

# **Appraisal Framework Module 4. Surface Access: Local and Strategic Roads Modelling Study Gatwick Airport Second Runway**

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## 1. Introduction

### 1.1 Background

- 1.1.1 The Airports Commission (AC) was established in 2012 by the UK Government to examine the need for additional UK airport capacity and to recommend how any additional capacity requirements can be met in the short, medium, and long-term. The AC is due to submit a Final Report to the UK Government by the summer of 2015, assessing the environmental, economic and social costs and benefits of various solutions to increase airport capacity, considering operational, commercial and technical viability.
- 1.1.2 Shortly after its inception, the AC issued tenders for support contracts to engage independent technical advice on a range of aspects of the Commission's work. Jacobs, together with sub-consultants Leigh Fisher and Bickerdike Allen Partners were appointed as the sole supplier on the Airport Operations, Logistics and Engineering Support Contract (ref: RM1082), which runs throughout the AC's lifespan up until the summer of 2015.
- 1.1.3 A key milestone in the Commission's operational life was the delivery in December 2013 of an Interim Report. Following a general call for evidence, the Interim Report detailed the results of analysis of the capacity implications of forecast growth in UK aviation demand and a preliminary appraisal on a long-list of proposals put forward by scheme promoters to address the UK's long-term aviation connectivity and capacity needs. The associated appraisal process identified three short-listed options, two focussed on expanding Heathrow Airport and one on expanding Gatwick. These options were then subsequently further developed and appraised as part of an assessment that was published for consultation in November 2014.
- 1.1.4 The pre-consultation assessment of surface access constituted a static appraisal using spreadsheet-based demand forecasting models, which were developed primarily to assess the surface transport capacity implications of each expansion option. Following feedback from the Commission's surface access stakeholders (the Department for Transport (DfT), the Highways Agency (HA), Network Rail (NR), and Transport for London (TfL)), further assessment of the surface access implications of the three expansion options was undertaken during the consultation period from November 2014 to January 2015.
- 1.1.5 This assessment focussed specifically on three key aims:
- Undertaking further sensitivity-testing of the spreadsheet-based models to determine the impact of key variables on airport-related surface access demand, notably incorporating trip distribution forecasts from the DfT's National Air Passenger Allocation Model (NAPAM);
  - Providing a more detailed dynamic assessment using network-based models of the capacity and level-of-service implications of airport expansion associated with each short-listed option; and
  - Providing traffic forecasts compatible with the requirements of the air quality assessment that will be undertaken as a part of a separate environmental work-stream.
- 1.1.6 The ultimate aim of the study was to provide further guidance to the Commission on the feasibility of, and likely surface transport issues associated with each expansion option. The findings of this analysis were reported to the AC at the end of January 2015.

### 1.2 Public consultation

- 1.2.1 On the 3<sup>rd</sup> February 2015 the Phase 2 consultation ended after a period of 12 weeks. In this time the Commission received approximately 75,000 responses on the three short-listed options for expansion at Heathrow and Gatwick. The sources of the responses were wide-ranging and included (but were not limited to) members of the public, businesses, scheme promoters, local government and campaign

groups. The consultation covered a broad spectrum of issues relating to potential expansion at Heathrow and Gatwick, including surface access provision.

- 1.2.2 Following an initial review of the consultation responses by the Commission, Jacobs were provided with responses from the consultees listed in Table 1-1. The Commission’s Secretariat considered that these responses raised issues whose technical complexity did not allow all of their points to be addressed without support from Jacobs. A review of the responses by Jacobs identified approximately 600 comments relating to surface access.

**Table 1-1: Reviewed Consultee Responses**

<b>Consultee</b>
Buckinghamshire County Council
Charlwood Parish Council
Crawley Borough Council
East Sussex County Council
EasyJet
Fiona Mactaggart MP
Gatwick Area Conservation Campaign
Gatwick Airport Limited
Haywards Heath Town Council
Heathrow Airport Limited
Heathrow Hub Limited
Horsham District Council
Hounslow Council
Independent Transport Commission
Kent County Council
Mid Sussex District Council
Network Rail
Reigate & Banstead Borough Council
Richmond Heathrow Campaign
Royal Borough of Kensington & Chelsea
Royal Borough of Windsor & Maidenhead
Slough Borough Council
Surrey County Council
Tandridge District Council
Transport for London
Virgin Atlantic
West Sussex County Council

- 1.2.3 Each of the comments were recorded and categorised by their content. This approach allowed for the identification of recurring themes within the comments and made it possible to understand some of the key areas of concern held by the consultees. The approach informed the need for any additional analysis that would be required to support earlier phases of work such that the issues raised by the consultees could be suitably addressed.

1.2.4 Following an initial review of the surface access comments the AC identified four areas of additional analysis. These were as follows:

1. Road Freight Impacts;
2. Network Resilience;
3. Demand Management; and
4. **Strategic & Local Road Impacts.**

1.2.5 This report focuses on the fourth area of additional analysis and will provide advice to the Commission on whether any of the responses would materially impact upon the appraisal of any of the short-listed schemes. In particular, it will provide advice on the impacts of expansion upon specific road links and junctions surrounding Heathrow and Gatwick.

### **1.3 Report purpose**

1.3.1 The purpose of this report is two-fold:

1. To identify and summarise the comments that have been made by consultees regarding the impacts of expansion on the strategic and local road networks surrounding Heathrow and Gatwick; and
2. To assess whether any of these comments would materially affect the Commission's understanding of the feasibility of a particular option or the level of associated mitigation that would be required.

### **1.4 Report structure**

1.4.1 The remainder of this report is structured as follows:

- Chapter 2 provides a summary of the comments made by the consultees with respect to the impact of airport expansion on strategic and local roads;
- Chapter 3 outlines how the impact on strategic and local roads has been assessed by Jacobs;
- Chapter 4 discusses the impact of the Gatwick Second Runway (GSR) option on the strategic and local road network; and
- Chapter 5 provides a summary to the above and provides direct responses to the consultee comments listed in Chapter 2.

## 2. Consultee comments

### 2.1 Gatwick option

2.1.1 The comments received with respect to the strategic and local road impacts of the proposed second runway at Gatwick are summarised in Table 2-1.

**Table 2-1: Gatwick strategic & local road comments**

Consultee(s)	Summary of Issue Raised	Road / Location
All	Concerned that the current road network and the infrastructure improvements promised will not adequately combat the future year 'background' congestion.	General
TfL Gatwick Airport Limited Mid Sussex District Council	Has not considered the increase in freight demand as a result of the airport expansion and the associated effects on the road network.	General
Surrey County Council Gatwick Airport Limited Tandridge District Council Crawley Borough Council Royal Borough of Windsor & Maidenhead Haywards Heath Town Council West Sussex County Council Mid Sussex District Council Reigate & Banstead Borough Council Horsham District Council	More emphasis on the appraisal of local roads needed, particularly; the A25 between the M25 and Dorking; Balcombe Road; Longbridge Roundabout; North Terminal Cargo access; A22; A23; A24; A264; A272; Hooley Intersection; Fellridge where the A22 and A264 meet; links to Burgess Hill & Haywards Heath from the airport.	A25 Longbridge Roundabout North Terminal Cargo Access A22 A23 A24 A264 A272 Hooley Intersection Fellridge Burgess Hill Haywards Heath
Surrey County Council	Suggested transport improvements. <ul style="list-style-type: none"> <li>• A23/M23 Hooley Intersection – improve links to the north (especially Croydon)</li> <li>• Capacity and junction improvements to A24 – alternative to M25/M23</li> <li>• M25 junction 9</li> <li>• Improvements to the A23, A217 and A25 – alternative to the M25/M23 and will alleviate issue at Reigate railway crossing</li> <li>• Fellridge where the A22 and A264 meet – improve east and west connectivity</li> <li>• Car parking needs further assessment</li> <li>• Improve rail</li> <li>• Improve PT and awareness campaigns</li> </ul>	A23 / M23 Hooley Intersection A24 M25 Junction 9 A23 A217 A25 Fellridge
Gatwick Area Conservation Campaign	Extension of the M23 to central London due to the increase in LGVs and HGVs (2040).	M23
Surrey County Council Gatwick Area Conservation Campaign Tandridge District Council Crawley Borough Council Charlwood Parish Council Haywards Heath Town Council West Sussex County Council Mid Sussex District Council Horsham District Council Reigate & Banstead Borough Council	Gatwick has poor east and west connectivity and more than the £10 million contribution from Gatwick is needed to improve local roads and that this should be provided by the airport. In general, a serious underestimation of the new road infrastructure required.	General
Gatwick Area Conservation Campaign	5,000 more local trips at Horley over the next 10 years.	Horley

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Consultee(s)	Summary of Issue Raised	Road / Location
Gatwick Area Conservation Campaign Tandridge District Council Crawley Borough Council West Sussex County Council Mid Sussex District Council Horsham District Council	New bypass or tunnel at Reigate and a new western bypass at Crawley required but lack of space without demolishing houses, businesses, etc. Also there is no funding in place for the Crawley bypass.	Reigate Crawley
Gatwick Airport Limited Kent County Council West Sussex County Council	A24 and sections of the A27 need to be considered in the assessment and widening of M23 and M25 removed as it is unsupported.	A24 A27 M23 M25
Gatwick Airport Limited	Analysis does not include assignment of demand to specific route based factors such as travel time, distance and other costs and does not have full coverage of the strategic road network.	General
Gatwick Airport Limited Kent County Council Crawley Borough Council Royal Borough of Windsor & Maidenhead Charlwood Parish Council Haywards Heath Town Council West Sussex County Council Mid Sussex District Council Horsham District Council Reigate & Banstead Borough Council	More detailed modelling required for local roads and their junctions as this directly affects Air Quality, Carbon and Surface Noise.	Local roads (unspecified)
Surrey County Council Tandridge District Council Kent County Council Crawley Borough Council Charlwood PC Haywards Heath Town Council Mid Sussex District Council Horsham District Council Reigate & Banstead Borough Council	Needs to place less reliance on the M25 and M23 for travel to the airport.	M23 M25
Kent County Council RB Windsor & Maidenhead Charlwood PC West Sussex County Council Reigate & Banstead Borough Council	M25 and M23 will exceed capacity by 2030 and capacity improvements need to be made.	M23 M25
Surrey County Council Kent County Council Crawley Borough Council Haywards Heath Town Council West Sussex County Council Mid Sussex District Council	Local areas will need investment for PT, traffic calming measures and cycle paths etc.	General
Charlwood PC	Object to; use of Povey Cross entrance, closure of Lowfield Heath Road and the increase in traffic through Charlwood & Hookwood.	Charlwood Hookwood
Charlwood PC	Local businesses would suffer due to increase in congestion.	Charlwood
East Sussex County Council	Agrees with second runway as long as environment, noise mitigation is in place and appropriate infrastructure improved – particularly the A27 and rail. Also would insist on a £5000 contribution towards each new house built.	A27
Mid Sussex District Council Reigate & Banstead Borough Council	Infrastructure in Mid Sussex is already failing and does not believe the Commission has fully understood this, suggesting their potential improvements are inadequate.	Mid Sussex
Mid Sussex District Council	Believes there would need to be 51% increase in housing and this, plus infrastructure improvements would cost approximately £300 million.	General

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**Surface Access: Strategic & Local Road Impacts**



Consultee(s)	Summary of Issue Raised	Road / Location
Surrey County Council Reigate & Banstead Borough Council	Potential issues on the A217 at the railway crossing due to the increase frequency of the North Down Line.	A217

- 2.1.2 Some of the consultees also expressed concern regarding unspecified local roads, often within their own administrative boundaries. The impact on local roads in Horley, Crawley, Reigate, Charlwood and Hookwood were also mentioned, as was infrastructure provision in Mid Sussex.

### 3. Approach

#### 3.1 Dynamic highway modelling

- 3.1.1 Further assessment of the surface access implications of the three expansion options was undertaken during the consultation period. This included the following:
- Enhanced distribution/mode-share modelling – this involved enhancements to the pre-consultation spreadsheet models. The air passenger and on-airport employee surface access forecasts from these enhanced models provided inputs for the two items discussed below;
  - Heathrow dynamic highway modelling – highway surface access forecasts from the spreadsheet models were input into TfL’s West London Highway Assignment Model (WeLHAM) to assess the dynamic impacts of increasing airport-related road trips on network performance in London and the South-East. WeLHAM was chosen as it is a detailed network-based highway capacity model of the South-West London covering the Heathrow Study area. It has been validated to a 2009 base year and is used by TfL to assess road schemes within London. An alternative approach of using the HA’s “M25 model” was investigated, but was rejected for this purpose due to the lack of local network detail around Heathrow and age of model development and validation in our study area; and
  - Gatwick dynamic highway modelling - highway surface access forecasts from the spreadsheet models were also input into an adapted version of TfL’s South London Highway Assignment Model (SoLHAM) to assess the dynamic impacts of increasing airport-related road trips on network performance in London and the South-East – SoLHAM was chosen as a starting point as it is a detailed network-based highway capacity model of South London, which was validated to a 2009 base year and is used by TfL to assess road schemes in South London.
- 3.1.2 The methodology adopted for these assessments differed from those undertaken before the consultation in the following ways:
- While the pre-consultation assessments focussed on a single AM peak-hour demand forecast for each of the airport expansion options in 2030, the dynamic highway modelling assessments covered a range of time periods, driven by the requirements of the dynamic modelling work-streams. For the highway modelling, an AM peak hour (0800-0900) and a PM peak-hour (1700-1800) was required to be consistent with the WeLHAM and SoLHAM modelled time periods, along with an average Inter Peak (IP) hour covering the period 1000-1600;
  - The capacity analysis undertaken pre-consultation was static in nature – demand associated with airport expansion was added to estimates of background demand in the spreadsheet model and the capacity implications were assessed without consideration of the impacts of crowding and congestion on route choice and journey timing. The dynamic nature of the capacity assessments undertaken in this assessment means that the resulting forecasts do account for these elements and are consequently different from those reported pre-consultation; and
  - The forecast passenger numbers were different between the pre-consultation assessment (multiple sources including from promoters) and the dynamic highway modelling assessments carried out during the consultation (which adopted the Commission’s “Carbon-Traded Global Growth” forecasts). Estimates of the number of airport employees were also adjusted.
- 3.1.3 Both assessments were undertaken with reference to a Core and an Extended Baseline, which together listed transport infrastructure and services expected or likely to be in place by 2030 regardless of any airport expansion that may be delivered in the UK. The Core Baseline only included those schemes that were fully committed and funded when the pre-consultation assessment commenced.
- 3.1.4 The primary focus of all the analysis was on the Extended Baseline, as by 2030 it was judged very likely that further enhancements to the UK transport network would have been delivered above and beyond the works that were fully committed when the pre-consultation assessment commenced.

- 3.1.5 Constructing an appropriate Extended Baseline for a 2030 assessment involved making significant assumptions about the likely state of the transport network by that time, and this was a central factor in the decision not to extend the scope of the surface access assessment to include later years.
- 3.1.6 There is currently a high degree of uncertainty surrounding some of the included schemes, not just in terms of their delivery but also their final form and characteristics, which in some cases are continually evolving as development work is progressed. The assessment was based on the best assumptions on the state of the 2030 transport network at the time, and was informed by discussions with the AC's stakeholders before the pre-consultation assessments were published, and some limited technical meetings between the report authors and the stakeholders, mainly related to modelling issues and clarifications on feedback received during the pre-consultation work.
- 3.1.7 Further details regarding the dynamic highway modelling methodologies and the transport schemes included in the assessments are contained within the Phase 2B Surface Access Appraisal Reports for each of the three short-listed options.
- 3.1.8 The dynamic highway models produced during the public consultation period and their associated traffic forecasts have been used to produce the assessment of strategic and local road impacts presented in this document. These models:
- 3.1.9 Offer a sufficient level of strategic and local network coverage and detail for the purposes of this assessment;
- Have been developed to reflect peak periods of the day;
  - Are dynamic; accounting for how changing costs of travel affect route choice;
  - Use the latest AC "Carbon-Traded Global Growth" demand projections; and
- 3.1.10 Include an Extended Baseline scenario that can be compared with the three short-listed options to isolate the impact of expansion.

## **3.2 Methodology**

- 3.2.1 In order to ascertain whether the specific concerns expressed by the consultees regarding the impact on strategic and local roads will materially affect the Commission's understanding of the feasibility of a particular option, the Volume over Capacity (V/C) on the roads identified by the consultees have been examined.
- 3.2.2 V/C provides a measure of how close to capacity a road is operating. It is expressed as either a ratio or percentage (as is the case in this analysis) representing the degree of saturation of a particular stretch of road, with values closer to 0 representing free-flow conditions and values approaching or greater than 100% indicating high levels of congestion. Observations on many roads have shown that delay rises steeply at V/C values of above 85%, and that severe delays occurs at V/C values of above 100%.
- 3.2.3 The V/Cs on the roads highlighted by consultees have been examined for each of the short-listed options and compared against the Extended Baseline scenario. For each of the roads identified, the following questions have been addressed:
- What will be the V/C of the road if airport expansion takes place?
  - How does this compare if expansion does not take place (i.e. the Extended Baseline scenario)?
  - Are the answers to either of the above questions different to any of the conclusions that were drawn in earlier stages of the Commission's work, or being reported for the first time?
- 3.2.4 This methodology has been developed to support the AC in identifying which roads or corridors (and which sections of the roads or corridors) will be adversely impacted by expansion at Heathrow or

Gatwick and the implications that this will have with regards to mitigation and ultimately the viability of a particular option.

- 3.2.5 The V/C of the roads is presented separately for each road / corridor in tabular format to allow each of the short-listed options to be easily compared against the Extended Baseline. The tables include columns indicating whether the V/C has increased above a threshold of 85% (approaching capacity) or 100% (at capacity) as a result of the expansion, and will also indicate if the V/C of a road that is already over capacity in the Extended Baseline is further exacerbated by expansion.
- 3.2.6 The analysis is supplemented by a series of map-based plots. The plots present the V/Cs spatially on the identified roads in each scenario, allowing particular 'pinch points' on the network to be readily identified. Separate plots have also been provided to show only the roads that are below a given threshold in the Extended Baseline but exceed the threshold with expansion.
- 3.2.7 The following strategic and local roads have been identified for inclusion in the analysis for the Gatwick Second Runway:
- M23
  - M25
  - A22
  - A23
  - A24
  - A25
  - A217
  - A264, and
  - local roads
- 3.2.8 The A27 and A272 are only briefly discussed as they are located outside the simulation area of the Gatwick model.
- 3.2.9 The results are presented for the AM peak period (0800-0900) and the PM peak period (1700-1800) which is when the impact on strategic and local roads is likely to be the greatest.
- 3.2.10 Whilst the analysis presented in this report is derived from the same traffic models as those used to produce the Phase 2B Surface Access Appraisal Reports (which were produced during the consultation period), the road sections highlighted in each report differ. There are two reasons for this. Firstly, the analysis presented in this report includes road sections that operate above both 85% and 100% capacity, whereas the Phase 2B Surface Access Appraisal Reports focussed only on those operating above 100% capacity. Secondly, the Phase 2B Surface Access Appraisal Reports also applied a condition that meant that only roads that experienced an increase of at least 50 airport-related PCUs (compared to the Extended Baseline) were presented. This condition has not been applied in the analysis in this report.
- 3.2.11 This approach allows sections of road that exceed capacity in the Gatwick Second Runway scenario but do not carry additional airport-related traffic to still be highlighted. In such cases, whilst airport expansion might not be having a direct impact on a particular corridor, it is quite possible that airport trips are causing the rerouting of non-airport traffic onto the corridor, leading to capacity issues

## 4. Gatwick second runway

### 4.1 Model results

4.1.1 Modelled traffic flow data for the Extended Baseline (EBL) and Gatwick Second Runway (Gatwick 2R) are presented in the following tables for both AM and PM peak periods. The data presented is explained in more detail below:

- **Total Demand** – the demand flow on the road specified (all user classes in passenger car units, PCUs);
- **Airport Demand** - the demand flow on the road specified travelling either to or from Heathrow Airport only (all user classes in PCUs); and
- **V/C** – demand flow on the road specified divided by the capacity of the road as calculated by the simulation within the traffic model (expressed as a percentage).

4.1.2 The final three columns are used to summarise the impact of the Gatwick Second Runway, as follows:

- **> 85%** - a tick is placed in this column where a road that experienced a V/C percentage of less than 85% in the Extended Baseline is predicted to experience a V/C in excess of 85% following the introduction of the Gatwick Second Runway;
- **> 100%** - a tick is placed in this column where a road that experienced a V/C percentage of less than 100% in the Extended Baseline is predicted to experience a V/C in excess of 100% following the introduction of the Gatwick Second Runway; and
- **>100% +** - a tick is placed in this column where a road that was already over capacity in the Extended Baseline is further exacerbated by the introduction of the Gatwick Second Runway.

4.1.3 Impacts are also presented spatially in a series of diagrams, based on the following key:

- Amber - roads predicted to exceed 85% V/C following implementation of the second runway
- Red – roads predicted to exceed 100% V/C following implementation of the second runway
- Black - roads already forecast to exceed 100% in the Extended Baseline but expected to be further exacerbated by the introduction of the second runway

### 4.2 M23

4.2.1 The M23 is a major north south route running from south of Hooley in Surrey to Pease Pottage, near Crawley in West Sussex. The route also includes the M23 Spur linking Gatwick Airport at Junction 9.

4.2.2 The motorway is currently built to three lane motorway standard with hard shoulders. By 2030, it has been assumed that the route will operate as a SMART motorway (J8-10) with the hard shoulder converted for use as a permanent traffic lane.

4.2.3 Tables 3-1 and 3-2 summarise the performance of the corridor in both morning and evening periods. Figures 3-1 and 3-2 highlight graphically the Baseline and Gatwick Second Runway impacts on the M23. Both highlight that, following the implementation of hard shoulder running, the corridor performs satisfactorily and that adequate capacity is provided in both the Extended Baseline and Second Runway schemes.

4.2.4 In the morning, airport expansion results in an increased V/C ratio, above 85%, on the M23 southbound between Junctions 8 and 9. Nevertheless, this is comfortably within the capacity of the corridor.

4.2.5 Exiting Junction 11, northbound A23 demand exceeds capacity on the approach to the Southgate Avenue Roundabout, both with and without airport expansion. This is the primary route into Crawley

from the south it is important that the performance of the junction is maintained. Local improvements, including a flare on the A23 approach and limited widening of the circulatory carriageway, would help mitigate the capacity constraint at this location.

- 4.2.6 At Junction 9, significant additional capacity is provided under the Second Runway proposal with the construction of a new elevated slip from the M23 southbound towards the airport terminals. Despite this, the circulatory capacity from the M23 north to M23 spur exceeds 85% of capacity. Nevertheless, it is considered that further optimisation of junction signals will improve overall performance.
- 4.2.7 It should be noted that the AM V/C ratio on the M25 eastbound to M23 southbound slip is under 85% in the Extended Baseline but that this threshold is exceeded as a result of the second runway scheme. Gatwick expansion results in approximately 320 additional trips at this location.
- 4.2.8 Table 3-2 illustrates that, in the evening peak, the southbound V/C on the M23 between Junction 8 and 9 is at 85% V/C as a result of the second runway, but otherwise the M23 operates without issue. Finally, the A2011 approach to the M23 Junction 10 exceeds capacity, with and without airport expansion. Local carriageway widening (e.g. provision of a flare lane and optimisation of the circulatory carriageway) would help lessen this network restriction.
- 4.2.9 Overall, the additional analysis of the M23 corridor is consistent with the pre-consultation assessment and reporting which also indicated no significant capacity issues.
- 4.2.10 Figures highlighting the V/C ratio of all links on the M23 corridor, for both Extended Baseline and Gatwick Second Runway, are given in Appendix A, Figures A-1 to A-4.

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**Table 4-1: M23 AM V/C with Gatwick Second Runway**

Road	Direction	EBL			Gatwick 2R			Impact		
		Total Demand	Airport Demand	V/C	Total Demand	Airport Demand	V/C	> 85%	> 100%	> 100% +
Through M23 Mainline J11	Northbound	5,068	341	92.87	5,269	475	90.30			
M23 Mainline J11 - M23 Mainline J10a	Northbound	5,903	362	95.05	5,903	524	98.37			
M23 Mainline J10a - M23 Mainline J10	Northbound	6,738	443	96.39	6,939	651	99.27			
Through M23 Mainline J10	Northbound	5,843	443	94.26	5,928	651	96.28			
M23 Mainline J10 - M23 Mainline J9	Northbound	6,704	518	87.90	6,834	684	89.60			
Through M23 Mainline J9	Northbound	4,810	0	70.60	4,588	0	70.25			
M23 Mainline J9 - M23 Mainline J9a	Westbound	3,519	1,887	35.19	2,418	700	24.18			
M23 Mainline J9a - M23 Mainline J9	Eastbound	1,757	1,146	32.92	2,221	1,446	27.76			
M23 Mainline J9 - M23 Mainline J8	Northbound	6,097	914	79.94	6,292	1,201	82.50			
M23 Mainline J8 - M23 Mainline J7	Northbound	1,613	96	91.11	1,584	133	89.49			
M23 Mainline J7 - Brighton Rd/Church Ln Junction	Northbound	1,613	96	91.11	1,584	133	89.49			
Brighton Rd/Church Ln Junction - M23 Mainline J7	Southbound	1,701	133	96.08	1,715	197	96.89			
Through M23 Mainline J7	Southbound	1,701	133	96.08	1,715	197	96.89			
M23 Mainline J7 - M23 Mainline J8	Southbound	1,406	133	20.12	1,436	197	20.54			
Through M23 Mainline J8	Southbound	822	133	35.30	905	197	38.84			
M23 Mainline J8 - M23 Mainline J9	Southbound	6,135	1,369	80.44	6,797	1,939	89.12	✓		
Through M23 Mainline J9	Southbound	4,498	0	61.49	3,860	0	52.99			
M23 Mainline J9 - M23 Mainline J10	Southbound	4,980	231	65.29	4,388	246	57.53			
Through M23 Mainline J10	Southbound	4,037	204	58.73	3,848	228	55.90			
M23 Mainline J10 - M23 Mainline J10a	Southbound	4,164	204	59.71	3,966	228	56.88			
M23 Mainline J10a - M23 Mainline J11	Southbound	3,380	158	48.49	3,217	180	46.13			
Through M23 Mainline J11	Southbound	2,648	136	55.64	2,649	177	51.42			
M23 Mainline J11	Northbound	1,301	0	87.71	1,261	0	84.97			
M23 Mainline J11	Northbound	836	21	86.40	633	49	74.30			

**Appraisal Framework Module 4.**  
**Surface Access: Strategic & Local Road Impacts**



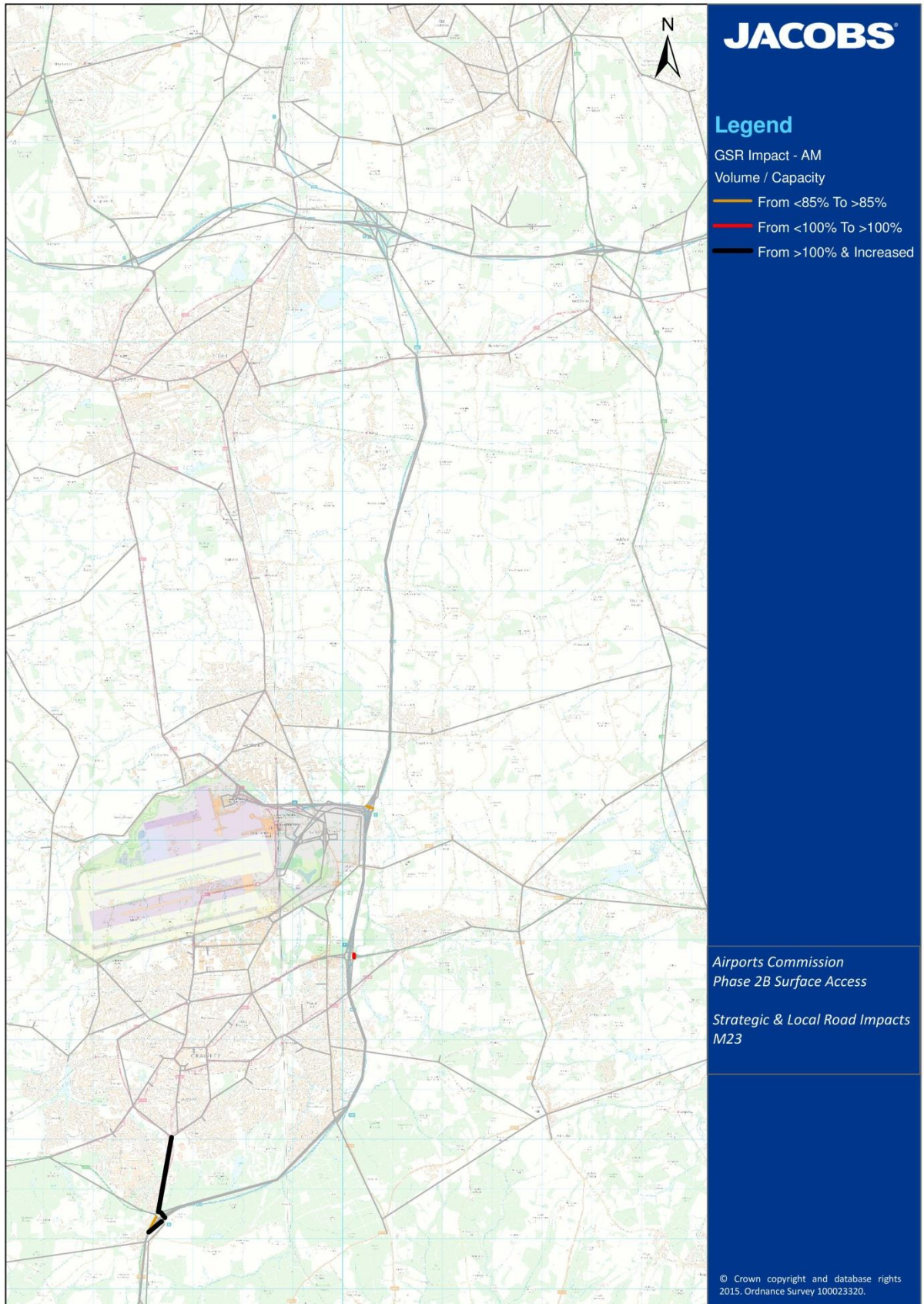
Road	Direction	EBL			Gatwick 2R			Impact		
		Total Demand	Airport Demand	V/C	Total Demand	Airport Demand	V/C	> 85%	> 100%	> 100% +
M23 Mainline J10a	Northbound	834	81	64.18	1,037	127	71.81			
M23 Mainline J10	Northbound	895	0	36.65	1,010	0	41.38			
M23 Mainline J10	Northbound	861	75	64.67	905	33	67.44			
M23 Mainline J9	Northbound	1,280	914	54.21	1,698	1,201	65.16			
M23 Mainline J8	Northbound	5,309	818	90.88	5,487	1,067	93.97			
M23 Mainline J8	Northbound	459	0	12.96	427	0	12.06			
M23 Mainline J8	Southbound	584	0	16.49	532	0	15.03			
M23 Mainline J8	Southbound	5,313	1,237	76.00	5,893	1,742	84.31			
M23 Mainline J9	Southbound	1,631	1,369	70.58	714	503	46.36			
M23 Mainline J9	Southbound	482	231	23.75	528	246	23.40			
M23 Mainline J10	Southbound	943	27	57.94	540	18	33.19			
M23 Mainline J10	Southbound	126	0	10.12	118	0	9.08			
M23 Mainline J10a	Southbound	783	46	29.72	749	48	28.32			
M23 Mainline J11	Southbound	732	22	76.91	567	3	59.56			
M23 Mainline J11	Southbound	1,184	0	98.64	972	0	81.00			
M23 Mainline J11 - A23	-	1,750	0	110.83	1,776	0	111.28			✓
M23 Mainline J10 - A2011	-	855	37	56.38	876	1	57.75			
M23 Mainline J9 - M23 Mainline J 9a	-	1,626	1,369	70.34	710	503	92.21	✓		
M25 eastbound to M23 southbound slip	-	2,782	707	78.60	3,132	1,027	88.47	✓		
M23 Mainline J7 - A23	-	366	0	26.55	354	0	25.86			
M23 Mainline J9 - M23 Mainline J9a - 2RW	Westbound	-	-	-	2,418	700	60.45			
M23 Mainline J9a - Airport Way/Northway Junction - 2RW	Westbound	-	-	-	3,429	935	34.29			
Airport Way/Northway Junction - M23 Mainline J9a 2RW	Eastbound	-	-	-	2,128	507	22.83			
M23 Mainline J9a - M23 Mainline J9 - 2RW	Eastbound	-	-	-	889	390	19.08			
M23 Mainline J8 - M23 Mainline J9 - 2Rwy	Southbound	-	-	-	6,791	1,939	89.04			

**Appraisal Framework Module 4.**  
**Surface Access: Strategic & Local Road Impacts**



Road	Direction	EBL			Gatwick 2R			Impact		
		Total Demand	Airport Demand	V/C	Total Demand	Airport Demand	V/C	> 85%	> 100%	> 100% +
M23 Mainline J9 - 2RW	Northbound	-	-	-	2,246	684	48.20			
M23 Mainline J9a -2RW	Westbound	-	-	-	1,332	1,057	38.72			
M23 Mainline J9 - 2RW	Southbound	-	-	-	2,217	1,436	64.45			
M23 Mainline J9 - M23 Mainline J 9a - 2RW	-	-	-	-	1,708	197	73.91			

**Figure 4-1: M23 AM peak V/C – Impact**



**Appraisal Framework Module 4.**  
**Surface Access: Strategic & Local Road Impacts**



**Table 4-2: M23 PM V/C with Gatwick Second Runway**

Road	Direction	EBL			Gatwick 2R			Impact		
		Total Demand	Airport Demand	V/C	Total Demand	Airport Demand	V/C	> 85%	> 100%	> 100% +
Through M23 Mainline J11	Northbound	2,874	164	46.19	2,971	221	47.83			
M23 Mainline J11 - M23 Mainline J10a	Northbound	3,340	183	51.80	3,442	260	54.17			
M23 Mainline J10a - M23 Mainline J10	Northbound	3,916	209	56.02	4,117	294	58.90			
Through M23 Mainline J10	Northbound	3,490	209	54.45	3,637	294	57.11			
M23 Mainline J10 - M23 Mainline J9	Northbound	4,136	214	54.23	4,335	299	56.84			
Through M23 Mainline J9	Northbound	3,488	0	51.98	3,492	0	54.21			
M23 Mainline J9 - M23 Mainline J9a	Westbound	1,588	933	15.88	1,149	326	11.49			
M23 Mainline J9a - M23 Mainline J9	Eastbound	2,962	1,302	55.48	3,713	1,893	46.41			
M23 Mainline J9 - M23 Mainline J8	Northbound	4,937	940	64.73	5,341	1,336	70.03			
M23 Mainline J8 - M23 Mainline J7	Northbound	1,489	100	84.11	1,471	152	83.11			
M23 Mainline J7 - Brighton Rd/Church Ln Junction	Northbound	1,489	100	84.11	1,471	152	83.11			
Brighton Rd/Church Ln Junction - M23 Mainline J7	Southbound	1,564	89	88.34	1,553	122	87.74			
Through M23 Mainline J7	Southbound	1,564	89	88.34	1,553	122	87.74			
M23 Mainline J7 - M23 Mainline J8	Southbound	1,338	89	19.15	1,364	122	19.51			
Through M23 Mainline J8	Southbound	863	89	37.04	906	122	38.88			
M23 Mainline J8 - M23 Mainline J9	Southbound	5,581	719	79.84	5,982	958	85.58	✓		
Through M23 Mainline J9	Southbound	4,633	0	69.61	4,297	0	66.87			
M23 Mainline J9 - M23 Mainline J10	Southbound	6,159	362	80.76	6,167	556	80.86			
Through M23 Mainline J10	Southbound	5,060	322	88.53	5,261	517	89.75			
M23 Mainline J10 - M23 Mainline J10a	Southbound	6,469	322	92.80	6,514	517	93.44			
M23 Mainline J10a - M23 Mainline J11	Southbound	5,112	248	73.26	5,149	396	73.79			
Through M23 Mainline J11	Southbound	4,421	157	92.98	4,471	253	93.87			
M23 Mainline J11	Northbound	1,263	0	85.09	1,220	0	82.21			
M23 Mainline J11	Northbound	467	18	44.59	471	39	45.42			

