

Nursery Fields, Land at Chalcraft Lane, Bersted
Transport Assessment

Client: Landform Bersted Ltd

i-Transport Ref: DS/IN/ITB14224-009A

Date: 11 November 2020

Nursery Fields, Land at Chalcraft Lane, Bersted

Transport Assessment

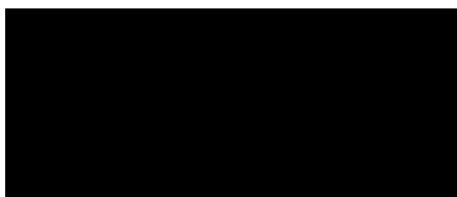
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Quality Management

Report No.	Comments	Date	Author	Authorised
ITB14224-009	Working Draft	06/10/20	DS/IN	DS
ITB14224-009	Draft	11/11/20	DS/IN	DS
ITB14224-009A	Issue	11/11/20	DS/IN	DS

File Ref: T:\Projects\14000 Series\14224ITB West of Bersted\Admin\Report and Tech Notes\009 - Transport Assessment\ITB14224-009 Transport Assesment.docx

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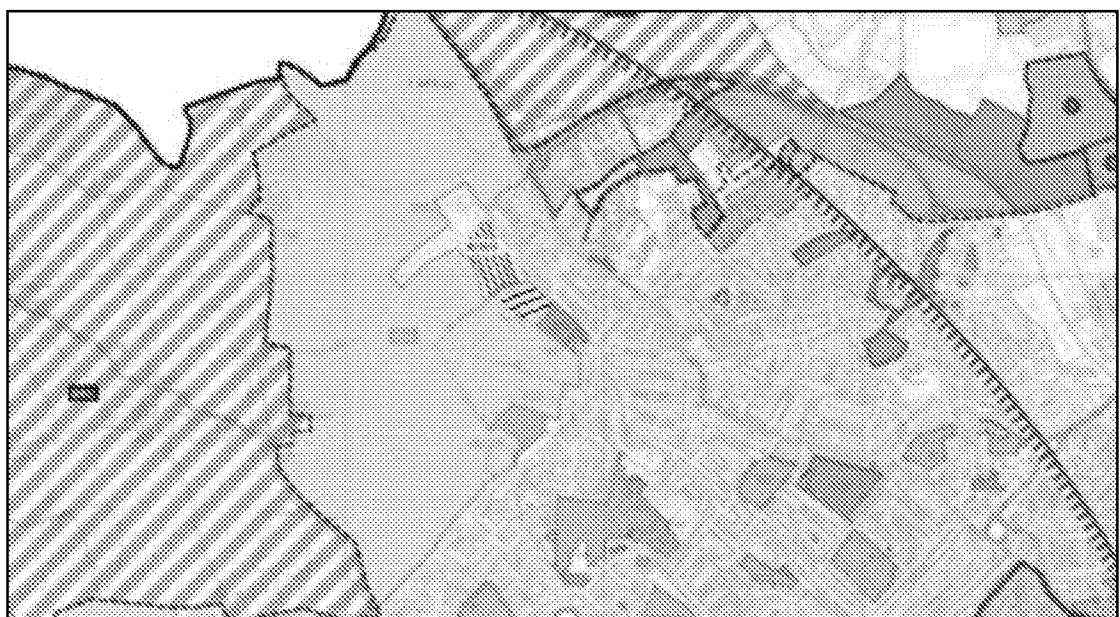
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SECTION 1 Introduction

1.1 Background

- 1.1.1 Landform Bersted Ltd (Landform) has appointed i-Transport LLP to provide highways and transport advice for the proposed development comprising 225 dwellings at Nursery Fields, on land to the west of Bersted and to the north of Chalcraft Lane.
- 1.1.2 The site forms a part of the wider 'West of Bersted' Strategic Allocation, which is identified in the adopted Arun Local Plan 2011 – 2031 (2018) under policy H SP2a (SD3). The whole West of Bersted allocation has been identified as being able to deliver at least 2,500 dwellings over the plan period.
- 1.1.3 This SD3 West of Bersted allocation is also required to meet a number of infrastructure and design requirements, including: a new three-form primary school and nursery places; a new 3G pitch facility; two new sports pitches and facilities; a community hub (including shops, health care facilities and library); new road, pedestrian and cycle linkages; and new employment provision.
- 1.1.4 An extract of the Western Policy Map identifying the location of the SD3 allocation and nearby consented development is shown in **Image 1.1**.

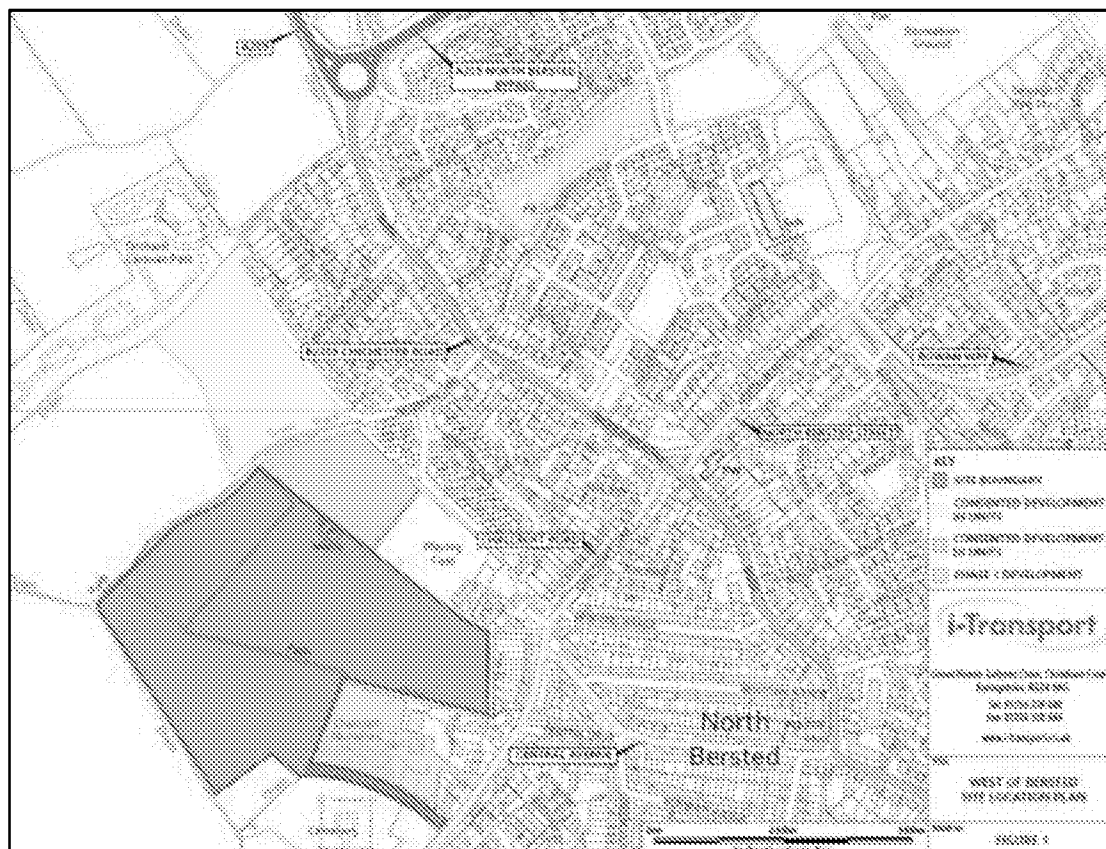
Image 1.1: Extract of Site Allocation Plan



Source: Arun Local Plan (2018) and Consultants' annotations

- 1.1.5 The location of the proposed development parcel and nearby consented development is shown on **Figure 1** and extracted as **Image 1.2**

Image 1.2: Extract of Site Location Plan



Source: Consultants' image

1.2 Scope of Report

- 1.2.1 The TA will be prepared to consider the three key transport tests outlined in paragraphs 108 of the National Planning Policy Framework (NPPF) (2019) which are reflected in local transport policy. These tests are as follows;

- Can the opportunities for sustainable travel modes be appropriately taken up?
- Can safe and acceptable access be provided?
- Will the traffic impacts be acceptable?

- 1.2.2 Paragraph 109 of the NPPF then goes on to state:

“Development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe”.

1.3 Transport Assessment Scoping

- 1.3.1 In line with Planning Practice Guidance (PPG), the transport and highways implications of the proposed development have been subject of pre-application discussions with West Sussex County Council (WSCC), in their capacity as the local highway authority. The comments received from WSCC have been taken into account during preparation this Transport Assessment (TA).
- 1.3.2 Copies of the Transport Assessment Scoping Note (*ref: ITB14224-001 R*) and Trip Rate Review Note (*ref: ITB14224-008 TN*) are provided at **Appendix A**. The Notes set out the proposed site access arrangements, sustainability review and traffic assessment parameters used in the preparation of this TA and the scope of the assessment that has been undertaken.
- 1.3.3 A separate Framework Travel Plan has also been prepared (*ref: ITB14224-013 Framework Travel Plan*) to accompany the outline planning application, using guidance provided by WSCC. The primary purpose of the Travel Plan is to reduce the demand for travel by less sustainable modes of transport by identifying opportunities for the effective promotion and delivery of sustainable transport initiatives, e.g. walking, cycling, public transport and tele commuting, in connection with both the proposed and existing infrastructure and developments in Bersted.

1.4 Consultation

- 1.4.1 In addition to pre-application engagement with ADC and WSCC, the proposed development has been subject to detailed consultation with key stakeholders and local residents.
- 1.4.2 The feedback received during this engagement has assisted in developing a clearer understanding the existing transport opportunities and constraints in the surrounding area, as well as informing the transport strategy of the proposed development.

1.5 Report Structure

- 1.5.1 The remainder of this report is structured as follows:
- Section 2 provides an overview of national and local transport policy and guidance relevant to the proposed development;
 - Section 3 describes the existing transport conditions in the vicinity of the site in terms;

- Section 4 sets out the development proposals including the proposed site access arrangements, pedestrian and cyclist connectivity and the layout of the site;
- Section 5 reviews the accessibility of the site by sustainable modes of transport;
- Section 6 discusses the transport impact of the proposed development and forecast trip generation of the site;
- Section 7 sets out and presents the findings of the operational assessments undertaken to assess the impact of the proposed development and discusses mitigation requirements; and
- Section 8 summarises and concludes the findings of the Transport Assessment.

SECTION 2 Policy Review

- 2.1.1 To provide context for the assessment, this section of the TA provides a review of the national and local transport planning policies relevant to the proposed development.

2.2 National Policy

National Planning Policy Framework February 2019 (NPPF)

- 2.2.1 The revised NPPF sets out the Government's planning policies and how these are expected to be applied. It also constitutes guidance for local planning authorities and decision takers both in drawing up plans and as a material consideration in determining applications.

- 2.2.2 The NPPF stresses that at the forefront of planning is the 'presumption in favour' of sustainable development. Paragraph 9 states:

"at the heart of the Framework is a presumption in favour of sustainable development".

- 2.2.3 The NPPF requires in paragraph 111 and that all developments that generate significant amounts of movement should be supported by a Transport Statement or Transport Assessment.

- 2.2.4 Paragraph 108 presents the primary transport tests for new development proposals, stating that plans and specific applications for development should ensure that:

"a) appropriate opportunities to promote sustainable transport modes can be – or have been – taken up, given the type of development and its location;

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

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

- 2.2.5 Paragraph 109 of the revised NPPF presents a demanding test for assessing transport impacts. Only if there would be an 'unacceptable impact on highway safety' or when residual cumulative impacts are '**severe**' should proposals be refused on transport grounds.

- 2.2.6 On this basis, planning permission for development should be approved unless a) the proposal is not consistent with development plan policies; b) where any adverse impacts 'significantly and demonstrably' outweigh the benefits; or c) the specific policies within the NPPF indicate that the proposal should be restricted.

- 2.2.7 In accordance with NPPF, this TA has been produced to accompany the planning application and assesses the scheme against these key transport tests.

National Planning Practice Guidance (March 2014)

- 2.2.8 The web-based NPPG replaced the DfT's 'Guidance on Transport Assessment' on 6 March 2014 and seeks to bring together planning guidance for England across all disciplines in an accessible way as well as to provide a clear link between guidance and the aims and objectives of the NPPF.
- 2.2.9 The NPPG discusses the role of travel plans and transport assessments / statements and how they relate to each other:

"Travel Plans, Transport Assessments and Statements are all ways of assessing and mitigating the negative transport impacts of development in order to promote sustainable development. They are required for all developments which generate significant amounts of movements. (ID42 – 002);

Transport Assessments and Statements can be used to establish whether the residual transport impacts of a proposed development are likely to be "severe", which may be a reason for refusal, in accordance with the National Planning Policy Framework. (ID42 – 005);

Travel Plans are long-term management strategies for integrating proposals for sustainable travel into the planning process. They should not, however, be used as an excuse for unfairly penalising drivers and cutting provision for cars in a way that is unsustainable and could have negative impacts on the surrounding streets. (ID42 – 003)".

- 2.2.10 In accordance with NPPG this TA has been prepared to assess the transport impacts of the development, and to consider whether any effects would be 'severe'.
- 2.2.11 Sections 7, 8 and 9 of the TA presents a comprehensive assessment of potential traffic impacts and identifies deliverable and appropriate mitigation to ensure any impacts of the development are not significant.
- 2.2.12 A Framework Travel Plan (FTP) is also provided to outline a long-term, realistic strategy for the promotion of sustainable travel which seeks to reduce car-based travel demand. The FTP should be read in conjunction with the TA.

Local Transport Note 1/20 - Cycle Infrastructure Design (July 2020)

- 2.2.13 The Local Transport Note 1/20 provides guidance and good practice for the design of cycle infrastructure, in support of the Cycling and Walking Investment Strategy.

2.2.14 The Note sets out five core design principles which represent the essential requirements to achieve more people travelling by cycle or on foot, based on best practice both internationally and across the UK. These are that cycle networks and routes should be:

- Coherent;
- Direct;
- Safe;
- Comfortable; and
- Attractive.

2.2.15 The LTN 1/20 note identifies that inclusive design and accessibility should run through all five of the core design principles set out above. Designers should always aim to provide infrastructure that meets these principles and therefore caters for the broadest range of people. Infrastructure must be accessible to all and the needs of vulnerable pedestrians and local people must be considered early in the process to ensure schemes are supported locally in the long term.

