Summary

This Vision Document and the Barton Willmore representations demonstrate the commitment of Crest Strategic Projects and Bloor Homes to bring forward collaborative mixed-used development proposals at the site of North-East Harpenden. Both companies are well established and have an excellent track record in securing and delivering such strategic sites.

The proposals for the site can provide residential-led development encompassing:

- Delivery of c. 680 dwellings at the site as secured within 60% built-form coverage (at a density of 40dph).
- The remaining 40% provided as open space/green infrastructure (formal and informal recreation) – to sit in the northern part of the site in accordance with the Green Belt Review.
- 40% affordable homes, including potential for Starter Homes.
- Up to 35 Self/Custom build opportunities.
- Local Centre including retail, pharmacy and community uses.
- 2 FE Primary School.
- Flexi-care development for older people.
- GP/medical care space.
- Extensive pedestrian and cycle links through the site and connecting to urban area.
- Potential for Gypsy and Traveller accommodation.

The above proposals result in a new sustainable neighbourhood at this urban edge location of Harpenden. The development can be sensitively accommodated along the built edge of Batford, connecting and supporting existing infrastructure including education, retail, community uses and public transport. It is thus a good location for future planned growth.

The proposed masterplan for the site adopts a landscape-led approach and has regard to the SACDC objectives for the site. This includes the provision of 40% of the site area as undeveloped open space (in the northern part). This will include a defensible boundary along the route of the existing track crossing the site as well as areas of retained and proposed new planting.

Development of the site will result in numerous socio-economic benefits during the construction phase as well as job creation at the proposed school and other uses at the site. The population generated by the development will also provide support to and additional footfall at existing facilities/shops nearby, thereby positively contributing to the local economy.

Crest Strategic Projects and Bloor Homes have sought to positively respond to matters raised by SACDC and they will continue to engage with the local planning authority during the Local Plan process regarding the masterplan proposals for the site.

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APPENDIX 2

Transport Strategy (Vectos, Oct 2018)

Crest Strategic Projects

Land at Lower Luton Road Harpenden

Transport Strategy

October 2018

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EXECUTIVE SUMMARY

1. Vectos is retained by Crest Strategic Projects Ltd. to provide transport advice in relation to the proposals for the development of land at Lower Road in north east of Harpenden. The site is within administrative boundaries of St Albans City and District Council (SADC).

2. The site is located within 2km to the north-east of Harpenden Town Centre. The site is bounded to the south-west by B653 Lower Luton Road which serves as primary distributor road; and to the east by the B652 Bower Heath Lane. Common Lane forms the north western boundary, with existing residential development located to the south and west of the site.

3. The site is allocated in the emerging SADC Local Plan under a policy S6 vii 'North East Harpenden Broad Location'. In line with this draft policy the development would consist of minimum 760 dwellings which would include at least 50+ homes C3 Flexi-care and 10 units to provide special needs accommodation. Affordable dwellings are required to be provided at the minimum proportion of 40%.

4. Furthermore, a site and appropriate contributions towards a 2 form-entry (FE) school as well as transport infrastructure improvements would be required.

5. The site is in an accessible location for pedestrians, cyclists and by public transport and is close to a variety of existing local facilities.

6. An example of this is the existing journeys to work from the surrounding area to the railway station. The train is used for 26% of journeys to work and this is the main reason that car driver/passenger is relatively low at 66%.

7. The proposed development of the site is consistent with the national and local policy objectives as the site is in an accessible location for walking, cycling and public transport and as part of the proposed development the accessibility of the site will be further enhanced with the use of sustainable transport modes, especially walking and cycling, being encouraged.

8. The proposed development on the site will be sustainable and will include facilities, including a primary school, to support the proposed housing which will reduce transport demand.

9. There are options to provide access to the site for pedestrians, cyclists and vehicles that are feasible and deliverable.

10. A Travel Plan will be produced for the site to further encourage the use of sustainable modes of transport (walking, cycling and bus and train use).

11. The predicted traffic generation of the site has been calculated to ensure that a robust assessment is undertaken of the transport implications of developing the site.

12. The assessment takes into account known committed development and traffic growth to ensure that a cumulative assessment is undertaken.

13. The new secondary school close to the site brings a significant benefit in managing vehicular transport demand.

14. In association with the development of the site there are identified opportunities to encourage walking and cycling through new and improved routes/crossing facilities and through the provision of information about the routes

15. Bus and train use would be encouraged through potential subsidies for bus passengers and through the provision of information on the services and how to walk to local bus stops and to the railway station along the improved routes.

16. Improving the accessibility of what is already a site in a sustainable location will help to minimise vehicular traffic demand and mitigate the potential implications of development on the site.

17. There are options for the provision of access to the site and the initial assessment work has shown that all of these are feasible and would safely accommodate future traffic levels.

18. A single access onto Lower Luton Road with separate emergency access(es) onto Bower Heath Lane and/or Common Lane could serve the site. Secondary accesses would have the advantage of dissipating the traffic associated with the new housing.

19. There are no identified offsite highway constraints that would prevent the site from being developed as proposed and there are improvement schemes that could be implemented to mitigate the implications of traffic associated with developing the site. This mitigation would be developed in detail to support a planning application.

20. It is concluded that the proposed housing is deliverable and that it reflects local and national aspirations to promote sustainable communities.

1 INTRODUCTION

1.1 Vectos is retained by Crest Strategic Projects Ltd. to provide transport advice in relation to the proposals for the development of land at Lower Luton Road in north east of Harpenden. The site is within administrative boundaries of St Albans City and District Council (SADC).

1.2 The site is located in north-east of Harpenden, circa 1.7km 'as the crow flies' from town centre. The site abuts the existing build-out area of Harpenden from the south whilst it is surrounded by greenfield land from all other sides.

1.3 The site is bounded from the west by the B653 Lower Luton Road and the B652 Bower Heath Lane from the north-west. The southern and south-western boundary of the site are residential properties of Batford accessed via a number of cul-de-sac roads from the B653 Lower Luton Road and Common Lane which continues further north as a countryside lane forming part of the site's eastern boundary. The north-eastern boundary of the site is formed by the dense vegetation buffer between Common Lane and Bower Heath Lane.

1.4 The site extends to circa 45ha and the majority of the land is under an active agricultural use at present, however the site also encompasses Greenacres Equestrian centre located to the east of the Lower Luton/ Bower Heath Lane junction.

1.5 The site location is detailed in **Image 1.1.**

Image 1.1: Strategic Site Location Plan

Proposed Land Uses

1.6 The site is allocated in the emerging SADC Local Plan under a policy S6 vii 'North East Harpenden Broad Location'. In line with this draft policy the development would consist of minimum 760 dwellings which would include at least 50+ homes C3 Flexi-care and 10 units to provide special needs accommodation. Affordable dwellings are required to be provided at the minimum proportion of 40%.

1.7 Furthermore, a site and appropriate contributions towards a 2 form-entry (FE) school as well as transport infrastructure improvements would be required.

Scope of Transport Strategy

1.8 This Transport Strategy adds to the initial representations presented for the site and sets out the principle of a sustainable transport strategy for Land at Lower Luton Road. It assesses the locational characteristics of the site in the context of social and sustainability policy. It judges that this is an excellent location in transport terms for growth and that new development

must take full advantage of the location by designing for sustainability and implementing management systems to influence community and travel patterns.

1.9 Land at Lower Luton Road will create a sense of place, a community within which people will interact and undertake day to day activities, resulting in 'internalisation' of movement. By designing in social inclusion, transport effects on the wider area can be reduced.

1.10 A phased delivery of new highways infrastructure as part of the development of the site at Lower Luton Road will deliver benefits for existing residents within these villages through the removal of through traffic, bringing improved quality of life, particularly through improved air quality.

Report Structure

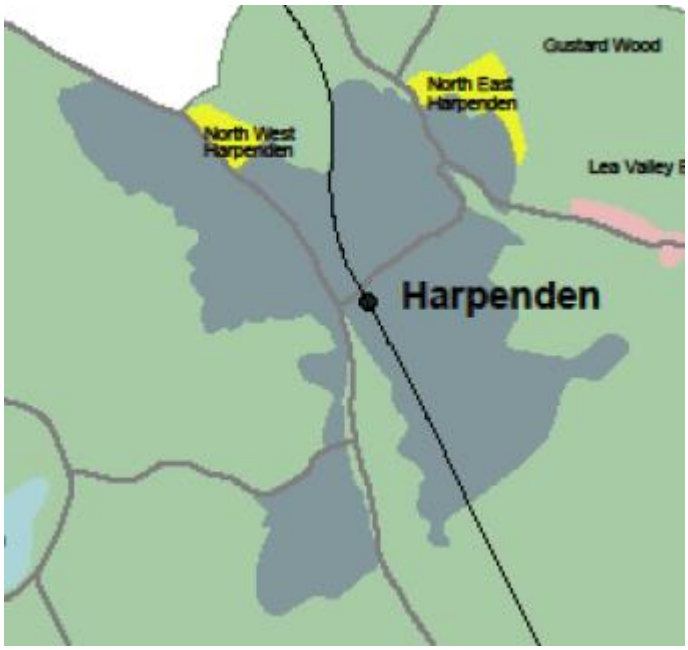
1.11 The remainder of this report is structured as follows:

- Section 2- provides the context for the proposals in relation to the site location and connectivity;
- Section 3 - summarises current transport planning policy context;
- Section 4 – sets out the proposed development including the proposed access strategy;
- Section 5 - presents initial findings of multi-modal trip generation;
- Section 6 - sets out the sustainable transport strategy for the site;
- Section 7 - presents findings of the initial site access capacity and local highway network operation; and
- Section 8 - summarises the key advantages of the development proposals.

2 SITE LOCATION AND CONNECTIVITY

2.1 The site is located at the north-eastern end of Harpenden Town, St Albans City and District Council. It is shown on **Image 2.1**.

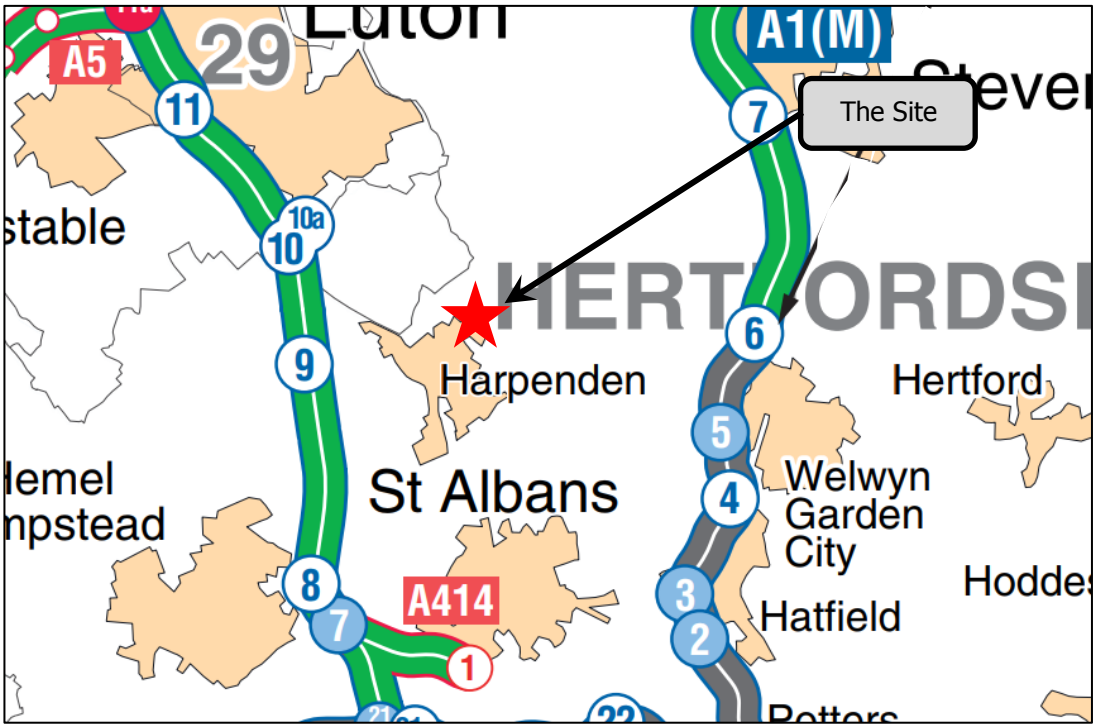
Image 2.1: Local Site Location Plan



Extract from Figure 1: Key Diagram of the SADC Local Plan Publication Draft 2018

2.2 The location of the site with respect to the strategic highway network is shown in **2.**

Image 2.21: Site location in relation to Strategic Road Network



Accessibility by Non-Car Modes

Walking

2.3 Given the existing use of the site, pedestrian infrastructure is limited in respect of direct access. Footways are in place along Lower Luton Road from the junction with Westfield Road on both sides of the carriageway. The speed limit along Lower Luton Road is 30mph and speed cameras are in place to enforce this limit.

2.4 Footways are also provided along Westfield Road to the south of the site. The footway along western side can be accessed via an uncontrolled crossing with dropped kerbs and tactile pavement. From this point the route continues to the Red Cow public house adjacent to mini-roundabout with Coldharbour Lane where it discontinues due to presence of front gardens and limited space. The footway on the western side then continues further south from Hyde Close, however no crossing points are in place to connect these links. Footways on both sides of the carriageway continue to town centre with number of uncontrolled crossings incorporated within traffic calming features.

2.5 No pedestrian infrastructure is in place along Bower Heath Lane and Common Lane.

2.6 Footways and crossing points are incorporated within the residential streets of the Batford area immediately east of the site and provide links to Lower Luton Road.

2.7 Continuous footways are also provided along Station Road allowing for access towards the town centre and train station. The final section on the approach to the station under the railway bridge provides dedicated path for pedestrians.

2.8 A 2km walking isochrones has been created from the site (measured from the main potential pedestrian access points) and is provided in **Figure 1.** It demonstrates that a number of services and facilities in Harpenden can be reached from the site within less than a 30 minute walk time.

2.9 A number of Public Rights of Way (PROW) are situated within or in close proximity to the site:

- PROW 34 – connects Bower Heath Lane to the north Greenacres Equestrian with Northfield road;
- PROW 31 – north east of the northern site boundary connects Bower Heath Lane with Common Lane;
- PROW 53 – parallel to PROW 31 connects Common Lane with Bower Heath Lane;
- PROW 30, 93, 51 and 50 – connect Bower Heath Lane with Great Cutts Farmhouse and continue further northwest.
- PROW 26 – route along Pickford Hill in Batford to the junction with Station Road;
- PROW 27 – parallel to Lower Luton Road in Batford from Southview Road to Common Lane;
- PROW 37 – very short link from Salisbury Road to Gibraltar Castle public house off Lower Luton Road;
- PROW 35 – link along River Lea from All Saints'' Church to Crabtree Lane;
- PROW 24 – from Lower Luton Road adjacent to the junction with Batford Road to Station Road;
- PROW 25 – from Station Road to the entrance to Sir John Lawes School on Manland Way.

2.10 PROWs in the vicinity of the site as well as the existing key sustainable transport infrastructure is shown in **Figure 2.**

Cycling

2.11 Cycle routes in Harpenden are shown in **Figure 3**.

2.12 National Cycle Route 6 (NCR6) runs along River Lea parallel to the B653 north of Westfield Road. The NCR 6 will connect London with Thelkeld in Lake District once completed. Locally the route provides the access to Luton located 8.3km north-west (or circa 32 minutes cycling time based on the average speed of 4.2 m/s) via primarily traffic free route. From Westfield Road the route runs along a number of quiet residential roads to Harpenden Railway Station. To the south of Harpenden, the link provides a traffic free cycle access to St Albans located 10km (or circa 40 minutes) from the site.

2.13 Within Harpenden, the NCR6 intersects with National Cycle Route 57 (NCR57) which once completed will connect Cricklade in Wiltshire with Welwyn Garden City in Hertfordshire. Locally, the route allows the traffic free access to Hemel Hampstead (13.1km or 52 minutes) with Welwyn Garden City (12.3km or 50 minutes).

2.14 The above routes are complemented with a local route along River Lea from Westfield Road to West Way which has been recently completed to provide a direct link between the NCR6 and NCR57 in north Harpenden.

2.15 A plan showing an 8km cycling isochrone from the site is shown in **Figure** 4. It demonstrates that all of Harpenden, Luton Airport and northern parts of St Albans are situated within 8km isochrone from the site.

