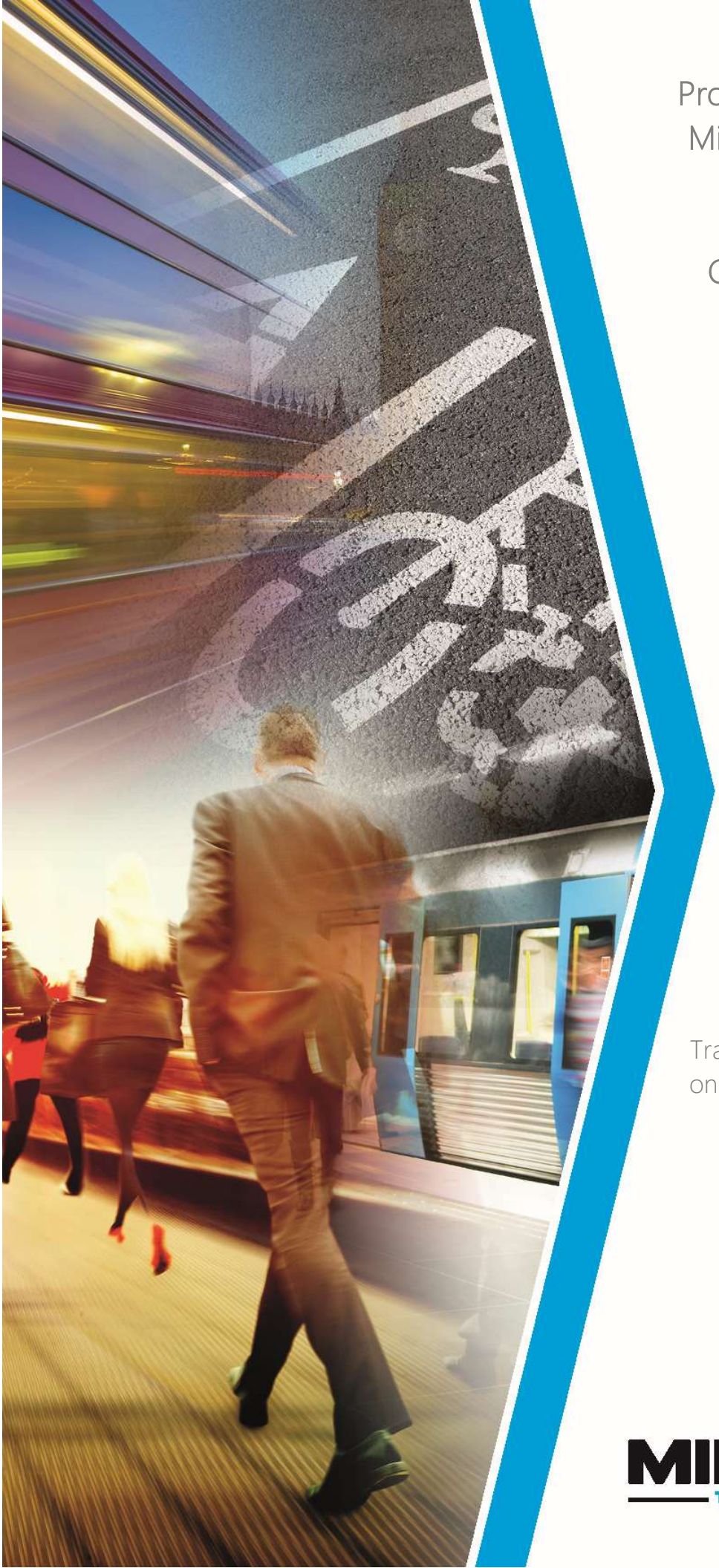


Proposed Residential-Led Mixed-Use Development

Land North West of Goring Station, Goring-by-Sea, West Sussex

Transport Assessment prepared on behalf of Persimmon Homes Thames Valley

August 2020

MILESTONE TRANSPORT PLANNING

Land North West of Goring Station, Goring-by-Sea, West Sussex

Project No: 18-122

Document Reference No:

Document Title: Transport Assessment

Date: August 2020

Client Name: Persimmon Homes Thames Valley

Project Manager: Tony Wares

Author: Olivia Hennessy & Zac Michaelides

Produced By: Milestone Transport Planning Limited
Abbey House, 282 Farnborough Road, Farnborough, Hants, GU14 7NA - Tel: 01483 397888
Gateshead IBC, Mulgrave Terrace, Gateshead, Tyne & Wear, NE8 1AN - Tel: 0191 3387220

Email: mail@milestonetp.co.uk
Web: www.milestonetp.co.uk

Document history and status

Revision	Date	Description	Prepared By	Checked By	Authorised By
-	09/01/2020	Transport Assessment (Working Draft for Client Comment)	O. Hennessy & Z. Michaelides	T. Wares	T. Wares
-	06/07/2020	Transport Assessment (Updated Draft for Comment by WSCC Highways)	O. Hennessy & Z. Michaelides	T. Wares	T. Wares
-	07/08/2020	Transport Assessment (Final)	O. Hennessy & Z. Michaelides	T. Wares	T. Wares

CONTENTS

Tables

Appendices

1. Introduction

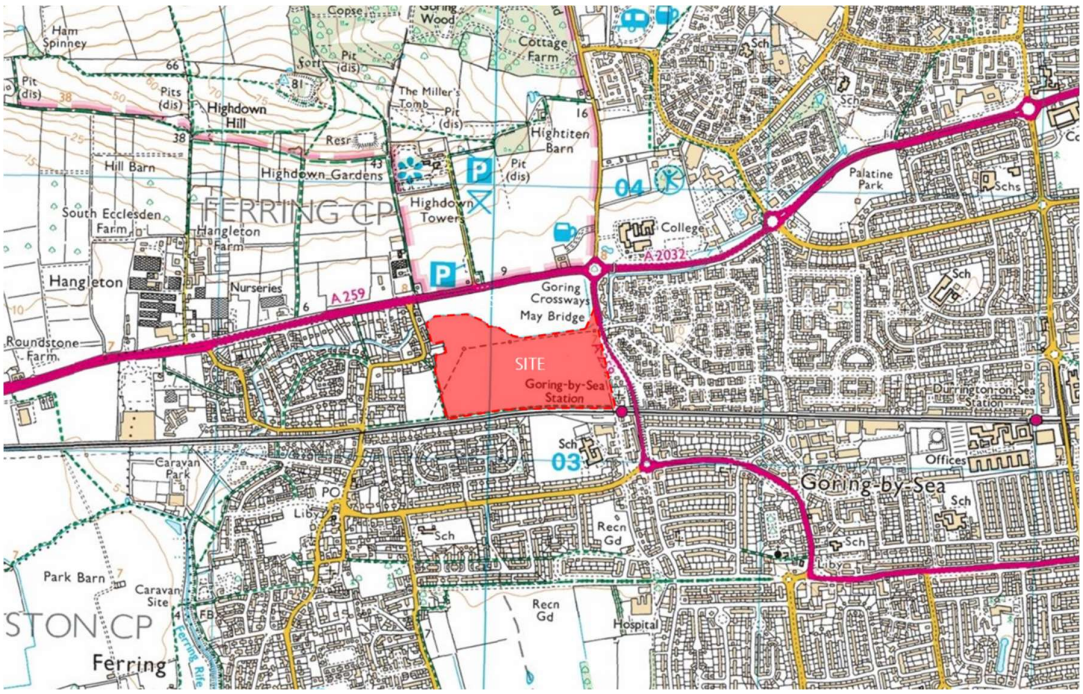
Scope of Transport Assessment

1.1 This Transport Assessment (TA) has been prepared by Milestone Transport Planning (MTP) on behalf of Persimmon Homes Thames Valley ('*the applicant*') in support of an outline planning application for a mixed-use development comprising up to 475 dwellings (Use Class C3) along with associated access, internal roads and footpaths, car parking, public open space, landscaping, local centre (uses including A1, A2, A3, A4, A5, D1, D2) with associated car parking, car parking for the adjacent railway station, undergrounding of overhead HV cables and other supporting infrastructure and utilities on land North West of Goring Station, Goring-by-Sea in West Sussex.

1.2 The application site is a rectilinear shaped parcel of land circa 19.96 ha in size and comprises of flat arable fields, bordered by semi-improved grasslands, Ferring Rife River (flows east to west) and a line of pylons running just south of the Rife. It lies entirely within the confines of the Local Planning Authority, Worthing Borough Council (WBC).

1.3 The site is contained on all 3 sides by urban development. It is located to the south and west of the A259 Littlehampton Road and Goring Street, north of the West Coastway rail line, north-west of Goring rail station, and east of Ferring Lane and a public right of way (Footpath No. 2121_1), approximately 1.5-kilometres west of Goring district centre. The site in context with the local area and highway network is shown in Figure 1.

Figure 1 Site Location Plan



1.4 Vehicular access to the site is currently via a field access point comprising a dropped kerb and crossover, located off the western side of the A259 Goring Street, approximately 20-metres south of the give-way priority junction with The Strand.

1.5 In accordance with national, regional and local planning policy objectives, which seek to encourage more sustainable forms of travel in favour of the private car for various journey purposes, it is evident that the site is in a highly sustainable location for development that benefits from being accessible by on-foot and by cycle to public transport infrastructure; local catchment area primary, secondary schools and further education establishments; and a range of amenities catering for the everyday needs of households in Goring district centre.

1.6 The mixed-use development proposals comprise: -

- The erection of up to 475 dwellings along with associated access, internal roads and footpaths, car parking, public open space, landscaping, local centre (uses including A1, A2, A3, A4, A5, D1, D2) with associated car parking, car parking for the adjacent railway station, undergrounding of overhead HV cables and other supporting infrastructure and utilities.
- The permanent closure of the A259 Goring Street and minor Goring Street (link serving Goring rail station, Church of Jesus Christ, and several residential blocks (Hereford, Salisbury, and Winchester).
- The creation of a new 3-arm roundabout junction to operate as the site's principal access and internal link road to serve the above-mentioned destinations located off the minor Goring Street.
- The modification of the A259 Goring Street / The Strand give-way priority junction to prohibit 'right-turn' manoeuvres into and out of The Strand.
- The relocation of a Toucan crossing along the A259 Goring Street approximately 70-metres south of the existing facility, in accordance with the main desire lines and enhanced pedestrian and cycling links to Goring rail station.
- The provision of a new public car park to serve the local centre and Goring rail station located in the south-east corner of the site.
- The upgrade of an existing Public Right of Way Network (PRoW) and increased public pedestrian access across the site along Ferring Rife and new parkland.
- The undergrounding of HV Power lines.

1.7 The purpose of the TA is to establish the multi-modal trip generating potential of the residential-led mixed-use development proposals and associated impact on the local highway and transport networks over the course of a typical weekday and during the AM (08:00 – 09:00) and PM (17:00 – 18:00) peak hour periods. It further evaluates the site's accessibility credentials and the proposed access, parking, delivery, and servicing arrangements in light of relevant national, regional, and local planning design guidance.

1.8 To inform the scope of the TA, pre-application consultation was undertaken with the Local Highway Authority, West Sussex County Council (WSCC) on 2nd November 2018. A Pre-Application Scoping Note summarising the key transport and highways principles relating to the framework of national, regional and local planning policy; the site's accessibility credentials; baseline highway / transport conditions; proposed movement and access strategy; and methodology for deriving the multi-modal trip generation and impact on the local highway and transport networks was submitted to WSCC in advance of the pre-application meeting.

1.9 The key outcomes, which arose from the pre-application discussions required the applicant to: -

- Consider the Worthing Local Plan Transport Assessment (WLPTA), prepared by WSP in August 2018 as part of the TA. This report assessed the cumulative impacts of proposed local plan sites in WBC's Local Plan including a smaller scale of development on the site. MTP were also requested to consider WSCC's '*Walking and Cycling Strategy 2016-2026*' (April 2017).
- Undertake consultation with local residents / stakeholders, which would be affected by the proposed access arrangements involving the permanent closure of the minor Goring Street link, reinstatement of the shared foot / cycleway and diversion via the 3-arm roundabout junction and internal highway.
- Consider referencing Personal Injury Accident (PIA) records / analysis for the wider local highway network, as set out in the WLPTA.
- Conduct a Stage 1 Road Safety Audit (RSA) and Designer's Response of the proposed access arrangements (i.e. 3-arm roundabout junction), as part of the TA.
- Conduct a parking '*stress*' survey to establish demand for on and off-street (i.e. Goring rail station car park) and inform the total number of car parking spaces, which would be provided in the new public car park in the site's south-eastern corner. The applicant was requested to agree scope of the survey and extent of the study area with WSCC, prior to being undertaken by an independent company.
- Re-run the Trip Rate Information Computer System (TRICS) assessment with regard given to selecting sites with similar type / size of residential units as well as set out the methodology for assigning trips to the local highway network.
- Include the vehicular trip generating potential of all local plan sites set out in WBC's Local Plan and WLPTA as well as those in association with an approved planning application (Reference: A/40/18/OUT) for up to 525 residentials units (Use Class C3) and 3 ha of employment land (Use Class B1) on land north of Water Lane in Angmering within the highway impact assessment. The latter was requested due to its impact and proposed mitigation measures for the 5-arm roundabout junction of the A27 / A280 / A2700 Titnore Lane. Future Year scenarios of 2024 (5 years post application) and 2033 (End of emerging Worthing Local Plan) were identified as appropriate.
- Develop a mitigation scheme for the 4-arm roundabout junction of the A259 Littlehampton Road / Goring Street, A2032 and Titnore Lane ('*Goring Crossroads*'), which could accommodate the proposed development together with that associated with the other local plan sites.
- Provide car and cycle parking in accordance with WSCC's standards and the car parking calculator tool, the latter used to assess the likely demand of future households. The new public car park would need to be designed to strike a balance between providing enough spaces to satisfy demand but avoid attracting additional rail commuters and potential displacement of vehicles on the internal road network of the proposed development.
- Prepare a Residential Travel Plan (RTP) aimed at providing a long-term strategy for encouraging sustainable travel patterns and behaviour amongst future households and visitors.

1.10 A second pre-application meeting was conducted with WSCC Highways Officer on 6th December 2019 to discuss the emerging development proposals. A working draft of the TA was submitted to WSCC Highways Officer in advance of the meeting. The key outcomes to resolve as part of a TA in support of a future planning submission were considered to be: -

- The suitability of the site's access design in relation to queuing back of traffic to the A259 Goring Street / Goring Way junction to the south.
- The requirement to implement surface improvements to the existing PRoW that runs in an east to west direction, along the site's southern boundary and potential upgrade to bridleway status, to enable use by cyclists.
- The need to extend the red line boundary plan to include the PRoW / pedestrian access point located in the north-west corner of the site.
- The inclusion of vehicular traffic movements in association with the commercial aspects of the residential-led mixed-use development proposal (i.e. commercial retail unit and crèche) within the multi-modal trip generation and highway impact assessments.
- The inclusion of other committed developments within the highway impact assessment, most notably: -
    - Land South of Water Lane, Angmering (Reference: A/99/17/OUT);
    - West End Nursery, Roundstone Lane, Angmering (Reference: A/144/15/PL);
    - Land to east of Roundstone Lane, Angmering (Reference: A/82/12);
    - Land at Worthing Rugby Club (250-units, under Use Class C3);
    - Pound Place, Roundstone Lane, Angmering – 71-bed care home (Reference: A/51/18/PL);
    - Manor Nursery, High Street, Angmering (Reference: A/51/14/OUT); and
    - Quiet Waters, Roundstone Lane, Angmering, BN16 4AX (Reference: A/132/17/OUT).
- The use of '*Worthing Local Authority – Urban – All Road Types*' Trip End Model Presentation Program (TEMPro) growth factor to inform future year modelling scenarios.
- The reassignment of vehicular movements via the A259 Goring Street / A2032 / Titnore Lane 4-Arm Roundabout Junction (i.e. Goring Crossways), as a result of the modification to the existing A259 Goring Street / The Strand give-way junction.
- The need for the results of the junction capacity assessments to be expressed as delays for each arm of the junction. Additional assessment of the A280 / A27 / Titnore Lane Dumbbell Roundabout Junction required to assess the impact of additional vehicular traffic movements on the mitigation that was approved as part of the Land North of Water Lane, Angmering planning application.
- The requirement to consider an appropriate level of mitigation for the A259 Goring Street / A2032 / Titnore Lane (i.e. Goring Crossways) and A259 Goring Street / Goring Way / Aldsworth Avenue / Ardingly Drive / Goring Way 5-Arm Roundabout Junctions.
- The need to consider potential management measures for the station car park and pricing regime.

1.11 Copies of WSCC's Pre-Application responses dated 15th November 2018 and 6th January 2020 are attached at Appendix 1 of this report.

1.12 This report has been prepared in accordance with relevant national, regional and local planning policies, most notably, the Ministry of Housing, Communities & Local Government's National Planning Policy Framework (NPPF) and the National Planning Practice Guidance on '*Travel Plans, Transport Assessments and Statements in Decision Making*' (2014. Further reference is made to the Department for Transport's (DfT's) '*Manual for Streets*' (MfS1 publication (March 2007) and WSCC's '*Guidance on Parking at new Developments*' (2019).

1.13 In addition to the TA, a RTP outlining a long-term strategy for encouraging future households and visitors to adopt sustainable travel patterns and behaviour, primarily focused on the 'active' modes of walking and cycling has been prepared by MTP in support of the planning application. This document should be read in conjunction with the TA.

1.14 In context of the guidelines within paragraph 109 of the NPPF it is considered that there are no residual cumulative impacts in terms of highway safety or the operational capacity of the surrounding transport network and therefore planning permission should not be withheld on transport planning and highway grounds.

Report Structure

1.15 The remainder of the TA is structured as follows:

- Section 2 evaluates the development proposals in light of current national, regional, and local planning policies, to demonstrate compliance with the core principles.
- Section 3 describes the site's location in context with the local area, and its accessibility by a variety of travel modes to key local and regional destinations and range of amenities available and accessible on-foot.
- Section 4 sets out the baseline conditions in respect of the local highway network and presents the results of a parking 'stress' and car park usage / accumulation surveys examining the demand for on and off-street parking spaces within short walking distance of the site. Further, it assesses the safety characteristics of the local highway network based on personal injury accident / collision data obtained.
- Section 5 describes the proposed development including the access, parking, delivery, and servicing strategy in context with national and local best practice design guidance.
- Section 6 assesses the multi-modal trip generating potential of the residential-led mixed-use development proposals over the course of a typical weekday as well as during the AM and PM peak hour periods.
- Section 7 considers, in detail, the potential impacts arising from the residential-led mixed-use development proposals on the local highway and transport networks.
- Section 8 proposes a long-term strategy for encouraging future households and visitors to adopt sustainable travel patterns and behaviour for a variety of journey purposes, primarily through the implementation of a Residential Travel Plan and associated measures.

- Section 9 summaries the report's main findings, clearly stating that the mixed-use development proposals would not have an unacceptable impact on highway safety or result in a '*severe*' residual cumulative impact on the local highway and transport networks, particularly to the conditions of amenity and capacity.

2. Policy Context

2.1 This section of the report provides a review of current national and local planning policies to demonstrate how the transport planning and highways aspects of the development proposals comply with the core aims and objectives.

National Planning Policy Framework (February 2019)

2.2 The Ministry of Planning, Communities and Local Government (MHCLG) initially published the revised National Planning Policy Framework (NPPF) in July 2018 with a further update in February 2019. Promoting sustainable transport is a key thread of the NPPF and paragraph 102 highlights the importance of considering transport issues from the earliest stages of development proposals to ensure that:

- *"the potential impacts on transport networks can be assessed;*
- *opportunities from existing and proposed transport infrastructure, changing transport technology and usage are realised;*
- *opportunities to promote walking, cycling and public transport use are identified and pursued;*
- *environmental impacts of traffic and transport infrastructure are identified, assessed and considered – identifying opportunities for avoiding and mitigating any adverse effects and for net environmental gains; and*
- *patterns of movement, streets, parking and other transport considerations are integral to the design of schemes and contribute to making high quality places."*

2.3 Paragraph 103 goes on to state that: "*The planning system should actively manage patterns of growth…Significant development should be focused on locations which are or can be made sustainable, through limiting the need to travel and offering a genuine choice of transport modes…*"

2.4 Paragraph 108 requires specific allocations for development to ensure that:

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

2.5 Paragraph 109 continues to state that '*…developments should only be prevented or refused on highway grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe*'.

2.6 Paragraph 110 requires that application for development should:

- *"first give priority to pedestrian and cycle movements, both within the scheme and with neighbouring areas; and second - so far as is possible, facilitate access to high quality public transport, maximising catchment areas to services and implementing appropriate facilities to encourage use;*
- *address the need of people with disabilities and reduced mobility;*

- *create places that are safe, secure and attractive which minimise conflicts between pedestrians, cyclists and vehicles;*
- *allow for the efficient delivery of goods and access by service and emergency vehicles; and*
- *be designed to enable charging of plug-in and other ultra-low emission vehicles*."

National Planning Practice Guidance (March 2014)

2.7 The Ministry of Housing, Communities and Local Government (MHCLG) published the National Planning Practice Guidance (NPPG) on 6th March 2014, for the purposes of providing additional information in support of the NPPF. In addition to other planning matters, the NPPG contains specific guidance on '*Travel Plans, Transport Assessments and Statements in decision-making*'.

2.8 The guidance states that these documents should "primarily focus on evaluating the potential transport impacts of a development proposal" and that they "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."

2.9 The NPPG states that "Transport Assessments, Transport Statements and Travel Plans have a role in supporting national policy, which "sets out that planning should actively manage patterns of growth in order to make the fullest possible use of public transport, waking and cycling, and focus significant development in locations which are or can be made sustainable." More specifically, the NPPG states that "Travel Plans, Transport Assessments and Statements can positively contribute to:

- *Encouraging sustainable travel;*
- *Lessening traffic generation and its detrimental impacts;*
- *Reducing carbon emissions and climate impacts;*
- *Creating accessible, connected, inclusive communities;*
- *Improving health outcomes and quality of life;*
- *Improving road safety; and*
- *Reducing the need for new development to increase existing road capacity or provide new roads."*

Worthing's Local Plan 2003 'Saved' Polices (2007)

2.10 Prior to the adoption of WBC's Local Development Framework, Worthing's Local Plan was adopted in September 2003 to provide the main planning framework for the Borough to 2006. However, following changes in legislation and the adoption of the Core Strategy in April 2011, the majority of the Local Plan policies have been superseded or deleted.

2.11 In 2004 the Planning and Compulsory Purchase Act specified a period (up to 2007) in which transitional arrangements could be set-up to avoid a policy vacuum during the preparation of emerging Local Development Framework documents. The Secretary of State for Communities and Local Government (DCLG) subsequently allowed Local Planning Authorities to '*save*' specific policies beyond this date. Of the 154 policies set out in Worthing's Local Plan, a total of 29 were '*saved*' to assess development proposals.

2.12 Of relevance to the transport and highways aspects of the mixed-use development proposals, Policy TR4 states the requirement for "*development proposals at or on a site adjacent to a railway station should facilitate better interchange facilities with other transport modes and improved rail passenger facilities, as appropriate, and such proposals will be permitted, subject to compliance with all other relevant policies of this Plan*."

2.13 Regarding on-site parking provision, Policy TR9 states that "the consideration of the need for on-site parking provision will be based on the standards in operation at the time of submission of the planning application. Provision in excess of these standards will not be allowed."

2.14 It further states "in considering the acceptability of the extent of any reduced on-site parking provision, regard will be given to environmental and highway safety considerations together with the following factors: -

- *i) the availability, type and proximity of public parking;*
- *ii) the availability and proximity of alternative means of transport;*
- *iii) potential highway safety problems;*
- *iv) potential harm arising from the parking demand being accommodated elsewhere;*
- *v) the extent and nature of on street parking restrictions in the vicinity;*
- *vi) the type and scale of development proposed;*
- *vii) the relationship of the proposal with, and the proximity to nearby land uses*."

Worthing Borough Council's Core Strategy (April 2011)

2.15 The Worthing Core Strategy was adopted by WBC on 12th April 2011 and forms part of the Local Development Framework used to guide planning and development in the Borough up to 2026 as well as inform decision making on all planning applications.

2.16 The vision, as set out in Section 4 of the Core Strategy is that "by 2026 Worthing will have developed as a town with a healthy and diverse population that contributes fully to its future economic growth and prosperity. Development has provided the impetus for regeneration to ensure that Worthing plays a leading role within the wider sub-region."

2.17 Policy 19 of the Core Strategy concerning Sustainable Travel states that "the Council will work closely with its transport partners to produce a consistent and integrated approach to spatial planning and transport strategies. Utilising common priorities and goals set out in the Statement of Common Ground and the Local Transport Plan will ensure that the travelling environment for residents and visitors is safe, accessible and sustainable. This will be achieved by:

- Supporting continued improvements to public transport services
- Improving walking and cycling networks to create sustainable links between the town centre and suburbs
- Producing a car parking strategy for the town centre which will provide a balance between parking demand and overall provision, which will maintain the economic viability of the town centre, whilst promoting it as an area which is safe and accessible for pedestrians and cyclists.

