



West Sussex County Council

A29 REALIGNMENT PHASE 1

Environmental Statement - Chapter 8





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8 TRANSPORT AND ACCESS

8.1 INTRODUCTION

- 8.1.1 This chapter provides a summary of the Transport Assessment prepared in response to the Scheme. This chapter (and its associated figures and appendices) is intended to be read as part of the wider ES.
- 8.1.2 This chapter is supported by the Transport Assessment (**Appendix 8.1**), Walking Cycling Horse Riding Assessment and Review (WCHAR) (**Appendix 8.2**) and Road Safety Audit (**Appendix 8.3**).

8.2 POLICY AND GUIDANCE

POLICY

- 8.2.1 The applicable policy framework is summarised in **Table 8-1** below.

Table 8-1 - Transport and Access: Summary of Policy

Policy	Summary
Strategic Transport Investment Programme (June 2014) – Ref. 8.1	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) – Ref 8.2	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) – Ref 8.3	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.
Moving Britain Ahead – the Government's Transport Investment Strategy (TIS) – Ref 8.4	The scheme will reduce congestion and will help create a better connected, more reliable transport network for those who depend on it. 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 – Ref 8.5	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 – Ref 8.6	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) – Ref 8.7	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.

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

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

8.3 CONSULTATION, SCOPE, METHODOLOGY AND SIGNIFICANCE CRITERIA

CONSULTATION UNDERTAKEN TO DATE

8.3.1 **Table 8-2** provides a summary of the consultation activities undertaken in support of the preparation of this chapter.

Table 8-2 - Summary of Consultation Undertaken

Body / organisation	Individual / stat body / organisation	Meeting dates and other forms of consultation	Summary of outcome of discussions
WSCC	Guy Perfect	Written response to EIA scoping report.	Agreement of methodology to be used for TA

SCOPE OF THE ASSESSMENT

8.3.2 The scope of this chapter has been established through an ongoing scoping process. Further information can be found in Chapter 5: Approach to EIA.

8.3.3 This section provides an update on the scope of the assessment and re-iterates the evidence base for significant effects. The assessment of effects on vehicles, pedestrians, cyclists and equestrians will be assessed and will cover users of the Proposed Bypass and users of the existing public rights of way (PRoW) which are likely to be affected by changes in traffic flow as a result of the Proposed Bypass.

- 8.3.4 The Scheme will lead to changes in traffic patterns in the future, expressed by increases and decreases in traffic levels on some roads. This Chapter will specify if and where this is the case, with reference to the different scenarios.

EXTENT OF THE STUDY AREA

- 8.3.5 The extent of the study area has been defined by the route of the Scheme, the existing and anticipated future traffic conditions and Guidelines on the Environmental Impact of Road Traffic.
- 8.3.6 As a starting point, the study area has been defined by identifying all local roads which are susceptible to changes in traffic as a result of the Scheme; which due to its proposed alignment, are primarily the A29 (between Bognor Regis and A27) and the B2233. These links and the traffic flows associated with them will be directly influenced from the Scheme, and therefore have been focused on. From model outputs comparing traffic volumes with and without the Scheme in future years, it was observed that roads outside of this initial area, for example did not experience substantial changes in traffic volumes. These locations were shown to not experience changes in traffic flows by more than 30%, which is the threshold provided by the IEA Guidelines for the Environmental Assessments of Road Traffic.

8.4 METHODOLOGY

SURVEYS

- 8.4.1 In order 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 in June 2017. The survey locations are listed below 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

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

- 8.4.2 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.

8.4.3 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.

ASSESSMENT METHODOLOGY

8.4.4 The assessment presented in **Appendix 8.1** 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 (Ref 8.8); and
- The Design Manual for Roads and Bridges (DMRB) (Ref 8.9).

8.4.5 The scope of the assessment has been agreed with WSCC as Highway Authority for the Scheme.

8.4.6 The Scheme assessment has been undertaken using the strategic 2017 CATM model with operational junction assessment undertaken using LinSig and Junctions 9 software packages.

8.4.7 It has been agreed with WSCC that the 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 SERTM model. The CATM 2017 was developed with a base year of 2017 and represents the typical weekday. The AM peak hour is 08:00-09:00 and PM peak hour modelled 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).

8.4.8 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); and
- Without Scheme and With Scheme Design Year (+15 year) Scenarios (2038).

