West Sussex County Council

A29 REALIGNMENT (PHASE 1)

Transport Assessment

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1 INTRODUCTION

1.1 CONTEXT

1.1.1 This Transport Assessment (TA) has been prepared by WSP on behalf of West Sussex County Council (WSCC) in respect of the A29 Realignment near Barnham, in West Sussex (referred to as the scheme from here on). The purpose of this TA is to determine the nature and extent of transport impacts arising from the proposed scheme.

1.1.2 The A29 is a north south link road providing access between Barnham, Eastergate and Westergate villages with Bognor Regis and Chichester. This road currently suffers from severe congestion, exacerbated by the delay caused by the railway level crossing at Woodgate (between Watergate and Lidsey).

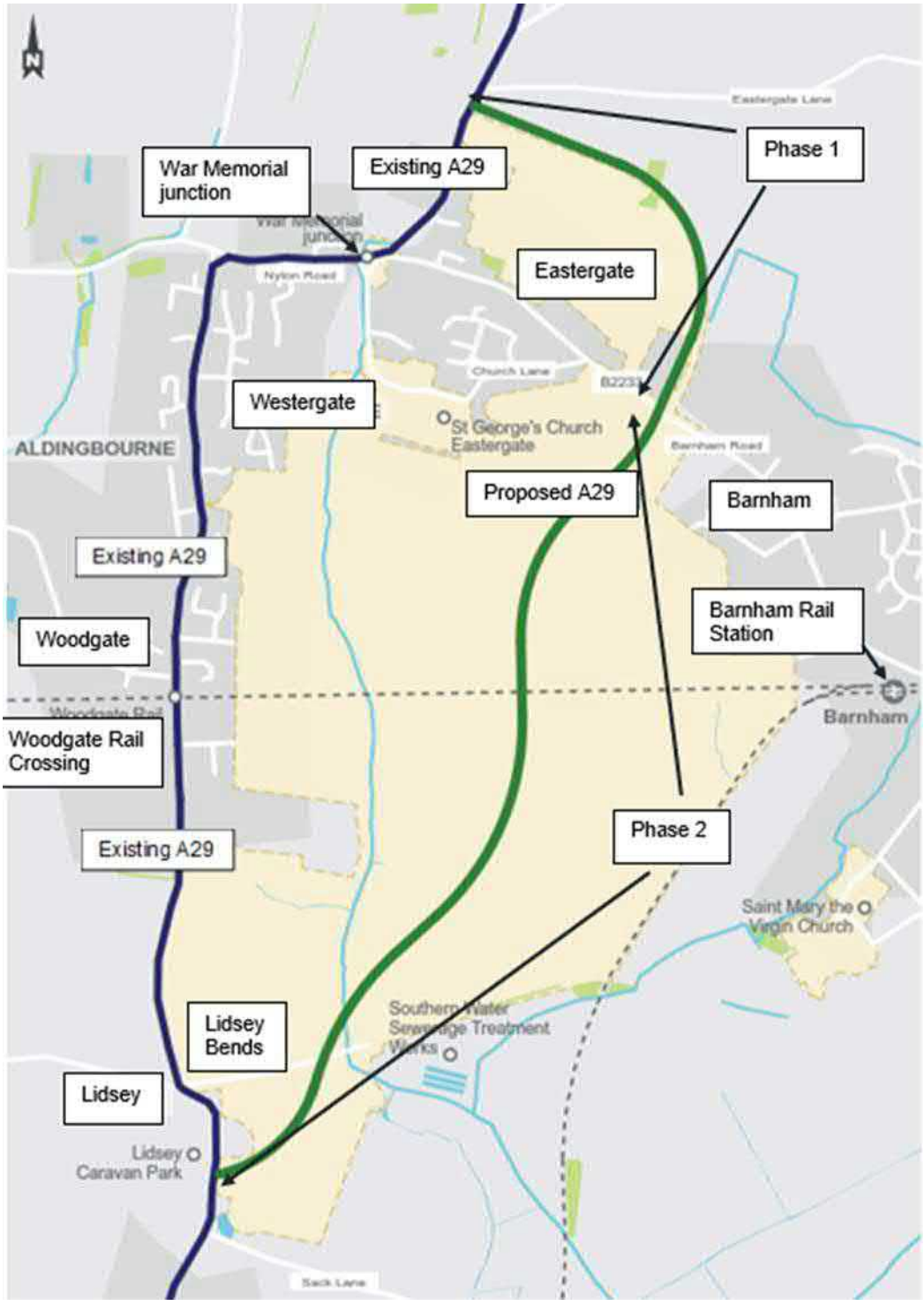
1.1.3 The A29 realignment scheme is an important part of delivering WSCC's vision for Arun District, as outlined in the West Sussex Transport Plan. The Coast to Capital Local Enterprise Partnership (LEP) also share this vision in their Strategic Economic Plan.

1.2 THE PROPOSED SCHEME

1.2.1 The A29 Realignment Scheme will deliver a 4.35km road to the east of Eastergate, Westergate and Woodgate villages. The A29 realignment will support the delivery of around 11,400 new dwellings and 104,000sqm of commercial development on permitted or planned development sites in this part of Arun District. The new road will alleviate traffic congestion along the existing A29, notably at the Woodgate level crossing which causes delays on the key access route into Bognor Regis.

1.2.2 The A29 realignment scheme will be delivered in two phases as shown in Figure 1. Phase 1 is 1.25km long from the A29 south of Eastergate Lane to a new junction with Barnham Road, Phase 2 from Barnham Road to a new junction on the A29 south of Lidsey bends. The Scheme assessed relates to Phase 1 (North) and is the primary focus of this Transport Assessment. Phase 2 (South) will be addressed through assessment of cumulative effects, consisting both Phase 1 and Phase 2.

Figure 1 - Proposed Scheme Layout



Phase 1 (Northern Section) – Delivered first.

- Construction of new carriageway
- Unlocking of part of the Barnham, Eastergate and Westergate strategic development location;
- Provision of new junctions (roundabouts) at locations where the new carriageway connects to Fontwell Avenue and Barnham Road;
- Provision of new cycle and pedestrian facilities;
- Earthworks, landscaping, environmental, drainage and SUDS' mitigation associated with the scheme;
- Any works necessary for the mitigation of adverse impacts (including environmental and ecological); and
- Improving economic prosperity by supporting businesses with improved travel journey times, reduced congestion and enhanced accessibility.
- Links to Public Rights of Way and provision to support future green infrastructure investment via the Arun Local Plan (2011-2031).
- Provision of pedestrian crossing points at junctions.

1.3 INTERDEPENDENCIES

1.3.1 Key interdependencies for the A29 realignment that have been considered in developing the scheme include:

- Physical
- Environmental
- Financial
- Contractual
- Public Acceptability
- Stakeholders (NwR and EA)
- BEW development

1.4 ASSESSMENT METHODOLOGY

1.4.1 The assessment presented in this TA has been undertaken using best practice and is consistent with the guidance set out in the following documents:

- Department of Communities and Local Government (DCLG) Travel Plans, Transport Assessments and Statements in Decision-Taking guidance, Department of Communities and Local Government (DCLG) published 2014; and
- The Design Manual for Roads and Bridges (DMRB).

1.5 REPORT STRUCTURE

1.5.1 The report is formed of seven sections. Following the introduction, the remaining sections of the TA are as follows:

- Section 2 summarises national and local transport policy. This provides a background context to the TA and helps to define how the Proposed Scheme aligns with relevant policy;
- Section 3 provides an overview of the location of the Proposed Scheme, the existing modal split and transport provision in relation to current opportunities for walking, cycling and public transport; and personal injury accidents;
- Section 4 outlines the details of the Proposed Scheme;

- Section 5 explains the approach taken to forecasting travel demand and the trip distribution associated with the Proposed Scheme in addition to summarising the junction modelling results for the future year assessments;
- Section 6 details the impact of the construction traffic on the highway network; and
- Section 7 presents the conclusions of the TA.

2 TRANSPORT POLICY AND GUIDANCE

2.1 INTRODUCTION

2.1.1 The scheme is closely aligned with the following national, regional and local transport-related plans and programmes for transport, housing and economic growth. This section sets out the context at which the scheme supports the policy:

National Policies

- National transport objectives;
- Moving Britain Ahead – the Government's Transport Investment Strategy (July 2017);
- Creating Growth, Cutting Carbon: Making Sustainable Local Transport Happen. Local Transport White Paper (2011);
- Roads Investment Strategy 2015/16 to 2019/11;
- National Infrastructure Delivery Plan (2016 – 2021);
- Roads Investment: The Roads Funding Package (2016);
- National Planning Policy Framework (2012); and
- Draft National Planning Policy Framework (2018).

Regional Policies

- Coast to Capital Strategic Economic Plan (2014) including reference to Local Growth Deal and Bognor Regis Enterprise Zone.
    - *The A29 Realignment scheme was included in the 2014 Strategic Economic Plan. In the Coast to Capital Growth Deal, the Government allocated £13m from the Local Growth Fund to the scheme in-principle, subject to confirmation of value for money and deliverability through the submission and approval of a Business Case.*

Local policies

- Strategic Transport Investment Programme (June 2014)
    - *The A29 Realignment scheme was identified as a priority for investment in the County Council's Strategic Transport Investment Programme (STIP) in June 2014 (HT07 (14-15)). This investment supports the delivery of strategic growth in Arun District which is a priority in Arun Growth Deal that identifies the A29 road improvements as a key infrastructure project for delivery as early as possible.*

- West Sussex Local Transport Plan (2011-2026)
    - *The West Sussex Transport Plan 2011-2026 (WSTP) states that transport issues are a deterrent to visitors and businesses locating in Arun District. Bognor Regis currently suffers from relatively poor connectivity by road and rail which has discouraged businesses from investing and has contributed to poor economic performance relative to the rest of West Sussex and the wider region. The aims for Arun include exploring opportunities through new development to improve access along the A29, including the potential to provide a bridge over the railway line avoiding the Woodgate level crossing.*

- Arun Local Plan (2011-2031)
  - *The adopted Arun Local Plan 2011-2031 (ALP) identifies Bognor Regis as a strategic location where new development is expected to help deliver much needed regeneration during the lifetime of the Plan. The ALP also allocates land at Barnham, Eastergate and Westergate (BEW) for strategic housing and commercial development and associated community infrastructure. The site allocation also includes an indicative route for the A29 Realignment to provide access to the site as part of a strategic infrastructure package to mitigate the cumulative impacts of development over the plan period. There is also potential within the strategic site allocation for further development to be delivered beyond the end of the plan period, subject to all relevant planning decisions.*

2.2 NATIONAL POLICIES

2.2.1 The national transport objectives, set by government, are:

- To ease congestion and provide upgrades on important national, regional or local routes;
- To unlock economic and job creation opportunities; and
- To enable the delivery of new housing developments.

2.2.2 The scheme will contribute to these objectives.

Moving Britain Ahead – the Government's Transport Investment Strategy (TIS)

2.2.3 The government's strategy for transport investment, published in July 2017, sets out the case for continued investment in Britain's transport infrastructure. Through this investment, the government seeks to:

- Create a more reliable, less congested, and better-connected transport network that works for the users who rely on it;
- Build a stronger, more balanced economy by enhancing productivity and responding to local growth priorities;
- Enhance our global competitiveness by making Britain a more attractive place to trade and invest; and
- Support the creation of new housing.

2.2.4 The scheme will reduce congestion and will help create a better connected, more reliable transport network for those who depend on it.

2.2.5 It will also help to support local economic growth, development and connectivity, making Bognor Regis more attractive to investment, and will connect planned employment and housing development to markets and jobs.

Creating Growth, Cutting Carbon – Making Sustainable Local Transport Happen

2.2.6 This government White Paper, published in 2011 sets out the following:

- The government's vision for "a transport system that is an engine for economic growth, but one which is also greener, safer and improves quality of life in our communities;
- Highlights the need to make transport choices that support society as a whole, as well as needing to reduce our carbon emissions to meet national commitments;
- Highlights the Government's commitment to more equal access to employment, education and healthcare by increasing social mobility; and

- Considers that better design and management of the local network can improve traffic flow and the attractiveness of the local environment.

2.2.7 The scheme will support local economic growth and development, by reducing congestion, and improving the capacity and efficiency of the local road network.

The Road Investment Strategy (RIS) 2015/16 to 2019/20

2.2.8 The RIS sets the following:

- Highlight the need for a national network of modern roads that meets social, economic and environmental aspirations;
- Aims to achieve a network in 2040 that will be smoother for connecting people and businesses to support economic growth;
- Providing capacity and connectivity to support national and local economic activity to combat congestion; and
- Connecting communities and providing flexible travel.

2.2.9 The scheme will complement the RIS by increasing capacity, reducing congestion, supporting economic growth, and improving connectivity between the Strategic Road Network (SRN) and Bognor Regis.

National Planning Policy Framework (NPPF, 2012 and 2018 update)

- The Government NPPF emphasises the importance of rebalancing the transport system in favour of sustainable transport modes, whilst encouraging local authorities to plan proactively for the transport infrastructure necessary to support the growth of major generators of travel demand;
- At the heart of the NPPF is the presumption in favour of sustainable development which is 'the golden thread running through both plan making and decision taking'[1]; and
- The scheme will support sustainable development by improving access to new housing and employment developments. It will incorporate improved facilities for pedestrians and cyclists, and is a good fit with a wider strategy to encourage sustainable access to new development.

2.3 LOCAL POLICIES

Local Transport Plan (2011-2026)

2.3.1 The West Sussex Transport Plan 2011-2026 reports that transport issues (access by road and rail, local perception of parking provision and cost, and road congestion during peak periods affecting many parts of the highway network, especially the A27 at Arundel, the A29 and A259) are a deterrent to visitors and businesses located in the Arun District. Bognor Regis currently suffers from relatively poor connectivity by road and rail which has discouraged businesses from investing. This has contributed to poor economic performance relative to the rest of West Sussex and the wider region. There are also aspirations for regeneration of the seafront and town centre, including the expansion of the University of Chichester campus and Butlins resort.

[1] National Planning Policy framework, paragraph 14, page 4

2.3.2 The Local Transport Plan (LTP) provides the strategic direction for transport within West Sussex, and aligns itself closely with other major strategies, including the County Strategy and local Community Strategies. WSCC's third LTP covers the period up to 2026.

Arun Local Plan (2011-2031 (Adopted July 2018)

2.3.3 The Arun Local Plan (adopted in July 2018) is the main planning document for Arun and covers the plan period to 2031). The Plan sets out the proposed level of development, a spatial development strategy to deliver this and several planning policies, covering Arun District.

2.3.4 The existing infrastructure deficit along the coast is widely considered by local businesses to contribute to poor economic performance in Arun District and that there is a need for regeneration. As a result, Bognor Regis has been identified in the Arun Local Plan as a strategic place where new development is expected to help deliver regeneration during the lifetime of the Plan. It has been identified that road congestion during peak periods affects many parts of the highway network, especially the A29, disrupting journey times and contributing to poor air quality.

- Significant new housing is planned in the area (the planned housing for the District outlined in the Arun Local Plan is 20,000 units up to 2031 which is equivalent to a delivery of 1,000 homes per annum), which is expected to increase demand on the A29 Fontwell Avenue/Westergate Street and the B2233 Barnham Road.
- An application for 400 homes on the land to the east of the A29 Fontwell Avenue accepted in July 2018. The scheme will support the delivery of around 11,400 new dwellings and 104,000sqm of commercial development on permitted or planned development sites in this part of Arun District

2.3.5 The Plan sets out a vision for how Arun wants to encourage sustainable development and manage future growth whilst ensuring that change across the District is appropriate to meet local need. The vision supports:

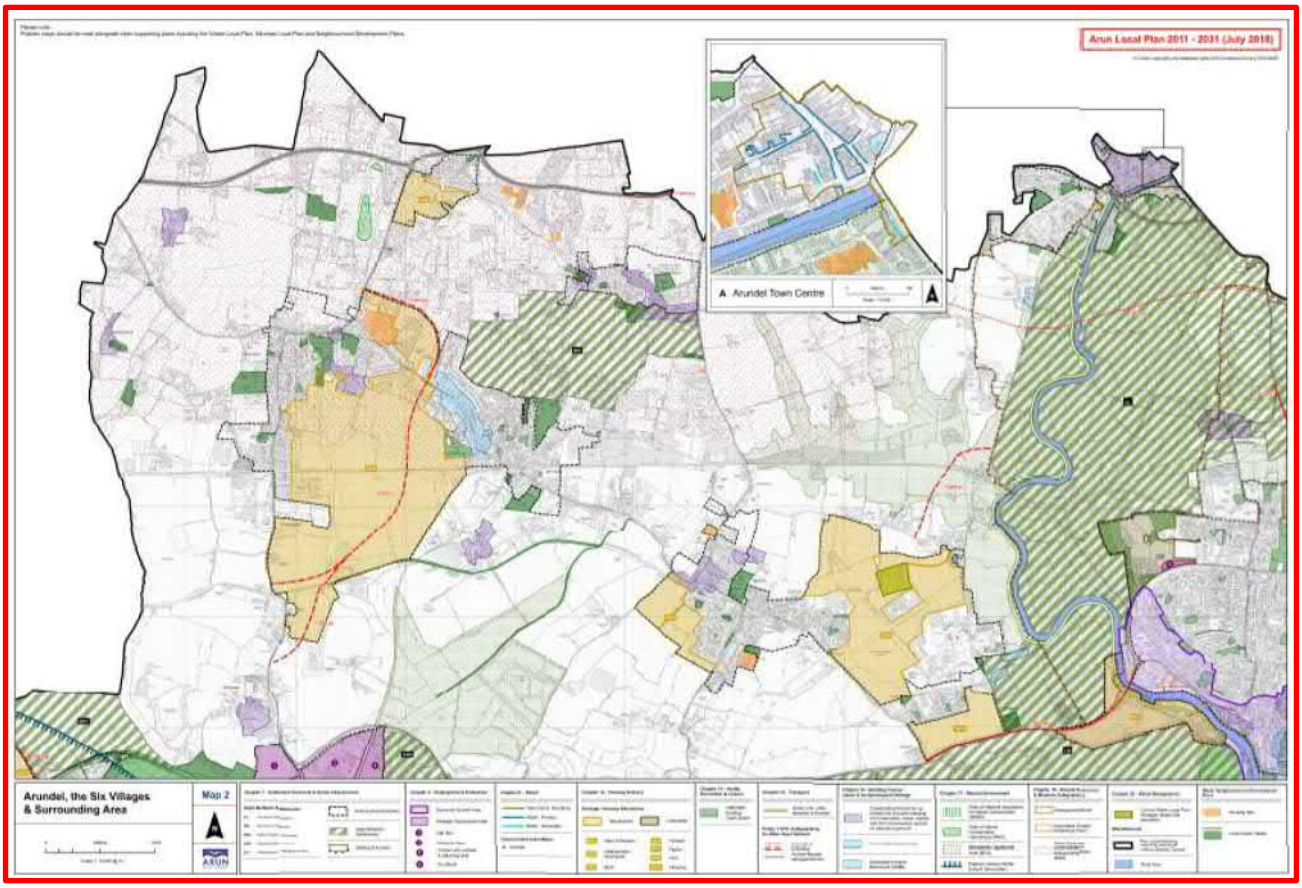
- Strategic provision of homes, employment and shops;
- Careful coordination with the services and facilities that communities rely on and which are essential to wellbeing and quality of life; and
- Protecting those aspects of the District which are important by virtue of heritage, culture or are otherwise valued by local people.

