

MID SUSSEX TRANSPORT STUDY

TRANSPORT IMPACT OF *SITES DPD SCENARIO*

MODELLING REPORT

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TABLE OF CONTENTS

1.	INTRODUCTION	3
1.1	WORK UNDERTAKEN	3
1.2	BACKGROUND TO THE STUDY	3
1.3	HIGHWAY MODEL	3
1.4	TRANSPORT STUDY	3
1.5	SCENARIO'S TESTED	4
2.	SCENARIO PREPARATION	5
2.1	REFERENCE CASE DEMAND MATRICES	5
2.2	TRIP RATES	6
2.3	SITES DPD SCENARIO MATRICES	7
2.4	FORECAST MATRICES CREATION PROCESS	8
2.5	INFRASTRUCTURE	9
3.	THE SITES DPD SCENARIO WITHOUT MITIGATION	10
3.1	INTRODUCTION TO RESULTS	10
3.2	TRAFFIC FLOW IMPACTS	10
3.3	IMPACTS ON M23 AND A23 STRATEGIC ROAD NETWORK	11
3.4	IDENTIFICATION OF JUNCTIONS WITH CAPACITY IMPACTS	11
3.5	CROSS BOUNDARY IMPACTS	12
4.	PROPOSED MITIGATION	15
4.1	SUSTAINABLE MEASURES	15
4.2	HIGHWAY MITIGATION	16
5.	THE SITES DPD SCENARIO WITH MITIGATION	18
5.1	TRAFFIC FLOW IMPACTS	18
5.2	PERFORMANCE ON M23 AND A23 STRATEGIC ROAD NETWORK	18
5.3	JUNCTIONS WITH CAPACITY IMPACTS	18
5.4	CROSS BOUNDARY IMPACTS	19
6.	KEY LOCATIONS	22
7.	CONCLUSIONS	23
8.	JUNCTION SUMMARIES	25

APPENDICES

Appendix A	District Housing and Employment Data
Appendix B	Sites DPD Scenario Results Summary
Appendix C	Detailed Junction Results for Sites DPD Scenario
Appendix D	Sites DPD Scenario with Mitigation v Reference Case Map
Appendix E	Sites DPD Scenario with Mitigation v Reference Case Map with Developments
Appendix F	Sites DPD Scenario without Mitigation v Reference Case Map
Appendix G	Sites DPD Scenario without Mitigation v Reference Case Map with Developments

1. INTRODUCTION

1.1 Work Undertaken

1.1.1 Mid Sussex District Council (MSDC) commissioned SYSTRA to:

- Build a strategic highway model to underpin the Mid Sussex Transport Study (MSTS); and
- Update the Mid Sussex Transport Study to test the impact of proposed development on the strategic and local transport network and upon significant routes in Ashdown Forest (adjacent to but outside of Mid Sussex District).

1.1.2 The work is further divided into the following stages:

- 2017 Base Year Highway Model Production and Validation
- 2031 *Reference Case Scenario*;
- 2031 *Sites DPD (Development Plan Documents) Scenario*
- 2031 *Sites DPD Scenario* including potential mitigation schemes

1.2 Background to the Study

1.2.1 The District Plan was submitted to the Secretary of State in August 2016 and adopted on 28th March 2018.

1.2.2 The Inspector is satisfied that it is appropriate for the Plan to contain a stepped housing trajectory, taking place after year 2023/24, at 876 dpa for the period up to 2023/24, and subsequently 1,090 dpa to 2031. Effectively this means MSDC have an agreed Plan at 876 dpa for the period to 2023/24 - with any subsequent increase primarily subject to the findings of Habitats Regulation Assessment at the higher level of development to assess the transport impact of the Plan on the Ashdown Forest.

1.2.3 The additional housing requirement was agreed up to 2031 plan period based on 1,090dpa, subject to further transport modelling work that is required to test the impact of the residual housing requirement on the highway network.

1.3 Highway Model

1.3.1 The Mid Sussex Strategic Highway Model (MSSHM) was produced in accordance with standard good practice as set out in the Department for Transport's (DfT) transport analysis guidance (TAG), in particular TAG unit M3-1 Highway Assignment Modelling, (January 2014). As such, the approaches to data processing, matrices and network production, along with model calibration are consistent with those of similar strategic highways models.

1.3.2 The model production made appropriate use of existing data and existing models in the area. A very small programme of surveys was undertaken to fill in some gaps in data.

1.4 Transport Study

1.4.1 The impact on the highway network of the agreed Development Scenarios are assessed based on the National Planning Policy Framework (NPPF). The assessment of impacts is based on criteria agreed by MSDC and West Sussex County Council (WSCC). These are

derived using WSCC's position statement in relation to the NPPF which sets out their interpretation of terms defining traffic impacts.

1.4.2 Where junctions are assessed to be adversely impacted by the developments, mitigation schemes are devised and tested. These mitigations aim to remove all 'severe' impacts.

1.4.3 Further parallel work is also being undertaken to:

- Undertake environmental impact and road safety impact analysis to comply with National Planning Practice Guidance on transport evidence bases in plan making. This work is undertaken for the *Sites DPD Scenario* as part of the Mid Sussex Transport Study to inform the proposed submission (Regulation 19) Site Allocations Development Plan Documents (DPD).
- Undertake air quality modelling and ecological interpretation for Habitats Regulations Assessment to test the impact of traffic, as a result of proposed development, on the Ashdown Forest Special Area of Conservation. This will be based on the outputs of the Mid Sussex Transport Study.

1.5 Scenario's Tested

1.5.1 A series of 2031 Development Scenarios have been refined over a number of iterations (reports for Development Scenarios 1 – 8 are available on the Site Allocations DPD Evidence Library). The *Reference Case* Scenario has also been updated. The *Sites DPD Scenario* represents a refined scenario as part of the Council's plan making process, including sustainability appraisal, to help inform preparation of the Draft Site Allocations DPD and select a preferred option.

1.5.2 The *Reference Case* represents the road network in 2031, and includes any committed highway infrastructure, development in the district and background growth to this date. This acts as a baseline when assessing the impacts of the Development Scenarios.

1.5.3 The *Sites DPD Scenario* builds on the *Reference Case* and assesses proposed Local Plan development and supporting infrastructure in 2031. It includes:

- 22 housing development sites (there are 21 additional to the *Reference Case* due to SA24 being committed); and
- 8 additional employment sites including a science and technology park (subsequently referred to as the S&T park) north of the A2300 near Burgess Hill

1.5.4 Where junctions are assessed to be adversely impacted by the developments, a set of appropriate sustainable measures and highway mitigation schemes are proposed and tested. These mitigations aim to remove the 'severe' impacts.

1.5.5 The report chapters are:

- Chapter 1 Introduction
- Chapter 2 Scenario Preparation
- Chapter 3 The *Sites DPD Scenario* without Mitigation
- Chapter 4 Proposed Mitigation
- Chapter 5 The *Sites DPD Scenario* with Mitigation
- Chapter 6 Key Locations
- Chapter 7 Conclusions
- Chapter 8 Junction Summaries

2. SCENARIO PREPARATION

2.1 Reference Case Demand Matrices

Key Assumptions

2.1.1 This Chapter describes the production of the future year *Reference Case* matrices and network, using the Base model as the starting point. The assumptions for this task are:

- Reference Case Housing in Mid Sussex District (**see Appendix A for detail**):
- Significant Reference Case Housing in Neighbouring Authorities (**Appendix A**):
- Reference Case Employment (**Appendix A**)
- Reference Case Infrastructure
- Trip Rates and Trip Generation

2.1.2 The *Reference Case* represents a benchmark against which the development Scenarios are tested and compared. This enables separation of impacts resulting from the Scenario from impacts due to background growth, committed development and infrastructure.

Use of TEMPro

2.1.3 Travel demand matrices contain the forecast trips between origin and destination zones across the model study area. Forecasts are based on information obtained from the DfT's National Trip End Model (NTEM), obtained using the Trip End Model Presentation Program (TEMPro). This is compliant with guidance set out in WebTAG (Web-based Transport Assessment Guidance, published by the DfT). The forecasts include:

- population
- employment
- households by car ownership
- trip ends

2.1.4 TEMPro is designed to allow analysis of pre-processed data from the NTEM. The pre-processed data is itself the output from a series of models developed and run by DfT's Transport Appraisal and Strategic Modelling (TASM) division. TEMPro can also be used to provide summaries of traffic growth using data from the National Transport Model (NTM).

2.1.5 For the transport study the trip ends information is used in the form of origin and destination growth factors. These are extracted for 2017-2031 for the AM (0700-1000) and PM (1600-1900) periods, for the locations required.

TEMPro and Site Specific Growth

2.1.6 In using TEMPro it is important to be aware of the level of growth that it is applying, and to compare that with the reference case development data that has been provided by the District Council. The data from the district should not simply be added to the TEMPro data as this would lead to double-counting.

2.1.7 If committed development data appears to fall short of TEMPro forecasts it is usually considered appropriate to uplift the growth to match TEMPro. Matching to TEMPro provides a consistent benchmark upon which to base Scenario impacts.

2.1.8 Comparison between Mid Sussex TEMPro housing forecasts for 2017-2031 and site specific housing reference case data showed they are very similar:

- Mid Sussex TEMPro housing 2017-2031 = 10789 households
- Mid Sussex Site Specific Reference Case = 10802 households including Windfall

2.1.9 It was therefore agreed that all reference case growth in the District is applied on a site specific basis directly to model zones, in preference to using TEMPro, which is used for growth outside the District only.

2.1.10 Growth in **freight** traffic is taken from national road traffic forecasts taken from the National Transport Model (NTM) in accordance with DfT WebTAG guidance.

2.1.11 **Windfall sites** are assumed to be 588 units by 2031 distributed pro-rata across the *Reference Case* developments.

2.2 Trip Rates

2.2.1 Trip rates are required to calculate trip generations for Mid Sussex developments that are applied directly to an existing model zone or dedicated new model zone.

2.2.2 The TRICS (Trip Rate Information Computer System) database is used to calculate origin and destination trip rates for the AM peak, and PM peak hours. They are used to derive the forecast matrices for the *Reference Case* and are shown in **Table 1**; the higher tidal rates are in **bold**. For robustness the 85th percentile is used rather than the mean trip rate for the survey selection.

2.2.3 To ensure an adequate sample a minimal number of surveys regarded as not relevant were removed from the analyses. Surveys in the following groups were removed:

- Town centre, neighbourhood centre and 'free-standing' developments
- Saturday surveys
- All non B1 or B2 (for employment)
- C1 and C2 (for residential)

Table 1. General Vehicle Trip Rates

USE	CLASS	PARAMETER	AM ORIG	AM DEST	PM ORIG	PM DEST
Private Houses and Flats		dwellings	0.397	0.191	0.143	0.486
Office	B1a	employees	0.043	0.511	0.394	0.021
Research and Development	B1b	employees	0.183	0.367	0.465	0.045
Light Industry	B1c	employees	0.300	0.700	0.844	0.067
Hotel	C1	rooms	0.284	0.104	0.151	0.252

2.3 Sites DPD Scenario Matrices

Key Assumptions

2.3.1 The key assumptions are listed below:

- Development Locations, Use Class and number of units/employees (**Appendix A**)
- Trip Rates and Trip Generation
- Trip Distribution
- Development Scenario Infrastructure
- Development Site Access and Link Roads

2.3.2 The *Sites DPD Scenario* trip matrices are prepared for the AM peak and PM peak hours. The trip rates that are derived from TRICS for the committed *Reference Case* developments are used again to calculate trip generations for the development sites.

2.3.3 The *Sites DPD Scenario* assesses the impact of an additional 21 housing development sites and 8 employment sites (including the S&T park), compared to the *Reference Case*. **Table 2** summarises the total housing units considered.

Table 2. Total Housing units Considered in Mid-Sussex in the Sites DPD Scenario

SCENARIO	TOTAL UNITS CONSIDERED	DIFFERENCE
<i>Reference Case excluding Windfall</i>	10,214	-
<i>Reference Case including Windfall</i>	10,802	588
<i>Sites DPD Scenario</i>	12,646	1,844

2.3.4 **Appendix A** provides details of the strategic sites in more detail, including location, units/employees, trip rate and trips generated.

Trip Distribution

2.3.5 The trip distributions are taken from the main model zones that the development is located in or near to and are therefore based on a combination of Census Journey Work 2011 for commuting trips and existing local model matrices.