8.4.9 The Do Minimum (DM) model scenario considered schemes that are to be 'near certain' or 'more than likely' as identified in the Uncertainty Log outlined in the 'A29 Realignment – Traffic Forecasting Report – January 2019'.

8.4.10 The Do Something (DS) 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 schemes under assessment.

8.4.11 For the purpose of the Transport Assessment, when considering the extent of theoretical capacity, it is recognised within the transport planning industry that a maximum Ratio of Flow to Capacity (RFC) value of 0.85 is desirable, 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 below the calculated capacity, and the junction is working within capacity. The setting of the targeted maximum RFC at a value of 0.85 also ensures queuing will be generally avoided in the chosen design peak hour.

8.5 BASELINE CONDITIONS

EMPLOYMENT INFORMATION

- 8.5.1 The places of work for the residents of Arun have been summarised in **Table 8-3** from the 2011 Census 'WU03UK - Location of usual residence and place of work by method of travel to work'¹. 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 8-3 - Places of work for residents of Arun²

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

- 8.5.2 **Table 8-4** summarises the 2011 Census WP703EW method of travel to work (2001 specification)³ 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.

¹ Nomis Official Labour Market Statistics <https://www.nomisweb.co.uk/census/2011>

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

Table 8-4 - Method of Travel to Work

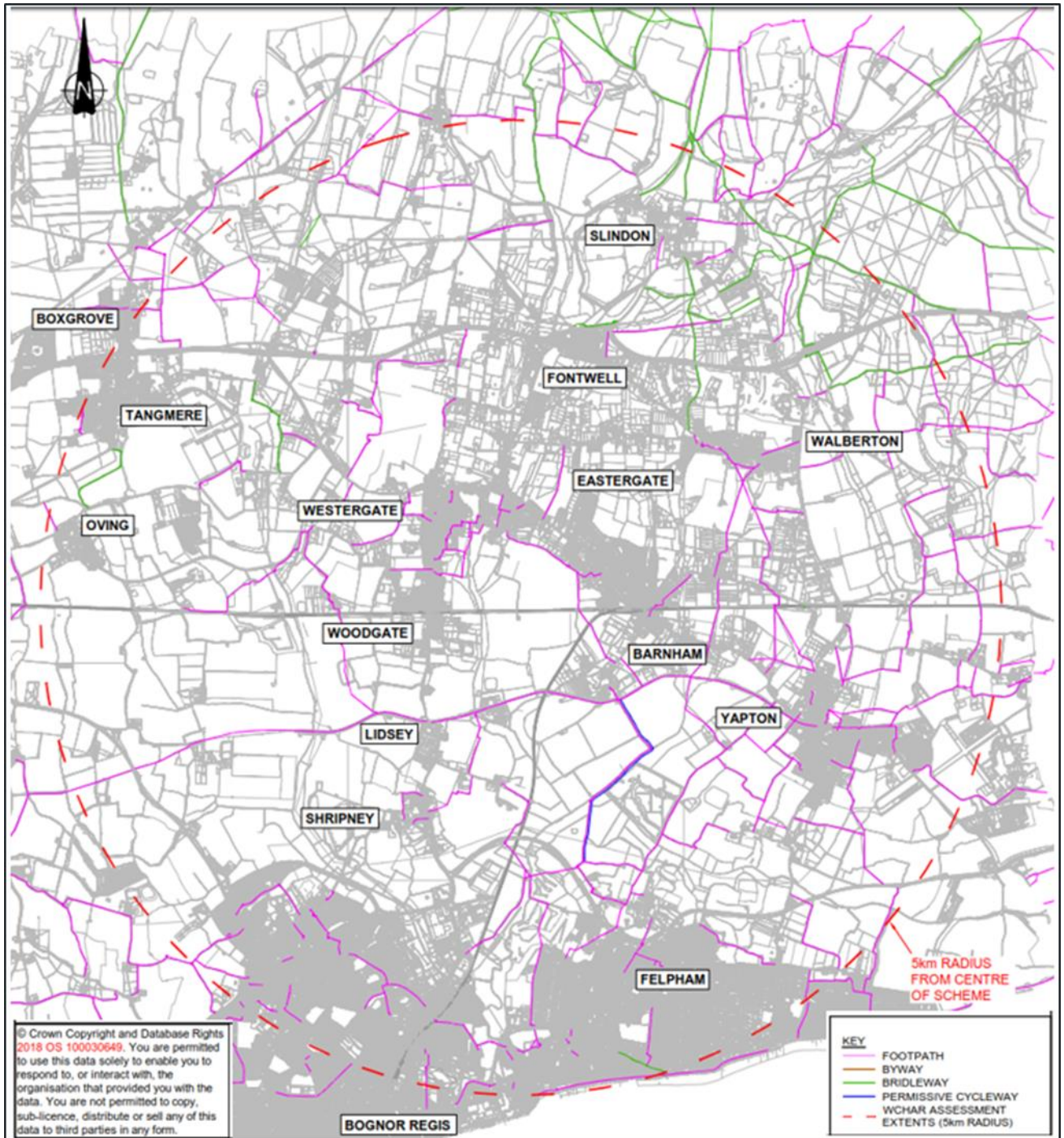
Destination	Arun	E02006544	E02006542	Average of E02006544 & E02006542
Driving a car or van	56%	58%	56%	57%
Work mainly at or from home	17%	21%	23%	22%
Passenger in a car or van	5%	5%	5%	5%
On foot	11%	6%	9%	7%
Bicycle	4%	3%	2%	3%
Train	2%	6%	2%	4%
Bus, minibus or coach	2%	1%	1%	1%
Motorcycle, scooter 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%