**Appraisal Framework Module 4.**  
**Surface Access: Strategic & Local Road Impacts**



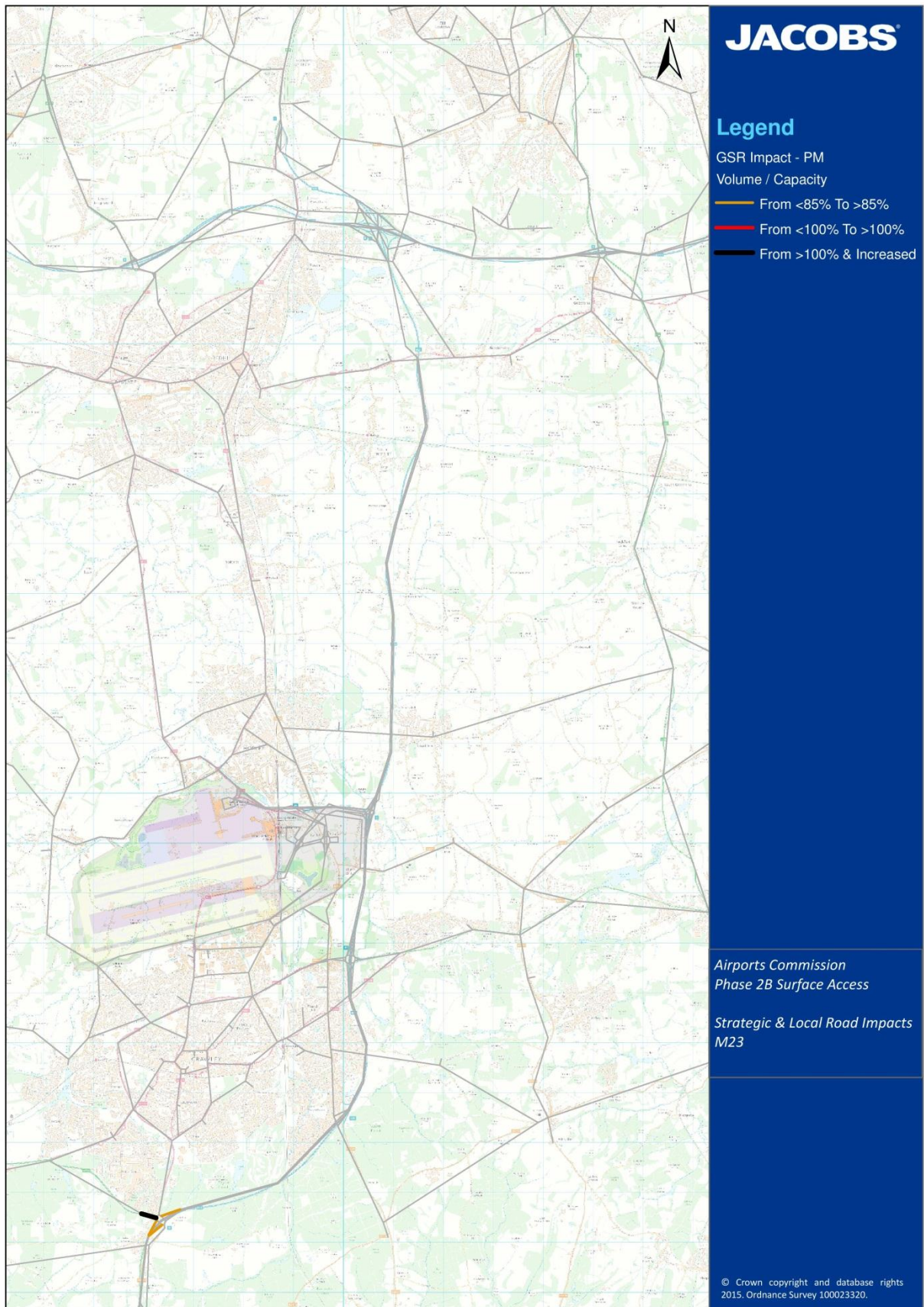
Road	Direction	EBL			Gatwick 2R			Impact		
		Total Demand	Airport Demand	V/C	Total Demand	Airport Demand	V/C	> 85%	> 100%	> 100% +
M23 Mainline J10a	Northbound	575	26	30.55	675	35	35.43			
M23 Mainline J10	Northbound	426	0	17.45	480	0	19.66			
M23 Mainline J10	Northbound	646	5	34.60	698	5	37.71			
M23 Mainline J9	Northbound	1,443	940	52.99	1,842	1,336	64.63			
M23 Mainline J8	Northbound	4,142	840	70.88	4,514	1,185	77.25			
M23 Mainline J8	Northbound	313	0	8.86	276	0	7.80			
M23 Mainline J8	Southbound	475	0	13.42	457	0	12.91			
M23 Mainline J8	Southbound	4,726	629	67.61	5,084	836	72.73			
M23 Mainline J9	Southbound	948	719	61.57	505	247	65.58			
M23 Mainline J9	Southbound	1,527	362	60.19	1,870	556	67.98			
M23 Mainline J10	Southbound	1,100	40	67.57	906	39	55.69			
M23 Mainline J10	Southbound	1,409	0	75.77	1,253	0	72.34			
M23 Mainline J10a	Southbound	1,357	74	62.82	1,366	121	60.87			
M23 Mainline J11	Southbound	691	92	72.56	678	143	71.22			
M23 Mainline J11	Southbound	1,287	0	107.27	1,280	0	106.67			
M23 Mainline J11 - A23	-	797	0	110.61	774	0	109.94			
A2011 approach to M23 J10	-	1,628	0	107.33	1,666	0	109.82			✓
M23 Mainline J9 - M23 Mainline J 9a	-	1,519	362	98.59	1,870	556	80.92			
M23 Mainline J8 - M23 Mainline J7	-	6,370	0	91.13	6,320	0	90.41			
M23 Mainline J7 - A23	-	380	0	26.84	368	0	25.99			
M23 Mainline J9 - M23 Mainline J9a - 2RW	Westbound	-	-	-	1,149	326	28.73			
M23 Mainline J9a - Airport Way/Northway Junction - 2RW	Westbound	-	-	-	3,207	744	32.07			
Airport Way/Northway Junction - M23 Mainline J9a 2RW	Eastbound	-	-	-	3,156	840	33.86			
M23 Mainline J9a - M23 Mainline J9 - 2RW	Eastbound	-	-	-	2,320	733	49.79			
M23 Mainline J8 - M23 Mainline J9 - 2Rwy	Southbound	-	-	-	5,982	958	78.43			

**Appraisal Framework Module 4.**  
**Surface Access: Strategic & Local Road Impacts**



Road	Direction	EBL			Gatwick 2R			Impact		
		Total Demand	Airport Demand	V/C	Total Demand	Airport Demand	V/C	> 85%	> 100%	> 100% +
M23 Mainline J9 - 2RW	Northbound	-	-	-	842	299	18.07			
M23 Mainline J9a -2RW	Westbound	-	-	-	2,058	418	59.83			
M23 Mainline J9 - 2RW	Southbound	-	-	-	1,180	711	34.30			
M23 Mainline J9 - M23 Mainline J 9a - 2RW	-	-	-	-	1,180	711	34.30			

**Figure 4-2: M23 PM peak V/C – Impact**



### 4.3 M25

- 4.3.1 The M25 is an orbital motorway surrounding London – it is one of the busiest roads in the UK. It was originally built as a dual three lane motorway but has subsequently been widened in a number of locations.
- 4.3.2 The analysis in this report focuses on the performance of the M25 between Junctions 5 and 10. West of the M23 Junction 7, the motorway is dual 4 lanes with hard shoulders. Between Junctions 5 and 7, a SMART motorway scheme has been completed, with hard shoulder now converted for use as a permanent traffic lane.
- 4.3.3 M25 performance is summarised in Tables 3-3 and 3-4 and graphically in Figures 3-3 and 3-4. Tables and diagrams highlight locations where the Second Runway schemes impacts on route capacity. The analysis highlights those links where expansion results in V/C ratios exceeding 85% and 100% thresholds or where demand increases on already over saturated links.
- 4.3.4 In the morning peak, a second runway at Gatwick will increase M25 westbound demand such that V/C values will reach 85% between Junctions 5 and 9. As noted previously, the eastbound slip from the M25 to M23 southbound is also above this value, however, this will not normally impact on performance. Otherwise, no significant capacity issues result on the motorway itself.
- 4.3.5 Adjacent to the M25, the westbound motorway slip to the A3 already operates above capacity in 2030; additional Gatwick second runway traffic will add a very small amount of additional demand (5 vehicles). Capacity is constrained by the merge and the provision of a Tiger Tail layout at this location would remove this network constraint. The M25 to A243 off slip is also overcapacity with and without a second runway. Minor geometry changes to the approach to Barnett Wood Lane roundabout would provide sufficient additional capacity.
- 4.3.6 In the evening, the eastbound M25 traffic volume slightly exceeds capacity (101%) through a short section of Junction 5 in both airport scenarios. Approximately 100 eastbound airport related trips use this link with a one runway airport, increasing to 140 with two, out of a total demand of approximately 4,800. Consequently any capacity issues are a result of background growth with only a marginal Gatwick impact.
- 4.3.7 As in the morning, the M25 to A3 slip is overcapacity, even in the Extended Baseline scenario. Potential mitigation is outlined above. Similarly, at Junction 8, the A217 Brighton Rd North to M25 eastbound avoiding slip exceeds capacity. Very minor changes to merging arrangements would mitigate this constraint.
- 4.3.8 Overall, the additional analysis of the M25 corridor and impacts resulting from a second runway at Gatwick are consistent with the pre-consultation assessment. Where short sections of the M25 are forecast to be overcapacity by 2030, this is due to background growth rather than airport expansion.
- 4.3.9 Figures A-5 to A8, in Appendix A, highlight the V/C ratio of all links on the M25 corridor, for both Extended Baseline and Gatwick Second Runway scenarios.

**Appraisal Framework Module 4.**  
**Surface Access: Strategic & Local Road Impacts**



**Table 4-3: M25 AM V/C with Gatwick Second Runway**

Road	Direction	EBL			NWR			Impact		
		Total Demand	Airport Demand	V/C	Total Demand	Airport Demand	V/C	> 85%	> 100%	> 100% +
Through M25 Mainline J10	Eastbound	5,600	491	80.12	5,772	702	82.58			
M25 Mainline J10 - M25 Mainline J9	Eastbound	7,079	522	75.96	7,267	749	77.97			
Through M25 Mainline J9	Eastbound	7,079	522	75.96	7,267	749	77.97			
M25 Mainline J9 - M25 Mainline J8	Eastbound	6,957	629	74.64	7,217	907	77.44			
Through M25 Mainline J8	Eastbound	5,883	629	63.12	6,176	907	66.27			
M25 Mainline J8 - M25 Mainline J7	Eastbound	7,393	707	79.33	7,722	1,027	82.85			
Through M25 Mainline J7	Eastbound	4,611	0	65.97	4,590	0	65.67			
M25 Mainline J7 - M25 Mainline J6	Eastbound	6,991	371	83.23	7,038	474	83.79			
Through M25 Mainline J6	Eastbound	5,218	347	74.65	5,283	441	75.58			
M25 Mainline J6 - M25 Mainline J5	Eastbound	6,466	347	76.98	6,537	441	77.82			
Through M25 Mainline J5	Eastbound	3,457	94	77.55	3,478	125	78.02			
M25 Mainline J5 - M25 Mainline J4	Eastbound	2,389	90	54.29	2,409	120	54.75			
M25 Mainline J4 - M25 Mainline J5	Westbound	2,959	125	83.58	2,994	174	84.58			
Through M25 Mainline J5	Westbound	5,378	463	81.48	5,513	623	83.53			
M25 Mainline J5 - M25 Mainline J6	Westbound	6,975	494	83.04	7,122	667	85.12	✓		
Through M25 Mainline J6	Westbound	6,209	494	88.83	6,359	667	90.97			
M25 Mainline J6 - M25 Mainline J7	Westbound	7,779	529	83.46	7,968	715	85.49	✓		
Through M25 Mainline J7	Westbound	4,789	0	68.52	4,780	0	68.38			
M25 Mainline J7 - M25 Mainline J8	Westbound	8,302	447	89.08	8,350	593	89.59			
Through M25 Mainline J8	Westbound	6,847	430	73.47	6,895	564	73.98			
M25 Mainline J8 - M25 Mainline J9	Westbound	7,851	430	84.24	7,932	564	85.11	✓		
Through M25 Mainline J9	Westbound	7,851	430	84.24	7,932	564	85.11	✓		
M25 Mainline J9 - M25 Mainline J10	Westbound	7,239	380	77.67	7,315	493	78.49			
Through M25 Mainline J10	Westbound	5,767	364	82.50	5,843	471	83.59			
M25 Mainline J10	Eastbound	2,323	0	71.60	2,319	0	71.46			
M25 Mainline J10	Eastbound	1,479	31	41.78	1,496	48	42.26			

**Appraisal Framework Module 4.**  
**Surface Access: Strategic & Local Road Impacts**



Road	Direction	EBL			NWR			Impact		
		Total Demand	Airport Demand	V/C	Total Demand	Airport Demand	V/C	> 85%	> 100%	> 100% +
M25 Mainline J9	Eastbound	1,536	0	86.77	1,519	0	85.82			
M25 Mainline J9	Eastbound	1,413	107	95.18	1,469	157	98.92			
M25 Mainline J8	Eastbound	1,074	0	52.40	1,041	0	50.78			
M25 Mainline J8	Eastbound	1,511	78	42.68	1,546	120	43.67			
M25 J7 to M23 southbound	Eastbound	2,782	707	78.60	3,132	1,027	88.47	✓		
M25 Mainline J7	Eastbound	2,380	371	53.39	2,448	474	54.91			
M25 Mainline J6	Eastbound	1,773	24	89.05	1,755	33	88.15			
M25 Mainline J6	Eastbound	1,248	0	56.00	1,253	0	56.21			
M25 Mainline J5	Eastbound	3,009	253	67.49	3,058	316	68.60			
M25 Mainline J5	Eastbound	1,068	4	23.97	1,070	6	24.00			
M25 Mainline J5	Westbound	2,419	338	68.33	2,520	449	71.19			
M25 Mainline J5	Westbound	1,597	31	71.67	1,608	44	72.14			
M25 Mainline J6	Westbound	766	0	93.45	762	0	92.93			
M25 Mainline J6	Westbound	1,597	31	71.67	1,608	44	72.14			
M25 Mainline J7	Westbound	2,989	529	59.95	3,187	715	63.46			
M25 Mainline J7	Westbound	3,513	447	78.79	3,569	593	80.06			
M25 Mainline J8	Westbound	1,455	17	62.43	1,455	29	62.45			
M25 Mainline J8	Westbound	1,004	0	45.03	1,037	0	46.52			
M25 Mainline J9	Westbound	1,829	50	103.35	1,828	71	103.28			
M25 Mainline J9	Westbound	1,217	0	81.98	1,211	0	81.55			
M25 Mainline J10	Westbound	1,472	16	31.59	1,472	22	31.59			
M25 Mainline J10	Westbound	2,842	0	80.29	2,831	0	79.97			
M25 Mainline J10 - A3	-	3,541	0	118.04	3,546	0	118.20			✓
M25 Mainline J9 - A243	-	1,045	4	106.49	1,046	7	106.52			✓
M25 Mainline J8 - A217	-	2,033	29	104.53	2,032	41	104.47			
M25 J7 to M23 southbound	-	2,712	707	77.59	3,071	1,027	87.87	✓		
M25 Mainline J6 - A22	-	1,995	24	92.37	2,016	34	93.33			

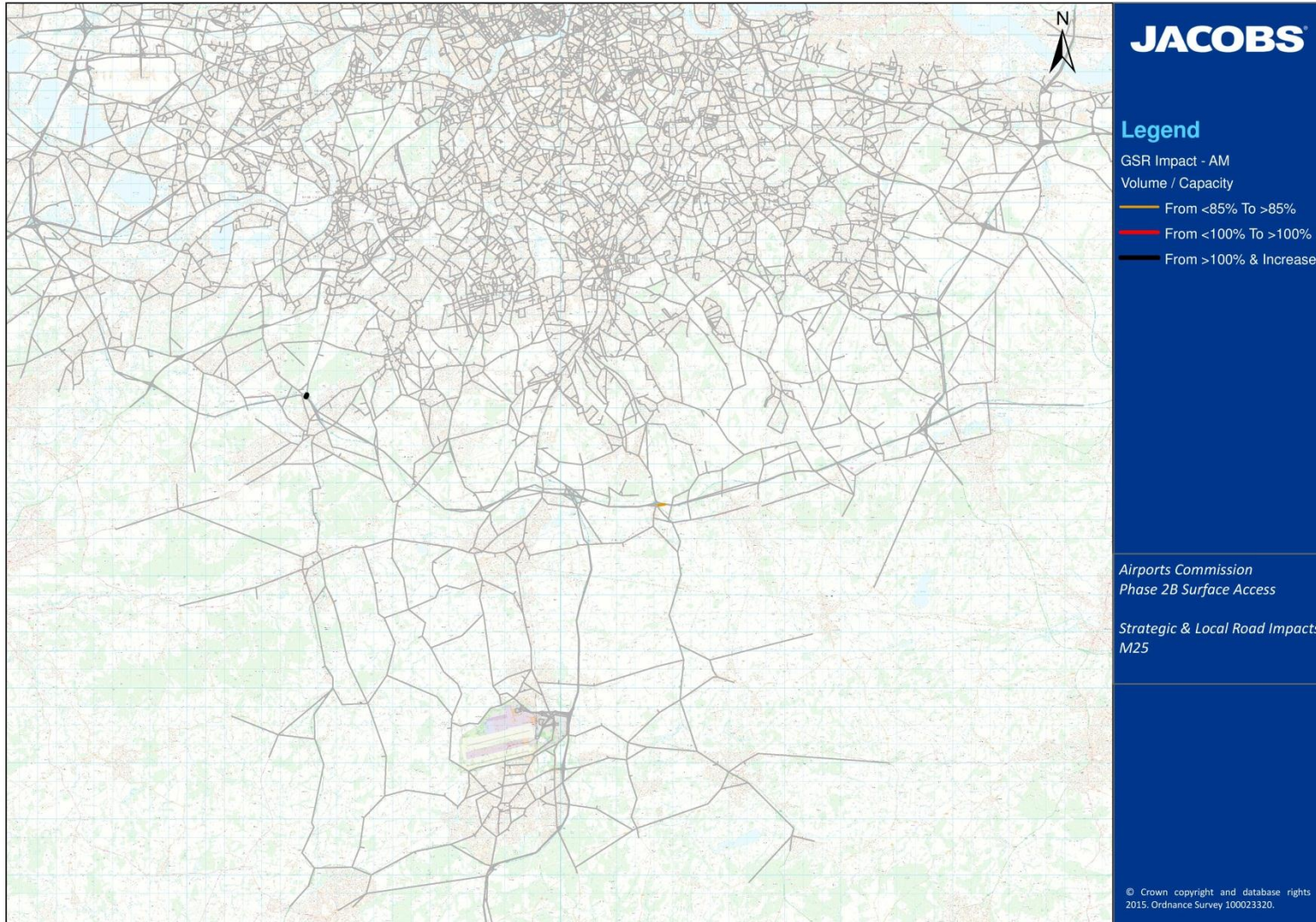
**Appraisal Framework Module 4.**  
**Surface Access: Strategic & Local Road Impacts**



Road	Direction	EBL			NWR			Impact		
		Total Demand	Airport Demand	V/C	Total Demand	Airport Demand	V/C	> 85%	> 100%	> 100% +
M25 Mainline J5 - M26	-	3,610	31	80.99	3,633	44	81.49			

Appraisal Framework Module 4.  
Surface Access: Strategic & Local Road Impacts

Figure 4-3: M25 AM peak V/C – Impact



**Appraisal Framework Module 4.**  
**Surface Access: Strategic & Local Road Impacts**



**Table 4-4: M25 PM V/C with Gatwick Second Runway**

Road	Direction	EBL			NWR			Impact		
		Total Demand	Airport Demand	V/C	Total Demand	Airport Demand	V/C	> 85%	> 100%	> 100% +
Through M25 Mainline J10	Eastbound	6,283	267	89.89	6,368	358	91.10			
M25 Mainline J10 - M25 Mainline J9	Eastbound	7,941	286	85.20	8,047	391	86.34			
Through M25 Mainline J9	Eastbound	8,635	312	92.65	8,744	427	93.82			
M25 Mainline J9 - M25 Mainline J8	Eastbound	8,635	312	92.65	8,744	427	93.82			
Through M25 Mainline J8	Eastbound	7,311	312	78.44	7,459	426	80.03			
M25 Mainline J8 - M25 Mainline J7	Eastbound	8,912	331	95.62	9,059	446	97.20			
Through M25 Mainline J7	Eastbound	6,370	0	91.13	6,320	0	90.41			
M25 Mainline J7 - M25 Mainline J6	Eastbound	8,199	363	97.60	8,291	503	98.70			
Through M25 Mainline J6	Eastbound	6,241	338	89.28	6,345	471	90.77			
M25 Mainline J6 - M25 Mainline J5	Eastbound	7,474	338	88.98	7,572	471	90.14			
Through M25 Mainline J5	Eastbound	4,498	98	100.91	4,522	141	101.44			✓
M25 Mainline J5 - M25 Mainline J4	Eastbound	3,271	92	74.34	3,294	132	74.86			
M25 Mainline J4 - M25 Mainline J5	Westbound	2,109	71	59.57	2,130	97	60.17			
Through M25 Mainline J5	Westbound	4,749	266	71.95	4,816	344	72.97			
M25 Mainline J5 - M25 Mainline J6	Westbound	6,104	282	72.67	6,162	367	73.36			
Through M25 Mainline J6	Westbound	4,739	282	67.79	4,802	367	68.70			
M25 Mainline J6 - M25 Mainline J7	Westbound	6,496	299	77.34	6,575	390	78.27			
Through M25 Mainline J7	Westbound	3,999	0	57.21	3,955	0	56.58			
M25 Mainline J7 - M25 Mainline J8	Westbound	6,787	477	72.83	6,955	681	74.62			
Through M25 Mainline J8	Westbound	5,740	450	61.59	5,895	647	63.25			
M25 Mainline J8 - M25 Mainline J9	Westbound	6,679	452	71.66	6,819	648	73.17			
Through M25 Mainline J9	Westbound	6,679	452	71.66	6,819	648	73.17			
M25 Mainline J9 - M25 Mainline J10	Westbound	6,555	364	70.34	6,685	520	71.73			
Through M25 Mainline J10	Westbound	5,114	342	73.16	5,244	485	75.02			
M25 Mainline J10	Eastbound	2,776	0	85.55	2,767	0	85.27			

**Appraisal Framework Module 4.**  
**Surface Access: Strategic & Local Road Impacts**



Road	Direction	EBL			NWR			Impact		
		Total Demand	Airport Demand	V/C	Total Demand	Airport Demand	V/C	> 85%	> 100%	> 100% +
M25 Mainline J10	Eastbound	1,658	19	46.82	1,680	33	47.46			
M25 Mainline J9	Eastbound	993	0	56.11	992	0	56.05			
M25 Mainline J9	Eastbound	1,619	26	109.05	1,615	36	108.75			
M25 Mainline J8	Eastbound	1,324	0	64.57	1,284	1	62.63			
M25 Mainline J8	Eastbound	1,601	18	45.23	1,600	20	45.20			
M25 Mainline J7	Eastbound	2,542	331	71.81	2,739	446	77.37			
M25 Mainline J7	Eastbound	1,829	363	41.02	1,971	503	44.21			
M25 Mainline J6	Eastbound	1,958	25	98.32	1,946	32	97.74			
M25 Mainline J6	Eastbound	1,233	0	55.32	1,227	0	55.05			
M25 Mainline J5	Eastbound	2,976	240	66.75	3,051	330	68.44			
M25 Mainline J5	Eastbound	1,227	6	27.53	1,228	9	27.55			
M25 Mainline J5	Westbound	2,640	194	74.57	2,686	247	75.88			
M25 Mainline J5	Westbound	1,355	16	60.80	1,345	22	60.34			
M25 Mainline J6	Westbound	1,365	0	85.01	1,360	0	84.68			
M25 Mainline J6	Westbound	1,757	17	78.85	1,773	24	79.54			
M25 Mainline J7	Westbound	2,497	299	48.99	2,620	390	51.22			
M25 Mainline J7	Westbound	2,788	477	62.55	2,999	681	67.27			
M25 Mainline J8	Westbound	1,047	27	44.94	1,060	34	45.49			
M25 Mainline J8	Westbound	939	2	42.12	925	1	41.50			
M25 Mainline J9	Westbound	1,431	88	80.85	1,444	128	81.58			
M25 Mainline J9	Westbound	1,307	0	88.03	1,309	0	88.15			
M25 Mainline J10	Westbound	1,442	22	30.94	1,441	35	30.92			
M25 Mainline J10	Westbound	2,081	0	58.78	2,068	0	58.42			
M25 Mainline J10 - A3	-	3,595	0	119.84	3,602	0	120.07			✓
M25 Mainline J9 - A243	-	1,325	12	94.30	1,335	16	95.02			
M25 Mainline J8 - A217	-	1,251	18	104.23	1,253	19	104.42			✓
M25 Mainline J7 - M23 J8	-	4,142	840	70.88	4,514	1,185	77.25			

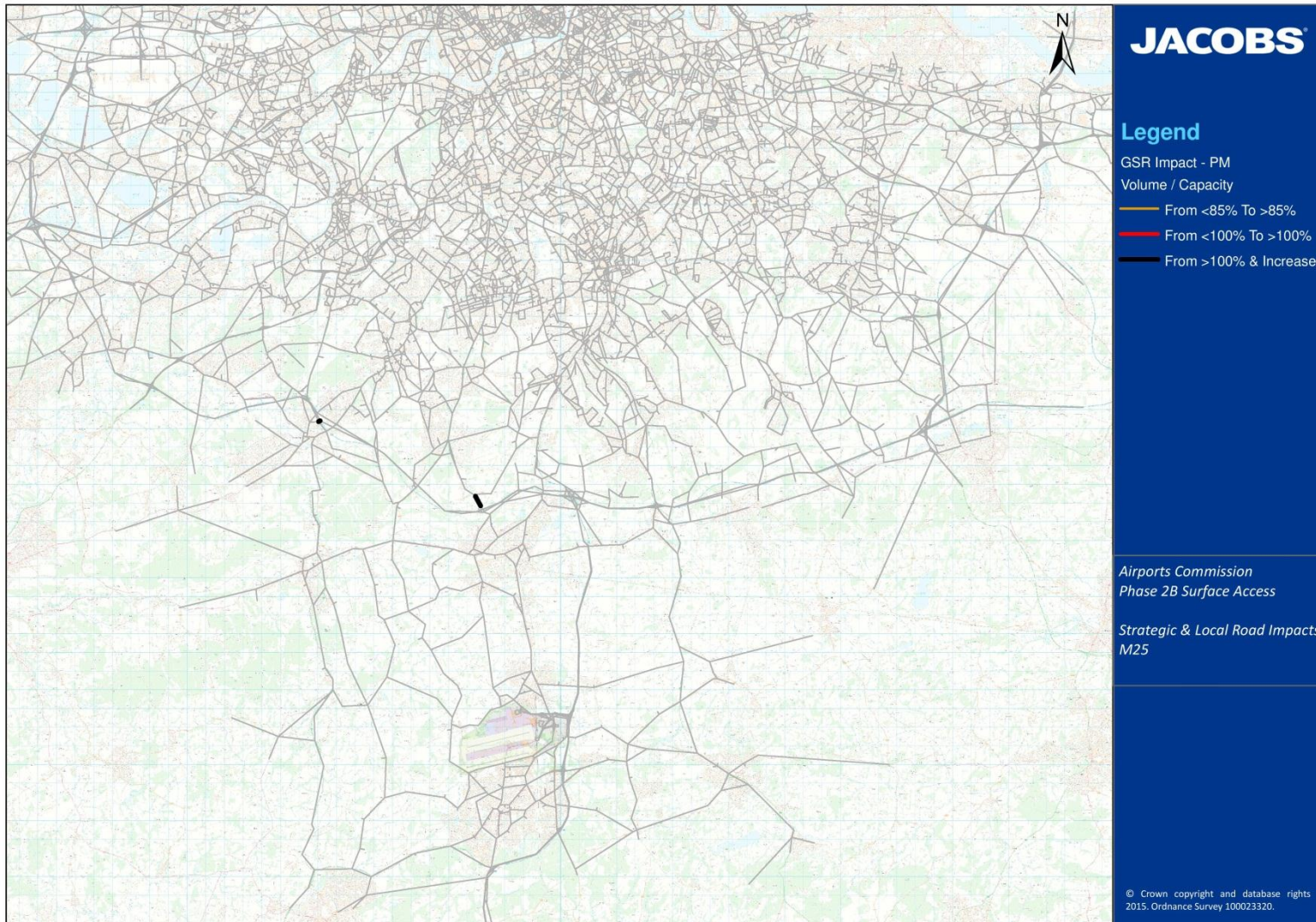
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Road	Direction	EBL			NWR			Impact		
		Total Demand	Airport Demand	V/C	Total Demand	Airport Demand	V/C	> 85%	> 100%	> 100% +
M25 Mainline J6 - A22	-	2,130	15	93.03	2,109	17	92.14			
M25 Mainline J5 - M26	-	3,407	16	76.42	3,396	22	76.18			

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Surface Access: Strategic & Local Road Impacts

Figure 4-4: M25 PM peak V/C – Impact



## 4.4 A22

- 4.4.1 The A22 is an important route linking London and Eastbourne in East Sussex. It crosses the M25 at Junction 6 before running parallel and east of the M23 to East Grinstead. Further south, the route then crosses into East Sussex linking to the A26 at Uckfield and the A27 at Polgate, north of Eastbourne.
- 4.4.2 The performance of the A22 with and with airport expansion has been analysed with results reported in Tables 3-5 and 3-6 below. V/C constraints are also shown graphically in Figures 3-5 and 3.6.
- 4.4.3 The A22 / Eastbourne Rd roundabout operates slightly above capacity in both 2031 morning period scenarios. Local widening of the approach and roundabout would provide additional capacity.
- 4.4.4 The A22 London Rd / Railway Approach roundabout in East Grinstead is a network constraint. While the second runway proposal results only a very small increase in traffic (12 vehicles) signalisation, together with improved traffic management through the town could help improve traffic flow.
- 4.4.5 On the A25 Godstone Road, the eastbound approach to the Barrowgreen Road has a V/C value over 100%. Minor widening of the roundabout approach would remove this constraint in the morning and evening periods.
- 4.4.6 Otherwise, in the evening peak, demand exceeds capacity at the following roundabout locations:
- A22 southbound approach to the A25 Oxted Road
  - A22 southbound approach to the B2028 at Newchapel
  - A22 southbound approach to the Lingfield Road roundabout, East Grinstead
- 4.4.7 Comparatively low cost capacity enhancements can be implemented at the first two locations while the signalisation of the A22 / Linfield Road would help improve performance.
- 4.4.8 Figures illustrating the V/C ratio of all links on the A22 corridor, for both Extended Baseline and Gatwick Second Runway, are given in Appendix A, Figures A-9 to A-12.

**Appraisal Framework Module 4.**  
**Surface Access: Strategic & Local Road Impacts**



**Table 4-5: A22 AM V/C with Gatwick Second Runway**

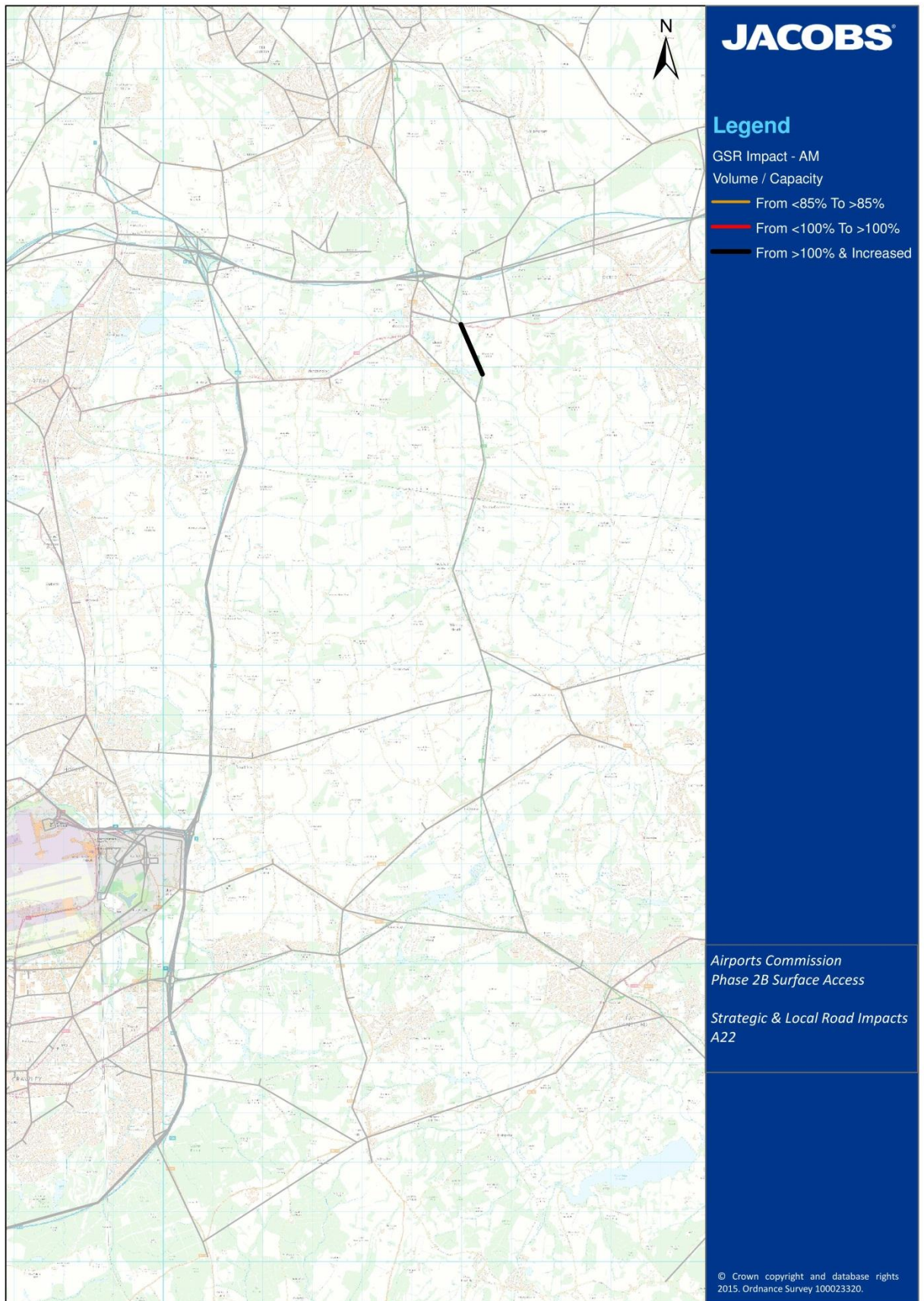
Road	Direction	EBL			Gatwick 2R			Impact		
		Total Demand	Airport Demand	V/C	Total Demand	Airport Demand	V/C	> 85%	> 100%	> 100% +
A22 Beeching Way/London Road - A22 London Road/ A264 Copthorne Road, A22 Mainline	Northbound	1,226	23	62.63	1,220	33	62.89			
A22 London Road/ A264 Copthorne Road - A22 Eastbourne Road/ B2028 Newchapel Road/ West Park Road, A22 Mainline	Northbound	563	0	71.60	555	0	72.36			
A22 Eastbourne Road/ B2028 Newchapel Road/ West Park Road - A22 Eastbourne Road/ Ray Lane, A22 Mainline	Northbound	784	1	43.78	796	1	44.47			
A22 Eastbourne Road/ Ray Lane - A22 Eastbourne Road/ Bone Mill Lane Roundabout, A22 Mainline	Northbound	1,137	0	102.84	1,151	0	104.07			✓
A22 Eastbourne Road/ Bone Mill Lane Roundabout - A22/ A25 Oxted Lane Roundabout, A22 Mainline	Northbound	1,094	0	104.77	1,072	0	103.08			
A22/ A25 Oxted Lane Roundabout - M25 Junction 6, A22 Mainline	Northbound	1,795	12	89.06	1,791	14	88.84			
M25 Junction 6 - A22/ A25 Oxted Lane Roundabout, A22 Mainline	Southbound	1,824	6	105.19	1,806	8	105.06			
A22/ A25 Oxted Lane Roundabout - A22 Eastbourne Road/ Bone Mill Lane Roundabout, A22 Mainline	Southbound	1,024	0	93.32	1,012	0	92.25			
A22 Eastbourne Road/ Bone Mill Lane Roundabout - A22 Eastbourne Road/ Ray Lane, A22 Mainline	Southbound	1,044	0	68.61	1,032	0	68.30			
A22 Eastbourne Road/ Ray Lane - A22 Eastbourne Road/ B2028 Newchapel Road/ West Park Road, A22 Mainline	Southbound	746	0	71.83	808	0	77.69			
A22 Eastbourne Road/ B2028 Newchapel Road/ West Park Road - A22 London Road/ A264 Copthorne Road, A22 Mainline	Southbound	582	0	36.93	611	0	38.57			
A22 London Road/ A264 Copthorne Road -	Southbound	1,125	8	101.76	1,129	12	102.08			✓

**Appraisal Framework Module 4.**  
**Surface Access: Strategic & Local Road Impacts**



Road	Direction	EBL			Gatwick 2R			Impact		
		Total Demand	Airport Demand	V/C	Total Demand	Airport Demand	V/C	> 85%	> 100%	> 100% +
A22 Beeching Way/London Road, A22 Mainline										
A22/ A25 Oxted Lane Roundabout to A25 Oxted, A22 Interchange	Eastbound	1,517	6	101.14	1,528	8	101.87			✓
A22/ A25 Oxted Lane Roundabout to A25 Godstone, A22 Interchange	Westbound	184	0	9.20	176	0	8.80			
A25 Oxted to A22/ A25 Oxted Lane Roundabout, A22 Interchange	Eastbound	1,092	4	96.65	1,088	6	95.86			
A25 Godstone A22/ A25 Oxted Lane Roundabout, A22 Interchange	Westbound	408	8	64.93	420	8	67.31			

