3 Existing Transport Conditions

3.1 Introduction

3.1.1 This section considers the existing transport conditions in the vicinity of the development site. It provides details of the site's location, proximity to local facilities and amenities and accessibility by walking, cycling and public transport. Finally, it provides an overview of the operation of the local highway network and a review of local Personal Injury Collision data.

3.2 Site Location

3.2.1 The site is located in South Gloucestershire to the north west of Thornbury, which is approximately 19km north of Bristol city centre.

3.2.2 Thornbury is a market town with access to the A38, a north-south corridor connecting to Bristol to the south and Gloucester to the north.

3.2.3 The site is presently agricultural fields, adjacent to a housing development currently under construction to the east, known as Park Farm. The site is south of Oldbury Lane and is bound on the western and southern sides by further agricultural fields.

3.2.4 The location of the site in the context of the local and strategic highway network is illustrated in **Figure 3.1.**

3.3 Local Highway Network

3.3.1 The site has direct frontage onto Oldbury Lane which is a single carriageway road with grassed verges on either side and is not street lit. The road is rural in nature, but large sections are kerbed with highway drainage. Several private dwellings and small businesses take access from Oldbury Lane, however there is no footway provision. Oldbury Lane is currently subject to the national speed limit.

3.3.2 Oldbury Lane provides a connection from the north of Thornbury to the small village of Oldbury on Severn, running in an east west direction.

3.3.3 To the east of the site, Oldbury Lane leads to Butt Lane, which is also a single carriageway road with one lane in each direction. The speed limit reduces to 30mph at the Oldbury Lane end of Butt Lane. New residential developments, and more established residential areas, have access off Butt Lane which forms a staggered priority junction with Gloucester Road.

3.3.4 Gloucester Road is an urban road, with a 30mph speed limit, which extends from the centre of Thornbury, and meets the A38, north east of Thornbury, near the village of Whitfield. Gloucester Road has dwellings directly fronting onto the carriageway and is street lit between Butt Lane and the centre of Thornbury.

3.3.5 To the east and south east of Thornbury, the town connects to the A38 at two further locations, via signalised junctions, the A38/B4061 junction at Alveston, and A38 / Grovesend Road / Tytherington Road junction. The A38 is a strategic A road, with varying speed restrictions, which runs from Devon to the Midlands, providing access to Bristol.

3.3.6 To the east of the A38 is the M5. Thornbury residents can access the M5 at Junction 14, near Falfield to the north, or at Junction 16 near the M4 / M5 interchange to the south. The M5 runs between Exeter and Birmingham, it therefore provides an alternative route to Bristol south of the site and Gloucester to the north.

3.4 Existing Traffic Flows and Vehicle Speeds

3.4.1 In order to establish the baseline traffic conditions and to enable junction capacity analysis to be carried out, traffic flow information has been obtained.

3.4.2 As part of the scoping exercise, PBA and South Gloucestershire Council agreed the study area and the scope of the data collection required. The following is a list of junctions that were surveyed (shown on **Figure 3.2**):

1. Butt Lane / Morton Way / Gloucester Road Staggered Junction;
2. A38 / Gloucester Road Junction;
3. Grovesend Road / Morton Way, Midland Way Roundabout;
4. A38 / Grovesend Road / Tytherington Road Signalised Staggered Junction;
5. Gloucester Road / Quaker Lane / The Plain / Castle Street / High Street Mini-roundabout (5a) and Priority Junctions (5b);
6. A38 / B4509 Signalised Junction;
7. A38 / Old Gloucester Road Priority Junction; and
8. A38 / Church Road Signalised Junction.

3.4.3 PBA commissioned 360 TSL to carry out the traffic surveys. The Manual Classified Counts (MCCs) and queue surveys were undertaken at all junctions on Tuesday 14th November 2017. Also agreed with SGC, Junction 5 was re-surveyed on Thursday 3rd May 2018, due to issues with the original survey data. In addition to MCCs, Automatic Traffic Counters (ATCs) were installed at various points on the network. The ATCs recorded data for 7 days between 16th November 2017 to 22nd November 2017.

