Sustainable Transport Assessment

Local Plan Evidence Base

Stroud District Council

28 May 2015

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Document history

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1. Introduction

1.1. Background

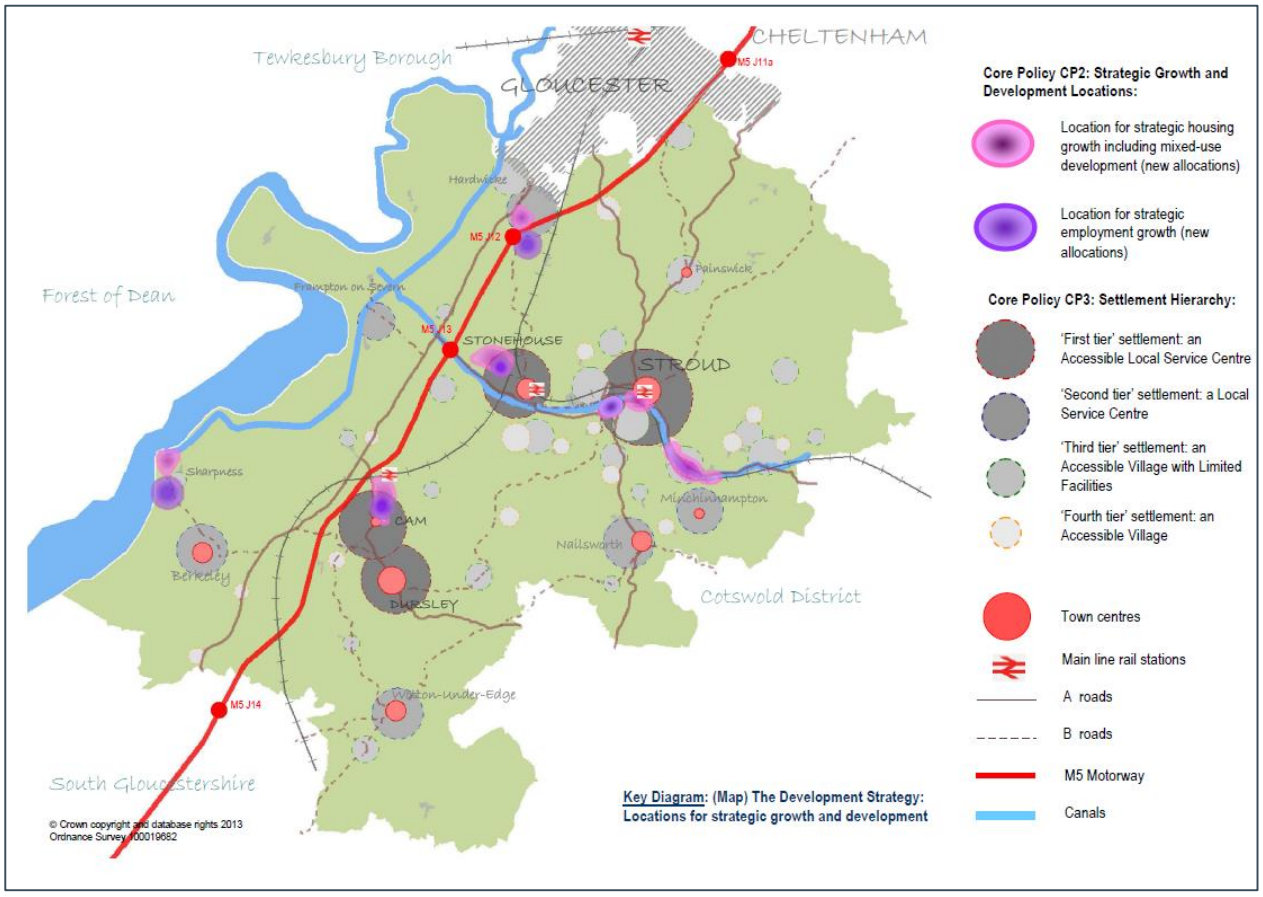
This Local Plan Sustainable Transport Audit has been prepared to form part of Infrastructure Development Plan and the Stroud District Council Local Plan evidence base.

It accompanies the Stroud District Council Local Development Plan – Junction Capacity Assessment prepared by Atkins in December 2014. The purpose of the report was to assess the impact of the traffic generated by developments within the emerging Stroud Local Plan at key highway junctions within the district and to assess junction capacity.

Core Policy CP13 (Demand Management and Sustainable Travel Measures) of the Stroud District Draft Local Plan states that Stroud District Council (SDC) will mitigate any significant adverse effects upon the transport network that arise from the development proposed – through development management and by committing to improving the existing infrastructure.

This report examines the existing sustainable transport infrastructure at the main development locations, and then provides a strategy for sustainable transport infrastructure at each of the locations. In line with Policy CP13, this will ensure that major schemes can *'provide for a variety of forms of transport as alternatives to the car to allow more sustainable choices.'* and *'Improve the existing infrastructure network, including road, rail and bus, facilities for pedestrians and cyclists, including provision for those with reduced mobility, and other users.'*

The location of the main development locations are shown in **Figure 1.1**.



1.2. Document Structure

This report is set out in the following format:

- Chapter 2: Methodology
- Chapter 3: Travel Plan Mode Shifts
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- Chapter 5: Site Audit for Hunts Quedgeley East
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- Chapter 9: Site Audit for Stonehouse
- Chapter 10: Summary and Conclusions
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2. Methodology

In order to understand the existing sustainability of the sites and to determine any sustainable infrastructure requirements, the methodology set out below was used.

The sustainable transport audit has been conducted using a combination of desk based studies that were verified during site visits to all the development sites undertaken in May 2015.

The quality of existing walking and cycling routes to key local destinations was assessed against relevant guidance and best practice guidance such as the Department for Transport (DfT) Manual for Streets.

The Institute of Highways and Transportation (IHT) Guidelines for Providing for Journeys on Foot suggests desirable walking distances for pedestrians without mobility impairment to some common facilities. 1km is an acceptable walking distance for commuting to school / work and 2km is the preferred maximum walking distances for commuting to school / work.

When considering walking times to key amenities, a walk speed of 1.4m/s was used. The walking speed is based on guidance given in Paragraph 3.30 in the IHT's publication "Guidelines for Providing for Journeys on Foot" which states: *"An average walking speed of 1.4m/s can be assumed which equates to approximately 400m in five minutes or three miles per hour".*

When considering cycling times to key amenities, a cycle speed of 4.4m/s was used. A cycling speed of 4.4m/s has been taken from the SUSTRANS Information Sheet FF11 or 'Cycle Friendly Employers' Information Sheet' and states that "*a five mile journey can be comfortably cycled by an adult in 30 minutes"*.

TRACC has been used to investigate how accessible the proposed development sites by public transport modes serving the local area. These modes include, where relevant, bus and rail. TRACC uses up-to-date public timetable information. The results of the calculations performed in the analysis have been used to produce public transport isochrones that provide a visual assessment of the public transport accessibility in the areas surrounding the sites.

High level accident analysis was undertaken using accident data for a 5 year period from 2009-2013 to assess accident trends in the vicinity of the development sites.

Critical locations on the road network with poor accident records have been identified to determine if the proposed land allocations will exacerbate existing problems and whether highway mitigation works or traffic management measures will be required to alleviate such problems.

The overall sustainability of each site has been considered based on the above analysis and any sustainable transport infrastructure requirements have been identified.

3. Travel Plan Mode Shifts

As part of the Stroud junction capacity analysis, a trip rate reduction factor of 6% was applied to sites where sustainable travel was viable. The reduction reflects the requirements for Travel Plans to identify measures to promote sustainable travel and provide targets for increasing sustainable mode share. The sites assessed as benefiting from sustainable travel reductions were:

- Hunts Grove
- Stonehouse
- North East Cam

There is research published by the DfT demonstrating the benefits of implementing Travel Plans and sustainable travel measures to achieve a mode shift from car use. In particular, the following research is relevant:

- 'Making Personal Travel Plans Work' (DfT, 2007) reports a reduction in single occupancy vehicle trips of 12% across 12 DfT areas following to implementation of Personalised Travel Planning; and
- 'Smarter Choices – Changing the Way We Travel' (DfT, 2005) reports a reduction of between 5% and 9% in single occupancy vehicle trips in non-urban areas for commuting journeys following the implementation of a Workplace Travel Plan. The sites considered in this research included a wide range of employers in differing locations implementing a variety of measures.

Comprehensive Travel Plans would be prepared at the appropriate stage for the sites which would include site specific measures such as Personalised Travel Planning, which alone has been reported to result in significant reductions in single occupancy car trips of 12%. Therefore, the above research demonstrates that it is appropriate to apply a 6% reduction to the trip generation.

In reality, the implementation of Travel Plans, and effective measures such as Personalised Travel Planning, could result in greater reductions in sole occupancy car trips. Furthermore, the 6% reduction has only been applied to three of the sites. Improvements for each site are set out in this strategy which would enhance the sustainability of each of the sites in travel terms and hence reduce dependence on single occupancy car trips across all sites.

A corresponding 4% reduction in trip generation has also been applied to those sites which are located near to existing facilities and for those sites where it is proposed to provide a mix of land uses. This reduction reflects the likelihood that a proportion of trips will be to these local facilities and therefore future residents would likely undertake these trips by sustainable travel modes. The sites assessed as being in close proximity to existing facilities or which are proposed to comprise a mix of land uses and hence increase the likelihood of travelling by sustainable modes for these local trips are as follows:

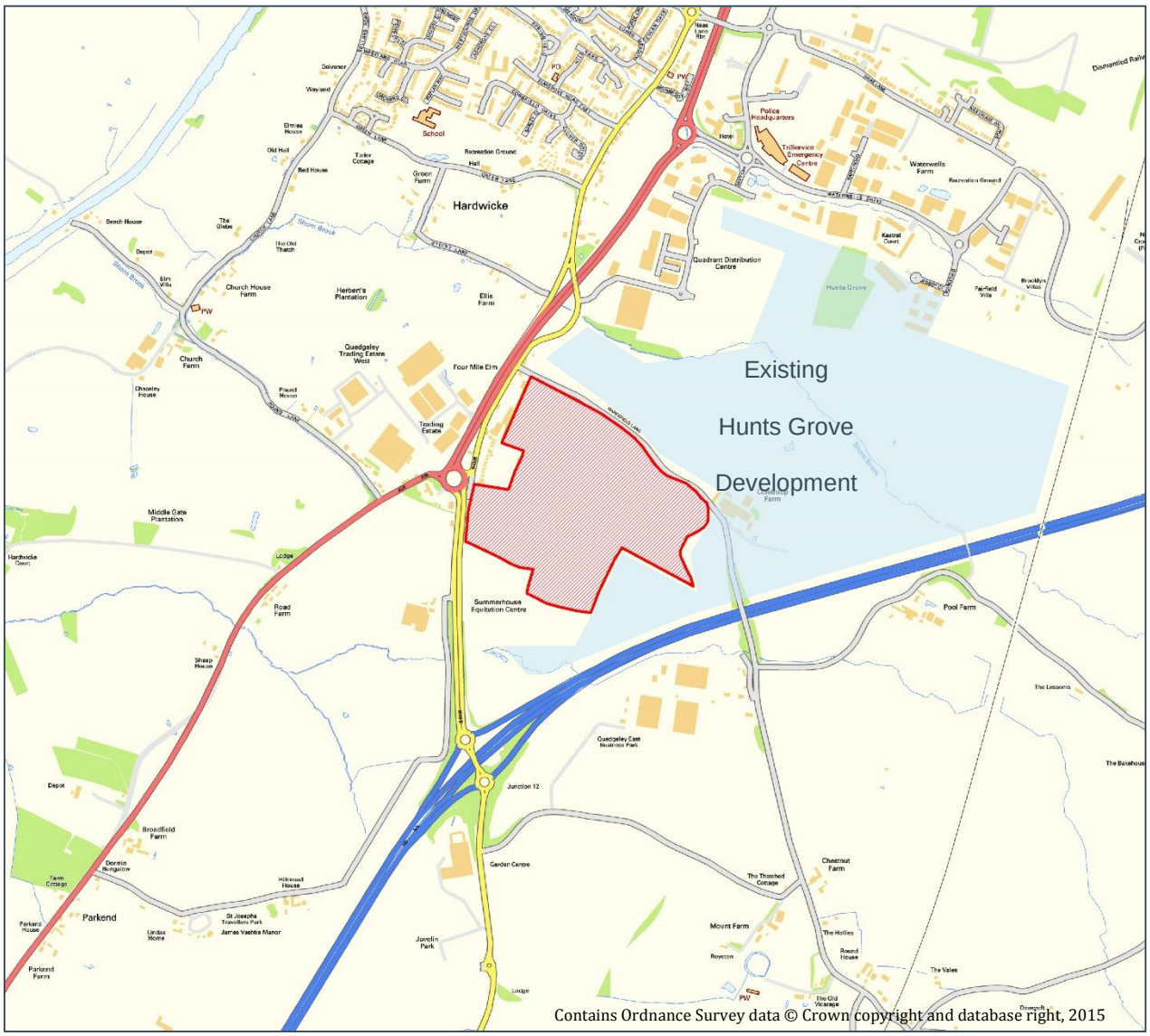
- Hunts Grove
- North East Cam
- Stroud Valleys

4. Site Audit for Hunts Grove

4.1. Site Description

Hunts Grove is located to the north of the M5, near Junction 12. The site lies approximately 7km to the south of Gloucester City Centre and is an extension to the south of the existing Hunts Grove development, providing an additional 500 dwellings. This will result in a total of 2,250 homes over the period of the Local Plan (up to 2031). Additionally, the site will house a new local centre, providing convenience stores and community facilities, as well as employment and social uses and a new primary school. It is situated near to the existing Quedgeley East Business Park and is approximately 26 ha in size. The site location is shown in **Figure 4.1**.

Figure 4.1: Site Location



4.2. Local Highway Network

As shown in **Figure 4.1**, the Hunts Grove extension site is bordered by agricultural land to the south. To the east of the site lies Haresfield Lane, which is a single carriageway. The B4008 is situated to the west of the site and provides access to the M5 at junction 12 as well as Quedgeley East Business Park which is situated to the west of the M5. The B4008 connects to Gloucester City Centre via the A38 to the north of the site.

4.3. Existing Travel Characteristics

The Hunts Grove Extension is located in Super Output Area Stroud 001. **Table 4.1** provides information on the mode of transport used for travelling to work by residents in Stroud 001, as represented in the Census 2011.

Table 4.1 Census 2011 Mode Share

Method of Journey to work for Residents	Share
Work Mainly at or From Home	7%
Underground, Metro, Light Rail, Tram	0%
Train	1%
Bus, Minibus or Coach	5%
Taxi	0%
Motorcycle, Scooter or Moped	1%
Driving a Car or Van	73%
Passenger in a Car or Van	5%
Bicycle	3%
On Foot	5%
Other Method of Travel to Work	1%

Table 4.1 shows that the existing modal split of sustainable journeys to work is relatively high, with walking (5%), cycling (3%) and bus (5%)... The results show that the use of public transport is mainly by bus, with low levels of train use.

4.4. Existing Facilities

Figures 4a, 4b and **4c** show walking, cycling and public transport isochrones and illustrate the areas which can be reached in various time intervals by these modes. The isochrones are contained in the appendix to this report.

There are a number of local facilities within walking and cycling distance of the site, providing a range of services for everyday needs. However, most of these are accessible only by cycling or using public transport and are deemed to be too far away from the site to reach by walking. Additionally, although walking times have been included where distances are acceptable, at present pedestrian provision is unsuitable along parts of the routes, where in places footways are missing.

Table 4.2 shows a summary of the distance to and time taken to reach the nearest key amenities which are available within 8km. All available nearby bus stops are used, as are shorter, off-road walking routes, where available.

Table 4.2 Summary of Accessibility to Amenities

Amenity Description	Distance from Site	Approximate Walking Time (Minutes)	Approximate Cycling Time (Minutes)	Approximate Bus Time (Minutes)
Bus Stop (Opposite Pound Lane)	0.3km	4	1	-
Railway Station (Stonehouse Railway Station)	7.7km	-	29	22

Amenity Description	Distance from Site	Approximate Walking Time (Minutes)	Approximate Cycling Time (Minutes)	Approximate Bus Time (Minutes)
Primary School (Hardwicke Parochial Primary School)	2.4km	21	9	15
Secondary School (Severn Vale School)	2.9km	-	10	15
Health Centre (St James Family Doctors)	3.2km	-	10	11
Pharmacy (Badham Pharmacy)	3.0km	-	11	17
Convenience Store/ Supermarket (Esso Petrol Station)	0.1km	1	0.4	-
Supermarket (Asda)	2.4km	-	9	12
Post Office (One Stop)	1.3km	13	5	6
Dentist (St James Dental)	3.4km	-	12	15
Pub/restaurant (The Bumble Bee)	1.8km	19	6	13
Library (Quedgeley Library)	2.7km	-	10	9

4.5. Existing Sustainable Provision

This section examines the provision of walking, cycling and public transport facilities around the site.

Walking

A footway is provided along part of the A38 northbound. Street lighting is present. There is no pedestrian provision along Haresfield Lane. There is a footway provided alongside the B4008 in the southbound direction. There is a shared footway/cycleway along the access to the existing Hunts Grove site from Waterwells Drive, with further provision along Waterwells Drive, including footways/cycleways and a crossing.

Cycling

There is some cycling provision within the area. National Cycle Network route number 41 passes approximately 2.4km to the north west of the site, with around a 16 minute cycle to reach the route. This is a long-distance route which ultimately links to Bristol. A shared footway/cycleway is provided along Waterwells Drive. Using the canal towpath provides another cycling option for reaching the Gloucester City Centre.

Bus

There is bus provision in the area. The nearest bus stops are located 300m from the site along the A38 opposite Pound Lane in both the northbound and southbound directions and along the B4008 in the southbound direction but they are not conveniently located for the development. Pedestrian access to the stops along the A38 is limited, with no footway provided along part of the A38.

The number 62 service operates providing a service between Dursley and Gloucester, as does the 201. However, the 201 service operates on selected weekdays. Bus services 3 (school service), 62A, 66E, 66S, 167 (school service) and 208 (operating on limited weekdays) operate using the stops along the B4008, providing access to Dursley and Stroud. **Table 4.3** provides a summary of the main bus services which operate from these stops.

Table 4.3 Summary of Bus Services

Service No.	Route	Weekday Frequency per Hour	First / Last Service	Saturdays	Sundays
62 (NB – A38)	Gloucester – Quedgeley – Hardwicke – Whitminster - Dursley	1	07:11 / 18:16	08:11/ 18:11	09:28 / 15:48
62 (SB – A38)	Gloucester – Quedgeley – Hardwicke – Whitminster - Dursley	1	06:33 / 19:05	09:00 / 19:00	10:13 / 16:48
62A (SB – B4008)	Gloucester – Quedgeley – Hardwicke – Whitminster - Cam & Dursley Rail - Dursley	1	06:32 / 19:04	08:59 / 18:59	10:13 / 16:47
66E/66S (SB – B4008)	Gloucester – Copeland Park – Kingsway – Stonehouse – Ebley - Stroud	4	07:22 / 23:37	08:02 / 23:37	10:23 / 18:23

The existing bus services are within walking distance, and provide services to areas of employment. Although the existing walking routes are not adequate and the frequency of existing bus services are low, there are still existing opportunities for sustainable travel to work from the site.

Train

The nearest railway station is Stonehouse, which is located approximately 8km to the south of the site. Direct services run to a range of destinations, which include London Paddington, Cheltenham Spa and Swindon.

It is possible to reach Stonehouse railway station by cycling from the site, which would take approximately 29 minutes. It is not possible to reach the station using a direct bus service from the stops opposite Pound Lane. There are alternative bus stops along the B4008, approximately 5 minutes walk from the site, which provide services to Stonehouse. Travelling to Stonehouse Railway Station by bus would take around 22 minutes.

Stonehouse Railway Station provides car parking for 25 vehicles and is charged at £2.40 per day. In addition, there are 6 cycle storage spaces. Rail services from Stonehouse are summarised in **Table 4.4**, which shows direct services to a range of main destinations. There is limited wheelchair access to trains calling at this station.

Table 4.4 Summary of Rail Services

Destination	Day	Approximate Frequency	First Train	Last Train
London Paddington	Weekday	Hourly	06:23	19:05
	Saturday	-	-	-
	Sunday	-	-	-
Cheltenham Spa	Weekday	Hourly	07:15	22:28
	Saturday	Hourly	07:50	21:51
	Sunday	Hourly	10:29	23:31

Swindon	Weekday	Hourly	05:30	22:28
	Saturday	Hourly	05:56	21:48
	Sunday	Hourly	09:53	22:11

Source: www.nationalrail.co.uk

It is also possible to reach Gloucester Railway Station, which is located approximately 10km to the north of the site. Direct services run to a wide range of destinations, which include London Paddington, Cheltenham Spa, Cardiff Central and Swindon. It is possible to reach Gloucester Railway Station by bus from the site; a bus journey of approximately 25 minutes.

Although the nearby railway stations are only accessible via cycling or bus journeys, the existing bus services commence at an early enough time to provide viable sustainable journey to work options via train to employment destinations.

