



ST GEORGE'S AVENUE, WARBLINGTON

TRANSPORT ASSESSMENT

July 2021

Barratt David Wilson Homes

**RESIDENTIAL DEVELOPMENT
ST GEORGE'S AVENUE
WARBLINGTON**

TRANSPORT ASSESSMENT

CONTROLLED DOCUMENT

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1. INTRODUCTION

- 1.1 This Transport Assessment (TA) has been prepared by Paul Basham Associates on behalf of Barratt David Wilson Homes to support a residential development of 194 dwellings on land accessed via St George's Avenue, Warblington. The site forms the eastern land parcel of Site Allocation H15 in the Havant Borough Council (HBC) Emerging Local Plan (2037).
- 1.2 Planning permission was granted on 14th January 2021 (App Ref: APP/18/01033) for the erection of 69 residential dwellings on the western part of Site Allocation H15 with access also taken via St George's Avenue which is being delivered by Persimmon Homes. The approved site layout is attached within **Appendix A**.
- 1.3 The approximate location of the proposed development site and the neighbouring land parcel is shown in **Figure 1**.

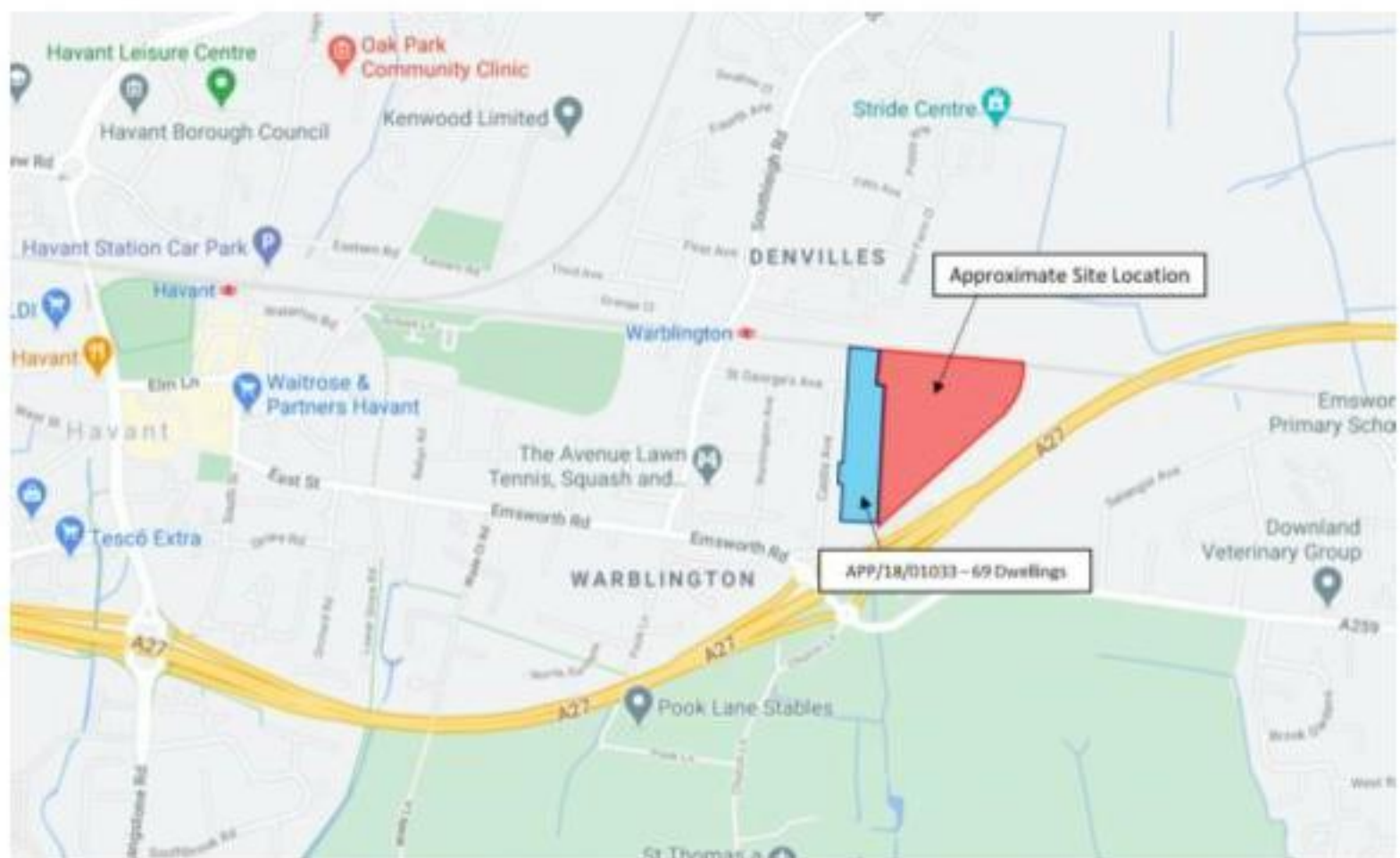


Figure 1: Approximate Site Location

- 1.4 The scope of this TA has been informed by Pre-Application discussions with Hampshire County Council. A formal pre-application meeting was undertaken on 21st April 2021. A copy of the Pre-Application Response is attached within **Appendix B**.
- 1.5 The scope of this TA reviews the existing site conditions and site accessibility, Personal Injury Accident (PIA) data, the proposed accommodation schedule, car and cycle parking requirements, visibility and access arrangements, servicing trip generation, traffic impact and the capacity of the local road network

before drawing overall conclusions from the assessment.

- 1.6 A separate Full Travel Plan (TP) has been prepared in conjunction with this TA which seeks to facilitate and promote the uptake of sustainable transport modes by future-site users. The TP includes a detailed Action Plan and modal share targets, based on HCC's Travel Plan guidance.

2. PLANNING POLICY

2.1 The full planning application and Transport Assessment have been prepared in keeping with national, regional and local policy, including:

- National Planning Policy Framework (NPPF);
- Hampshire County Council Local Transport Plan 3 (LTP3 2011-2031);
- Havant Borough Council's Core Strategy (2011); and
- Havant Borough Council Emerging Local Plan (2037).

National Planning Policy Framework

2.2 The National Planning Policy Framework (NPPF) acts as the central guidance for development planning and replaces all national planning policy guidance including Planning Policy Guidance 13 (PPG13): Transport.

2.3 Designed to make the planning system less complex and more accessible, the NPPF gives greater responsibility to Local Authorities, a 'presumption in favour of sustainable development', and encourages local planning authorities to 'positively seek' opportunities to meet the development needs of their area.

2.4 The NPPF paragraph 109 states: "Development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highways safety, or the residual impacts on the road network would be severe".

2.5 Therefore, all development which 'will generate significant amounts of movement should be required to provide a travel plan, and the application should be supported by a transport statement or transport assessment so that the likely impacts of the proposal can be assessed'.

2.6 This TA and accompanying Full Travel Plan accord with these principles. The NPPF also cites the following as key considerations with regards to transport and development planning to which this proposal's highway approach adheres:

- The potential impacts of development on transport networks can be addressed;
- Opportunities from existing or proposed transport infrastructure, and changing transport technology and usage, are realised—for example in relation to the scale and location or density of development that can be accommodated;
- Opportunities to promote walking, cycling and public transport use are identified and pursued;

- The environmental impacts of traffic and transport infrastructure can be identified, assessed and taken into account – including appropriate opportunities for avoiding and mitigating any adverse effects, and for net environmental gains; and
- Patterns of movement, streets, parking and other transport considerations are integral to the design of schemes, and contribute to making high quality places.

Hampshire County Council Local Transport Plan 3 (LTP3 2011-2031)

- 2.7 LTP3 sets out HCCs transport strategy and identifies a range of policy objectives, based on the three guiding principles of “developing and supporting stronger communities, maximising wellbeing and enhancing quality of place”. The most relevant policy objectives to this TA are summarised as:
- Continue to work to improve road safety through targeted measures that deliver reductions in casualties and to reduce the impact of traffic on community life and promote considerate driver behaviour;
 - Work with district authorities to agree coherent policy approaches to parking; and
 - Invest in sustainable transport measures, including walking and cycling infrastructure.

Havant Borough Council's Core Strategy (2011)

- 2.8 Havant Borough Council's Local Plan is incorporated into their Core Strategy which was adopted in March 2011. In accordance with the Core Strategy the proposed development would be required to comply with the following policies:
- DM11 'Planning for More Sustainable Travel'
 - DM12 'Mitigating the Impacts of Travel'
 - DM13 'Car and Cycle Parking on Residential Development'
 - DM15 'Safeguarding Transport Infrastructure'
- 2.9 The site Masterplan ensures policies DM11 and DM13 are met with safe and secure parking spaces in accordance with standards, appropriate and safe access to public transport and pedestrian-friendly streets with low vehicle speeds.
- 2.10 In accordance with Policy DM12, this Transport Assessment and an accompanying Full Travel Plan identify hard infrastructure improvements and behavioural change measures to ensure the impact of travel are mitigated.
- 2.11 In accordance with Policy DM15 'Safeguarding Transport Infrastructure' the proposed development would not be prejudicial to the future provision of strategic transport infrastructure, with particular reference to the Southleigh Strategic Allocation and potential link road.

Havant Borough Council Emerging Local Plan (2037)

- 2.12 The Emerging Local Plan was submitted for examination to the Secretary of State for Housing Communities and Local Government on 12th February 2021. Given that this plan is yet to be adopted, the design principles from the 2011 Core Strategy have been applied to this development.
- 2.13 The proposed development site is identified in the HBC Emerging Local Plan under Policy H15 'Land east of Castle Avenue'. The policy identifies that the site is under multiple ownerships and should be development comprehensively or in a way such that one part of the development is not compromised by the other part. The policy suggests the site is capable of delivery 'about 255 dwellings' and would be permitted where: (only listing highway related points)
- Sufficient information is submitted to address site-specific planning considerations. This is to be agreed at the pre-application stage and is expected to include the following:
 - Transport Assessment and Travel Plan
 - The site is development comprehensively, or if this is not possible, the development of one part must not prejudice the development of the other part
 - The design and layout:
 - does not prejudice the future delivery of A27 junction improvements to facilitate access arrangements to the Southleigh Strategic site to the north;
 - creates a new pedestrian and cycle access to Emsworth Road in the south-west of the site; and
 - provides or, at least does not prejudice, a pedestrian and cycle link under the railway line to provide easy access to Warblington Station from Southleigh (Policy KP5).
- 2.14 As aforementioned, Persimmon Homes have recently gained consent for the delivery of 69 dwellings on land associated with Policy H15 which is located immediately to the west of the proposed development. The Persimmon Homes site layout is attached as **Appendix A** and demonstrates the vehicular access which is formed of an extension of St Georges into Policy H15 and continues east to connect with the proposed development.
- 2.15 Policy KP5 includes a strategic site allocation directly to the north of the proposed development site which is located to the north of the Havant-Brighton railway line. Included within the Emerging Local Plan, Policy KP5: Southleigh seeks to deliver a mixed-use development of about 2,100 dwellings and associated infrastructure and facilities. Included within the policy are reference to a new access to the A27 and a link road through the site (if shown to be necessary), local junction improvements, additional bus route provision and safe walking and cycling routes. The proposed link road (if required) would

route to the east of the proposed development and as such the proposed development has been designed as such to not prejudice the delivery of this route.

3. EXISTING CONDITIONS AND SITE ACCESSIBILITY

Existing Conditions

- 3.1 The proposed development site comprises a triangular shaped agricultural field bound by the A27 to the south and east and the Havant-Brighton railway line to the north. To the west the side is bound by the neighbouring land parcel which also forms part of Site Allocation H15 and benefits from planning permission for 69 residential dwellings to be developed by Persimmon Homes. Access to the site is taken via St George's Avenue. The existing access to Site H15 from St George's Avenue is shown in **Photograph 1**.



