

MID SUSSEX TRANSPORT STUDY

TRANSPORT IMPACT OF *SITES DPD SCENARIO*

NON-TECHNICAL SUMMARY

IDENTIFICATION TABLE	
Client/Project owner	Mid Sussex District Council
Project	Mid Sussex Transport Study
Study	Transport Impact of <i>Sites DPD Scenario</i>
Type of document	Non-Technical Summary
Date	03/03/2020
File name	MSTS Sites DPD Scenario Non-Technical Summary.docx
Reference number	107380

TABLE OF CONTENTS

1.	INTRODUCTION	2
1.1	WORK UNDERTAKEN	2
1.2	SCENARIO'S TESTED	2
2.	THE SITES DPD SCENARIO WITHOUT MITIGATION	4
2.1	INTRODUCTION	4
2.2	TRAFFIC FLOW IMPACTS	4
2.3	CROSS BOUNDARY IMPACTS	4
3.	PROPOSED MITIGATION	6
4.	THE SITES DPD SCENARIO WITH MITIGATION	7
4.1	INTRODUCTION	7
4.2	TRAFFIC FLOW IMPACTS	7
4.3	CROSS BOUNDARY IMPACTS	7
5.	KEY LOCATIONS	9
6.	CONCLUSION	9

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

1.1.3 The 2017 Base Year Highway Model is validated to the Department for Transport's WebTAG guidance. The modelling is considered to be reliable and accurate for the purposes of this study, as well as an input for wider work including air quality modelling.

1.2 Scenario's Tested

1.2.1 A series of 2031 Development Scenarios have been refined over a number of iterations. 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. This summary focusses on the outcomes of the *Sites DPD Scenario*. The main report and Appendices provide more detail on the preparatory model development and forecasting assumptions. The previous scenarios are described in Technical Notes.

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

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

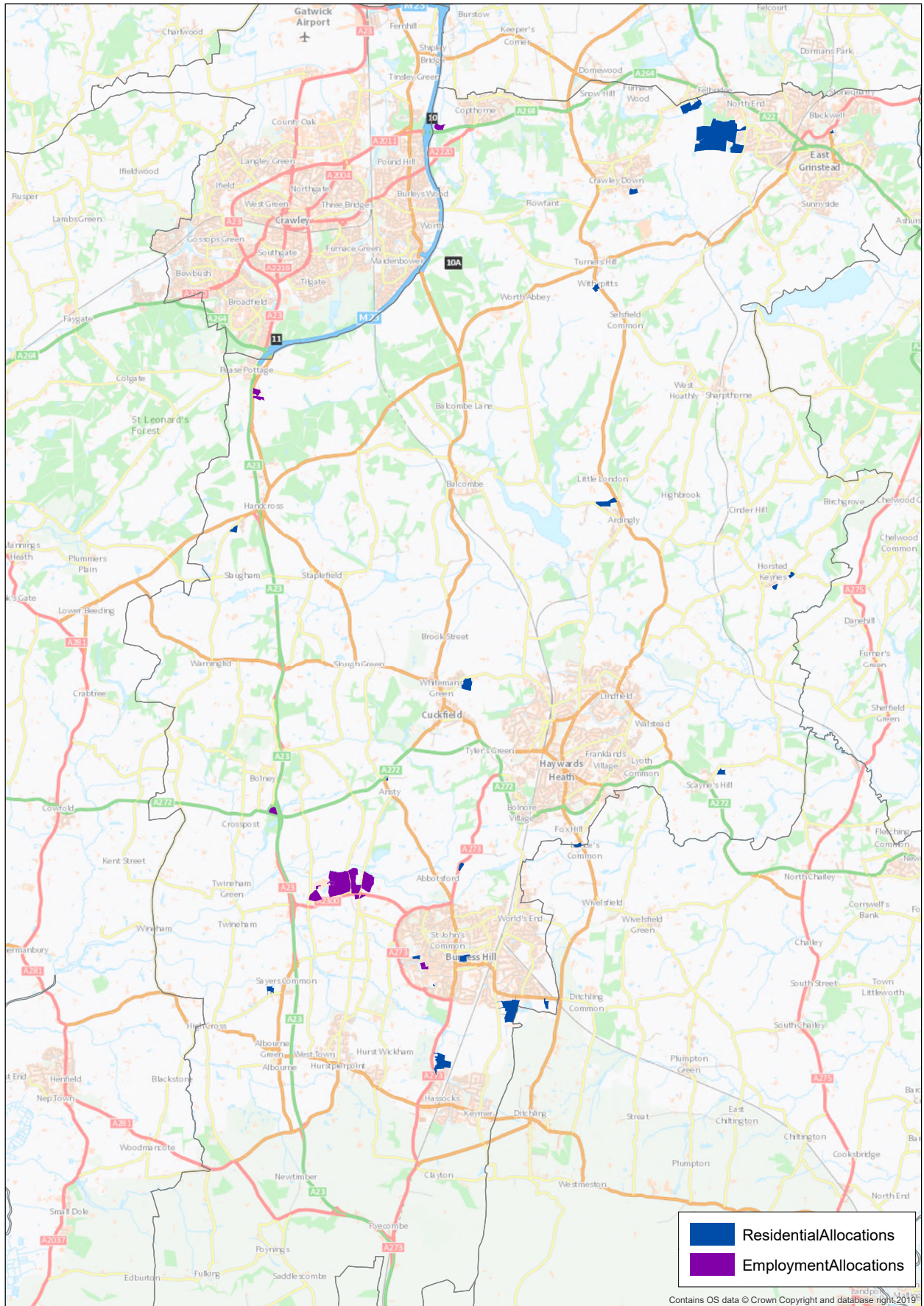
- 22 housing development sites (there are 21 additional to the *Reference Case* due to SA24 being committed); and
- 8 additional employment sites including a science and technology park (subsequently referred to as the S&T park) north of the A2300 near Burgess Hill