**Figure 4-5: A22 AM peak V/C – Impact**



**Appraisal Framework Module 4.**  
**Surface Access: Strategic & Local Road Impacts**



**Table 4-6: A22 PM V/C with Gatwick Second Runway**

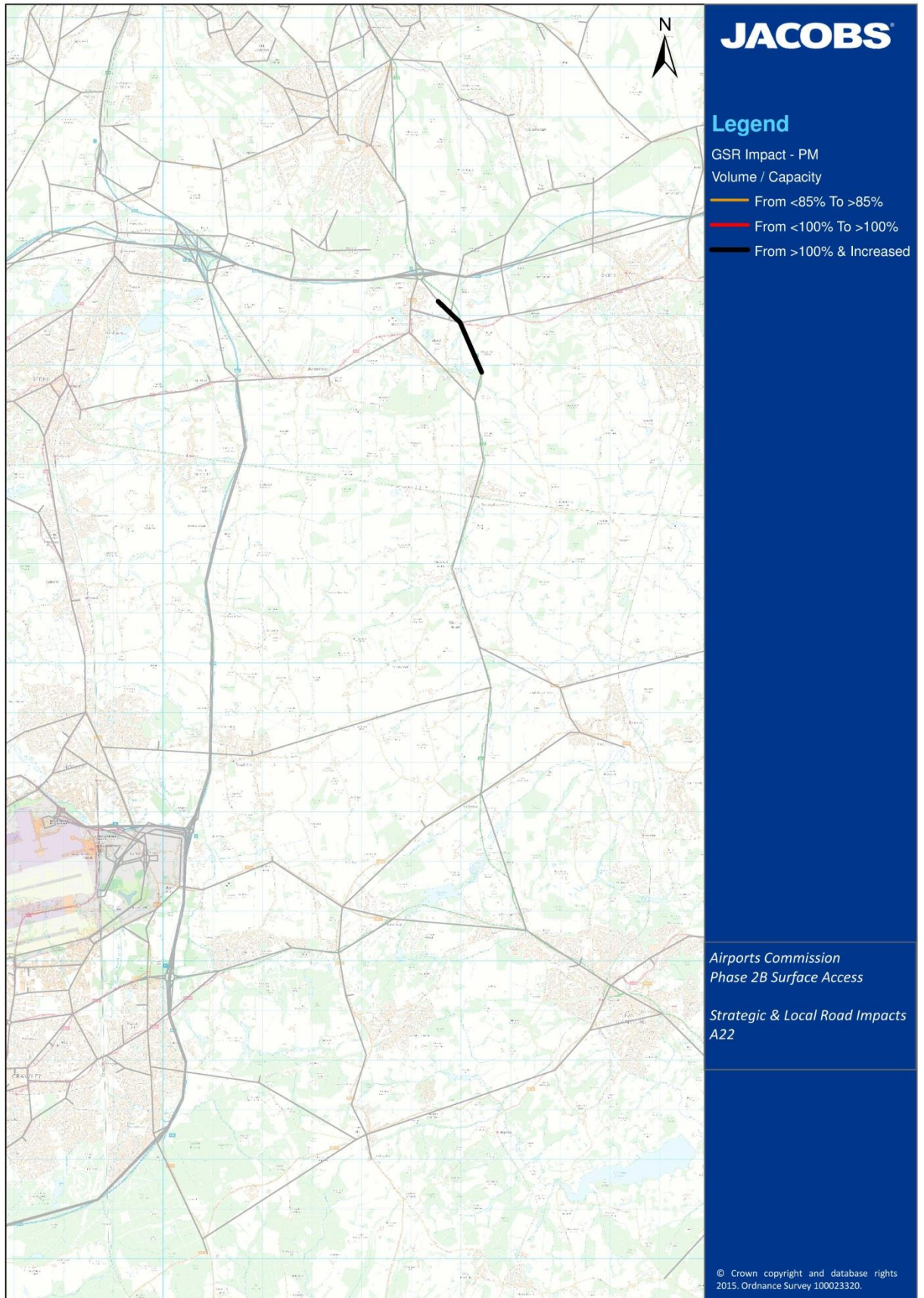
Road	Direction	EBL			Gatwick 2R			Impact		
		Total Demand	Airport Demand	V/C	Total Demand	Airport Demand	V/C	> 85%	> 100%	> 100% +
A22 Beeching Way/London Road - A22 London Road/ A264 Copthorne Road, A22 Mainline	Northbound	1,099	3	68.88	1,071	4	67.11			
A22 London Road/ A264 Copthorne Road - A22 Eastbourne Road/ B2028 Newchapel Road/ West Park Road, A22 Mainline	Northbound	630	0	66.19	609	0	62.59			
A22 Eastbourne Road/ B2028 Newchapel Road/ West Park Road - A22 Eastbourne Road/ Ray Lane, A22 Mainline	Northbound	910	3	50.83	893	4	49.89			
A22 Eastbourne Road/ Ray Lane - A22 Eastbourne Road/ Bone Mill Lane Roundabout, A22 Mainline	Northbound	1,035	0	93.60	1,016	0	91.86			
A22 Eastbourne Road/ Bone Mill Lane Roundabout - A22/ A25 Oxted Lane Roundabout, A22 Mainline	Northbound	1,021	0	104.19	1,002	0	102.56			
A22/ A25 Oxted Lane Roundabout - M25 Junction 6, A22 Mainline	Northbound	1,749	3	86.77	1,760	3	87.30			
M25 Junction 6 - A22/ A25 Oxted Lane Roundabout, A22 Mainline	Southbound	1,608	2	101.53	1,583	1	101.60			✓
A22/ A25 Oxted Lane Roundabout - A22 Eastbourne Road/ Bone Mill Lane Roundabout, A22 Mainline	Southbound	859	0	97.17	850	0	95.83			
A22 Eastbourne Road/ Bone Mill Lane Roundabout - A22 Eastbourne Road/ Ray Lane, A22 Mainline	Southbound	1,365	0	93.12	1,347	0	91.95			
A22 Eastbourne Road/ Ray Lane - A22 Eastbourne Road/ B2028 Newchapel Road/ West Park Road, A22 Mainline	Southbound	1,023	13	105.12	998	9	105.72			✓
A22 Eastbourne Road/ B2028 Newchapel Road/ West Park Road - A22 London Road/ A264 Copthorne Road, A22 Mainline	Southbound	1,106	13	73.12	1,161	9	75.98			

**Appraisal Framework Module 4.**  
**Surface Access: Strategic & Local Road Impacts**



Road	Direction	EBL			Gatwick 2R			Impact		
		Total Demand	Airport Demand	V/C	Total Demand	Airport Demand	V/C	> 85%	> 100%	> 100% +
A22 London Road/ A264 Copthorne Road - A22 Beeching Way/London Road, A22 Mainline	Southbound	1,128	6	101.99	1,135	9	102.62			✓
A22/ A25 Oxted Lane Roundabout to A25 Oxted, A22 Interchange	Eastbound	1,658	4	110.51	1,668	6	111.20			✓
A22/ A25 Oxted Lane Roundabout to A25 Godstone, A22 Interchange	Westbound	195	0	9.76	182	0	9.10			
A25 Oxted to A22/ A25 Oxted Lane Roundabout, A22 Interchange	Eastbound	1,137	2	96.36	1,151	2	97.21			
A25 Godstone A22/ A25 Oxted Lane Roundabout, A22 Interchange	Westbound	533	3	86.19	549	6	90.30			

**Figure 4-6: A22 PM peak V/C – Impact**



## 4.5 A23

- 4.5.1 The A23 is the historic and primary route between London and Brighton. Within the study area, the M23 now carries the majority of strategic traffic between the M25 and Pease Pottage, Crawley. To the south, the A23 has been significantly upgraded and is now dual two lanes or dual three lanes throughout.
- 4.5.2 The bypassed section of A23 between the M25 and Gatwick is primarily single carriageway and an important local route linking Redhill, Reigate and local villages with the airport. South of Gatwick, the route provides a western bypass of Crawley town centre. It is dualled with a series of at grade roundabouts providing local road connectivity.
- 4.5.3 Analysis of the performance of the corridor covers the section of route from J11 of the M23 in the south to the A22 at Purley in the north.
- 4.5.4 As noted previously, in the 2031 morning peak, A23 demand exceeds capacity, with and without a second runway, on the northbound approach to the Southgate Avenue roundabout in Crawley. This is to be expected as this is the key route into the town from the A23 south. Local widening of the approach and circulatory carriageway (+1 lane) would provide sufficient capacity to cope with forecast growth.
- 4.5.5 The A23 west to north movement through the A23 / A2011 Langley Drive roundabout also exceeds capacity. Being located directly to the south of the airport, airport demand is significant and two runway demand increases by 125 vehicles (317 vehicles total) in the AM peak. A second runway will exacerbate capacity issues and given the proposed realignment of the A23 to the north it is expected that improvements to this junction will also be required. Options include signal optimisation and the provision of extra lanes on the Crawley Avenue and / or Langley Drive approaches.
- 4.5.6 Although the southbound A23 approach to the Longbridge roundabout is forecast to exceed capacity under the 2 runway scheme, Gatwick Airport has highlighted that the junction will be substantially upgraded as part of a package of access improvements.
- 4.5.7 By 2030, the A23 Crawley Avenue southbound approach to the A2220 Horsham Rd roundabout is at capacity in the morning peak.
- 4.5.8 At the very north of the route, the Purley Interchange is forecast to be at capacity although the impact of airport expansion is marginal.
- 4.5.9 In the evening, the A23 / Hollymeoak Rd junction is over capacity southbound. A short extension of the right turn slip length, would reduce blocking of the ahead movement, increasing total junction capacity.
- 4.5.10 The southbound A23 approach to the Longbridge Roundabout is again over capacity with both scenarios. Airport runway demand is sizeable (1 runway – 61 vehicles / 2 runways – 150 vehicles). As noted above, Gatwick Airport has indicated that the junction will be substantially upgraded as part of any airport expansion.
- 4.5.11 The A23 Crawley Avenue southbound approach to the A2220 Horsham Rd is significantly over capacity in the evening peak, with and without a second runway. Airport trips make only a small contribution to total demand.
- 4.5.12 As in the morning, a nominal increase in V/C is forecast at the Purley interchange but this is not considered significant.
- 4.5.13 Figures A-13 to A-16, in Appendix A, highlight the V/C ratio of all links on the A23 corridor, for both Extended Baseline and Gatwick Second Runway scenarios.

**Appraisal Framework Module 4.**  
**Surface Access: Strategic & Local Road Impacts**



**Table 4-7: A23 AM V/C with Gatwick Second Runway**

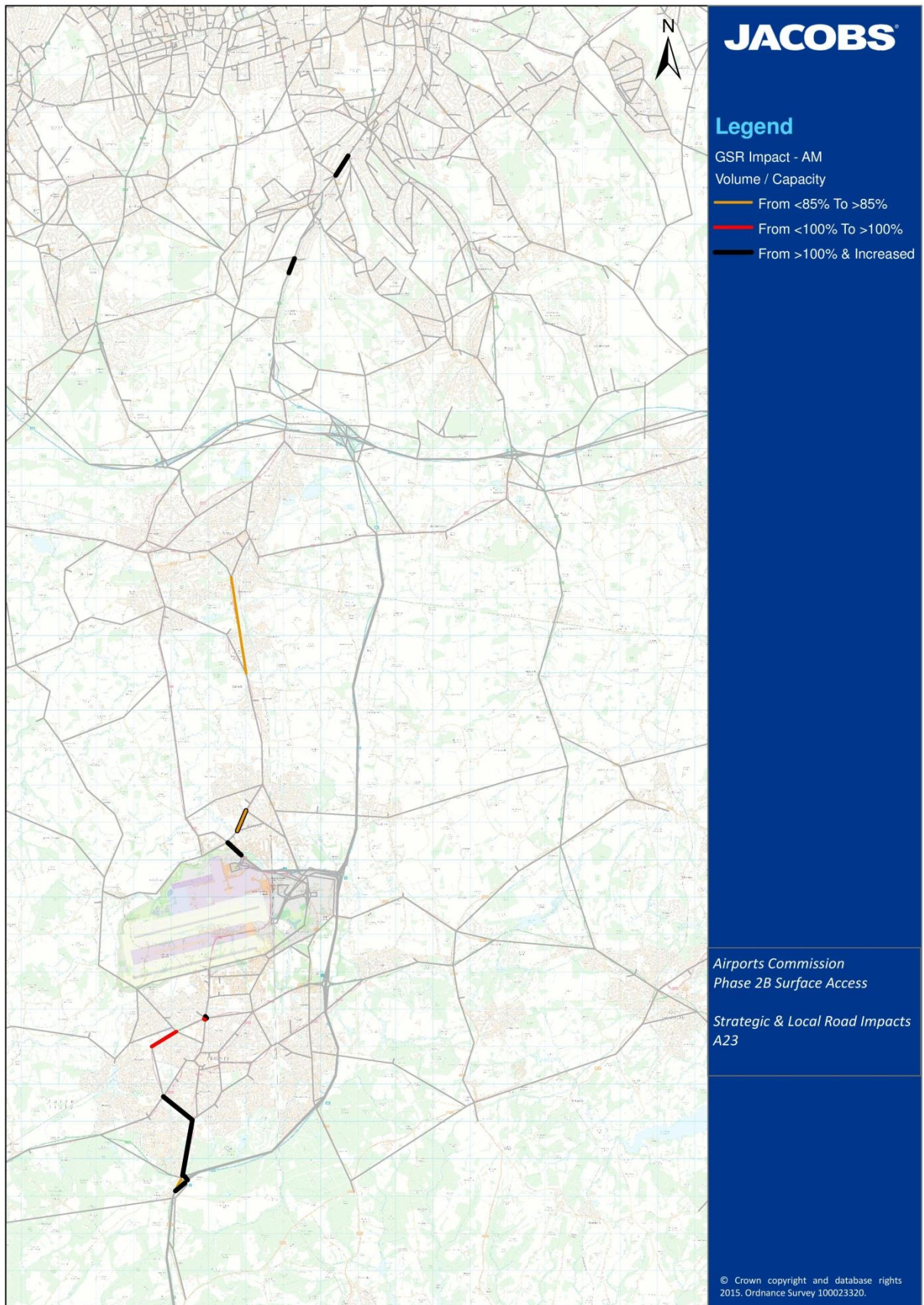
Road	Direction	EBL			Gatwick 2R			Impact		
		Total Demand	Airport Demand	V/C	Total Demand	Airport Demand	V/C	> 85%	> 100%	> 100% +
M23 Mainline at Handcross - M23 Mainline Junction 11	Northbound	6,369	341	91.36	6,530	475	93.66			
Through M23 Mainline Junction 11	Northbound	1,301	0	87.71	1,261	0	84.97			
A23 Brighton Rd / A2004 Southgate Avenue	Northbound	1,750	0	110.83	1,776	0	111.28			✓
A23/A2011/Langley Drive Roundabout	Northbound	2,509	192	105.97	2,558	317	108.39			✓
A23/A2219/A2011/Langley Drive Roundabout - Longbridge Roundabout	Northbound	2,621	126	104.85	2,569	80	102.76			
Through Longbridge Roundabout	Northbound	2,753	101	79.41	2,724	79	78.57			
Longbridge Roundabout - A23/B2036/Bonhurst Road Junction	Northbound	798	8	79.40	651	10	64.78			
A23/B2036/Bonhurst Road Junction - A23/M23 merge north of M25	Northbound	1,613	96	91.11	1,584	133	89.49			
A23/M23 merge north of M25 - A23 hornton Road/A236/A23 Purley Way Junction at Croydon	Northbound	1,158	67	105.04	1,155	90	104.81			
A23 hornton Road/A236/A23 Purley Way Junction at Croydon - A23/A22/Purley Junction	Southbound	1,247	34	85.34	1,258	51	86.22			
Through A22/A23/Purley Road Junction	Southbound	1,371	75	96.86	1,381	113	97.53			
A23/A22/Purley Junction - A23/M23 merge north of M25	Southbound	1,218	99	105.02	1,217	146	105.00			
A23/M23 merge north of M25 - A23/B2036/Bonhurst Road Junction	Southbound	1,701	133	96.08	1,715	197	96.89			
A23/B2036/Bonhurst Road Junction - Longbridge Roundabout	Southbound	615	39	105.79	437	75	75.09			
Through Longbridge Roundabout	Southbound	2,217	148	42.10	1,963	165	37.27			
Longbridge Roundabout - A23/A2219/A2011/Langley Drive	Southbound	1,599	44	80.84	2,044	185	102.92		✓	

**Appraisal Framework Module 4.**  
**Surface Access: Strategic & Local Road Impacts**



Road	Direction	EBL			Gatwick 2R			Impact		
		Total Demand	Airport Demand	V/C	Total Demand	Airport Demand	V/C	> 85%	> 100%	> 100% +
Longbridge Roundabout – A23 north to A23 west circulatory carriageway	Southbound	2,015	122	81.99	1,977	246	108.39		✓	
A23 Crawley Ave at A2220 Horsham Rd	Southbound	1,254	12	94.29	1,398	66	101.08		✓	
Through M23 Mainline Junction 11	Southbound	1,184	0	98.64	972	0	81.00			
M23 Mainline Junction 11 - M23 Mainline at Handcross	Southbound	3,477	128	58.11	3,278	166	55.55			
Purley Interchange	-	888	0	101.44	888	0	101.49			✓
Coulsdon Interchange	-	32	0	5.83	24	0	4.34			
A23/M23 Merge	-	1,247	96	47.71	1,231	133	46.90			
Longbridge Roundabout	-	278	38	107.10	283	49	107.20			✓
Gatwick North Terminal Entry	-	1,675	126	35.95	47	39	1.01			
A23/A2219/A2011 Roundabout	-	1,692	12	90.17	1,587	20	85.60			
M23 Mainline Junction 11 Roundabout	-	1,080	1	104.32	374	0	100.27			
M23 Slip Road	-	354	8	23.62	344	11	22.93			
Gatwick - M23 Link Road	-	516	103	14.56	1,709	75	48.28			
A23/A2219/A2011/Langley Drive Roundabout - Longbridge Roundabout - 2RW	Northbound	-	-	-	2,523	42	71.27			
Longbridge Roundabout - A23/A2219/A2011/Langley Drive Roundabout - 2RW	Southbound	-	-	-	1,116	818	91.78			

Figure 4-7: A23 AM peak V/C – Impact



**Appraisal Framework Module 4.**  
**Surface Access: Strategic & Local Road Impacts**



**Table 4-8: A23 PM V/C with Gatwick Second Runway**

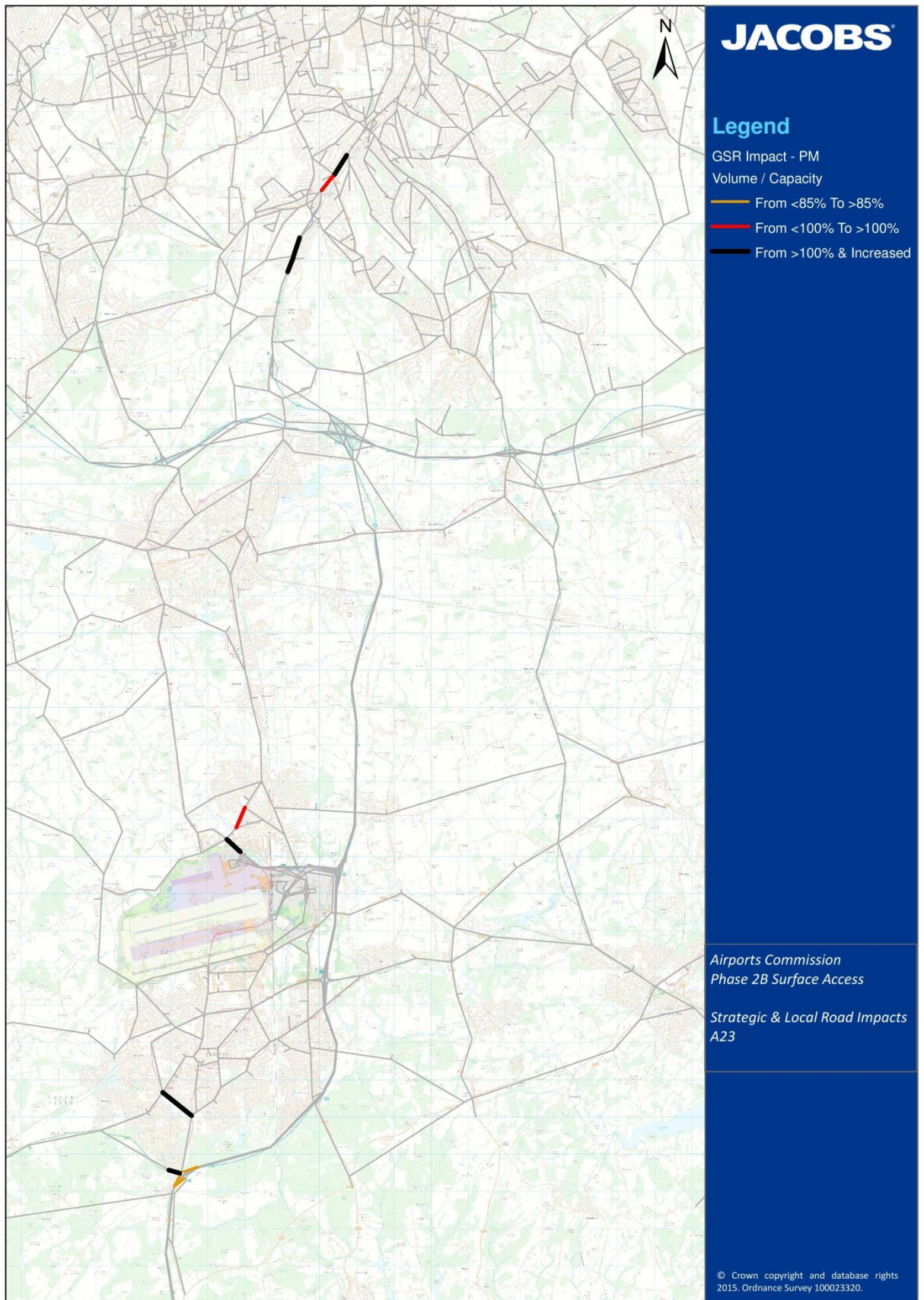
Road	Direction	EBL			Gatwick 2R			Impact		
		Total Demand	Airport Demand	V/C	Total Demand	Airport Demand	V/C	> 85%	> 100%	> 100% +
M23 Mainline at Handcross - M23 Mainline Junction 11	Northbound	4,136	164	59.41	4,191	221	60.18			
Through M23 Mainline Junction 11	Northbound	1,263	0	85.09	1,220	0	82.21			
M23 Mainline Junction 11 - A23/A2219/A2011/Langley Drive	Northbound	899	2	114.45	872	3	113.10			
Through A23/A2219/A2011/Langley Drive Roundabout	Northbound	2,436	25	97.29	2,303	67	91.97			
A23/A2219/A2011/Langley Drive Roundabout - Longbridge Roundabout	Northbound	2,704	390	108.18	2,558	267	102.32			
Through Longbridge Roundabout	Northbound	2,428	245	70.04	2,414	127	69.63			
Longbridge Roundabout - A23/B2036/Bonhurst Road Junction	Northbound	1,583	42	82.97	1,382	71	76.10			
A23/B2036/Bonhurst Road Junction - A23/M23 merge north of M25	Northbound	1,489	100	84.11	1,471	152	83.11			
A23/M23 merge north of M25 - A23 hornton Road/A236/A23 Purley Way Junction at Croydon	Northbound	630	27	104.98	627	41	104.50			
A23 hornton Road/A236/A23 Purley Way Junction at Croydon - A23/A22/Purley Junction	Southbound	2,032	33	89.49	2,042	46	89.96			
Through A22/A23/Purley Road Junction	Southbound	1,521	50	59.45	1,534	69	59.95			
A23 / Hollymeoak Rd	Southbound	1,205	66	104.92	1,213	93	105.57			✓
A23/M23 merge north of M25 - A23/B2036/Bonhurst Road Junction	Southbound	1,090	6	97.49	1,037	9	90.57			
A23/B2036/Bonhurst Road Junction - Longbridge Roundabout	Southbound	659	5	113.35	621	8	106.70			
Through Longbridge Roundabout	Southbound	2,425	202	46.05	2,274	61	43.17			
Longbridge Roundabout - A23 London Rd approach	Southbound	1,714	61	107.16	1,663	150	109.26			✓

**Appraisal Framework Module 4.**  
**Surface Access: Strategic & Local Road Impacts**



Road	Direction	EBL			Gatwick 2R			Impact		
		Total Demand	Airport Demand	V/C	Total Demand	Airport Demand	V/C	> 85%	> 100%	> 100% +
Through A23/A2219/A2011/Langley Drive Roundabout	Southbound	2,701	61	108.10	2,688	150	107.35			
A23 Crawley Ave at A2220 Horsham Rd	Southbound	2,172	0	109.83	2,268	5	114.26			✓
Through M23 Mainline Junction 11	Southbound	1,287	0	107.27	1,280	0	106.67			
M23 Mainline Junction 11 - M23 Mainline at Handcross	Southbound	5,708	157	81.66	5,751	253	82.27			
Purley Interchange	-	1,655	0	100.61	1,656	0	100.67			✓
Coulsdon Interchange	-	32	0	3.08	34	0	3.23			
A23/M23 Merge	-	1,109	100	42.80	1,103	152	42.46			
Longbridge Roundabout	-	263	18	97.06	289	17	98.30			
Gatwick North Terminal Entry	-	911	390	19.56	117	113	2.51			
A23/A2219/A2011 Roundabout	-	818	0	93.18	764	0	90.41			
M23 Mainline Junction 11 Roundabout	-	4,421	157	92.98	4,471	253	93.87			
M23 Slip Road	-	980	27	65.33	1,003	45	66.87			
Gatwick - M23 Link Road	-	1,224	40	34.58	2,180	27	61.58			
A23/A2219/A2011/Langley Drive Roundabout - Longbridge Roundabout - 2RW	Northbound	-	-	-	2,440	154	68.93			
Longbridge Roundabout - A23/A2219/A2011/Langley Drive Roundabout - 2RW	Southbound	-	-	-	2,214	61	62.54			

**Figure 4-8: A23 PM peak V/C – Impact**



## 4.6 A24

- 4.6.1 The A24 is a key north – south corridor between London and Worthing. To the north, it crosses the M25, east of Junction 9. It bypasses Leatherhead to the east before running south and bypassing Dorking. It connects with the A264 Great Daux roundabout, northwest of Horsham before continuing south towards West Grinstead and Worthing.
- 4.6.2 Morning peak corridor performance impacts are summarised in Table 3-9; Figure 3-9 illustrates these spatially. Evening peak impacts are summarised in Table and Figure 3-10.
- 4.6.3 Along the A24 corridor, in the morning peak, capacity issues are forecast at the A24 northbound approach to the Deepdene Avenue / Reigate Rd roundabout. The A24 / A246 roundabout is also forecast to be at capacity. Minor geometric improvements will be sufficient to alleviate capacity constraints at both locations in 2030.
- 4.6.4 In the evening peak, the A24 northbound approach to the A246 roundabout is again over capacity.
- 4.6.5 Demand on the southbound A24 approach to the A264 Great Daux roundabout also results in a V/ C value in excess of 100% (forecast 118%). This has been modelled with a single lane approach - localised widening would enable a second lane to be provided, giving ample additional capacity.
- 4.6.6 In summary, none of the above capacity issues result from either existing or 2 runway airport demand. All improvements on this corridor will be required in due course as a result of general background growth. The impact of the second runway on the A24 corridor is marginal with airport expansion unlikely to have significant impact under normal traffic circumstances.
- 4.6.7 Figures A-17 to A-20, in Appendix A, highlight the V/C ratio of all links on the A23 corridor, for both Extended Baseline and Gatwick Second Runway scenarios.

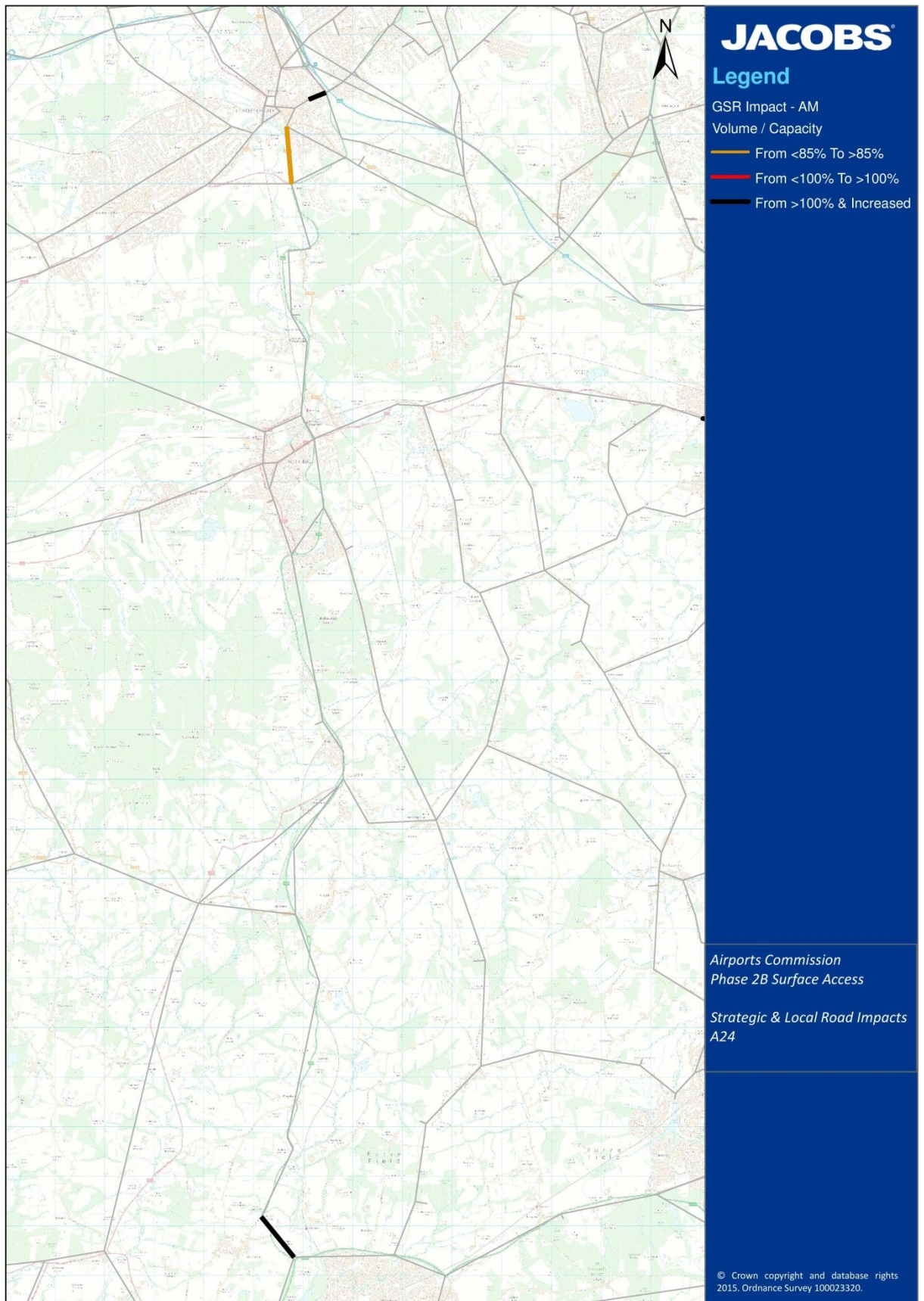
**Appraisal Framework Module 4.**  
**Surface Access: Strategic & Local Road Impacts**



**Table 4-9: A24 AM V/C with Gatwick Second Runway**

Road	Direction	EBL			NWR			Impact		
		Total Demand	Airport Demand	V/C	Total Demand	Airport Demand	V/C	> 85%	> 100%	> 100% +
A264/ A24 Great Daux Roundabout - A24/ A29 Beare Green Roundabout	Northbound	871	0	48.69	849	0	47.43			
Through A24/ A29 Beare Green Roundabout	Northbound	1,268	43	67.40	1,300	75	69.26			
A24/ A29 Beare Green Roundabout - A24/ Flint Hill/ Deepdene Avenue/ Spook Hill Roundabout	Northbound	961	30	53.71	975	41	54.47			
A24/ Flint Hill/ Deepdene Avenue/ Spook Hill Roundabout - Deepdene Roundabout	Northbound	966	0	102.00	974	0	103.18			✓
Deepdene Roundabout - A246 Givons Grove Roundabout	Northbound	1,761	2	90.95	1,778	2	91.84			
A246 Givons Grove Roundabout - M25 J9	Northbound	971	0	101.09	987	0	102.71			✓
M25 J9 - A246 Givons Grove Roundabout	Southbound	956	0	102.27	955	0	102.14			
A246 Givons Grove Roundabout - Deepdene Roundabout	Southbound	1,608	4	91.68	1,604	5	91.45			
Deepdene Roundabout - A24/ Flint Hill/ Deepdene Avenue/ Spook Hill Roundabout	Southbound	964	9	69.83	970	14	70.29			
A24/ Flint Hill/ Deepdene Avenue/ Spook Hill Roundabout - A24/ A29 Beare Green Roundabout	Southbound	766	9	42.78	777	14	43.41			
Through A24/ A29 Beare Green Roundabout	Southbound	920	6	41.61	920	7	41.59			
A24/ A29 Beare Green Roundabout - A264/ A24 Great Daux Roundabout	Southbound	690	0	104.56	703	0	102.78			

**Figure 4-9: A24 AM peak V/C – Impact**



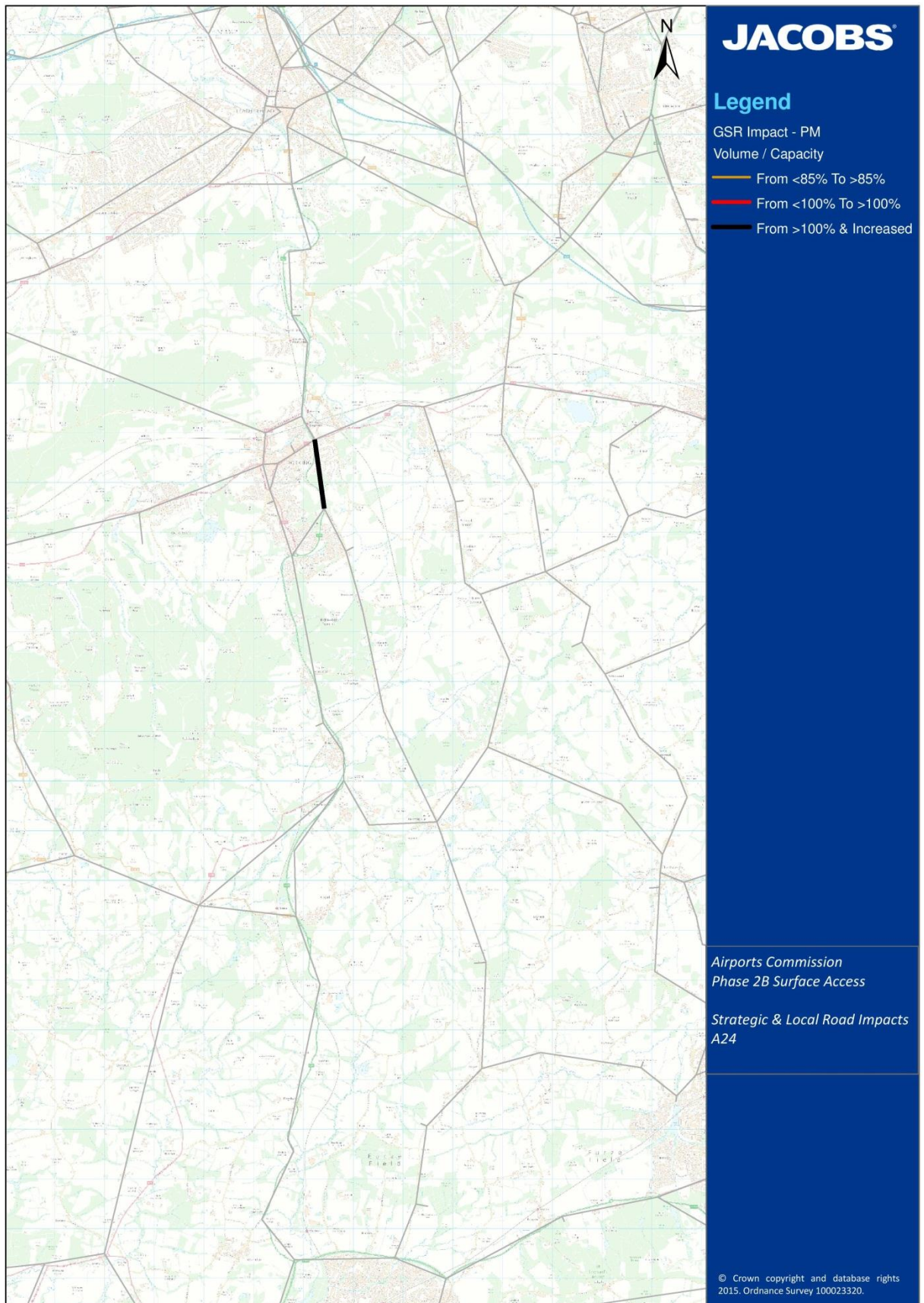
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**Table 4-10: A24 PM V/C with Gatwick Second Runway**

Road	Direction	EBL			NWR			Impact		
		Total Demand	Airport Demand	V/C	Total Demand	Airport Demand	V/C	> 85%	> 100%	> 100% +
A264/ A24 Great Daux Roundabout - A24/ A29 Beare Green Roundabout	Northbound	560	0	31.28	586	0	32.74			
Through A24/ A29 Beare Green Roundabout	Northbound	1,208	14	67.17	1,206	21	67.53			
A24/ A29 Beare Green Roundabout - A24/ Flint Hill/ Deepdene Avenue/ Spook Hill Roundabout	Northbound	952	2	53.18	944	4	52.74			
A24/ Flint Hill/ Deepdene Avenue/ Spook Hill Roundabout - Deepdene Roundabout	Northbound	1,069	0	89.70	1,063	0	90.08			
Deepdene Roundabout - A246 Givons Grove Roundabout	Northbound	1,493	1	72.33	1,495	2	72.50			
A246 Givons Grove Roundabout - M25 J9	Northbound	1,022	0	109.34	1,026	0	109.73			✓
M25 J9 - A246 Givons Grove Roundabout	Southbound	853	0	88.58	857	0	88.53			
A246 Givons Grove Roundabout - Deepdene Roundabout	Southbound	1,706	2	97.30	1,710	2	97.49			
Deepdene Roundabout - A24/ Flint Hill/ Deepdene Avenue/ Spook Hill Roundabout	Southbound	1,407	0	101.93	1,405	0	101.81			
A24/ Flint Hill/ Deepdene Avenue/ Spook Hill Roundabout - A24/ A29 Beare Green Roundabout	Southbound	1,082	2	60.42	1,111	2	62.07			
Through A24/ A29 Beare Green Roundabout	Southbound	1,057	21	47.78	1,105	23	49.95			
A24/ A29 Beare Green Roundabout - A264/ A24 Great Daux Roundabout	Southbound	663	0	111.60	650	0	111.88			✓

**Figure 4-10: A24 PM peak V/C – Impact**



## 4.7 A25

- 4.7.1 The A25 runs south of and parallel to the M25 motorway. It is an important local east-west route, linking the towns of Guildford, Dorking, Reigate and Sevenoaks. A number of capacity issues arise by 2030. Tables 3.11 and 3.12 summarise these for the morning and evening periods respectively - Figures 3.11 and 3.12 illustrate these graphically.
- 4.7.2 In the morning peak, demand, exceeds capacity on the westbound Reigate Rd approach to Church St in Reigate. The A25 east and westbound approaches to the High St / London Rd / Park Lane junction is also over capacity. Both junctions are located within the town centre and, consequently, it is not possible to provide additional road space. Optimisation of traffic signals may help improve traffic flow, otherwise potential capacity improvements are restricted.
- 4.7.3 As noted in the discussion of the A24 corridor, demand on the A25 westbound approach to the A24 Deepdene Avenue roundabout exceeds capacity in both morning and evening periods. Minor geometric amendments would be sufficient to improve capacity issues.
- 4.7.4 In the evening peak, eastbound traffic volumes exceed capacity on the approach to the Station Rd / Pebble Hill Rd roundabout at Betchworth. Extended baseline airport demand is 35 vehicles increasing to 53 vehicles with the Second Runway option. All existing roundabout entries are single lane. Local widening, providing two approach lanes, would provide sufficient future year capacity.
- 4.7.5 East and westbound A25 approaches to the High St / London Rd / Park Lane junction are again over capacity. As in the morning, optimisation of traffic signals may help improve traffic flow, otherwise potential capacity improvements are restricted.
- 4.7.6 Figures highlighting the V/C ratio of all links on the A25 corridor, for both Extended Baseline and Gatwick Second Runway, are given in Appendix A, Figures A-21 to A-24.