2.3.6 The Arun Local Plan provides for significant levels of housing and economic growth over the plan period to meet the housing needs of the district. Fundamental to the Arun District Plan, is the provision of the transport and other infrastructure to support this growth.

2.3.7 The A29 Realignment will assist in providing sufficient transport capacity to meet the current and future wider development requirements of Arun District.

2.3.8 The Arun Local Plan identifies the strategic allocation as set out below in Figure 2-1.

Figure 2-1 - Strategic Allocation



2.3.9 The Arun Local Plan aligns with the SEP identification of the A29 Realignment as a spatial priority (growth location). It reports that the LEP has committed to investing in the new A29 Realignment between 2015/16 and 2020/21 to deliver new jobs, homes and employment space and that the LEP has secured £13 million from the Local Growth Fund for the new A29 Realignment.

2.3.10 The scheme is therefore closely aligned to the District Plan proposals for increased housing and employment growth (and associated transport infrastructure).

2.3.11 The package of growth has strong political support from the County Council and District Council. A public consultation is also planned following the submission for the BC to the C2C LEP seeking community support for the scheme.

2.3.12 The Growth Programme is supported by and recognised in many of the Governments wider policy priorities.

2.4 SUMMARY

2.4.1 Based on the above review it is considered that the proposed scheme is consistent with the policies and objectives set out in relevant policy frameworks at a national and local level.

2.4.2 The Proposed Scheme will aid local and regional policies to unlock economic growth and employment in the Arun area.

2.4.3 The policies accept that it will take sustained investment in cycling and walking infrastructure for people to make the transition to this being their normal transportation mode. It is largely accepted

people will continue to travel by car and that accordingly, the effects of car travel on local communities needs to be minimised by providing new infrastructure away from existing settlements.

3 EXISTING CONDITIONS

3.1 EXISTING SITE INFORMATION

3.1.1 The site is located in the BEW area (Barnham, Eastergate and Westergate), north of the Barnham Road, east of the existing A29 Fontwell Avenue and south of the A27 Fontwell Roundabout. The typical land use in the vicinity of the sites are:

- Residential
- Agricultural land
- Retail including public house and Bed and Breakfasts
- Education and school facilities
- A recycling centre
- Two Caravan parks

3.1.2 The places of work for the residents of Arun have been summarised in Table 3-1 from the 2011 Census 'WU03UK - Location of usual residence and place of work by method of travel to work'[2]. The data summarises that 51% of residents' work and live in Arun. This illustrates that the majority of the traffic will be local with an origin or destination with the local area. The remaining Arun residents work at locations along the south coast, with Chichester (21%) and Worthing (11%) as popular destinations. A smaller 4% travel north to Horsham.

Table 3-1 – Places of work for residents of Arun[3]

Place of work	
Arun	51%
Chichester	21%
Worthing	11%
Horsham	4%
Brighton and Hove	2%
Crawley	2%
Adur	2%
Portsmouth	1%
Havant	1%
Mid Sussex	1%

[2] Nomis Official Labour Market Statistics https://www.nomisweb.co.uk/census/2011

[3] The percentages do not sum to 100%, as a number of destinations with between 0% and 1% have been excluded. These are rounded percentages to the nearest whole number.

3.1.3 Table 3-2 summarises the 2011 Census WP703EW method of travel to work (2001 specification)[4] as percentages for Arun compared against workplaces zones (E02006544 and E02006542). As would be expected from a rural location, the dominant method of travel to work (60%) is driving a car or van.

Table 3-2 – Method of Travel to Work

Destination	Arun	E02006544	E02006542	Average of E02006544 & E02006542
Driving a car or van	56%	58%	56%	57%
Work mainly at or from home	17%	21%	23%	22%
Passenger in a car or van	5%	5%	5%	5%
On foot	11%	6%	9%	7%
Bicycle	4%	3%	2%	3%
Train	2%	6%	2%	4%
Bus, minibus or coach	2%	1%	1%	1%
Motorcycle, scooter or moped	1%	1%	1%	1%
Taxi	0%	0%	0%	0%
Underground, metro, light rail or tram	0%	0%	0%	0%
Other method of travel to work	0%	0%	1%	1%

3.2 EXISTING TRANSPORT PROVISION

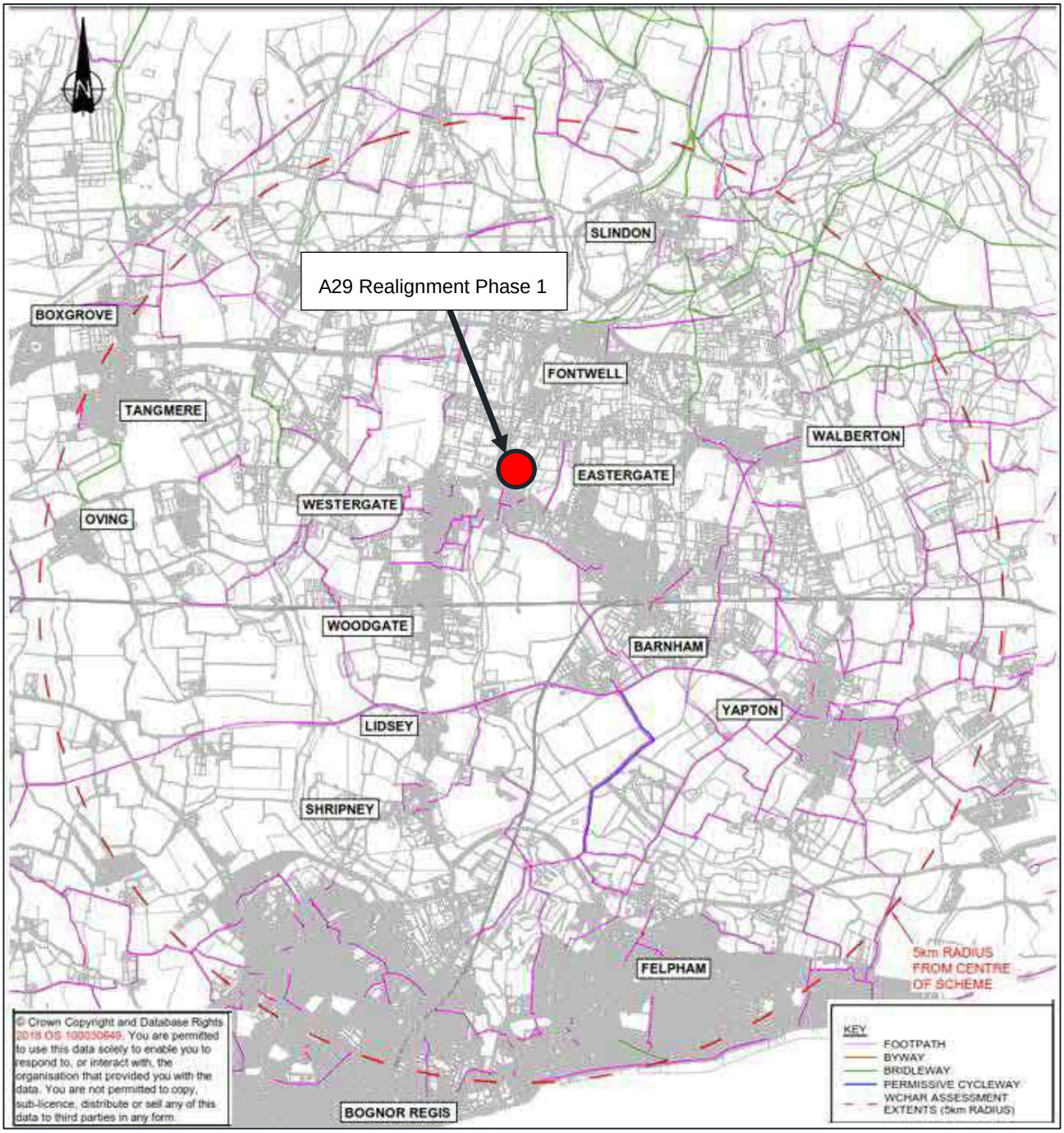
3.2.1 The following section outlines the existing transport provisions in the vicinity of the proposed scheme; including the walking and cycling network, public transport provision, local highways network and an assessment of recent personal injury accident data.

[4] Nomis Official Labour Market Statistics https://www.nomisweb.co.uk/census/2011

Footpaths and Bridleways

3.2.2 West Sussex County Council Public Rights of Way (PRoW) map is displayed below in Figure 3-1 to illustrate the PRoWs within 5km within the proposed scheme.

Figure 3-1 - PRoWs within 5KM of Proposed Scheme



3.2.3 The following footpaths would be crossed by the proposed scheme:

- FP 318 (north to south from Eastergate Lane to the B2233 Barnham Road)

- FP 321 (north west to south east from Church Lane to B2233 Barnham Road)
- FP 200.1 (west to east from A29 Lidsey Road to Yapton)
- FP 296.1 (north to south from FP 200.1 at the Lidsey water treatment works to Sack Lane)

3.2.4 In Fontwell at the northern end of the proposed scheme where it would join the existing A29 there is a narrow footway on the eastern side of the road.

3.2.5 In Lidsey at the southern end of the proposed route where it would tie back into the A29 there are no footways along the A29.

3.2.6 At the location where the proposed scheme would cross the B2233 Barnham there is a footway on the southern side of the road.

Horse-Riding Facilities

3.2.7 There are no bridleways south of the scheme. To the north of the scheme the villages of Fontwell and Walberton have bridleways leading on to the South Downs National Park, a popular place for horse-riding. There are 1200km of bridleways spreading through the National Park for riders to enjoy including the 160km long South Downs Way.

Cycle Paths

3.2.8 Overall there is a lack of cycling infrastructure on the surrounding area of the proposed scheme, with limited connections between the BEW area and the surrounding villages.

3.2.9 There is a permissive cycle path that follows the route of Footpath No 146 between the A259 at Flansham and Barnham.

3.2.10 National Cycle Network (NCN) Route 2 is a long-distance cycle route approximately 4.3km south-east of the Scheme. When complete this route will link Dover in Kent to St. Austell in Cornwall.

PUBLIC TRANSPORT ASSESSMENT

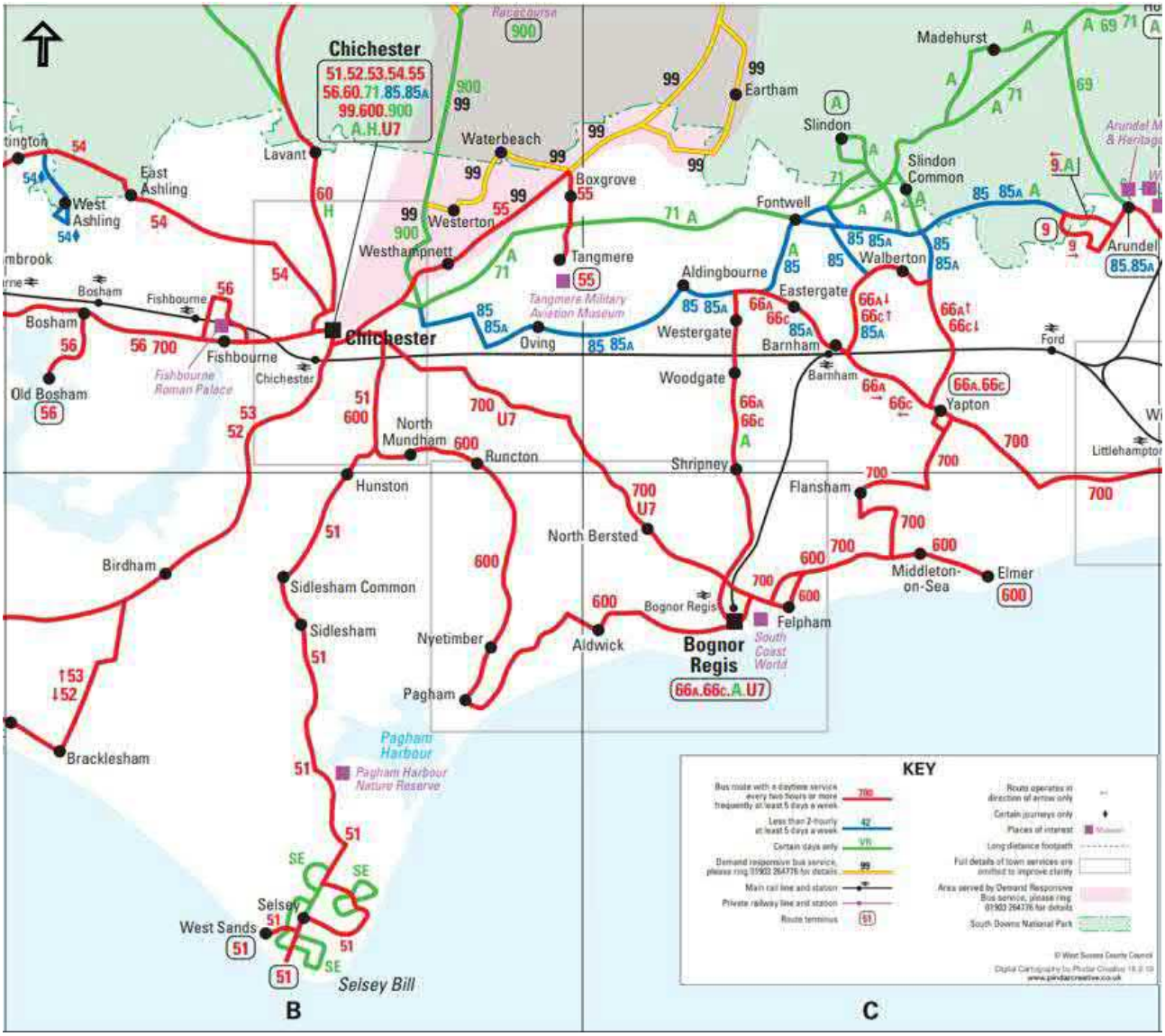
Bus

3.2.11 The north-south public transport movements are presently served by the A29 Westergate Street/ Lidsey Road. The nearest northbound and southbound bus stops to the Proposed Scheme are located on the A29 Westergate street, noted in Table 3-3. At three of the stops, namely opp Belle Meade Close, adj Barnet Close and School (Opposite Esso service station the facilities provided include a shelter, seating and a provisional timetable. The remaining bus stops do not have seating or shelters but do provide a timetable.

3.2.12 The BEW area is served by bus operators Compass Travel and Stagecoach buses, these routes are illustrated in Figure 3-2. Compass travel operates a circular 66A/C route from Bognor Regis – Yapton, with six services daily.

3.2.13 The 85-bus route also serves the A29 Fontwell Avenue, connecting the BEW villages with Arundel and Chichester. The frequency of these services are collated in Table 3-3 below, with a total of six services daily.

Figure 3-2 - Map showing the local bus routes serving the BEW area



Scale of map adapted from: https://www.westsussex.gov.uk/media/13221/wsussex_county_map.pdf

3.2.14 Stagecoach operates school buses at school times between Wick/ Chichester towards Westergate, these services are accessible to the general public.

Table 3-3 – Summary of bus services within the vicinity of the proposed scheme

Operator	Service Number	Route	Bus Stop Locations	Average Frequency (Mon – Sat)	Average Frequency (Sun)	Hours of Operation
Compass Travel	66A/ 66C	Bognor Regis – Yapton – Bognor Regis	Lidsey, adj Caravan Park/ Woodgate, opp Willows Caravan park/	66A 4 times a day (07.24	---	07:26 – 17:40

Operator	Service Number	Route	Bus Stop Locations	Average Frequency (Mon – Sat)	Average Frequency (Sun)	Hours of Operation
			Westergate, opp Belle Meade Close/ Westergate, opp Elmcroft Place/ Westergate, opp Ivy Lane/ Westergate, o/s Ormistone six Villages Academy/ Westergate, adj Barnet Close/ Eastergate War Memorial/ Eastergate, opp Church Lane …… Eastergate adj Church Lane/ Eastergate War Memorial/ Westergate o/s Ormiston Six Villages Academy/ Westergate, adj School/ Westergate, adj Ivy Lane/ Westergate, adj Elmcroft Place/ Westergate, adj Belle Meade Close/ Woodgate, adj Willows Caravan park/ Lidsey, opp Caravan park	service commences at Eastergate War Memorial Ebound and the final service of the day terminates Walberton the Green at 18:16) 66C Service runs full route 3 times a day.		08:15 – 16:35
	85/85A	Arundel – Fontwell – Chichester Chichester – Fontwell – Arundel	Eastergate, adj Collins Close/ Westergate, adj School Westergate, adj Barnett Close/ Eastergate, opp Collins Close	3 times a day 3 times a day	----	06:55 – 15:55 09:05 – 16:34
Stagecoach Buses	658	Chichester - Westergate	Eastergate, Collins Close/ Westergate, Barnett Close/ Westergate, Ormiston Six Villages Academy	Once a day (available to general public).	---	07:30 14:48

Operator	Service Number	Route	Bus Stop Locations	Average Frequency (Mon – Sat)	Average Frequency (Sun)	Hours of Operation
		Westergate – Chichester	Westergate, Ormiston Six Villages Academy/ Westergate, Barnett Close/ Eastergate, Collins Close	Once a day (available to general public)		
	665	Wickbourne – Westergate	Eastergate, Church Lane/ Eastergate War Memorial/ Westergate, Barnett Close/ Westergate, Ormiston Six Villages Academy	Once a day (available to general public).	---	07:10
		Westergate – Wickbourne	Westergate, Ormiston Six Villages Academy/ Westergate, Barnett Close/ Eastergate War Memorial/ Eastergate, Church Lane	Once a day (available to general public)		14:50

Data sourced Compass from: https://www.compass-travel.co.uk/compass-timetables/bus-timetables/ Data sourced Stagecoach from: https://www.stagecoachbus.com/timetables

Rail

3.2.15 The closest railway station to the Proposed Scheme is Barnham Railway Station, that forms part of the commuting route linking other surrounding towns and villages. Access to Barnham railway is obtained using the B2233, connecting the B2132 and the villages to the east and the A29 with villages to the west.

3.2.16 Facilities at Barnham Railway station include the provision of uncovered bike storage (62 spaces) monitored by CCTV, carpark (190 spaces) and refreshment facilities. There is also a taxi rank and bus stops with connections towards Arundel, Chichester, Bognor Regis and Yapton.