Bus Services

2.16 Local bus services and existing bus stop locations are shown on **Figure 5**.

2.17 The closest bus stops to the site are located on Lower Luton Road to the east of the junction with Westfield Road. Stops in both directions are provided with pole and flag arrangements and served by bus service numbers 657 and 612 (westbound only).

2.18 Additional bus stops with pole and flags are located on Westfield Road circa 45m south of the junction with Lower Luton Road. These are served by bus service numbers 45, 366 and 657. Service 657 is also routed via Batford housing estate and can be accessed from bus stops on Pickford Hill/ Milford Hill.

2.19 A summary of bus services and their frequency is provided in **Table** 2.1**.**

Table 2.1: Local bus services

Service (operator)	Route	One-way frequency		
		Mon-Fri	Sat	Sun
45 (Centrebus)	Luton – Stevenage	15:47 and 18:07 only	No service	No service
	Stevenage – Luton	08:24 only		
366 (Centrebus)	Luton (Dunstable) – - Welwyn Garden City - Hatfield	Hourly	Hourly	No service
	Hatfield - Welwyn Garden City - Luton (Dunstable)	Hourly	Hourly	No service
612 (Uno)	Luton Station - Hatfield	08:01 only*	No service	No service
	Hatfield - Luton Station	17:37 only		
657 (Uno)	Flamstead – Harpenden – St. Albans	Hourly	Hourly	Four services a day only
	St. Albans – Harpenden - Flamstead	Hourly	Hourly	Four services a day only

* Stops at Porters Hill

2.20 As shown above the site is located close to a number of regular bus services providing access to key destinations such as Luton, Hatfield, Flamstead and St Albans.

Rail

2.21 Harpenden railway station is located around 2.6km (circa 31 minutes walking time) south of the site and can be accessed via Station Road, Westfield Road or Manland / Stewart Road. The station is on the Midland Main Line between Luton Airport Parkway and St Albans City stations and it is served and operated by Thameslink.

2.22 The station provides recently expanded cycle storage for 548 bicycles and car parking managed by Indigo Park Solutions Ltd which provides 630 spaces.

2.23 Services are call at the station with combined frequency of 1 – 10 minutes, prior to continuing their journey to Gatwick Airport, Bedford, Luton, Brighton and Rainham (Kent).

2.24 **Table** 2.2 below provides a summary of rail services from Harpenden station.

Table 2.2: Rail services from Harpenden

Destination	Main calling points	Approx. Journey Time (mins)	Frequency (trains per hour)		
			Mon- Fri	Sat	Sun
Gatwick Airport	London St, Pancras – Farringdon – London Bridge – East Croydon	80*	3	2	2
Bedford	Luton Airport Parkway – Luton – Harlington	35	5	2	3
Luton	Luton Airport Parkway	10	5	2	2
Brighton	London St. Pancras – Farringdon – East Croydon – Burgess Hill	125*	2	2	2
Rainham (Kent)	London St. Pancras – Farringdon – London Bridge – Greenwich – Dartford – Gravesend – Rochester	135	1	1	No Service

**Saturday and Sunday services call at fewer stations therefore the journey time is shorter*

2.25 As shown above, services operating out of Harpenden railway station are well connected to key destinations. Frequent services provide good access to the main commuter destinations such as Central London, Bedford and Luton.

Local Amenities

2.26 Walking and cycling have a great potential to replace short car journeys, particularly those below 2km for walking and 8km for cycling. The site forms an urban extension to Harpenden and is located within walk and cycle distances of key facilities including the town centre which offers a range of key service and facilities.

2.27 Full review of key service and facilities within walking and cycling distance from the site is provided in **Table** 2.3. The location of local facilities relative to the site are presented in **Figure 6**.

Table 2.3: Local facilities

Facility	Distance (metres)	Walking Time (mins)	Cycle Time (mins)
The Red Cow public house	130	2	1
Coffee Stop Café	700	8	3
The Co-op Food (convenience store)	650	8	3
Sauncey Wood Primary School	1000	12	4
Batford Nursery School	1200	14	5
Batford Methodist Church	900	11	4
Balti Village (Indian take-away)	950	11	4
Sir John Lawes School (sixth form)	1200	14	5
The Elms Medical Practice	1800	21	7
Harpenden Memorial Hospital	1700	20	7
Waitrose (supermarket)	2100	25	8
Harpenden Swimming Pool	2500	30	10
Harpenden Sports Centre	2500	30	10
Busy Bees Nursery	2400	29	10
Batford Memorial Hall (town hall)	2100	25	8
Big Space (children amusement centre)	3100	37	12
Sainsbury's (supermarket)	2100	25	8
Halifax (bank)	2100	25	8
Lea Primary School	600	7	2
Allied Business Park	550	7	2
Tesco Express (convenience store)	750	9	3
Manland Primary School	1300	15	5

2.28 Table 2.4 demonstrates that the site has a good accessibility to key local services and facilities. Based upon an average walking speed of 1.4m/s and a cycling speed of 4.2m/s, a number of education, health, retail and employment facilities are situated less than 2.5km from the site.

Local Highway Network

B653 Lower Luton Road

2.29 The B653 Lower Luton Road forms the south western boundary of the site. The B653 links M1 with the A1081 which bypasses Luton town to the south of Luton Airport. Locally, the road passes through Harpenden on a north – west / south- east alignment.

2.30 Lower Luton Road acts as an arterial route for the northern parts of Harpenden with limited frontage in a close proximity to the site. Continuous footways are present on both sides of

the carriageway from the junction with Bower Heath Lane to the junction with Common Lane. This section is also subject to a 30mph speed limit which increases to 40mph to the north-west of the site outside of Harpenden. To the south of the junction with Station Road, Lower Luton Road has more urban character with street lighting and building frontage present for the next circa 600m.

B652 Bower Heath Lane/ Westfield Road

2.31 The north-western boundary of the site is the B652 Bower Heath Lane. It is a radial route from Harpenden in the north-eastern direction. To the south of the junction with Lower Luton Road it is named Westfield Road and it connects the site with Harpenden town centre located circa 1.8km from the site.

2.32 Bower Heath Lane is a rural carriageway road with no dedicated infrastructure for pedestrians and cyclists and marked as unsuitable for HGVs. The road has a positive gradient from the junction with Lower Luton Road and it is subject to a national speed limit.

2.33 The junction of Lower Luton Road, Bower Heath Lane and Westfield is a staggered left-right priority junction.

2.34 Westfield Road is circa 6.8m wide with footways and street lighting present. The speed limit of 30mph is in place and some on-street parking takes place in the proximity of the junction with Lower Luton Road. Further south, majority of road side has 'no waiting at any time' restriction in place along with some traffic calming features such as carriageway narrowing with one-way arrangements.

Station Road

2.35 Station Road forms a key route to Harpenden town centre and the railway station. Station Road is subject to 30mph speed limit however the road geometry act and restricted forward visibility acts as a natural traffic calming feature. Street lighting and footways are present on both sides of the carriageway. Multiple crossings are also provided for pedestrians at regular intervals. The final section on the approach to the station has a height restriction of 3.8m due to the presence of a railway bridge.

Existing Local Travel Patterns

2.36 'Method of Travel to Work' data for resident population has been extracted from the 2011 Census from the website www.nomisweb.co.uk (supplied by the Office of National Statistics). Whilst the site is geographically located within St Albans 001D and St Albans 002C (Batford and Westfield) Super Output Area Lower Level (SOALL) due to socioeconomic characteristics of this area it is not considered to be fully representative for the site. As such, St Albans 001B and St Albans 001E SOALL (Wood End) output areas were selected as more representative given their distance to Harpenden Railway Station. The output is presented in **Table 2.4.**

Table 2.4: 2011 Census Data - Method of Travel to Work

Method of Travel to Work	St Albans 001B	St Albans 001E	Total people	Average %
Work mainly at or from home	112	97	209	n/a
Underground, metro, light rail, tram	1	2	3	0%
Train	152	153	305	26%
Bus, minibus or coach	3	5	8	1%
Taxi	0	0	0	0%
Motorcycle, scooter or moped	0	1	1	0%
Driving a car or van	**334**	**399**	**733**	**64%**
Passenger in a car or van	9	17	26	2%
Bicycle	7	12	19	2%
On foot	32	20	52	5%
Other method of travel to work	1	3	4	0%
Not in employment	342	293	635	n/a
Total	993	1,002	1,995	100%

2.37 The travel to work information shows that whilst the proportion of drivers is relatively high at 64%, over a quarter of the residents of this area use the train as their main mode of travel to work. Walking and cycling account for further 5% of commuting trips followed by cycling and car passenger at 2% each.

2.38 A review of Census data for 'Location of usual residence and place of work by method of travel to work' has shown that majority (90%) of trips undertaken by railway are to London.

2.39 The majority of walking (89%) and cycling (72%) trips are contained within Harpenden.

2.40 With regards to trips to work undertaken by car, the origin and destination data suggests that 76% are heading in south and south-eastern direction. Further details of car trips distribution are provided in Chapter 4.

Section Summary

2.41 The site is in an accessible location for pedestrians, cyclists and by public transport and is close to a variety of existing local facilities.

2.42 An example of this is the existing journeys to work from the surrounding area to the railway station. The train is used for 26% of journeys to work and this is the main reason that car driver/passenger is relatively low at 66%.

3 TRANSPORT POLICY REVIEW

National Planning Policy Framework, July 2018

3.1 The revised National Planning Policy Framework (NPPF) was published on 24th July 2018 and it sets out the government's planning policies for England and how these are expected to be applied. This document replaces previous NPPF published in March 2012.

3.2 Sustainable development, which can be identified as meeting the needs of the present without compromising the ability of future generations to meet their own needs, is the main objective of planning system. Achieving sustainable development means that the planning system has three overarching objectives which are interdependent and need to be pursued in mutually supportive ways:

- an economy objective – to help build a strong, responsive and competitive economy, by ensuring that the sufficient land is available in the right places and at the right time to support the growth, innovation and improved productivity by identifying and coordinating the provision of infrastructure.
- a social objective – to support strong vibrant and healthy communities, by ensuring that a sufficient number and range of homes can be provided to meet the needs of present and future generations by fostering a well-designated and safe built environment, with accessible open spaces that reflect current and future needs and support communities' health, social and cultural well-being.
- an environmental objective – to contribute to protecting and enhancing our natural, built and historic environment; including making effective use of land, helping to improve biodiversity, using natural resources prudently, minimising waste and pollution, and mitigating and adapting to climate change, including moving to a low carbon economy.

3.3 At the heart of the NPPF is a presumption in favour of sustainable development.

3.4 Paragraph 32 states that: *"Local plans and spatial development strategies should be informed throughout their preparation by a sustainability appraisal that meets the relevant legal requirements. This should demonstrate how the plan has addressed relevant economic, social and environmental objectives (including opportunities for net gains). Significant adverse impacts on these objectives should be avoided and, wherever possible, alternative options*

which reduce or eliminate such impacts should be pursued. Where significant adverse impacts are unavoidable, suitable mitigation measures should be proposed…"

3.5 Chapter 9 "Promoting sustainable transport" sets out central government approach to transport matters. Paragraph 108 states:

"In assessing sites that may be allocated for development in plans, or specific applications for development, it should be ensured that:

- *appropriate opportunities to promote sustainable transport modes can be – or have been – taken up, given the type of development and its location;*
- *safe and suitable access to the site can be achieved for all users; and*
- *any significant impacts from the development on the transport network (in terms of capacity and congestion), or on highway safety, can be cost effectively mitigated to an acceptable degree."*

3.6 Paragraph 109 states *"development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe.".*

3.7 Finally, paragraph 111 states *"All developments that will generate significant amounts of movement should be required to provide a travel plan, and the application should be supported by a transport statement or transport assessment so that the likely impacts of the proposal can be assessed."*

Hertfordshire Local Transport Plan, May 2018

3.8 The new Fourth Local Transport Plan for Hertfordshire (LTP) has been adopted in May 2018. The document sets out a vison and strategy for developing transport in the county until 2031. These timescales are aligned with majority of proposals being set out in ten district Local Plans.

3.9 The overall approach to transport is a graduate transition from car based to a more balanced approach which caters for all forms of transport and seeks to encourage a switch from a private car to sustainable transport wherever possible. The Council also appreciates that with emerging technologies transport is on a verge of great change and therefore

understands that continuation of the existing transport strategy is not an option for Hertfordshire if it wishes to remain an attractive destination for working, living and investing.

3.10 A significant housing growth planned in the future years (forecast growth of 21% by 2039) will fuel further demand on for transport. Good transport infrastructure support economic growth and delivery of sustainable housing. Paired with current congestion, rail overcrowding and air quality problems this entails a set of challenges that the Plan aims to tackle.

3.11 In terms of the existing travel patterns for the County, with an exception of journeys to Central London which are primarily undertaken by rail, car is still used as a main travel mode for commuting journeys. Of the approximate total of 118,000 Hertfordshire residents who work in Central London, circa 51% use train or tube to get to and from work. Harpenden is in the top origins for commute to London, however also notable flows are observed from Luton and Dunstable into Hemel Hampstead, Harpenden, St. Albans and Stevenage.

3.12 In larger towns, cycling accounts for 6% of journeys amongst those who live and work in the same town. In the last 15 years there has been a negligible reduction in car use and mode shift to bus, rail, walking and cycling.

3.13 The key objectives for the plan are the following:

- Improve the access to international gateways and regional centres outside of Hertfordshire;
- Enhance connectivity between urban centres in Hertfordshire;
- Improve accessibility between employers and their labour markets;
- Enhance journey reliability and network resilience across Hertfordshire;
- Enhance the quality and vitality of town centres;
- Preserve the character and quality of the Hertfordshire environment;
- Reduce carbon emissions;
- Make journeys and their impact safer and healthier;
- Improve access and enable participation in everyday life through transport.

3.14 In delivering the LTP objectives the plan is to demonstrate the application of the following principles:

- Application and adoption of technology;
- Cost effective delivery and maintenance;
- Integration of land use and transport planning;
- Modal shift and encouraging active travel.

3.15 The key site related policies of the LTP4 are:

- Policy 1 – "Transport User Hierarchy:

  "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"*

- Policy 2 – Influencing Land Use Planning:

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

- Policy 2 – Travel Plans and Behavioural Change:

  "The County Council will encourage the widespread adoption of travel plans through:
  a) Working in partnership with large employers, businesses and other organisations to develop travel plans and implement Smarter Choices measures.
  b) Seeking the development, implementation and monitoring of travel plans as part of the planning process for new developments.
  c) Supporting school travel plans, and working closely with parents, pupils, teachers and local residents to deliver a network of more sustainable transport links to school.
  The application of personalised travel planning techniques, marketing and other behavioural change initiatives will be considered when delivering physical transport improvements to maximise the potential to achieve modal shift."

- Policy 5 – Development Management:

  "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."

3.16 Policies 6 to 12 address sustainability and accessibility by walking, cycling, buses, rail but also airports and network management.

3.17 Policy 13 New Roads and Junctions states:

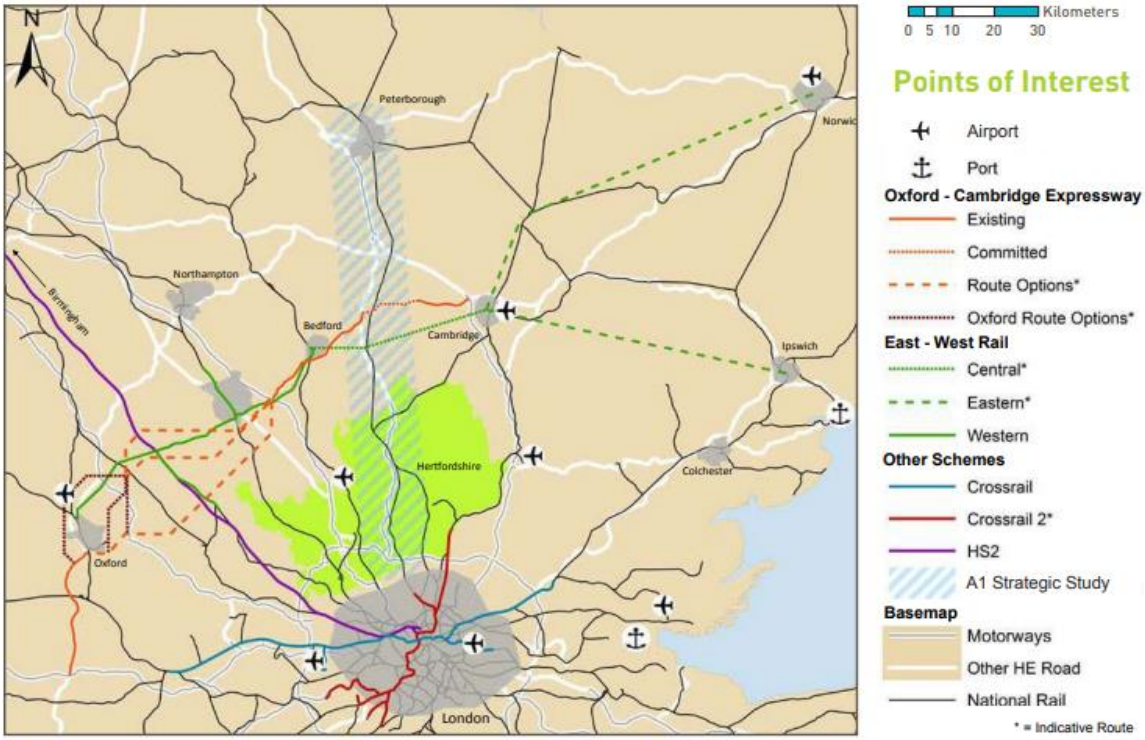
"The County Council will work closely with partners including Highways England, districts and major scheme developers to design new transport infrastructure, following application of the Transport User Hierarchy, to manage existing demand and that of planned development. Future capacity that may be required beyond this could be safeguarded but should not be released until necessary to avoid inducing demand."