3.4.4 The surveys confirmed the following peak periods 0800 – 0900 in the AM and 1700 – 1800 in the PM.

3.4.5 Vehicular speeds have been confirmed along Oldbury Lane at two locations; an easterly position was 40.2mph on average and the 85th percentile was 48.5mph and the westerly location was 46.1mph on average and the 85th percentile was 58.4mph.

3.4.6 The 2017/2018 peak hour traffic flows which have been obtained through the surveys are shown on **Figures 7.1 to 7.2.**

3.5 Local Facilities and Amenities: Walking and Cycling

3.5.1 Thornbury is a busy market town within South Gloucestershire, in the West of England region. **Figure 3.3** demonstrates the accessibility of the site to key facilities and amenities. The following section summaries the facilities and amenities in the local area which are accessible to potential future residents by walking and cycling.

3.5.2 In line with the local policy requirements set out within SGC's 'The Policies, Sites and Places Plan (PSP Plan, November 2017), the assessment considers the distances as the crow flies, to services and facilities as set out in the supporting text of Policy PSP11. As requested by SGC during scoping discussions distances have been provided from the nearest and furthest parts of the proposed residential development on the application site, resulting in a range of distances as noted in following sections. As identified at paragraph 5.26 of the PSP, designated Town Centres are considered to meet the requirement for walking and cycling distances for the range of key services, facilities and employment opportunities. In addition, as identified at paragraph 5.27 of the PSP, Safeguarded Employment Areas are identified employment areas for assessing suitable walking and cycling facilities.

3.5.3 Thornbury Town Centre lies between 1.9-2.7km from the proposed residential development (from the nearest and furthest points of the site), and as such in accordance with paragraph 5.26 of the PSP, key employment services and facilities are within walking and cycling distance of the application site.

3.5.4 The Proposals include a Retail and Community Hub which provides an opportunity to deliver a range of the key services and facilities set out in PSP11. The planning application is not prescriptive on the precise nature of the uses which would be delivered, with this a matter for future reserved matter applications, however, the provision of up to 700m^2 of A1, A2 and D1 Uses could support the delivery of a community building, retail unit(s) and health provision within the Application Site. Importantly, these facilities would not only serve the residents of the proposed development, but also offer improved local facilities, within short walking and cycling distance of a significant number of existing and new residential developments in north Thornbury, thereby reducing the reliance on the private car.

Amenities

3.5.5 The nearest existing convenience shops are located in Thornbury Town Centre, the edge of which is 1.9-2.7km walking distance from the site. The town centre includes Aldi supermarket and other convenience and comparison stores. The nearest public house, Anchor Inn, is 1.4-2.2km to the east of the site, on Gloucester Road.

Employment

3.5.6 Thornbury Town Centre, 1.9-2.7km southeast of the site, hosts many independent and chain shops, cafes and services. In accordance with PSP11, these facilities would provide good opportunity for local employment.

3.5.7 Further south of the Town Centre is a large industrial estate, accessed from Midland Way, which hosts various businesses and is also a Safeguard Employment Area. The edge of this designation is 2.8-3.6km from the site.

Education

3.5.8 The nearest existing primary school to the site is Manorbrook Primary School, which accommodates children from 5 – 11 years old and is located approximately 1.0-1.8km walking distance. The nearest secondary school is The Castle School, which is a 1.1-1.9km walking distance south of the site. The school accommodates pupils from 11 – 18 years of age.

Health

3.5.9 Thornbury Hospital is located 1.5-2.3km south east of the site. The Hospital includes an in-patient rehabilitation ward, and outpatient department and physiotherapy suite. Adjacent to the Hospital is the Thornbury Health Centre.

Community Centres

3.5.10 There are three identified existing Community Centres in Thornbury; Armstrong Hall, Turnberrie's and The Chantry, the closest of which is 1.9-2.6km from the application site.

Leisure

3.5.11 Thornbury has a local Rugby/Football club located 1.0-1.8km to the north on Gloucester Road. Thornbury Leisure Centre sits 2.8-3.6km south of the site. The Centre hosts many different fitness classes and contains a swimming pool, a gym, squash courts and Bowls Hall. Mundy Playing Fields are located 2.2-3.0km south of the site, which provides football pitches, tennis courts and a children's play area. The Park Farm development is providing further sports pitches, between 0.2-1.0km.