WALKING AND CYCLING APPRAISAL

Footpaths and Bridleways

8.5.3 West Sussex County Council PRoW map is displayed below in

Figure 8-1 - PRowS within 5km of theScheme



8.5.4 The following footpaths are on and immediately adjacent to the Site:

- FP 318 (north to south from Eastergate Lane to the B2233 Barnham Road) – this path is crossed by the Scheme; and
- FP 321 (north west to south east from Church Lane to B2233 Barnham Road) – this path is located adjacent to the southern boundary of the Scheme.

8.5.5 At the location where the Scheme crosses the B2233 Barnham there is a footway on the northern side of the road.

Horse-Riding Facilities

8.5.6 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

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

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

8.5.9 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

8.5.10 The north-south public transport movements are presently served by the A29 Westergate Street/ Lidsey Road. The nearest bus stops to the Scheme are located on the A29 Fontwell Avenue / A29 Nyton Road and B2233 Barnham Road. At two of the stops, namely Barnett Close and School (Opposite petrol 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.

8.5.11 The 85-bus route serves the A29 Fontwell Avenue, connecting the BEW villages with Arundel and Chichester. The frequency of these services are collated in **Table 8-5** below, with a total of six services daily.

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

Table 8-5 - Summary of bus services within the vicinity of the 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/ Westergate, opp Belle Meade Close/ Westergate, opp Elmcroft Place/ Westergate, opp Ivy Lane/ Westergate, o/s Ormistone six	66A 4 times a day (07.24 service commences at Eastergate War Memorial Ebound and the final service of the day terminates	---	07:26 – 17:40 08:15 – 16:35

			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	Walberton the Green at 18:16) 66C Service runs full route 3 times a day.		
	85/85A	Arundel – Fontwell – Chichester	Eastergate, adj Collins Close/ Westergate, adj School	3 times a day	----	06:55 – 15:55
		Chichester – Fontwell – Arundel	Westergate, adj Barnett Close/ Eastergate, opp Collins Close	3 times a day		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). Once a day (available to general public)	---	07:30 14:48
		Westergate – Chichester	Westergate, Ormiston Six Villages			

			Academy/ Westergate, Barnett Close/ Eastergate, Collins Close			
	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>

ROAD NETWORK

- 8.5.13 The main highway links identified in the vicinity of the Site are discussed below. Additional information on the junctions can be found in Appendix 8.1.

Links

Existing A29 Fontwell Avenue/ Nyton Road / Westergate Street

- 8.5.14 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.
- 8.5.15 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.
- 8.5.16 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.

8.5.17 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

8.5.18 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.

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

8.5.20 The majority of this section of road is subject to a 30mph speed limit 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 nearly 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

8.5.21 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.

TRAFFIC FLOWS

8.5.22 A detailed review of the traffic flows in the vicinity of the Scheme is provided in Appendix 8.1 – Transport Assessment.

COLLISION ANALYSIS

8.5.23 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.

8.5.24 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. 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.

8.5.25 Further analysis is provided in **Appendix 8.1**.

SENSITIVE RECEPTORS

8.5.26 The following sensitive receptors have been considered in this summary chapter:

- Users of Public Rights of Way; and
- Road Users (motorised vehicle users).

