The footways also narrow as Station Road passes under the railway line to the south of the Carlton Road junction.

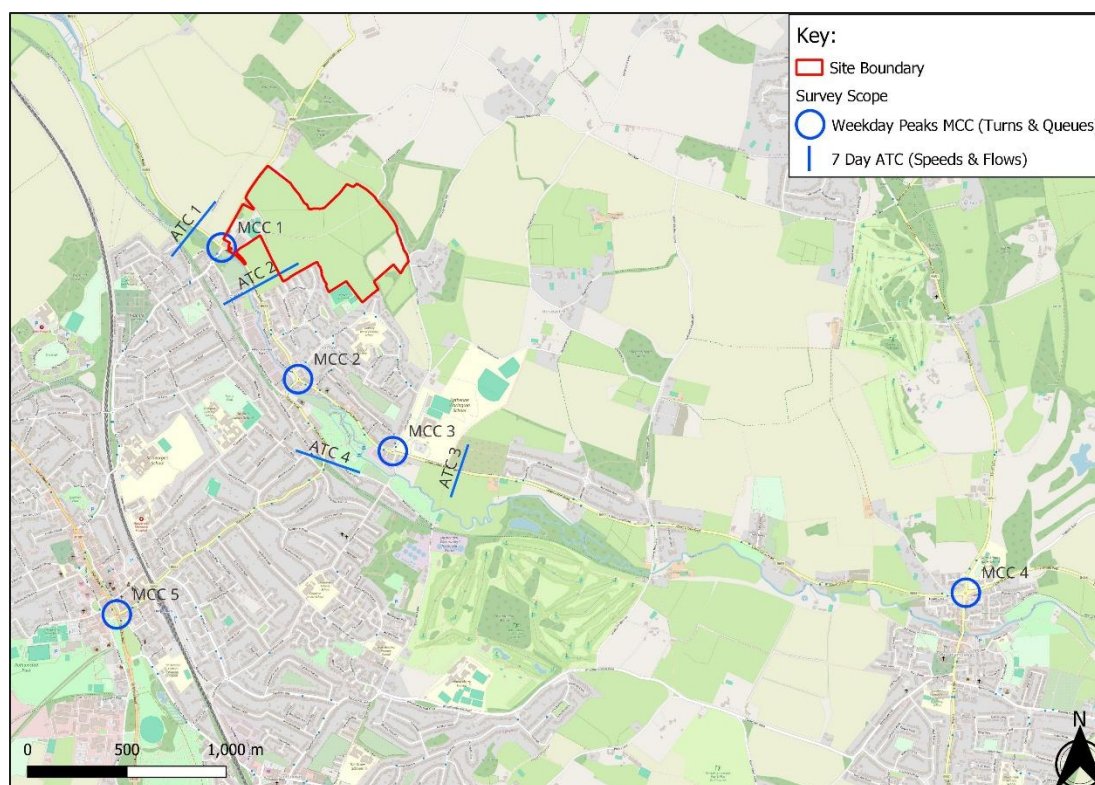
- 2.97 Station Road in the vicinity of Lower Luton Road is residential by nature, whilst the southern section in the vicinity of the centre of Harpenden forms part of the town centre and therefore has a number of retail/leisure facilities present.
- 2.98 Two MCC surveys have been undertaken on Station Road. The first survey was undertaken at the Lower Luton Road/Station Road junction and the second survey was undertaken at the A1081/Station Road junction.
- 2.99 The MCC survey at the Lower Luton Road/Station Road junction recorded two-way vehicle flows of up to 995 vehicles on Station Road in either peak hour. The second MCC at the Station Road/A1081 junction recorded two-way vehicle flows of up to 883 on Station Road in either peak hour.

Traffic Flows

- 2.100 A total of 5 Manual Classified Counts (MCC) and 4 Automatic Traffic Counts (ATC) were undertaken on the highway network surrounding the site to inform the baseline traffic position.
- 2.101 MCC surveys were conducted at the following junctions:
- MCC 1 – Lower Luton Road/Westfield Road/Bower Heath Lane;
 - MCC 2 – Lower Luton Road/Station Road;
 - MCC 3 – Lower Luton Road/Common Lane;
 - MCC 4 – Lower Luton Road/Station Road/Codicote Road/Lamer Lane; and
 - MCC 5 – Station Road/St Albans Road/High Street.
- 2.102 ATC surveys were placed at the following locations:
- ATC 1 – Lower Luton Road (West of Bower Heath Lane);
 - ATC 2 – Lower Luton Road (East of Westfield Road);
 - ATC 3 – Lower Luton Road (East of Katherine Warington School); and
 - ATC 4 – Station Road (South of Coldharbour Lane)
- 2.103 The MCC surveys were undertaken on a neutral weekday between the times 07:00-10:00 and 16:00-19:00. These surveys recorded turning counts at each junction in 15-minute intervals. Four of the MCC surveys were undertaken on Thursday 27th June 2024. The fifth MCC survey at the Station Road/St Albans Road/High Street junction was undertaken on Thursday 11th July 2024 as an unanticipated error occurred during the recording at the junction on Thursday 27th June 2024. The MCC surveys also recorded queue lengths in 5-minute intervals.
- 2.104 The ATC surveys were undertaken continuously between Saturday 22nd June 2024 and Friday 28th June 2024 and recorded flows and speeds.
- 2.105 A plan showing the location of the traffic surveys undertaken in the context of the location of the proposed development is shown at **Figure 2.12**.



Figure 2.12 - Survey Scope



2.106 The full results of the traffic surveys, including the queue length results, are contained within **Appendix C**.

2.107 Traffic flow diagrams have been prepared which show the recorded turning movements at each junction during the peak hour periods. The flow diagrams are contained at **Appendix D**.

Collision Data

2.108 Personal Injury Accident (PIA) data has been obtained from Hertfordshire County Council (HCC). The study area for the analysis of collisions that have occurred is as follows:

- Lower Luton Road between Bower Heath Lane and Common Lane;
- All areas of Batford to the north of Lower Luton Road;
- Bower Heath Lane for a distance of approximately 300m from Lower Luton Road; and
- Westfield Road for a distance of approximately 300m from Lower Luton Road.

2.109 The data provided by HCC covers the five-year period between 1st July 2019 to 30th June 2024. This was the most recently available data at the time of request.

2.110 In total 10 collisions have occurred within the study area. 9 collisions were classified as slight in terms of severity and a single collision was recorded as serious. The plan provided by HCC showing the locations of the recorded collisions is contained within **Appendix E**.

2.111 A collision report was also provided by HCC however as this includes confidential information it is not replicated within the appendices of this document.



- 2.112 The HCC plan demonstrates that a total of three collisions have occurred at the Bower Heath Lane/Lower Luton Road/Westfield Road staggered crossroad junction. Two collisions were recorded as slight in terms of severity and the remaining collision was classified as serious. Two collisions occurred when vehicles turning out of Westfield Road were struck by vehicles on Lower Luton Road. A desktop review has been undertaken and it is considered that visibility is not constrained at this location, and the approach to the junction is well signed. The third collision occurred when a vehicle turning into Bower Heath Lane was struck by an overtaking vehicle. This is considered to be as a result of driver error and does not signify a safety issue at this location.
- 2.113 One collision has been recorded in the vicinity of the proposed site access. This is a standalone issue which is confirmed by the confidential report as not a result of any highways design or defects. This does not demonstrate that there is an existing safety issue at the location of the site access.
- 2.114 The remainder of the recorded collisions have occurred sporadically across the local highway network and the confidential report does not demonstrate that any collisions were as a result of any existing highways design.
- 2.115 It is not considered that there are any existing safety concerns that the proposed development would exacerbate.

Summary

- 2.116 The site is located to the north east of Harpenden, Hertfordshire. There is significant opportunity for future residents and visitors of the site to undertake many day-to-day journeys on foot or by bicycle within the areas surrounding Harpenden.
- 2.117 There is a wide selection of existing walking and cycling facilities located within close proximity of the site including NCN route 6 which routes between Luton and Harpenden. There is also a network of existing PROW within close proximity of the site.
- 2.118 There are bus stops within a short walk from the proposed site access providing an hourly service (357 bus) offering bus travel to the centre of Harpenden and Borehamwood.
- 2.119 Rail services are provided frequently from Harpenden railway station seven days a week providing links with destinations including London, Luton and Bedford.
- 2.120 A review of collision data supplied by HCC demonstrates that there are no existing highways safety concerns within the vicinity of the site.



3.0 Policy Context

- 3.1 This TA will take account of relevant national and local policy and guidance documents related to transport.

National Policy

National Planning Policy Framework (NPPF), 2025

- 3.2 The National Planning Policy Framework (NPPF) was originally published by the Ministry of Housing, Communities and Local Government in March 2012. Since then, the NPPF has been updated and the most recent version was updated and published in February 2025.
- 3.3 The NPPF sets out the Government's planning policies for England and how these should be applied. It provides a framework within which locally prepared plans for housing and other development can be produced.
- 3.4 Considering the development proposals, NPPF states that in assessing sites that may be allocated for development in plans, or specific applications for development, it should be ensured that (Paragraph 115):

"a) sustainable transport modes are prioritised taking account of the vision for the site, the type of development and its location;

b) safe and suitable access to the site can be achieved for all users;

c) the design of streets, parking areas, other transport elements and the content of associated standards reflects current national guidance, including the National Design Guide and the National Model Design Code; and

d) any significant impacts from the development on the transport network (in terms of capacity and congestion), or on highway safety, can be cost effectively mitigated to an acceptable degree through a vision-led approach."

- 3.5 This has been taken into account as the proposed development will be developed with a strong emphasis on pedestrian and cycle permeability through and around the site.
- 3.6 Furthermore, Paragraph 116 of the NPPF states that:

"Development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network, following mitigation, would be severe, taking into account all reasonable future scenarios".

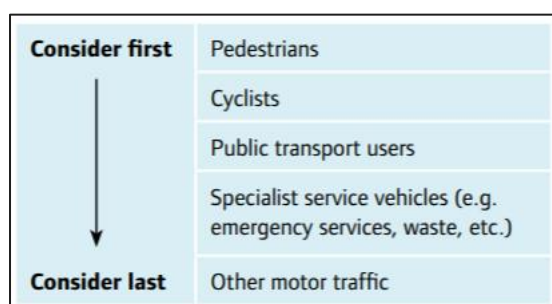
- 3.7 Harpenden is a sustainable location with regards to access and use of sustainable modes of travel, containment of travel and proximity to other towns. In the context of the requirements of the NPPF, only comprehensively planned and delivered development can deliver the scale and type of infrastructure and services that will be of benefit to the town as a whole. Conversely, piecemeal and incremental development will be constrained by the NPPF to delivering small scale and largely ineffective infrastructure.



Manual For Streets, 2007 and Manual for Streets 2, 2010

- 3.8 As per the recommendations made in the NPPF this TA will also address the guidance given in the Manual for Streets 2 (MfS2).
- 3.9 The MfS2 outlines the principles of sustainable developments, focusing on inclusive design and a sense of place. These are widely regarded as the best principles in designing residential areas.
- 3.10 MfS Table 3.2, replicated in **Figure 3.1**, outlines the hierarchical approach to be adopted within new developments.

Figure 3.1 – Movement Hierarchy (MfS Table 3.2)



- 3.11 MfS and MfS2 establishes that place making, and connectivity are key requirements in development. Development in north east Harpenden would be very well connected to the immediate adjoining areas and through the existing network of footways and cycleways, would provide routes to the town centre and other key local destinations.

Local Policy

St Albans City and District Council Local Plan Review (Adopted 1994)

- 3.12 The St Albans City and District Council Local Plan adopted in 1994 outlines the proposals for the development and use of land and a set of policies guiding development within the local area for the time period spanning 1981 - 1996.
- 3.13 The objectives of the local plan as outlined within the policy document are:
- 1 *“Metropolitan Green Belt: To continue to protect and maintain the Green Belt*
 - 2 *Settlement Hierarchy: To protect and enhance the character of existing settlements and define the nature and intensity of development acceptable in the following settlement hierarchy*
 - i. *Towns;*
 - ii. *Specified settlements – the larger villages excluded from the Green Belt;*
 - iii. *Green Belt settlements – smaller villages located within the Green Belt;*
 - 3 *Housing: to make provision for a 1981 – 1996 dwelling increase of 6400 and 10986 – 2001 dwelling increase of 7200 and to seek to influence the type of dwelling s provided to help meet the needs of the area.*



- 4 *Hospital Sites: to consider the future use of Hill End, Cell Barnes and Napsbury Hospitals in the context of Circular 12/91 (Redundant Hospital Sites in Green Belts; Planning Guidelines)*
- 5 *Employment: to provide sufficient land and floorspace to cater for full employment and provide for different kinds of employment use whilst not encouraging substantial additional commuting into the District.*
- 6 *Transport: to consider the transportation needs of the District including:*
 - i. *Improvements to highway systems;*
 - ii. *Traffic management schemes including improvements to the environment of residential and shopping areas;*
 - iii. *Car parking, pedestrian and cyclist requirements;*
 - iv. *The future role of public transport;*
 - v. *The implications of future development proposals.*
- 7 *Shopping: to maintain the viability and vitality of existing shopping centres and to make reasonable provision for new forms of retailing.*
- 8 *Environment and Conservation: to carefully consider the environmental effects of planning decisions and to conserve and improve the historic, architectural and archaeological fabric of settlements in particular St Albans City Centre and Roman Verulamium.*
- 9 *Leisure and Tourism: to make provision for leisure uses especially taking advantage of opportunities to restore minerals sites in the Upper Colne Valley Area and to support tourism related development in appropriate sites.*
- 10 *Countryside: to protect and enhance the natural beauty, amenity and ecology of the countryside and to retain high quality agricultural land."*

3.14 Policy 34 of the local plan on *Highways Considerations and Development Control* goes on to outline the parameters for assessing development proposals from a transport perspective.

"Development likely to generate a significant amount of traffic or which involves the creation or improvement of an access onto the public highway will not normally be permitted unless acceptable in terms of the following highway considerations:

- i. *Road Safety, particular requirements are adequate visibility, turning radii and provision for pedestrians and cyclists for disabled and other disadvantaged people;*
- ii. *Environmental impact of traffic, especially in residential areas;*
- iii. *Road capacity, including present and predicted future year assessment;*
- iv. *Road hierarchy, new road shall be of design appropriate to their position in the hierarchy. New accesses to primary roads are main distributor roads will normally be resisted but where access is permitted a high standard of provision will be required;*
- v. *Car parking provision*
- vi. *St. Albans city centre in strength on development;*



vii. *Local roads, particular regard will be had to increases in:*

- a) *the risk of accidents especially to pedestrians and cyclists*
- b) *the use of roads that are poor in terms of width, alignment on structural condition*
- c) *Adverse impacts on local environment either to the rural character of the road or residential properties alongside it....*

3.15 Policy 36A on *Location of New Development in Relation to Public Transport Network* outlines the Council's aspirations in terms of encouraging the use of public transport within the Council area.

"The District Council with generally encourage the use of public transport. In considering the impact of development, account will be taken of its proximity to the public transport network and whether facilities will be provided within the development to cater for use of the network."

3.16 Policy 40 provides the residential development parking standards applicable for proposals within the Council area. This is replicated within **Table 3.1**.