2.4 Forecast Matrices Creation Process

2.4.1 The process to prepare the 2031 *Reference Case* and *Sites DPD Scenario* matrices is described below.

Reference Case - Non Mid Sussex Growth (TEMPro)

- 1) Origin and destination trip ends growth factors are extracted from TEMPro for 2017-2031 for the AM (0700-1000) and PM (1600-1900) periods. This is done at the most appropriate level of detail for the model zones, including at the lowest level of disaggregation available (Middle Super Output Area - MSOA) for neighbouring areas. Mid Sussex is not included because growth is applied from site specific data.
- 2) TEMPro trip ends by mode are based on the average rates over an area. A mapping exercise is therefore undertaken to calculate appropriate factor for each of the MSSHM zones. This process results in creation of 2017-2031 zonal trip end growth factors for the non- Mid Sussex zones.

Reference Case – Mid Sussex and Neighbouring Authority Site Specific Development

- 3) The site specific data is collated and a mapping exercise is undertaken to apply each development to the appropriate model zone. Larger developments usually have a dedicated new zone added.
- 4) Trip generations are applied using the trip rates described above. This creates trip growth for the zones which is then applied to the 2017 Base matrices in combination with non-Mid Sussex TEMPro growth to produce the 2031 Reference Case matrices.

Sites DPD Scenario - Mid Sussex Growth Site Specific Development

- 5) The site specific Mid Sussex data is collated and a mapping exercise is undertaken to apply each development to the appropriate model zone. Larger developments usually have a dedicated new zone added.
- 6) Trip generations are applied using the trip rates above. This creates trip growth for the Mid Sussex zones which is then applied to the 2031 Reference Case matrices. The applied origin and destination trip generations do not necessarily match, so a furnishing process is required (using the SATURN MX software) to balance these appropriately. This results in the matrices increasing by approximately the average of the origin and destination increases, which is considered appropriate due to the use of 85th percentile trip rates.

2.4.2 The matrix changes are summarised in **Table 3**.

Table 3. Sites DPD Scenario Matrix Sizes and Changes

SCENARIO	AM PEAK		PM PEAK	
	ORIGINS	DESTS	ORIGINS	DESTS
<i>Reference Case Matrix Total</i>	185,749	185,749	179,361	179,361
<i>Sites DPD Scenario Trips Generations from Trip Rate</i>	1,422	2,239	2,316	1,158
<i>Sites DPD Scenario Furnessed Matrix Total</i>	187,578	187,578	181,116	181,116
<i>Change from Reference Case</i>	1,829	1,829	1,755	1,755

2.5 Infrastructure

2.5.1 The dualling of the A2300 is included in the *Reference Case* scenario. The scheme includes the closure of the Bishopstone Lane / A2300 junction for vehicular use. **Table 4** is a summary of infrastructure included in the *Reference Case*.

Table 4. Reference Case Infrastructure

LOCATION	DESCRIPTION	
Burgess Hill	A2300	Dualling, and junction improvements
	The Hub	Cuckfield Rd Gatehouse Lane
	East of Kings Way	Roundabout improvements
		Signal controlled crossing
		Junction Road / Silverdale road
		Valebridge Rd / Janes Lane / Junction Rd
		Kings Way
		Church Rd / Mill Rd
		Keymer Rd
		Cants Lane
		Ditchling Common
		Traffic signals
		Traffic signals
		Traffic signals
		Traffic signals
		Traffic signals
		Traffic signals
		Speed restrictions
Copthorne	A264	A264 / Brookhill Rd / A220
		Dukes Head Roundabout
Hassocks	A264	Roundabout improvements
		Roundabout improvements
Haywards Heath	Hassocks Stonepound	Stonepound Crossroads
		Traffic signals improvements
	Penland Farm	Hanlye Lane, Borderhill Lane
		Roundabout
Haywards Heath	Fox Hill	South of Hurstwood Lane
		Extension of 30mph speed limit
	Relief Road (east)	Hurstwood Lane
		Traffic Signals
Crawley	Fox Hill	B2112, Colwell Rd
		Roundabout improvements
	Copthorne	M23 J10
		Junction improvements
	Tinsley	Gatwick road
		Roundabout improvements
	Pound Hill	A2011
		Link road, and junction improvements
	Tinsley	Radford Rd
		Traffic signals
	Tinsley Green	Steers Lane / Radford Rd
		Traffic signals
		Traffic signals
	Hazelwick	A2011
		Signalised roundabout
	Fernhill	B2036
		Roundabout improvements
	Manor Royal	Gatwick Road
		Roundabout improvements
	Cheals Junction	A23
		Roundabout slip lane
	Pease Pottage	M23 J11
		Signalised gyratory
	Smart Motorways	M23
		Motorway improvements

2.5.2 The *Sites DPD Scenario* includes the S&T Park to the north of the A2300, the access to which is via a new roundabout on Cuckfield Road, north of the A2300 / Cuckfield Road roundabout. Improvements at the A2300 / Cuckfield Road roundabout have been included as part of the this development in order to accommodate the large volumes of traffic using this junction in the AM and PM peaks. In the *Sites DPD Scenario*, a hamburger configuration is included at this junction, with a cut-through for traffic staying on the A2300, and signals installed on all approach arms. This has been based on the developer's documents provided.

3. THE SITES DPD SCENARIO WITHOUT MITIGATION

3.1 Introduction to Results

3.1.1 This section includes commentary on the outcomes of the *Sites DPD Scenario*, along with numerical analysis using criteria based on interpretation of the National Planning Policy Framework (NPPF). The following sections are:

- The *Sites DPD Scenario without Mitigation*
 - Traffic Flow Impacts
 - Impacts on M23 and A23 strategic road network
- Identification of Junctions with Capacity Impacts
 - Criteria
 - Junctions Identified
- Proposed Mitigation
 - Sustainable Measures
 - Highway Mitigation
- The *Sites DPD Scenario with Mitigation*
 - Traffic Flow Impacts
 - Impacts on M23 and A23 strategic road network
- Key Locations Commentary – focussing on the A264/A22 at Felbridge
- Conclusions
- Junction Summaries – one page summaries for junctions with ‘severe’ impacts

3.2 Traffic Flow Impacts

3.2.1 The *Sites DPD Scenario without Mitigation* generates significant additional traffic centred around the A2300 and nearby roads, in the AM and PM Peak. The additional demand on the A2300 in particular results in significant rerouting on Cuckfield Road (north and south of the A2300) and the A272 through Ansty. There are also particular impacts on the A273 through Hassocks, B2036, B2116 and B2117.

3.2.2 The A23/A2300 dumbbell junction is significantly impacted and in the PM peak traffic is avoiding this junction in favour of alternative routes.

3.2.3 In the PM peak, the S&T park traffic appears to be forcing existing traffic to reroute away from the A2300. This is due to heavy flows turning into and out of the park. This impact is less evident in the AM peak. In considering mitigations a priority is for this impact to be alleviated, so that existing A2300 traffic remains on the A2300 and not be forced elsewhere. Keeping traffic on the A2300 may in turn mitigate impacts elsewhere that are currently suffering from the re-routeing.

3.2.4 There are also significant flow impacts on the A264, along with rerouting to alternative routes using the B2110 through Turners Hill. This appears to be due to congestion on the A264 particularly at the junction with the A22 at Felbridge.

3.3 Impacts on M23 and A23 strategic road network

3.3.1 An approach is devised to identify directional carriageway sections forecast to experience impacts in the future because of the strategic developments. An adaptable criteria representing a '**notable flow increase**' is defined as any carriageway section experiencing the following:

- Increase in traffic flow of **100 vehicles** or more

3.3.2 The impact between the M23 Junction 9 and the A23/A273 at Pyecombe is assessed and the number carriageway sections with a notable flow increase is shown in **Table 5**.

Table 5. Number of M23/A23 carriageway sections identified as having a 'notable flow increase'

SCENARIO	AM NORTHBOUND	AM SOUTHBOUND	PM NORTHBOUND	PM SOUTHBOUND
<i>Sites DPD Scenario <u>without</u> Mitigation</i>	1	6	9	0

3.3.3 The results show the impact is tidal, the southbound being impacted in the AM and the northbound in the PM. It is considered that this is largely due to the commuting trips to the S&T park. In the AM peak the notable flow increases are confined to the A23, while in the PM peak they extend to the M23. **Appendix B** include these results in more detail.

3.3.4 The detailed results show the flow increases are higher in the PM peak, when the most significantly impacted section, in term of traffic flow increase, is between the A272 and the M23 Junction 11 where the increase is up to approximately **13%**.

3.4 Identification of Junctions with Capacity Impacts

3.4.1 The impact of the Development Scenarios are assessed based on the National Planning Policy Framework (NPPF). The assessment of impacts is based on criteria agreed by MSDC and West Sussex County Council (WSCC). These are derived using WSCC's position statement in relation to the NPPF which sets out their interpretation of terms defining traffic impacts, namely "significant amount of movement" and "severe impacts". In addition, a "showstopper" is defined as a location where the impacts do not have a reasonable prospect of being able to comply with NPPF paragraph 32.

3.4.2 An approach is devised to identify locations forecast to experience 'severe' impacts in the future because of the strategic developments.

3.4.3 This uses appropriately selected criteria to reflect the interpretation of the NPPF. A '**severe**' impact is defined as a junction with any approach arm experiencing either of the following:

- a junction with an increase in ratio of flow to capacity (RFC) of **10%** or more to an RFC of **95%** or more in any period in any Scenario; or
- an increase in average delay of **one minute** or more to an average delay of **two minutes** or more in any period in any Scenario

3.4.4 A '**significant**' impact is a junction with any approach arm experiencing the following:

- a junction with an increase in ratio of flow to capacity (RFC) of **5%** or more to an RFC of **85%** or more in any period in any Scenario

3.4.5 **Table 6** shows how many junctions are forecast to be impacted significantly or severely in the *Sites DPD Scenario without Mitigation* when compared to the *Reference Case*.

Table 6. 'Severe' and 'Significant' impacts due to Sites DPD Scenario without Mitigation versus Reference Case

SCENARIO	'SEVERE' IMPACTS	'SIGNIFICANT' IMPACTS
<i>Sites DPD Scenario <u>without</u> Mitigation vs Reference Case</i>	9	8

3.4.6 It can be seen that in the *Sites DPD Scenario without Mitigation* there are 'severe' impacts at **nine** junctions and 'significant' impacts at **eight** junctions.

'Severe' Junctions

3.4.7 The nine junctions with 'severe' impacts are:

- N7 B2028 Turners Hill Road / Wallage Lane, Crawley Down
- C7 A272 / B2036, Ansty
- S1 A23 / A2300 Southbound On-Slip
- S2 A23 / A2300 Eastern Roundabout
- S5 A2300 / Northern Arc Spine Road
- S6 Junction Road / B2113, Burgess Hill
- S8 A273 / B2116 Hassocks (Stonepound)
- S9 A23 / A281 Eastbound On-Slip, Pyecombe
- S22 Valebridge Road / Junction Road / Leylands Road, Burgess Hill

3.4.8 **Appendix B** shows summary results for the *Sites DPD Scenario without Mitigation*. They include junctions identified in previous Scenarios or in the previous Mid Sussex Transport Study which, for consistency, are retained in the list even if no 'significant' or 'severe' impacts are identified in the *Sites DPD Scenario without Mitigation*. They also contain the results for the Reference Case, compared against the 2017 Base using the same criteria.

3.4.9 **Appendix C** shows detailed results for the same junctions, by approach arm. The *Reference Case* results are also provided.

3.4.10 **Figure 1** is a map showing the locations of the significant and severely impacted junctions. **Appendix D** shows the map including the full list of junctions. **Appendix E** shows the map including the locations of the *Sites DPD Scenario* development sites.