2.18 It further states "the demands that users have for local public transport services and the impacts that car users have on the surrounding road network will be assessed for all new development. Developer contributions will be sought to implement any necessary measures to reduce local road congestion."

2.19 In addition, Policy 19 states "major new developments will require the provision of a Transport Assessment, which will specify how it will affect the surrounding transport environment and how it can mitigate against any adverse effects. Where appropriate, new development will require the provision of a Travel Plan and / or a Transport Assessment, which will need to demonstrate what infrastructure is needed to promote the priorities set out in the Local Transport Plan and the Statement of Common Ground."

Other Relevant Documents

West Sussex Transport Plan 2011 – 2026 (February 2011)

2.20 The West Sussex County Council (WSCC) Local Transport Plan 3 (LTP3) 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 a 15-year period. The plan includes 4 strategies to guide WSCC's approach for maintaining, managing and investing in transport and achieving the main objective of improving the quality of life for West Sussex residents.

2.21 The overall vision of LTP3, as set out in Part 1 - Long Term Strategy is "to achieve efficient, safe and less congested transport networks, which contribute towards:

- *a more competitive and thriving economy;*
- *reductions in emissions;*
- *improved access to services;*
- *jobs and housing, especially for those in need; and*
- *improved quality of life for all those who live and work within our beautiful and unique County."*

2.22 To ensure that identified transport issues are tackled, Part 2 of the LTP3 (Implementation Plan) states the requirement for new development schemes to contribute and support the following objectives:

- *"increasing use of sustainable modes of transport.*
- *improving network efficiency in order to reduce emissions and delays.*
- *improving safety for all road users.*
- *reducing the impact of HGVs on the local community, but in such a way that will support the local economy.*
- *reducing the need to travel."*

2.23 More specifically, Part 2 of the LTP3 sets out a number of aims for Worthing that include -

- *"Maintaining roads and public rights of way to a good standard.*
- *All new development should be designed to promote 'local living', for example shops, jobs and homes all being within easy reach of each other.*
- *All development should provide secure cycle parking to meet the needs of the development and be within close proximity to public transport.*
- *Parking provision at new residential development should provide enough spaces to accommodate the expected number of vehicles at the site or provide measures such as car clubs, which reduce the number of vehicles to match the space available.*
- *Encouraging sustainable travel by improving the existing cycle and pedestrian network through improved signage, connecting routes where appropriate and repairing and maintaining surfaces.*
- *Improving pedestrian accessibility throughout the Borough by enhancing existing pedestrian crossings, and providing new pedestrian crossing facilities at identified key locations.*

- *Promoting sustainable transport choices through projects such as Safer Routes to School.*
- *Manage on-street parking to compliment off-street parking provision and reduce the impact of visitor and commuter parking on residential areas."*

West Sussex Walking and Cycling Strategy 2016-2026 (April 2017)

2.24 The West Sussex '*Walking and Cycling Strategy (2016-2026*' was published in April 2017 and outlines the design and safety principles for walking and cycling that both the County Council and developers will be expected to follow, when implementing infrastructure schemes. The strategy also provides a mechanism by which schemes can be identified and prioritised, thereby enabling the County Council to direct future investment (such as contributions from future development) and support future funding bids.

2.25 The 'Walking and Cycling Strategy' aims to:

- *"Double levels of cycling by 2025,*
- *Reduce each year the rate of cyclists killed or injured on English roads,*
- *Reverse the decline in walking activity, and*
- *Increase the percentage of children aged 5-10 who usually walk to school."*

2.26 The objectives of the strategy are: -

- *"To ensure that cycling and walking are recognised as important travel modes and therefore part of the transport mix.*
- *To make cycling and walking the natural choice for shorter journeys (such as journeys to school), or as part of a longer journey.*
- *To reduce the number of cyclists and pedestrians that are killed or seriously injured on our roads.*
- *To support economic development by facilitating travel to work and services without a car.*
- *To reduce congestion and pollution by encouraging and enabling people to travel without a car.*
- *To increase levels of physical activity to help to improve physical health.*
- *To help to maintain good mental health and staying independent later in life.*
- *To increase the vitality of communities by improving access by bicycle and on foot.*
- *To help people to access rural areas and enjoy walking and cycling."*

2.27 Within Section 3 of the document, it is recognised that the number of cyclists injured in both West Sussex and nationally has increased significantly, primarily due to the growth in vehicular traffic and people travelling by cycle, as opposed to cycling becoming inherently more dangerous. It is further recognised that cycling is more prevalent in urban areas, particularly at junctions. Consequently, to prevent further collisions, infrastructural improvements are required to deliver:

- Segregated paths following major high speed (40 mph+) corridors,
- Leisure facilities that are mainly off-road or less busy lanes,
- A safer built-up environment based on area wide safety management and,

- Where appropriate, reallocation of road space to create improved facilities.

2.28 In assessing the likely demand for new infrastructure and the characteristics and needs of users, Section 3 of the document states the following design principles will apply:

- *"Cycling and walking are recognised a key part of the transport mix,*
- *All new (development) and improvement / maintenance schemes will consider, and wherever possible prioritise, the needs of cyclists and walkers,*
- *The differing needs of users will be recognised in the design of routes and those needs will, wherever possible, be incorporated e.g. people with pushchairs, equestrians etc.*
- *Deliver sound economic and other benefits with key determinants including:*
    - *Supporting economic growth*
    - *Supporting future development*
    - *Accessibility*
    - *Health*
    - *Air quality*
    - *Carbon reduction*
    - *Safety*
    - *Reducing traffic congestion and delay*."

2.29 Section 4 titled '*Supporting Activities*' states that WSCC would continue to work "in partnership with the Local Planning Authorities to secure and agree Travel Plans for appropriate new employment and residential development sites.

2.30 Appendix 1 of the '*Walking and Cycling Strategy*' contains a full list of schemes entered by stakeholders sub-divided by scheme type and prioritised high to low by Sustrans' Rate tool ranking. Under inter-community leisure cycle schemes, there is an aspiration to provide a cycle route from Goring Station to Patching via Highdown Hill comprising a segregated cycle / walking shared path from Goring station via Goring Crossways, A259 crossing improvements, Highdown Hill bridleway upgrade into SDNP, A280 crossing improvements to Selden / Patching village. It states the delivery of some elements could be included in A259 Highway Scheme.

Worthing Local Plan Transport Assessment (August 2018)

2.31 The Worthing Local Plan Transport Assessment was prepared by WSP on behalf of WBC to inform and support the development of the new Worthing Local Plan. It provides a transport evidence base which demonstrates the traffic implications of potential new land use development and identifies an associated package of transport improvements.

2.32 The report presents an assessment of current and forecast transport provision and movements and identifies the impacts of new land use development through a comparative assessment.

2.33 Section 7 of the report presents an indicative mitigation scheme for the A259 Goring Street / A2032 / Titnore Lane 4-Arm Roundabout Junction (i.e. Goring Crossways), which included additional capacity for the junction through widening the approach arms from the A259 Littlehampton Road and Goring Street from 2 to 3 lanes and the approach from Titnore Lane from 1 to 2 lanes. The southern arm of the roundabout junction (A259 Goring Street) would also be widened from 2 to 3 lanes. The report clearly states that the mitigation scheme only provides a broad level of intervention rather than a final design.

Summary

2.34 The proceeding sections of the TA will describe the acceptability of the residential-led mixed-use development proposals in context with national, regional and local transport planning policies, in turn demonstrating that there would no unacceptable impact on highway safety or the residual cumulative impact on the local highway network would be '*severe*'.

2.35 As outlined in Section 4, the proposed access arrangements give priority to the '*active*' modes of walking and cycling, facilitating safe and convenient access to public transport infrastructure / services and range of local amenities likely to cater for the everyday needs of future households and visitors.

3. Site Accessibility Credentials

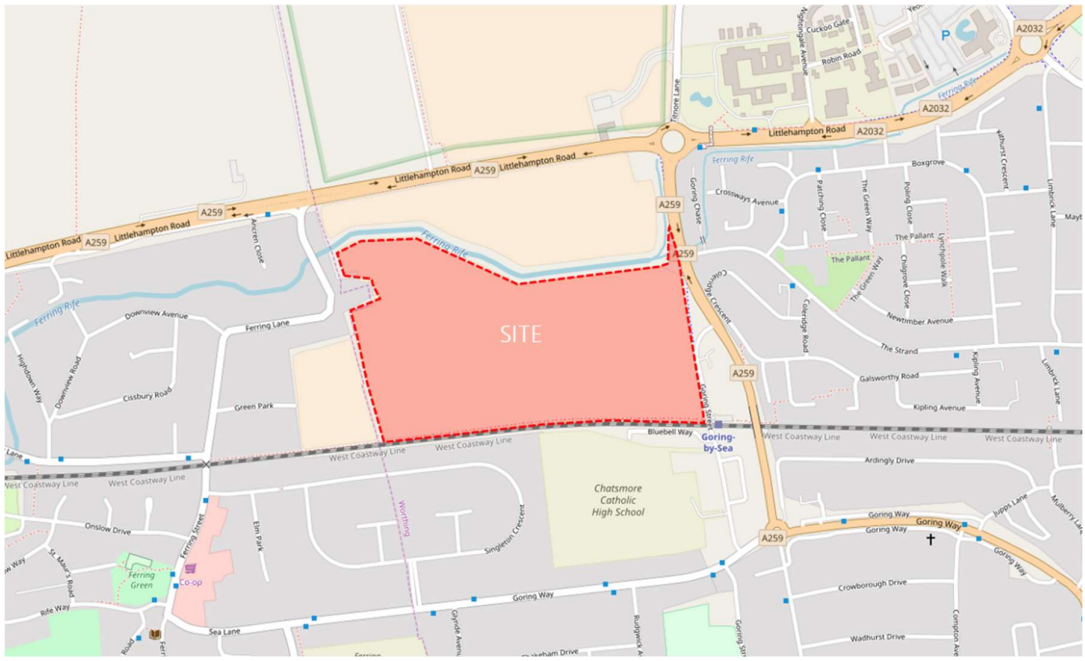
3.1 This section of the report describes the location of the site in context with the local area and reviews the existing provision of transport infrastructure / services by mode, to assess the potential for future households to adopt sustainable travel patterns and behaviour for various journey purposes.

Site Location and Context

3.2 The site encompasses a parcel of land with an area of 19.96 ha, off the western side of the A259 Goring Street. The land is comprised of arable land and Ferring Rife, running from the west side to the east side of the site.

3.3 The site boundaries are formed by Ferring Rife to the north, the A259 Goring Street to the east, a railway line to the south and residential dwellings to the west. In a wider context, the site is located on the outskirts of Goring-By-Sea town and circa 5-kilometres west of Worthing. A plan showing the location of the site in context with the local area and highway network is shown in Figure 2.

Figure 2 Site Location Plan



Accessibility Overview

3.4 The planning process at national, regional, and local level seeks to ensure that development proposals are in areas, where the need to travel will be minimised and opportunities for encouraging sustainable travel behaviour and patterns can be maximised. Consequently, this section of report assesses the existing provision of transport infrastructure and services by mode within the vicinity of the site.

Walking and Cycling Accessibility

3.5 Pedestrian access to the site is via the provision of 2.8-metres wide, lit footways on either side of the A259 Goring Street. A toucan crossing is present south of the site's access, providing a safe crossing on the A259 Goring Street. Additionally, a shared foot / cycleway circa 25-metres south of the site (see Figure 3), provides access to Goring Street, where the presence of dropped kerbs and tactile paving allows access to Goring-By-Sea rail station in a safe and convenient manner.

3.6 To the north of the site, the footways along the A259 Goring Street connect to the southern footway of the A2032 Littlehampton Road via tactile paving. The dual carriageway is served by a footbridge, which provides access to local bus stops, Northbrook College (eastbound / westbound) and Northbrook Metropolitan College.

3.7 To the south-east, the footways along the A259 Goring Street adjoin to the wider pedestrian network via dropped kerbs, tactile paving and a toucan crossing situated at the 4-arm, roundabout junction with Goring Way, Aldsworth Avenue, and the A259 Goring Way.

3.8 Footways along the A259 Goring way / Mulberry Lane / Goring Road provide a direct, safe, and convenient walking route to Goring-By-Sea town centre via dropped kerbs and tactile paving. The town centre is served by a range of local amenities.

Figure 3 View of Shared Footway / Cycleway along the A259 Goring Street

3.9 As previously mentioned, cycle infrastructure is present along both sides of the A259 Goring Street in the form of a shared footway / cycleway. The dedicated cycleway / footway along the western side of the A259 Goring Street extends to the A259 Littlehampton Road, providing a safe and accessible route to the town of Ferring.

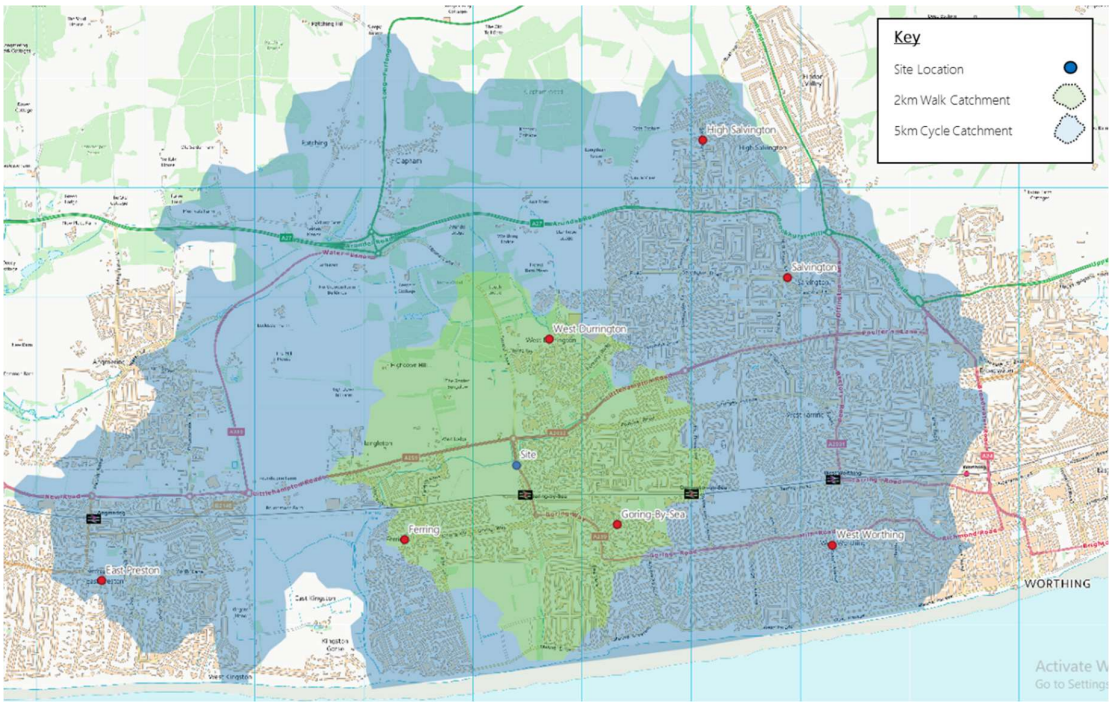
3.10 The site is also within close proximity of the South Coast Cycle Route, as recognised by West Sussex County Council. The cycle route can be accessed from the A259 Littlehampton Road, approximately 1.7-kilometres west of the site. The route is situated along shared footways / cycleways and quiet roads, providing a safe route to the towns of Angmering and Littlehampton.

3.11 Within various national, regional, and local planning policy and best practice guidance documents, the '*active*' modes of walking and cycling are recognised as having the potential to replace short journeys undertaken by private car.

3.12 The Chartered Institute of Highways and Transportation's (CIHT's) publication '*Providing for Journeys on Foot*' (2000), states the average length of a walk journey is 1.0 kilometre. It further suggests a preferred maximum walking distance of 2.0 kilometres for commuting / school journeys and 1.2 kilometres for other journey destinations. Other national planning guidance / best practice publications have previously recommended a maximum distance of 5.0 kilometres for reasonably fit individuals to cycle to / from workplace destinations.

3.13 As shown in Figure 4, a significant proportion of Goring including the town centre / rail station, the residential areas of Ferring and West Durrington are accessible on-foot, within the preferred maximum distance of 2.0-kilometres. In addition, the neighbouring town / village centres of Salvington, High Salvington, West Worthing and East Preston are accessible by cycle.

Figure 4 Walk and Cycle Catchment Plan



Public Transport Accessibility

Bus Services

3.14 The nearest bus stops are located on either side of The Strand (opp. Boxgrove Parade for north-westbound and adj. Boxgrove Parade for south-eastbound), circa 250-metres and 350-metres south-east of the site for the opposite and adjacent stops, respectively. Both stops are served by signage and timetable information, whilst the adjacent stop provides a shelter.

3.15 Additional bus stops are located on either side of the A2032 Littlehampton Road (i.e. Stop A for eastbound services and Stop B for westbound services), approximately 300-metres and 400-metres north-east of the site for Stops B and A, respectively. Both Stop A and B provide a flagpole and timetable information, whilst stop B also provides a shelter.

3.16 As shown in Table 3.1, these stops are served by 2 bus routes which operate on a frequent basis throughout a typical week and weekend, providing access to a multitude of local and regional destinations including local town centres of Goring, Littlehampton, and Worthing.

Table 3.1 Summary of Bus Services Available from the A2032 Littlehampton Road / The Strand

Nearest Bus Stops	Route No.	Frequency (per hour)				Route
		Monday - Saturday		Sunday		
		Day	Eves	Day	Eves	
Boxgrove Parade (opp. / adj.)	10	2	-	-	-	Worthing – Durrington
Northbrook College (A / B)	9	1	-	-	-	Arundel – Shoreham

Rail Services

3.17 Goring-by-Sea rail station is situated off the eastern side of Goring Street, approximately 300-metres south of the site. The station is managed by Southern and provides frequent, direct rail services to a host of local and regional destinations including London Victoria, Brighton, Southampton Central and Worthing. Table 3.2 provides a summary of rail services accessible from Goring-by-Sea rail station including typical daytime frequency and journey times to key local and regional destinations.

Table 3.2 Summary of Rail Services Available at Goring-by-Sea Rail Station

Destination	Service Frequency	Journey Time
London Victoria	2 per hour	1 hour 31 minutes – 1 hour 52 minutes
Worthing	5 per hour	7-9 minutes
Brighton	3 per hour	34-40 minutes
Southampton Central	1 per hour	1 hour 16 minutes – 1 hour 24 minutes
Littlehampton	3 per hour	14-16 minutes
Gatwick Airport	2 per hour	59 minutes – 1 hour 2 minutes
Clapham Junction	2 per hour	1 hour 23 minutes – 1 hour 38 minutes

3.18 At present the station is accessed via a central footbridge, whilst step free access is available to platforms 1 and 2 via the level crossing on Goring Street.

3.19 The station contains a coffee kiosk, ticket machines, toilets, and a waiting room on platform 1. In addition, a total of 23 cycle parking spaces are available from platforms 1 and 2, accessible via Goring Street.

Accessibility to Local Amenities

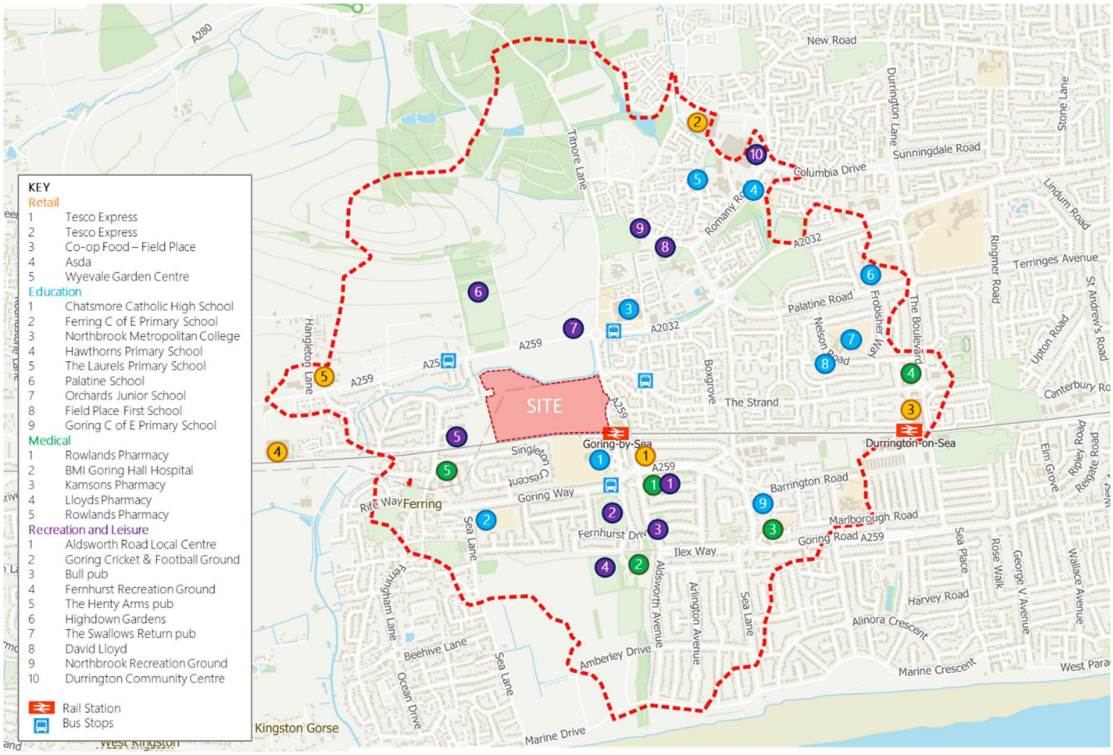
3.20 As identified in Table 3.3, the site is a highly sustainable location for development and benefits from being accessible on-foot and by cycle to a broad range of amenities, which are likely to cater for the convenience, education, healthcare, retail, and leisure needs of future households.

Table 3.3 Summary of Local Amenities Accessible On-Foot and By Cycle

Type of Amenity	Destination	Distance	Walk Journey Time	Cycle Journey Time
Convenience	Tesco Express	600-metres	8-minutes	2-minutes
	Tesco Extra	1.8-kilometres	23-minutes	6-minutes
	Royal Mail	1.1-kilometre	14-minutes	3-minutes
Education	Ferring Funtime Pre-school within Ferring C of E Primary School	1.5-kilometres	18-minutes	5-minutes
	Goring Church of England Primary School	1.3-kilometres	16-minutes	4-minutes
	Chatsmore Catholic High School	450-metres	6-minutes	2-minutes
	Northbrook College	500-metres	7-minutes	3-minutes
Employment	Brookside Industrial Estate	5.2-kilometres	-	16-minutes
	Woods Way Mulberry Lane Trading Estate	1.3-kilometres	16-minutes	4-minutes
Faith	English Martyrs Catholic Church	750-metres	9-minutes	3-minutes
	Goring-by-Sea Methodist Church	900-metres	11-minutes	3-minutes
Healthcare	Rowlands Pharmacy	550-metres	7-minutes	2-minutes
	The Barn Surgery	1.7-kilometres	18-minutes	5-minutes
	Goring Hall Hospital	1.0-kilometres	13-minutes	4-minutes
	Ferring Dental Practice	1.3-kilometres	16-minutes	6-minutes
Leisure and Fitness	David Lloyd Worthing	1.1-kilometres	13-minutes	3-minutes
	Goring Cricket & Football Club	650-metres	8-minutes	2-minutes
	Fernhurst Recreation Ground	1.1-kilometres	13-minutes	3-minutes
	Highdown Gardens	1.3-kilometres	17-minutes	8-minutes
Retail	Rustington Retail Park	4.7-kilometres	-	15-minutes
	Worthing Town Centre	5.0-kilometres	-	15-minutes

3.21 Figure 5 shows the location of the site in context with a range of local amenities, which are likely to cater for the everyday needs of future households.

Figure 5 Local Amenities Plan



Summary

3.22 The review of the baseline conditions demonstrates:

- The site benefits from being accessible on-foot and by cycle to public transport infrastructure and services, which provide a good level of connectivity to a host of local and regional destinations as well as a wide range of amenities likely to cater for the everyday needs of future households and end users. Consequently, in accordance with the main aims and objectives of national, regional, and local planning policy, the residential-led mixed-use development proposals would provide numerous opportunities for future households and other end-users to adopt long-term sustainable travel patterns and behaviour for various journey purposes.

4. Baseline Highway Conditions

4.1 This section of the report describes the local highway network including consideration of the operational and safety characteristics together with the results of a parking '*stress*' survey examining on-street parking patterns and behaviour in the vicinity of the site's access.