Table 3.1: Car Parking Standards - Local Plan Review 1994

DWELLING SIZE (BEDROOMS)		NUMBER OF SPACES REQUIRED PER DWELLING		
		Allocated	Unallocated	Total
1	Either	0	1.5	1.5
	or	1	0.5	1.5
2	Either	0	2	2
	Or	1	1	2
	Or	2	0.5	2.5
3		2	0.5	2.5
4 or more		3	0.5	3.5

3.17 Policy 50 on Parking for Disabled People provides the requirements for provision of disabled parking within new developments.

"Parking spaces for disabled people shall be provided as set out... these spaces are included in the total parking requirement and are not additional to it. In public car parks, sufficient provision will be made to meet the needs of the locality...."

iv) *Residential (general)*



1 disabled space for every dwelling built to mobility standards...

St Albans City and District Council Draft Local Plan 2041 (Regulation 19 Publication)

3.18 SADC is preparing a new emerging draft Local Plan. The Regulation 19 version is the latest version and weight can be given to it due to the advanced stage in preparation (i.e. it is progressing towards Stage 2 Hearing in Autumn 2025). The Draft Local Plan comprises:

- Draft Local Plan 2041 – Reg.19 Publication (September 2024); and
- Draft Policies Map.

3.19 Adoption of the new Local Plan is anticipated to take place in March 2026. Upon its adoption, the Local Plan covering the period up to 2041 will supersede the version adopted in 1994.

3.20 The draft local plan adopts a vision which captures its aspirations for the local area.

‘A thriving, inclusive and sustainable community which is a great place to live and work and has a vibrant economy.’

3.21 The Council seeks to deliver this vision through achieving the following objectives of the local plan:

- Climate change
- Sustainable use of land / Green Belt
- Housing
- Community infrastructure
- Transport
- Utilities infrastructure
- Economy and employment
- Town and Village Centres and retail
- Natural environment and biodiversity;
- Heritage;
- High quality design; and
- Public Health and Wellbeing.

3.22 The site is identified under strategic policy SP1- A Spatial Strategy for St Albans District

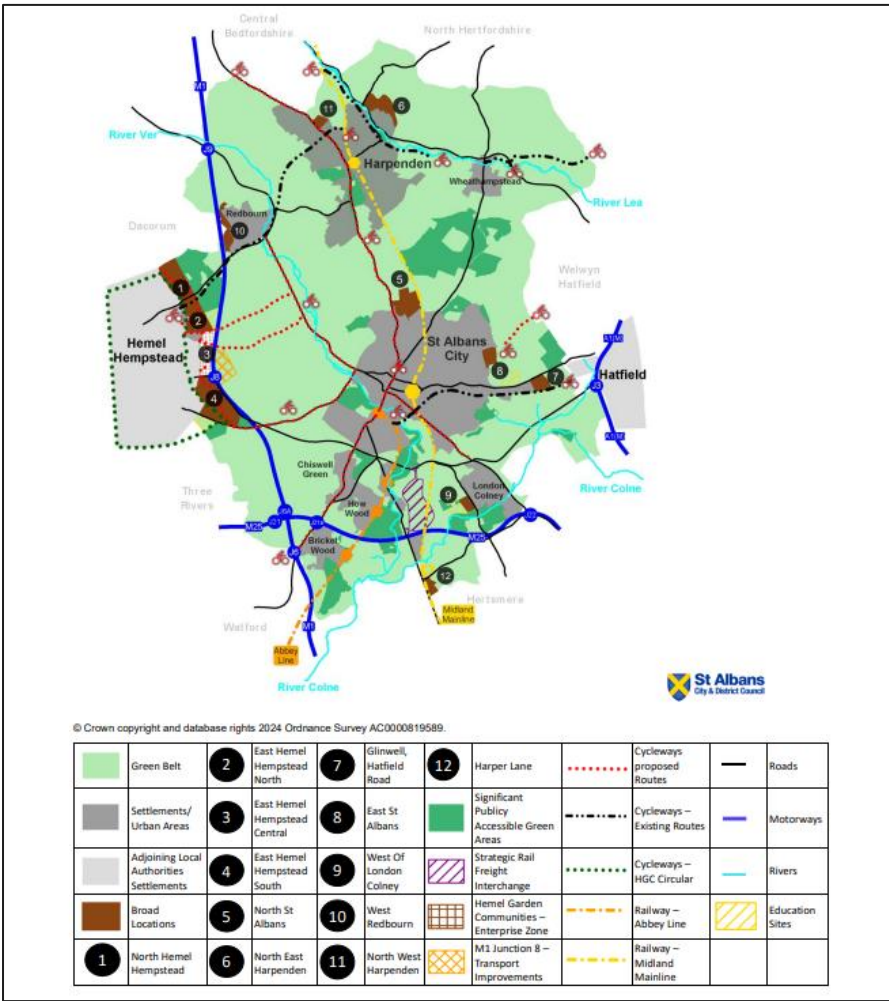


“The Spatial Strategy positively plans for the future to ensure that by 2041 St Albans District is a great place to live, work and visit. The Council requires new growth that enhances the attractiveness and unique character of the District through high quality design that respects local heritage. Growth must be supported by the necessary community infrastructure, transport improvements, green spaces and tree planting. Growth will be located to make the most sustainable use of land in urban areas and then the Green Belt....

Broad Locations are identified as large urban extensions of 250 or more homes or strategic scale employment. The most significant Broad Locations are the four comprising Hemel Garden Communities which is planned to the east and north of Hemel Hempstead on Green Belt land and will provide a large contribution to 14 meeting growth requirements. Other Broad Locations are North St Albans, East St Albans, West of London Colney, North East Harpenden, North West Harpenden, West Redbourn, Glinwell St Albans, and Harper Lane near Radlett...”

3.23 A spatial strategy map for St Albans which identifies the site within Area 6 of Broad Locations is provided below.

Figure 3.2: Spatial Strategy Map⁴



⁴ Available Online:
<https://www.stalbans.gov.uk/sites/default/files/attachments/Planning%20Policy/Reg%2019%20Local%20Plan%20PART%20A.pdf>



The emerging new Local Plan includes the Site within the North East Harpenden Broad Location B2 for:

- A comprehensive mixed-use development
- Residential (circa 750 homes, plus Extra Care provision)
- 2 Form Entry Primary School (inc. Early Years)
- Local Centre
- On-site sports provision
- Other green infrastructure
- Improvements to transport infrastructure, including links to Katherine Warrington Secondary School.

3.24 Strategic Policy SP8 - Transport Strategy demonstrates the Council's commitment to promoting sustainable transport.

"The Council will prioritise the use of active and sustainable transport modes and deliver accessibility improvements to the transport and highways network by:

a) Aligning with the Hertfordshire County Council Local Transport Plan (LTP) and other evidence and supporting documents, as relevant;

b) Supporting development in locations which enable active and / or sustainable transport journeys, including to key destinations; where this is not possible ensuring that sustainable and active transport infrastructure is delivered at the earliest reasonable opportunity;

c) Supporting reductions in car journeys for existing and new settlements; including in relation to education sites and school journey planning initiatives;

d) Requiring all high trip generating uses generating trips in excess of the thresholds set in Hertfordshire County Council's Travel Plan Guidance to prepare, submit and implement Travel Plans to embed sustainable and active travel at an early stage;

e) Working in partnership with stakeholders including Hertfordshire County Council, neighbouring authorities, National Highways and service providers to ensure that a range of sustainable and active transport options are available to all existing and future users of the transport network;

f) Requiring new development to assess future air quality impacts from transport, where necessary, including funding contributions to wider schemes that will mitigate the impact of the scheme being proposed where appropriate;

g) Protecting, adding to and improving existing rights of way, walking and cycling networks and equestrian access and, should diversion be unavoidable, require replacement routes to the satisfaction of the Council 80 and the highway authority;

h) Supporting inter-settlement connectivity for active modes (e.g. Alban Way, Nickey Line, Ayot Greenway and Upper Lea Valley Walk) and identification and delivery of new routes;

i) Seeking Masterplans at Broad Locations to include implementation of sustainable travel infrastructure at the earliest reasonable opportunity in order that sustainable travel patterns become embedded at an early stage; and

j) Supporting a network of mobility hubs at suitable locations such as railway stations and co-located in city, town and district centres where appropriate. The scale and nature of proposals



must be appropriate to the size and function of the centre or station and proposals should contribute towards the vitality of a centre. A mobility hub should support sustainable travel and can include: a local bus service, car club facilities, bike repair service, e-bike charging, bike share facilities, ride hailing & ride sharing stop, real time and digital travel information, wifi and phone charging, parcel delivery storage lockers and public realm improvements. Mobility hubs should be supported by online presence and digital functionality.”

3.25 Policy TRA1 – Transport Considerations for New Development provides further guidance on criteria for assessing proposals from a transport perspective.

a. *“Proposals must demonstrate:*

- i. That safe and suitable access can be provided for walking, cycling and vehicles, accommodating equestrians where appropriate;*
- ii. That development would not lead to highway safety problems or cause unacceptable impacts upon the transport network; and*
- iii. Suitable evidence in relation to i. and ii, including the provision of suitable Transport Statements or Transport Assessments along with other appropriate evidence where required.*

b. *Major proposals must demonstrate as appropriate how:*

- i. Measures to reduce the need to travel by private car are identified and implemented;*
- ii. Active and sustainable connections to key destinations are deliverable at an early stage of development;*
- iii. The proposed scheme would be served by public transport and would not have a detrimental impact to any existing or planned public transport provision;*
- iv. Safe, direct and convenient routes for active journeys to key destinations are provided and prioritised in their design;*
- v. Comprehensive and coherent integration into the existing pedestrian and cycle, Rights of Way, public transport and road networks will be secured; vi.*
- vi. Adequate servicing arrangements will be provided;*
- vii. The needs of people with disabilities and reduced mobility will be addressed;*
- viii. The charging of plug-in and other ultra-low emission vehicles will be enabled in safe, accessible and convenient locations;*
- ix. Suitable travel plans will be provided and appropriate measures for implementation will be secured. Such plans will set out measures to encourage people to use alternative modes of travel to single occupancy car use; and*
- x. Suitable mechanisms will be provided to secure sustainable transport measures, including delivery of schemes identified in the LCWIP, Bus Service Improvement Plan, Growth & Transport Plan and IDP and improvements to the existing highway network and other appropriate transport mitigations, including as identified in Supporting Documents to the Local Transport Plan.”*



- 3.26 Appendix 1 of the draft local plan provides parking standards for new developments in the local area. The parking standards require 1 space to be provided for all residential developments for long stay except sheltered / elderly housing or nursing homes which will be required to provide 0.05 per residential unit for short stay and 0.05 spaces per bedroom for long stay.
- 3.27 On car parking provision, the parking standards as provided within Appendix 1 of the draft local plan is shown below:

Use	Description	Car parking standards
Residential Within Use Class C3	a) General housing (including retirement and sheltered elderly persons accommodation, and similar non-C2 uses)	1 bedroom dwellings (including studios): 1.5 spaces (either 1.5 unallocated, or 1 allocated and 0.5 unallocated) 2 bedroom dwellings: either 2 spaces (either 2 unallocated or 1 allocated and 1 unallocated) or 2.5 spaces (2 allocated and 0.5 unallocated) 3+ bedroom dwellings 2.5 spaces (2 allocated and 0.5 unallocated)
	b) Not more than six residents living together as a single household	0.5 spaces per tenancy unit

- 3.28 Appendix 1 goes further to specify parking requirements for disabled parking which should be included in the overall parking provision as shown below:

Car parking for disabled motorists, to be included in the overall parking provision	(i) General	1 space for every dwelling built to mobility standards
	(ii) Elderly persons dwellings	
	Up to 10 spaces (demand-based as calculated from above standards)	3 spaces
	More than 10 spaces (demand-based as calculated from above standards)	1 space per 4 spaces
		Consideration should also be given to the provision of space and charging points for mobility scooters

St Albans District & City Council Infrastructure Delivery Plan (2024)

- 3.29 The St Albans District & City Council Infrastructure Delivery Plan (IDP) has been prepared as part of the evidence base to support the new Local Plan.
- 3.30 The IDP sets out the infrastructure that would be required to deliver the planned housing and employment growth across SADC.
- 3.31 Appendix A of the IDP is the Infrastructure Delivery Schedule (IDS) which sets out the infrastructure requirements and the provider of the works.
- 3.32 In the IDS the following improvements are related to the North East Harpenden Broad Location:



- Walking and Cycling – B653 Lower Luton Road pedestrian and cycle crossing;
- Walking and Cycling – Active travel improvements for North East Harpenden site; and
- Highways – Highways Access to support development at North East Harpenden.

3.33 There are no specific off-site highways improvement schemes identified for the North East Harpenden allocation. This is considered to be consistent with the Hertfordshire Local Transport Plan 4 which states that road-based connectivity improvements will likely result in increased car use and traffic growth, undermining other LTP4 objectives and decarbonisation targets.

Hertfordshire Local Transport Plan 4 (2018)

3.34 The Hertfordshire Local Transport Plan 4 (LTP4) adopted in May 2018 builds on the gains of the Local Transport Plan 3 which was published in 2011 and sets out a blueprint for achieving a safe, efficient and responsive transport system which will support the broader aspirations of Hertfordshire County for the policy period spanning 2018 – 2031.

3.35 The LTP outlines an overarching ‘Hertfordshire Vision’ from which objectives and policies are adopted.

“We want Hertfordshire to continue to be a county where people have to opportunity to live healthy, fulfilling lives in thriving, prosperous communities.”

3.36 The LTP adopts three broad themes and identifies transport as a common contributing factor which could significantly contribute to the achievement of set objectives under these three themes:

Prosperity: Transport can sustain and strengthen the local economy by providing a link to other regional, national economic growth centres and international gateways. creating links ,

People: Transport provides access to services and amenities available within a locality healthcare, leisure, education and employment. Access to these is crucial to a happy, fulfilled and heathy lives and enhance participation in society.

Place: Transport can enhance affect the attractiveness, accessibility and vibrancy of a place.

3.37 Policy 1 of the LTP4 on *Transport User Hierarchy* provides a guide for considering road users for transport strategies and proposals.

“To support the creation of built environments that encourage greater and safer use of sustainable transport modes, the county council will in the design of any scheme and development of any transport strategy consider in the following order:

- *Opportunities to reduce travel demand and the need to travel*
- *Vulnerable road user needs (such as pedestrians and cyclists)*
- *Passenger transport user needs*
- *Powered two-wheeler (mopeds and motorbikes) user needs*
- *Other motor vehicle user needs”*



- 3.38 Policy 5 on Development Management outlines some criteria for considering planning proposals.