3.5 Cross Boundary Impacts

3.5.1 The junction analysis includes appropriate coverage of neighbouring authorities, the extent of which is defined by the scale and location of the developments. These are:

- Crawley Borough;
- Horsham District;
- Tandridge District;
- Wealden District; and
- Lewes District

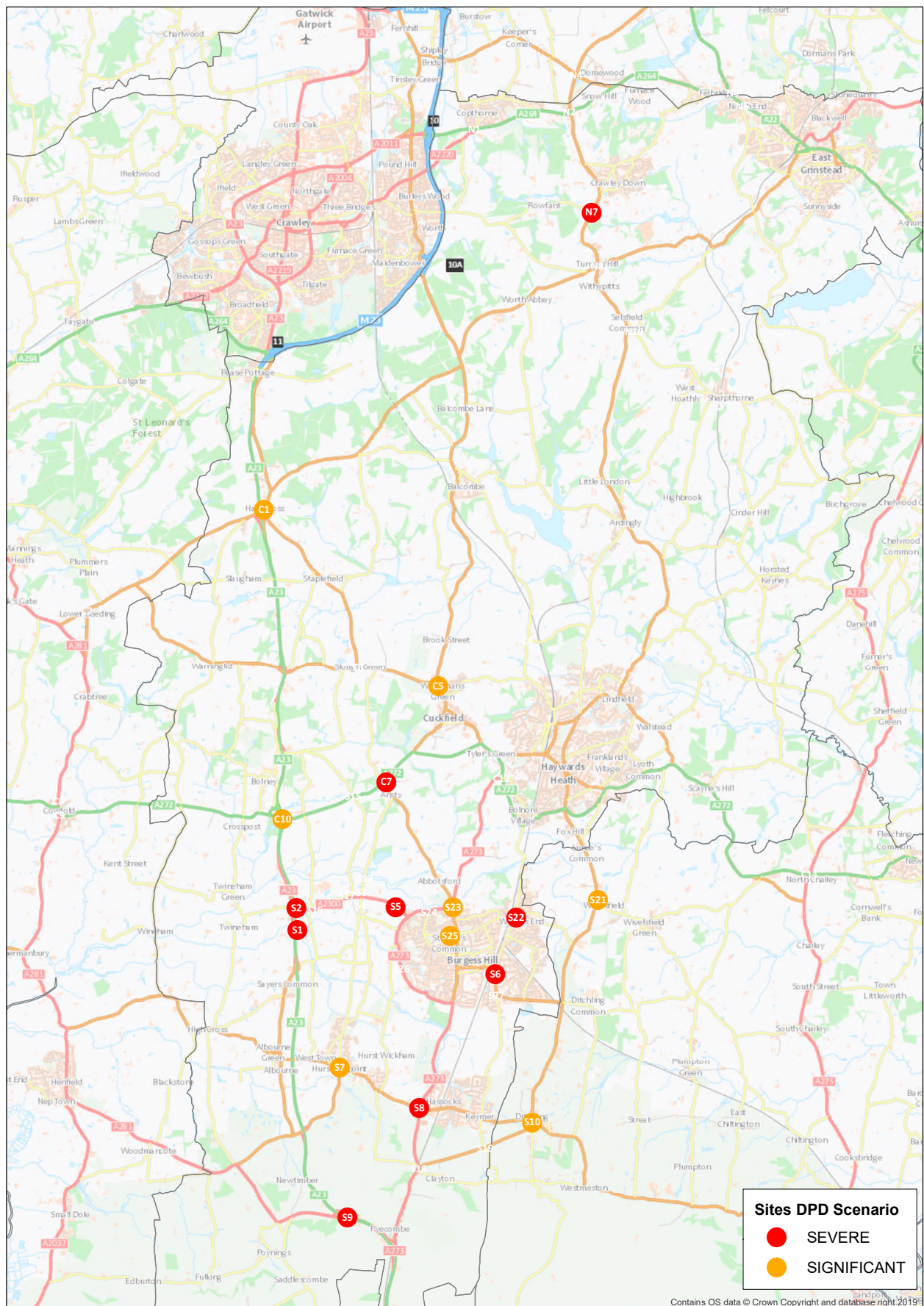
3.5.2 In the *Sites DPD Scenario without Mitigation* there are no 'severe' and two 'significantly' impacted junctions outside of Mid Sussex, as follows.

- S10 B2112 / B2116, Ditchling (Lewes District)
- S21 B2112 / Green Road, Wivelsfield (Lewes District)

These are both marginal impacts affecting the B2112 southern approach arm in the PM peak only, due to the volume over capacity (V/C) increasing from 87% to 94% at S10 and from 81% to 86% at S21 (see **Appendix C**).

- 3.5.3 The are no 'severe' or 'significant' impacts in any of the other neighbouring authorities.
- 3.5.4 **Appendix B** summarises changes in traffic volumes in terms of total distance travelled (in vehicle kilometres) for the **Ashdown Forest**. It can be seen that compared to the Reference Case the *Sites DPD Scenario without Mitigation* results in an increase in vehicle kilometres of 0.52% in the PM peak. In the AM peak there is no discernible change in distance travelled.

Figure 1. Location of 'significant' and 'severely' impacted junctions in the Sites DPD Scenario versus Reference Case



4. PROPOSED MITIGATION

4.1 Sustainable Measures

4.1.1 Sustainable travel measures are the most effective form of mitigating highway impacts. Sustainable transport, and ‘smarter choices’ have been considered at each development site, and have been modelled through a reduction of car trips.

4.1.2 A set of mitigations is proposed to alleviate the ‘severe’ impacts identified for *Sites DPD Scenario*. The potential **sustainable mitigations** are proposed in discussion with WSCC and are the measures that can be expected for each site based on location and opportunity for enhancement to bus services and active modes.

4.1.3 For the purposes of modelling the sustainable measures are translated to assumed percentage reductions to be applied to the scenario developments only, on a site by site basis as shown in **Table 7**.

Table 7. Sustainable Measures by Development Site

SHLAA ID	Site address	Sites DPD Scenario	Proposed Sustainable Mitigation Improvements	Proposed Car Trip Reduction
127	Land at St. Martin Close, Handcross	65 units	RTI Summary Display on site	1.5%
138	Land south of Hammerwood Road, Ashurst Wood	12 units		1.0%
184	Land south of St. Stephens Church, Hamsland, Horsted Keynes	30 units	RTI Summary Display on site	1.0%
196	Land south of Crawley Down Road, Felbridge	200 units	Bus Priority on A22 corridor Direct bus services to Gatwick	2.0%
345	St. Wilfrids Catholic Primary School, School Close, Burgess Hill	200 units	PT Interchange BH Enhanced bus infrastructure BH Enhanced of cycle parking at BH station	1.5%
479	Land at Hanlye Lane to the east of Ardingly Road, Cuckfield	55 units	RTI Summary Display on site	1.5%
519	Land north of Burleigh Lane, Crawley Down	50 units	RTI Summary Display on site	1.5%
594	Land South of Southway, Burgess Hill	30 units	PT Interchange BH	1.5%
644	Ansty Cross Garage, Cuckfield Road, Ansty	12 units		1.0%
770	Land south and west of Imberhorne Upper School, Imberhorne Lane, East Grinstead	550 units	Bus Priority on A22 corridor Bus Shelters within development with RTI Direct bus services to Gatwick	3.0%
783	Rogers Farm, Fox Hill, Haywards Heath	25 units	RTI Summary Display on site	1.0%
807	Land South of The Old Police House, Birchgrove Road, Horsted Keynes	25 units	RTI Summary Display on site	1.0%
827	Land South of 96 Folders Lane, Burgess Hill	43 units	PT Interchange BH	1.5%
829	Land to the north Lyndon, Reeds Lane, Sayers Common	35 units	RTI Summary Display on site	1.0%
832	Land west of Selsfield Road, Ardingly	100 units	RTI Summary Display on site	1.5%
840	Woodfield House, Isaacs Lane, Burgess Hill	30 units	RTI Summary Display on site	1.0%
847	East Grinstead Police Station, College Lane, East Grinstead	34 units	Bus Priority on A22 corridor	1.5%
854	Withypitts Farm, Selsfield Road, Turners Hill	16 units		1.0%
897	Land to the rear Firlands, Church Road, Scaynes Hill	20 units	RTI Summary Display on site	1.0%
904	Land to the south of Selby Close, Hammonds Ridge, Burgess Hill	12 units	PT Interchange BH	1.5%
976	Land East of Keymer Road and South of Folders Lane, Burgess Hill.	300 units	PT Interchange BH	1.5%
801	Science and Technology Park - North	2500 employees	PT Interchange BH Bus Shelters within development with RTI Bus Services to BH and station	3.0%

Note: Improved PT interchange refers to improvements to interchange facilities, the extent of which is not yet decided and would be developed through contributions from multiple sites, whether through CIL or S106.

4.2 Highway Mitigation

- 4.2.1 Highway mitigations are proposed to directly address the ‘severe’ impacts that cannot be fully removed by sustainable measures alone. **Table 8** describes the outline measures that are proposed and tested in the *Sites DPD Scenario* with mitigation model runs. At this stage of the mitigation process the outline descriptions are sufficient for the purposes of the strategic highway model.
- 4.2.2 To explain the approach in proposing mitigations, it is apparent that some junctions are suffering severe delays, due in part at least, to rerouting away from the A2300 to the A272, A273 through Hassocks, B2036, B2116 and B2117 (including junctions S6, S8, S9 and S22). For these junctions we state ‘Full or partial mitigation expected from mitigation at other locations’, the focus being to mitigate the A2300, because this will encourage traffic to remain on the main arterial routes and not reroute to rural and residential roads.
- 4.2.3 In proposing mitigation at the A23/A2300 junction at Hickstead (S1/S2), it is apparent from the modelling that in the PM peak the southbound on-slip is unlikely to be able to accommodate significant additional demand without widening of the A23. This is due to the on-slip being opposed by the high tidal flow the A23 southbound experiences in the PM peak, which results in difficulties for traffic merging onto the A23. Further work is required to establish the deliverability of this mitigation improvement.
- 4.2.4 It should be noted that the potential need to provide access for the consented site at Northlands Farm could constrain the proposed free flow mitigation at Hickstead (S2). The status of this site’s access requirements should be investigated in further design.

Waste Plan Allocation

- 4.2.5 The West Sussex Waste Local Plan allocates land at Goddards Green, (approximately 5.0 hectares) as acceptable in principle for the development of facilities for the transfer, recycling, and/or recovery of waste. As there is currently no planning application under discussion for the site, the timing of any development remains uncertain. The scale of development to be provided on the site is also flexible and traffic conditions at Hickstead may be a constraint to that. Accordingly this allocation is not included in the Reference Case.
- 4.2.6 The allocation will generate a number of HGV movements during the proposed operating hours of 07:30-18:30 Monday-Friday and 07:30-13.00 Saturday, estimated as between 60 and 240 per day. Generated HGV traffic should be restricted to routing via the A2300 and connecting principal (class A) roads, rather than any use of Cuckfield Road either north of the site access point or to the south of the A2300. This means that the future year base conditions on junctions along the A2300, notably including the roundabouts with the A23 slip roads at Hickstead may have slightly more congested conditions in the future reference conditions, with an estimate of 7-20 additional two-way HGV movements at A2300/A23 in any one hour, subject to any improvement works. A need for modelling at planning application stage is therefore identified.
- 4.2.7 Development of a joint solution with the Science and Technology Park at the impacted junctions (including Hickstead) may enable the future facility, through its own impact assessment, to identify a proportional contribution for the additional traffic movements which it would generate.

Table 8. Outline Highway Mitigation

ID	AREA	JUNCTION	OUTLINE MITIGATION PROPOSAL
N7	Crawley Down	B2028 Turners Hill Road / Wallage Lane	None - the impacted approach arm (Wallage Lane) is a minor road and the 'severe' impact is marginal. It is not considered appropriate to undertake junction improvements which could result in facilitating additional through traffic on Wallage Lane
C7	Ansty	A272 / B2036	Minor widening on A272 western and eastern arms
S1	Hickstead	A23 / A2300 Southbound On-Slip	A23 widened to three lanes from A2300 Southbound Off-Slip to B2118/Mill Lane Off-Slip
S2	Hickstead	A23 / A2300 Eastern Roundabout	Free flow for A23 Southbound off-slip to A2300 eastbound and partial signalisation
S5	Burgess Hill	A2300 / Northern Arc Spine Road	Lengthening of A2300 western arm flare
S6	Burgess Hill	Junction Road / B2113, Burgess Hill	None – full or partial mitigation expected from mitigation at other locations
S8	Hassocks	A273 / B2116 Hassocks (Stonepound)	None – full or partial mitigation expected from mitigation at other locations
S9	Pyecombe	A23 / A281 Eastbound On-Slip	None – full or partial mitigation expected from mitigation at other locations
S22	Burgess Hill	Valebridge Road / Junction Road / Leylands Road	None – full or partial mitigation expected from mitigation at other locations

5. THE SITES DPD SCENARIO WITH MITIGATION

5.1 Traffic Flow Impacts

- 5.1.1 The highway mitigations remove the 'severe' impacts on the A23 and A2300, which draws traffic back to these more strategic routes, thereby also removing the 'severe' impacts on the less strategic rural and residential roads to which some traffic had been displaced.

5.2 Performance on M23 and A23 strategic road network

- 5.2.1 The impact between the M23 Junction 9 and the A23/A273 at Pyecombe is assessed and the number carriageway sections with a notable flow increase is shown in **Table 9**.