2.2.16 The cycle routes within the site have been designed in accordance with the core design principles and design guidance set out in LTN 1/20.

2.3 Local Planning Policies

Adopted Arun Local Plan 2011-2031 (July 2018)

2.3.1 In July 2018, Arun DC adopted a new Local Plan which sets out the vision for Arun District to 2031. The proposed development site forms a part of the wider 'West of Bersted' Strategic Allocation, which is identified under policy H SP2a (SD3). The whole West of Bersted allocation has been identified as being able to deliver at least 2,500 dwellings over the plan period. Redevelopment of the site therefore has policy support.

2.3.2 The Local Plan identifies a series of policies relating to transport, including:

"Policy T SP1 – Transport and Development - This identifies that development sites will be supported where they:

- ***Are designed to reduce the need to travel by car, but make provision for safe access to the site for all travel modes;***
- ***Give priority to pedestrian and cycle movements;***

- *Incorporate appropriate levels of parking in line with WSCC Guidance;*
- *Are supported by effective and deliverable Transport Assessments and Travel Plans; and*
- *Explain how development can:*
 - *Accommodate deliveries and servicing;*
 - *Give priority to pedestrian and cycle movements and have access to high-quality public transport;*
 - *Create safe and secure layouts for all users;*
 - *Incorporate electric charging infrastructure; and*
 - *Consider the needs of people with disabilities.”*

“Policy T DM1 – Sustainable Travel and Public Rights of Way – This identifies that proposals for new development must:

- *Be located where they are close to sustainable travel opportunities which link to key destinations;*
- *Contribute to the extension of public transport services;*
- *Make provision for pedestrian and cycling facilities; and*
- *Contributes to provision of a joined-up cycle and PROW network.”*

2.3.3 This TA, and the accompanying FTP, have been prepared in accordance with these requirements and set out how the criteria within policies SP1 and DM1 will be met.

West Sussex County Council's Transport Plan 2011-2026

2.3.4 The West Sussex County Council (WSCC) Local Transport Plan 3 was published in February 2011 and sets out a long-term strategy and implementation plan for making improvements to the transport system throughout the county over the next 20 years.

2.3.5 The strategy for Arun is to provide improvements to the transport system to tackle the identified transport issues as and when funding becomes available. To ensure that the regeneration aspirations of the plan are delivered, and the identified transport issues are addressed, they will ensure that all new scheme and developments contribute, and support, in some way to the following:

- *increasing use of sustainable modes of transport;*
- *improving network efficiency in order to improve journey times and air quality;*

- *improving safety for all road users;*
- *discouraging HGVs from using unsuitable roads; and*
- *improving accessibility between communities within the District.*

2.3.6 This TA has been prepared in accordance with the strategies set out in the Local Transport Plan. The TA provides a comprehensive assessment of the impact of the development proposal and sets out a suitable and robust mitigation strategy.

Arun Transport Study 2016 (EBR 2017) and the Infrastructure Delivery Plan (2017)

2.3.7 The Arun Transport Study EBR 2017 (ATS) and the Infrastructure Delivery Plan (2017) (IDP) forms part of the evidence base that supports the adopted Arun Local Plan. The ATS and IDP have been prepared to demonstrate that the policies and proposals outlined in the LP are deliverable and to understand the infrastructure that is required to support development and growth across the District.

2.3.8 The ATS assesses the impact of planned growth upon the strategic and local highway networks. It establishes where intervention will be necessary to address a 'severe' highway impact arising from the planned growth and identifies schemes of mitigation at most locations. The cost of the scheme is included within the ATS and these have been apportioned to specific development locations, including the West of Bersted SDL, according to the proportional impact of each development. This provides a framework for the works and financial contributions required from the Development in order to mitigate the impact of development. **Table 2.1** sets out the identified schemes of relevance to the West of Bersted SDL.

Table 2.1: Arun Transport Study Strategic Infrastructure Schedule

Junction No.	Junction	Type	Cost (High Estimate)	Impact	Total West of Bersted Contribution
1	A27 / B2145 (Whyke Roundabout)	Capacity	-	47%	-
2	A27 / A259 (Bognor Road Roundabout)	Capacity	£915,000	57%	£521,550
7	A27 / A29 (Fontwell Eastern Roundabout)	Capacity	£595,000	9%	£53,550
17	A29 / A259 Rowan Way	Capacity	£620,000	35%	£217,000
18	A29 / A259 Felpham Relief Road	Capacity	£638,000	34%	£216,920

Junction No.	Junction	Type	Cost (High Estimate)	Impact	Total West of Bersted Contribution
22	A259 / Church Lane (Climping)	Capacity	£169,000	18%	£30,420
23	A259 / B2187 (Littlehampton West - Tesco)	Capacity	£334,000	14%	£46,760
45	B2166 / B2145 (Hunston)	Capacity	£113,000	43%	£48,590
20	A259/B2132 Comet Corner	Safety	TBD	47%	TBD
21	A259/B2233 Oystercatcher	Safety	TBD	21%	TBD

Source: Arun Transport Study EBR (2017)

2.3.9 The ATS establishes that the schemes above do not represent the full cost of highways and transport mitigation, as each development will also need to consider the following on a site-by-site basis:

- Local junction mitigation (i.e. junctions not included in the scope of the ATS on the local network);
- Cycle/pedestrian infrastructure; and
- Bus infrastructure.

2.3.10 The findings of the ATS contribute towards the infrastructure requirements set out in the Infrastructure Delivery Plan. The most recent iteration of the IDP, produced by Arun District Council in 2017, provides a site-specific infrastructure schedule which reflects the schemes identified in the ATS.

2.3.11 On this basis, the TA has been prepared to consider the development proposals using the findings of the ATS and the inclusions of the IDP to determine the scope of the assessment, and establish the mitigation that will be required to address the impact of the development.

Arun Parking Standards Supplementary Planning Document (2020):

2.3.12 This SPD outlines Arun District Council's approach to parking at new developments (both residential and commercial) and should be used to help determine the level of parking at new developments. The SPD provides guidance on levels of car parking, cycle parking and electric vehicle infrastructure.

2.3.13 The document is based upon the 'West Sussex County Council Guidance on Parking at New Developments May 2019' (WSCC GPND) with a few exceptions. The SPD therefore seeks to

define and formalise these standards in order to give them greater weight when considering planning applications.

- 2.3.14 The parking standards are based on Parking Behaviour Zones. The proposed development falls within 'Zone 2 – Peri-Rural'. A summary of the parking standards for the residential and commercial uses for the proposed development site are summarised in **Table 2.2** and **2.3** respectively.

Table 3.2: Residential Car and Cycle Parking Standards – Zone 2

No. Of Bedrooms	No. of Habitable Rooms	Car Parking Provision	Cycle Parking Provision
1	1-3	2	1
2	4	2	1
3	5-6	2	2
4+	7+	3	2

Source: ADC Parking Standards Supplementary Planning Document, January 2020

West Sussex Walking and Cycling Strategy 2016 – 2026

- 2.3.15 WSCC has developed a Walking and Cycling Strategy to outline the design and safety principles for walking and cycling, recognising the different needs of users, and identifies and prioritises potential infrastructure improvements for the County.
- 2.3.16 In relation to Bersted and the surrounding area, the Strategy identifies potential improvements to local cycle routes between Chichester and Bognor Sea front in the vicinity of Chalcraft Lane and West Meads Drive.

Relevant Transport Guidance

- 2.3.17 The TA has also been prepared with due regard to relevant 'industry standard' practice and guidance documents, including:
- DfT's 'Manual for Streets' (MfS) and 'Manual for Streets 2' (MfS2);
 - The Design Manual for Road and Bridges (DMRB);
 - Local Transport Note 01/20;
 - National Travel Survey (NTS) data; and
 - WSCC's 'Transport Assessment Methodology' (TAM).

2.4 Summary

2.4.1 Paragraph 108 of the NPPF identifies the three key transport criteria that decisions on development proposals should take account of. These are whether:

- The opportunities for sustainable travel have been appropriately 'taken up';
- Safe and suitable access can be achieved; and
- Improvements can be undertaken within the transport network that cost effectively limit the impacts of the development.

2.4.2 These criteria are reflected in local policy. This TA has therefore been prepared to assess the development proposal against these criteria.

2.4.3 It is noted that the site forms part of the wider West Bersted Allocation SD3 in the Arun District Council Local Plan. The associated Arun Transport Study assesses the impact of local plan development on the strategic network and apportions infrastructure costs to each of the housing allocations.

2.4.4 The remainder of this TA demonstrates how the proposals comply with the identified national and local transport policy.

SECTION 3 Existing Conditions

3.1 Introduction

- 3.1.1 This section of the TA describes the existing transport conditions in the area, including the opportunities for walking, cycling and the use of public transport. The existing highway conditions are also reviewed.

3.2 Walking and Cycling

Chalcraft Lane

- 3.2.1 The site access will adjoin Chalcraft Lane which routes north towards North Bersted and south towards Aldwick. Continuous footways are provided on both sides of Chalcraft Lane in the vicinity of the site, ranging from circa 2.0-2.5m and 1.6-1.8m on the western and eastern sides of the carriageway respectively. Additionally, the eastern footway is separated from the carriageway by a grass verge measuring circa 3m in width.
- 3.2.2 Dropped kerbs and tactile paving forms a crossing of Chalcraft Lane approximately 80m to the north of the Chalcraft Lane/existing Chalcraft Nursery access junction, with additional provision some 45m further north. Furthermore, a signal-controlled pedestrian crossing is provided across Chalcraft Lane just to the north of Central Avenue.
- 3.2.3 Both footways continue north with dropped crossing points provided across the minor arms of priority junctions with Chalcraft Lane. The Chalcraft Lane / B2259 Chichester Road (Royal Oak) double mini roundabout provides dropped kerb crossing facilities and pedestrian refuge islands on all arms of the junction with the exception of North Bersted Street.
- 3.2.4 To the south of the existing Chalcraft Nursery access, both footways continue for approximately 120m, after which the western footway ceases. The eastern footway continues, separated from the carriageway by a grass verge. It should be noted that street lighting is provided along the extent of Chalcraft Lane and good natural surveillance is provided by existing residential properties.

B2259 Chichester Road

- 3.2.5 The B2259 Chichester Road connects with Chalcraft Lane at the Royal Oak public house, routing south east towards South Bersted and north west to North Bersted.

- 3.2.6 To the north west of Chalcraft Lane, continuous footways are provided on both sides of the carriageway measuring circa 2.5m. A pedestrian controlled signal crossing is provided approximately 105m to the north west of the mini roundabout outside the Royal Oak public house. All of the junctions along Chichester Road provide dropped kerbs, with some larger junctions also providing tactile paving and pedestrian refuge islands. A shared footway/cycleway is provided just to the north of the ESSO garage on both sides of the carriageway in addition to a Toucan crossing facility.
- 3.2.7 Continuing north to the Chichester Road/Elbridge Avenue/A259/North Bersted Bypass, the footway/cycleways are initially routed around the roundabout separated from the carriageway by large areas of vegetation before returning to the carriageway edge. Uncontrolled crossing points comprising dropped kerbs and tactile paving are provided on the Elbridge Avenue and North Bersted Bypass arms of the roundabout. The shared footway/cycleway on the western side of the carriageway continues north from the roundabout along the A259 and terminates just south of the junction with Babsham Lane, at which point Toucan crossing facilities are provided.
- 3.2.8 Eastbound from the Royal Oak public house, continuous footways are provided on both sides Chichester Road measuring between approximately 2-3m. Dropped kerbs are provided at all the minor arms of junctions along the route, with the majority of junctions also providing tactile paving. It should be noted that street lighting is present along Chichester Road in addition to good natural surveillance from surrounding properties.

Central Drive / Central Avenue

- 3.2.9 Central Drive and Central Avenue are located to the east of Chalcraft Lane. Footways are provided on both sides of the carriageway measuring between 1.5-3.0m on both sides of the carriageway and street lighting is provided. At its eastern extent, Central Avenue connects with Chichester Road, providing access to a range of local facilities and services via a junction that provides dropped kerbs, tactile paving and a pedestrian refuge island. Again, street lighting is provided along the extent of this route.

Greencourt Drive

- 3.2.10 Greencourt Drive is a posted 20mph residential zone that connects to Central Drive and Central Avenue to the north and South Way and Collyer Avenue to the south. Footways are provided on both sides of the carriageway, measuring approximately 2.5m in width on both sides. Greencourt

Drive is street lit along its extent and lined with residential properties on both sides which provide a good level of natural surveillance. This route provides a quick, convenient and safe route to Southway Primary School, Regis School and The Arena Sports Centre.

Collyer Avenue

3.2.11 Collyer Avenue continues from Greencourt Drive from the west and heads eastwards through a residential area towards Bognor Regis Rail Station. Footways measuring approximately 2m are provided along the extent of Collyer Avenue with dropped kerbs and tactile paving across most junctions in addition to traffic calming measures such as high friction red coloured road surfacing.

3.2.12 Street lighting is provided along the extent of Collyer Avenue, again, with good natural surveillance from surrounding residential properties. Collyer Avenue serves as one of the main connections between the site and Bognor Regis Rail Station for pedestrians and cyclists.