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**Surface Access: Strategic & Local Road Impacts**



**Table 4-11: A25 AM V/C with Gatwick Second Runway**

Road	Direction	EBL			Gatwick 2R			Impact		
		Total Demand	Airport Demand	V/C	Total Demand	Airport Demand	V/C	> 85%	> 100%	> 100% +
A25/ A22 Roundabout - A25/ B2235 Roundabout	Westbound	307	0	20.11	310	4	20.30			
A25/ B2235 Roundabout - A25/ B2236	Westbound	493	0	30.04	491	3	29.90			
A25/ B2236 - A25/ Little Common Lane	Westbound	536	0	30.28	546	3	30.85			
A25/ Little Common Lane - A25/ A23 The Stations Roundabout	Westbound	555	7	38.00	559	13	38.29			
A25/ A23 The Stations Roundabout - A25/ A23 Gloucester Road Roundabout	Westbound	173	0	17.91	173	0	18.00			
A25/ A23/ Gloucester Road Roundabout - A25 Queensway/ A25 St. Matthew's Road/ A25 Station Road	Westbound	308	0	27.85	321	0	29.02			
A25/A23 The Stations Road Roundabout - A25/ A23 Belfry Roundabout	Westbound	643	17	20.06	636	32	19.85			
A25/A23 Belfry Roundabout - A25 Queensway/ A25 St. Matthew's Road/ A25 Station Road	Westbound	556	1	57.44	562	2	58.42			
A25 Queensway/ A25 St. Matthew's Road/ A25 Station Road - A25/ B2034	Westbound	539	0	26.94	553	0	27.65			
A25/ B2034- A25 Castlefield Road/ A25 Church Street	Westbound	923	1	105.02	952	1	108.55			✓
A25 Castlefield Road/ A25 Church Street - A25/ A217	Westbound	1,411	0	92.75	1,423	0	93.50			
A25/ A217 - A25/ Park Lane	Westbound	1,390	14	111.96	1,404	14	113.23			✓
A25/ Park Lane - A25/ Flanchford Road	Westbound	716	1	36.10	719	2	36.28			
A25/ Flanchford Road - A25/ B2032/ Station Road Roundabout	Westbound	670	1	81.10	672	2	80.77			
A25/ B2032/ Station Road Roundabout - A25/ Brockham Lane	Westbound	1,000	0	56.51	991	0	55.99			
A25/ Brockham Lane - A23	Westbound	1,096	6	108.92	1,102	8	110.53			✓

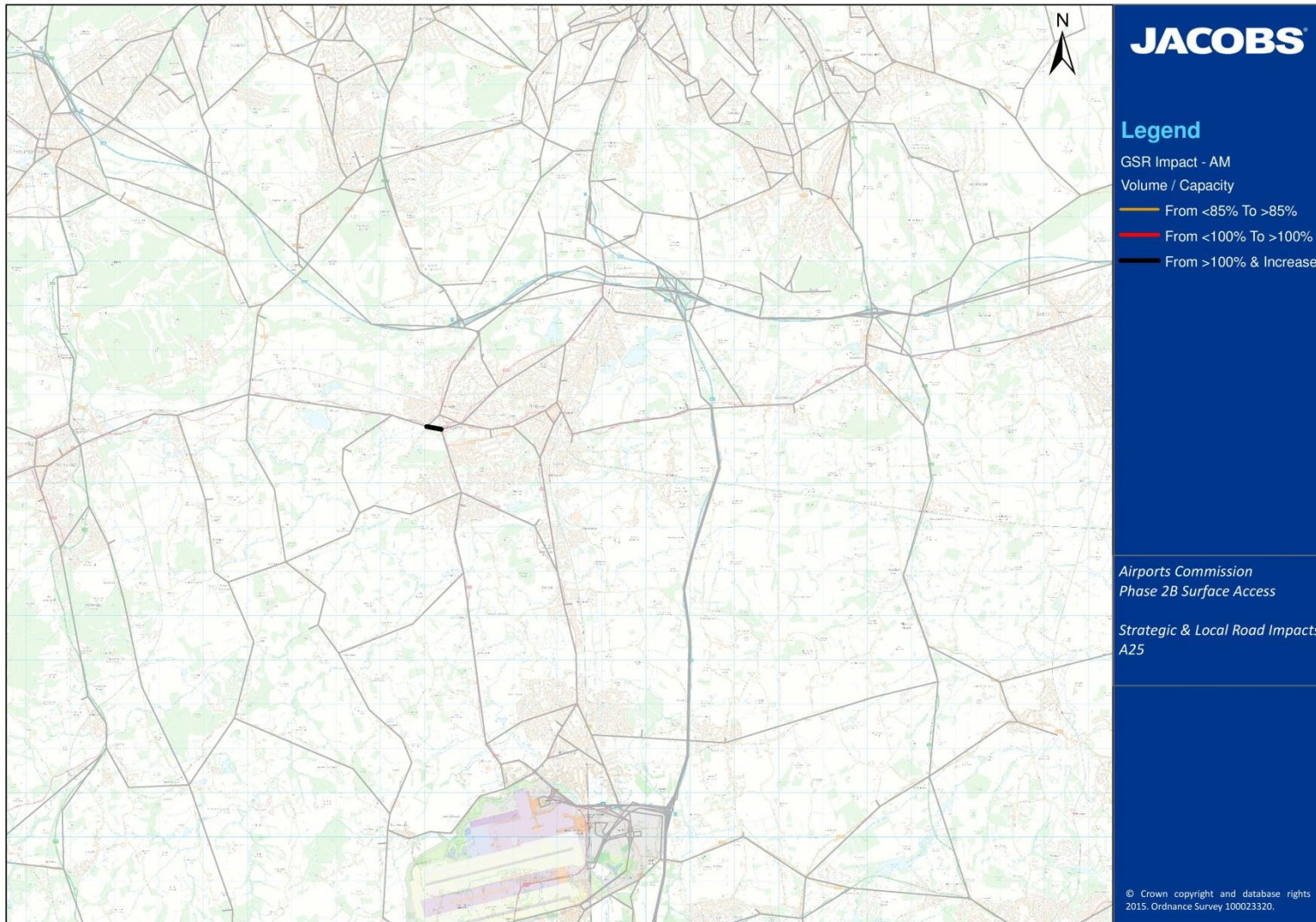
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Road	Direction	EBL			Gatwick 2R			Impact		
		Total Demand	Airport Demand	V/C	Total Demand	Airport Demand	V/C	> 85%	> 100%	> 100% +
A23 - A25/ Brockham Lane	Eastbound	776	1	43.83	763	2	43.11			
A25/ Brockham Lane - A25/ B2032/ Station Road Roundabout	Eastbound	812	0	98.49	800	0	97.92			
A25/ B2032/ Station Road Roundabout - A25/ Flanchford Road	Eastbound	760	0	42.94	754	0	42.60			
A25/ Flanchford Road - A25/ Park Lane	Eastbound	856	0	102.73	863	0	103.60			✓
A25/ Park Lane - A25 London Road/ A25 Castlefield Road/ A217	Eastbound	1,640	13	74.16	1,651	12	74.64			
A25 London Road/ A25 Castlefield Road/ A217 - A25 Castlefield Road/ A25 Church Street	Eastbound	1,393	0	25.83	1,380	0	25.58			
A25 Castlefield Road/ A25 Church Street - A25/ B2034	Eastbound	951	3	77.40	937	4	77.50			
A25/ B2034 - A25 Queensway/ A25 St. Matthew's Road/ A25 Station Road	Eastbound	543	0	56.20	558	0	57.94			
A25 Queensway/ A25 St. Matthew's Road/ A25 Station Road - A25/ A23/ Gloucester Road Roundabout	Eastbound	868	1	42.21	888	2	43.19			
A25/ A23 Gloucester Road Roundabout - A25/ A23 The Stations Roundabout	Eastbound	640	11	43.85	633	19	43.36			
A25 Queensway/ A25 St. Matthew's Road/ A25 Station Road - A25/ A23 Belfry Roundabout	Eastbound	0	0	0.00	0	0	0.00			
A25/ A23 Belfry Roundabout - A25/A23 The Stations Road Roundabout	Eastbound	295	2	20.24	297	2	20.34			
A25/ A23 The Stations Roundabout - A25/ Little Common Lane	Eastbound	674	2	46.14	680	2	46.58			
A25/ Little Common Lane - A25/ B2236	Eastbound	608	0	36.77	618	0	37.68			
A25/ B2235 - A25/ B2236 Roundabout	Eastbound	589	0	35.73	620	0	37.67			
A25/ B2235 Roundabout - A25/ A22 Roundabout	Eastbound	408	8	64.93	420	8	67.31			

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Figure 4-11: A25 AM peak V/C – Impact



**Appraisal Framework Module 4.**  
**Surface Access: Strategic & Local Road Impacts**



**Table 4-12: A25 PM V/C with Gatwick Second Runway**

Road	Direction	EBL			Gatwick 2R			Impact		
		Total Demand	Airport Demand	V/C	Total Demand	Airport Demand	V/C	> 85%	> 100%	> 100% +
A25/ A22 Roundabout - A25/ B2235 Roundabout	Westbound	309	3	25.31	320	5	26.19			
A25/ B2235 Roundabout - A25/ B2236	Westbound	893	0	56.51	890	0	55.94			
A25/ B2236 - A25/ Little Common Lane	Westbound	517	0	29.20	504	0	28.47			
A25/ Little Common Lane - A25/ A23 The Stations Roundabout	Westbound	594	1	40.72	588	2	40.27			
A25/ A23 The Stations Roundabout - A25/ A23 Gloucester Road Roundabout	Westbound	152	0	14.34	150	0	14.19			
A25/ A23/ Gloucester Road Roundabout - A25 Queensway/ A25 St. Matthew's Road/ A25 Station Road	Westbound	109	0	9.83	108	0	9.76			
A25/A23 The Stations Road Roundabout - A25/ A23 Belfry Roundabout	Westbound	749	3	23.61	733	5	23.33			
A25/A23 Belfry Roundabout - A25 Queensway/ A25 St. Matthew's Road/ A25 Station Road	Westbound	466	5	44.14	486	9	45.98			
A25 Queensway/ A25 St. Matthew's Road/ A25 Station Road - A25/ B2034	Westbound	287	0	14.34	290	0	14.50			
A25/ B2034- A25 Castlefield Road/ A25 Church Street	Westbound	625	2	71.04	679	3	77.51			
A25 Castlefield Road/ A25 Church Street - A25/ A217	Westbound	1,372	1	89.70	1,378	13	90.07			
A25/ A217 - A25/ Park Lane	Westbound	1,412	27	112.69	1,420	50	111.81			
A25/ Park Lane - A25/ Flanchford Road	Westbound	714	5	35.51	733	11	36.52			
A25/ Flanchford Road - A25/ B2032/ Station Road Roundabout	Westbound	698	5	85.75	713	10	87.48			
A25/ B2032/ Station Road Roundabout - A25/ Brockham Lane	Westbound	923	0	52.15	920	0	51.98			
A25/ Brockham Lane - A23	Westbound	935	35	99.21	959	53	101.27		✓	

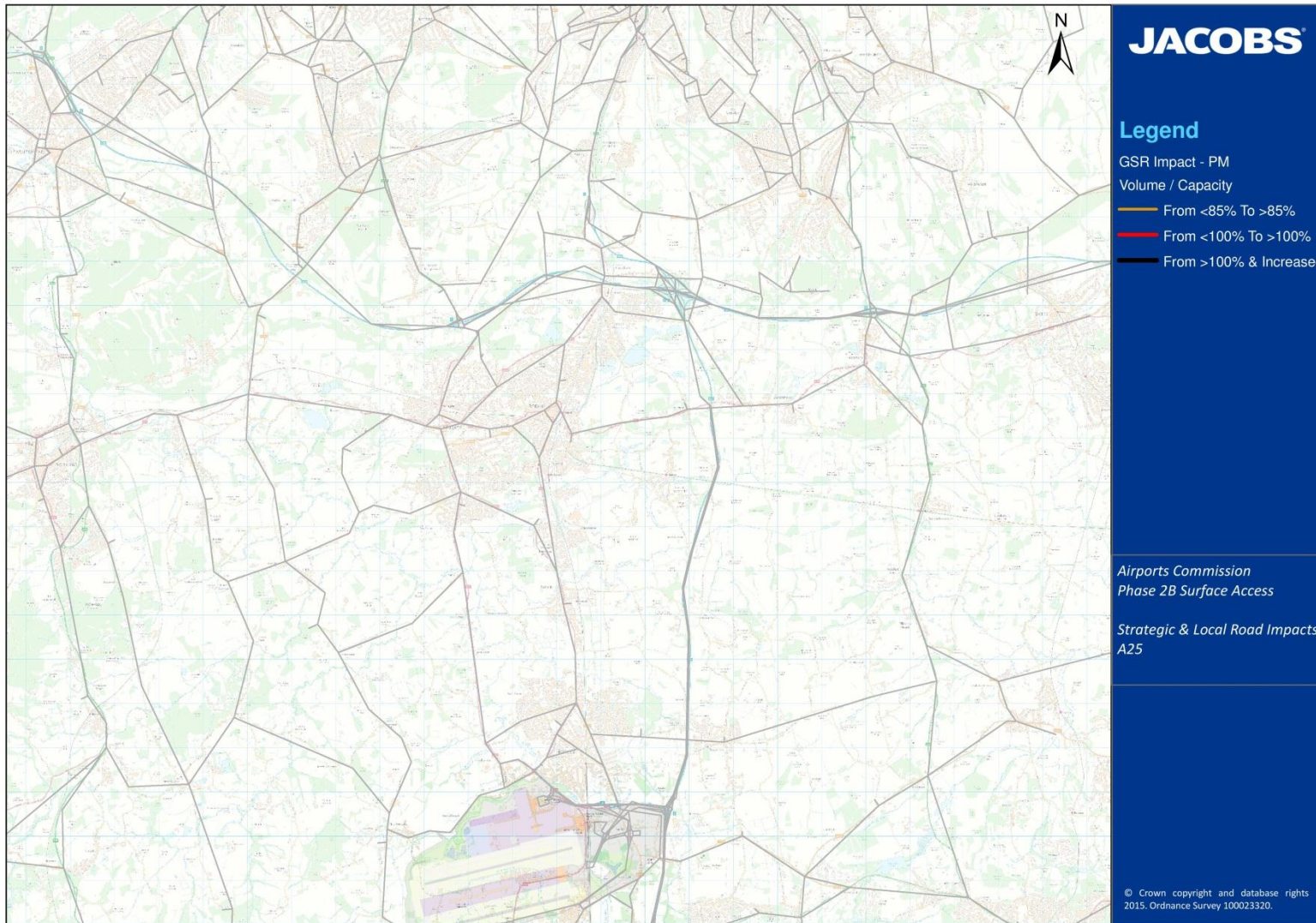
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Road	Direction	EBL			Gatwick 2R			Impact		
		Total Demand	Airport Demand	V/C	Total Demand	Airport Demand	V/C	> 85%	> 100%	> 100% +
A23 - A25/ Brockham Lane	Eastbound	1,008	4	56.97	1,005	6	56.78			
A25/ Brockham Lane - A25/ B2032/ Station Road Roundabout	Eastbound	1,015	0	103.53	1,001	0	103.95			✓
A25/ B2032/ Station Road Roundabout - A25/ Flanchford Road	Eastbound	807	0	45.61	792	0	44.75			
A25/ Flanchford Road - A25/ Park Lane	Eastbound	883	0	106.00	883	0	106.00			✓
A25/ Park Lane - A25 London Road/ A25 Castlefield Road/ A217	Eastbound	1,621	22	73.27	1,610	38	72.78			
A25 London Road/ A25 Castlefield Road/ A217 - A25 Castlefield Road/ A25 Church Street	Eastbound	1,491	0	27.65	1,480	11	27.45			
A25 Castlefield Road/ A25 Church Street - A25/ B2034	Eastbound	748	0	47.58	777	0	49.40			
A25/ B2034 - A25 Queensway/ A25 St. Matthew's Road/ A25 Station Road	Eastbound	621	0	63.20	655	0	67.32			
A25 Queensway/ A25 St. Matthew's Road/ A25 Station Road - A25/ A23/ Gloucester Road Roundabout	Eastbound	910	5	43.82	959	9	46.17			
A25/ A23 Gloucester Road Roundabout - A25/ A23 The Stations Roundabout	Eastbound	737	2	50.47	732	3	50.14			
A25 Queensway/ A25 St. Matthew's Road/ A25 Station Road - A25/ A23 Belfry Roundabout	Eastbound	0	0	0.00	0	0	0.00			
A25/ A23 Belfry Roundabout - A25/A23 The Stations Road Roundabout	Eastbound	404	8	27.66	404	19	27.67			
A25/ A23 The Stations Roundabout - A25/ Little Common Lane	Eastbound	835	8	57.18	840	19	57.53			
A25/ Little Common Lane - A25/ B2236	Eastbound	829	4	50.09	827	12	49.97			
A25/ B2235 - A25/ B2236 Roundabout	Eastbound	712	4	44.46	730	12	45.74			
A25/ B2235 Roundabout - A25/ A22 Roundabout	Eastbound	533	3	86.19	549	6	90.30			

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Surface Access: Strategic & Local Road Impacts

Figure 4-12: A25 PM peak V/C – Impact



## 4.8 A217

- 4.8.1 The A217 runs north south from Fulham in London to Gatwick Airport's northern perimeter. It crosses the M25 at Junction 8 and then runs parallel and to the east of the A23 to Gatwick. Reigate, the suburb of Woodhatch and Hookwood are significant centres on the route.
- 4.8.2 Junction 8 is the first junction west of the M23 on the M25 and consequently the A217 through Reigate is an obvious potential rat-run from the west towards the airport.
- 4.8.3 Modelled AM peak traffic volume summaries for the extended Baseline and Gatwick Second Runway schemes are given in Table 3-13. Figure 3-13 shows the impact of second runway traffic spatially.
- 4.8.4 Northbound, the key capacity constraint is in Reigate at the junction of High St and London Rd. Here, the V/C ratio increases slightly from 112% in the Extended Baseline to 113% with a two runway scenario. Southbound congestion occurs at the Longbridge Roundabout at the junction of the A217 and A23. While, the V/C ratio is forecast to increase to 107% as a result of the second runway scheme, it should be noted Gatwick Airport has committed to improvements at this junction. These will help mitigate the impact of airport expansion at this important location.
- 4.8.5 Evening peak impacts are summarised in Table and figure 3-14. In the evening, the southbound A217 London Rd approach to Castlefield Rd in Reigate sees a very marginal increase in V/C ratio above 100%.
- 4.8.6 No other locations on the corridor are forecast to experience a significant impact as a result of the second runway proposal in normal traffic conditions.
- 4.8.7 Figures A-25 to A-28, in Appendix A, highlight the V/C ratio of all links on the A23 corridor, for both Extended Baseline and Gatwick Second Runway scenarios.

**Appraisal Framework Module 4.**  
**Surface Access: Strategic & Local Road Impacts**



**Table 4-13: A217 AM V/C with Gatwick Second Runway**

Road	Direction	EBL			Gatwick 2R			Impact		
		Total Demand	Airport Demand	V/C	Total Demand	Airport Demand	V/C	> 85%	> 100%	> 100% +
Longbridge Roundabout - A217/Reigate Road Roundabout, A213 Mainline	Northbound	453	24	22.96	483	28	24.13			
A217/Reigate Road Roundabout - A217/ Mill Lane, A213 Mainline	Northbound	630	24	23.35	639	28	23.68			
A217/ Mill Lane - A217/ Ironsbottom, A213 Mainline	Northbound	549	24	30.65	571	28	31.90			
A217/ Ironsbottom - A217/ A2044/ Prices Lane, A213 Mainline	Northbound	437	15	59.69	437	15	59.62			
A217/ A2044/ Prices Lane - A217/ A25 Church Street/ A25 High Street, A213 Mainline	Northbound	589	14	40.37	589	14	40.34			
A217/ A25 Church Street/ A25 High Street - A25 High Street/ Park Lane/ West Street, A213 Mainline	Northbound	1,390	14	111.96	1,404	14	113.23			✓
A25 High Street/ Park Lane/ West Street - A25 London Road/ A25 Castlefield Road/ A217, A213 Mainline	Northbound	1,640	13	74.16	1,651	12	74.64			
A25 London Road/ A25 Castlefield Road/ A217 - A217/ Wray Lane/ Gatton Bottom Roundabout, A213 Mainline	Northbound	1,231	13	82.09	1,241	12	82.73			
Through A217/ Wray Lane/ Gatton Bottom Roundabout, A213 Mainline	Northbound	1,588	13	1.59	1,624	12	1.62			
A217/ Wray Lane/ Gatton Bottom Roundabout - A217/ M25 Junction 8, A213 Mainline	Northbound	1,537	13	1.54	1,568	12	1.57			
A217/ M25 Junction 8 - A217/ Wray Lane/ Gatton Bottom Roundabout, A213 Mainline	Southbound	1,219	0	1.22	1,204	0	1.20			
Through A217/ Wray Lane/ Gatton Bottom Roundabout, A213 Mainline	Southbound	1,428	0	1.43	1,442	0	1.44			
A217/ Wray Lane/ Gatton Bottom Roundabout - A25 London Road/ A25	Southbound	979	0	103.66	966	0	102.22			

**Appraisal Framework Module 4.**  
**Surface Access: Strategic & Local Road Impacts**



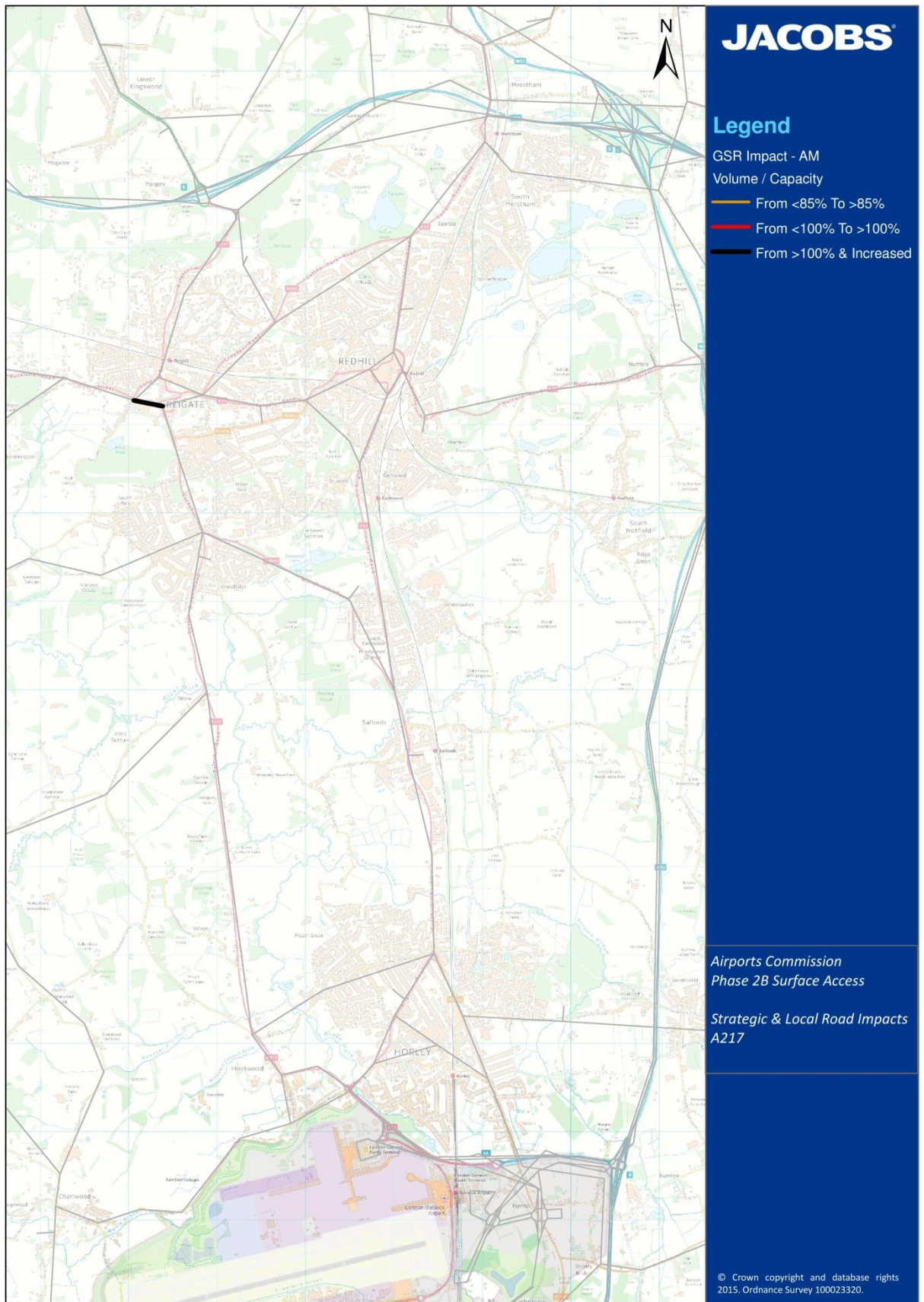
Road	Direction	EBL			Gatwick 2R			Impact		
		Total Demand	Airport Demand	V/C	Total Demand	Airport Demand	V/C	> 85%	> 100%	> 100% +
Castlefield Road/ A217, A213 Mainline										
A25 London Road/ A25 Castlefield Road/ A217 - A25 Castlefield Road/ A25 Church Street, A213 Mainline	Southbound	1,393	0	25.83	1,380	0	25.58			
A25 Castlefield Road/ A25 Church Street - A217/ A25 High Street/ A25 Church Street, A213 Mainline	Southbound	1,411	0	92.75	1,423	0	93.50			
A217/ A25 Church Street/ A25 High Street - A217/ A2044/ Prices Lane, A213 Mainline	Southbound	606	0	82.95	605	0	82.88			
A217/ A2044/ Prices Lane - A217/ Ironsbottom, A213 Mainline	Southbound	840	4	67.78	826	7	66.83			
A217/ Ironsbottom - A217/ Mill Lane, A213 Mainline	Southbound	900	14	50.25	898	22	50.17			
A217/ Mill Lane - A217/Reigate Road Roundabout, A213 Mainline	Southbound	820	14	37.10	819	22	37.06			
A217/Reigate Road Roundabout - Longbridge Roundabout, A213 Mainline	Southbound	548	9	105.60	580	17	106.81			✓
A217/ Reigate Road Roundabout - Reigate Road/ Povey Cross Road/ Charlwood Road, A217 Interchange	Southbound	275	6	34.87	241	7	39.90			
Reigate Road/ Povey Cross Road/ Charlwood Road - A217/ Reigate Road Roundabout, A217 Interchange	Northbound	180	1	9.83	158	2	8.76			

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**Surface Access: Strategic & Local Road Impacts**



**Figure 4-13: A217 AM peak V/C – Impact**



**Appraisal Framework Module 4.**  
**Surface Access: Strategic & Local Road Impacts**



**Table 4-14: A217 AM V/C with Gatwick Second Runway**

Road	Direction	EBL			Gatwick 2R			Impact		
		Total Demand	Airport Demand	V/C	Total Demand	Airport Demand	V/C	> 85%	> 100%	> 100% +
Longbridge Roundabout - A217/Reigate Road Roundabout, A213 Mainline	Northbound	680	72	35.83	632	119	31.58			
A217/Reigate Road Roundabout - A217/ Mill Lane, A213 Mainline	Northbound	878	72	30.58	901	119	31.40			
A217/ Mill Lane - A217/ Ironsbottom, A213 Mainline	Northbound	768	72	42.93	796	119	44.47			
A217/ Ironsbottom - A217/ A2044/ Prices Lane, A213 Mainline	Northbound	401	28	54.74	401	52	54.71			
A217/ A2044/ Prices Lane - A217/ A25 Church Street/ A25 High Street, A213 Mainline	Northbound	542	27	37.13	541	50	37.05			
A217/ A25 Church Street/ A25 High Street - A25 High Street/ Park Lane/ West Street, A213 Mainline	Northbound	1,412	27	112.69	1,420	50	111.81			
A25 High Street/ Park Lane/ West Street - A25 London Road/ A25 Castlefield Road/ A217, A213 Mainline	Northbound	1,621	22	73.27	1,610	38	72.78			
A25 London Road/ A25 Castlefield Road/ A217 - A217/ Wray Lane/ Gatton Bottom Roundabout, A213 Mainline	Northbound	1,033	22	68.86	1,029	38	68.60			
Through A217/ Wray Lane/ Gatton Bottom Roundabout, A213 Mainline	Northbound	1,430	22	1.43	1,437	38	1.44			
A217/ Wray Lane/ Gatton Bottom Roundabout - A217/ M25 Junction 8, A213 Mainline	Northbound	1,398	22	1.40	1,405	38	1.41			
A217/ M25 Junction 8 - A217/ Wray Lane/ Gatton Bottom Roundabout, A213 Mainline	Southbound	1,132	0	1.13	1,140	11	1.14			
Through A217/ Wray Lane/ Gatton Bottom Roundabout, A213 Mainline	Southbound	1,363	0	1.36	1,378	11	1.38			
A217/ Wray Lane/ Gatton Bottom Roundabout - A25 London Road/ A25	Southbound	884	0	101.03	888	11	101.25			✓

**Appraisal Framework Module 4.**  
**Surface Access: Strategic & Local Road Impacts**



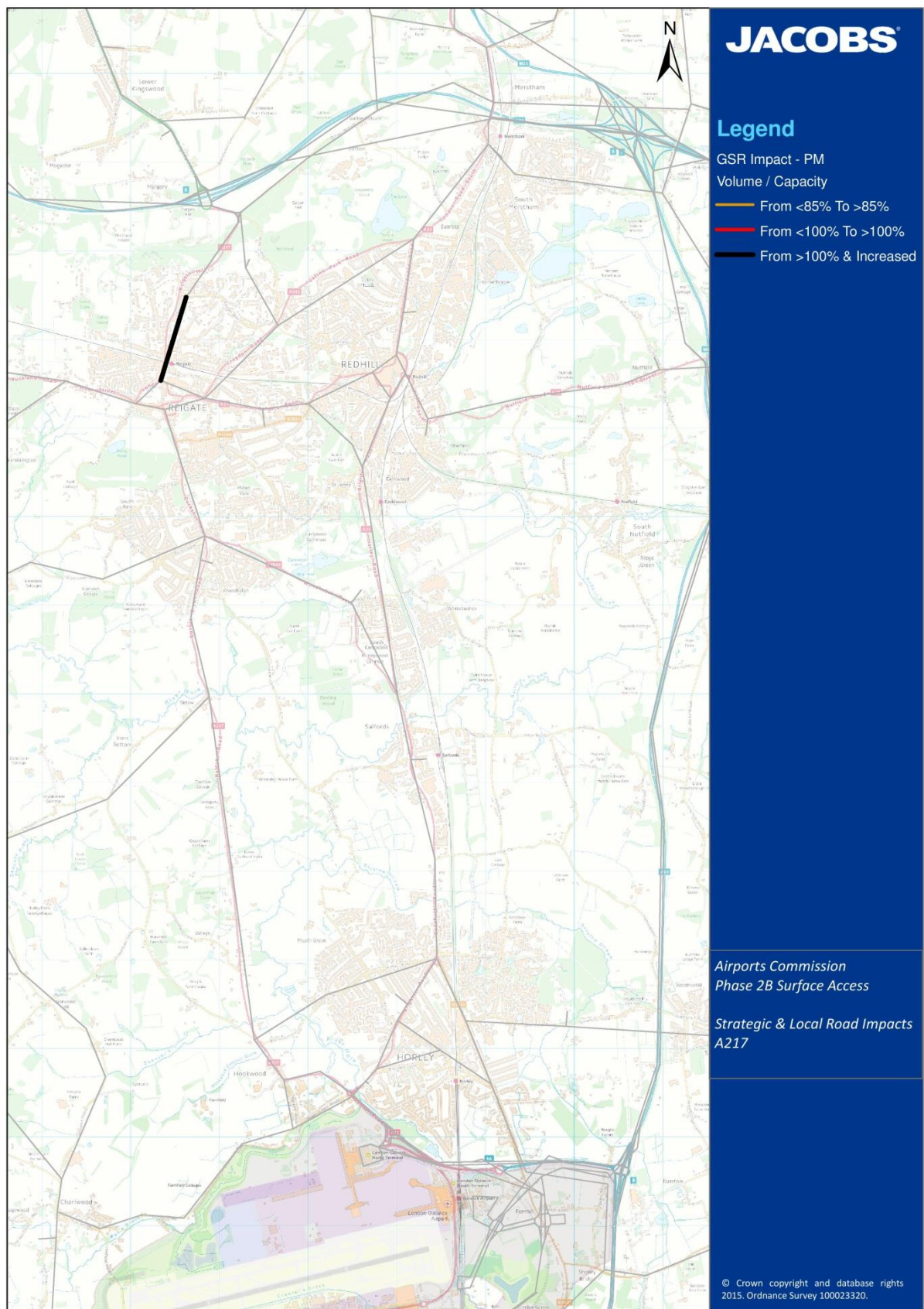
Road	Direction	EBL			Gatwick 2R			Impact		
		Total Demand	Airport Demand	V/C	Total Demand	Airport Demand	V/C	> 85%	> 100%	> 100% +
Castlefield Road/ A217, A213 Mainline										
A25 London Road/ A25 Castlefield Road/ A217 - A25 Castlefield Road/ A25 Church Street, A213 Mainline	Southbound	1,491	0	27.65	1,480	11	27.45			
A25 Castlefield Road/ A25 Church Street - A217/ A25 High Street/ A25 Church Street, A213 Mainline	Southbound	1,372	1	89.70	1,378	13	90.07			
A217/ A25 Church Street/ A25 High Street - A217/ A2044/ Prices Lane, A213 Mainline	Southbound	498	1	68.12	495	13	67.81			
A217/ A2044/ Prices Lane - A217/ Ironsbottom, A213 Mainline	Southbound	499	2	41.15	475	14	40.05			
A217/ Ironsbottom - A217/ Mill Lane, A213 Mainline	Southbound	626	13	34.98	626	32	34.97			
A217/ Mill Lane - A217/Reigate Road Roundabout, A213 Mainline	Southbound	707	13	33.48	649	32	30.83			
A217/Reigate Road Roundabout - Longbridge Roundabout, A213 Mainline	Southbound	434	13	64.31	516	32	75.11			
A217/ Reigate Road Roundabout - Reigate Road/ Povey Cross Road/ Charlwood Road, A217 Interchange	Southbound	388	0	62.46	254	0	42.91			
Reigate Road/ Povey Cross Road/ Charlwood Road - A217/ Reigate Road Roundabout, A217 Interchange	Northbound	314	0	18.85	391	0	23.26			

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**Figure 4-14: A217 PM peak V/C – Impact**



## 4.9 A264

- 4.9.1 The A264 is an important local east-west route linking the A21 in west Kent with the A29 at Five Oaks in West Sussex. Within the study area, the A264 links East Grinstead with the M23 at Junction 10. It then restarts at Junction 11, and forms a south west bypass of Crawley linking to the A24 northwest of Horsham. West of the M23, the motorway is dual carriageway with a series of at grade roundabout junctions.
- 4.9.2 Modelled traffic flow data for the Extended Baseline and Gatwick Second Runway options is presented in Tables 3-15 and 3-16 for the morning and evening peaks. Figures 3-15 and 3-16 highlight the data spatially
- 4.9.3 Approximately 30 westbound vehicles travelling to the airport are forecast to use the route in the extended baseline, increasing to 50 vehicles as a result of airport expansion.
- 4.9.4 Sections of the route are at or close to capacity in the morning extended baseline scenario. These include the westbound approach to the M23 Junction 10 from East Grinstead and the Crawley south west bypass approach to the M23 Junction 11.
- 4.9.5 As noted above, airport expansion will have only a small impact on traffic volumes. The V/C ratio of the westbound approach to the B2028 roundabout is already in excess of capacity in the Extended Baseline. A second runway will further increase this to 109% however local widening of the approach would be sufficient to mitigate any impact.
- 4.9.6 The A264 / A2220 roundabout operates satisfactorily in 2030 under both scenarios. Nevertheless, at the opposite end of the A2220, the approach to the Ridley's Corner roundabout on Balcombe Road is over capacity.
- 4.9.7 Evening peak capacity issues include the eastbound Cophorne Way approach to the B2028 roundabout with a V/C ratio of 116%. The north and southbound B2028 approaches also have a V/C in excess of 100%. Once again, local widening of each approach arm would be sufficient to provide additional capacity.
- 4.9.8 V/C values for all links on the A264 corridor, with and without airport expansion, are given in Appendix A, Figures A-29 to A-32.