Walking Distances Guidance

3.5.12 **Table 3.1** lists key services and facilities and their appropriate walking and cycling distances as defined by the PSP Plan (PSP11). As previously stated, these are 'as the crow flies' distances for consistency with the PSP Plan.

3.5.13 As above, distances have been provided from the nearest and furthest parts of the proposed residential elements of the site.

Table 3.1: Proximity to key service and facilities

Key services and facilities (PSP11)	Appropriate walking and cycling distances (PSP11)	Distance from nearest residential area	Distance from furthest residential area
Retail (comparison) shops and services and/or Market towns and Town Centres (CS14 of Core Strategy)	1,200 metres	1,910 metres to edge of town centre (24 min walk, 6 min cycle)	2,680 metres to edge of Town Centre (34 min walk, 8 min cycle)
(Weekly) Superstore or supermarket		*Potential on-site provision	*Potential on-site provision
(Day to Day) Smaller food (convenience) shops			
Retail – Aldi	1,200 metres	2,015 metres to Aldi front entrance (25 min walk, 6 min cycle)	2,788 metres to Aldi front entrance (35 min walk, 9 min cycle)
Local health services	800 metres	1,485 metres to Thornbury Hospital & Health Centre (19 min walk, 5 min cycle) *Potential on-site provision	2,250 metres to Thornbury Hospital & Health Centre (28 min walk, 7 min cycle) *Potential on-site provision
Pharmacy	800 metres	1,670 metres (Eastland Road)	2,440 metres (Eastland Road)

Key services and facilities (PSP11)	Appropriate walking and cycling distances (PSP11)	Distance from nearest residential area	Distance from furthest residential area
		(21 min walk, 5 min cycle) *Potential on-site provision	(31 min walk, 8 min cycle) *Potential on-site provision
Community Centre	800 metres	1,865 metres (23 min walk, 6 min cycle) *Potential on-site provision	2,635 metres (33 min walk, 8 min cycle) *Potential on-site provision
Post office	800 metres	1,910 metres (24 min walk, 6 min cycle) *Potential on-site provision	2,680 metres (34 min walk, 8 min cycle) *Potential on-site provision
Public House	800 metres	1,443 metres (18 min walk, 5 min cycle)	2,215 metres (28 min walk, 7 min cycle)
Secondary school The Castle Secondary School	3 miles	1,141 metres (14 min walk, 4 min cycle)	1,910 metres (24 min walk, 6 min cycle)
Primary school Manorbrook Primary school	2 miles	1012 metres (13 min walk, 3 min cycle) *Potential on-site provision	1,780 metres (22 min walk, 6 min cycle) *Potential on-site provision
Major employers. Designated Town Centres and Safeguarded Employment Areas (CS12 of Core Strategy) Thornbury Town Centre[1] Thornbury Industrial Estate	2,000 metres	1,910 metres (24 min walk, 6 min cycle) 2,820 metres (35 min walk, 9 min cycle)	2,680 metres (34 min walk, 8 min cycle) 3,590 metres (45 min walk, 11 min cycle)

3.5.14 **Table 3.1** shows that the Town Centre employment facilities are within the appropriate walking and cycling distances as defined by the PSP Plan.

[1] Taken to Co-Op on High Street, as requested by SGC

3.5.15 In addition to local level policy however, the proximity of facilities and amenities can be considered at the national level. In this regard, the most recent transport statistics are set out within the DfT's 'National Travel Survey: 2016' (NTS).

3.5.16 This indicates that 25% of all journeys and 80% of journeys under one mile (1.6km) are made by foot. Table NTS0306 within the NTS also indicates that the average walking trip length is 0.7miles (1.3km).

3.5.17 In addition, national guidance on this issue is provided by Manual for Streets (MfS) which, at Para 4.4.1, states that:

"Walkable neighbourhoods are typically characterised by having a range of facilities within 10 minutes' [up to about 800m] walking distance of residential areas which residents may access comfortably on foot. However, this is not an upper limit and PPG13 states that walking offers the greatest potential to replace short car trips, particularly those under 2km.'

3.5.18 Whilst MfS suggests that the greatest potential to replace short car trips is for those under 2km, this is not a maximum distance to which pedestrians are willing to walk. The NTS (at Table NTS0308) also identifies that 26% of walking trips are over 1 mile (1.6km) and 4% over 2 miles (3.2km) in length.