Photograph 1: Existing Site Access from St George's Avenue

Local Road Network (LRN)

- 3.2 St George's Avenue is a residential street measuring approximately 7.5m in width. The carriageway has an east-west alignment and is subject to a 30mph speed limit. As part of the neighbouring Persimmon Homes development, St George's Avenue is to be extended approximately 60m through the site to its eastern boundary. The routing of St George's Avenue through the Persimmon Homes development site provides a convenient route towards the site under consideration and takes the form of a 4.8m wide access road with 2m footways on either side. Such geometries were considered acceptable under the recent approval of the scheme and ensure two vehicles are able to pass.

- 3.3 Approximately 50m west of Policy H15, St Georges' Avenue forms a priority junction with Castle Avenue. Castle Avenue is a residential street with a north-south alignment and connects the site with Emsworth Road approximately 340m south of the Castle Avenue/St George's Avenue junction.
- 3.4 A further 120m (approx.) along from the site, St George's Avenue connects with Warblington Avenue, via a priority junction. Similar to Castle Avenue, Warblington Avenue is a residential street with a north-south alignment and connects the site with Emsworth Road at its southern end.
- 3.5 At its western end, approximately 300m west of Policy H15, St George's Avenue joins Southleigh Road via a priority junction. Southleigh Road has a north-south alignment and connects the site with Emsworth Road to the south via a signalised junction. North of the Southleigh Road/St George's Avenue junction, Southleigh Road continues over the railway crossing and through Denvilles towards New Brighton.
- 3.6 Southleigh Road to the south culminates at the signalised junction with Emsworth Road and Pook Lane, known as 'Green Pond Corner'. The signalised junction is equipped with right turning traffic lanes on Southleigh Road and Emsworth Road east, yellow box hatching, pedestrian crossings on all 4 arms and an Advanced Stop Line (ASL) for cyclists on Emsworth Road west.
- 3.7 Approximately 90m north of the Emsworth Road/Southleigh Road/Pool Lane signalised junction there is a secondary arm of Southleigh Road which provides a one-way route between the main Southleigh Road arm and Emsworth Road. The second arm permits northbound travel only and primarily serves the One Stop customer car park. The second arm joins the main Southleigh Road arm via a priority junction approximately 90m north of the signalised junction.
- 3.8 Emsworth Road to the south is a single lane carriageway subject to a 30mph speed limit. The carriageway measures approximately 6.5m in width and has an approximate east-west alignment. Emsworth Road connects with the A27 and the A259 to the east via a pair of dumbbell roundabouts situated to the south-west corner of the proposed development site. To the west, Emsworth Road leads towards Havant Town Centre with the road becoming East Street at the junctions with Lymbourn Road and Bellair Road.
- 3.9 The Emsworth Road / Havant Road / A27 Slip Road Roundabout and the Havant Road/ A27 Slip Road/ Church Lane Roundabout form dumbbell roundabouts linking Havant and Emsworth with the A27 trunk road. The Havant Road/ A27 Slip Road/ Church Lane Roundabout provides westbound access on the A27 towards Portsmouth, whilst the Emsworth Road/ Havant Road/ A27 Slip Road Roundabout provides eastbound access on the A27 towards Chichester.

- 3.10 The A27 runs west-east from Salisbury (Wiltshire) and Pevensey (East Sussex) across the south of England, travelling via Romsey, Fareham, Havant, Chichester, Worthing, Brighton, Lewes and Polegate. The A27 provides a connection to the A3 and M27 amongst other strategic roads.
- 3.11 The A259 provides an arterial route along the south coast of England passing through Hampshire, West Sussex, East Sussex and Kent. An overview of the road network within the vicinity of the site is provided in **Figure 2**.



Figure 2: Overview of Local Road Network

Site Accessibility

- 3.12 The site's location presents an excellent opportunity to create a sustainable development, situated within walking and cycling distance of local facilities in Warblington, Havant and Emsworth.
- 3.13 Facilities within Warblington include a pre-school, secondary school, railway station, fitness centre and convenience store. Havant Town Centre offers a wide range of services and amenities including several supermarkets, hardware and retail stores, bars and eateries, several banks, places of worship, Havant Post Office, Havant Pharmacy and The Bosmere Medical Practice, among others.
- 3.14 A summary of journey times towards local facilities is provided in **Table 1**, measured from the centre of the site and based on a walking speed of 80m per minute for walking and 240m per minute for cycling.

Facility / Amenity	Approx. Journey Distance	Approximate Journey Time	
		Walking	Cycling
Warblington Station Bus Stop	500m	6 mins	2 mins
Warblington Community Pre-School	550m	7 mins	2 mins
Warblington School	600m	8 mins	3 mins
Warblington Railway Station	600m	8 mins	3 mins
The Avenue Fitness Club	750m	9 mins	3 mins
One Stop Convenience Store	800m	10 mins	3 mins
Havant Railway Station	1.6km	20 mins	7 mins
Waitrose Havant	1.7km	21 mins	7 mins
Lloyds Bank Havant	1.7km	21 mins	7 mins
Davies Pharmacy	1.8km	23 mins	8 mins
Emsworth Primary School	2.0km	25 mins	8 mins

Table 1: Proximity to Local Facilities

- 3.15 There are three schools situated within 2km of the site including a Pre-School (Warblington Pre-School), a primary school (Emsworth Primary School) and a secondary school (Warblington School). Continuous pedestrian routes are available to all three educational facilities providing an excellent opportunity for future residents to adopt sustainable travel to school practices.
- 3.16 The closest convenience store to the site is the One Stop store, situated on Emsworth Road. The store can be accessed in approximately 10 minutes on foot or 3-minutes by bike. The closest supermarket to the site is the Waitrose store located in Havant. The superstore can be accessed in 21 minutes on foot, 7 minutes by bike or via the 27 bus service which departs hourly from the bus stops on Southleigh Road.
- 3.17 A wide range of employment opportunities are available within the vicinity of the site including Langstone Technology Park, Hayward Business Centre, Havant Borough Council, Havant Leisure Centre, Havant Police Station, Solent Retail Park, Warblington School, Emsworth Primary School, and both the Havant and Emsworth Town Centres. Warblington and Havant Railway Station also provide a convenient and sustainable means of travel towards employment centres further afield including Portsmouth & Southsea, Chichester, Fareham, Southampton Central, and London.

4. WALKING, CYCLING AND HORSE-RIDING ASSESSMENT AND REVIEW

- 4.1 This chapter has been written in accordance with Hampshire County Council's 'TG19 – Walking, Cycling and Horse-Riding Assessment and Review' (WCHAR) Technical Guidance Note and provides a review of the routes and facilities available for non-motorised users between the site and local facilities.

Pedestrian/ Cyclist Network

- 4.2 The local road network benefits from a gentle topography, continuous routes towards local facilities and regular street-lighting which help contribute towards a safe environment for pedestrians and cyclists. Future site-users travelling towards Warblington Pre-School, Warblington School, Warblington Station or The Avenue Fitness Centre would route via St George's Avenue Road and Southleigh Road, whilst pedestrians travelling towards the One-Stop Convenience Store could route via St George's Avenue / Castle Avenue / Emsworth Road, St George's Avenue / Warblington Avenue / Emsworth Road, or St George's Avenue / Southleigh Road.
- 4.3 For site-users travelling towards Havant Town Centre the following pedestrian routes are available:
- St George's Avenue / Castle Avenue / Emsworth Road / East Street
 - St George's Avenue / Warblington Avenue / Emsworth Road / East Street
 - St George's Avenue / Southleigh Road / Emsworth Road / East Street
 - St George's Avenue / Southleigh Road/ School Lane / New Lane / Waterloo Road
 - St George's Avenue / Southleigh Road/ School Lane / New Lane / Fairfield Road / The Pallant
- 4.4 The primary route between the site and Emsworth Primary School is via Castle Avenue / Emsworth Road / A27 Subway / Havant Road / Selangor Avenue / Victoria Road.

St Georges' Avenue

- 4.5 St George's Avenue is a lightly-trafficked residential street flanked by footways on either side of the carriageway. At each of the respective junctions, the footways along St George's Avenue tie in with the existing footways on Castle Avenue, Warblington Avenue and Southleigh Road providing continuous pedestrian routes towards local facilities. The existing footways along St George's Avenue are shown in **Photographs 2 and 3**.



Photograph 2: Footways along St George's Avenue (towards the site)



Photograph 3: Footways along St George's Avenue (towards Southleigh Road)

- 4.6 St Georges' Avenue forms part of National Cycle Network (NCN) Route 2, a long-distance route which when complete will link Dover in Kent with St Austell in Cornwall. The route within the vicinity of the site is shown in **Figure 3**.



Figure 3: Local Cycle Routes

- 4.7 At the St George's Avenue / Warblington Avenue junction, coloured cycle demarcations extend across the junction to warn drivers of the presence of cyclists. At the St George's Avenue / Castle Avenue junction, sign posts are in place to direct cyclists along NCN Route 2. It is suggested that as part of the proposed application, road markings could be delivered across the St George's Avenue / Castle Avenue junction to match what is currently provided at the St George's Avenue / Warblington Avenue junction in order to improve safety for future cyclists travelling to/from the site. The existing cyclist infrastructure

along St George's Avenue is shown in **Photographs 4** and **5**.



Photograph 4: Directional Signage on St George's Avenue



Photograph 5: Cycle Markings across Warblington Avenue / St George's Avenue junction

Castle Avenue

- 4.8 Castle Avenue is a lightly-trafficked residential street with continuous footways provided along either side of the carriageway. The footway on the western side of the carriageway is separated from the main carriageway by a wide grass verge. At its northern end, the footways along Castle Avenue tie in with the footways along St George's Avenue, whilst at the southern end the footways tie in with the footway along the northern side of Emsworth Road. The existing conditions along Castle Avenue are shown in **Photographs 6** and **7**.



Photograph 6: Footways along eastern side of Castle Avenue (towards the site)



Photograph 7: Footways along eastern side of Castle Avenue (towards the site)

- 4.9 Castle Avenue forms part of NCN Route 2 connecting St George's Avenue with Emsworth Road and the A27 Subway to the south of the site. Demarcations are provided at either end of Castle Avenue signifying that the road forms part of the national cycle network and a coloured cycle lane is provided across the Castle Avenue / Castleway junction to warn drivers of the presence of cyclists. Through this assessment it has been identified the cycle demarcations could be improved (repainted) as part of the proposed development. The existing cyclist infrastructure along Castle Avenue is shown in **Photographs 8** and **9**.



Photograph 8: Repeat Cycle Markings on Castle Avenue



Photograph 9: Road Markings across Castle Avenue / Castleway Junction

Warblington Avenue

- 4.10 Warblington Avenue is a lightly-trafficked residential street with continuous footways provided along either side of the carriageway. At its junction with Woodpecker Close, a tactile paving crossing point is provided across the junction, supported by dropped kerbs. At its northern end, the footways along the carriageway tie in with those along St George's Avenue whilst at its southern end the footways tie in with those along Emsworth Road. The existing infrastructure along Warblington Avenue is shown in **Photographs 10** and **11**.



Photograph 6: Existing Footways along Warblington Avenue



Photograph 7: Tactile Paving Crossing across Warblington Avenue / Woodpecker Close junction

Southleigh Road

- 4.11 Between the site and nearby facilities, pedestrian footways flank either side of Southleigh Road. Approximately 10m north of the St George's Avenue / Southleigh Road junction, a tactile paving crossing point provides a safe crossing point for pedestrians and cyclists travelling to/from Warblington School and School Lane. The existing crossing is shown in **Photograph 12**.



Photograph 8: Pedestrian Crossing across Southleigh Road towards School Lane

- 4.12 For pedestrians travelling to/from Havant Town Centre via Southleigh Road/Emsworth Road, a continuous footway is provided along the western side of the carriageway. The existing footways along the western side of Southleigh Road are shown in **Photographs 13** and **14**.