“The county council will to work with development promoters and the district and borough councils to:

- a) Ensure the location and design of proposals reflect the LTP Transport User Hierarchy and encourage movement by sustainable transport modes and reduced travel demand.*
- b) Ensure access arrangements are safe, suitable for all people, built to an adequate standard and adhere to the county council’s Highway Design Standards.*
- c) Consider the adoption of access roads and internal road layouts where they comply with the appropriate adoption requirements and will offer demonstrable utility to the wider public. Where internal roads are not adopted the county council will expect suitable private management arrangements to be in place*
- d) Secure developer mitigation measures to limit the impacts of development on the transport network, and resist development where the residual cumulative impact of development is considered to be severe.*
- e) Require a travel plan for developments according to the requirements of ‘Hertfordshire’s Travel Plan Guidance’.*
- f) Only consider new accesses onto primary and main distributor roads where special circumstances can be demonstrated in favour of the proposals.*
- g) Resist development that would either severely affect the rural or residential character of a road or other right of way, or which would severely affect safety on rural roads, local roads and rights of way especially for vulnerable road users. This should include other routes which are important for sustainable transport or leisure.*
- h) Ensure that any new parking provision in new developments provides facilities for electric charging of vehicles, as well as shared mobility solutions such as car clubs and thought should be made for autonomous vehicles in the future.”*

South West Hertfordshire Growth and Transport Plan Prospectus (2019)

- 3.39 The Growth and Transport Plan (GTP) was adopted in 2019 following the adoption of the LTP4 in 2018. The intention of the document is to provide sub-county transport planning which covers different areas of Hertfordshire with the intention of promoting modal shift to non-motorised and public transport, providing greater modal choice, and facilitating growth sustainably. Harpenden falls within the South West Hertfordshire sub-area.
- 3.40 The GTP highlights the importance of improving pedestrian and cycling environments in Harpenden, particularly linking residential areas to key destinations such as the centre of Harpenden, local schools, and Harpenden Station.
- 3.41 The proposed development accords with the aims of the GTP in the following ways:
- Reduce reliance on private car use for short and medium journeys;
 - Improve walking and cycling connections to local amenities, schools, and Harpenden Station;



- Support public transport as a viable alternative through service accessibility and infrastructure;
- Integrate behaviour-change measures through implementation of Travel Plans;
- Minimise environmental impacts associated with trip generation.

Harpenden Urban Transport Plan (2011)

3.42 The Harpenden Urban Transport Plan published in April 2011 relates to the Hertfordshire Local Transport Plan and sets out area-specific long-term strategies for transport in Harpenden.

3.43 The local objectives for the Harpenden Urban Transport Plan are set out below:

- *“Support the economic vitality of local shops and businesses;*
- *Reduce CO2 emissions;*
- *Provide a safer environment in which to live, work and visit;*
- *Promote healthy and active lifestyles;*
- *Improve access to key services; and*
- *Maintain the high quality of life enjoyed by most.”*

3.44 The Harpenden Urban Transport Plan sets out a number of transport related issues within Harpenden which it seeks to address through the planning system:

- Congestion
- Bus and accessibility
- Poor walking infrastructure
- Poor cycling infrastructure
- Poor rail infrastructure
- Poor Interchanges
- Quality of life and walking
- Road safety
- Speed limit compliance
- Parking
- Freight



Harpenden Neighbourhood Plan (2018)

3.45 The Harpenden Neighbourhood Plan published in 2018 constitutes a statutory planning policy document detailing how development within Harpenden will look like for the period spanning 2018 – 2033.

3.46 The Neighbourhood Plan adopts an overall vision guiding development considerations for Harpenden.

“Harpenden has a strong sense of community that is treasured by local residents. The Neighbourhood Plan will provide the foundations for Harpenden to grow sustainably for the benefit of those that live and work here.”

3.47 The Neighbourhood Plan identifies the proposal for the site as one of the proposals of key focus for the Harpenden area.

3.48 Paragraph 2.13 reads thus:

“The following planning-related issues are important to local people in Harpenden, as evidenced by discussions during engagement and local media:

- The emerging St Albans Local Plan (October 2018 publication draft), which includes two ‘Broad Locations’ for growth, namely ‘North East Harpenden’ for a minimum of 760 homes and associated infrastructure including a primary school and ‘North West Harpenden’ Page 15 for a minimum of 580 homes and associated infrastructure including a primary school;*
- The redevelopment plans for the Harpenden Sports Centre, Swimming Pool and potential relocation of cultural facilities from the Harpenden Public Halls.*
- A planned new secondary school in East Harpenden, known as Katherine Warrington School, which received planning permission in early 2018.*
- The future of NHS Services at the Harpenden Memorial Hospital (also known as The Red House).”*

3.49 Policy ESD5 on *New Car Parking Design* provides a requirement for design of parking infrastructure for new development.

“Parking, garages and servicing/ delivery yards for new development must be visually attractive or concealed by attractive design features. Cars must not dominate public areas and pedestrian, and vehicular conflict must be minimised.”

3.50 Policy T1 on *Transport Assessments* stresses the need for proposals resulting in significant levels of movement to produce Transport Assessments.

“Major development proposals or other proposals that would cause a significant amount of transport movement will be supported by a Transport Assessment, which must demonstrate predicted levels of traffic generated from the proposed development and the impacts of this additional traffic on roads and junctions within the Harpenden Neighbourhood Plan Area. Transport assessments must identify areas of established traffic congestion. Where severe negative impacts on the network are identified developers will be expected to fund proportionate improvements to mitigate this impact in order to make the planning application acceptable.”



Wheathampstead Neighbourhood Plan (2023)

- 3.51 The Wheathampstead Neighbourhood Plan published in 2022 and adopted in 2023. The Plan constitutes a statutory planning policy document detailing how development within Wheathampstead will look like for the period spanning 2020 – 2035.
- 3.52 Section 7 of the Wheathampstead Neighbourhood Plan relates to Transport and Movement. In regards to Transport and Movement, the plan states that:

“The Plan seeks to encourage sustainable methods of transport where possible, for journeys within the parish and to neighbouring towns and villages. This will have a beneficial impact on the environment and wellbeing of the community.

There is a desire locally to ensure that routes are accessible to all users. In particular, Wheathampstead’s ambition of being a dementia-friendly parish will include developing a set of key routes within the parish that are appropriately waymarked.

It will be important to work with public transport providers to encourage them to improve their accessibility for all users.”

- 3.53 Policy W12 relates to primary local access routes (primarily for walking and cycling) and requests that new developments, where possible, should include footpaths and cycleways segregated from vehicle traffic and that new developments should ensure safe pedestrian and cycle access to link up with an adopted footway or a public right of way.
- 3.54 Policy W15 relates to public transport provision and states that:

“New development proposals that contribute towards physical improvements in the quality of public and community transport services and/or supporting infrastructure serving the Neighbourhood Plan area will be strongly supported.”

Summary

- 3.55 A review of relevant policies and guidance for the proposed development has been carried out. The proposal complies with all national and local policies regarding transport and development.
- 3.56 The inclusion of the site is within the St Albans City and District Council Draft Local Plan 2041 (Regulation 19 Publication) attests to the sustainability credentials of the site in accordance with national and local policy.



4.0 Development Proposals

Overview

- 4.1 The following text outlines details of the development proposals including land uses and access arrangements for all modes of transport.

The Proposed Development (Land North East of Harpenden between Lower Luton Road, Bower Heath Lane and Common Lane)

- 4.2 The description of development is as follows:

“Outline Application for demolition of existing buildings and structures and construction of a mixed-use development comprising residential dwellings (including affordable housing), children’s home, elderly extra care facility, local centre (flexible retail/ health/ community use), sports pitches and associated building, green infrastructure and landscaping works (to include public open space and community growing space); primary school with early years provision, vehicular and active travel infrastructure (including pedestrian and cycle access) and diversion of Bower Heath Lane; drainage works; and related infrastructure. All matters reserved save for access from Lower Luton Road.”

- 4.3 The planning application that this Transport Assessment has been submitted in support of is for outline planning consent.
- 4.4 To ensure that all residents are able to easily access the on-site facilities, it is proposed that the local centre will be situated within a prominent location in the centre of the site.
- 4.5 Parameter plans for the proposed development, including an access and movement parameter plan are provided within **Appendix A**, along with an illustrative masterplan which shows how the development could come forward. To note, the illustrative masterplan is indicative at this stage and subject to refinement as part of future reserved matters applications.

Transport Vision

- 4.6 The Transport Vision for the site is to provide new homes in a sustainable environment with access to a variety of local services by a choice of transport modes thus reducing the demand for travel into the wider area and offering new residents a choice of mode of transport to the private car that supports the development of a thriving, inclusive community of circa 500 homes on Land North East of Harpenden between Lower Luton Road, Bower Heath Lane and Common Lane. This vision aligns with Hertfordshire’s aspiration for creating built environments that encourage greater and safer use of sustainable transport modes (Hertfordshire Local Transport Plan 4 2018-2031).
- 4.7 The transport strategy will prioritise active travel and public transport to reduce car dependency and enhance connectivity with the existing urban area and wider region. By integrating sustainable transport solutions, such as walkable streets and cycling networks, the development will provide residents with accessible, environmentally conscious mobility options.



- 4.8 There will be high quality pedestrian and cycle routes within the Site which will connect to and integrate with similar facilities in the wider area such as the existing PRowS. There will be bus stops within the site.
- 4.9 New residents on the Site would be provided with broadband infrastructure to allow for home working. Safe and secure cycle parking and EV charging points will be available for all of the new homes to facilitate the cycling and the use of electric vehicles.
- 4.10 Consideration will be given to providing mobility hubs on the Site. This could be integrated into the local centre to facilitate multi modal journeys and to encourage residents to use the facilities on Site.
- 4.11 There will be a number of local facilities to facilitate everyday needs such as education, retail, office/homeworking, green space/allotment, leisure/play spaces, health and wellbeing, employment and community uses. These will be located within walking or cycling distance of the Site, serving the future residents. Furthermore, the Site will be part of Harpenden and will be connected to the wider area by the good quality pedestrian and cycle routes which will also provide connections to the existing facilities in the town (such as local primary and secondary schools, shops, railway station, employment opportunities and community facilities).
- 4.12 In addition to this, a bus service will be diverted into the site to provide connections to the facilities in Harpenden and to surrounding towns providing a connection to other facilities and employment opportunities across a wider area.
- 4.13 Travel Plans will be prepared for the Site which will set out how residents and students/employees will be encouraged to use sustainable modes of transport. The Travel Plans will also set out the future monitoring that would take place to allow the Vision to be Validated.
- 4.14 This approach will foster a community that balances economic opportunity, environmental sustainability, and high quality of life while preserving the character and vitality of Harpenden.

Site Access

- 4.15 There are various access points to the development. For the purpose of this report, these have been separated into active travel access points and vehicular access points.

Active Travel

- 4.16 To facilitate active travel and to enable residents and visitors to make direct journeys to the site, a number of active travel connections are proposed as part of the development.
- 4.17 The proposed vehicle access will be provided with pedestrian and cycle provisions on either side of the carriageway, connecting to the existing network on Lower Luton Road, including a new signal-controlled crossing on Lower Luton Road.
- 4.18 Additional non-vehicular access points will be provided to the neighbouring Batford estate. This includes connections at Turners Close (at the point of the existing PRow), Dane Close, through Porters Hill Park and from Whittings Close (at the point of the existing PRow).



- 4.19 Additional leisure connections are proposed to Common Lane and Bower Heath Lane. It is unlikely that connections to these rural lanes would be well used with the exception of leisure walking trips.
- 4.20 The various off-site links are presented within the access and movement parameter plan contained within **Appendix A**.

Vehicular Access

- 4.21 The vehicular access strategy has been discussed at length with HCC as part of the pre-application process. It has been agreed that a suitable access strategy is for the delivery of a ghost island priority junction connecting the site to Lower Luton Road. The indicative general arrangement design of the site access junction is presented within **Drawing 141499/SK20 Rev A** contained within **Appendix B** along with the appropriate tracking drawings. Confirmation that HCC agree with the principles of access to the site are contained within the HCC response, contained within **Appendix F**, to Matter 7 of the Local Plan consultation:

“HCC is satisfied that safe and suitable access for the allocation can be achieved, including for individual land ownerships. This has been demonstrated through pre-application engagement with two of the landowners of the site”.

- 4.22 The site access will be delivered alongside a signal-controlled toucan crossing to the west of the site access. This crossing has a dual benefit in that it will allow safe crossing of Lower Luton Road whilst also further reducing speeds on Lower Luton Road, which was an issue identified through pre-application discussions with HCC and at the public consultation event.
- 4.23 The location of the access is approximately 55m east of the Westfield Road junction and 76m east of the Bower Heath Lane junction. HCC had previously raised concerns with the proximity of the proposed new site access junction to the existing junctions and the potential for different streams of traffic taking various routes within a short distance on an already highly trafficked part of the network. Whilst the junction spacing would be in line with HCC highways design guidance, an option to find a solution to alleviate the concerns of HCC has been worked up.
- 4.24 The identified solution seeks to divert Bower Heath Lane into the proposed development on its western boundary and close the southern end of Bower Heath Lane to vehicular traffic. Bower Heath Lane would still be usable by pedestrians, cyclists and equestrians. It is considered that the closure to vehicles could be enforced through the installation of bollards at either end. The Bower Heath Lane amendments are also presented within **Drawing 141499/SK20 Rev A** contained within **Appendix B**.
- 4.25 The diversion of Bower Heath Lane will reduce the number of conflicting movements at the junctions on Lower Luton Road, and the number of access points provided from Lower Luton would be unchanged from the existing situation. Access to Bower Heath Lane from Lower Luton Road would be retained only for access to a single property driveway via a much-consolidated junction.
- 4.26 The site access junction has been designed to accommodate the traffic associated with the full allocation however HCC has indicated that there is potential for an additional access point on Lower Luton Road to the Miller Homes parcel of land dependant on junction design and spacing from the proposed Crest access junction. The site masterplan has also been designed to accommodate vehicular access connections to neighbouring parcels.



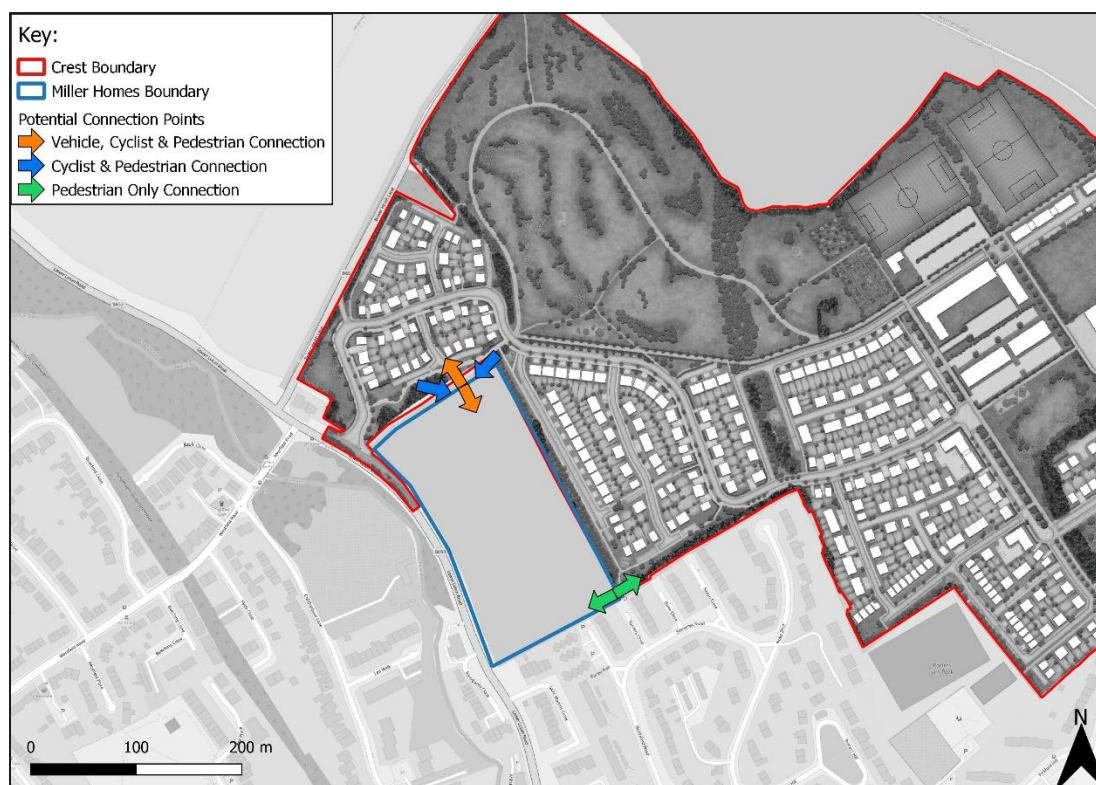
- 4.27 A standalone drawing has been submitted for approval (Drawing 141499_PD02) which details the elements of the site access design that will be brought forward as part of the proposed development, and a second drawing (Drawing 141499_PD03) showing the elements that will be delivered via S278 works. All elements related to the footway/cycleway to the east of the site access bellmouth will be delivered by the adjacent landowner when that development comes forward. For completeness these are also provided at **Appendix B**.
- 4.28 A Stage 1 Road Safety Audit (RSA1) of the site access arrangements has been undertaken and the identified recommendations have been incorporated into the proposed design. The RSA1 is contained within **Appendix G** along with the Designer's Response. Since the RSA1 was undertaken the red line boundary to the site has been updated however this has no bearing on the layout of the site access that was audited.