Existing Access Arrangements

4.2 The site's existing field access takes the form of a simple priority junction comprising dropped kerbs and crossover measuring circa 10-metres wide, located off the western side of the A259 Goring Street, approximately 20-metres south of the give-way priority junction with The Strand.

Figure 6 View of Site's Access Point off the Western Side of the A259 Goring Street

4.3 An additional field access serving the parcel of open arable land to the north of Ferring Rife River is situated circa 25-metres to the north of the site's access.

Local Highway Network

4.4 The A259 Goring Street is a single carriageway two-way road that runs in a north to south alignment and is subject to a 40-mph speed limit. It operates as a '*Secondary / Residential Distributor Road*' and provides access to / from the strategic road network and the centre and residential areas of Goring-by-Sea.

Figure 7 View of A259 Goring Street Adjacent to Site

4.5 In the vicinity of the existing site access, the A259 junctions with The Strand via an all movement priority T-junction with right turn lane. The Strand is a single carriageway two-way road that runs in a west to east alignment and is subject to a 30mph speed restriction. The Strand has raised tables along its extent acting as traffic calming measures. The Strand provides access to the nearest bus stops to the site.

4.6 Approximately 100-metres south of the site's access, the A259 Goring Street junctions with Goring Street via an all movement priority T-junction with right turn lane. Goring Street is a single carriageway two-way road that runs in a north to south alignment and is subject to a 30mph speed limit. It operates as a 'Minor Road', providing access to a number of residential dwellings in addition to Goring-by-Sea rail station and car park, which currently provides c. 11 spaces. It is noted that Goring Street is not subject to on-street parking restrictions and therefore there is often on-street parking along the east kerb line most likely associated with the station.

4.7 To the north the A259 Goring Street junctions with the A2032 / A259 Littlehampton Road / Titnore Lane via a 4-arm roundabout. Titnore Lane continues north to join with the A27 via a single carriageway two-way road. The A2032 is in the form of a separated dual carriageway and heads east towards residential suburbs of Worthing. The A259 continues west in the form of a separated single carriageway for approximately 650m and then increases to a dual carriageway. The A259 Littlehampton Road is subject to a 50-mph speed limit and continues towards Littlehampton and Chichester.

4.8 The A259 Goring Street continues south over the railway line and junctions with Aldsworth Avenue via a 4-arm roundabout whereby the A259 continues west to Ferring and east to Goring Town Centre and Worthing.

Baseline Traffic Surveys

4.9 When assessing the potential vehicular traffic implications of a residential-led mixed-use development proposal, it is generally accepted by Transport Planning practitioners that the critical periods are the weekday AM (08:00 – 09:00) and PM (17:00 – 18:00) peak hour periods. It is during these periods that the level of vehicular traffic associated with the mixed-use development proposals as well as that on the local highway network is likely to be at its greatest.

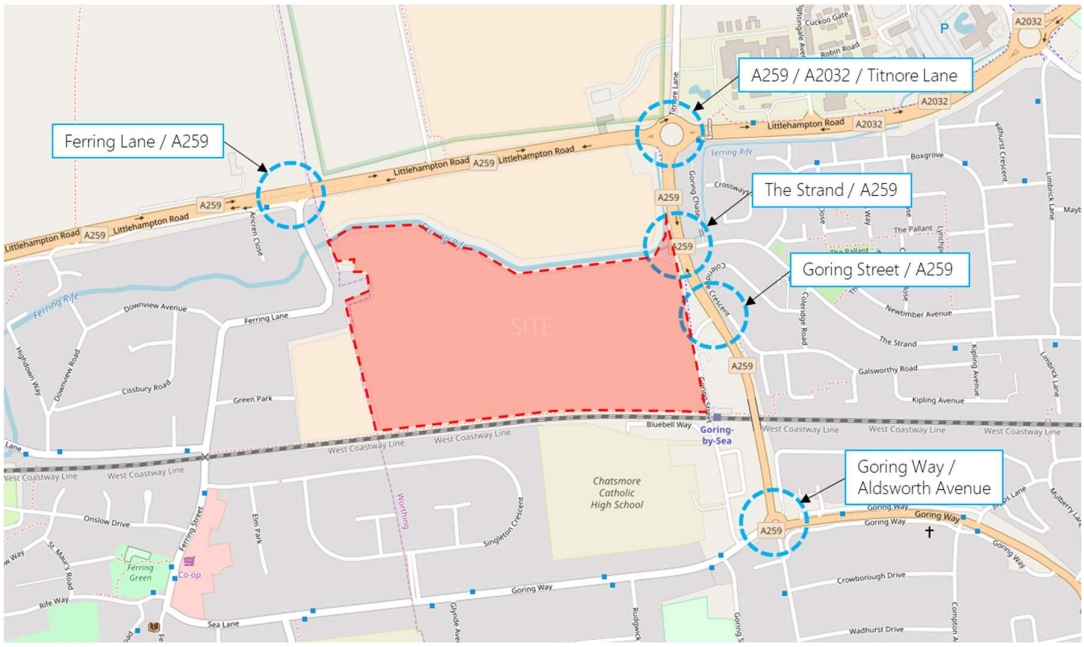
4.10 Following pre-application consultation with WSCC's Highways Officer it was agreed that the scope of the study area for gathering baseline traffic survey data would incorporate the following sections of the local highway network: -

- A259 Littlehampton Road / Ferring Lane (Left-in / Left-out only Junction);
- The A259 Goring Street / The Strand Give-Way Junction;
- The A259 Goring Street / Minor Goring Street Give-Way junction;
- The A259 Goring Street / A2032 / Titnore Lane 4-Arm Roundabout Junction;
- The A259 Goring Street / Goring Way / Aldsworth Avenue / Ardingly Drive / Goring Way 5-Arm Roundabout Junction.

4.11 Figure 8 shows the location of the junctions in context with the site and local highway network.

4.12 MTP commissioned an independent company, Streetwise Services Limited to conduct Manual Classified Count and Queue Length surveys of the 5 aforementioned junctions during the AM (07:00 – 10:00) and PM (15:00 – 19:00) peak periods on Tuesday 27th September 2018. A summary of the 2018 survey results (vehicular movements-only) is presented in Tables 4.1 to 4.5, while a full copy is attached at Appendix 2 of this report.

Figure 8 Baseline Traffic Data Requirement Plan



MCC Surveys

4.13 The results of the MCC surveys revealed that the AM and PM peak hours periods for each of the junctions were as follows:

- A259 Littlehampton Road / Ferring Lane
  - AM (07:30 – 08:30)
  - PM (16:30 – 17:30)
- The A259 Goring Street / The Strand
  - AM (08:00 – 09:00)
  - PM (17:00 – 18:00)
- The A259 Goring Street / Minor Goring Street
  - AM (08:00 – 09:00)
  - PM (17:00 – 18:00)
- The A259 Goring Street / A2032 / Titnore Lane 4-Arm Roundabout Junction
  - AM (08:30 – 09:30)

- PM (16:30 – 17:30)

- The A259 Goring Street / Goring Way / Aldsworth Avenue / Ardingly Drive / Goring Way 5-Arm Roundabout Junction
    - AM (08:00 – 09:00)
    - PM (17:00 – 18:00)

4.14 As shown in Table 4.1, the results of the 2018 MCC survey reveal that a total of 2,626 and 2,646 two-way vehicular movements were observed along the A259 Littlehampton Road during the weekday AM (07:30 – 08:30) and PM (16:30 – 17:30) peak hour periods. The predominant flow of traffic movements in both the AM (63%) and PM (52%) peak hour periods was in an eastbound direction.

4.15 Ferring Lane experiences a low volume of vehicular traffic during the weekday AM (07:30 – 08:30) and PM (16:30 and 17:30) peak hour periods, totalling 49 and 103 two-way movements, respectively. This equates to 4 and 9 two-way vehicular movements every 5 minutes.

Table 4.1 A259 Littlehampton Road / Ferring Lane (Left-in / Left-out Only Junction)

Arm	Movement	Time Periods	
		AM (07:30 – 08:30)	PM (16:30 – 17:30)
A259 Littlehampton Road (East)	Left to Ferring Lane	30	68
	Straight Ahead to A259 Littlehampton Road (West)	977	1271
Ferring Lane	Left to A259 Littlehampton Road (West)	19	35
A259 Littlehampton Road (West)	Straight Ahead to A259 Littlehampton (East)	1649	1375

4.16 It is evident from Table 4.2 that the A259 Goring Street experiences in the order of 2,043 and 2,028 two-way vehicular movements during the AM (08:00 – 09:00) and PM (17:00 – 18:00) peak hour periods, respectively. The predominant flow (52%) of vehicular movements is in a northbound direction during the AM peak hour period. A corresponding number of movements were observed to be heading in a southbound direction (circa 51%) during the PM peak hour.

4.17 A total of 427 and 358 two-way vehicular movements were observed along The Strand during the AM and PM peak hour periods, respectively. The majority (73%) of the movements during the AM peak hour were comprised of right-turn (57%) and left-turn (16%) manoeuvres onto the A259 Goring Street. Of the remaining movements (27%), approximately 19% and 8% comprised of right-turn and left-turn manoeuvres onto The Strand.

4.18 During the PM peak hour, almost two-thirds (64%) of observed traffic at the give-way priority junction comprised of left-turn (29%) and right-turn (35%) manoeuvres from the A259 Goring Street onto The Strand. Of the remaining movements (36%), the majority (24%) comprised of left-turn manoeuvres onto the A259 Goring Street.

4.19 This pattern would suggest that the predominance of left-turn as opposed to right-turn manoeuvres from The Strand is likely to be due in part to the volume of opposing traffic on the main arm of the junction (A259 Goring Street).

Table 4.2 The A259 Goring Street / The Strand Give-Way Junction

Arm	Movement	Time Periods	
		AM (08:00 – 09:00)	PM (17:00 – 18:00)
A259 Goring Street (North)	Left to The Strand	33	103
	Straight Ahead to Goring Street (South)	967	1040
The Strand	Left to Goring Street (South)	244	85
	Right to Goring Street (North)	67	42
A259 Goring Street (South)	Right to The Strand	83	128
	Straight Ahead to Goring Street (North)	1067	988

4.20 As shown in Table 4.3, the Minor Goring Street experiences in the order of 106 and 65 two-way vehicular movements during the AM (08:00 – 09:00) and PM (17:00 – 18:00) peak hour periods, respectively. The majority of the manoeuvres into Minor Goring Street during both peak hour periods are comprised of right-turns from the A259 Goring Street. The predominant flow of vehicles from Minor Goring Street onto the A259 Goring Street were comprised of left-turn manoeuvres throughout the AM and PM peak hour periods.

Table 4.3 The A259 Goring Street / Minor Goring Street Give-Way Priority Junction

Arm	Movement	Time Periods	
		AM (08:00 – 09:00)	PM (17:00 – 18:00)
A259 Goring Street (North)	Right to Minor Goring Street	48	29
	Straight Ahead to Goring Street (South)	1165	1094
Minor Goring Street	Left to Goring Street (North)	46	27
	Right to Goring Street (South)	1	3
A259 Goring Street (South)	Left to Minor Goring Street	11	6
	Straight Ahead to Goring Street (North)	1101	1088

4.21 Table 4.4 reveals that the western arm of the roundabout junction (A259 Littlehampton Road West) experiences in the order of 2,557 and 2,729 two-way vehicular movements during the AM and PM peak hour periods, respectively.

4.22 A total of 2,186 and 2,161 two-way vehicular movements were observed along the eastern arm of the roundabout junction (A259 Littlehampton Road East) during the AM and PM peak hour periods, respectively. Similar to the western arm, a significant proportion (68% and 73%) of movements comprised of straight-ahead manoeuvres to the A259 Littlehampton Road West) during the AM and PM peak hour periods. Just over one fifth (22% and 21%) comprise of left-turn manoeuvres to the A259 Goring Street.

4.23 The northern arm of the roundabout (Titnore Lane) experiences a total of 744 and 959 two-way vehicular movements during the AM and PM peak hour periods, respectively.

4.24 A total of 2,035 and 2,159 two-way vehicular movements were observed along the A259 Goring Street during the AM and PM peak hour periods, respectively. A significant proportion (i.e. 41% and 45%) of movements from the southern arm of the roundabout (A259 Goring Street) comprise left-turn manoeuvres onto the A259 Littlehampton Road.

Table 4.4 The A259 Goring Street / A2032 / Titnore Lane 4-Arm Roundabout Junction

Arm	Movement	Time Periods	
		AM (08:30 – 09:30)	PM (16:30 – 17:30)
A2700 Titnore Lane	Left-to A259 Littlehampton Road (East)	68	80
	Straight Ahead to Goring Street	215	324
	Right to A259 Littlehampton Road (West)	32	51
A259 Littlehampton Road (East)	Left to Goring Street	224	242
	Straight Ahead to A259 Littlehampton Road (West)	693	813
	Right to Titnore Lane	95	61
A259 Goring Street	Left to A259 Littlehampton Road (West)	422	474
	Straight Ahead to Titnore Lane	255	329
	Right to A259 Littlehampton Road (East)	347	239
A259 Littlehampton Road (West)	Left to Titnore Lane	79	114
	Straight Ahead to A259 Littlehampton Road (East)	759	726
	Right to Goring Street	572	551

4.25 As shown on Table 4.5, it is evident that a significant proportion (i.e. 60% and 61%) of vehicular movements from the northern arm of the roundabout junction (A259 Goring Street) comprise left-turn manoeuvres into the A259 Goring Way during the AM and PM peak hour periods. Over a quarter (27% and 29%) of movements comprise of right-turn manoeuvres into Goring Way, towards Ferring village centre.

4.26 It is evident that a significant proportion (88% and 86%) of vehicular traffic movements exiting the eastern arm of the roundabout junction (A259 Goring Way) comprise of right-turn manoeuvres into the A259 Goring Street.

Table 4.5 The A259 Goring Street / Goring Way / Aldsworth Avenue / Ardingly Drive / Goring Way 5-Arm Roundabout Junction.

Arm	Movement	Time Periods	
		AM (08:00 – 09:00)	PM (17:00 – 18:00)
A259 Goring Street	Left to A259 Goring Way	698	668
	Straight Ahead to Aldsworth Avenue	149	106
	Right to Goring Way	317	322
Ardingly Road	Left to A259 Goring Way	34	26
	Straight Ahead to Aldsworth Avenue	15	5
	Right to Goring Way	12	23
	Right to A259 Goring Street	39	58
A259 Goring Way	Left to Aldsworth Avenue	8	7
	Straight Ahead to Goring Way	77	96
	Right to A259 Goring Street	614	655
Aldsworth Avenue	Left to Goring Way	33	38
	Straight Ahead to A259	177	171
	Right to A259 Goring Way	31	29
Goring Way	Left to A259 Goring Street	270	219
	Straight Head to A259 Goring Way	184	138
	Right to Aldsworth Avenue	26	13

Baseline Junction Capacity Assessments

4.27 In order to establish the current performance of key local junctions during the AM and PM peak hour periods, the 2018 surveyed flows have been modelled using '*Junctions 9*' tool, which comprises PICADY / ARCADY software.

4.28 PICADY / ARCADY provide an assessment of the operational capacity of a junction through the Ratio of Flow to Capacity (RFC) with commonly accepted standards of a junction with RFC values of 0.85-0.9 and below considered to be operating within its theoretical capacity and junctions with RFC values over this suggest they may be operating at the higher end of their capacity. A copy of the junction capacity assessment outputs is attached at Appendix 3 of this report.

4.29 The junction capacity models have been calibrated against the observed queue surveys, with the model mean max queue within the limits observed during the baseline traffic surveys.

A259 Goring Street / Minor Goring Street

4.30 Table 4.6 demonstrates that the priority give-way junctions of the A259 Goring Street with Minor Goring Street currently operates well within capacity during the AM (08:00 – 09:00) and PM (15:00 – 16:00) peak hour periods with minimal queuing and delay at along the minor arm and right-turn lane.

Table 4.6 A259 Goring Street / Minor Goring Street – 2018 Base

Arm	AM Peak Hour (08:00 – 09:00)			PM Peak Hour (17:00 – 18:00)		
	RFC	Queue (Veh)	Delay (S)	RFC	Queue (Veh)	Delay (S)
Goring Street	0.16	0.2	13.33	0.12	0.1	15.53
A259 Goring Street	0.14	0.2	11.06	0.09	0.1	11.01
JUNCTION DELAY (S)*	0.48			0.36		

*Demand-weighted averages

A259 Goring Street / The Strand

4.31 Table 4.7 reveals that the priority give-way junction of the A259 Goring Street and The Strand is operating over capacity as indicated by the high RFC values, length of queuing vehicles and associated delay on the minor arm during the weekday AM and PM peak hour periods respectively.

Table 4.7 A259 Goring Street / The Strand – 2018 Base

Arm	AM Peak Hour (08:00 – 09:00)			PM Peak Hour (17:00 – 18:00)		
	RFC	Queue (Veh)	Delay (S)	RFC	Queue (Veh)	Delay (S)
The Strand	1.84	82.2	883.24	1.83	33.1	691.44
A259 Goring Street	0.21	0.30	10.26	0.35	0.05	14.00
JUNCTION DELAY (S)*	111.37			37.46		

*Demand-weighted averages

A259 / A2032 / Titnore Lane

4.32 Table 4.8 presents the length of queues observed during the weekday AM and PM peak hour periods. In accordance with the predominant west to east movements, the longest queue length (i.e. 75 vehicles) was observed on the western arm (A259 Littlehampton Road) during the AM peak hour period. With the exception of the southern arm (A259 Goring Street), the queue lengths on the remaining approaches were substantially less during the PM peak hour period.

Table 4.8 A259 / A2032 / Titnore Lane – Observed Queues

Time Period	Queue (Vehicles)			
	A2700 Titnore Lane	A2032 Littlehampton Road	A259 Goring Street	A259 Littlehampton Road
AM Peak (08:00 – 09:00)	33	53	16	75
PM Peak (17:00 – 18:00)	25	30	20	22

4.33 When calibrating the vehicle queue lengths, the results of the junction capacity assessment reveal that all arms operate significantly close to or over capacity during the weekday AM and PM peak hour periods, as indicated by the high RFC values (i.e. >1.00), length of queues and delays.

4.34 With the exception of the southern arm (A259 Goring Street), the observed delays are significantly more pronounced during the weekday AM peak hour period. Most notably, the total delay (i.e. 153 seconds / 2.5-minutes) is almost double that observed during the weekday PM peak hour period. The greatest length of delay, equivalent to 6.9-minutes was observed on the northern arm (A2700 Titnore Lane) and is due to the predominant east to west movements through the junction, which are afforded priority.

Table 4.9 A259 / A2032 / Titnore Lane – 2018 Base

Arm	AM Peak Hour (08:00 – 09:00)			PM Peak Hour (17:00 – 18:00)		
	RFC	Queue (Veh)	Delay (S)	RFC	Queue (Veh)	Delay (S)
A2700 Titnore Lane	1.21	33.1	413.82	1.08	25.0	166.00
A2032 Littlehampton Road	1.10	53.8	185.85	1.02	30.1	91.73
A259 Goring Street	0.97	16.1	49.23	0.99	20.5	65.14
A259 Littlehampton Road	1.09	75.7	156.95	0.99	22.6	52.88
JUNCTION DELAY (S)*	152.74			79.35		
*Demand-weighted averages						

4.35 However, it should be noted that the impact on the future operation of the roundabout junction is potentially overstated, as once an RFC value exceeds 1 (i.e. the point at which an arm is considered to have reached its theoretical capacity), queuing increases exponentially, as further traffic is added.

A259 Goring Street / A259 Goring Way / Aldsworth Avenue / Ardingly Drive

4.36 As shown in Table 4.10, it is evident that with the exception of the eastern arm (A259 Goring Way East), the length of observed queues is greater during the weekday AM peak hour period.

Table 4.10 A259 / Aldsworth Avenue / Ardingly Drive – Observed Queues

Time Period	Queue (Vehicles)				
	A259 North	Ardingly Drive	A259 Goring Way East	Aldsworth Avenue	Goring Way West
AM Peak (08:00 – 09:00)	31	2	22	6	8
PM Peak (17:00 – 18:00)	9	2	23	5	7

4.37 Table 4.11 reveals that when calibrating the observed queue lengths of the ARCADY model, with the exception of the Ardingly Drive, the remaining 4-arms of the junction operate close to / over capacity during the weekday AM and PM peak hour periods, respectively, as indicated by RFC values greater than 0.85. The greatest length of queues and corresponding delays (i.e. 1.7 and 1.6-minutes) occurs on the eastern arm (A259 Goring Way East) junction.

Table 4.11 A259 / Aldsworth Avenue / Ardingly Drive / Goring Way West– 2018 Base

Arm	AM Peak Hour (08:00 – 09:00)			PM Peak Hour (17:00 – 18:00)		
	RFC	Queue (Veh)	Delay (S)	RFC	Queue (Veh)	Delay (S)
A259 Goring Street North	1.02	31.3	85.19	0.91	9.1	28.89
Ardingly Drive	0.72	2.2	77.46	0.72	2.2	70.80
A259 Goring Way East	1.02	22.2	102.61	1.01	23.1	98.46
Aldsworth Avenue	0.90	6.1	89.62	0.88	5.2	76.63
Goring Way West	0.92	8.2	58.83	0.91	7.3	68.50
JUNCTION DELAY (S)*	85.13			61.54		
*Demand-weighted averages						

A259 Littlehampton Road / Ferring Lane (Left-in / Left-out only Junction)

4.38 Table 4.12 revels that the '*left-in*' and '*left-out*' - only junction operates fully within capacity during the weekday AM and PM peak hour periods respectively, as indicated by the very low RFC values and absence of queuing vehicles on the minor arm (Ferring Lane).

Table 4.12 A259 Littlehampton Road / Ferring Lane (Left-in / Left-out only Junction) – 2018 Base

Arm	AM Peak Hour (08:00 – 09:00)			PM Peak Hour (17:00 – 18:00)		
	RFC	Queue (Veh)	Delay (S)	RFC	Queue (Veh)	Delay (S)
Ferring Lane (Stream B-AC)	0.05	0.0	8.07	0.08	0.1	8.93
A259 Littlehampton Road (Steam C-AB)	0.0	0.0	0.00	0.0	0.0	0.00
JUNCTION DELAY (S)*	0.06			0.10		
*Demand-weighted averages						

A280 / A27 / Titnore Lane Roundabout Junction

4.39 The A280 / A27 / Titnore Lane junction comprises an uncontrolled linked dumbbell roundabout, located approximately 2.8-kilometres north of the site.

4.40 In accordance with the approach taken by Transport Planning Consultants working on other emerging / approved development proposals in the Angmering / Worthing area, two separate ARCADY models were set up to establish the baseline operation. This approach was agreed following liaison with WSCC Highways Officer.

4.41 To create a 2018 Base model, TEMPro Growth Factors were applied to 2015 MCTC survey data, which was gathered in support of the TA prepared by i-Transport, in support of the outline planning application (Reference: A/40/18/OUT) for a mixed-use development (i.e. 525 residential units, Use Class C3 and 3 hectares of employment land, Under Use Class B1), and associated public open space and soft landscaping on land north of Water Lane in Angmering.

4.42 As shown in Table 4.13, the results of the assessment demonstrates that all arms of the roundabout junction would operate well within capacity, as indicated by the low RFC values and minimal queue lengths / delays during the weekday AM (08:00 – 09:00) and PM (17:00 – 18:00) peak hour periods, respectively.

Table 4.13 A280 / A27 / Titnore Lane Roundabout Junction

Arm	AM Peak Hour (08:00 – 09:00)			PM Peak Hour (17:00 – 18:00)		
	RFC	Queue (Veh)	Delay (S)	RFC	Queue (Veh)	Delay (S)
	2018 Base					
A280 North	0.64	1.8	5.63	0.71	2.5	6.55
A27 Off-Slip	0.38	0.6	6.53	0.39	0.6	6.81
Titnore Lane	0.42	0.7	4.43	0.50	1.0	5.90
A280 South West	0.78	3.4	13.62	0.46	0.9	5.75
JUNCTION DELAY (S)*	7.91			6.29		

* Demand-weighted averages

A280 - A27 - Arundel Road Roundabout Junction

4.43 Table 4.14 reveals that all arms of the A280 / A27 Arundel Road roundabout junction operate well within capacity, under the '*2018 Base*' scenario, as reflected in the low RFC values and minimal queue lengths during the weekday AM (08:00 – 09:00) and PM (17:00 – 18:00) peak hour periods, respectively.