Table 9. Number of M23/A23 carriageway sections identified as having a 'notable flow increase'

SCENARIO	AM NORTHBOUND	AM SOUTHBOUND	PM NORTHBOUND	PM SOUTHBOUND
<i>Sites DPD Scenario</i>	1	6	9	0
<i>Sites DPD Scenario <u>with</u> Mitigation</i>	1	6	9	2

- 5.2.2 Although the number of carriageway sections with a notable flow increase is largely unchanged, the mitigations at the A23/A2300 junction and widening of the A23, as described in **Table 8** result in a releasing of capacity leading to new notable flow increases on **two** A23 southbound sections (PM Peak) from the A2300 on-slip to the B2117. This is shown in more detail in **Appendix B**.
- 5.2.3 The detailed results show the flow increases are higher in the PM peak, when the most significantly impacted section, in term of traffic flow increase, is between the A272 and the M23 Junction 11 where the increase is up to **14%**.

5.3 Junctions with Capacity Impacts

- 5.3.1 **Table 10** shows how many junctions are forecast to be impacted significantly or severely in the *Sites DPD Scenario with Mitigation* when compared to the *Reference Case*.

Table 10. 'Severe' and 'Significant' impacts due to Sites DPD Scenarios versus Reference Case

SCENARIO	'SEVERE'	'SIGNIFICANT'
<i>Sites DPD Scenario <u>without</u> Mitigation versus Reference Case</i>	9	8
<i>Sites DPD Scenario <u>with</u> Mitigation versus Reference Case</i>	1	11

'Severe' Junctions

- 5.3.2 The inclusion of mitigation measures, reduces the number of junctions severely impacted to **one** junction:

- N7 B2028 Turners Hill Road / Wallage Lane, Crawley Down

- 5.3.3 As stated in **Table 8** the impacted approach arm (Wallage Lane) is a minor road and the 'severe' impact is relatively marginal due to the PM peak volume over capacity (V/C) increasing from 83% to 98% (see **Appendix C**). It is not considered appropriate to undertake junction improvements which could result in facilitating additional through

traffic on Wallage Lane, rather than using more appropriate east-west routes including the A264.

- 5.3.4 **Appendices B and C** show the summary results and detailed junction results
- 5.3.5 **Figure 2** is a map showing the locations of the significant and severely impacted junctions in the *Sites DPD Scenario with Mitigation*.
- 5.3.6 There is an increase in the number of junctions with a 'significant' impact compared to the without mitigation Scenario. This is largely due to junctions moving from 'severe' to 'significant', while others move from either 'severe' or 'significant' to 'no impact'. However there are two junctions in Burgess Hill that become newly 'significant' having been 'no impact' in the without mitigation Scenario. These are:
- S24 A273 Jane Murray Way / Sussex Way
 - S27 B2113 Keymer Road / Folders Lane
- 5.3.7 These secondary impacts are relatively small and result from the mitigation drawing traffic back to the A23/A2300 and the main arterial routes through Burgess Hill, away from roads in residential areas, which is the desired overall outcome. It should be noted that changes in traffic flows will include displaced traffic and is not just confined to development traffic only. Traffic volumes overall are reduced in Burgess Hill in the with mitigation scenario which is beneficial in terms of undesirable rat-running and the associated safety and air quality impacts.
- 5.3.8 It is considered that these and other 'significant' impacts should be addressed using sustainable measures. In addition to the sustainability advantages, this is due to highway mitigations being limited by constraints on land availability within the highway boundary.
- 5.3.9 In studying the newly 'significant' impacts at junctions S24 and S27 in more detail, they each occur at one approach arm at each of these junctions. These are the A273 western approach at junction S24 and the Keymer Road southern approach at S27 where, in both cases, the PM peak volume over capacity (V/C) increases to approximately 89% and triggers a 'significant' impact (they both increase to just under 85% in the without mitigation scenario, therefore 'no impact' because the criteria are not triggered).
- 5.3.10 These effects are largely a secondary impact of mitigations elsewhere, particularly on the A2300 and its junction with the A23 at Hickstead. As intended, these mitigations lead to reductions in traffic on routes such as the A273, B2036, B2112 and B2113 as traffic returns to the A23/A2300. However, as part of the balancing of delay across different locations that the model simulates, these reductions in turn release some capacity, resulting in traffic increases on some roads and leading to these small increases in V/C. This effect is more noticeable at roundabouts, where increased flow will also decrease spare capacity and therefore increase the V/C for movements they oppose.

5.4 Cross Boundary Impacts

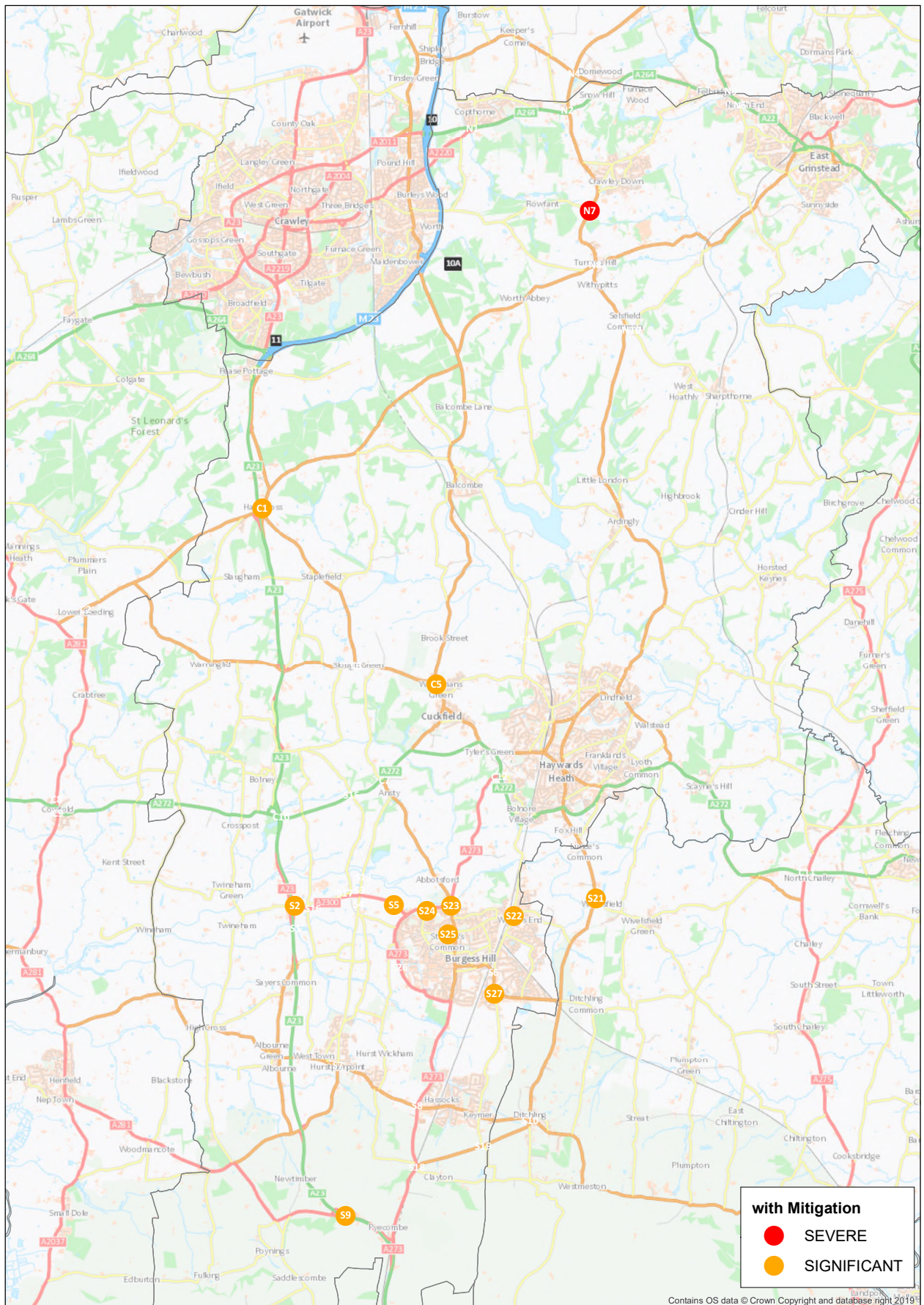
- 5.4.1 The junction analysis includes appropriate coverage of neighbouring authorities, the extent of which is defined by the scale and location of the developments. In the *Sites DPD Scenario with Mitigation* there are no 'severe' and one 'significantly' impacted junction outside of Mid Sussex, as follows:

- S21 B2112 / Green Road, Wivelsfield (Lewes District)

This is a marginal impact affecting the B2112 southern approach arm in the PM peak only, due to the volume over capacity (V/C) increasing from 81% to 86% (see **Appendix C**).

- 5.4.2 The are no 'severe' or 'significant' impacts in any of the other neighbouring authorities.
- 5.4.3 **Appendix B** summarises changes in traffic volumes in terms of total distance travelled (in vehicle kilometres) for the **Ashdown Forest**. It can be seen that compared to the Reference Case the *Sites DPD Scenario with Mitigation* results in an increase in vehicle kilometres of 0.24% in the PM peak, which is lower the 0.52% increase without mitigation. In the AM peak there remains no discernible change in distance travelled.

Figure 2. 'Significant' and 'severely' impacted junctions in Sites DPD Scenario with Mitigation vs. Reference Case



6. KEY LOCATIONS

A264/A22 Felbridge

- 6.1.1 This signalised junction is currently regarded as a ‘hotspot’ where delays are experienced. Therefore, it would be reasonable to expect ‘severe’ conditions in future year scenarios.
- 6.1.2 The A264/A22 junction is not identified as having a severe impacts in the Scenarios. However, it should be noted that this junction is flagged as severe in the *Reference Case*, and operates over capacity; the Scenarios generate slightly more traffic passing through the junction, which increases these impacts further, but not enough to result in severe impacts for the scenarios. Although the nearby developments increase pressure, the model is reporting that the ‘severe’ conditions are attributable to the *Reference Case* situation rather than the Scenario developments.

Rerouting

- 6.1.3 The highway model allows travellers to change their route due to congestion to achieve the most cost-effective journey possible. It can be seen in the *Reference Case* that significant rerouting is occurring away from the A264/A22 in both the AM and PM peak, and this continues in the Scenarios. The alternative route favoured by the model is via the B2028 and B2110 through Turners Hill. It is mostly trips going to East Grinstead area south of the A22, including Imberhorne Lane that do this.
- 6.1.4 Online route planners suggest that even in current conditions alternative routes on local ‘B’ roads including those used in the model are viable, and therefore it is reasonable to expect this would happen in reality in 2031.
- 6.1.5 Once the model reaches capacity at a location, delay will increase significantly and extensive rerouting will occur if alternative faster routes are available. Traffic heading to the Imberhorne Lane development from the west will, according to the model, route via the B2110 through Turners Hill, rather than experience the delays on the A264 particularly at the junction with the A22 at Felbridge. Online journey planners suggest this is perhaps already the quicker route in the PM peak for Imberhorne and other destinations south of the A22 in the East Grinstead area.
- 6.1.6 It is apparent that in the PM peak, for journeys from the west to the Imberhorne Lane development, most of the scenario traffic is rerouting from the A264. It is difficult to put an exact figure on this because it varies depending on origin and journey length. The PM peak model shows increases of up to around 150 vehicles on the B2028 through Crawley Down towards Turner’s Hill and about 100 additional vehicles travelling east on the B2110 at Turner’s Hill towards Imberhorne Lane. This is a mix of traffic relating to the Imberhorne site, the smaller sites in the north of the District and re-routed traffic from the *Reference Case* avoiding the A264. This outcome is similar in the mitigation scenario.

Recommended Further Work

- 6.1.7 It is considered that to significantly reduce the congestion at this junction and therefore the rerouting in favour of less suitable routes in the *Reference Case* and Scenarios, a significant mitigation of the A264/A22 would be required. To be fully effective this could involve land outside of the WSCC highway boundary, subject to the outcome of more detailed study work.