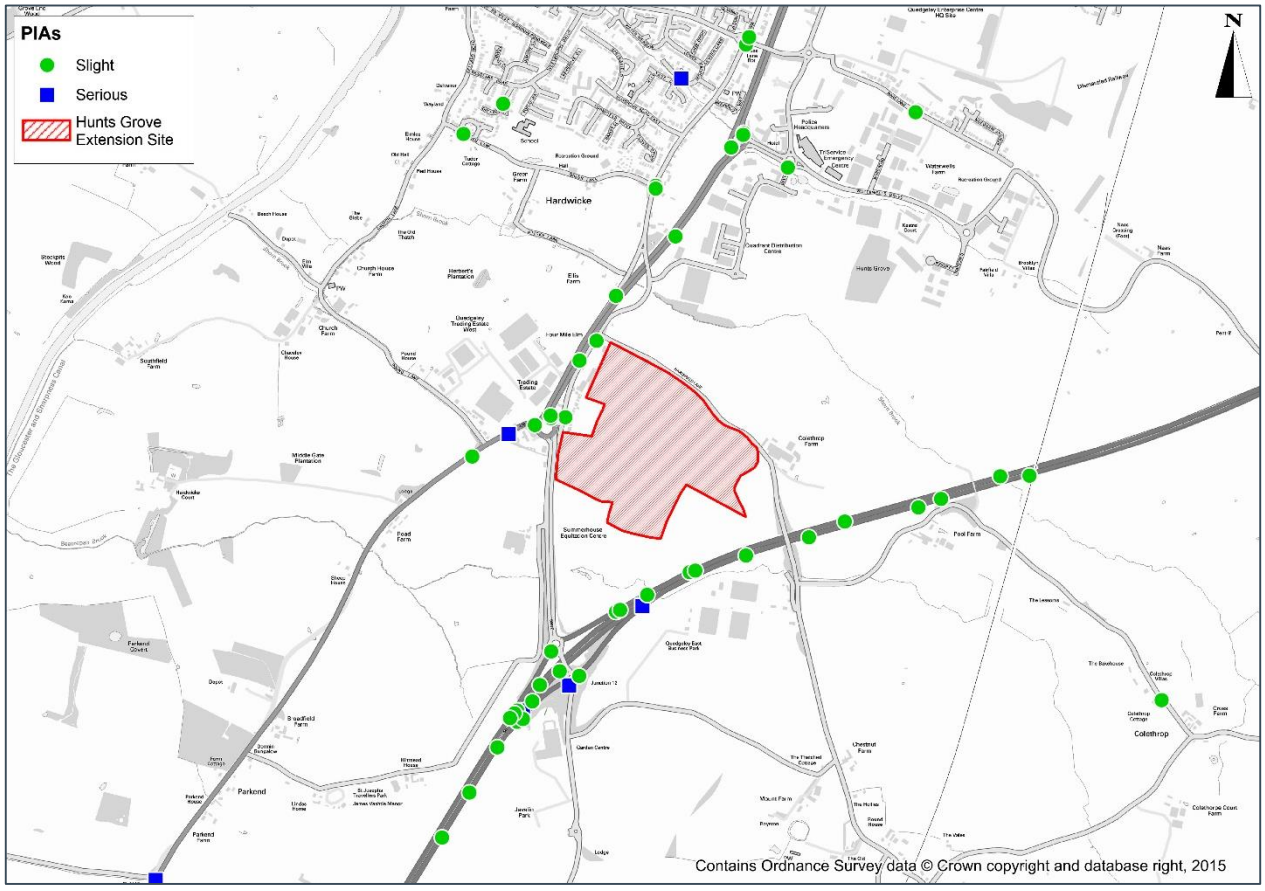
4.6. Public Transport Summary

Figure 4c demonstrates that Gloucester is accessible from Hunts Grove within 60 minutes by public transport. This provides Hunts Grove with access to existing employment and leisure opportunities in addition to key amenities. Quedgeley East is identified within the Local Plan for B1-B8 employment uses and is currently accessible within 60 minutes from Hunts Grove by public transport.

4.7. Accidents

Personal Injury Accident (PIA) data has been obtained and is presented in **Figure 4.2**. This shows the location of slight and serious accidents which have occurred in the area surrounding the site.

Figure 4.2: Accident Location Map



The majority of the accidents which have occurred are slight in severity. Most of the accidents occur along the M5 and A38, with a cluster of accidents at Junction 12 of the M5.

Analysis of the information related to PIAs gives no rise for undue concern that trips related to the proposed development will exacerbate existing problems.

4.8. Conclusion

The new local centre identified as part of the proposed development will provide convenience stores, community facilities and a primary school accessible via walking within the site. These amenities will negate the need to travel off site for these facilities, and also provide facilities to meet the needs of the whole Hunts Grove development.

There is good pedestrian and cycleway provision along Waterwells Drive to access the existing Hunts Grove development.

The nearby existing bus services do provide viable options for sustainable travel to work, although walking routes to them require improvement, and service frequencies are low.

The nearby train services do provide viable options for sustainable travel to work, although their distance from the site makes this mode less desirable. Sustainable Infrastructure Requirements

The new local centre providing convenience stores, community facilities and a primary school will ensure this development is sustainable in terms of transport. Walking and cycling infrastructure inside the site will be required to connect the extension to the existing Hunts Grove development.

The nearest railway station to Hunts Grove is located approximately 8km south of the development site at Stonehouse, with Gloucester Railway Station approximately 10km to the north. The distance to these transport hubs makes them less desirable alternatives to private car use, so appropriate contributions could be sought towards the opening of the Hunts Grove railway station as identified within the Local Plan.

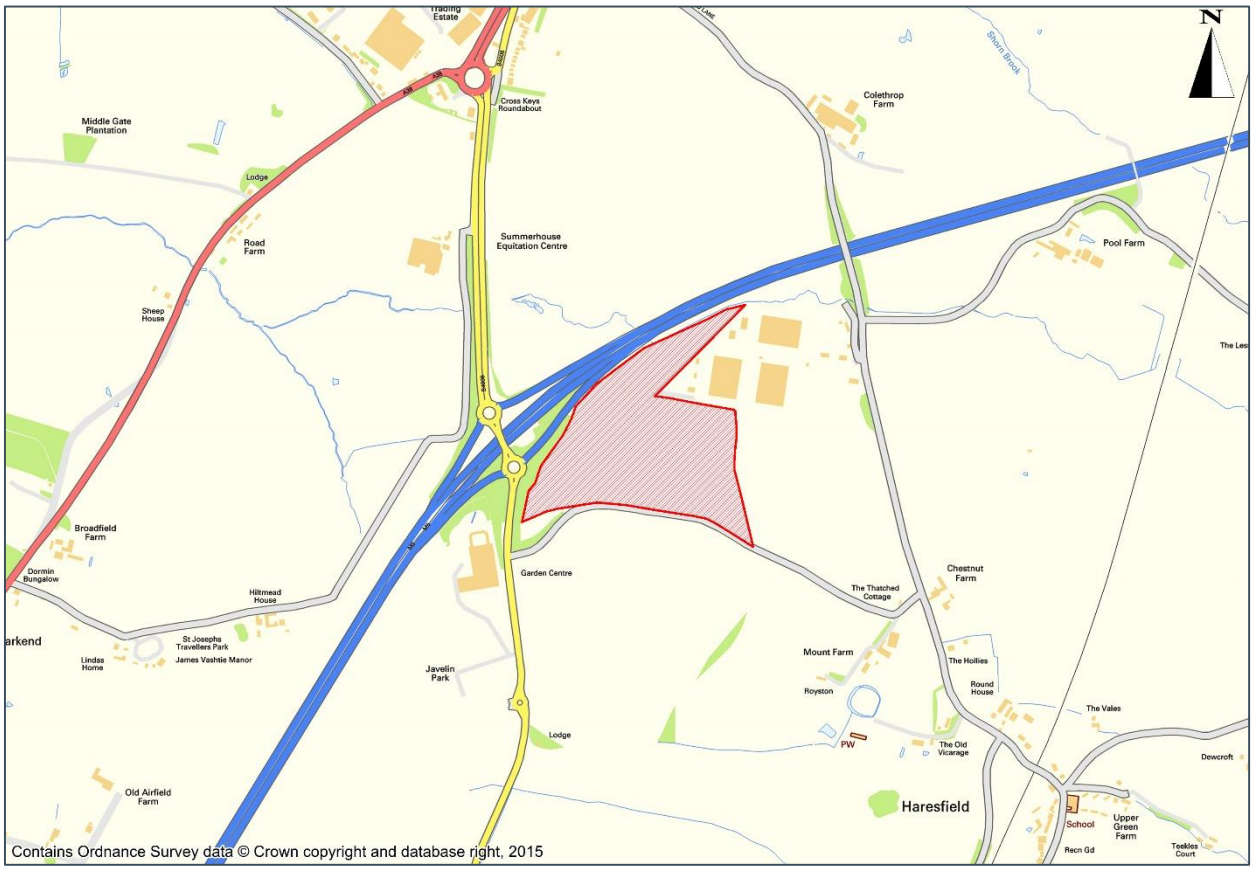
Improvements to walking facilities will ensure connectivity with existing public transport provision. Alternatively, contributions towards new bus stop locations and service diversions to inside the Hunts Grove development will further improve public transport connections at the site

5. Site Audit for Quedgeley East

5.1. Site Description

Quedgeley East is located to the south of the M5, near Junction 12. The site lies approximately 8km to the south of Gloucester City Centre and is around 13 ha in size. It is situated adjacent to the existing Quedgeley East Business Park and provides the opportunity to extend this existing provision. Quedgeley East is allocated for B1 – B8 employment uses. The site location is shown in **Figure 5.1**.

Figure 5.1: Site Location



5.2. Local Highway Network

As shown in **Figure 5.1**, the Quedgeley East site is bordered by the M5 to the north and west. To the south of the site lies Stonehouse, which is a single carriageway providing a link to the B4008 to the west. The B4008 provides access to the M5 at junction 12. The B4008 connects to Gloucester City Centre via the A38. The east of the site is accessed from Haresfield Lane, which is subject to the national speed limit.

5.3. Existing Travel Characteristics

The Quedgeley East development is located in Super Output Area Stroud 001. **Table 5.1** provides information on the mode of transport used for travelling to work by people in Stroud 001, as represented in the Census 2011.

Table 5.1 Census 2011 Mode Share

Method of Journey to work for Residents	Share
Work Mainly at or From Home	7%
Underground, Metro, Light Rail, Tram	0%
Train	1%
Bus, Minibus or Coach	5%
Taxi	0%
Motorcycle, Scooter or Moped	1%
Driving a Car or Van	73%
Passenger in a Car or Van	5%
Bicycle	3%
On Foot	5%
Other Method of Travel to Work	1%

Table 5.1 shows that the existing modal split of sustainable journeys to work is relatively high, with walking (5%), cycling (3%) and bus (5%). The results show that the use of public transport is mainly by bus, with low levels of train use.

5.4. Existing Facilities

Figures 5a, 5b and **5c** show walking, cycling and public transport isochrones and illustrate the areas which can be reached in various time intervals by these modes. The isochrones are contained in the appendix to this report.

There are a number of local facilities within walking and cycling distance of the site. However, most of these are accessible only by cycling or using public transport and are deemed to be too far away from the site to reach by walking. Additionally, although walking times have been included where distances are acceptable, at present pedestrian provision is unsuitable. There are no footways along Stonehouse (as shown in photograph below) or Haresfield Lane, which provide access to the site. Public transport facilities are located along the B4008. To reach these, individuals would be required to walk along Stonehouse, which is currently deemed to be unsuitable for pedestrians.

Table 5.2 shows a summary of the distance to and time taken to reach the nearest key amenities for this employment site which are available within 8km. All available nearby bus stops are used, as are shorter, off-road walking routes, where available.

Table 5.2 Summary of Accessibility to Amenities

Amenity Description	Distance from Site	Approximate Walking Time (Minutes)	Approximate Cycling Time (Minutes)	Approximate Bus Time (Minutes)
Bus Stop (B4008)	0.5km	6	2	-
Railway Station (Stonehouse Railway Station)	6.8km	-	26	24
Convenience Store (Esso Petrol Station)	1.6km	19	6	13
Supermarket (Asda)	3.7km	-	14	19

5.5. Existing Sustainable Provision

This section examines the provision of walking and cycling facilities around the site.

Walking

There are two existing accesses to the site. These are along Stonehouse to the south of the site and Haresfield Lane to the east of the site. Neither of these routes provide a footway, and so walking is not currently viable in the vicinity of the site. A shared footway/cycleway is provided along the B4008 approximately 250m to the west of the Stonehouse access. The shared footway/cycleway along this route is in good condition.

There is no street lighting along Stonehouse or Haresfield Lane, although street lighting is provided along the western side of the B4008.

Cycling

There is some cycling provision within the area. National Cycle Network route number 41 passes approximately 3.2km to the west of the site, with around a 12 minute cycle to reach the route. This is a long-distance route which ultimately links to Bristol. The roads immediately surrounding the site do not provide any cycling infrastructure. However, the B4008 provides a shared footway/cycleway to the south of the motorway junction. The canal towpath provides another cycling option for reaching Gloucester.

Bus

There are frequent bus services operating the area. The nearest bus stops are located along the B4008 in both the northbound and southbound directions approximately 500m from the site, as shown below.

Both the 66E and 66S services provide frequent connections to Stroud and Gloucester, calling at various locations including Stonehouse and Hardwicke. **Table 5.3** provides a summary of the bus services which operate from the stops on the B4008.

Table 5.3 Summary of Bus Services

Service No.	Route	Weekday Frequency per Hour	First / Last Service	Saturdays	Sundays
66E (NB)	Gloucester – Copeland Park – Kingsway – Stonehouse – Ebley - Stroud	1	06:45 / 16:57	07:00 / 16:52	10:22 / 16:22
66E (SB)	Gloucester – Copeland Park – Kingsway – Stonehouse – Ebley - Stroud	1	08:01 / 22:41	08:06 / 22:41	11:26 / 17:26
66S (NB)	Gloucester – Kingsway – Quedgeley – Stonehouse – King's Stanley – Paganhill - Stroud	1	06:20 / 22:40	07:20 / 22:40	09:22 / 17:22
66S (SB)	Gloucester – Kingsway – Quedgeley – Stonehouse – King's Stanley – Paganhill - Stroud	1	07:26 / 23:41	08:36 / 23:41	10:26 / 18:26

The existing bus services are within walking distance, and provide frequent services from residential areas. Although the existing walking routes from the stops are not adequate at present, there are still existing opportunities for sustainable travel to work to the site.

Train

The nearest railway station is Stonehouse, which is located approximately 7km to the south of the site. Direct services run to a range of destinations, which include London Paddington, Cheltenham Spa and Swindon.

It is possible to reach Stonehouse Railway station by cycling from the site, which would take approximately 26 minutes. It is also possible to reach the station using the bus services, although this option currently involves walking to the bus stop along the B4008 and therefore using the short section of Stonehouse which has no pedestrian facilities. Travelling to the railway station with a combination of walking and using the bus services would take around 22 minutes.

. Rail services from Stonehouse are summarised in **Table 5.4**, which shows direct services to a range of main destinations. There is limited wheelchair access to trains calling at this station.

Table 5.4 Summary of Rail Services

Direction	Day	Frequency	First Train arrival	Last Train departure
Northbound (From / To Gloucester & Cheltenham)	Mon to Fri	Hourly	05:30	22:28
	Saturday	Hourly	05:56	21:51
	Sunday	Hourly	09:50	23:31
Southbound (From / To Swindon & Stroud)	Mon to Fri	Hourly	07:15	22:28
	Saturday	Hourly	07:50	21:48
	Sunday	Hourly	10:29	22:11

Source: www.nationalrail.co.uk

It is also possible to reach the site from Gloucester Railway Station, which is located approximately 10km to the north of the site. Direct services run from a wide range of destinations, which include London Paddington, Cheltenham Spa, Cardiff Central and Swindon. It is possible to reach the site by bus from Gloucester Railway Station; a bus journey of approximately 30 minutes.

Although the nearby railway stations are only accessible via cycling or bus journeys, the existing bus services commence at an early enough time to provide viable sustainable journey to work options to the site.

5.6. Public Transport Summary

Figure 5c demonstrates that the residential areas of Cam, Dursley, Gloucester and Stroud are accessible within 60 minutes by existing public transport.

5.7. Accidents

Personal Injury Accident (PIA) data has been obtained and is presented in **Figure 5.2**. This shows the location of slight and serious accidents which have occurred in the area surrounding the site.

Figure 5.2: Accident Location Map

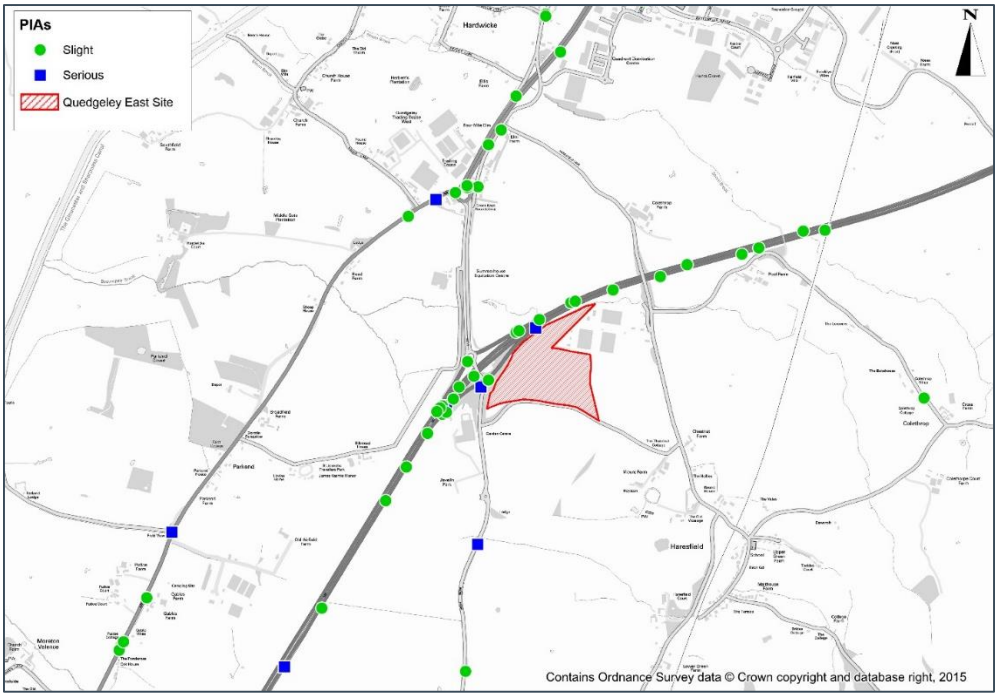


Figure 5.2 shows that most of the accidents which have occurred in the area have been slight in severity. Most of these occurred along the M5, with a cluster at Junction 12 of the M5. There were no accidents recorded along Stonehouse or Haresfield Lane, where the site access points are to be located.

Analysis of the information related to PIAs gives no rise for undue concern that trips related to the proposed development will exacerbate existing problems.

5.8. Conclusion

There is some provision for walking, cycling and public transport use around the Quedgeley East site. However, there is a lack of pedestrian facilities immediately surrounding the site, which provides constraints to using sustainable modes. It is necessary to walk along the section of Stonehouse to the west of the site to reach the shared footway/cycleway and bus stops located along the B4008. The existing bus services do provide a viable option to travel to work.

5.9. Sustainable Infrastructure Requirements

There is a need to improve connectivity of the Quedgeley East site to the wider local area, in particular the existing sustainable transport infrastructure. A footway to the B4008 from the site access would improve accessibility to the frequent public transport facilities available along the B4008.

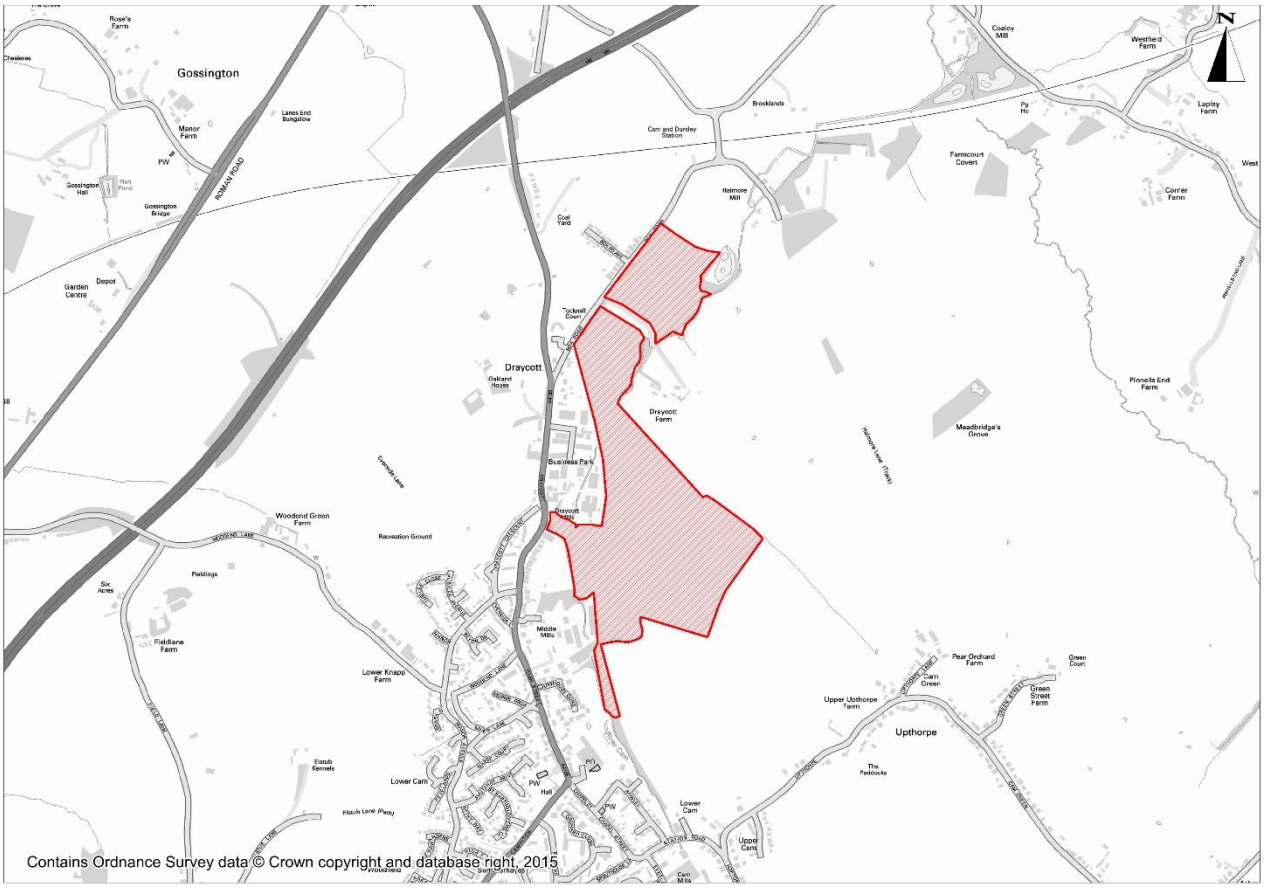
Street lighting along this route would also encourage pedestrian movement and promote sustainable modes of travel.