3.18 Notable proposals for the Hertfordshire area identified in the Plan include:

- Sustainable Travel Towns which will comprise comprehensive packages of improvements for walking, cycling and passenger transport combines with activity to encourage more sustainable travel behaviour;
- An east west bus rapid transit scheme between Hemel Hempstead and Welwyn Garden City; and
- A programme of A414 highway improvements including a Hertford Bypass.

3.19 **Image 3.** below shows significant regional transport schemes currently under consideration.

Image 3.1 Significant Regional Transport Scheme (source LTP4)

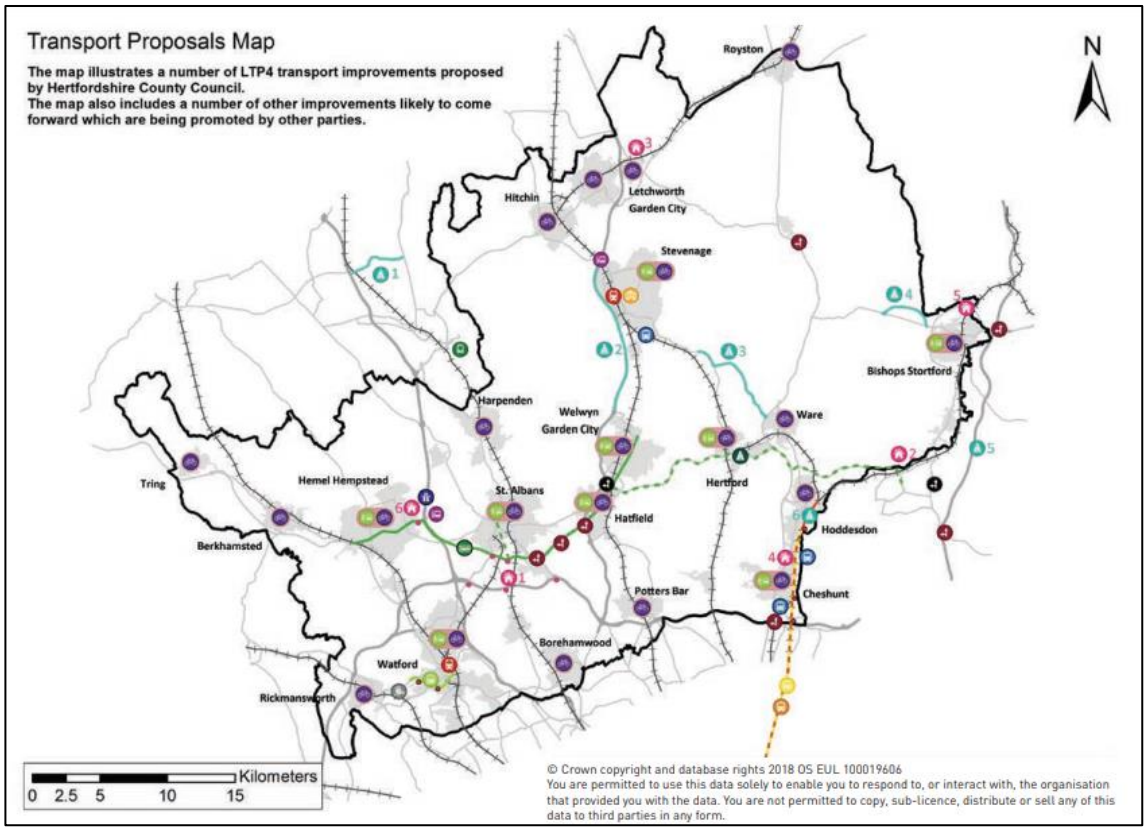


3.20 The national strategic transport improvements that will affect Hertfordshire are the following:

- High Speed 2 (HS2) – the new railway line between London and Birmingham with extensions to Leeds and Manchester. The first phase to Birmingham is due to open in 2026 shortening journey time between these cities to 50 minutes.
- East West Rail (EWR) – a new proposed link between Oxford, Milton Keynes, Bedford and Cambridge. It is due to open the section between Bedford and Cambridge in early 2030s and improve the connectivity from Hertfordshire rail routes.

- Highways England A1 Strategic Study – aims to identify improvements that will bring consistency to the route between the M25 and Peterborough and address the issues such as poor journey time, reliability and environmental issues.
- Oxford Cambridge expressway – A study to investigate the case for linking upgrading existing roads to create a high quality strategic east-west link between Oxford and Cambridge via Bedford and Milton Keynes. Whilst the transport benefits for Hertfordshire are limited, there could be and economic benefits and transport pressures from the growth it facilitates.
- Crossrail 2 – the scheme will directly benefit Hertfordshire given it is proposed to serve Broxbourne, Cheshunt and Waltham Cross stations and increase capacity for other services on the West Anglia Mainline. The aim is that the services will become operational by the early 2030s).

Image 3.2: Hertfordshire Transport Proposals Map (source LTP 4 Figure 7.1)



3.21 Cycle infrastructure improvements which are currently at the concept stage are proposed with Harpenden. Further sustainable transport improvements are currently proposed in St. Albans, Hartford, Welwyn Garden City and Hemel Hampstead.

New St Albans City and District Council Local Plan, 2020 - 2036

3.22 St Albans City and District Council is currently in a process of preparing the new Local Plan which is intended to cover the period from 2020 to 2036. A publication draft 2018 is currently available for a public view. The consultation period is due to end on 17th October 2018.

3.23 As set out above, the site is identified in the draft Local Plan under a Policy S6 vii – North East Harpenden Broad Location for an urban extension of the existing Harpenden town.

Harpenden Urban Transport Plan, 2011

3.24 Urban transport plans have been created by Hertfordshire to focus transport improvements within a specific area over the next 20 years. They provide a clear list of transport issues for each area and possible solutions and improvements to address them. The Harpenden Urban Transport plan has been prepared by Steer Davies Gleave on behalf of Hertfordshire County Council and adopted in 2011.

3.25 The review of existing travel patterns for the town based on Census 2001 data reveals that car is a dominant mode of travel for commuting journeys, however the share is rail journeys is also very high and equates to 22%. With regards to in-commuting to Harpenden car is the dominant mode and accounts for 87% of journeys. High traffic flows are mainly occurring on the A1081 due to the strategic function of this route as well as on Station Road.

3.26 The local objectives for the plan are:

- Support the economic vitality of local shops and businesses;
- Reduce CO_2 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 the most.

3.27 The key issues identified by the plan are:

- Congestion – in particular congestion along the A1081 and Station Road caused by both local and through traffic;

- Buses – punctuality resulting from the congestion within the town centre, lack of information, interurban buses that that finish too early to be a viable option for commuters, low frequency services to some destinations;
- Rail – poor east-west connections across the County, train operating companies not allowing bicycles on their trains (during peak hours), overcrowding in peak times, poor interchange connections between bus and railway, lack of cycle parking at the station, poor access to the station platforms (no lift provision), no southern access to the station(through car parks), insufficient capacity of the station car park, no taxi rank on the eastern side of the station, narrow entrance for vehicles, pedestrians and cyclists from the eastern car park, lack of blue badge parking spaces.
- Cycling – lack of continuous routes into the town centre and to the railway station, missing link on Upper Lea Greenway from Westfield Road to Luton, poor link quality in the area of Nickey Line (former railway line), poor crossing facilities at the junction with Station Road, lack of cycle crossing across A1081 from West Common and Harpenden Common, lack of signposting and missing links in National Cycle Network.
- Rights of way and quality of life – lack of pedestrian crossing across the A1081 from West Common to Harpenden Common, confusing pedestrian realm in town centre, poor crossing facilities at the junction with Station Road, Station Approach and Bowers Way, narrow pavement under Nickey Line bridge on the A1081, on Ambrose Lane on bridge over Nickey Line, Sun Lane, Ox Lane and Southdown Road, signage clutter in town centre, lack of continuous footpath to Harpenden Rugby Club along Redbourn Lane, lack of pedestrian facilities from Harpenden Common, and Wheathampstead to Southdown, lack of crossing facilities at the junction of Walkers Road and Queens Road, poor crossing facilities at Bull Road roundabout, poor street lighting in alleyway between Alzey Gardens and Highfield Avenue.
- Road safety – safety concerns at zebra crossing at junction of Station Road and High Street Service Road, other Hertfordshire hazardous sites.
- Speed limit compliance – appropriate speed limits on roads from A1081 across Harpenden Common, Walkers Road, Grove Road from junction with Beesonend Lane to junction with Bull Road, Wheathampstead Road from eastern junction with Long Buftkers to junction with Piggotshill Lane, review suitable speed limit on Leyton Road due to combination of land uses and vulnerable road users crossing the road.
- Parking – conflict between residential on-street parking and commuter/ town centre employee parking on roads outside of Controlled Parking, car parks full in the AM peak,

parking in town centre promoting car travel rather than sustainable access to town centre and schools, one hour on-street waiting restrictions in town centre causing additional trips and congestion with shoppers and town centre workers re-parking their vehicles, demand exceeding supply of on-street parking spaces in the town centre.

- Freight – enforcing the 7.5t weight limit on the Lower Luton Road and Wheathampstead Road.

3.28 A strategy has been developed consisting of schemes developed to:

- Improve accessibility to and at the station,
- Improve the cycle network,
- Manage demand, improve sustainable transport and smarter choices,
- Tackle speed compliance, and
- Contribute towards other issues, including signage, access to hospitals, and town centre improvements.

3.29 There schemes are designed to be implemented over the next 15-20 years.

3.30 A number of measures have been considered however following detailed review they were discounted as not recommended for the area. The key initiative considered not suitable was Harpenden Bypass which would link the A1081 to the north of the town to the A5183 near Redbourne.

3.31 The schemes that have been considered as a part of an Urban Transport Plan are split into short, medium and long-term timescales:

- Short term schemes are lower cost and more easily implemented;
- Medium term schemes will require further design feasibility and consultation; and
- Long term schemes will require additional funding.

3.32 The location of the proposed improvements are shown on **Figure 7**.

Harpenden Neighbourhood Plan (HNP) Baseline Report, 2017

3.33 The document was prepared by Nexus on behalf of Harpenden Town Council. Neighbourhood planning is a right of communities introduced by the Localism Act 2011 which allows them to shape the development in their area though production of a

Neighbourhood Plans, Neighbourhood Development orders and Community Right to Build Orders.

3.34 Neighbourhood Plans become part of the Local Plan and the policies contained within them area used in the determination of planning applications. The baseline report aims to inform the new Neighbourhood Plan and it identifies the key local, environmental, social and economic characteristics of the area.

3.35 On 22nd December 2015, SACDC formally agreed the HNP area boundary, which reflects the combined boundaries of Harpenden Town Parish and Harpenden Rural Parish.

3.36 With regards to the overall growth predictions, it is estimated that SACDC will be required to provide 14,760 new homes between 2018/19 and 2035/36 however there is no current allocations for housing.

3.37 Harpenden is a commuter town with a large proportion of the residents working in Central London. The town is connected by Thameslink services with London and the journey time to London St Pancras takes circa 30 minutes, with London Blackfriars available within 40 minutes train journey time. The town is also well connected by road with the A1081 running through town, which connects to Luton, St. Albans and the M1 and A1(M).

3.38 The key route within Harpenden is the B652 (Station Road) which adjoins the High Street in the Town Centre and runs east, past the railway station. This route has been identified as one of the most congested routes especially between the A1081 and the junction with Cowper Road, due to traffic accessing and egressing the station.

Section Summary

3.39 The proposed development of the site is consistent with the national and local policy objectives as the site is in an accessible location for walking, cycling and public transport and as part of the proposed development the accessibility of the site will be further enhanced with the use of sustainable transport modes, especially walking and cycling, being encouraged.

4 PROPOSED DEVELOPMENT

4.1 The proposed development will be brought forward in accordance with the proposed allocation for the site in the Draft Local Plan.

4.2 It will comprise a residential development of up to 760 units which will be a mixture of 1 to 5 bed units and includes a Care Home. There will be an element of affordable housing which will be a mixture of shared equity and rented accommodation.

4.3 A new primary school will be provided on the site, together with ancillary local facilities such as shops and community facilities.

Layout of Site

4.4 A truly sustainable community needs to be designed in a manner which enables sustainable transport and the integration of existing and new communities. Design at its highest level includes using land use planning to enable Land off Lower Luton Road to be well-connected with employment, education and other facilities such as retail, recreation and social facilities.

4.5 Included within design is the need for creating walking, cycling and public transport routes which enables residents, employees and visitors to be able to travel to, from and within the site without use of the private car.

4.6 The layout of the site will be designed in accordance with this philosophy to ensure that it encourages walking and cycling and is not car dominated.

4.7 The road on the site will be designed in accordance with the principles of the DfT's Manual for Streets design guidance and HCC's Roads in Herts Design Guide. This will ensure that the roads will safely cater for pedestrians, cyclists and vehicles, including refuse collection, deliveries and emergency vehicles.

Site Access

4.8 There are various options for pedestrian, cycle and vehicular access to the site and these are illustrated on **Figure 8** and are discussed in detail below..

Pedestrian / Cycle Access Options

4.9 There are two existing public rights of way (PROW) that connect with the site. One which 'PROW 34' serves the western half of the site and is accessed from a small cul-de-sac Turners Close further connected to Lower Luton Road by various residential roads. This PROW access currently consists of a downward sloping mud track leading to a gate into the land (Error! Reference source not found.). There is vegetation and a tree on either side of the mud track which is approximately 1.5m in width. The PROW could be used as a pedestrian route out of the proposed site but is too narrow to accommodate cyclists in both directions using the current land.

Image 4.1: Existing PROW 34 from Turners Close at the site boundary

4.10 The second PROW 61 running through the site has an access located at Whitings Close, a cul-de-sac off Pickford Hill (**Error! Reference source not found.**). The PROW initially has a larger width than the Turners Close PROW, at 2 to 3m. However, past the existing 'kissing gate' the path becomes narrower. Furthermore, there is currently trees and vegetation above and around the path which continues for approximately 15 metres before open land is reached. Due to height and width requirements, this would need to be removed to create enough space for a pedestrian access and/or a cycle route.

Image 4.2: Existing PROW 61 access from Whittlings Close

4.11 Both PROWs lead to onward pedestrian routes via Batford. A review of these routes suggest that there is opportunity to improve these routes through formalised crossing points and providing dropped kerbs in specific areas.

4.12 In addition to the access points via the PROWs, pedestrian and cycle access via the proposed access junctions from Lower Luton Road will be available.

Vehicular Access

4.13 Options for providing vehicular access to the site are available from a number of locations. These options have been presented to and discussed with the highway authority Hertfordshire County Council (HCC). The broad principle of the access options have been agreed subject to detailed assessments in respect of design, safety and capacity.

4.14 An initial option for vehicular access would be for two new junctions from Lower Luton Road in the form of T- junctions incorporating a ghost island right turn lanes. This would be in association with emergency access points to either Bower Heath Lane or Common Lane or to both.

4.15 The internal road layout would need to be on a looped alignment to reduce the number of cul-de-sacs and ensure both access points are available for use by the wider development.