Access to Miller Homes

- 4.29 As recommended by HCC at the pre-application stage, consideration has been given to the potential for links between the proposed development and the neighbouring Miller Homes parcel of the allocation, which will be subject to a separate planning application.
- 4.30 The potential links have been discussed with the transport consultants for Miller Homes and is considered to provide sufficient potential for access into the Crest element of the allocation by all modes of transport, ensuring that future residents of the Miller Homes scheme will be able to access the on-site provisions delivered by the Crest application (school and local centre).
- 4.31 **Figure 4.1** presents the identified potential access options. Indicatively there will be a vehicular connection, two connections for cyclists and three connections for pedestrians.



Figure 4.1 - Potential Miller Homes Connections



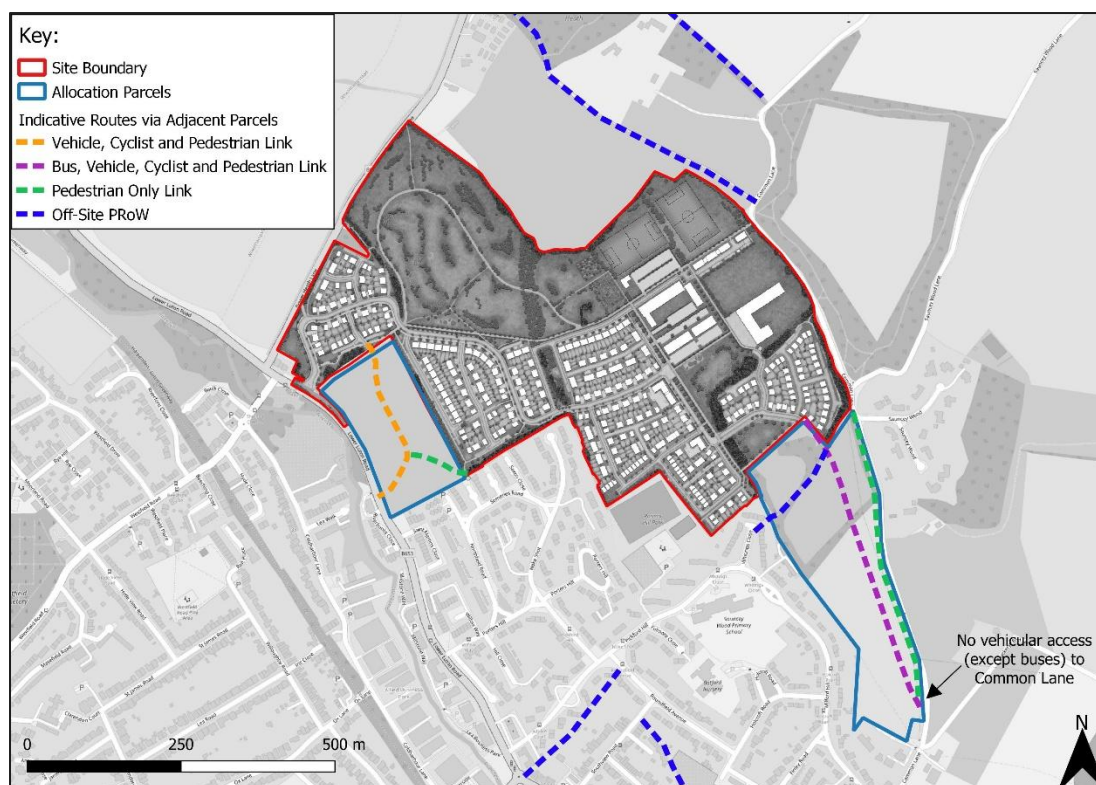
- 4.32 **Figure 4.1** demonstrates that the identified connection points would provide access for pedestrians to the existing PRow network via the eastern corner of the site.

Access to Off-Site Network via Allocation Parcels

- 4.33 HCC has also requested that consideration is given to the potential for connections to the off-site network through the neighbouring allocation sites. This is presented within **Figure 4.2**. The routes through the neighbouring parcels are indicative only and would be subject to separate planning applications. It should be noted that **Figure 4.2** only shows the links to the Crest site that would be created via the neighbouring parcels. Additional access points would be achievable directly from the Crest land as shown within the access and movement parameter plan at **Appendix A**.
- 4.34 It is considered that pedestrians, cyclists and vehicles would be able to route through the Miller Homes site, connecting from various locations (as shown within **Figure 4.1**). Pedestrians, cyclists and buses would access the off-site network through the Wimms & Scott parcel. HCC has advised that no vehicular access beyond a bus access would be permitted to Common Lane. **Figure 4.2** indicates that vehicles could use this link, however this would only be to access residential properties within the Wimms & Scott land and would not allow for vehicular connection (except buses) to Common Lane.

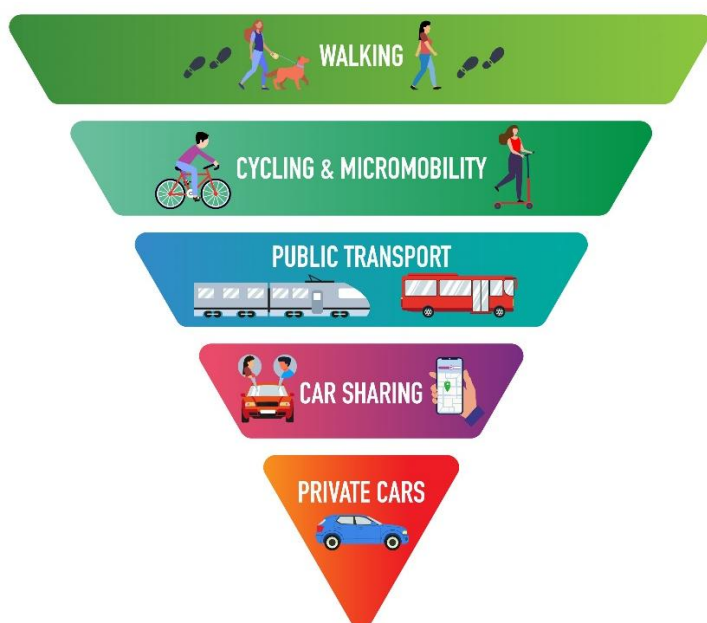


Figure 4.2 - Potential Off-Site Connections via Allocation Parcels



Internal Strategy

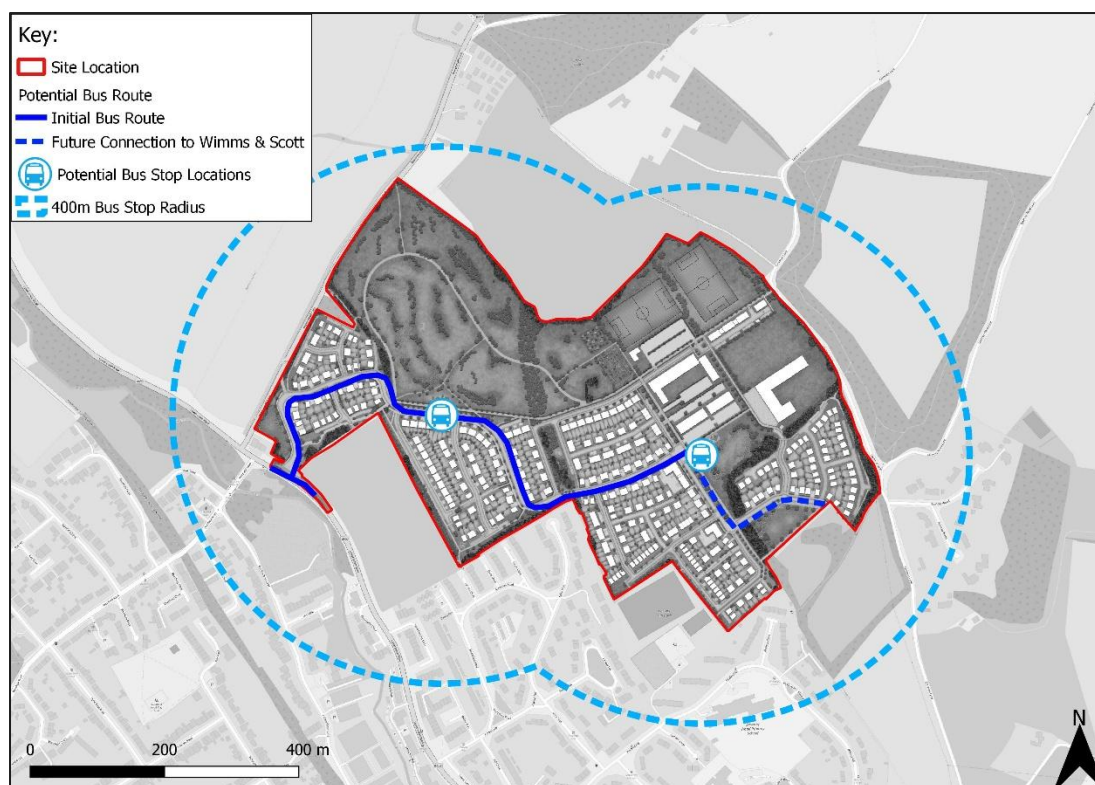
- 4.35 The detail of the internal layout of the site will be subject to future reserved matters applications, however, the development will be designed in accordance with Manual for Streets and Manual for Streets 2, with the greatest priority given to pedestrians and cyclists. The development will follow the movement hierarchy set out below in terms of priority within the development.



- 4.36 In line with the movement hierarchy set out, the development will provide a network of footways and cycleways within the site. In many cases pedestrian and cycle movement will be more direct and therefore perceived as convenient for travel within the site.
- 4.37 Roads within the development will also be designed to accommodate pedestrians and cyclists. For the main spine road through the development this is likely to include footways on one side of the carriageway and a shared footway/cycleway on the other side of the carriageway. On minor roads this may reduce to pedestrian footways on either side of the carriageway with cyclists mixing with vehicles. On very low-trafficked roads there may be shared spaces provided where all road users are able to safely mix together.
- 4.38 The internal road network will be designed in accordance with the Hertfordshire Highways Place and Movement Planning and Design Guide, adopted in March 2024.
- 4.39 To encourage local active travel, no direct vehicular connection will be provided to the adjacent existing residential area of Batford, with vehicular access from the site only achievable via Lower Luton Road. As aforementioned, pedestrian and cycle connections will be provided to existing residential areas. In many cases, it will be quicker to travel between the proposed development and the existing local facilities within Batford on foot or by bicycle.
- 4.40 In future, once the remainder of the allocation comes forward it is envisaged that buses would route through the site utilising the proposed Lower Luton Road access and an access on Common Lane delivered by other landowners. Until such time that the remainder of the allocation comes forward the bus will be able to enter and exit the site from Lower Luton Road, turning using a tear drop arrangement to the east of the local centre (details of the teardrop turning arrangement to be prepared at the reserved matters stage). **Figure 4.3** presents the potential interim route of the buses through the site and possible locations for on-site bus stops and a 400m radius from these, demonstrating that all residents will be within close proximity to bus stops, encouraging sustainable travel.



Figure 4.3 - Potential Bus Stop Route and Catchment



Parking Strategy

- 4.41 Car parking will be provided at a level determined based on consideration of the adopted parking standards that are in place at the time when relevant reserved matters applications are made and consideration of local car ownership data and other data available.
- 4.42 The development will seek to strike a balance when providing car parking. The overprovision of car parking spaces may result in a car-dominated layout and encourage residents to make a higher proportion of journeys by car. On the other hand, the under provision of car parking may result in overspill of car parking or parking occurring in unsuitable locations across the site.
- 4.43 Cycle parking will be provided in accordance with the adopted standards at the time of reserved matters application.
- 4.44 For reference, the current adopted standards for parking are set out within the City and District of St Albans District Local Plan Review 1994. The parking standards were revised in the Revised Parking Policies and Standards document from 2002 however the document states that Policy 40 of the 1994 Local Plan remains valid for residential standards for car parking.
- 4.45 The 1994 car parking standards for residential dwellings are replicated at **Table 4.1**. The standards presented are minimum provisions, however the 2002 revision states that whilst the 1994 minimum standards apply, “schemes slightly below the standards may be accepted”.



Table 4.1 - Adopted Car Parking Standards for Residential Developments

Bedrooms		Allocated	Unallocated	Total
1	either	0	1.5	1.5
	or	1	0.5	1.5
2	either	0	2	2
	or	1	1	2
	or	2	0.5	2.5
3		2	0.5	2.5
4+		3	0.5	3.5

- 4.46 Appropriate car parking would also be provided for the non-residential elements of the development and the precise provision of spaces will be agreed as part of future reserved matters applications.
- 4.47 The 2002 Revised Parking Policies and Standards document states that residential developments should provide one long-term cycle parking space per unit if no garage or shed is provided. The development will accord with the adopted cycle parking standards at the time of reserved matters applications being submitted. The cycle parking will be secure and undercover.
- 4.48 Cycle parking will also be provided for the non-residential elements of the development and the precise level of provision of spaces will be agreed as part of future reserved matters applications.

Proposed Mitigation

- 4.49 A mitigation package has been developed with the primary aim to provide enhancements for pedestrians and cyclists. The measures include the following:
- Gateway features on approach to Batford;
 - Signalised crossings on Lower Luton Road;
 - 20mph zone within Batford Estate;
 - Active travel route improvements between sites and key off-site destinations;
 - Parallel crossing on Westfield Road;
 - Car club; and
 - Raised tables and junction consolidation within Batford Estate.
- 4.50 Each of the above measures is discussed subsequently individually.

Gateway Features on Approach to Batford

- 4.51 It is proposed that gateway features are introduced on approach to Batford on either end of Lower Luton Road. The western gateway feature would be situated to the west of the junction with Bower Heath Lane where the speed limit reduces from 40mph to 30mph. The eastern gateway feature would be situated to the east of the Katherine Warington school exit where the speed limit reduces from 40mph to 30mph.