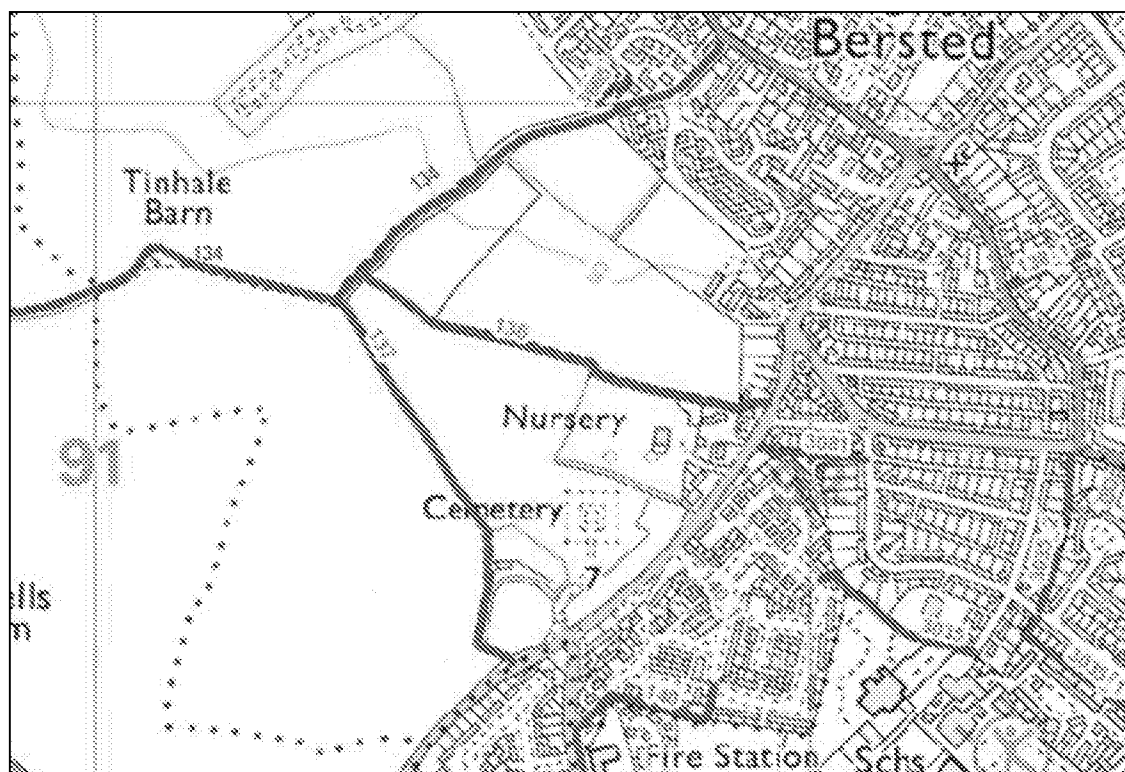
Fairlands

3.2.13 Fairlands is a short residential street connecting Chichester Road to the west with Hazel Road to the east. Dropped kerbs, tactile paving and a pedestrian refuge island is provided at the junction between Fairlands and Chichester Road. Footways are provided on both sides of the carriageway measuring approximately 2m on both sides. Traffic calming features comprising speed pillows are present along Fairlands and Hazel Road further east which are intended to slow vehicles, thus having a beneficial affect for pedestrians and cyclists.

3.3 **Public Rights of Way (PROW)**

3.3.1 The PROW network in the vicinity of the site is presented in shown in **Image 4.1**.

Image 4.1: Extract from PROW Map



Source: WSCC i-Map

- 3.3.2 There is a network of PROW footpaths within the vicinity of the site. Footpath 136 runs through the site, providing a connection to Chalcraft Lane to the east and joining the road circa 5m north of the Chalcraft Lane / Central Drive junction. Footpath 3035 runs between Stroud Green Drive and South Way, providing a quicker route to the local schools from the site.
- 3.3.3 Footpath 137 runs along the sites south western boundary and connects to Chalcraft Lane to the west of Chalcraft Lane cemetery.
- 3.3.4 Footpath 134 runs along the northern edge of the site, providing a connection to B2259 Chichester Road via Newbarn Lane. A financial contribution of £50,000 was secured as part of development BE/92/15 to provide enhancements to this route for use as a bridleway;
- 3.3.5 Consequently, it can be seen there is good pedestrian permeability within the local area as well as opportunities for future residents to access the PROW network for leisure purposes.

3.4 Public Transport

Bus

- 3.4.1 The closest existing bus stops to the site are located on the B2259 Chichester Road, circa 800m from the site utilising Footpath 134 and Newbarn Lane or 900m from the centre of the site using Chalcraft Lane. These stops are served by the regular bus service 700. There is flag and pole and timetable information provided at these stops. **Table 5.1** provides a summary of local bus services.

Table 5.1 Summary of Bus services

Service	Route	Service Frequency		
		Weekdays	Saturdays	Sundays
700	Littlehampton – Chichester	15-minute service	15-minute service	½ Hourly Service

Source: Traveline southeast

- 3.4.2 The Coastliner 700 service provides a genuine opportunity to travel to key destinations including Chichester and Littlehampton and provides a realistic alternative to using the car to travel to these destinations given the direct and frequent nature of the service.
- 3.4.3 In addition to the 700 service, Stagecoach U7 provides a less frequent route between Chichester and Bognor, including stops at University campuses in both Bognor and Chichester.
- 3.4.4 As previously outlined, the site forms part of the wider 'West of Bersted' allocation, through which it is likely there will be improved bus service provision. The site access road and main spine road will be designed so that they can accommodate large vehicles such as buses. Consequently, the layout will be able to provide bus links to the wider allocation site if required as the wider masterplan develops.

Rail

- 3.4.5 Bognor Railway Station is located approximately 2.4km to the southeast of the site and provides rail services operated by southern. **Table 4.2** summarises existing services from the station.

Table 4.2: Bognor Rail services

Destination	Service Frequency			Average Journey Time
	Weekdays	Saturdays	Sundays	
Chichester	4 services	4 services	3 services	20 mins
Littlehampton	2 services	2 services	1 service	21 mins
Portsmouth	3 services	3 services	3 services	1 hr
Southampton	2 services	2 services	1 service	1hr 20 mins
Brighton	2-3 services	2 services	2 services	1 hr 5 mins
London	3-4 services	3 services	2 services	1 hr 45 mins

Source: National Rail

- 3.4.6 The railway station is located within a reasonable cycling distance and can be access by public transport, therefore, there is a good opportunity for future users of the site to undertake linked trips to the site.

3.5 Local Highway Network

Chalcraft Lane

- 3.5.1 The site lies to the north west of Chalcraft Lane, a single carriageway road which is largely residential in nature. The carriageway is circa 7.3m wide, has street lighting and is subject to a 30mph speed limit. The road provides a key route between the areas of North Bersted and Aldwick. Traffic data was collected by means of an Automatic Traffic Count (ATC) in November 2018 and the outputs are summarised in **Table 4.3**

Table 4.3: Chalcraft Lane – Typical Traffic Conditions

	Northbound	Southbound
AM Peak (08:00-09:00)	669 vehicles	563 vehicles
PM Peak (17:00-18:00)	613 vehicles	700 vehicles
Daily (00:00 – 00:00)	8,089 vehicles	8,318 vehicles
Average Speed	28.9 mph	29.5 mph
85 th Percentile Speed	33.1 mph	33.2 mph

Source: ATC Data – November 2018

- 3.5.2 At present, Chalcraft Lane provides a connection to the B2259, and then on to the A259, for residents in the Aldwick, Bersted and Bognor Regis area. The West of Bersted allocation SD3 includes the provision of a new link road to the A259 from Lower Bognor Road, which will redistribute existing movements and decrease baseline traffic flows along Chalcraft Lane.

B2259 Chichester Road

- 3.5.3 The B2259 Chichester Road extends from the A259 North Bersted Bypass to the north of the site to the roundabout between the A29 / B2259 Hotham Way / B2166 to the south east of the site and provides a key route to South Bersted and areas of Bognor Regis. The B2259 is a single carriageway distributor road providing access to many residential streets. The road width varies, but typically measures circa 6.5-7.3m, has street lighting and is subject to a 30mph speed limit.

Central Drive / Central Avenue

- 3.5.4 Central Drive and Central Avenue are residential single carriageway roads located to the east of Chalcraft Lane that provide direct frontage access to adjacent properties. The roads are broadly aligned from east to west and provide access towards the local centre of Bersted.
- 3.5.5 The carriageways of both roads are circa 7.3m in width, although it is noted that on-street parking widely occurs which reduces the usable width of the carriageway. The roads are subject to a 30mph speed limit, are street lit and have a 7.5 tonne weight restriction.

3.6 Personal Injury Accident Data Analysis

- 3.6.1 Personal Injury Accident (PIA) data has been obtained from Sussex Police for the most recent five-year period available (between 1 May 2015 and 30 April 2020) for the area shown in **Image 4.2**.

Image 4.2: PIA Study Area



Source: Consultants' image

- 3.6.2 In total, there were 45 recorded collisions, of which 6 were recorded as serious in nature and 39 were slight in nature, no fatal collisions were recorded within the study area. A summary of the location, nature and severity of the personal injury accidents is provided in **Table 4.4** while the full reports are included as **Appendix B**.

Table 4.4: Personal Injury Accident Data Summary

Location	Severity			Description
	Slight	Serious	Total	
Chalcraft Lane in vicinity of access	2	0	2	Both shunt type accidents when vehicles drove into the rear of a vehicle waiting to turn into Chalcraft Nurseries.
Chalcraft Lane / West Meads Drive	3	0	3	Two collision occurred when vehicles turning right failed to see oncoming traffic and one was a shunt type collision.
Chalcraft Lane south of W Meads Drive	1	1	2	The serious collision occurred when a vehicle went to overtake a car and collided with another vehicle which was already overtaking. The slight collision occurred when a vehicle pulled out behind a parked vehicle into the path of an oncoming vehicle.
Chalcraft Lane / Lower Bognor Road Roundabout	3	0	3	All three collisions involved vehicles failing to give way to users (cyclists) already on the roundabout
Chalcraft Lane / Central Drive	2	1	3	Two slight collisions occurred when drivers failed to give way to existing users and the serious PIA was a shunt type collision.
Chalcraft Lane north of Central Drive	2	0	2	The slight collision occurred when a vehicle pulled out of side road into the path of an oncoming vehicle and the other when a child rode into a car reversing slowly from its driveway.
Chalcraft Lane / Chichester Road / North Bersted Street	11	1	12	Of the 12 collisions, 7 occurred when drivers failed to see existing users on the roundabout, one was a shunt type collisions of a serious nature, and two occurred when cars failed to see pedestrians crossing. A further two occurred when drivers lost control of their vehicles resulting in a collision.
B2259 Chichester Road (north of North Bersted Street)	3	0	3	One collision was a shunt type, another occurred when a driver failed to give way to an existing road user and another occurred when a driver failed to stop a pedestrian crossing and collided with a pedestrian.
B2259 Chichester Road / North Bersted Bypass Roundabout	3	0	3	All slight collisions were of a slight nature
B2259 Chichester Road north of North Bersted Bypass Roundabout	2	1	3	Two collisions occurred between cyclists and vehicles travelling in the same direction, including the serious collision. The other slight collision was a shunt type accident.
B2259 Chichester Road (in proximity to local shops)	7	2	9	Of the 9 collisions, two were serious, these occurred when a driver took evasive action to avoid a collision with another vehicle and collided with a utilities box and the other occurred when a car collided with a cyclist. The slight collisions occurred for a variety of reasons including shunt type accidents, failing to give way to existing users and pedestrians stepping out into the path of cars.
Total	39	6	45	-

- 3.6.3 Of the 45 recorded incidents, two accidents classed as 'slight' occurred in proximity to the proposed access and were recorded to be a result of driver error. Of course, any accident resulting in injury is to be regretted and safety matters should never be taken lightly; this is reflected in national planning policy.
- 3.6.4 A review of the records indicate that both accidents were identified as being shunt type collisions; highway conditions contributing to such incidents are typically associated with restrictions to forward visibility (e.g. on a bend with dense vegetation) resulting in the following driver having insufficient stopping sight distance to a stationary vehicle. In this instance, Chalcraft Lane has a straight alignment and forward visibility is in excess of that required to slow to a stop.
- 3.6.5 However, it should be noted that the existing access is to be stopped up and a new purpose-built access will be introduced prior to first occupation of the residential units. This access will be more prominent and should increase the awareness of other road users to its presence.
- 3.6.6 Whilst there is a small cluster of collisions recorded at the Chalcraft Lane / Chichester Road / North Bersted Street junction, a review of the nature of these collisions does not identify any highway defect contributing to the accidents. The proposed development will only result in a marginal increase of traffic at this junction; the proposed development will not have a material impact upon the operation of the junction.

3.7 **Summary**

- 3.7.1 The site is located within close proximity to a network of existing and proposed walking and cycling facilities which offer safe and convenient routes to local services and facilities.
- 3.7.2 The site is located within a reasonable walking distance of bus stops which provide a regular service to wider destinations including Bognor Regis, Littlehampton and Chichester. Bognor Railway Station is located approximately 2.2km to the south of the site and provides further opportunities for travel to destination further afield including Portsmouth, Brighton and London Victoria.
- 3.7.3 The site is well connected to the local highway network and a review of personal injury data does not indicate any specific highway safety problem on the local highway network.

SECTION 4 Development Proposals

4.1 Introduction

- 4.1.1 The planning application is in outline with only access to be determined as a detailed matter. The proposed development comprises up to 225 residential dwellings with associated landscaping, parking, infrastructure and open space.
- 4.1.2 An illustrative site layout, provided at **Appendix C**, accompanies the planning application to demonstrate how the development can be accommodated on the site; however, consent is not being sought for the layout of the dwellings at this time, with matters relating to the internal layout to be determined as part of a future Reserved Matters Application (RMA).
- 4.1.3 Nevertheless, the layout will be designed in line with key guidance contained within the DfT's 'Manual for Streets' 1 and 2, West Sussex's County Council's 'Local Design Guide -- Supplementary Guidance for Residential Development Proposals' or any other relevant standards or guidance at the time of submission.