7. CONCLUSIONS

The Sites DPD Scenario without Mitigation

- 7.1.1 The Sites DPD Scenario without Mitigation generates significant additional traffic centred around the A2300 and nearby roads, in the AM and PM Peak. This results in significant rerouting on Cuckfield Road and the A272 through Ansty. There are also impacts on the A273 through Hassocks, B2036, B2116 and B2117. The A23/A2300 dumbbell junction is significantly impacted and in the PM peak traffic is avoiding this junction in favour of alternative routes.
- 7.1.2 There are also significant flow impacts on the A264, but these are already prevalent in the Reference Case, resulting in rerouting to alternative routes using the B2110 through Turners Hill. This appears to be mainly due to congestion on the A264 particularly at the junction with the A22 at Felbridge.
- 7.1.3 ‘Severe’ impacts (as defined by the described criteria) occur at **nine** junctions:
- N7 B2028 Turners Hill Road / Wallage Lane, Crawley Down
 - C7 A272 / B2036, Ansty
 - S1 A23 / A2300 Southbound On-Slip
 - S2 A23 / A2300 Eastern Roundabout
 - S5 A2300 / Northern Arc Spine Road
 - S6 Junction Road / B2113, Burgess Hill
 - S8 A273 / B2116 Hassocks (Stonepound)
 - S9 A23 / A281 Eastbound On-Slip, Pyecombe
 - S22 Valebridge Road / Junction Road / Leylands Road, Burgess Hill
- 7.1.4 On the M23/A23 the impact is tidal. In the AM peak **six** southbound carriageway sections (all on A23) show an increase of 100 vehicles or more, while in the PM peak **nine** northbound sections (A23 and M23) increase by 100 vehicles or more. The highest percentage increases are up to approximately **13%** on the section between the A272 and M23 Junction 11. It is considered that this is largely attributable to the S&T park.

The Sites DPD Scenario with Mitigation

- 7.1.5 Modelled mitigations include widening of the A23 to three lanes from the A2300 Southbound off-slip to B2118/Mill Lane off-slip and at the eastern Hickstead roundabout a free flow for the A23 southbound off-slip to A2300 eastbound, and partial signalisation.
- 7.1.6 The highway mitigations remove the ‘severe’ impacts on the A23 and A2300, which draws traffic back to these more strategic routes, thereby also removing the ‘severe’ impacts on the less strategic rural and residential roads to which some traffic had been displaced.
- 7.1.7 Following mitigation, **one** location remains at ‘severe’:
- N7 B2028 Turners Hill Road / Wallage Lane, Crawley Down
- The impacted approach arm (Wallage Lane) is a minor road and the ‘severe’ impact is relatively marginal due to the PM peak volume over capacity (V/C) increasing from 83% to 98% (see **Appendix C**). It is not considered appropriate to undertake junction improvements which could result in facilitating additional through traffic on Wallage Lane, rather than using more appropriate east-west routes including the A264.

7.1.8 There is an increase in the number of junctions with a ‘significant’ impact compared to the without mitigation Scenario. This is largely due to junctions moving from ‘severe’ to ‘significant’. However there are two junctions in Burgess Hill that become newly ‘significant’ having been ‘no impact’ in the without mitigation Scenario. These impacts are small and result from the mitigation drawing traffic back to the A23/A2300 and the main arterial routes through Burgess Hill, away from roads in residential areas, which is the desired overall outcome.

7.1.9 On the M23/A23 the mitigations described above at the A23 and at Hickstead result in a releasing of capacity leading to **two** new PM peak increases of 100 vehicles or more on carriageway sections of the A23 southbound from the A2300 on-slip to the B2117. The highest percentage increases are up to approximately **14%** on the section between the A272 and M23 Junction 11. It is considered that this is largely attributable to the S&T park.

Cross Boundary Impacts

7.1.10 The junction analysis includes appropriate coverage of neighbouring authorities, the extent of which is defined by the scale and location of the developments. These are:

- Crawley Borough;
- Horsham District;
- Tandridge District;
- Wealden District; and
- Lewes District

7.1.11 Outside of Mid Sussex there are no ‘severe’ and one marginal ‘significant’ impact in the *Sites DPD Scenario* with Mitigation:

- S21 B2112 / Green Road, Wivelsfield (Lewes District)

7.1.12 There are no ‘severe’ or ‘significant’ impacts in any of the other neighbouring authorities.

7.1.13 In the Ashdown Forest, there is an increase in distance travelled (vehicle kilometres) of 0.24% in the PM peak, which is lower than the 0.52% increase without mitigation. In the AM peak there is no discernible change in distance travelled.

8. JUNCTION SUMMARIES

- 8.1.1 The following pages provide the junction performance statistics and commentary for each of the severely impacted junctions in *Sites* DPD Scenario, when compared to the *Reference* Case.
- 8.1.2 Strategic junctions on the A264, and in East Grinstead (N1, N2, N9, and N6) have also been included for reference. A summary of how the junctions are forecast to perform is shown in **Appendix C**, alongside the impact on the M23 and A23.

N7 B2028 Turners Hill Road / Wallage Lane

Table 11 reports the performance by approach arm for AM and PM peaks, in each modelled Scenario.

Reference Case

The congestion on the A264 / A22 causes rerouting in both the AM and PM peak to alternative routes such as the B2028 and B2110 through Turner's Hill. This causes a number of junctions on these roads to operate at capacity in the *Reference Case*. The Wallage Lane arm of junction N7 is forecast to operate at capacity in the AM peak, with an RFC of 99%, and is forecast to operate close to capacity, 83% in the PM peak. The B2110 Church Road arm of the B2110 Church Road / B2028 Selsfield Road / B2110 East Street junction (N8) is forecast to operate over capacity.

Sites DPD Scenario

The *Sites DPD Scenario* includes development sites near Turner's Hill as well as in East Grinstead. This increases the amount of traffic rerouting away from the congested A264 / A22 to the B2028 and B2110 compared to the *Reference Case*. With the B2110 Church Road / B2028 Selsfield Road / B2110 East Street junction (N8) still operating over capacity, this additional traffic is forced to use Wallage Lane, B2027 Turner's Hill Road, and B2110 East Street to access East Grinstead. This increases the traffic on the Wallage Lane arm of the B2028 Turners Hill Road / Wallage Lane junction (N7), causing it to have a forecast capacity increase over 10% in the PM peak, to 98% in the *Sites DPD Scenario*.

Sites DPD Scenario with Mitigation

When the proposed mitigation is introduced, there are small amounts of rerouting at this junction, however the Wallage Lane arm remains at 'severe'. Wallage Lane is a minor road and the 'severe' impact is marginal. It is not considered appropriate to undertake junction improvements which could result in facilitating additional through traffic on Wallage Lane.

Table 11. N7: B2028 Turners Hill Road / Wallage Lane

APPROACH ARM	REFERENCE CASE			2031 SITES DPD SCENARIO			2031 <u>WITH</u> MITIGATION		
	FLOW (VEH)	RFC (%)	DELAY (SECS)	FLOW (VEH)	RFC (%)	DELAY (SECS)	FLOW (VEH)	RFC (%)	DELAY (SECS)
AM PEAK									
TURNERS HILL ROAD (N)	338	17	1	380	19	1	376	19	1
TURNERS HILL ROAD (S)	473	22	1	524	24	1	524	24	1
WALLAGE LANE	549	99	73	532	100	77	533	100	79
PM PEAK									
TURNERS HILL ROAD (N)	945	47	2	1101	54	2	1075	53	2
TURNERS HILL ROAD (S)	224	11	1	249	12	1	247	12	1
WALLAGE LANE	380	83	38	392	98	73	401	97	71

Notes: an increase in RFC of **5%** or more to an RFC of **85%** or more is highlighted in **orange**
 an increase in RFC of **10%** or more to an RFC of **95%** or more is highlighted **red**
 an increase in delay of **one minute** or more to a delay of **two minutes** or more is highlighted **red**

C7 A272 / B2036, Ansty

The junction performance in the AM and PM peaks for the A272 / B2036 (C7) junction are summarised in **Table 12**.

Reference Case

The junction is forecast to perform at or over capacity on every arm in the AM peak, and over capacity on A272 eastern and western arms in the PM peak.

Sites DPD Scenario

In the 2031 development scenarios, more traffic is generated by the additional development. This causes more traffic to use the junction, hence increasing RFC and delay on most arms of the junction in AM and PM peaks triggering a severe impact when compared to the *Reference Case*. Due to the junctions location, there is some tidal flow with the A272 eastern arm being forecast to cause a severe impact in the AM period, and the A272 western arm causing a severe impact in the PM peak.

Sites DPD Scenario with Mitigation

At this junction, additional capacity in the form of **flared approaches on the A272 (W) and A272 (E)** have been included, successfully mitigating the junction impacts.

Table 12. C7: A272 / B2036 Junction

APPROACH ARM	REFERENCE CASE			2031 SITES DPD SCENARIO			2031 <u>WITH MITIGATION</u>		
	FLOW (VEH)	RFC (%)	DELAY (SECS)	FLOW (VEH)	RFC (%)	DELAY (SECS)	FLOW (VEH)	RFC (%)	DELAY (SECS)
AM PEAK									
A272 (E)	898	103	64	903	108	163	1106	103	66
B2036 (S)	753	105	122	749	103	88	702	105	122
A272 (W)	736	92	6	748	97	12	571	64	4
PM PEAK									
A272 (E)	879	105	104	889	105	118	984	103	80
B2036 (S)	305	36	5	716	98	21	494	72	7
A272 (W)	846	102	47	789	108	171	946	103	81

Notes: an increase in RFC of 5% or more to an RFC of 85% or more is highlighted in orange
an increase in RFC of 10% or more to an RFC of 95% or more is highlighted red
an increase in delay of one minute or more to a delay of two minutes or more is highlighted red

S1 A23 / A2300 Southbound On-Slip, Burgess Hill

The forecast performance of the A23 / A2300 southbound on-slip (S1) in Burgess Hill are shown in **Table 13**.

Reference Case

The A23 southbound operates within capacity on three lane section north of the A2300; the model forecasts that the junction operates close to capacity (RFC of 98%) when the A23 reduces to two lanes, after the A23 southbound off-slip to the A2300. Both the A23 southbound and A23 southbound on-slip operate within capacity in the AM peak.

Sites DPD Scenario

The additional development introduced as part of the 2031 development scenario generates more traffic on the A23 southbound in the PM peak, increasing the RFC to 100%. With the A23 southbound operating at capacity, traffic on the southbound on-slip has difficulty merging onto the A23 southbound. This is reflected in an RFC increase of over 50% in 2031 *Sites DPD* Scenario compared to the *Reference Case*, meaning the junction is severely impacted.

Sites DPD Scenario with Mitigation

At this junction, additional capacity in the form of a **A23 widening to three lanes from the A2300 Southbound Off-Slip to the B2118/Mill Lane Off-Slip** has been included, successfully mitigating the junction impacts.

Table 13. S1: A23 / A2300 Southbound On-Slip

APPROACH ARM	REFERENCE CASE			2031 SITES DPD SCENARIO			2031 <u>WITH</u> MITIGATION		
	FLOW (VEH)	RFC (%)	DELAY (SECS)	FLOW (VEH)	RFC (%)	DELAY (SECS)	FLOW (VEH)	RFC (%)	DELAY (SECS)
AM PEAK									
A23 SB ON-SLIP	698	39	4	772	47	4	785	41	3
A23 SOUTHBOUND	2287	71	4	2305	75	5	2295	46	2
PM PEAK									
A23 SB ON-SLIP	677	49	5	596	107	173	1158	61	4
A23 SOUTHBOUND	3501	98	25	3632	100	36	3605	70	4

Notes: an increase in RFC of **5%** or more to an RFC of **85%** or more is highlighted in **orange**
an increase in RFC of **10%** or more to an RFC of **95%** or more is highlighted **red**
an increase in delay of **one minute** or more to a delay of **two minutes** or more is highlighted **red**

S2 A23 / A2300 Eastern Roundabout, Burgess Hill

Table 14 summarises the junction performance of the A23 / A2300 eastern roundabout (S2), in the modelled scenarios.

Reference Case

The model forecasts that the A23 / A2300 eastern roundabout operates within capacity, with RFC's below 80% on all arms, in the AM and PM peaks in the *Reference Case*.

Sites DPD Scenario

When the additional development included in the *Sites DPD Scenario*, more traffic is forecast on the A23 southbound off-slip and A2300 eastern arm of the roundabout in the AM peak. This is primarily driven by traffic travelling to the Science and Technology Park, on the A2300, in the AM peak. The additional traffic causes the junction to be severely impacted, with increases in RFC and delay on these arms.

Sites DPD Scenario with Mitigation

A single free-flow lane from the A23 southbound off-slip to the A2300 (E) arm has been included, alongside reducing the number of approach lanes from two to one on the southbound off-slip. This give-way is also signalised in the same phase as circulating traffic, and traffic from the A2300 (W) approach. The mitigation also includes new traffic signals where the A2300 (E) approach gives way to circulating traffic. The proposed scheme successfully mitigates against the high RFCs and delays at the junction, in both AM and PM peaks.