4.16 Bower Heath Lane can be diverted to facilitate the closure of the existing junction with Lower Luton Road. This would reduce the number of junctions with Lower Luton Road.

4.17 The option of providing two new access junctions on Lower Luton Road is presented in **drawing number 141499_A_14** contained in **Appendix A**.

4.18 The proposed layout incorporates two new junctions with appropriate spacing between each and to existing junction on Lower Luton Road. 3.0m running lanes are provides alongside 3.0m right turn lanes. This is considered appropriate for the 30mph speed limit. The drawing also provides 2.4m by 90m visibility splays.

4.19 The closure of the existing junction with Bower Heath lane is facilitated through an internal street. This connection will ensure access to existing properties can be retained. This has the advantage of only increasing the additional junctions onto Lower Luton Road by one and replacing an existing sub-standard junction.

4.20 An alternative option would see a single new junction from Lower Luton Road in the form of a T-junction incorporating a ghost island right turn lane.

4.21 In this scenario, Common Lane may provide an opportunity for a secondary minor access. The narrow nature of the lane within the proximity of the site could be designed into a chicane system which would limit use of this access and keep speeds low.

Parking

Car Parking

4.22 Car parking provision will be in line with the guidance in the Draft Local Plan taking account of local car ownership and ensuring that provision is made for visitors.

Cycle Parking

4.23 This will be in line with the guidance in the Draft Local Plan.

Travel Planning

4.24 Development and implementation of Travel Plans is advised by National Planning Policy Framework (2018). Successful travel planning promotes self-containment within the site by providing employment, educational and retail opportunities, which internalises trips and reduces the impact of the development on the local highway network. Furthermore, for the off-site journeys, it promotes usage of non-car travel modes which offset the development impact Site Travel Plan

Site Travel Plan

4.25 The site Travel Plan is a long-term strategy that aims to change travel habits of the site users and increase the share of non-car travel modes. This is expected to be undertaken with an assistance of 'hard' and 'soft' measures. Hard measures comprise appropriate masterplanning and provision of new infrastructure such as cycle parking and signage. Soft measures include a number of initiatives such as providing information on public transport services, walking and cycling routes. Soft measures can be implemented though provision of Welcome Packs for future residents and occupiers as well as regular events for the site users aiming to promote sustainable transport.

4.26 The Travel Plan will explore various incentives for bus travel for the new residents through vouchers or smartcard technology. This would be free or subsidised travel on the new, improved bus services for a period of time to encourage the use of these services before the habit of driving from the residents' new home is established.

Section Summary

4.27 The proposed development on the site will be sustainable and will include facilities, including a primary school, to support the proposed housing which will reduce transport demand.

4.28 There are options to provide access to the site for pedestrians, cyclists and vehicles that are feasible and deliverable.

4.29 A Travel Plan will be produced for the site to further encourage the use of sustainable modes of transport (walking, cycling and bus and train use).

5 TRIP GENERATION AND DISTRIBUTION

5.1 In order to provide an indication of the number of trips that the development of the site may generate, a forecast of trips using the TRICS database has been undertaken. The analysis considers trips by all modes of travel and provides an indication of their distribution.

5.2 No account has been taken of the primary school and ancillary facilities as during peak period the traffic generation of this uses will be internal to the site. No reduction has been made for peak period journeys from the new housing to the primary school to ensure a robust assessment has been undertaken.

Trip Generation

Vehicle Trip Generation

5.3 Vehicle trip rates for residential developments have been derived from the TRICS 7.5.2 database. TRICS sites selected for the assessment were classified as 'houses privately owned' only, in order to provide a robust assessment. Should affordable housing be included within the final development schedule, the trip rates would be expected to be lower than within this assessment.

5.4 Survey sites in Greater London, Ireland, Scotland and Wales have been excluded and the size of development was restricted to between 100 and 805 dwellings. Only sites surveyed on a weekday without a Travel Plan and located in suburban area and town centre location have been used. This selection identifies nine TRICS sites that are similar to Lower Luton Road development.

5.5 The resultant vehicle trip rates and trip generation based on 760 residential dwellings are shown in **Table 5.1** below and the full TRICS data attached as **Appendix X.**

Table 5.1: Proposed development trip rates and trip generation

TIME	Vehicle Trip Rates (per dwelling)			Vehicle Trip Generation (760 dwellings)		
	Arrivals	Departures	Two-way	Arrivals	Departures	Two-way
08:00-09:00	0.292	0.718	1.01	89	279	368
17:00-18:00	0.547	0.339	0.886	255	125	380
Daily two-way	8.612			3412		

5.6 **Table 5.1** demonstrates that the development of 760 residential units would generate approximately 368 two-way trips in the morning peak and 380 two-way trips between the hours of 17:00 and 18:00 which is the PM peak hour.

Total Person's Trips

5.7 In order to calculate total number of trips generated by the proposed development Census 2011 'Method of travel to work' (refer to **Table 2.4**) for Wood End area was utilised and applied to the vehicle trip generation figures. The results are presented in **Table 5.2.**

Table 5.2: Multimodal trip generation

Mode	Mode Split	AM Peak Hour 08:00-09:00		PM Peak Hour 17:00-18:00		Daily Two-Way
		In	Out	In	Out	
On foot	4.5%	6	20	18	9	242
Cycle	1.7%	2	7	7	3	88
Train	26.5%	37	116	106	52	1420
Bus	0.7%	1	3	3	1	37
Motorcycle	0.1%	0	0	0	0	5
Passenger in a car or van	2.3%	3	10	9	4	121
Driving a car or van	***63.7%***	***89***	***279***	***255***	***125***	***3412***
Other	0.6%	1	3	2	1	33
Total Person Trips	100.0%	140	438	401	196	5358

5.8 As shown above, proposed development of 760 dwellings would generate nearly 600 two-way person's trips by all modes in each peak. Whilst the majority of these would be undertaken by car, a large proportion (26.5%) are forecast to be train trips. This translates to 153 two-way trips in the AM peak hour and 158 two-way trips in the PM peak hour.

Trip Distribution

Vehicle Trips

5.9 Information to estimate the trip distribution has been obtained by using the 2011 'Location of usual residence and place of work by method of travel to work (MSOA Level)' data from the website www.nomisweb.co.uk (supplied by the Office of National Statistics).

5.10 The site is geographically situated within the St Albans 002 and 004 super output areas middle layer (MSOA). These areas however include large area from Lower Luton Road to Wheathampstead comprising Batford which has specific socioeconomic characteristic, as well as primarily agricultural undeveloped land. As such it is considered more appropriate to use St Albans 001 MSOA which comprised north-western part of town as more comparable to the proposed development site due to its socioeconomic characteristics and distance form Harpenden Railway Station.

5.11 The St Albans 001 MSOA was therefore set as being the place of residence i.e. origin of work-related trips. The destination of work-related trips was set as the Super Output Area Mid Layer for those travelling within St. Albans but at Local Authority level for those travelling to work within the wider South East, London, South West, East, West and East Midlands. The most popular destination where local residents choose to travel by car are:

- Luton,
- Welwyn Heathfield;
- Dacorum;
- Central Bedfordshire; and
- Other local destinations within St. Albans.

5.12 Harpenden is a commuter town with 31% (based on Census 2011) residents working in London Boroughs. There are however more likely to be undertaken by train with railway commuting trips accounting for as many as 27% of trips in north-west Harpenden. This preference for public transport trips into Central London is supported by the 2015 report Hertfordshire COMET Patterns of Travel Across Hertfordshire which concluded that *"car is the main mode of travel for trips in Hertfordshire, the one exception is for trips from Hertfordshire into Central London which is predominantly undertaken by rail".* The assessment of development traffic impact is based on car driver trips only.

5.13 This Census dataset represents the most accurate understanding of where residents work and it is considered a useful tool when predicting the routes which residents would use when travelling to work.

5.14 The resultant trips were combined as total and distributed to the various roads leading away from the site and Harpenden in general, namely:

- Lower Luton Road south east 44%;
- Station Road 32%;
- Westfield Road 6%;
- Lower Luton Rod north-west 16%; and
- Bower Heath Lane 2%.

5.15 At the proposed development access junction from Lower Luton Road, the directional distribution translates to 76% of total development traffic heading in south east direction (including Harpenden town via Station Road) and 24% heading west (including Harpenden town via Westfield Road).

Cycling and Walking Trips

5.16 A review of Census 2011 database 'Location of usual residence and place of work by method of travel to work (MSOA Level)' demonstrated that majority of walking and cycling trips originating from St Albans 001 MSOA are local trips. This proportion is 89% and 72% for walking and cycling respectively.

5.17 With regards to the local destinations, 45% walking and 52% cycling trips destination is south and south-west Harpenden which incorporates town centre and Rothamstead Research employment area. North-west Harpenden and Wood End area attract 32% walking and 8% cycling trips whilst the remaining 12% walking and 11% cycling trips destination is North-east Harpenden and Batford.

Public Transport Trips

5.18 Only 1% of commuting trips originating in St Albans 001 area are currently undertaken by bus. Over a half of them are currently contained within St Albans area and 19% terminate in Luton. No other significant destinations for journeys by bus have been identified.

5.19 Harpenden is a commuter town with 26.5% of residents using train as a main travel mode according to Census 2011 data. A review of trip destinations undertaken using 'Location of usual residence and place of work by method of travel to work (MSOA Level)' data demonstrate that 90% of these terminate in London. Further 2% of train commuting journeys terminate in Luton and 2% in St Albans. The remaining 6% are spread across other destinations with no clear domination of any of them.

Committed Developments

Secondary School

5.20 On 15th March 2018 planning consent for a construction of new 6FE secondary school in a parcel of land to the north of Lower Luton Road and south east of Common Lane. The vehicle access to the school will be taken from Lower Luton Road with an emergency/ pedestrian/ cycle access from Common Lane.

5.21 The Transport Assessment prepared by Local Transport Projects proposed a number of transports mitigation measured along Lower Luton Road including provision of new crossing points and improvements to the existing crossing facilities. These are identified in **Appendix B.** This plan and the proposed improvement measures associated with the secondary school will further enhance the accessible of the area.

5.22 This new secondary school will provide a facility for the new housing within a short walking and cycling distance of the site.

Waste Treatment Plant

5.23 In June 2016 an EIA Scoping Opinion (ref. CB/18/02363/SCO) was requested from Central Bedfordshire Council by Emsrayne Renewable Energy Limited. The scheme in question is a new Combined Heat and Power facility that would import up to 500,000 tonnes per annum of Refuse Derived Fuel or similar residual waste in East Hyde, with an access taken of Lower Harpenden Road (B653).

5.24 The scoping opinion request report was prepared by SLR. The report states that *"it is likely that all HGV traffic would be restricted to route to/from the north. Proposed HGV traffic would therefore not need to route through any residential areas or other sensitive receptors."*. Given the above, no further considerations of the scheme traffic are considered necessary and any growth would be captured within TEMPRO growth factor.

Luton Airport

5.25 In December 2012 planning application (ref. 12/01400/FUL) was submitted to Luton Borough Council for *"for dualling of airport way/ airport approach road and associated junction improvements, extensions and alterations to the terminal buildings, erection of new departures/arrivals pier and walkway, erection of a pedestrian link building from the short-*

stay car park to the terminal, extensions and alterations to the mid-term and long-term car parks, construction of a new parallel taxiway, extensions to the existing taxiway parallel to the runway, extensions to existing aircraft parking aprons, improvements to ancillary infrastructure including access and drainage, and demolition of existing structures and enabling works. Outline planning application for the construction of a multi-storey car park and pedestrian link building (all matters reserved).”

5.26 The TA forming part of the application for the scheme was prepared by URS and full review of the highway network capacity has been undertaken. Whist the URS study area does not include B653, it is considered unlikely that a large proportion of traffic associated with the airport expansion would use Lower Luton Road due to the proximity to alternative routes via the A1081 and the M1.

Committed Development Summary

5.27 To take account of the known committed developments the traffic flows from the consent secondary school have been included in the assessment work undertaken using the information from the submitted Transport Assessment. In addition to this TEMPRO traffic growth has been applied to existing traffic flows to take account of future traffic growth that would be associated with other developments that may come forward to ensure a robust assessment is undertaken.

Section Summary

5.28 The predicted traffic generation of the site has been calculated to ensure that a robust assessment is undertaken of the transport implications of developing the site.

5.29 The assessment takes into account known committed development and traffic growth to ensure that a cumulative assessment is undertaken.

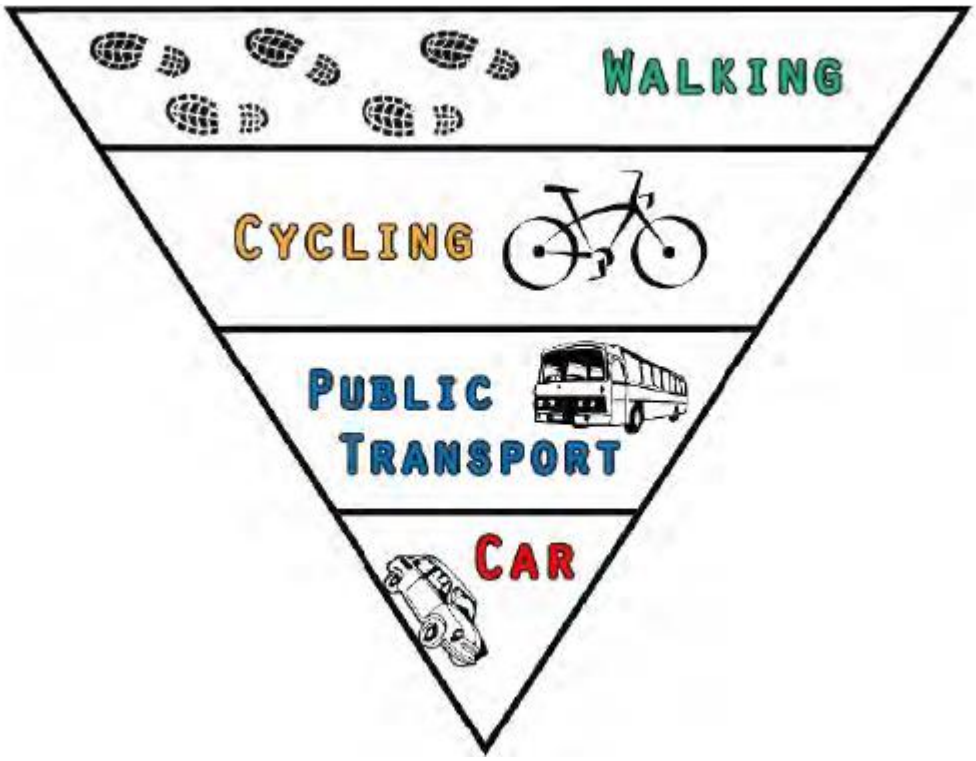
5.30 The new secondary school close to the site brings a significant benefit in managing vehicular transport demand.

6 POTENTIAL OFF-SITE ACCESSIBILITY IMPROVEMENTS

6.1 The sustainable transport strategy forms an integral part of the proposals to create a new extension of Harpenden. The objective is to create a package of measures and a commitment to funding that gives residents and visitors within the site a real choice of how they travel to, from and within the site. These will also be of benefit existing residents of Harpenden as they will also be able to benefit from the new sustainable transport initiatives introduced.

6.2 This approach is consistent with Government policy which seeks to prioritise non-car modes of travel, as highlighted in **Image 6.1.**

Image 6.1: Transport Modes Priority



6.3 The strategy should be seen in the context of a development which will take a number of years to be fully built out and occupied. During this time, government policies and technology are likely to evolve such that there is likely to be further encouragement to the use of sustainable modes of transport.

6.4 In terms of creating a truly sustainable community there are four central themes:

- Design (site layout);
- Choice;
- Management; and
- Behaviour.

Walking Routes to Key Destinations

6.5 The key destinations for future residents of the site include railway station and other education, health and retail facilities of town centre. These can be accessed from the site via Lower Luton Road / Station Road, Westfield Road and Manland Way.

6.6 The proposed access points from Lower Luton Road and to streets through Batford will facilitate pedestrian access along key desire lines. These routes lead to Lower Luton Road which provides access to the new secondary school in the south and to Station Road which in turn leads to the town centre sand railway station.

6.7 Whilst continuous footways are in place along Lower Luton Road enabling access to some retail in Batford as well as Lea Business Park to the west of Lower Luton Road, a new crossing point would be beneficial. A crossing point within the vicinity of the proposed access junctions would allow pedestrian access to Westfield Road, the southern side of Lower Luton Road, local bus stops and other local destinations.