Table 4.14 A280 - A27 - Arundel Road Roundabout Junction

Arm	AM Peak Hour (08:00 – 09:00)			PM Peak Hour (17:00 – 18:00)		
	RFC	Queue (Veh)	Delay (S)	RFC	Queue (Veh)	Delay (S)
	2018 Base					
A280 Long Furlong	0.55	1.2	5.82	0.70	2.3	7.56
A280 South	0.51	1.0	3.86	0.37	0.6	3.08
A27 Off-Slip	0.61	1.6	8.55	0.32	0.5	4.40
Arundel Road	0.10	0.1	6.86	0.07	0.1	4.54
JUNCTION DELAY (S)*	5.85			5.55		

On-Street Parking / Loading Restrictions

4.44 On-street parking restrictions in the form of double yellow lines and School '*Keep Clear*' markings are present along both sides of Minor Goring Street for a section extending south of the level crossing to the give-way junction adjacent and opposite Chatsmore Crescent.

4.45 As shown in Figure 9, the section of Minor Goring Street to the north of the level crossing is heavily parked on both sides. This reduces the width of the carriageway to one-way operation, generating associated highway safety concerns, most notably in regards to vehicle-to-vehicle conflict, restricted forward visibility, and potential for parked vehicles to obscure pedestrians crossing the highway.

Figure 9 View of Parked Vehicles Along Minor Goring Street (Northern Section)

On-Street Parking Conditions

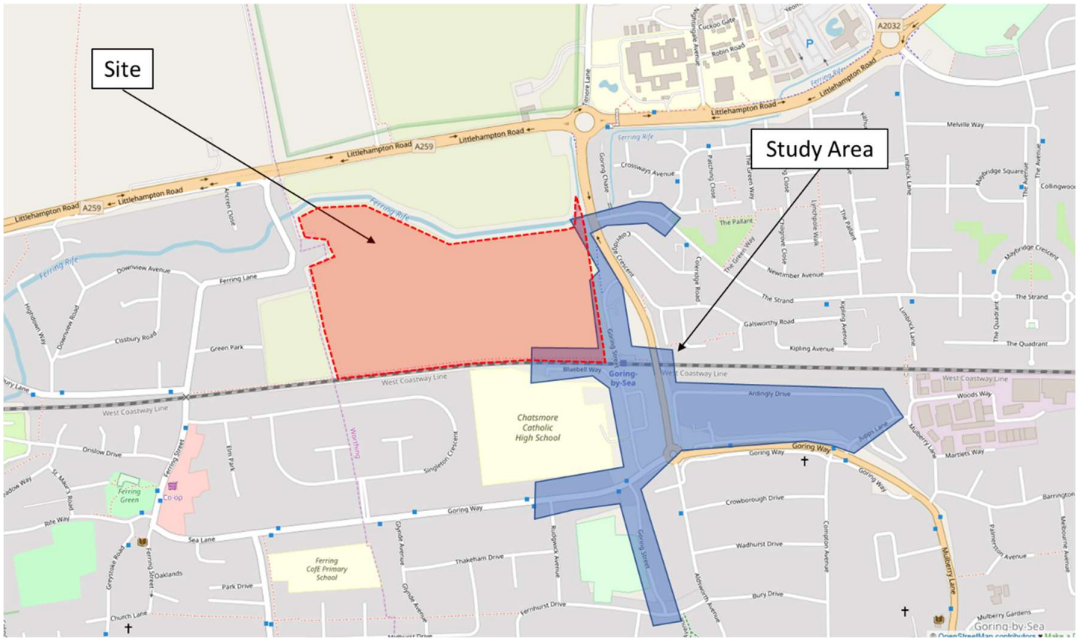
4.46 To gain an understanding of on-street parking conditions, an independent data collection company, Streetwise were commissioned by MTP to conduct a parking '*stress*' survey on the local highway network surrounding the site. With reference to the widely used and accepted '*Lambeth Methodology*' guidance, parking 'stress' is defined *"as the number of vehicles parked on-street or in an area in relation to the amount of parking that is available."*

4.47 In accordance with the widely used '*Lambeth Methodology*' guidance and pre-application advice from WSCC's Highways Officer, the parking '*stress*' surveys were conducted at 15-minute intervals during the AM (07:00 – 09:00) and PM (14:00 – 16:00 / 16:00 – 19:00) peaks, with additional snapshot surveys, undertaken throughout the night-time (00:00 – 05:00), during a neutral time period (i.e. school-term) on two consecutive weekdays on Tuesday 11th and Wednesday 12th December 2018. This approach ensured that the maximum parking demand of local residents, rail commuters and end-users of the various commercial retail units would be captured.

4.48 The study area for the parking '*stress*' surveys encompassed all parts of the local highway network within a 300-metre distance (i.e. a 5-minute walk time) of the site including all Permit Holder Bays comprising the BL CPZ, Double Yellow Lines (DYLs) and Single Yellow Lines (SYLs) and unrestricted parking along the A259 Goring Street, Ardlingly Drive, Chatsmore Crescent, Goring Street, Goring Way, Jupps Lane and The Strand. Due to concerns over the security of their vehicles, it is unlikely that future households would park their vehicles beyond this distance.

4.49 Figure 10 shows the full extent of the study area in context with the site and local area / highway network. The analysis excluded double yellow lines (DYLs), dropped kerbs and access / box junctions from the overall capacity.

Figure 10 Parking 'Stress' Survey Study Area Plan



4.50 During the night-time period (00:00 – 05:00) the average parking '*stress*' was 25%, equivalent to 187 parked vehicles and a total of 550 spare spaces.

4.51 During the weekday AM (07:00 – 09:00), the average parking '*stress*' for the entire study area was 29%, equivalent to 216 parked vehicles and a total of 521 spare spaces. Whilst, during the PM (14:00 – 16:00 / 16:00 – 19:00) peak periods, the average parking '*stress*' for the entire study area was 33% / 29%, equivalent to 240 / 215 parked vehicles and a total of 497 / 522 spare spaces, respectively.

4.52 A summary of the parking '*stress*' surveys, undertaken by Streetwise on Tuesday 11th and Wednesday 12th December 2018 is presented in Figures 11 and 12. A full copy of the survey results is attached at Appendix 4 of the report.

4.53 Throughout both of the surveyed weekdays, the number of parked vehicles observed on-street does not vary significantly. The peak in demand for on-street parking occurred during the early afternoon periods, which coincides with the parent / pupil pick-up period of the nearby Chatsmore Catholic High School. During this period, a total of 247 and 233 parked vehicles were observed on Tuesday 11th and Wednesday 12th December 2018 respectively.

Figure 11 Summary - Tuesday 11th December 2018 (00:00 - 05:00, 07:00 - 0900 & 14:00 - 19:00

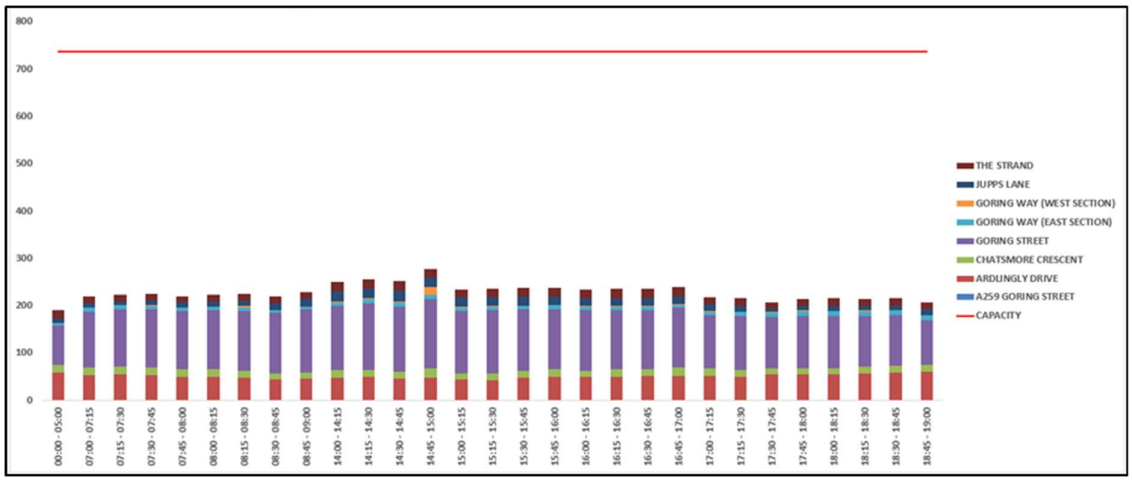
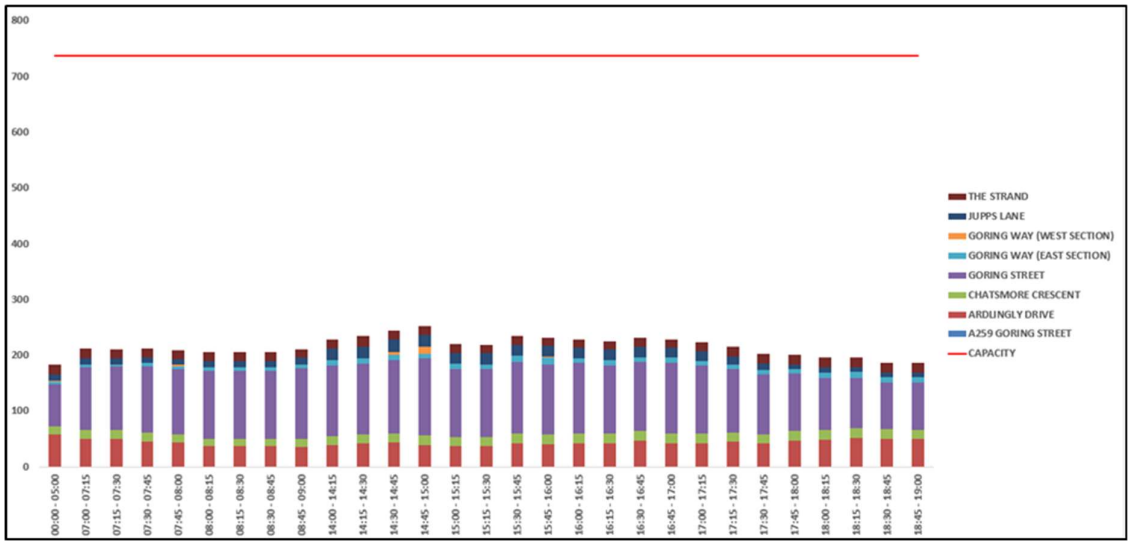


Figure 12 Summary - Wednesday 12th December 2018 (00:00 - 05:00, 07:00 - 0900 & 16:00 - 19:00



4.54 To ascertain whether the parking 'stress' differed markedly between during the night-time (00:00 – 05:00) and daytime (07:00 – 19:00) periods throughout the study area, additional analysis has been undertaken. A summary of the parking '*stress*' surveys is presented in Tables 4.10 to 4.15. For robustness, this analysis excluded on-street disabled bays, as these are generally assigned to individual households.

Night-Time Period (00:00 – 05:00)

4.55 It is evident from Table 4.15 that the demand for on-street parking on all parts of the local highway network comprising the study area does not exceed available supply during the night time (00:00 – 05:00). Most notably, the average parking '*stress*' was calculated to be 25%, equivalent to 187 parked vehicles and 550 spare spaces (75%).

Table 4.15 Summary of Night-Time Parking 'Stress' Survey (00:00 – 05:00)

Street Name	No. of Spaces	Average No. of Parked Cars			Average Parking 'Stress' (%)
		Tues	Wed	Average	
A259 Goring Street	82	0	0	0	0%
Ardlingly Drive	112	59	58	59	52%
Chatsmore Cresent	34	15	15	15	44%
Goring Street	248	83	75	79	32%
Goring Way (East Section)	114	7	5	6	5%
Goring Way (West Section)	50	0	1	1	1%
Jupps Lane	43	8	11	10	22%
The Strand	54	18	19	19	34%
TOTAL	737	190	184	187	25%

* Includes: Nose-In Bays, Parallel Bays, Single Yellow Line, Unclassified, Unclassified Nose-In

Daytime Period (07:00 – 09:00)

4.56 As shown in Table 4.16, during the morning peak period (07:00 – 09:00), the average parking '*stress*' for the unrestricted parts of the study area was observed to be circa 29%, equating to circa 216 parked vehicles and 521 spare spaces.

Table 4.16 Summary of Daytime Parking 'Stress' Survey (07:00 – 09:00)

Street Name	No. of Spaces	Average No. of Parked Cars			Average Parking 'Stress' (%)
		Tues	Wed	Average	
A259 Goring Street	82	0	0	0	0%
Ardingly Drive	112	50	42	46	41%
Chatsmore Cresent	34	15	15	15	43%
Goring Street	248	125	120	122	49%
Goring Way (East Section)	114	7	5	6	5%
Goring Way (West Section)	50	1	1	1	2%
Jupps Lane	43	11	11	11	26%
The Strand	54	14	16	15	28%
TOTAL	**737**	**223**	**209**	**216**	**29%**

* Includes: Nose-In Bays, Parallel Bays, Unclassified and Unclassified Nose-In

4.57 More notably, as shown in Table 4.17, during the afternoon / school peak period (14:00 – 16:00) the average parking '*stress*' was observed to be circa 33%, equivalent to circa 240 parked vehicles and 497 spare spaces throughout the study area.

Table 4.17 Summary of Daytime Parking 'Stress' Survey (14:00 – 16:00)

Street Name	No. of Spaces	No. of Parked Cars			Average Parking 'Stress' (%)
		Tues	Wed	Average	
A259 Goring Street	82	0	0	0	0%
Ardingly Drive	112	47	40	44	39%
Chatsmore Crescent	34	16	17	16	47%
Goring Street	248	135	128	131	53%
Goring Way (East Section)	114	8	10	9	8%
Goring Way (West Section)	50	3	2	3	6%
Jupps Lane	43	20	21	20	48%
The Strand	54	18	16	17	32%
TOTAL	**737**	**247**	**233**	**240**	**33%**

* Includes: Nose-In Bays, Parallel Bays, Unclassified, and Unclassified Nose-In

4.58 Additionally, as shown in Table 4.18, during the evening peak period (16:00 – 19:00) the average parking '*stress*' was observed to be circa 29%, equivalent to circa 215 parked vehicles and 522 spare spaces throughout the study area.

Table 4.18 Summary of Daytime Parking 'Stress' Survey (16:00 – 19:00)

Street Name	No. of Spaces	No. of Parked Cars			Average Parking 'Stress' (%)
		Tues	Wed	Average	
A259 Goring Street	82	0	0	0	0%
Ardingly Drive	112	54	46	50	45%
Chatsmore Crescent	34	15	17	16	46%
Goring Street	248	114	108	111	45%
Goring Way (East Section)	114	9	9	9	8%
Goring Way (West Section)	50	1	0	1	1%
Jupps Lane	43	13	13	13	30%
The Strand	54	16	17	16	30%
TOTAL	737	221	210	215	29%

* Includes: Nose-In Bays, Parallel Bays, Unclassified, and Unclassified Nose-In

Parking 'Stress' Survey Results - Combined

4.59 Further analysis was undertaken to determine the level of global parking '*stress*' of the study area. As demonstrated in Table 4.19, the parking area comprises of 737 spaces.

4.60 The overall average for parking '*stress*' at the study site was calculated to be 30%. It is therefore apparent that the demand for on-street parking within the identified study area does not exceed available supply during both the night-time and daytime periods.

Table 4.19 Summary of Parking 'Stress' Survey Results

Total Length of Parking Spaces (metres)	No. of Spaces	Average. No. of Parked Cars				Average Parking 'Stress' (%)			
		00:00 – 05:00	07:00 – 09:00	14:00 – 16:00	16:00 – 19:00	00:00 – 05:00	07:00 – 09:00	14:00 – 16:00	16:00 – 19:00
4159.51	737	187	216	240	215	25%	29%	33%	29%
Overall Average Parking Stress (%)			30%						

**Includes: Nose-In Bays, Parallel Bays, Unclassified, Unclassified Nose-In

Goring Street

4.61 Additional analysis was undertaken to examine the average parking '*stress*' along a circa 200-metre section of minor Goring Street extending from the give-way priority junction from the A259 Goring Street to the level crossing. This section of the highway facilitates access to Goring rail station, Station House, The Church of Jesus Christ of Latter-Day Saints and No.'s 1 to 6 Hereford, Salisbury and Winchester.

4.62 As shown in Table 4.20, the peak in demand for on-street parking spaces occurred between 15:00 and 15:15, when a total of 38 parked vehicles were observed along the northern section of minor Goring Street, generating a parking '*stress*' of 65% and 21 spare spaces.

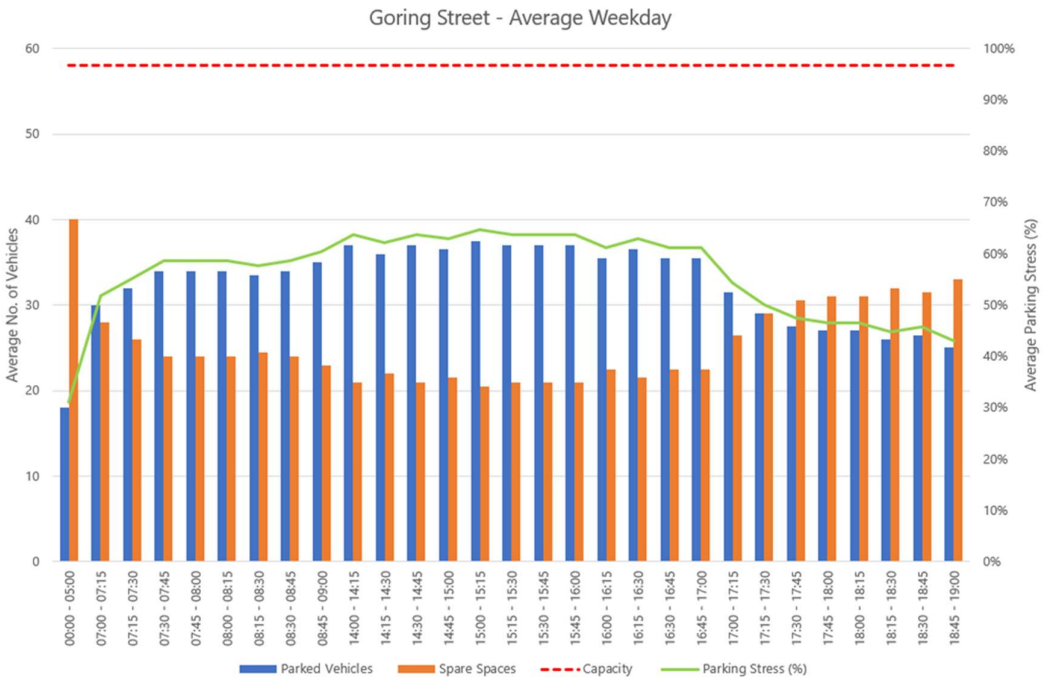
Table 4.20 Summary of Parking 'Stress' Survey Results for Minor Goring Street

No. of Spaces	Average. No. of Parked Cars				Average Parking 'Stress' (%)			
	00:00 – 05:00	07:00 – 09:00	14:00 – 16:00	16:00 – 19:00	00:00 – 05:00	07:00 – 09:00	14:00 – 16:00	16:00 – 19:00
58	18	33	37	30	31	57	64	52

4.63 In addition, Figure 13 demonstrates that the average parking '*stress*' along minor Goring Street progressively increases from 52% to 60% between 07:00 and 09:00, equivalent to 30 and 35 parked vehicles and 28 and 23 spare spaces, respectively. The presence of parked vehicles is likely to be associated with rail commuters accessing Goring rail station.

4.64 Beyond 16:00, the average parking '*stress*' decreases to 43%, equivalent to 25 parked vehicles and 33 spare spaces.

Figure 14 Summary of Average Parking 'Stress' along Goring Street



Highway Safety

Local Highway Network

4.65 To enable a review of the road safety record in the immediate vicinity of the site, Personal Injury Accident (PIA) data (or collision data) for the latest five-year period ending 31st August 2019 was obtained from Sussex Safer Roads.

4.66 PIAs are classified as '*slight*', '*serious*' and '*fatal*' depending on the severity of the injuries sustained. Analysis has been undertaken to ascertain whether there are any trends in the types or location of recorded accidents on the local highway network within the vicinity of the application site.

4.67 The study area for the PIA analysis encompassed: -

- A 700-metre section of the A259 Littlehampton Road ending from a point west of the junction with Ferring Lane to the roundabout junction with the A2032;
- A 750-metre section of the A259 Goring Street extending from a point south of the roundabout junction between Goring Way and the A259 to a point north of the roundabout junction between Littlehampton Road and Titnore Lane;
- The full extent of Ferring Lane extending from its junction with the A259 Littlehampton Road to its junction with Elm Park in the south; and
- Majority of associated junctions between residential roads.

4.68 A total of 34 PIAs were recorded in the study area including 8 classified as '*serious*' and 26 as '*slight*' (minor). There were 0 '*fatal*' incidents within the study area. A summary of each recorded PIA together with a location plan is attached at Appendix 5 of this report. In terms of collision type, a total of 16 (47%) involved collisions between vehicles, 8 (23%) between vehicles and cyclists, 5 (15%) between vehicles and pedestrians and 5 (15%) between vehicles and motorcycles.

4.69 5 of the '*serious*' PIAs occurred at the 4-arm roundabout junction between the A259 and Aldsworth Avenue. The incidents are described in greater detail below:

- The first incident occurred when a pedal cyclist traveling in an eastbound direction was hit by a car entering the roundabout from the A259 Goring Street (southbound direction) causing '*serious*' injury to the cyclist. The accident was attributed to the failure of the car driver to look properly as well as there being a possible distraction outside the vehicle.
- The second incident took place when a vehicle approaching a signal-controlled pedestrian crossing failed to stop at a red light and subsequently colliding into a pedestrian crossing the carriageway, resulting in a '*serious*' injury to the pedestrian. The accident was attributed to the failure of the car driver to look properly as well as disobeying light signals.
- The third incident occurred when a motorcyclist undertaking stationary traffic travelling eastbound had an obscured vision due to a goods vehicle. The goods vehicle signalled to a stationary car waiting to turn right and due to a lack of vision, the vehicle collided with the motorcyclist, resulting in 'serious' injury to the motorcyclist. The accident was attributed to the motorcyclist being careless and reckless and in a hurry.
- The fourth incident occurred when a pedestrian stepped off the footpath without looking and collided into a vehicle travelling along the carriageway, resulting in '*serious*' injury to the pedestrian. The accident was attributed to the pedestrian failing to look properly;
- The final incident resulted in '*serious*' injury to a car driver who when driving felt light-headed and mounted a pavement and collided into a building. The accident was attributed to the illness of the driver.

4.70 2 of the '*serious*' PIAs occurred at the 4-arm roundabout junction between the A259 and the A2032. The first involved a cyclist who was travelling westbound through the roundabout and was hit by a car travelling north who failed to look properly, resulting in '*serious*' injury to the cyclist. The second incident occurred when a motorcyclist wobbled when looking across at a car and subsequently fell off the motorcycle. No contact was made between vehicles and the accident was attributed to a poor turn / manoeuvre undertaken by the motorcycle.

4.71 The final '*serious*' incident took place at the give way priority junction between the A259 Goring Street and The Strand. The incident occurred as a cyclist was undertaking stationary traffic and was hidden behind a goods vehicle when a car turning right into The Strand collided with the cyclist travelling southbound, resulting in '*serious*' injury to the cyclist.

4.72 The 26 '*slight*' incidents were distributed throughout the study area with clusters occurring at junctions / intersections. A total of 11 occurred within the vicinity of the A259 / A2032 roundabout junction and 8 within the vicinity of the A259 / Goring Way / Aldsworth Avenue roundabout.

4.73 It is evident that the majority of the PIAs were caused by human error. The term '*failure to look properly*' was the most frequently used to describe all PIA incidents, with 32% (11) of all incidents involving the term as one of their causes. Other common causes were '*failure to judge vehicle's path or speed*' which was a causation factor in 21% (7) of incidents and '*careless / reckless / in a hurry*' which contributed to 21% (7) of '*slight*' incidents.

4.74 When this is examined in light of the evidence outlined in Section 7 of the report, which demonstrates that the development proposals would generate a moderate number of vehicular traffic movements over the course of a typical weekday as well as during the AM (08:00 – 09:00) and PM (17:00 – 18:00) peak hour periods, it is clear that the existing trend in PIAs with regards to location and severity would not be exacerbated.

4.75 Consequently, it is concluded that the development proposals would not have a '*severe*' impact on the local highway network, particularly in regards to the conditions of highways safety within the vicinity of the site.

Wider Highway Network

4.76 In accordance with WSCC's pre-application response, this section of the report presents a summary of the PIA data that was gathered for the wider highway network comprising Worthing Borough, as part of the Transport Assessment prepared by WSP in support of WBC's new Local Plan.

4.77 As outlined in Section 3.4 of WSP's TA, PIA data was obtained from WSCC for the 5-year period (November 2012 to October 2017). Analysis showing the total collisions by year and severity (Table 3.1), and collisions by road type and severity (Table 3.2) have been reproduced in Tables 4.10 and 4.11.