1.2.4 **Table 1** shows the total housing units and **Figure 1** shows *Sites DPD Scenario* locations.

Table 1. 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

Figure 1. Location of Development Sites in the Sites DPD Scenario



Contains OS data © Crown Copyright and database right 2019

2. THE SITES DPD SCENARIO WITHOUT MITIGATION

2.1 Introduction

2.1.1 The section briefly describes the results for the *Sites DPD Scenario without Mitigation*.

2.1.2 The junction impact analysis reported in this non-technical summary focusses on identifying the ‘severe’ impacts, as defined by the criteria described in the main modelling report. Further details of junction impacts are described in the main report.

2.2 Traffic Flow Impacts

2.2.1 The *Sites DPD Scenario without Mitigation* generates significant additional traffic centred around the A2300 and nearby roads, in the AM and PM Peak. 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.

2.2.2 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.

2.2.3 ‘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

2.2.4 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.

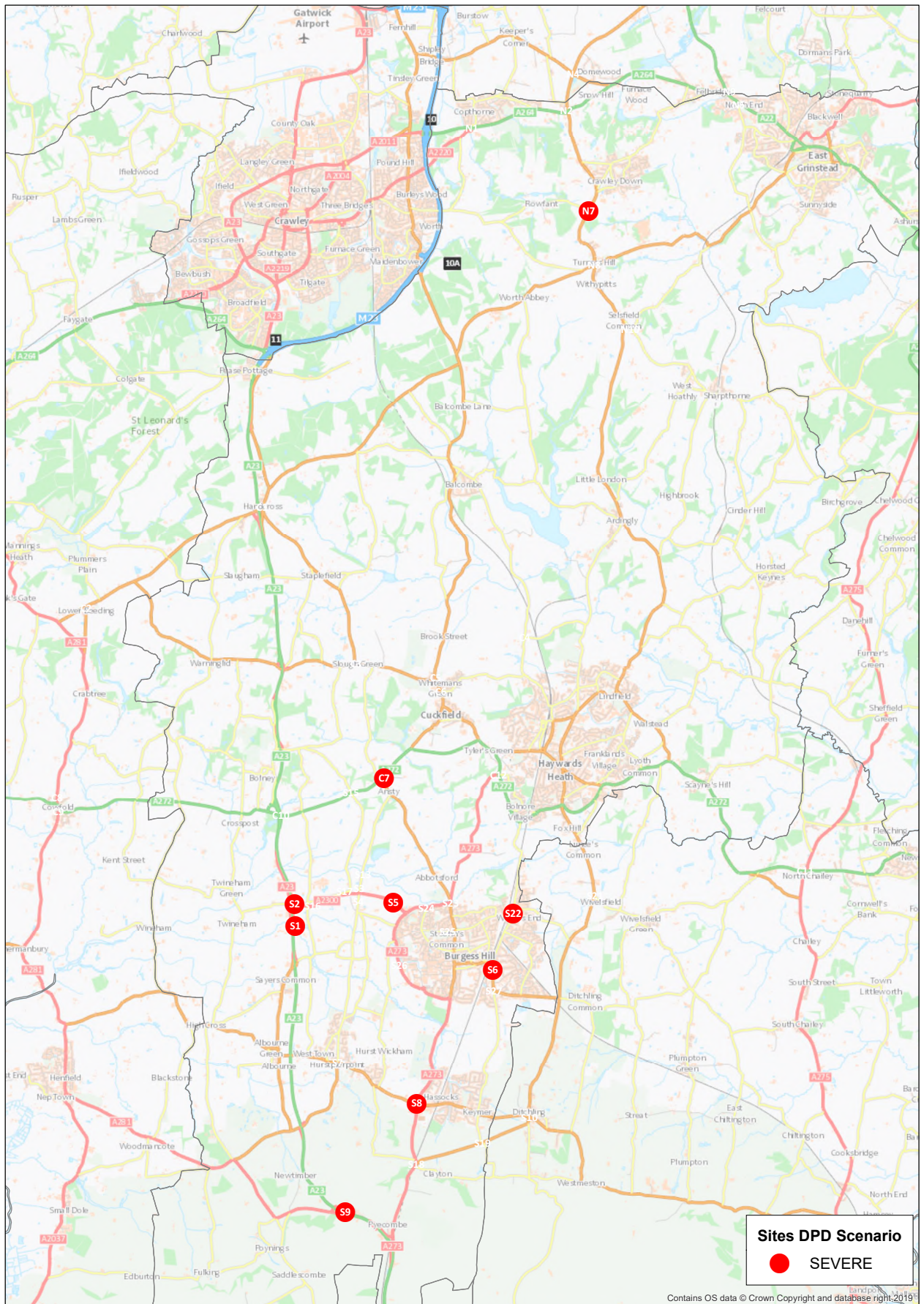
2.2.5 **Figure 2** is a map showing the locations of the severely impacted junctions.

2.3 Cross Boundary Impacts

2.3.1 In the *Sites DPD Scenario without Mitigation* there are no ‘severe’ impacts at any junctions in the neighbouring authorities.

2.3.2 In the **Ashdown Forest**, 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 2. Location of 'severely' impacted junctions in the Sites DPD Scenario versus Reference Case



Contains OS data © Crown Copyright and database right 2019

3. PROPOSED MITIGATION

- 3.1.1 **Sustainable mitigation** has been considered initially. Following discussion with West Sussex County Council, specific measures have been proposed at each site based on the location and opportunity for enhancement to bus services and active modes.
- 3.1.2 The proposed sustainable mitigation goes some way to reducing the transport impact of the developments, but outline **highway mitigation measures** have also been considered to address the remaining ‘severe’ impacts. These have been tested in the *with* mitigation model runs. **Table 2** summarises the proposed highway mitigation measures.
- 3.1.3 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.
- 3.1.4 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.

Table 2. 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

4. THE SITES DPD SCENARIO WITH MITIGATION

4.1 Introduction

- 4.1.1 The section briefly describes the results for the *Sites DPD Scenario with Mitigation*.
- 4.1.2 The junction impact analysis reported in this non-technical summary focusses on identifying the ‘severe’ impacts, as defined by the criteria described in the main modelling report. Further details of junction impacts are described in the main report.