Photograph 9: Footways along Western Side of Southleigh Road



Photograph 10: Tactile Paving Crossing across Southleigh Road / Berkeley Square Junction

- 4.13 Along the eastern side of the carriageway, a continuous footway is provided between the Southleigh Road / St George's Avenue junction and the Southleigh Road / Southleigh Road priority junction. Whilst the footway along the main arm of Southleigh Road terminates at the Southleigh Road / Southleigh Road junction, a virtual footway continues along the secondary arm of Southleigh Road towards the One-Stop convenience store. The existing footways along the eastern side of Southleigh Road are shown in **Photographs 15** and **16**.



Photograph 11: Footways along Eastern Side of Southleigh Road



Photograph 12: Virtual Footway towards One-Stop

- 4.14 At the Southleigh Road / Emsworth Road junction, a signalised pedestrian crossing is provided across Southleigh Road facilitating the safe movement of pedestrians across the carriageway. As shown in **Photographs 17**, the crossing benefits from tactile paving, dropped kerbs and refuge island.



Photograph 13: Signalised Crossing on Southleigh Road at junction with Emsworth Road

4.15 Southleigh Road also forms part of NCN Route 2 providing a convenient cycle route towards local facilities. At the St George's Avenue / Southleigh Road junction, a cycle lane is marked out on the northern radius and regular road markings are in place along Southleigh Road to remind drivers of the presence of cyclists. At the Southleigh Road / Emsworth Road signal junction, there is protected space for cyclists to wait in front of vehicles stopped at the traffic lights, Advance Stop Line (ASL). Examples of the cycle infrastructure along Southleigh Road is shown in **Photographs 18** and **19**.



Photograph 15: Cycle Markings at Southleigh Road / St George's Avenue junction



Photograph 14: Cycle Markings at Southleigh Road / Southleigh Road junction

Emsworth Road

4.16 Between Castle Avenue and Havant Town Centre, continuous pedestrian footways are provided along either side of Emsworth Road with dropped kerbs provided across all of the junctions along the route. At the Southleigh Road / Emsworth Road junction, signalised crossings are provided on both of the Emsworth Road arms (East & West), supported by dropped kerbs and tactile paving. The existing crossings on Emsworth Road are shown in **Photographs 20** and **21**.



Photograph 17: Signalised Crossing on Emsworth Road (West)



Photograph 16: Signalised Crossing on Emsworth Road (East)

School Lane

- 4.17 Along the majority of its length, School Lane is a traffic-free footway / cycleway which runs parallel with the West Coastway Railway line between Southleigh Road to the east and New Lane to the west, forming part of NCN Route 2. The route benefits from a tarmacked surface and regular street lighting which contribute to a safe environment for cyclists and pedestrians. The existing conditions along the route are shown in **Photographs 22** and **23**.



Photograph 22: Directional Signage at School Lane junction on Southleigh Road



Photograph 23: Existing Conditions along School Lane

- 4.18 Approximately 200m east of the School Lane/ New Lane' junction, School Lane becomes an on-road route, running through the centre of the recent Bloor Homes residential development on School Lane. The existing conditions along this section of the route are shown in **Photograph 24**.



Photograph 18: Existing Conditions along School Lane (towards Eastern end)

New Lane

- 4.19 School Lane joins New Lane via a priority T-junction. A tactile paving crossing point is provided across School Lane, supported by dropped kerbs. Approximately 10m, south of the junction, a further crossing point is provided across New Lane. The crossing is supported by tactile paving, dropped kerbs and reflective bollards. The existing pedestrian crossings are shown in **Photographs 25** and **26**.



Photograph 25: Pedestrian Crossing across School Lane



Photograph 26: Pedestrian Crossing on New Lane

- 4.20 Immediately south of the School Lane / New Lane's junction, adjacent to the existing crossing point, a gated access provides access to a traffic-free section of NCN Route 2 which subsequently merges with the Hayling Billy Trail via Town End House Car Park providing a traffic-free route towards Hayling Island.
- 4.21 South of the New Lane crossing, a pedestrian footway is provided on only the eastern side of the carriageway up until the Waterloo Road junction beyond which New Lane becomes Fairfield Road and footways are provided along both sides of the carriageway. To the immediate north of the New Lane/ Waterloo Road junction, a tactile paving crossing provides a safe point for pedestrians to cross New Lane. The existing pedestrian infrastructure along this route is shown in **Photographs 27** and **28**.



Photograph 19: Existing Footway along New Lane



Photograph 20: Crossing on New Lane
(north of Waterloo Road)

Waterloo Road

- 4.22 Waterloo Road is a single lane carriageway which joins with New Lane/Fairfield Road to the east and North Street to the west. Footways of suitable width flank both sides of the carriageway providing a safe route to/from North Street in Havant Town Centre. The existing footways along Waterloo Road are shown in **Photographs 29** and **30**.



Photograph 29: Footway along Northern Side of Waterloo Road



Photograph 30: Footway along Southern Side of Waterloo Road

Fairfield Road

- 4.23 Fairfield Road provides a pedestrian route between New Lane and The Pallant which subsequently joins with East Street, along which a number of facilities are located. Pedestrian footways are provided on both sides of the carriageway providing a continuous route towards Havant Town Centre. The existing footways along Fairfield Road are shown in **Photographs 31** and **32**.



Photograph 31: Footways along Western Side of Fairfield Road



Photograph 32: Footways along Fairfield Road

The Pallant

- 4.24 Between Fairfield Road and North Street, pedestrian footways flank either side of the carriageway providing a continuous route to/from Havant Town centre via The Pallant. Between the Manor Close / The Pallant junction and the Prince George St / The Pallant junction the footways on the northern side of the carriageway become narrow and a tactile paving crossing point facilitates the safe crossing of pedestrians to the southern side of the carriageway which is wider. The existing pedestrian infrastructure along The Pallant is shown in **Photographs 33** and **34**.



Photograph 33: Pedestrian Footways along The Pallant



Photograph 34: Pedestrian Crossing on The Pallant

A27 Subway

- 4.25 Between Castle Avenue and the A27 Subway, a continuous footway is provided along the northern edge of Emsworth Road. The footway along Emsworth Road then continues along the A27 subway providing a raised surface for pedestrians alongside a designated cycle lane. The subway is well-lit and provides a traffic-free connection towards Emsworth. The existing conditions along the route are shown in **Photographs 35** and **36**.



Photograph 21: Entrance to A27 Subway
from Emsworth Road



Photograph 22: A27 Subway

Havant Road

- 4.26 South of the A27, the subway emerges onto Havant Road. Continuous footways flank either side of the carriageway between Havant Road and Selangor Avenue providing a continuous route towards Emsworth Primary School. The existing pedestrian infrastructure along Havant Road is shown in **Photographs 37 and 38.**



Photograph 247: Cycleway / Footway on Havant Road



Photograph 238: Footway along Havant Road

- 4.27 Between the A27 subway and Selangor Avenue a designated cycle lane is also provided along both sides of the carriageway. The existing cycle infrastructure along Havant Road is shown in **Photographs 39 and 40.**



Photograph 25: Existing Cycle Lane on A259



Photograph 26: Existing Cycle lane on A259

Selangor Avenue / Victoria Road

- 4.28 Selangor Avenue is a residential road and benefits from pedestrian footways along both sides of the carriageway. The footways are of suitable width and separated from the carriageway by wide grass verges. Approximately 180m west of Emsworth primary School, Selangor Avenue becomes Victoria Road, and the footways continue along either side of the carriageway providing a continuous pedestrian route to/from Emsworth Primary School. The existing conditions along this route are shown in **Photographs 41 and 42.**



Photograph 27: Existing Footways along Selangor Avenue



Photograph 28: Existing Footways along Victoria Road

Public Transport

- 4.29 The closest bus stops to the site are the Warblington Station and Warblington School bus stops situated on Southleigh Road approximately 15m north and 40m south of the Southleigh Road / St George's Avenue junction, respectively. The stops can be accessed from the proposed development site in approximately 5 minutes on-foot and are served by routes 27 and 28A. Route 27, operated by First Bus, runs hourly Monday to Saturday, serving Rowlands Castle, Havant and Emsworth. Route 28 is a school service operated by Emsworth and District and has one morning and one afternoon service. The existing bus stops on Southleigh Road are shown in **Photographs 43 and 44.**



Photograph 43: Warblington Station Bus Stop



Photograph 294: Warblington School Bus Stop

4.30 Stagecoach's 700 'Coastliner' route can also be accessed via the Green Pond Corner bus stops situated on Emsworth Road. The route runs from Portsmouth towards Bognor Regis via Havant, Emsworth and Chichester, up to every 10 minutes during peak periods. A summary of the local bus services is provided in **Table 2**.

Service	Route Description	Operator	Bus Stop	Approximate Frequency			
					Mon-Fri	Sat	Sun
27	Rowlands Castle – Emsworth	First	Warblington School	Every 2 Hours 10:34 – 17:14	3 Per Day 10:35-15:15	No Service	
			Green Pond Corner	Every 2 Hours 10:34 – 17:14	3 Per Day 10:34-15:14	No Service	
	Emsworth – Rowlands Castle		Warblington Station	Every 2 Hours 09:14 – 17:49	Every 2 Hours 09:15 – 15:50	No Service	
			Green Pond Corner	Every 2 Hours 09:16 – 17:51	Every 2 Hours 09:16 – 15:51	No Service	
28A	Southbourne – Horndean College	Emsworth & District	Warblington Station	07:17	No Service	No Service	
			Green Pond Corner	07:18	No Service	No Service	
	Horndean College – Southbourne		Warblington School	15:08	No Service	No Service	
			Green Pond Corner	15:07	No Service	No Service	
700	Felpham – Portsmouth	Stage coach	Green Pond Corner	Every 20 mins 06:00-22:37	Every 20 mins 06:55-22:37	Every 30 mins 07:41-21:30	
Portsmouth – Felpham	Green Pond Corner		Every 20 mins 06:02-20:28	Every 20 mins 06:12-20:28	Every 20 mins 07:21-20:15		
770	Havant Bus Station – Chichester Bishop Luffa School	Stage coach	Green Pond Corner	07:17	No Service	No Service	
	Chichester Bishop Luffa School – Havant Bus Station		Green Pond Corner	15:10	No Service	No Service	

Table 2: Summary of Local Bus Services

Railway Services

- 4.31 The closest railway station to the site is Warblington Station situated approximately 550m north-east of the site. The station can be accessed on foot in approximately 6-minutes via the existing footways along St George's Avenue and Southleigh Road. The station is situated on the West Coastway railway line with hourly services operating between Littlehampton and Portsmouth.
- 4.32 From Warblington Station, passengers can change at Havant Station for direct services to London Waterloo and London Victoria. Services take on average 1 hour 20 mins from Havant to London Waterloo and just under 2 hours to London Victoria with services towards London departing every 20—30 minutes.
- 4.33 Alternatively, Havant Railway Station is easily accessible from the site on foot (17 mins) or by bicycle (5 mins) via St George's Avenue and School Lane. Havant Station provides secure and sheltered storage for over 90 bicycles further facilitating sustainable modes of travel.

Equestrian Users

- 4.34 The WCHAR Assessment has identified that there are no existing facilities for equestrian users in proximity of the site. Given the location of the site being in a residential area, close to Havant Town Centre the demand for equestrian use is considered to be low and therefore no upgrades are proposed to support equestrian users.

Summary

- 4.35 Overall the existing infrastructure within the vicinity of the site is considered to provide excellent opportunities for future site-users to travel between the site and local facilities via sustainable modes of travel. School Lane provides a convenient traffic-free route between the site and Havant Town Centre whilst the existing footways along St George's Avenue, Warblington Avenue, Castle Avenue and Southleigh Road connect the site with local facilities in Warblington. Facilities in Emsworth can also be conveniently accessed from the site via the A27 subway which is well-lit, provides suitable space for pedestrians and cyclists to coexist and forms part of National Cycle Network Route 2. The WCHAR Assessment has identified the potential for some minor improvements on St George Avenue at junctions to highlight the presence of cyclists however no further improvements for pedestrians, cyclists or equestrian users are considered necessary to support the proposed development.