6. Site Audit for North East Cam

6.1. Site Description

The proposed mixed use development is located on land to the north east of Cam, as shown in the Site Location **Figure 6.1**. The development site has been identified for 450 dwellings and 11.4 hectares of B1, B2 and B8 employment land. The northern section of the site is bounded by Box Road to the west and agricultural land to the north and east. The southern section of the site is bounded by the Draycott Business Park and Lower Cam to the west, and agricultural land to the south and east.

Figure 6.1: Site Location



6.2. Local Highway Network

The main vehicular access to the site would be taken off A4135 Draycott, to the south of the Draycott Business Park. The A4135 Draycott runs in a north south direction and provides connections to Lower Cam to the south of the site, and the A38 Bristol Road to the north of the site.

A vehicular site access would also be taken off Box Road to serve the northern section of the site. Box Road runs in a northeast southwest direction. It connects onto the A4135 by means of a priority controlled junction and extends up to Cam and Dursley Railway Station to the north of the site.

6.3. Existing Travel Characteristics

The North East Cam site is located in Super Output Area Stroud 011. **Table 6.1** provides information on the mode of transport used for travelling to work by people in Stroud 012, as represented in the Census 2011.

Table 6.1 Census 2011 Mode Share

Method of Journey to work for Residents	Share
Work Mainly at or From Home	6%
Underground, Metro, Light Rail, Tram	0%
Train	1%
Bus, Minibus or Coach	1%
Taxi	0%
Motorcycle, Scooter or Moped	1%
Driving a Car or Van	74%
Passenger in a Car or Van	6%
Bicycle	1%
On Foot	8%
Other Method of Travel to Work	0%

Table 6.1 shows that the existing modal split of sustainable journeys to work is relatively high, with walking accounting for an 8% mode share. . The results show that the use of existing public transport is generally low, with bus at 1% and train at 1%.

6.4. Existing Facilities

Figures 6a, 6b and **6c** show walking, cycling and public transport isochrones and illustrate the areas which can be reached in various time intervals by these modes. The isochrones are contained in the appendix to this report.

Local amenities and are provided in four key locations to the site as follows:

- Cam and Dursley Railway Station.
- Lower Cam;
- Woodfield;
- Cam; and
- Dursley.

Cam and Dursley Railway Station
The railway station is located to the north of the site.

Lower Cam
Lower Cam is an established village with a range of amenities including the following:
- Supermarket (Tesco);
- Orchard Medical Practise;
- Pharmacy;
- Pub restaurants; and
- Various local high Street shops such as a hardware store, post office, chip shop and household appliance store.

Woodfield
Woodfield extends out to the west of Lower Cam and contains Cam Woodfield Primary School.

Cam
Cam extends out to the south of Lower Cam and contains the following amenities:
- Cam Hopton Primary School; and
- Cam Everlands Primary School.

Dursley
Dursley extends out to the south of Cam and contains the following amenities:

- Vale Community Hospital;
- Rednock Secondary School; and
- Dentist.

Table 6.2 Summary of Accessibility to Amenities

Amenity Description	Walking	Cycling	Bus
Local Bus Stops (600m from centre of site)	7 mins		
Cam and Dursley Railway Station (1.1km from centre of site)	13 mins	4 mins	2 mins
Lower Cam (980m from centre of site)	12 mins	4 mins	2 mins
Woodfield (2km from centre of site)	24 mins	8 mins	4 mins
Cam (1.8km from centre of site)	21 mins	7 mins	6 mins
Dursley (3km from centre of site)		11 mins	11 mins

6.5. Existing Sustainable Provision

Walking

The existing walking route to Cam and Dursley Railway Station is along Box Road which is lightly trafficked, mostly level, has sporadic street lighting and is subject to a 30mph speed limit. The footway is only provided along one side of the road, with no crossing facilities at the point where it changes sides. Along sections of the route the footways are narrow, with overgrown vegetation further reducing widths, as shown in the photo below.

It is understood that planning permission has been granted for a residential development of 71 dwellings on Box Road. The indicative masterplan shows that the adjacent section of Box Road will be realigned to form the site access and footways will be provided. Whilst this will improve the southern section of footway up to the existing residential area on Box Road, the section connecting to the station to the north will remain as existing.

The existing walking route to Lower Cam is along the A4135 Draycott which is quite heavily trafficked, mostly level, has street lighting and is subject to a 30mph speed limit along this section. There are footways on both sides of the road with central refuge islands to facilitate crossing (shown in photo below). The footway narrows in sections with street furniture further reducing widths, as shown in the photo below.

Beyond Lower Cam, the walking route to Woodfield include footways with steep gradients such as Cam Pitch. There are also localised height changes along Station Road on the route to Cam.

Cycling

There is no formal cycle provision (traffic free routes, cycle lanes or advanced stoplines) in the vicinity of the site. The nearest National Cycle Network route is Route 41 which is approximately 2km to the north east of the site in Slimbridge, although connecting onto this route involves travelling along the A4135 which is unlit and subject to a 50mph speed limit.

There is covered cycle parking at Cam and Dursley Railway Station which appears to be well used as shown in the photo below.

Bus

The nearest existing bus stops to the site are located on the A4135 Draycott, to the south of the Draycott Business Park, approximately 600m from the centre of the site. There are shelters with timetable information on both sides of the road. The existing bus stops are not conveniently located for the whole of the development. There are also stops to the North of the business park, but none on Box Road except at the Railway Station.

The stops are served by a variety of services, with a mixture of schools services, limited frequency services and hourly frequency services. **Table 6.3** summarises the services in the vicinity.

Table 6.3 Summary of Local Bus Services

Service No.	Route	Weekday Frequency per Hour	First / Last Service	Saturdays	Sundays
3	Eastington - Rednock School (school term time only)	1 in AM 1 in PM	08:09 / 15:15	No service	No service
35	Cam & Dursley Railway Station - Stroud	5 per day (Only 1 per day at stop)	08:55 / 17:35	3 per day (None at stop)	No service
61	Cheltenham – Stroud - Dursley	1 per hour	08:32 / 18:32	1 per hour 08:32 / 18:32	No service
	Dursley – Stroud - Cheltenham	1 per hour	07:39 / 18:47	1 per hour 07:39 / 19:39	No service

Service No.	Route	Weekday Frequency per Hour	First / Last Service	Saturdays	Sundays
62	Gloucester - Quedgeley - Dursley	1 per hour	06:56 / 19:28	1 per hour 09:18 / 19:18	4 services 10:31 / 17:06
	Dursley – Quedgeley - Gloucester	1 per hour	06:48 / 17:58	1 per hour 07:53 / 17:53	4 services 09:10 / 15:30
201	Thornbury - Gloucester (school term time only)	1 per day	09:57	1 per day 09:57	No service
	Gloucester - Thornbury (school term time only)	1 per day	14:11	1 per day 14:11	No service
207	Thornbury – Cam and Dursly	6 per day (Only 1 per day at stop)		8 per day (Only 1 per day at stop)	
401C	Stroud College - Newtown	1 in AM 1 in PM	07:46 / 17:19	No service	No service
506	St Peter's High School - Uley	1 in AM 1 in PM	07:52 / 16:16	No service	No service

The existing bus services are within walking distance, and provide services to areas of employment. Although the existing stops are not convenient for the development and the frequency of existing bus services are relatively low, there are still existing opportunities for sustainable travel to work from the site.

Train

Cam and Dursley Railway Station is 1.1km from the centre of the site. The station is operated by First Great Western and provides direct train services to Bristol (40 minutes) and Gloucester (20 minutes) on the Gloucester to Taunton line. There is a free car park for approximately 90 cars run by Gloucestershire County Council along with cycle storage and a bus stop with shelter and timetable information. Step free access is provided throughout the station with ramps to both platforms.

Rail services are summarised in **Table 6.4 below**:

Table 6.4 Summary of Rail Services

Direction	Day	Frequency	First Train	Last train
Northbound (to Gloucester)	Mon to Fri	Hourly	08:10	22:32
	Saturday	Hourly	08:01	22:43
	Sunday	Every 2 Hours	10:16	23:03
Southbound (to Bristol)	Mon to Fri	Hourly	06:32	21:29
	Saturday	Hourly	06:37	21:29
	Sunday	Every 2 Hours	10:31	21:31

Source: www.nationalrail.co.uk

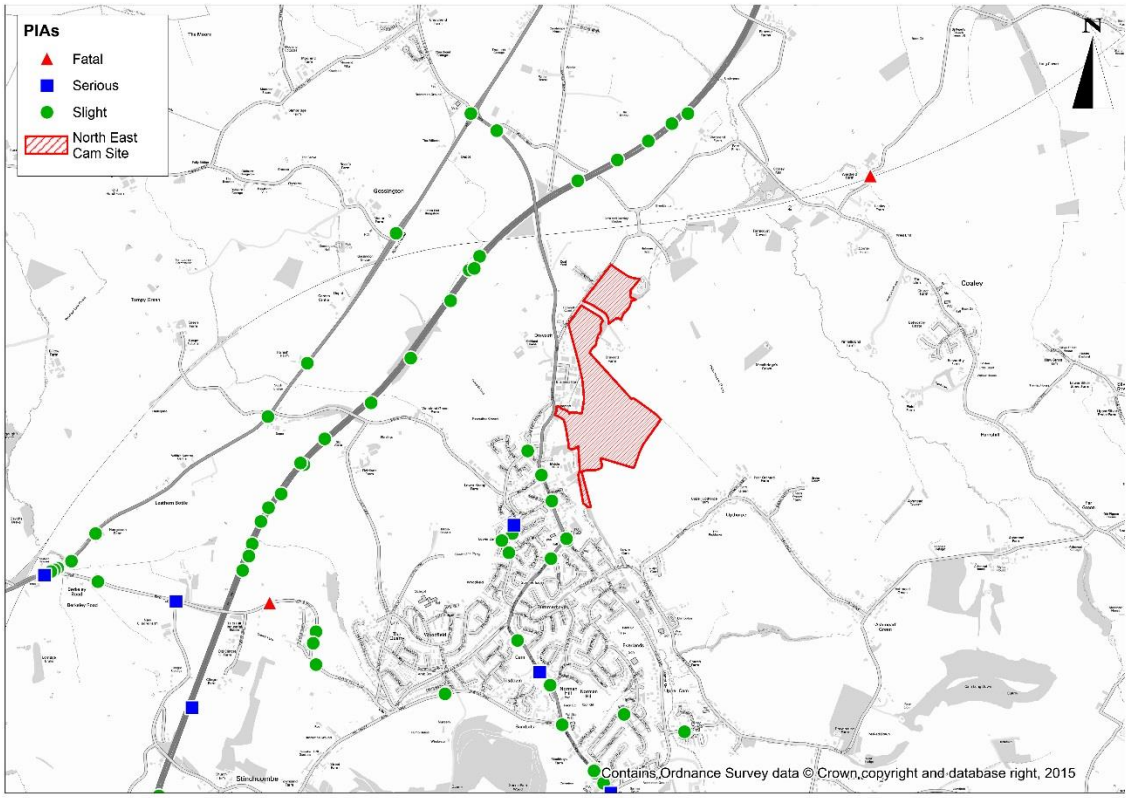
6.6. Public Transport Summary

Figure 6c demonstrates that Dursley, Gloucester and Stroud are accessible within 60 minutes of North East Cam by public transport. Local centres including Cam, Slimbridge and Stonehouse are accessible within 20 Minutes. However, the existing bus frequencies are low.

6.7. Accidents

Personal Injury Accident data has been assessed and is shown in **Figure 6.2** below.

Figure 6.2: Accident Location Map



It can be seen that there were no recorded PIAs in the vicinity of the site along Box Road and A4135 Draycott. The majority of recorded PIAs occurred along the M5 and the A38. A small number of slight accidents were recorded on roads in Lower Cam.

Analysis of the information related to PIAs gives no rise for undue concern that trips related to the proposed development will exacerbate existing problems.

6.8. Conclusion

In conclusion, a range of amenities are available within walking distance. The existing walk route into Lower Cam is next to a busy A-road with sections of narrow footway. The walk route to the train station is narrow, not continuous and has overgrown vegetation which reduces usable space.

There is no dedicated existing cycle provision in the vicinity of the site. Rail is accessible via walking or cycling to the site and provides links to Bristol and Gloucester at hourly frequency during weekdays. There are a large number of bus services which would provide access to the site and a viable option for sustainable journeys to work, but the existing bus stop locations are not convenient and existing service frequencies are relatively low.

6.9. Sustainable Infrastructure Requirements

Improvements are required to the walking and cycling connections to local amenities. There are a wide variety of amenities within walking and cycling distance of the site, but the existing connections make these modes less attractive.

A dedicated walk / cycle way running north/south through the site would provide quality traffic free connections to amenities in Lower Cam to the south, and would provide improved links to the Railway Station in the north.

Additional bus stops and shelters at appropriate locations on Box Road to serve the northern section of the development would improve public transport connections.

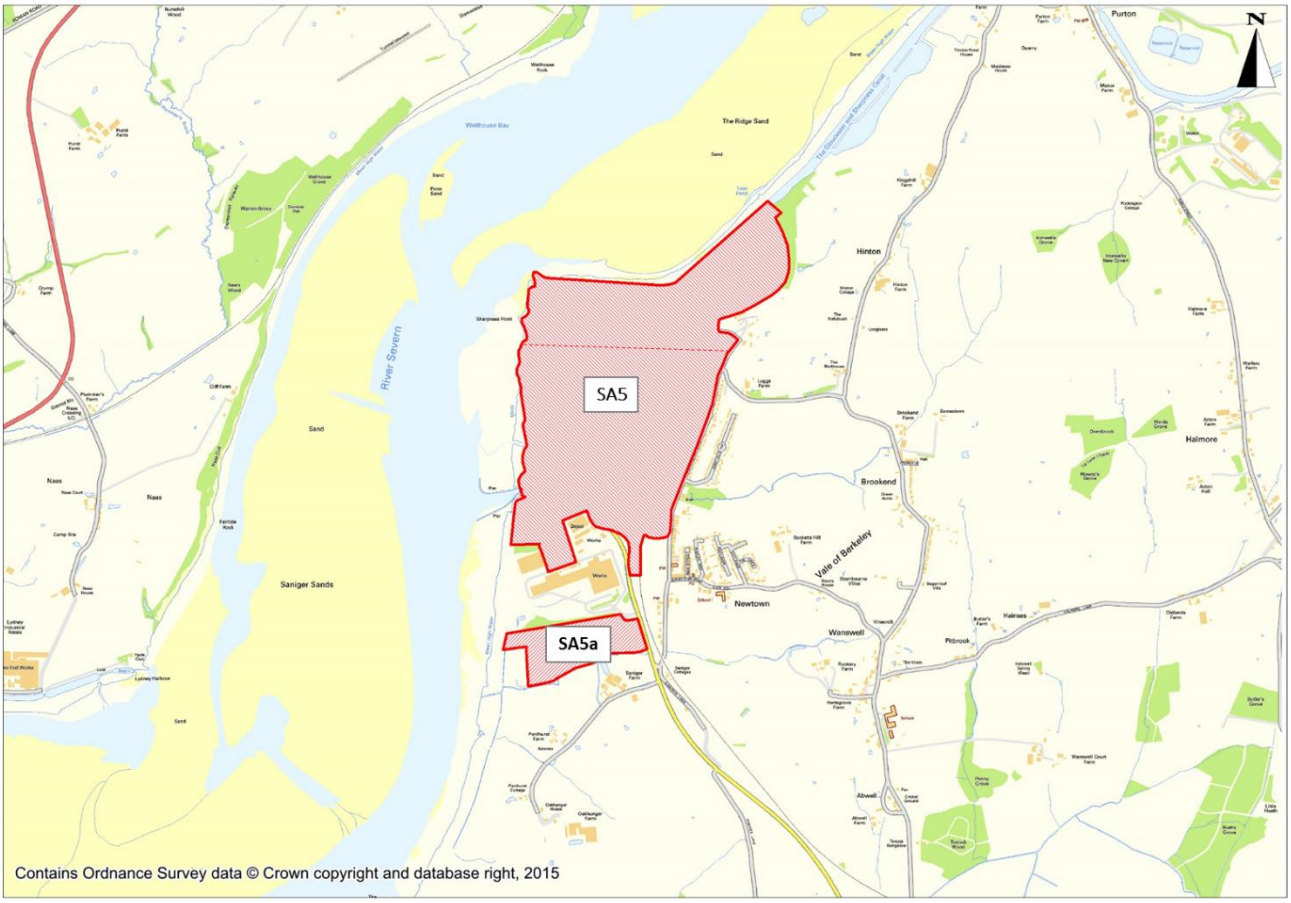
Contributions towards existing bus services to improve bus frequencies will further help to connect the development with Cam and other local destinations.

7. Site Audit for Sharpness Docks

7.1. Site Description

Development within the Sharpness Docks Estate comprises of SA5 and SA5a, as shown in **Figure 7.1.** The site is located approximately 22km southwest of Gloucestershire and is currently used for miscellaneous industries (including some usage of the docks).

Figure 7.1: Site Location



The Sharpness Docks Estate site SA5 is divided into north and south sections; these sections are divided by the low level bridge (an approximate location of the divide is shown in **Figure 5.1**). The following land uses are proposed for the Sharpness Docks Estate.

SA5 (North) - A mix of tourism, leisure and recreational uses, supported by new housing development.

- Up to 300 dwellings;
- Hotel, holiday lodges and camping uses; and
- Tourism and recreational related facilities.

SA5 (South) - Dock uses and dock related industrial and distribution uses

- Expansion Land (7 ha)

SA5a - Land south of Severn Distribution Park

- B2-B8 employment uses (9.8 ha)

7.2. Local Highway Network

The sites are located approximately 6km from the M5 and are connected by the B4066 and A38. The B4066 also provides access to Berkley town which offers some key amenities and services. Site SA5a and the

southern section of site SA5 will be accessed directly from the B4066 and the northern section of SA5 will be accessed via Oldminster Road (which connects with the B4066 to the south of Newtown).

B4066, adjacent to Site SA5a

Oldminster Road, north of Newtown

7.3. Existing Travel Characteristics

The Sharpness Docks Estate is located in Super Output Area Stroud 012. **Table 7.1** provides information on the mode of transport used for travelling to work by people in Stroud 012, as represented in the Census 2011.

Table 7.1 Census 2011 Mode Share

Method of Journey to work for Residents	Share
Work Mainly at or From Home	9%
Underground, Metro, Light Rail, Tram	0%
Train	1%
Bus, Minibus or Coach	1%
Taxi	0%
Motorcycle, Scooter or Moped	1%
Driving a Car or Van	74%
Passenger in a Car or Van	5%
Bicycle	2%
On Foot	7%
Other Method of Travel to Work	0%

Table 7.1 shows that the existing sustainable modal split of journeys to work is relatively good, with walking at 7% and as a car passenger (5%). The results show that the existing use of public transport is low, with 1% by train and 1% by bus

7.4. Existing Facilities

Figures 7a, 7b and **7c** show walking, cycling and public transport isochrones and illustrate the areas which can be reached in various time intervals by these modes. The isochrones are contained in the appendix to this report.

Key amenities are available in Newtown, Berkley, Cam and Dursley, as follows:

Newtown

Newtown is the nearest village to the Sharpness site (located directly adjacent to the southeast boundary). The local centre provides limited amenities including the following:

- Post Office / village store; and
- Sharpness Primary School.

Berkeley

Berkeley is the nearest town to the Sharpness site (approximately 5km). The local centre provides amenities including the following:

- Marybrook Medical Centre
- Berkeley Post Office / general store;
- Co-op general store;
- Natwest Bank;
- Berkeley Pharmacy;
- Berkeley Library; and
- A small number of independent stores.