Table 14. S2: A23 / A2300 Eastern Roundabout

APPROACH ARM	REFERENCE CASE			2031 SITES DPD SCENARIO			2031 <u>WITH</u> MITIGATION		
	FLOW (VEH)	RFC (%)	DELAY (SECS)	FLOW (VEH)	RFC (%)	DELAY (SECS)	FLOW (VEH)	RFC (%)	DELAY (SECS)
AM PEAK									
A23 SB OFF-SLIP	1182	68	4	1422	107	159	0	0	14
A2300 (E)	1619	73	3	1965	96	4	1948	73	10
A2300 (W)	326	32	3	744	79	4	519	27	0
PM PEAK									
A23 SB OFF-SLIP	1175	68	4	1081	57	3	0	0	32
A2300 (E)	1785	79	3	1951	91	3	2529	85	11
A2300 (W)	424	39	3	191	18	3	215	11	0

Notes: an increase in RFC of 5% or more to an RFC of 85% or more is highlighted in orange
an increase in RFC of 10% or more to an RFC of 95% or more is highlighted red
an increase in delay of one minute or more to a delay of two minutes or more is highlighted red

S5

A2300 / Northern Arc Spine Road, Burgess Hill

Table 15 shows how the performance of the A2300 / Northern Arc Spine Road junction compares in the different modelled scenarios.

Reference Case

The A2300 / Northern Arc Spine Road junction is introduced with the addition of the Northern Arc development in the *Reference Case* scenario. The proposed access takes the form of a four-arm roundabout on the A2300. The model forecasts that the A2300 (W) and southern Northern Arc arms of the junction are approaching capacity in the AM and PM peaks, but the other arms operate within capacity.

Sites DPD Scenario

The *Sites DPD Scenario* includes the Science and Technology Park, located to the west of this junction. The additional traffic generated by this development increases the volume of traffic on the A2300 as it's the primary access road to and from the Park. This causes a severe impact at the junction compared to the *Reference Case*, with the A2300 western arm having an increase in RFC exceeding 100% in the PM peak.

Sites DPD Scenario with Mitigation

Additional capacity has been included on the A300 western arm through increasing the length of the proposed flare. This mitigation measure successfully reduces the RFC and delay to a point where the junction is no longer severely impacted.

Table 15. S5: A2300 / Northern Arc Spine Road Roundabout

APPROACH ARM	REFERENCE CASE			2031 SITES DPD SCENARIO			2031 <u>WITH</u> MITIGATION		
	FLOW (VEH)	RFC (%)	DELAY (SECS)	FLOW (VEH)	RFC (%)	DELAY (SECS)	FLOW (VEH)	RFC (%)	DELAY (SECS)
AM PEAK									
NORTHERN ARC (N)	338	29	5	872	76	9	840	80	11
A2300 (E)	846	56	5	1258	79	8	1185	74	7
NORTHERN ARC (S)	997	67	5	1066	69	7	1068	69	7
A2300 (W)	1669	79	4	1966	94	6	2136	92	5
PM PEAK									
NORTHERN ARC (N)	248	20	5	197	18	5	239	22	5
A2300 (E)	845	55	5	839	55	5	822	54	5
NORTHERN ARC (S)	1175	77	6	1239	81	6	1236	81	7
A2300 (W)	2185	86	5	2291	104	83	2334	93	7

Notes: an increase in RFC of **5%** or more to an RFC of **85%** or more is highlighted in **orange**
 an increase in RFC of **10%** or more to an RFC of **95%** or more is highlighted **red**
 an increase in delay of **one minute** or more to a delay of **two minutes** or more is highlighted **red**

S6 Junction Road / B2113, Burgess Hill

The junction performance of the Junction Road / B2113 junction (S6) are summarised in **Table 16**.

Reference Case

The *Reference Case* scenario includes all committed development and infrastructure. This includes the reconfiguration of this junction from a roundabout, to signals. The model forecasts that this junction operates at capacity, with delays in the AM and PM peaks in the *Reference Case*.

Sites DPD Scenario

The additional developments in 2031 *Sites DPD Scenario* increases the traffic passing through this junction, primarily on the B2113 Station Road arm. Although there is some rerouting to avoid it, the increases worsen the performance of the junction enough to cause severe impacts in the AM and PM peaks.

Sites DPD Scenario with Mitigation

Nearby mitigation results in rerouting from this junction, reducing the volume of traffic to a point where it is no longer severely impacted, but is still operating over capacity.

Table 16. S6: Junction Road / B2113 Junction

APPROACH ARM	REFERENCE CASE			2031 SITES DPD SCENARIO			2031 <u>WITH</u> MITIGATION		
	FLOW (VEH)	RFC (%)	DELAY (SECS)	FLOW (VEH)	RFC (%)	DELAY (SECS)	FLOW (VEH)	RFC (%)	DELAY (SECS)
AM PEAK									
JUNCTION ROAD (N)	425	97	108	430	101	153	415	101	154
SILVERDALE ROAD	0	0	122	0	0	122	0	0	122
B2113 KEYMER RD (S)	499	105	212	520	109	294	573	107	249
B2113 STATION RD (W)	525	105	206	523	103	183	483	105	218
PM PEAK									
JUNCTION ROAD (N)	138	10	38	132	10	38	134	10	43
SILVERDALE ROAD	0	0	122	0	0	122	0	0	122
B2113 KEYMER RD (S)	479	100	122	483	99	115	481	100	126
B2113 STATION RD (W)	541	106	235	564	111	325	634	107	242

Notes: an increase in RFC of **5%** or more to an RFC of **85%** or more is highlighted in **orange**
 an increase in RFC of **10%** or more to an RFC of **95%** or more is highlighted **red**
 an increase in delay of **one minute** or more to a delay of **two minutes** or more is highlighted **red**

S8 A273 / B2116 Stonepound. Hassocks

Table 17 outlines the junction performance for A273 / B2116 Stonepound crossroads in the modelled scenarios.

Reference Case

Despite additional capacity being provided as part of the committed highway infrastructure scheme, all arms of the junction operate at, or close to capacity in the *Reference Case* scenario.

Sites DPD Scenario

The additional traffic generated by the developments cause the London Road and Hurst Road arms to be severely impacted in the PM peak.

Sites DPD Scenario with Mitigation

Rerouting, caused by mitigation elsewhere in the network successfully reduces delay on the London Road and Hurst Road arms in the PM peak, to a point where the junction is no longer severely impacted, but is still operating over capacity.

Table 17. S8: A273 / B2116 Stonepound Junction

APPROACH ARM	REFERENCE CASE			2031 SITES DPD SCENARIO			2031 <u>WITH</u> MITIGATION		
	FLOW (VEH)	RFC (%)	DELAY (SECS)	FLOW (VEH)	RFC (%)	DELAY (SECS)	FLOW (VEH)	RFC (%)	DELAY (SECS)
AM PEAK									
LONDON ROAD (N)	551	112	335	612	106	225	589	108	260
KEYMER ROAD (E)	439	106	248	451	109	302	462	108	279
BRIGHTON ROAD (S)	420	103	190	423	105	214	410	105	223
HURST ROAD (W)	430	89	81	433	90	83	435	90	84
PM PEAK									
LONDON ROAD (N)	614	102	138	728	107	232	689	102	153
KEYMER ROAD (E)	463	101	147	465	101	139	453	102	166
BRIGHTON ROAD (S)	424	95	92	426	60	49	329	96	120
HURST ROAD (W)	347	101	161	405	106	246	559	103	175

Notes: an increase in RFC of **5%** or more to an RFC of **85%** or more is highlighted in **orange**
 an increase in RFC of **10%** or more to an RFC of **95%** or more is highlighted **red**
 an increase in delay of **one minute** or more to a delay of **two minutes** or more is highlighted **red**

S9 A23 / A23 Southbound On-Slip, Pyecombe

Table 18 shows the RFC and delay for each approach arm in each of the modelled scenarios.

Reference Case

As the A23 / A2300 southbound on-slip (S1) shows, the A23 southbound operates at capacity when it reduces to two lanes after the A23 / A2300 southbound off-slip. The capacity constraints continue to Pyecombe, where the model forecasts an RFC of 100% on both the A23, and A23 eastbound on-slip in the PM peak.

Sites DPD Scenario

In the *Sites DPD Scenario*, the additional traffic increases the traffic on the already congested A23 southbound on-slip. The model forecasts that the additional traffic on the A23 southbound on-slip would increase delays on the slip road by 73 seconds in *Sites DPD Scenario*, when compared to *Reference Case*, causing the junction to be severely impacted.

Sites DPD Scenario with Mitigation

The mitigation included elsewhere provides a small amount of relief on the A23 southbound, allowing more traffic to merge from the A23 southbound on-slip to the A23 southbound. This slightly reduces the delay experienced by users on the A23 southbound on-slip, such that the junction is no longer identified as being severely impacted compared to the *Reference Case*.

Table 18. S9: A23 / A281 Eastbound On-Slip

APPROACH ARM	REFERENCE CASE			2031 SITES DPD SCENARIO			2031 <u>WITH MITIGATION</u>		
	FLOW (VEH)	RFC (%)	DELAY (SECS)	FLOW (VEH)	RFC (%)	DELAY (SECS)	FLOW (VEH)	RFC (%)	DELAY (SECS)
AM PEAK									
A23 SB ON-SLIP	2979	83	17	2916	82	17	2945	83	18
A23 SB	346	34	5	317	33	5	321	34	5
PM PEAK									
A23 SB ON-SLIP	4270	100	62	4276	100	64	4247	101	69
A23 SB	28	95	227	31	103	300	31	102	275

Notes: an increase in RFC of **5%** or more to an RFC of **85%** or more is highlighted in **orange**
 an increase in RFC of **10%** or more to an RFC of **95%** or more is highlighted **red**
 an increase in delay of **one minute** or more to a delay of **two minutes** or more is highlighted **red**

S22 Valebridge Road / Junction Road / Leylands Road, Burgess Hill

The junction performance of Valebridge Road / Junction Road / Leylands Road in the modelled scenarios is summarised in **Table 19**.

Reference Case

The *Reference Case* includes the committed schemes to convert the Valebridge Road / Junction Road / Leylands Road junction from a mini-roundabout to traffic signals. The Leylands Road arm of the junction is forecast to operate at capacity in the PM peak, with an RFC of 104%.

Sites DPD Scenario

The *Sites DPD Scenario* forecasts that the Leylands Road approach arm is severely impacted compared to the *Reference Case*, in the PM peak. The additional traffic generated by the developments increases the traffic flows on the Leylands Road approach arm, causing the delay to increase by 77 seconds.

Sites DPD Scenario with Mitigation

Traffic reduction from sustainable measures, and highway mitigation measures elsewhere in the network have successfully mitigated the delay on the Leylands Road approach arm such that the junction is no longer identified as having a severe impact compared to the *Reference Case*.