5. PIA DATA

5.1 Personal Injury Accident (PIA) data has been acquired from Hampshire Constabulary to assess and consider the existing safety situation on the local road network. The scope of PIA assessment, which covers a wide study area to reflect that of the WCHAR Assessment, was agreed through the highway pre-application scoping exercise with HCC. A plot of the incidents is provided in **Figure 4**, with the full accident reports obtained from Hampshire Constabulary attached within **Appendix C**.

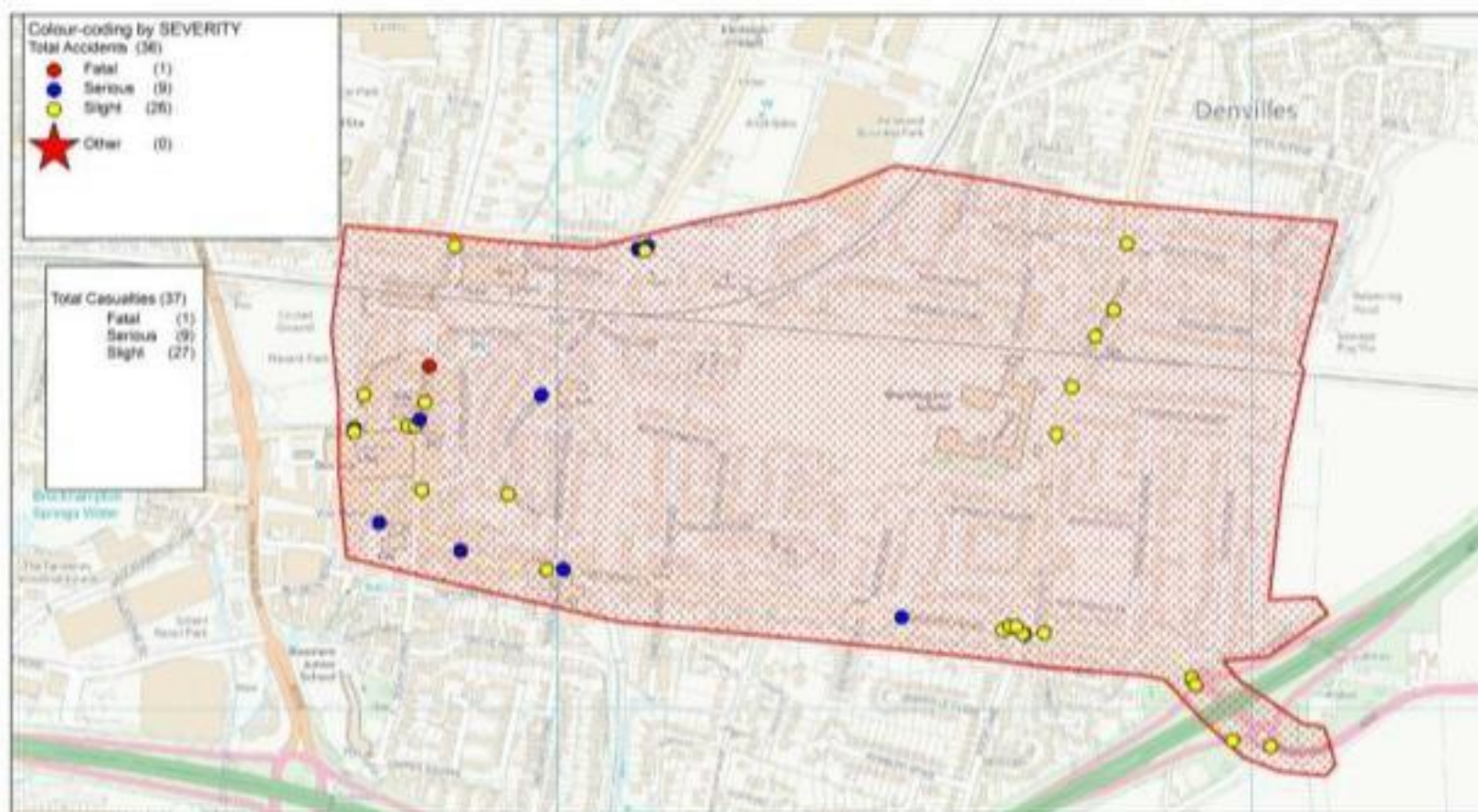


Figure 4: PIA Data (2016-2020)

5.2 The patterns displayed in the data have been assessed with regards to the proximity, frequency and severity of incidents that have occurred. The PIA data has been collected for the most recent 5-year period between January 2016 and December 2020. A summary of the recorded incidents is provided in **Table 3**.

Location	Accident ID	Date / Time	Severity	Description	Likely Cause
Southleigh Road	160320497	26.08.16 07:46	Slight	V1 (car) travelling S along Southleigh Road when V2 (Car) travelling W turned right from Glenleigh Park into V1s path causing V1 to collide with the offside of V2.	V2 – failed to look properly.
	44170155990	26.04.17 15:45	Slight	V1 (car) travelling S collides with leg of Cas 1 (pedestrian) travelling E across road.	V1 – exceeding speed limit / failed to look properly.
	44170156478	27.04.17 09:45	Slight	V2 (car) travelling NE failed to brake in time and collided with rear of V1 (car) travelling in front.	V2 – following too close / sudden braking.

	44170273961	17.07.17 07:15	Slight	V2 (car) travelling S and collides with the rear of V1 (p/cycle) travelling in the same direction.	V2 – failed to look properly / careless/reckless/in a hurry.
	44190209530	18.06.19 13:00	Slight	V2 (car) travelling W along Emsworth Road turns right into Southleigh Road across the path of V1 (car) travelling in the opposite direction on a green light and collides.	V2 – disobeyed give way or stop sign or markings / poor turn or manoeuvre.
	44200422560	31.10.20 13:15	Slight	V1 (car) travelling E along First Avenue turned right onto Southleigh Road and collided with V2 (car) travelling N along Southleigh Road and continuing straight ahead at J1.	V1 – failed to judge other persons path or speed.
Emsworth Road	160457053	04.12.16 17:54	Serious	V2 (p/cycle) travelling NW along Emsworth Road, swerves into the path of V1 (taxi) travelling in the same direction overtaking and collides.	V2 – failed to look properly / cyclist wearing dark clothing at night.
	44180007912	07.01.18 10:00	Slight	V1 (car) travelling W on Green Pond Corner goes through red light, collides with traffic island and then V2 (car) travelling W before overturning. Debris collides with and damages V3 (Car).	V1 – loss of control / illness or disability, mental or physical.
	44170114910	28.03.17 07:20	Slight	V2 (car) travelling E along Emsworth Road attempts to overtake and in doing so clips V1 (p/cycle) travelling in the same direction causing the rider to fall off.	V2 – passing too close to cyclist.
	44180400077	24.10.18	Slight	V2 (van) travelling E along Emsworth Road waiting to turn right into Pook Lane. A vehicle travelling W along Emsworth Road in Lane 2 flashes to allow V2 to turn. V2 turns right and collides with V1 (car) travelling W along Emsworth Road in Lane 1.	V1 – failed to judge other persons path or speed. V2 – road layout / poor turn or manoeuvre / failed to look properly / failed to judge other persons path or speed.
	44190287808	14.08.19 12:08	Slight	V1 (car) travelling E along Emsworth Road turns right into Pook Lane fails to notice V2 (car) travelling W along Emsworth Road which was masked by a stationary vehicle. V2 collided with V1.	V1 – failed to look properly.
	44200356059	14.09.20 15:00	Slight	V2 (car) travelling S along Southleigh Road, turns right into Emsworth Road and collides with V1 (p/cycle) travelling E along Emsworth Road who shot out in front of V2.	
Eastern Road / New Lane Junction	160123856	31.02.16 18:00	Serious	V1 (car) travelling SW along New Road and turns right into eastern road, the sun was very low in the sky causing the driver issues and collides with V2 (p/cycle).	V1/2 – failed to judge other persons path or speed.

	44170061245	16.02.17 15:15	Serious	V2 (car) travelling W along Eastern Road turns right onto New Lane, cutting the corner and collides with V1 (p/cycle) travelling SW along New Lane.	V2 – poor turn on manoeuvre / failed to look properly.
	44170068711	21.02.17 06:00	Slight	V1 (car) travelling N along North Street tries to overtake and then turns left onto Elm Lane across the path of V2 (p/cycle) travelling in the same direction and collides.	V1 – failed to look properly / failed to judge other persons path or speed.
	44190442260	09.12.19 10:45	Slight	V1 (car) travelling E along Eastern Road has turned right onto New Lane. V1 failed to see V2 (p/cycle) travelling W along Eastern Road to the nearside of the van. Two vehicles collide.	V1 – failed to look properly / dazzling sun.
East Street	44170418034	23.10.17 12:00	Serious	V1 (car) travelling S along Beechworth Road turned left into East Street colliding with Cas 1 (pedestrian) travelling S across East Street.	V1 – failed to look properly / careless/reckless/in a hurry.
	44190345309	27.09.19 12:25	Serious	V1 (goods veh) travelling E along East Street overtakes V2 (p/cycle) travelling in front. V1 clips front wheel of V2 causing rider to fall off.	V1 – poor turn or manoeuvre / swerved.
	44200331376	28.08.20 15:06	Slight	V1 (m/cycle) travelling W. Rider slides off at a low speed resulting in minor injuries.	V1 – slippery road / loss of control.
West Street	44190331802	17.09.19 10:30	Serious	V1 (taxi) parked on West Street to pick up passengers. As Cas 1 (passenger) was getting in the back, V1 drove off travelling E, running over CAS1's foot.	n/a
North Street	160476293	18.12.16 12:35	Fatal	V1 (Beach Buggy) travelling along Market Parade turned right onto north street when long scarf worn by Cas 1 (passenger) got caught in rear wheel causing fatal injuries.	Other.
	44180244764	30.06.18 13:40	Serious	V1 (m/cycle) turns right onto North Road failing to negotiate rbt colliding with the nearside kerb, causing the rider to fall off.	Very likely.
	44190389335	30.10.19 13:20	Slight	V1 (car) was reversing into a parking space on the eastern side of the road travelling N. Cas 1 (pedestrian) was standing by the boot of V2 (car) parked. V1 hit Cas 1.	V1 – illness or disability, mental or physical.
The Pallant	44180113436	27.03.18 12:00	Slight	V1 (car) traveling W slows and stops intending to turn right onto North Street. For reasons unknown reverses and collides with Cas 1 (pedestrian).	V1 – failed to look properly / poor turn or manoeuvre.
	44180369780	01.10.18 12:18	Slight	V1 (car) pulling out of private car park to turn left onto The Pallant to travel NW collides with V2 (mobility scooter) travelling SE along The Pallant, the wrong way on a one-way street.	V2 – illegal turn or direction of travel.
Market Parade	44180274400	20.07.18 16:15	Slight	V1 (car) parked in a bus lane along Market Parade moves off without	V1 – failed to look properly.