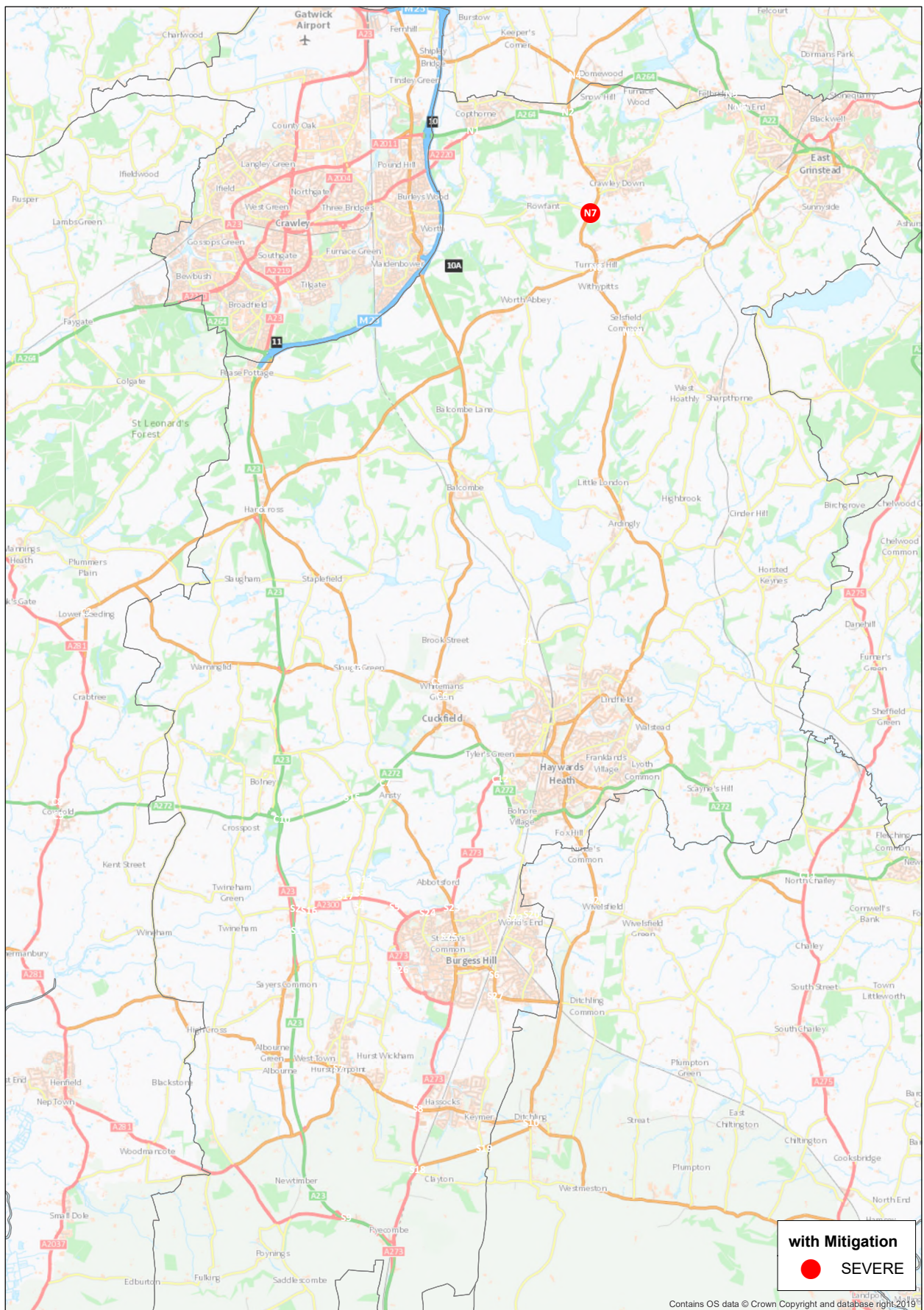
4.2 Traffic Flow Impacts

- 4.2.1 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.
- 4.2.2 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.
- 4.2.3 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%. 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.
- 4.2.4 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.
- 4.2.5 **Figure 3** is a map showing the locations of the severely impacted junctions.