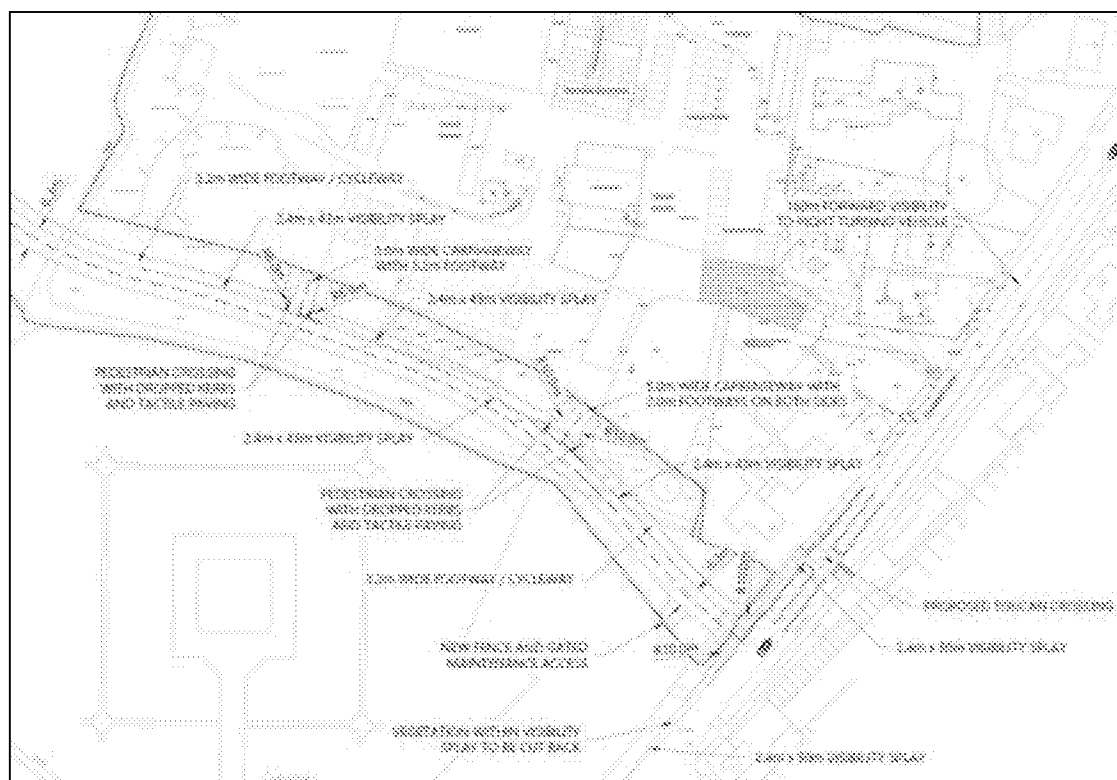
4.2 Site Access Strategy

- 4.2.1 To the south of the site lies Chalcraft Nursery, a garden centre and nursery, aquatics centre and other ancillary uses which are currently accessed from Chalcraft Lane. A planning application (ref: BE/81/20/OUT) has been submitted for this site that seeks consent for the following development:

"Outline application with some matters reserved for the development of 20 residential dwellings, 2,240 sqm of commercial space (Use Class A1, B1(b) B1(c) and B8), landscaping, access, parking and associated infrastructure".

- 4.2.2 As part of the redevelopment of the above site, the existing access will continue to be used for the enabling element of the development (e.g. reconfiguration and provision of the commercial uses on the site) while a new purpose built priority junction in Chalcraft Lane will be constructed and brought into use prior to first occupation of residential dwellings.
- 4.2.3 It is proposed to use the same access arrangement as that for the redevelopment of the Chalcraft Nursery site. The proposed access arrangements are presented in **Drawing ITB14244-GA-009** and prepared in part by Cannon Consulting Engineers; an extract of the drawing is provided as **Image 4.1**.

Image 4.1: Extract of Site Access Arrangement



Source: ITB14224-GA-009

- 4.2.4 Visibility splays of 2.4m x 50m have been identified on the access drawing, in accordance with the recorded 85th percentile speed of 33mph on Chalcraft Lane; in practice, the visibility splay extends beyond this distance.
- 4.2.5 To increase the distance of the access road from No 98 Chalcraft Lane immediately to its north, and to enable a landscape buffer to be provided between the access road and the cemetery to the south, no pedestrian provision is made on the southern side of the access road carriageway. Pedestrian provision is not required on this side of the carriageway as there is no existing pedestrian infrastructure to the south of the access road that requires connecting infrastructure from the development, nor a pedestrian desire line to be accommodated. On that basis, the landscaped buffer is considered to offer greater overall benefit.
- 4.2.6 It should be noted that it is not the intention to promote or seek consent for cross boundary vehicular connectivity (other than potential bus links and access for emergency vehicles) to the wider 'West of Bersted' allocation, and the proposed access has been designed to accommodate traffic associated with the proposed number of dwellings associated with this development and the redevelopment of the Chalcraft Nursery site to the south only.

4.3 Right Hand Turn Lane

4.3.1 As part of the response to BE/81/20 WSCC requested that consideration be given as to whether a ghost island right turning lane is necessary, citing CD123 as guidance. It should be noted that the guidance referred to forms part of the Design Manual for Roads and Bridges. This document is used primarily for the trunk road network (e.g. strategic dual carriageways and motorways) and is rarely used for the local road network, particularly one with the characteristics of Chalcraft Lane. Instead, Manual for Streets guidance is appropriate in this context.

4.3.2 There are no volumetric thresholds at which the guidance of Manual for Streets should not apply, and MfS2 identifies at paragraph 1.3.2 that *“it is therefore recommended that as a starting point for any scheme affecting non-trunk roads, designers should start with MfS”*. Further, para 1.3.3 identifies that where *“designers do refer to DMRB for detailed technical guidance on specific aspects, for example on strategic inter-urban non-trunk roads, it is recommended that they bear in mind the key principles of MfS and apply DMRB in a way that respects local context”*. Paragraph 1.3.4 confirms that the application of MfS advice should be the starting point for all roads with a 30mph speed limit.

4.3.3 In respect of right turn provision, Manual for Streets 2 (para 9.4.7) states that:

“TD 42/95 (note: superseded by CD123 but the principles remain) that consideration should be given to providing a right turning lane at priority junctions where the side road flow exceeds 500 vehicles per day (note: Table 2.3.1 of CD123 identifies a threshold of 300 vehicles), but this advice relates to trunk roads, where there is an emphasis on providing an unimpeded route for through traffic. It is a relatively low flow, and junctions without right lanes will often be able to cater for higher levels of turning traffic without resulting in significant congestion”.

4.3.4 Further, it recognises that (para 9.4.8):

“Right turning lanes make it more difficult for pedestrians to cross major roads and lead to higher traffic speeds.”

4.3.5 Indeed, the guidance advises that careful consideration should be given to the effects before such provision is made and promotes the removal of unnecessary right turn lanes for the benefit of non-motorised users.

4.3.6 While it is evident that the provision of a right-hand turn lane would be contrary to highway design guidance relevant to the local road network, further consideration has nevertheless been given. There are three key factors in determining whether a right-hand turn lane is necessary:

- Highway safety – e.g. vehicles have clear visibility towards any stationary vehicles as not to create a rear shunt hazard;
- Capacity – that a simple priority junction does not result in excessive queuing or delay; and
- Whether such provision is consistent with the network in the immediate vicinity of the site.

- 4.3.7 Forward visibility to a stationary vehicle is excellent. Site access drawing ITB14244-001 Rev F identifies the visibility splay on the basis of the recorded road speed (50m) as well as visibility significantly beyond this distance (160m – suitable for a 50mph design speed) and **ITB14224-GA-007 Rev A** identifies that 200m can be achieved; both drawings are presented in the drawings section of this TA. The drawings demonstrate that drivers on Chalcraft Lane will be able to clearly see any vehicle turning right into the minor arm of the junction.
- 4.3.8 The capacity assessment provided later in this TA demonstrates that the junction will not result in significant queuing or delay as a result of the cumulative traffic associated with both BE/81/20 and the current application.
- 4.3.9 The introduction of a right-hand turn facility would require widening of the carriageway on the southern side of the Chalcraft Lane carriageway. This would require the reprofiling of the verge area as a result of the level difference and would also require pedestrians and cyclists to cross a greater distance.
- 4.3.10 A review of other junctions in the vicinity of the site, which are likely to experience movements in excess of those associated with the minor arm of the proposed development, do not have associated turn provision. Examples are provided at **Images 4.2, 4.3 and 4.4**. Therefore, the proposed treatment is consistent with the local road network. A review of the recorded mean and 85th percentile speeds along Chalcraft Lane identify that they are in keeping with a 30mph speed limit; the introduction of a facility to allow through traffic to by-pass vehicles waiting to turn will likely lead to an increase in vehicular speeds.

Image 4.2: Central Drive/Chalcraft Lane Junction



Source: Google Streetview

Image 4.3: Central Avenue/Chalcraft Lane Junction



Source: Google Streetview

Image 4.4: West Mead Drive/Chalcraft Lane Junction



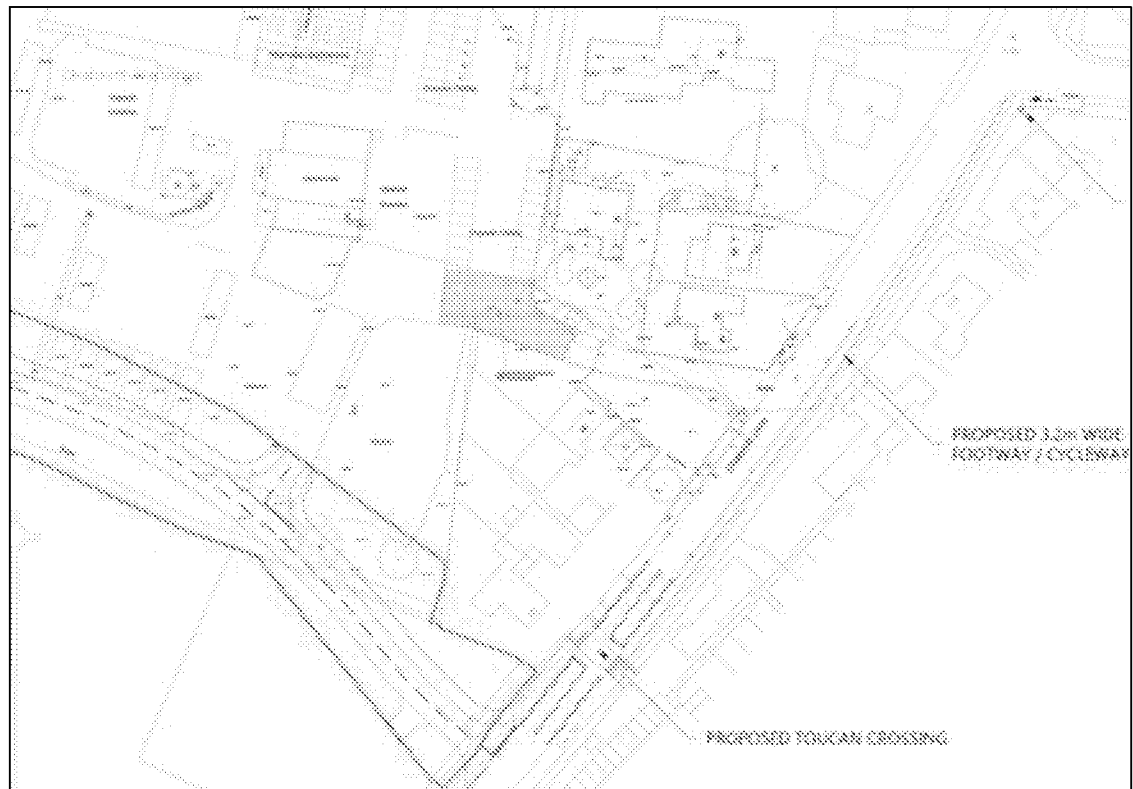
Source: Google Streetview

- 4.3.11 On that basis, it is concluded that a right-hand turn lane is not required, nor would it be appropriate at this location.

4.4 Pedestrian and Cycle Connection – Chalcraft Lane

- 4.4.1 As part of the access arrangements associated with BE/81/20, a 3.2m wide footway is provided on the northern side of the site access road. As part of the proposed development, the footway will be upgraded to provided for a 3.2m wide shared footway/cycleway to provide a link between the site and Chalcraft Lane.
- 4.4.2 To provide onward connectivity, a short section of footway on the western side of Chalcraft Lane will be increased in width to 3.2m on the western side of the carriageway and connect to a Toucan crossing. In turn, the footway on the eastern side of the carriageway will be increased in width to 3.2m to provide for a shared pedestrian and cycle connect to Central Drive, where cyclists can join the Central Drive carriageway and continue their journey, connecting with the WSCC Advisory Cycle Route along Central Avenue and Greencourt Drive to Bognor Regis Railway Station. The arrangement is presented in **Drawing ITB14224-GA-008 Rev A**, and extract of which is shown in **Image 4.5**.

Image 4.5: Proposed Cycle Connection



Source: ITB14224-GA-008 Rev A

- 4.4.3 At this stage the location of the Toucan crossing is identified indicatively in order to inform a planning condition or obligation to secure the provision. Given the level difference on the eastern side of Chalcraft Lane, the position of the crossing will be refined as part of the detailed design process to ensure suitable gradients to the crossing and footway/cycleway crossfalls are provided.

4.5 Site Layout

Site Layout

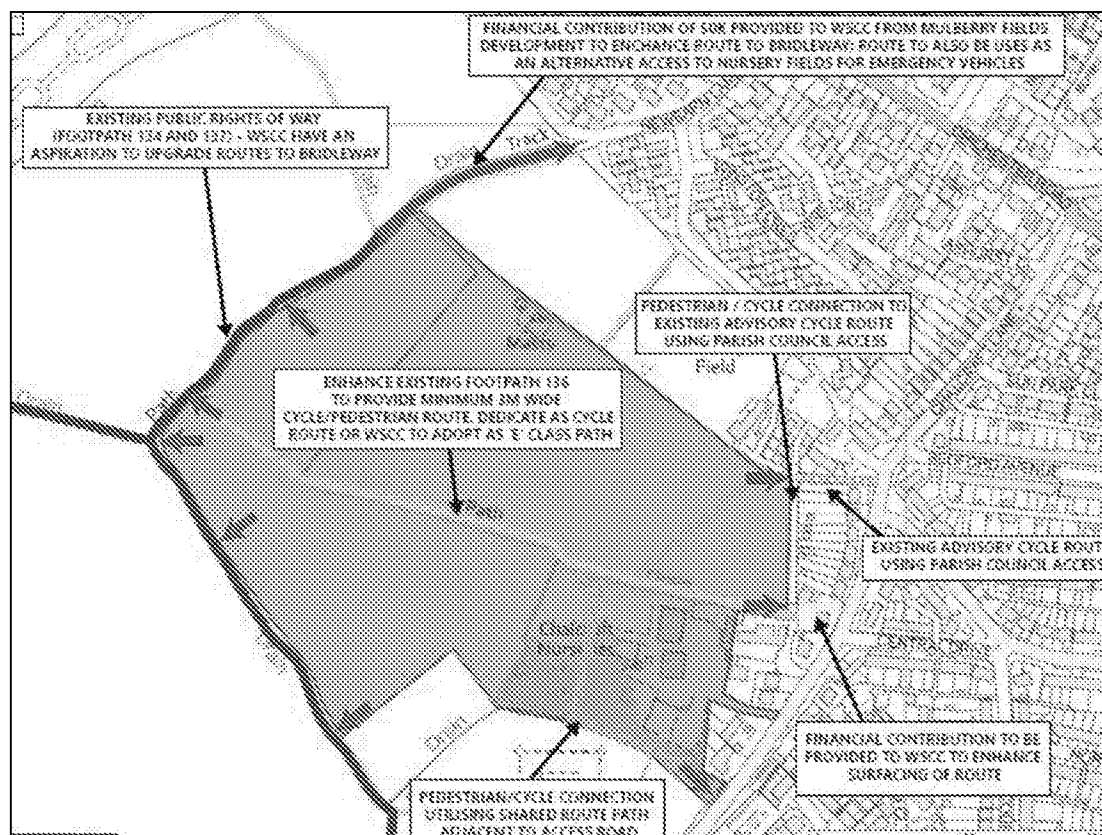
- 4.5.1 Whilst the details of the site layout will be determined as part of a future RMA, the 'principles' of the site layout have been considered to provide context to the application and to demonstrate how the development can be brought forward.
- 4.5.2 The site layout has been designed in accordance with contemporary design guidance, namely DfT's '*Manual for Streets*' and West Sussex County Councils '*Local Design Guide*'. The illustrative site layout accompanying the planning application, a copy of which is provided at **Appendix C**, demonstrates how the development can be delivered on the land.