4.78 Table 4.21 reveals a total of 1,207 collisions occurred within the Borough resulting in 1,464 casualties including 5 (<1%) classified as '*fatal*', 223 '*serious*' (18%) and 979 (81%) '*slight*' throughout the Borough.

Table 4.21 Collisions by Year and Severity

Year	Slight	Serious	Fatal	Total*
2012 (Part Year)	35	4	0	39
2013	186	36	2	224
2014	197	62	2	261
2015	224	36	1	261
2016	197	42	0	239
2017 (Part Year)	140	43	0	183
TOTAL	979	223	5	1207

*Data collected from November 2012 to October 2017

4.79 Table 4.22 reveals that over the 5-year period, half (51%) occurred on C and unclassified roads. Significant clusters of PIAs occurred on the route comprising the A27, between the A24 roundabout and the Grove Lodge signalised junction; and the 4-arm A259 / A2032 Titnore Lane roundabout; and A259 / Goring Way roundabout junctions, which are situated to the north and south of the site.

Table 4.22 Collisions by Road Type and Severity

Road	Slight		Serious		Fatal		Total	
	No.	%	No.	%	No.	%	No.	%
A27	76	8	15	7	1	20	92	8
A24	97	10	27	12	0	0	124	10
A259	139	14	35	16	0	0	174	14
Other A Roads	123	13	30	13	0	0	153	13
B Roads	38	4	5	2	1	20	44	4
C / Unclassified Roads	506	52	111	50	3	60	620	51
TOTAL	979	100	223	100	5	100	1207	100

Summary

4.80 The review of the baseline highway conditions reveals: -

- The A259 Goring Street experiences a significant volume of vehicular traffic movements during the weekday AM (08:00 – 09:00) and PM (17:00 – 18:00) peak hour periods.
- The results of the baseline junction capacity assessments demonstrate that 3 of the 5 local junctions over capacity during the weekday AM and PM peak hour periods.
- The average parking '*stress*' for the study area during the weekday AM peak period (07:00 – 09:00) was 29%, equivalent to 216 parked vehicles and a total of 521 spare spaces. While, during the PM peak period (14:00 – 16:00 and 16:00 – 19:00), the average parking '*stress*' for the entire study area was 33% and 29%, equivalent to 240 / 215 parked vehicles and a total of 497 / 522 spare spaces, respectively. Consequently, the demand for on-street parking does not exceed available supply.
- Due to the low number of car parking spaces available at Goring rail station and the absence of parking restrictions, the section of Minor Goring Street, north of the level crossing was observed to be heavily parked on both sides by vehicles over the course of a typical weekday. The presence of parked vehicles reduces the width of the carriageway to one-way operation, in turn generating associated highway safety concerns.
- The majority of the PIAs occurred at or on the approach arms of the two roundabout junctions to the north (the A259 / A2032 / Titnore Lane) and south (A259 / Aldsworth Avenue / Ardingly Drive) of the site's proposed access, off the western side of the A259 Goring Street. The majority were caused by human error.

5. Proposed Development

Overview

5.1 The mixed-use development proposals, the subject of this outline planning application with all matters reserved, comprise the erection of up to 475 dwellings (Use Class C3) along with associated access, internal roads and footpaths, car parking, public open space, landscaping, local centre (uses including A1, A2, A3, A4, A5, D1, D2) with associated car parking, car parking for the adjacent railway station, undergrounding of overhead HV cables and other supporting infrastructure and utilities.

5.2 A proposed Masterplan Layout Plan (Drawing No. CMP-02 Rev P6), prepared by Thrive Architects is attached at Appendix 6 of this report.

5.3 Since all matters of detail will be reserved, the schedule of accommodation set out in Table 5.1 below is only indicative. Approximately 143 (30%) of the proposed residential units would be comprised of affordable housing, of which 70% (100 units) would be affordable rent and 30% (43 units) as shared ownership. The remaining 332 (70%) of the proposed units would be private open market. Regarding the mix of development, a total of 91 units (19%) would be comprised of one-bed; 172 units (36%) of two-beds; 152 units (32%) of three-beds and 60 units (13%) of four-beds.

Table 5.1 Schedule of Accommodation

Tenure	Housing Type	No. of Units
Private Open Market (POM)	1 Bedroom Unit	34
	2 Bedroom Unit	132
	3 Bedroom Unit	116
	4 Bedroom Unit	50
Affordable Rent	1 Bedroom Unit	45
	2 Bedroom Unit	25
	3 Bedroom Unit	25
	4 Bedroom Unit	5
Shared Ownership	1 Bedroom Unit	12
	2 Bedroom Unit	15
	3 Bedroom Unit	11
	4 Bedroom Unit	5
TOTAL		475

5.4 The commercial aspect of the residential-led development proposals would comprise a convenience foodstore (Use Class A1) with a Gross Floor Area (GFA) of 353 sq.m and a crèche (Use Class D1) with a GFA of 279 sq.m catering for up to 78 children and 39 staff over separate shifts.

5.5 It is anticipated that the convenience foodstore would serve the adjoining residential development and surrounding local community with the hours of operation between 06:00 and 23:00, Monday to Sunday. As shown in Table 5.2, the proposed crèche would operate 3 sessions throughout a typical weekday.

Table 5.2 Proposed Operation of Crèche

Session	Time	No. of Children	No. of Staff
AM Session	08:00 – 13:00	26	4
PM Session	13:00 – 18:00	26	4
Full-Day Session	08:00 – 18:00	26	4

Proposed Access Arrangements

Vehicular – Primary Access

5.6 Notwithstanding the nature of the outline planning application, this section of the TA provides details on the proposed access arrangements to demonstrate how the residential-led mixed-use development proposals can be delivered. It is anticipated that WSCC would impose conditions requiring the proposed access arrangements for the Reserved Matters (RM) planning application to follow the principles of that shown at the outline stage.

5.7 Vehicular, pedestrian and cycle access to all parts of the proposed residential-led mixed-use development would be achieved via the creation of a 3-arm roundabout junction located approximately 230-metres south and 430-metres north of the A259 Goring Street / A2032 / Titnore Lane (i.e. Goring Crossways); and A259 Goring Street / Goring Way / Aldsworth Avenue / Ardingly Drive / Goring Way 5-arm roundabout junctions, respectively.

5.8 As shown on Drawing No. 18122/001 Rev A (attached), the northern and southern arms of the proposed 3-arm roundabout junction would comprise two-lane approaches with a carriageway width of 3.2-metres.

5.9 The A259 Goring Street / The Strand priority give-way junction would be converted to accommodate '*left-in*' and '*left-out*' manoeuvres-only. Under this arrangement, motorised users intending to undertake right-turn movements into and out of The Strand would be required to divert to the north and south and undertake '*U-turn*' manoeuvres via the A259 Littlehampton Road - Goring Street / A2032 / Titnore Lane and A259 Goring Street / Goring Way / Aldsworth Avenue / Ardingly Drive / Goring Way roundabout junctions or choose alternative routes.

5.10 In addition, the proposed access arrangement would involve the permanent closure of the A259 Goring Street / Minor Goring Street priority give-way junction and the creation of an internal link road circa 70-metres to the south-west. This internal link would operate as a secondary access and enable future households / end-users as well as other motorised users to gain access to Goring rail station, Station House, Church of Jesus Christ and several residential blocks (Hereford, Salisbury and Winchester) situated at the northern end of Minor Goring Street.

5.11 The closed section of carriageway would be reinstated as a shared foot / cycleway, which would connect a relocated toucan crossing to an enhanced link to Goring rail station.

Internal Access

5.12 Details of the internal access and layout will be determined as part of a future Reserved Matters planning application. However, the design will be developed in accordance with the DfT's MfS1 publication and WSCC's '*Local Design Guide – Supplementary Guidance for Residential Development Proposals*' (January 2008), most notably: -

- Primary Access – minimum carriageway width of 6.75-metres flanked by 3.0-metre wide shared foot / cycleways along both sides.
- Primary Street – minimum 5.5-metre wide carriageway with 2.0-metre wide footways on the primary routes through the development.
- Secondary Street – minimum of 5.0-metre shared surfaces with service margins designed to enable access for refuse vehicles; and
- Private Driveways – narrower shared surface areas where refuse vehicles do not need to enter.

Stage 1 Road Safety Audit

5.13 In accordance with WSCC's Highways Officer's pre-application response, the proposed access arrangements, and mitigation for the A259 Goring Street / A2032 / Titnore Lane (i.e. Goring Crossways) and A259 Goring Street / Goring Way / Aldsworth Avenue / Ardingly Drive / Goring Way 5-Arm Roundabout Junctions have been assessed by an approved independent Road Safety Auditor, undertaken by Fenley on 11th June 2020.

5.14 A copy of the Stage 1 RSA including the Designer's Response is attached at Appendix 7 of this report.

Pedestrian and Cycle Access

5.15 The existing public rights of way that runs east-west along the south boundary of the site and north-south between the site will be retained.

5.16 An additional pedestrian access point will be provided to the north-west of the development. The existing public right of way (path number 2121_1) connecting to Ferring Lane, will be upgraded to facilitate increased pedestrian movements to access the bus stops located along the A259.

Proposed Parking Arrangements

Car

5.17 Car parking standards applicable to all aspects of the mixed-use development proposals are set out in WSCC's '*Guidance on Parking at New Developments*' (August 2019). Parking standards for new residential developments are split into 5 Parking Behaviour Zones. The site is located within Zone 4 and the relevant parking standards have been reproduced below in Table 5.3.

Table 5.3 WSCC Residential Parking Demand - Zone 4

Number of bedrooms	Number of habitable rooms	Spaces per dwelling
1	1 to 3	0.9
2	4	1.1
3	5 to 6	1.7
4+	7 or more	2.2

5.18 When applying these standards to the proposed residential development, a total of 663 parking spaces would be required to satisfy potential demand. However, it is noted that details on car parking provision will be determined as part of a RM planning application.

5.19 To determine the existing car ownership of households in the local area, 2011 Census data on car or van availability per household for Worthing 006 Middle Layer Super Output Area (MSOA), in which the site is located within, has been extracted from the Nomis website. The car ownership per household is presented in Table 5.3, while a copy of the 2011 Census output is appended at Appendix 8 of this report.

Table 5.3 2011 Car Ownership Census Data (Worthing 006 MSOA)

Cars	Number	Percentage
All categories: Car or Van Availability	3,001	100%
No cars or vans in household	653	22%
1 car or van in household	1,409	47%
2 cars or vans in household	716	24%
3 cars or vans in household	169	6%
4 or more cars or vans in household	54	2%

5.20 Analysis of the census data for car ownership highlights that the average household in Worthing 006 MSOA has 1.2 cars per household. A total of 570 parking spaces would be required to satisfy this demand.

5.21 Parking standards for shops (Use Class A1) and nurseries (Use Class D1) are set out in WSCC's '*Guidance on Parking at New Developments*' (August 2019) document. This specifies 1 space per 14 sq.m for shops, and a site specific assessment for nurseries, based on travel plan and needs.

5.22 When applying these standards to the commercial retail aspect of the residential-led mixed-use development proposals, circa 25 car parking spaces would be required.

5.23 However, since both the residential and commercial aspects of the development proposals are only indicative in nature, the provision of car parking in accordance with WSCC's car parking standards and current levels of car ownership of existing households from the 2011 census will be considered in greater detail, as part of a RM planning application.

5.24 In terms of dimensions, all car parking spaces would be provided at a minimum of 2.4 x 4.8-metres.

Cycle

5.25 Cycle parking standards relevant to the residential aspect of the mixed-use development proposals are set out in Table 1 of WSCC '*Guidance on Parking at New Developments (August 2019).* Table 5.4 reproduces the minimum cycle parking standards for residential uses.

Table 5.4 Residential Minimum Cycle Parking Provision Standards

Type of Housing	Dwelling Size	Cycle Provision (per unit)
Houses	Up to 4 rooms (1 & 2 bed)	1 space
	5+ rooms (3+ bed)	2 spaces
Flats	Up to 3 rooms (1 & 2 bed)	0.5 space (if communal storage otherwise 1 space)
	4+ rooms (3+ bed)	1 space

5.26 Cycle parking standards for commercial retail (Use Class A1) is to be provided at a rate of 1 space per 100 sq.m for staff and 1 space per 100 sq.m for customers. The guidance specifies a site specific assessment for nurseries (Use Class D1), based on travel plan and needs.

5.27 When applying these standards to this use, a total of 8 cycle spaces including 4 for staff and 4 for customers would need to be provided to ensure compliance.

5.28 As with car parking, details on the number and type of cycle parking for both the residential and commercial uses in context with the adopted standards will be considered in greater detail, as part of a RM planning application.

Proposed Public Car Park for Goring Rail Station

5.29 The proposed public car park would contain a total of 73 car parking spaces (including 4 disabled bays) located in the site's south-eastern corner, adjacent to Goring rail station.

5.30 As mentioned previously, the results of the parking '*stress*' survey revealed that a total of 38 parked vehicles were observed along the northern section of Minor Goring Street. The provision of a car park comprising 73 spaces would comfortably accommodate the current demand from rail commuters as well as future end-users of the commercial retail unit and nursery over the course of a typical weekday.

5.31 In addition to the public car park, parking restrictions in the form of double yellow lines would be provided along Minor Goring Street to discourage the occurrence of on-street parking in the vicinity of Goring rail station.

5.32 To ensure that the residential-led mixed-use development proposals would not lead to the manifestation of overspill / displaced parking on the surrounding local highway network, it is envisaged that a pricing structure would be introduced. An independent car parking management company would be appointed to enforce the car park and ensure the adherence of set protocols. The future operation of the car park would be considered in greater detail as part of the RM planning application.

Proposed Delivery and Servicing Arrangements

Waste Refuse / Recycling Collections

5.33 Waste refuse and recycling collections for the residential aspect of the mixed-use development would predominately take place on-street.

5.34 Bin stores would be located conveniently throughout the site to ensure compliance with the maximum carry distances for both residents (i.e. 30-metres) and waste operatives (i.e. 25-metres), as recommended in 'Schedule 1, Part H of the Building Regulations 1' (2000), as outlined in the DfT's MfS1 guidance.

5.35 It is envisaged that smaller vehicles would be used by private waste / recycling contractors servicing the nursery and retail aspects of the mixed-use development.

5.36 Further consideration of the waste refuse and recycling strategies for the various commercial and residential components of the mixed-use development proposals would be set out in the RM planning application.

Emergency Vehicle Access

5.37 With regards to emergency access, WSCC's '*Local Design Guidance Supplementary Guidance for Residential Development Proposals*' sets out the requirement for fire tenders / pump appliances to get within 45.0-metres of every dwelling. All residential units will be located within the maximum 45.0-metre hose distance to ensure a fire tender truck can access all parts of the development.

5.38 Consequently, it is concluded that the proposed layout is acceptable from a delivery / servicing and emergency vehicle perspective.

6. Multi-Modal Trip Generation

6.1 This section of the report sets out the methodology for assessing the multi-modal trip generating potential of the residential-led development proposal and associated impact on the surrounding local highway and transport networks over the course of a weekday and during the AM (08:00 – 09:00) and PM (17:00 – 18:00) peak hour periods.

Existing Site Operation

6.2 As noted previously in Section 3, the site currently comprises open arable fields, which would generate a low number of vehicular traffic movements over the course of a typical weekday. Given the immaterial trip generating characteristics, it is not considered necessary to deduct these from the anticipated traffic generation of the mixed-use development proposals.

6.3 Consequently, for the purposes of presenting a robust assessment, all trips associated with the residential-led mixed-use development proposals would be '*new*' to the local highway and transport networks.

Proposed Site Operation

Residential

6.4 The TRICS database (Version 7.5.2) was interrogated to identify sites with similar characteristics in regards to location, accessibility to public transport services and on-site parking provision, under the land use category *'03 Residential – M – Mixed Private / Affordable Housing'* for the purposes of establishing the anticipated person / multi-modal trip generation of the development proposals.

6.5 The following search parameters were applied to further ensure compliance with TRICS.

- Selected Geographical Regions and Areas – England (excluding Greater London);
- Number of Dwellings – 16 to 1,412;
- Selected Survey Days – Weekdays-only;
- Selected Date Range - 01/01/11 to 13/03/19; and
- Selected Locations - Edge of Town and Suburban Area.

6.6 When applying the above-mentioned search parameters, it is evident there are a number of sites within the land use category which exhibit similar characteristics in regard to having a similar percentage of affordable housing and parking space per unit ratio to the development proposals. Table 6.1 summarises the selected sites from TRICS.

Table 6.1 Summary of Residential TRICS Sites

TRICS Reference	Location	No. of Units	No. of Parking Spaces	Space per Unit Ratio
DC-03-M-02	Fordington, Dorchester, Dorset	37	72	1.9
DV-03-M-01	Topsham Road, Exeter, Devon	61	58	0.95
ES-03-M-07	South Coast Road, Peacehaven, East Sussex	188	307	1.6
ES-03-M-11	Upper Horsebridge, Hailsham, East Sussex	354	657	1.9
ES-03-M-12	Park Road, Hailsham, East Sussex	93	265	2.8
ES-03-M-15	Field End, Maresfield, East Sussex	80	145	1.8
WK-03-M-01	Birmingham Road, Stratford-upon-Avon, Warwickshire	395	980	2.5
WK-03-M-02	Bishopton, Stratford-upon-Avon, Warwickshire	130	604	4.6
WS-03-M-07	Aldwick, Bognor Regis, West Sussex	90	191	2.1
WS-03-M-14	North Bersted, Bognor Regis, West Sussex	86	180	2.1

6.7 A summary of the total person trip rates and corresponding movements throughout a typical weekday (07:00 – 19:00) as well as during the AM (08:00 – 09:00) and PM (17:00 – 18:00) peak hour periods for the proposed 475-unit residential development is presented in Table 6.2, while a copy of the TRICS output is attached at Appendix 9 of this report.

6.8 Table 6.2 reveals that the development proposals would have the potential to generate in the region of 3,811 two-way person trips over the course of a typical weekday including 421 and 429 during the AM and PM peak hour periods, respectively.

Table 6.2 Person Trip Rates / Generation – 'Mixed Private / Affordable Housing' (475 Units)

Time Period	Person Trip Rates (per dwelling)			Total Person Movements		
	Arrivals	Departures	Total	Arrivals	Departures	Total
AM Peak Hour (08:00 – 09:00)	0.176	0.71	0.886	84	337	421
PM Peak Hour (17:00 – 18:00)	0.566	0.338	0.904	269	161	429
Daily (07:00 – 21:00)	3.918	4.106	8.024	1,861	1,950	3,811

6.9 To determine the likely multi-modal trip generating potential of the development proposals, the total person movements for the residential use have been cross referenced with '*Method of Travel to Work*' data from the 2011 Census for the Worthing 013 Middle Layer Super Output Area (MSOA). This is shown in Table 6.3 and is included at Appendix 10 of this report.

Table 6.3 2011 Census Method of Travel to Work Modal Split (MSOA)

Travel Mode	Count	%
Car Driver	367	70%
Car Passenger	31	5%
Public Transport	45	9%
Pedestrian	45	9%
Cycle	18	5%
Other*	6	2%
TOTAL	516	100%

*Includes Motorcycle, scooter / moped, taxi and other

6.10 As shown in Table 6.4, the residential aspect of the mixed-use development proposals would have the potential to generate a total of 2,634 two-way vehicular movements over the course of a typical weekday. Additionally, the development proposals would have the potential to generate in the region of 359 public transport, 356 pedestrian, 157 cyclist movements over the course of a typical weekday.

Table 6.4 Daily Vehicular Trip Generation - 'Mixed Private / Affordable Housing' (475 Units)

Mode	Arrivals		Departures		Total		Mode Share
	Trip Rate	No. Trips	Trip Rate	No. Trips	Trip Rate	No. Trips	
Car Driver	2.708	1,286	2.838	1,348	5.546	2,634	69%
Car Passenger	0.211	100	0.221	105	0.432	205	5%
Public Transport Users	0.369	175	0.387	184	0.756	359	9%
Pedestrians	0.366	174	0.383	182	0.749	356	9%
Cyclists	0.162	77	0.170	81	0.331	157	5%
Other	0.102	48	0.107	51	0.209	99	2%
TOTAL	3.918	1,861	4.106	1,950	8.024	3,811	100%

*Slight difference in total person trips due to calculation of car passengers

6.11 Table 6.5 reveals that the residential development proposals would have the potential to generate in the order of 291 and 297 two-way vehicular movements during the weekday AM (08:00 – 09:00) and PM (17:00 – 18:00) peak hour periods, respectively. In addition, the development proposals would have the potential to generate in the region of 40 and 40 two-way movements by public transport (rail and bus); and 56 and 58 by the '*active*' modes of walking and cycling during the weekday AM and PM peak hour periods.

Table 6.5 AM & PM Peak Hour Trip Generation - 'Mixed Private / Affordable Housing' (475 Units)

Mode of Travel	AM Peak (08:00 – 09:00)				PM Peak (17:00 – 18:00)			
	Arrivals		Departures		Arrivals		Departures	
	Trip Rate	No. Trips	Trip Rate	No. Trips	Trip Rate	No. Trips	Trip Rate	No. Trips
Car Driver	0.122	58	0.491	233	0.391	186	0.234	111
Car Passenger	0.009	5	0.038	18	0.030	14	0.018	9
Public Transport Users	0.017	8	0.067	32	0.053	25	0.032	15
Pedestrians	0.016	8	0.066	31	0.053	25	0.032	15
Cyclists	0.007	3	0.029	14	0.023	11	0.014	7
Other	0.005	2	0.018	9	0.015	7	0.009	4
TOTAL	0.176	84	0.710	337	0.566	269	0.338	161

* Slight difference in total person trips due to calculation of car passengers

Commercial

6.12 Notwithstanding the indicative nature of the mixed-use development proposals, for the purposes of assessing the commercial aspects of the local centre, situated in the south-east corners of the site, it has been assumed that this comprises the erection of a convenience foodstore with a GFA of 353 sq.m (Use Class A1) and crèche (Use Class D1) catering for up to 78 children and 39 staff over separate shifts.

Convenience Foodstore

6.13 The TRICS database (Version 7.6.4) was interrogated to identify sites with similar characteristics in regards to location, accessibility to public transport services and on-site parking provision, under the land use category *'01 Retail – O – Convenience Store'* for the purposes of establishing the anticipated person / multi-modal trip generation of the commercial retail aspect of the residential-led mixed-use development proposals.

6.14 The following search parameters were applied to further ensure compliance with TRICS.

- Selected Geographical Regions and Areas – England (excluding Greater London);
- Ground Floor Area (GFA) Range – 100 to 500 sq.m;
- Selected Survey Days – Weekdays-only;
- Selected Date Range - 01/01/11 to 13/03/19; and
- Selected Locations - Edge of Town and Suburban Area.

6.15 When applying the above-mentioned search parameters, it is evident there are a number of sites within the land use category which exhibit similar characteristics in regard to having a similar GFA and parking to the development proposals.

6.16 A summary of the total person trip rates and corresponding movements throughout a typical weekday (07:00 – 19:00) as well as during the AM (08:00 – 09:00) and PM (17:00 – 18:00) peak hour periods for the proposed 353.0-sqm convenience food store is presented in Table 6.5, while a copy of the TRICS output is attached at Appendix 11 of this report.

6.17 Table 6.6 reveals that the development proposals would have the potential to generate in the region of 1,475 two-way person trips over the course of a typical weekday including 135 and 94 during the AM and PM peak hour periods, respectively.

Table 6.6 Person Trip Rates / Generation – 'Convenience Foodstore' (GFA 353.0 sq.m)

Time Period	Person Trip Rates (per 100sqm)			Total Person Movements		
	Arrivals	Departures	Total	Arrivals	Departures	Total
AM Peak Hour (08:00 – 09:00)	13.925	12.707	26.632	49	45	94
PM Peak Hour (17:00 – 18:00)	19.756	18.451	38.207	70	65	135
Daily (06:00 – 23:00)	209.424	208.363	417.787	739	736	1,475

6.18 As shown in Table 6.7, the convenience foodstore is anticipated to generate in the region of 817 two-way vehicular movements over the course of a typical weekday including 49 and 81 during the AM (08:00 – 09:00) and PM (17:00 – 18:00) peak hour periods, respectively.

Table 6.7 Vehicular Trip Rates / Generation – 'Convenience Foodstore' (GFA 353.0 sq.m)

Time Period	Vehicular Trip Rates (per 100sqm)			Total Vehicular Movements		
	Arrivals	Departures	Total	Arrivals	Departures	Total
AM Peak Hour (08:00 – 09:00)	7.572	6.353	13.925	27	22	49
PM Peak Hour (17:00 – 18:00)	11.923	11.053	22.976	42	39	81
Daily (06:00 – 23:00)	115.768	115.622	231.39	409	408	817

6.19 Notwithstanding the above, given the convenience stores location, adjacent to the rail station and residential development, it should not be regarded as a '*destination*' in its own right. It is reasonable to assume that a proportion of vehicular movements to the convenience foodstore would comprise of '*pass-by*', '*diverted*' or 'transferred' trips and therefore not newly generated trips.