4.3 Cross Boundary Impacts

- 4.3.1 In the *Sites DPD Scenario with Mitigation* there are no ‘severe’ impacts at any junctions in the neighbouring authorities.
- 4.3.2 In the **Ashdown Forest**, there is an increase in distance travelled (vehicle kilometres) of 0.24% in the PM peak, which is lower the 0.52% increase without Mitigation. In the AM peak there is no discernible change in distance travelled.

Figure 3. 'Severely' impacted junctions in Sites DPD Scenario with Mitigation vs. Reference Case



5. KEY LOCATIONS

A264/A22 Felbridge

- 5.1.1 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.
- 5.1.2 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.

Recommended Further Work

- 5.1.3 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.

6. CONCLUSION

- 6.1.1 In the *Sites DPD Scenario without Mitigation* ‘severe’ impacts occur at **nine** junctions (as defined by the criteria described in the main modelling report).

- 6.1.2 in the *Sites DPD Scenario with Mitigation* the proposed sustainable measures and highway mitigation measures are largely successful with only **one** location remaining 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%. 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.

SYSTRA provides advice on transport, to central, regional and local government, agencies, developers, operators and financiers.

A diverse group of results-oriented people, we are part of a strong team of professionals worldwide. Through client business planning, customer research and strategy development we create solutions that work for real people in the real world.

For more information visit [www. systra. co. uk](http://www.systra.co.uk)

Birmingham – Newhall Street

5th Floor, Lancaster House, Newhall St,
Birmingham, B3 1NQ
T: +44 (0)121 393 4841

Birmingham – Innovation Court

Innovation Court, 121 Edmund Street, Birmingham B3 2HJ
T: +44 (0)121 393 4841

Dublin

2nd Floor, Riverview House, 21-23 City Quay
Dublin 2, Ireland
T: +353 (0) 1 566 2028

Edinburgh – Thistle Street

Prospect House, 5 Thistle Street, Edinburgh EH2 1DF
United Kingdom
T: +44 (0)131 460 1847

Glasgow – St Vincent St

Seventh Floor, 124 St Vincent Street
Glasgow G2 5HF United Kingdom
T: +44 (0)141 468 4205

Glasgow – West George St

250 West George Street, Glasgow, G2 4QY
T: +44 (0)141 468 4205

Leeds

100 Wellington Street, Leeds, LS1 1BA
T: +44 (0)113 360 4842

London

3rd Floor, 5 Old Bailey, London EC4M 7BA United Kingdom
T: +44 (0)20 3855 0079

Manchester – 16th Floor, City Tower

16th Floor, City Tower, Piccadilly Plaza
Manchester M1 4BT United Kingdom
T: +44 (0)161 504 5026

Newcastle

Floor B, South Corridor, Milburn House, Dean Street, Newcastle, NE1
1LE
United Kingdom
T: +44 (0)191 249 3816

Perth

13 Rose Terrace, Perth PH1 5HA
T: +44 (0)131 460 1847

Reading

Soane Point, 6-8 Market Place, Reading,
Berkshire, RG1 2EG
T: +44 (0)118 206 0220

Woking

Dukes Court, Duke Street
Woking, Surrey GU21 5BH United Kingdom
T: +44 (0)1483 357705

Other locations:

France:

Bordeaux, Lille, Lyon, Marseille, Paris

Northern Europe:

Astana, Copenhagen, Kiev, London, Moscow, Riga, Wroclaw

Southern Europe & Mediterranean: Algiers, Baku, Bucharest,
Madrid, Rabat, Rome, Sofia, Tunis

Middle East:

Cairo, Dubai, Riyadh

Asia Pacific:

Bangkok, Beijing, Brisbane, Delhi, Hanoi, Hong Kong, Manila,
Seoul, Shanghai, Singapore, Shenzhen, Taipei

Africa:

Abidjan, Douala, Johannesburg, Kinshasa, Libreville, Nairobi

Latin America:

Lima, Mexico, Rio de Janeiro, Santiago, São Paulo

North America:

Little Falls, Los Angeles, Montreal, New-York, Philadelphia,
Washington