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**Surface Access: Strategic & Local Road Impacts**

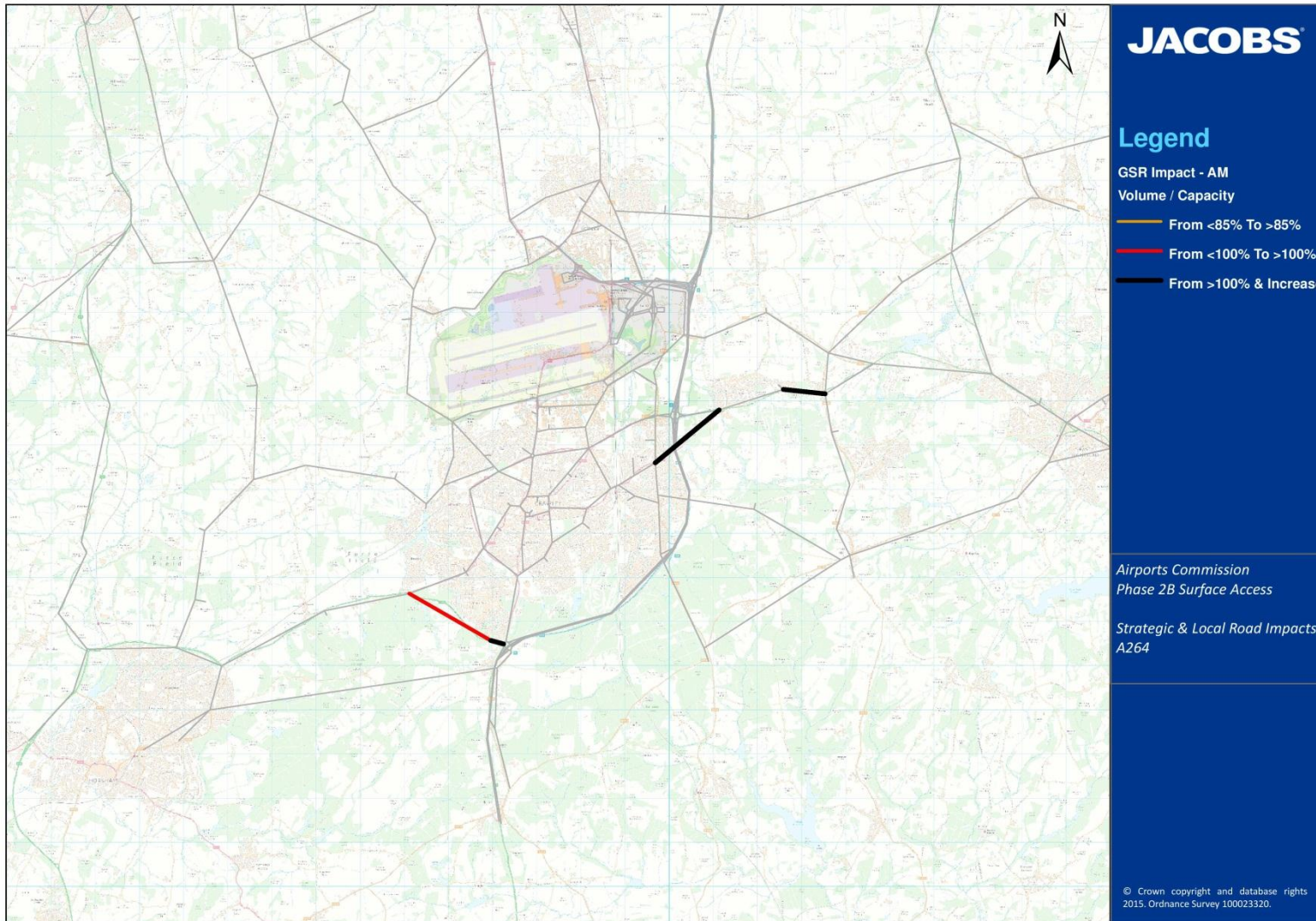


**Table 4-15: A264 AM V/C with Gatwick Second Runway**

Road	Direction	EBL			Gatwick 2R			Impact		
		Total Demand	Airport Demand	V/C	Total Demand	Airport Demand	V/C	> 85%	> 100%	> 100% +
A264/ A22 - A264/ B2037	Westbound	331	34	9.64	346	49	10.03			
A264/ B2037 - A264/ B2028 Roundabout	Westbound	174	17	19.72	175	1	20.98			
A264/ B2028 Roundabout - A264/ A2220/ Brookhill Road Roundabout	Westbound	1,634	38	92.29	1,677	31	94.75			
A264/ A2220/ Brookhill Road Roundabout - A264/ M23 Junction 10	Westbound	616	38	34.82	669	31	37.80			
A264/ M23 Junction 10 - A264 / A2220/ Brookhill Road Roundabout	Eastbound	781	20	46.15	761	18	45.41			
A264 / A2220/ Brookhill Road Roundabout - A264/ B2028 Roundabout	Eastbound	1,441	17	107.07	1,462	17	106.17			
A264/ B2028 Roundabout - A264/ B2037	Eastbound	298	13	14.60	280	13	13.74			
A264/ B2037 - A264/ A22	Eastbound	468	13	50.71	457	21	49.57			
A264/ B2028 Roundabout - B2028/ B2037 Roundabout	Northbound	1,104	1	78.57	1,086	0	77.30			
A264/ A2220 Roundabout - A2220/ B2036 Roundabout	Westbound	1,279	2	111.61	1,262	0	109.64			
B2028/ B2037 Roundabout - A264/ B2028 Roundabout	Southbound	1,584	14	108.23	1,582	22	109.18			✓
A2220/ B2036 Roundabout - A264/ A2220 Roundabout	Eastbound	769	0	42.58	765	0	43.34			

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Surface Access: Strategic & Local Road Impacts

Figure 4-15: A264 AM peak V/C – Impact



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**Surface Access: Strategic & Local Road Impacts**

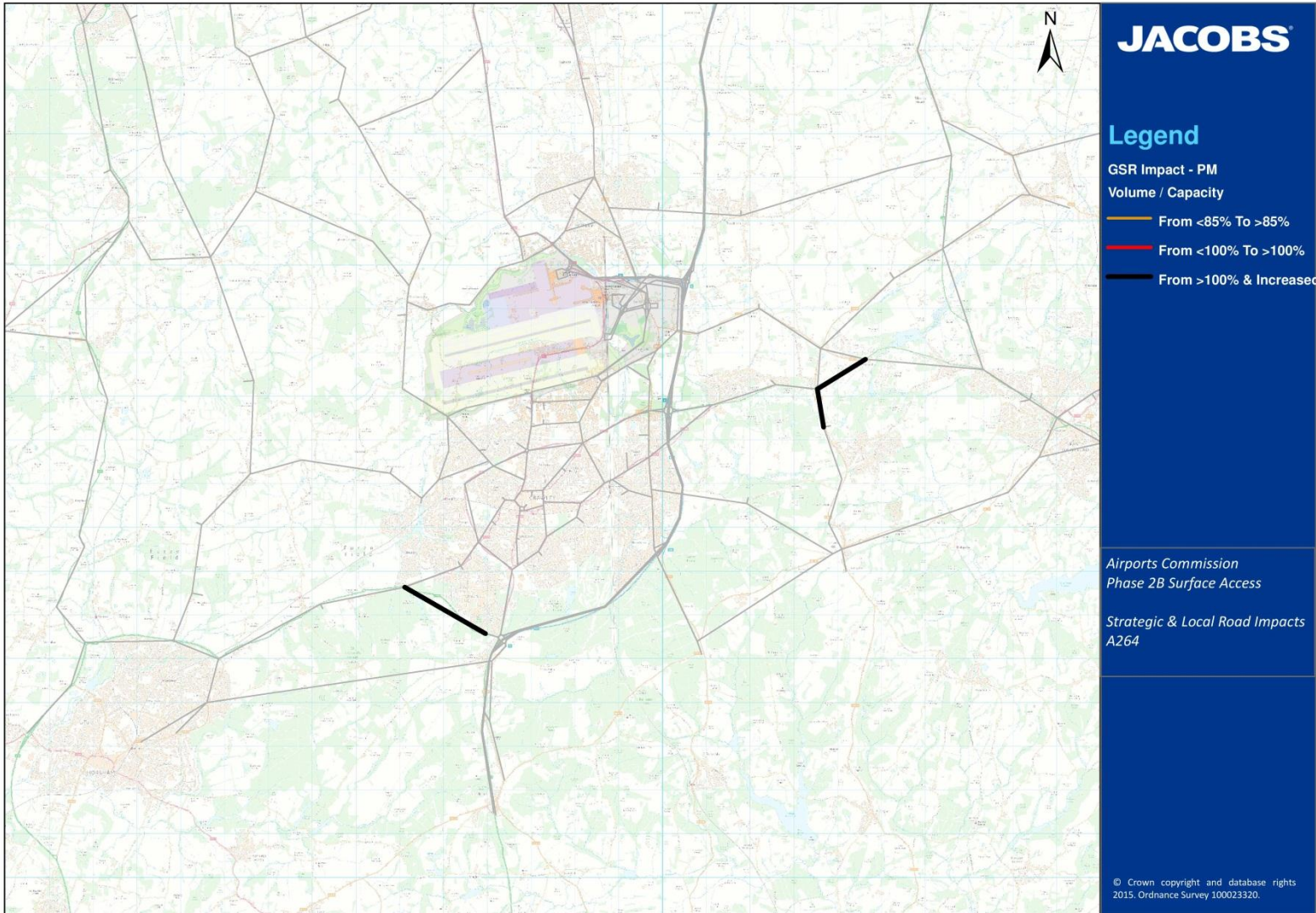


**Table 4-16: A264 PM V/C with Gatwick Second Runway**

Road	Direction	EBL			Gatwick 2R			Impact		
		Total Demand	Airport Demand	V/C	Total Demand	Airport Demand	V/C	> 85%	> 100%	> 100% +
A264/ A22 - A264/ B2037	Westbound	741	3	22.39	753	4	23.08			
A264/ B2037 - A264/ B2028 Roundabout	Westbound	743	1	111.00	759	0	109.84			
A264/ B2028 Roundabout - A264/ A2220/ Brookhill Road Roundabout	Westbound	1,416	5	80.01	1,412	5	79.77			
A264/ A2220/ Brookhill Road Roundabout - A264/ M23 Junction 10	Westbound	1,075	5	60.71	940	5	53.11			
A264/ M23 Junction 10 - A264 / A2220/ Brookhill Road Roundabout	Eastbound	937	40	67.73	920	39	65.81			
A264 / B2028 Roundabout	Eastbound	1,275	23	115.91	1,316	23	116.25			✓
A264/ B2028 Roundabout - A264/ B2037	Eastbound	454	11	22.29	509	7	24.98			
A264/ B2037 - A264/ A22	Eastbound	527	11	57.17	518	30	56.18			
A264/ B2028 Roundabout - B2028/ B2037 Roundabout	Northbound	2,165	10	108.13	2,224	16	111.09			✓
A264/ A2220 Roundabout - A2220/ B2036 Roundabout	Westbound	589	14	55.70	671	11	60.45			
A264 / B2028 Roundabout	Southbound	982	0	113.64	999	0	115.89			✓
A2220/ B2036 Roundabout - A264/ A2220 Roundabout	Eastbound	1,161	0	80.03	1,154	0	74.79			

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Surface Access: Strategic & Local Road Impacts

Figure 4-16: A264 PM peak V/C – Impact



## 4.10 Local roads

- 4.10.1 Analysis of a number of local roads situated to the north of Gatwick Airport was undertaken in order to determine the effects of a second on the minor road network. The area of study focused on the road network south of the M25, between the M23 and A24.
- 4.10.2 The area includes the villages of Charlwood, Norwood, Leigh, Parkgate, Horley, Smallfield, Pebble Coombe, Hookwood, Betchworth and Sidlow.
- 4.10.3 The performance of the local roads network is summarised in Tables 3-17 and 3-18 and graphically in Figures 3-17 and 3-18. These show that the implementation of a second runway at Gatwick would result in a minimal impact to the minor roads surrounding the airport.
- 4.10.4 All routes examined fall below 85% capacity with the exception of; between Leigh and Pebble Coombe, encompassing Pebble Hill Road, Station Road, The St and Snowhill Road, and between Smallfield and Horley, Smallfield Road, Balcombe Road and Victoria Road.
- 4.10.5 In the morning peak the northbound route from Leigh to Pebble Coombe is currently over capacity on Station Road to the north of the A25. In 2030, and with the addition of a second runway at Gatwick, this road remains over capacity and demand increases by 22 vehicles which is approximately 1%. However, in the opposing southbound direction this route encounters a reduction in demand, dropping below 100% capacity and is attributed to the improvements made to the M25 and M23.
- 4.10.6 In the evening peak period, Balcombe Road south of Smallfield Road / Station Road/ Balcombe Road and north of Victoria Road / Balcombe Road Roundabout is over capacity. Following the implementation of a second runway in 2030, this road remains over capacity and the V/C increases by 1.6%.
- 4.10.7 Vehicles flow actually reduces from 924 to 873 - the increase in V/C is a result of a reduction in capacity at the Victoria Road / Balcombe Road Roundabout, caused by a greater number of vehicles turning left from Balcombe Road (south of the roundabout) to Victoria Road.
- 4.10.8 Gatwick Airport's proposals for roads to the west and south of the airport have not been finalised. The Surface Access Report proposes the closure of Lowfield Heath Rd. Should this proceed, traffic will be locally diverted via Ilfield Rd to the west of the airport, increasing two-way traffic volumes by 550 vehicles in the morning and 410 vehicles in the evening peak.
- 4.10.9 V/C values for local road links, with and without airport expansion, are given in Appendix A, Figures A-33 to A-36.

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**Surface Access: Strategic & Local Road Impacts**

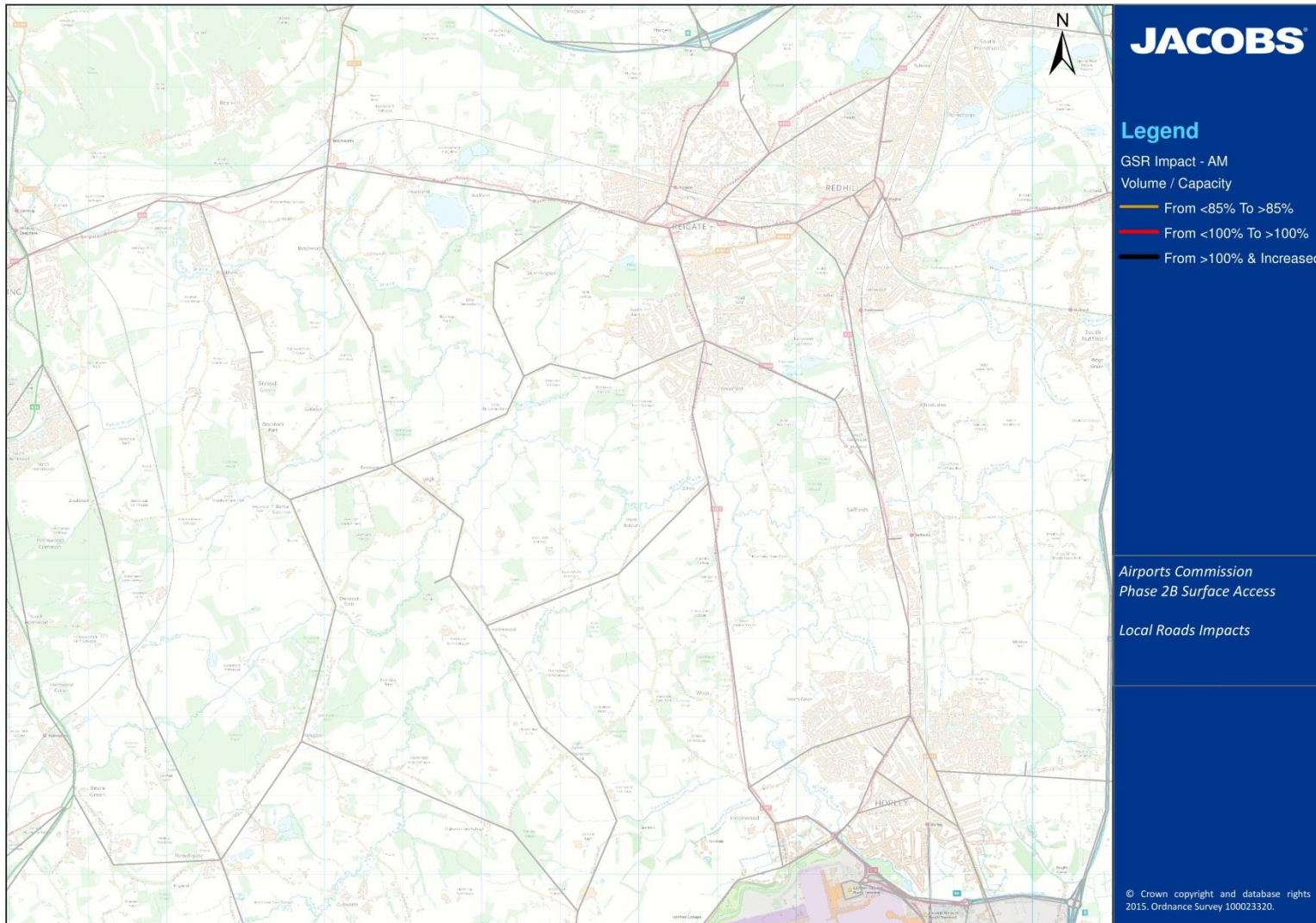


**Table 4-17: Local roads AM V/C with Gatwick Second Runway**

Road	Direction	EBL			NWR			Impact		
		Total Demand	Airport Demand	V/C	Total Demand	Airport Demand	V/C	> 85%	> 100%	> 100% +
Charlwood - Norwood	Northbound	291	0	23.27	296	0	23.68			
Norwood - Leigh	Northbound	356	7	28.08	393	10	31.12			
Leigh - Pebble Coombe	Northbound	1,006	1	108.44	1,028	1	109.83			✓
Charlwood - Parkgate	Northbound	770	65	55.79	861	111	62.39			
Parkgate - Leigh Road/ Bunce Common Road/ Shellwood Road	Northbound	499	0	36.12	531	0	38.48			
Leigh Road/ Bunce Common Road/ Shellwood Road - A27/ Woodhatch Road Junction	Eastbound	196	3	73.29	202	4	75.66			
Smallfield - Horley	Westbound	556	13	96.34	556	16	96.36			
Norwood - Sidlow	Eastbound	158	9	33.14	185	15	38.87			
Norwood - Charlwood	Southbound	256	6	18.58	246	9	17.83			
Leigh - Norwood	Southbound	414	16	30.00	431	24	31.23			
Pebble Coombe - Leigh	Southbound	882	8	101.49	869	12	99.66			
Parkgate - Charlwood	Southbound	433	39	31.40	468	51	33.91			
Leigh Road/ Bunce Common Road/ Shellwood Road - Parkgate	Southbound	220	2	35.34	232	3	39.32			
A27/ Woodhatch Road junction - Leigh Road/ Bunce Common Road/ Shellwood Road	Westbound	386	0	50.40	405	0	54.14			
Horley - Smallfield	Eastbound	798	8	79.40	651	10	64.78			
Sidlow - Norwood	Westbound	60	8	9.39	93	11	14.51			

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Figure 4-17: Local Roads AM peak V/C – Impact



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**Surface Access: Strategic & Local Road Impacts**

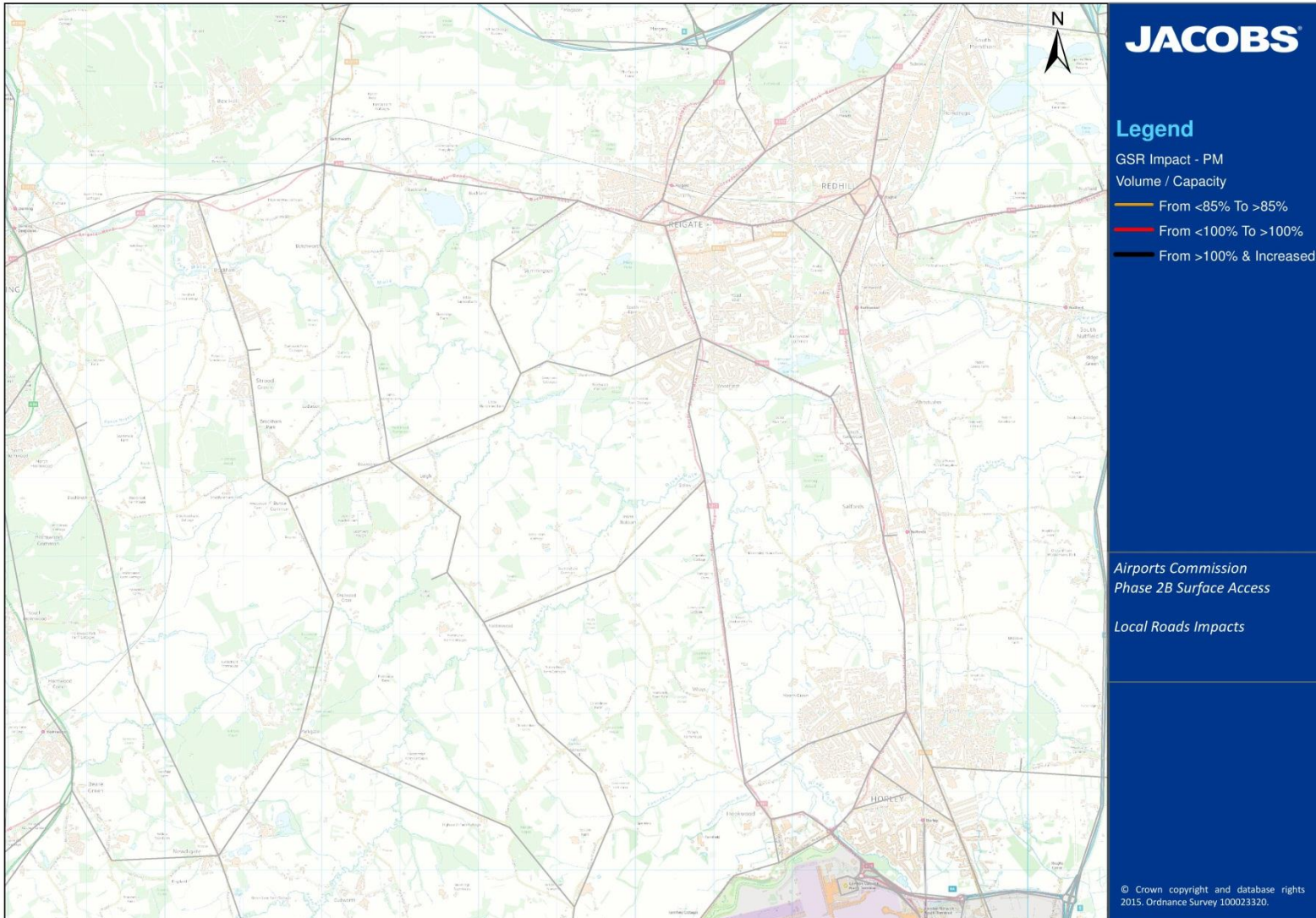


**Table 4-18: Local roads PM V/C with Gatwick Second Runway**

Road	Direction	EBL			NWR			Impact		
		Total Demand	Airport Demand	V/C	Total Demand	Airport Demand	V/C	> 85%	> 100%	> 100% +
Charlwood - Norwood	Northbound	251	0	20.07	271	0	21.71			
Norwood - Leigh	Northbound	314	40	22.79	373	62	27.03			
Leigh - Pebble Coombe	Northbound	743	5	80.03	777	10	83.37			
Charlwood - Parkgate	Northbound	756	18	54.79	749	26	54.28			
Parkgate - Leigh Road/ Bunce Common Road/ Shellwood Road	Northbound	366	0	26.53	369	0	26.74			
Leigh Road/ Bunce Common Road/ Shellwood Road - A27/ Woodhatch Road Junction	Eastbound	218	0	81.36	212	0	79.10			
Smallfield - Horley	Westbound	924	2	103.41	873	2	105.05			✓
Norwood - Sidlow	Eastbound	206	11	44.08	233	17	51.89			
Norwood - Charlwood	Southbound	327	0	23.72	309	0	22.39			
Leigh - Norwood	Southbound	533	11	38.63	541	17	39.20			
Pebble Coombe - Leigh	Southbound	924	5	107.83	914	8	106.16			
Parkgate - Charlwood	Southbound	233	31	16.87	252	36	18.26			
Leigh Road/ Bunce Common Road/ Shellwood Road - Parkgate	Southbound	120	0	18.87	126	0	19.91			
A27/ Woodhatch Road junction - Leigh Road/ Bunce Common Road/ Shellwood Road	Westbound	166	37	18.46	202	57	23.25			
Horley - Smallfield	Eastbound	922	42	92.55	742	71	73.83			
Sidlow - Norwood	Westbound	64	40	10.14	103	62	16.48			

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Surface Access: Strategic & Local Road Impacts

Figure 4-18: Local Roads PM peak V/C – Impact



#### **4.11 A27**

- 4.11.1 The A27 is the primary east – west route from Portsmouth to Eastbourne running along the south coast, connecting with the A23 north of Brighton. At its closest point, the A27 is over 25 kilometres from Gatwick. As a consequence has not been included within the model simulation network and analysis of the route is more limited.
- 4.11.2 Forecast traffic volumes increases resulting from Gatwick Airport expansion are low. Two-way flows are forecast to increase by 130 vehicles in the morning peak and 100 vehicles in the evening.

#### **4.12 A272**

- 4.12.1 The A272 is a second key east – west corridor from Winchester in west to the A22 / A26 near Uckfield in the east. It crosses the A23 at Bolney, around 15 kilometres south of Gatwick and as above has not been included within the simulation network.
- 4.12.2 The largest morning peak demand on the A272 is on the eastbound section of road where it joins with the A23. In the morning peak Extended Baseline, 570 vehicles join the A23; following implementation of a second runway this increases to 630 vehicles, an increase of 60 movements.
- 4.12.3 Evening peak impacts are neutral with no significant change in flows forecast.

## 5. Summary and conclusions

### 5.1 Background

- 5.1.1 On the 3rd February 2015 the AC's consultation on short-listed options for a new runway in the south east ended after a period of 12 weeks. During this time the AC received approximately 75,000 responses on the three options for expansion at Heathrow and Gatwick.
- 5.1.2 Following an initial review of the consultation responses by the AC, Jacobs were provided with a selection of consultee responses pertaining to surface access. The AC's Secretariat considered that these responses raised issues whose technical complexity did not allow all of their points to be addressed without support from Jacobs.
- 5.1.3 This report covers the strategic and local road impacts of each of the three short-listed options. These impacts were highlighted as a concern by a number of the consultees.

### 5.2 Approach

- 5.2.1 Further assessment of the surface access implications of the three short-listed expansion options was undertaken during the consultation period. The updated analysis included enhanced distribution and mode-share modelling which was subsequently applied to a series of dynamic highway models of Heathrow and Gatwick, inherited from Transport for London's Highway Assignment Models.
- 5.2.2 The updated methodology differed from the pre-consultation analysis in three key ways:
- The AM peak hour (0800-0900) and a PM peak-hour (1700-1800) time periods were modelled, along with an average Inter Peak (IP) hour covering the period 1000-1600. The pre-consultation analysis focussed on a single AM peak hour;
  - The updated models were dynamic, which meant that the capacity assessments undertaken could account for the changing costs of travel across the network and how travellers respond to these costs. The pre-consultation analysis was static in nature; and
  - The forecast passenger numbers adopted the Commission's "Carbon-Traded Global Growth" forecasts. Estimates of the number of airport employees were also adjusted.
- 5.2.3 In order to ascertain whether the specific concerns expressed by the consultees regarding the impact on strategic and local roads would materially affect the AC's understanding of the feasibility of a particular option, the Volume over Capacity (V/C) on the roads identified by the consultees were examined.
- 5.2.4 The V/Cs on the roads highlighted by consultees were examined for the Gatwick Second Runway option and compared against an Extended Baseline scenario. The methodology was developed to support the AC in identifying which roads or corridors (and which sections of the roads or corridors) would be adversely impacted by expansion and the implications that this would have with regards to mitigation and ultimately the viability of a particular option.
- 5.2.5 The following strategic and local roads have been included in the analysis:
- M23;
  - M25;
  - A22;
  - A23;
  - A24;
  - A25;

- A217
- A264, and
- local roads.

5.2.6 The A27 and A272 are also briefly discussed although they are located outside the model simulation area. The list reflects the roads raised by consultees, as well as a small number of additional roads considered relevant to the assessment.

5.2.7 The results have been presented for the AM peak period (0800-0900) and the PM peak period (1700-1800) which is when the impact on strategic and local roads is likely to be the greatest.

### **5.3 Responses**

5.3.1 A tabulated summary of the consultee comments were provided in Chapter 2. Based upon the corridor-based analysis of this report, responses to each of the comments are provided below.

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**Table 5-1: Gatwick strategic & local road consultee responses**

Ref	Consultee(s)	Summary of issue raised	Road / location	Summary response
1	All	Concerned that the current road network and the infrastructure improvements promised will not adequately combat the future year 'background' congestion.	General	<p>Dynamic highway assignment modelling has been undertaken using TfL's 2030 SoLHAM, disaggregated in the vicinity of Gatwick using data from the 2030 WSCC highway model. Forecast background growth has been modelled in a manner consistent with other major transport proposals in London and the south east.</p> <p>The models include a number of infrastructure improvements that are either committed or likely to be in place by 2030, regardless of expansion at Gatwick. These extended baseline schemes include the</p> <ul style="list-style-type: none"> <li>• M23 J8-10, and</li> <li>• M25 J5-7 SMART motorway schemes,</li> </ul> <p>Analysis illustrates that the above proposals will provide adequate strategic network capacity to combat future year 'background' congestion.</p>
2	TfL Gatwick Airport Limited Mid Sussex District Council	Has not considered the increase in freight demand as a result of the airport expansion and the associated effects on the road network.	General	<p>Sensitivity testing has been undertaken assessing the potential impacts of freight at Gatwick and this is separately reported. Two alternative assessment of future freight impacts have been considered:</p> <ul style="list-style-type: none"> <li>• Scenario A – existing logistics and cargo demand increases by the increase in total mppa from current levels to 2030</li> <li>• Scenario B – logistics demand increases in line with total mppa demand with future cargo demand based on 2030 long haul passenger forecasts</li> </ul> <p>This second test is considered to be more realistic and is based on the assumption that long haul routes (and underlying passenger demand) drive cargo growth.</p> <p>Even with higher growth forecasts, freight vehicles can be adequately accommodated. Freight trips use the strategic road network – local road capacity impacts are largely negligible (<math>\pm</math> 0% to 1% capacity utilisation) or minor (<math>\pm</math> 1% to 4% capacity utilisation).</p>

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Ref	Consultee(s)	Summary of issue raised	Road / location	Summary response
3	Surrey County Council Gatwick Airport Limited Tandridge District Council Crawley Borough Council Royal Borough of Windsor & Maidenhead Haywards Heath Town Council West Sussex County Council Mid Sussex District Council Reigate & Banstead Borough Council Horsham District Council	More emphasis on the appraisal of local roads needed, particularly; the A25 between the M25 and Dorking; Balcombe Road; Longbridge Roundabout; North Terminal Cargo access; A22; A23; A24; A264; A272; Hooley Intersection; Fellridge where the A22 and A264 meet; links to Burgess Hill & Haywards Heath from the airport.	A25 Longbridge Roundabout North Terminal Cargo Access A22 A23 A24 A264 A272 Hooley Intersection Fellridge Burgess Hill Haywards Heath	This report summarises the analysis of the impact of a second runway on both strategic and local roads It highlights that additional traffic resulting from expansion at Gatwick can be accommodated on the strategic road network. Generally, the M23 and M25 corridors provide sufficient capacity and where issues are identified these would occur with or without airport expansion. Elsewhere constraints are at junctions and targeted local area improvements can provide any necessary additional capacity.
4	Surrey County Council	Suggested transport improvements. <ul style="list-style-type: none"> <li>• A23/M23 Hooley Intersection – improve links to the north (especially Croydon)</li> <li>• Capacity and junction improvements to A24 – alternative to M25/M23</li> <li>• M25 junction 9</li> <li>• Improvements to the A23, A217 and A25 – alternative to the M25/M23 and will alleviate issue at Reigate railway crossing</li> <li>• Fellridge where the A22 and A264 meet – improve east and west connectivity</li> <li>• Car parking needs further assessment</li> <li>• Improve rail</li> <li>• Improve PT and awareness campaigns</li> </ul>	A23 / M23 Hooley Intersection A24 M25 Junction 9 A23 A217 A25 Fellridge	The suggested transport improvements are noted. Analysis of traffic impacts resulting from a second runway highlights that the large majority of traffic will continue to access the airport via the motorway network. Local road impacts are modest and capacity issues would generally occur with or without airport expansion. All constraints are at junctions and targeted local area improvements can provide any necessary additional capacity.
5	Gatwick Area Conservation Campaign	Extension of the M23 to central London due to the increase in LGVs and HGVs (2040).	M23	Dynamic highway modelling indicates that the distribution of traffic to and from the north of Gatwick is primarily via the M25. As highlighted in Section 4.5 above, only a small proportion of trips are to and from central London via the A23. The proportion of freight on the A23 north of the M25 is low, with most HGV / HGV trips travelling via the motorway and strategic road networks around London. Given the modest impact, and high construction and environmental costs, the extension of the M23 is not considered viable.

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Ref	Consultee(s)	Summary of issue raised	Road / location	Summary response
6	Surrey County Council Gatwick Area Conservation Campaign Tandridge District Council Crawley Borough Council Charlwood Parish Council Haywards Heath Town Council West Sussex County Council Mid Sussex District Council Horsham District Council Reigate & Banstead Borough Council	Gatwick has poor east and west connectivity and more than the £10 million contribution from Gatwick is needed to improve local roads and that this should be provided by the airport. In general, a serious underestimation of the new road infrastructure required.	General	Our analysis indicates that the majority of demand to Gatwick airport will be from the north via the M23 and M25 east and west. Local east / west traffic volumes are modest both now and in 2030.  The perceived low value of the £10m contribution from Gatwick for local road improvements is noted. It is possible that more funding will be made available as detailed designs and associated mitigation measures are developed.
7	Gatwick Area Conservation Campaign	5,000 more local trips at Horley over the next 10 years.	Horley	As noted above, demand forecasts are based on 2030 SoLHAM matrices disaggregated around Gatwick, Crawley, Horsham, Horley and the area of general interest. Matrices have been in-filled with 2030 forecast trips from the West Sussex County Council Highway Model. The forecast background growth of local towns and villages, including Horley, is captured in our analysis.  It should be noted we have not specifically included additional growth which may result from airport expansion as no reliable information is available on the likely magnitude or distribution of this development.
8	Gatwick Area Conservation Campaign Tandridge District Council Crawley Borough Council West Sussex County Council Mid Sussex District Council Horsham District Council	New bypass or tunnel at Reigate and a new western bypass at Crawley required but lack of space without demolishing houses, businesses, etc. Also there is no funding in place for the Crawley bypass.	Reigate Crawley	Forecast increases in traffic volumes resulting from Gatwick expansion do not seem to justify by themselves the need for Crawley Relief Road or Reigate Bypass.  Only small increases in traffic volumes are forecast on the A25 (Section 4.7) and A264 (Section 4.9).
9	Gatwick Airport Limited Kent County Council West Sussex County Council	A24 and sections of the A27 need to be considered in the assessment and widening of M23 and M25 removed as it is unsupported.	A24 A27 M23 M25	Section 4.6 above illustrates that only a small number of locations along the A24 will operate with a V/C ratio in excess of 100% in 2030. All will already occur without a second runway and that airport expansion is unlikely to have a significant additional impact.  The A27 is an important east / west route along the south coast but it is 20km from the airport. The provision of a second runway is unlikely to have a direct impact on the performance of the route.  The highway models include a number of committed and planned that are likely to be in place by 2030, regardless of expansion at Gatwick. These extended baseline schemes include the

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Ref	Consultee(s)	Summary of issue raised	Road / location	Summary response
				<ul style="list-style-type: none"> <li>M23 J8-10, and</li> <li>M25 J5-7 SMART motorway schemes,</li> </ul> Both schemes are now committed with a Government announcement made in December 2014. It should be noted that these have also been included in the analysis of options at Heathrow, ensuring a consistent approach in the assessment of both airports.
10	Gatwick Airport Limited	Analysis does not include assignment of demand to specific route based factors such as travel time, distance and other costs and does not have full coverage of the strategic road network.	General	A new highway assignment model has been developed in SATURN. All analysis in this report is based on outputs from this. The model is based on TfL's South London Highway Assignment Model, expanded to include Gatwick Airport and the surrounding area. Strategic routes within the simulation area include the M23 / A23, M25, A22, A24 and A264. Other routes (including the whole of the south east of England) are modelled within a buffer area. The SATURN model is dynamic and takes account of travel time, delay, distance and costs.
11	Gatwick Airport Limited Kent County Council Crawley Borough Council Royal Borough of Windsor & Maidenhead Charlwood Parish Council Haywards Heath Town Council West Sussex County Council Mid Sussex District Council Horsham District Council Reigate & Banstead Borough Council	More detailed modelling required for local roads and their junctions as this directly affects Air Quality, Carbon and Surface Noise.	Local roads (unspecified)	This report summarises the impact of a second runway on local roads. It indicates that, beyond the strategic M23 / A23 and M25 routes, effects are minor. Generally, capacity issues would occur with or without airport expansion. All constraints are at junctions and targeted local area improvements can provide any necessary additional capacity. A full noise and air quality assessment has been undertaken and this is reported separately.
12	Surrey County Council Tandridge District Council Kent County Council Crawley Borough Council Charlwood PC Haywards Heath Town Council Mid Sussex District Council Horsham District Council Reigate & Banstead Borough Council	Needs to place less reliance on the M25 and M23 for travel to the airport.	M23 M25	The dependence of Gatwick on the smooth operation of the M25 and M23 for travel to the airport is acknowledged. An assessment of resilience has been undertaken and considered; <ul style="list-style-type: none"> <li>The availability and viability of alternative routes</li> <li>The frequency with which incidents occur on the network, and</li> <li>The impact of lane closures on key sections of the M25 and M23. This latter test was assessed using the SATURN model</li> </ul> The analysis indicated that there were fewer existing incidents around Gatwick and that lane closures on key sections of the network would have less impact than at Heathrow since the