3.5.19 The Local Transport Note (LTN) 1/04 – Policy, Planning and Design for Walking and Cycling provides further guidance stating that:

"There are limits to the distances generally considered acceptable for utility walking and cycling. The mean average length for walking journeys is approximately 1 km (0.6 miles) and for cycling, it is 4 km (2.4 miles), although journeys of up to three times these distances are not uncommon for regular commuters. The distances people are prepared to walk or cycle depend on their fitness and physical ability, journey purpose, settlement size, and walking/cycling conditions".

3.5.20 Again, this is reiterated and substantiated in the recent NTS, which identifies that the average trip length by bicycle is 3.1 miles (5.0km). Furthermore, Table NTS0308 identifies that 86% of all cycle trips are over 1 mile (1.6km) and 57% over 2 miles (3.2km). A total of 79% of all cycle journeys are made over distances less than 5 miles (8km).

3.5.21 Together, these statistics demonstrate that 81% of all trips under 1 mile (1.6km) are by walking and cycling, and indeed, over half (61%) of all trips under 2 miles are by walking and cycling.

3.5.22 Following submission of the previous TA, SGC requested additional information on the calculation of walking distances and quality of routes between the site and key facilities.

3.5.23 **Appendix C** contains a copy of Technical Note 39209-5540-TN001 Rev.A "Walking Distances to Key Facilities and Quality of Routes". This note confirms the routes measured and concludes that the majority of facilities within Thornbury are accessible on foot or by cycle.

3.5.24 Considering the distances to local facilities detailed above, in light of these national statistics, suggests that the great majority of facilities within Thornbury are accessible on foot or by cycle.

3.6 Site Accessibility by Non-Car Modes

Walking and Cycling

3.6.1 The site is located on the edge of the existing built-area of Thornbury, such that there is little existing provision for pedestrians and cyclists. Oldbury Lane has no dedicated pedestrian or cycle facilities; however, footways are provided along Butt Lane, throughout the existing residential areas of Thornbury and as part of the adjacent Park Farm site.

3.6.2 As shown in **Figure 3.3** there are two Public Rights of Way (PRoW) through the site. OTH/13 crosses the site west to east and connects to the existing residential area in north Thornbury. OTH/18 crosses the northeast corner of the site and runs north-south through the adjacent Park Farm development. The wider PRoW network connects OTH/18 to the Castle Secondary School via its playing fields. The PRoW runs through the school's playing fields and becomes a surfaced, lit footpath running between residential properties and the school, with a 1.5m width, with access onto Park Road. Along the footway on Park Road, pedestrians can access the Castle School.

3.6.3 There is a wider network of footpaths throughout the existing residential area in north Thornbury. Three footpaths are shown on **Figure 3.3** which facilitate pedestrian movement from northwest Thornbury to the Town Centre. These are formal routes which are lit, of generous width at 1.5-2.0m wide, and are generally of good quality, with some localised unevenness. These footpaths are not adjacent to highway, running between residential streets or through wooded areas. Where the footpaths meet the carriageway, dropped kerbs are provided to facilitate crossing.

3.6.4 A number of predominantly informal pedestrian crossing points are provided along Gloucester Road between Butt Lane and town centre. A zebra crossing is also provided on Gloucester Road between the aforementioned footpath and Thornbury Hospital, health centre and pharmacy.

3.6.5 Cyclists are generally required to travel on-carriageway in Thornbury. There are cycle symbols on the carriageway, in the vicinity of The Castle Secondary School and Manorbrook Primary School which is the route of National Cycle Route (NCR) 410 (Avon Cycleway), but little in the way of dedicated cycle infrastructure. NCR 410 is well sign-posted.

3.6.6 In addition to NCR 410, NCR 41 and a Local Cycle Route (Thornbury Loop) lie within 1km of the centre of the site. These routes connect Thornbury to Bristol and Gloucester and are a combination of on- and off-road.

3.6.7 The Technical Note included at **Appendix C** demonstrates that key destinations can be accessed from the site via existing routes which are of good quality, with appropriate width, surfacing and lighting, in line with PSP11. It should be noted that these routes are the same as those considered suitable for the now consented Park Farm scheme.