- 4.5.3 The site will be served via an extension of the access road through the site as the primary road. Secondary and tertiary roads will provide access into the individual housing parcels within the site. The primary road will extend to the north of the site in order to provide future connectivity for bus services if so required. However, it will not form a cross boundary vehicular link for general traffic purposes.

Pedestrian and Cycle Connections

- 4.5.4 As part of the pre-application engagement, the opportunity to enhance the Public Rights of Way through the site was explored with the WSCC Public Rights of Way Team.
- 4.5.5 In addition to the continuation of the shared use cycle/pedestrian route adjacent to the site access road to its intersection with PRoW Footpath 136, Footpath 136 itself will be upgraded to provide a 3m – 4m shared pedestrian and cycle facility. These routes will form the primary cycle connections through the site and provide connectivity for onward journeys to the south, east, west and north.
- 4.5.6 The upgrade of FP136 will be achieved either through an Order made by the Applicant or through adopted as a Highways 'E' Class Path. The route will be widened and resurfaced with a specification to be agreed as part of the detailed design, but of a bound material to provide suitable conditions for all users throughout the year.
- 4.5.7 Due to the lack of onward connectivity for equestrian users, FP136 will not be converted to Bridleway. Instead, WSCC has advised that there are more appropriate alternative routes that are being explored for such provision and that FP136 should therefore be capable of accommodating pedestrian and cyclist journeys only.
- 4.5.8 In addition to the primary routes throughout the site, multiple cross boundary links can be provided to the wider West of Bersted development, to provide permeability for residents of the proposed development and the wider strategic site. This can include connections towards the West of Bersted local centre, to FP134 New Barn Lane (to which a contribution of £50,000 have been provided to WSCC for enhancement of this route as part of the Mulberry Fields development) and to the advisory cycle route along the Parish Council access road. The links will be provided in accordance with the guidance contained within Local Transport Note 01/20.
- 4.5.9 A copy of the Connectivity Plan agreed with WSCC Public Right of Way is provided at **Figure 3**, an extract of which is provided at **Image 4.6**.

Image 4.6: Connectivity Plan



Source: Consultants Image

4.6 Parking

4.6.1 Future reserved matters application would provide details of the vehicular parking serving the site. However, parking will be provided with reference to the Arun District Council Parking Standards Supplementary Planning Document or the prevailing standards at the time of the application.

Car Parking

4.6.2 The illustrative site layout for the residential element of the site has been informed by Arun's adopted standards and car parking provided on the basis of the ratios set out in **Table 3.1**.

Table 3.1: Arun SPD Parking Ratios

No. Of Bedrooms	No. of Habitable Rooms	Car Parking Provision	Cycle Parking Provision
1	1-3	2	1
2	4	2	1
3	5-6	2	2

No. Of Bedrooms	No. of Habitable Rooms	Car Parking Provision	Cycle Parking Provision
4+	7+	3	2

Source: Arun District Council Parking Standards (2020)

- 4.6.3 In addition, the standards also cover the provision of Electric Vehicle Charging (EVC) parking space. The standards require that all properties with a drive and allocated parking are to be provided with electric vehicle charging infrastructure, and that provision is made on a sliding scale basis for non-allocated parking. The development will provide EVC in accordance with the standard prevalent at the time of determination of any future RMA.

Cycle Parking

- 4.6.4 Future RMAs would also provide details of cycle parking provision. Adequate cycle parking facilities would be provided for the proposed dwellings in secure covered parking, such as within a garage or cycle store. Accordingly, cycle parking would be provided to comply with the relevant standards, as set out above in **Tables 3.1**.

4.7 Waste and Recycling Collection

- 4.7.1 The design of the illustrative layout has been informed by vehicular swept path analysis to ensure that suitable provision refuse collection. As part of future RMAs, the refuse collection arrangements within the site will continue to be designed with regard to the guidance in Section 6.8 of Manual for Streets (MfS) guidance and Arun District Councils web-based guidance. The layout will include street widths and turning heads of sufficient size to allow a refuse vehicle to enter, turn and exit the development in forward gear.

- 4.7.2 Where refuse vehicle access is restricted, bin collection points will be provided to meet the carry distance requirements given in Section 6 of MfS, i.e. 25m from collection point to refuse vehicle and 30m from individual dwellings to the collection point. It is understood that to enable collection of refuse from private roads, ADC requires the following criteria to be met:

- Roads must be of a sound construction, to a suitable hard surface free of potholes and obstructions;
- The road must not be less than 3 metres wide, with no obstructions from overhanging trees or shrubs etc;

- There must be a minimum of 5.5 metres height clearance with no obstructions from overhanging branches or cables; and
- When a through road does not exist, a turning area must exist. A 12-metre-long vehicle must be able to turn around in 3 manoeuvres or less.

4.8 **Emergency Vehicles**

4.8.1 The illustrative layout has been designed to accommodate emergency vehicle access requirements.

4.8.2 Any layout submitted as part of a future RMA will continue to comply with Section 5.4 and 5.5 of the WSCC Design Guide and the Building Regulations Approved Document B – Fire Safety. These documents require that:

- Access to be provided for a fire tender to within a maximum of 45m of the furthest point of every property;
- A fire tender will not be required to reverse more than 20m;
- Turning facilities to be provided where there are no-through-vehicular routes and reversing distance exceeds 20m;
- Emergency access routes have a 3.7m clear width; and
- Occasional pinch points (e.g. at a gateway) are acceptable, to a minimum width of 3.1m.

4.9 **Summary**

4.9.1 Vehicular access is proposed from Chalcraft Lane using the access proposed as part of planning application BE/81/20. The proposed access arrangements have been designed in accordance with the relevant design guidance contained in the Manual for Streets and delivers an appropriate arrangement and visibility to ensure the safe movement of vehicles.

4.9.2 A 3.2m foot/cycle way is provided adjacent to the site access road that connects with a Toucan crossing over Chalcraft Lane. In turn, this will connect to Central Drive and onward cycle connectivity to the Advisory Cycle Route to Bognor Railway Station via a length of shared use path on the eastern side of the Chalcraft Lane carriageway.

4.9.3 Whilst the layout of the site would be a matter for consideration as part of a Reserved Matters Application, an illustrative layout is provided that demonstrates how development can be

delivered on the site. Primary cycle routes providing connectivity for new and existing residents are to be provided, with linkages to other key destinations and established pedestrian and cycle networks.

- 4.9.4 The development will deliver car and cycle parking in line with the relevant adopted guidance and will promote a site layout that has been developed in accordance with the principles of Manual for Streets.
- 4.9.5 In this regard, it is demonstrated that the site will deliver safe and suitable access, and that the proposed development compiles with the paragraph 108 of the NPPE.

SECTION 5 Accessibility

5.1 Introduction

5.1.1 Paragraph 108 of the NPPF sets out that development proposals should ensure that:

“Opportunities for sustainable transport modes have been taken up depending on the nature and location of the site to reduce the need for major transport infrastructure”

5.1.2 This section of the TA considers the accessibility of the site to key local services and facilities by walking, cycling and public transport and should be read in conjunction with the Accessibility Plan provided at **Figure 2**.

5.2 Journey Purpose and Key Destinations

5.2.1 In promoting sustainable transport, it is important to consider the reasons why future residents of the proposed development will make journeys.

5.2.2 The Department for Transport’s (DfT) National Travel Survey identifies the reasons people travel. The proportion of all trips by purpose (by all modes) is summarised in **Table 5.1**.

Table 5.1: Proportion of Trips per Year by Journey Purpose

Journey Purpose	Proportion of Trips
Leisure	26%
Shopping	19%
Commuting / Business	18%
Education / Escort Education	13%
Personal Business	9%
Other Escort	9%
Other (including Just Walk)	6%

Source: Table TSG8104 (NTS0409) of Transport Statistics Great Britain – 2019 Edition

5.2.3 Leisure, shopping and education journeys account for more than half of all journeys made. Commuting represents around 18% of all travel.

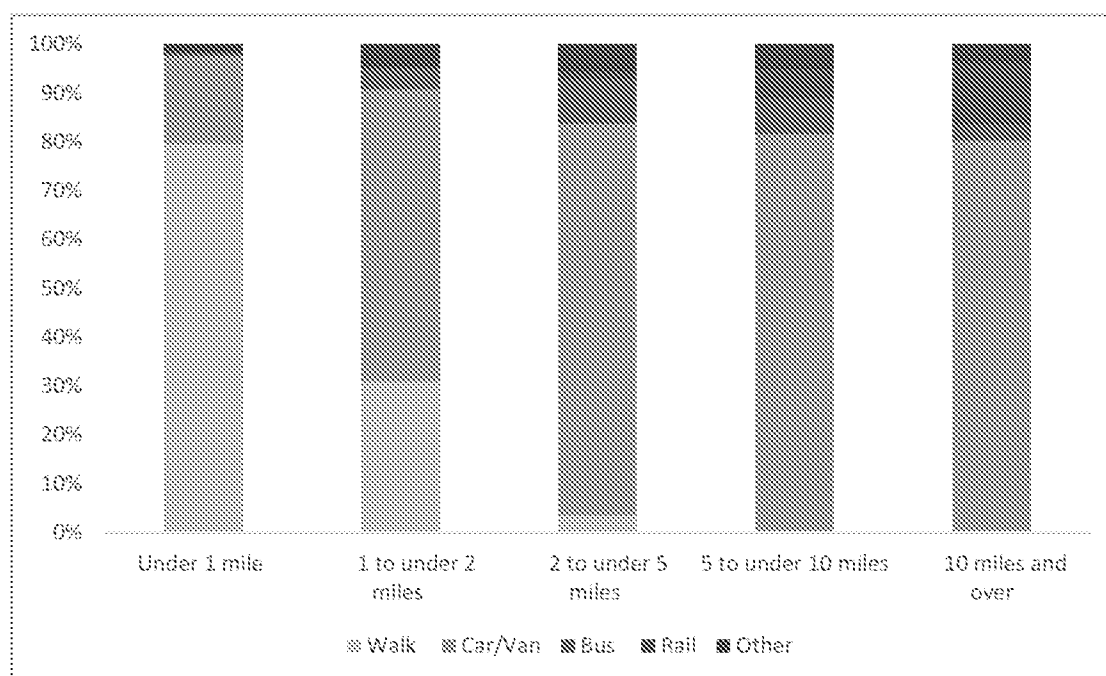
Walking Distances

5.2.4 Paragraph 4.4.1 of the Manual for Streets states:

"Walkable neighbourhoods are typically characterised by having a range of facilities within 10 minutes' (up to about 800 m) walking distance of residential areas which residents may access comfortably on foot. However, this is not an upper limit and PPG13 states that walking offers the greatest potential to replace short car trips, particularly those under 2km. MfS encourages a reduction in the need to travel by car through the creation of mixed-use neighbourhoods with interconnected street patterns, where daily needs are within walking distance of most residents."

5.2.5 This is corroborated by the National Travel Survey (NTS) 2019 which identifies the mode share journeys of different lengths (**Image 6.1**) and confirms that the vast majority (80%) of trips of up to one mile (1.6km) are undertaken on foot.

Image 6.1: Proportion of Trips per Year by Journey Purposes (all modes)



Source: National Travel Survey, England, 2019

5.2.6 A walking distance of up to 1.6km is identified to offer the greatest potential to replace car trips, and this is therefore considered to be a 'reasonable' walking distance.

Cycling Distances

5.2.7 DMRB TA 91/05 "Provision For Non-Motorised Users" paragraph 2.11 states:

"Cycling is used for accessing a variety of different destinations, including educational facilities, shops and places of work, up to a range of around 5 miles. Cycling is also undertaken as a leisure activity, often over much longer distances. As well as being a mode of transport in its own right, cycling frequently forms part of a journey in combination with cars and public transport."

5.2.8 Paragraph 1.5 in the Department for Transport's (DfT) Local Transport Note 2/08 'Cycle Infrastructure Design' (October 2008) states that:

"Urban networks are primarily for local journeys. In common with other modes, many utility cycle journeys are under three miles (4.8km) (ECF, 1998), although for commuter journeys, a trip distance of over 5 miles (8km) is not uncommon."

5.2.9 Data provided within the National Travel Survey demonstrates that the average distance per journey by bike is approximately 4.4km, with the current average length of an employment and leisure cycle trip some 5.2km.

5.2.10 For the purpose of this assessment, a 5km cycling distance is considered to represent a 'reasonable' cycle distance, with 8km considered to be 'maximum' cycling distance.

5.3 Accessibility to Local Facilities

5.3.1 Bersted offers a good range of local facilities and services which future residents of the site are likely to visit on a day to day basis. These are summarised in **Table 6.2** and shown on **Figure 2**.