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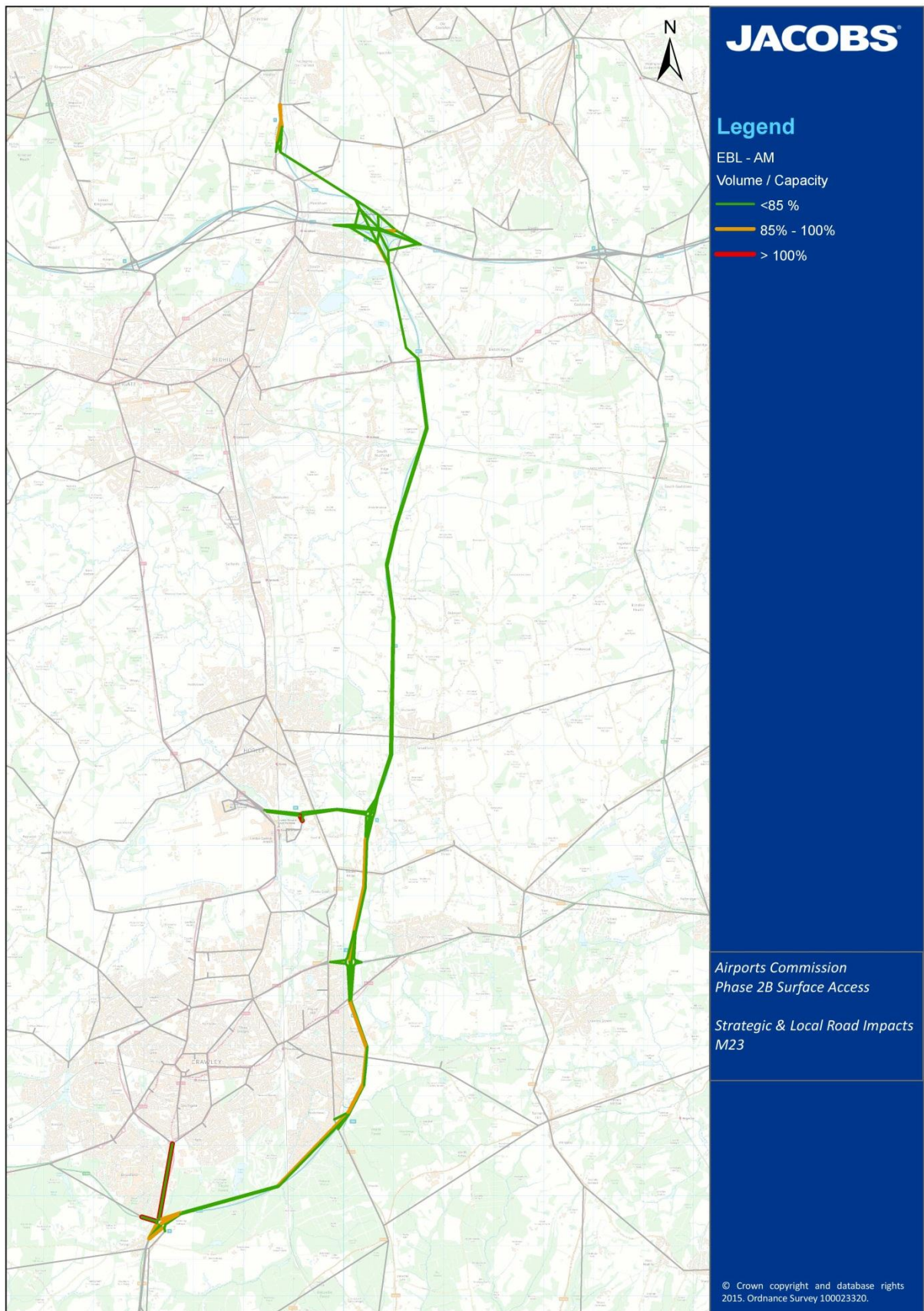
Ref	Consultee(s)	Summary of issue raised	Road / location	Summary response
				network is less congested in the vicinity. An analysis of alternative routes highlighted Gatwick's reliance on the motorway network but it must be acknowledged that a major incident could cause widespread disruption on any highway network, even where multiple routes are available. A full summary of the analysis is given in the supporting Surface Access: Highway and Rail resilience Report.
13	Kent County Council RB Windsor & Maidenhead Charlwood PC West Sussex County Council Reigate & Banstead Borough Council	M25 and M23 will exceed capacity by 2030 and capacity improvements need to be made.	M23 M25	As noted in 1) and 9) above, the highway models used in the analysis for this report include a number of committed and planned schemes that are likely to be in place by 2030, regardless of expansion at Gatwick. These include the <ul style="list-style-type: none"> <li>• M23 J8-10, and</li> <li>• M25 J5-7 SMART motorway schemes,</li> </ul> They will enable hard shoulder running, providing additional capacity to support background growth and Gatwick Airport expansion. Some short sections of the M25 are forecast to be overcapacity but this is due to background growth rather than Gatwick expansion.
14	Surrey County Council Kent County Council Crawley Borough Council Haywards Heath Town Council West Sussex County Council Mid Sussex District Council	Local areas will need investment for PT, traffic calming measures and cycle paths etc.	General	Investment if public transport is proposed and has been analysed separately. The need for additional traffic calming and improved walking and cycling links is acknowledged. Proposals would be developed in consultation with stakeholders and adjacent local authorities during the detailed design of the airport expansion.
15	Charlwood PC	Object to; use of Povey Cross entrance, closure of Lowfield Heath Road and the increase in traffic through Charlwood & Hookwood.	Charlwood Hookwood	Gatwick Airport has stated that all access to the freight centre will be via the North Terminal Access and that there are no plans to open the Povey Cross entrance on a more frequent basis. Consequently, any potential impact has not been tested. It is acknowledge that Gatwick Airport's proposals for local roads to the west and south of the airport are not clear. Highway modelling has been undertaken on what is considered a most likely scenario. It will be necessary for the airport, stakeholders, highways and local authorities to agree to a detailed package of improvement measures which meet the requirements of all parties.
16	Charlwood PC	Local businesses would suffer due to increase in congestion.	Charlwood	Section 4.10 above, indicates that increased congestion is not forecast as a result of strategic traffic impacts. Local issues may arise during the detailed design of the second runway scheme (e.g. if local roads are closed are diverted). It will be necessary for the airport to work with stakeholders and

**Appraisal Framework Module 4.**  
**Surface Access: Strategic & Local Road Impacts**

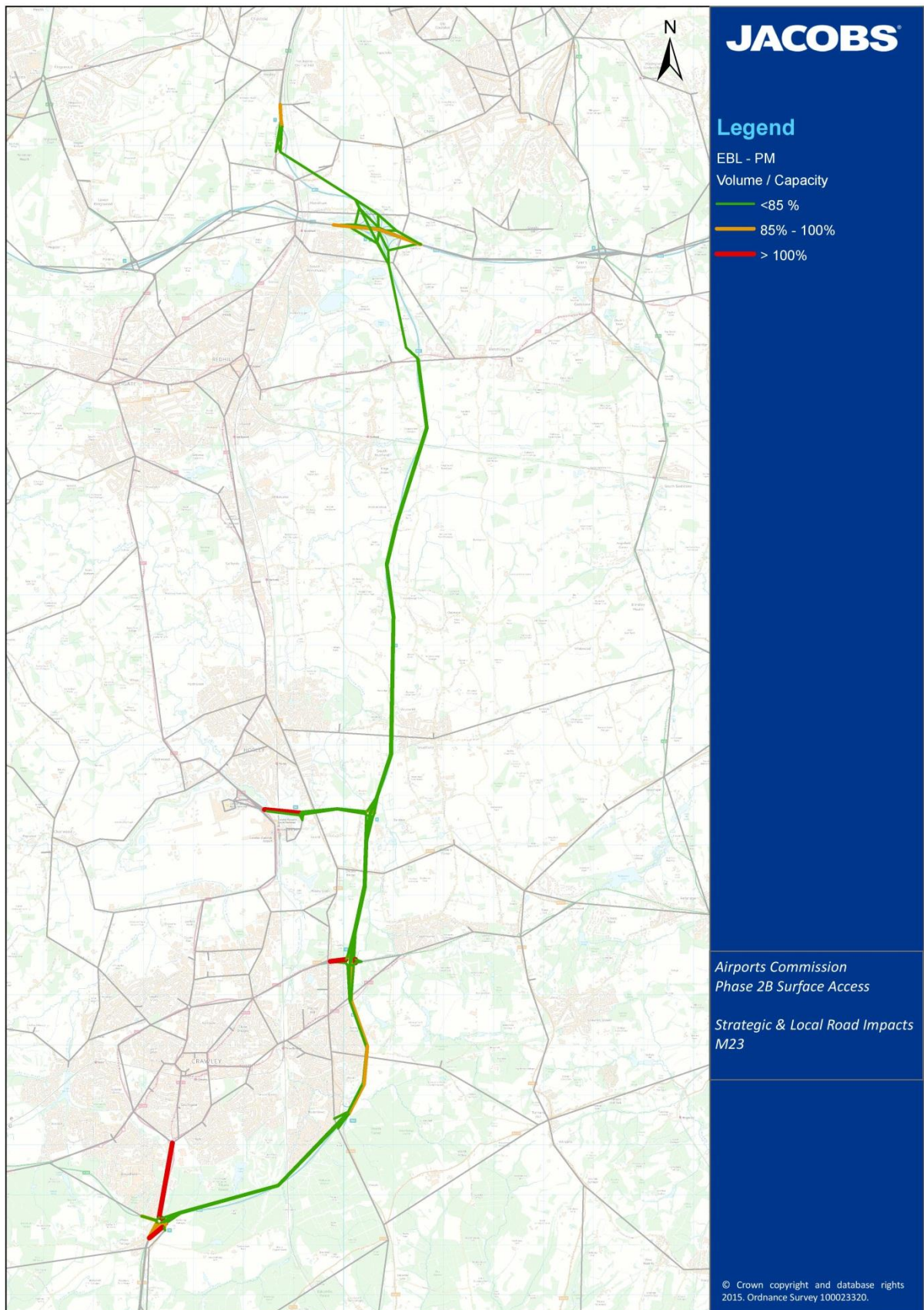
Ref	Consultee(s)	Summary of issue raised	Road / location	Summary response
				the local highways authority to develop a detailed package of mitigation measures which are acceptable to all parties.
17	East Sussex County Council	Agrees with second runway as long as environment, noise mitigation is in place and appropriate infrastructure improved – particularly the A27 and rail. Also would insist on a £5000 contribution towards each new house built.	A27	Noted.
18	Mid Sussex District Council Reigate & Banstead Borough Council	Infrastructure in Mid Sussex is already failing and does not believe the Commission has fully understood this, suggesting their potential improvements are inadequate.	Mid Sussex	Traffic modelling and subsequent analysis indicates that traffic impacts resulting from a second runway are largely confined to the strategic road network. Only very modest increases are forecast on local roads. As a result, potential improvements cannot be directly attributed to airport expansion. Gatwick Airport has proposed a £10m local highway improvement fund. Should expansion at Gatwick proceed, it is possible that this fund may be expanded in consultation with local stakeholders and roads authorities.
19	Mid Sussex District Council	Believes there would need to be 51% increase in housing and this, plus infrastructure improvements would cost approximately £300 million.	General	No reliable data on the volume / distribution of new housing / jobs, as a result of runway expansion, was available at the time of the analysis so it has not been possible to assess related impacts within the scope of the surface access assessments. While the demand for new housing may increase, development will be subject to existing planning controls with scale and location of any new development approved by the local authority. Additional infrastructure provision and funding would be agreed with local housing developers and central government as appropriate.
20	Surrey County Council Reigate & Banstead Borough Council	Potential issues on the A217 at the railway crossing due to the increase frequency of the North Down Line.	A217	The potential increase in level crossing downtime resulting from additional rail capacity on the North Downs line is noted. The A217 London Rd is strategically important and the crossing causes significant disruption in Reigate town centre. Nevertheless, analysis highlights that the North Downs Line carries a relatively low number of airport passengers and so future capacity issues and any resulting service frequency increase will be generated by non-airport demand. Similarly forecast increases in traffic volumes on the A217, resulting from the Gatwick second runway are minimal. As a result of the above, potential issues at the Reigate level crossing are not considered to be related to any future airport expansion.

## **Appendix A. Volume / Capacity summary**

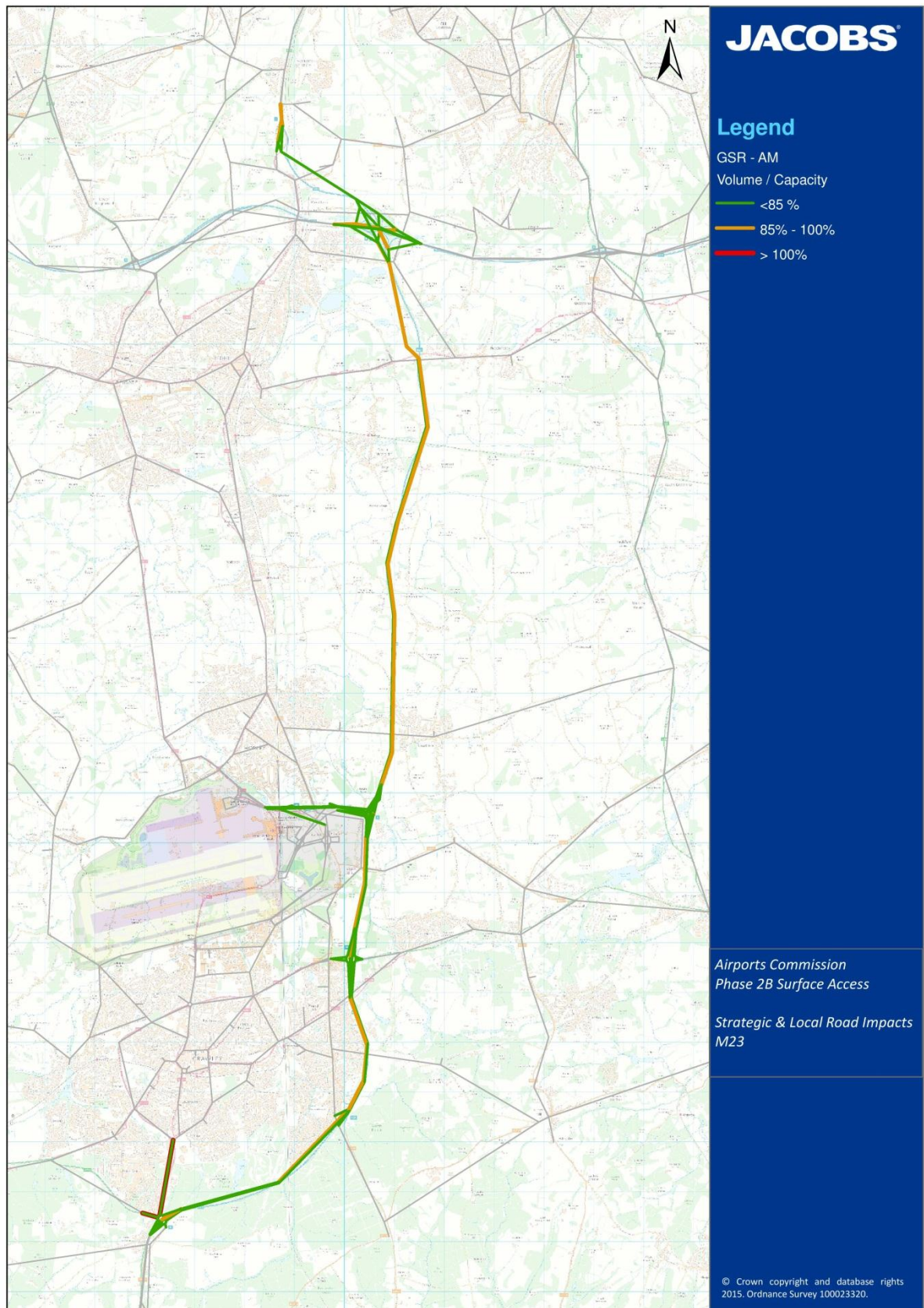
**Figure A-1: M23 Extended Baseline AM**



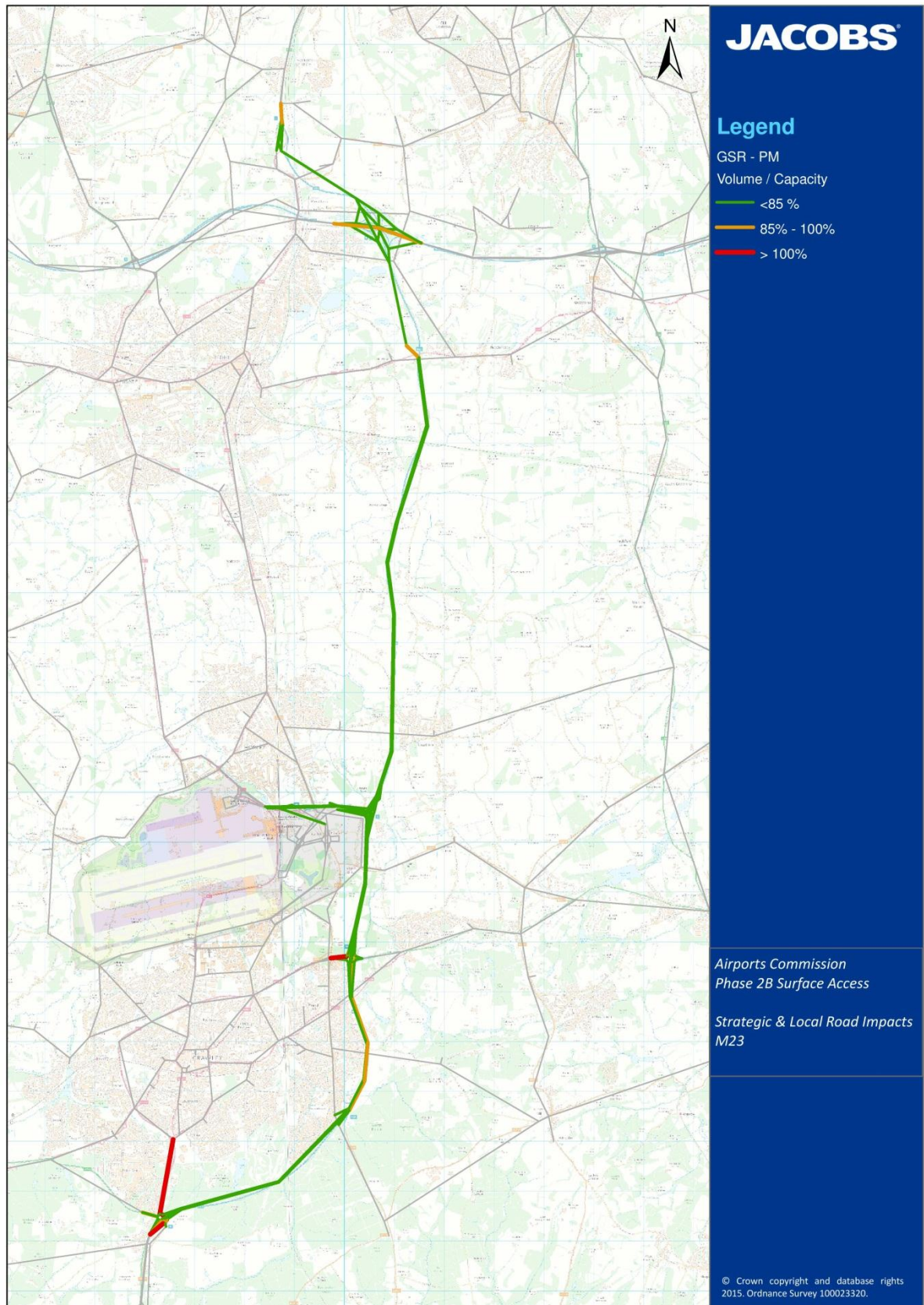
**Figure A-2: M23 Extended Baseline PM**



**Figure A-3: M23 Gatwick Second Runway AM**

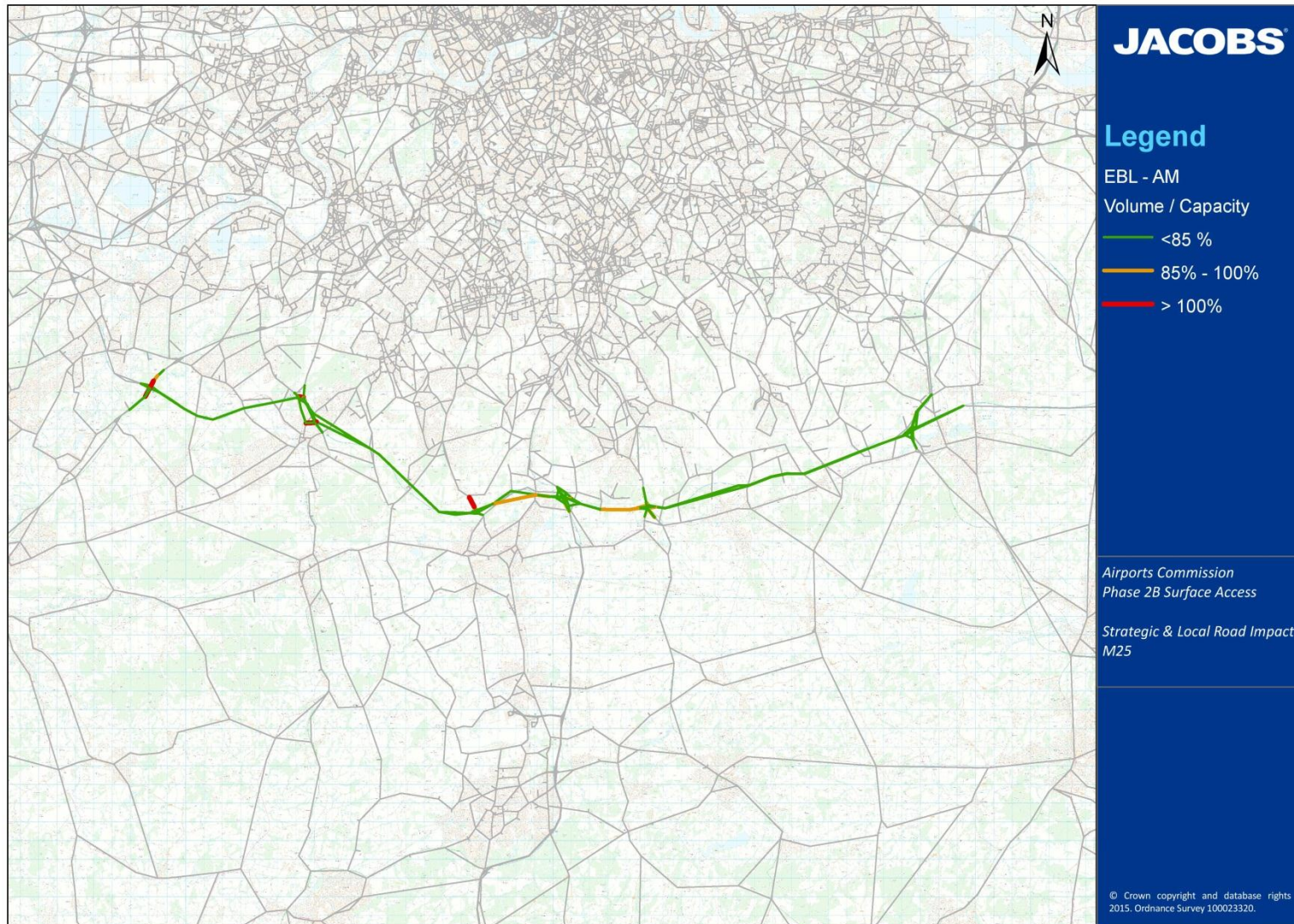


**Figure A-4: M23 Gatwick Second Runway PM**



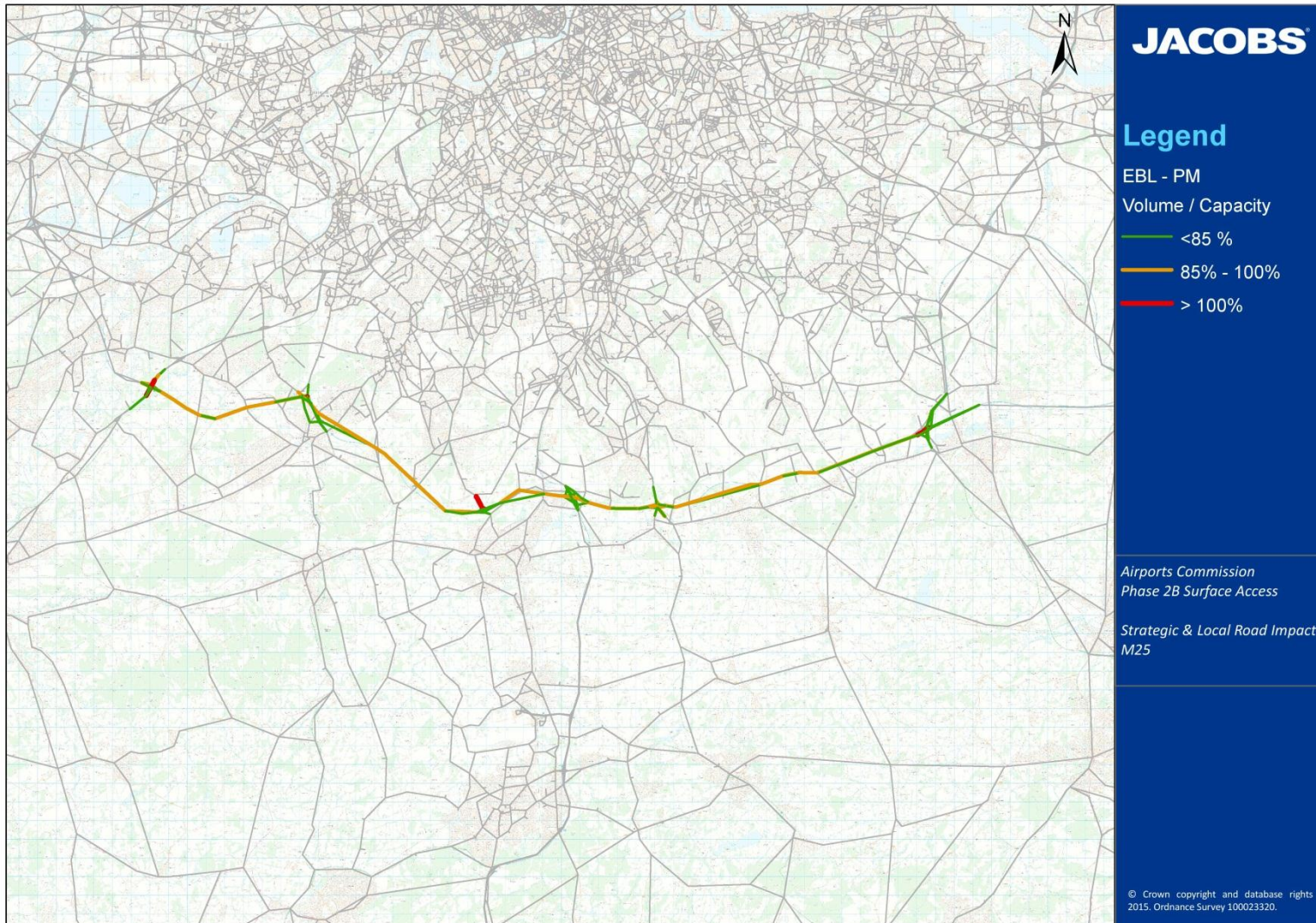
Appraisal Framework Module 4.  
Surface Access: Strategic & Local Road Impacts

Figure A-5: M25 Extended Baseline AM



Appraisal Framework Module 4.  
Surface Access: Strategic & Local Road Impacts

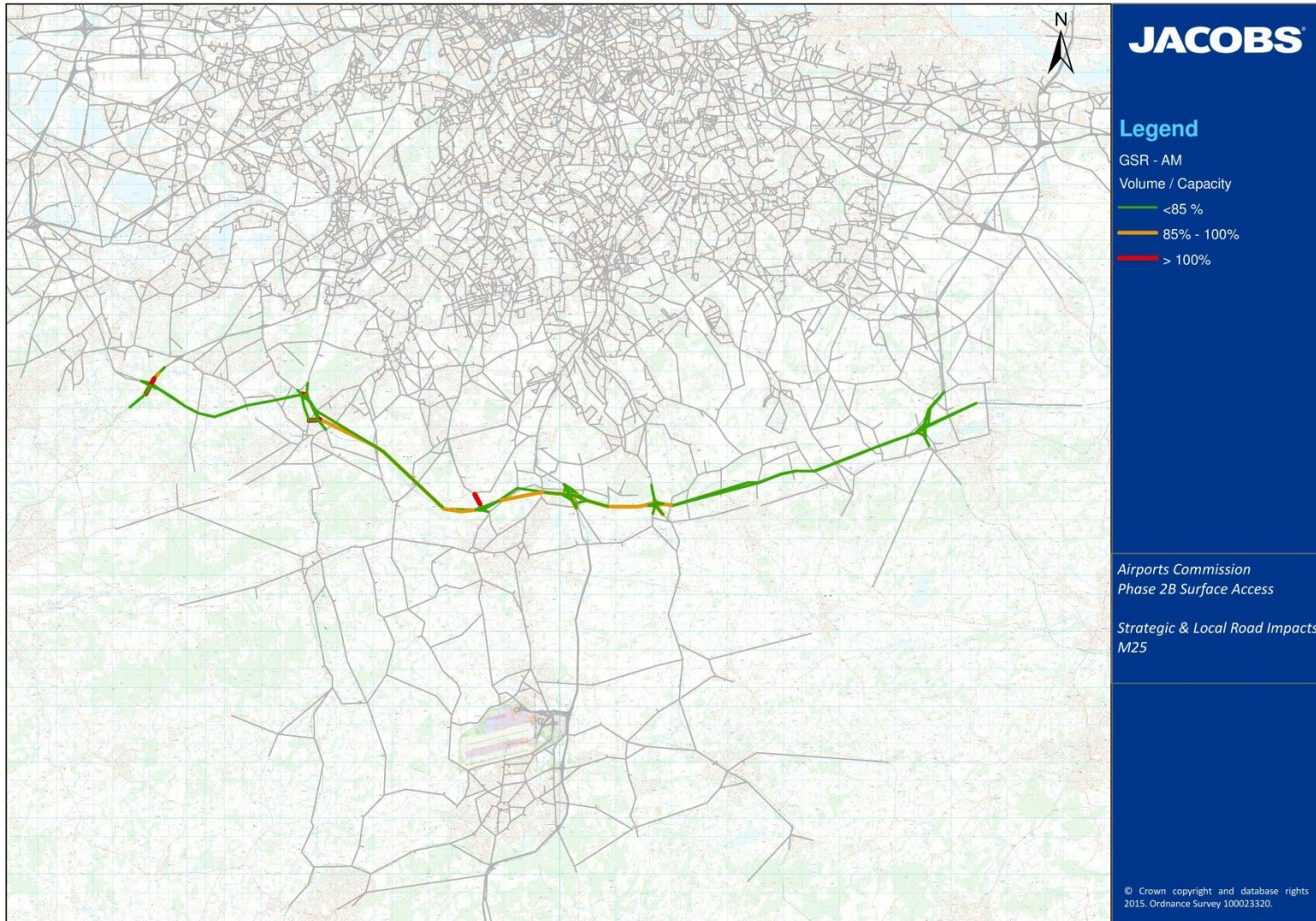
Figure A-6: M25 Extended Baseline PM



Appraisal Framework Module 4.  
Surface Access: Strategic & Local Road Impacts



Figure A-7: M25 Gatwick Second Runway AM



Appraisal Framework Module 4.  
Surface Access: Strategic & Local Road Impacts

Figure A-8: M25 Gatwick Second Runway PM

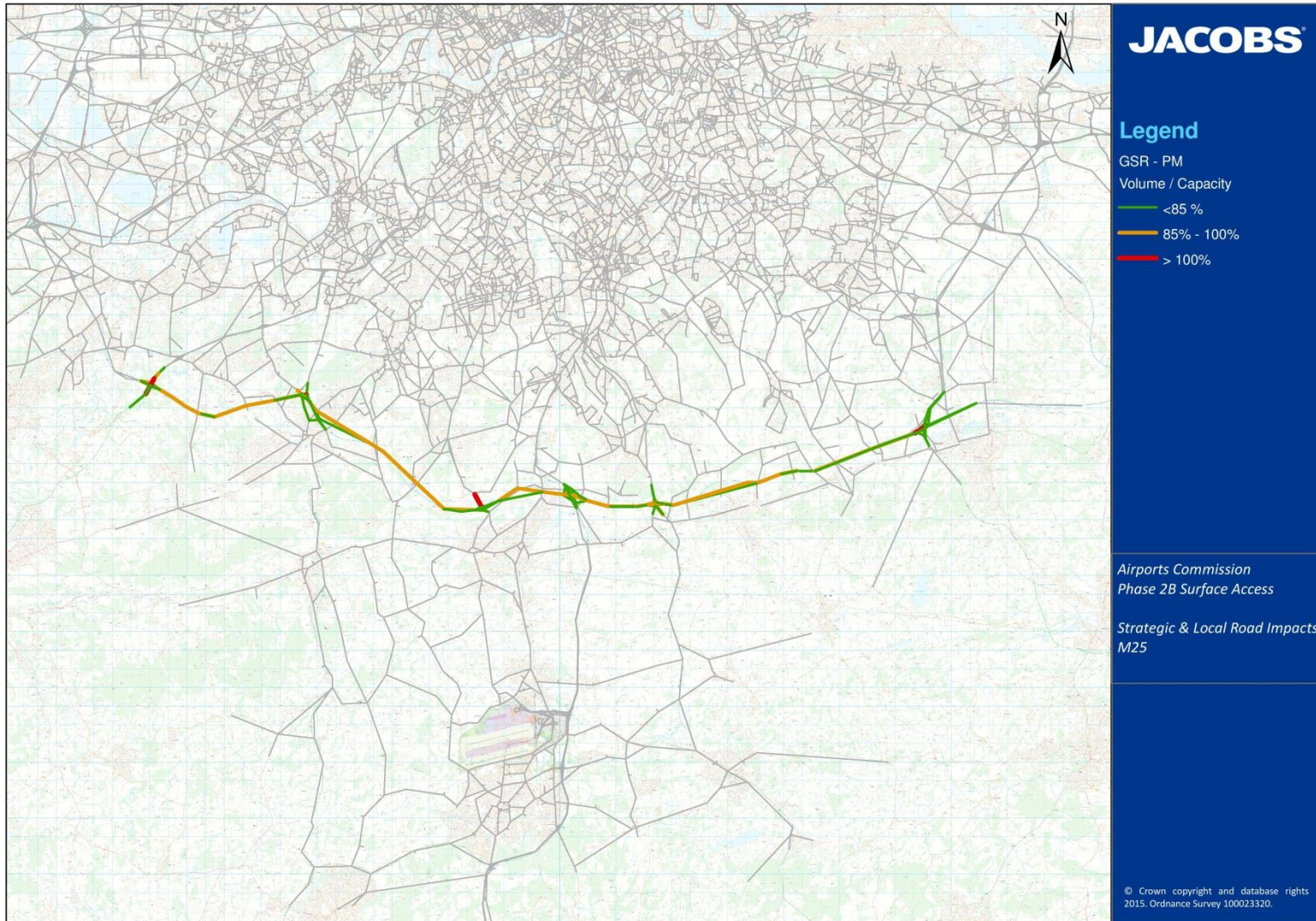
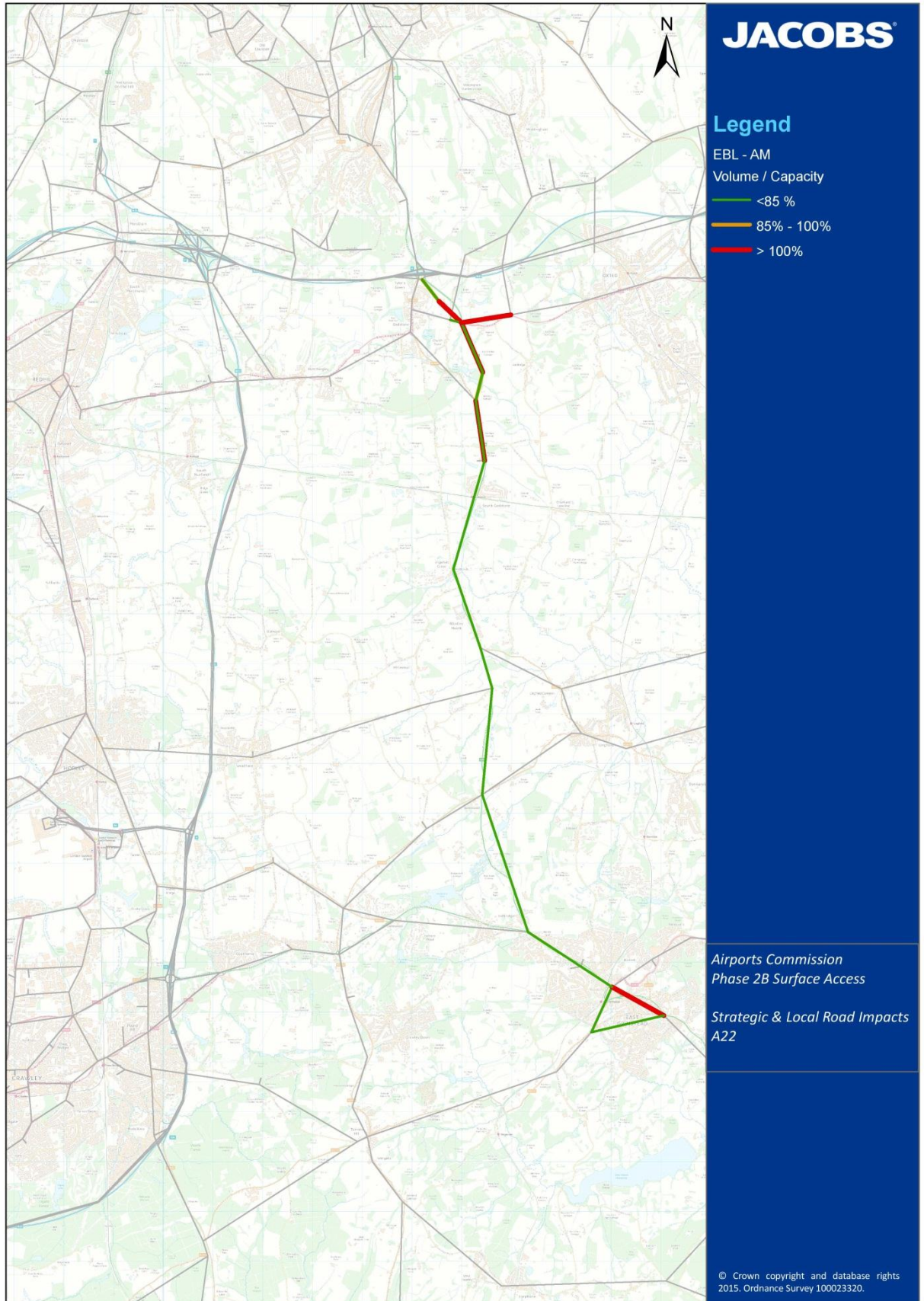
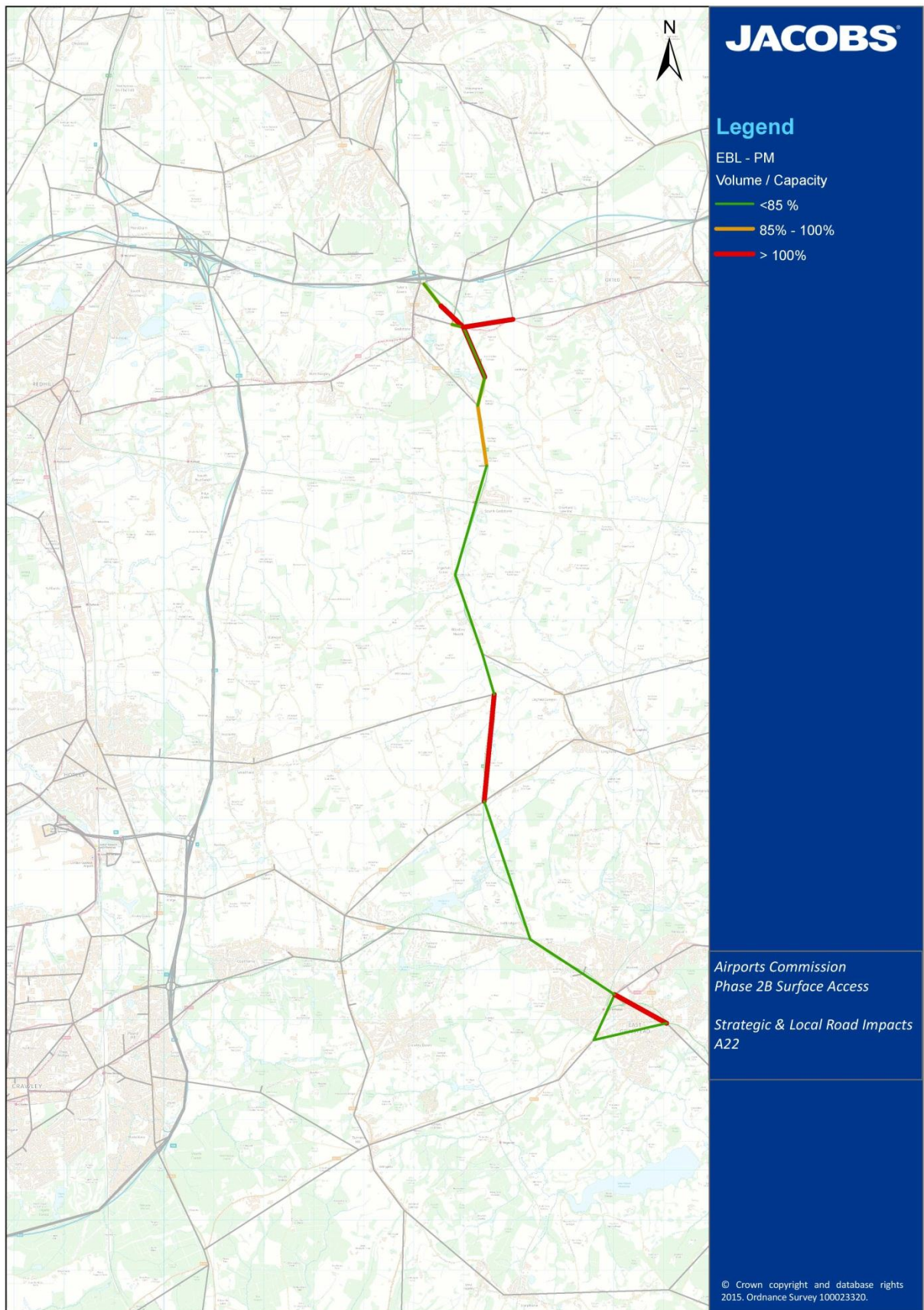