3.6.8 On the basis of the above, and the TN at **Appendix C,** the proposed development will be served by appropriate, safe, accessible, convenient and attractive routes to key facilities both on and off site by multiple sustainable modes of transport, including walking and cycling.

Public Transport

Bus

3.6.9 The nearest bus stop to the site is situated within a 750m walk distance on Moreton Street, and is served by bus services 913 that operates once a day to The Castle School. Bus services 60 and 622 serve bus stops on Park Road, off Alexandra Way, approximately 1km from the site. The services provide access to Cribbs Causeway, Gloucester, Chipping Sodbury and Dursley. The 60 bus has six services Monday to Saturday, between 07:15 and 17:30. The 622 has eight services per day between 07:44 and 18:34, Monday to Friday, with seven services on a Saturday and three on a Sunday. The bus stops are equipped with a flag and pole and timetable information.

3.6.10 Bus service 77 operates four times a day in each direction. The bus stop is equipped with a flag and pole and timetable information. The nearest stop for service 77, which operates throughout the day, is within 1300m on Morton Way, which is served at an hourly frequency Monday – Saturday. Bus service 77 provides access to Thornbury Town Centre and Bristol City Centre.

3.6.11 First in Bristol Bath & The West began operating two new services, T1 and T2, on 27th May 2018. Both services operate from Thornbury Health Centre, within 1500m of the proposed development, to Thornbury Town Centre. The T1 then routes to Bristol City Centre, via Bradley Stoke and M32, while the T2 routes to Bristol City Centre via Filton Airfield and A38 Gloucester Road. The combined frequency of these routes is 3 per hour, with T1 operating half hourly and T2 operating hourly Monday - Sunday. The current journey times from Thornbury Health Centre on the T1 is 4 minutes to Thornbury Town Centre and 55 minutes to Bristol City Centre.

3.6.12 The bus services operating in the vicinity of the site are summarised in **Table 3.2** below and shown in **Figure 3.4**.

Table 3.2: Local Bus Services and Frequencies

Operator	Service	Route	Frequency		
			Mon - Fri	Sat	Sun and Bank Holiday
Stagecoach West	77	Bristol City Centre – Westbury – Southmead Hospital – Bristol Parkway Station - Thornbury	Every 60 mins (06:15 – 18:02) (4 services per direction to Manor Walk)	Every 60 mins (06:25 – 18:00) (4 services per direction to Manor Walk)	No service
Stagecoach West	60	Gloucester – Dursley – Wotton-under-Edge – Thornbury	Six per day (07:15 – 17:30)	Six per day (07:15 – 17:30)	No service
Stagecoach West	622	Chipping Sodbury – Yate - Thornbury –- Cribbs Causeway	Eight per day	Seven per day	Three per day

Operator	Service	Route	Frequency		
			Mon - Fri	Sat	Sun and Bank Holiday
			(07:48 – 18:38)	(08:01 – 17:11)	(11:06 – 16:16)
First Bristol, Bath & The West	T1	Thornbury – Bradley Stoke – Aztec West - Bristol City Centre (Colston Street)	Every 30 minutes (06:08 – 20:12)	Every 30 minutes (06:12 – 19:08)	Every 60 minutes (07:50 – 18:03)
First Bristol, Bath & The West	T2	Thornbury – Filton Airfield – Cribbs Causeway –- Bristol Bus Station	Every 60 minutes (05:30 – 00:38)	Every 60 minutes (05:30 – 00:38)	Every 60 minutes (07:10 – 00:38)

Source: Travellne South West (http://www.travelinesw.com/)
Note: Bus routes and frequencies correct as at December 2019.

3.6.13 **Table 3.2** indicates that the local area is served by a number of bus routes which together provide four services per hour to Bristol City Centre including Aztec West and Filton employment areas, 1-2 services per hour to Cribbs Causeway, one service per hour to Southmead Hospital, and access to Gloucester and Chipping Sodbury every 1.5 – 2 hours during the weekday daytime.

3.6.14 Buses can also be used to make internal connections for facilities further away from the site, such as the Leisure Centre within Thornbury.