- 4.52 The gateway features will highlight the change in speed limit and give the perception of a narrower road which will encourage vehicle drivers to slow down. The intention of this is to encourage lower vehicle speeds on the Lower Luton Road corridor that sits within Batford and abuts the site.
- 4.53 **Drawing 141499/SK11_Rev A** contained within **Appendix B** shows the approximate location of these proposed gateway features and the form that they are likely to take.

Signalised Crossings on Lower Luton Road

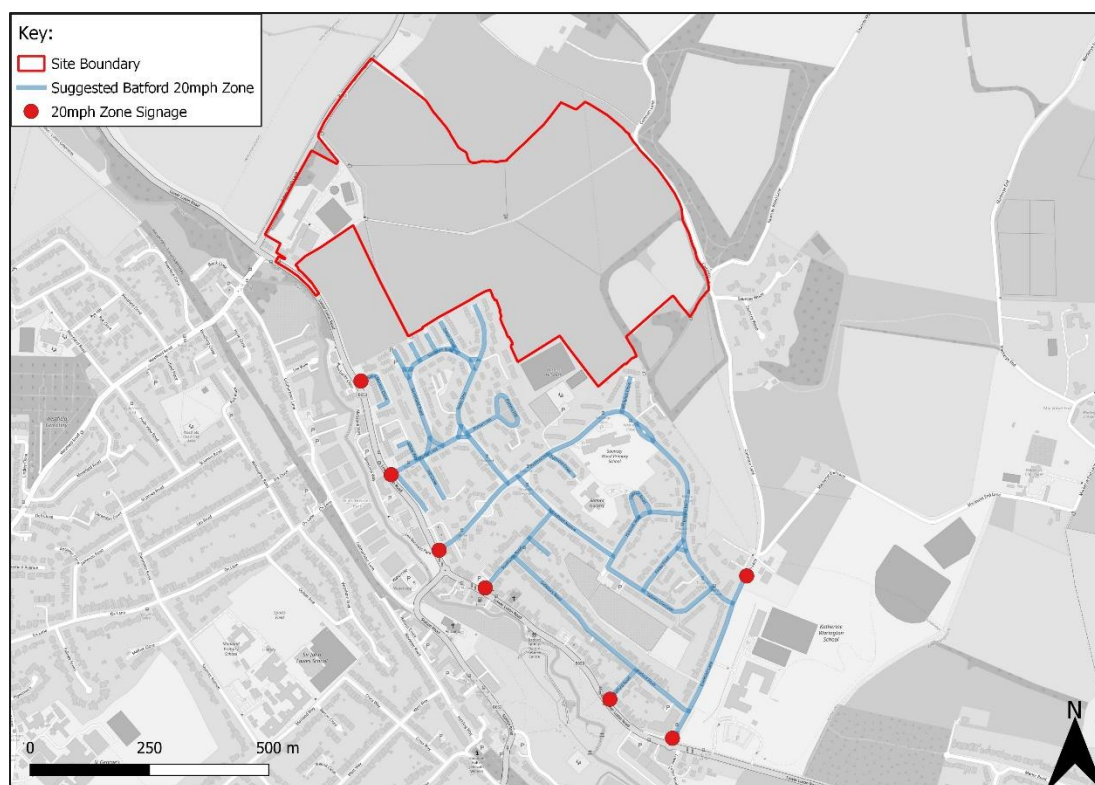
- 4.54 As part of the access strategy, it is proposed that a signalised crossing is provided on Lower Luton Road to the west of the proposed site access junction. This would allow for safe connection between the site and Westfield Road which is considered to be a key route between the site and the centre of Harpenden.
- 4.55 An additional signalised crossing is proposed to the east of the site access on Lower Luton Road, located to the west of the junction with Porters Hill. This would allow for pedestrians to cross Lower Luton Road for access to alternative routes towards Harpenden railway station or Harpenden town centre.
- 4.56 **Drawing 141499/SK13** presents the recommended design of the signalised crossings and **Drawing 141499/SK11_Rev A** shows the context of these crossings in relation to the existing features on Lower Luton Road. Both drawings are contained within **Appendix B**.

20mph Zone within Batford Estate

- 4.57 Through discussions with HCC it is considered that the implementation of a 20mph zone within the neighbouring Batford Estate would provide a betterment in terms of safety for users of the route between the site and Katherine Warrington school. This would also provide a safer route for those accessing the amenities to be delivered within the proposed development from the Batford Estate.
- 4.58 The extent of the suggested 20mph zone is presented within **Figure 4.4**. This extent covers the entirety of the Batford Estate from Lower Luton Road to Common Lane at a point approximately 75m north of the junction with Milford Hill.
- 4.59 **Figure 4.4** also presents the locations where 20mph speed limit signage would be required.



Figure 4.4 - Batford Estate 20mph Extent



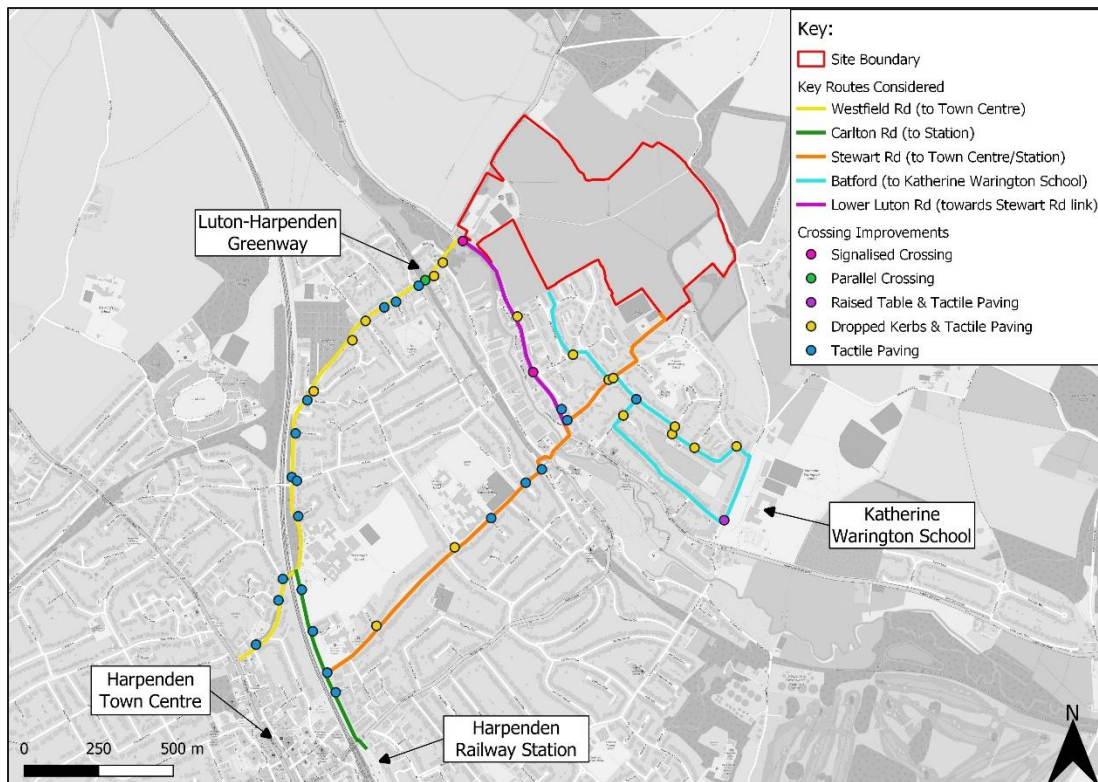
- 4.60 The implementation of a 20mph route would be complimented by additional improvements such as dropped kerbs and tactile paving between the site and Katherine Warington School as set out subsequently within this section.

Active Travel Route Improvements

- 4.61 Key routes between the site and off-site destinations were identified as part of an active travel audit. Routes to the following locations were considered:
- Katherine Warington School;
 - Harpenden town centre; and
 - Harpenden railway station.
- 4.62 It should be noted that additional destinations are accessible on the routes that have been considered.
- 4.63 **Figure 4.5** presents the routes that have been assessed and the improvements that could be delivered to improve active travel opportunities for journeys from the proposed development. The improvements primarily relate to the provision of dropped kerbs and tactile paving at locations where it is not currently provided, however the proposed signalised crossings, parallel crossings and raised tables (discussed subsequently) are also shown.



Figure 4.5 - Off-Site Improvements on Key Routes



- 4.64 The designs of the improvements recommended would be presented at the detailed design stage.

Westfield Road Parallel Crossing

- 4.65 At present there is an uncontrolled crossing of Westfield Road for users of the Upper Lea Valley Way, which forms part of the NCN6 between Harpenden and Luton. The existing layout of this crossing is provided at **Figure 4.6**.



Figure 4.6 - Existing Parallel Crossing (Westfield Road)



- 4.66 It is considered that whilst there is an existing priority narrowing, which reduces the width of the road for pedestrians and cyclists to cross, an improved crossing arrangement would provide a safer and more convenient route for pedestrians and cyclists.
- 4.67 It is proposed that a parallel crossing is provided, offering priority for pedestrians and cyclists. An initial design has been prepared for this. It is considered that the priority narrowing would be retained and revised markings and signage provided to demarcate that pedestrians and cyclists have priority in this location.
- 4.68 An initial design of the proposed parallel crossing is presented within **Drawing 141499/A/25 Rev A** contained within **Appendix B**.
- 4.69 This crossing improvement is considered to accord with the requirements of the Local Plan allocation which states that support for links to/from and improvement of the Upper Lea Valley Way into Harpenden and out to Luton are requirements of the allocation.

Car Club

- 4.70 It is considered that the size of the proposed development and the wider allocation is of sufficient size so that a car club scheme would be viable.
- 4.71 Car clubs have dual benefits of firstly reducing the levels of car ownership and also reducing the number of vehicle trips that are made. CoMoUK 2024 Annual Report⁵ found that each car club vehicle has the potential to replace 27 privately owned vehicles and that after joining

⁵ <https://www.como.org.uk/documents/car-club-annual-report-uk-2024>



a car club, each car club user, on average, reduces their total car mileage by 185 miles per year.

- 4.72 Enterprise has been consulted regarding the proposed development and are interested in providing a car club scheme at this location. Whilst Enterprise do not currently have any car club schemes within Harpenden, Enterprise is experience of working within the Hertfordshire area and has existing car club schemes within St Albans and Hemel Hempstead.
- 4.73 It is recommended that 2 car club vehicles are provided from the outset to accommodate the full development. This could rise by a further 6 vehicles provided free of charge by Enterprise based on demand (40% usage of existing vehicles in each month). In line with the sustainability goals of the proposed development it is suggested that electric car club vehicles are provided.
- 4.74 To encourage future residents to use the car club vehicles, each household would be provided with 3-years' worth of membership and £50 driving credit. This would enable the service to get up and running in an area that would be new to car club vehicles. The costs for the membership and driver credit are included within the subsequent cost.
- 4.75 Enterprise has advised that the cost for the delivery of a car club scheme on the above basis would be a one-off fee of £90,000+VAT.
- 4.76 It is considered that a contribution could be provided to HCC for the costs of the implementation of a car club within the site and the costs split based on unit numbers between each of the parcels of the allocation.

Raised Tables & Junction Consolidation within Batford Estate

- 4.77 The provision of raised tables at key locations within the Batford Estate and potential for junction consolidation has been discussed with HCC at the pre-application stage.
- 4.78 In regards to raised tables, it is considered suitable for a raised table to be provided at the junction between Common Lane and Batford Road, providing a safer access point to Katherine Warington School. An initial design of the form of the raised table that could be provided is presented within **Drawing 141499/A/23 Rev A** contained within **Appendix B**.
- 4.79 It may also be desirable to provide additional raised tables at other junctions within the Batford Estate. This can be discussed further with HCC.
- 4.80 There are some junctions within the Batford Estate that are considered to be of a size that is not reflective of the nature of the area as a residential area. This results in a highway dominated layout at the expense of pedestrian infrastructure. To date, three locations for junction consolidation have been discussed with HCC. These are as follows:
- Common Lane/Milford Hill;
 - Porters Hill/Northfield Road; and
 - Porters Hill/Noke Shot.
- 4.81 **Drawing 141499/SK14** presents the possible layout of the Common Lane/Milford Hill junction along with tracking of a bus entering and exiting the junction on the basis that this junction forms part of an existing bus route. This drawing is provided at **Appendix B**.



- 4.82 **Drawing 141499/A/22** presents the possible layout of the Porters Hill/Northfield Road and Porters Hill/Noke Shot junction and how existing driveways can continue to be accessed. This drawing is provided at **Appendix B**.



5.0 Trip Generation and Distribution

- 5.1 This section sets out the trip generation methodology and the number of resultant trips by each mode of transport during the weekday peak hour periods. Vehicle trips are then distributed onto the local highway network for the purpose of informing the detailed junction modelling assessments contained within **Section 6**.
- 5.2 The methodology used for determining the trip generation and trip distribution of the proposed development has been discussed and agreed with HCC at the pre-application stage.

Trip Generation

- 5.3 Two trip generation scenarios have been assessed. The first (Scenario 1) considers the proposed development (to which this TA relates), and the second (Scenario 2) considers the trip generation of the full draft North East Harpenden allocation. This allows for the full impact of the allocation to be considered to ensure the delivery of the proposed development does not jeopardise the potential for the remainder of the allocation to come forward.
- 5.4 A journey purpose assessment methodology has been used whereby residential total person trips are split into various journey purposes (commuting, leisure, education and shopping) and a representative modal split is applied to each journey purpose. Total person trips associated with non-residential land uses have also been split using representative modal splits.
- 5.5 For ease of understanding and to avoid overcomplicating this section of the TA, a supplementary trip generation methodology note has been prepared which sets out the methodology used for obtaining trip rates, splitting residential trips into journey purposes, applying modal splits and the incorporation of internalisation factors for trips generated by the site to account for the mixed land uses that will be present on site.
- 5.6 The trip generation methodology note is contained within **Appendix H**. This section of the TA provides a simplified version, pulling out the key information. It is essential that the trip generation note is read in conjunction with this TA for consideration of the planning application.

Trip Rates

- 5.7 The starting point of the trip generation exercise was to derive total person trip rates from the TRICS database for the proposed land uses. **Table 5.1** presents the trip rates that were obtained. The trip generation methodology note sets out the parameters used within the TRICS database to obtain representative trip rates for each land use.



Table 5.1 - Total Person Trip Rates

	AM Peak (08:00-09:00)			PM Peak (17:00-18:00)		
	Arrivals	Departures	Two-Way	Arrivals	Departures	Two-Way
Residential – Privately Owned Houses (per unit)	0.212	0.765	0.977	0.618	0.271	0.889
Education – Primary School (per pupil)	1.253	0.322	1.575	0.025	0.044	0.069
Health – GP Surgery (per 100m ²)	6.023	2.970	8.993	1.938	3.960	5.898
Health – Care Home (per resident)	0.154	0.133	0.287	0.087	0.129	0.216

Journey Purposes

- 5.8 Within this assessment, residential journeys are split into five separate journey purposes which combine to cover journeys for all purposes. The journey purpose splits are derived from the National Travel Survey (NTS) data for 2023. **Table 5.2** presents the residential journey purposes splits that are applied. Further detail relating to the calculation of these proportions and the supporting NTS data is provided within the trip generation methodology note.