8.6 ASSESSMENT OF EFFECTS, MITIGATION AND RESIDUAL EFFECTS

SITE PREPARATION, EARTHWORKS AND CONSTRUCTION PHASE

Construction Traffic

- 8.6.1 The information included in this chapter relating to construction traffic has been provided from the Construction Management Plan (CMP).
- 8.6.2 Construction traffic movements will be generated from construction workers' cars and vans as well as larger HGV vehicles. The numbers of movements for both will have a largely incidental impact on the surrounding highway network.
- 8.6.3 The forecast construction traffic relating to the Proposed Bypass is shown in **Table 8-6**.

Table 8-6 - Envisaged Maximum Daily Vehicle Numbers to Site

Vehicle Type	Envisaged Maximum Daily Number to Site
Car / Delivery Van	40 Movements Daily
Heavy Earth Moving Vehicle	20 Movements Daily
HGV	75 Movements (envisaged 25% north, 75% south), but majority of time average of 20.

- 8.6.4 The effects of construction related activities are anticipated to be temporary, short term slight adverse prior to mitigation measures.

Mitigation

Deliveries

- 8.6.5 The Construction Management Plan has currently identified the following arrangements for deliveries to site in order to minimise disruption to the local community:
- The delivery route for all HGV vehicles shall be as per the Traffic Management Plan;
 - Deliveries to and from the site shall only take place between the hours 07:30 to 17:30 Monday to Thursday, and 07:30 to 15:00 on Fridays. There shall be no demolition, clearance or construction work or deliveries to and from the site on Sundays or Bank Holidays;
 - Deliveries will be booked where possible so not to be within the first or last hour of the day based on the above timings, with the aim of reducing the number of deliveries during peak AM and PM periods;
 - Multiple deliveries, such as aggregate, shall be co-ordinated and staggered to avoid congestion at site entrances and on site;
 - Delivery arrangements, including access routes and controls, shall be clearly communicated to plant and material providers so they can be briefed to delivery drivers well in advance of all deliveries;
 - Positioning of advanced signage as required along access routes, guiding delivery vehicles to site, shall be agreed with the relevant approving authority and installed as such;
 - A gate man shall be posted at site entrance and crossing points, as required; and
 - A HGV booking management system shall be implemented, with HGV's told not to arrive early and park up in an agreed location so not to cause obstruction to the local road network.

8.6.6 A detailed Construction Traffic Management Plan (CTMP) will be prepared prior to the start of construction works to manage the impacts of construction traffic. This includes construction traffic volumes, delivery / construction routes and proposed lane closures (for any online construction activities). This will minimise the effects of the construction works on road users.

8.6.7 The levels of flow associated with construction therefore will have a negligible effect on the local highway network.

Specified Routes

8.6.8 The site manager along with the buying department shall coordinate deliveries to avoid causing congestion to the local residents/businesses and the surrounding road network. Delivery drivers will be requested to call ahead to ensure access is available and vehicle marshals will manage on site movements to ensure a smooth operation.

8.6.9 During the construction phase, construction access would be via a temporary track from the B2233 between Fordingbridge Industrial Estate (Halo) and Murrell Gardens. Construction access may also be taken from the A29, 100m south of Eastergate Lane. Fleurie Nursery, Springfield site will be closed prior to construction commencing. The main construction compound (A) will be located within Fleurie Nursery land, south of Barnham Road. Compound B will be located just off Fontwell Avenue, providing localised parking for site staff, welfare and some plant and materials. Compound C will be located halfway along the Scheme adjacent to Pond 3, offline from the new carriageway.

8.6.10 A plan showing the “Construction Traffic Route” on site will be displayed in the site offices, on hoardings and at entrances to the site. The plan shall identify the construction traffic route and anticipated swept path movements for differing types of vehicle likely to visit site. Any additional restrictions imposed on the movement of vehicles (together with the CMP) on site will be displayed in the construction traffic route plan.