Table 6.2: Key Destinations and Services

Purpose	Destination	Total Distance (m)	Walking Journey Time (mins)	Cycle Journey Time (mins)
Leisure	Jubilee Recreation Ground	300	3	1
	Bersted Village Hall	300	3	1
	Newtown Sports & Social Club	1000	12	4
	The Royal Oak Public House	950	11	4
	The Arena Sports Centre	1150	14	4
Retail	Nisa Local & Post Office	1000	12	4
	Tesco Express	1050	13	4
	Spar Euro Garage Bognor Regis	1450	17	5
	Co-op Food	1950	23	7
	Chichester Road Shops	900	11	3
Employment	South Bersted Business Park	2350	28	9
	Durban Park	2450	29	9
	Castlegrove Business Park	2550	30	10
	Arun Business Park	2850	34	11
Education	The Regis School	1150	14	4

Purpose	Destination	Total Distance (m)	Walking Journey Time (mins)	Cycle Journey Time (mins)
	Stepping Stone Pre-School	1200	14	5
	Southway Primary School	1200	14	5
	Bognor School	1450	17	5
	Barton's Primary School	1450	17	5
	Nyewood CofE Infants School	1550	18	6
	Nyewood CofE Junior School	1550	18	6
Healthcare	Kamsons Pharmacy	900	11	3
	West Meads doctors Surgery	1350	16	5
	Bersted Green Surgery	1750	21	7
Transport	Royal Oak Bus Stops	1050	13	4

Source: Consultants Estimates

Key:

	Reasonable walking distance (1,600m)
	Reasonable cycling distance (8,000m)

5.3.2 Table 5.2 demonstrates that there are a wide range of everyday facilities within a comfortable or acceptable walking distance of residents including education, convenience retail, healthcare, a range of leisure facilities and employment opportunities. All of the services and facilities outlined in Table 5.2 are within a reasonable cycling distance.

5.3.3 As set out in Section 3, the proposed development will form part of the wider 'West of Bersted' Strategic Allocation which will bring forward a number of community uses such as new educational and sporting facilities, a community hub, and incorporate two new local centres and planned new employment provision. Once completed this strategic site will provide further opportunity for existing and new residents to access services and facilities.

5.3.4 A Travel Plan (ref: *ITB14224-013 TP*) has been submitted with the application in order to encourage the uptake of sustainable modes of transport by residents of the proposed development.

5.4 Summary

- 5.4.1 Future residents of the proposed development will have the opportunity to access a range of everyday destinations by a choice of different travel modes. Walking is a realistic means of travel to and from the site, with well-connected routes providing direct access to local facilities which are located within a short walk of the site. Residents of the development will also benefit from a range of facilities provided on within wider 'West of Bersted' Strategic Allocation when it comes forward.
- 5.4.2 Everyday services and facilities are within a reasonable cycle distance from the site, and local road conditions are conducive to on-carriageway cycling. Improvements are proposed to enhance cycle connectivity, both between the site and the wider West of Bersted development and to the established WSCC Advisory Cycle Route providing connections to Bognor Regis Railway Station and the A259 cycle facilities.
- 5.4.3 Future residents of the proposed development therefore have the opportunity to access a range of destinations by choice of sustainable modes. The proposed development is located where the need to travel will be minimised and the use of sustainable transport modes can be maximised in line with NPPF requirements, and a Travel Plan has been submitted with the application that sets out a framework of means to encourage the uptake of sustainable modes of transport by residents of the development.

SECTION 6 Traffic Impact

6.1 Introduction

6.1.1 This section of the TA summarises the traffic impact of the proposed development.

6.2 Observed Traffic Flows

6.2.1 Traffic data was collected in November 2018 in order to establish baseline data on Chalcraft Lane in the vicinity of the proposed access. The surveys were undertaken for a week between 20 November 2018 and 26 November 2018 and recorded the directional speed and volume of traffic. The survey outputs are provided at **Appendix D**.

6.3 Proposed Trip Generation

6.3.1 The adopted The Arun Local Plan (2011-2031) was supported by a Transport Study Stage 3 Report prepared by Systra. The report identifies trip rates obtained from the TRICS database to calculate origin and destination trip rates for residential developments for the AM Peak (0800-0900) and PM Peak (1700-1800) modelled hours. A summary of the residential trip rates used in the modelling report are set out in **Table 6.1** below:

Table 6.1: Vehicle Trip Rates from Arun Transport Study Stage 3 Report (Houses and Flats)

Time	Trip Rate (per dwelling)		
	Arrivals	Departures	Two-Way
Residential – Weekday Morning Peak	0.091	0.259	0.350
Residential – Weekday Evening Peak	0.243	0.100	0.343

Source: Arun Transport Study

6.3.2 As part of the pre-application engagement, WSCC sought further information in respect of the trip rates to be used in the assessment. A Technical Note demonstrating that the trip rates are appropriate in the context of the proposed development was submitted to WSCC, a copy of which is provided **Appendix A**. In response, WSCC noted that the trip rates were appropriate but, as the rates used to inform the Arun Transport Study included a percentage of flatted units then it may be necessary to revisit the assessment at Reserved Matters Application once the final mix of flats and houses would be agreed. On that basis, and to ensure a robust assessment, it was agreed that a trip rate based solely on houses would be used, since this accommodation

type was exhibiting the higher trip rate value. Therefore, the trip rates set out in **Table 6.2** have been used to inform the assessment.

Table 6.2: Vehicle Trip Rates from Arun Transport Study Stage 3 Report for Houses

Time	Trip Rate (per dwelling)		
	Arrivals	Departures	Two-Way
Residential – Weekday Morning Peak	0.115	0.315	0.430
Residential – Weekday Evening Peak	0.298	0.112	0.410

Source: Arun Transport Study and Consultants' calculations

- 6.3.3 Based on the trip rates set out in **Table 6.2** the forecast number of trips to be generated by the proposed development (225 dwellings) is set out in **Table 6.3**.

Table 6.3: Anticipated Trip Generation (225 dwellings)

Time	Trip Generation (225 dwellings)		
	Arrivals	Departures	Two-Way
Residential – Weekday Morning Peak	26	71	97
Residential – Weekday Evening Peak	67	25	92

Source: TRICS and Consultant calculations

- 6.3.4 **Table 6.2** demonstrates that the proposed residential development, assuming a scenario where only houses were constructed, is anticipated to generate 92-97 two-way vehicle movements during the morning and evening peak periods. This equates to on average one to two vehicle movements every minute during the busiest periods of the day.

6.4 Vehicular Trip Distribution and Assignment

- 6.4.1 The likely journey purpose for the generated car driver peak hour trips can be identified using the National Travel Survey (NTS) 2019 (*DfT*). The proportion of peak hour trips by journey purpose by car is presented in **Table 6.4**.

Table 6.4: Proportion of Peak Hour Trips by Journey Purpose (Car Driver Only)

Trip Purpose	AM Peak (0800-0900)	PM Peak (1700-1800)
Commuting/Business	37.6%	43.9%
All Other Journey Purposes	62.4%	56.1%
Total	100%	100%

Source: Car driver trip start time by trip purpose (Monday to Friday only): Great Britain, 2014/18, National Travel Survey, DfT, 2019

- 6.4.2 Some 38% of the total vehicular trips generated by the residential development will be for employment journeys in the morning peak hour period. The remaining 62% of the vehicle trips will be all other purposes, including education, shopping, leisure and personal business trips. In the evening peak hour, 44% of journeys are employment related with other journeys comprising 56% of the total vehicular trips.
- 6.4.3 For the purpose of this assessment, the analysis has been undertaken on the basis that 44% of the total vehicular trips generated by the residential development will be for employment journeys and the remaining 56% of the vehicle trips will be for all other purposes for both the morning and evening peak hours. This provides a robust estimate because it assumes a greater proportion of non-local journeys.
- 6.4.4 To provide an accurate assessment of the likely distribution of traffic from the site, separate methodologies have been applied to consider the destinations of commuting and business trips to other trip purposes:
- For commuting and business trips, the 2011 National Census Journey to Work statistics (for car drivers) has been used. This dataset identifies existing resident's employment locations and thus existing commuting patterns; and
 - For other journey purpose trips, a P/T^2 gravity model has been produced using the population of key urban areas (from the 2011 Census) within a 30-minute drive time of the site (estimated from Google Maps Directions facility).
- 6.4.5 The two sets of data have then been combined to generate a single set of distribution parameters by destination to inform the development trip assignment.
- 6.4.6 The combined employment and other journey purpose destinations which residents are anticipated to travel to are summarised in **Table 6.5**.

Table 6.5: Distribution of Car Drivers

Destination	Percentage of Combined Trips (%)
North Bersted	18.9%
Bognor Regis	15.3%
Aldwick	14.3%
Chichester	10.7%
Littlehampton	4.7%
Pagham	3.9%
South Bersted	3.9%
Felpham	3.6%
North Mundham	3.3%
Westergate / Eastergate	3.1%
Ford	2.3%
Westhampnett	1.8%
West Wittering	1.2%
Horsham	1.1%
Havant	1.0%
Portsmouth	1.0%
Worthing south	1.0%
Other*	7.8%
Total	100.0%

Notes: * The 'Other' destination is made up a number of destinations each accounting for <1% of trips.

6.4.7 It can be seen from **Table 6.5** that the greatest attractor of combined employment and other trips is North Bersted (19%), followed by Bognor Regis (15%) Aldwick (14%) and Chichester (11%).

6.4.8 To determine the routing of vehicle trips to these destinations, trips have been assigned to the road network based on the quickest route from the site to the destination location, which is identified using the Google Maps 'Directions' Facility. Within the Directions facility, a start time for journeys of 08:00 has been utilised to reflect peak period traffic conditions.

6.4.9 In some cases, a single route option is identified by the assessment. However, for some destinations, the assessment identifies multiple routes. In these cases, development trips have been assigned to the possible routes based upon the journey times identified, with the quickest route assigned a larger number of trips.

6.4.10 Table 6.6 provides a summary of the assignment of development generated trips from the proposed site access.

Table 6.6: Summary of Proposed Residential Development Traffic Assignment

Description of Route out of Development Site		% Traffic	Vehicle Movements		
			In	Out	Two-Way
Morning Peak					
First Route	Chalcraft Lane N	64.7%	17	46	63
	Chalcraft Lane S	35.3%	9	25	34
Second Route	Chalcraft Lane N	61.2%	16	43	59
	Chalcraft Lane S	20.5%	5	15	20
	W Meads Drive S	14.8%	4	10	14
	Central Drive	3.5%	1	2	3
Third Route	B2166 S	7.7%	2	5	7
	B2166 W	7.1%	2	5	7
	B2259 N	23.4%	6	17	23
	Central Avenue S	11.2%	3	8	11
	Greencourt Drive	3.5%	1	2	3
	Bedford Avenue	3.5%	1	2	3
	Chichester Road S	8.7%	2	6	8
	Hewarts Lane S	2.4%	1	2	2
	Lower Bognor Road N	9.4%	2	7	9
	Lower Bognor Road S	8.7%	2	6	8
	N Bersted Street N	14.4%	4	10	14
Evening Peak					
First Route	Chalcraft Lane N	64.7%	43	16	60
	Chalcraft Lane S	35.3%	24	9	33
Second Route	Chalcraft Lane N	61.2%	41	15	56
	Chalcraft Lane S	20.5%	14	5	19
	W Meads Drive S	14.8%	10	4	14
	Central Drive	3.5%	2	1	3
Third Route	B2166 S	7.7%	5	2	7
	B2166 W	7.1%	5	2	7
	B2259 N	23.4%	16	6	22
	Central Avenue S	11.2%	7	3	10
	Greencourt Drive	3.5%	2	1	3
	Bedford Avenue	3.5%	2	1	3
	Chichester Road S	8.7%	6	2	8
	Hewarts Lane S	2.4%	2	1	2
	Lower Bognor Road N	9.4%	6	2	9
	Lower Bognor Road S	8.7%	6	2	8
	N Bersted Street N	14.4%	10	4	13

Source: Consultant's Calculations

6.4.11 Based on the above, approximately 65% of development traffic will route to/from the north of the access on Chalcraft Lane, equating to circa 60 movements in the morning peak and evening peaks. To the south of the access on Chalcraft Lane it is anticipated that there the development will generate circa 30-33 movements in the morning peak and evening peaks. On this basis, the traffic impact on the local highway network equates to circa one vehicle movement every minute to the north of the access and one vehicle every two minutes to the south of the access during the busiest periods of the day.

6.4.12 A copy of the full distribution and assignment model is included as **Appendix E**.

6.5 Summary

6.5.1 The adopted The Arun Local Plan (2011-2031) was supported by a Transport Study Stage 3 Report prepared by Systra. The report identifies trip rates obtained from the TRICS database and using these figures the proposed development is expected to generate 92-97 two-way vehicle movements during the evening and morning peak periods respectively. This equates to on average one to two vehicle movements every minute during the busiest periods of the day.

6.5.2 The trips generated by the proposed development have been assigned to the network using a combination of Journey to Work Census data and a Gravity Model, depending on the expected journey purpose.

SECTION 7 Operational Assessment

7.1 Introduction

- 7.1.1 Using the parameters established in Section 6 of this Transport Statement, analysis of the site access junction has been undertaken to determine its ability to accommodate the additional traffic from the proposed development.
- 7.1.2 The assessment has been undertaken for the weekday morning and evening peak hours of 0800-0900 and 1615-1715 (determined from the observed traffic flows on the local highway network recorded in Nov 2018) as assessment periods. The priority junction has been assessed using the industry standard TRL software Junctions 9.

7.2 Assessment Years and Traffic Growth

- 7.2.1 In line with the WSCC 'Transport Assessment Methodology', traffic impact assessments for the proposed opening year for the development (2023 – the design year), five years from the submission of a planning application (2025) and the end of the local plan period (2031) have been undertaken.
- 7.2.2 With the direct inclusion of committed development (see Section 7.3), the addition of unadjusted TEMPRO based growth rate will lead to a double counting of traffic, with TEMPRO already including allowances for traffic growth arising from local developments. To remove the potential for double counting of traffic growth, the Alternative Assumptions function within TEMPRO has been used to manually adjust the level of growth, removing development assumptions from TEMPRO.
- 7.2.3 Table 7.1 demonstrates that the existing assumptions within TEMPRO estimate an increase of 193 households in Arun 012 (which cover the development) between 2018 and 2023.
- 7.2.4 Due to the volume of housing developments that has been included in committed development (1,214 dwellings, which exceeds the level of growth identified by TEMPRO), all housing development growth has been removed by using the alternative assumptions function in relation to the local growth rates since it would represent double counting of the direct committed inclusions.