Cam & Dursley

Cam is located approximately 13km from the Sharpness site. The local centre provides amenities including the following:

- Supermarket (Tesco, Sainsbury's and Lidl);
- Vale Community Hospital;
- Rednock Secondary School;

- Sports Centre; and
- Wide range of shops and banks.

Table 7.2 provides a summary of the journey times to the nearest key amenities.

Table 7.2 Journey Times to Key Amenities

Amenity Description	Distance	Walking	Cycling	Bus
Sharpness Primary School	850m	10 mins	3 mins	1 min
Rednock Secondary School	10.9km	-	-	17 mins
Supermarket	10.5km	-	-	20 mins
Marybrook Medical Centre	3.4 km	-	11 mins	4 mins
Dentist(s)	11.6km	-	NA	19 mins
Post Office	3.4 km	-	11 mins	4 mins
Library	3.4 km	-	11 mins	4 mins
Cam & Dursley Railway Station	11.5km	-	-	26 mins
Newtown (Post Office / village store and Sharpness Primary School)	500m	6 mins	2 mins	-
Berkeley (Marybrook Medical Centre, Berkeley Post Office / general store, Co-op general store, Natwest Bank, Berkeley Pharmacy, Berkeley Library and a small number of independent stores)	3.4 km	-	11 mins	4 mins
Cam and Dursley (Supermarkets, Vale Community Hospital, Dentist, Rednock Secondary School, Sports Centre and a wide range of shops and banks)	10.9km	-	-	17 mins

7.5. Existing Sustainable Provision

Walking

The walking isochrones show the local areas which are accessible by walking. The maps shows that Newtown is 3km walking distance and that Berkeley, Cam and Dursley are not located within walking distance.

There are two paths between the main Docks site which cross the disused railway line. However, both of these routes are secluded, overgrown, unlit and not adequately surfaced, as shown below. These two paths offer the most direct route between Newtown and the Docks site. The alternative route is along Oldminster Road and the B4066; however there are no footways on the B4066 or through the railway bridge adjacent to the junction between the two roads.

Cycling

The cycling isochrones show the local areas which are accessible by cycling (within 8km) from each site. The maps shows that Newtown and Berkeley are within the 8km standard cycling distance and that Cam and Dursley are not located within the cycling distance.

There are few cycling facilities in and around the site. There is a very short section of cycleway (on carriageway) at the new mini-roundabout in Newtown, as shown below. The cycleway is located on north and south arms of the mini-roundabout and is approximately 22m on each arm.

There are no other existing cycling facilities. Access to the amenities at Berkley is along the B4066 which is an unlit main road with national speed limits. Dursley and Cam, the two main locations for key amenities, are located outside the standard cycling distance.

Bus

Sharpness and Newtown are served by two bus services, the number 88 and 207. The bus stops are located in the following locations:

- Newtown village centre;
- Oldminster Road, Hinton Turn; and
- B4066, adjacent to the Oldminster Road junction.

The public transport isochrones show the local areas which are accessible by public transport (within 60 minutes travel time) from each site. The maps shows that Newtown, Berkeley Cam and Dursley are all accessible by public transport; however the infrequent services, as shown in **Table 7.3**, should also be considered.

Table 7.3 Sharpness Bus Services

Service No.	Route	Weekday Frequency per Hour	First / Last Service from Sharpness	Saturdays	Sundays
88	**Bristol to Dursley** (Falfield, Berkeley, Sharpness, Cam)	1 every 2 hours 20 minutes (approx.), 5 buses per day	08:48 / 18:18	3 buses per day 10:23 / 17:53	No service
	Dursley to Bristol (Falfield, Berkeley, Sharpness, Cam)	1 every 2 hours 20 minutes (approx.), 5 buses per day	09:39 / 16:39	3 buses per day 08:48 / 16:13	No service
207	**Whiteway to Thornbury** (Cam & Dursley, Berkeley)	3 in AM 3 in PM	07:40 / 18:25	3 in AM 2 in PM	No service
	Thornbury to Whiteway (Berkeley, Cam & Dursley)	2 in AM 2 in PM	07:23 / 16:03	3 in AM 2 in PM	No service

The existing bus services are within walking distance, and provide services from residential areas and to employment areas. Although the existing walking routes from the stops are not adequate, there are still existing opportunities for sustainable travel to work from the site and to the site.

Train

Cam and Dursley Railway Station is 11.5km from the centre of the site. The station is operated by First Great Western and provides direct train services to Bristol (40 minutes) and Gloucester (20 minutes) on the Gloucester to Taunton line. There is a free car park for approximately 90 cars run by Gloucestershire County Council along with cycle storage and a bus stop with shelter and timetable information. Step free access is provided throughout the station with ramps to both platforms.

Rail services are summarised in **Table 7.4 below**:

Table 7.4 Summary of Rail Services

Direction	Day	Frequency	First Train	Last train
Northbound (to Gloucester)	Mon to Fri	Hourly	08:10	22:32
	Saturday	Hourly	08:01	22:43
	Sunday	Every 2 Hours	10:16	23:03

Southbound (to Bristol)	Mon to Fri	Hourly	06:32	21:29
	Saturday	Hourly	06:37	21:29
	Sunday	Every 2 Hours	10:31	21:31

Source: www.nationalrail.co.uk

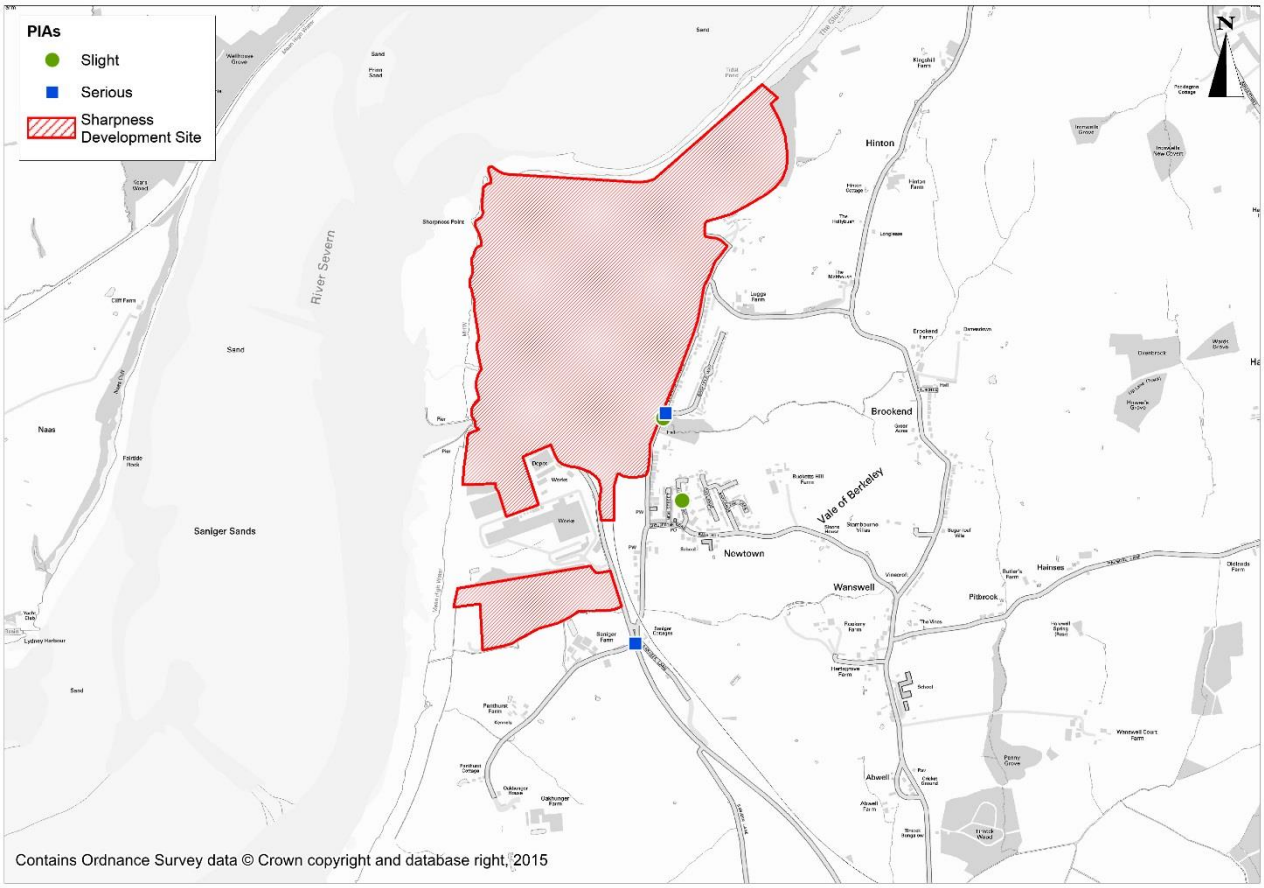
7.6. Public Transport Summary

Figure 7c demonstrates that the existing public transport network in the vicinity of Sharpness Docks is currently relatively poor. Local centres such as Cam and Dursley are only accessible via public transport and take between 45-60 minutes.

7.7. Accidents

Personal Injury Accident data has been assessed and is shown in **Figure 7.2**.

Figure 7.2: PIA Map



Analysis of the information related to PIAs gives no rise for undue concern that the traffic related to the proposed development will increase the accident volumes in the local area.

7.8. Conclusion

Both of the sites within the Sharpness Docklands Estate are served by the same transport network, including walking, cycling and public transport. One local primary school and a small general store in Newtown can be accessed by walking but some of the pedestrian facilities are not adequate, in particular the footpaths providing direct access between Newtown and site SA5. Facilities available in Berkley are within the 8km cycling distance but a lack of adequate cycling facilities results in cycling not being an attractive mode of travel.

The local bus routes provide access to Berkeley, Cam and Dursley. However, the service frequency is low and the journey times are high. Whilst it is possible to use the service for commuting, it is not expected that this existing level of service would provide an attractive transport option for residents travelling for work or for other commuting journeys.

7.9. Sustainable Infrastructure Requirements

The following infrastructure improvements would help improve the sustainable transport options at the Sharpness Docks Estate:

Site SA5

- Improvements to the existing footpath connections between the site and Newtown (such as paving, widening and lighting.);
- Additional footpath connections between the site boundary and Newtown (significantly increasing permeability into and within the site);
- Creation of one or more cycle routes between the site and Newtown (either fully segregated or partially segregated alongside the footpaths); and
- Contributions towards improvements to the frequency and quality of local bus services.

Site SA5a

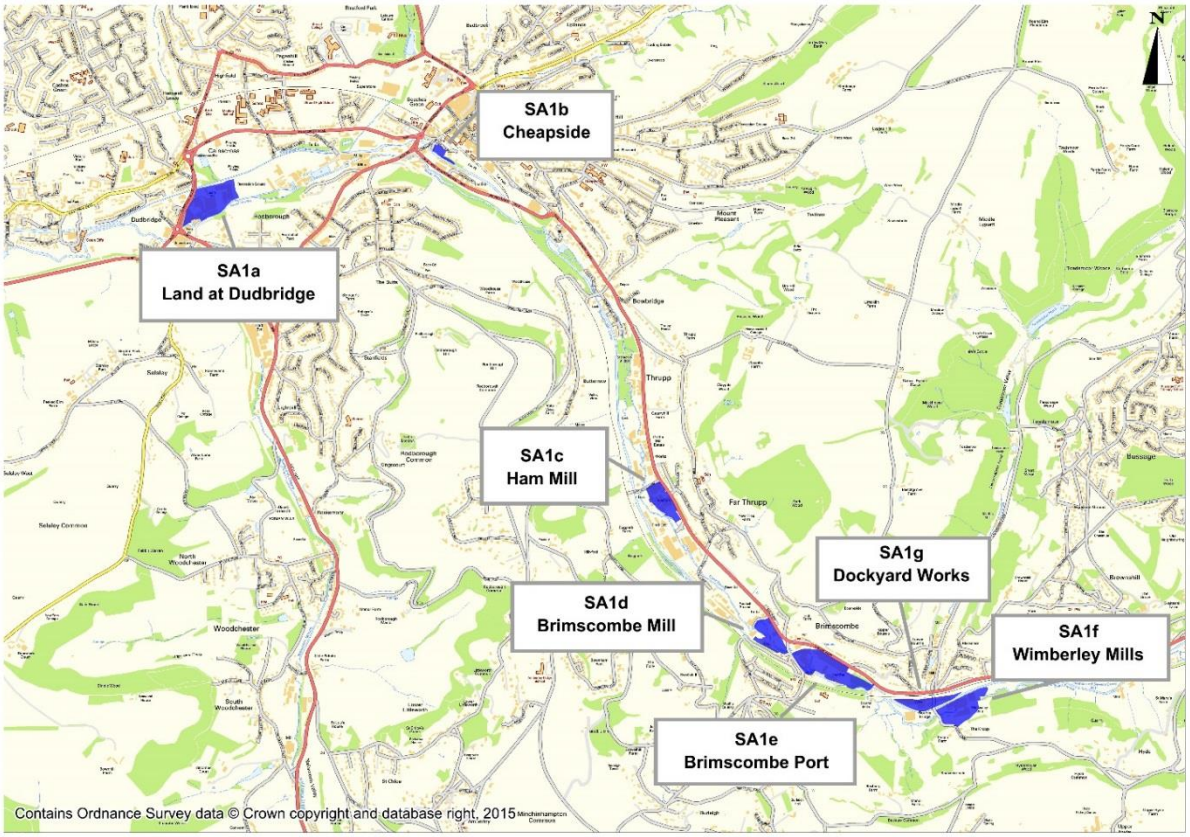
- Improvements to the existing footpath between Newtown and the site (including the railway bridge adjacent to the Oldminster Road and B4066 junction);
- Creation of a footpath alongside the B4066 providing access to the bus stops to the south of the Oldminster Road and B4066 junction;
- Creation cycle routes along the A4066 (in conjunction with the cycling improvements as part of SA5); and
- Contributions towards improvements to the frequency and quality of local bus services.

A combination of improved pedestrian and cycle routes with increased bus provision would improve sustainable transport access to the development.

8. Site Audit for Stroud Valleys

The Stroud Valleys strategic growth area comprises of seven separate development sites located to the south-east of the Stroud district. The location of the Stroud Valleys development sites are outlined in **Figure 8.1**.

Figure 8.1: The Stroud Valleys development sites.



The sites identified within the Stroud District Local Development Plan for the Stroud Valleys growth area are allocated for mixed use development including both residential and employment uses.

Table 8.1 outlines the proposed development allocated at each development site within the Stroud Valleys strategic growth area.

Table 8.1 Stroud Valleys Site Allocations

Site Allocation	Development Site	Dwellings	Employment
SA1a	Land at Dudbridge	-	Canal related tourism development, retail and employment uses.
SA1b	Cheapside	30	Canal related development.
SA1c	Ham Mill	100	Employment uses.
SA1d	Brimscombe Mill	40	Employment uses.
SA1e	Brimscombe Port	150	Canal related tourism development and employment uses.
SA1f	Wimberley Mills	100	Employment B1-B8 uses.
SA1g	Dockyard Works	30	Employment B1-B8 uses.

For the purposes of this sustainable transport audit, the seven development sites allocated within the Stroud Valleys strategic growth area will be evaluated as five development sites. The five development sites are:

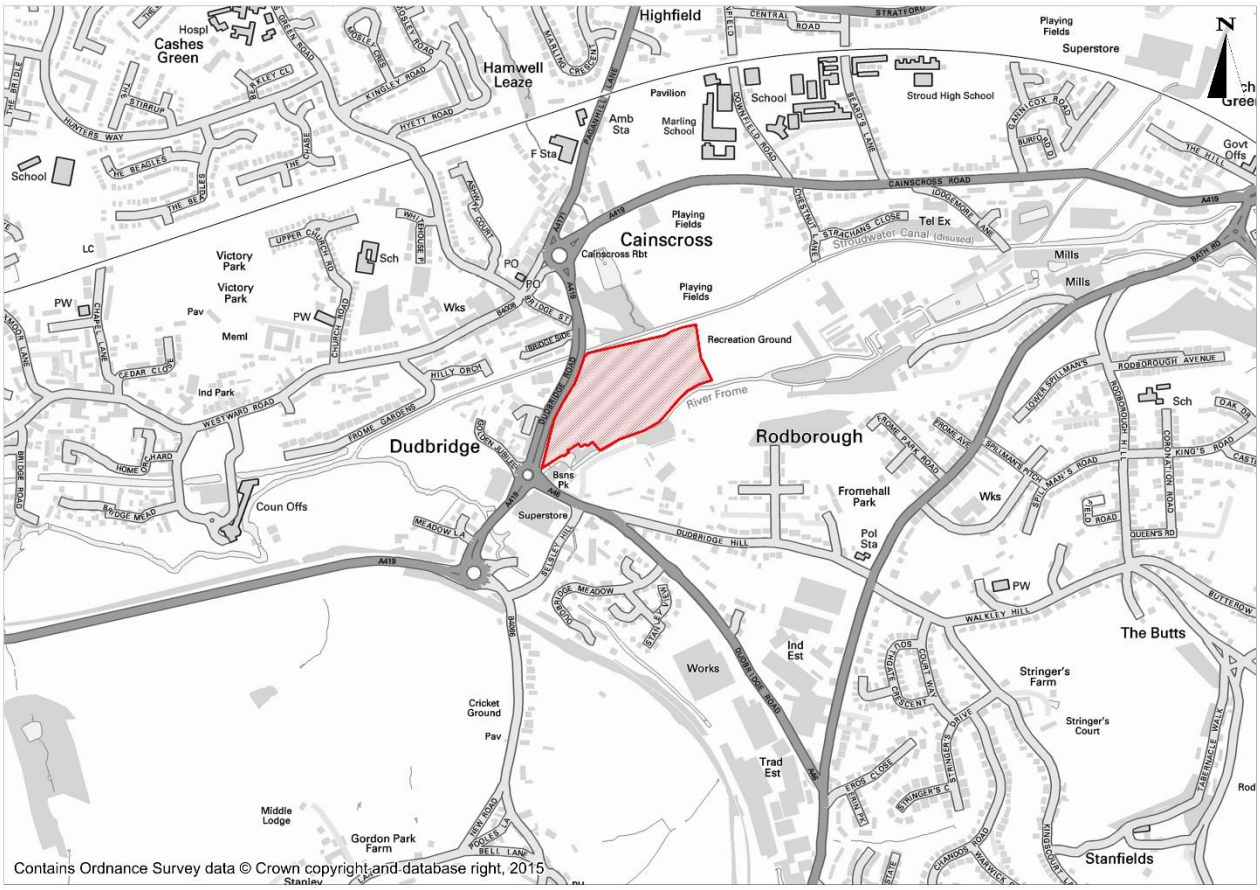
1. **Site Allocation E1**
   - SA1a Land at Dudbridge.
2. **Site Allocation E2**
   - SA1b Cheapside
3. **Site Allocation E3**
   - SA1c Ham Mill
4. **Site Allocation E4**
   - SA1d Brimscombe Mill
   - SA1e Brimscombe Port
5. **Site Allocation E5**
   - SA1f Wimberley Mills
   - SA1g Dockyard Works

8.1. Site Allocation E1 – SA1a Land at Dudbridge.

8.1.1. Site Description

Site Allocation E1 is located in the suburb of Dudbridge, approximately 1.5km south-west of Stroud. The development site has been allocated for canal related tourism development, retail and employment uses. **Figure 8.1.1** outlines the site boundary of Site Allocation E1.

Figure 8.1.1 Site Boundary of Site Allocation E1 – SA1a Land at Dudbridge.



8.1.2. Local Highway Network

Site Allocation E1 is accessed via the A419 Dudbridge Road, a dual carriageway which runs in a north-south direction parallel to the development site.

8.1.3. Existing Travel Characteristics

The E1 site is located in Super Output Area Stroud 006. **Table 8.1.1** provides information on the mode of transport used for travelling to work by people in Stroud 006, as represented in the Census 2011.

Table 8.1.1 Census 2011 Mode Share

Method of Journey to work for Residents	Share
Work Mainly at or From Home	8%
Underground, Metro, Light Rail, Tram	0%
Train	2%
Bus, Minibus or Coach	3%
Taxi	0%
Motorcycle, Scooter or Moped	1%
Driving a Car or Van	62%
Passenger in a Car or Van	6%
Bicycle	2%
On Foot	16%
Other Method of Travel to Work	0%

Table 8.1.1 shows that the existing sustainable modal split of journeys to work is good, with very high levels of walking (16%). The results show that the use of public transport is relatively low with 2% by train and 3 % by bus.

8.1.4. Existing Facilities

Figures 8.1a, 8.1b and **8.1c** show walking, cycling and public transport isochrones and illustrate the areas which can be reached in various time intervals by these modes. The isochrones are contained in the appendix to this report.

Site Allocation E1 is located approximately 1.5km south-west of Stroud in the suburb of Dudbridge. Stroud is a town in Gloucestershire, the town centre provides a range of amenities including:

- Dentist;
- Medical Centre;
- Restaurants;
- Supermarket;
- Stroud High School;
- Stroud Library; and
- Stroud Railway Station.

Table 8.1.2 provides a summary of the accessibility to local amenities in Stroud.