				indicating across the path of V2 (m/cycle) and collides.	
Elm Lane	160336950	07.09.16 09:30	Slight	V1 (van) travelling N along North Street turns left into Elm Lane and clips Cas 1 (ped) travelling N across Elm Lane.	V1 – passing too close to pedestrian.
	160366465	28.09.16 08:15	Slight	V1 (car) travelling E along Elm Lane thought lights had changed and moved forward and collides with the rear of V2 (car) stationary at pedestrian crossing.	V1 – failed to look properly.
	44170007155	06.01.17 22:04	Serious	Cas 1 (pedestrian) stepped into Elm Lane on Pedestrian Crossing which has green lights for vehicles. V1 (car) travelling W along Elm Lane hit Cas 1.	Cas 1 – wrong use of pedestrian crossing facility / impaired by alcohol.
	4417025569	04.07.17 11:08	Slight	V1 (car) travelling W along Elm lane has allegedly gone through a red light and collided with Cas 1 (pedestrian) travelling S across Elm Lane on pedestrian crossing.	V1 – disobeyed pedestrian crossing facility / failed to look properly / failed to judge other persons path or speed. Cas 1 – failed to judge vehicles path or speed / wrong use of pedestrian crossing facility.
A27 Westbound Onslip	160446511	26.11.16 18:20	Slight	V1 (m/cycle) travelling W lost control after exiting the A259 rbt onto A27 WB onslip causing the rider to fall.	V1 – impaired by alcohol / careless/reckless/in a hurry.
A27 Eastbound Offslip	44190288270	14.08.19 16:33	Slight	V1 (car) travelling NE along offslip enters rbt failing to notice V2 (m/cycle) already on rbt and collides into V2.	V1 – failed to look properly. V2 – slippery road (due to weather).
	44200042484	03.02.20 12:55	Slight	V1 (car) travelling along offslip entered rbt to turn right onto A259 Havant bypass and pulled in front of V2 (car) travelling NW around rbt.	V1 – failed to look properly.
Havant Road (A259)	44180301149	09.08.18 11:30	Slight	V1 (m/cycle) travelling NW along A259 slows down on approach to rbt but the front wheel locks causing vehicle to hit the ground.	V1 – deposit on road / slipper road / sudden braking / inexperienced driver / rain, sleet, snow or fog.
Fairfield Road	44190246501	15.07.19 08:50	Serious	V1 (car) travelling SW collides with Cas 1 (ped) who has stepped into the road travelling E from behind a parked van.	Cas 1 – crossed road masked by stationary vehicle / failed to look properly.
Leigh Road	44200069178	23.02.20 14:15	Slight	V1 (p/cycle) travelling S goes to overtake V2 (car) that is parked just as V2 pulls out and moves off. V1 brakes causing it to skid and the rider fall off.	n/a

Table 3: PIA Data (2016-2020)

- 5.3 The PIA data indicates that over a five-year period there have been a total of 36 accidents within the vicinity of the site including one 'fatal', nine 'serious' incidents and 26 'slight' accidents in terms of their incident severity. There were no accidents reported in the most-recent five-year period along St George's Avenue, Warblington Avenue or Castle Avenue, or at the St George's Avenue / Southleigh Road, Warblington Avenue / Emsworth Road and Castle Avenue / Emsworth Avenue junctions, and thus the immediate development area. There are not therefore considered to be any accident hotspots within the immediate vicinity of the site that would worsen as a result of the proposed development.
- 5.4 It is acknowledged that over a five-year period, six incidents have been reported at the Southleigh Road / Emsworth Road signalised junction and that there have been several incidents along Southleigh Road. The distribution of incidents along Southleigh Road does not however indicate a specific highways safety issue that would pose a risk to future site-users. Furthermore, the number of incidents recorded at the Southleigh Road / Emsworth Road junction is not unusual given the volumes of traffic that pass through this junction and whilst any accident is regrettable, all of the incidents in this location have been slight in terms of their incident severity. A more detailed review of these incidents also indicates that all of these incidents are likely to have been caused by driver fault rather than the design of the road layout.
- 5.5 The PIA data indicates that there have been four incidents at the Eastern Road / New Lane junction including two 'slight' incidents and two 'serious' incidents. All of these incidents were however caused by driver fault and do not therefore indicate a specific highways issue that would pose a risk to future site-users. Furthermore, development trips through this junction are expected to be predominantly limited to pedestrians and this junction does not form one of the primary routes towards local facilities. Development journeys through this junction are therefore expected to be extremely minimal.
- 5.6 The PIA data indicates that at the A27 Dumbbell Roundabouts there have been a total of four incidents including two at the Emsworth Road / A27 Roundabout and two at the A27 / A259 / Church Lane roundabout. All four of the incidents were slight in nature and were not a result of the physical road layout, which has also been subject to some recent improvement through Section 278 works for the recent development west of Selangor Avenue.
- 5.7 Overall the frequency, severity and distribution of incidents on the local road network is not therefore considered to highlight any specific highway issue that would worsen as a result of the development or pose a risk to future site-users.

6. PROPOSED DEVELOPMENT

- 6.1 The proposed development comprises 194 dwellings with a mix of affordable rent, shared ownership and private dwellings. A variety of unit types would also be provided ranging from 1-bedroom apartments to 4-bedroom houses. The accommodation schedule for the development is outlined in **Table 4** with a copy of the site layout attached within **Appendix D**.

Unit Type	Affordable	Private	Total
1 Bedroom Apartment	10	-	10
2 Bedroom Apartment	8	12	20
2 Bedroom House	21	37	58
3 Bedroom House	18	51	69
4 Bedroom House	2	35	37
Total	59	135	194

Table 4: Site Accommodation Schedule

Access Arrangement / Internal Layout

- 6.2 Access to the site is to be taken from St George's Avenue which is to be extended 60m through the neighbouring Persimmon Homes development to the proposed development site's western boundary. A 4.8m wide central street with 2m wide footways on both sides would then continue through the development from the extended St George's Avenue.
- 6.3 A Stage 1 Road Safety Audit was undertaken in 2018 by GM Traffic Consultants Ltd as part of the Persimmon Homes application to assess the proposed extension of St George's Avenue through to the development site (which was identified as being a through-route to the wider allocation). A copy of the RSA is attached within **Appendix E**.
- 6.4 The internal site layout has been designed to encourage low vehicular speeds with straight sections of carriageway kept to a minimum. In accordance with the proposed 20mph internal design speed, 2.4m x 25m visibility splays have been demonstrated to be achievable from the residential cul-de-sacs onto the main spine road. Suitable forward visibility splays for 15mph given lower speeds on bends have also been demonstrated to be achievable with the relevant drawings attached within **Appendix F**.
- 6.5 Continuous footways are provided along the spine road throughout the development site. At the southwest corner of the development, a pedestrian footway facilitates pedestrian connectivity with Emsworth Road and the A27 subway. The design of the internal layout does not prejudice a pedestrian / cycle link under the railway line to the north of the site.

Parking Provision

- 6.6 Havant Borough Council's Parking Supplementary Planning Document (July 2016) sets out minimum parking standards for C3 dwelling houses with the standard varying between unit size and whether or not the parking is to be allocated. A summary of the standards relevant to the proposed development are outlined in **Table 5**.

Size of Dwelling	Minimum Standard	No. of Units	No. of Spaces Required
Allocated Parking			
1 Bed Unit	1 space per unit	0	0
2 Bed Unit	2 spaces per unit	58	116
3 Bed Unit	2 spaces per unit	69	138
4+ Bed Unit	3 spaces per unit	37	111
Unallocated Parking			
1 Bed Flat	0.9 spaces per unit	10	9
2 Bed Flat	1.3 spaces per unit	20	26
Visitor Parking	0.2 spaces per unit	194	39
Total:			439

Table 5: Summary of HBC's Residential Parking Standards SPD (2016)

- 6.7 Informed by the standards outlined in **Table 5**, the proposed development comprises a total of 443 car parking spaces including a small number of garage spaces (8 in total) and 4 disabled spaces. All of the houses benefit from allocated parking spaces whilst unallocated parking is provided for the flats within communal parking courts. A total of 49 visitor car parking spaces are provided across the development.
- 6.8 In accordance with standards, the car parking spaces measures a minimum of 2.4m x 4.8m and sufficient space is provided within the car parking courts to allow for vehicles to reverse. Where parking is provided within garages, the garages measure a minimum of 3m x 6m to allow for a modern car to be parked whilst still allowing room for access down the side of the vehicle.

Cycle Parking

- 6.9 All of the proposed dwellings are provided with long stay, secure cycle storage facilities either in the form of a garage or within a secure cycle store in the rear garden. For the flats, secure cycle storage facilities are located within the parking court adjacent to each block. As such, it is considered that sufficient cycle parking is provided across the development to accommodate all on-site cycle parking demand.

Refuse / Servicing

- 6.10 Vehicle tracking exercises have been undertaken with the HCC 11.2m 'super large' refuse vehicle demonstrating sufficient space is provided to allow for refuse collection to take place on-site safely and conveniently. Whereby the distance between plots 40-41 & 42-43 and the spine road exceeds the maximum 30m bin carry distance, bin collection points have been provided within 25m of the plots and 30m of the spine road to ensure compliance with bin carry distance standards. The relevant tracking drawing is attached within **Appendix G**.
- 6.11 In accordance with Building Regulations a fire tender is able to get within 45m of all plots. The relevant tracking drawing is attached within **Appendix H**.

7. TRIP GENERATION

- 7.1 In order to understand the impact of the development proposals on the local road network, a trip generation assessment has been undertaken using a combination of the 2011 Census Data and the national TRICS database. The method of calculating trips was agreed during the pre-applications stage and matches the methodology used by Mode Transport Planning to support the adjacent Persimmon Homes application.

Modal Share

- 7.2 In the first instance, the 2011 Census Data was interrogated to provide an overview of existing trends. The 'Method of Travel to Work' 2011 Census dataset for the E00116654 output area was utilised. A summary of the multi-modal split is outlined in **Table 6**, with a copy of the full outputs attached in **Appendix I**.

Method of Travel to Work	%
Driving a Car or Van	79
Public Transport (Train, underground, bus Taxi)	12
Bicycle	4
On Foot	3
Passenger in a car or van	2
Total	100

Table 6: Method of Travel to Work Census Data – E00116654

- 7.3 The Census data indicates that single occupancy vehicle trips are the predominant type of journey undertaken, accounting for 79% of all trips. Sustainable transport journeys including public transport, car sharing, walking and cycling account for 21%. Journeys by train represent the majority of sustainable trips (11%) which reflects the site's accessibility to frequent train services.

Multimodal Trip Generation

- 7.4 Having calculated a multi-modal split for the development, a TRICS assessment was then undertaken utilising total person trips, as per the adjacent planning application. The TRICS dataset included similar residential sites in England (excluding Greater London) in suburban area locations. The resultant trip rates (which remain identical to those submitted as part of the adjacent application) are outlined in **Table 7** with a copy of the full TRICS outputs attached within **Appendix J**.

	AM Peak (0800-0900)			PM Peak (1700-1800)			12 Hour Daily Total
	Arrivals	Departures	Total	Arrivals	Departures	Total	
Total People Trip Rate (p/dwelling)	0.209	0.765	0.974	0.608	0.294	0.902	8.353

Table 7: Total People Trip Rate

- 7.5 In order to distinguish between vehicle trips and sustainable trips to/from the development site, the multi-modal split outlined in **Table 6** was subsequently applied to the total people trip rates outlined in **Table 7**. The same methodology has been applied to the trip assessment for the proposed development with the results summarised in **Table 8**.

	AM Peak (0800-0900)			PM Peak (1700-1800)			12 Hour Daily Total
	Arrivals	Departures	Total	Arrivals	Departures	Total	
Total People Trip Rate (p/dwelling)	0.209	0.765	0.974	0.608	0.294	0.902	8.353
Development Potential Trip Generation (194 dwellings)	41	148	189	118	57	175	1620
Applied Modal Share from Table 6							
Vehicle Trips (79%)	32	117	149	93	45	138	1280
Sustainable Modes (21%)	9	31	40	25	12	37	340

Table 8: Proposed Development Trip Generation

- 7.6 Based on the agreed methodology, the proposed development is anticipated to generate a maximum of 149 additional vehicle trips in the AM peak and 138 vehicle trips in the PM peak. This equates to approximately 12 additional vehicle trips an hour or one additional trip every five minutes. The proposed trips have subsequently been assigned routes on the local road network to determine the overall impact of the development on the operation and safety of the highway network.
- 7.7 Whilst this approach was advocated by HCC through the pre-app process for consistency with the approach used by Mode Transport Planning for the adjacent Persimmon development, this is very much considered a worst-case scenario, as it fails to acknowledge the modal choice for other travel destinations aside from commuting during the peaks (e.g. trips to school which are typically by more sustainable modes). These trip rates also present a higher proportion of vehicle trips than those approved with the Selangor Avenue application.