Vehicle and Pedestrian Routes

8.6.11 Arrangements for managing traffic movements/pedestrian access on site shall comprise as a minimum the following:

- Establish a HGV booking system and discuss/agree with our suppliers so to control traffic flows - this will help manage vehicle movements to site so that these can be spaced / averaged out so to reduce peak numbers as much as possible. This may require stockpiling of materials;
- Establish controlled crossing points at interfaces with existing Barnham Road & Fontwell Avenue access points;
- Establish designated parking off-loading areas;
- Establish controlled haul road into main work area inclusive of designated crossing bays;
- All excavators on site and HGV's entering working areas will have a banksman supervising movements so to keep aware of any pedestrian movements in proximity, and take necessary action if required;
- A 10mph speed limit shall be implemented throughout site; and
- Pedestrian routes for operatives around site shall be segregated from plant where possible.

On-Site Parking Arrangements

8.6.12 The main site compound (A) shall be where all staff and visitors will be directed to each day for site inductions/signing in etc. It is here therefore that the majority of the site staff will be based.

- 8.6.13 All construction site vehicle parking (including contractor and employee parking) shall take place within the designated space within each site compound. Adequate contractor and site operative parking areas and space for delivery vehicles to park and turn shall be considered when planning the compounds and this shall be provided together with on-site loading / unloading areas.
- 8.6.14 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, our proposed car parking arrangements cater for these expected vehicle numbers, with spare capacity within site compounds to increase this if necessary

Public Rights of Way

- 8.6.15 During the construction phase, PRowS and footpaths which intersect with the Site and those in the surrounding area will either be temporarily closed or have restricted access to users as outlined in **Table 8-7**.

Table 8-7 – PRow and Footpaths

Footpath	Interaction with the Scheme	Impact
FP 318	Bisected/ crossed by the Scheme	Temporary diversion during construction activities.
Pavement on the northern side of Barnham road	Bisected/ crossed by the Scheme	Temporary diversion during construction activities.

- 8.6.16 It is not expected that impacts to the wider PRow network will occur due to the construction of the Scheme.

Mitigation

- 8.6.17 Temporary re-routing/ diversions of the PRow will be discussed and agreed with the WSCC Public Rights of Way Officer prior to the start of construction activities and will be set out in the Construction Traffic Management Plan. All diversions will be publicised locally to ensure the local community are aware of what the changes will involve, how long they will be in place for and a map to show the new route. Heras fencing will be used along the boundary of the diverted PRow during construction to ensure users do not stray onto the construction site.

Residual Effects

- 8.6.18 The package of mitigation measures will manage the residual effects of construction so that all related activities will lead to temporary, short term slight adverse to no significant effect on the following:
- Severance;
 - Pedestrian and Cycle Amenity; and
 - Fear and Intimidation

OPERATIONAL PHASE

Road Safety

- 8.6.19 The Road Safety Audit (**Appendix 8.3**) prepared for the Preliminary Design identified 10 road safety problems during the operational stage. The summary of the problems are as follows:

- **Problem 1:** Large or long vehicles turning to/from the service road resulting in shunts;
- **Problem 2:** Confusion over service lane adjacent to roundabout;
- **Problem 3:** Service road too narrow for two-way movements and collision may result;
- **Problem 4:** Vehicles overrunning the kerbs and central islands resulting in loss of control collisions, pedestrian trips and falls or collisions between vehicles and pedestrians/cyclists;
- **Problem 5:** Quick alignment change on the footway/cycleway may result in pedestrian/cycle conflict, or cyclists being hit by passing large vehicles;
- **Problem 6:** Planters obstructing visibility leading to collisions;
- **Problem 7:** Uncontrolled crossing may be unsafe to cross
- **Problem 8:** Fencing associated with corrals could cause serious injuries to errant drivers or be an obstruction to cyclists;
- **Problem 9:** Lack of crossing facilities in the desire line resulting in pedestrian and cycle collisions; and
- **Problem 10:** Drivers approaching the roundabout may be confused and travel the wrong side of the splitter island.

Mitigation

8.6.20 The outcome of the Road Safety Audit has been fed back into the design as part of the design process. A summary of the responses to the above problems are outlined below:

- **Problem 1:** All HGVs will be able to turn into and out of the access road, via the southern access, in a single uninterrupted manoeuvre. The critical manoeuvres have been checked;
- **Problem 2:** The service road access will be delineated by a dropped kerb, further guidance will be provided by road markings. It is proposed to close the northern access, consequently, turning movements will be concentrated at the quieter southern access;
- **Problem 3:** The service road will occupy the full width of the existing A29;
- **Problem 4:** 20% kerb tapers and transition kerbs are proposed and the minimum kerb to kerb width is 3.5m;
- **Problem 5:** There will be a 1m verge between the cycle path and the carriageway which provides adequate vehicular separation;
- **Problem 6:** Planters are relocated to areas where they cannot obstruct visibility to accesses, junctions or crossings;
- **Problem 7:** The proposed crossing serves a PRoW which is suitable for all NMU modes but the level of demand is currently unknown. The crossing type will be decided when demand is known but the PRoW is unlikely to be diverted by 100m. The central island is an integral part of the proposed traffic calming, intended to maintain a 30mph speed limit, and halves the amount of headway required for pedestrians to cross;
- **Problem 8:** This is a low speed setting. If retained, the corrals will be detailed so as not to impede passage of NMUs;
- **Problem 9:** Additional pedestrian destination signs are required to mitigate this problem;
- **Problem 10:** This is a low-speed setting, visibility standards are met.

Change in Traffic Flows

8.6.21 Link flows for a number of locations within the 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 Scheme on the adjoining highway network. A summary of the changes in traffic flows on various links in the vicinity of the Scheme for AM and PM peak hours are shown in **Table 8-8** and **Table 8-9**.

Table 8-8 - Comparison of traffic flows on A29 (AM Peak)

Direction	Link Number	Link Description	%Difference to Do Minimum	
			2023	2038
Northbound	1	A29 south of Lidsey Bends	-1%	-1%
	2	A29 between Lidsey Bends and Hook Ln.	-1%	0%
	3	A29 between Hook Ln. and Nyton Rd.	-1%	0%
	4	A29 Nyton Rd.	-1%	0%
	5	A29 between Nyton Road and Realignment scheme	-24%	-28%
	6	A29 between Eastergate Ln. and A27	10%	6%
	7	A29 Realignment (northern section)	-	-
Southbound	7	A29 Realignment (northern section)	-	-
	6	A29 between Eastergate Ln. and A27	13%	8%
	5	A29 between Nyton Road and Realignment scheme	-23%	-27%
	4	A29 Nyton Rd.	-2%	1%
	3	A29 between Hook Ln. and Nyton Rd.	0%	1%
	2	A29 between Lidsey Bends and Hook Ln.	0%	1%
	1	A29 south of Lidsey Bends	0%	0%

Table 8-9 - Comparison of traffic flows on A29 (PM Peak)

Direction.	Link Number	Link Description	% Difference to Do Minimum	
			2023	2038
Northbound	1	A29 south of Lidsey Bends	0%	-1%
	2	A29 between Lidsey Bends and Hook Ln.	0%	-1%

	3	A29 between Hook Ln. and Nyton Rd.	-1%	-4%
	4	A29 Nyton Rd.	-2%	1%
	5	A29 between Nyton Road and Realignment scheme	-15%	-13%
	6	A29 between Eastergate Ln. and A27	15%	40%
	7	A29 Realignment (northern section)	-	-
Southbound	7	A29 Realignment (northern section)	-	-
	6	A29 between Eastergate Ln. and A27	13%	22%
	5	A29 between Nyton Road and Realignment scheme	-24%	-20%
	4	A29 Nyton Rd.	-1%	-5%
	3	A29 between Hook Ln. and Nyton Rd.	0%	8%
	2	A29 between Lidsey Bends and Hook Ln.	0%	0%
	1	A29 south of Lidsey Bends	0%	0%

A29 between Nyton Road and Realignment scheme (Link 5)

- 8.6.22 This link is positioned south of the northern tie-in of the proposed scheme.
- 8.6.23 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 -24% to -28% in the AM peak period for the 2023 and 2038 year respectively.
- 8.6.24 Southbound traffic flows in the AM peak see a smaller reduction when comparing the Do Something scenario against the Do Minimum scenario. The southbound flow reduction ranges from -23% to -27% for the 2023 and 2038 year respectively.
- 8.6.25 In the PM peak the largest flow decreases occur for the southbound direction with flow reductions of -24% to -20% for the 2023 and 2038 year respectively.
- 8.6.26 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 -15% to -13% for the 2023 and 2038 year respectively.

A29 between Eastergate Lane and A27 (Link 6)

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

- 8.6.28 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 10% to 6% in the AM peak period for the 2023 and 2038 year respectively.
- 8.6.29 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 13% to 8% for the 2023 and 2038 year respectively.
- 8.6.30 In the PM peak the northbound direction shows flow increases of 15% to 40% for the 2023 and 2038 year respectively.
- 8.6.31 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 reduction ranges from 13% to 22% for the 2023 and 2038 year respectively.