Table 8.1.2 Summary of Accessibility to Amenities

Amenity Description	Distance	Walking	Cycling	Bus
Bus Stop	150m	2 Mins	-	-
Stroud Railway Station	2.0km	24 Mins	8 Mins	12 Mins
Dentist	2.3km	-	11 Mins	16 Mins
Medical Centre	2.2km	-	11 Mins	10 Mins
Stroud General Hospital	2.9km	-	16 Mins	32 Mins
Supermarket	240m	4 Mins	1 Mins	-
Pharmacy	240m	4 Mins	1 Mins	-
St Matthew's C of E Primary School	550m	7 Mins	3 Mins	7 Mins
Stroud High School	1.4km	16 Mins	9 Min	7 Mins
Marling High School	1.4km	16 Mins	9 Min	7 Mins
Stroud College	1.5km	16 Mins	9 Min	7 Mins
Stroud Library	2.2km	-	10 Mins	11 Mins

8.1.5. Existing Sustainable Provision

Walking

Figure 8.1a demonstrates that Stroud is within the 2km acceptable walking distance from the development site. The existing pedestrian route to Stroud via the A419 Dudbridge Road has adequate footways on both sides of the carriageway. There is a slight uphill gradient towards Stroud.

The existing pedestrian route adjacent to the proposed development site is adequate for pedestrian movement. There are signalised pedestrian crossing facilities on the A419 Dudbridge Road. This pedestrian crossing provides access to the adjacent supermarket and the bus stop located along the A419.

Cycling

There are no designated on-road cycle routes in direct vicinity of the development site. National cycle route 45 (The Stonehouse & Nailsworth Railway Cycle Path) runs adjacent to the A419, a route access point is located approximately 400m from Site Allocation E1. National cycle route 45 is a traffic-free route which provides a direct link to Stroud town centre.

Bus

The nearest bus stops to Site Allocation E1 are located along the A419 Dudbridge Road and Dudbridge Hill. These stops provide frequent services to local destinations including Cam, Dursley and Stroud. **Table 8.1.3** provides route information and frequencies of the bus services operating in the vicinity of Site Allocation E1.

Table 8.1.3 Local Bus Services in vicinity of Site Allocation E1.

Service No	Route	Weekday Frequency per Hour	First/ last Service from Dudbridge Road.	Saturdays	Sundays
8A	Stroud – Uplands & Mason Road Circular	1	08:15/ 08:15	08:15/ -	No Service on Sundays.
16A	Hardwicke – Stonehouse – Cainscross Road (Sch)	1	08:20/ 15:40	No Service on Saturdays.	No Service on Sundays.

Service No	Route	Weekday Frequency per Hour	First/ last Service from Dudbridge Road.	Saturdays	Sundays
35	Stroud – Uley – Dursley – Cam & Dursley Rail	1	08:58/ 16:48	08:58/ 11:38	No Service on Sundays.
40	Stroud – Nailsworth – Wooton-under-Edge	1	08:26/ 17:36	08:26/ 17:36	No Service on Sundays.
63	Forest Green – Nailsworth – Stroud – Whiteshill - Gloucester	2	06:39/ 19:44	06:39/ 19:44	09:44/ 17:44
63A	Forest Green – Nailsworth – Stroud – Whiteshill - Gloucester	2	06:39/ 19:44	06:39/ 19:44	09:44/ 17:44
242	Arlingham – Stonehouse - Stroud	1	10:34/ 13:29	No Service on Saturdays.	No Service on Sundays.
267	Stroud – Woodchester - Stroud	1	11:15/ 13:50	No Service on Saturdays.	No Service on Sundays.

The existing bus services are within walking distance, and provide services to areas of employment, so there are existing opportunities for sustainable travel to work from the site.

Table 8.1.3 demonstrates that Site Allocation E1 is well served by local bus services in both the AM and PM peak, with the 63 and 63A providing 2 services to Gloucester per hour during the week and on a Saturday.

Train

Stroud is the nearest railway station to Site Allocation E1 and is located approximately 2km (approximately a 24 minute walk) north-east of the site. The station has a ticket office, self-service ticket machines, a car park and cycle storage. The station serves a number of destinations including Cheltenham Spa and London Paddington.

Rail services from Stroud railway station are summarised in **8.1.4**.

Table 8.1.4 Summary of Rail Services from Stroud Railway Station.

Station	Destination	Day	Frequency	First Train	Last Train
Stroud	London Paddington	Mon to Fri	Hourly	0535	2233
		Saturday	Hourly	0601	2153
		Sunday	Hourly	0955	2216
	Cheltenham Spa	Mon to Fri	Hourly	0709	2223
		Saturday	Hourly	0745	2306
		Sunday	Hourly	1024	2326

Source: www.nationalrail.co.uk

8.1.6. Public Transport Summary

Figure 8.1c demonstrates that Stroud is accessible via public transport within 10 – 20 minutes. Gloucester and Swindon are accessible within 60 minutes of the development site via public transport. This provides a good opportunity to access employment opportunities and local amenities.

8.1.7. Accidents

Personal Injury Accident (PIA) data has been assessed and is shown in **Figure 8.1.2** below.

Figure 8.1.2. Personal Injury Accident Data in vicinity of Site Allocation E1.

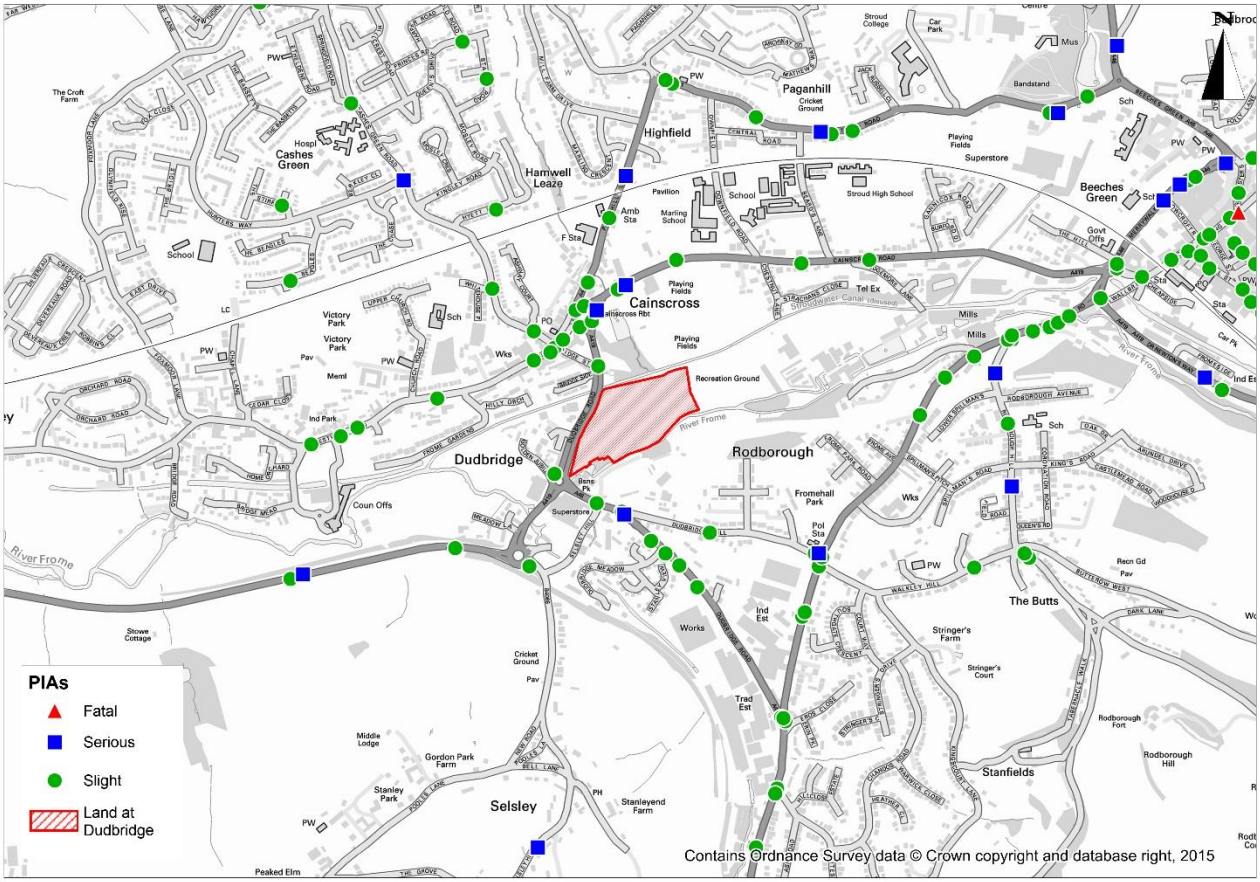


Figure 8.1.2 demonstrates that a low number of slight accidents occurred in vicinity of the development site along the A419 Dudbridge Road. Review of the PIAs shows that the majority of accidents occurred to the north of the development site in Cainscross town centre which is typical in a town centre location.

Analysis of the information related to PIAs gives no rise for undue concern that trips related to the proposed development will exacerbate existing problems.

8.1.8. Conclusion

In conclusion, the site is well served by a number of amenities that are accessible on foot or bicycle within acceptable walking or cycling distances. There are a range of public transport services near to the site, providing connections to a range of local destinations.

8.1.9. Sustainable Infrastructure Requirements

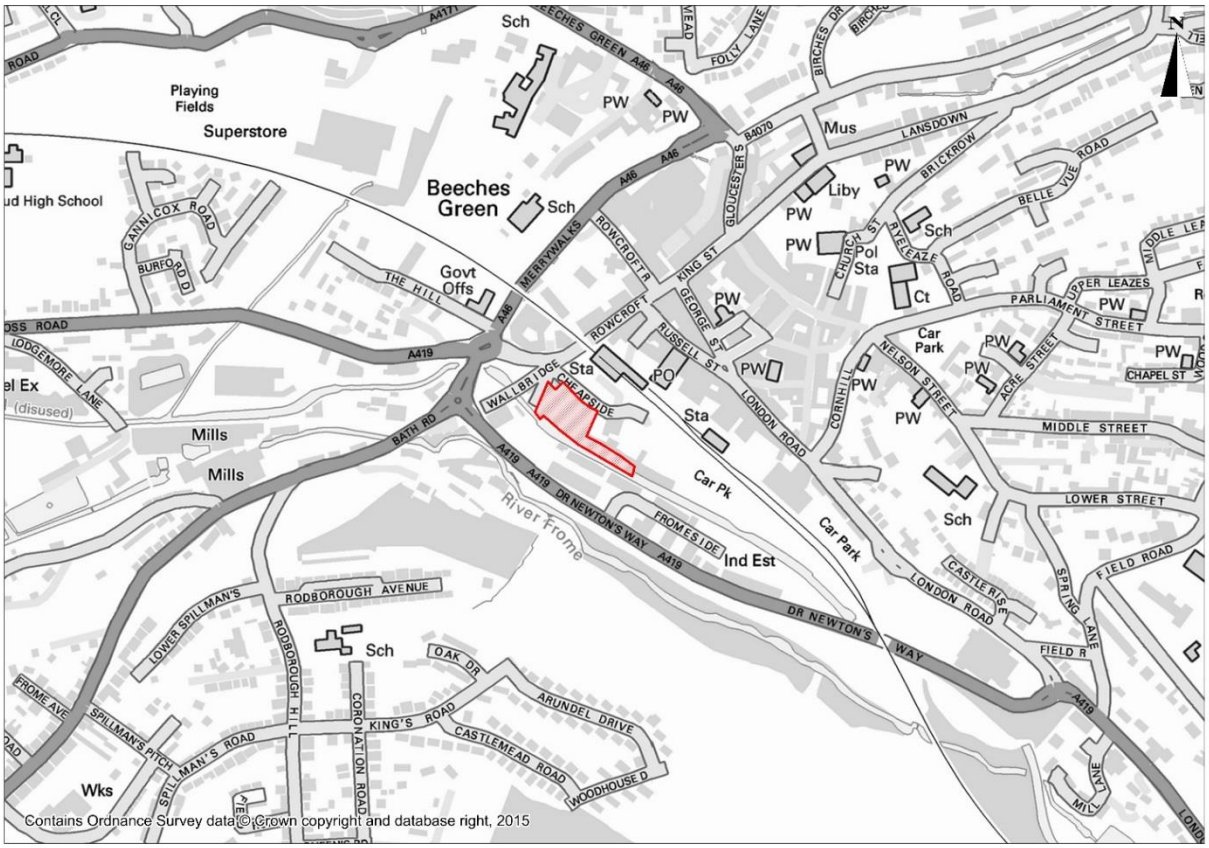
The development will need to ensure that it provides good connections onto the existing sustainable transport facilities, to maximise the use of the good existing infrastructure.

8.2. Site Allocation E2 – SA1b Cheapside.

8.2.1. Site Description

Site Allocation E2 is located within Stroud town centre. The development site has been allocated for 30 dwellings and canal related development. **Figure 8.2.1** outlines the site boundary of Site Allocation E2.

Figure 8.2.1. Site Boundary of Site Allocation E2 – SA1b Cheapside.



8.2.2. Local Highway Network

Site Allocation E2 is accessed via Rowcroft roundabout. The A419 Cainscross Road is also accessed via Rowcroft Roundabout. The A419 provides access to the M5 J13 to the west, and Cirencester to the East.

8.2.3. Existing Travel Characteristics

The E2 site is located in Super Output Area Stroud 006. **Table 8.2.1** provides information on the mode of transport used for travelling to work by people in Stroud 006, as represented in the Census 2011.

Table 8.2.1 Census 2011 Mode Share

Method of Journey to work for Residents	Share
Work Mainly at or From Home	8%
Underground, Metro, Light Rail, Tram	0%
Train	2%
Bus, Minibus or Coach	3%
Taxi	0%
Motorcycle, Scooter or Moped	1%
Driving a Car or Van	62%
Passenger in a Car or Van	6%
Bicycle	2%
On Foot	16%
Other Method of Travel to Work	0%

Table 8.2.1 shows that the existing sustainable modal split of journeys to work is good, with very high levels of walking (16%). The results show that the use of public transport is relatively low with 2% by train and 3 % by bus.

8.2.4. Existing Facilities

Figures 8.2a, 8.2b and **8.2c** show walking, cycling and public transport isochrones and illustrate the areas which can be reached in various time intervals by these modes. The isochrones are contained in the appendix to this report.

Site Allocation E2 is located within Stroud. The town centre provides a range of amenities including:

- Dentist;
- Medical Centre;
- Restaurants;
- Supermarket;
- Stroud High School;
- Stroud Library; and
- Stroud Railway Station.

Table 8.2.2 provides a summary of the accessibility to local amenities in Stroud.

Table 8.2.2 Summary of Accessibility to Amenities

Amenity Description	Distance	Walking	Cycling	Bus
Bus Stop	185m	2 Mins	-	-
Stroud Railway Station	240m	3 Mins	2 Mins	-
Dentist	600m	6 Mins	4 Mins	-
Medical Centre	550m	5 Mins	4 Mins	-
Stroud General Hospital	550m	18 Mins	10 Mins	10 Mins

Amenity Description	Distance	Walking	Cycling	Bus
Supermarket	1km	12 Mins	5 Mins	-
Pharmacy	1km	12 Mins	5 Mins	-
Rosary Catholic Primary School	250m	3 Mins	1 Mins	3 Mins
Stroud High School	1km	12 Mins	6 Mins	-
Marling High School	1.2km	12 Mins	6 Mins	-
Stroud College	900m	12 Mins	6 Mins	-
Stroud Library	450m	4 Mins	4 Mins	-

8.2.5. Existing Sustainable Provision

Walking

The existing pedestrian facilities within the vicinity of Site Allocation E2 are suitable for pedestrain movement. There is a pedestrain crossing adjacent to the site access and the exisitng pavements are wide enough to accommodate pedestrian movement. **Figure 8.2a** demonstartes that all of the key local ammenities identified are located within an acceptable walking distance of 2km.

The pedestrian access to Stroud town centre is along Rowcroft. The pavement width is acceptable for pedestrian movement, however there is a gradient along the route as shown below.

Cycling

There are no designated on-road cycle routes in direct vicinity of the development site. National cycle route 45 (The Stonehouse & Nailsworth Railway Cycle Path) is located approximately 100m from Site Allocation E2. National cycle route 45 is a traffic-free route which provides sustainable links to Minchinhampton and Stonehouse.

Bus

The nearest bus stop to Site Allocation E2 is located along King Street, approximately 185m north of the proposed site. This stop provides frequent services to local destinations including Paganhill. **Table 8.2.3** provides route information and service frequencies of the bus services operating in the vicinity of Site Allocation E2.

Table 8.2.3 Local bus services in vicinity of Site Allocation E2.

Service No	Route	Weekday Frequency per Hour	First/ last Service from Dudbridge Road.	Saturdays	Sundays
64	Stonehouse – Ebley – Stroud – Bowbridge - Bussage	1	07:13/ 19:08	08:03/ 19:03	No Service on Sundays.
67	Stroud – Paganhill – Cashes Green	3	08:24/ 18:00	08:35/ 18:00	No Service on Sundays.

Table 8.2.3 demonstrates that Site Allocation E2 is well served by a local bus service in the AM peak, with the 67 operating three services per hour during the week and on a Saturday. This is a local service which operates between Stroud and Paganhill. The existing bus services are within walking distance and provide services to areas of employment, so there are existing opportunities for sustainable travel to work from the site.

Rail

Stroud is the nearest railway station to Site Allocation E2 and is located approximately 200m (approximately 5 minutes' walk) north-east of the site. The station has a ticket office, self-service ticket machines, a car park and cycle storage. The station serves a number of destinations including Cheltenham Spa and London Paddington.

Rail services from Stroud railway station are summarised in **Table 8.2.4**.

Table 8.2.4 Summary of Rail Services from Stroud Railway Station.

Station	Destination	Day	Frequency	First Train	Last Train
Stroud	London Paddington	Mon to Fri	Hourly	0535	2233
		Saturday	Hourly	0601	2153
		Sunday	Hourly	0955	2216
	Cheltenham Spa	Mon to Fri	Hourly	0709	2223
		Saturday	Hourly	0745	2306
		Sunday	Hourly	1024	2326

Source: www.nationalrail.co.uk

8.2.6. Public Transport Summary

The town centre location of the development site make the existing public transport infrastructure accessible, promoting access to wider employment opportunities. **Figure 8.2c** demonstrates that Cheltenham, Cirencester and Swindon are located within 45 minutes of the development site via public transport.

8.2.7. Accidents

Personal Injury Accident (PIA) data has been reviewed and is shown in **Figure 8.2.2** below.

Figure 8.2.2 Personal Injury Accident Data in vicinity of Site Allocation E2.

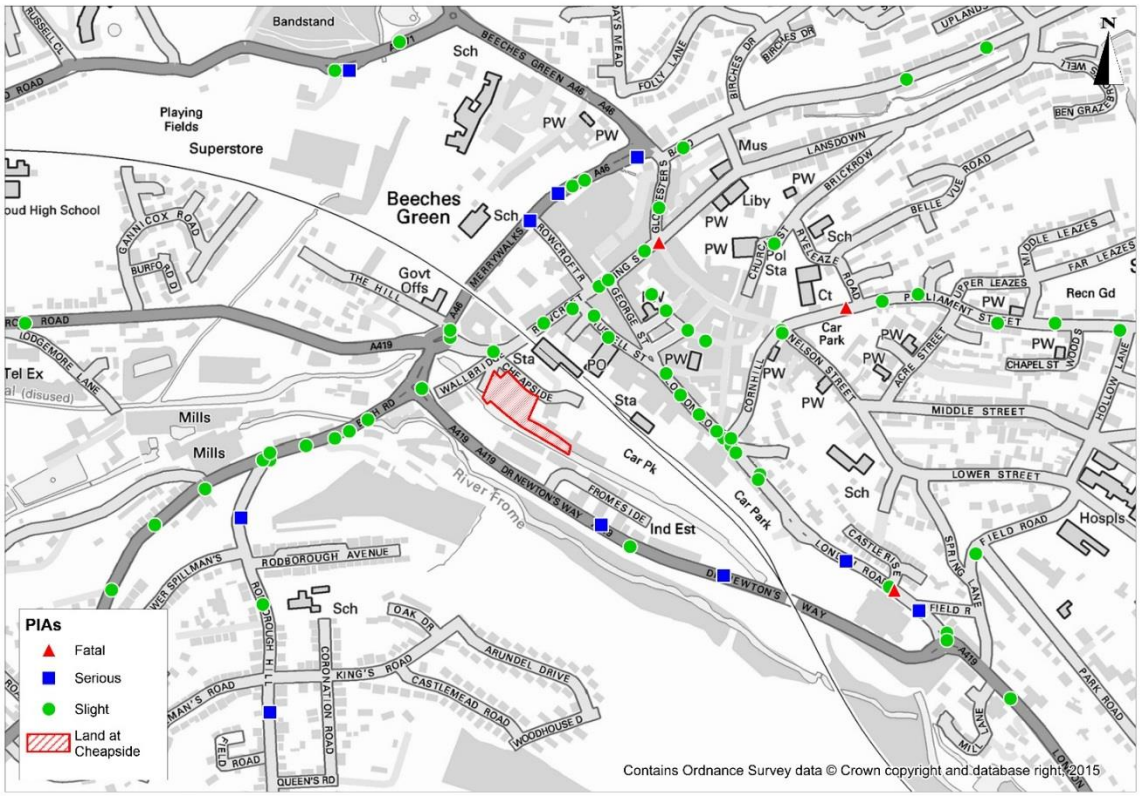


Figure 8.2.2 demonstrates that a small number of slight accidents occurred in vicinity of the development site along Rowcroft. Analysis of the PIAs shows that a higher number of accidents occurred to the north of the development site along Russell Street and London Road which is typical for a town centre location.