6.8 The preliminary design of the access shows two new crossing points the form of pedestrian refuge islands. The crossing between the junctions could be implemented as a traffic signal controlled crossing which would be consistent with other facilities on Lower Luton Road to the south.

6.9 Pedestrian routes through Batford would benefit in a number of locations from the provision of dropped kerbs.

6.10 It is envisaged that most pedestrian trips would be undertaken along Manland Road and Station Road to access town centre facilities, secondary school and train station. An example of the routes that pedestrians are likely to take from the site is shown in **Figure 9** and potential improvements on these routes are shown in **Figure 10**.

6.11 Pedestrian facilities along the links generally improve as it approaches the town centre. The local pedestrian network within this area comprises footways and crossing points however no street lighting along Lower Luton Road adjacent to the site frontage is present. An improvement to street lighting may be required as part of the scheme.

6.12 Along Station Road, there is a lack of tactile paving and the dropped kerbs are insufficient at numerous crossing points. The improvements of those are to be delivered as part the committed development of Katherine Warington School. The surfacing along the footway varies in type and quality throughout. The footway gets narrow in some areas particularly along the bridge between Manland Avenue and Marquis Lane.

6.13 The footway/ cycleway along Manland Way provides a direct route towards the station, into the town centre and to Sir John Lawes Secondary School. The route can be accessed via an alleyway from Station Road. The route south to Carlton Road involves a mix of quiet residential roads and alleyways. Some users may find the alleyway a security risk but overall the route provides a satisfactory environment for pedestrians. The route does however lack wayfinding signage.

6.14 **Figure 11** shows potential additional crossing locations along Lower Luton Road that would be associated with the provision of the site accesses.

6.15 As part of the Travel Plan new residents will be provided with Welcome Packs when they move into their new homes that give information on waking routes to local facilities and key destinations.

Cycle Routes

6.16 A majority of cycling trips (72%) are contained within Harpenden Area. The area in the immediate vicinity to the site has relatively high-density cycle network with NCR 6 and NCR57 meeting to the north of town centre. Further to these, a section of a local route has been recently completed to connect NCR6 with NCR57 along Lower Luton Road. Development of Lower Luton Road can benefit from these recent improvements

6.17 There is a route signed for cyclists along Manland Way which provides a direct route to various amenities. Parts of this route (shown in **Figure 5**) is part of the NCR 57. At present, areas of this route are narrow which may make it difficult for cyclists to use at the same time as

pedestrians. An improvement in this area might be beneficial for the site connectivity with the town centre by bicycle.

6.18 Further to the route improvements, a number of areas in the town centre appear to suffer from the shortage of cycle parking spaces. During the site visit a number of bicycles were observed to be attached to gates and fences. Additional cycle parking spaces in the town centre area should be considered as part of the scheme.

6.19 As part of the Travel Plan new residents will be provided with Welcome Packs when they move into their new homes that give information on cycling routes to local facilities and key destinations and on longer distance routes.

Public Transport

Bus Strategy

6.20 At present buses are used by only 1% of the local residents and mainly to reach local destinations.

6.21 The site benefits from the existing bus stops located on Lower Luton Road and Westfield Road which are served by good level of bus service. At present bus stops provide pole and flag only which with an increased public transport demand may be appropriate for future improvements.

6.22 Bus shelters with waiting areas can be introduced at this location as part of the development. New crossing facilities on Lower Luton Road within the vicinity of the proposed site access junctions will ensure each bus stop may be safely accessed.

6.23 The developer of the site should seek the opportunity to improve existing bus services though the early discussions with HCC and local bus operators.

6.24 The potential for new residents to be offered discounted bus travel for a period when they first move in will be investigated as part of the Travel Plan to encourage the use of buses.

6.25 As part of the Travel Plan new residents will be provided with Welcome Packs when they move into their new homes that give information on local bus services and bus stop locations.

Rail Strategy

6.26 Given that over a quarter of all future occupiers of the site are likely to commute by train, it is expected that some improvements would be required to be delivered at the station to mitigate development impact.

6.27 At present the station offers 548 cycle parking spaces and a car park operated by third party. It is understood that the station benefited from recent improvements which included significant increase of cycle parking spaces and additional step-free access. The observations from the site visit demonstrated that current cycle parking capacity is sufficient to accommodate for the existing demand. Should the demand for cycle parking increase additional spaces may be offered as part of the scheme.

6.28 Further discussions with Network Rail and Train Operating Companies should be carried out to identify further potential improvements at Harpenden station that may be required.

6.29 As part of the Travel Plan new residents will be provided with Welcome Packs when they move into their new homes that give information on train services and how to walk to the railway station.

Section Summary

6.30 In association with the development of the site there are identified opportunities to encourage walking and cycling through new and improved routes/crossing facilities and through the provision of information about the routes

6.31 Bus and train use would be encouraged through potential subsidies for bus passengers and through the provision of information on the services and how to walk to local bus stops and to the railway station along the improved routes.

6.32 Improving the accessibility of what is already a site in a sustainable locations will help to minimise vehicular traffic demand and mitigation the potential implications of development the site.

7 HIGHWAY CAPACITY

7.1 This section of the report provides summary of the initial site access junction feasibility review. It should be noted that the results presented in this section consider the worst-case scenario of a single access taken onto Lower Luton Road to serve the whole site. The review aims to ascertain if the site access can be delivered from the capacity perspective.

Highway Network Impact

Background Traffic Data

7.2 Traffic data along Lower Luton Road was requested from Hertfordshire County Council for neutral time period. The Automatic Traffic Counter (ATC) data supplied was surveyed for seven consecutive days starting 1st November 2016 on Lower Luton Road between junction with Westfield Road and Station Road. The data captured included traffic volume in each direction and presented for every hour.

7.3 This assessment is based on the typical network peak hours of 08:00 – 09:00 and 17:00 – 18:00. The data used in this assessment is the average of the neutral days between Tuesday and Thursdays.

Traffic Growth

7.4 Given that the site is proposed as a residential-led allocation for 760 dwellings in the New Local Plan, the assessment of junction capacity is based on the future year. The New Local Plan is to guide the development of St. Albans area until 2036 therefore TEMPRO 7.2 National Trip End Model growth factors were applied to 2016 data. There were based on St. Albans 001 area for all roads with following growth factors identified:

- AM peak: 1.1493;
- PM peak: 1.1336.

7.5 The above growth factors were applied to northbound and southbound traffic flows along Lower Luton Road.

Committed Development Traffic

7.6 As discussed in Chapter 5, there are three sites currently identified as committed/ emerging development.

7.7 Traffic data for the committed Katherine Warrington School has been extracted from the Local Transport projects and has been included in the assessment as committed development.

7.8 Whist the proposed Luton Airport Expansion is forecast to attract a large number of new trips only a small proportion of them is likely to use B653 Lower Luton Road due to the proximity of M1 and A1081. As such it is considered that traffic associated with Luton Airport Expansion is captured within TEMPRO growth factor.

7.9 The proposed scheme to construct new incinerator facilities in East Hyde is currently in the early stage of planning. Nevertheless, Screening Opinion Report states that majority of traffic is likely to be restricted to using the routes to the north of the site only and as such no further consideration to its traffic are required.

Development Traffic

7.10 The methodology of deriving development traffic data and traffic distribution is presented in Chapter 4. The site vehicle traffic generation data is used on this assessment.

Initial Access Junction Feasibility Review

7.11 The capacity model has been undertaken using TRL software Junctions9 as the most common industry standard. Junctions 9 return results is ratio of flow to capacity (RFC), mean queue (vehicles) and delay (s). RFC values between 0.00 and 0.85 indicate good operating conditions, values between 0.85 and 1.00 represent variable operation (i.e. queues building up at the junction resulting in increased vehicle delay moving through the junction). RFC values in excess of 1.00 represent overloaded conditions.

7.12 The results of the site access capacity assessment for 2036 with committed school traffic are presented in **Table 6.1.**

Table 6.1: Junction 9 site access junction modelling results

	AM Peak			PM Peak		
	RFC	Queue (Veh)	Delay (s)	RFC	Queue (Veh)	Delay (s)
Site Access (left)	2.3	37.35	0.71	0.5	18.62	0.35
Site Access (Right)	1.3	65.45	0.58	0.7	81.44	0.43
Lower Luton Road NB (right)	0.2	9.04	0.16	1.2	18.21	0.53

7.13 As demonstrated in the above table, site access junction is forecast to operate within theoretical capacity with the proposed development of 760 dwellings.

7.14 The above results offer the worst-case scenario review with trip rates for 'houses privately owned' only and a single point of access. The scheme of 760 dwellings would be required to provide multiple access points resulting in a diversion of the site traffic to alternative access points.

Offsite Highway Improvements

7.15 Further capacity assessment of the wider network would be required to inform site traffic mitigation strategy in the later stages.

7.16 This will be in the context of the work undertaken to date through the Harpenden Transport Study and the assessment work undertaken in association with the consented secondary school.

7.17 There are improvements that could be undertaken to mitigate the traffic implications of the development of the site. There are no issues that have been identified that would prevent the site being developed as proposed.

Section Summary

7.18 There are options for the provision of access to the site and the initial assessment work has shown that all of these are feasible and would safely accommodate future traffic levels.

7.19 A single access onto Lower Luton Road with separate emergency access(es) onto Bowers Heath Lane and/or Common Lane could serve the site. Secondary accesses would have the advantage of dissipating the traffic associated with the new housing.

7.20 There are no identified offsite highway constraints that would prevent the site from being developed as proposed and there are improvement schemes that could be implemented to mitigate the implications of traffic associated with developing the site. This mitigation would be developed in detail to support a planning application.

8 SUMMARY AND CONCLUSIONS

Summary

8.1 Vectos is retained by Crest Strategic Projects Ltd. to provide transport advice in relation to the proposals for the development of land at Lower Road in north east of Harpenden. The site is within administrative boundaries of St Albans City and District Council (SADC).

8.2 The site is located within 2km to the north-east of Harpenden Town Centre. The site is bounded to the south-west by B653 Lower Luton Road which serves as primary distributor road; and to the east by the B652 Bower Heath Lane. Common Lane forms the north western boundary, with existing residential development located to the south and west of the site.

8.3 The site is allocated in the emerging SADC Local Plan under a policy S6 vii 'North East Harpenden Broad Location'. In line with this draft policy the development would consist of minimum 760 dwellings which would include at least 50+ homes C3 Flexi-care and 10 units to provide special needs accommodation. Affordable dwellings are required to be provided at the minimum proportion of 40%.

8.4 The site is in an accessible location for pedestrians, cyclists and by public transport that is close to a variety of existing local facilities.

8.5 The proposed development of the site is consistency with the national and local policy objectives as the site is in an accessible location for walking, cycling and public transport and as part of the proposed development the accessibility of the site will be further enhanced with the use of sustainable transport modes, especially walking and cycling, being encouraged.

8.6 The proposed development on the site will be sustainable and will include facilities, including a primary school, to support the proposed housing which will reduce transport demand.

8.7 There are options to provide access to the site for pedestrians, cyclists and vehicles that are feasible and deliverable.

8.8 A Travel Plan will be produced for the site to further encourage the use of sustainable modes of transport (walking, cycling and bus and train use).

8.9 In association with the development of the site there are identified opportunities to encourage walking and cycling through new and improved routes/crossing facilities and through the provision of information about the routes

8.10 There are options for the provision of access to the site and the initial assessment work has shown that all of these are feasible and would safely accommodate future traffic levels.

8.11 There are no identified offsite highway constraints that would prevent the site from being developed as proposed and there are improvement schemes that could be implemented to mitigate the implications of traffic associated with developing the site. This mitigation would be developed in detail to support a planning application.

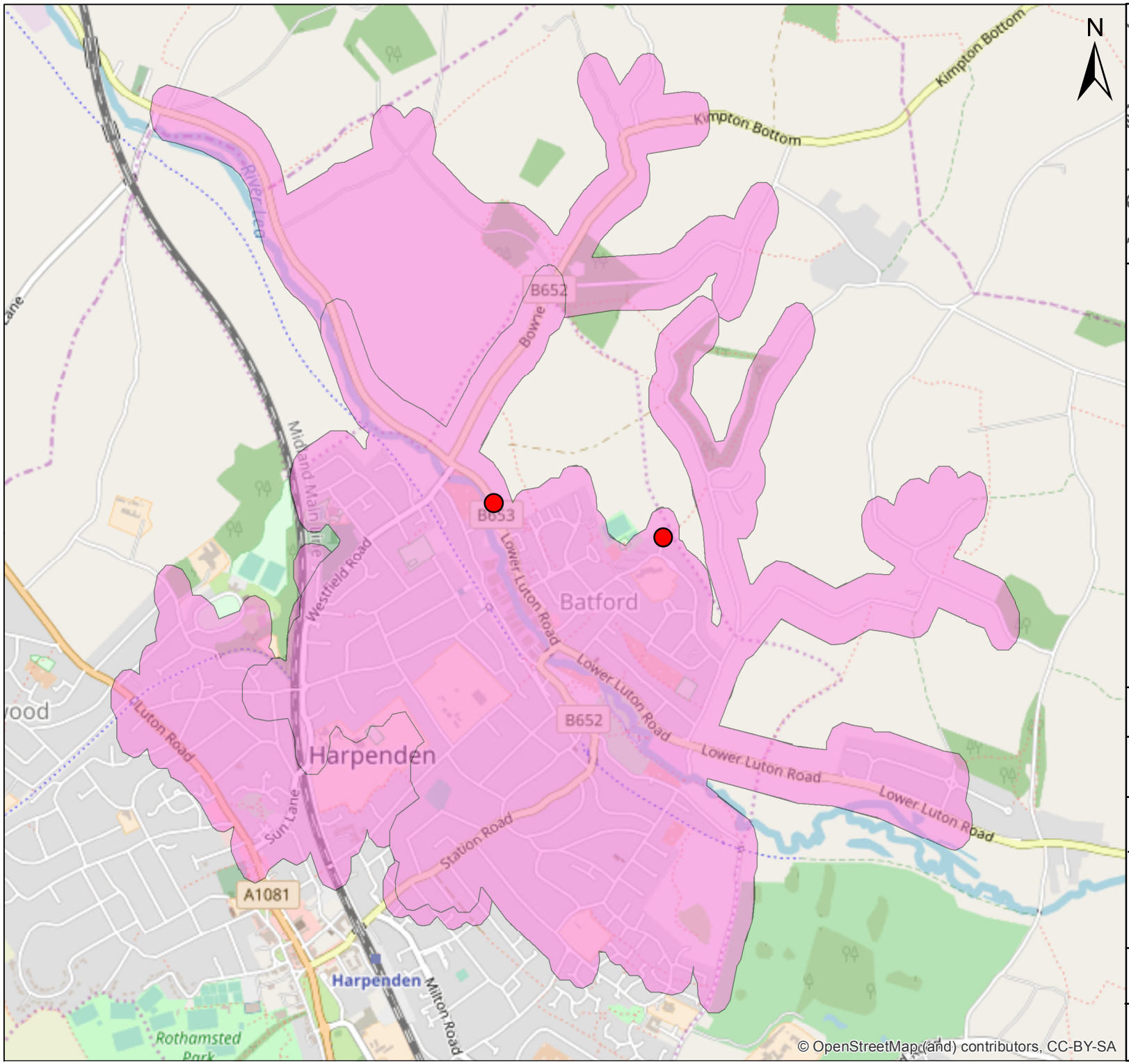
Conclusions

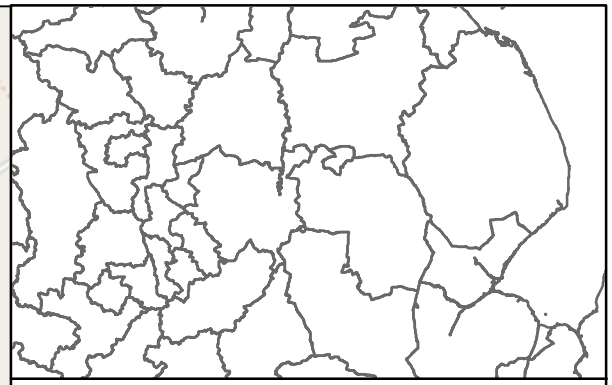
8.12 The site is in an accessible location which is close to local facilities and measures as part of/and associated with the development of the site would further improve the accessibility of the area.