8. TRIP DISTRIBUTIONS

- 8.1 The proposed development traffic has been assigned a route on the local road network in order to determine the impact of the proposed development on individual junctions within the locale of the site. As agreed during the pre-application process, the trips have been assigned using the same percentage distributions outlined in the Transport Assessment prepared by Mode Transport Planning to support the application for the Persimmon Homes development on the land parcel to the immediate west of the site.
- 8.2 The trip distributions were calculated using the 2011 Census 'Location of Usual Residence and Place of Work by Method of Travel to Work' dataset (WU03EW), for residents residing in the 'E02004775: Havant 014' Output Area. The distributions are outlined in **Table 9**, and illustrated on the distribution diagrams attached within **Appendix K**. A copy of the trip distribution calculations is provided in **Appendix L**.

Route	Description	%
Southleigh Road North	St Georges Avenue WB / Southleigh Road NB	9
Emsworth Road West (towards Havant)	St Georges Avenue WB / Southleigh Road SB / Emsworth Road WB	22
A27 North East	St Georges Avenue WB / Castle Avenue SB / Emsworth Road SB / A27 NE	13
A27 South	St Georges Avenue WB / Castle Avenue SB / Emsworth Road SB / A27 SW	53
A259 (towards Emsworth)	St Georges Avenue WB / Castle Avenue SB / Emsworth Road SB / A259	3
Total:		100

Table 9: Trip Distributions (without Mitigation)

- 8.3 The traffic distributions outlined in **Table 9** assume that all trips travelling to/from the A27 Dumbbell Roundabouts would route via Castle Avenue, whilst all vehicles travelling to/from Emsworth Road West (to/from Havant) would route via Southleigh Road. Based on the current road layout, the proposed development is not therefore anticipated to generate any additional vehicular traffic along Warblington Avenue.
- 8.4 It is understood however that as part of the Persimmon Homes application, a £150,000 contribution was secured through the S106 agreement for capacity improvements to the Emsworth Road / A27 Roundabout which include prohibiting right-turn movements from Emsworth Road onto Castle Avenue and vice-versa. As such, revised trip distributions have also been calculated for the proposed development with all trips arriving at the site from the A27/A259 re-routed via Warblington Avenue, as agreed at the pre-application stage.

- 8.5 In order to inform our junction modelling exercises which account for the prohibition of right turn manoeuvres at the Castle Avenue Avenue / Emsworth Road, the baseline data has also been amended in accordance with the proposed methodology outlined during the pre-application discussions. As such, all existing vehicles currently turning right from Castle Avenue onto Emsworth Road would (under the new road layout) access Emsworth Road via Southleigh Road and all vehicles turning right from Emsworth Road onto Castle Avenue would route via Warblington Avenue. The amended distributions and revised baseline data are illustrated on the distribution diagrams attached within **Appendix M**.

9. BASELINE TRAFFIC DATA

Southleigh Road / Warblington Avenue / Castle Avenue / Emsworth Road

- 9.1 As part of the adjacent application (APP/18/01033) for the 69 dwellings on the land parcel to the immediate west of the site, traffic surveys were undertaken in 2018 at a number of locations in order to quantify the baseline traffic flows on the local highway network. A combination of Manual Classified Count (MCC) surveys were undertaken, as summarised in **Table 10**.

Location	Junction Type	Survey Type	Survey Time Period
St George's Avenue/ Southleigh Road/ Warblington School	Crossroads Priority Junction	MCC	20 th Sept – AM (07:00-10:00) & PM (16:00-19:00)
Warblington Avenue / Emsworth Road	Priority Junction	MCC	20 th Sept – AM (07:00-10:00) & PM (16:00-19:00)
Castle Avenue / Emsworth Road	Priority Junction	MCC	20 th Sept – AM (07:00-10:00) & PM (16:00-19:00)

Table 10: Summary of 2018 Baseline Surveys

- 9.2 As agreed during the Pre-Application process, the same survey outputs have been used to inform the subsequent junction modelling exercises for the proposed development. The recorded flows are summarised on the '2018 Baseline' distribution diagram attached within **Appendix L**.

A27 Dumbbell Roundabouts

- 9.3 The baseline data for the A27 Dumbbell Roundabouts has been taken from the Transport Assessment submitted to support the application (Ref: 18/03145/OUT) for Land North of Cooks Lane. This was suggested as an appropriate dataset by HCC during the pre-application process.
- 9.4 The MCC surveys were undertaken at the roundabout on 27th March 2018. The recorded peak hour traffic flows are shown in the distribution diagrams attached within **Appendix L**.

TEMPro

- 9.5 In order to account for any background growth and inform the subsequent junction modelling exercises, TEMPro Growth Factors have been used to growth the 2018 survey outputs to 2021 (application year) and 2026 (5 years post application) baseline flows. The following criteria have been applied to the to generate the growth factors outlined in **Table 11** which have been National Transport Model (NTM) adjusted:

- Havant 014 (E02004775) Output Area;
- Car Driver Trips Only;
- Urban Areas; and
- All roads.

	AM	PM
2018-2021	1.0429	1.0400
2018-2026	1.1058	1.1019

Table 11: TEMPro Growth Factors

10. JUNCTION MODELLING

10.1 Based on the trip distributions outlined in **Chapter 5** and informed by the scope agreed at the pre-application stage, modelling assessments have been undertaken using Junctions 9 to assess the impact of the proposed development on the following junctions:

- St George's Avenue / Southleigh Road / School Exit Crossroads;
- Warblington Avenue / Emsworth Road Priority Junction;
- Castle Avenue / Emsworth Road Priority Junction; and
- A27 Dumbbell Roundabouts

10.2 Informed by the pre-application discussions with HCC, the junctions have been modelled for a 'without mitigation' scenario and 'with mitigation' scenario which accounts for the prohibition of right turn manoeuvres at the Castle Avenue/Emsworth Road junction secured as part of the adjacent Persimmon Homes application.

10.3 The subsequent junction modelling assessments cover the following scenarios agreed during the pre-application stages:

- Baseline 2021;
- Baseline 2026;
- Baseline 2026 + Committed Development; and
- Baseline 2026 + Committed Development + Proposed Development.

Committed Developments

10.4 The approved Persimmon Homes development of 69 dwellings on the land to the immediate west has been included as a committed development within the modelling exercises (APP/18/01033). The development is anticipated to generate 53 vehicle trips in the AM peak and 49 vehicle trips in the PM peak. The distribution of these trips across the local road network trips is illustrated on the distribution diagrams attached within **Appendix L** and **N**, respectively.

10.5 The approved application (APP/16/00774) for the erection of 147 dwellings on Land West of Selangor Avenue, Emsworth has also been included as a committed development. 70% of the developments traffic is expected to turn right out of the site towards the A27 dumbbell roundabouts, equating to 15 arrivals and 37 departures in the AM peak and 34 arrivals and 18 departures in the PM peak. The distribution of these trips across the local road network trips is illustrated on the distribution diagrams attached within **Appendix L** and **N**, respectively.

Southleigh Road / St George's Avenue / School Exit

- 10.6 The Southleigh Road / St George's Avenue junction would be used for those travelling northbound along Southleigh Road towards B2148 or for those wishing to travel to/from Emsworth Road (west) e.g. to/from Havant. Overall, it is anticipated that 31% of vehicle trips would arrive/ depart the site via this junction. A summary of the modelling results (from Junctions 9) is provided in **Table 12** with the full modelling outputs attached in **Appendix O**.

Scenario	Arm	AM Peak (08:00-09:00)			PM Peak (17:00-18:00)		
		Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
Baseline 2021	St George's Avenue	0.1	9.96	0.12	0.1	8.77	0.05
	Southleigh Road (South)	0.0	5.59	0.01	0.0	4.89	0.01
	School Exit	0.3	12.33	0.24	0.0	10.34	0.04
Baseline 2026	St George's Avenue	0.2	10.37	0.13	0.1	8.82	0.05
	Southleigh Road (South)	0.0	5.56	0.02	0.0	4.82	0.01
	School Exit	0.4	12.98	0.26	0.0	10.61	0.05
Baseline 2026 + Committed Development	St George's Avenue	0.2	10.43	0.16	0.1	8.67	0.08
	Southleigh Road (South)	0.0	5.58	0.02	0.1	4.93	0.05
	School Exit	0.4	13.12	0.26	0.0	10.76	0.05
Baseline 2026 + Committed Development + Proposed Development	St George's Avenue	0.3	11.31	0.25	0.1	8.80	0.11
	Southleigh Road (South)	0.1	5.65	0.04	0.2	5.13	0.11
	School Exit	0.4	13.58	0.27	0.0	11.01	0.05

Table 12: Southleigh Road / St. George's Avenue / School Exit Crossroads Modelling Outputs (without Mitigation)

- 10.7 The modelling results indicate that the Southleigh Road / St George's Avenue / School Exit Crossroads will continue to operate within capacity following the proposed development with a maximum RFC of 0.27 on the School Exit arm during the AM peak and 0.11 on St George's Avenue and Southleigh Road (South) in the PM peak.
- 10.8 The prohibition of right-turn manoeuvres at the Castle Avenue / Emsworth Road junction is not anticipated to have any effect on the number of development trips passing through the Southleigh Road / St George's Avenue junction. None of the development trips are anticipated to turn right from Castle Avenue onto Emsworth Road and any development trips turning right from Emsworth Road onto Castle

Avenue have been re-routed via Warblington Avenue under the 'with mitigation' model.

- 10.9 The prohibition of right turn movements does however impact on the baseline data. As such, all vehicles which currently turn right from Castle Avenue onto Emsworth Road have been re-routed via the Southleigh Road junction. The results of the 'with mitigation' modelling assessment are outlined in **Table 13**, with the full modelling results attached in **Appendix P**.

Scenario	Arm	AM Peak (08:00-09:00)			PM Peak (17:00-18:00)		
		Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
Baseline 2021	St George's Avenue	0.2	9.72	0.14	0.1	8.37	0.06
	Southleigh Road (South)	0.0	5.59	0.01	0.0	4.89	0.01
	School Exit	0.3	12.45	0.24	0.0	10.37	0.04
Baseline 2026	St George's Avenue	0.2	10.13	0.16	0.1	8.44	0.06
	Southleigh Road (South)	0.0	5.56	0.02	0.0	4.82	0.01
	School Exit	0.4	13.11	0.26	0.0	10.64	0.05
Baseline 2026 + Committed Development	St George's Avenue	0.2	10.32	0.19	0.1	8.46	0.09
	Southleigh Road (South)	0.0	5.58	0.02	0.1	4.93	0.05
	School Exit	0.4	13.26	0.27	0.0	10.8	0.05
Baseline 2026 + Committed Development + Proposed Development	St George's Avenue	0.4	11.42	0.28	0.1	8.67	0.12
	Southleigh Road (South)	0.1	5.65	0.04	0.2	5.13	0.11
	School Exit	0.4	13.73	0.27	0.1	11.06	0.05

Table 13: Southleigh Road / St. George's Avenue / School Exit Crossroads Modelling Outputs (with Mitigation)

- 10.10 The modelling results show, should right-turn manoeuvres at the Castle Avenue / Emsworth Road junction be banned, the Southleigh Road / St George's Avenue / School Exit crossroads would continue to operate within capacity. Under this scenario, the maximum RFC increases to 0.28 on St George's Avenue in the AM peak and 0.12 on St George's Avenue during the PM peak. Overall no capacity improvements are considered to be required at this junction as part of the proposed residential development.

Warblington Avenue / Emsworth Road Priority Junction

10.11 Under the current road layout, the proposed and committed developments are not anticipated to generate any additional trips through the Warblington Avenue / Emsworth Road priority junction on any arms, including Emsworth Road due to all vehicle turning at the Castle Avenue/Emsworth Road or at the Emsworth Road/Southleigh Road junction and thus not continuing past this junction. The junction has therefore been modelled for the 2021 and 2026 baseline scenarios only (as the 'plus development' scenario is the same). The results of the assessment are summarised in **Table 14**, with the full modelling outputs attached within **Appendix Q**.