Table 5.2 - Residential Journey Purpose

Journey Purpose	08:00-08:59	17:00-17:59
Commuting	18.6%	28.8%
Primary Education	26.7%	2.5%
Secondary/Further Education	26.7%	2.5%
Shopping	4.5%	13.7%
Leisure	23.6%	52.4%
All purposes	100.0%	100.0%

Modal Splits

- 5.9 Modal splits are required to convert the total person trip rates (and subsequent trip generation) presented within **Table 5.1** into the total trips expected per mode of transport. The modal splits applied vary depending on the proposed land use, and the journey purpose for residential trips.
- 5.10 A variety of data sources including Census data and NTS data and some professional judgements have been used to determine appropriate modal splits for each journey purpose.
- 5.11 **Table 5.3** presents the forecast modal split for each journey purpose and land use. The trip generation methodology note provides the supporting evidence and data that informs these modal splits.



Table 5.3 - Forecast Modal Splits

Mode	Residential Journeys					Primary School	Medical Centre	Care Home
	Commuting	Primary Education	Secondary Education	Leisure	Shopping			
Train	28.1%	0.0%	0.0%	28.1%	5.0%	0.0%	0.3%	4.0%
Bus, minibus or coach	1.2%	1.3%	20.9%	1.2%	5.0%	1.3%	3.6%	2.8%
Taxi	0.1%	0.0%	0.0%	0.1%	0.1%	0.0%	0.0%	0.2%
Motorcycle, scooter or moped	0.6%	0.0%	0.0%	0.6%	0.6%	0.0%	0.0%	0.2%
Driving a car or van	55.1%	32.9%	40.9%	55.1%	70.4%	32.9%	58.5%	70.7%
Passenger in a car or van	2.6%	0.0%	0.0%	2.6%	3.3%	0.0%	19.0%	3.2%
Bicycle	2.1%	1.9%	4.7%	2.1%	2.6%	1.9%	0.6%	2.5%
On foot	10.2%	63.3%	30.1%	10.2%	13.0%	63.3%	18.0%	16.2%
Other method of travel to work	0.1%	0.6%	3.4%	0.1%	0.1%	0.6%	0.0%	0.3%

- 5.12 It should be noted that the modal splits presented within **Table 5.3** do not take account of the introduction of the Travel Plan that will support the development and therefore is considered to be robust in terms of the car driver mode share. In reality a reduction to the car driver mode share would be targeted and therefore reduce the number of car driver trips that the site generates.

Internalisation

- 5.13 As the site will benefit from complementary non-residential land uses it is expected that a proportion of trips generated by the site can be internalised, reducing the off-site impact of the proposed development.
- 5.14 The on-site primary school is likely to accommodate a significant proportion of on-site primary school aged students. An assumption has been made that in both trip generation scenarios 85% of residential trips for the purpose of primary education are internalised to the on-site primary school. An allowance of 15% has been made for students attending private, special needs or other off-site primary schools. The trips generated by the primary school have been adjusted accordingly to remove these internalised trips.
- 5.15 The proposed development will deliver a local centre. It is understood that this will be predominantly for the use of future residents or existing local residents to the site. Therefore, no new trips have been assumed to be generated by the local centre. Trips to the local centre will either be undertaken by residents of the site or surrounding area on foot or by bicycle or will be pass-by trips by drivers who are already routing on Lower Luton Road. The exception to this is for trips to the medical centre, as there is potential for future users and staff to derive from off-site locations and as such a 50% internalisation factor has been applied. This is considered robust since the purpose of the medical centre would be to accommodate the new residents of the scheme and those living within the immediate locality.



- 5.16 It is expected that during peak hours some residents may choose to undertake trips for the purpose of shopping to the local centre and therefore a 20% reduction has been applied to residential trips for the purpose of shopping. This is considered to be robust and the number of internalised residential trips for the purpose of shopping could be higher than this during peak times.
- 5.17 The internalisation factors applied are considered to be robust as the site also provides large green spaces which are likely to reduce the number of leisure trips that are made to off-site local areas, however no leisure trips have been internalised.
- 5.18 Further commentary on the internalisation factors applied are included within the trip generation methodology note.

Proposed Development (Scenario 1) External Trip Generation

- 5.19 The trip generation methodology note sets out the forecast external trip generation for each journey purpose (for residential dwellings) and each land use (for all non-residential uses) contained within the proposed development.
- 5.20 For conciseness, the total external trip generation of the proposed development is presented within **Table 5.4**. The trip generation methodology note should be reviewed to understand the trip generation of individual journey purposes and land uses.

Table 5.4 - Proposed Development Forecast External Trip Generation by Mode

Mode	08:00-09:00			17:00-18:00		
	Arrivals	Departures	Two-Way	Arrivals	Departures	Two-Way
Train	13	46	60	72	32	104
Bus, minibuss or coach	13	26	39	7	4	11
Taxi	0	0	0	0	0	0
Motorcycle, scooter or moped	0	1	1	2	1	2
Driving a car or van	203	194	397	176	90	266
Passenger in a car or van	5	7	12	9	6	15
Bicycle	11	11	23	7	3	10
On foot	300	132	432	40	26	66
Other method of travel to work	4	4	8	1	0	1

- 5.21 The proposed development is forecast to generate a total of 397 external two-way car driver trips in the AM peak hour and 266 two-way car driver trips in the PM peak hour.

Full Allocation (Scenario 2) External Trip Generation

- 5.22 The trip generation methodology note sets out the forecast external trip generation for each journey purpose (for residential dwellings) and each land use (for all non-residential uses) contained within the full allocation.



- 5.23 For conciseness, the total external trip generation of the full allocation is presented within **Table 5.5**. The trip generation methodology note should be reviewed to understand the trip generation of individual journey purposes and land uses.

Table 5.5 – Full Allocation Forecast External Trip Generation by Mode

Mode	08:00-09:00			17:00-18:00		
	Arrivals	Departures	Two-Way	Arrivals	Departures	Two-Way
Train	19	67	87	106	47	152
Bus, minibus or coach	16	37	53	10	5	15
Taxi	0	0	0	0	0	1
Motorcycle, scooter or moped	0	1	2	2	1	3
Driving a car or van	208	257	465	252	122	374
Passenger in a car or van	6	9	14	12	7	20
Bicycle	12	15	27	10	5	14
On foot	282	152	434	54	30	85
Other method of travel to work	4	6	10	1	0	1

- 5.24 The full allocation is forecast to generate a total of 465 external two-way car driver trips in the AM peak hour and 374 two-way car driver trips in the PM peak hour.

Distribution

- 5.25 Given the mixture of land uses to be provided within the site it is not considered suitable to broadly apply Census travel to work data to calculate the distribution of vehicle trips associated with the proposed development. The vehicle trips generated by the proposed development have instead been distributed onto the local highway network using a choice of methods depending on the journey purpose or land use.
- 5.26 For ease of understanding and to avoid overcomplicating this section of the TA a supporting note which sets out the methodology used for calculating the distribution proportions for each journey purpose and land use has been produced and is contained at **Appendix I** for review. This section of the TA provides a simplified version of the distribution note, pulling out the key information. It is essential that the trip distribution note is read in conjunction with this TA for consideration of the planning application. This trip distribution methodology note has been presented to HCC at the pre-application stage and was agreed.
- 5.27 Residential commuting trips by car drivers have been distributed using Census journey to work data, using middle super output area (MSOA) St Albans 002 (which the site resides within) as the location of usual residence. 2011 Census data was used for this purpose as opposed to 2021 Census data since the data that informed the 2021 Census was collected during COVID-19 when workers were encouraged to work from home where possible. It is likely that this may



have also impacted travel behaviours in terms of routing. The Office for National Statistics recommends that 2021 Census data is not used for this purpose⁶.

- 5.28 External residential car driver trips for the purpose of primary education have been distributed to a variety of local off-site primary schools. It is considered reasonable that the majority of residents enrolled at off-site primary schools would attend other primary schools within Harpenden including Sauncey Wood, The Lea or Manland Primary Schools.
- 5.29 Residential car driver trips for the purpose of secondary/further education have been distributed to a variety of local secondary schools, sixth forms and colleges.
- 5.30 Residential leisure car driver trips have been distributed using a GRAVITY P/T² model which proportionally distributes trips to built up areas within a 30-minute drive time from the site based on the population and journey time to each destination. This methodology favours destinations that are closer and have higher populations than those that are further away and have lower populations.
- 5.31 External residential shopping car driver trips are distributed using a first principles approach to nearby town centres including Harpenden, Luton and St Albans. Trips are also distributed to Tesco Express which is the most local convenience store that is likely to be driven to.
- 5.32 Car driver trips associated with the on-site primary school have been distributed using a GRAVITY P/T² model which covers the entirety of Harpenden. It is not expected that future students will enrol from outside of Harpenden. The proportion of students residing from each of these areas is determined based on the population divided by journey time (minutes) squared.
- 5.33 Car driver trips associated with the on-site care home are distributed using a similar methodology as has been applied to the trips generated by residential dwellings for the purpose of commuting. The difference is that MSOA St Albans 002 has been used as the place of work rather than the usual residency location. It is expected that during peak hour periods the car driver trips associated with the care home would be related to staff travel.
- 5.34 Car driver trips associated with the on-site medical centre facility have been distributed using the same methodology as used for the on-site primary school (GRAVITY P/T² model). The basis for this is because it is expected that all users of the medical centre will reside from within Harpenden.
- 5.35 As the local centre is to be provided for those within the site or immediately local to the site, no car driver trips are expected beyond pass-by or diverted trips that are presently on the network. As such no vehicle distribution proportions have been determined for this land use.

Summary

- 5.36 This section has provided context in regards to the trip generation associated with both the proposed development and the full allocation. The standalone trip generation methodology

6

<https://www.ons.gov.uk/employmentandlabourmarket/peopleinwork/employmentandemployeetypes/methodologies/traveltoworkqualityinformationforcensus2021>



note and trip distribution methodology note, provided within **Appendix H** and **Appendix I** respectively should be read in conjunction with this Transport Assessment for full details.

- 5.37 The proposed development is capable of generating up to 404 vehicle trips in either peak hour period. When considering the full allocation, this increases to a maximum of 472 vehicle trips in either peak hour period.



6.0 Highway Network Assessment

- 6.1 This section provides an assessment of the potential impact of the proposed development on the local highway network.

Highway Network

- 6.2 The potential impact of the proposed development has been assessed at the following locations:

- Site access/Lower Luton Road junction;
- Lower Luton Road/Westfield Road/Bower Heath Lane junction;
- Lower Luton Road/Station Road junction;
- Lower Luton Road/Common Lane junction;
- Lower Luton Road/Station Road/Codicote Road/Lamer Lane junction; and
- Station Road/St Albans Road/High Street junction.

Assessment Scenarios

- 6.3 The highway network has been assessed in the following scenarios:

- Base 2024;
- Base 2036;
- Base 2036 + Proposed Development; and
- Base 2036 + Full Allocation.

- 6.4 The following time periods have been used to inform the highway network assessment:

- Network AM peak hour (07:30-08:30); and
- Network PM peak hour (16:45-17:45).

- 6.5 These time periods were identified as the network peak hour following a review of the survey data collected.

- 6.6 The Base 2024 scenario is informed by the traffic survey data collected on Thursday 27th June 2024 and Thursday 11th July 2024 (for the Station Road/St Albans Road/High Street junction only).

- 6.7 The Base 2036 scenario is informed by the Base 2024 data, which has been uplifted by a TEMPro growth factor to replicate potential traffic growth in the area. Committed Development traffic associated with the outline application site at Cooters End Lane is also considered within this scenario.

- 6.8 The Base 2036 + Proposed Development and the Base 2036 + Full Allocation scenario assesses the impact of the development and allocation on the local highway network.

- 6.9 Relevant traffic flow diagrams are provided within **Appendix D** for each assessment scenario.



Committed Development

- 6.10 The Environmental Impact Assessment scoping opinion response from the local planning authority notes that the cumulative impact of an outline planning application at Cooters End Lane (5/2023/0327) should be considered. The Cooters End Lane scheme is currently pending consideration for the delivery of 550 residential units. It is understood that there is a resolution to grant this application.
- 6.11 Further discussions with SADC and HCC have highlighted the need to consider traffic associated with the recently consented Luton Airport Extension application. Following a review of the information submitted alongside the application it is understood that the Luton Airport Expansion forecasts a reduction in traffic within the study area of that is considered within this Transport Assessment. On this basis, to allow for a robust assessment, no reduction in traffic as a result of the Luton Airport Expansion has been applied in this assessment.
- 6.12 The Transport Assessment supporting the Cooters End Lane application provides total vehicle trip generation for the scheme however no traffic flow diagrams for the wider road network considered as part of this assessment are provided. As a proxy, development trips have been distributed onto the local highway network using census journey to work origin/destination data.
- 6.13 It is expected that residential trips during the network peak hours for the purpose of education or shopping would be contained locally to the site and would not extend within the network considered as part of the assessment undertaken within this report. As such, in line with NTS data (as discussed within the Trip Generation Methodology Note included at **Appendix H**), the residential trip generation has been reduced by 58% and 19% in the AM and PM peak hours respectively to account for trips for education and shopping purposes. It is expected that the community hub aspect of this committed development would only attract local trips and therefore trips generated by this land use are also not included within this assessment.
- 6.14 Traffic flow diagrams have been prepared which demonstrate the distribution of the Cooters End Lane site traffic and the expected impact in the AM and PM peak hour periods. These flow diagrams are contained within **Appendix D**.

Traffic Growth

- 6.15 A TEMPro growth factor from 2024 to 2036 has been obtained and applied to simulate potential network traffic growth.
- 6.16 The following parameters were used within TEMPro to derive an appropriate growth factor:
- Version – 8.1;
 - Scenario – Core;
 - Area – St Albans 002;
 - Mode – Car Driver only;
 - Trip End Type – Origin/Destination;
 - Road Type – Minor; and
 - Serves – Region.



- 6.17 It is considered that to avoid double counting of trips associated with the committed development at Cooters End Lane and North East Harpenden that manual adjustments to the TEMPro assumptions are required. The TEMPro model assumes that between 2024 and 2036 there will be an increase of 153 households. The household increase within TEMPro has been manually reduced to 0. No manual alterations have been made to the job increase forecast within the model.
- 6.18 The resultant TEMPro growth factors used within this assessment are shown in **Table 6.1**.

Table 6.1 - TEMPro Growth Factors

Time Period	Growth Factor
AM Peak	1.0523 (+5.23%)
PM Peak	1.0445 (+4.45%)

- 6.19 The application of TEMPro growth factors should be considered in context. In terms of overall travel patterns NTS data table NTS0601a shows that we make 29% fewer trips by all modes than in 2002 and NTS data table NTS0601c shows that we travel 19% miles fewer as car drivers than in 2002. These trends are not a blip in the data and they pre-date the recession and the advent of broadband and mobile internet.