8.13 Access can be provided to the site and there are no identified highway constraints that would prevent the proposed development coming forward. There are highway improvements that could mitigate the impact of traffic associated with the site.

8.14 It is concluded that the proposed housing is deliverable and that it reflects local and national aspirations to promote sustainable communities.

FIGURES





Legend

- Pedestrian Accesses
- 2km Walking

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Land north of Lower Luton Road, Harpenden

2 km Walking Isoncrone

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FIGURE:
Figure 1–

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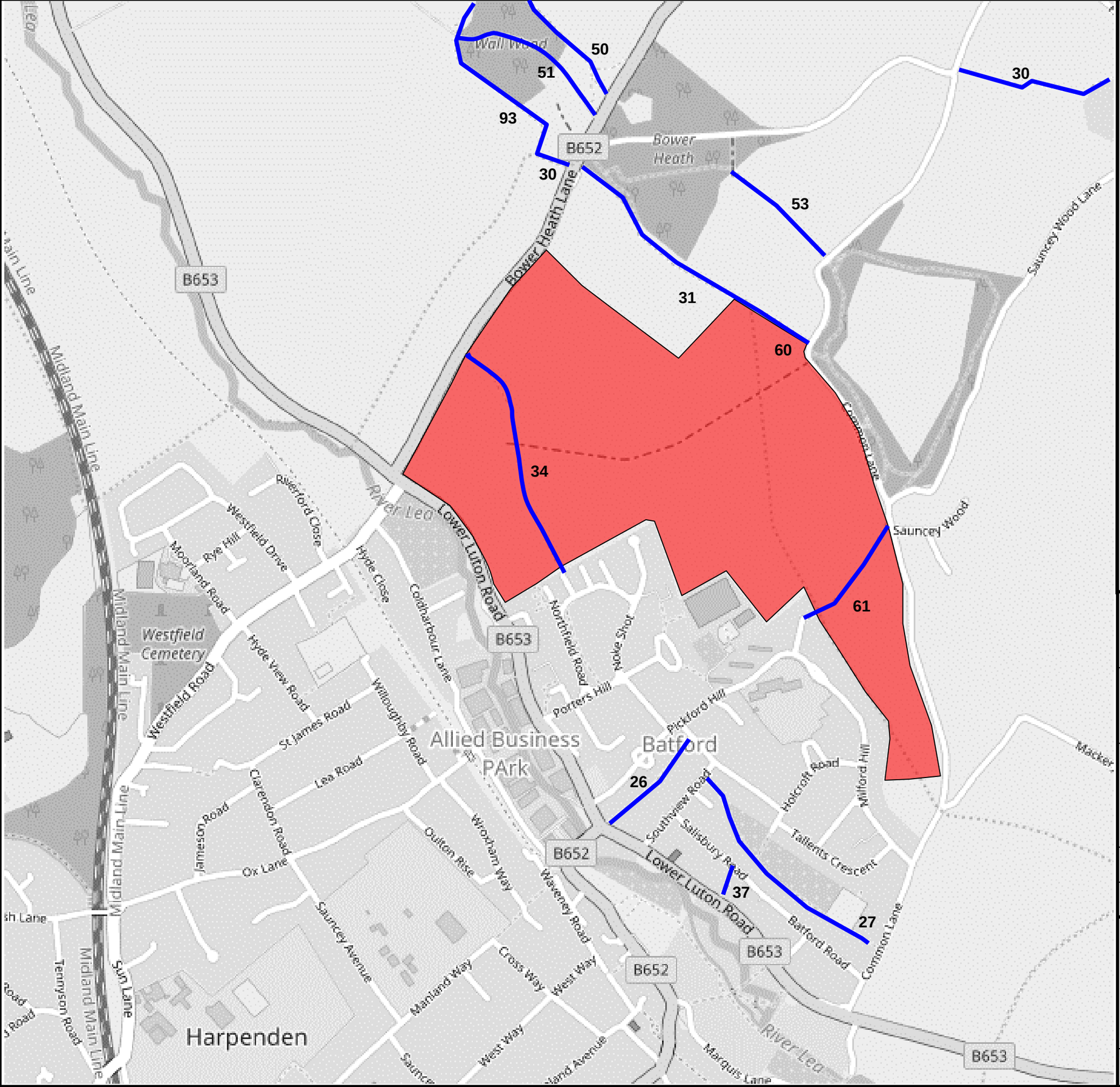
EH	DD	15/10/2018



Key

Site Location

Public right of way

30 Public right of way identification number

Crest Strategic Projects

Land North of Lower Luton Road, Harpenden

Public Rights Of Way

SCALES:			
NTS			
DRAWN: RB	CHECKED: DD	DATE: 31/07/18	REVISION: ·

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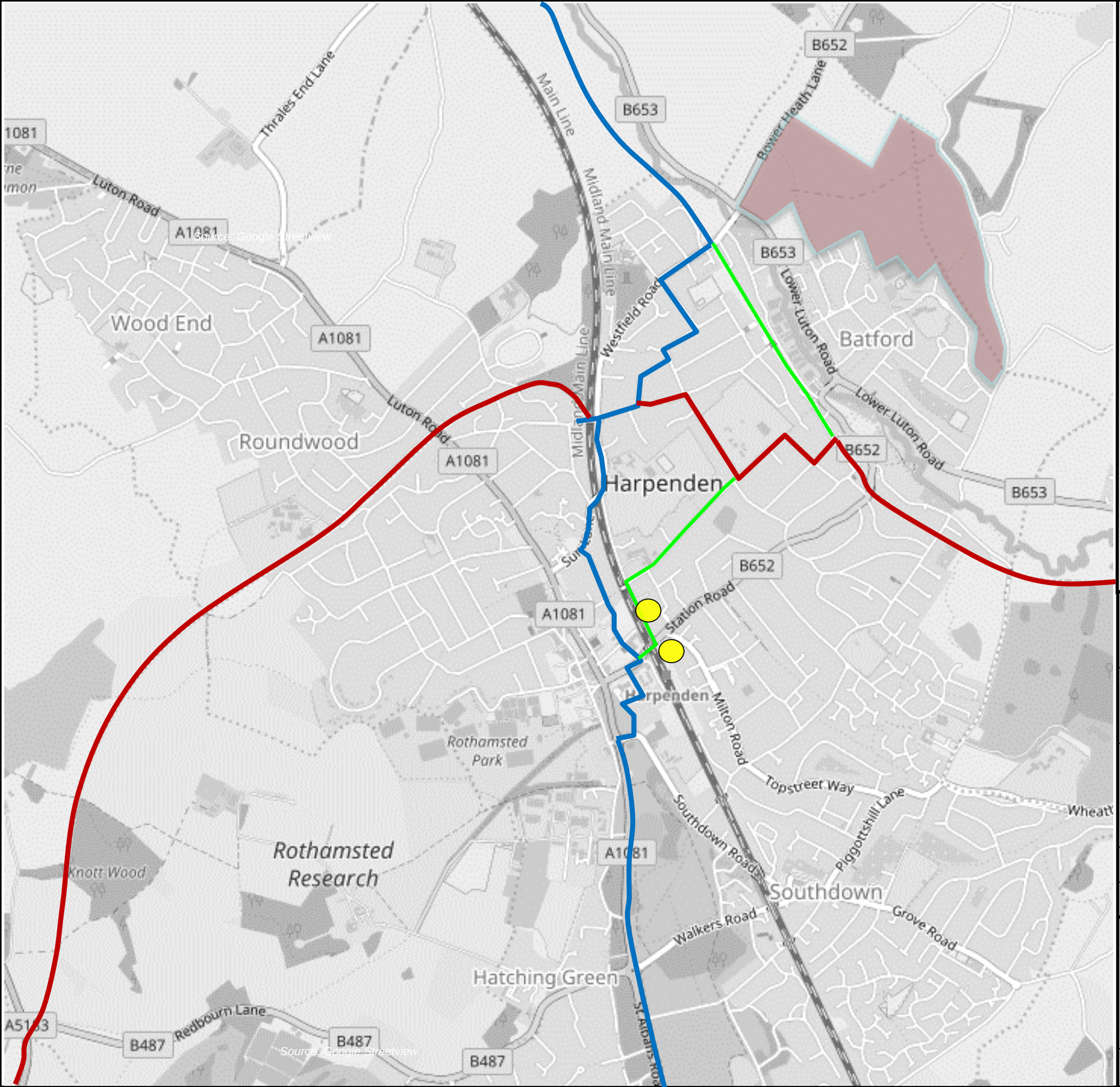
Figure H



Crest

Land North of Lower Luton Road, Harpenden

Cycle Routes

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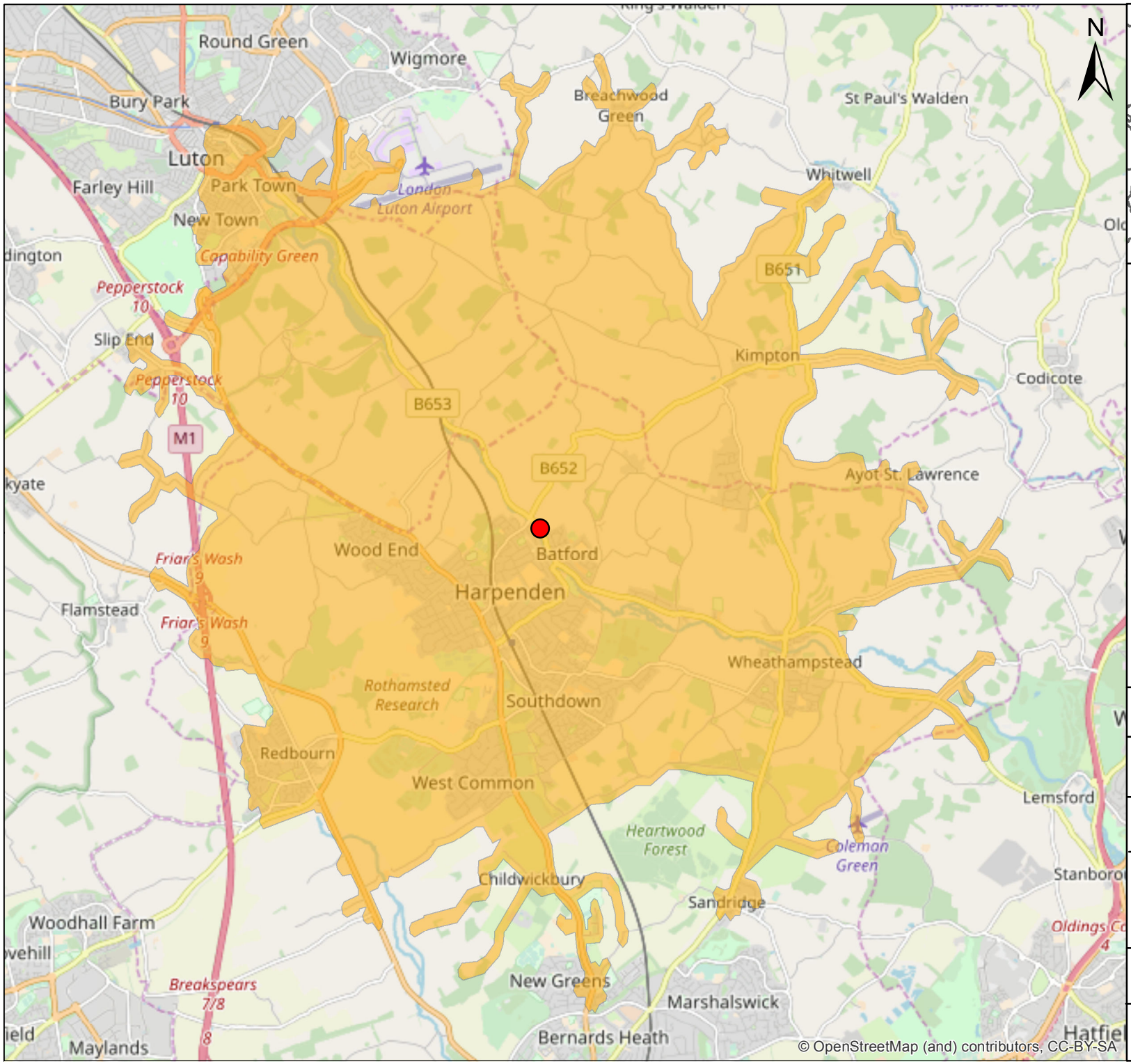
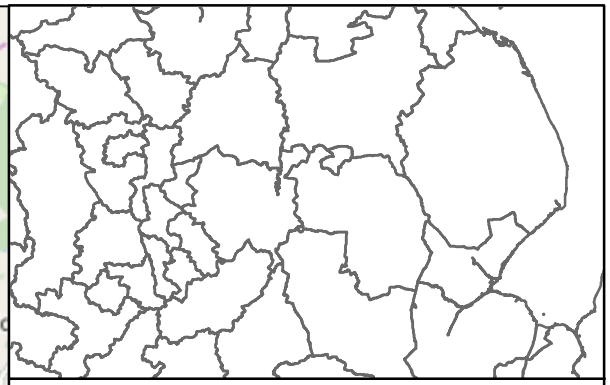
Figure 0





Legend

- Site Access
- 8km

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Land north of Lower Luton Road, Harpenden

8 km Cycling Isocrone

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FIGURE: **Figure 11**

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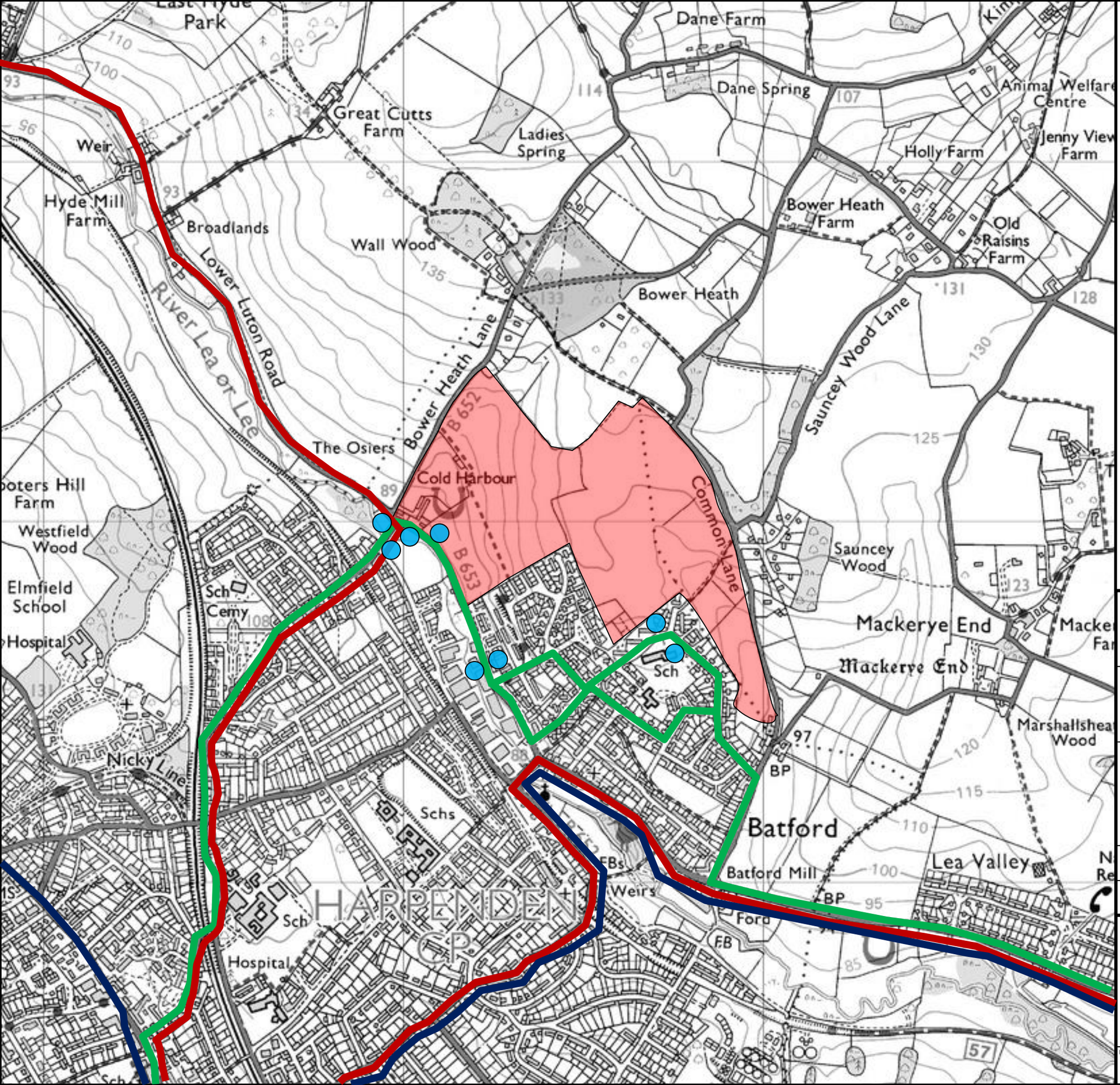