3.6.15 SGC's Local Plan Policy PSP11 sets out the Council's policy on appropriate distance to a suitable bus stop and appropriate frequencies for public transport services connecting to destinations containing key services, facilities and employment opportunities. These are:

- Appropriate distance to a bus stop of 400m; and
- Appropriate service of:

  i. Individual or combined services, total journey time under 1 hour; and
  ii. at least 5 services a day during the week, 3 at weekends, to and from the destination; and
  iii. during the week; one service arriving at the destination before 9am, and one leaving after 5pm.

3.6.16 A comparison of **Table 3.1** and **Figure 3.3** against PSP11 highlights that the appropriate bus service provision, in accordance with PSP11, is delivered through the existing T1 service, but that the current nearest bus stop is approximately 1500m from the proposed development.

Rail

3.6.17 There are several Rail Stations located within 12.5km of the site. Bristol Parkway Station is located 12.3km south of the site, the rail station can be accessed by bus service 77 from Park Road which provides direct access to the Rail Station and connections to destinations further afield. Rail services at the Station are provided by Great Western Railway who provide most of the services available. Services are provided to a wide variety of destinations including London Paddington, Plymouth, Aberdeen, Cardiff, Manchester and a range of local destinations.

3.6.18 In addition, Yate station is located under 11.5km to south east of the site. Yate Rail Station can be accessed by bus service 622 from Park Road which provides access to Yate town centre, within a short walk of the Rail Station. Rail services at Yate Rail Station are provided by Great Western Railway. Services from Yate Rail Station are provided to a wide variety of destinations including Weymouth, Westbury, Bath, Bristol Temple Meads, Gloucester, Brighton and Frome.

3.7 Committed Infrastructure

3.7.1 There are a number of committed developments in Thornbury which have associated infrastructure and public transport commitments. The full list of committed developments is set out within **Section 7** however the following commitments are pertinent to the proposed development.

- Bus service extension through the Park Farm development (PT11/1442/O) connecting to the existing highway at Butt Lane and Alexandra Way (see next bullet). The Park Farm Section 106 Agreement listed routes 309/301 and 615 to be routed through the site; these routes have subsequently been amended and are replaced by T1/T2 and 77.

- Construction of a bus only link between the southern boundary of Park Farm and Alexandra Way; secured through a legal agreement between the developers of Park Farm, SGC and relevant landowners (dated 24th March 2015)

- Provision of two pedestrian refuge islands on Butt Lane, one between the access of Park Farm and Parkland Way and a second approximately 40m west of the Gloucester Road / Butt Lane priority junction. These are associated with the committed developments of Land at Post Farm (PT15/2917/O) and Land West of Gloucester Road (PT16/4774/O).

- Junction improvements at Gloucester Road / Butt Lane / Morton Way staggered crossroad junction, including central island crossing on Gloucester Road North associated with committed development at Land West of Gloucester Road (PT16/4774/O).

- Junction improvements at A38 / Grovesend Road / Tytherington Road Signalised Staggered Junction,and A38 / B4509 Signalised Junction. Further detail regarding the committed layouts is provided at **Section 7** with designs included at **Appendix D**, however they are associated with committed developments Heneage Farm, Moorslade Lane, Falfield (PT17/4800/O) and Land at Post Farm (PT15/2917/O).

- A38 / Grovesend Road / Tytherington Road – additional lanes on A38 Gloucester Road North and South, agreed as part of the Cleve Park proposals (PT16/3565/O); and

- A38 / B4061 Thornbury Road – lengthening of the left turn lane from A38S, agreed as part of the Cleve Park proposals (PT16/3565/O).

3.8 Personal Injury Collision Data

3.8.1 The latest Personal Injury Collision (PIC) data was obtained from South Gloucestershire Council (SGC) for a five-year period between 1st January 2013 to 31st December 2017. The PIC data was collected to establish the existing highway safety in the vicinity of the site, identify any highway safety issues and inform improvement measures where necessary.

3.8.2 The PIC study area includes all of the junctions in the agreed study area, set out in **3.4** as well as the extent of site frontage along Oldbury Lane.

3.8.3 As part of the scoping exercise, Highways England requested also that a PIC review also be undertaken in the vicinity of the M5 Junction 14. Therefore, additional PIC data was obtained from SGC for the five-year period between 30th April 2013 and 1st May 2018 to inform this review.