3.2.17 All services to the station are operated by Southern Rail (London to Portsmouth) and GWR (Brighton to Southampton). The regular pattern is four trains an hour between Bognor Regis and London Victoria, with services taking approximately 95 minutes. During the weekday there is are two peak- only services from Barnham to London Bridge departing at 07:07 and 07:17 with the return services from London Bridge at 17:02 (2 trains) and 18:03 (2 trains). Otherwise, during off-peak hours and at weekends a change of train is required, usually at Three Bridges.

3.2.18 There are regular services travelling from Barnham west towards Portsmouth/ Southampton, east towards Brighton and south terminating at Bognor Regis.

3.2.19 The details of direct service frequencies to respective destinations from Barnham Station are summarised below in Table 3-4.

Table 3-4 – Direct rail services from Barnham railway station to key destinations

Destination	Journey Time (Minutes)	Peak Frequency (Trains per Hour)	Off- Peak Frequency (Trains per Hour)
London Bridge	86 – 101	2	-
London Victoria	84-103	3	4
Portsmouth (and SSea or Harbour)	31-46	3	4
Southampton	60-66	2	2
Bognor Regis	6-8	2-4	4
Brighton	42-50	2	2
Littlehampton	10-11	3	2

ROAD NETWORK ASSESSMENT

The main highway links and junctions identified with the Proposed Scheme are discussed below.

Links

Existing A29 Fontwell Avenue/ Nyton Road / Westergate Street

3.2.20 The A29 starts at the Fontwell West Roundabout in Fontwell and then proceeds south to cross the war memorial roundabout where it becomes the Nyton Road. The road then continues south with a bend in the alignment where it then becomes the A29 Westergate street, crossing the railway line in Woodgate where there is an automatic, full signal-controlled level crossing.

3.2.21 From the A29 Fontwell Avenue there is a footway on the eastern side of the carriageway, with national speed restrictions in place, with limited street lighting until the war memorial junction. In the absence of street lighting, cats-eyes are present.

3.2.22 The road is generally a good quality single carriageway road, with a general flat alignment. There are footways on either side of the carriageway, street lighting and houses between Woodgate and the Nyton road junction. The A29 between the war memorial roundabout and just south of Woodgate is subject to 30mph speed restrictions.

3.2.23 This route is prone to delays and unpredictable journey times caused from the closure of the level crossing, exacerbating traffic travelling south toward the strategic road network of the A29 towards Chichester and Arundel.

B2233 Barnham Road

3.2.24 The B2233 Barnham Road connects the traffic from the A29 Eastergate with the villages to the east in Barnham/ Climping area and the A259. This section of road is a 6.5km rural two-way single carriageway.

3.2.25 Where the B2233 travels through Eastergate with residential settlements there is a footway on both sides of the carriageway, street lighting and bus stops.

3.2.26 The majority of this section of road is subject to a 30mph in both directions. However, the final 1.5km of road near the A259 Climping junction is subject to 40mph restrictions. Street lighting and a footway of near 2m on at least one side of the carriageway is provided throughout the stretch of the B2233 where the 30mph speed restrictions are in place.

Eastergate Lane

3.2.27 Eastergate lane runs parallel to the B2233 and is a rural single carriageway road, with lack of lane markings separating the carriageway. The surroundings are rural with an absence of footway and streetlighting along the lane.

Junctions

B2233 Barnham Road/ Northern Section of Re-alignment road

3.2.28 Phase 1 of the A29 realignment will tie-in with a four-arm priority roundabout connecting the A29 Fontwell Avenue to allow movement south to the B2233 Barnham road. The arms clockwise from the most northern arm of the junction is existing A29 Fontwell Avenue north, the proposed A29 realignment, A29 Fontwell Avenue south and an arm from Manor Farm.

3.2.29 Each arm has a two-lane approach for each movement, with the exception of Manor farm which has a one lane approach. All exit arms are one lane exit.

3.2.30 The junction is on reasonably flat terrain and it is anticipated that visibility will be good.

A29 Fontwell Avenue/ Northern Section of realignment road (Eastergate Lane)

3.2.31 This is a priority junction, with poor line of sight in the southbound direction due to the surrounding flora at the junction. This junction is subject to a 40mph speed limit. There is a footpath and street lighting for pedestrians wishing to travel south on A29 Fontwell Avenue towards Eastergate.

A29 Westergate Road/ B2233 Nyton Road

3.2.32 The A29 Westergate road ties in with the B2233 Nyton Road to allow for the movement of traffic to the A29 Fontwell Avenue and north to the A27 towards. This road also provides connections west towards Chichester obtained using the B2233 connecting then to the A27.

3.2.33 The A29 Westergate road and B2233 Nyton road are connected through a series of three priority junctions with flared approach for traffic travelling west on Nyton Road and South on the A29 Westergate road. The junction is situated on a bend, this can reduce visibility for traffic travelling north-south and south-north.

3.2.34 Acting as one of the major congestion points for roads connecting the north travelling traffic after the closure of the Woodgate level crossing, making journey times prone to unreliability.

A29 Fontwell Avenue/ B2233 Barnham Road (War memorial rbt)

3.2.35 The war memorial roundabout is a three-arm junction of the A29 Fontwell Avenue (north), B2233 Barnham road and the A29 Nyton Road (west). The A29 Nyton Road (west) is the road used for the north travelling traffic travelling from the Woodgate level crossing. The approach roads are all single roads, with the A29 Nyton Road (west) having a flared approach to two lanes at entry to the roundabout. These roads are subject to 30mph speed limits, with streetlighting and footpaths on each entry arm.

3.2.36 This junction is a critical pinch point on the existing highway network, with limited scope for capacity improvements due to the current land constraints surrounding the junction. As such the junction is likely to be a significant constraint on the level of future development. Nyton Road A29/ Nyton Road B2233 is where the initial blocking back starts, with the level crossing closure resulting in tail backs then when open the traffic delay approaches the war memorial roundabout.

A27/A29

3.2.37 Fontwell west roundabout is a four-arm junction of Arundel Road, A29 Fontwell Avenue, A27 Arundel Road west, A27 Arundel road east. The A29 Fontwell avenue and Arundel road approach have a flared approach, all other arms have designated lanes for turning movements.

3.2.38 This junction is subject to national speed limit and is well lit. This junction is critical for connecting Bognor regis and the local traffic from the south villages such as Fontwell and Walberton with the east / west movement along the strategic road network of the A27.

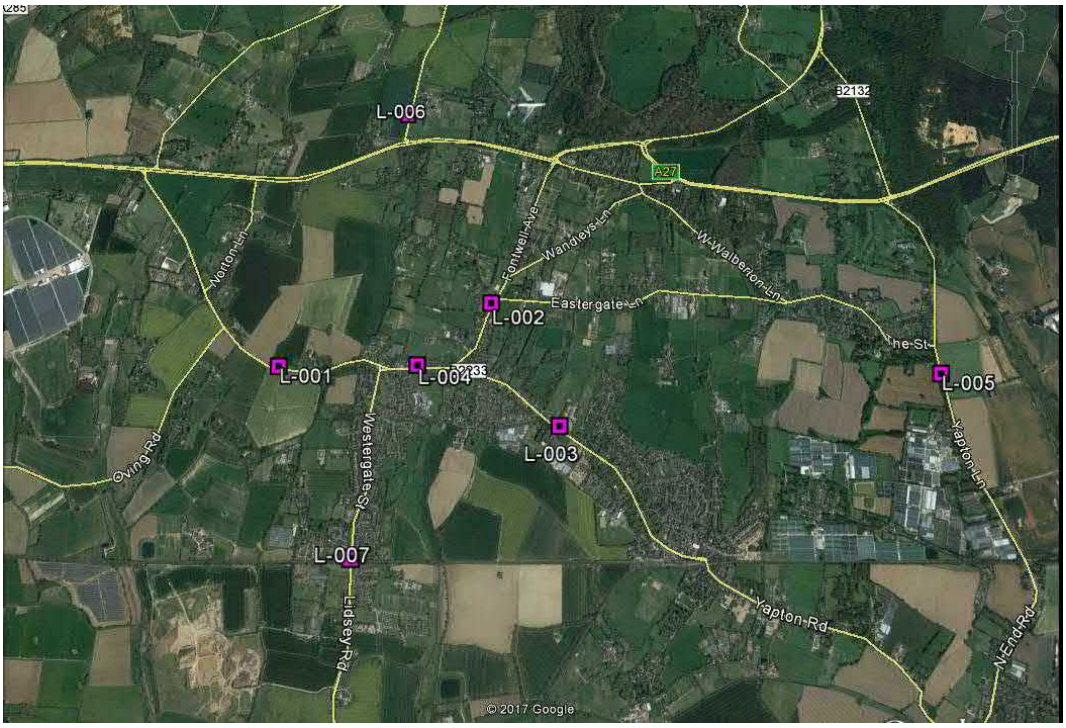
TRAFFIC SURVEYS

3.2.39 To determine the existing traffic flow conditions in the vicinity of the proposed A29 realignment scheme, 8 Manual Classified Turning Counts (MCTC), and 7 Automatic Traffic Counts (ATC) were commissioned at various locations in the near vicinity of the scheme. The survey locations are listed below and shown in Figure 3-3 and Figure 3-4 for the ATC and MCTC data respectively:

ATC Link Count Locations

- Brittens Lane North of A27
- B2132 Yapton Lane (between the street and the lake house)
- B2233 Nyton Road East of A29
- B2233 Barnham Road East of A29
- A29 South of Eastergate Lane
- B2233 Nyton Road West of A29
- A29 South of Woodgate

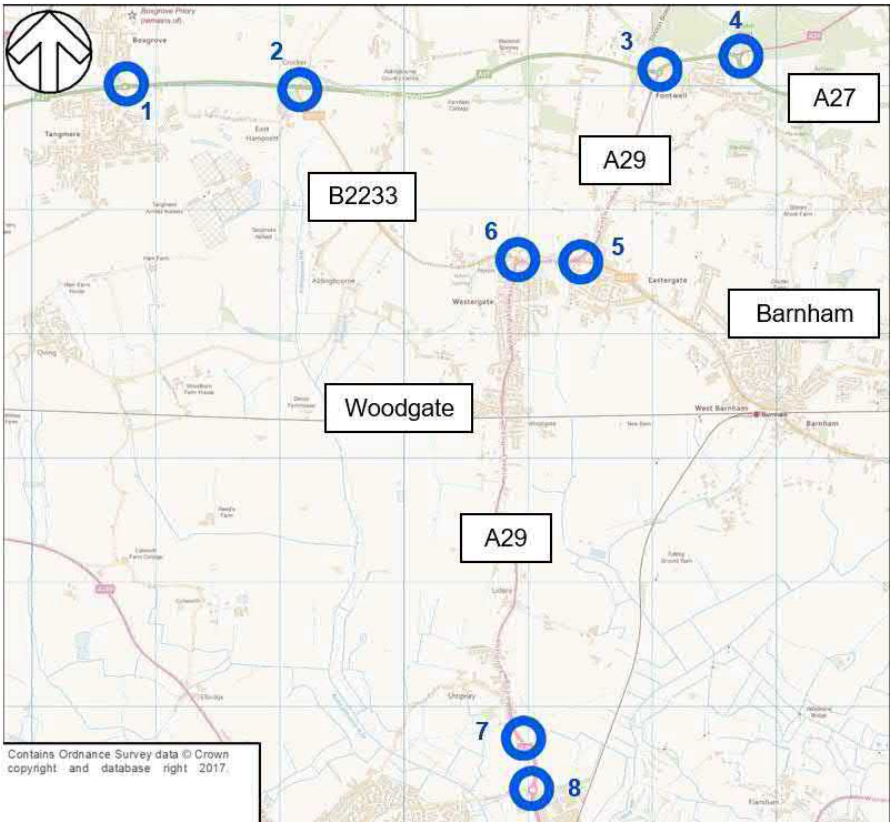
Figure 3-3 - ATC Link Count Locations



MCTC Survey Locations

- A27 / The Street Junction
- A27 / B2233 Nyton Road
- A27 / A29 Fontwell Roundabout
- A27 / A29 Slindon Common Roundabout
- A29 / B2233 Junction
- A29 / Westergate Street / B2233 Nyton Road Junction
- A29 / A259 Junction
- A259 Rowan Way / A29 Shripney Road Junction

Figure 3-4 - MCTC Survey Locations



3.2.40 The MCTC surveys were undertaken over a 12-hour survey period (0700 to 1900). The surveys were carried out using video recording devices attached to street lighting columns near the sites. All movements at the junctions and roundabouts were captured, with the results providing full vehicle classification in 15 minute intervals.

3.2.41 The ATC two-way daily traffic flow data was collected continuously over a two-week period using cameras. This recorded bi-directional vehicle volume and vehicle classification at the sites identified above.

3.3 EXISTING TRAFFIC FLOWS

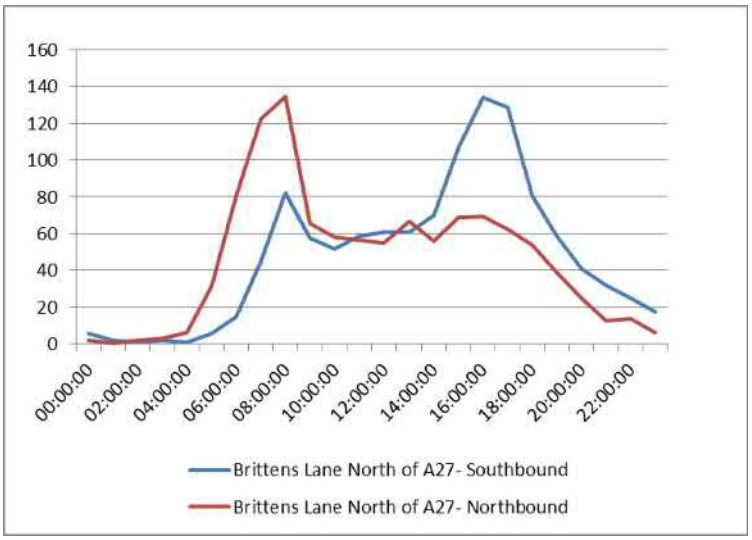
Link Flows

Brittens Lane North of A27

3.3.1 Figure 3.5 shows the average daily flow on Brittens Lane, north of the A27 for June 2017 for the northbound and southbound direction.

3.3.2 Tidal flows are seen at this location, with northbound flows the highest in the AM peak with approximately 130 vehicles and the southbound flows the highest during the PM peak with approximately 130 vehicles during the peak hour. Interpeak flows are balanced, with about 60 vehicles per hour in both directions.

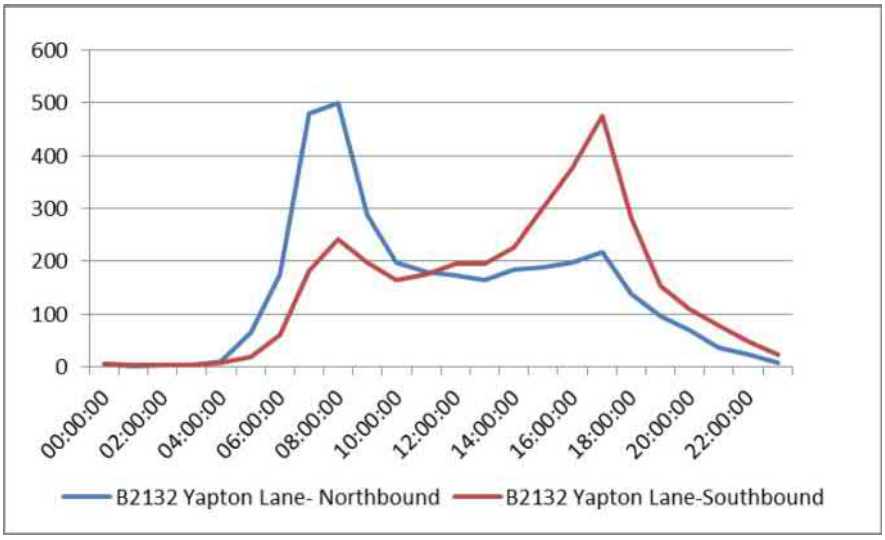
Figure 3.5 - Link Count - Brittens Lane, North of A27



B2132 Yapton Lane

3.3.3 Figure 3.6 shows the average hourly flow on the B2132 Yapton Lane for June 2017. A clear tidal flow is evident on Yapton Lane, with northbound flows peaking at around 500 vehicles in the AM peak and at approximately 200 vehicles in the PM peak. The southbound direction peaks at just over 200 vehicles in the AM peak and approximately 480 in the PM peak.

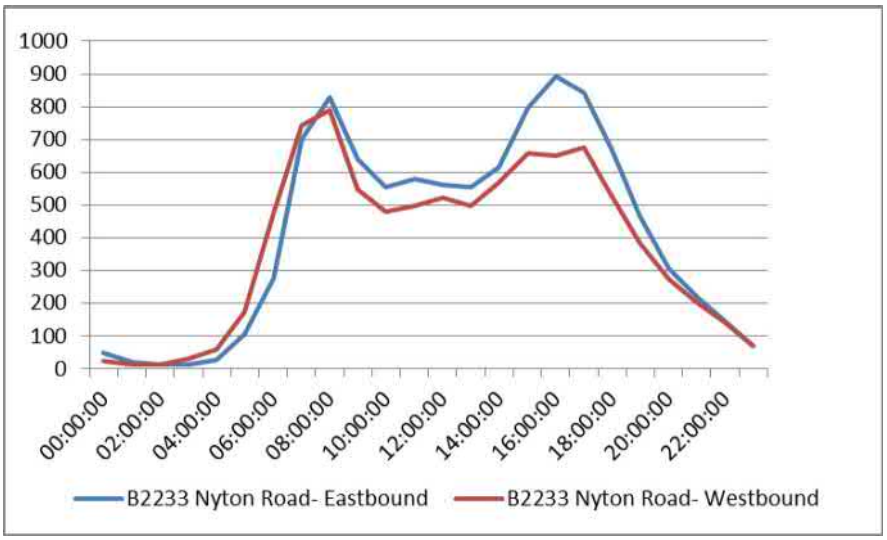
Figure 3.6 - Link Count - B2132 Yapton Lane



B2233 Nyton Road, East of A29

3.3.4 Figure 3.7 shows the average daily flow on the B2233 Nyton Road, east of the A29. During the AM peak, both directions peak at around 800 vehicles during the period 0800 to 0900. In the PM peak, the eastbound direction peaks with between 800-900 vehicles per hour during the period 1500 to 1700. The westbound direction is lower at around 650 vehicles per hour during this period. Interpeak flows are between 500 and 600 vehicles per hour.