7.2.5 Despite the proposed increase in A1 Commercial Floor Area associated with the Chalcraft Nursery development, which has also been included as a direct commitment, no adjustments have been made to the future number of jobs within TEMPRO and therefore this represents a robust assessment.

Table 7.1: TEMPRO Assumptions

Scenario	Area	Existing H/Holds	Future H/Holds	Existing Jobs	Future Jobs
2018 – 2023					
Existing Assumptions	Arun 012	3,413	3,606	2,771	2,818
Alternative Assumptions	Arun 012	3,413	3,413	2,771	2,818
2018-2025					
Existing Assumptions	Arun 012	3,413	3,677	2,771	2,835
Alternative Assumptions	Arun 012	3,413	3,413	2,771	2,835
2018-2031					
Existing Assumptions	Arun 012	3,413	3,848	2,771	2,878
Alternative Assumptions	Arun 012	3,413	3,413	2,771	2,878

Source: TEMPRO and Consultant calculations

7.2.6 Using this methodology, **Table 7.2** below summarises the growth factors which have been applied to the 2018 observed traffic flows to derive the 2023, 2025 and 2031 peak hour traffic flows.

Table 7.2: Calculated Local Peak Period Growth Rates

Growth Period	Time Period	Growth Rate
2018-2023	AM Peak	1.0255
	PM Peak	1.0203
2018-2025	AM Peak	1.0345
	PM Peak	1.0280
2018-2031	AM Peak	1.0586
	PM Peak	1.0495

Source: TEMPRO and Consultant Calculated

- 7.2.7 The calculated growth rates equate to approximately 2% growth between 2018 and 2023 in both peak periods and 3% growth in the peak periods between 2018 and 2025.

7.3 Committed Development

- 7.3.1 Committed developments within the area have been identified and listed below:

- Landform Southwest of New Barn Lane – 99 dwellings;
- Church Commissioners land Southeast of New Barn Lane – 50 dwellings;
- Land North of Seftor Road, Pagham - 280 dwellings;
- Land South of Summer Lane & West of Pagham Road Pagham – 400 dwellings;
- Land North of Hook Lane, Pagham – 300 dwellings; and
- Church Barton House Horns Lane, Pagham – 65 dwellings.

- 7.3.2 Whilst not strictly a committed development, to ensure a robust assessment is undertaken, the proposed development at Chalcroft Nursery to the south of the development which proposes an additional 1,542 sqm of commercial space (including B1(b), B1(c), B8 and A1 land uses), and 20 residential dwellings has also been included within the committed development traffic.

- 7.3.3 As such, a total of 1,214 dwellings and 1,542 sqm of commercial space have been included within committed development. The committed development traffic flows have been obtained from the Transport Assessments for each scheme and included in addition to the TEMPRO growth factors applied to the observed traffic data.

- 7.3.4 A summary of the total committed development vehicle trips is shown on **Figure TF3-4** with the 2023, 2025 and 2031 plus committed development traffic flows shown on **Figures TF5-10** for the morning and evening peaks.

7.4 Link Road Sensitivity Test

- 7.4.1 Consideration has been given as to whether the introduction of a link road associated with the wider development of the West of Bersted site would require any additional testing to ascertain the impact that a link road might have on the redistribution of traffic associated with the development site.

- 7.4.2 The link road is proposed between Lower Bognor Road and the B2259 Chichester Road / A259 / North Bersted Bypass Roundabout, associated with the wider West of Bersted allocation. In respect of the application site, it is likely to result in the redistribution of local trips (e.g. those that have been identified to travel into Bersted but will instead access the West of Bersted local centre once it is available for use) and those trips travelling north via the A259.
- 7.4.3 Journey time analysis has been undertaken to establish the likelihood of trips routing via the link road as opposed to north on Chalcraft Lane. A typical journey via the existing route would take approximately 3-4 minutes during peak network conditions; assuming an average speed of 30mph along the link road, it is expected that such a journey would take 4-5 minutes from the site to reach the A259 / B2259 roundabout. Therefore, the current route would remain the shorter and quicker journey. Nevertheless, some drivers may still route via the link road – either as part of a linked journey or through personal choice.
- 7.4.4 To that end, some 10% of development trips travelling north of the site on the A259 could reasonably be redistributed to use the link road before continuing their journey to account for linked trips and pass-by trips as a result of the local centre, primary school and other local facilities included in the wider West of Bersted development.
- 7.4.5 In addition, some 50% of local car trips i.e. those remaining within North and South Bersted could be reassigned to the West of Bersted development and thus will utilise the link road. These trips are associated with access to local facilities and services which, with the delivery of the wider development, will also become available as part of the local centre.
- 7.4.6 Notwithstanding the above, the link road will provide a significant redistribution effect on the local network. As the impact of the link road is not associated nor required for the delivery of the proposed development further assessment of the link road has not been undertaken as part of this TA, however, it is evident that it will remove traffic from Chalcraft Lane that is travelling to the A259 from locations within the southern areas of Bognor and its surrounds (e.g. Pagham). The redistribution of circa 20 vehicular movements from the site access and travelling south will have an imperceptible impact on the operation of the network upon opening of the link road, thus no further testing has been undertaken.

7.5 Junction Capacity Assessment

- 7.5.1 Capacity assessments have been undertaken for the following junctions:

- Proposed Site Access;
- Chalcraft Lane / West Meads Drive Junction;
- Lower Bognor Road / Chalcraft Lane / Hewarts Lane Roundabout; and
- North Bersted Street / Chichester Road / Chalcraft Lane Double Mini-Roundabout.

7.5.2 The geometry for each junction has been obtained from OS Detail Mapping using CAD software. Each geometry drawing is included in **Appendix F** along with a summary table of the geometry. A summary of the junction capacity assessments is provided in the following paragraphs and the junction capacity assessment outputs are provided in **Appendix G**.

Proposed Site Access Junction

7.5.3 Vehicular access to the proposed development site will be achieved from Chalcraft Lane and take the form of a simple priority junction. The junction arrangement is shown on **Drawing ITB14224-GA-001 Rev F** and the outputs of the Junctions 9 assessments are summarised in **Table 7.3**.

Table 7.3: Site Access with Chalcraft Lane Results

	Morning Peak (0800-0900)			Evening Peak (1700-1800)		
	RFC	Queue	Delay	RFC	Queue	Delay
2018 Baseline						
Access	0.00	<1	<1	0.02	<1	11
Chalcraft Lane	0.01	<1	4	0.01	<1	4
2023 with Committed Developments						
Access	0.06	<1	12	0.06	<1	12
Chalcraft Lane	0.04	<1	4	0.04	<1	4
2023 with Committed Developments and Proposed Development						
Access	0.30	<1	16	0.15	<1	14
Chalcraft Lane	0.11	<1	5	0.24	1	4
2025 with Committed Developments						
Access	0.06	<1	12	0.06	<1	13
Chalcraft Lane	0.04	<1	4	0.04	<1	4
2025 with Committed Developments and Proposed Development						
Access	0.30	<1	16	0.15	<1	14
Chalcraft Lane	0.11	<1	5	0.25	1	4
2031 with Committed Developments						
Access	0.06	<1	13	0.06	<1	13
Chalcraft Lane	0.04	<1	4	0.04	<1	4
2031 with Committed Developments and Proposed Development						
Access	0.31	<1	17	0.15	<1	14
Chalcraft Lane	0.11	<1	5	0.25	1	4

Source: Junctions 9

- 7.5.4 The results demonstrate that the proposed access will operate well within capacity in all scenarios with little queuing or delay on any arm, and that a simple priority junction without a ghost island right turn lane will not create congestion on Chalcraft Lane.

Chalcraft Lane / West Meads Drive Junction

- 7.5.5 The Chalcraft Lane / West Meads Junction is located circa 300m west of the proposed site access and the junction capacity assessment results are presented in **Table 7.4**.

Table 7.4: Chalcraft Lane / West Meads Drive Junction

	Morning Peak (0800-0900)			Evening Peak (1700-1800)		
	RFC	Queue	Delay	RFC	Queue	Delay
2018 Baseline						
West Meads Drive (South)	0.60	2	19	0.44	1	15
Chalcraft Lane (East)	0.01	<1	4	0.01	<1	4
West Meads Drive (North)	0.00	<1	<1	0.00	<1	<1
Chalcraft Lane (West)	0.22	1	5	0.18	1	5
2023 with Committed Developments						
West Meads Drive (South)	0.66	2	25	0.49	1	18
Chalcraft Lane (East)	0.01	<1	4	0.01	<1	4
West Meads Drive (North)	0.00	<1	<1	0.00	<1	<1
Chalcraft Lane (West)	0.24	1	5	0.20	1	5
2023 with Committed Developments and Proposed Development						
West Meads Drive (South)	0.72	3	30	0.57	1	22
Chalcraft Lane (East)	0.01	<1	4	0.01	<1	4
West Meads Drive (North)	0.00	<1	<1	0.00	<1	<1
Chalcraft Lane (West)	0.25	1	5	0.20	1	5
2025 with Committed Developments						
West Meads Drive (South)	0.67	2	25	0.49	1	18
Chalcraft Lane (East)	0.01	<1	4	0.01	<1	4
West Meads Drive (North)	0.00	<1	<1	0.00	<1	<1
Chalcraft Lane (West)	0.25	1	5	0.20	1	5
2025 with Committed Developments and Proposed Development						
West Meads Drive (South)	0.73	3	31	0.57	1	22
Chalcraft Lane (East)	0.01	<1	4	0.01	<1	4
West Meads Drive (North)	0.00	<1	<1	0.00	<1	<1
Chalcraft Lane (West)	0.25	1	5	0.20	1	5
2031 with Committed Developments						
West Meads Drive (South)	0.70	2	28	0.51	1	20
Chalcraft Lane (East)	0.01	<1	4	0.01	<1	4
West Meads Drive (North)	0.00	<1	<1	0.00	<1	<1
Chalcraft Lane (West)	0.26	1	5	0.21	1	5
2031 with Committed Developments and Proposed Development						
West Meads Drive (South)	0.76	3	35	0.60	1	24
Chalcraft Lane (East)	0.01	<1	4	0.01	<1	4
West Meads Drive (North)	0.00	<1	<1	0.00	<1	<1
Chalcraft Lane (West)	0.26	1	5	0.21	1	5

Source: Junctions 9

- 7.5.6 The results show that the Chalcraft Lane / West Meads Drive crossroads will operate within capacity on all arms during the future year scenarios 'without' and 'with' development. The greatest increase in delay of just two seconds will be experienced on West Meads Drive (South) during the morning peak period in 2025 and 2031.

Lower Bognor Road / Chalcraft Lane / Hewarts Lane Roundabout

- 7.5.7 This junction is located around 1.1km south-west from the proposed site access and takes the form of a four-arm roundabout. The junction capacity assessment results are summarised in **Table 7.5**.

Table 7.5: Lower Bognor Road / Chalcraft Lane / Hewarts Lane Roundabout

	Morning Peak (0800-0900)			Evening Peak (1700-1800)		
	RFC	Queue	Delay	RFC	Queue	Delay
2018 Baseline						
Lower Bognor Road (North)	0.33	1	6	0.68	2	12
Chalcraft Lane	0.32	1	4	0.48	1	6
Lower Bognor Road (South)	0.26	<1	4	0.21	<1	4
Hewarts Lane	0.43	1	6	0.29	<1	5
2023 with Committed Developments						
Lower Bognor Road (North)	0.36	1	7	0.71	2	14
Chalcraft Lane	0.35	1	4	0.54	1	6
Lower Bognor Road (South)	0.28	<1	4	0.23	<1	4
Hewarts Lane	0.50	1	7	0.32	1	5
2023 with Committed Developments and Proposed Development						
Lower Bognor Road (North)	0.36	1	7	0.72	3	14
Chalcraft Lane	0.37	1	4	0.54	1	6
Lower Bognor Road (South)	0.28	<1	4	0.23	<1	4
Hewarts Lane	0.51	1	7	0.32	1	5
2025 with Committed Developments						
Lower Bognor Road (North)	0.36	1	7	0.72	3	14
Chalcraft Lane	0.36	1	4	0.54	1	6
Lower Bognor Road (South)	0.28	<1	4	0.23	<1	4
Hewarts Lane	0.51	1	7	0.32	1	5
2025 with Committed Developments and Proposed Development						
Lower Bognor Road (North)	0.37	1	7	0.73	3	14
Chalcraft Lane	0.37	1	4	0.55	1	6
Lower Bognor Road (South)	0.28	<1	4	0.24	<1	4
Hewarts Lane	0.51	1	7	0.33	1	5
2031 with Committed Developments						
Lower Bognor Road (North)	0.37	1	7	0.74	3	15
Chalcraft Lane	0.37	1	4	0.56	1	7
Lower Bognor Road (South)	0.29	<1	4	0.24	<1	4
Hewarts Lane	0.52	1	7	0.33	1	5
2031 with Committed Developments and Proposed Development						
Lower Bognor Road (North)	0.38	1	7	0.75	3	16
Chalcraft Lane	0.38	1	4	0.56	1	7
Lower Bognor Road (South)	0.29	<1	4	0.24	<1	4
Hewarts Lane	0.53	1	7	0.33	1	5

Source: Junctions 9

- 7.5.8 The results show that the Lower Bognor Road / Chalcraft Lane / Hewarts Lane roundabout will operate within capacity on all arms during the future year scenarios 'without' and 'with' development. The greatest increase in delay of just one second will be experienced on Hewarts Lane during the 2031 morning peak period and Lower Bognor Road (North) during the 2031 evening peak period.

North Bersted Street / Chichester Road / Chalcraft Lane Double Mini-Roundabout

- 7.5.9 The double mini-roundabout junction is located around 540m north-east of the site and takes the form of two, three-armed mini-roundabouts. The summary of the junction capacity assessment is presented in **Tables 7.6 and 7.7**.