Analysis of the information related to PIAs gives no rise for undue concern that trips related to the proposed development will exacerbate existing problems.

8.2.8. Conclusion

In conclusion, due to its town centre location, the site is well served by a number of amenities that are accessible on foot or bicycle within acceptable walking or cycling distances. There are a range of public transport services near to the site, providing connections to a range of local destinations.

8.2.9. Sustainable Infrastructure Requirements

The development will need to ensure that it provides good connections to the existing sustainable transport facilities, to maximise the use of the good existing infrastructure.

8.3. Site Allocation E3 – SA1c Ham Mill.

8.3.1. Site Description

Site Allocation E3 is located approximately 2.3km south of Stroud town centre, it is allocated for 50 dwellings and employment uses. The redevelopment of the site is focussed on achieving the conservation and adaption of the historic mill on site. **Figure 8.3.1** outlines the site boundary of Site Allocation E3.

Figure 8.3.1 Site Boundary of Site Allocation E3 — SA1c Ham Mill.

8.3.2. Local Highway Network

Site Allocation E3 is located adjacent to the A419 London Road, which provides access to Stroud to the East and Cirencester to the West. The site is bound by Ham Mill Lane to the north. The existing vehicular access to the historic mill is via the A419 London Road.

8.3.3. Existing Travel Characteristics

The E3 site is located in Super Output Area Stroud 007. **Table 8.3.1** provides information on the mode of transport used for travelling to work by people in Stroud 007, as represented in the Census 2011.

Table 8.3.1 Census 2011 Mode Share

Method of Journey to work for Residents	Share
Work Mainly at or From Home	9%
Underground, Metro, Light Rail, Tram	0%
Train	2%
Bus, Minibus or Coach	2%
Taxi	0%
Motorcycle, Scooter or Moped	1%
Driving a Car or Van	70%
Passenger in a Car or Van	5%
Bicycle	3%
On Foot	9%
Other Method of Travel to Work	0%

Table 8.3.1 shows that the existing modal split of sustainable journeys to work is relatively high, with walking (9%) and cycling (3%). The results show that the use of public transport is relatively low, with 2% by train and 2% by bus.

8.3.4. Existing Facilities

Figures 8.3a, 8.3b and **8.3c** show walking, cycling and public transport isochrones and illustrate the areas which can be reached in various time intervals by these modes. The isochrones are contained in the appendix to this report.

Site Allocation E3 is located approximately 2.3km south of Stroud. The town centre provides a range of amenities including:

- Dentist;
- Medical Centre;
- Restaurants;
- Supermarket;
- Stroud High School;
- Stroud Library; and
- Stroud Railway Station.

Table 8.3.2 provides a summary of the accessibility to local amenities in Stroud.

Table 8.3.2 Summary of Accessibility to Amenities

Amenity Description	Distance	Walking	Cycling	Bus
Bus Stop	60m	1 Min	-	-
Stroud Railway Station	2.4km	-	11 Mins	11 Mins
Dentist	2.2km	-	12 Mins	29 mins
Medical Centre	2.6km	-	11 Mins	15 Mins
Stroud General Hospital	1.8km	24 Mins	9 Mins	16 Mins
Supermarket	3.1km	-	14 Mins	19 Mins
Pharmacy	3.1km	-	14 Mins	19 Mins
Thrupp Primary School	600m	6 Mins	3 Mins	-
Stroud High School	3.4km	-	14 Mins	24 Mins
Marling High School	3.4km	-	14 Mins	24 Mins
Stroud College	3.3km	-	14 Mins	24 Mins
Stroud Library	2.5km	-	12 Mins	14 Mins

8.3.5. Existing Sustainable Provision

Walking

The existing pedestrian facilities along the A419 are narrow and constrained by overgrown vegetation. The A419 provides a direct pedestrian link into Stroud and therefore the pedestrian facilities need to be considered.

Cycling

There is no formal on road cycle provision (, cycle lanes or advanced stoplines) in direct vicinity of the development site. The Thames and Severn Canal Towpath which runs adjacent to the A419 London Road provides off-road access to Stroud.

Bus

The nearest bus stop to Site Allocation E3 is located along the A419 London Road, approximately 60m from the proposed site.

This stop provides services to local destinations including Ebley, Minchinhampton, Stroud and Cirencester. **Table 8.3.3** provides route information and service frequencies of the bus services operating in the vicinity of Site Allocation E3.

Table 8.3.3 Local bus services in vicinity of Site Allocation E2.

Service No	Route	Weekday Frequency per Hour	First/ last Service from Dudbridge Road.	Saturdays	Sundays
3 (Sch)	Cainscross – Bowbridge – Thrupp - Brimscombe	1	08:26/ 15:15	No Service on Saturdays.	No Service on Sundays.
29	Stroud – Minchinhampton - Tetbury	1	08:45/ 18:25	08:45/ 18:25	No Service on Sundays.
54	Stroud - Cirencester	2	07:45/ 16:54	08:14/ 16:24	No Service on Sundays.
64	Stonehouse – Ebley – Stroud – Bowbridge – Brimscombe - Bussage	2	06:18/ 19:13	07:08/ 19:08	No Service on Sundays.
502 (Sch)	Rodborough – Minchinhampton – Brimscombe – Stroud – Whiteshill – St	1	08:16/ 16:19	No Service on Saturdays.	No Service on Sundays.

Service No	Route	Weekday Frequency per Hour	First/ last Service from Dudbridge Road.	Saturdays	Sundays
	Peter's High School				
ROV1 (Sch)	Bussage – Brimscombe – Cainscross Road	1	08:02/ 15:59	No Service on Saturdays.	No Service on Sundays.

Table 8.3.3 demonstrates that Site Allocation E3 is well served by a local bus network, with the 54 operating two services per hour between Stroud and Cirencester during the week, and one service per hour on a Saturday. The first bus service (64) on a weekday is at 06:18, the last bus service (64) on a weekday is at 19:13. These existing services provide an opportunity for sustainable journeys to work from the site.

Rail

Stroud is the nearest railway station to Site Allocation E3 and is located approximately 2.7km north of the site. The station has a ticket office, self-service ticket machines, a car park and cycle storage. The station serves a number of destinations including Cheltenham Spa and London Paddington.

Rail services from Stroud railway station are summarised in **Table 8.3.4**.

Table 8.3.4 Summary of Rail Services from Stroud Railway Station.

Station	Destination	Day	Frequency	First Train	Last Train
Stroud	London Paddington	Mon to Fri	Hourly	0535	2233
		Saturday	Hourly	0601	2153
		Sunday	Hourly	0955	2216
	Cheltenham Spa	Mon to Fri	Hourly	0709	2223
		Saturday	Hourly	0745	2306
		Sunday	Hourly	1024	2326

Source: www.nationalrail.co.uk

8.3.6. Public Transport Summary

Stroud is accessible within 10 minutes by public transport providing the development site with a number of local services and amenities. **Figure 8.3c** demonstrates that Gloucester and Tetbury are accessible within 60 minutes via public transport. This provides additional opportunities to access wider services and employment opportunities.

8.3.7. Accidents

Personal Injury Accident (PIA) data has been assessed and is shown in **Figure 8.3.2** below.

Figure 8.3.2 Personal Injury Accident Data in vicinity of Site Allocation E3.

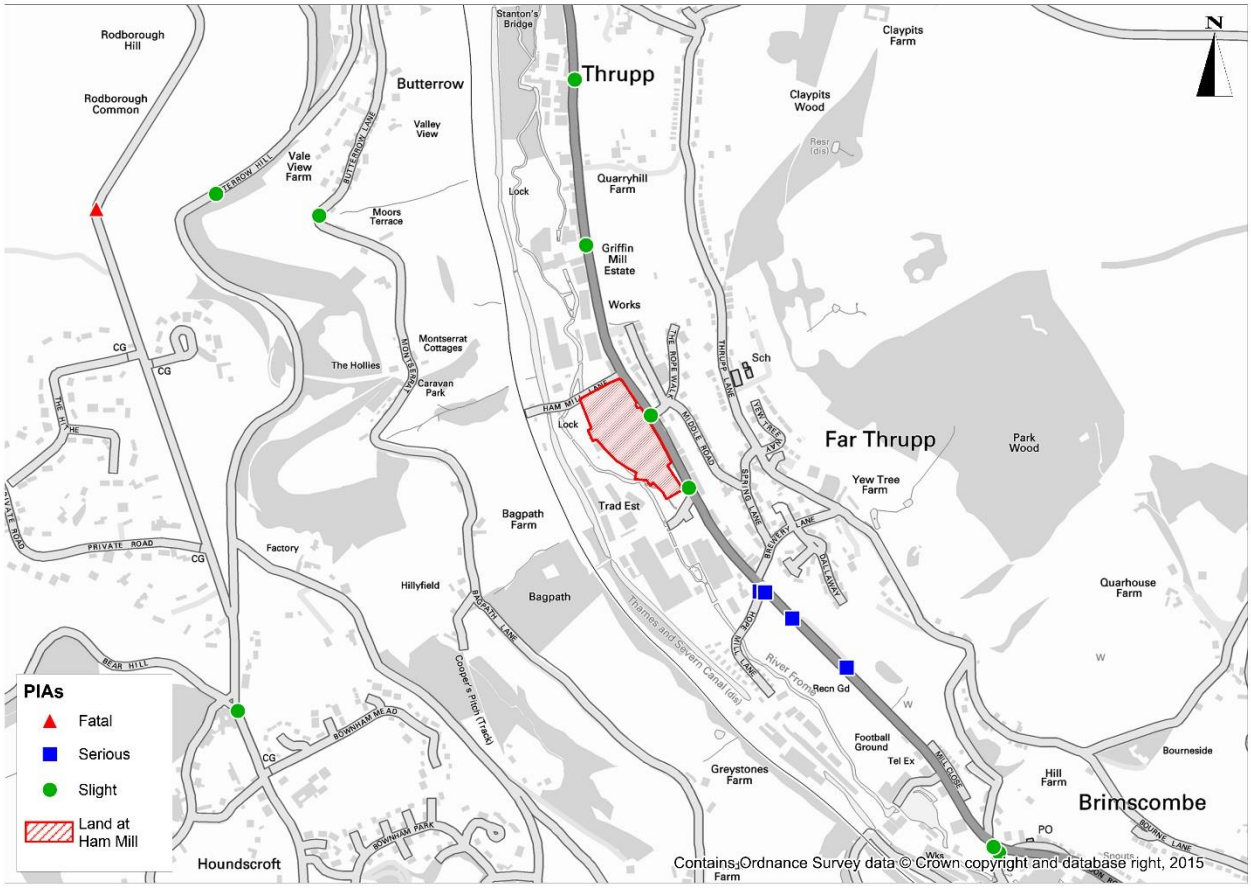


Figure 8.3.2 demonstrates that a small number of slight accidents occurred in vicinity of the development site along the A419 and several serious accidents occurred further to the south on the A419.

Analysis of the information related to PIAs suggests that further detailed investigation of the serious accidents should be undertaken to determine if any mitigation measures are required as a result of the proposed development.

8.3.8. Conclusion

In conclusion, the site is well served by a number of amenities but most are beyond maximum acceptable walking distances. There are no cycle facilities on the A419 in the vicinity of the site so although amenities are within acceptable cycle distances, the routes are not as attractive as alternatives such as dedicated cycle provision. Public transport provision is located in the vicinity of the site, but the existing frequency of services makes this mode less attractive.

8.3.9. Sustainable Infrastructure Requirements

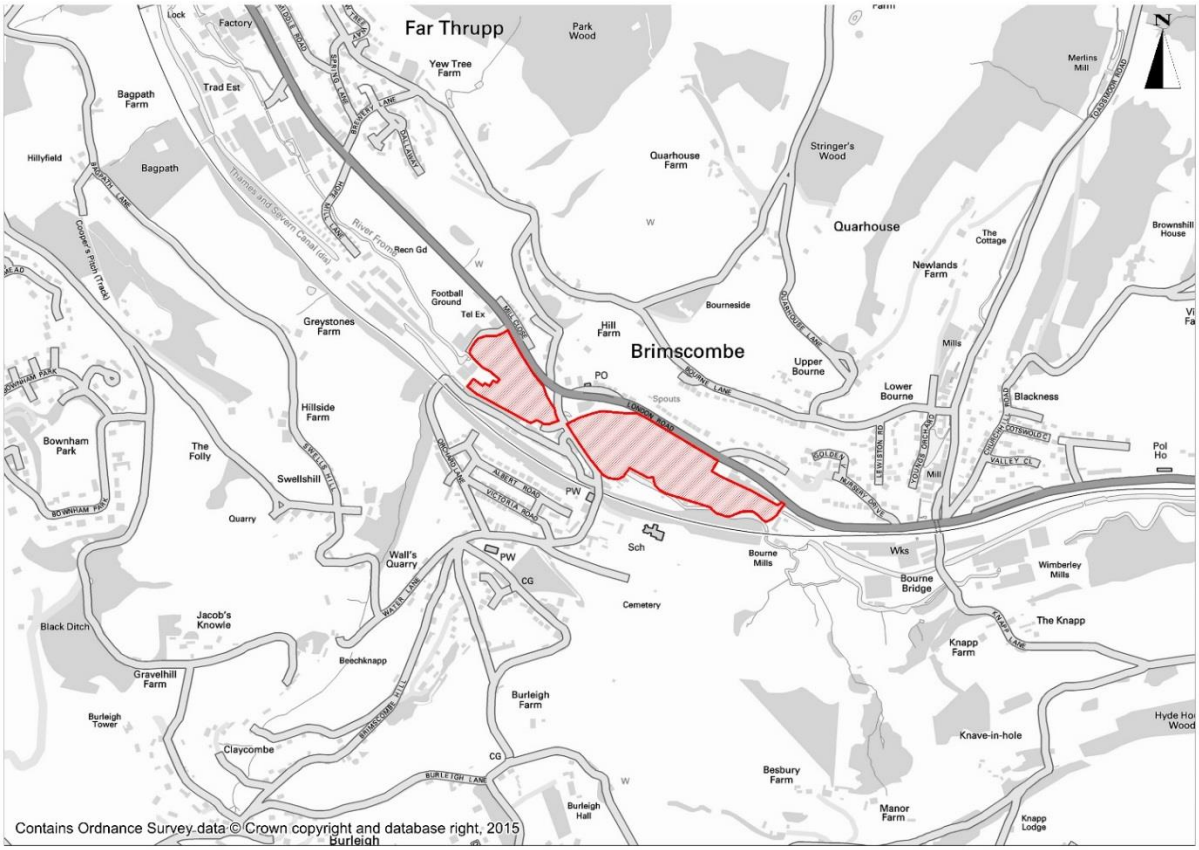
The existing bus services provide sustainable transport access for this development. Connectivity to the bus stops will be required. Mitigation measures may be required to reduce the accident severity near the site. Contributions toward improvements of the cycle routes along the nearby canal and river corridors would help improve cycle connections to local amenities.

8.4. Site Allocation E4 – SA1d Brimscombe Mill & SA1e Brimscombe Port.

8.4.1. Site Description

Site Allocation E4 is located approximately 3.4km south of Stroud town centre, it is allocated for 140 dwellings, and canal related tourism development and employment uses. **Figure 8.4.1** outlines the site boundary of Site Allocation E4.

Figure 8.4.1. Site Boundary of Site Allocation E4 — SA1d Brimscombe Mill & SA1e Brimscombe Port.



8.4.2. Local Highway Network

Site Allocation E4 is located adjacent to the A419 London Road, which provides access to Stroud to the East and Cirencester to the West. Site access is via Brimscombe Hill.

8.4.3. Existing Travel Characteristics

The E4 sites are located in Super Output Area Stroud 007. **Table 8.4.1** provides information on the mode of transport used for travelling to work by people in Stroud 007, as represented in the Census 2011.

Table 8.4.1 Census 2011 Mode Share

Method of Journey to work for Residents	Share
Work Mainly at or From Home	9%
Underground, Metro, Light Rail, Tram	0%
Train	2%
Bus, Minibus or Coach	2%
Taxi	0%
Motorcycle, Scooter or Moped	1%
Driving a Car or Van	70%
Passenger in a Car or Van	5%
Bicycle	3%
On Foot	9%
Other Method of Travel to Work	0%

Table 8.4.1 shows that the existing modal split of sustainable journeys to work is relatively high, with walking (9%) and cycling (3%). The results show that the use of public transport is relatively low, with 2% by train and 2% by bus.

8.4.4. Existing Facilities

Figures 8.4a, 8.4b and **8.4c** show walking, cycling and public transport isochrones and illustrate the areas which can be reached in various time intervals by these modes. The isochrones are contained in the appendix to this report.

Site Allocation E4 is located approximately 3.4km south of Stroud in the parish of Brimscombe and Thrupp.

The village of Brimscombe has local amenities including:

- Brimscombe C of E Primary School;
- Brimscombe Methodist Church;
- Brimscombe Post Office; and
- Restaurant.

Stroud town centre provides a range of amenities including:

- Dentist;
- Medical Centre;
- Restaurants;
- Supermarket;
- Stroud High School;
- Stroud Library; and
- Stroud Railway Station.

Table 8.4.2 provides a summary of the accessibility to local amenities in Brimscombe and Stroud.

Table 8.4.2 Summary of Accessibility to Amenities

Amenity Description	Distance	Walking	Cycling	Bus
Brimscombe				
Bus Stop	70m	1 Min	-	-
Brimscombe C of E Primary School	300m	3 Mins	2 Mins	-
Brimscombe Methodist Church	300m	2 Mins	3 Mins	-
Brimscombe Post Office	130m	2 Mins	1 Min	-
Restaurant	50m	1 Mins	1 Min	-
Stroud				
Dentist	3.3km	-	14 Mins	13 Mins
Medical Centre	3.7km	-	17 Mins	14 Mins
Stroud General Hospital	3.2km	-	13 Mins	15 Mins
Supermarket	4.2km	-	16 Mins	18 Mins
Pharmacy	4.2km	-	16 Mins	18 Mins
Stroud High School	4.5km	-	20 Mins	27 Mins
Marling High School	4.6km	-	20 Mins	27 Mins
Stroud College	4.4km	-	20 Mins	27 Mins
Stroud Library	3.7km	-	14 Mins	11 Mins
Stroud Railway Station	3.5km	-	12 Mins	8 Mins

8.4.5. Existing Sustainable Provision

Walking

The existing walking route to local amenities in Brimscombe is along Brimscombe Hill. The road is lightly trafficked and has a slight gradient in the vicinity of the development site. There is a pedestrian footway on both sides of the carriageway, however there are no pedestrian crossing facilities.

The existing pedestrian route along the A419 to Stroud is narrow, with overgrown vegetation further reducing widths. The local Post Office is located on the other side of the A419, however there are no designated pedestrian crossing facilities.

Cycling

There is no formal on road cycle provision (cycle lanes or advanced stoplines) in direct vicinity of the development site. The Thames and Severn Canal Towpath which runs adjacent to the A419 London Road provides off-road access to Stroud.

Bus

Site Allocation E4 is served by two bus stops in close vicinity to the development site. One bus stop is located along the A419 London Road, approximately 70m from the development site. The other bus stop is located on Brimscombe Hill, approximately 60m away. Both stops provide frequent services to local destinations including Tetbury, Minchinhampton, Stroud and Cirencester. **Table 8.4.3** provides route information and service frequencies of the bus services operating in the vicinity of Site Allocation E4.

Table 8.4.3 demonstrates that Site Allocation E4 is well served by a local bus network, with the 54 operating two services per hour between Stroud and Cirencester during the week, and one service per hour on a Saturday. Site Allocation E4 is also served by four dedicated School services. These existing services provide an opportunity for sustainable journeys to work from the site by bus

Table 8.4.3 Local bus services in vicinity of Site Allocation E4.

Service No	Route	Weekday Frequency per Hour	First/ last Service from Dudbridge Road.	Saturdays	Sundays
3 (Sch)	Cainscross – Bowbridge – Thrupp - Brimscombe	1	08:26/ 15:15	No Service on Saturdays.	No Service on Sundays.
29	Stroud – Minchinhampton - Tetbury	1	08:45/ 18:25	08:45/ 18:25	No Service on Sundays.
54	Stroud - Cirencester	2	07:45/ 16:54	08:14/ 16:24	No Service on Sundays.
64	Stonehouse – Ebley – Stroud – Bowbridge – Brimscombe - Bussage	2	06:18/ 19:13	07:08/ 19:08	No Service on Sundays.
128 (Sch)	Nailsworth – Minchinhampton – Deer Park & Kingshill School	1	08:00/ 16:00	No Service on Saturdays.	No Service on Sundays.
129 (Sch)	Leighterton Turn – Tetbury – Minchinhampton - Stroud	1	08:10/ 15:59	No Service on Saturdays.	No Service on Sundays.
502 (Sch)	Rodborough – Minchinhampton – Brimscombe – Stroud – Whiteshill – St Peter's High School	1	08:16/ 16:19	No Service on Saturdays.	No Service on Sundays.
ROV1 (Sch)	Bussage – Brimscombe – Cainscross Road	1	08:02/ 15:59	No Service on Saturdays.	No Service on Sundays.