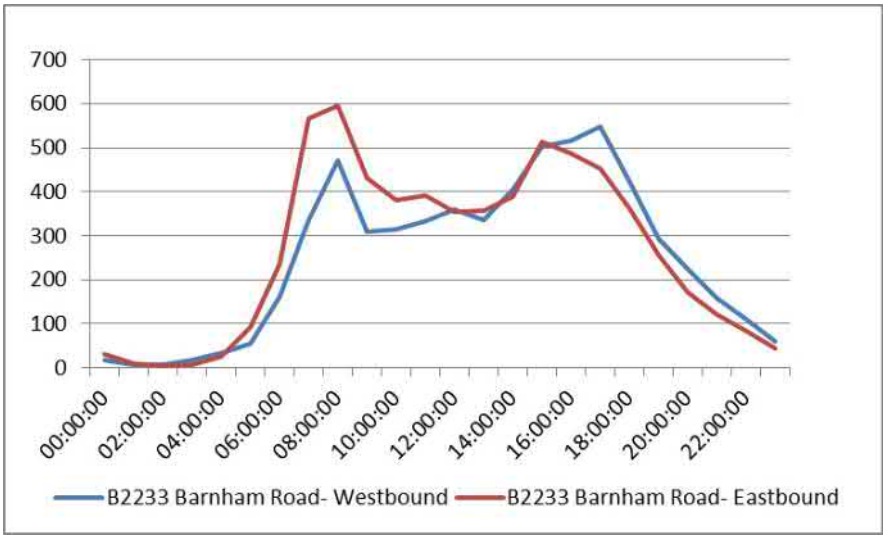
Figure 3.7 - Link Count - B2233 Nyton Road, East of A29



B2233 Barnham Road, East of A29

3.3.5 Figure 3.8 shows the June 2017 average daily flow on the B2233 Barnham Road, to the east of the A29. Traffic flows here show a slight tidal flow, with eastbound flows highest in the AM peak (approximately 600 vehicles) and westbound flows the highest in the PM peak (approximately 550 vehicles). The eastbound flow peaks between 0800-0900, whereas the westbound flow peak later between 1700 and 1800.

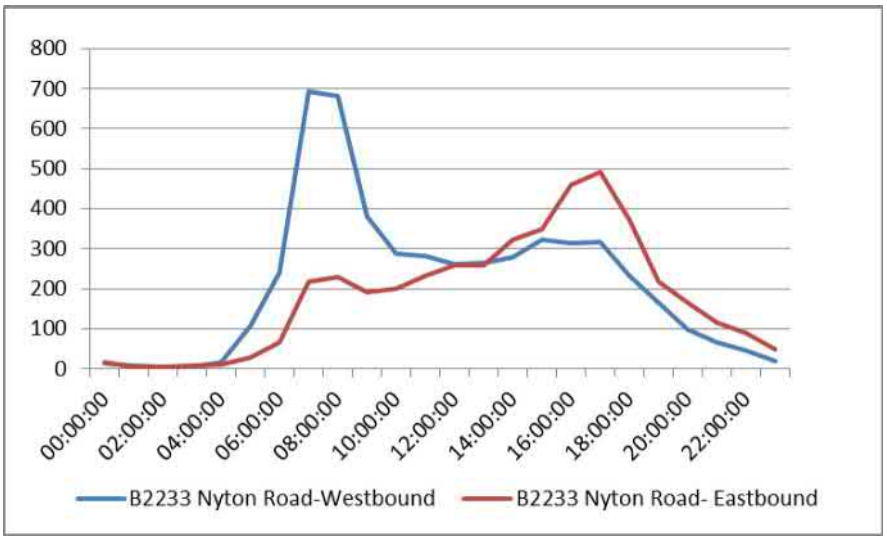
Figure 3.8 - Link Count - B2233 Barnham Road, East of A29



B2233 Nyton Road, West of A29

3.3.6 Figure 3.9 shows the average daily flow for June 2017 on the B2233 Nyton Road, west of the A29. The westbound direction peaks at just below 700 vehicles between 0700 and 0800. Following this peak, traffic flows generally decrease throughout the day. Eastbound, traffic flows gradually increase throughout the day, peaking with just fewer than 500 vehicles between 1700 and 1800.

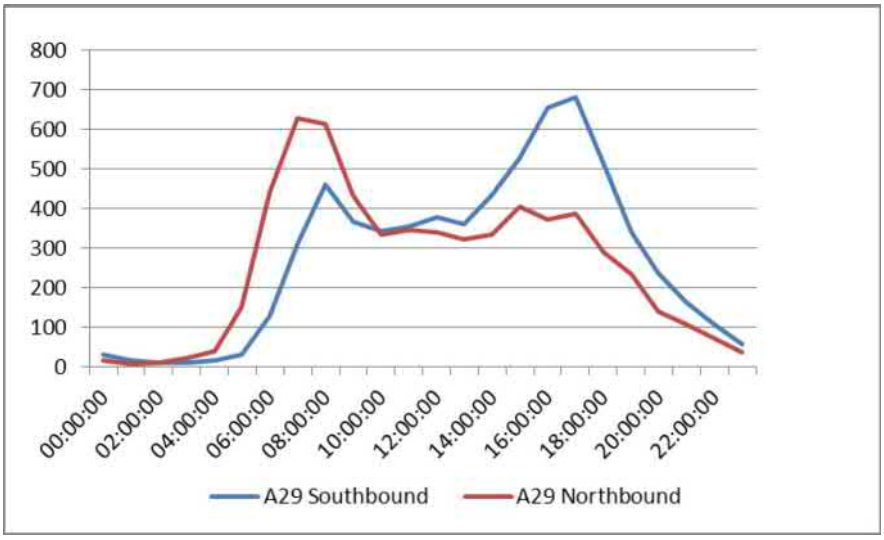
Figure 3.9 - Link Count - B2233 Nyton Road, West of A29



A29 South of Eastergate Lane

3.3.7 Figure 3.10 shows the link count results for the A29 south of Eastergate Lane. A clear tidal flow can be seen on this link. During the AM peak, northbound flows peak at just over 600 vehicles compared to approximately 450 vehicles southbound. In the PM peak, southbound flows peak at just under 700 vehicles compared to just under 400 in the northbound direction.

Figure 3.10 - Link Count - A29 South of Eastergate Lane

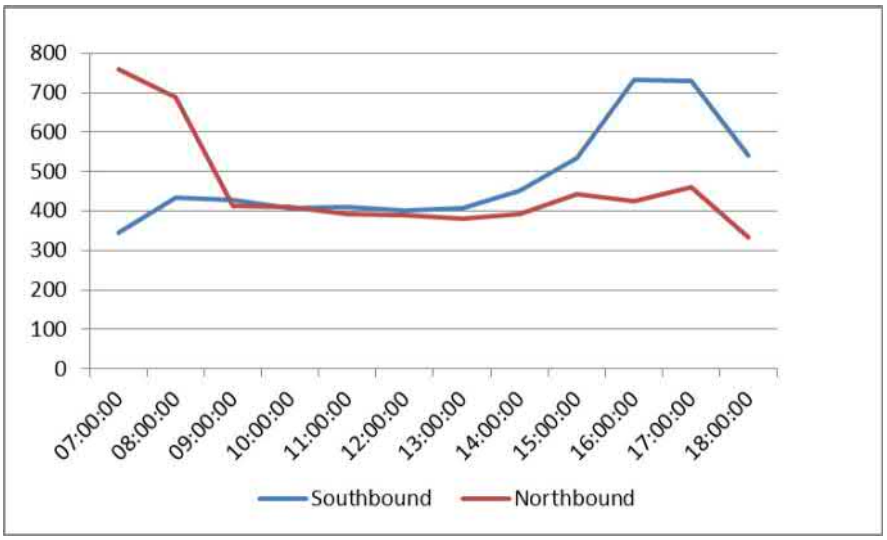


A29 Woodgate Level Crossing

3.3.8 Figure 3.11 shows the 12-hour flow across the Woodgate level crossing. It can be seen that northbound flows peak at 0700-0800 with approximately 750 vehicles observed during the hour. In the southbound direction, AM peak traffic flow peaks at 0800 with just over 400 vehicles.

3.3.9 Interpeak flows are typically around 400 vehicles per hour in both directions. The PM peak in both directions is between 1500 and 1800, with southbound flows peaking at just over 700 vehicles per hour in this period. Northbound flows are much lower with approximately 450 vehicles per hour during the PM peak.

Figure 3.11 - Link Flow - A29 Woodgate Level Crossing



Summary

3.3.10 A general trend can be seen, whereby during the AM peak, link flows are largest heading northbound, with the flow switched for the PM peak. For east/west links, eastbound flows are highest in the AM peak, whilst the westbound flows are highest during the PM peak.

Turning Flows

A27 / The Street Junction

3.3.11 During the AM peak period, the largest movements are on the A27 in both directions, with over 2,200 vehicles heading westbound and over 1,300 vehicles heading eastbound. Movements from the minor arms are relatively low, at approximately 105 vehicles or less.

Table 3.5 - A27 / The Street Junction - AM Peak

	The Street	A27 Arundel Road (East)	Meadow Way	A27 Arundel Road (West)	Total
The Street	0	64	35	67	166
A27 Arundel Road (East)	126	1	126	2,214	2,467
Meadow Way	68	105	0	24	197
A27 Arundel Road (West)	25	1,342	72	1	1,440
Total	219	1,512	233	2,306	4,270

3.3.12 During the PM peak period, the greatest turning movements are the A27 through movements, with over 1,400 vehicles heading westbound and nearly 2,000 vehicles heading eastbound. The minor arms show limited movements, with the largest movement being 128 vehicles from Meadow Way.

Table 3.6 - A27 / The Street Junction – PM Peak

	The Street	A27 Arundel Road (East)	Meadow Way	A27 Arundel Road (West)	Total
The Street	0	83	37	64	184
A27 Arundel Road (East)	47	1	81	1,408	1,537
Meadow Way	62	128	0	44	234
A27 Arundel Road (West)	37	1,964	121	0	2,122
Total	146	2,176	239	1,516	4,077

A27 / B2233 Nyton Road Junction

3.3.13 During the AM peak period, the greatest flows through the junction are on the A27 in both directions. Of the movements to/from the B2233 Nyton Road, the greatest movement is 599 vehicles to the A27 westbound. Movements to Nyton Road are permitted from the A27 in both directions; however the junction is left out only from Nyton Road.

Table 3.7 - A27 / B2233 Nyton Road - AM Peak

	A27 Arundel Road (East)	B2233 Nyton Road	A27 Arundel Road (West)	Total
A27 Arundel Road (East)	0	31	1,872	1,903
B2233 Nyton Road	0	0	559	559
A27 Arundel Road (West)	1,350	136	0	1,486
Total	1,350	167	2,431	3,948

3.3.14 During the PM peak, traffic flows are greatest on the A27 in both directions. The greatest flow on the minor link is from the A27 west to Nyton Road, with 325 vehicles observed, indicating a tidal flow.

Table 3.8 - A27/ B2233 Junction – PM Peak

	A27 Arundel Road (East)	B2233 Nyton Road	A27 Arundel Road (West)	Total
A27 Arundel Road (East)	0	30	1,333	1,363
B2233 Nyton Road	0	0	176	176
A27 Arundel Road (West)	1,827	325	0	2,152
Total	1,827	355	1,509	3,691

A27 / A29 Fontwell Roundabout

3.3.15 During the AM peak, the highest flows through the junction are on the A27 in both directions with just under 1,700 vehicles westbound and just under 1,150 vehicles eastbound. Of the other movements at the roundabout, flows are greatest from the A29 and Fontwell to the A27.

Table 3.9 - A27 / A29 Fontwell Roundabout - AM Peak

	A27 (North)	Arundel Road, Fontwell	A29 (South)	A27 (West)	Total
A27 (North)	3	36	178	1,673	1,890
Arundel Road, Fontwell	62	1	38	113	214
A29 (South)	283	18	1	133	435
A27 (West)	1,147	62	146	36	1,391
Total	1,495	117	363	1,955	3,930

3.3.16 During the PM peak, the highest movements through the junction are on the A27 in both directions, with just over 1,500 vehicles eastbound and just over 1,200 vehicles westbound, indicating a tidal flow to the AM peak. Of the minor arms, the A29 had the greatest flow in both directions, with the outbound movement being the highest with 632 vehicles.

Table 3.10 - A27 / A29 Fontwell Roundabout - PM Peak

	A27 (North)	Arundel Road, Fontwell	A29 (South)	A27 (West)	Total
A27 (North)	2	62	359	1,212	1,635
Arundel Road, Fontwell	32	0	28	63	123
A29 (South)	176	36	1	67	280

	A27 (North)	Arundel Road, Fontwell	A29 (South)	A27 (West)	Total
A27 (West)	1,516	154	244	24	1,938
Total	1,726	252	632	1,366	3,976

A27 / A29 Slindon Common Roundabout

3.3.17 During the AM peak period, the highest flows are seen on the A27 through movements, with southbound flows just under 950 vehicles and just over 1,300 vehicles westbound. However movements between the A27 west and the A29 are relatively high, with over 500 vehicles on both directions.

Table 3.11 - A27 / A29 Slindon Common Roundabout – AM Peak

	A27 Arundel Road (West)	A29 Slindon Common	A27 Arundel Road (South)	Total
A27 Arundel Road (West)	15	528	941	1,484
A29 Slindon Common	568	0	3	571
A27 Arundel Road(South)	1,334	135	86	1,555
Total	1,917	663	1,030	3,610

3.3.18 During the PM peak, a tidal flow is seen, with over 1,100 southbound vehicles and just over 950 westbound vehicles. As with the AM peak, movements between the A27 west and A29 are high in both directions.

Table 3.12 - A27 / A29 Slindon Common Roundabout – PM Peak

	A27 Arundel Road (West)	A29 Slindon Common	A27 Arundel Road(South)	Total
A27 Arundel Road (West)	7	610	1,117	1,734
A29 Slindon Common	687	0	14	701
A27 Arundel Road(South)	953	42	23	1,018
Total	1,647	652	1,154	3,453

A29 / B2233 Junction

3.3.19 During the AM peak period, the largest movements are seen on the B2233 to A29 Nyton Road (474 vehicles) and on the A29 northbound (465 vehicles). Of the remaining movements, 308 vehicles took the A29 southbound/westbound.

Table 3.13 - A29 / B2233 Junction - AM Peak

	A29 Fontwell Avenue	B2233 Barnham Road	A29 Nyton Road	Total
A29 Fontwell Avenue	2	142	308	452
B2233 Barnham Road	127	0	474	601
A29 Nyton Road	465	331	11	807
Total	594	473	793	1,860

3.3.20 In the PM peak, a tidal flow is seen, with the largest movements being the A29 Fontwell Avenue and the movement from A29 Nyton Road to B2233 Barnham Road.

Table 3.14 - A29 / B2233 Junction - PM Peak

	A29 Fontwell Avenue	B2233 Barnham Road	A29 Nyton Road	Total
A29 Fontwell Avenue	0	197	490	687
B2233 Barnham Road	89	0	346	435
A29 Nyton Road	273	431	11	715
Total	362	628	847	1,837

A29 Westergate Street / B2233 Nyton Road Junction

3.3.21 During the AM peak, the largest movements are between the A29 arms in both directions, with 417 vehicles observed southbound and 562 vehicles northbound. Of the remaining movements, 390 vehicles took the movement from the A29 Nyton Road to the B2233 Nyton Road.

Table 3.15 - A29 / Westergate Street / B2233 Nyton Road Junction - AM Peak

	A29 Nyton Road	A29 Westergate Street	B2233 Nyton Road	Total
A29 Nyton Road	0	417	390	807
A29 Westergate Street	562	0	233	795
B2233 Nyton Road	208	70	0	278
Total	770	487	623	1,880

3.3.22 During the PM peak, the observed flows are the opposite of the AM peak, with the largest flow seen on the A29 southbound, the A29 northbound and on Nyton Road eastbound.

Table 3.16 - A29 / Westergate Street / B2233 Nyton Road Junction - PM Peak

	A29 Nyton Road	A29 Westergate Street	B2233 Nyton Road	Total
A29 Nyton Road	0	653	173	826
A29 Westergate Street	420	0	80	500
B2233 Nyton Road	316	173	0	489
Total	736	826	253	1,815

A29 Shripney Road / A259 Bognor Regis Relief Road Junction

3.3.23 During the AM peak, the highest movements are on the A29 northbound with 511 vehicles and between the A259 and the A29 southbound with 682 vehicles. The reverse of these movements are slightly lower, with 483 and 464 vehicles respectively. All other movements are 45 vehicles or less.

Table 3.17 - A29 / A259 Junction - AM Peak

	A29 Shripney Road (North)	A259 Bognor Regis Relief Road	Site Access	A29 Shripney Road (South)	Total
A29 Shripney Road (North)	0	45	8	483	536
A259 Bognor Regis Relief Road	41	2	3	682	728
Site Access	1	1	0	5	7
A29 Shripney Road (South)	511	464	11	2	988
Total	553	512	22	1,172	2,259

3.3.24 During the PM peak, the largest flows are reversed, with the A29 southbound and the movement between the A29 northbound and the A259. The opposing movements are slightly lower. Of the remaining movements, traffic flows are again low, with a maximum of 85 vehicles observed.

Table 3.18 - A29 / A259 Junction - PM Peak

	A29 Shripney Road (North)	A259 Bognor Regis Relief Road	Site Access	A29 Shripney Road (South)	Total
A29 Shripney Road (North)	2	85	2	648	737
A259 Bognor Regis Relief Road	37	1	2	560	600
Site Access	9	6	0	20	35
A29 Shripney Road (South)	444	696	10	1	1,151
Total	492	788	14	1,229	2,523

A259 Rowan Way – A29 Shripney Road Junction

3.3.25 During the AM peak, the largest movements are to or from the A29 Shripney Road north with between 400 and 600 vehicles observed. The A29 south to A259 Rowan Way movement was the largest of the other movements with 291 vehicles observed. More vehicles took movements to Steyning Way than those originating from Steyning Way.

Table 3.19 - A259 Rowan Way / A29 Shripney Road Junction - AM Peak

	A29 Shripney Road (North)	Steyning Way	A29 Shripney Road (South)	A259 Rowan Way	Total
A29 Shripney Road (North)	1	97	487	578	1,163
Steyning Way	59	0	70	62	191
A29 Shripney Road (South)	440	120	78	291	929
A259 Rowan Way	487	127	181	3	798
Total	987	344	816	934	3,081

3.3.26 As with the AM peak, the largest movements are the through movements on the A29 and between the A259 and A29 north. Vehicle flows are greater leaving Steyning Way than entering it from the roundabout.