6.20 However, for the purposes of presenting a robust assessment no allowance has been made to discount potential '*pass-by*', '*diverted*' or '*transferred*' trips to the convenience foodstore.

Crèche

6.21 As mentioned previously, the commercial aspects of the mixed-use development include the provision of a crèche, which would predominately serve the adjoining residential units.

6.22 To establish the potential number of crèche aged children that could be living within the adjoining residential development, census data of '*Families with dependent children*' was obtained from the MSOA '*Worthing 013*' MSOA that encompasses the site.

6.23 The data provides the number of households with one, two or three or more dependent children and provides age groups of children. The full output extracted from Nomis is attached at Appendix 12. Based on the assumption that the crèche would cater for children between the ages of 2 and 4, a total of 75 children of nursery age would be living within the proposed residential development.

6.24 To establish the vehicular trip generating potential of the crèche, a '*first* principles' approach, based on the following assumptions is presented below.

- Operating hours - 08:00 – 18:00, Monday to Friday.
- Full capacity of 78 children (aged 2 – 4 years) and 39 staff (13 full-time and 26 part-time).
- Operating sessions:
    - Morning (08:00 to 13:00).
    - Afternoon (13:00 to 18:00).
    - Daily (08:00 to 18:00).
- No. of staff (minimum ratio of 1 member per 6 children).
- Travel behaviour / patterns:
    - 75% of children attending the crèche would live in the adjoining residential development and travel on-foot with parents when attending the various sessions. The remaining 25% of children attending the crèche would be dependent on travelling by private car from locations beyond the maximum walk distance of 2.0-kilometres.
    - 80% of staff would be dependent on travelling by private car to / from the crèche due to having home locations beyond the maximum walk distance of 2.0-kilometres.
    - 20% of staff would live in the adjoining residential development and as such travel on-foot and by cycle to / from the crèche.

6.25 As shown in Table 6.8, the proposed crèche would generate in the order of 61 two-way vehicular movements over the course of a typical weekday including 17 during the AM (08:00 – 09:00) and PM (17:00 – 18:00) peak hour periods, respectively.

Table 6.8 Proposed Vehicular Movements Associated with Crèche (First Principles Approach)

Time Period	Arrivals	Departures*	Total
AM Peak Hour (08:00 – 09:00)	10	7	17
PM Peak Hour (17:00 – 18:00)	10	7	17
Daily (07:00 – 19:00)	51	10	61

*Parents would depart the crèche to make an onward trip to home or workplace destination.

Combined

6.26 As shown in Table 6.9, when combing the residential and commercial land uses, it its evident that the residential-led mixed-use development would have the potential to generate in the order of 4,931 two-way vehicular movements over the course of a typical weekday including 513 and 555 during the AM (08:00 – 09:00) and PM (17:00 – 18:00) peak hour periods, respectively.

Table 6.9 Total Vehicular Movements

Time Period	Arrivals	Departures*	Total
AM Peak Hour (08:00 – 09:00)	126	388	513
PM Peak Hour (17:00 – 18:00)	338	217	555
Daily (06:00 – 23:00)	2,439	2,492	4,931

6.27 As mentioned previously, this represents a '*worst*' case scenario, as the convenience foodstore is likely to generate significantly less vehicular movements, due to its location and the potential for '*pass-by*', '*diverted*' or '*transferred*' trips.

7. Highway and Transport Impact Assessment

7.1 This section of the TA assesses the impact of development-related trips on the capacity, safety and operational and safety characteristics of the surrounding highway and transport networks.

7.2 Whilst the residential aspect of the mixed-use development proposals comprises of 475-units, for the purposes of robustness, a total of 505-units has been assessed (i.e. additional 30-units), and as such this represents a '*worst*' case scenario.

Committed Development

7.3 In accordance with WSCC's pre-application advice, the highway impact assessment includes a number of committed development sites within WBC, details of which were extracted from the Worthing Local Plan Transport Study.

7.4 The traffic generation for 19 of the 20 committed developments was based on the TRICS assessment set out in Appendix D of the Worthing Local Plan Transport Study.

7.5 The anticipated traffic generation of the approved mixed-use development (i.e. 525 residential units, under Use Class C3 and 3ha of commercial floorspace) on land to the north of Water Lane in Angmering was extracted from the TA prepared by i-Transport on behalf of Rydon Homes and Gleeson Strategic Limited. The approved development included a mitigation scheme for the 5-arm roundabout junction of the A280 / A27 / Titnore Lane.

7.6 Table 7.1 provides a summary of committed developments in WBC including the anticipated traffic generation during the weekday AM and PM peak hour periods.

Table 7.1 Details of Committed Developments in WBC

WBC Local Plan Sites	Proposed Development	Trip Generation*			
		AM		PM	
		Arr	Dep	Arr	Dep
Stagecoach, Marine Parade	60 units (Class C3).	5	12	10	5
Grafton	150 units (Class C3) and 2,979 sq.m of retail (Class A1).	16 (12)	30 (30)	54 (25)	45 (12)
Union Place	250 units (Class C3); 2322 sq.m of retail (Class A1); and 6,000 sq.m of leisure (Class D2).	38 (20)	64 (51)	162 (42)	131 (21)
Teville Gate	450 units (Class C3); 2,780 sq.m (Class B1); 12,000 sq.m of retail (Class A1); and 11,000 sq.m of leisure (Class D2).	89 (43)	119 (94)	374 (77)	332 (45)
British Gas Site, Lyndhurst Road	85 units (Class C3).	11	34	28	17
Martlets Way	50 units (Class C3); 2,700 sq.m of office	57	32	25	50

	(Class B1); and 2,700 sq.m of industrial (Class Uses B2 / B8).				
Decoy Farm	21,200 sq.m of office (Class B1) and 28,800 sq.m of commercial (Class Uses B2 / B8).	418	103	71	336
HMRC Offices, Barrington Road	500 units (Class C3); 9,300 sq.m of office (Class B1); and 9,300 sq.m of industrial (Use Class B2 / B8).	240	240	195	240
Centenary House	100 units (Class C3) and 2,740 sq.m of food retail (Class A1).	141 (13)	126 (40)	223 (33)	217 (20)
Land South of Stoke Abbott Road	64 units (Class C3) and 720 sq.m of GP Surgery (Class D1).	31	25	24	24
Worthing Leisure Centre	160 units (Class C3) and 3,566 sq.m of leisure centre (Class D2)	40 (21)	80 (64)	93 (53)	75 (33)
North of Beeches Avenue	90 units (Class C3).	12	36	30	18
Worthing United FC	60 units (Class C3).	8	24	20	12
Upper Brighton Road	123 units (Class C3).	16	49	41	25
Goring – Ferring Gap	354 units (Class C3).	47	141	118	72
Caravan Club, Titnore Way	75 units (Class C3).	10	30	25	15
West of Fulbeck Avenue	40 units (Class C3).	5	16	13	8
North of West Durrington	240 units (Class C3).	32	96	80	49
Land East of Titnore Lane	126 units (Class C3).	17	50	42	26
Land North of Water Lane, Angmering**	525 units (Class C3); 6,000 sq.m (Class B1).	146	183	153	156
* Number in brackets reflects new trips					
** Extracted from TA prepared by i-Transport on behalf of Rydon Homes and Gleeson Strategic Land Ltd (March 2018)					

7.7 In addition to the above, WSCC's Highways Officer requested other committed developments located south of Water Lane and off either side of Roundstone Lane to be included within the highway impact assessment. Table 7.2 presents a summary of the additional committed developments.

Table 7.2 Summary of Additional Committed Development Sites

Committed Development Sites	Planning Application Reference	Description of Development
Land South of Water Lane, Angmering	A/99/17/OUT	175 residential units, public open space, play areas with associated infrastructure including roads, drainage, and landscaping.
West End Nursery, Roundstone Lane, Angmering – Cresswell Park (Cala Homes)	A/144/15/PL	246 residential units including garages and associated parking, affordable housing, associated landscape & infrastructure & addition of pumping station.
Land to east of Roundstone Lane, Angmering - Swanbourne Park (Barratt Homes)	A/82/12	138 residential units including 20% affordable with access, landscaping, open space & associated works (this application is a departure from the Development Plan)
Land at Worthing Rugby Club	N/A	-
Pound Place, Roundstone Lane, Angmering	A/51/18/PL	64-bedroom care home (C2 Residential Institution) with car park, landscaped gardens & access from Roundstone Lane.
Manor Nursery, High Street, Angmering	A/51/14/OUT	32 residential units with associated access, public open space, and landscaping.
Quiet Waters, Roundstone Lane, Angmering, BN16 4AX	A/132/17/OUT	30 residential units (resubmission following A/39/17/OUT).

7.8 As acknowledged by WSCC Highways Officer in their second pre-application response, a significant proportion of Barratt Homes' Swanbourne Park and Cala Homes' Cresswell Park residential developments were occupied at the time of when the baseline traffic surveys of the local highway network were undertaken (i.e. September 2018).

7.9 Consequently, to avoid double counting / over-estimating the total number of vehicular movements resulting from the committed developments located off Roundstone Lane during the weekday AM and PM peak hour periods, information on the total number of occupied units was sought from WSCC Highways Officer.

7.10 Following a site visit by WSCC Highways in July 2018 (circa 2-months prior to the undertaking of the baseline traffic surveys) it was noted that all of the units comprising the Swanbourne Park development was fully built-out and occupied. A total of 98 residential units comprising the Cresswell Park development were occupied. An uplift of 10 residential units was applied to the July data, to provide a realistic indication on the total number of occupations (108), which would have been observed at the time of the baseline traffic surveys, equating to circa 44% of the Cresswell Park development.

7.11 Consequently, the anticipated vehicular traffic movements of the unbuilt / unoccupied element of the Cresswell Park development (i.e. 138-units, equivalent to 56%) have been included in the highway impact assessment.

Future Year Scenarios

7.12 In line with WSCC's pre-application comments, the future forecast years of 2024 (5-years post application) and 2033 (end of emerging Worthing Local Plan) have been adopted for assessing the impact of the development proposals on the local highway network.

7.13 The 2018 surveyed flows form the MCC surveys have been factored up to the future year of 2024 and 2033 using the TEMPro database (Version 7.2) for the MSOA in which the site is located (Worthing 006).

7.14 A summary of the TEMPro growth rates is presented in 7.3, while a full copy of the outputs is attached at Appendix 13 of this report.

Table 7.3 TEMPro Growth Rates

Time Period	TEMPro Growth Rates
2018 – 2024 AM Peak	1.0857
2018 – 2024 PM Peak	1.0838
2018 – 2033 AM Peak	1.1565
2018 – 2033 PM Peak	1.1541

Trip Distribution

7.15 This section of the report presents the methodology for distributing the anticipated vehicular traffic movements of the development proposal onto the surrounding local highway network.

7.16 To determine the impact of development-related traffic, the distribution of traffic for the proposed development has been based on origin-destination dataset '*Location of Usual Residence and Place of Work by Method of Travel to Work*' (WU03EW) for the Worthing 006 MSOA, in which the site is located within was extracted from the 2011 Census via the Nomis (Official Labour Market Statistics) website. A full copy of the origin-destination analysis based on '*Car Driver-only*' journeys is attached at Appendix 14 of this report.

7.17 Based on analysis of journey to work origin and destination data (Car Driver-only) from the 2011 Census, the development traffic flows have been distributed on the local highway network as follows: -

- Titnore Lane / A27 (Westbound) 12%
- Titnore Lane / A280 (Northbound) 9%
- Titnore Lane / A280 (Westbound) 1%
- Roundstone Lane 9%
- A259 Goring Way (Westbound) 2%
- A259 (Eastbound) 31%
- A2032 (Eastbound) 33%
- The Strand 2%
- Titnore Lane-only 1%

Junction Capacity Analysis

7.18 This section of the report assesses the potential impact of the residential-led mixed-use development proposals on the capacity of the following junctions during the AM and PM peak hour periods.

- The A259 Goring Street / Site's Primary Access.
- The A259 Goring Street / The Strand Give-Way Junction.
- The A259 Goring Street / A2032 / Titnore Lane 4-Arm Roundabout Junction.
- The A259 Goring Street / Goring Way / Aldsworth Avenue / Ardingly Drive / Goring Way 5-Arm Roundabout Junction.
- A259 Littlehampton Road / Ferring Lane (Left-in / Left-out only Junction).
- A280 / A27 / Titnore Lane Dumbbell Roundabout Junction.

7.19 The industry standard junction modelling tool, Junctions 9, which consists of PICADY and ARCADY has been used to determine the operations of junctions with existing recorded traffic levels and forecast future traffic flows based on TEMPro (adjusted to take account of residential neighbourhoods) and development traffic growth.

7.20 PICADY and ARCADY provide an assessment of the operational capacity of a junction through the Ratio of Flow to Capacity (RFC) with commonly accepted standards of a junction with RFC values of 0.85-0.9 and below considered to be operating within its theoretical capacity and junctions with RFC values over this suggest they may be operating at the higher end of their capacity. All junction capacity assessment outputs are provided at Appendix 15 of this report.

7.21 The sequence of Flow Diagrams, which show the calculated traffic flows are summarised in Table 7.4. A copy of the Flow Diagrams is attached at Appendix 16 of this report.

Table 7.4 Sequence of Traffic Flow Diagrams

Figure No.	Description
1 & 2	2018 Surveyed Flows AM and PM Peak Hour Periods
3 & 4	2024 Base Year Flows AM and PM Peak Hour Periods
5 & 6	2033 Base Year Flows AM and PM Peak Hour Periods
7 & 8	Committed Development Traffic Flows AM and PM Peak Hour Periods
9 & 10	2024 Base AM and PM Peak Hour Periods (2024 Base + Committed Development)
11 & 12	2033 Base AM and PM Peak Hour Periods (2024 Base + Committed Development)
13	Development Distribution
14 & 15	Residential Development Flows AM Peak and PM Peak Hour Periods
16 & 17	Retail Development Flows AM Peak and PM Peak Hour Periods
18 & 19	Creche Development Flows AM Peak and PM Peak Hour Periods
20 & 21	Total Development Flows AM and PM Peak Hour Periods
22 & 23	2024 Base + Development Flows AM Peak and PM Peak Hour Periods
24 & 25	2033 Base + Development Flows AM Peak and Peak Hour Periods

7.22 Analysis has been undertaken to make comparison between '*Base*', '*Base + Committed, and 'Base + Committed + Development*' traffic conditions on the local highway network within the vicinity of the site under the future assessment year of 2024 (5-years post application) and 2033 (end of emerging Worthing Local Plan).

7.23 The purpose of the junction capacity assessments is to establish the potential impact of development-related traffic flows during the weekday AM and PM peak hour periods, which based on the results of the MCC surveys are identified as being 08:00 – 09:00 and 17:00 – 18:00.

7.24 As mentioned previously, the proposed access arrangements involve the conversion of the A259 Goring Street / The Strand give-way priority junction to accommodate '*left-in*' and '*left-out*' manoeuvres-only.

7.25 Whilst it is feasible that a proportion of motorised users intending to turn right into and out of The Strand would divert to other parts of the local highway network (i.e. Limbrick Lane, The Avenue and The Boulevard), once the junction has been altered to facilitate '*left-in*' and '*left-out*' - only arrangements, for robustness, the highway impact assessment is based on the assumption that 100% of all movements would undertake '*U-turn*' manoeuvres via the A259 Goring Street / A2032 / Titnore Lane roundabout junction (i.e. Goring Crossways), and the site's proposed 3-arm roundabout junction, when gaining access to the wider local and strategic highway network. Consequently, this presents a '*worst*' case scenario.

7.26 As mentioned previously, The Worthing Local Plan Transport Study proposed a mitigation scheme to provide additional capacity for the junction through widening the approach lanes from the A259 Littlehampton Road and Goring Street from 2 to 3 lanes and the approach from Titnore Lane from 1 to 2 lanes. The southern arm of the roundabout junction (A259 Goring Street) would also be widened from 2 to 3 lanes. A drawing showing the potential mitigation scheme for the roundabout junction is attached at Appendix 17 of this report.

7.27 Notwithstanding this, following the second pre-application discussion with WSCC Highways Officer, the applicant was requested to propose alternative mitigation for both the A259 Goring Street / A2032 / Titnore Lane (i.e. Goring Crossways), and A259 Goring Street / Goring Way / Aldsworth Avenue / Ardingly Drive / Goring Way roundabout junctions.

7.28 Consequently, the results of the future year junction capacity assessments (i.e. 2024 and 2033) for the 4-arm roundabout junction of the A259 Goring Street / A2032 / Titnore Lane includes the implementation of a mitigation / improvement scheme.

7.29 The junction capacity assessments are considered robust for the following reasons: -

- The proposed modification of the A259 Goring Street / The Strand give-way junction is likely to encourage motorised users to seek alternative routes to and from various destination points, as opposed to undertaking U-turn manoeuvres at the site's proposed access and the A259 Goring Street / A2032 / Titnore Lane (i.e. Goring Crossways) roundabout junctions. Consequently, the junction capacity assessments present a '*worst*' case scenario for the weekday AM and PM peak hour periods.
- The proposed retail / convenience store would attract a significant proportion of '*pass-by*', '*diverted*, '*linked*' trips over the course of a typical weekday. However, all vehicular traffic movements to and from this aspect of the mixed-use development proposals have been considered as being new to the local highway network.
- No account has been taken of the potential impact of the Residential Travel Plan in encouraging future households and end-users of the commercial development from adopting sustainable travel patterns and behaviour for a whole multiple of journey purposes.

The A259 Goring Street / Site's Primary Access

7.30 The future operation of the 3-arm roundabout junction of the A259 Goring Street and Site's Primary Access for the weekday AM and PM peak hour periods, under the '*2024 Base + Development*' and '*2033 Base + Development*' scenarios are summarised in Table 7.5.

7.31 The results of the junction capacity assessment reveals that several arms of the proposed roundabout junction would operate just over capacity, under the '*2024 Base + Development*' and '*2033 Base + Development*' scenarios, during the weekday AM and PM peak hour periods, as indicated by the RFC values (>1.00) and queue lengths, most notably on the A259 Goring Street (South) arm.

7.32 In line with the results of the baseline junction capacity assessments presented in Section 4 of the report, it is further evident that the delay at the junction is more pronounced during the weekday AM peak hour period.

7.33 However, when examining the potential impact in terms of delay, it is evident that the difference between the '*2024 Base + Development*' and '*2033 Base + Development*' scenarios would be very minimal, equating to 25 and 22 seconds.

Table 7.5 The A259 Goring Street / Site's Primary Access

Arm	AM Peak Hour (08:00 – 09:00)			PM Peak Hour (17:00 – 18:00)		
	RFC	Queue (Veh)	Delay (S)	RFC	Queue (Veh)	Delay (S)
2024 Base + Development						
A259 Goring Street (South)	1.00	28.6	68.34	0.98	21.4	52.82
Site Access Road	0.95	8.4	86.87	0.49	0.9	16.18
A259 Goring Street (North)	0.84	4.9	10.71	0.80	4.0	8.72
JUNCTION DELAY (S)*	43.57			29.51		
2033 Base + Development						
A259 Goring Street (South)	1.05	54.9	114.38	1.04	46.7	98.26
Site Access Road	1.00	11.9	119.93	0.53	1.1	18.40
A259 Goring Street (North)	0.88	7.1	14.92	0.84	5.2	10.99
JUNCTION DELAY (S)*	68.66			51.84		

*Demand-weighted averages

The Strand / A259 Goring Street

7.34 As shown in Table 7.6, the modified A259 Goring Street / The Strand priority give-way junction (i.e. prohibition of right-turn movements), would operate within capacity with minimal queue lengths and delays on the minor arm (The Strand) during the '*2024 Base + Development*' and '*2033 Base + Development*' future year scenarios.

7.35 As mentioned previously, this represents a '*worst*' case scenario as the highway impact assessment takes no account of the potential for motorised users to divert and use other parts of the local highway network in gaining access to various destinations during the weekday AM (08:00 – 09:00) and PM (17:00 – 18:00) peak periods.

Table 7.6 The Strand / A259 Goring Street (Left-In - Left-Out-Only)

Arm	AM Peak Hour (08:00 – 09:00)			PM Peak Hour (17:00 – 18:00)		
	RFC	Queue (Veh)	Delay (S)	RFC	Queue (Veh)	Delay (S)
2024 Base						
The Strand (Stream B-AC)	0.79	3.4	34.86	0.34	0.5	12.26
A259 Goring Street (Steam C-AB)	0.00	0.0	0.00	0.0	0.0	0.00
JUNCTION DELAY (S)*	4.02			0.61		
2024 Base + Development						
The Strand (Stream B-AC)	0.82	4.1	41.79	0.39	0.6	14.50
A259 Goring Street (Steam C-AB)	0.00	0.0	0.00	0.0	0.0	0.00
JUNCTION DELAY (S)*	4.46			0.68		
2033 Base						
The Strand (Stream B-AC)	0.86	5.2	50.08	0.38	0.6	13.57
A259 Goring Street (Steam C-AB)	0.0	0.0	0.00	0.0	0.0	0.00
JUNCTION DELAY (S)*	5.82			0.67		
2033 Base + Development						
The Strand (Stream B-AC)	0.91	7.1	68.71	0.43	0.8	16.36
A259 Goring Street (Steam C-AB)	0.0	0.0	0.00	0.0	0.0	0.00
JUNCTION DELAY (S)*	7.38			0.77		

A259 / A2032 / Titnore Lane

7.36 Table 7.7 reveals that under the '*2024 Base*' and '*2033 Base*' year scenarios (including Committed Development), all arms of the roundabout junction operate close to or near capacity during the weekday AM (08:00 – 09:00) and PM (17:00 – 18:00) peak hour periods, as reflected in the RFC values exceeding the 0.85 threshold, in-turn leading to excessive queue lengths and delays.

7.37 It is therefore evident that the committed development set out in the Worthing Local Plan Transport Study and level of growth predicted by TEMPro for the Worthing Local Authority Area cannot be adequately accommodated within the current junction arrangement and calibration. The level of vehicular traffic generated by the development proposals (i.e. circa 309 and 316 two-way movements) during the AM and PM peak hour periods would not represent a '*severe*' worsening of the future operating conditions of the 4-arm roundabout junction.

7.38 However, it should be noted that the impact on the future operation of the roundabout junction is potentially overstated, as once an RFC value exceeds 1 (i.e. the point at which an arm is considered to have reached its theoretical capacity), queuing increases exponentially, as further traffic is added.

Table 7.7 A259 / A2032 / Titnore Lane

Arm	AM Peak Hour (08:00 – 09:00)			PM Peak Hour (17:00 – 18:00)		
	RFC	Queue (Veh)	Delay (S)	RFC	Queue (Veh)	Delay (S)
2024 Base						
A2700 Titnore Lane	1.51	103.4	1411.49	1.77	171.1	1337.40
A2032 Littlehampton Road	1.30	166.5	660.88	1.23	146.9	490.11
A259 Goring Street	1.22	160.9	452.69	0.93	10.6	37.10
A259 Littlehampton Road	1.30	260.4	657.03	1.06	76.0	135.50
JUNCTION DELAY (S)*	655.30			357.98		
2024 Base + Development						
A2700 Titnore Lane	1.62	134.1	1814.87	1.97	238.2	1971.91
A2032 Littlehampton Road	1.33	194.0	756.66	1.32	223.6	716.00
A259 Goring Street	1.36	316.4	845.26	1.01	28.4	82.51
A259 Littlehampton Road	1.33	292.3	742.16	1.12	110.4	203.90
JUNCTION DELAY (S)*	869.83			541.32		
2033 Base						
A2700 Titnore Lane	1.60	130.7	1758.70	1.45	136.8	1133.30
A2032 Littlehampton Road	1.38	230.8	923.80	1.31	217.6	699.63
A259 Goring Street	1.30	239.7	647.91	1.36	285.3	844.22
A259 Littlehampton Road	1.38	361.3	924.33	1.23	198.8	462.12
JUNCTION DELAY (S)*	905.04			708.82		
2033 Base + Development						
A2700 Titnore Lane	1.70	163.0	2184.60	1.61	209.3	1722.23
A2032 Littlehampton Road	1.41	260.4	1049.78	1.40	300.8	988.74
A259 Goring Street	1.43	406.4	1116.78	1.43	372.1	1107.83

A259 Littlehampton Road	1.41	392.9	1030.45	1.27	244.0	563.76
JUNCTION DELAY (S)*	1159.84			969.03		

7.39 To provide a further assessment on the impact of the residential-led mixed-use development proposal on the future operation (*'2033 Base'*) of the A259 Goring Street / A2032 / Titnore Lane 4-Arm Roundabout Junction (i.e. Goring Crossways), Table 7.6 presents a net impact assessment of the junction in comparison with the *'2033 Base'* during the weekday AM (08:00 – 09:00) and PM (17:00 – 18:00) peak hour periods.