Scenario	Arm	AM Peak (08:00-09:00)			PM Peak (17:00-18:00)		
		Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
Baseline 2021	Warblington Avenue	0.1	7.44	0.10	0.1	7.44	0.06
	Emsworth Road (East)	0.2	4.59	0.10	0.1	4.38	0.05
Baseline 2026	Warblington Avenue	0.1	7.76	0.11	0.1	7.82	0.06
	Emsworth Road (East)	0.3	4.54	0.11	0.1	4.31	0.05

Table 14: Warblington Avenue / Emsworth Road Priority - Modelling Outputs (without Mitigation)

10.12 The modelling outputs demonstrate that the Warblington Avenue / Emsworth Road junction will continue to operate within capacity in future years with a maximum RFC of 0.11 on Warblington Avenue and Emsworth Road (East) in the AM peak and 0.06 on Warblington Road in the PM peak. Based on the existing road layout, the proposed development is not anticipated to generate any additional vehicular traffic through this junction.

10.13 Under the 'with mitigation' scenario whereby right turn manoeuvres at the Castle Avenue / Emsworth Road junction are prohibited, all vehicles which currently turn right from Emsworth Road onto Castle Lane are anticipated to re-route via the Warblington Avenue / Emsworth Road junction. The junction has therefore been remodelled accordingly. A summary of the results is provided in **Table 15** with the full outputs attached in **Appendix R**.

Scenario	Arm	AM Peak (08:00-09:00)			PM Peak (17:00-18:00)		
		Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
Baseline 2021	Warblington Avenue	0.1	7.45	0.10	0.1	7.47	0.06
	Emsworth Road (East)	0.3	4.61	0.11	0.1	4.45	0.08
Baseline 2026	Warblington Avenue	0.1	7.77	0.11	0.1	7.85	0.06
	Emsworth Road (East)	0.3	4.56	0.12	0.2	4.39	0.09
Baseline 2026 + Committed Development	Warblington Avenue	0.1	7.83	0.11	0.1	8.08	0.06
	Emsworth Road (East)	0.4	4.65	0.15	0.7	4.76	0.23
Baseline 2026 + Committed Development + Proposed Development	Warblington Avenue	0.1	7.91	0.11	0.1	8.42	0.07
	Emsworth Road (East)	0.7	4.86	0.23	1.8	6.90	0.47

Table 15: Warblington Avenue / Emsworth Road Priority - Modelling Outputs (with Mitigation)

10.14 The modelling results show, should right-turn manoeuvres at the Castle Avenue / Emsworth Road junction be banned, the Warblington Avenue / Emsworth Road priority junction would continue to operate within capacity. Under this scenario, the maximum RFC increases to 0.23 on Emsworth Road (East) in the AM peak and 0.47 during the PM peak. No improvements are therefore considered to be necessary at this junction as part of the proposed residential development.

Castle Avenue / Emsworth Road Priority Junction & A27 Dumbbell Roundabouts

10.15 The Castle Avenue / Emsworth Road junction is anticipated to be used for all vehicles travelling between the site and the A27 and A259, via the A27 Dumbbell Roundabouts. Under the current road layout, 69% of the developments arrivals and departures are anticipated to arrive via these junctions.

10.16 Based on the trip distributions outlined in **Chapter 5**, 13% of the site's departures are anticipated to join the A27 (NB) on-slip at the Emsworth Road / A27 Roundabout with the remaining 56% continuing straight along Emsworth Road. At the Emsworth Road / A27 / A259 / Church Lane roundabout, 3% are expected to exit onto the A259 with the remaining 53% joining the A27 (SB).

10.17 In terms of the site's arrivals, 53% are expected to arrive via the A27 / Emsworth Road roundabout with the remaining 16% arriving via the Emsworth Road / A27 / A259 / Church Lane Roundabout and then subsequently the Emsworth Road / A27 Roundabout.

10.18 Given the proximity of the Castle Avenue / Emsworth Road Priority Junction to the A27 Dumbbell

Roundabouts, the three junctions have been assessed holistically within the same model to account for the interactions between the junctions.

10.19 As part of the application (APP/16/00774) for 147 dwellings on Land West of Selangor Avenue, a mitigation scheme was developed for the A27 dumbbell roundabouts which involved modifications to the roundabout geometries. It is understood that the modifications to the Emsworth Road / A27 / A259 / Church Lane roundabout have been delivered whilst the improvements to the Emsworth Road / A27 roundabout are committed infrastructure improvements with the adjacent Persimmon Homes application providing a contribution towards works on these junctions. The geometries for the subsequent models have therefore been taken from the mitigation drawing submitted as part of this application. A copy of the drawing is attached within **Appendix S**.

10.20 A summary of the modelling results is provided in **Table 16** with the full modelling outputs attached in **Appendix T**.

Junction	Arm	AM Peak (08:00-09:00)		PM Peak (17:00-18:00)	
		Queue (Veh)	Delay (S)	Queue (Veh)	Delay (S)
		Baseline 2021			
1	Emsworth Road (W)	0.4	2.06	0.5	2.61
	Castle Avenue	0.2	15.06	0.1	18.92
	Emsworth Road (E)	0.0	0.03	0.0	0.09
2	Emsworth Road (S)	0.4	5.32	0.5	5.26
	A27 Off-Slip	2.5	7.57	5.7	17.22
	Emsworth Road (N)	1.0	6.39	1.2	7.31
3	A27 Off Slip	0.1	4.50	0.2	5.39
	Havant Road	2.8	8.11	1.9	6.54
	Church Lane	0.0	12.68	0.0	8.81
	Emsworth Road	2.9	7.21	3.6	8.35
		Baseline 2026			
1	Emsworth Road (W)	0.6	3.68	1.0	5.94
	Castle Avenue	0.3	22.62	0.3	32.04
	Emsworth Road (E)	0.0	0.04	0.0	0.10
2	Emsworth Road (S)	0.4	5.39	0.4	5.49
	A27 Off-Slip	3.0	8.20	7.8	15.84
	Emsworth Road (N)	1.2	6.78	1.3	7.96
3	A27 Off Slip	0.2	4.91	0.2	6.11
	Havant Road	3.2	9.00	2.6	7.16
	Church Lane	0.0	14.26	0.0	10.30
	Emsworth Road	3.2	8.07	4.4	9.78
		Baseline 2026 + CD			
1	Emsworth Road (W)	0.7	4.64	8.1	38.09
	Castle Avenue	0.7	35.38	5.8	359.49
	Emsworth Road (E)	0.0	0.13	0.1	0.55
2	Emsworth Road (S)	0.5	5.64	0.5	5.54
	A27 Off-Slip	3.2	8.52	10.5	21.81
	Emsworth Road (N)	1.4	7.02	1.8	8.91
3	A27 Off Slip	0.2	5.00	0.3	7.15

	Havant Road	3.6	10.00	2.3	7.47
	Church Lane	0.1	16.13	0.1	10.92
	Emsworth Road	3.5	8.55	6.1	12.94
Baseline 2026 + CD + PD					
1	Emsworth Road (W)	1.2	6.61	8.9	39.44
	Castle Avenue	4.3	92.79	13.2	511.03
	Emsworth Road (E)	0.1	0.39	0.5	1.63
2	Emsworth Road (S)	0.5	5.60	0.6	5.77
	A27 Off-Slip	3.7	9.19	15.9	32.62
	Emsworth Road (N)	1.6	7.36	1.9	9.03
3	A27 Off Slip	0.2	5.53	0.4	7.24
	Havant Road	4.2	11.28	2.7	7.92
	Church Lane	0.1	19.54	0.0	11.79
	Emsworth Road	4.8	9.49	6.0	12.99

Table 16: Castle Avenue / Emsworth Road & A27 Dumbbells Modelling Outputs (without mitigation)

10.21 The modelling results indicate that the proposed development (with committed infrastructure improvements) would have a minimal impact upon the operation of the local road network. The most significant impact of the development proposals is considered to be its impact on delay values on Castle Avenue which are anticipated to increase by 57.41 seconds in the AM peak and 151.54 seconds in the PM peak.

10.22 However, as discussed through the pre-application in addition to the mitigation contained within **Appendix S** there is also the possibility of banning right turn movements out of Castle Avenue onto Emsworth Road (and vice versa) subsequently reducing queues and delays on these arms. The three junctions have therefore been remodelled to reflect the proposed mitigation works which prohibit right-turn manoeuvres at Castle Avenue / Emsworth Road junction. A summary of the modelling results is provided in **Table 17** with the full modelling outputs attached in **Appendix U**.

Junction	Arm	AM Peak (08:00-09:00)		PM Peak (17:00-18:00)	
		Queue (Veh)	Delay (S)	Queue (Veh)	Delay (S)
		Baseline 2021			
1	Emsworth Road (W)	0.4	1.99	0.5	2.56
	Castle Avenue	0.1	15.89	0.1	16.68
	Emsworth Road (E)	0.0	0.00	0.0	0.00
2	Emsworth Road (S)	0.4	5.37	0.5	5.32
	A27 Off-Slip	2.6	7.51	5.4	11.78
	Emsworth Road (N)	1.1	6.30	1.1	7.30
3	A27 Off Slip	0.2	4.47	0.2	5.40
	Havant Road	2.8	8.05	1.9	6.61
	Church Lane	0.1	12.03	0.0	8.88
	Emsworth Road	2.9	7.15	3.2	8.27
		Baseline 2026			
1	Emsworth Road (W)	0.6	2.99	0.9	5.57
	Castle Avenue	0.1	18.84	0.2	33.33
	Emsworth Road (E)	0.0	0.00	0.0	0.00
2	Emsworth Road (S)	0.5	5.51	0.5	5.52
	A27 Off-Slip	3.0	8.23	7.4	16.67
	Emsworth Road (N)	1.1	6.66	1.3	7.95

3	A27 Off Slip	0.2	4.90	0.2	5.89
	Havant Road	2.9	9.48	2.2	6.99
	Church Lane	0.1	14.56	0.0	10.24
	Emsworth Road	3.0	7.97	4.5	9.69
Baseline 2026 + CD					
1	Emsworth Road (W)	0.7	4.20	1.9	9.18
	Castle Avenue	0.5	31.90	0.8	68.52
	Emsworth Road (E)	0.0	0.00	0.0	0.00
2	Emsworth Road (S)	0.5	5.62	0.5	5.47
	A27 Off-Slip	3.2	8.82	9.3	19.51
	Emsworth Road (N)	1.3	6.97	1.5	8.44
3	A27 Off Slip	0.2	5.17	0.3	6.42
	Havant Road	3.7	10.37	2.3	7.56
	Church Lane	0.1	16.19	0.1	10.84
	Emsworth Road	3.7	8.49	4.9	10.60
Baseline 2026 + CD + PD					
1	Emsworth Road (W)	1.2	6.59	1.5	8.05
	Castle Avenue	3.5	86.81	1.7	73.79
	Emsworth Road (E)	0.0	0.00	0.0	0.00
2	Emsworth Road (S)	0.5	5.53	0.6	5.60
	A27 Off-Slip	3.3	9.00	13.4	27.44
	Emsworth Road (N)	1.6	7.38	1.4	8.31
3	A27 Off Slip	0.2	5.47	0.3	6.61
	Havant Road	4.0	11.53	2.5	7.83
	Church Lane	0.1	21.28	0.0	11.60
	Emsworth Road	4.1	9.57	5.0	10.86

Table 17: Castle Avenue / Emsworth Road & A27 Dumbbells Modelling Outputs (with mitigation)

10.23 The modelling results demonstrate that the prohibition of right turn movements at the Castle Avenue / Emsworth Road (along with committed improvements) is estimated to reduce junctions delays on Castle Avenue from 92.79 to 86.61 in the AM peak and from 511.03 seconds to 73.79 seconds in the PM peak, under the Baseline 2026 + CD + PD scenario. Delays on Emsworth Road (West) are also expected to decrease from 39.44 seconds to 8.05 seconds resulting in an overall betterment to the operation of the local road network.