Table 3.20 - A259 Rowan Way / A29 Shripney Road Junction - PM Peak

	A29 Shripney Road (North)	Steyning Way	A29 Shripney Road (South)	A259 Rowan Way	Total
A29 Shripney Road (North)	0	55	615	582	1,252
Steyning Way	94	0	135	146	375
A29 Shripney Road (South)	507	90	112	423	1,132
A259 Rowan Way	543	63	261	1	868
Total	1,144	208	1,123	1,152	3,627

Summary

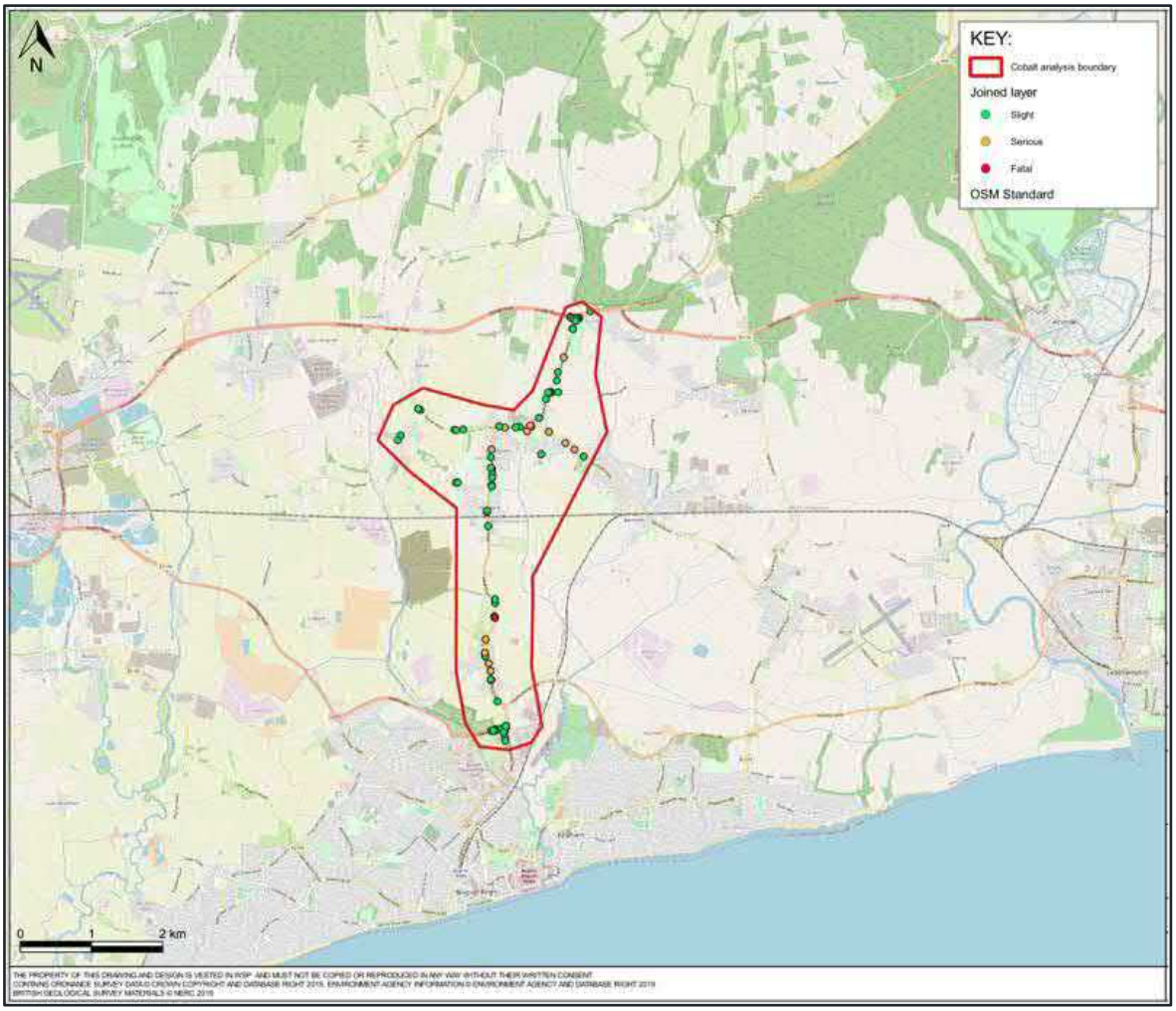
3.3.27 In summary, the tables show that during the AM peak, turning movements onto the A27 west are higher; whilst during the PM peak this is reversed with the A27 east being the highest turning count. A27 north shows a high turning count in the PM period but significantly lower during the AM period, with the A27 West favoured. Additionally the A29 Nyton Road is very busy with turning count amounting up to 490 in both AM and PM periods. Shripney Road North has higher flows in the AM period than the PM period. This is reversed in the PM peak when Shripney Road South is the most popular turning count.

3.4 COLLISION ANALYSIS

3.4.1 Personal Injury Collision (PIC) information for the study area has been obtained for a 5-year period between January 2013 to December 2017. 'Damage only' collisions have not been included as they are not consistently reported to the Police and therefore could be misleading or possibly biased.

3.4.2 A total of 138 PICs were recorded within the study area during the 5-year period, four were fatal, 22 were serious and 112 were slight. The locations of the varying severity can be seen below in Figure 3-12. Of the 138 collisions recorded, 3 occurred during the Weekday AM Peak (0800-0900) and 2 occurred during the Weekday PM peak (1700-1800). These five collisions occurring in the AM and PM peak account for 3.6% of all collisions over the study period.

Figure 3-12 – PIC severity & location within study area



3.4.3 Of the PICs recorded within the study area during the 5-year period, 26 of the collisions did not occur at or within 20 metres of a junction.

B2233 Barnham Road

- Three serious (Two of which included a pedestrian who railed to look properly)
- One slight

3.4.4 Of the collisions, all vehicles were travelling at 30mph and the accidents occurred in fine or damp weather conditions. The collisions that involved pedestrians, it was found on both occasions that it was the pedestrian at fault.

A29 Westergate Street

- One fatality (A two vehicle collision where vehicle 1 failed to judge the path of vehicle 2)
- Six serious (one collision included a driver under the influence of alcohol)
- Five slight (Main cause of collision was poor visibility due to road layout)

3.4.5 Of the 12 collisions that occurred on this link, that were not within 20 metres of a junction, most were due to driver misjudgement, however 25% of collisions that occurred on this road were due to vehicles travelling above the speed limit at 50mph or 60mph.

A29 Nyton Road

- Three slight

3.4.6 Of the three collisions that occurred on this link further than 20 metres of a junction, one vehicle was exceeding the speed limit and travelling at 40mph.

3.4.7 One collision occurred as a result of a vehicle overtaking a pedal cyclist without leaving enough room, resulting in the pedal cyclist falling to the ground. The accident was only of slight severity for those involved.

A29 Fontwell Avenue

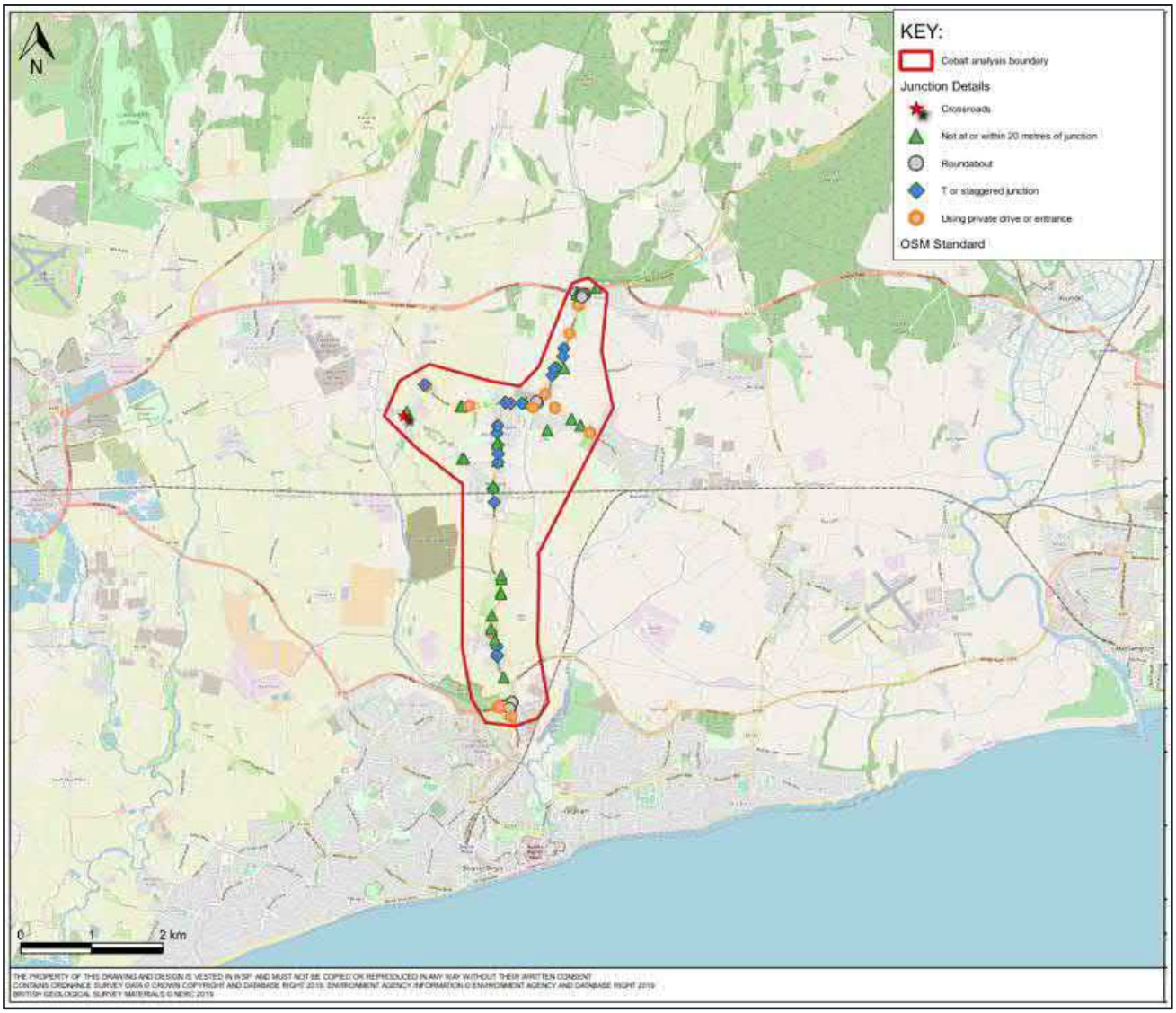
3.4.8 All vehicles were travelling at the speed limit with the exception of one vehicle which was recorded at 50mph at the Eastergate Lane/ A29 Fontwell Avenue junction.

Personal injury collisions occurring At Junctions

3.4.9 The most common type of junction where these collisions occurred was a roundabout, namely the A27 Fontwell Roundabout where 15 of these collisions occurred. The War Memorial roundabout accounted for 3 of the recorded collisions during the study period. The junction types of which these collisions occurred are illustrated below in Figure 3-13.

3.4.10 Of the 100 collisions that occurred at junctions, 62 of these were as a result of reckless driver behaviour or failure to drive to the conditions of the road, two of these collisions occurred whilst weather conditions included high winds.

Figure 3-13 - Junction type collision occured



3.4.11 The table below details the type severity of the collision and the number of vulnerable road users accounting for the PIC information. This details that 25% of all collisions involved a vulnerable road user.

Table 3-21 – Personal Injury Collision Data

Year	Severity			Vulnerable Road Users		
	Slight	Serious	Fatal	Pedestrians	Pedal Cyclists	Motor Cyclists
2013	15	3	0	3	2	1
2014	31	1	2	-	3	2
2015	22	9	2	2	2	1
2016	30	4	0	-	1	3
2017	14	5	0	-	5	3
Total	112	22	4	5	13	10

3.5 OVERALL SUMMARY

3.5.1 Analysis of the collisions during the study period highlights that there have been numerous collisions on the main study links surrounding the proposed scheme. The A29 Westergate Road/ B2233 Nyton Road junction noted the most vulnerable users being impacted by collisions.

3.5.2 The reduction of PICs as a result of the scheme is likely to be minimal as collisions on the adjoining road network tend not to be at the main junctions.

3.5.3 There will be a reduction of cars travelling on links such as the A29 Fontwell Avenue and an increase of those using the new parallel road build as a result of the scheme. There are limited provisions for vulnerable users in the design of the scheme, so a reduction in collisions involving NMUs is likely to be minimal.

4 THE PROPOSED SCHEME

4.1 CONTEXT

4.1.1 The rationale for the Proposed Scheme has been influenced by a number of transportation factors comprising of the need to resolve journey time reliability. Congestion and support development for housing and job creation. Whilst improving connectivity and capacity of a key transport link on the A29.

4.1.2 The Proposed Scheme has had three main studies undertaken, investigating the feasibility, viability and deliverability. An option review was undertaken to gain a full understanding of the studies. These options were considered, and the preferred scheme agreed prior to undertaking the Preliminary Design of the A29 realignment and the subsequent development of a Business Case ready for a WSCC Gateway 2 review.

4.1.3 The proposed A29 realignment scheme will deliver a single carriageway to the east of Eastergate, Westergate and Woodgate villages. To the north it will link into the A29 (north of Eastergate), and to the south a new a new junction on the A29 Lidsey Road (north of Shripney) will be provided. A bridge will be required over the West Coastway railway line. Cycle, pedestrian and equestrian facilities along the route have also been considered.

4.1.4 The WSCC A29 realignment scheme will be delivered in two phases. The northern section (phase 1) is being delivered by West Sussex County Council whilst the delivery arrangements for Phase 2 (South) are being discussed with developers through the planning process.

4.2 PROPOSED SCHEME DESCRIPTION

4.2.1 The scheme will involve the construction of a new carriageway which has been designed in liaison with key stakeholders and through the development of design parameters working closely between WSCC, ADC and Developers to determine the most suitable cross sections and form of the carriageway through the length of the A29 realignment whilst considering the wider strategic development.

4.2.2 Key features of the Scheme would include the following:

- A three-arm roundabout at the western end at a new junction with the A29 Fontwell Avenue;
- A three-arm roundabout in the centre of the Scheme to provide future access to housing;
- A four-arm roundabout at the southern end, at a new junction with the B2233 Barnham Road;
- One uncontrolled pedestrian crossing with a central island to enable users of the PRoW to cross the carriageway;
- Crossing points at the junctions to allow access by foot into the housing from surrounding areas;
- A shared 3m wide footway and cycleway with landscaping on one side of the carriageway;
- Noise mitigation to protect dwellings at Murrell Gardens, Chantry Mead and Ewens Gardens;
- Street lighting at roundabout approaches; and
- Main construction compound is likely to be located south of Barnham Road at the existing Fleurie Nursery site.

4.3 AIMS OF THE SCHEME

4.3.1 The realignment of the A29 (phases 1&2) will create capacity for expected traffic growth and will tackle planned and potential development to support the delivery of around 11,400 new dwellings and 104,000sqm of commercial development on permitted or planned development sites in this part of Arun District.

4.3.2 The primary aim of the Scheme is:

- To support delivery of the Strategic Economic Plan and the Local Plan by enabling the delivery of new homes and jobs.
- Improve journey times on the A29 by avoiding the Woodgate level crossing, Lidsey bends and the A29/B2233 War Memorial Junction.

4.3.3 The Scheme aims to alleviate issues raised in the West Sussex Transport Plan 2011-2026 including transport issues being a deterrent to visitors and businesses located in the Arun District. This has contributed to poor economic performance in Bognor Regis relative to the rest of West Sussex and the wider region.

4.3.4 Significant new housing is planned in the area which is expected to increase demand on the A29 and B2233 roads. An application for 400 homes on the land to the east of Fontwell Avenue is required to deliver a proposed 2,300 homes at the Barnham, Eastergate, Westergate Site during the Arun Local Plan period (2011-2031), with potential on the Site for a further 700 dwellings to be delivered after 2031. This allocation of housing could not be mitigated to comply with the provisions of the National Planning Policy Framework (NPPF) regarding “severe residual cumulative impact” without the delivery of the A29 realignment scheme, based on the Arun District Local Plan Transport Study 2017. This development will hereafter be referred to as the ‘Adjacent Proposed Scheme’ (APS).

4.3.5 In order to achieve the primary aim, and in response to the problems and opportunities identified, clear objectives have been established for the scheme. A distinction has been drawn between the desired high level or strategic outcomes, the specific or intermediate objectives, and the operational objectives.

High Level or Strategic Outcomes

4.3.6 The desired high level or strategic outcomes are:

- To enable delivery of new homes in Arun District supporting delivery of around 11,400 new dwellings and 104,000sqm of commercial development on permitted or planned development sites in this part of Arun District;
- To ease congestion and reduce journey times;
- To support the local economy and community;
- To create a sense of place for the strategic allocation;
- To enable delivery of new jobs;
- To improve road safety;
- To protect the local environment such as improvements to air quality; and
- To support sustainable modes of transport.

Specific or Intermediate Objectives

4.3.7 The specific or intermediate objectives are:

- To improve connectivity between Bognor Regis and the wider road networks;
- To reduce congestion on the existing A29;
- To reduce journey times and delays;
- To improve journey time reliability and reduce unforeseen delays;
- To improve the resilience of the local transport network;
- To reduce the number of road collision casualties; and
- To improve conditions for pedestrians and cyclists.

Operational Objectives

4.3.8 The operational objectives are:

- New A29 Realignment / carriageway;
- To improve journey times;
- To provide new facilities for pedestrians and cyclists;
- To improve the capacity of junctions; and
- To accommodate new roads providing access to development.

4.3.9 The scheme also provides opportunities for more journeys to be made by cycle and on foot through the provision of:

- Footways and cycleways;
- Links to existing Public Rights of Way (PROWs) as appropriate;
- Bus links; and
- Link to Barnham Railway Station.
- Developing opportunities through new development that will improve the access along the A29, including the potential to bridge the railway level crossing at Woodgate.
- Improving pedestrian accessibility throughout the District 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.
- Supporting opportunities which will improve and protect the rights of way network throughout the District.

5 ASSESSMENT OF TRANSPORT IMPACT

5.1 INTRODUCTION

5.1.1 This section details the existing and future traffic modelling results on the selected junctions. It also summarises the effect of the Proposed Scheme on key links within the Barnham, Eastergate and Westergate area.

5.2 ASSESSMENT METHODOLOGY

5.2.1 Scheme assessment has been undertaken using the strategic 2017 CATM model with operational junction assessment undertaken using LinSig and Junctions 9.

5.2.2 It has been agreed with WSCC that the Chichester Area Transport Model (CATM) 2017 can be used as the basis for strategic assessment. The CATM model was updated for the modelling of the A29 realignment as it contained greater network and zone structure detail for the study area comparable to the Highways England's South-East Regional Transport Model (SERTM) model. The CATM 2017 was developed with a base year of 2017 and represents the AM and PM peak hours for a typical weekday. The AM peak hour is represented between the hours 08:00-09:00 and the PM peak hour is 17:00-18:00. The methodology used to develop the model is described in more detail in the document 'A29 Realignment - Local Model Validation Report' (5th October 2018).

5.2.3 The CATM forecast models represent the forecast years of 2023 and 2038.

5.2.4 The CATM forecast models contain committed development and infrastructure schemes within the modelled area including Chichester District, Arun District and South Downs National Park.