Model Traffic Profile

- 6.20 All models that have been included within this assessment utilise a FLAT profile, which assumes an equal spread of traffic across the hour of assessment. This is considered to be more appropriate than the use of a typical ONE HOUR profile which creates a synthesised peak for the central 15-minute segments which overestimates the use of the junction.
- 6.21 To justify that the use of a FLAT profile is appropriate, a review of the 15-minute segments for each junction has been undertaken.
- 6.22 **Table 6.2** presents the observed flows at each junction for each 15-minute segment during the peak hours. **Table 6.3** presents the resultant proportion of movements at each junction in each 15-minute segment.

Table 6.2 - 15-Minute Segment Junction Movements

Junction	07:30	07:45	08:00	08:15
Lower Luton Rd/Westfield Rd/Bower Heath Ln	354	349	351	358
Lower Luton Rd/Station Rd	446	453	451	439
Lower Luton Rd/Common Ln	378	385	410	391
Lower Luton Rd/Station Rd/Codicote Rd/Lamer Ln	556	544	519	486
Station Rd/St Albans Rd/High St	459	455	440	450
Junction	16:45	17:00	17:15	17:30
Lower Luton Rd/Westfield Rd/Bower Heath Ln	305	317	313	325
Lower Luton Rd/Station Rd	367	379	384	387
Lower Luton Rd/Common Ln	295	292	316	332
Lower Luton Rd/Station Rd/Codicote Rd/Lamer Ln	422	446	467	423
Station Rd/St Albans Rd/High St	404	458	432	472



Table 6.3 - 15-Minute Segment Junction Proportions

Junction	07:30	07:45	08:00	08:15
Lower Luton Rd/Westfield Rd/Bower Heath Ln	25.1%	24.7%	24.9%	25.4%
Lower Luton Rd/Station Rd	24.9%	25.3%	25.2%	24.5%
Lower Luton Rd/Common Ln	24.2%	24.6%	26.2%	25.0%
Lower Luton Rd/Station Rd/Codicote Rd/Lamer Ln	26.4%	25.8%	24.7%	23.1%
Station Rd/St Albans Rd/High St	25.4%	25.2%	24.4%	24.9%
Junction	16:45	17:00	17:15	17:30
Lower Luton Rd/Westfield Rd/Bower Heath Ln	24.2%	25.2%	24.8%	25.8%
Lower Luton Rd/Station Rd	24.2%	25.0%	25.3%	25.5%
Lower Luton Rd/Common Ln	23.9%	23.6%	25.6%	26.9%
Lower Luton Rd/Station Rd/Codicote Rd/Lamer Ln	24.0%	25.4%	26.6%	24.1%
Station Rd/St Albans Rd/High St	22.9%	25.9%	24.5%	26.7%

- 6.23 **Table 6.2** and **Table 6.3** demonstrate that each 15-minute segment at each junction surveyed recorded a broadly even number and proportion of trips across the hour. As such the use of a FLAT profile within the models is considered suitable for this assessment.

Baseline Model Calibration

- 6.24 In order to ensure that an accurate modelling exercise has been undertaken, where necessary some baseline model calibration has been undertaken.
- 6.25 The model calibration undertaken is based on queue length surveys which were undertaken at the same time and dates as the turning count surveys.
- 6.26 Model calibration has been applied to junctions when the uncalibrated model does not forecast queues in the Base 2024 scenario to the extent observed during the survey.
- 6.27 To allow for a robust assessment, no model changes were made when actually observed average queues were found to be lower than forecast within the uncalibrated model. This allows for a robust assessment of the network.
- 6.28 Where applied, model calibration is discussed subsequently in detail within each junction modelling section.

Junction Percentage Impact

- 6.29 The impact of the proposed development on each of the assessed junctions in the AM and PM peak hour periods is shown in **Table 6.4**. **Table 6.5** presents the same information however accounts for the impact of the full allocation assuming all traffic from the full allocation utilises the proposed site access junction.



Table 6.4 - Forecast Percentage Impact of Proposed Development

Junction	Time	Base 2036	Base 2036 + Proposed Development	% Impact
Site Access	AM	1141	1689	48.0%
	PM	1050	1312	25.0%
Lower Luton Rd/Westfield Rd/Bower Heath Ln	AM	1898	2053	8.2%
	PM	1845	1989	7.8%
Lower Luton Rd/Station Rd	AM	1893	2067	9.2%
	PM	1604	1710	6.7%
Lower Luton Rd/Common Ln	AM	1634	1695	3.8%
	PM	1299	1343	3.4%
Lower Luton Rd/Station Rd/Codicote Rd/Lamer Ln	AM	2224	2248	1.1%
	PM	1852	1892	2.1%
Station Rd/St Albans Rd/High St	AM	1923	1949	1.3%
	PM	1890	1927	2.0%

6.30 **Table 6.4** demonstrates that the impact of the proposed development is generally limited. There is an expected increase at the site access as all development trips are forecast to use this junction. The impact at all other off-site junctions is below 10% in all scenarios. This is considered to be within the day-to-day variations in traffic which are typically +/- 10%.

Table 6.5 - Forecast Percentage Impact of Full Allocation

Junction	Time	Base 2036	Base 2036 + Full Allocation	% Impact
Site Access	AM	1141	1756	53.9%
	PM	1050	1417	35.0%
Lower Luton Rd/Westfield Rd/Bower Heath Ln	AM	1898	2088	10.0%
	PM	1845	2051	11.2%
Lower Luton Rd/Station Rd	AM	1893	2100	11.0%
	PM	1604	1753	9.3%
Lower Luton Rd/Common Ln	AM	1634	1715	5.0%
	PM	1299	1362	4.9%
Lower Luton Rd/Station Rd/Codicote Rd/Lamer Ln	AM	2224	2259	1.6%
	PM	1852	1910	3.1%
Station Rd/St Albans Rd/High St	AM	1923	1958	1.9%
	PM	1890	1943	2.8%

6.31 The percentage impact when considering the full allocation is broadly similar to that presented for the proposed development. The impact at off-site junctions is no more than roughly 11% which is broadly in line with the expected day-to-day variations in traffic which are typically +/- 10%.



Detailed Modelling Results

- 6.32 This sub-section provides a summary of the modelling assessments that have been undertaken.
- 6.33 For full detailed results the model output reports should be reviewed. These are contained within **Appendix J**.
- 6.34 The summary results provided below presents the highest recorded result on any arm of each junction in all time periods and assessment scenarios.
- 6.35 Queue lengths are rounded to the nearest whole numbers as it is not possible to observe a queue of half a vehicle, for example.
- 6.36 All junctions have been assessed within the industry standard modelling software for assessment of priority junctions and roundabouts, Junctions 11.
- 6.37 The geometries used within each model have been measured using CAD software for accuracy using a combination of OS basemapping and Google Satellite imagery. The geometries used are shown within drawings included within **Appendix K**.

Site Access Junction

- 6.38 A summary of the modelling results for the proposed site access junction is presented at **Table 6.6** and the full detailed report is contained at **Appendix J**. The site access junction has been modelled as a priority T-junction with a ghost-island right turn lane.
- 6.39 As the site access junction will only be delivered if the proposed development was to come forward, the modelled scenarios included within **Table 6.6** are only those that include development or allocation traffic. Additionally, as this is not an existing junction no baseline scenario calibration has been included for this assessment.
- 6.40 All modelled scenarios include the diversion of traffic currently on Bower Heath Lane into the proposed development. An additional sensitivity test has been undertaken which considers the delivery of a standalone access junction for the Miller Homes element of the scheme which assumes that 50% of Miller Homes traffic utilises a separate point of access.
- 6.41 To take account of previous comments made by HCC, the proposed toucan crossing is considered within the site access junction modelling with an average pedestrian flow of 248 per hour inputted for all scenarios. This is considered to be a worst-case scenario whereby 75% of external residential (full allocation) AM peak walking trips, 50% of external AM peak primary school walking trips and 100% of external AM peak medical centre and care home walking trips utilise the crossing.



Table 6.6 - Site Access Junction Modelling Results Summary

Scenario	AM			PM		
	Queue (veh)	Delay (s)	RFC	Queue (veh)	Delay (s)	RFC
2036 + Proposed Development	3	59.71	0.78	1	14.15	0.43
2036 + Full Allocation	9	169.57	0.94	1	16.71	0.47
2036 + Full Allocation (Miller separate access)	7	106.18	0.89	1	16.07	0.46

- 6.42 The modelling assessment for the site access junction demonstrates that the proposed site access will operate well within capacity following the delivery of the full development with a maximum RFC of 0.78 in the AM peak hour.
- 6.43 Following the addition of traffic associated with the remainder of the allocation the junction begins to operate towards its theoretical capacity with an RFC of 0.94 recorded which equates to delays of approximately 3 minutes for vehicles egressing the site.
- 6.44 The delivery of an access point from the neighbouring Miller Homes site would reduce the reliance on the single point of access proposed by the Crest development with an RFC of 0.89 recorded when 50% of Miller Homes traffic is diverted to an alternate access point. This reduces delays at the junction by over a minute.
- 6.45 It should be considered that the forecast levels of delay occur only during the AM peak hour period associated with increased movements due to the on-site primary school. There are no capacity issues presented in the PM peak hour scenarios with a maximum RFC of 0.47 recorded.
- 6.46 There are not forecast to be any significant levels of delay on Lower Luton Road and queues associated with right-turning vehicles into the site can be accommodate within the proposed right-turn lane.
- 6.47 It should be noted that to ensure a robust assessment, all traffic associated with the proposed development and remainder of the allocation has been assumed to use the proposed site access junction. In reality if an additional access to the local highway network was provided from Miller Homes there is potential for further diversion of traffic associated with the proposed development. This would further improve the operation of the site access junction in comparison to the results presented at **Table 6.6**. The modelling at this junction does not account for any reduction in vehicle trips that is likely to occur as a result of the implementation of a Travel Plan.

Lower Luton Road/Westfield Road/Bower Heath Lane Junction

- 6.48 A summary of the modelling results for the Lower Luton Road/Westfield Road/Bower Heath Lane junction is presented at **Table 6.7** and the full detailed report is contained at **Appendix J**. The junction has been modelled as a staggered crossroads.



- 6.49 The levels of queuing reported within the 2024 Base model scenario exceed the average levels of queuing that were recorded during the traffic survey and therefore no calibration of the model has been applied. The queue length survey observed that queues across the hour were on average less than 1 vehicle for all junction approaches in either peak hour period. Therefore, the baseline model, which predicts queues of up to 4 vehicles on any approach, is considered to be robust.
- 6.50 The development scenarios (2036 + Proposed Development and 2036 + Full Allocation) consider that Bower Heath Lane is diverted through the proposed development and therefore traffic has been adjusted appropriately. Should the proposed development not come forward, no changes would be made to Bower Heath Lane hence why no changes have been made in the baseline scenarios.

Table 6.7 - Lower Luton Road/Westfield Road/Bower Heath Lane Junction Modelling Summary Results

Scenario	AM			PM		
	Queue (veh)	Delay (s)	RFC	Queue (veh)	Delay (s)	RFC
2024 Base	4	17.92	0.70	1	15.43	0.32
2036 Base	6	19.57	0.77	1	16.28	0.34
2036 + Proposed Development	2	31.39	0.55	1	26.49	0.54
2036 + Full Allocation	2	32.86	0.56	2	33.25	0.63

- 6.51 **Table 6.7** demonstrates that the Lower Luton Road/Westfield Road/Bower Heath Lane junction will continue to operate within capacity following the addition of traffic associated with both the proposed development and the full allocation with a maximum RFC of 0.63 recorded. This represents a betterment in comparison to the existing operation since traffic associated with Bower Heath Lane is re-routed following the development. Whilst delays are forecast to increase, the level of increase is not considered to be severe.
- 6.52 The modelling at this junction does not account for any reduction in vehicle trips that is likely to occur as a result of the implementation of a Travel Plan. This presents a robust assessment.

Lower Luton Road/Station Road Junction

- 6.53 A summary of the modelling results for the Lower Luton Road/Station Road junction is presented at **Table 6.8** and the full detailed report is contained at **Appendix J**. The junction has been modelled as a mini roundabout.
- 6.54 The levels of queuing reported within the 2024 Base model scenario exceed the average levels of queuing that were recorded during the traffic survey and therefore no calibration of the model has been applied to allow for a robust assessment. The queue length survey observed that queues across the hour were on average less than 2 vehicles for all junction approaches in either peak hour period. Therefore, the baseline model, which predicts queues of up to 3 vehicles on any approach, is considered to be robust.
- 6.55 It is important to note however that at times, longer queues were observed during the survey, with maximum queue lengths of 12 vehicles recorded on Station Road at the end of any 5-



minute period. These levels of queues were not consistent across the survey period and in the following 5-minute segment were shown to reduce to 0 vehicles queuing. This is likely to be as a result of signal-controlled crossings beyond the junction on Station Road or the carriageway narrowing on approach to Manland Avenue.

Table 6.8 - Lower Luton Road/Station Road Junction Modelling Summary Results

Scenario	AM			PM		
	Queue (veh)	Delay (s)	RFC	Queue (veh)	Delay (s)	RFC
2024 Base	3	16.24	0.75	3	24.59	0.76
2036 Base	4	19.35	0.70	5	34.50	0.83
2036 + Proposed Development	6	29.89	0.87	10	69.53	0.93
2036 + Full Allocation	8	38.55	0.90	16	105.19	0.97

- 6.56 As is demonstrated within **Table 6.8**, following the addition of traffic associated with the full allocation the Lower Luton Road/Station Road junction is forecast to be approaching theoretical capacity (RFC of 1.00) with a maximum RFC of 0.97 recorded during the PM peak hour on the Station Road approach. This equates to queues of 16 vehicles and delays of approximately 105 seconds.
- 6.57 The proposed development is forecast to increase delay by up to approximately 35 seconds on any arm in the PM peak and the full allocation will further increase this by approximately 36 seconds. Whilst this change is likely to be a noticeable for drivers, it is not considered to be a severe impact. It should also be noted that models become unstable when the modelled junction is approaching capacity and can report queues and delays increasing exponentially despite only minor increases in traffic. This is considered the case at this junction, as the increase of 43 vehicles in the PM peak (approximately 1 additional vehicle every 1 and a half minutes) between the proposed development and full allocation scenario results in delay increase of 36 seconds. It is important to reiterate that the junction will still operate within theoretical capacity in each peak hour period.
- 6.58 A maximum RFC of 0.90 is recorded in the AM peak hour which corresponds to delays of up to 39 seconds which when considered against the 2036 baseline operation level (increase of approximately 19 seconds) of the junction does not constitute a significant change in terms of operation.
- 6.59 The modelling assessment contained within **Table 6.8** does not account for the reduction in vehicle trips that will be enabled through the implementation of a Travel Plan. A Travel Plan sensitivity test has been undertaken which considers the impact of the proposed development and full allocation if 15% of development vehicle trips are avoided. The modelling output contained within **Appendix J** provides the full results for this scenario and **Table 6.9** provides a summary.



**Table 6.9 - Lower Luton Road/Station Road Junction Modelling Summary Results
(Travel Plan Scenario)**

Scenario	AM			PM		
	Queue (veh)	Delay (s)	RFC	Queue (veh)	Delay (s)	RFC
2024 Base	3	16.24	0.75	3	24.59	0.76
2036 Base	4	19.35	0.70	5	34.50	0.83
2036 + Proposed Development	6	27.96	0.86	9	63.70	0.92
2036 + Full Allocation	7	34.61	0.89	13	90.76	0.95

- 6.60 As can be seen by comparing the results within **Table 6.8** to those within **Table 6.9**, the implementation of Travel Plan measures has a positive impact on the operation of the junction, with a reduction in delays of approximately 15 seconds within the PM peak hour when considering the full allocation (105 seconds down to 91 seconds).
- 6.61 The modelling work undertaken does not account for driver behaviour changes. If drivers consider the levels of delay at the junction to be unacceptable, they will change their travel behaviours such as travelling at different times to avoid busiest peak periods, taking a different route to avoid the junction or using a different mode of transport.