Table 19. S22: Valebridge Road / Junction Road / Leylands Road Junction

APPROACH ARM	REFERENCE CASE			2031 SITES DPD SCENARIO			2031 <u>WITH MITIGATION</u>		
	FLOW (VEH)	RFC (%)	DELAY (SECS)	FLOW (VEH)	RFC (%)	DELAY (SECS)	FLOW (VEH)	RFC (%)	DELAY (SECS)
AM PEAK									
VALEBRIDGE ROAD (N)	644	55	72	641	55	72	643	55	82
JUNCTION ROAD (S)	486	93	65	509	97	91	465	100	118
LEYLANDS ROAD (W)	1041	99	66	1030	95	44	1085	96	45
PM PEAK									
VALEBRIDGE ROAD (N)	659	56	73	642	54	67	668	57	92
JUNCTION ROAD (S)	259	50	33	256	49	32	263	56	37
LEYLANDS ROAD (W)	1025	104	152	1043	108	229	1102	105	158

Notes: an increase in RFC of **5%** or more to an RFC of **85%** or more is highlighted in **orange**
 an increase in RFC of **10%** or more to an RFC of **95%** or more is highlighted **red**
 an increase in delay of **one minute** or more to a delay of **two minutes** or more is highlighted **red**

N1 A264 / A2220, Copthorne

Table 20. N1: A264 / A2220 Junction

APPROACH ARM	REFERENCE CASE			2031 SITES DPD SCENARIO			2031 <u>WITH</u> MITIGATION		
	FLOW (VEH)	RFC (%)	DELAY (SECS)	FLOW (VEH)	RFC (%)	DELAY (SECS)	FLOW (VEH)	RFC (%)	DELAY (SECS)
AM PEAK									
BROOKHILL RD (N)	409	40	14	426	41	14	426	41	14
A264 (E)	548	42	11	663	50	12	665	50	12
COPTHORNE HOTEL	63	1	10	63	1	10	63	1	10
A2220 (S)	1076	71	12	1143	78	12	1140	78	12
A264 (W)	1436	108	174	1389	109	191	1390	109	192
PM PEAK									
BROOKHILL RD (N)	769	65	15	855	75	16	854	74	16
A264 (E)	1130	87	15	1097	86	15	1091	85	15
COPTHORNE HOTEL	69	1	10	69	1	10	69	1	10
A2220 (S)	783	61	12	863	67	12	844	66	12
A264 (W)	1220	79	11	1254	82	11	1254	82	11

Notes: an increase in RFC of **5%** or more to an RFC of **85%** or more is highlighted in **orange**
 an increase in RFC of **10%** or more to an RFC of **95%** or more is highlighted **red**
 an increase in delay of **one minute** or more to a delay of **two minutes** or more is highlighted **red**

N6 A22 / Imberhorne Lane, East Grinstead

Table 21. N6: A22 / Imberhorne Lane Junction

APPROACH ARM	REFERENCE CASE			2031 SITES DPD SCENARIO			2031 <u>WITH</u> MITIGATION		
	FLOW (VEH)	RFC (%)	DELAY (SECS)	FLOW (VEH)	RFC (%)	DELAY (SECS)	FLOW (VEH)	RFC (%)	DELAY (SECS)
AM PEAK									
A22 (W)	730	45	8	735	46	6	730	46	6
A22 (E)	713	98	70	675	100	57	676	100	54
IMBERHORNE LANE (S)	375	50	18	445	62	20	440	61	20
PM PEAK									
A22 (W)	919	61	11	953	62	10	948	62	10
A22 (E)	838	85	25	828	82	23	828	82	23
IMBERHORNE LANE (S)	324	55	24	361	61	25	361	61	25

Notes: an increase in RFC of **5%** or more to an RFC of **85%** or more is highlighted in **orange**
 an increase in RFC of **10%** or more to an RFC of **95%** or more is highlighted **red**
 an increase in delay of **one minute** or more to a delay of **two minutes** or more is highlighted **red**

N2 A264 / B2028, Copthorne

Table 22. N2: A264 / B2028 Junction

APPROACH ARM	REFERENCE CASE			2031 SITES DPD SCENARIO			2031 <u>WITH</u> MITIGATION		
	FLOW (VEH)	RFC (%)	DELAY (SECS)	FLOW (VEH)	RFC (%)	DELAY (SECS)	FLOW (VEH)	RFC (%)	DELAY (SECS)
AM PEAK									
B2027 (N)	248	12	3	278	14	4	274	14	4
A264 SNOW HILL (E)	241	12	3	293	14	3	294	14	3
B2027 (S)	596	28	3	652	31	3	652	31	3
A264 (W)	966	46	4	967	46	4	961	46	4
PM PEAK									
B2027 (N)	710	34	4	737	36	4	736	36	4
A264 SNOW HILL (E)	398	20	4	382	19	4	381	19	4
B2027 (S)	365	18	4	363	18	4	356	18	4
A264 (W)	1121	53	3	1256	59	3	1227	58	3

Notes: an increase in RFC of **5%** or more to an RFC of **85%** or more is highlighted in **orange**
 an increase in RFC of **10%** or more to an RFC of **95%** or more is highlighted **red**
 an increase in delay of **one minute** or more to a delay of **two minutes** or more is highlighted **red**

N9 A264 / A22 Felbridge, East Grinstead

Table 23. N9: A265 / A22 Felbridge Junction

APPROACH ARM	REFERENCE CASE			2031 SITES DPD SCENARIO			2031 <u>WITH</u> MITIGATION		
	FLOW (VEH)	RFC (%)	DELAY (SECS)	FLOW (VEH)	RFC (%)	DELAY (SECS)	FLOW (VEH)	RFC (%)	DELAY (SECS)
AM PEAK									
A264 (W)	578	105	195	604	107	225	601	107	216
A22 (N)	492	56	13	496	56	13	496	56	13
A22 LONDON RD (S)	1368	108	241	1407	108	241	1406	108	241
PM PEAK									
A264 (W)	580	101	113	595	103	145	596	103	148
A22 (N)	595	64	14	613	65	14	605	64	14
A22 LONDON RD (S)	1267	100	101	1276	101	110	1275	101	108

Notes: an increase in RFC of **5%** or more to an RFC of **85%** or more is highlighted in **orange**
 an increase in RFC of **10%** or more to an RFC of **95%** or more is highlighted **red**
 an increase in delay of **one minute** or more to a delay of **two minutes** or more is highlighted **red**

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MID SUSSEX TRANSPORT STUDY - DEVELOPMENT SITE ASSUMPTIONS AND TRIP RATES

Windfall: 588

District	ID	Site address	Use Class	Quant for TRCS rate	Check			Diff	Trip Rate AM	Trip Rate PM	Trip Rate PM D	Ref Trips			Diff	Trip Rate AM	Trip Rate PM	Trip Rate PM D	StedCPO Trips			Diff	Trip Rate AM	Trip Rate PM	Trip Rate PM D	Diff	Trip Rate AM	Trip Rate PM	Trip Rate PM D		
					Ref	Ref Inc	Windfall					Trip Rate AM	Trip Rate PM	Trip Rate PM D					Trip Rate AM	Trip Rate PM	Trip Rate PM D									Trip Rate AM	Trip Rate PM
MidSussex	6	Land at Gravely Lane and Scames Hill, Linfield	Housing	units	130	137	137	0	0.397	0.191	0.143	0.486	55	26	20	67	55	26	20	67	55	26	20	67	0	0	0	0	0	0	
MidSussex	21	Land near of 114 Crawley Down Road, Felbridge	Housing	units	33	33	33	0	0.397	0.191	0.143	0.486	13	6	5	10	13	6	5	10	13	6	5	10	0	0	0	0	0	0	
MidSussex	22	Land to rear of Dunmires Mill South Club Dunmires Rd, East Grinstead	Housing	units	12	13	13	0	0.397	0.191	0.143	0.486	5	2	2	6	5	2	2	6	5	2	2	6	0	0	0	0	0	0	
MidSussex	32	Land south of Surtis House, Birchton Lane, Horwads Heath	Housing	units	8	8	8	0	0.397	0.191	0.143	0.486	3	2	1	4	3	2	1	4	3	2	1	4	0	0	0	0	0	0	
MidSussex	38	Land north of Wickham Way and East of Birchton Lane, Horwads Heath	Housing	units	8	8	8	0	0.397	0.191	0.143	0.486	3	2	1	4	3	2	1	4	3	2	1	4	0	0	0	0	0	0	
MidSussex	36	Land adjacent to Station Goods Yard, Kymmer Road, Hassocks	Housing	units	16	17	17	0	0.397	0.191	0.143	0.486	7	3	2	8	7	3	2	8	7	3	2	8	0	0	0	0	0	0	
MidSussex	38	Land north of the A24 at Junction 10 of M23	Housing	units	500	529	529	0	0.397	0.191	0.143	0.486	210	76	201	76	210	76	201	76	210	76	201	76	210	0	0	0	0	0	0
MidSussex	41	Former Seagoe Works, Garfield Way, Burgess Hill	Housing	units	225	229	229	0	0.397	0.191	0.143	0.486	136	44	137	44	136	44	137	44	136	44	137	44	136	0	0	0	0	0	0
MidSussex	46	Land off Kings Way, East of Gerald Close, Burgess Hill	Housing	units	27	29	29	0	0.397	0.191	0.143	0.486	11	5	4	14	11	5	4	14	11	5	4	14	0	0	0	0	0	0	
MidSussex	81	Land at Fawell (Hambleton) Land, Southill, Horwads Heath	Housing	units	334	336	336	0	0.397	0.191	0.143	0.486	44	21	34	21	44	21	34	21	44	21	34	21	44	0	0	0	0	0	0
MidSussex	81	Imberhorne Lower School, Windmill Lane, East Grinstead	Housing	units	200	212	212	0	0.397	0.191	0.143	0.486	84	40	84	40	84	40	84	40	84	40	84	40	84	0	0	0	0	0	0
MidSussex	82	Motorcycle Workshop (former G&W Motors), London Road, Bolney	Housing	units	10	11	11	0	0.397	0.191	0.143	0.486	4	2	2	5	4	2	2	5	4	2	2	5	0	0	0	0	0	0	
MidSussex	83	Burgess Hill Station and car park, Burgess Hill	Housing	units	159	159	159	0	0.397	0.191	0.143	0.486	20	31	20	31	20	31	20	31	20	31	20	31	20	0	0	0	0	0	0
MidSussex	84	The Oaks Centre, Junction Road, Burgess Hill	Housing	units	12	13	13	0	0.397	0.191	0.143	0.486	5	2	2	6	5	2	2	6	5	2	2	6	0	0	0	0	0	0	
MidSussex	88	Land north of Faulkners Way, Burgess Hill	Housing	units	20	21	21	0	0.397	0.191	0.143	0.486	8	4	3	10	8	4	3	10	8	4	3	10	0	0	0	0	0	0	
MidSussex	91	Former The Works, New Lane Road, Burgess Hill	Housing	units	308	326	326	0	0.397	0.191	0.143	0.486	128	58	128	58	128	58	128	58	128	58	128	58	128	0	0	0	0	0	0
MidSussex	92	Open air market, Conour Road, Burgess Hill	Housing	units	25	26	26	0	0.397	0.191	0.143	0.486	10	5	4	13	10	5	4	13	10	5	4	13	0	0	0	0	0	0	
MidSussex	96	Stonequarry Woods, East Grinstead	Housing	units	40	42	42	0	0.397	0.191	0.143	0.486	17	8	6	21	17	8	6	21	17	8	6	21	0	0	0	0	0	0	
MidSussex	106	Station Goods Yard, Hassocks	Housing	units	14	15	15	0	0.397	0.191	0.143	0.486	7	3	2	8	7	3	2	8	7	3	2	8	0	0	0	0	0	0	
MidSussex	116	Clockfield, North Street, Turners Hill	Housing	units	41	43	43	0	0.397	0.191	0.143	0.486	17	8	6	21	17	8	6	21	17	8	6	21	0	0	0	0	0	0	
MidSussex	127	Land at St. Martin Close, Handcross	Housing	units	0	0	65	65	0.397	0.191	0.143	0.486	0	0	0	0	26	12	9	26	12	9	26	12	9	26	12	9	26	12	9
MidSussex	138	Land south of Nunnemore Road, Ashurst Wood	Housing	units	12	12	12	0	0.397	0.191	0.143	0.486	0	0	0	0	26	12	9	26	12	9	26	12	9	26	12	9	26	12	9
MidSussex	139	Land between 98-104 Mayoys Road, Ashurst Wood	Housing	units	5	5	5	0	0.397	0.191	0.143	0.486	2	1	1	3	2	1	1	3	2	1	1	3	0	0	0	0	0	0	
MidSussex	147	West Heavly Station Goods Yard, Station Road, Sharphorne	Housing	units	5	5	5	0	0.397	0.191	0.143	0.486	2	1	1	3	2	1	1	3	2	1	1	3	0	0	0	0	0	0	
MidSussex	148	Land north of Top Road, Sharphorne	Housing	units	0	0	0	0	0.397	0.191	0.143	0.486	0	0	0	0	26	12	9	26	12	9	26	12	9	26	12	9	26	12	9
MidSussex	150	Land to the west of the Rectory, Horwads Heath Road, Balcombe	Housing	units	14	15	15	0	0.397	0.191	0.143	0.486	6	3	2	7	6	3	2	7	6	3	2	7	0	0	0	0	0	0	
MidSussex	151	Land east of Portsmouth Wood Close, Linfield	Housing	units	43	45	45	0	0.397	0.191	0.143	0.486	18	9	7	22	18	9	7	22	18	9	7	22	0	0	0	0	0	0	
MidSussex	184	Land south of St. Stephens Church, Hamland, Horsted Keynes	Housing	units	0	30	30	0	0.397	0.191	0.143	0.486	0	0	0	0	12	6	4	12	6	4	12	6	4	12	6	4	12	6	4
MidSussex	188	Land opposite Newlands, (Spring Field Shaw), London Road, Balcombe	Housing	units	14	15	15	0	0.397	0.191	0.143	0.486	6	3	2	7	6	3	2	7	6	3	2	7	0	0	0	0	0	0	0
MidSussex	193	Land to the north and north of Barnfield Cottages, Horwads Heath Road, Balcombe	Housing	units	14	15	15	0	0.397	0.191	0.143	0.486	6	3	2	7	6	3	2	7	6	3	2	7	0	0	0	0	0	0	0
MidSussex	196	Land south of Crawley Down Road, Felbridge	Housing	units	12	12	200	200	0.397	0.191	0.143	0.486	6	3	2	7	6	3	2	7	6	3	2	7	0	0	0	0	0	0	0
MidSussex	197	Land near of 15 and 39 Crawley Down Road, Fease Potteage	Housing	units	62	66	66	0	0.397	0.191	0.143	0.486	26	13	9	32	26	13	9	32	26	13	9	32	0	0	0	0	0	0	
MidSussex	218	Pease Potteage Golf House, Hornham Road, Pease Potteage	Housing	units	25	26	26	0	0.397	0.191	0.143	0.486	10	5	4	13	10	5	4	13	10	5	4	13	0	0	0	0	0	0	
MidSussex	220	Land north of Kingsland Lanes, Sevens Common	Housing	units	119	126	126	0	0.397	0.191	0.143	0.486	24	12	14	24	12	14	24	12	14	24	12	14	24	0	0	0	0	0	0
MidSussex	221	Land to the north of Shepherds Walk Hassocks	Housing	units	130	137	137	0	0.397	0.191	0.143	0.486	55	26	20	67	55	26	20	67	55	26	20	67	0	0	0	0	0	0	
MidSussex	223	Land east of Kings Way, Burgess Hill	Housing	units	309	327	327	0	0.397	0.191	0.143	0.486	130	62	47	159	130	62	47	159	130	62	47	159	0	0	0	0	0	0	
MidSussex	238	Land at Little Park Farm, north of Haverpoint	Housing	units	18	19	19	0	0.397	0.191	0.143	0.486	8	4	3	10	8	4	3	10	8	4	3	10	0	0	0	0	0	0	
MidSussex	246	Hurst Farm, Hurstwood Lane, Horwads Heath	Housing	units	350	370	370	0	0.397	0.191	0.143	0.486	147	71	53	180	147	71	53	180	147	71	53	180	0	0	0	0	0	0	
MidSussex	247	Perland Farm, Horwads Heath	Housing	units	178	178	178	0	0.397	0.191	0.143	0.486	75	36	27	91	75	36	27	91	75	36	27	91	0	0	0	0	0	0	
MidSussex	268	Land at Holly Farm, Cophorne Way, Cophorne	Housing	units	18	40	40	0	0.397	0.191	0.143	0.486	9																		