Mitigation

- 8.6.32 No mitigation is proposed as the Scheme will have an overall benefit to the wider road network.

Modification of Public Right of Way (PRoW)

- 8.6.33 The Scheme will permanently modify a short section of FP 318. The path crosses the Scheme to the at approximately chainage mark 590. Due to safety reasons, there is a dog-leg proposed the risk of PRoW users walking straight across the road. Barriers will be in place and users will cross the Scheme at via an informal crossing at approximately chainage mark 605. This modification is not considered to adversely affect users of the PRoW and there will be an overall benefit for non-motorised users due to the shared use footway/ cycleway.

8.7 CUMULATIVE EFFECTS

- 8.7.1 The A29 upgrade will be delivered in two phases. The Scheme relates to Phase 1 (North) and is the primary focus of this ES and EIA. Phase 2 of the A29 Realignment project comprises a combination of road infrastructure and a mixed-use urban extension. Phase 2 will link to Phase 1 (the Scheme) at Barnham Road and will cross the West Coastway Line and then connect with Lidsey Road near Lidsey.
- 8.7.2 This section considers the potential in-combination effects that are likely to arise as a result of the Scheme in combination with committed developments considered likely to have an impact.

CONSTRUCTION

- 8.7.3 As set out in Chapter 14: Cumulative Effects (Table 14-1) committed developments with the potential for inter-project (in-combination) effects have been identified. Of these, eight are located within the study area for the construction Transport and Access assessment.
- 8.7.4 Table 8-10 presents the findings of the potential inter-project cumulative effects for each identified committed development for the construction phase.

Table 8-10 - Assessment of Inter-Project Construction Transport & Access Effects

<u>Development</u>	<u>Assessment of Effect</u>
<u>Land east of Fontwell Avenue</u>	<u>Construction activities associated with the committed development would increase the volume</u>

	<p><u>of construction traffic using the roads and may lead to additional diversions to PRoW. Given the scale of the committed development, these effects are anticipated to result in an in-combination effect.</u></p> <p><u>Provided that industry best practice measures are adhered to including the production of a Construction Traffic Management Plan detailing, but not limited to, deliveries to site, specified routes of construction traffic, vehicle and pedestrian routing and on-site parking arrangements the effect is anticipated to be Slight Adverse (not significant).</u></p>
<u>Bonhams Field</u>	<p><u>Construction activities associated with the committed development would increase the volume of construction traffic using the roads and may lead to additional diversions to PRoW. Given the scale of the committed development, these effects are not anticipated to a significant increase of effect compared to the Scheme in isolation. As a result, a Neutral (Not Significant) in-combination effect is anticipated.</u></p>
<u>Land west of Westergate Street and east of Hook Lane</u>	<p><u>Construction activities associated with the committed development would increase the volume of construction traffic using the roads and may lead to additional temporary diversions to PRoW. Given the scale of the committed development, these effects are not anticipated to result in a significant increase of effect compared to the Scheme in isolation. As a result, a Neutral (Not Significant) in-combination effect is anticipated.</u></p>
<u>Wings Nursery Lidsey Road, Woodgate</u>	<p><u>Construction activities associated with the committed development would increase the volume of construction traffic using the roads. Given the scale of the committed development, these effects are not anticipated to a significant increase of effect compared to the Scheme in isolation. As a result, a Neutral (Not Significant) in-combination effect is anticipated.</u></p>
<u>Oldlands Farm, Steyning Way, Bersted</u>	<p><u>Construction activities associated with the committed development would increase the volume of construction traffic using the roads. Given the scale of the committed development, these effects are not anticipated to a significant increase of effect compared to the Scheme in isolation. As a result, a Neutral (Not Significant) in-combination effect is anticipated.</u></p>
<u>Land west of Fontwell Avenue</u>	<p><u>The construction programme for the Scheme (Chapter 3: Description of Scheme, Table 3-1) is 12 months. The committed development does not have planning permission currently, and timescales and activities for construction works are not known. Therefore it is not anticipated that construction works would overlap.</u></p>