5.2.5 The housing trajectory included within the strategic model for the BEW development comprises of 4180 dwellings for the final forecast year of 2038, beyond the end of the current Arun local plan period.

5.2.6 In addition to the inclusion of committed developments within the modelled area, growth factors have been used to calculate background growth within the modelled area that have been derived from TEMPRO, with the committed developments allocated to identified zones and the remaining background growth distributed across the study area.

5.2.7 Local TEMPro factors have been used to derive growth rates for all car user classes, which take into account local demographic change, socio-economic variation and changes in modes as well as other factors that affect the growth of traffic within the locality. The origin and destination growth rates have been calculated using the TEMPro software (v7.2) for the AM, Inter-peak and PM periods for the relevant authorities within the study area and from regions within the external area for each modelled time period.

5.2.8 The assessment scope is based on the TA methodology agreed with WSCC. The CATM forecasts for this TA consist of:

- Without Scheme and With Scheme Opening Year Scenarios (2023)
- Without Scheme and With Scheme Design Year (+15 year) Scenarios (2038)

5.2.9 The Do Something networks contain the committed infrastructure developments included in the Do Minimum network for the corresponding year as well as the changes to the network associated with the scheme under assessment.

5.3 ASSESSMENT YEARS

5.3.1 The junction assessments have been undertaken using the baseline flows from survey data and future years extracted from the CATM:

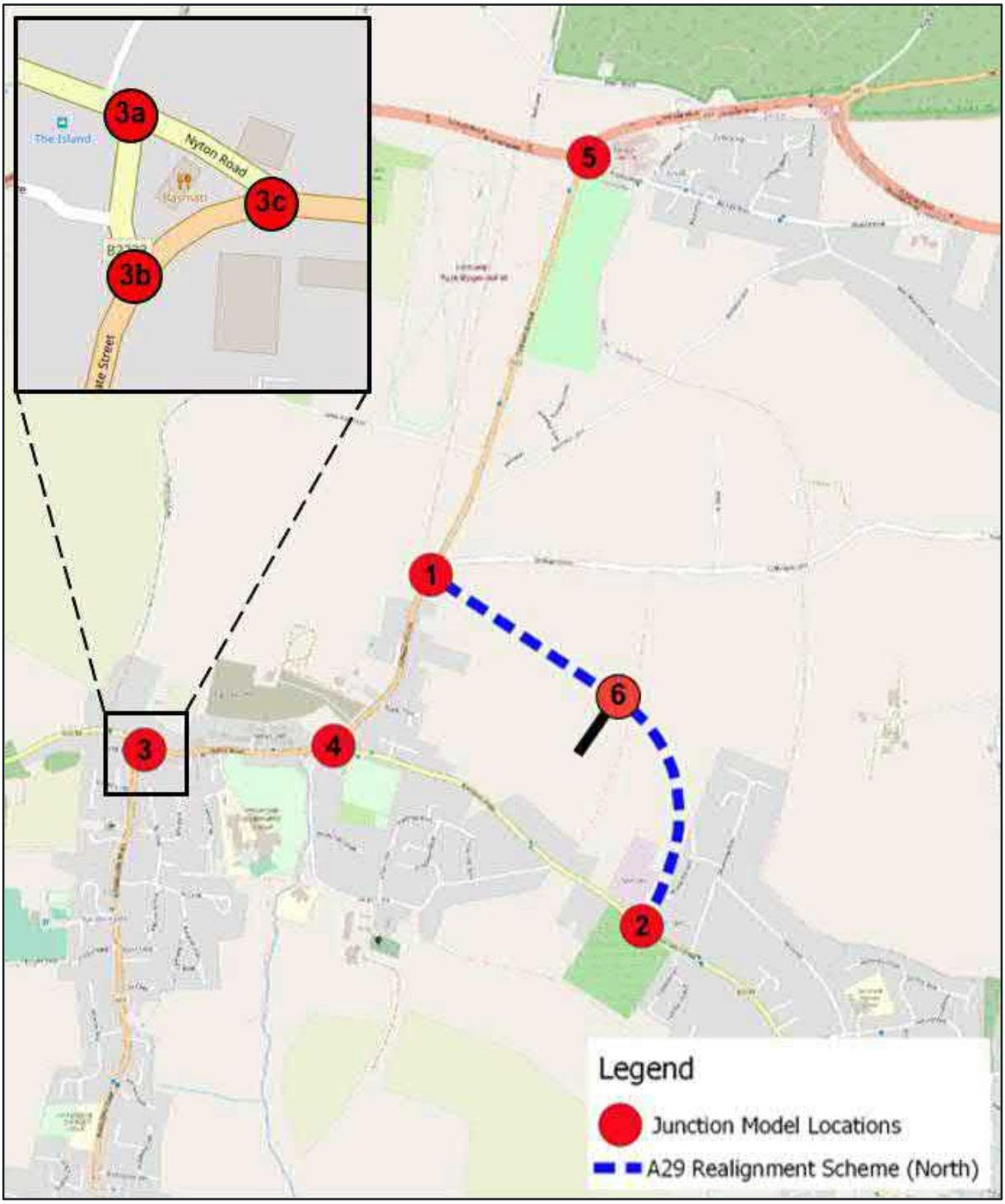
5.3.2 For the TA the following forecast years are considered:

- Opening year 2023
- Design Year 2038

5.4 JUNCTION ASSESSMENTS

5.4.1 Operational assessments have been undertaken for six junctions in the area directly surrounding the Proposed Scheme. The scope of this assessment has been agreed with WSCC as highway authority for the scheme and focuses on a number of key local sensitive junctions as show below in Figure 5-1.

Figure 5-1 - Junctions identified for operational assessment



5.4.2 The assessed existing junctions are as follows:

- A29 Westergate Road / B2233 Nyton Road
- A29 Fontwell Avenue / B2233 Barnham Road
- A27 / A29

5.4.3 Furthermore, the impact assessment includes the introduction of three new junctions in the northern section of the A29 re-alignment road.

- A29 Fontwell Avenue / Northern section of Re-alignment road
- B2233 Barnham Road / Northern section of Re-alignment road
- Site Access roundabout

5.4.4 All junctions have been assessed using junction modelling software, LinSig and Junctions 9, for signalised junctions and roundabouts/ priority junctions respectively. These are industry standard software applications for the assessment of junction performance. The scenarios considered are the AM (0800-0900) and PM (1700-1800) time periods for the 2023 opening year and 2038 future year with and without the proposed scheme.

5.4.5 When considering the extent of theoretical capacity within Junctions 9, it is recognised within the transport planning industry that a maximum Ratio of Flow to Capacity (RFC) value of 0.85 is desirable for roundabouts, since this allows for a standard error of prediction of the entry capacity formula and demands in the modelling, by 15% for any site. If the RFC is below 1.00 (100%), this suggests that the flow is within the calculated capacity, and the junction is working within capacity.

5.4.6 Therefore, RFC values below 0.85 indicate that the junction is operating under capacity, between 0.85 and 1.00 the junction is approaching capacity, and an RFC value greater than 1.00, the junction is operating over capacity.

5.4.7 LinSig models provide an indication of the Degree of Saturation (DoS) as a percentage and the Mean Maximum Queue (MMQ) in Passenger Car Units (PCUs) for each junction approach, the average delay per vehicle on each approach recorded in seconds

5.4.8 For DoS the thresholds can be categorised as follows:

- Less than 80%: Any queues that have built up will be able to disperse during the relevant stage in each cycle;
- 90-100%: Indicates that an arm is close to its theoretical capacity and any queue that has built up does not fully clear within each cycle; and
- More than 100%: Indicates that an arm is over its theoretical capacity and queues are likely to result.

5.5 OPENING YEAR JUNCTIONS ASSESSMENTS

5.5.1 This section provides the summary of results for the 2023 Opening year modelling, using ‘Without Scheme’ and ‘With Scheme’ scenarios. The forecast traffic flows used in assessing the opening year impacts were extracted from the 2023 forecast year strategic models.

5.5.2 Full Junctions 9 and LinSig modelling results for the 2023 Opening year assessments are included in Appendix A

Junction 1: A29 Fontwell Avenue / Northern section of Re-alignment road

5.5.3 Provided in Table 5-1 is a summary of the 2023 With Scheme (WS) modelling results for the Fontwell avenue / Northern section junction. Without Scheme modelling (WOS) results are not included for this junction as it is not present in that scenario.

Table 5-1 - A29 Fontwell Avenue / Northern section of Re-alignment road 2023 Opening year modelling results

Road Name	AM Peak (0800-0900)			PM Peak (1700-1800)		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
	WS	WS	WS	WS	WS	WS
Fontwell Avenue (N)	0.8	4.4	0.44	2.1	7.6	0.68
A29 Realignment Road	0.4	4.0	0.28	0.2	3.7	0.15
Fontwell Avenue (S)	1.2	6.1	0.56	0.5	3.7	0.32

5.5.4 The junction modelling results forecast the roundabout to operate within capacity for the Do something scenario in the opening year of the scheme. The maximum RFC of 0.56 is expected on Fontwell Avenue (s) approach for the AM peak whilst the maximum RFC of 0.68 is expected on the Fontwell Avenue (n) approach for the PM peak.

Junction 2: B2233 Barnham Road / Northern section of Re-alignment

5.5.5 Provided in Table 5-2 is a summary of the 2023 and With Scheme (WS) modelling results for the B2233 Barnham Road / Northern section of the realignment junction. Without Scheme modelling (WOS) results are not included for this junction as it is not present in that scenario.

Table 5-2 - B2233 Barnham Road / Northern section of Re-alignment 2023 Opening year modelling results

Road Name	AM Peak (0800-0900)			PM Peak (1700-1800)		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
	WS	WS	WS	WS	WS	WS
A29 Realignment Road	0.2	3.3	0.13	0.4	4.1	0.27
Barnham Road (east)	0.8	4.6	0.45	0.7	4.3	0.4
Southern Approach	0.1	3.1	0.09	0	2.9	0.04
Barnham Road (west)	0.3	3.8	0.25	0.5	3.8	0.33

5.5.6 The junction modelling results forecast the roundabout to operate within capacity for the Do something scenario in the opening year of the scheme. The maximum RFC of 0.45 is expected on Barnham Road (e) approach for the AM peak whilst the maximum RFC of 0.33 is expected on the Barnham Road (w) approach for the PM peak.

Junction 3a: A29 Westergate Road / B2233 Nyton Road

5.5.7 Table 5-3 summarises the 2023 'WOS' and 'WS' modelling results for junction 3a.

Table 5-3 - Junction 3a 2023 Opening year modelling results

Road Name	AM Peak (0800-0900)						PM Peak (1700-1800)					
	Queue (PCU)		Delay (s)		RFC		Queue (PCU)		Delay (s)		RFC	
	WOS	WS	WOS	WS	WOS	WS	WOS	WS	WOS	WS	WOS	WS
Slip Rd to / from A29 (south)	0.8	0.7	10.9	10.6	0.44	0.42	0.5	0.4	7.9	7.6	0.30	0.26
Nyton Rd (east)	0	0	0	0	0	0	0	0	0	0	0	0
B2233 Nyton Rd (west)	1.4	0.3	7.6	7.0	0.26	0.19	1.1	0.9	7.7	7.2	0.38	0.37

5.5.8 The junction modelling results tabulated in Table 5-3 forecast the junction to operate within capacity for the '2023 without scheme' and '2023 with scheme' scenarios in the AM and PM peaks. It is possible to conclude that the Proposed Scheme has no impact on the operation of this junction.

Junction 3b: A29 Westergate Road / B2233 Nyton Road

5.5.9 Table 5-4 summarises the 2023 'WOS' and 'WS' modelling results for junction 3b.

Table 5-4 - Junction 3b 2023 Opening year modelling results

Road Name	AM Peak (0800-0900)						PM Peak (1700-1800)					
	Queue (PCU)		Delay (s)		RFC		Queue (PCU)		Delay (s)		RFC	
	WOS	WS	WOS	WS	WOS	WS	WOS	WS	WOS	WS	WOS	WS
A29 Westergate St (south)	0	0	0	0	0	0	0	0	0	0	0	0
Slip Rd to B2233 (north)	0.4	0.4	20.2	20.1	0.29	0.29	1	1	24.4	24.2	0.51	0.51
A29 Nyton Rd (north-east)	0	0	0	0	0	0	0	0	0	0	0	0

5.5.10 The junction modelling results tabulated in forecast the junction to operate within capacity for the '2023 without scheme' and '2023 with scheme' scenarios in the AM and PM peaks. It is possible to conclude that the Proposed Scheme has no impact on the operation of this junction.

Junction 3c: A29 Westergate Road / B2233 Nyton Road

5.5.11 Table 5-5 summarises the 2023 'WOS' and 'WS' modelling results for junction 3c.

Table 5-5 - Junction 3c 2023 Opening year modelling results

Road Name	AM Peak (0800-0900)						PM Peak (1700-1800)					
	Queue (PCU)		Delay (s)		RFC		Queue (PCU)		Delay (s)		RFC	
	WOS	WS	WOS	WS	WOS	WS	WOS	WS	WOS	WS	WOS	WS
B2233 Nyton Rd (west)	1.1	1.0	16.4	15.7	0.53	0.51	2.5	2.2	24.8	22.5	0.73	0.7
A29 (South)	0	0	0	0	0	0	0	0	0	0	0	0
A29 Nyton Rd (east)	40.8	24.2	152.2	81.2	1.04	0.99	1.3	1.2	14.5	14.0	0.55	0.53

5.5.12 The modelling results for this junction indicate that during the AM and PM peak period the B2233 Nyton Rd (west) approach at the junction operates under capacity for both the '2023 without scheme' and '2023 with scheme' scenarios. In the AM peak, the A29 Nyton Road (east) approach is operating over capacity in the '2023 without scheme' scenario and just under capacity in the '2023 with scheme scenario'. This is due to right turning traffic crossing the main-stream of opposing traffic travelling on the A29 northbound.

5.5.13 With the introduction of the Scheme some of the westbound headed traffic that is travelling on the B2233 / Nyton Road to reach the A27 diverts onto using the Scheme and Fontwell Avenue to continue their journey on the A27. This approach is operating within capacity for both scenarios in the PM peak.

Junction 4: A29 Fontwell Avenue / B2233 Barnham Road

5.5.14 Table 5-6 is a summary of the 'WOS' scenario and the 'WS' scenario for the A29 Fontwell Avenue/ B2233 Barnham road roundabout.

Table 5-6 - A29 Fontwell Avenue / B2233 Barnham Road 2023 Opening year modelling results

Road Name	AM Peak (0800-0900)						PM Peak (1700-1800)					
	Queue (PCU)		Delay (s)		RFC		Queue (PCU)		Delay (s)		RFC	
	WOS	WS	WOS	WS	WOS	WS	WOS	WS	WOS	WS	WOS	WS
A29 Fontwell Avenue	2.1	1.6	13.7	11.4	0.68	0.62	28.5	4	124.4	24.2	1.04	0.81
B2233 Barnham Road	4.4	2	21.2	12.2	0.82	0.67	1.8	1.2	11.2	8.9	0.64	0.54
A29 Nyton Road	1.4	1.3	5.5	5.0	0.59	0.57	1.2	1.1	4.9	4.5	0.56	0.53

5.5.15 The modelling results for this junction indicate that with the introduction of the Scheme the level of delay and queuing reduces for all approaches for both the AM and PM peak periods. The maximum RFC of 0.82 is expected on B2233 approach for the AM peak in the '2023 without scheme scenario' The RFC reduces to 0.67 for this approach in the '2023 with scheme scenario'. For the PM peak the maximum RFC of 1.04 is expected on the A29 Fontwell Avenue approach which reduces to 0.81 for in the '2023 with scheme scenario'.

5.5.16 The reduction in delay and queuing at this junction in the '2023 with scheme' scenario is a result of traffic that was previously using this roundabout, to travel between A29 Fontwell Avenue and Barnham Road, re-routing onto the A29 realignment Road.

Junction 5: A27 Arundel Road / A29 Fontwell Avenue

5.5.17 The junction modelling results presented in Table 5-7 is a summary of the 'WOS' scenario and the 'WS' scenario for the A29 Fontwell Avenue / B2233 Barnham road.

Table 5-7 – A27 Arundel Road / A29 Fontwell Avenue 2023 Opening year modelling results

Road Name	Lane Side	AM Peak (0800-0900)				PM Peak (1700-1800)			
		MODELLED QUEUE (PCU)		DOS (%)		MODELLED QUEUE (PCU)		DOS (%)	
		WOS	WS	WOS	WS	WOS	WS	WOS	WS
A27 North	Offside	13.7	21.7	72.9	90.1	9.1	11.2	57.1	65.2
	Middle	31.2	60.9	97.2	104.7	9.4	12.1	61.2	69.9
	Nearside	31.2	60.9	97.2	104.7	9.4	12.1	61.2	69.9
Arundel Rd	Offside	13.7	0.7	25.7	17.8	0.3	0.4	11.2	13.3
	Nearside	13.7	0.7	25.7	17.8	0.3	0.4	11.2	13.3
	Offside	36.9	59.5	98.8	105.5	1.3	2.2	28.3	35.2

Road Name	Lane Side	AM Peak (0800-0900)				PM Peak (1700-1800)			
		MODELLED QUEUE (PCU)		DOS (%)		MODELLED QUEUE (PCU)		DOS (%)	
		WOS	WS	WOS	WS	WOS	WS	WOS	WS
A29 Fontwell Avenue	Nearside	36.9	59.5	98.8	105.5	1.3	2.2	28.3	35.2
A27 Arundel Rd	Offside	2.9	3.0	24.4	25.5	3.8	3.8	35.4	36.7
	Middle	6.7	7.7	63.0	68.9	11.5	17.1	89.1	95.1
	Nearside	6.7	7.7	63.0	68.9	11.5	17.1	89.1	95.1

5.5.18 The modelling results, in the AM peak, for this junction indicate that the approaches from A27 north and A29 are operating close to capacity. For the 'With Scheme' scenarios these approaches are seen to operate just over capacity. For the PM peak the approach with the highest DoS is from the A27 Arundel Road approach which is operating at 89% in the 'Without Scheme scenario' and 95% in the 'With Scheme scenario'.

5.5.19 This junction currently experiences congestion in the without scheme scenario during the peak periods with queuing occurring on the A29 approach in the AM peak. This junction is currently undergoing review into potential mitigation schemes to accommodate traffic growth associated with developments in the local area.

Junction 6: Site Access roundabout to Northern Development

5.5.20 The junction modelling results presented in Table 5-8 is a summary of the 2023 'WS' scenario for the A29 Realignment Road / Site Access roundabout. Without Scheme modelling (WOS) results are not included for this junction as it is not present in that scenario.