7.40 Table 7.8 indicates that the development proposals would result in a 5.2% and 5.3% increase in vehicular traffic movements during the weekday AM (08:00 – 09:00) and PM (17:00 – 18:00) peak hour periods, respectively.

7.41 The largest increase in vehicular movements resulting from the development proposals would be on the southern (A259 Goring Street) and northern (A2700 Titnore Lane) arms of the roundabout junction during both the AM and PM peak hour periods. Notwithstanding this, the potential impact on the remaining arms of the junction is forecast to be low (i.e. less than 6.5%).

Table 7.8 Net Impact of Development Proposals on A259 Goring Street / A2032 / Titnore Lane 4-Arm Roundabout Junction

Time Period	Arm	2033 Base* Traffic Flows	Proposed Development Traffic Flows	2033 Net Increase
AM Peak Hour	A2700 Titnore Lane	382	22	5.8%
	A2032 Littlehampton Road	1,100	33	3.0%
	A259 Goring Street	1,516	180	11.9%
	A259 Littlehampton Road	1,727	9	0.5%
	ALL ARMS	**4,725**	**244**	**5.2%**
PM Peak Hour	A2700 Titnore Lane	570	54	9.5%
	A2032 Littlehampton Road	1,285	84	6.5%
	A259 Goring Street	1,453	108	7.4%
	A259 Littlehampton Road	1,733	23	1.3%
	ALL ARMS	**5,041**	**269**	**5.3%**

*Includes Committed Development

7.42 When assessing the impact of the development proposals on the anticipated junction delays, it is clear that the difference between the '*2033 Base*' and '*2033 Base + Development*' scenarios, during the weekday AM and PM peak hour periods, equates to 254.8 and 260.2 seconds, equivalent to 4.2 and 4.3-minutes.

7.43 Notwithstanding, the minimal impact of the development proposals on the future operation of the 4-arm roundabout junction, the next section of the report presents a mitigation scheme and associated analysis that would enhance the future operation.

A259 Goring Street / A259 Goring Way / Aldsworth Avenue / Ardingly Drive

7.44 Table 7.9 reveals that with the exception of Ardingly Avenue, all of the remaining arms of the roundabout junction operate over capacity during the weekday AM (08:00 – 09:00) and PM (17:00 – 18:00) peak hour periods. Most notably, the northern (A259 Goring Street (North)) and eastern arms (A259 Goring Street (East)) of the roundabout junction are forecast to generate excessive queue lengths and delays during both the '*2024 Base*' and '*2033 Base*' scenarios, irrespective of the potential impact of the residential-led mixed-use development proposals.

7.45 It is evident that the committed development set out in the Worthing Local Plan Transport Study and level of growth predicted by TEMPro for the Worthing Local Authority Area cannot be adequately accommodated within the current junction arrangement and calibration.

Table 7.9 A259 / Aldsworth Avenue / Ardingly Drive

Arm	AM Peak Hour (08:00 – 09:00)			PM Peak Hour (17:00 – 18:00)		
	RFC	Queue (Veh)	Delay (S)	RFC	Queue (Veh)	Delay (S)
2024 Base						
A259 (North)	1.18	123.7	342.19	1.07	56.4	132.30
Ardingly Drive	0.81	3.2	106.02	0.90	4.9	142.34
A259 Goring Street (East)	1.17	72.5	332.17	1.20	87.7	388.49
Aldsworth Avenue	1.28	53.3	645.89	1.10	23.1	255.21
Goring Way (West)	1.06	27.4	159.60	1.05	21.9	168.15
JUNCTION DELAY (S)*	332.61			224.62		
2024 Base + Development						
A259 (North)	1.26	189.2	532.68	1.11	83.3	193.42
Ardingly Drive	0.81	3.2	106.45	0.90	5.0	146.02
A259 Goring Street (East)	1.19	85.3	397.19	1.29	143.7	624.29
Aldsworth Avenue	1.27	52.9	640.15	1.10	23.3	260.50

Goring Way (West)	1.07	30.2	174.22	1.07	25.9	194.41
JUNCTION DELAY (S)*	434.94			328.37		
2033 Base						
A259 (North)	1.25	182.4	518.56	1.13	97.5	239.54
Ardingly Drive	0.86	4.2	129.24	0.97	7.1	191.47
A259 Goring Street (East)	1.24	106.0	508.96	1.27	130.1	580.91
Aldsworth Avenue	1.35	70.7	837.56	1.17	33.0	396.57
Goring Way (West)	1.12	44.5	262.23	1.12	34.8	265.69
JUNCTION DELAY (S)*	492.18			356.12		
2033 Base + Development						
A259 (North)	1.33	266.8	730.92	1.18	128.0	337.00
Ardingly Drive	0.86	4.2	129.31	0.97	7.2	193.58
A259 Goring Street (East)	1.27	124.4	579.98	1.37	197.1	853.82
Aldsworth Avenue	1.34	70.3	830.06	1.17	33.2	397.20
Goring Way (West)	1.14	47.9	290.05	1.14	39.7	315.04
JUNCTION DELAY (S)*	608.18			489.81		

7.46 Table 7.10 presents a net impact assessment of the junction in comparison with the '*2033 Base*' during the weekday AM (08:00 – 09:00) and PM (17:00 – 18:00) peak hour periods. It is clear that the residential-led mixed-use development proposals would result in a 3.7% and 4.3% increase in vehicular traffic movements during the weekday AM (08:00 – 09:00) and PM (17:00 – 18:00) peak hour periods, respectively.

Table 7.10 Net Impact of Development Proposals on A259 / Aldsworth Avenue / Ardingly Drive 5-Arm Roundabout Junction

Time Period	Arm	2033 Base* Traffic Flows	Proposed Development Traffic Flows	2033 Net Increase
AM Peak Hour	A259 (North)	1424	91	6.4%
	Ardingly Drive	116	0	0.0%
	A259 Goring Street (East)	843	30	3.6%
	Aldsworth Avenue	359	0	0.0%
	Goring Way (West)	578	2	0.4%
	ALL ARMS	**3320**	**123**	**3.7%**
PM Peak Hour	A259 (North)	1351	54	4.0%
	Ardingly Drive	132	0	0.0%
	A259 Goring Street (East)	912	77	8.5%
	Aldsworth Avenue	319	0	0.0%
	Goring Way (West)	448	5	1.1%
	ALL ARMS	**3162**	**136**	**4.3%**

*Includes Committed Development

7.47 The largest increase in vehicular movements resulting from the development proposals would be on the northern (A259 Goring Street (North)) and eastern (A259 Goring Street (East)) arms of the roundabout junction during both the weekday AM and PM peak hour periods. Notwithstanding this, the potential impact on the remaining arms of the junction is forecast to be very low (i.e. less than 2.0%).

7.48 When assessing the impact of the development proposals on the anticipated junction delays, it is clear that the difference between the '*2033 Base*' and '*2033 Base + Development*' scenarios, during the weekday AM and PM peak hour periods, equates to 116 and 134 seconds, equivalent to circa 2 minutes.

A259 Littlehampton Road / Ferring Lane (Left-in / Left-out only Junction)

7.49 Table 7.11 demonstrates that the A259 Littlehampton Road / Ferring Lane ('left-in' / 'left-out') junction would continue to operate well within its theoretical capacity in the '*2024 Base + Development*' and '*2033 Base + Development*' scenarios with there being a minimal impact on RFC values, queue lengths and delays on the minor arm (Ferring Lane). Consequently, the residential-led mixed-use development proposals would have a negligible impact on the free flow of traffic along Ferring Lane.

Table 7.11 A259 Littlehampton Road / Ferring Lane (Left-in / Left-out only Junction)

Arm	AM Peak Hour (08:00 – 09:00)			PM Peak Hour (17:00 – 18:00)		
	RFC	Queue (Veh)	Delay (S)	RFC	Queue (Veh)	Delay (S)
2024 Base						
Ferring Lane (Stream B-AC)	0.06	0.1	9.22	0.10	0.1	10.52
A259 Littlehampton Road (Steam C-AB)	0.00	0.0	0.00	0.00	0.0	0.00
JUNCTION DELAY (S)*	0.07			0.11		
2024 Base + Development						
Ferring Lane (Stream B-AC)	0.06	0.0	9.39	0.10	0.1	10.67
A259 Littlehampton Road (Steam C-AB)	0.00	0.0	0.00	0.00	0.0	0.00
JUNCTION DELAY (S)*	0.07			0.11		
2033 Base						
Ferring Lane (Stream B-AC)	0.06	0.1	9.80	0.11	0.1	11.40
A259 Littlehampton Road (Steam C-AB)	0.00	0.0	0.00	0.0	0.0	0.00
JUNCTION DELAY (S)*	0.07			0.12		
2033 Base + Development						
Ferring Lane (Stream B-AC)	0.07	0.1	9.99	0.11	0.1	11.58
A259 Littlehampton Road (Steam C-AB)	0.00	0.0	0.00	0.0	0.0	0.00
JUNCTION DELAY (S)*	0.07			0.12		

A280 / A27 / Titnore Lane Dumbbell Roundabout Junction

7.50 As shown in Table 7.12, with the exception of the A280 (Angmering Bypass – south-western arm) of the A280 / A27 / Titnore Lane Dumbbell roundabout junction, all of the remaining arms operate within capacity during the future '*2024 Base + Development*' and '*2033 Base +Development*' scenarios, as reflected by the low RFC values and minimal queue lengths.

7.51 The assessment demonstrates that the south-western arm (A280) would operate over capacity in both the '*2024 Base*' and '*2033 Base*' scenarios with a maximum RFC value of 1.05 and 1.14 in the weekday AM peak hour period, generating a maximum queue length of 43 and 86 vehicles respectively.

Table 7.12 A280 / A27 / Titnore Lane Dumbbell Roundabout Junction

Arm	AM Peak Hour (08:00 – 09:00)			PM Peak Hour (17:00 – 18:00)		
	RFC	Queue (Veh)	Delay (S)	RFC	Queue (Veh)	Delay (S)
2024 Base						
A280 North	0.75	2.9	8.17	0.84	4.9	11.62
A27 Off-Slip	0.52	1.1	9.67	0.57	1.3	11.43
Titnore Lane	0.54	1.1	5.93	0.67	2.0	9.80
A280 South West	1.05	43.4	122.27	0.64	1.8	9.09
JUNCTION DELAY (S)*	44.98			10.67		
2024 Base + Development						
A280 North	0.76	3.1	8.48	0.86	6.1	13.98
A27 Off-Slip	0.53	1.1	9.95	0.60	1.5	12.92
Titnore Lane	0.59	1.4	6.65	0.71	2.4	11.03
A280 South West	1.14	57.9	159.50	0.66	1.9	9.73
JUNCTION DELAY (S)*	56.22			12.32		
2033 Base						
A280 North	0.79	3.7	9.87	0.89	7.5	17.06
A27 Off-Slip	0.58	1.4	11.79	0.65	1.8	15.39
Titnore Lane	0.58	1.4	6.84	0.74	2.8	13.17
A280 South West	1.14	86.2	225.68	0.70	2.3	11.05
JUNCTION DELAY (S)*	79.30			14.76		
2033 Base + Development						
A280 North	0.80	3.9	10.30	0.92	10.0	22.16
A27 Off-Slip	0.59	1.4	12.17	0.69	2.1	18.10
Titnore Lane	0.64	1.7	7.83	0.78	3.4	15.20
A280 South West	1.18	103.3	274.60	0.72	2.5	11.94
JUNCTION DELAY (S)*	93.65			18.05		

A280 / A27 / Titnore Lane Roundabout Junction – Mitigation

7.52 As part of the approved outline planning application with some matters reserved for the development of up to 525 residential units, under Use Class C3), 3 ha (gross) of employment land, under Class B1), public open space, play areas, access, associated infrastructure and landscaping (Reference: A/40/18/OUT) on land north of Water Lane in Angmering, an improvement scheme was proposed for the south-western arm (A280) for the A280 / A27 / Titnore Lane dumbbell roundabout junction. The improvement scheme comprised the utilisation of the existing carriageway to create a two-lane entry.

7.53 As shown in Table 7.13, the proposed mitigation would substantially enhance the future operation of the roundabout junction during the weekday AM peak hour periods. Most notably, the RFC values, queue lengths and delays would be substantially less on the south-western arm (A280) junction during all of the future year scenarios.

7.54 When comparing the potential impact in terms of junction delay between the '*2033 Base*' and '*2033 Base + Development*' scenarios, it is clear that the development proposals would have an immaterial impact, equating to circa 2.3 and 2.2 seconds during the weekday AM (08:00 – 09:00) and PM (17:00 – 18:00) peak hour periods.

Table 7.13 A280 / A27 / Titnore Lane Dumbbell Roundabout Junction – Proposed Mitigation

Arm	AM Peak Hour (08:00 – 09:00)			PM Peak Hour (17:00 – 18:00)		
	RFC	Queue (Veh)	Delay (S)	RFC	Queue (Veh)	Delay (S)
2024 Base						
A280 North	0.73	2.6	7.36	0.81	4.1	9.69
A27 Off-Slip	0.52	1.1	9.91	0.57	1.3	11.44
Titnore Lane	0.54	1.1	5.93	0.67	2.0	9.81
A280 South West	0.83	4.6	14.42	0.51	1.0	5.13
JUNCTION DELAY (S)*	9.66			8.97		
2024 Base + Development						
A280 North	0.74	2.8	7.69	0.84	5.0	11.31
A27 Off-Slip	0.54	1.1	10.33	0.60	1.5	12.94
Titnore Lane	0.59	1.4	6.66	0.71	2.4	11.03
A280 South West	0.85	5.4	17.02	0.52	1.1	5.35
JUNCTION DELAY (S)*	10.72			10.22		
2033 Base						

A280 North	0.78	3.4	8.99	0.86	6.0	13.31
A27 Off-Slip	0.60	1.5	12.65	0.65	1.8	15.43
Titnore Lane	0.58	1.4	6.84	0.74	2.8	13.19
A280 South West	0.89	7.5	23.12	0.55	1.2	5.74
JUNCTION DELAY (S)*	13.55			11.96		
2033 Base + Development						
A280 North	0.79	3.6	9.47	0.89	7.5	16.42
A27 Off-Slip	0.61	1.5	13.29	0.69	2.1	18.23
Titnore Lane	0.64	1.7	7.83	0.78	3.4	15.25
A280 South West	0.92	9.6	29.62	0.56	1.3	6.00
JUNCTION DELAY (S)*	15.92			14.25		

A280 - A27 - Arundel Road

7.55 As shown in Table 7.14, the results of the assessment demonstrate that the roundabout junction would operate well within capacity (i.e. RFC values less than 1), under the '*2024 Base + Development*' and '*2033 Base + Development*' scenarios during the weekday AM (08:00 – 09:00) and PM (17:00 – 18:00) peak hour periods, respectively.

7.56 Whilst the RFC value for the northern arm (A280 Long Furlong) of the roundabout junction increases progressively between both the '*2024 Base*' – '*2024 Base + Development*', and '*2033 Base*' – *2033 Base + Development*', the RFC values are below 1, and equate to an increased queue length of one vehicle in the weekday PM (17:00 – 18:00) peak hour period.

Table 7.14 A280 - A27 - Arundel Road

Arm	AM Peak Hour (08:00 – 09:00)			PM Peak Hour (17:00 – 18:00)		
	RFC	Queue (Veh)	Delay (S)	RFC	Queue (Veh)	Delay (S)
2024 Base						
A280 Long Furlong	0.67	2.0	8.43	0.84	5.0	14.68
A280 South	0.60	1.5	4.76	0.45	0.8	3.47
A27 Off-Slip	0.78	3.5	16.74	0.42	0.7	5.39
Arundel Road	0.14	0.2	9.71	0.09	0.1	5.34
JUNCTION DELAY (S)*	5.85			5.55		

2024 Base + Development						
A280 Long Furlong	0.66	1.9	8.16	0.86	5.7	16.31
A280 South	0.62	1.6	4.96	0.46	0.8	3.53
A27 Off-Slip	0.75	2.9	14.35	0.42	0.7	5.39
Arundel Road	0.14	0.2	9.50	0.09	0.1	5.43
JUNCTION DELAY (S)*	8.53			10.03		
2033 Base						
A280 Long Furlong	0.72	2.6	10.46	0.90	8.3	23.29
A280 South	0.64	1.8	5.27	0.47	0.9	3.64
A27 Off-Slip	0.87	5.8	26.76	0.45	0.8	5.67
Arundel Road	0.17	0.2	11.69	0.09	0.1	5.64
JUNCTION DELAY (S)*	13.00			13.50		
2033 Base + Development						
A280 Long Furlong	0.72	2.5	9.93	0.92	9.7	26.99
A280 South	0.65	1.9	5.48	0.48	0.9	3.71
A27 Off-Slip	0.83	4.5	20.97	0.46	0.8	5.86
Arundel Road	0.17	0.2	11.27	0.10	0.1	5.77
JUNCTION DELAY (S)*	11.08			15.31		

7.57 As shown in Table 7.15, the introduction of mitigation at the A280 / A27 / Titnore Lane roundabout junction would ensure the RFC values on all arms would be well below 1, leading to minimal queuing and delays.

Table 7.15 A280 - A27 - Arundel Road - Mitigation

Arm	AM Peak Hour (08:00 – 09:00)			PM Peak Hour (17:00 – 18:00)		
	RFC	Queue (Veh)	Delay (S)	RFC	Queue (Veh)	Delay (S)
2024 Base						
A280 Long Furlong	0.51	1.0	4.45	0.65	1.9	5.34
A280 South	0.60	1.5	4.76	0.45	0.8	3.47
A27 Off-Slip	0.78	3.5	16.74	0.42	0.7	5.39
Arundel Road	0.14	0.2	9.71	0.09	0.1	5.34
JUNCTION DELAY (S)*	8.11			4.76		
2024 Base + Development						
A280 Long Furlong	0.51	1.0	4.35	0.67	2.0	5.55
A280 South	0.62	1.6	4.96	0.46	0.8	3.53
A27 Off-Slip	0.75	2.9	14.35	0.42	0.7	5.39
Arundel Road	0.14	0.2	9.50	0.09	0.1	5.43
JUNCTION DELAY (S)*	7.34			4.88		
2033 Base						
A280 Long Furlong	0.56	1.2	5.00	0.70	2.3	6.27
A280 South	0.64	1.8	5.27	0.47	0.9	3.64
A27 Off-Slip	0.87	5.8	26.76	0.45	0.8	5.67
Arundel Road	0.17	0.2	11.69	0.09	0.1	5.64
JUNCTION DELAY (S)*	11.32			5.32		
2033 Base + Development						
A280 Long Furlong	0.55	1.2	4.64	0.72	2.5	6.55
A280 South	0.65	1.9	5.48	0.48	0.9	3.71
A27 Off-Slip	0.83	4.5	20.97	0.46	0.8	5.86
Arundel Road	0.17	0.2	11.27	0.10	0.1	5.77
JUNCTION DELAY (S)*	9.49			5.51		

Mitigation

7.58 Whilst it has been demonstrated that the impacts of the residential-led mixed-use development on the future operational performance of the A259 Goring Street / A2032 / Titnore Lane (i.e. Goring Crossways) and A259 Goring Street / Goring Way / Aldsworth Avenue / Ardingly Drive / Goring Way roundabout junctions is relatively small, in comparison with that resulting from the Worthing Local Plan sites and level of background growth predicted by TEMPro for the Worthing Local Authority Area, an improvement scheme for both roundabout junctions is proposed.

7.59 The geometric design of the proposed mitigation schemes for the A259 Goring Street / A2032 / Titnore Lane (i.e. Goring Crossways) and A259 Goring Street / Goring Way / Aldsworth Avenue / Ardingly Drive / Goring Way roundabout junctions are shown on Drawing No.'s 18122-002 Rev A and 18122-003 Rev A attached.

A259 Goring Street / A2032 / Titnore Lane (i.e. Goring Crossways)

7.60 As shown on Drawing No. 18122/002 Rev B (attached), the proposed mitigation includes the extension of two entry lanes from the north (Titnore Lane), and the provision of three lane entries on the eastern (A259 Littlehampton Road) and southern arms (A259 Goring Street), with the southern section of the circulatory to be widened to accommodate three lanes. A vehicle restraint system would be installed adjacent to the south-east corner of the roundabout junction to prevent errant vehicles from encroaching the footway.

A259 Goring Street / Goring Way / Aldsworth Avenue / Ardingly Drive / Goring Way

7.61 As shown on Drawing No. 18122/003 Rev A (attached), the proposed mitigation for the A259 Goring Street / Goring Way / Aldsworth Avenue / Ardingly Drive / Goring Way roundabout junction includes the widening of all the entry arms. Drawing No.'s 18-122/SK08, 18-122/SK09 (attached) shows the geometries for the existing and proposed scenarios.

7.62 The results of the proposed mitigation scheme on the operational performance of the A259 Goring Street / A2032 / Titnore Lane (i.e. Goring Crossways) junction is presented in Table 7.16.

A259 / A2032 / Titnore Lane

7.63 As shown in Table 7.16, all arms of the A259 Goring Street / A2032 / Titnore Lane (i.e. Goring Crossways) roundabout junction would continue to operate over capacity during the weekday AM (08:00 -09:00) and PM (17:00 – 18:00) peak hour periods, respectively, as indicated in the RFC values being over 1. However, the length of delays in terms of individual arms would be substantially less than that likely to be experienced in the '*2033 Base + Development*' (non-mitigation) scenarios.

Table 7.16 A259 / A2032 / Titnore Lane

Arm	AM Peak Hour (08:00 – 09:00)			PM Peak Hour (17:00 – 18:00)		
	RFC	Queue (Veh)	Delay (S)	RFC	Queue (Veh)	Delay (S)
2024 Base						
A2700 Titnore Lane	1.47	98.1	1240.76	1.50	99.0	602.47
A2032 Littlehampton Road	1.30	178.3	666.92	1.17	107.8	328.94
A259 Goring Street	1.17	131.2	313.67	0.84	4.9	16.59
A259 Littlehampton Road	1.27	236.8	556.49	0.96	16.7	35.33
JUNCTION DELAY (S)*	561.58			181.55		
2024 Base + Development						
A2700 Titnore Lane	1.48	99.6	1263.22	1.78	157.7	1064.26
A2032 Littlehampton Road	1.25	143.6	5454.61	1.25	168.1	526.74
A259 Goring Street	1.22	180.2	450.06	0.91	8.6	26.96
A259 Littlehampton Road	1.22	181.1	444.85	1.01	33.0	63.63
JUNCTION DELAY (S)*	537.88			310.48		
2033 Base						
A2700 Titnore Lane	1.45	92.0	1164.64	1.33	93.9	671.03
A2032 Littlehampton Road	1.30	175.1	663.15	1.25	162.8	513.00
A259 Goring Street	1.16	131.2	312.01	1.22	161.6	446.97
A259 Littlehampton Road	1.28	248.1	580.03	1.12	115.6	213.23
JUNCTION DELAY (S)*	560.96			408.93		
2033 Base + Development						
A2700 Titnore Lane	1.56	127.5	1592.86	1.48	151.1	1164.67
A2032 Littlehampton Road	1.33	205.8	757.33	1.33	241.7	733.14
A259 Goring Street	1.29	259.6	625.31	1.28	235.4	615.59
A259 Littlehampton Road	1.30	272.1	641.61	1.16	145.8	296.09
JUNCTION DELAY (S)*	741.63			604.41		

7.64 When examining the impact of the proposed mitigation on the future ('*2033 Base + Development*' scenario) operational performance of the A259 Goring Street / A2032 / Titnore Lane (i.e. Goring Crossways) junction in the context of delays, it is evident from Table 7.15 that there would be a substantial reduction on all arms during the weekday AM (08:00 – 09:00) and PM (17:00 – 18:00) peak hour periods, respectively.

7.65 The largest reduction in delays (i.e. 56% and 44%) would occur on the southern arm (A259 Goring Street) of the junction during the AM and PM peak hour periods, respectively.