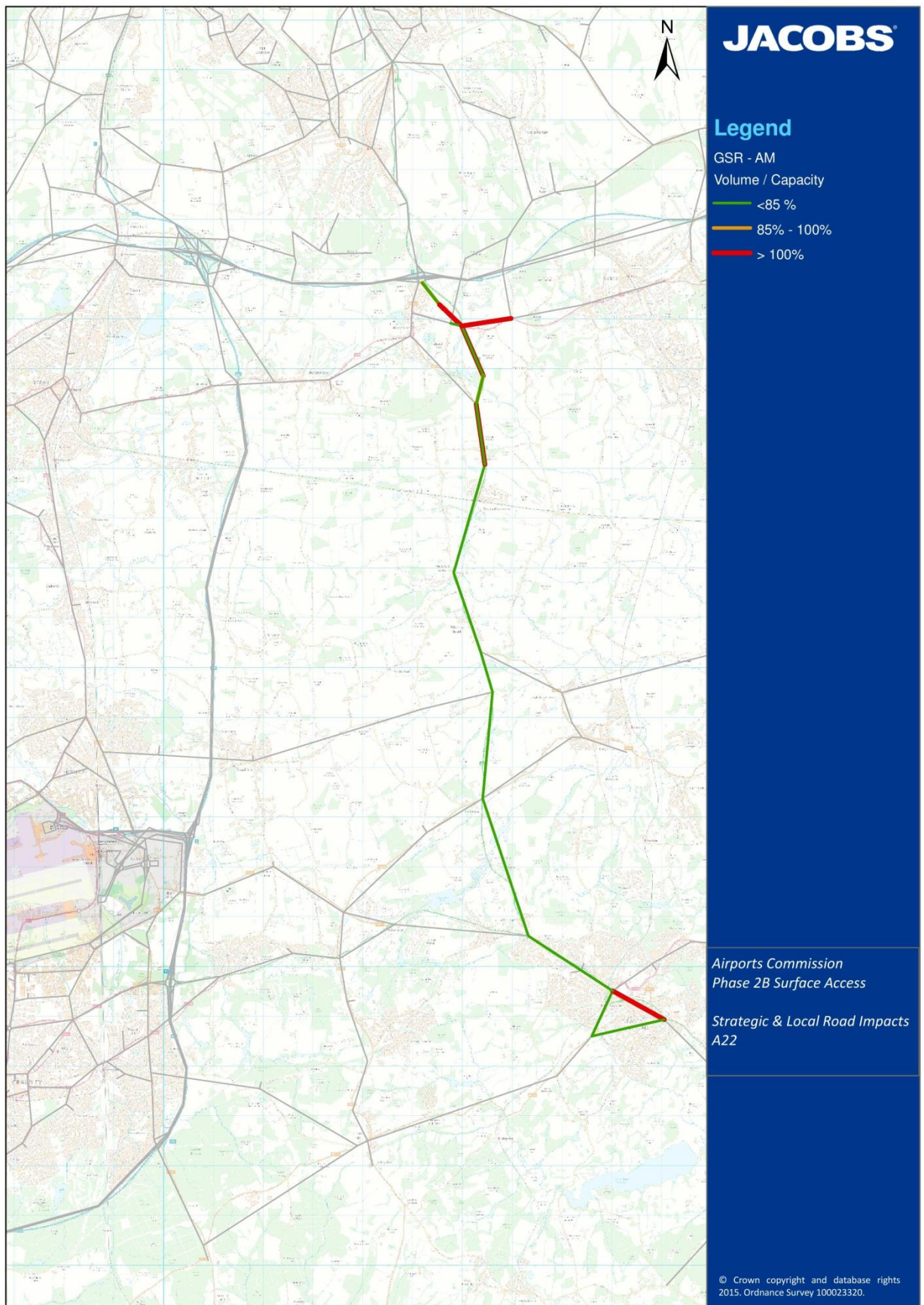
Figure A-9: A22 Extended Baseline AM



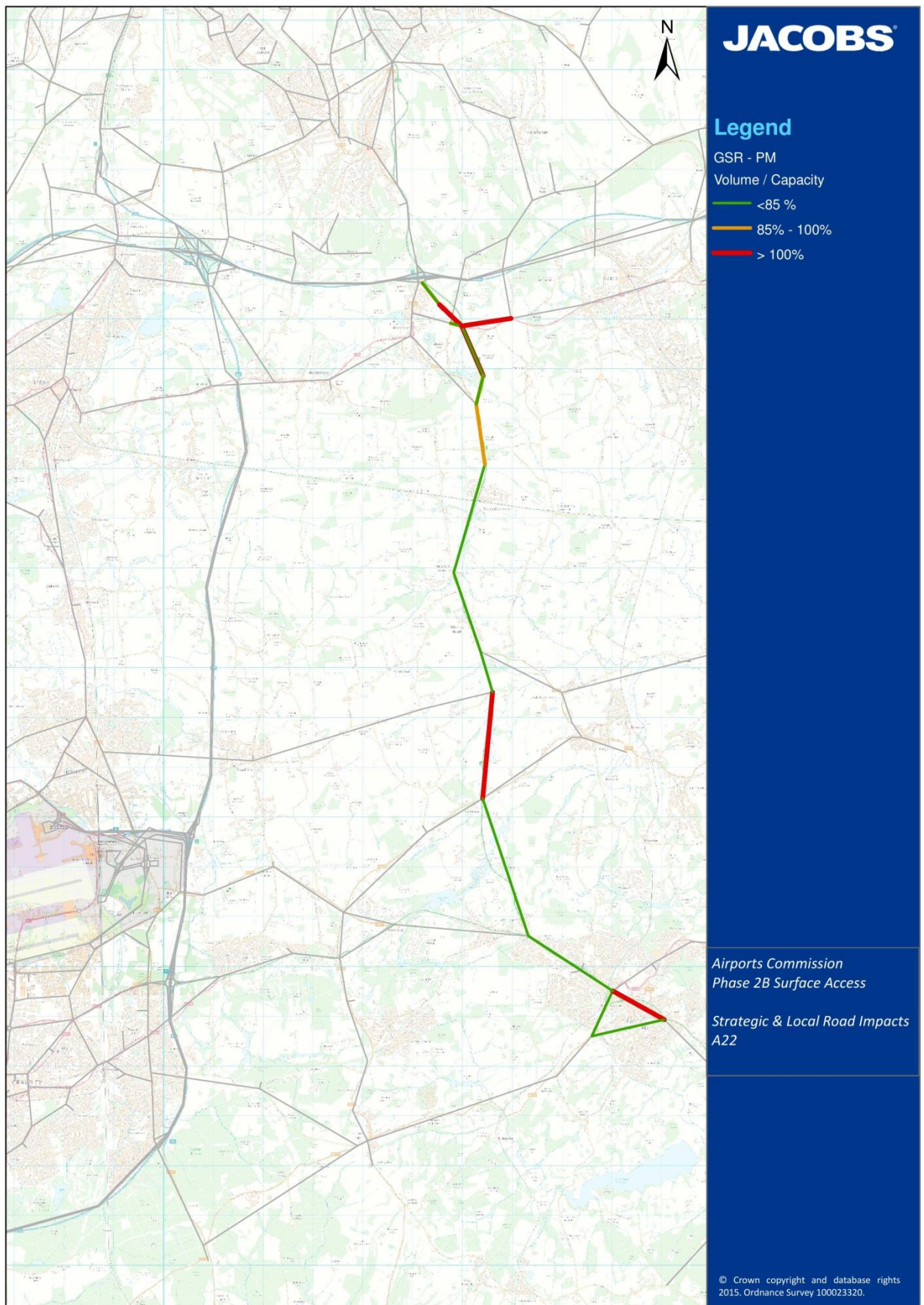
**Figure A-10: A22 Extended Baseline PM**



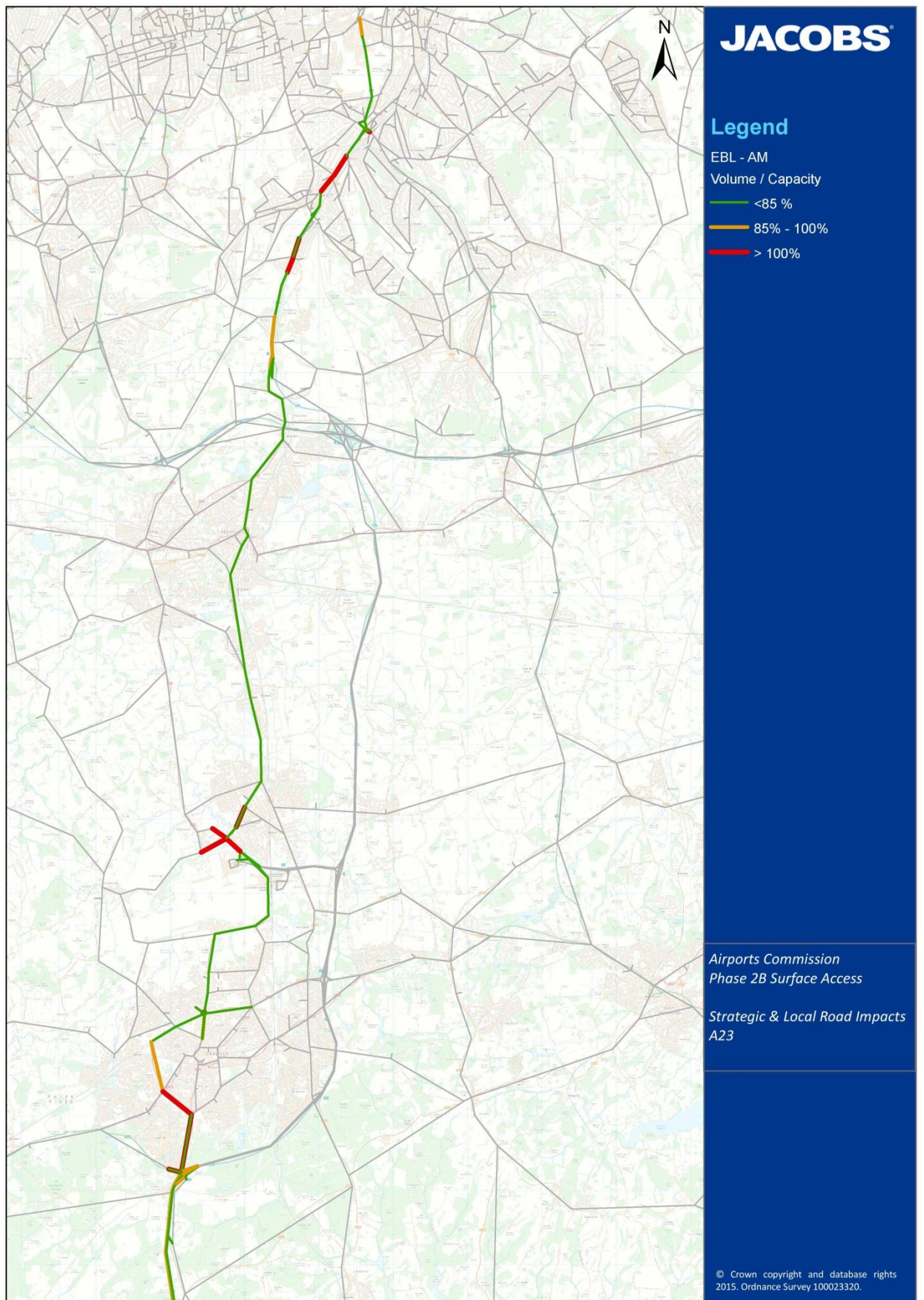
**Figure A-11: A22 Gatwick Second Runway AM**



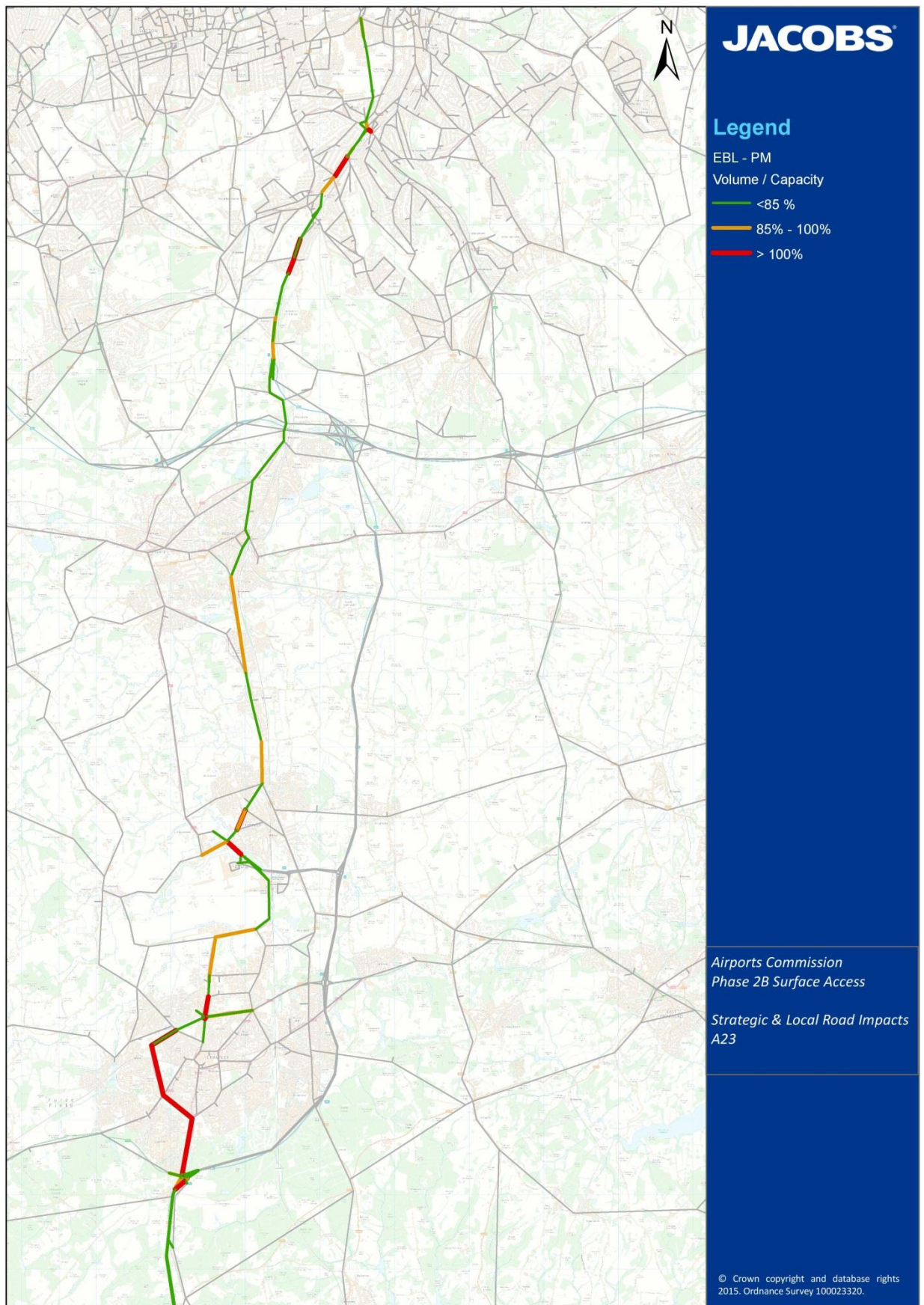
**Figure A-12: A22 Gatwick Second Runway PM**



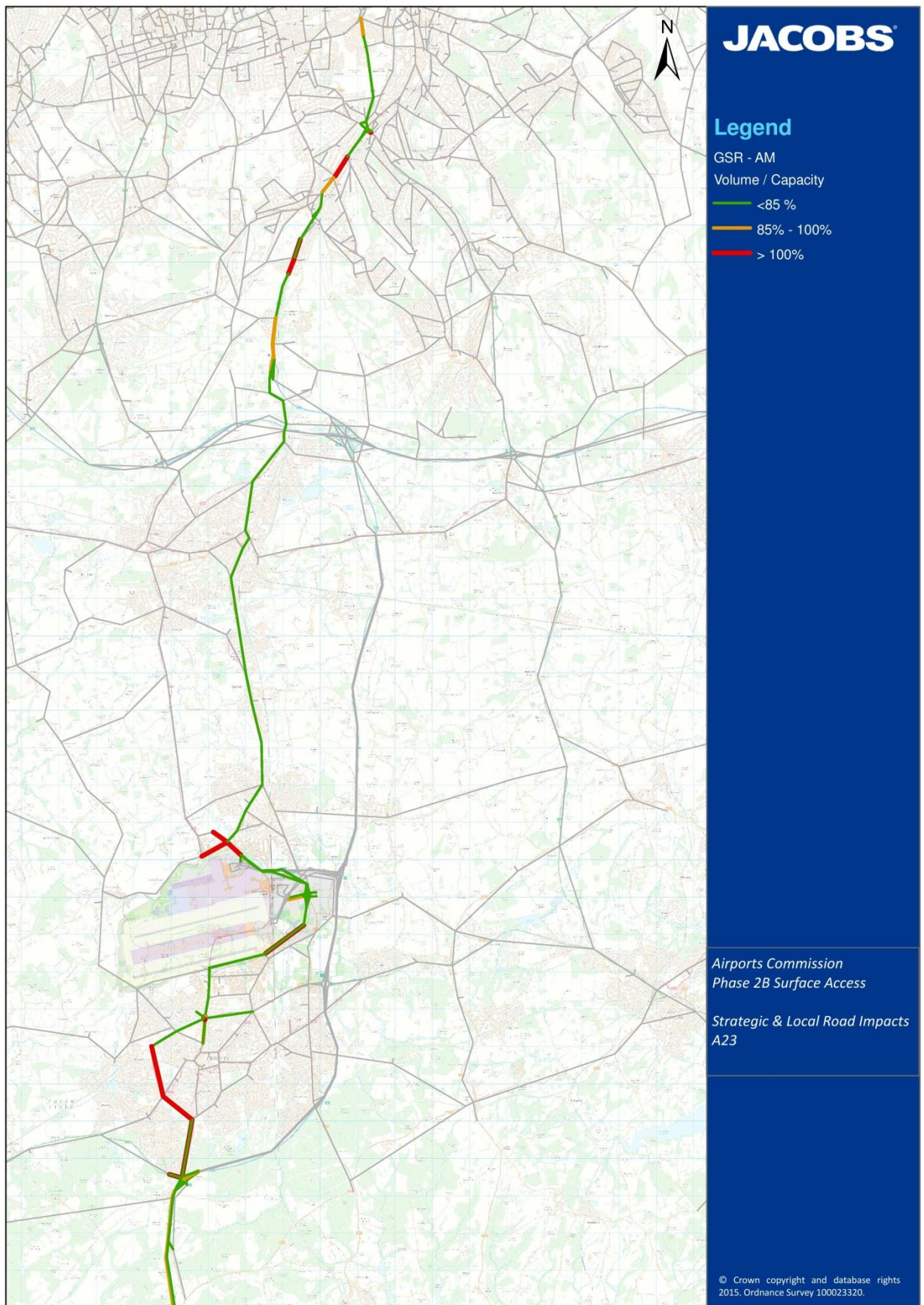
**Figure A-13: A23 Extended Baseline AM**



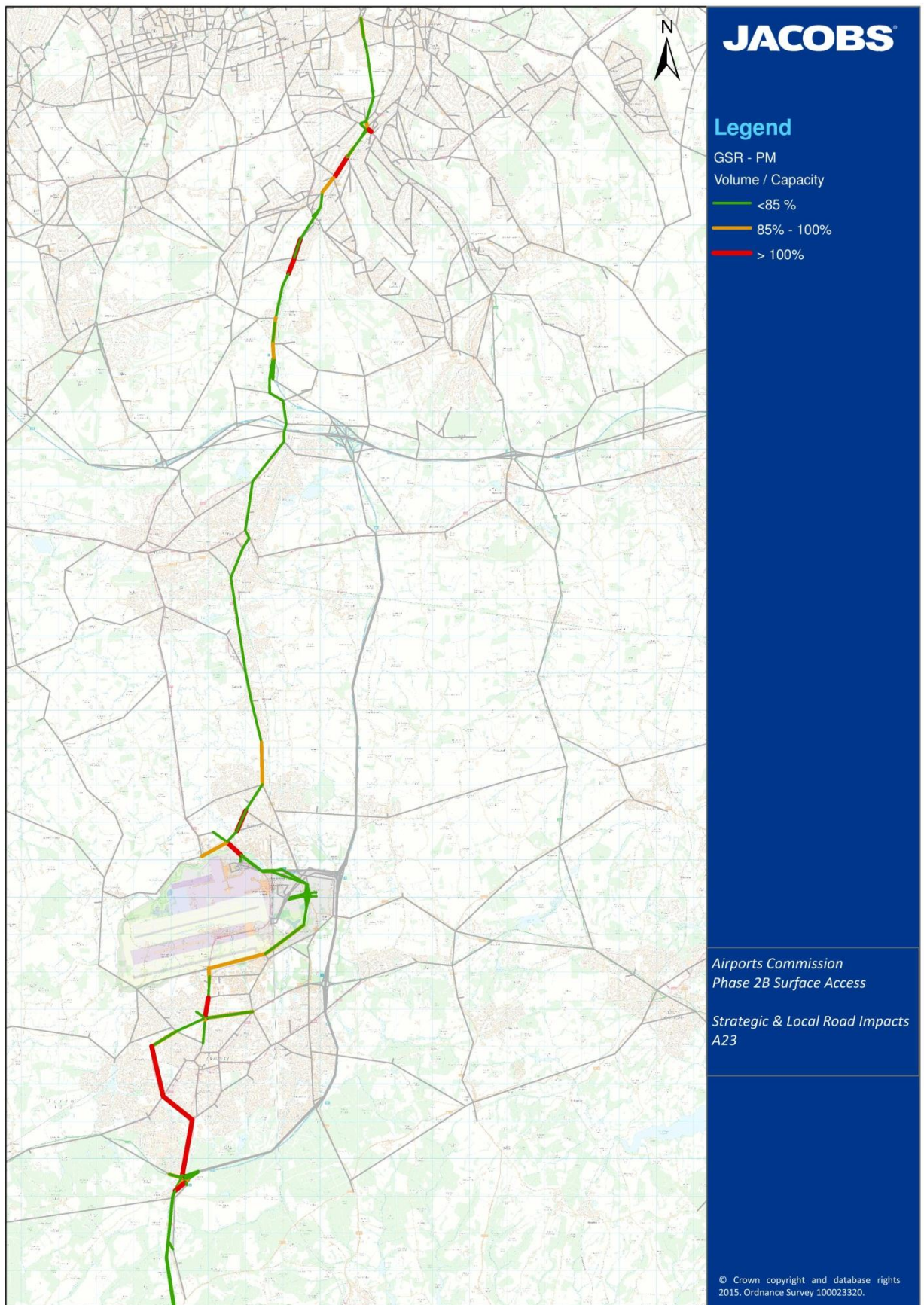
**Figure A-14: A23 Extended Baseline PM**



**Figure A-15: A23 Gatwick Second Runway AM**

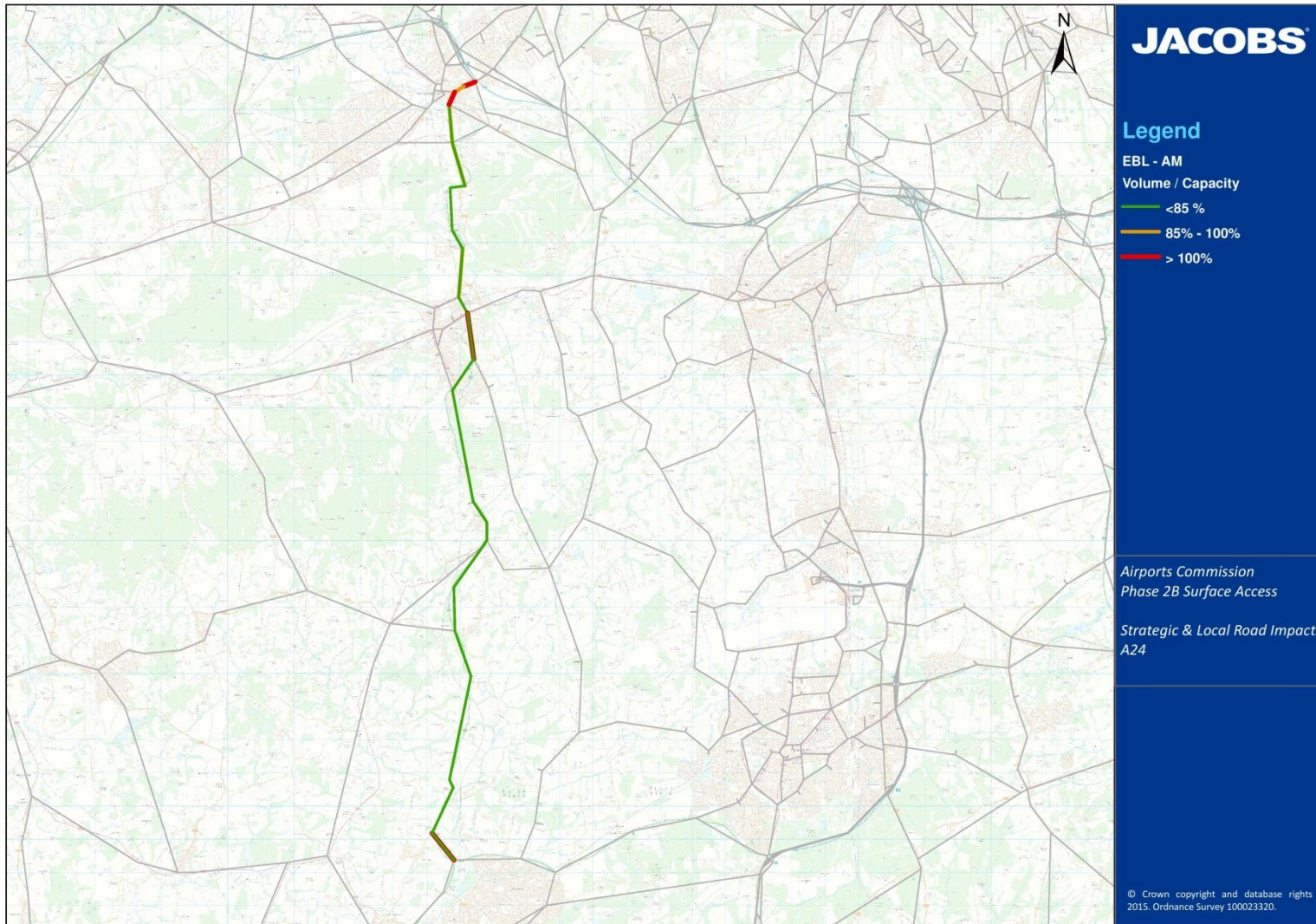


**Figure A-16 A23 Gatwick Second Runway PM**



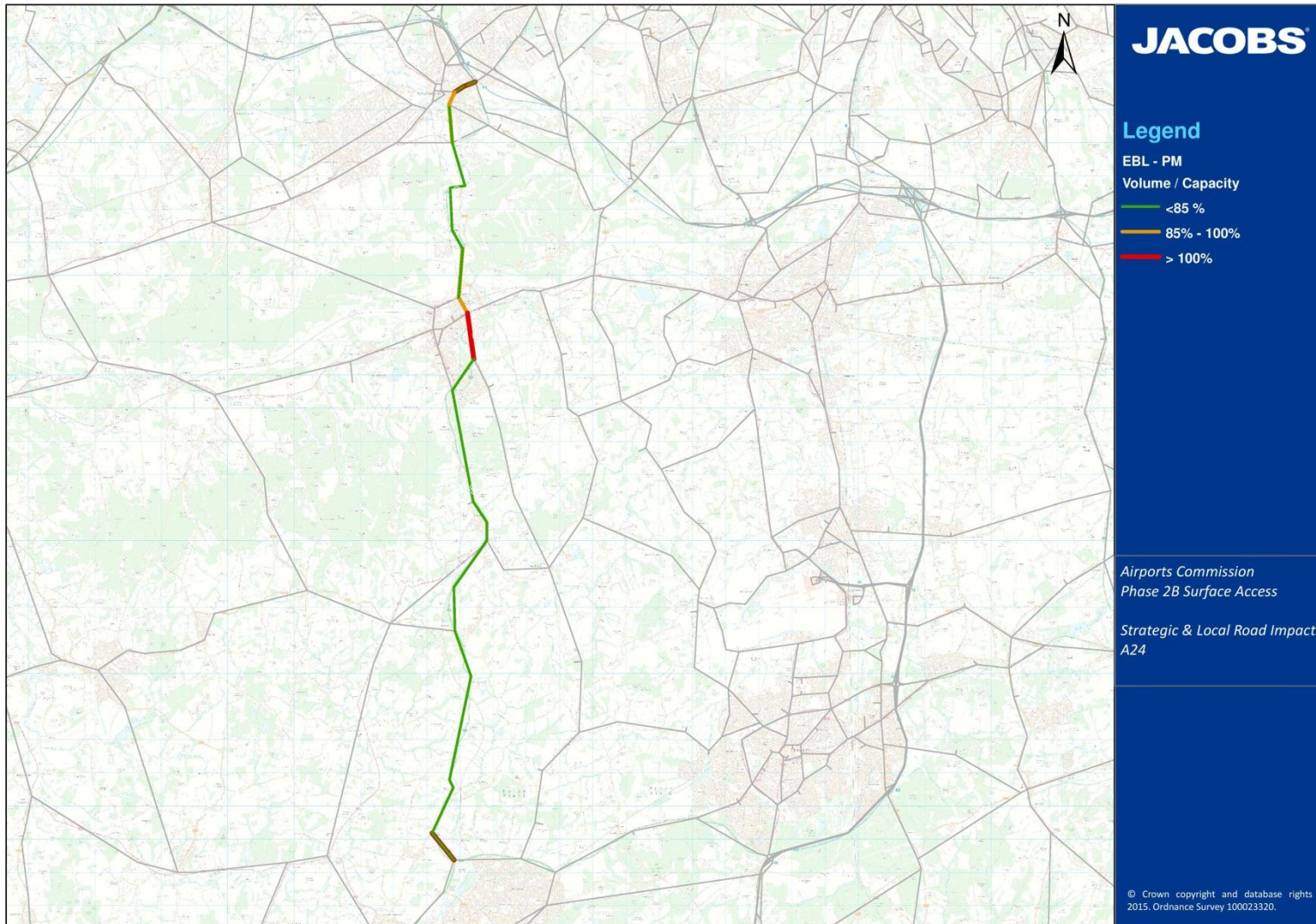
Appraisal Framework Module 4.  
Surface Access: Strategic & Local Road Impacts

Figure A-17 A24 Extended Baseline AM



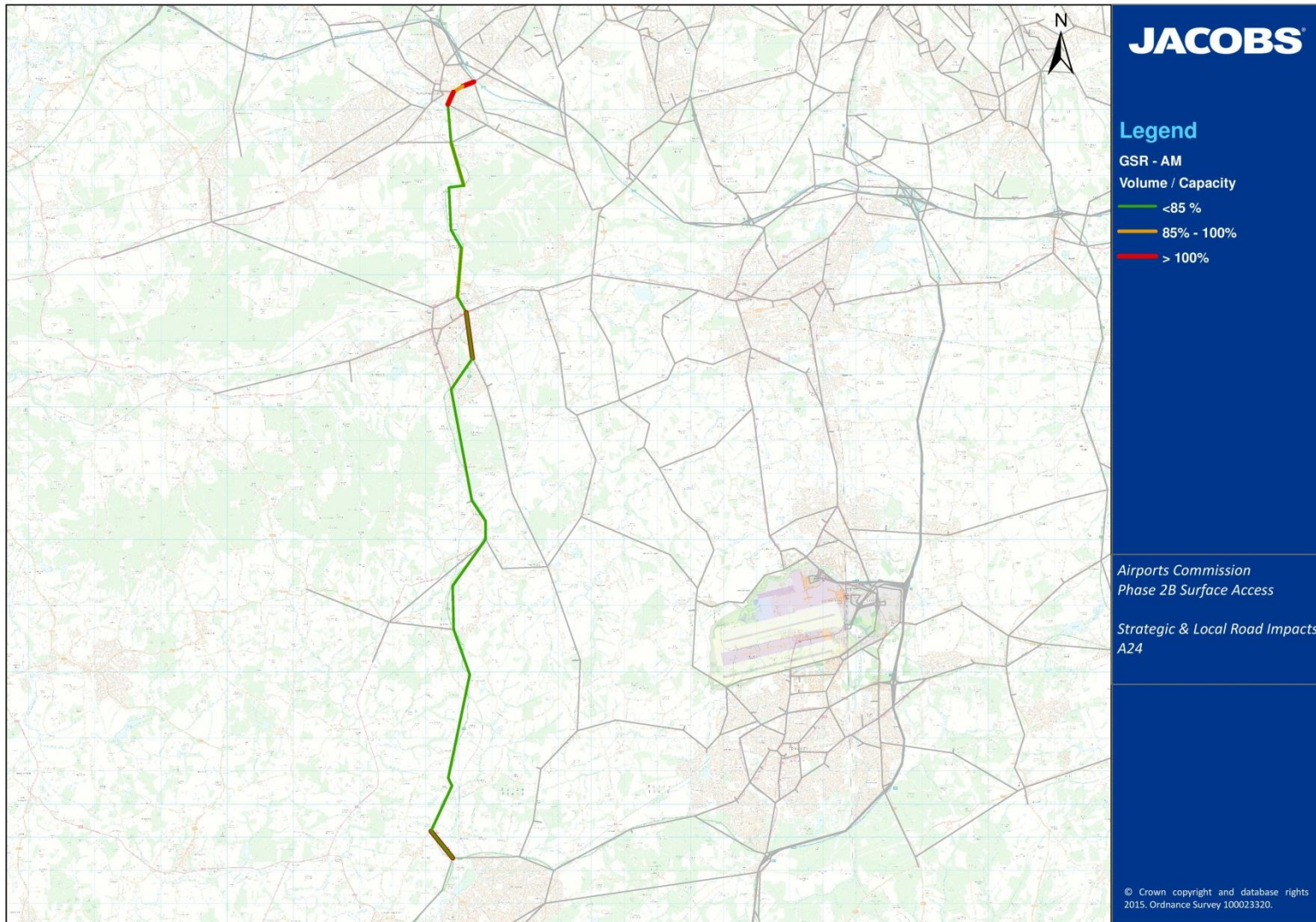
Appraisal Framework Module 4.  
Surface Access: Strategic & Local Road Impacts