3.8.4 The full PIC data reports can be found in **Appendix E**.

Methodology

3.8.5 The PIC data assessment provides an overview of the number and severity of accidents and a summary of the vulnerable road users involved in the casualties. The assessment also defines the likely causes of the collisions, considering any trends in the incidents recorded or collisions caused as a result of the existing highway layout.

Accident and Casualty Overview

3.8.6 A total of 20 collisions were observed in the study area, of which eight were identified at Junction 14 of the M4. Of the observed incidents:

- 0 were classified as fatal in severity;
- 2 were classified as serious in severity; and
- 18 were classified as slight in severity.

3.8.7 There were 25 casualties as a result of the 20 collisions. Of these 25 casualties, 8 were vulnerable road users. Vulnerable road users are classed as pedestrians, cyclists and powered two wheeled vehicles (P2W). A summary of the casualties by severity involving vulnerable road users is presented in **Table 3.3** below.

Table 3.3: Summary of Vulnerable Road User Casualties by Severity

	Fatal	Serious	Slight	Total
Pedestrian	0	0	3	3
Cycles	0	1	1	2
P2W	0	0	3	2
Total	**0**	**1**	**7**	**8**

3.8.8 A detailed collision analysis has been undertaken of the study area junctions/links as set out below.

Oldbury Lane (site frontage)

3.8.9 There were no recorded collisions along the site's frontage within the five-year period.

Junction 1 - Butt Lane / Norton Way / Gloucester Road Staggered Junction

3.8.10 One collision was recorded at this junction within the five-year period. This collision was recorded as slight in severity and involved one vulnerable road user.

3.8.11 The incident was recorded as being the result of a cyclist swerving, losing control and falling from their bike after attempting to pass a car which was pulling out of Butt Lane.

Junction 2 - A38 / Gloucester Road Junction

3.8.12 One collision was recorded at this junction within the five-year period. This collision was recorded as slight in severity and did not involve a vulnerable road user.

3.8.13 The incident was recorded as being the result of a vehicle driving into the rear of another vehicle after getting their foot stuck in the pedals.

Junction 3 - Grovesend Road / Morton Way / Midland Way Roundabout

3.8.14 Two collisions were recorded at this junction within the five-year period. Both collisions were recorded as serious in severity and one involved a vulnerable road user.

3.8.15 The incident involving the vulnerable road user was the result of a vehicle colliding with a cyclist when attempting to enter the roundabout.

3.8.16 The second incident was the result of a vehicle swerving to avoid a collision with a second vehicle entering the roundabout.

3.8.17 These two incidents occurred on separate arms of the roundabout.

Junction 4 - A38 / Grovesend Road / Tytherington Road Signalised Junction

3.8.18 Two collisions were recorded at this junction within the five-year period. Both collisions were recorded as slight in severity and neither involved vulnerable road users.

3.8.19 Both collisions were the result of vehicles colliding with stationary vehicles at a red light. One was reporting to be the result of brake failure and the other driver error.

Junction 5 - Gloucester Road / Quaker Lane / The Plain / Castle Street / High Street Priority Junction and Mini-Roundabout

3.8.20 Four collisions were recorded at these junctions within the five-year period. All collisions were recorded as slight in severity and each collision involved a vulnerable road user. All four incidents occurred at least 50m away from the junction layout, and each one on a different approach arm.

3.8.21 Three of the incidents involved collisions with pedestrians as they were crossing the road.

3.8.22 The final incident involved a car and a motorcycle. The motorcyclist was overtaking stationary vehicles as the car made a right turn resulting in a collision.

Junction 6 - A38 / B4509 Signalised Junction

3.8.23 There were no recorded collisions at the A38 / B4509 signalised junction within the five-year period.

Junction 7 - A38 / Old Gloucester Road Priority Junction

3.8.24 Two collisions were recorded at this junction within the five-year period. Both collisions were recorded as slight in severity and did not involve a vulnerable road user.

3.8.25 Both collisions were reported to occur as a driver pulled into the path of another vehicle when making a right turn, one out of the minor arm and one into the minor arm.

Junction 8 - A38 / Church Road Signalised Junction

3.8.26 There were no recorded collisions at the A38 / Church Road signalised junction within the five-year period.

Junction 9 - A38 / B4061 Signalised Junction

3.8.27 Following submission of the TA, SGC has requested that the PIC data for the junction of the A38/B4061 is also considered.