Note: Results in Grey Italics are comparisons of Reference Cases to 2017 (for context)

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Note: Includes junctions identified in previous Scenarios or in the previous Mid Sussex Transport Study which, for consistency, are retained in the list even if no significant or severe impacts are identified in the Sites DPD Scenario

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ID	Area	Junction
N1	Copthorne	A264 / A2220 Copthorne
N2	Copthorne	A264 / B2028 Copthorne
N4	Copthorne	B2028 / B2037 Copthorne
N6	East Grinstead	A22 / Imberhorne Lane
N7	Crawley Down	B2028 Turners Hill Road / Wallage Lane
N8	Turners Hill	B2110 / B2028 Turners Hill
N9	Felbridge	A264 / A22 Felbridge
N10	West Hoathly	Selsfield Road / Vowels Lane
C1	Handcross	B2114 Junction, Handcross
C2	Lower Beeding	B2110 / B2115 Leechpond Hill
C3	Slough Green	B2115 Junction, Slough Green
C4	Haywards Heath	Borde Hill Lane / Copyhold Lane
C5	Haywards Heath	B2114 / B2036 Whitemans Green
C6	Haywards Heath	B2036 / Ardingly Road, Whitemans Green
C7	Haywards Heath	A272 / B2036
C8	Cowfold	A281 North Junction, Cowfold
C9	Cowfold	A281 South Junction, Cowfold
C10	Bolney	A23 / A272 Bolney Road
C11	North Chailey	A272 / A275 North Chailey
C12	Haywards Heath	A273 / Isaac's Lane / Traustein Way
S1	Burgess Hill	A23 / A2300 Southbound On-Slip
S2	Burgess Hill	A23 / A2300 Eastern Roundabout
S3	Burgess Hill	A2300 / Cuckfield Road
S4	Burgess Hill	Cuckfield Road / THE HUB
S5	Burgess Hill	A2300 / Northern Arc Spine Road
S6	Burgess Hill	Junction Road / B2113, Burgess Hill
S7	Hurstpierpoint	B2117 / B2116 Hurstpierpoint
S8	Hassocks	A273 / B2116 Hassocks (Stonepond)
S9	Pyecombe	A23 / A281 Eastbound On-Slip
S10	Ditchling	B2112 / B2116 Ditchling
S13	Burgess Hill	Cuckfield Rd / Science & Tech Park Access (N)
S15	Burgess Hill	A272 Bolney Road / Bishopstone Lane
S16	Burgess Hill	A2300 / Stairbridge Lane / Pookbourne Lane
S17	Burgess Hill	Bishopstone Lane / Job's Lane
S18	Hassocks	A273 / B2112
S19	Hassocks	B2112 / Lodge Lane
S20	Burgess Hill	Janes Lane / Manor Road
S21	Burgess Hill	B2112 / Green Road
S22	Burgess Hill	Valebridge Road / Junction Road / Leylands Road
S23	Burgess Hill	A273 / B2036 / Marchants Way
S24	Burgess Hill	A273 / Sussex Way
S25	Burgess Hill	West Street / Fairfield Road
S26	Burgess Hill	A273 / York Road
S27	Burgess Hill	B2113 Keymer Road / Folders Lane

	Ref v 2017
	SEVERE
	SIG.
	SEVERE
	SEVERE
	SEVERE
	SEVERE
	SEVERE
	SEVERE
	SEVERE
	SIG.
	SEVERE
	SEVERE
	SEVERE
	SEVERE
	SEVERE
	SEVERE
	SIG.
	SEVERE
	SEVERE
	SEVERE
	SEVERE
	SEVERE
	SEVERE
	SIG.
	SEVERE
	22
	4

Scenario v Ref	'Severe' change in Ref v 2017 also?	Number of 'Severe' Arms		V/C (above severe criteria)	Excess delay (above severe criteria)
		AM	PM		
		0	0	0	0
		0	0	0	0
		0	0	0	0
		0	0	0	0
SEVERE	YES	0	1	14	0
		0	0	0	0
		0	0	0	0
		0	0	0	0
SIG.		0	0	0	0
		0	0	0	0
		0	0	0	0
		0	0	0	0
SIG.		0	0	0	0
		0	0	0	0
SEVERE	YES	1	2	61	223
		0	0	0	0
		0	0	0	0
SIG.		0	0	0	0
		0	0	0	0
		0	0	0	0
SEVERE	YES	0	2	58	168
SEVERE		3	0	63	155
		0	0	0	0
		0	0	0	0
SEVERE		0	1	17	0
SEVERE	YES	1	1	0	172
SIG.		0	0	0	0
SEVERE	YES	0	2	0	179
SEVERE	YES	0	1	0	73
SIG.		0	0	0	0
		0	0	0	0
		0	0	0	0
		0	0	0	0
		0	0	0	0
		0	0	0	0
		0	0	0	0
		0	0	0	0
		0	0	0	0
SIG.		0	0	0	0
SEVERE	YES	0	1	0	77
SIG.		0	0	0	0
		0	0	0	0
SIG.		0	0	0	0
		0	0	0	0
		0	0	0	0
9	7	5	11	214	1047
8					

Scenario v Ref	'Severe' change in Ref v 2017 also?	Number of 'Severe' Arms		Excess V/C (above severe criteria)	Excess delay (above severe criteria)
		AM	PM		
		0	0	0	0
		0	0	0	0
		0	0	0	0
		0	0	0	0
SEVERE	YES	0	1	14	0
		0	0	0	0
		0	0	0	0
SIG.		0	0	0	0
		0	0	0	0
		0	0	0	0
SIG.		0	0	0	0
		0	0	0	0
		0	0	0	0
		0	0	0	0
		0	0	0	0
		0	0	0	0
		0	0	0	0
SIG.		0	0	0	0
		0	0	0	0
SIG.		0	0	0	0
		0	0	0	0
		0	0	0	0
		0	0	0	0
SIG.		0	0	0	0
		0	0	0	0
		0	0	0	0
		0	0	0	0
SIG.		0	0	0	0
		0	0	0	0
		0	0	0	0
		0	0	0	0
		0	0	0	0
		0	0	0	0
		0	0	0	0
SIG.		0	0	0	0
SIG.		0	0	0	0
SIG.		0	0	0	0
SIG.		0	0	0	0
		0	0	0	0
SIG.		0	0	0	0
		0	0	0	0
		0	0	0	0
1	1	0	1	14	0
11					

SEVERE= Increase in RFC of 10% or more to 95% or more
or increase in delay of 1 min or more to 2 mins or more

SIGNIFICANT= Increase in RFC of 5% or more to 85% or more

Mid Sussex Transport Study: Scenario DPD Results Summary

Note: Results in Grey Italics are comparisons of Reference Cases to 2017 (for context)

M23 and A23 (Junction 8 to A27 Main Sections)

Average Increase in Peak Hour Flow - Impact of Scenario

M23 - Impact of Scenario v Reference Case
A23 - Impact of Scenario v Reference Case
Overall

M23 - Impact of Reference Case v 2017
A23 - Impact of Reference Case v 2017
Overall

Road Sections with a NOTABLE FLOW INCREASE in AM or PM

Northbound

1	A23 - A27 to A273 OFF
2	A23 - A273 ON to A281 OFF
3	A23 - A281 ON to B2117 OFF
4	A23 - B2117 OFF to B2118 ON
5	A23 - B2118 ON to A2300 OFF
6	A23 - A2300 ON to A272 OFF
7	A23 - A272 ON to Jeremys Lane OFF
8	A23 - Jeremys Lane ON to B2115 OFF
9	A23 - B2115 ON to B2110 OFF
10	A23 - B2110 ON to J11 OFF
11	M23 - J11 ON - J10a ON
12	M23 - J10a ON to J10 OFF
13	M23 - J10 ON to J9 OFF
14	M23 - J9 ON to J8 OFF

Southbound

15	M23 - J8 ON to J9 OFF
16	M23 - J9 ON to J10 OFF
17	M23 - J10 ON to J10a OFF
18	M23 - J10a OFF - J11 OFF
19	A23 - J11 ON to B2114 OFF
20	A23 - B2114 OFF to B2110 ON
21	A23 - B2110 ON to B2115 OFF
22	A23 - B2115 ON to Broxmead Lane OFF
23	A23 - Broxmead Lane OFF to A272 OFF
24	A23 - A272 ON to A2300 OFF
25	A23 - A2300 ON to B2118 OFF
26	A23 - B2118 OFF to B2117 ON
27	A23 - B2117 ON to A281 ON
28	A23 - A281 ON to A273 OFF
29	A23 - A273 ON to A27

Number of Sections with a NOTABLE FLOW INCREASE (29 in total)

NOTABLE = Increase in traffic flow of 100 vehicles or more

Ashdown Forest

Change in Vehicle Kilometres - Impact of Scenario

Ashdown Forest - Impact of Scenario v Reference

ScDPD v Ref	
AM	PM
0.10%	2.42%
2.76%	2.09%
2.03%	2.18%

Ref v 2017	
AM	PM
20.80%	10.09%
25.29%	19.04%
24.05%	16.57%

ScDPD mit. v Ref	
AM	PM
0.09%	2.66%
3.28%	3.44%
2.40%	3.22%

ScDPD v Ref	
AM	PM

183 (5.1%)	
	260 (7.9%)
	415 (13.1%)
	415 (13.1%)
	411 (12.7%)
	386 (11.3%)
	235 (7.2%)
	230 (6.4%)
	198 (5.5%)
	148 (3.7%)

ScDPD mit. v Ref	
AM	PM

124 (3.5%)	
	326 (10%)
	430 (13.6%)
	430 (13.6%)
	433 (13.4%)
	399 (11.7%)
	242 (7.5%)
	238 (6.6%)
	202 (5.6%)
	153 (3.8%)

244 (6.9%)	
226 (7.2%)	
260 (7.7%)	
305 (9.3%)	
305 (9.3%)	
258 (7.4%)	

247 (7%)	
226 (7.3%)	
254 (7.6%)	
297 (9.1%)	
297 (9.1%)	
564 (16.3%)	
	584 (14%)
	434 (11.5%)

7	9
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7	11
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ScDPD v Ref	
AM	PM
-0.48%	0.52%

ScDPD mit. v Ref	
AM	PM
-0.48%	0.24%