Key

- Red line boundary
- Closest Bus stops
- 45/366
- 657
- 636/ 366

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Land North of Lower Luton road, Harpenden

Existing Bus Services Plan

SCALES:			
NTS			
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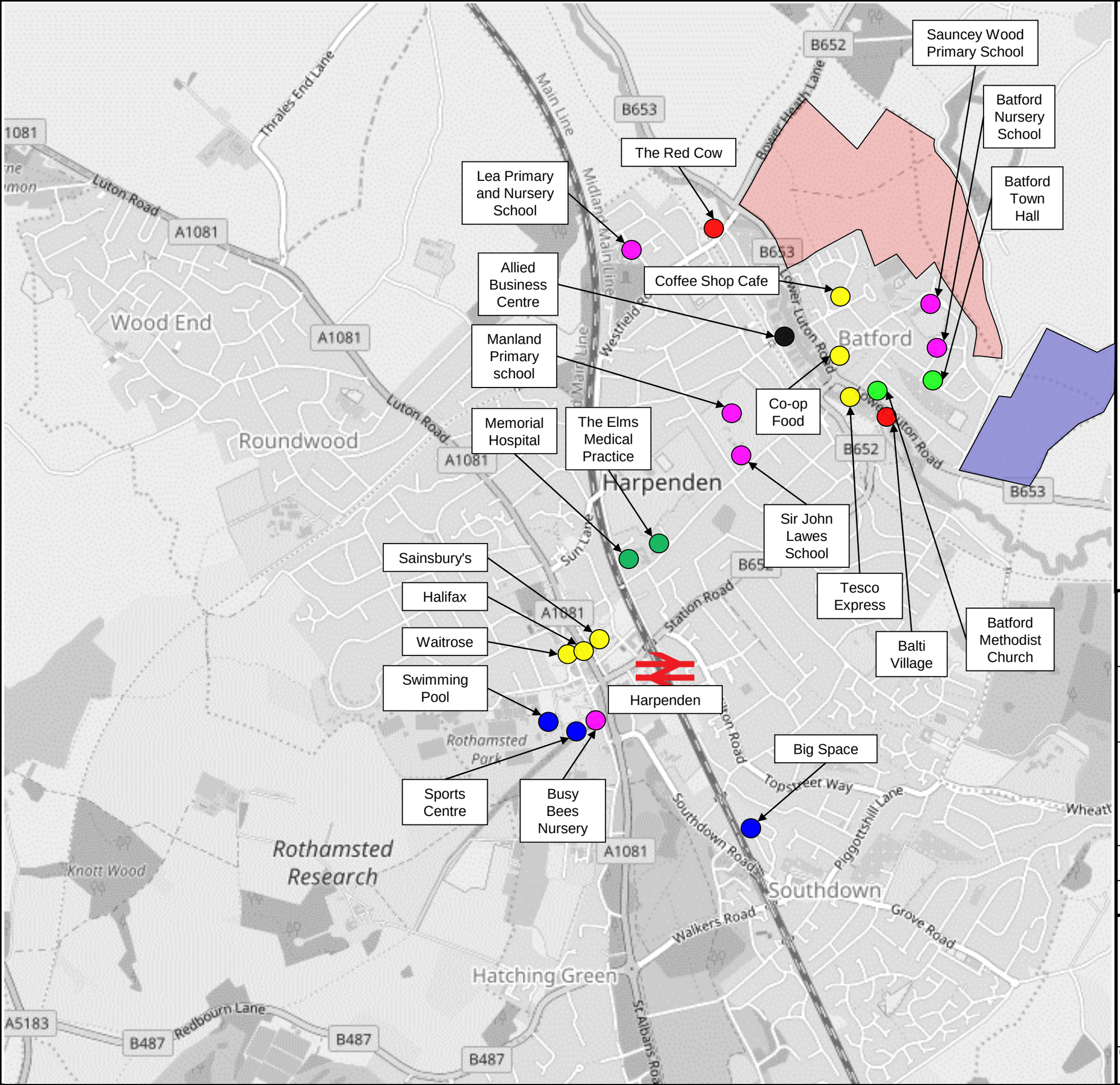
Figure p



Key

- Site Location
- Committed Development: School
- Railway Station
- Retail
- Education
- Health
- Business
- Pub/Restaurant
- Leisure
- Community

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Land North of Lower Luton Road, Harpenden

Local Facilities

SCALES:			
NTS			
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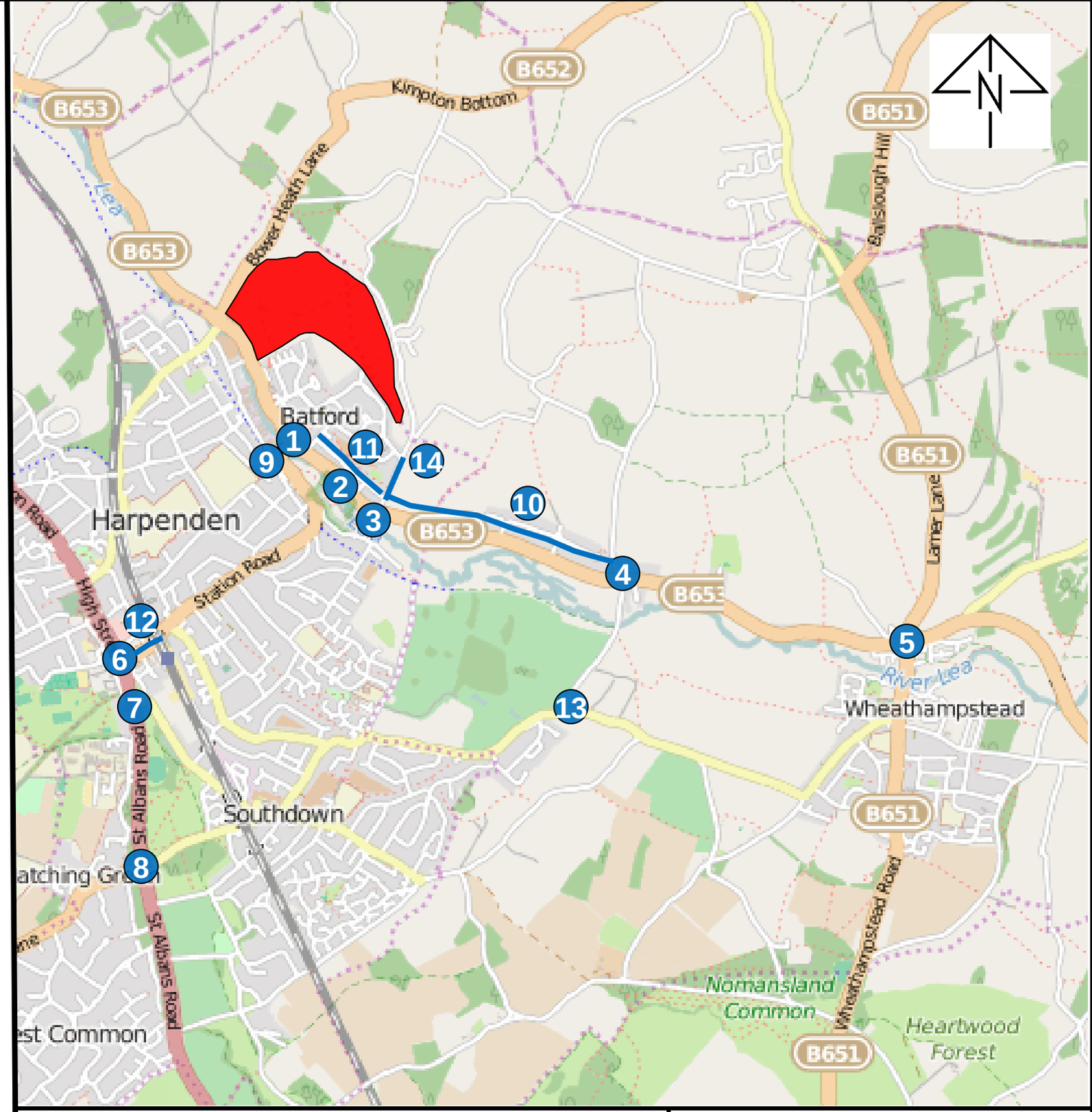
DRAWING REFERENCE:

Figure c

Key:

1. B653 Lower Luton Road / B652 Station Road – significant junction improvements, including signal control and adjacent road widening, including bridge widening.
2. B653 Lower Luton Road / Batford Road – realignment of northern part of junction to improve visibility and pedestrian provision.
3. B653 Lower Luton Road / Common Lane - significant works, including small roundabout incorporating Common Lane / Crabtree Lane and realignment of southern end of Common Lane to facilitate this.
4. B653 Lower Luton Road / Marshalls Heath Lane – realign southern end of Marshalls Heath Lane to enable the construction of new footpaths and uncontrolled crossing.
5. B653 Lower Luton Road / Codicote Road/ Station Road / Lamer Lane – kerb realignment works.
6. A1081 High Street / St Albans Road / B652 Station Road - major improvements, including possible introduction of traffic signals requiring kerb realignment.
7. A1081 St Albans Road / Bull Road / Leyton Road - enlargement of existing roundabout.
8. A1081 St Albans Road / Redbourn Road / Walkers Road – kerb realignments to increase entry flares.
9. Widening of Station Road over Pickford Bridge and improvements to pedestrian facilities at this location;
10. Possible widening of the B653 Lower Luton Road between Common Lane and Leasey Bridge Lane.
11. Consider one-way restrictions along Batford Road and Salisbury Road to assist traffic flow on Lower Luton Road.
12. B652 Station Road, east of the High Street – reduce length of parking area to remove pinch point.
13. Leasey Bridge Lane – restricted access from Wheathampstead Road and additional passing places and visibility improvements.
14. Possible localised widening to Common Lane on eastern (site) side and construction of additional passing places along Common Lane further north.



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Land at Lower Luton Road

Potential Highway Mitigation Improvement Works

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H.J	C.S	26/06/2015	

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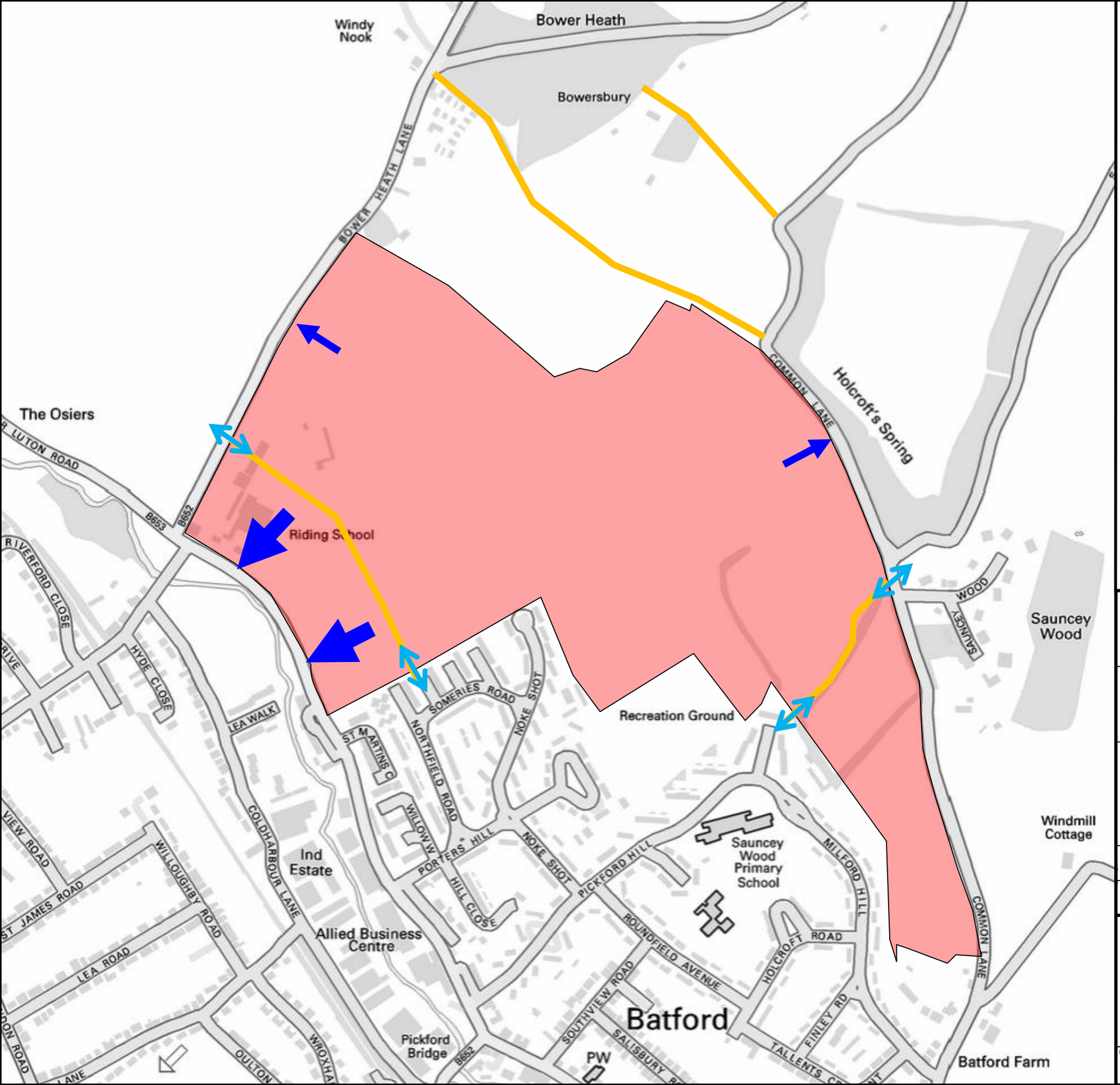
DRAWING REFERENCE: Figure 7



Key

(Policy S6 viii) North East Harpenden Broad Location

Public Footpaths

Pedestrian Access

Primary Vehicular Access

Emergency / Secondary Access

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Land North of Lower Luton Road, Harpenden

Site Access Appraisal Plan

SCALES:			
NTS			
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EH	SM	24/09/18	