3.8.28 A review of crashmap.com for the most recent five-year period from January 2014 to June 2018 identified one serious and one slight PIC at the junction.

3.8.29 The serious incident appears to have occurred on 19th February 2014 and involved two vehicles. The slight incident appears to have occurred on 18th November 2015 and involved two vehicles.

3.8.30 Two PICs in the five-year period is not considered to demonstrate an inherent highway safety problem in this location that would be exacerbated by the proposed development.

M5 Junction 14

3.8.31 Eight collisions were recorded in the vicinity of this motorway junction within the five-year period. All collisions were recorded as slight in severity and one involved a vulnerable road user.

3.8.32 The incident involving the vulnerable road user occurred on the B4509 when a motorcyclist collided with a vehicle stopped to allow for a right turning vehicle to manoeuvre.

3.8.33 Three of the collisions involved vehicles rear-ending the car in front whilst they were approaching stationary traffic or preparing to make a turn. Two of these collisions took place on the M5 mainline, and one on the B4059, approximately 300m east of Junction 14.

3.8.34 Two of the collisions involved vehicles attempting to change lane or driving at excess speed on the M5 mainline.

3.8.35 One of the collisions involved a vehicle who had pulled into the hard shoulder being hit (glancing blow) by a passing heavy goods vehicle.

3.8.36 The final collision involved a vehicle failing to give-way at one of the M5 slips roads and pulling out of the junction and colliding with a car travelling along B4509.

3.8.37 Overall at this location, there does not appear to be a pattern in collisions which is the result of a prevailing highway safety issue. The majority of collisions appear to be the result of driver error, reckless driving and failing to slow down when approaching stationary traffic.

PIC Data Summary

3.8.38 Overall the PIC analysis has demonstrated that there is no pattern of highway safety issues on the local road network within the study area.

3.8.39 Additional development traffic within the study area is not therefore anticipated to present a safety risk.

3.9 Committed Development

3.9.1 Scoping discussions have been carried out with SGC in order to identify committed developments to be taken account of as part of the assessment. The following committed developments have been factored into the assessment; unless otherwise stated, traffic flows associated with the entire development has been included in the 2028 future year scenarios:

- Park Farm (PT11/1442/O) – 500 residential units – Barratt Homes and David Wilson Homes have confirmed that the number of occupied units on site at the time of the November 2017 traffic surveys was 126, therefore, the flows associated with these units have not been included in the assessment. The total number of units accounted for at Park Farm is therefore 374.

- Land off Morton Way (PT12/2395/O) – 300 residential units – Bloor Homes have confirmed that Phase 1 was occupied at the time of the November 2017 traffic surveys, equating to 109 units. The flows associated with these units have not been included in the assessment. In addition, 63 units were occupied at Phase 2, however this information was not received in time for the assessment, such that the traffic associated with all Phase 2 units have been included. The total number of units accounted for at Land off Morton Way is therefore 191.

- Land at Post Farm (PT15/2917/O) – 125 residential units

- Land West of Gloucester Road (PT16/4774/O) – 130 residential units

- Land at junction of Morton Way & Grovesend Road (PT16/3565/O) – 350 residential units and 70 unit sheltered accommodation.

3.9.2 For each committed development, trip rates have been extracted from each respective Transport Assessment and the corresponding number of trips on the local highway network included. Where committed development flows did not extend to every junction in the study area, existing turning movements were used to assign the trips at these junctions.

3.9.3 It should be noted that although Junctions 5a and 5b were resurveyed in May 2018 the same level of committed development has been included as for the junctions surveyed in November 2017. This is a robust position, in that the junctions have been assessed with an overestimation of committed development trips.

3.9.4 The further approved developments at Land West of Pound Mill Business Centre (P/13/3101/F) for change of use from paddocks to 12 caravan pitches, and The Council Offices, Castle Street (PT/16/0982/F) for 5 cottages and 57 sheltered apartments for the elderly are considered as being of a scale and distance from the development to have no impact. These have not been considered within the TA.

3.9.5 **Figures 3.5 to 3.14** detail the traffic flows for each respective committed development in turn in the AM and PM peaks, Total committed development flows are shown in **Figures 3.15** to **3.16**.