Lower Luton Road/Common Lane Junction

- 6.62 A summary of the modelling results for the Lower Luton Road/Common Lane junction is presented at **Table 6.10** and the full detailed report is contained at **Appendix J**. The junction has been modelled as a mini roundabout.
- 6.63 The levels of queuing reported within the 2024 Base model scenario exceed the average levels of queuing that were recorded during the traffic survey and therefore no calibration of the model has been applied. The queue length survey observed that queues across the hour were on average less than 1 vehicle for all junction approaches in either peak hour period. Therefore, the baseline model, which predicts queues of up to 4 vehicles on any approach, is considered to be robust.

Table 6.10 - Lower Luton Road/Common Lane Junction Modelling Summary Results

Scenario	AM			PM		
	Queue (veh)	Delay (s)	RFC	Queue (veh)	Delay (s)	RFC
2024 Base	4	19.05	0.80	2	9.34	0.62
2036 Base	5	24.64	0.85	2	10.30	0.65
2036 + Proposed Development	7	32.95	0.89	2	11.22	0.68
2036 + Full Allocation	9	37.53	0.90	2	11.68	0.69

- 6.64 **Table 6.10** demonstrates that the Lower Luton Road/Common Lane junction will continue to operate within capacity following the addition of traffic associated with both the proposed development and the full allocation with a maximum RFC of 0.90 recorded. During the PM



peak hour the junction is considered to operate well within capacity with a maximum RFC of 0.69 recorded.

- 6.65 During the AM peak hour the proposed development is forecast to increase delays on any arm at the junction by up to approximately 8 seconds. The provision of traffic associated with the remainder of the allocation will increase this only by approximately 5 more seconds. This level of impact at the junction is not considered to be severe and is unlikely to be noticeable when compared against the 2036 baseline position.
- 6.66 The modelling at this junction does not account for any reduction in vehicle trips that is likely to occur as a result of the implementation of a Travel Plan. This presents a robust assessment.

Lower Luton Road/Station Road/Codicote Road/Lamer Lane Junction

- 6.67 A summary of the modelling results for the Lower Luton Road/Station Road/Codicote Road/Lamer Lane junction is presented at **Table 6.11** and the full detailed report is contained at **Appendix J**. The junction has been modelled as a standard roundabout.
- 6.68 Baseline model calibration has been applied to this junction, as the queues reported within the uncalibrated model did not reflect the level of queuing observed during the traffic survey.
- 6.69 In the AM peak hour, the uncalibrated model forecast queues of less than 2 vehicles on any approach. The queue length survey found the following average queue lengths during the AM peak hour:
- Lamer Lane – average queue of 3 vehicles;
 - Codicote Road – average queue of 0 vehicles;
 - Station Road – average queue of 2 vehicles; and
 - Lower Luton Road – average queue of 2 vehicles.
- 6.70 In the PM peak hour, the uncalibrated model forecast queues of approximately 1 vehicle on any approach. The queue length survey found the following average queue lengths during the PM peak hour:
- Lamer Lane – average queue of 1 vehicle;
 - Codicote Road – average queue of 0 vehicles;
 - Station Road – average queue of 2 vehicles; and
 - Lower Luton Road – average queue of 0 vehicles.
- 6.71 The baseline model has been calibrated to reflect the observed average queues within the 2024 Base scenario and to provide a realistic assessment of the junction. Given the low queue lengths observed within the survey this has had a limited impact on the operation of the model compared to the uncalibrated version.



Table 6.11 - Lower Luton Road/Station Road/Codicote Road/Lamer Lane Junction Modelling Summary Results (Calibrated Model)

Scenario	AM			PM		
	Queue (veh)	Delay (s)	RFC	Queue (veh)	Delay (s)	RFC
2024 Base	3	39.37	0.76	2	25.13	0.67
2036 Base	5	61.25	0.84	3	31.00	0.72
2036 + Proposed Development	5	67.85	0.86	3	34.23	0.75
2036 + Full Allocation	6	71.01	0.86	3	36.04	0.76

- 6.72 **Table 6.11** demonstrates that the junction will continue to operate within capacity following the addition of traffic associated with both the proposed development and the full allocation with a maximum RFC of 0.86 recorded during the AM peak hour.
- 6.73 During the AM peak hour the proposed development is forecast to increase delays on any arm at the junction by up to approximately 7 seconds. The provision of traffic associated with the remainder of the allocation will increase this only by approximately 3 more seconds. This level of impact at the junction is not considered to be severe and is unlikely to be noticeable when compared against the 2036 baseline position.
- 6.74 The modelling at this junction does not account for any reduction in vehicle trips that is likely to occur as a result of the implementation of a Travel Plan. This presents a robust assessment.

Station Road/St Albans Road/High Street

- 6.75 A summary of the modelling results for the Station Road/St Albans Road/High Street junction is presented at **Table 6.12** and the full detailed report is contained at **Appendix J**. The junction has been modelled as a mini roundabout.
- 6.76 Baseline model calibration has been applied to this junction, as the queues reported within the uncalibrated model did not reflect the level of queuing observed during the traffic survey.
- 6.77 In the AM peak hour, the uncalibrated model forecast queues of 1 vehicles on the St Albans Road approach. Queues in the uncalibrated model on the High Street and Station Road arms either matched the observed average or were higher than observed within the survey and therefore remained unchanged in the calibrated model. The queue length survey found the following average queue lengths during the AM peak hour:
- High Street – average queue of 0 vehicles;
 - Station Road – average queue of 2 vehicles; and
 - St Albans Road – average queue of 3 vehicles.
- 6.78 In the PM peak hour, the uncalibrated model forecast queues of approximately 1 vehicle on the St Albans Road approach and queues of approximately 3 vehicles on the Station Road approach. The queue length survey found the following average queue lengths during the PM peak hour:
- High Street – average queue of 0 vehicles;



- Station Road – average queue of 7 vehicles; and
- St Albans Road – average queue of 4 vehicles.

6.79 The baseline model has been calibrated to reflect the observed average queues within the 2024 Base scenario and to provide a realistic assessment of the junction.

Table 6.12 - Station Road/St Albans Road/High Street Junction Modelling Summary Results (Calibrated Model)

Scenario	AM			PM		
	Queue (veh)	Delay (s)	RFC	Queue (veh)	Delay (s)	RFC
2024 Base	3	29.48	0.77	7	67.73	0.89
2036 Base	5	44.59	0.84	18	167.37	0.99
2036 + Proposed Development	6	56.02	0.88	25	216.44	1.02
2036 + Full Allocation	7	61.59	0.89	28	240.01	1.03

6.80 As is demonstrated within **Table 6.8**, following the addition of traffic associated with the full allocation the Station Road/St Albans Road junction is forecast to be operating above theoretical capacity (RFC of 1.00) with a maximum RFC of 1.03 recorded during the PM peak hour on the Station Road approach. This equates to queues of 28 vehicles and delays of approximately 240 seconds. It should be noted that the junction is forecast to be operating at theoretical capacity (0.99 RFC) in the 2036 baseline scenario prior to the addition of any development traffic.

6.81 Queues and delay on all other arms of the junction are not considered to be significant in comparison.

6.82 The proposed development is forecast to increase delay by up to approximately 49 seconds on any arm in the PM peak and the full allocation will further increase this by approximately 24 seconds. Whilst this change is likely to be a noticeable for drivers, it is not considered to be a severe impact.

6.83 It should also be noted that models become unstable when the modelled junction is approaching capacity and can report queues and delays increasing exponentially despite only minor increases in traffic. This is considered the case at this junction. The full allocation distributes an additional 17 vehicles (approximately 1 additional vehicle every 3 minutes) to the Station Road arm of the junction in the PM peak hour and this corresponds with delay increases of 73 seconds when compared against the 2036 baseline position. The increase of 17 vehicles on this entry arm is not considered to constitute a severe impact.

6.84 A maximum RFC of 0.89 is recorded in the AM peak hour which corresponds to delays of up to 62 seconds which when considered against the 2036 baseline operation level (increase of approximately 17 seconds) of the junction does not constitute a significant change in terms of operation.

6.85 The modelling assessment contained within **Table 6.12** does not account for the reduction in vehicle trips that will be enabled through the implementation of a Travel Plan. A Travel Plan sensitivity test has been undertaken which considers the impact of the proposed development



and full allocation if 15% of development vehicle trips are avoided. The modelling output contained within **Appendix J** provides the full results for this scenario and **Table 6.13** provides a summary.

Table 6.13 - Station Road/St Albans Road/High Street Junction Modelling Summary Results (Calibrated Model) (Travel Plan Scenario)

Scenario	AM			PM		
	Queue (veh)	Delay (s)	RFC	Queue (veh)	Delay (s)	RFC
2024 Base	3	29.48	0.77	7	67.73	0.89
2036 Base	5	44.59	0.84	18	167.37	0.99
2036 + Proposed Development	6	53.99	0.87	24	208.38	1.02
2036 + Full Allocation	7	58.38	0.89	26	227.77	1.03

- 6.86 The implementation of travel plan measures does not result in the junction operating within theoretical capacity. However, as can be seen by comparing the results within **Table 6.12** to those within **Table 6.13**, the implementation of Travel Plan measures does have a positive impact on the operation of the junction, with a reduction in delays of approximately 15 seconds within the PM peak hour when considering the full allocation (240 seconds down to 227 seconds).
- 6.87 The modelling work undertaken does not account for driver behaviour changes. If drivers consider the levels of delay at the junction to be unacceptable, they will change their travel behaviours such as travelling at different times to avoid busiest peak periods, taking a different route to avoid the junction or using a different mode of transport.

Modelling Results Summary

- 6.88 The mathematical traffic models summarised within this sub-section represent one interpretation of the potential future position on the highway network. The models do not take into account behavioural change, temporal shift in travel patterns, mode shift or drivers acting to minimise their inconvenience by travelling by different modes, on different routes or at different times.
- 6.89 The results should therefore be treated with caution but can be used as a tool to inform a judgement about the proposed development and its potential impact on the proposed highway network.
- 6.90 The results demonstrate that the proposed site access junction is able to accommodate the traffic associated with the full allocation and will not significantly impact the operation of through-traffic on Lower Luton Road.
- 6.91 The operation of the remaining highway junctions on the highway network does not alter significantly as a result of the proposed development.



7.0 Mitigation

Overview

- 7.1 Whilst it has been shown at **Section 6** that the Proposed Development will not lead to a severe impact, the Applicant recognises that there is a need to ensure measures are in place to manage travel demands and to encourage sustainable travel. Similarly, there is also a need to make sure that there are measures in place to minimise any disruption during the construction period is kept to a minimum. The following text sets out how this will be achieved.

Off-Site Works

- 7.2 The package of off-site works proposed to enhance pedestrian and cyclist accessibility to the site were detailed within **Section 4** of this TA. This included the following measures:
- Gateway features on approach to Batford;
 - Signalised crossings on Lower Luton Road;
 - 20mph zone within Batford Estate;
 - Active travel route improvements between sites and key off-site destinations;
 - Parallel crossing on Westfield Road; and
 - Raised tables and junction consolidation within Batford Estate.
- 7.3 The delivery of these measures will provide an improved environment for pedestrians and cyclists and encourage trips to local destinations to be undertaken by sustainable modes of transport. This has potential to influence existing local residents and encourage more uptake of sustainable travel, reducing the existing number of vehicle trips on the local highway network.

Travel Plans

- 7.4 The NPPF indicates that developments generating significant traffic movements should provide a travel plan. Travel Plans are intended to be used to encourage a change in travel patterns. The main objective of a Travel Plan is to provide a reduction in private car mileage in favour of the more sustainable modes of travel, thus reflecting current Government policy in respect of transport and as such they contain details of a range of initiatives to encourage the use of sustainable travel modes.
- 7.5 A Residential Travel Plan and a School Travel Plan have both been prepared to inform the content of potential measures at the site. These are provided as standalone documents. As live documents it is expected that these will evolve through the lifetime of the development and will be secured by a suitable worded planning condition. Copies of the Travel Plans that have been prepared are contained at **Appendix L**.



Construction Environment Management Plan (CEMP)

- 7.6 A Construction Environment Management Plan provides effective, site-specific procedures and mitigation measures to monitor and control environmental impacts throughout the construction phase of the project.
- 7.7 It is proposed that construction impacts of this development be controlled by such a document. This could be secured through a Planning Condition alongside any future planning consent and the contents agreed prior to commencement of development.
- 7.8 It is anticipated that such a document would include amongst other things, measures to define routing of construction traffic, hours of construction, contractor parking, and measures to control noise, dust and surface water.



8.0 Summary and Conclusions

- 8.1 SLR Consulting Ltd has been commissioned by Crest Nicholson to provide transport and mobility planning advice in relation to a proposed development site at Land North East of Harpenden between Lower Luton Road, Bower Heath Lane and Common Lane, known as NE Harpenden (the site).
- 8.2 The site forms part of the wider North East Harpenden allocation within the St Albans City & District Council Draft Local Plan, which will deliver up to 740 residential dwellings inclusive of 80 extra-care units, a local centre and two-form entry primary school.
- 8.3 Of the above, the proposed development seeks to provide a residential-led development of up to 500 residential units, plus a further 60 extra care units, a two-form entry primary school and a local centre including medical uses.
- 8.4 The Transport Vision for the Site is to provide new homes in a sustainable environment with access to a variety of local services by a choice of transport modes thus reducing the demand for travel into the wider area and offering new residents a choice of mode of transport to the private car.
- 8.5 This Transport Assessment has demonstrated the following:
- The site is situated in an accessible location with a range of sustainable transport opportunities including access to public transport and the active travel network within the immediate vicinity;
 - The site is in close proximity to a range of existing and consented facilities including shops, cafes and schools;
 - An analysis of personal injury accident data records has identified that the local highway network is not subject to poor safety record;
 - Safe and suitable access to the site can be achieved via a priority junction with Lower Luton Road;
 - A robust assessment has been undertaken in calculating the vehicular trip impact of the proposed development; and
 - Junction modelling of key local junctions demonstrates that the impact of the proposed development will be limited and will not result in a severe impact at any off-site junction.
- 8.6 With regard for the above, it has been demonstrated that there is a clear transport vision for the site and the proposed development will not have a severe impact on the local highway or transport networks and/or introduce/exacerbate a road safety issue. It therefore accords with local and national transport planning policy, including:
- National Planning Policy Framework (2025);
 - St Albans City & District Council Local Plan Review (1994);
 - St Albans District & City Council Draft Local Plan (2024);
 - Hertfordshire Local Transport Plan 4 (2018);
 - Harpenden Neighbourhood Plan (2018); and



- Wheathampstead Neighbourhood Plan (2022).

8.7 Accordingly, it is concluded that there the proposals will provide a sustainable development for the future in traffic and transportation terms and is entirely acceptable on those grounds.