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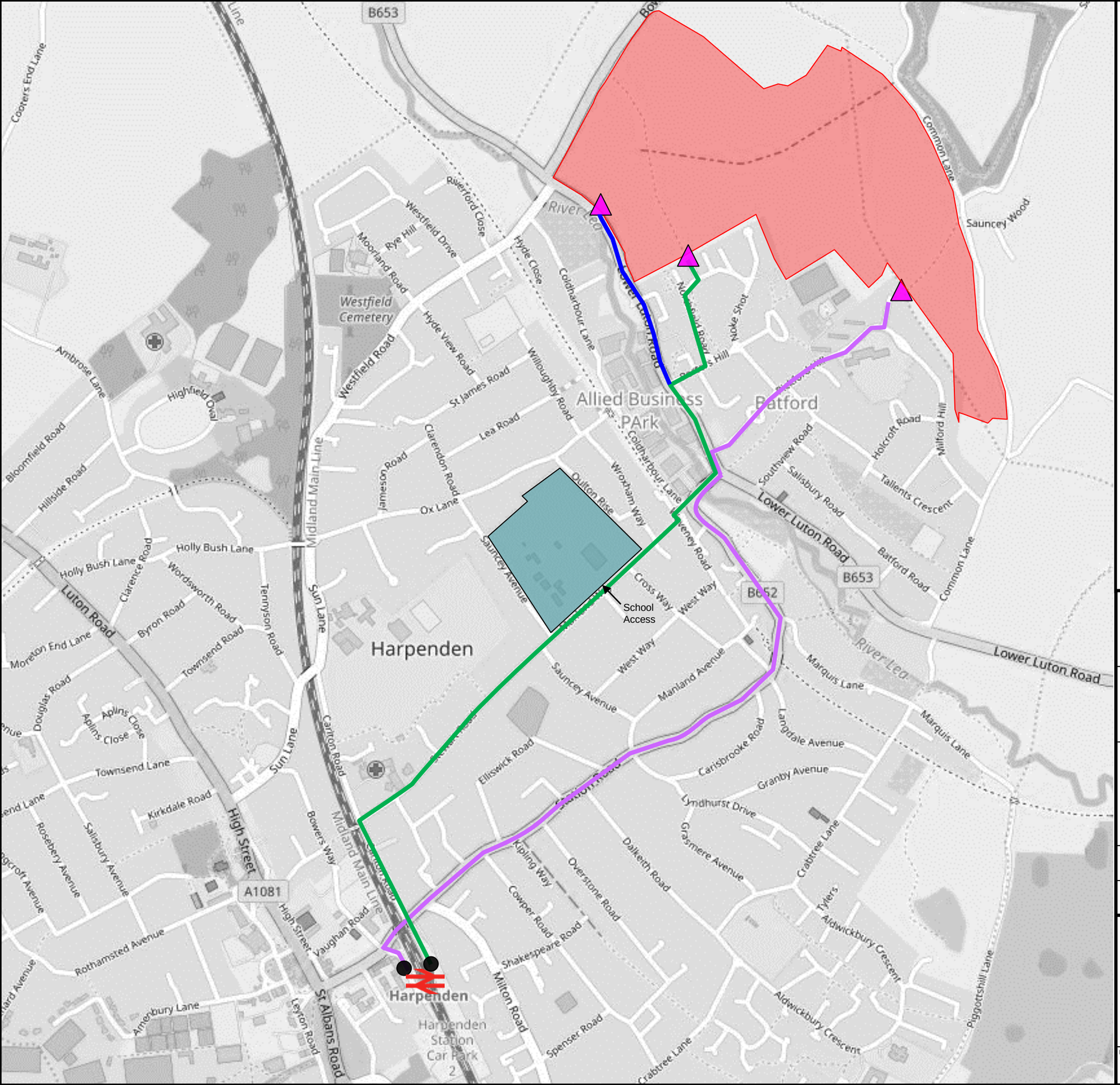

Key

- Indicative Site Boundary
- Potential Pedestrian Access Points
- Route 1
- Route 2
- Route 3
- Destination
- Sir John Lawes School (Secondary)

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Land north of Lower Luton road, Harpenden

Pedestrian Route Plan

SCALES:			
NTS			
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Figure ϕ

Key

- Indicative Site Boundary
- Potential Pedestrian Access Points
- Route 1
- Route 2
- Route 3
- Destination

Photos

1) Existing PRoW
2) Stairs from footpath to road
3) Existing ‘Porters Road’ Bus Stop
4) Narrow alleyway in poor condition
5) ‘No Cycling’ writing on a signed cycle route
6) Stewart Road (residential road)
7) Existing PRoW narrows with large amounts of surrounding vegetation
8) Narrow footway over bridge
9) Bus shelter missing roof
10) No dropped kerb at multiple locations on Station road
11) As above
12) ‘Overflow’ cycle parking along railings at station west side

Crest Strategic Projects

Land North of Lower Luton Road, Harpenden

Potential Improvement Locations

SCALES:			
NTS			
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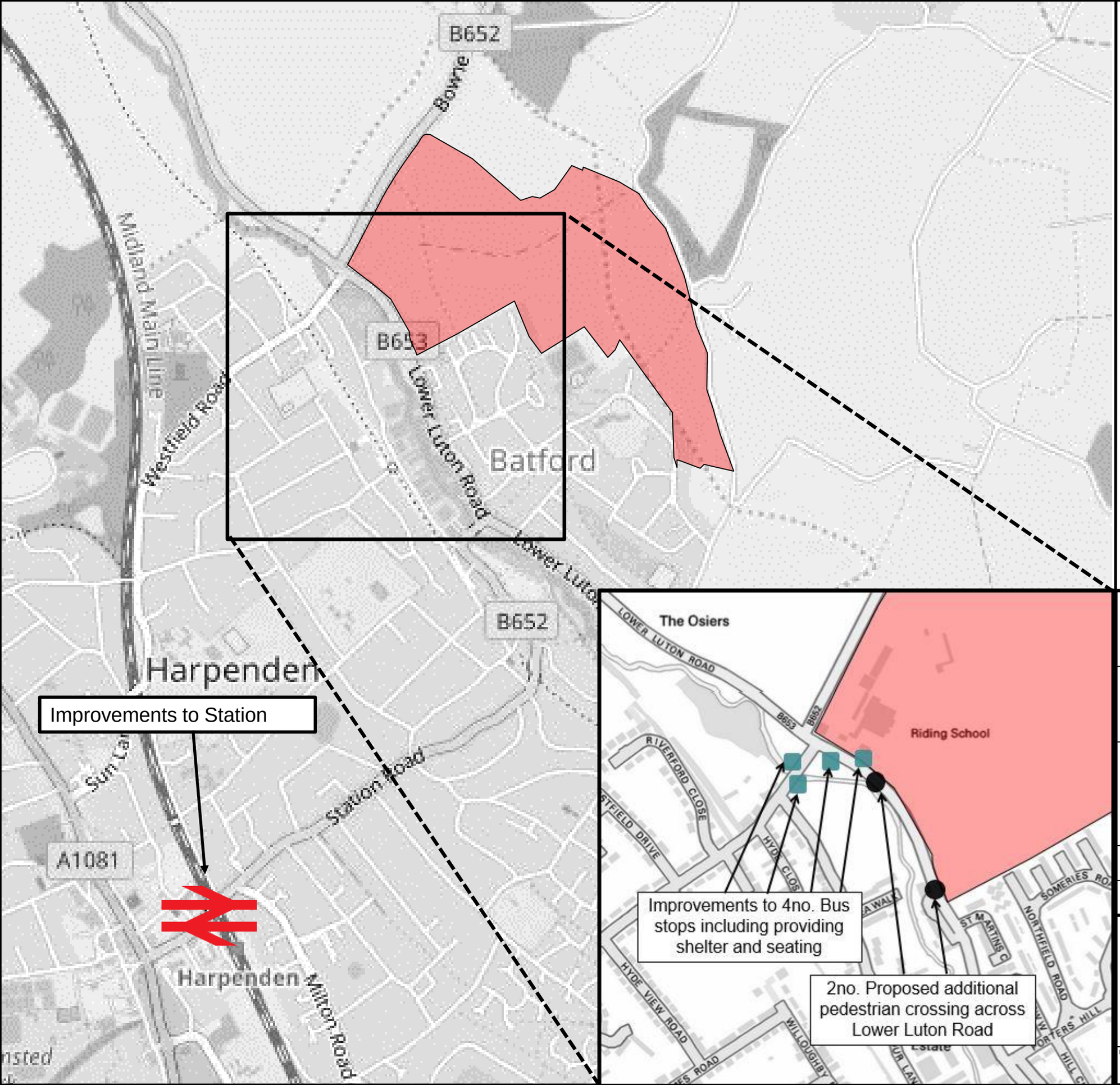

Key

- Indicative Site Boundary
- Bus Stop
- Potential Crossing Points

Crest Strategic Projects

Land North of Lower Luton Road, Harpenden

Potential Improvements

SCALES:	NTS		
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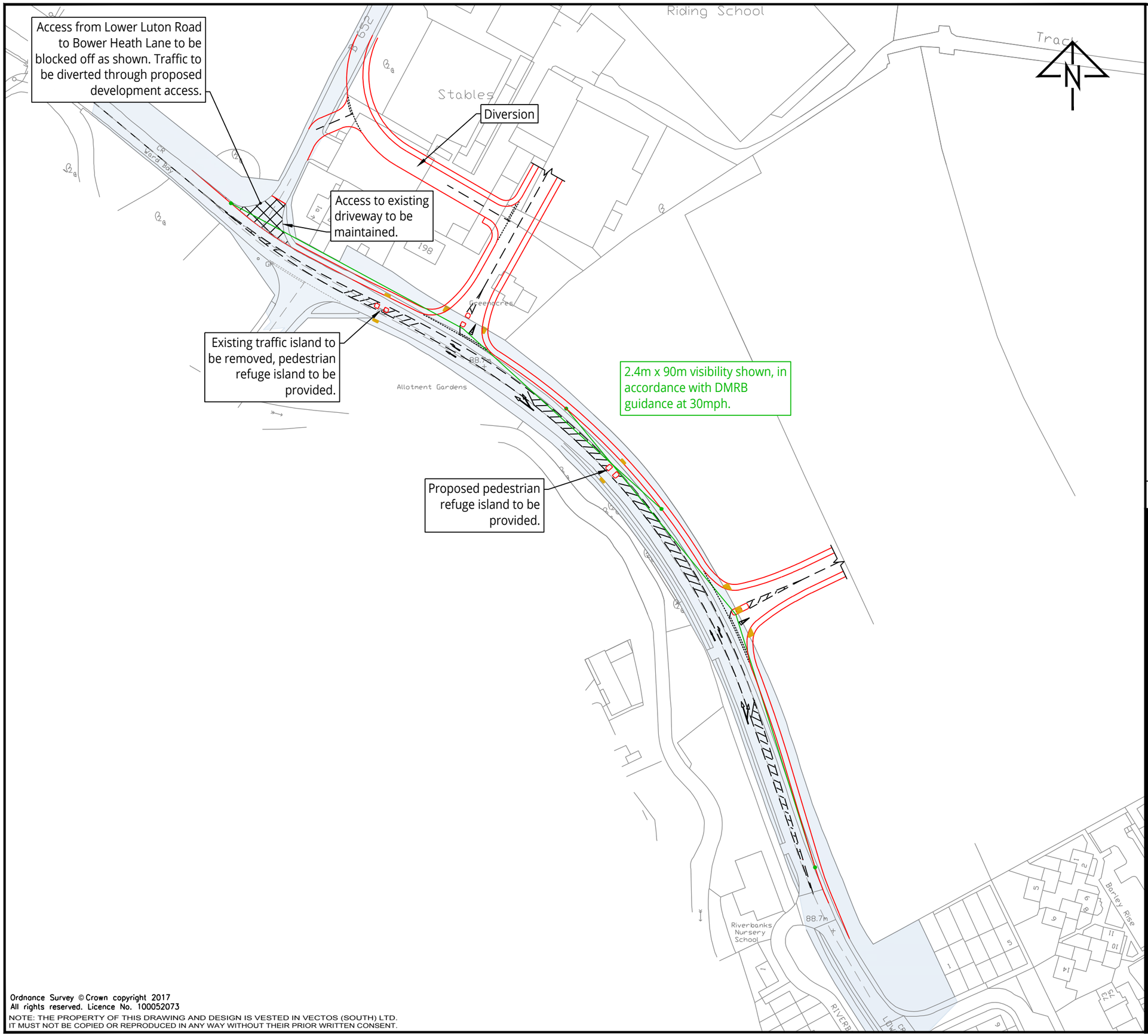
APPENDIX A

Site Access Junction Preliminary Design



Notes:

1. This is not a construction drawing and is intended for illustrative purposes only.
2. White lining is indicative only.
3. OS base modified to suit Google Earth aerial imagery.

Key:

Publicly maintainable highway land

REV.	DETAILS	DRAWN	CHECKED	DATE
.	.	.	.	.

CLIENT:

Crest Strategic Projects

PROJECT:

Lower Luton Road, Harpenden

DRAWING TITLE:

Access Overview
Lower Luton Road

SCALES:

1:1250 at A3

DRAWN:	CHECKED:	DATE:
TF	ID	15.10.2018

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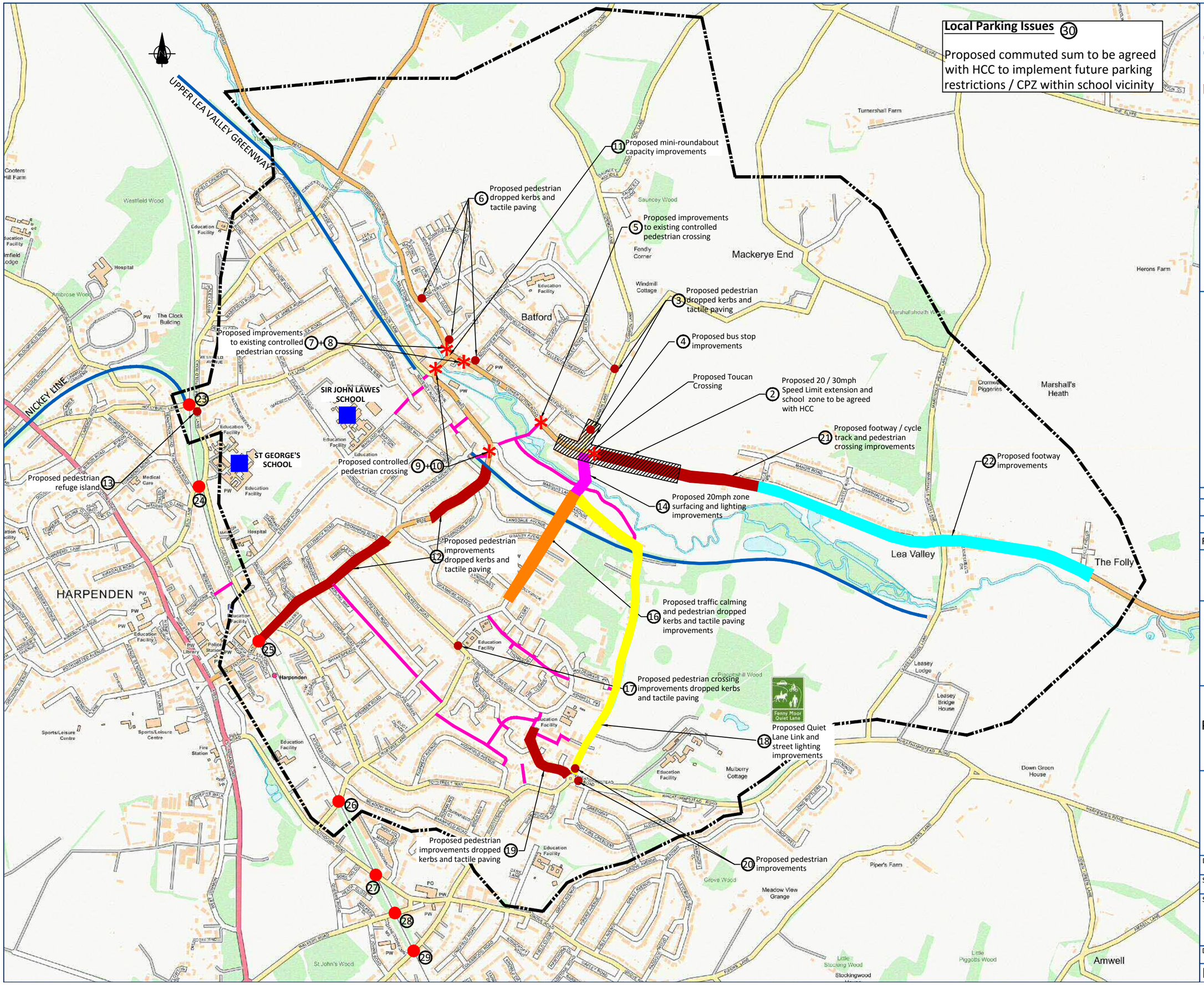
DRAWING NUMBER: 141499/A/14

REVISION: .

APPENDIX B

Proposed Transport Improvements Associated with the Secondary School



10mm

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Rev.	Date	By	Chk	Description
B	27 07 17	CW	JH	Drawing amended in light of meeting held on 26 07 17. Interventions numbered.
A	24 07 17	CW	JH	Amendements made to drawing in light of public consultation exercise.

Client: ESFA

Project: Katherine Warington School, Harpenden

Title: Proposed Package of Sustainable Access Improvements

local transport projects
traffic engineering and transport planning
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t 01482 679 911
info@local-transport-projects.co.uk
www.local-transport-projects.co.uk
Registered No. 5295328

Drawn	Date
CW	04 07 17
Scale: N. T. S.	Checked: JH/TK

Status: INTERNAL DRAFT; DRAFT; APPROVED; PRELIMINARY; CONSTRUCTION; AS BUILT

Drawing number

Project	Job	Drawing	Sheet	Revision
LTP/2675/	T1/	01	.01	B

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MASTERPLANNING & URBAN DESIGN
ARCHITECTURE
LANDSCAPE PLANNING & DESIGN
ENVIRONMENTAL PLANNING
HERITAGE
GRAPHIC COMMUNICATION
PUBLIC ENGAGEMENT
DEVELOPMENT ECONOMICS