Rail

Stroud is the nearest railway station to Site Allocation E4 and is located approximately 3.4km north of the site. The station has a ticket office, self-service ticket machines, a car park and cycle storage. The station serves a number of destinations including Cheltenham Spa and London Paddington.

Rail services from Stroud railway station are summarised in **Table 8.4.4**.

Table 8.4.4 Summary of Rail Services from Stroud Railway Station.

Station	Destination	Day	Frequency	First Train	Last Train
Stroud	London Paddington	Mon to Fri	Hourly	0535	2233
		Saturday	Hourly	0601	2153
		Sunday	Hourly	0955	2216
	Cheltenham Spa	Mon to Fri	Hourly	0709	2223
		Saturday	Hourly	0745	2306
		Sunday	Hourly	1024	2326

Source: www.nationalrail.co.uk

8.4.6. Public Transport Summary

Stroud is accessible within 10 minutes by public transport providing the development site with a number of local services and amenities. **Figure 8.4c** demonstrates that Gloucester is accessible within 60 minutes via public transport, and that Tetbury is accessible within 45 Minutes. This provides additional opportunities to access wider services and employment opportunities.

8.4.7. Accidents

Personal Injury Accident (PIA) data has been assessed and is shown in **Figure 8.4.2** below.

Figure 8.4.2 Personal Injury Accident Data in vicinity of Site Allocation E4.

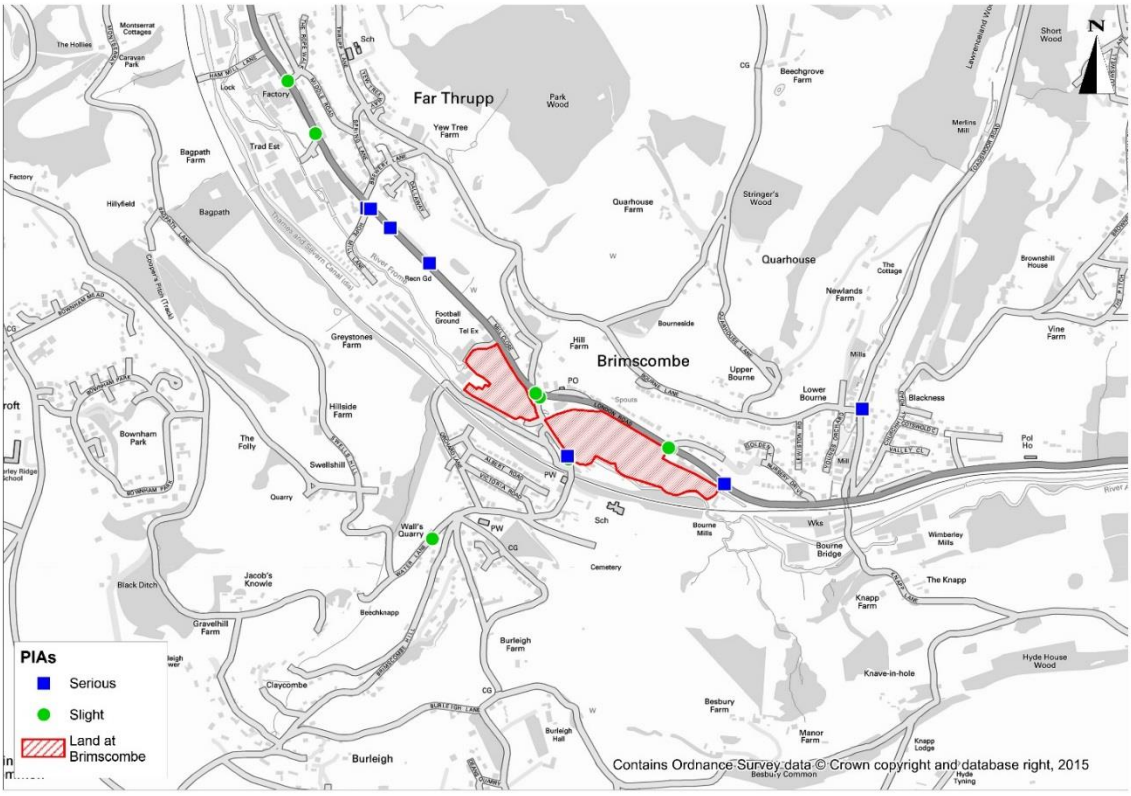


Figure 8.4.2 demonstrates that a small number of slight and serious accidents occurred in vicinity of the development site at the A419/ Brimscombe Hill junction.

Analysis of the information related to PIAs gives no rise for undue concern that trips related to the proposed development will exacerbate existing problems.

8.4.8. Conclusion

In conclusion, the site is well served by a number of amenities in Brimscombe and Stroud, but Stroud is beyond maximum acceptable walking distances. There are no cycle facilities on the A419 in the vicinity of the site so although amenities are within acceptable cycle distances, the routes are not as attractive as alternatives such as dedicated cycle provision. Public transport provision is located in the vicinity of the site and provides sustainable travel options for a range of facilities and employment.

8.4.9. Sustainable Infrastructure Requirements

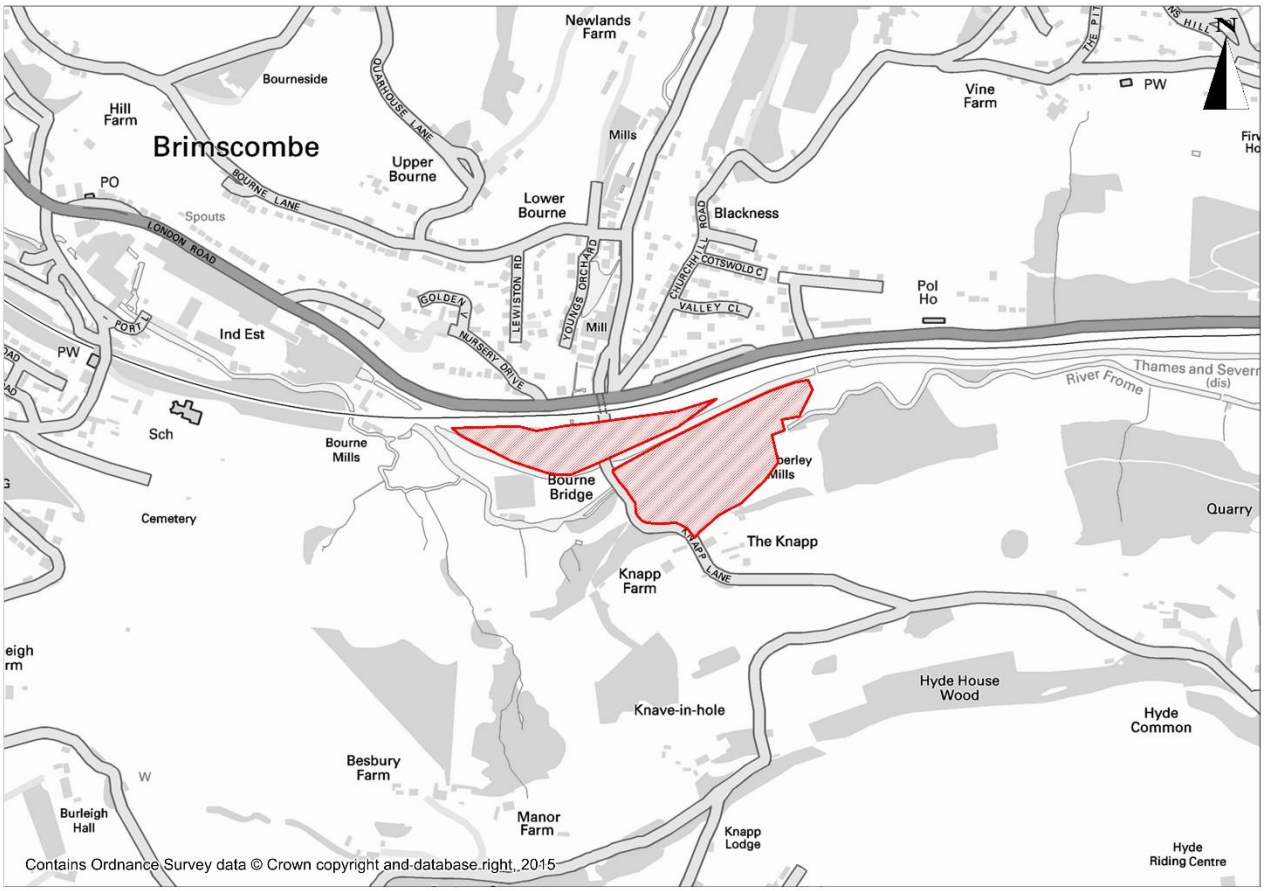
The local facilities and existing bus provision means no significant infrastructure is required for this development to be sustainable. Contributions toward improvements of the cycle routes along the nearby canal and river corridors would help improve cycle connections to local amenities.

8.5. Site Allocation E5 – SA1f Wimberley Mills & SA1g Dockyard Works.

8.5.1. Site Description

Site Allocation E5 is located approximately 3.9km south of Stroud town centre, it is allocated for 80 dwellings, and B1-B8 employment uses. **Figure 8.5.1** outlines the site boundary of Site Allocation E5.

Figure 8.5.1 Site Boundary of Site Allocation E5 — SA1f Wimberley Mills & SA1g Dockyard Works.



8.5.2. Local Highway Network

Site Allocation E5 is located adjacent to the A419 London Road which provides access to Stroud to the East and Cirencester to the West. Existing site access is via Knapp Lane, a narrow lane unsuitable for HGV's due to a low railway bridge. Knapp lane is subject to the national speed limit.

8.5.3. Existing Travel Characteristics

The E5 sites are located in Super Output Area Stroud 007. **Table 8.5.1** provides information on the mode of transport used for travelling to work by people in Stroud 007, as represented in the Census 2011.

Table 8.5.1 Census 2011 Mode Share

Method of Journey to work for Residents	Share
Work Mainly at or From Home	9%
Underground, Metro, Light Rail, Tram	0%
Train	2%
Bus, Minibus or Coach	2%
Taxi	0%
Motorcycle, Scooter or Moped	1%
Driving a Car or Van	70%
Passenger in a Car or Van	5%
Bicycle	3%
On Foot	9%
Other Method of Travel to Work	0%

Table 8.5.1 shows that the existing modal split of sustainable journeys to work is relatively high, with walking (9%) and cycling (3%). The results show that the use of public transport is relatively low, with 2% by train and 2% by bus.

8.5.4. Existing Facilities

Figures 8.5a, 8.5b and **8.5c** show walking, cycling and public transport isochrones and illustrate the areas which can be reached in various time intervals by these modes. The isochrones are contained in the appendix to this report.

Site Allocation E5 is located approximately 3.9km south of Stroud in the parish of Brimscombe and Thrupp.

The village of Brimscombe is located approximately 1km away from Site Allocation E5 and has local amenities including:

- Brimscombe C of E Primary School;
- Brimscombe Methodist Church;
- Brimscombe Post Office; and
- Restaurant.

Stroud town centre provides a range of amenities including:

- Dentist;
- Medical Centre;
- Restaurants;
- Supermarket;

- Stroud High School;
- Stroud Library; and
- Stroud Railway Station.

Table 8.5.2 provides a summary of the accessibility to local amenities in Brimscombe and Stroud.

Table 8.5.2 Summary of Accessibility to Amenities

Amenity Description		Walking	Cycling	Bus
Brimscombe				
Bus stop	50m	1 Min	-	-
Brimscombe C of E Primary School	1.2km	13 Mins	5 Mins	9 Mins
Brimscombe Methodist Church	1.2km	13 Mins	5 Mins	8 Mins
Brimscombe Post Office	1km	12 Mins	5 Mins	5 Mins
Restaurant	1km	13 Mins	3 Mins	5 Mins
Stroud				
Dentist	4.3km	-	19 Mins	16 Mins
Medical Centre	4.7km	-	18 Mins	17 Mins
Stroud General Hospital	3.9km	-	15 Mins	19 Mins
Supermarket	5.2km	-	21 Mins	21 Mins
Pharmacy	5.2km	-	21 Mins	21 Mins
Stroud High School	5.5km	-	21 Mins	33 Mins
Marling High School	5.6km	-	21 Mins	33 Mins
Stroud College	5.4km	-	21 Mins	33 Mins
Stroud Library	4.6km	-	19 Mins	16 Mins
Stroud Railway Station	4.5km	-	18 Mins	15 Mins

8.5.5. Existing Sustainable Provision

Walking

The existing walking route to Brimscombe and Stroud is along the A419 London Road which is quite heavily trafficked. The route is mostly level with sporadic street lighting and is subject to a 40mph speed limit. Pedestrian footways are provided on both sides of the carriageway. The footways are quite narrow in places and there are no pedestrian crossing facilities in vicinity of the allocated development site.

The local village of Brimscombe is accessible via the Thames and Severn Canal Towpath which runs adjacent to the A419 London Road.

Cycling

There is no formal cycle on road provision (cycle lanes or advanced stoplines) in direct vicinity of the development site. The Thames and Severn Canal towpath which runs adjacent to the A419 London Road provides off-road access to Brimscombe and onto Stroud.

Bus

Site Allocation E5 is served by two bus stops in close vicinity to the development site. Both stops are located along the A419 London Road, approximately 50m from the development site. Both stops provide frequent services to local destinations including Tetbury, Minchinhampton, Stroud and Cirencester. **Table 8.5.3** provides route information and service frequencies of the bus services operating in the vicinity of Site Allocation E5.

Table 8.5.3 Summary of Bus Services

Service No	Route	Weekday Frequency per Hour	First/ last Service from Dudbridge Road.	Saturdays	Sundays
3	Cainscross – Bowbridge – Thrupp - Brimscombe	1	08:26/ 15:15	No Service on Saturdays.	No Service on Sundays.
54	Stroud - Cirencester	2	07:45/ 16:54	08:14/ 16:24	No Service on Sundays.
64	Stonehouse – Ebley – Stroud – Bowbridge – Brimscombe - Bussage	2	06:18/ 19:13	07:08/ 19:08	No Service on Sundays.
128	Nailsworth – Minchinhampton	1	08:00/ 16:00	No Service on Saturdays.	No Service on Sundays.

Service No	Route	Weekday Frequency per Hour	First/ last Service from Dudbridge Road.	Saturdays	Sundays
	– Deer Park & Kingshill School				
502	Rodborough – Minchinhampton – Brimscombe – Stroud – Whiteshill – St Peter's High School	1	08:16/ 16:19	No Service on Saturdays.	No Service on Sundays.
ROV1	Bussage – Brimscombe – Cainscross Road	1	08:02/ 15:59	No Service on Saturdays.	No Service on Sundays.

Table 8.5.3 demonstrates that Site Allocation E5 is well served by a local bus network, with the 54 operating two services per hour between Stroud and Cirencester during the week, and one service per hour on a Saturday. Site Allocation E5 is also served by four dedicated School services. These existing services provide an opportunity for sustainable journeys to work from the site.

Rail

Stroud is the nearest railway station to Site Allocation E5 and is located approximately 3.9km north of the site. The station has a ticket office, self-service ticket machines, a car park and cycle storage. The station serves a number of destinations including Cheltenham Spa and London Paddington.

Rail services from Stroud railway station are summarised in **Table 8.5.4**.

Table 8.5.4 Summary of Rail Services from Stroud Railway Station.

Station	Destination	Day	Frequency	First Train	Last Train
Stroud	London Paddington	Mon to Fri	Hourly	0535	2233
		Saturday	Hourly	0601	2153
		Sunday	Hourly	0955	2216
	Cheltenham Spa	Mon to Fri	Hourly	0709	2223
		Saturday	Hourly	0745	2306
		Sunday	Hourly	1024	2326

Source: www.nationalrail.co.uk

8.5.6. Public Transport Summary

Stroud is accessible within 10 minutes by public transport providing the development site with a number of local services and amenities. **Figure 8.5c** demonstrates that Cirencester is accessible within 45 minutes via public transport and Gloucester is accessible within 60 minutes via public transport. This provides additional opportunities to access wider services and employment opportunities.

8.5.7. Accidents

Personal Injury Accident (PIA) data has been assessed and is shown in **Figure 8.5.2** below.

Figure 8.5.2. Personal Injury Accident Data in vicinity of Site Allocation E5.

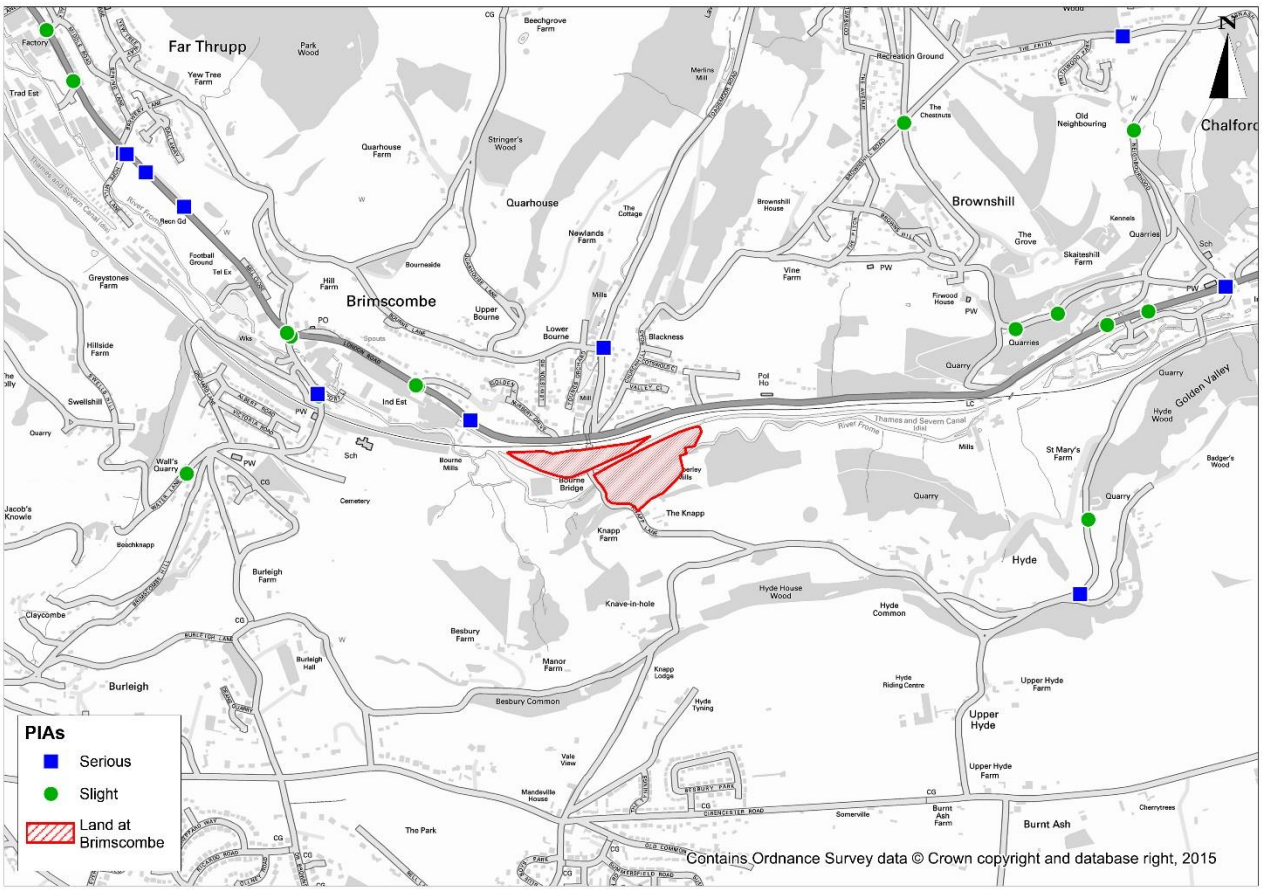


Figure 8.5.2 demonstrates that no accidents occurred in the immediate vicinity of the allocated development site. There was a serious collision along the A419, approximately 300 metres west of site E5, and a serious collision occurred on Toadsmoor Road, approximately 250 metres north of the development site.

Analysis of the information related to PIAs gives no rise for undue concern that trips related to the proposed development will exacerbate existing problems.

8.5.8. Conclusion

In conclusion, the site is well served by a number of amenities in Brimscombe and Stroud, but Stroud is beyond maximum acceptable walking distance. There are no cycle facilities on the A419 in the vicinity of the site so although amenities are within acceptable cycle distances, the routes are not as attractive as alternatives with dedicated quality cycle provision. Public transport provision is accessible and a range of different services can be used.