	<p><u>Construction activities associated with the committed development would increase the volume of construction traffic using the roads and may lead to additional temporary diversions to PRow. Given the scale of the committed development, these effects are not anticipated to a significant increase of effect compared to the Scheme in isolation. As a result, a Neutral (Not Significant) in-combination effect is anticipated.</u></p>
<p><u>Arun District Strategic Housing Allocation – SD5</u></p>	<p><u>The site relates to land allocated for housing development and forms part of a masterplan. Individual developments within the masterplan are being brought forward.</u></p> <p><u>Therefore, the potential for intra-project effects from the masterplan have been considered for individual developments where these fall within the study area.</u></p> <p><u>Construction activities associated with the committed development would increase the volume of construction traffic using the roads and may lead to additional temporary diversions to PRow. Given the scale of the committed development, these effects are anticipated to result in an in-combination effect.</u></p> <p><u>Provided that industry best practice measures are adhered to including the production of a Construction Traffic Management Plan detailing, but not limited to, deliveries to site, specified routes of construction traffic, vehicle and pedestrian routing and on-site parking arrangements the effect is anticipated to be Slight Adverse (not significant).</u></p>
<p><u>Adjacent Proposed Scheme (Barratt David Wilson Homes Development)</u></p>	<p><u>The construction programme for the Scheme (Chapter 3: Description of Scheme, Table 3-1) is 12 months. There is the potential for construction activities from this approved development may overlap with those associated with the Scheme, however timescales and activities for construction works are not known at this stage.</u></p> <p><u>Construction activities associated with the committed development would increase the volume of construction traffic using the roads and may lead to additional temporary diversions to PRow. Given the scale of the committed development, these effects are anticipated to result in an in-combination effect.</u></p> <p><u>Provided that industry best practice measures are adhered to including the production of a Construction Traffic Management Plan detailing, but not limited to, deliveries to site, specified routes of construction traffic, vehicle and pedestrian routing and on-site parking arrangements the effect is anticipated to be Slight Adverse (not significant).</u></p>

8.7.5 A short term **Slight Adverse** to no significant effect as a result of construction traffic from the Scheme has been identified (see section 8.6). Based on the findings presented in Table 8-10, additional intra-project effects with the committed development on sensitive receptors is not anticipated.

8.8 OPERATIONAL

8.8.1 Phase 2 of the A29 Realignment is located to the south of the Scheme from the junction with Barnham Road to re-join the existing A29 south of Westergate. Whilst traffic impact on any new road which forms Phase 2 will be assessed as part of any future planning application, the changes in traffic flow on Phase 1 (i.e. the Scheme) and associated junctions has been included in section 5.7 of **Appendix 8.1 - Transport Assessment**. This represents a worst-case scenario in terms of increased traffic flow and noise increase at properties within the study area for the Scheme.

8.8.2 Consequently, the operational impacts presented in Section 5.7 of the Transport Assessment, which are inherently cumulative, have been shown to be 'not significant' in relation to transport impact.

8.9 SUMMARY

8.9.1 Table 8-11 provides a summary of the findings of the assessment.

Table 8-11 - Summary of Effects - Transport and Access

Description of Effects	Receptor	Significance and Nature of Effects Prior to Secondary Mitigation	Summary of Secondary Mitigation	Significance and Nature of Residual Effects
Construction Phase				
Construction Traffic	Local Road Users	Slight Adverse	Construction Traffic Management Plan	Slight Adverse / Not Significant
Diversions of Public Rights of Way	Public Rights of Way Users	Slight Adverse	Construction Traffic Management Plan	Slight Adverse / Not Significant
Operational Phase				
Road Safety	Local Road Users	Not Significant	Road Safety Audit – designers response	Not Significant
Change in Traffic Flows	Local Road Users	Beneficial but Not Significant	N/A	Not Significant
Modification of Public Right of Way	Public Rights of Way Users	Not Significant	N/A	Not Significant

REFERENCES

- 8.1 Strategic Transport Investment Programme (June 2014)
- 8.2 West Sussex Local Transport Plan (2011-2026)
- 8.3 Arun Local Plan (2011-2031)
- 8.4 Moving Britain Ahead – the Government’s Transport Investment Strategy (TIS)
- 8.5 Creating Growth, Cutting Carbon – Making Sustainable Local Transport Happen
- 8.6 The Road Investment Strategy (RIS) 2015/16 to 2019/20
- 8.7 National Planning Policy Framework (NPPF, 2012 and 2018 update)
- 8.8 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
- 8.9 The Design Manual for Roads and Bridges



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