Table 5-8 - A29 Realignment Road / Site access roundabout to Development 2023 Opening year modelling results

Road Name	AM Peak (0800-0900)			PM Peak (1700-1800)		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
	WS	WS	WS	WS	WS	WS
A29 Realignment road (east)	0.2	3.3	0.2	0.1	3.1	0.12
Site Access	0.1	3.9	0.1	0.1	3.4	0.05
A29 Realignment road (west)	0.2	2.8	0.1	0.3	3.2	0.25

5.5.21 The junction modelling results forecast the roundabout to operate within capacity for the Do something scenario in the opening year of the scheme. The maximum RFC of 0.19 is expected on

A29 Realignment Road (east) approach for the AM peak whilst the maximum RFC of 0.25 is expected on the A29 Realignment Road (west) approach for the PM peak.

5.6 FUTURE YEAR JUNCTIONS ASSESSMENTS

5.6.1 This section provides the results of the junction modelling for the 2038 Without Scheme and With Scheme scenarios. The forecast flows used in assessing the future year impacts were extracted from the 2038 CATM model.

5.6.2 Full Junctions 9 and LinSig modelling results for the 2038 future year assessments are included in Appendix A.

Junction 1: A29 Fontwell Avenue / Northern section of Re-alignment road

5.6.3 Provided in Table 5-9 is a summary of the 2038 With Scheme (WS) modelling results for the Fontwell avenue / Northern A29 Realignment Road roundabout.

Table 5-9 - A29 Fontwell Avenue / Northern section of Re-alignment road 2038 Future year modelling results

Road Name	AM Peak (0800-0900)			PM Peak (1700-1800)		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
	WS	WS	WS	WS	WS	WS
Fontwell Avenue (N)	1.4	5.8	0.58	6.9	20.3	0.88
A29 Realignment Road	0.6	4.8	0.38	0.5	5.1	0.34
Fontwell Avenue (S)	1.6	7.3	0.62	0.8	4.9	0.45

5.6.4 The junction modelling results forecast the roundabout to operate within capacity for the Do something scenario in the 2038 future year of the scheme for the AM peak. The maximum RFC of 0.62 is expected on Fontwell Avenue (s) approach for the AM peak whilst the maximum RFC of 0.88 is expected on the Fontwell Avenue (n) approach for the PM peak.

Junction 2: B2233 Barnham Road / Northern section of Re-alignment

5.6.5 Provided in Table 5-10 is a summary of the 2038 With Scheme (WS) modelling results for the B2233 Barnham Road / Northern section of the realignment junction.

Table 5-10 - B2233 Barnham Road / Northern section of Re-alignment 2038 Future year modelling results

Road Name	AM Peak (0800-0900)			PM Peak (1700-1800)		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
	WS	WS	WS	WS	WS	WS
A29 Realignment Road	0.2	3.7	0.2	0.7	5.3	0.41
Barnham Road (east)	0.5	4.0	0.35	1	5.6	0.49
Southern Approach	0.5	3.8	0.31	0.2	3.3	0.17
Barnham Road (west)	0.4	3.9	0.28	0.7	4.7	0.4

5.6.6 The 2038 future year assessment results presented in Table 5-10 forecast the roundabout to operate within capacity during both the AM and PM peaks for both scenarios considered. The maximum RFC of 0.35 and 0.49 is anticipated on Barnham Road (east) approach in for the Do Something scenario in the AM and PM peaks respectively.

Junction 3a: A29 Westergate Road / B2233 Nyton Road

5.6.7 Table 5-11 summarises the 2038 'WOS' and 'WS' modelling results for junction 3a.

Table 5-11 - Junction 3a 2038 Future year modelling results

Road Name	AM Peak (0800-0900)						PM Peak (1700-1800)					
	Queue (PCU)		Delay (s)		RFC		Queue (PCU)		Delay (s)		RFC	
	WOS	WS	WOS	WS	WOS	WS	WOS	WS	WOS	WS	WOS	WS
Slip Rd to / from A29 (south)	1.2	1.2	14.0	14.1	0.54	0.56	1.2	0.5	8.7	7.9	0.34	0.32
Nyton Rd (east)	0	0	0	0	0	0	0	0	0	0	0	0
B2233 Nyton Rd (west)	0.3	0.3	6.9	6.7	0.18	0.17	0.3	0.6	6.5	5.8	0.30	0.25

5.6.8 The junction modelling results tabulated in Table 5-11 show that the junction operates within capacity in the AM and PM peaks for both the scenarios. The maximum RFC of 0.56 and 0.32 is

anticipated on the slip Rd to / from the A29 south approach for the Do Something scenario in the AM and PM peaks respectively.

Junction 3b: A29 Westergate Road / B2233 Nyton Road

5.6.9 Table 5-12 summarises the 2038 'WOS' and 'WS' modelling results for junction 3b

Table 5-12 - Junction 3b 2038 Future year modelling results

Road Name	AM Peak (0800-0900)						PM Peak (1700-1800)					
	Queue (PCU)		Delay (s)		RFC		Queue (PCU)		Delay (s)		RFC	
	WOS	WS	WOS	WS	WOS	WS	WOS	WS	WOS	WS	WOS	WS
A29 Westergate St (south)	0	0	0	0	0	0	0	0	0	0	0	0
Slip Rd to B2233 (north)	0.5	0.4	25.0	24.7	0.33	0.3	0.8	0.8	25.4	25.7	0.46	0.44
A29 Nyton Rd (north-east)	0	0	0	0	0	0	0	0	0	0	0	0

5.6.10 The junction modelling results tabulated in Table 5-12 forecast the junction to operate within capacity for the '2038 without scheme' and '2038 with scheme' scenarios in the AM and PM peaks. It is possible to conclude that the Proposed Scheme has no impact on the operation of this junction.

Junction 3c: A29 Westergate Road / B2233 Nyton Road

5.6.11 Table 5-13 summarises the 2038 'WOS' and 'WS' modelling results for junction 3c

Table 5-13 - Junction 3c 2038 Future year modelling results

Road Name	AM Peak (0800-0900)						PM Peak (1700-1800)					
	Queue (PCU)		Delay (s)		RFC		Queue (PCU)		Delay (s)		RFC	
	WOS	WS	WOS	WS	WOS	WS	WOS	WS	WOS	WS	WOS	WS
B2233 Nyton Rd (west)	1.4	1.3	19.1	18.6	0.59	0.58	3.5	3.9	34.1	37.0	0.79	0.81
A29 (South)	0	0	0	0	0	0	0	0	0	0	0	0
A29 Nyton Rd (east)	79.3	75.3	325.4	303.9	1.12	1.11	3.1	0.6	19.8	12	0.71	0.67

5.6.12 The modelling results for this junction indicate that during the AM and PM peak period the B2233 Nyton Rd (west) approach at the junction operates under capacity for both the '2038 without

scheme' and '2038 with scheme' scenarios. In the AM peak, the A29 Nyton Road (east) approach is operating over capacity in the '2038 without scheme' and '2038 with scheme' scenarios with RFC values of 1.12 and 1.11 respectively. This is due to right turning traffic crossing the main stream of opposing traffic travelling on the A29 northbound. In the PM peak this approach is operating within capacity for both scenarios. The difference in RFC values between the AM and PM peaks for this movement is due to the difference in the traffic flow patterns in the local area between the time periods. The westbound modelled flow on Nyton Road (west of the A29) travelling toward the A27 in the PM peak is approximately half the volume of the AM peak flow.

Junction 4: A29 Fontwell Avenue / B2233 Barnham Road

5.6.13 The junction modelling results presented in Table 5-14 are a summary of the 'WOS' scenario and the 'WS' scenario for the A29 Fontwell Avenue/ B2233 Barnham road.

Table 5-14 - A29 Fontwell Avenue / B2233 Barnham Road 2038 Future year modelling results

Road Name	AM Peak (0800-0900)						PM Peak (1700-1800)					
	Queue (PCU)		Delay (s)		RFC		Queue (PCU)		Delay (s)		RFC	
	WOS	WS	WOS	WS	WOS	WS	WOS	WS	WOS	WS	WOS	WS
A29 Fontwell Avenue	12.0	3.3	58.3	19.0	0.95	0.77	56.2	11.8	221.0	62.7	1.12	0.95
B2233 Barnham Road	15.2	5.2	66.8	27.9	0.97	0.85	4.8	1.2	23.0	9.5	0.84	0.54
A29 Nyton Road	1.7	1.5	6.1	5.5	0.63	0.61	1.8	1.6	6.3	5.5	0.64	0.61

5.6.14 The modelling results for this junction show that with the introduction of the Scheme the level of delay and queuing reduces for all approaches for both the AM and PM peak periods. The maximum RFC of 0.97 is expected on the B2233 Barnham Road approach for the AM peak in the '2038 without scheme scenario'. The RFC reduces to 0.85 for this approach in the '2038 with scheme scenario'. For the PM peak the maximum RFC of 1.12 is expected on the A29 Fontwell Avenue approach in the '2038 without scheme' scenario which reduces to 0.95 for in the '2038 with scheme' scenario.

5.6.15 The reduction in delay and queuing at this junction when comparing the '2038 without scheme' scenario to the '2038 with scheme' scenario is a result of traffic that was previously using this roundabout to travel between A29 Fontwell Avenue and Barnham Road, re-routing onto the A29 realignment Road with the introduction of the scheme.

Junction 5: A27 Arundel Road / A29 Fontwell Avenue

5.6.16 The junction modelling results presented in Table 5-15 are a summary of the 'WOS' scenario and the 'WS' scenario for the A29 Fontwell Avenue / B2233 Barnham road.

Table 5-15 - A27 Arundel Road / A29 Fontwell Avenue 2038 Future year modelling results

Road Name	Lane Side	AM Peak (0800-0900)				PM Peak (1700-1800)			
		MODELLED QUEUE (PCU)		DOS (%)		MODELLED QUEUE (PCU)		DOS (%)	
		WOS	WS	WOS	WS	WOS	WS	WOS	WS
A27 North	Offside	18.8	24.3	83.1	90.9	13.4	18.1	68.6	85.2
	Middle	21.8	33.2	89.0	97.4	12.4	21.2	73.5	91.3
	Nearside	21.8	33.2	89.0	97.4	12.4	21.2	73.5	91.3
Arundel Rd	Offside	1.3	1.3	33.3	39.4	0.4	0.6	16.0	26.1
	Nearside	1.3	1.3	33.3	39.4	0.4	0.6	16.0	26.1
A29 Fontwell Avenue	Offside	9.7	23.3	88.3	97.3	3.1	4.4	43.8	56.5
	Nearside	9.7	23.3	88.3	97.3	3.1	4.4	43.8	56.5
A27 Arundel Rd	Offside	3.9	4.2	32.6	33.8	5.7	7.3	46.3	53.0
	Middle	6.4	7.6	63.9	70.3	10.2	13.2	85.4	93.7
	Nearside	6.4	7.6	63.9	70.3	10.2	13.2	85.4	93.7

5.6.17 The modelling results for this junction, in the AM peak, indicate that the approaches from A27 north and A29 are operating close to capacity for both the 'Without Scheme' and 'With Scheme' scenarios. For the PM peak the approach with the highest DoS is the A27 Arundel Road approach which is operating at 85% in the 'Without Scheme scenario' and 94% in the 'With Scheme scenario'.

Junction 6: Site Access roundabout to Northern Development

5.6.18 The junction modelling results presented in Table 5-16 is a summary of the 2038 'WS' scenario for the A29 Realignment Road / Site Access roundabout.

Table 5-16 – A29 Realignment Road / Site access roundabout to Development 2038 Future year modelling results

Road Name	AM Peak (0800-0900)			PM Peak (1700-1800)		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
	WS	WS	WS	WS	WS	WS
A29 Realignment road (east)	0.2	3.4	0.19	0.4	3.8	0.28
Site Access	0.3	4.4	0.21	0.1	3.9	0.1
A29 Realignment road (west)	0.3	3.1	0.21	0.6	3.9	0.39

5.6.19 The 2038 future year junction modelling results forecast the roundabout to operate within capacity for the Do something scenario in the opening year of the scheme. The maximum RFC of 0.21 is expected on A29 Realignment Road (west) and the Site Access approach for the AM peak whilst the maximum RFC of 0.39 is expected on the A29 Realignment Road (west) approach for the PM peak.

5.7 CUMULATIVE EFFECTS JUNCTION ASSESSMENT

5.7.1 The above junction modelling included in sections 5.5 and 5.6 was undertaken using traffic flows taking Phase 1 of the A29 realignment road into consideration.

5.7.2 To assess the cumulative effects on the road network of Phase 2 of the scheme, this section provides the results of the junction modelling including the implementation of Phase 2 of the scheme for the proposed junctions at:

- A29 Fontwell Avenue / Northern section of Re-alignment road, and;
- B2233 Barnham Road / Northern section of Re-alignment

5.7.3 Provided in Table 5-17 and is a summary of the With Scheme (WS) modelling results for the Fontwell avenue / Northern section junction for the 2023 opening year and 2038 future year respectively.

Table 5-17 - A29 Fontwell Avenue / Northern section of A29 Re-alignment road, 2023 Opening year with A29 Phase 2 modelling results

Road Name	AM Peak (0800-0900)			PM Peak (1700-1800)		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
	WS	WS	WS	WS	WS	WS
Fontwell Avenue (N)	0.6	4.0	0.39	1.4	5.9	0.59
A29 Realignment Road	0.7	4.2	0.42	0.3	3.4	0.24
Fontwell Avenue (S)	0.6	4.8	0.36	0.2	3.1	0.14

Table 5-18 - A29 Fontwell Avenue / Northern section of A29 Re-alignment road, 2038 Future year with A29 Phase 2 modelling results

Road Name	AM Peak (0800-0900)			PM Peak (1700-1800)		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
	WS	WS	WS	WS	WS	WS
Fontwell Avenue (N)	1.2	5.3	0.54	4.4	13.4	0.82
A29 Realignment Road	1.2	5.3	0.54	0.6	4.4	0.39
Fontwell Avenue (S)	0.7	5.9	0.42	0.2	3.7	0.20

5.7.4 The junction modelling results forecast the roundabout to operate within capacity for the Do Something scenario in the opening year of the scheme. The maximum RFC of 0.42 is expected on the A29 Realignment approach for the AM peak whilst the maximum RFC of 0.59 is expected on the Fontwell Avenue (n) approach for the PM peak.

5.7.5 For the 2038 Future year the maximum RFC of 0.54 is expected for the A29 Realignment and Fontwell Avenue (n) approaches for the AM peak. For the PM peak the maximum RFC of 0.82 is expected on the Fontwell Avenue (n) approach.

5.7.6 Provided in Table 5-19 and Table 5-20 is a summary of the With Scheme (WS) modelling results for the B2233 Barnham Road / Northern section junction for the 2023 opening year and 2038 future year respectively.

Table 5-19 - B2233 Barnham Road / Northern section of A29 Re-alignment road, 2023 Opening year with A29 Phase 2 modelling results

Road Name	AM Peak (0800-0900)			PM Peak (1700-1800)		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
	WS	WS	WS	WS	WS	WS
A29 Realignment Road (N)	0.5	4.6	0.35	1.2	7.2	0.54
Barnham Road (east)	1.5	7.1	0.60	1.4	7.3	0.59
A29 Realignment Road (S)	1.0	5.6	0.50	0.7	4.3	0.41
Barnham Road (west)	0.2	4.3	0.16	0.5	4.7	0.32

Table 5-20 - B2233 Barnham Road / Northern section of A29 Re-alignment road, 2038 Future year with A29 Phase 2 modelling results

Road Name	AM Peak (0800-0900)			PM Peak (1700-1800)		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
	WS	WS	WS	WS	WS	WS
A29 Realignment Road (N)	1.0	6.1	0.51	3.1	14.1	0.76
Barnham Road (east)	1.5	7.9	0.61	3.1	14.8	0.76
A29 Realignment Road (S)	2.0	7.8	0.67	1.2	5.7	0.55
Barnham Road (west)	0.2	4.6	0.18	0.6	5.9	0.39

5.7.7 The junction modelling results forecast the roundabout to operate within capacity for the Do Something scenario in the 2023 opening year of the scheme. The maximum RFC of 0.60 is expected on Barnham Road (e) approach for the AM peak whilst the maximum RFC of 0.59 is expected on the Barnham Road (e) approach for the PM peak.

5.7.8 For the 2038 Future year the maximum RFC of 0.67 is expected for the A29 Realignment Road (S) approache for the AM peak whilst for the PM peak the maximum RFC of 0.76 is expected on the A29 Realignment Road (N) and Barnham Road (east) approaches.

5.7.9 The modelling results in this section show that with the implementation of the A29 Realignment Road Phase 2, the proposed junctions at A29 Fontwell Avenue / Northern section of A29 Re-alignment Rd and Barnham Rd / Northern section of A29 Re-alignment Rd operate within capacity.

5.8 CHANGE IN TRAFFIC FLOWS BY LINK

5.8.1 Link flows for a number of locations within the scheme study area have been extracted from the traffic model, for each scenario, in the AM and PM peak periods in order to highlight the impact of the Proposed Scheme on the adjoining highway network. These are illustrated in Figure 5-2 and Figure 5-3 for the AM and PM peak hour respectively.