8.5.9. Sustainable Infrastructure Requirements

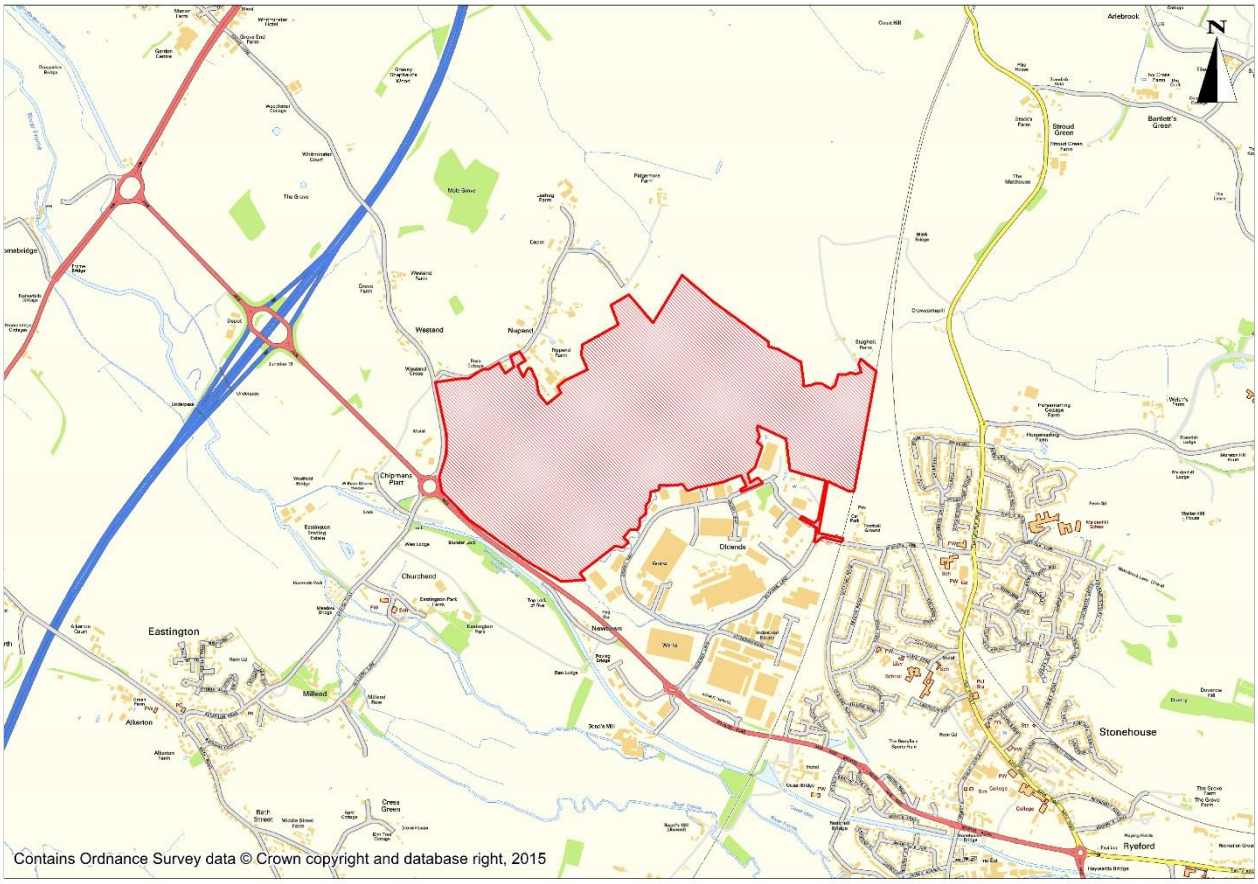
The local facilities and existing bus provision means no significant infrastructure is required for this development. The bus provision allows access to a range of facilities and can be used to access employment sustainably. Contributions toward improvements of the cycle routes along the nearby canal and river corridors would help improve cycle connections to local amenities.

9. Site Audit for Stonehouse

9.1. Site Description

The proposed Sustainable Urban Extension development is located on land to the north of Stroudwater Business Park, as shown in the Site Location **Figure 9.1**. The proposed development will provide up to 1359 dwellings and 10 Ha of B1, B2 and B8 land, generating around 2,000 jobs by 2031. The site is bounded by Stroudwater Business Park and the A419 to the south, the villages of Westend and Nupend to the west, railway lines to the east and agricultural land to the north.

Figure 9.1: Site Location



9.2. Local Highway Network

The main vehicular access to the employment element of the site would be taken off Brunel Way; the main access road for the existing business park. Brunel Way runs in a loop, connecting onto Oldends Lane to the west and the east via double mini roundabout and a mini roundabout respectively.

Oldends Lane runs from the south west to the east and provides connections onto the A419 in the south west and Gloucester Road in the east.

Vehicular accesses are proposed from the A419 Chipmans Platt roundabout, Oldends Lane and Brunel Way.

9.3. Existing Travel Characteristics

The Stonehouse employment development is located in Super Output Area Stroud 005. **Table 9.1** provides information on the mode of transport used for travelling to work by people in Stroud 001, as represented in the Census 2011.

Table 9.1 Census 2011 Mode Share

Method of Journey to work for Residents	Share
Work Mainly at or From Home	4%
Underground, Metro, Light Rail, Tram	0%
Train	2%
Bus, Minibus or Coach	3%
Taxi	0%
Motorcycle, Scooter or Moped	1%
Driving a Car or Van	66%
Passenger in a Car or Van	6%
Bicycle	5%
On Foot	13%
Other Method of Travel to Work	0%

Table 9.1 shows that the existing modal split of sustainable journeys to work is relatively high, with walking (13%) and cycling (5%). The results show that the use of public transport is relatively modest, with 2% by train and 3% by bus.

9.4. Existing Facilities

Figures 9a, 9b and **9c** show existing walking, cycling and public transport isochrones and illustrate the areas which can be reached in various time intervals by these modes. The isochrones are contained in the appendix to this report. The isochrones use the existing road network from the access on Brunel Way. The internal road network within the proposed development will be required to provide cycle and pedestrian routes through the development, connecting Nastend and Nupend with the town centre, Stroudwater Industrial Estate and Oldends Lane.

Local amenities for the proposed land use and are provided in four key locations to the site as follows:

- Oldends Lane.
- Stonehouse;
- Stonehouse Railway Station; and
- National Cycle Network Route 45 and Stroudwater Navigation.

Oldends Lane
There are existing employment land uses at Stroudwater Business Park and Oldends Lane Industrial Estate, along with bus stops located near Oldends Lane to the east of the site on Midlands Road and the south of the site on Oldends Lane.

Stonehouse
Stonehouse has a range of amenities including:

- The Park Infant and Junior School;
- Wycliffe College;
- High Street Medical Centre
- Foodstore (Co-Operative); and
- Various local high Street shops such as a banks, food outlets and bus stops.

National Cycle Network Route 45 and Stroudwater Navigation
To the south of the site are various cycle routes accessed from the A419.

Table 9.2 Summary of Existing Accessibility to Amenities

Amenity Description	Walking	Cycling	Bus*
Oldends Lane (950m from centre of site)	11 mins	4 mins	
Stonehouse (1.8km from centre of site)	21 mins	7 mins	2 mins (after 11 minute walk to stop)
Stonehouse Railway Station (2km from centre of site)	24 mins	8 mins	2 mins (after 11 minute walk to stop and 4 minute walk to station from bus stop)
National Cycle Network (1.5km from centre of site)		6 mins	

*Excludes wait times

9.5. Existing Sustainable Provision

Walking

The existing walking route to Oldends Lane on is along Brunel Way which is lightly trafficked, mostly level, has street lighting and is subject to a 30mph speed limit. The footway is provided along both sides of the road, with dropped kerbs and tactile paving at the crossing points as shown below.

The footway on Oldends Lane heading east is separated from the road by an overgrown hedge which limits visibility at the exit out onto the level crossing on Oldends Lane. The footway kinks and narrows considerable to cross at the level crossing. Beyond the level crossing, the footways widen but are in poor condition.

The footway on Oldends Lane heading south to the bus stop is narrow, overgrown and in poor condition.

The existing walking route to Stonehouse High Street continues east from the Oldends Lane level crossing, along Oldends Lane where the footway narrows considerably and only continues on one side to pass under the railway bridge, as shown below

The route continues south onto Gloucester Road, where it passes under another railway bridge through a segregated passageway which is lit but not overlooked and may be unattractive to some users.

There are signal controlled pedestrian crossing facilities on Stonehouse High Street, facilitating access to amenities on both sides of the road.

The signposted walking route to Stonehouse Railway Station continues from Stonehouse High Street up Queen's Road, which has an uphill gradient of approximately 1:30 and narrow footways. The walking route to the station is approximately 2km long which is at the maximum preferred distance for commuting walks based on IHT Guidelines for Providing for Journeys on Foot.

Cycling

The nearest National Cycle Network route is Route 45 which is approximately 1.5km to the south of the site along the A419. There are signposted off road walk and cycleways along Brunel Way and Oldends Lane leading to the junction with the A419. Cyclists have to cross the A419 at the roundabout to continue westbound on Route 45, and there are dropped kerbs to facilitate this.

Route 45 connects the site to Stroud in the east, which is approximately 8km from the site. There are also cycle facilities along the towpath of the Stroudwater Navigation, which provides traffic free routes into Stroud.

The existing cycle route to Stonehouse Railway Station follows the same roads as the walking route, but is on road. The road width constrictions due to the level crossing and railway bridge would give cyclists less road space, increasing interactions with vehicular traffic.

Bus

The nearest existing bus stops to the site are located on Midlands Road off Oldends Road, approximately 950m to the east of the site. There are pole and flag stops with timetable information on both sides of the road.

There is also a stop on Oldends Road to the south of the site, but only on one side of the road. It is accessed by narrow footways which are in poor condition.

The stops are served by a limited number of services, with a limited frequency school service and an hourly frequency service. **Table 9.3** summarises the services in the vicinity.

Table 9.3 Summary of Local Bus Services

Service No.	Route	Weekday Frequency per Hour	First / Last Service	Saturdays	Sundays
3	Eastington - Rednock School (school term time only)	1 in AM 1 in PM	07:36 / 15:30	No service	No service
61	Cheltenham – Stroud - Dursley	1 per hour	06:56 / 18:16	1 per hour 08:16 / 19:16	No service
	Dursley – Stroud - Cheltenham	1 per hour	06:38 / 19:02	1 per hour 07:54 / 19:54	No service

The existing bus services are within walking distance, and provide services from residential areas. Although the existing stops are not convenient for the development and the frequency of existing bus services are relatively low, there are still existing opportunities for sustainable travel to work to the site.

Train

Stonehouse Railway Station is over 2km from the centre of the site. The station is operated by First Great Western and provides direct train services from Gloucester and Cheltenham (20 minutes) and Swindon (20 minutes) and Stroud (5 minutes) on the Swindon to Cheltenham Spa line. There is a car park for approximately 25 cars for which charges apply. There is no covered cycle storage and no adjacent bus stops. Step free access is provided throughout the station, but high speed trains servicing this station are unable to set down or pick up wheelchair passengers and wheelchair users may require assistance using car parking equipment.

Rail services are summarised in **Table 9.4 below**:

Table 9.4 Summary of Rail Services

Direction	Day	Frequency	First Train arrival	Last Train departure
Northbound (From / To Gloucester & Cheltenham)	Mon to Fri	Hourly	05:30	22:28
	Saturday	Hourly	05:56	21:51
	Sunday	Hourly	09:50	23:31
Southbound (From / To Swindon & Stroud)	Mon to Fri	Hourly	07:15	22:28
	Saturday	Hourly	07:50	21:48
	Sunday	Hourly	10:29	22:11

Source: www.nationalrail.co.uk

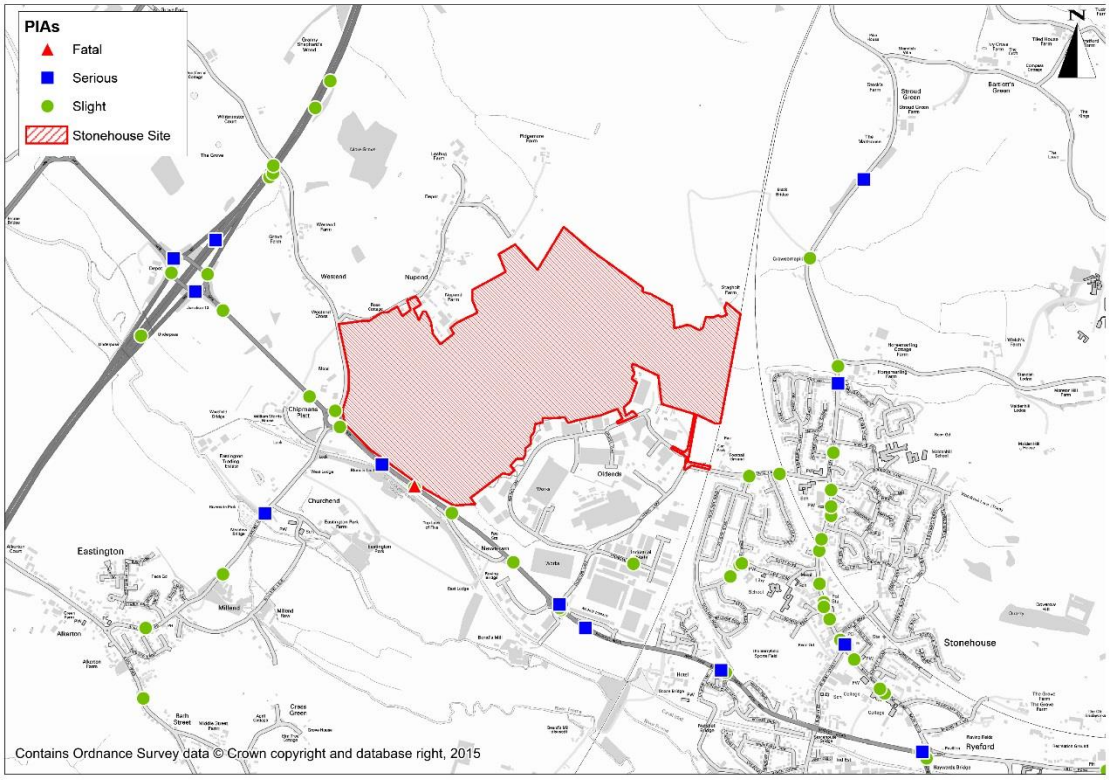
9.6. Public Transport Summary

Figure 9c demonstrates the public transport accessibility in the vicinity of the development site. Gloucester is accessible within 60 minutes and Stroud is accessible within 45 minutes via public transport.

9.7. Accidents

Personal Injury Accident data has been assessed and is shown in **Figure 9.2** below.

Figure 9.2: PIA Map



It can be seen that there were no recorded PIAs in the vicinity of the site along Brunel Way and Oldends Lane. The majority of recorded PIAs occurred along the M5 and the A419. The committed junction improvement scheme from GCC at the A419 / Oldends Lane roundabout will change driver behaviour at this location and the design will undergo Road Safety Audits to ensure any existing accident problems at this location will be suitably addressed. A number of slight accidents were recorded on roads in Stonehouse.

Analysis of the information related to PIAs suggests that further detailed investigation of the accident history should be undertaken to determine if any mitigation measures are required as a result of the proposed development.

9.8. Conclusion

In conclusion, existing sustainable transport routes to amenities in Stonehouse are very constricted by the level crossing facilities on Oldends Road. Notwithstanding the route quality, the existing bus stops and railway station are beyond desirable walk distance from the site, making them a less attractive option. Hourly bus frequencies and lack of route destinations make this mode share a less attractive option for future site users, but existing services do provide opportunities for sustainable commuting. The cycle infrastructure to the south of the site provides viable options for this mode share, but cyclists are required to cross the A419 to use the cycle routes.

The proposed development will contain a local centre, incorporating local retail and community uses to meet the needs of the development. There will also be a two form entry primary school on site. This will negate the need to travel off site for these facilities. The mixed use nature of the development will provide employment alongside development, further reducing the need to travel off-site.

9.9. Sustainable Infrastructure Requirements

In order to improve the sustainable transport provision at the site, significant improvements are required to the existing walking and cycling connections to local amenities. In particular, the constriction caused by the level crossing on Oldends Lane needs to be addressed.

Cycle and pedestrian routes through the development will be required to ensure good connections to Nastend and Nupend and the town centre, Stroudwater Industrial Estate and Oldends Lane. Footpath links from the development to the surrounding rural network, including improvements to the canal towpath will also help improve sustainable travel options.

Significant contributions towards bus services to improve existing bus frequencies and divert services into the site will be required, along with suitable bus stops, shelters and infrastructure to serve all areas of the development.

Contributions towards the provision of a new railway station at Storehouse will be required to ensure that travel by rail is an attractive and realistic option for the users of the development.

10. Summary and Conclusion

This Sustainable Transport Assessment has been prepared to inform the Infrastructure Development Plan and form part of the Stroud District Council Local Plan evidence base. It examines the existing sustainable transport provision at the main development locations, and then provides a strategy for sustainable transport infrastructure at each of the locations.

The audit assessed existing provision and sustainable infrastructure requirements for each of the sites, and found the following:

Hunts Grove Extension

The new local centre identified as part of the proposed development will provide convenience stores, community facilities and a primary school all accessible via walking within the site. These amenities will negate the need to travel off site for these facilities, and also provide facilities to meet the needs of the whole Hunts Grove development.

There are existing opportunities for sustainable commuting at the site. Improvements to walking facilities will ensure connectivity with existing nearby public transport provision. Alternatively, contributions towards new bus stop locations and service diversions to inside the Hunts Grove development will improve public transport connections at the site.

The nearest railway station to Hunts Grove is located approximately 8km south of the development site at Stonehouse, with Gloucester Railway Station approximately 10km to the north. The distance to these transport hubs makes them less desirable alternatives to private car use, so appropriate contributions could be sought towards the opening of the Hunts Grove railway station as identified within the Local Plan.

Quedgeley East

There is some existing provision for walking, cycling and public transport use around the Quedgeley East site. There are existing opportunities for sustainable commuting at the site. However, there is a lack of pedestrian facilities immediately surrounding the site, which provides constraints to using sustainable modes

There is a need to improve connectivity of the Quedgeley East site to the wider local area, in particular the existing sustainable transport infrastructure on the B4008. A footway to the B4008 from the site access would improve accessibility to the frequent public transport facilities available there.

North East Cam

There are a wide variety of amenities within walking and cycling distance of the site, but the existing connections make these modes less attractive.

A dedicated walk / cycle way running north/south through the site would provide quality traffic free connections to amenities in Lower Cam to the south, and would provide improved links to the Railway Station in the north.

There are existing opportunities for sustainable commuting at the site. Additional bus stops and shelters at appropriate locations on Box Road to serve the northern section of the development would improve public transport options.

Contributions towards existing bus services to improve bus frequencies will further help to connect the development with Cam and other local destinations.

Sharpness Docks

There are some facilities within walking distance in Newton, but some of the pedestrian routes are not adequate. Facilities available in Berkley are within the 8km cycling distance but a lack of adequate cycling facilities results in cycling not being an attractive option.

The local bus routes provide access to Berkeley, Cam and Dursley. However, the service frequency is low and the journey times are high. Whilst it is possible to use the service for commuting, it is not expected that this existing level of service would provide an attractive transport option for residents travelling for work or for other commuting journeys.

Improvements to the existing footpath connections between the site and Newtown would help improve the sustainable transport options at the Sharpness Docks Estate, as would contributions towards improvements to the frequency and quality of local bus services.

Stroud Valleys

SA1a Land at Dudbridge

The site is well served by a number of amenities that are accessible on foot or bicycle within acceptable walking or cycling distances. There are a range of public transport services near to the site, providing connections to a range of local destinations.

The development will need to ensure that it provides good connections onto the existing sustainable transport facilities, to maximise the use of the good existing infrastructure.

SA1b Cheapside

Due to its town centre location, the site is well served by a number of amenities that are accessible on foot or bicycle within acceptable walking or cycling distances. There are a range of public transport services near to the site, providing connections to a range of local destination.

The development will need to ensure that it provides good connections onto the existing sustainable transport facilities, to maximise the use of the good existing infrastructure.

SA1c Ham Mill, SA1d Brimscombe Mill & SA1e Brimscombe Port, and SA1f Wimberley Mills & SA1g Dockyard Works

The sites is well served by a number of amenities but most are beyond maximum acceptable walking distances. There are no cycle facilities on the A419 in the vicinity of the site so although amenities are within acceptable cycle distances, the routes are not as attractive as alternatives with dedicated cycle provision. Public transport provision is located in the vicinity of the site, so there are existing opportunities for sustainable commuting at the site.

Contributions toward improvements of the cycle routes along the nearby canal and river corridors would help improve cycle connections to local amenities.

Stonehouse

Existing sustainable transport routes to amenities in Stonehouse are very constricted by the level crossing facilities on Oldends Road. Notwithstanding the route quality, the existing bus stops and railway station are beyond maximum desirable walk distance from the site, making them a less attractive option.

The proposed development will contain a local centre, incorporating local retail and community uses to meet the needs of the development. There will also be a two form entry primary school on site. This will negate the need to travel off site for these facilities. The mixed use nature of the development will provide employment alongside development, further reducing the need to travel off-site.

In order to improve the sustainable transport provision at the site, significant improvements are required to the existing walking and cycling connections to local amenities. In particular, the constriction caused by the level crossing on Oldends Lane needs to be addressed.

Cycle and pedestrian routes through the development will be required to ensure good connections to Nastend and Nupend and the town centre, Stroudwater Industrial Estate and Oldends Lane. Footpath links

from the development to the surrounding rural network, including improvements to the canal towpath will also help improve sustainable travel options.

Significant contributions towards bus services to improve existing bus frequencies and divert services into the site will be required, along with suitable bus stops, shelters and infrastructure to serve all areas of the development.

Contributions towards the provision of a new railway station at Storehouse will be required to ensure that travel by rail is an attractive and realistic option for the users of the development.

Conclusion

The existing sustainable transport provision for each site has been considered and there are varying degrees of access to existing facilities and public transport provision. All sites have some existing opportunities for sustainable commuting. Mitigation measures have been identified where necessary which can make the Local Plan development sites more sustainable in transport terms. Travel Plans will be required for each site to promote the sustainable measures and encourage their uptake.

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