10.24 Having compared the 2026 + CD (without banned right turns) results and the 2026 + CD + PD (with banned right turns) results, the local road network is anticipated to operate more efficiently following the proposed development. Furthermore, the increase in delays resulting from the proposed development are extremely minimal with a maximum increase in delay of +54.9 seconds on Castle Avenue in the AM peak and +7.93 seconds on the A27 off-slip in the PM peak. Overall, it is therefore considered that no further mitigation works are required to offset the impact of the proposed development on the local road network.

Railway Crossing

10.25 Southleigh Road to the northeast of the site passes over the West Coast railway line by means of a controlled level crossing. Queuing activity at the level crossing was surveyed in preparation of this TA as per HCC's request through the pre-application. The data was collected on Tuesday 25th May 2021.

10.26 A summary of the average and maximum queues observed during the AM and PM peak is summarised in **Table 18**, along with the average and maximum length of time that the barriers were down. A copy of the full survey outputs is attached in **Appendix V**.

Time Period	Max Queue Southleigh Road Northbound	Maximum Duration of Barrier Down Time	Average Queue Southleigh Road Northbound	Average Duration of Barrier Down Time
AM Peak (07:00-10:00)	27	00:05:14	14	00:03:00
PM Peak (14:00-19:00)	55	00:08:02	17	00:02:42

Table 18: Southleigh Road Level Crossing Survey Results

10.27 Based on available mapping, an indicative length of 72m is assumed as the distance from the level crossing back to the junction with St. Georges Avenue. This would give a queueing capacity of 12 vehicles (based on 6m per vehicle) before queueing extends beyond the junctions. The survey results indicate an average queue length of 14 vehicles in the AM peak and 17 vehicles in the PM peak and therefore existing queues extend beyond the St George's Avenue junction.

10.28 The maximum queue length observed during the survey was 55 vehicles in the PM peak however this queue built up over a period of eight minutes which is considered to be an atypical delay and coincided with the school pick-up period. In comparison, the average duration of barrier down time in the PM peak was only 2 minutes and 42 seconds.

10.29 Distribution of the development traffic has shown that 9% of trips are likely to travel north on Southleigh Road over the level crossing. This equates to 11 additional vehicle trips in the AM peak and 4 in the PM peak. During the AM peak period when the proposed development when will generate the biggest increase in trips across the crossing, there is estimated to be approximately one additional trip every 5 minutes. Between 08:00 and 09:00 the barrier is recorded to be down 7 times and therefore with only one additional trip every circa. 5 minutes it is likely that as a worst case circa one additional vehicle could be added to the queue during each period of downtime. The proposed development is not therefore anticipated to have a noticeable impact on queue lengths at the Southleigh Road level crossing or have a significant impact on the operation of the local road network. Should the proposed development allocation at Southleigh come forward, this would provide an alternative route over the railway and therefore alleviate queueing at the level crossing.

11. SUMMARY AND CONCLUSIONS

- 11.1 This Transport Assessment (TA) has been prepared by Paul Basham Associates on behalf of Barratt David Wilson Homes to support a residential development of 194 dwellings on land accessed via St George's Avenue, Warblington. The site forms the eastern land parcel of Site Allocation H15 in the Havant Borough Council (HBC) Emerging Local Plan (2037).
- 11.2 Planning permission was granted on 14th January 2021 (App Ref: APP/18/01033) for the erection of 69 residential dwellings on the western part of Site Allocation H15 with access also taken via St George's Avenue which is being delivered by Persimmon Homes.
- 11.3 The site has excellent connections to the strategic road network including the A259 and A27, both accessible from the A27 Dumbbell Roundabouts to the south of the site. Furthermore, the sites' location presents an excellent opportunity to create a sustainable development, situated within walking and cycling distance of local facilities in Warblington, Havant and Emsworth, including Warblington and Havant Railway Stations.
- 11.4 The local road network benefits from a gentle topography, continuous routes towards local facilities and regular street-lighting which help contribute towards a safe environment for pedestrians and cyclists. A Walking, Cycling and Horse-Riding Assessment and Review has been undertaken and demonstrates safe and suitable routes towards local facilities. The site is situated in close proximity to National Cycle Network Route 2 which passes along St Georges Avenue and provides a long-distance route which when complete will link Dover in Kent with St Austell in Cornwall.
- 11.5 Personal Injury Accident (PIA) data has been acquired from Hampshire Constabulary and reviewed for the period between January 2016 and December 2020. Overall, the frequency, severity and distribution of incidents on the local road network is not considered to highlight any specific highway issues that could worsen as a result of the proposed development or pose a risk to future site-users.
- 11.6 Access to the site is to be taken from St George's Avenue which is to be extended 60m through the neighbouring Persimmon development to the proposed development sites western boundary. A 4.8m wide central street with 2m wide footways on either side would then continue through the development from the extended St George's Avenue.
- 11.7 At the southwest corner of the development, a pedestrian footway link is provided within the site's redline boundary, thereby facilitating the potential for a future connection between the site and Emsworth Road / the A27 subway should the additional landowners provide a connection between the proposed development site and Emsworth Road. The design of the internal layout does not prejudice a

pedestrian / cycle link under the railway line to the north of the site.

- 11.8 In accordance with Havant Borough Council's Supplementary Parking Document, a total of 443 car parking spaces are provided across the site including 49 visitor car parking space and four disabled bays. In accordance with standards, the demarcated car parking spaces measures a minimum of 2.4m x 4.8m and sufficient space is provided within the car parking courts to allow for vehicles to reverse.
- 11.9 All of the proposed dwellings are provided with long stay, secure cycle storage facilities either in the form of a garage or within a secure cycle store in the rear garden. For the flats, secure cycle storage facilities are located within the parking court adjacent to each block.
- 11.10 Vehicle tracking exercises have been undertaken with the appropriately sized 11.2m refuse vehicle demonstrating sufficient space is provided to allow for refuse collection to take place on-site safely and conveniently. In accordance with Building Regulations a fire tender is able to get within 45m of all plots.
- 11.11 In order to determine how many trips the proposed development is anticipated to generate a trip generation assessment has been undertaken using the national TRICS database and the 2011 Census Data. Applying the same methodology as that used to assess the adjacent Persimmon Homes site, the proposed development is anticipated to generate a total of 120 vehicle trips across a 12-hour day including 149 additional vehicle trips in the AM peak and 138 trips in the PM peak.
- 11.12 The proposed development traffic has been assigned a route on the local road network informed by the 2011 Census 'Location of Usual Residence and Place of Work by Method of Travel to Work' dataset (WU03EW), for residents residing in the 'E02004775: Havant 014' Output Area. Based on this assessment, the following routes are identified:
- Southleigh Road (North) – 9%
 - Emsworth Road West (towards Havant) – 22%
 - A27 (Northeast) – 13%
 - A27 (Southwest) – 53%
 - A529 (towards Emsworth) – 3%.
- 11.13 Based on the current road layout it is assumed that all trips travelling to/from the A27 Dumbbell Roundabouts would route via Castle Avenue, whilst all vehicles travelling to/from Emsworth Road West (to/from Havant) would route via Southleigh Road.
- 11.14 As part of the Persimmon application, a £150,000 contribution was secured through the S106 agreement for capacity improvements to the Emsworth Road / A27 Roundabout which includes

prohibiting right-turn movements from Emsworth Road onto Castle Avenue and vice-versa. As such, revised trip distributions have also been calculated for the proposed development with all trips arriving at the site from the A27/A259 re-routed via Warblington Avenue, as agreed at the pre-application stage.

11.15 Junction modelling exercises have been undertaken for both the 'With Mitigation' and 'Without Mitigation' scenarios to determine the impact of the development proposals with and without the prohibition of right turn manoeuvres at the Castle Avenue / Emsworth Road junction. Modelling exercises have been undertaken for the following scenarios:

- Baseline 2021;
- Baseline 2026;
- Baseline 2026 + CD; and
- Baseline 2026 + CD + PD.

11.16 The modelling results indicate that the Southleigh Road / St George's Avenue / School Exit Crossroads will continue to operate within capacity following the proposed development with a maximum RFC of 0.27 on School Exit during the AM peak and 0.11 on St George's Avenue and Southleigh Road South) in the PM peak. Following the introduction of the proposed mitigation, the junction would continue to operate within capacity. Under the final plus proposed development scenario, the maximum RFC increases to 0.28 on St George's Avenue in the AM peak and 0.12 on St George's Avenue during the PM peak.

11.17 The modelling outputs demonstrate that the Warblington Avenue / Emsworth Road junction will continue to operate within capacity in future years with a maximum RFC of 0.11 on Warblington Avenue and Emsworth Road (East) in the AM peak and 0.06 on Warblington Road in the PM peak. Based on the existing road layout, the proposed development is not anticipated to generate any additional vehicular traffic through this junction. Following the ban of right-turn manoeuvres at the Castle Lane / Emsworth Road junction, the Warblington Avenue / Emsworth Road priority junction would continue to operate within capacity. Under this scenario, the maximum RFC increases to 0.23 Emsworth Road (East) in the AM peak and 0.47 during the PM peak.

11.18 The Castle Avenue / Emsworth Road junction is anticipated to be used for all vehicles travelling between the site and the A27 and A259, via the A27 Dumbbell Roundabouts. The modelling results indicate that proposed development would have a minimal impact upon the operation with the most significant impact of the development proposals on delay values on Castle Avenue which are anticipated to increase by 57.41 seconds in the AM peak and 151.54 seconds in the PM peak. Under the 'with mitigation' scenario however, there would be no right turn movements out of Castle Avenue onto Emsworth Road subsequently reducing queues and delays on this arm. The modelling results

demonstrate that the prohibition of right turn movements at the Castle Avenue / Emsworth Road is estimated to reduce junctions delays on Castle Avenue from 92.79 to 86.61 in the AM peak and from 511.03 seconds to 73.79 seconds in the PM peak, under the Baseline 2026 + CD + PD scenario. Delays on Emsworth Road (West) are also expected to decrease from 39.44 seconds to 8.05 seconds resulting in an overall betterment to the operation of the local road network.

11.19 Having compared the 2026 + CD (without Mitigation) results and the 2026 + CD + PD (with Mitigation) results, the local road network is anticipated to operate more efficiently following the proposed development and the proposed mitigation works. Furthermore, the increase in delays resulting from the proposed development are extremely minimal with a maximum increase in delay of +54.9 seconds on Castle Avenue in the AM peak and +7.93 seconds on the A27 off-slip in the PM peak. Overall it is therefore considered that no further mitigation works are required to offset the impact of the proposed development on the local road network than those already agreed and secured.

11.20 In order to assess the impact of the development proposals on the Southleigh Road Railway Crossing to the north of the St George's Avenue / Southleigh Road junction, a queue length survey was undertaken on Tuesday 25th May. Overall, it estimated that the proposed development could generate circa one additional vehicle to the queue that cumulates in each period of downtime during the AM peak period when development departures are anticipated to be highest. The proposed development is not therefore anticipated to have a noticeable impact on queue lengths at the Southleigh Road level crossing or have a significant impact on the operation of the local road network.

11.21 Overall this TA has demonstrated that the proposed development would not have a significant impact on the operation of the local highway network regardless of whether the ban of right-turn manoeuvres at the Castle Avenue / Emsworth Road junction is implemented. On the basis that funding for these mitigation works has already been secured as part of the Persimmon Homes application it is however recommended that these works are delivered to support the proposed development and improve the overall operation of the local road network.

11.22 Furthermore, this TA has demonstrated that safe and suitable access to the site is achievable. Paragraph 109 of the NPPF states that proposals for development should only be refused where its impact on highway safety is unacceptable or where its cumulative impact on the road network is severe. We therefore encourage Hampshire County Council and Havant Council to look favourably upon the highways matters of this application.