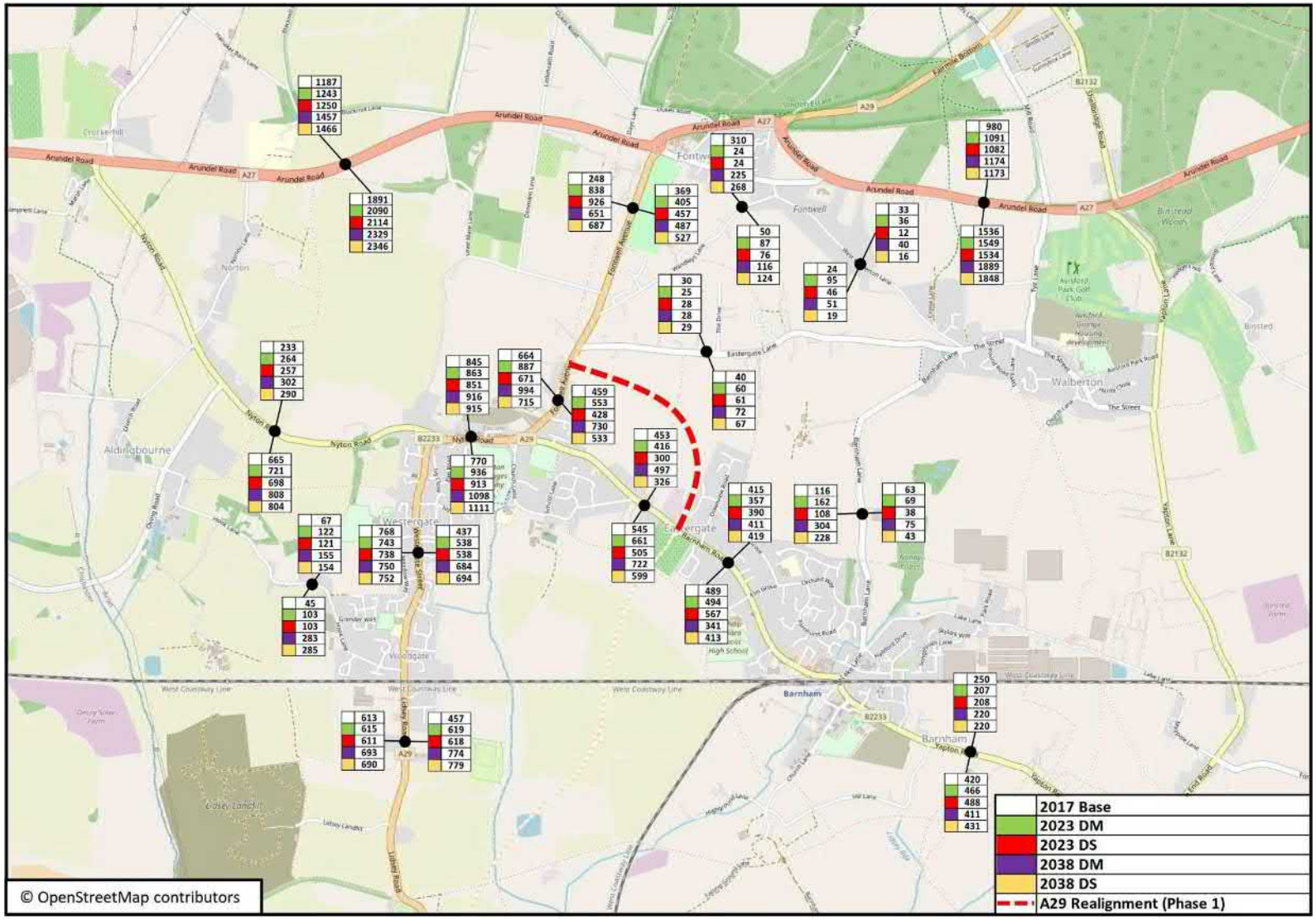


Figure 5-2 - AM link Flows

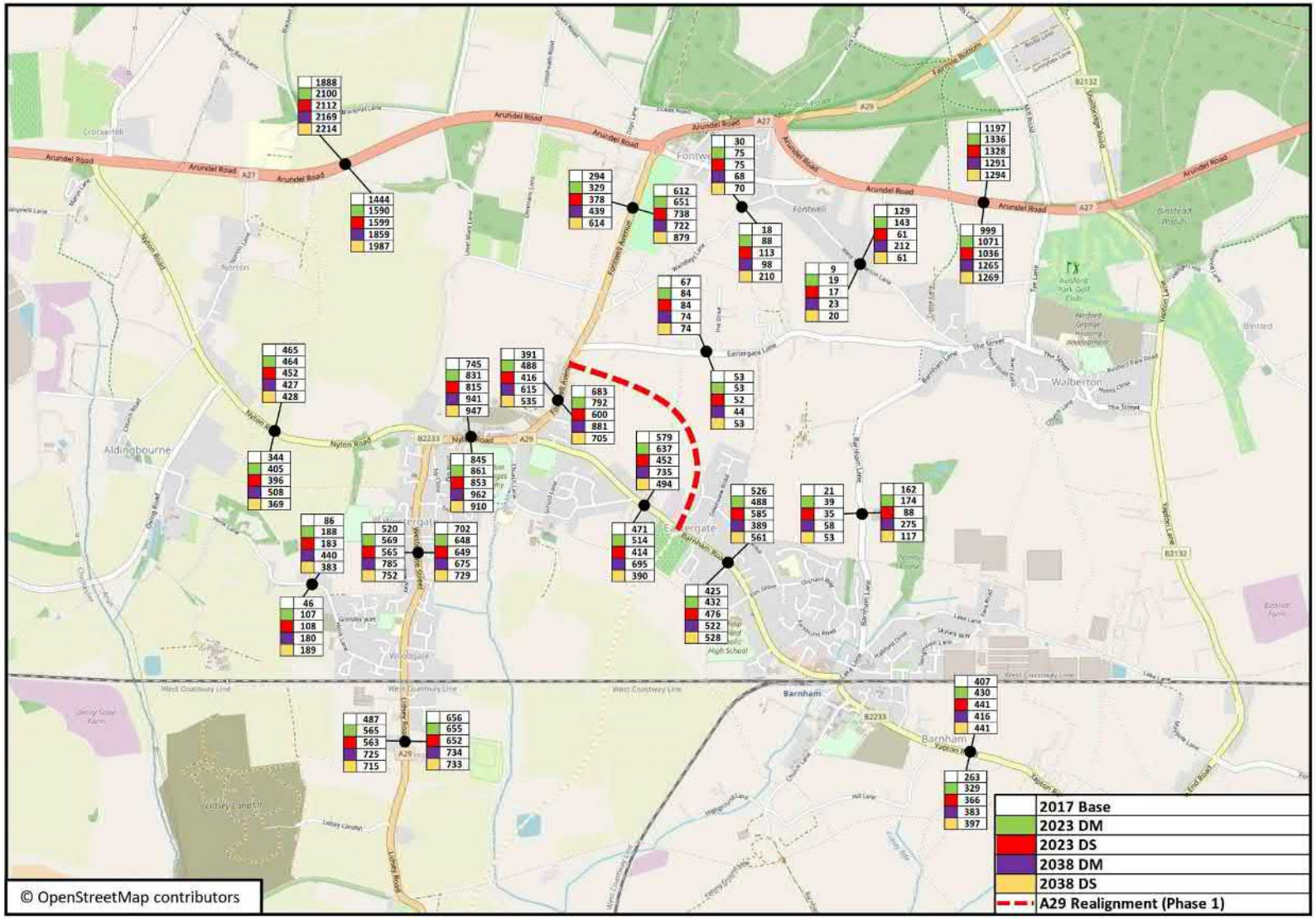


Figure 5-3 - PM Link Flows

5.8.2 The link flows shown in Figure 5-2 and Figure 5-3 indicate that on the A29 Fontwell Avenue (to the south of the new roundabout) and B2233 Barnham Road, in the vicinity of the scheme, flows are reduced in both the 2023 Do Something scenario, and the 2038 Do Something scenario for the AM and PM peaks. This flow reduction is a result of existing traffic that is expected to reassign from this route to the Proposed Scheme, avoiding using the War Memorial for vehicles travelling between the B2233 (east) and the A27.

5.8.3 Traffic flow on Fontwell Avenue between the new roundabout at Fontwell Avenue / Northern Realignment Road and the A27 is forecast to increase. The A29 / A27 junction currently experiences congestion during the AM peak with queuing occurring on the A29 approach. This junction is currently undergoing review into potential mitigation schemes to accommodate traffic growth associated with developments in the local area.

5.8.4 Traffic flows on the A29 near the Woodgate Level Crossing are forecast to remain consistent in the Do Minimum and the Do Something scenarios with negligible flow changes for both directions in the AM and PM peaks.

5.8.5 Nyton Road, to the east of the A29, forecasts flows to be broadly consistent between the Do Minimum and Do Something scenarios. The exception being for the westbound direction in the 2038 PM peak which is expected to see a decrease in flow of 140. This reduction in traffic flow is due to traffic travelling from Barnham Road now reassigning onto the Proposed Scheme and Fontwell Avenue to access the A27.

5.8.6 Yapton Road, to the east of Barnham, forecasts a small increase in flow for the 2038 forecast year with 5% increase for the AM peak in the westbound direction. For the PM peak there are flow increases of 6% and 4% for the eastbound and westbound directions respectively.

5.8.7 The traffic flow changes shown in Figure 5-2 and Figure 5-3 show that the flow changes associated with introducing the A29 Realignment Phase 1 are mostly contained to the local area of the scheme. Flow changes on the A29 to the south at Lidsey bends, on Nyton Road to the west of the A29 and on Yapton Road to the east of Barnham Road remain broadly consistent with the Do Minimum scenario.

5.8.8 A breakdown of the traffic flows on various links on the A29 for the AM and PM peak hours are shown in Table 5-21 and Table 5-22 respectively.

Table 5-21 – Comparison of traffic flows on A29 (AM Peak)

Dir.	Link No.	Link Description	Vehicle Flow				% Diff to Do Min	
			2023		2038		2023	2038
			DM	Phase 1	DM	Phase 1	Phase 1	Phase 1
Northbound	1	A29 south of Lidsey Bends	613	609	671	667	-1%	-1%
	2	A29 between Lidsey Bends and Hook Ln.	615	611	693	690	-1%	0%
	3	A29 between Hook Ln. and Nyton Rd.	743	738	750	752	-1%	0%
	4	A29 Nyton Rd.	863	851	916	915	-1%	0%
	5	A29 between Nyton Road and Realignment scheme	887	671	994	715	-24%	-28%
	6	A29 between Eastergate Ln. and A27	838	926	651	687	10%	6%
	7	A29 Realignment (northern section)	-	326	-	418	-	-
Southbound	7	A29 Realignment (northern section)	-	183	-	278	-	-
	6	A29 between Eastergate Ln. and A27	405	457	487	527	13%	8%
	5	A29 between Nyton Road and Realignment scheme	553	428	730	533	-23%	-27%
	4	A29 Nyton Rd.	936	913	1098	1111	-2%	1%
	3	A29 between Hook Ln. and Nyton Rd.	538	538	684	694	0%	1%
	2	A29 between Lidsey Bends and Hook Ln.	619	618	774	779	0%	1%
	1	A29 south of Lidsey Bends	633	633	971	975	0%	0%

Table 5-22 – Comparison of Flows on the A29 (PM Peak)

Dir.	Link No.	Link Description	Vehicle Flow				% Diff to Do Min	
			2023		2038		2023	2038
			DM	Phase 1	DM	Phase 1	Phase 1	Phase 1
Northbound	1	A29 south of Lidsey Bends	580	577	852	843	0%	-1%
	2	A29 between Lidsey Bends and Hook Ln.	565	563	725	715	0%	-1%
	3	A29 between Hook Ln. and Nyton Rd.	569	565	785	752	-1%	-4%
	4	A29 Nyton Rd.	831	815	941	947	-2%	1%
	5	A29 between Nyton Road and Realignment scheme	488	416	615	535	-15%	-13%
	6	A29 between Eastergate Ln. and A27	329	378	439	614	15%	40%
	7	A29 Realignment (northern section)	-	158	-	339	-	-
Southbound	7	A29 Realignment (northern section)	-	339	-	527	-	-
	6	A29 between Eastergate Ln. and A27	651	738	722	879	13%	22%
	5	A29 between Nyton Road and Realignment scheme	792	600	881	705	-24%	-20%
	4	A29 Nyton Rd.	861	853	962	910	-1%	-5%
	3	A29 between Hook Ln. and Nyton Rd.	648	649	675	729	0%	8%
	2	A29 between Lidsey Bends and Hook Ln.	655	652	734	733	0%	0%
	1	A29 south of Lidsey Bends	679	675	747	748	0%	0%

A29 between Nyton Road and Realignment scheme (Link 5)

5.8.9 This link is positioned south of the northern tie-in of the proposed scheme.

5.8.10 There is a reduction of traffic flows on this link when comparing the Do Something scenario against the Do Minimum scenario. The northbound flow reduction ranges from 216 (-24%) to 279 (-28%) in the AM peak period for the 2023 and 2038 year respectively.

5.8.11 Southbound traffic flows in the AM peak see a reduction when comparing the Do Something scenario against the Do Minimum scenario. The southbound flow reduction ranges from 125 (-23%) to 197 (-27%) for the 2023 and 2038 year respectively. This flow reduction is a result of existing traffic that is expected to reassign from this route to the Proposed Scheme, avoiding using the War Memorial to reach the B2233 for eastbound headed traffic.

5.8.12 In the PM peak the largest flow decreases occur for the southbound direction with flow reductions of 192 (-24%) to 176 (-20%) for the 2023 and 2038 year respectively.

5.8.13 Northbound traffic flows in the PM peak see a smaller reduction when comparing the Do Something scenario against the Do Minimum scenario. The northbound flow reduction ranges from 72 (-15%) to 80 (-13%) for the 2023 and 2038 year respectively.

A29 between Eastergate Ln. and A27 (Link 6)

5.8.14 This link is positioned north of the northern tie-in of the proposed scheme.

5.8.15 There is an increase in traffic flow on this link when comparing the Do Something scenario against the Do Minimum scenario. The northbound flow increase ranges from 88 (10%) to 36 (6%) in the AM peak period for the 2023 and 2038 year respectively.

5.8.16 Southbound traffic flows in the AM peak also show an increase when comparing the Do Something scenario against the Do Minimum scenario. The southbound flow increase ranges from 52 (13%) to 50 (8%) for the 2023 and 2038 year respectively.

5.8.17 In the PM peak the northbound direction shows flow increases of 49 (15%) to 175 (40%) for the 2023 and 2038 year respectively.

5.8.18 Southbound traffic flows in the PM peak also indicate flow increases when comparing the Do Something scenario against the Do Minimum scenario. The southbound flow increase ranges from 87 (13%) to 157 (22%) for the 2023 and 2038 year respectively.

Summary

5.8.19 When comparing the 'Do Minimum' scenario against the 'Do Something' scenario the largest reduction in flow occurs between the Nyton Road junction and the proposed B2233 Barnham Road / Northern Section of Re-alignment road and also on A29 between Nyton Road and the proposed northern tie-in of the scheme. This is likely to be a result of vehicles re-routing to the realignment road, removing flows from the existing A29.

5.8.20 The largest flow increases on the A29 are noted to occur between Eastergate Lane and the A27 for both directions for both the AM and PM peak hours.

5.8.21 Flow changes on the A29 to the south of the scheme (at Lidsey bends) are shown to be negligible for both peak hours.

6 CONSTRUCTION TRAFFIC

6.1 INTRODUCTION

6.1.1 The construction programme is detailed in Table 6-1.

Table 6-1 - Construction Programme

Stage	Programme
Construction compound construction	February 2021 – March 2021
Site clearance	March 2021 – March 2021
Utilities Diversion	March 2021 – May 2021
Construction of Road	May 2021 – July 2021
Street Lighting	August 2021 – August 2021
Landscaping	September 2021 – November 2021

6.2 PROPOSED KEY CONSTRUCTION ACTIVITIES

6.2.1 The key construction activities are summarised sequentially below (although there is likely to be some overlap between each stage / individual processes):

- Creation of a temporary construction compound.
- Clearance and creation of temporary access.
- Installation of temporary fencing and/or hoarding.
- Vegetation and tree removal and use of protective measures around retained features.
- Demolition of the courtyard and two-storey residential dwelling, both of which are currently occupied.
- Dewatering (if necessary) in trenches and excavations.
- Movement and use of static and mobile plant/construction vehicles.
- Diversion of applicable utilities, including the relocation of a substation located off the existing A29 Fontwell Avenue.
- Validation of ground conditions, earthworks and re-profiling to meet required levels/noise mitigation.
- Export of some material off-site (anticipated to be a limited volume and primarily associated with any vegetation/contaminated material which cannot be disposed of onsite).
- Materials handling, storage, stockpiling and disposal.
- Formation of drainage features.
- Construction of infrastructure associated with the Scheme including noise barriers.
- Construction of the Scheme.
- Hard and soft landscaping including environmental/ecological mitigation if required.

6.3 CONSTRUCTION ACCESS / HAULAGE ROUTES, PARKING AND TRAFFIC

6.3.1 It is anticipated that there will be no more than 50 persons working on site at any one time, and whilst car sharing/public transport/cycling to work will be encouraged, the proposed car parking

arrangements cater for these expected vehicle numbers, with spare capacity within both site compounds to increase this if necessary. Vehicle numbers/ movements are outlined in Table 6-2.

Table 6-2 - Vehicle numbers

Vehicle Type	Envisaged Maximum Daily Number to Site
Car / Delivery Van	40 Movements Daily
Heavy Earth Moving Vehicle	20 Movements Daily
Heavy Goods Vehicle	75 Movements (envisaged 25% to northern compound, 75% to main southern compound), but majority of time average of 20 movements daily.

6.3.2 Parking for road vehicles will be off site at the main compound south of Barnham Road. Construction plant will be parked up “on site” at night alongside the new road alignment (so to prevent this from needing to cross the busy Barnham Road at the end of every shift). Deliveries will be instructed to only be received during work hours by arrangement.

6.3.3 Normal site working (construction) hours are proposed to be:

- Monday to Thursday 07:30 to 17:30;
- Friday 07:30 to 15:00;

6.3.4 Noise Generating Activities (as defined by BS 5228) will be limited to Monday to Thursday 08:00 to 17:30 and 08:00 to 15:00 on Friday.

7 SUMMARY AND CONCLUSION

7.1 SUMMARY

7.1.1 The Proposed Scheme comprises the construction of a single carriageway bypass road, and accompanying footways and cycle ways. The Proposed Scheme will tie in with the existing A29 at Fontwell Avenue with a new roundabout and will connect with the southern section at Barnham Road with a new roundabout.

7.1.2 The Proposed Scheme, forms part of a larger overall scheme, that is necessary to provide an alternative north-south route for traffic that currently uses the existing A29 and directs through Woodgate and Westergate and is delayed at the Level Crossing. The new bypass will improve safety and the reliability of journey times between the A27 and the A259 / Bognor Regis to the south.

7.1.3 Junction modelling for future year assessments has been undertaken for five existing junctions in the vicinity of the Proposed Scheme and also the proposed roundabouts at the western and southern end of the Proposed Scheme and the site access roundabout on the A29 realignment. Forecast traffic flows for both 2023 and 2038 were extracted from the CATM strategic model for use in these junction operational assessments.

7.1.4 The junction modelling shows that the proposed junctions at the northern and southern end of the Proposed Scheme operate within theoretical capacity in the AM and PM peaks in both the 2023 and 2038 scenarios.

7.1.5 The results of the junction modelling undertaken in this assessment demonstrated that for the 2023 and 2038 scenario, there was an overall decrease in vehicle queuing and delay at the War Memorial roundabout as a result of the Proposed Scheme. The reduction in delay and queuing at this junction in the '2023 with scheme' scenario is a result of traffic that was previously using this roundabout, to travel between A29 Fontwell Avenue and Barnham Road, re-routing onto the A29 realignment Road and therefore avoiding the War Memorial junction.

7.1.6 The improved cyclist and pedestrian facilities and shared use path will encourage local residents to undertake local trips on foot or by bike.

7.2 CONCLUSION

7.2.1 This report concludes that the construction of the Proposed Scheme would be beneficial to the highway network in the Westergate area especially at the War Memorial roundabout where it is expected that existing traffic travelling between A29 Fontwell Avenue and Barnham Road would divert to use the A29 realignment Phase 1.

7.2.2 Modelling for both 2023 and 2038 future year assessments show that the Proposed Scheme would have a minimal or beneficial impact on the assessed junctions. However some residual issues would remain at the A29 / Nyton Road and A27 / A29 junctions.

7.2.3 The TA sets out that the Proposed Scheme is consistent with policy and aligns with local, regional and national objectives to support sustainable development and economic growth through improved transport provision.