Table 7.17 A259 / A2032 / Titnore Lane – Net Impact (Delays)

Time Period	Arm	2033 Base Delays	2033 Base + Dev Delays (No-Mitigation)*	2033 Base + Dev Delays (Mitigation)*	Net Improvement	
					2033 Base	2033 Base + Dev (No Mitigation)
AM Peak Hour	A2700 Titnore Lane	1758.70	2184.60	1592.86	-165.84 (9.4%)	-591.74 (27.1%)
	A2032 Littlehampton Road	923.80	1049.78	757.33	-166.47 (18.0%)	-292.45 (27.9%)
	A259 Goring Street	647.91	1116.78	625.31	-22.60 (3.4%)	-491.47 (56.0%)
	A259 Littlehampton Road	924.33	1030.45	641.61	-282.72 (30.6%)	-388.84 (37.8%)
	ALL ARMS**	**905.04**	**1159.84**	**741.63**	**-163.41 (18.06%)**	**-418.21 (36.0%)**
PM Peak Hour	A2700 Titnore Lane	1133.30	1722.23	1164.67	+31.37 (2.7%)	-557.56 (32.3%)
	A2032 Littlehampton Road	699.63	988.74	733.14	+33.51 (4.8%)	-255.60 (25.8%)
	A259 Goring Street	844.22	1107.83	615.59	-228.63 (27%)	-492.24 (44.4%)
	A259 Littlehampton Road	462.12	563.76	296.09	-166.03 (35.9%)	-267.67 (47.48%)
	ALL ARMS**	**708.82**	**969.03**	**604.41**	**-104.41 (14.7%)**	**-364.62 (37.6%)**

*Includes Committed Development

**Demand-weighted averages

7.66 When comparing the results of the '*2033 Base*' scenario with the '*2033 Base + Development*' (Mitigation) scenario, it is evident that there would be a substantial reduction (i.e. 18% and 14.7%) in delay on all arms during the weekday AM (08:00 – 09:00) and PM (17:00 – 18:00) peak hour period. The largest reduction in delays would occur on the western arm (A259 Littlehampton Road) during both periods.

7.67 The results also reveal that there would be an immaterial increase in delay on the northern (A2700 Titnore Lane) and eastern (A2032 Littlehampton Road) arms of the junction, equivalent to 31 and 34 seconds, respectively.

7.68 Notwithstanding this, it is clear that the proposed improvement scheme, which is primarily designed to mitigate the potential impact of the residential-led mixed-use development proposal on the local highway network during the weekday AM and PM peak hour periods would have the benefit of substantially reducing the length of delays, which could potentially be experienced at the roundabout junction during the '*2033 Base*' scenario.

7.69 In comparison with the results of the '*2033 Base + Development*' (non-mitigation) scenario, it is evident that the reduction in anticipated delays on all arms of the junction, resulting from the proposed mitigation would enhance the operational performance to a level significantly below that projected to occur in the '*2024 Base + Development*' scenario, during the weekday AM (08:00 – 09:00) and PM (17:00 – 18:00) peak hour periods.

7.70 Consequently, in addition to mitigating the impact of the residential-led mixed-use development proposal on the future operation of the A259 Goring Street / A2032 / Titnore Lane (i.e. Goring Crossways) junction, the improvement scheme would partially alleviate the impact of other committed developments set out in the Worthing Local Plan Transport Study and the level of background traffic growth, as predicted by TEMPro in the '*2033 Base + Development*' future year scenario.

A259 Goring Street / A259 Goring Way / Aldsworth Avenue / Ardingly Drive

7.71 As shown in Table 7.18, with the exception of the Ardingly Drive arm, all arms of the A259 Goring Street / A259 Goring Way / Aldsworth Avenue and Ardingly Drive junction would continue to operate over capacity, as indicated by RFC values over 1, resulting in queuing vehicles and associated delays during the weekday AM (08:00 – 09:00) and PM (17:00 – 18:00) peak hour periods, under the '*2024 Base + Development*' and '*2033 Base + Development*' future year scenarios.

7.72 However, when assessing the impact in the context of delays on all arms, it is clear that the difference between the '*2033 Base*' and '*2033 Base + Development*' future year scenario, is very minimal and only equates to 98.6 and 100.1 seconds during the weekday AM and PM peak hour periods, respectively.

Table 7.18 A259 / Aldsworth Avenue / Ardingly Drive

Arm	AM Peak Hour (08:00 – 09:00)			PM Peak Hour (17:00 – 18:00)		
	RFC	Queue (Veh)	Delay (S)	RFC	Queue (Veh)	Delay (S)
2024 Base						
A259 (North)	1.12	86.9	201.15	1.01	29.6	74.52
Ardingly Drive	0.78	2.9	94.35	0.85	3.9	115.16
A259 Goring Street (East)	1.10	47.9	183.62	1.12	59.8	210.65
Aldsworth Avenue	1.22	41.3	481.60	1.05	17.4	189.34
Goring Way (West)	1.02	20.3	121.62	1.02	16.8	131.78
JUNCTION DELAY (S)*	209.47			135.54		
2024 Base + Development						
A259 (North)	1.19	138.6	365.51	1.05	50.2	113.77
Ardingly Drive	0.78	2.9	95.42	0.87	4.2	124.02
A259 Goring Street (East)	1.12	58.6	230.41	1.21	100.8	417.38
Aldsworth Avenue	1.22	41.1	485.38	1.05	17.8	194.20
Goring Way (West)	1.04	22.8	134.47	1.04	20.2	153.86
JUNCTION DELAY (S)*	295.69			219.29		
2033 Base						
A259 (North)	1.18	134.3	354.16	1.07	62.5	137.33
Ardingly Drive	0.83	3.7	114.65	0.94	6.0	162.36
A259 Goring Street (East)	1.16	75.4	323.72	1.20	91.8	381.97
Aldsworth Avenue	1.29	56.9	657.86	1.12	26.1	282.89
Goring Way (West)	1.09	35.3	190.54	1.08	27.8	197.63
JUNCTION DELAY (S)*	342.08			232.68		
2033 Base + Development						
A259 (North)	1.26	201.2	536.92	1.11	89.7	198.85
Ardingly Drive	0.83	3.7	115.18	0.94	6.2	166.38

A259 Goring Street (East)	1.19	87.9	383.37	1.29	146.7	602.10
Aldsworth Avenue	1.28	56.8	655.70	1.12	26.4	289.02
Goring Way (West)	1.10	38.6	210.02	1.10	32.4	234.47
JUNCTION DELAY (S)*	440.70			332.80		

7.73 When comparing the results of the '*2033 Base*' scenario with the '*2033 Base + Development*' (Mitigation) scenario, it is evident that there would be a significant reduction (i.e. 111% and 6.6%) in delay on all arms during the weekday AM (08:00 – 09:00) and PM (17:00 – 18:00) peak hour period. The largest reduction in delays would occur on the eastern (A259 Goring Street (East) and western (Goring Way (West)) arms of the roundabout junction during the AM peak hour period.

7.74 It is clear that the proposed improvement scheme, which is primarily designed to mitigate the potential impact of the residential-led mixed-use development proposal on the local highway network during the weekday AM and PM peak hour periods would have the benefit of substantially reducing the length of delays, which could potentially be experienced at the roundabout junction during the '*2033 Base*' scenario.

7.75 In addition to mitigating the impact of the residential-led mixed-use development proposal on the future operation of the A259 / Aldsworth Avenue / Ardingly Drive junction, the improvement scheme would alleviate the impact of other committed developments set out in the Worthing Local Plan Transport Study and the level of background traffic growth (as predicted by TEMPro) in the '*2033 Base +Development*' future year scenario.

Table 7.19 A259 / Aldsworth Avenue / Ardingly Drive – Net Impact (Delays)

Time Period	Arm	2033 Base Delays	2033 Base + Dev Delays (No-Mitigation) *	2033 Base + Dev Delays (Mitigation)*	Net Improvement	
					2033 Base	2033 Base + Dev (No Mitigation)
AM Peak Hour	A259 (North)	518.56	730.92	536.92	-18.36 (3.5%)	-194.00 (26.5%)
	Ardingly Drive	129.24	129.31	115.18	-14.06 (10.8%)	-14.13 (10.9%)
	A259 Goring Street (East)	508.96	579.98	383.37	-125.59 (24.6%)	-196.61 (33.9%)
	Aldsworth Avenue	837.56	830.06	655.70	-181.86 (21.7%)	-174.36 (21.0%)
	Goring Way (West)	262.23	290.05	210.02	-52.2 (19.9%)	-80.03 (27.6%)
	ALL ARMS**	**492.18**	**608.18**	**440.70**	**-51.5 (10.5%)**	**-167.48 (27.5%)**
PM Peak Hour	A259 (North)	239.54	337.00	198.85	-40.69 (16.9%)	-138.15 (41.0%)
	Ardingly Drive	191.47	193.58	166.38	-25.09 (13.1%)	-27.20 (14.0%)
	A259 Goring Street (East)	580.91	853.82	602.10	-21.19 (3.6%)	-251.72 (29.5%)
	Aldsworth Avenue	396.57	397.20	289.02	-107.55 (27.1%)	-108.18 (27.2%)
	Goring Way (West)	265.69	397.20	234.47	-31.22 (11.8%)	-162.73 (40.1%)
	ALL ARMS**	**356.12**	**489.81**	**332.80**	**-23.32 (6.6%)**	**-157.01 (32.1%)**

*Includes Committed Development

**Demand-weighted averages

Comparison with WSP Mitigation Scheme

7.76 This section of the report presents the results of WSP's mitigation scheme on the future operational performance of the A259 Goring Street / A2032 / Titnore Lane (i.e. Goring Crossways) i.e. Goring Crossways) roundabout junction during the weekday AM (08:00 – 09:00) and PM (17:00 – 18:00) peak hour periods, respectively.

A259 / A2032 / Titnore Lane

7.77 As shown in Table 7.20, the northern (A2700 Titnore Lane) and eastern (A259 Littlehampton Road) arms of the 'Goring Crossways' roundabout junction would continue to operate over capacity during the weekday AM (08:00 -09:00) and PM (17:00 – 18:00) peak hour periods, respectively, as indicated in the RFC values being over 1. However, the length of delays in terms of individual arms would be substantially less than that likely to be experienced in the '*2033 Base + Development*' (non-mitigation) scenarios.

Table 7.20 A259 / A2032 / Titnore Lane

Arm	AM Peak Hour (08:00 – 09:00)			PM Peak Hour (17:00 – 18:00)		
	RFC	Queue (Veh)	Delay (S)	RFC	Queue (Veh)	Delay (S)
2024 Base						
A2700 Titnore Lane	1.47	95.0	1272.14	1.58	135.8	1062.55
A2032 Littlehampton Road	0.93	10.7	36.03	0.90	7.9	22.46
A259 Goring Street	0.82	4.5	10.52	0.62	1.6	5.32
A259 Littlehampton Road	1.38	284.4	697.53	1.05	60.0	108.84
JUNCTION DELAY (S)*	371.58			177.58		
2024 Base + Development						
A2700 Titnore Lane	1.56	122.1	1606.49	1.81	212.5	1666.61
A2032 Littlehampton Road	0.95	13.5	43.82	0.98	19.7	51.58
A259 Goring Street	0.92	9.8	21.10	0.69	2.2	6.58
A259 Littlehampton Road	1.47	356.8	884.41	1.11	103.5	181.68
JUNCTION DELAY (S)*	457.34			295.67		
2033 Base						
A2700 Titnore Lane	1.55	121.6	1601.32	1.39	124.2	1005.34
A2032 Littlehampton Road	0.99	20.8	63.40	0.94	12.4	33.80

A259 Goring Street	0.89	7.2	16.31	0.92	10.1	24.27
A259 Littlehampton Road	1.50	413.4	1020.89	1.33	265.6	607.39
JUNCTION DELAY (S)*	524.71			337.00		
2033 Base + Development						
A2700 Titnore Lane	1.66	154.2	2019.37	1.54	191.0	1542.48
A2032 Littlehampton Road	1.01	26.4	75.97	1.00	27.0	64.62
A259 Goring Street	0.99	23.4	45.95	0.98	22.4	47.81
A259 Littlehampton Road	1.62	506.1	1292.64	1.41	345.1	790.63
JUNCTION DELAY (S)*	652.16			472.57		

7.78 As shown in Table 7.21, when comparing the results of the '*2033 Base + Development*' (WSP Mitigation) scenario with the '*2033 Base + Development*' (No Mitigation), it is evident that there would be a substantial reduction (44% and 51%) in delay on all arms during the weekday AM (08:00 – 09:00) and PM (17:00 – 18:00) peak hour period. The largest reduction in delays would occur on the western arm (A259 Littlehampton Road) and southern arms (A259 Goring Street) during both of the periods.

7.79 The largest reduction in delays (i.e. 116% would occur on the eastern arm (A259 Littlehampton Road of the junction during the AM peak hour period. However, during the PM peak hour period, this arm of the junction would experience considerable delay.

Table 7.21 A259 / A2032 / Titnore Lane – Net Impact (Delays)

Time Period	Arm	2033 Base + Dev Delays (No-Mitigation)*	2033 Base + Dev Delays (Mitigation)*	2033 Base + Dev Delays (WSP Mitigation)*	Net Improvement	
					2033 Base + Dev (Mitigation)	2033 Base + Dev Delays (WSP Mitigation)*
AM Peak Hour	A2700 Titnore Lane	2184.60	1592.86	2019.37	-591.74 (27.1%)	-165.23 (7.6%)
	A2032 Littlehampton Road	1049.78	757.33	75.97	-292.45 (27.9%)	-973.81 (92.8%)
	A259 Goring Street	1116.78	625.31	45.95	-491.47 (56.0%)	-1070.83 (95.9%)
	A259 Littlehampton Road	1030.45	641.61	1292.64	-388.84 (37.8%)	-1192.19 (115.7%)
	ALL ARMS**	**1159.84**	**741.63**	**652.16**	**-418.21 (36.0%)**	**-507.68 (43.8%)**
PM Peak Hour	A2700 Titnore Lane	1722.23	1164.67	1542.48	-557.56 (32.3%)	-179.75 (10.4%)
	A2032 Littlehampton Road	988.74	733.14	64.62	-255.60 (25.8%)	-924.12 (93.5%)
	A259 Goring Street	1107.83	615.59	47.81	-492.24 (44.4%)	-1060.02 (44.4%)
	A259 Littlehampton Road	563.76	296.09	790.63	-267.67 (47.48%)	+226.87 (40.3%)
	ALL ARMS**	**969.03**	**604.41**	**472.57**	**-364.62 (37.6%)**	**-496.46 (51.2%)**

*Includes Committed Development

**Demand-weighted averages

Summary

7.80 The results of the assessments demonstrate that the following junctions would operate with significant residual capacity, under the '*2024 Base*', '*2024 Base + Development*', '*2033 Base*' and '*2033 Base + Development*' during the weekday AM (08:00 – 09:00) and PM (17:00 – 18:00) peak hour periods:

- The A259 Goring Street / The Strand Give-Way Junction.
- The A259 Littlehampton Road / Ferring Lane (Left-in / Left-out only Junction).
- The A280 / A27 / Titnore Lane Dumbbell Roundabout Junction.

7.81 Irrespective of the potential impact of the residential-led mixed-use development proposals, the combination of committed development set out in the Worthing Local Transport Study and background growth in traffic, as predicted by TEMPro would place a significant constraint on the operational performance of the junction during the '*2033 Base*' scenario, and lead to the manifestation of excessive queues and delays at the A259 Goring Street / A2032 / Titnore Lane (i.e. Goring Crossways) and A259 Goring Street / Goring Way / Aldsworth Avenue / Ardingly Drive / Goring Way roundabout junctions.

7.82 The proposed improvement schemes for the A259 Goring Street / A2032 / Titnore Lane (i.e. Goring Crossways) and A259 Goring Street / Goring Way / Aldsworth Avenue / Ardingly Drive / Goring Way roundabout junctions would fully mitigate the impact of the residential-led mixed-use development proposal, and substantially reduce queues and delays on the majority of the arms, under the '*2033 Base + Development + Mitigation*' scenario during the weekday AM (08:00 – 09:00) and PM (17:00 – 18:00) peak hour periods, respectively. Moreover, the proposed mitigation would reduce queues and delays, to that likely to be experienced in the '*2024 Base + Development*' scenario, thereby alleviating the impact of other committed development sites set out in the Worthing Local Transport Study and background growth in traffic.

7.83 The proposed mitigation schemes can be delivered entirely within the extent of the publicly maintainable highway and are therefore not dependent on third party land.

7.84 On the basis of the assessment, it is demonstrated that the traffic generated by the residential-led mixed-use development can be suitably accommodated on the local highway network without having a 'severe' residual cumulative impact to the conditions of capacity, amenity and safety during the weekday AM (08:00 – 09:00) and PM (17:00 – 18:00) peak hour periods.

Transport Network

7.85 With regard to person trip movements undertaken on-foot, both as primary and secondary modes of travel, it is evident that the adjoining highway links in the vicinity of the site have lit footways, which are of sufficient width and constructed to a good standard. As noted in Sections 3 and 4, the pedestrian environment surrounding the site would be enhanced through the relocation of the existing Toucan crossing along the A259 Goring Street, provision of improved cycle connections and improved access to public transport services.

7.86 When assessing the potential impact of the residential-led development proposals on the local public transport network, it is noted that the site benefits from being within short walking distance of Goring rail station and bus stops along The Strand and the A259. Rail and bus services operate on a frequent basis to a host of journey destinations. Given that the development proposals would have the potential to generate a total of 39 and 40 trips by public transport during the AM and PM peak hour periods, it is considered that this demand can be easily accommodated on existing bus and rail services.

8. Promotion of Softer Measures

8.1 In accordance with national and local planning policy objectives, this section of the report sets out a strategy for encouraging future households of the proposed development to adopt long-term sustainable travel patterns and behaviour, primarily through the preparation / implementation of a Residential Travel Plan (RTP).

8.2 The requirement for all major new residential development proposals (Use Class C3) to be accompanied by a Travel Plan is set out in The Worthing Core Strategy (2011). In conjunction with this TA, a RTP has been prepared by MTP to accompany the planning application.

Aims and Objectives

8.3 The main aim of the Residential Travel Plan is to reduce the dependency of households of the proposed development to travel by private car, in turn leading to a corresponding increase in those travelling by more sustainable modes (e.g. public transport and the '*active*' modes of walking and cycling) for various journey purposes including work, shopping and leisure related trips.

8.4 The principal objectives of the RTP are therefore:

- To reduce the proportion of new households travelling by public transport for various journey purposes, with particular emphasis on commuter trips to and from the proposed development;
- To promote a range of '*soft*' information-led measures that will facilitate a reduction in vehicular traffic arising from the proposed development, thereby encouraging the use of sustainable modes;
- To promote the financial, environmental and personal health benefits associated with the 'active' modes of walking and cycling; and
- To promote the RTP and encourage new households to participate within national, regional, and local travel awareness campaigns including '*Bike, Walk and Liftshare Week*'.

Targets

8.5 The main target of the RTP would aim to seek a 15% reduction in the proportion of future households travelling by public transport on a typical weekday (07:00 to 19:00). Provisional mode share targets, based on the anticipated vehicular traffic generation of the development proposals, as set out in Section 6 of this report is presented within the RTP.

8.6 As part of the monitoring and review strategy, household travel surveys will be undertaken on a biennial basis (i.e. once every two years) to determine whether the set mode share targets have been achieved after the fifth year of implementation.

Measures and Initiatives

8.7 In order to achieve the mode share targets, a number of '*hard*' infrastructural and '*soft*' information-led measures would be implemented prior to the proposed development becoming occupied. These measures would be broadly categorised under the following headings:

- Travel Information;
- Car Sharing;
- Public Transport;
- Walking and Cycling;
- Promotion / Marketing; and
- On-site Infrastructure.

8.8 Whilst the proposed measures are primarily tailored towards new households at the proposed development, it is recognised that other end-users (i.e. visitors) will also benefit from the provision of new infrastructure and information.

Management

8.9 Prior to the proposed development becoming occupied, a Travel Plan Co-ordinator would be appointed by the applicant to oversee and manage the RTP over an initial 5-year time period. The TPC would be responsible for undertaking the following key tasks:

- On-going promotion / marketing of the RTP and associated measures including the preparation of Travel Welcome Packs;
- Organising the implementation of household travel surveys to be undertaken on a biennial basis, following the establishment of baseline travel patterns and behaviour;
- Preparing biennial monitoring reports, which summarise the results of the surveys as well as progress towards achieving the set targets; and
- Acting as the main point of contact for all households.

9. Summary & Conclusions

9.1 This TA has been prepared by MTP on behalf of the applicant in support of a planning application for a mixed-use development comprising up to 475 dwellings along with associated access, internal roads and footpaths, car parking, public open space, landscaping, local centre (uses including A1, A2, A3, A4, A5, D1, D2) with associated car parking, car parking for the adjacent railway station, undergrounding of overhead HV cables and other supporting infrastructure and utilities on land North West of Goring Station, Goring-by-Sea in West Sussex.

9.2 In summary, the report demonstrates:

- The development proposals comply with the core principles of various current national, regional and local planning policies, most notably in respect of providing new households and other end-users with opportunities to adopt sustainable travel patterns and behaviour for various journey purposes, thereby negating the need for them to own a vehicle and travel by private car.
- The application site is well located to public transport services available at Goring rail station and bus stops along The Strand and the A259, which provide a good level of connectivity to a whole host of journey destinations. Further, a wide range of amenities, which are likely to cater for the day-to-day needs of future households and occupiers of the commercial unit are available and accessible on-foot and by cycle within the maximum recommended distances, prescribed by the CIHT.
- The results of the parking '*stress*' survey demonstrate that the overall average for parking '*stress*' at the study site was calculated to be 30%. It is therefore apparent that the demand for on-street parking within the identified study area does not exceed available supply during both the night-time and daytime periods.
- The review of the Sussex Safer Road Collision data reveals that there are no significant safety issues with the existing local highway network within the vicinity of the application site. The majority of the collisions were caused as a result of human error. In light of the anticipated multi-modal trip generating potential of the development proposals, the existing trend / pattern in regard to location, collision type and severity would not be exacerbated.
- When the observed 2018 queue lengths from the MCTC surveys are calibrated in the ARCADY models, the results of the junction capacity assessments reveal that all arms operate significantly close to or over capacity during the weekday AM and PM peak hour periods, as indicated by the high RFC values (i.e. >1.00), length of queues and delays.
- The development proposals would have the potential to generate in the order of 309 and 316 two-way vehicular traffic movements during the weekday AM (08:00 – 09:00) and PM (17:00 – 18:00) peak hour periods, respectively. Given that this equates to an additional 26 vehicular movements every 5-minutes, it is considered that the residential-led mixed-use development proposals would not have a '*severe*' residual cumulative impact on the operational and safety characteristics of the local highway network, particularly to the conditions of amenity, capacity and safety.
- The results of the junction capacity assessments demonstrate that the residential-led mixed-use development proposals would have an immaterial impact on the operation of the 4-arm roundabout junction of the A259 Goring Street / A2032 / Titnore Lane and 5-arm roundabout junction of the A259 Goring Street / Goring Way / Aldsworth Avenue / Ardingly Drive / Goring Way, under the future 2024 and 2033 future year scenarios.

- Irrespective of the potential impact of the residential-led mixed-use development proposals, the combination of committed development set out in the Worthing Local Transport Study and background growth in traffic, as predicted by TEMPro would place a significant constraint on the operational performance of the junction during the '*2033 Base*' scenario, and lead to the manifestation of excessive queues and delays at the A259 Goring Street / A2032 / Titnore Lane (i.e. Goring Crossways) and A259 Goring Street / Goring Way / Aldsworth Avenue / Ardingly Drive / Goring Way roundabout junctions.
- The proposed improvement schemes for the A259 Goring Street / A2032 / Titnore Lane (i.e. Goring Crossways) and A259 Goring Street / Goring Way / Aldsworth Avenue / Ardingly Drive / Goring Way roundabout junctions would fully mitigate the impact of the residential-led mixed-use development proposal, and substantially reduce queues and delays on the majority of the arms, under the '*2033 Base + Development + Mitigation*' scenario during the weekday AM (08:00 – 09:00) and PM (17:00 – 18:00) peak hour periods, respectively. Moreover, the proposed mitigation would reduce queues and delays, to that likely to be experienced in the '*2024 Base + Development*' scenario, thereby alleviating the impact of other committed development sites set out in the Worthing Local Transport Study and background growth in traffic.
- Consequently, the potential impact of the development proposals on this junction is negligible with there being minimal increases in RFC values and queuing on the respective arms of the roundabout junctions, located north and south of the site's proposed access.
- The design of the internal layout and private parking courtyard areas can facilitate the operation of all servicing and delivery vehicles in a safe and convenient manner.
- Future households and end-users of the commercial aspects would be actively encouraged to adopt sustainable travel patterns through the implementation of a RTP containing a mixture of '*hard*' infrastructural and '*soft*' information-led measures for various journey purposes, further minimising the impact of the development proposals on the local highway network.

9.3 In the context of the guidelines within paragraph 109 of the NPPF it is considered that there are no residual cumulative impacts in terms of highway safety or the operational capacity of the surrounding transport network and therefore planning permission should not be withheld on transport planning and highway grounds.