Table 7.6: Chichester Rd / Chalcraft Ln Mini-Roundabout

	Morning Peak (0800-0900)			Evening Peak (1700-1800)		
	RFC	Queue	Delay	RFC	Queue	Delay
2018 Baseline						
B2259 Link (East)	0.53	1	7	0.74	3	13
Chalcraft Lane	0.54	1	7	0.42	1	5
B2259 Chichester Road (West)	0.54	1	7	0.64	2	9
2023 with Committed Developments						
B2259 Link (East)	0.57	1	7	0.81	4	17
Chalcraft Lane	0.62	2	8	0.46	1	6
B2259 Chichester Road (West)	0.60	2	8	0.70	2	11
2023 with Committed Developments and Proposed Development						
B2259 Link (East)	0.57	1	7	0.83	5	19
Chalcraft Lane	0.65	2	9	0.48	1	6
B2259 Chichester Road (West)	0.61	2	9	0.71	2	11
2025 with Committed Developments						
B2259 Link (East)	0.57	1	7	0.81	4	18
Chalcraft Lane	0.63	2	8	0.47	1	6
B2259 Chichester Road (West)	0.60	2	9	0.70	2	11
2025 with Committed Developments and Proposed Development						
B2259 Link (East)	0.58	1	8	0.84	5	20
Chalcraft Lane	0.66	2	9	0.48	1	6
B2259 Chichester Road (West)	0.62	2	9	0.72	3	11
2031 with Committed Developments						
B2259 Link (East)	0.58	1	8	0.83	5	19
Chalcraft Lane	0.65	2	9	0.48	1	6
B2259 Chichester Road (West)	0.62	2	9	0.72	3	11
2031 with Committed Developments and Proposed Development						
B2259 Link (East)	0.59	1	8	0.86	5	22
Chalcraft Lane	0.68	2	9	0.49	1	6
B2259 Chichester Road (West)	0.63	2	9	0.74	3	12

Source: Junctions 9

7.5.10 **Table 7.6** demonstrates the junction will operate within capacity on all arms during the future year 'without' and 'with' development, although the junction is approaching capacity in the PM peak period.

7.5.11 The greatest increase in delay of three seconds will be experienced on the B2259 link between the mini-roundabouts during the 2031 evening peak period. During this scenario, the B2259 link will start to operate at theoretical capacity (i.e. RFC 0.85) during the evening peak, but this is still well within actual capacity (i.e. RFC <1.00).

Table 7.7: North Bersted St / Chichester Rd Mini-Roundabout

	Morning Peak (0800-0900)			Evening Peak (1700-1800)		
	RFC	Queue	Delay	RFC	Queue	Delay
2018 Baseline						
North Bersted Street	0.42	1	10	0.71	2	20
B2259 Chichester Road (East)	0.60	1	14	0.74	3	23
B2259 Link (West)	0.60	2	7	0.57	1	7
2023 with Committed Developments						
North Bersted Street	0.47	1	11	0.78	3	27
B2259 Chichester Road (East)	0.63	2	15	0.80	4	30
B2259 Link (West)	0.66	2	9	0.60	2	7
2023 with Committed Developments and Proposed Development						
North Bersted Street	0.48	1	11	0.80	4	29
B2259 Chichester Road (East)	0.63	2	15	0.82	4	33
B2259 Link (West)	0.67	2	9	0.61	2	7
2025 with Committed Developments						
North Bersted Street	0.47	1	11	0.79	4	28
B2259 Chichester Road (East)	0.63	2	15	0.80	4	31
B2259 Link (West)	0.66	2	9	0.61	2	7
2025 with Committed Developments and Proposed Development						
North Bersted Street	0.48	1	11	0.81	4	31
B2259 Chichester Road (East)	0.64	2	15	0.82	4	34
B2259 Link (West)	0.68	2	9	0.61	2	7
2031 with Committed Developments						
North Bersted Street	0.49	1	12	0.82	4	32
B2259 Chichester Road (East)	0.65	2	16	0.83	4	35
B2259 Link (West)	0.68	2	9	0.62	2	8
2031 with Committed Developments and Proposed Development						
North Bersted Street	0.50	1	12	0.84	5	35
B2259 Chichester Road (East)	0.66	2	16	0.85	5	39
B2259 Link (West)	0.69	2	9	0.62	2	8

Source: Junctions 9

7.5.12 **Table 7.7** demonstrates the junction will operate within capacity on all arms during the future year 'without' and 'with' development. The greatest increase in delay of just three seconds will be experienced on the B2259 Chichester Road (East) during the 2031 evening peak period. During the 2025 and 2031 'without' development, the junction will approach theoretical capacity (i.e. RFC 0.85) during the evening peak period and will continue to operate the theoretical capacity during the 'with' development.

7.5.13 Paragraph 109 of the NPPF states that development should only be refused where the residual cumulative impact is 'severe'. In this instance, and with the inclusion of traffic associated with committed development and background growth, the residual impact of the development is virtually imperceptible and not of a level that could be considered severe.

Strategic Junction Assessments

7.5.14 The Arun Transport Study Stage 3 Report identifies twelve strategic junction locations that will be subject of a severe capacity impact (without mitigation) as a result of the development strategy set out in adopted Arun Local Plan. A further two junctions were identified as having an unacceptable safety impact.

7.5.15 Chapter 4 of the Arun Transport Study Stage 3 identifies improvement schemes that are required to mitigate the impact of the Local Plan development strategy. Chapter 6 of the Study apportions the level of impact that each of the allocated development sites will have upon the junctions, and Chapter 7 identifies the cost (ranging from low to high estimates) associated with the improvement schemes.

7.5.16 **Image 7.1** summarises the junction locations that are deemed to be impacted by the allocated development SD3: West of Bersted.

Image 7.1: Junctions Identified for Improvement Affected by West of Bersted Development



Source: Consultant

7.5.17 **Table 7.8** summarises the junctions affected by the West of Bersted allocation, the 'high estimate' scheme cost, the percentage impact that the allocation has on the junction and the value of the contribution required to be provided by the development through Section 106/278 Agreement. The proposed development of 225 dwellings however only accounts for 9% of the total West of Bersted Allocation (2,500 dwellings), as such, the mitigation costs for the allocation have been pro-rata for the development.

Table 7.8: Strategic Junction Improvements

Junction No.	Junction	Type	Cost (High Estimate)	Impact	West of Bersted Contribution	Proposed Contribution
2	A27 / A259 (Bognor Road Roundabout)	Capacity	£915,000	57%	£521,550	£46,939.50
7	A27 / A29 (Fontwell Eastern Roundabout)	Capacity	£595,000	10%	£59,500	£5,355.00
17	A29 / A259 Rowan Way	Capacity	£620,000	38%	£235,600	£21,204.00
18	A29 / A259 Felpham Relief Road	Capacity	£638,000	35%	£216,920	£19,522.80
23	A259 / B2187 (Littlehampton West - Tesco)	Capacity	£334,000	14%	£46,760	£4,208.40

Junction No.	Junction	Type	Cost (High Estimate)	Impact	West of Bersted Contribution	Proposed Contribution
20	A259/B2132 Comet Corner	Safety	TBD	47%	TBD	TBD
21	A259/B2233 Oystercatcher	Safety	TBD	21%	TBD	TBD

Source: Arun Stage 3 Transport Study Report (Systra, 2017) and consultant calculations

- 7.5.18 Whilst the need safety improvements for the 'Comet Corner' and 'Oystercatcher' junctions have been identified as part of the Arun Transport Study Stage 3 Report. Paragraph 5.3.2 of the Study establishes that the preferred long-term options are a junction improvement at Comet Corner and a roundabout at the Oystercatcher. It is understood that scheme costings have been progressed and that WSCC will collect proportional contributions.

7.6 Summary

- 7.6.1 Operational assessments have been undertaken at the following locations:

- Proposed Site Access;
- Chalcraft Lane / West Meads Drive Cross Road Junction;
- Lower Bognor Road / Chalcraft Lane / Hewarts Lane Roundabout; and
- North Bersted Street / Chichester Road / Chalcraft Lane Double Mini-Roundabout.

- 7.6.2 The assessments demonstrate that the proposed development will not have a 'severe' impact upon the performance of the junctions. The Chalcraft Lane 'double-mini' is approaching capacity; paragraph 109 of the NPPF identifies that development should only be resisted on capacity grounds when the impact is 'severe'. In this instance, the development is some way short of this threshold.

- 7.6.3 The Arun Transport Study assessed the impact of allocated development upon the operation of the wider strategic highway network. To mitigate the impact of development proportional contributions are required towards the delivery of identified mitigation schemes at a total of 7 junctions.

- 7.6.4 On this basis, the proposed development complies with the requirements of the NPPF and does not result in a 'severe' residual impact upon the operation of the highway network.

SECTION 8 Summary and Conclusions

8.1 Summary

Background

- 8.1.1 Landform Bersted Ltd (Landform) has appointed i-Transport LLP to provide highways and transport advice for the proposed development comprising 225 dwellings at Nursery Fields, on land to the west of Bersted and to the north of Chalcraft Lane.
- 8.1.2 The site forms a part of the wider 'West of Bersted' Strategic Allocation, which is identified in the adopted Arun Local Plan 2011 – 2031 (2018) under policy H SP2a (SD3). The whole West of Bersted allocation has been identified as being able to deliver at least 2,500 dwellings over the plan period.
- 8.1.3 In line with Planning Practice Guidance (PPG), the transport and highways implications of the proposed development have been subject of pre-application discussions with West Sussex County Council (WSCC), in their capacity as the local highway authority. The comments received from WSCC have been taken into account during preparation this Transport Assessment (TA).

Policy Context

- 8.1.4 Paragraph 108 of the NPPF identifies the three key transport criteria that decisions on development proposals should take account of. These are whether:
- The opportunities for sustainable travel have been appropriately 'taken up';
 - Safe and suitable access can be achieved; and
 - Improvements can be undertaken within the transport network that cost effectively limit the impacts of the development.
- 8.1.5 These criteria are reflected in local policy. This TA has therefore been prepared to assess the development proposal against these criteria, as well as other relevant local policy and guidance.
- 8.1.6 It is noted that the site forms part of the wider West Bersted Allocation SD3 in the Arun District Council Local Plan. The associated Arun Transport Study assesses the impact of local plan development on the strategic network and apportions infrastructure costs to each of the housing allocations.

Existing Conditions

- 8.1.7 The site is located within close proximity to a network of existing and proposed walking and cycling facilities which offer safe and convenient routes to local services and facilities.
- 8.1.8 The site is located within a reasonable walking distance of bus stops which provide a regular service to wider destinations including Bognor Regis, Littlehampton and Chichester. Bognor Railway Station is located approximately 2.2km to the south of the site and provides further opportunities for travel to destination further afield including Portsmouth, Brighton and London Victoria.
- 8.1.9 The site is well connected to the local highway network and a review of personal injury data does not indicate any specific highway safety problem on the local highway network.

Development Proposals

- 8.1.10 Vehicular access is proposed from Chalcraft Lane using the access proposed as part of planning application BE/81/20. The proposed access arrangements have been designed in accordance with the relevant design guidance contained in the Manual for Streets and delivers an appropriate arrangement and visibility to ensure the safe movement of vehicles.
- 8.1.11 A 3.2m foot/cycle way is provided adjacent to the site access road that connects with a Toucan crossing over Chalcraft Lane. In turn, this will connect to Central Drive and onward cycle connectivity to the Advisory Cycle Route to Bognor Railway Station via a length of shared use path on the eastern side of the Chalcraft Lane carriageway.
- 8.1.12 Whilst the layout of the site would be a matter for consideration as part of a Reserved Matters Application, an illustrative layout is provided that demonstrates how development can be delivered on the site. Primary cycle routes providing connectivity for new and existing residents are to be provided, with linkages to other key destinations and established pedestrian and cycle networks.
- 8.1.13 The development will deliver car and cycle parking in line with the relevant adopted guidance and will promote a site layout that has been developed in accordance with the principles of Manual for Streets.

Traffic Impact

- 8.1.14 The adopted The Arun Local Plan (2011-2031) was supported by a Transport Study Stage 3 Report prepared by Systra. The report identifies trip rates obtained from the TRICS database and using these figures the proposed development is expected to generate 92-97 two-way vehicle movements during the evening and morning peak periods respectively. This equates to on average one to two vehicle movements every minute during the busiest periods of the day.
- 8.1.15 The trips generated by the proposed development have been assigned to the network using a combination of Journey to Work Census data and a Gravity Model, depending on the expected journey purpose.

Operational Assessments

- 8.1.16 Traffic data was collected in 2018; an allowance has been made for growth associated with committed development totalling some 1,214 dwellings and 1,542 sqm of commercial space, in addition to further background growth derived using TEMPRO.
- 8.1.17 Operational assessments have been undertaken at the following locations:
- Proposed Site Access;
 - Chalcraft Lane / West Meads Drive Cross Road Junction;
 - Lower Bognor Road / Chalcraft Lane / Hewarts Lane Roundabout; and
 - North Bersted Street / Chichester Road / Chalcraft Lane Double Mini-Roundabout.
- 8.1.18 The assessments demonstrate that the proposed development will not have a 'severe' impact upon the performance of the junctions. The Chalcraft Lane 'double-mini' is approaching capacity; paragraph 109 of the NPPF identifies that development should only be resisted on capacity grounds when the impact is 'severe'. In this instance, the development is some way short of this threshold.
- 8.1.19 The Arun Transport Study assessed the impact of allocated development upon the operation of the wider strategic highway network. To mitigate the impact of development proportional contributions are required towards the delivery of identified mitigation schemes at a total of 7 junctions.

8.2 Conclusions

8.2.1 On this basis of the above, it is concluded that the proposed development complies with the requirements of the NPPF insofar that:

- The opportunities for sustainable travel have been appropriately taken up;
- Safe and suitable access can be achieved; and
- Improvements can be undertaken within the transport network that cost effectively limit the impacts of the development.

8.2.2 Further, the proposed development accords with paragraph 109 of the NPPF in that the proposed development does not have a severe impact upon the operation of the highway network; therefore, there are no reasonable grounds to refuse the application on matters of highways and transport.

FIGURES

TRAFFIC FLOW FIGURES

DRAWINGS

APPENDIX A. Transport Assessment Scoping Note and Trip Rate Review

APPENDIX B. PIA Data

APPENDIX C. Illustrative Site Layout

APPENDIX D. Traffic Survey Data

APPENDIX E. Distribution and Assignment

APPENDIX F. Junction Geometry Drawings

APPENDIX G. Junction Capacity Assessments