Figure A-18 A24 Extended Baseline PM



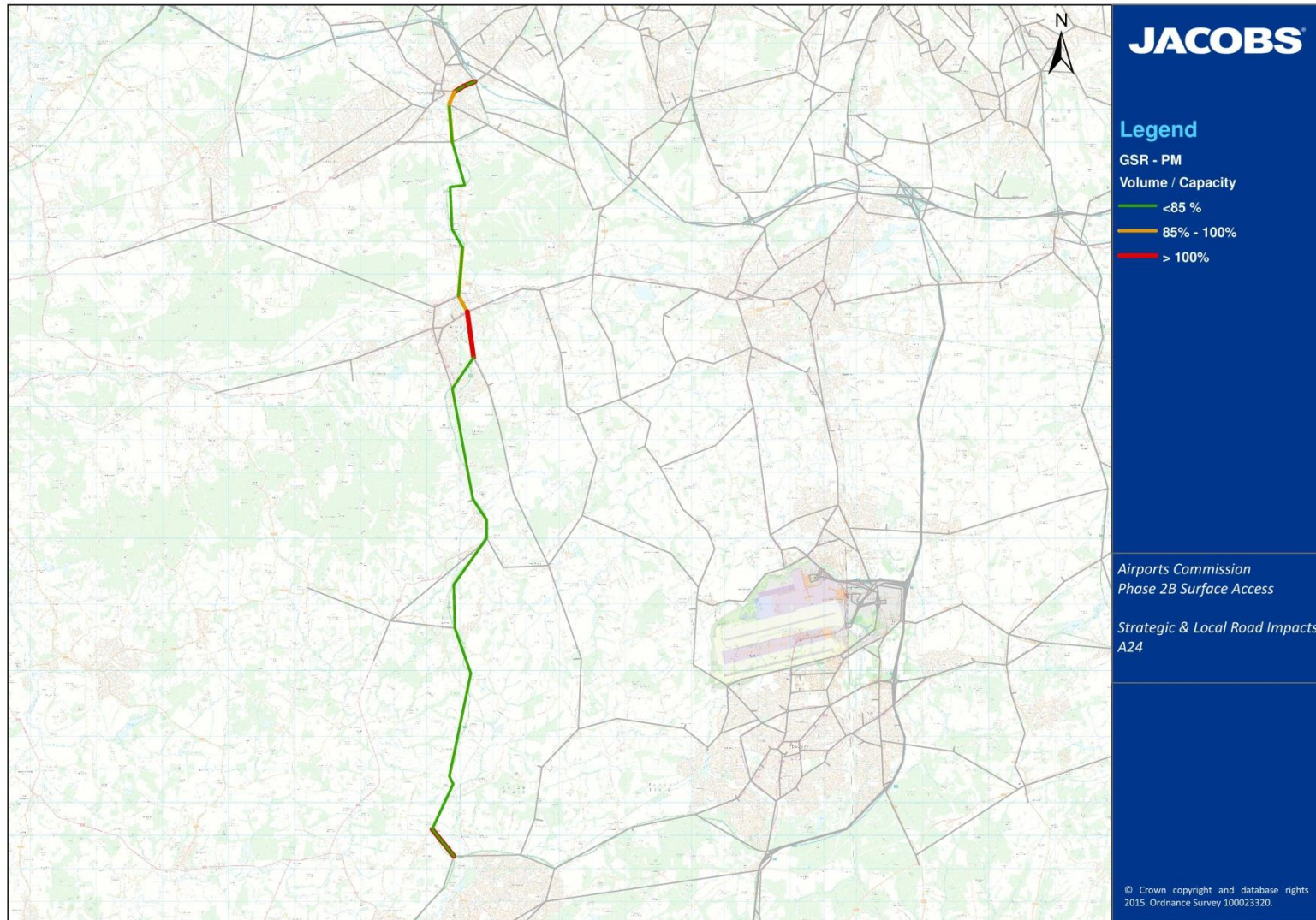
Appraisal Framework Module 4.  
Surface Access: Strategic & Local Road Impacts

Figure A-19 A24 Gatwick Second Runway AM



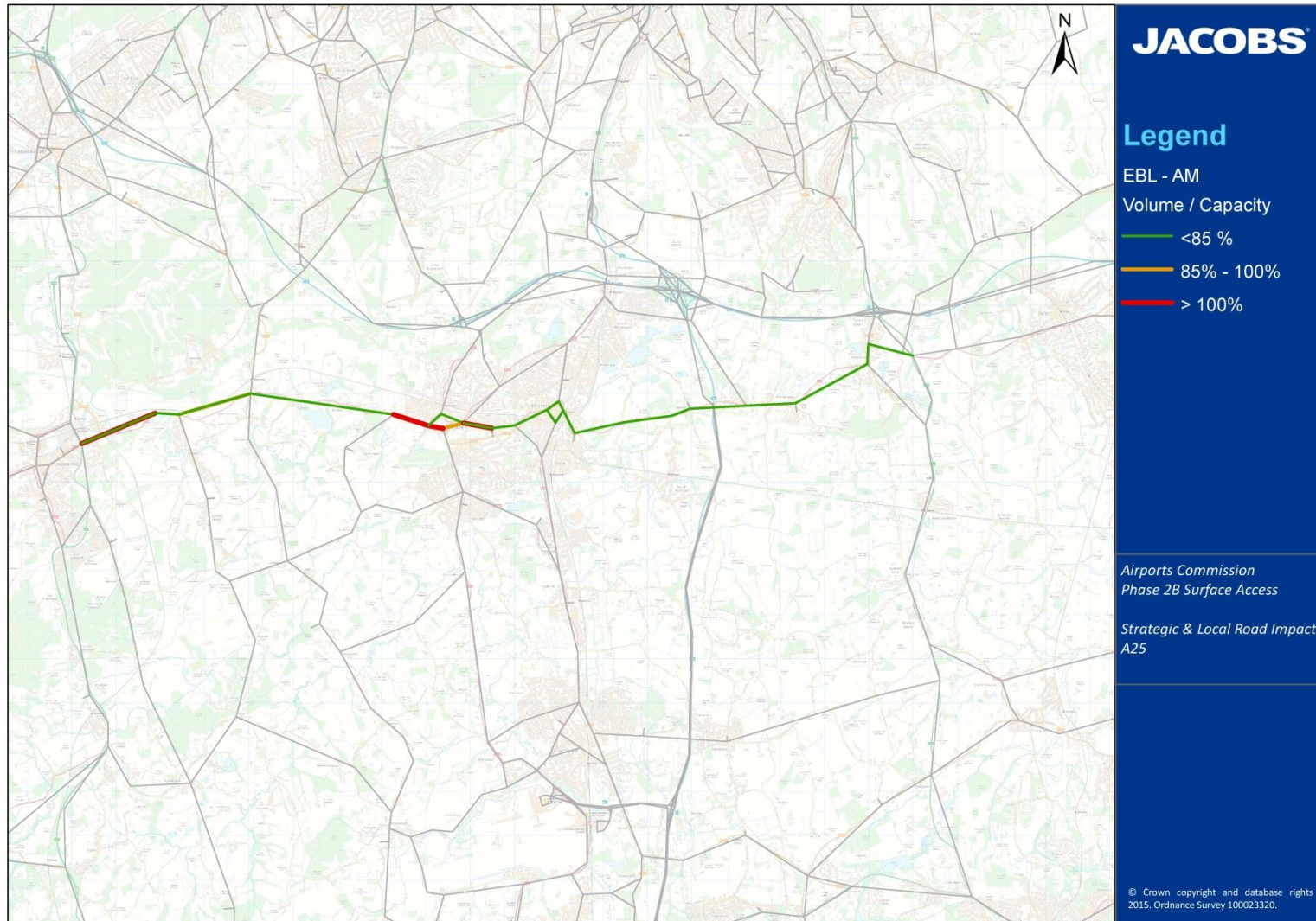
Appraisal Framework Module 4.  
Surface Access: Strategic & Local Road Impacts

Figure A-20: A24 Gatwick Second Runway PM



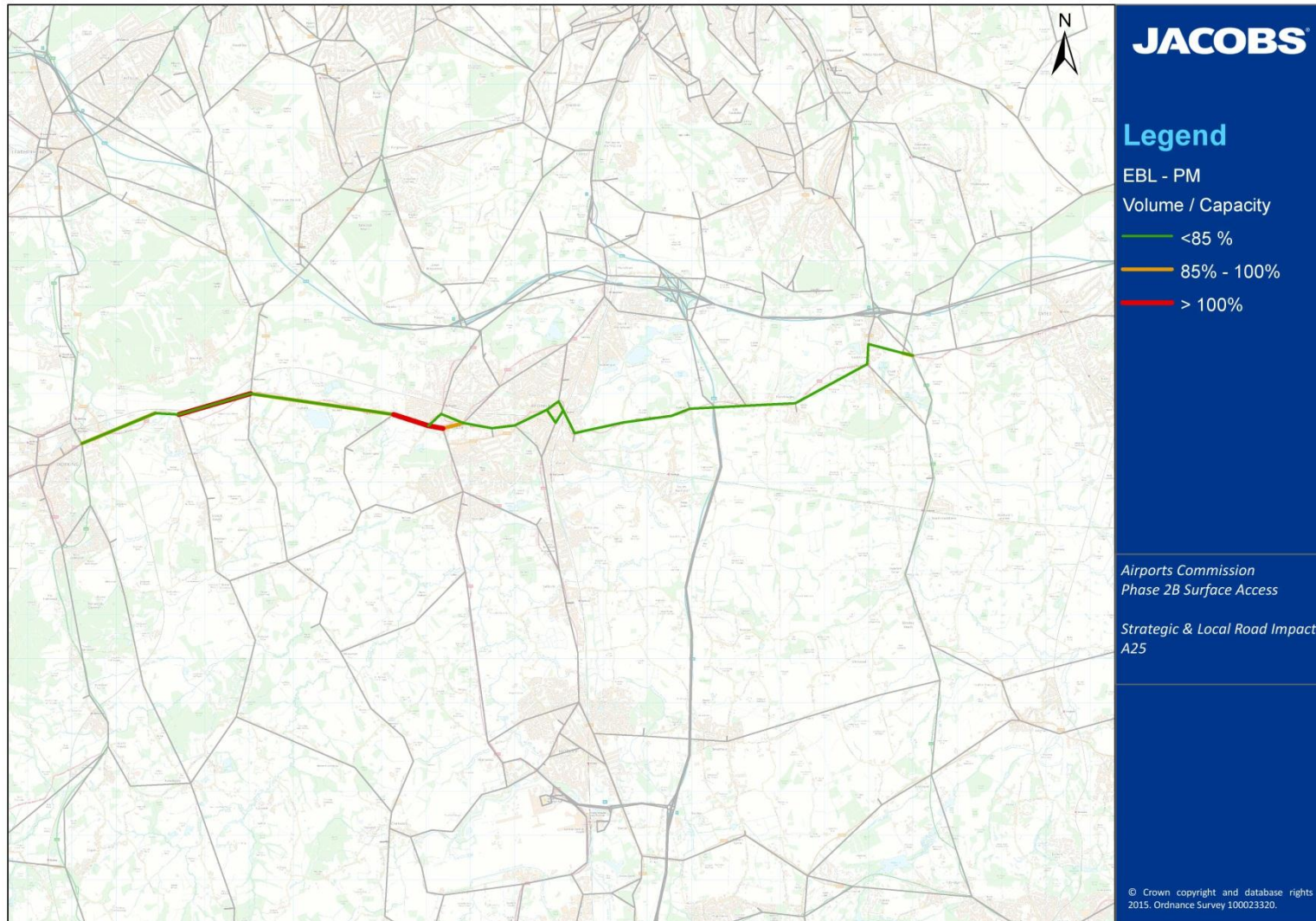
Appraisal Framework Module 4.  
Surface Access: Strategic & Local Road Impacts

Figure A-21: A25 Extended Baseline AM



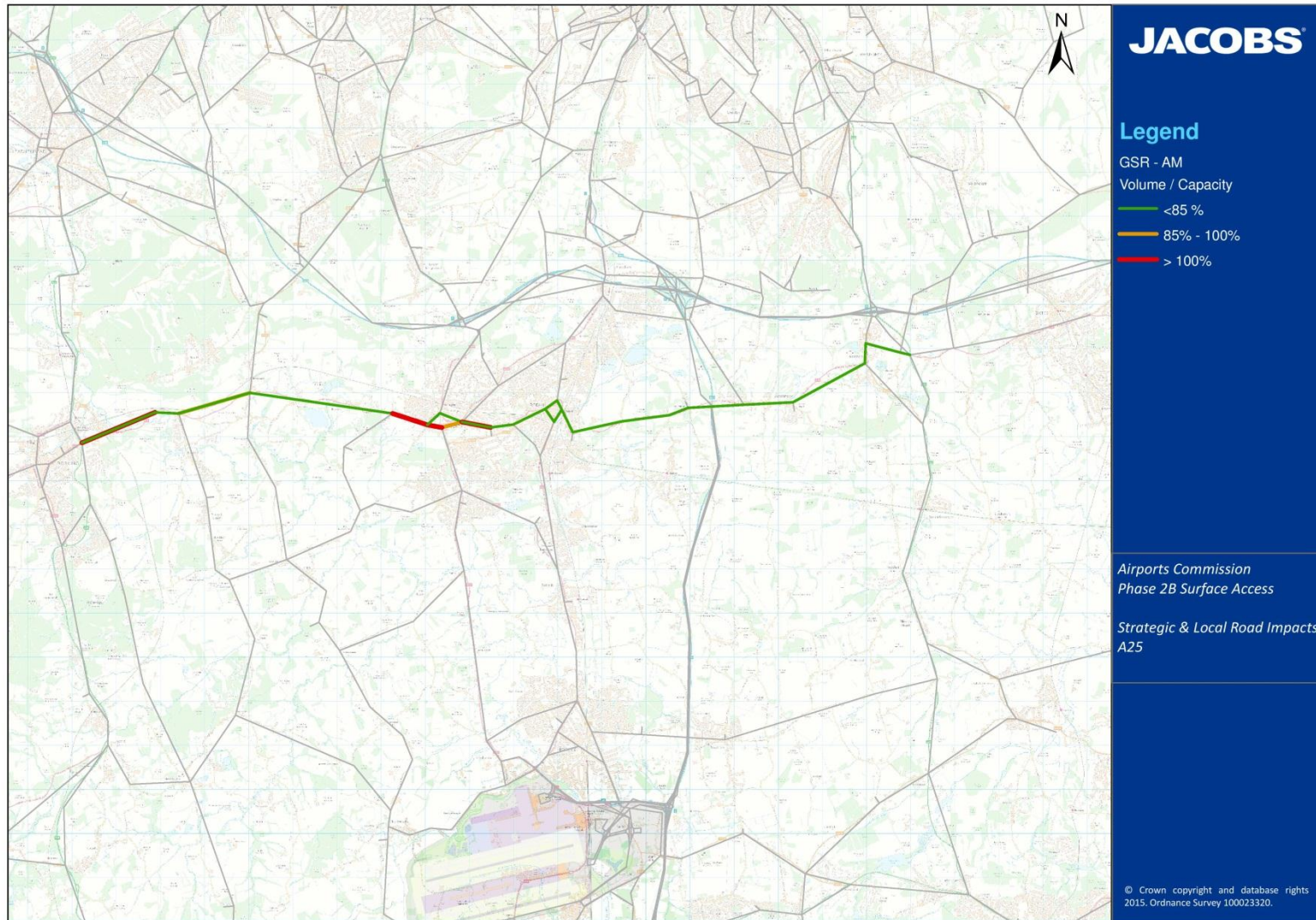
Appraisal Framework Module 4.  
Surface Access: Strategic & Local Road Impacts

Figure A-22: A25 Extended Baseline PM



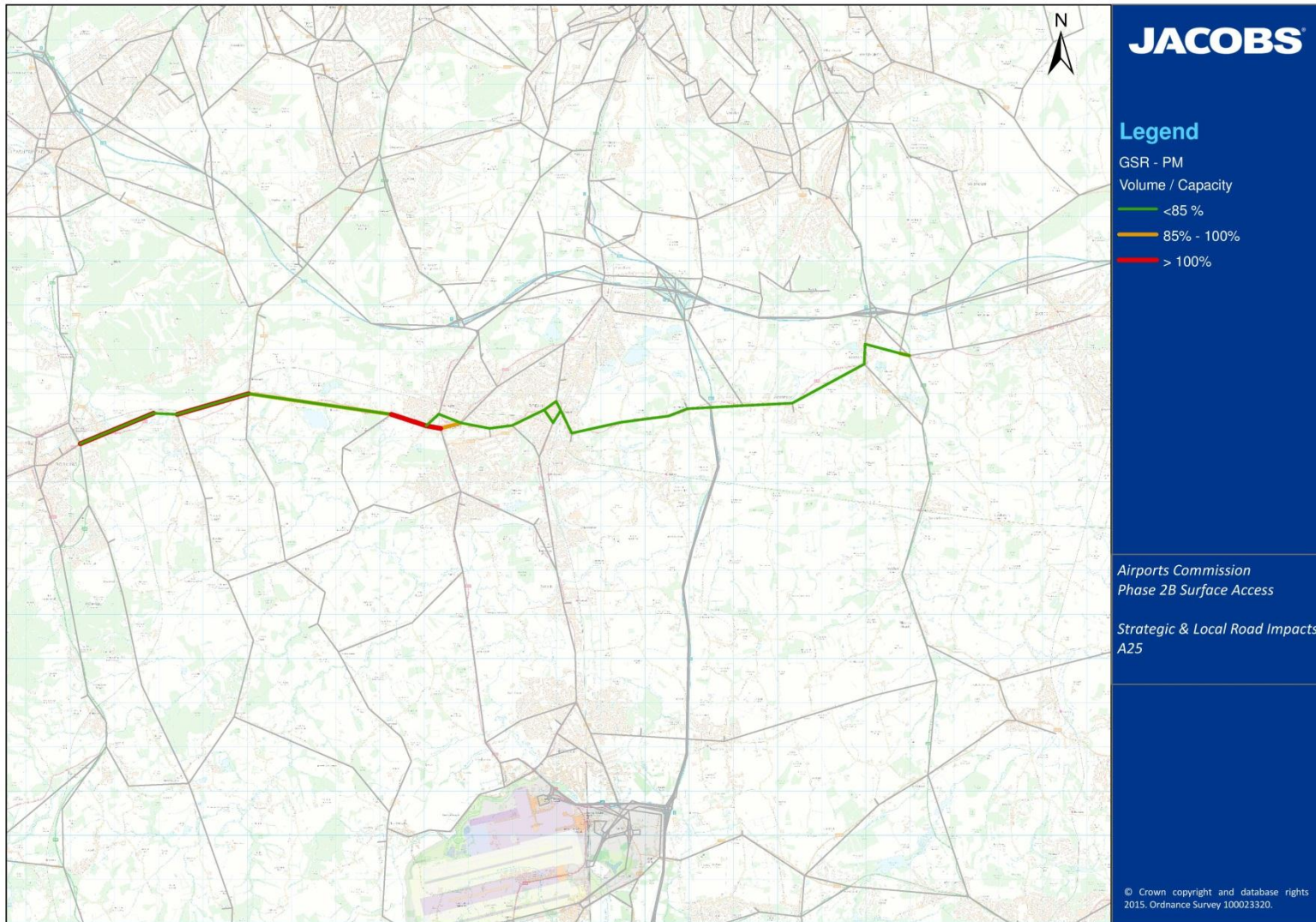
Appraisal Framework Module 4.  
Surface Access: Strategic & Local Road Impacts

Figure A-23: A25 Gatwick Second Runway AM



Appraisal Framework Module 4.  
Surface Access: Strategic & Local Road Impacts

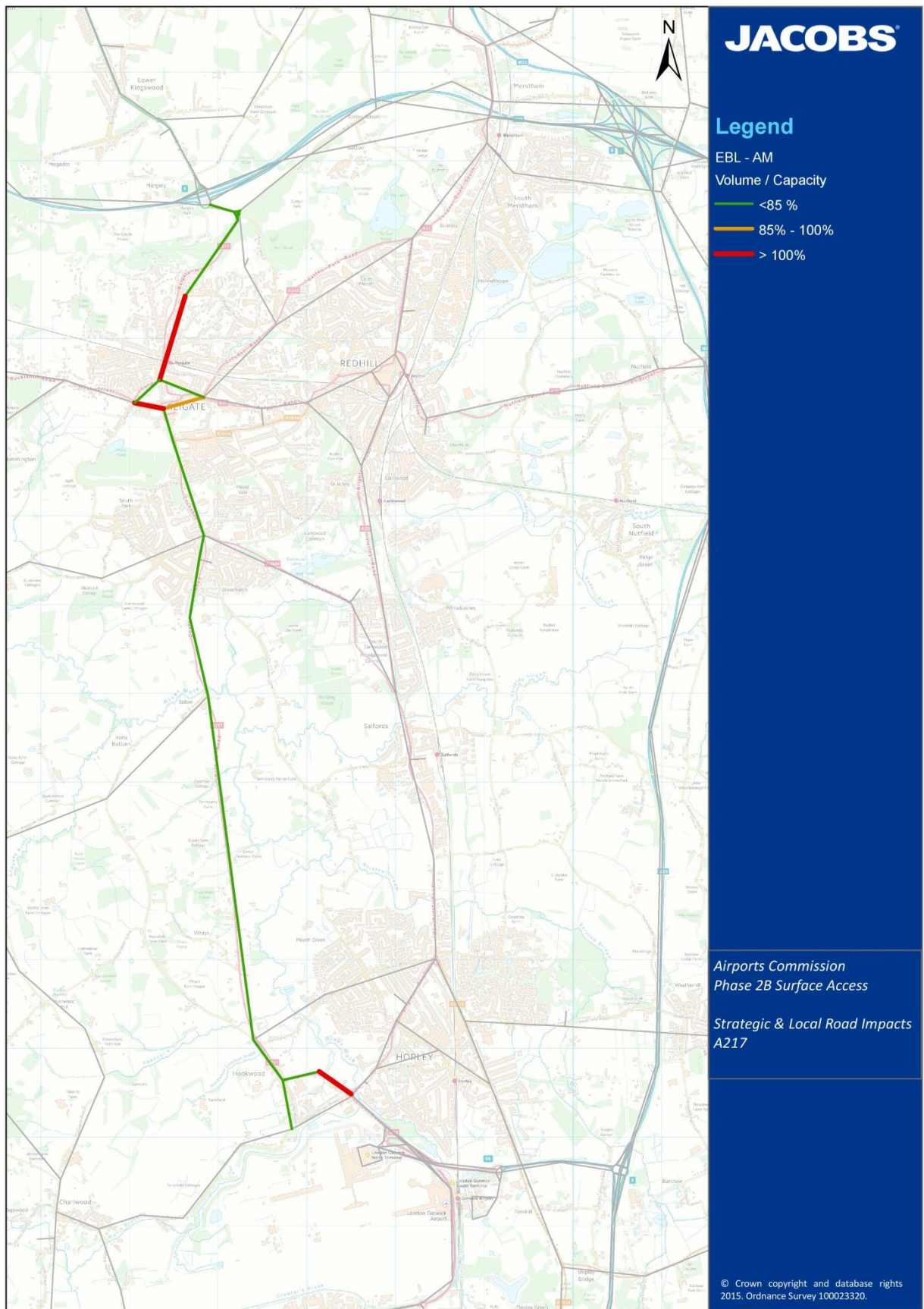
Figure A-24: A25 Gatwick Second Runway PM



**Appraisal Framework Module 4.**  
**Surface Access: Strategic & Local Road Impacts**



**Figure A-25: A217 Extended Baseline AM**

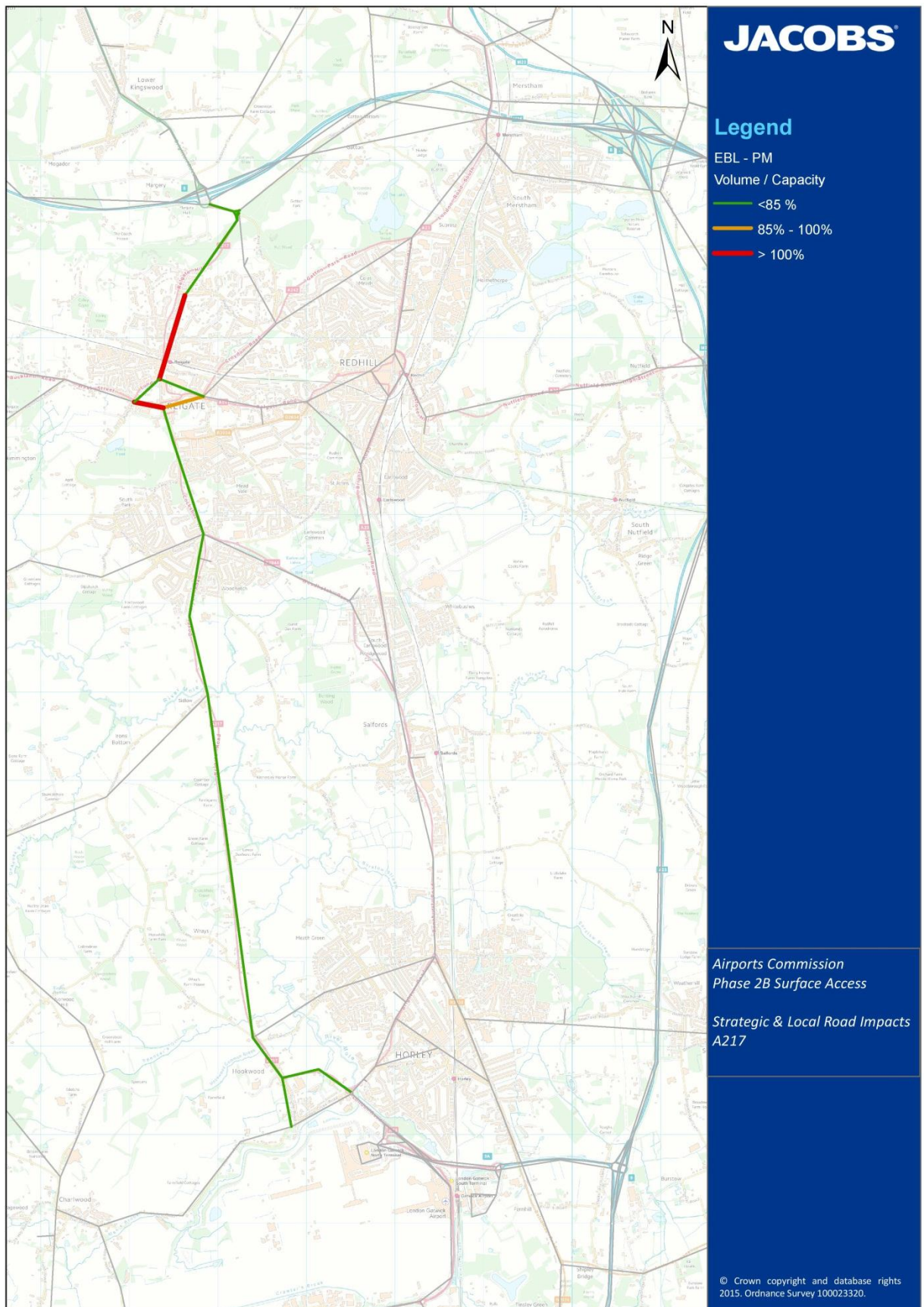


**Appraisal Framework Module 4.**

**Surface Access: Strategic & Local Road Impacts**



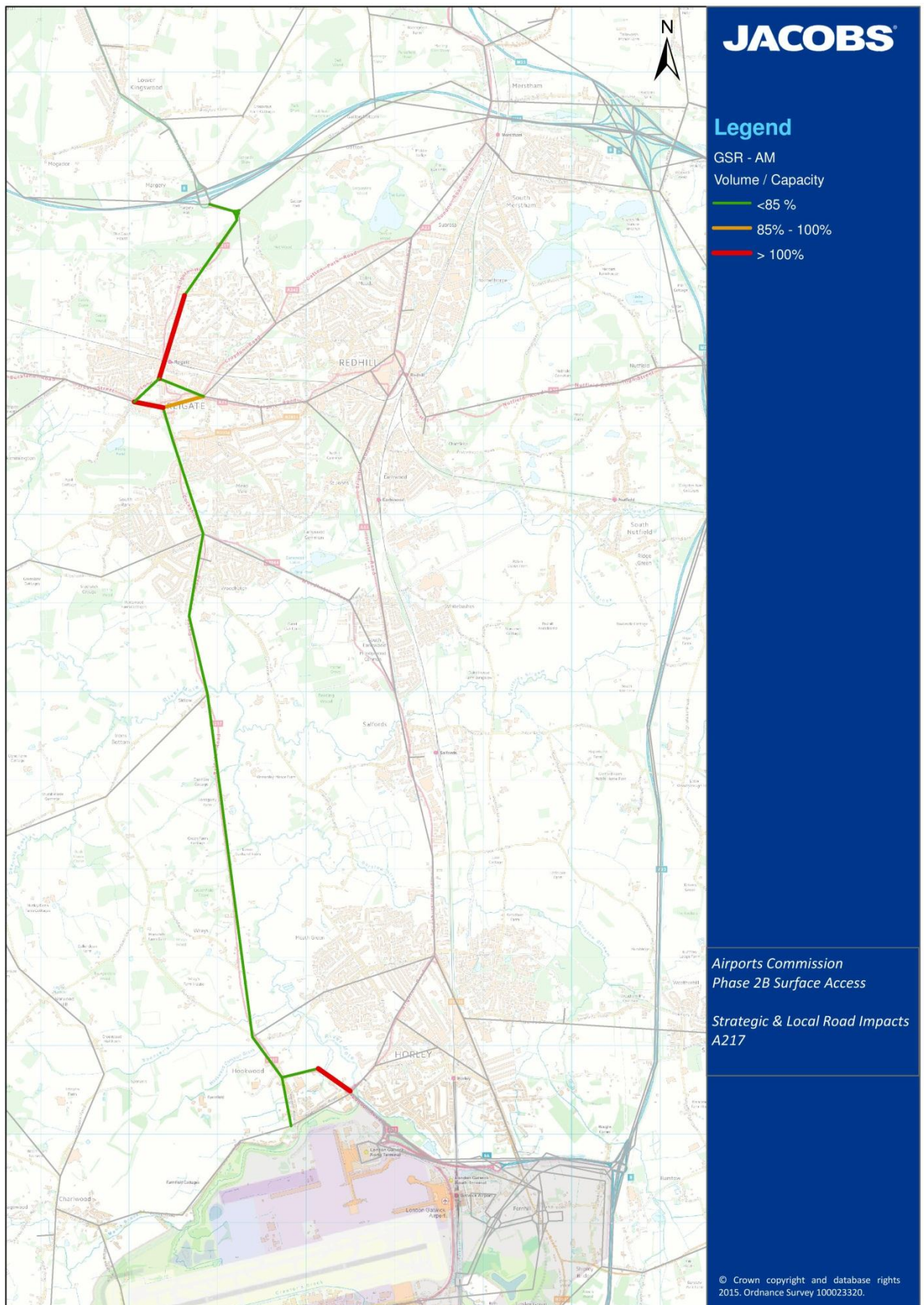
**Figure A-26: A217 Extended Baseline PM**



**Appraisal Framework Module 4.**  
**Surface Access: Strategic & Local Road Impacts**



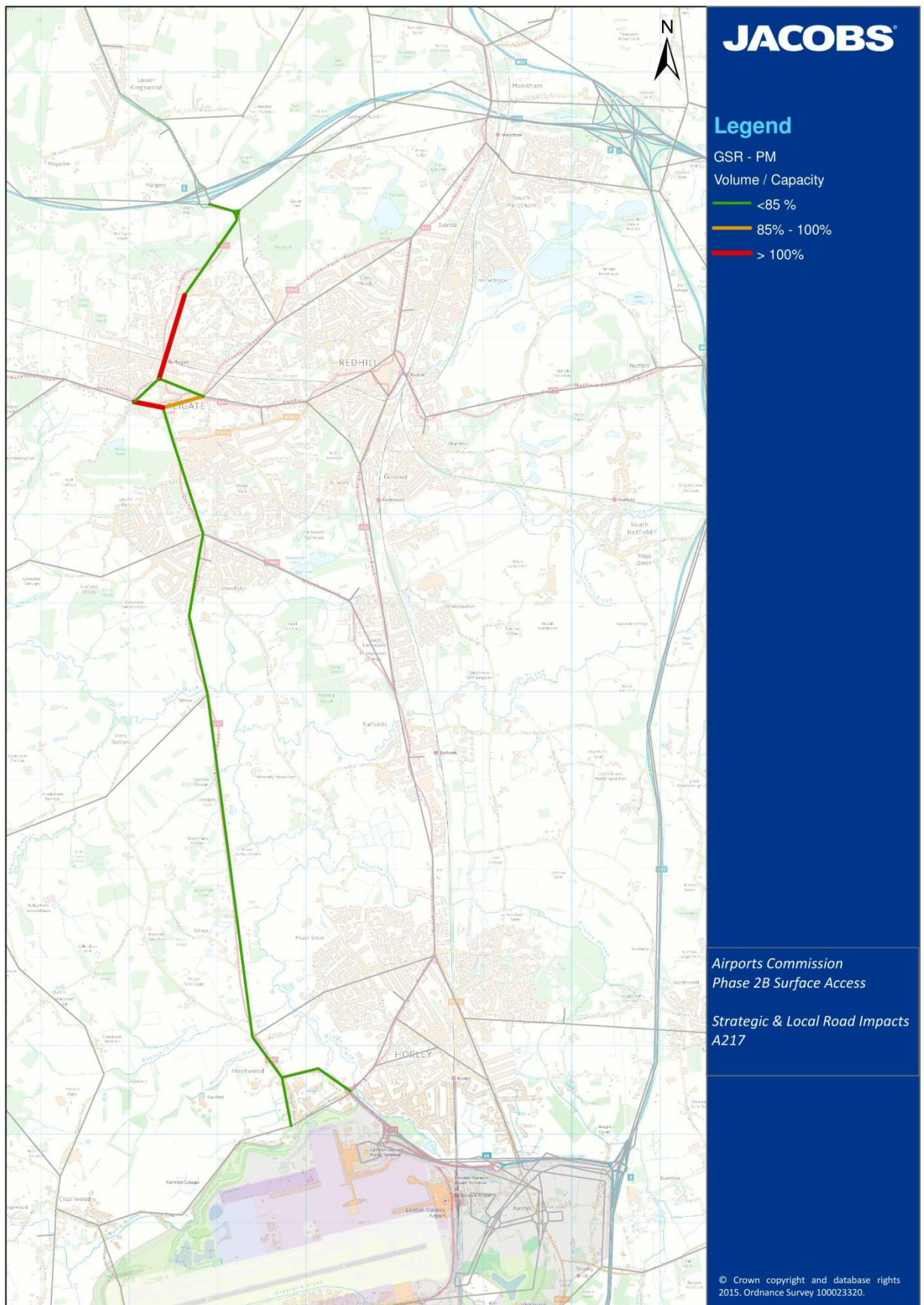
**Figure A-27: A217 Gatwick Second Runway AM**



**Appraisal Framework Module 4.**  
**Surface Access: Strategic & Local Road Impacts**

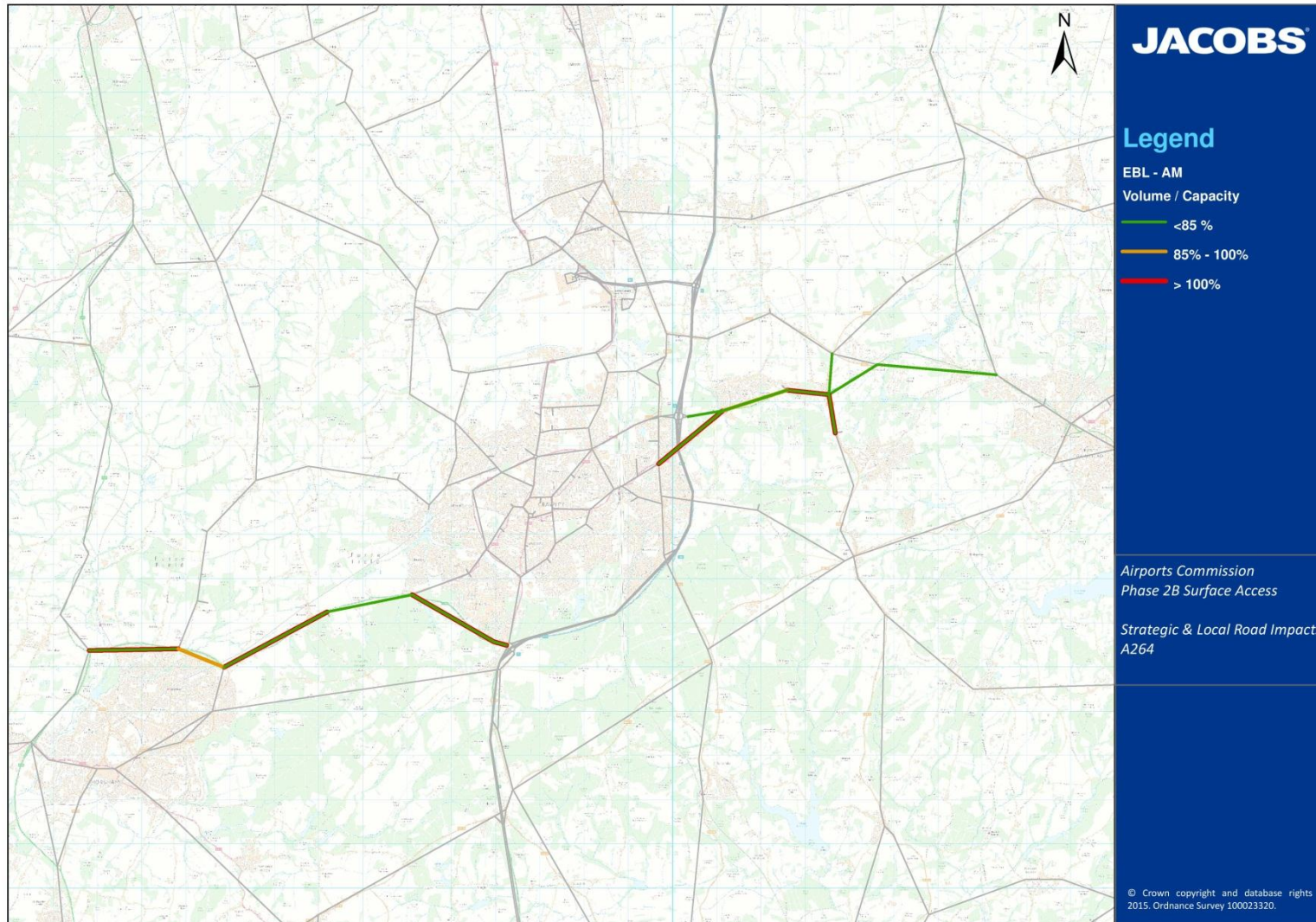


**Figure A-28: A217 Gatwick Second Runway PM**



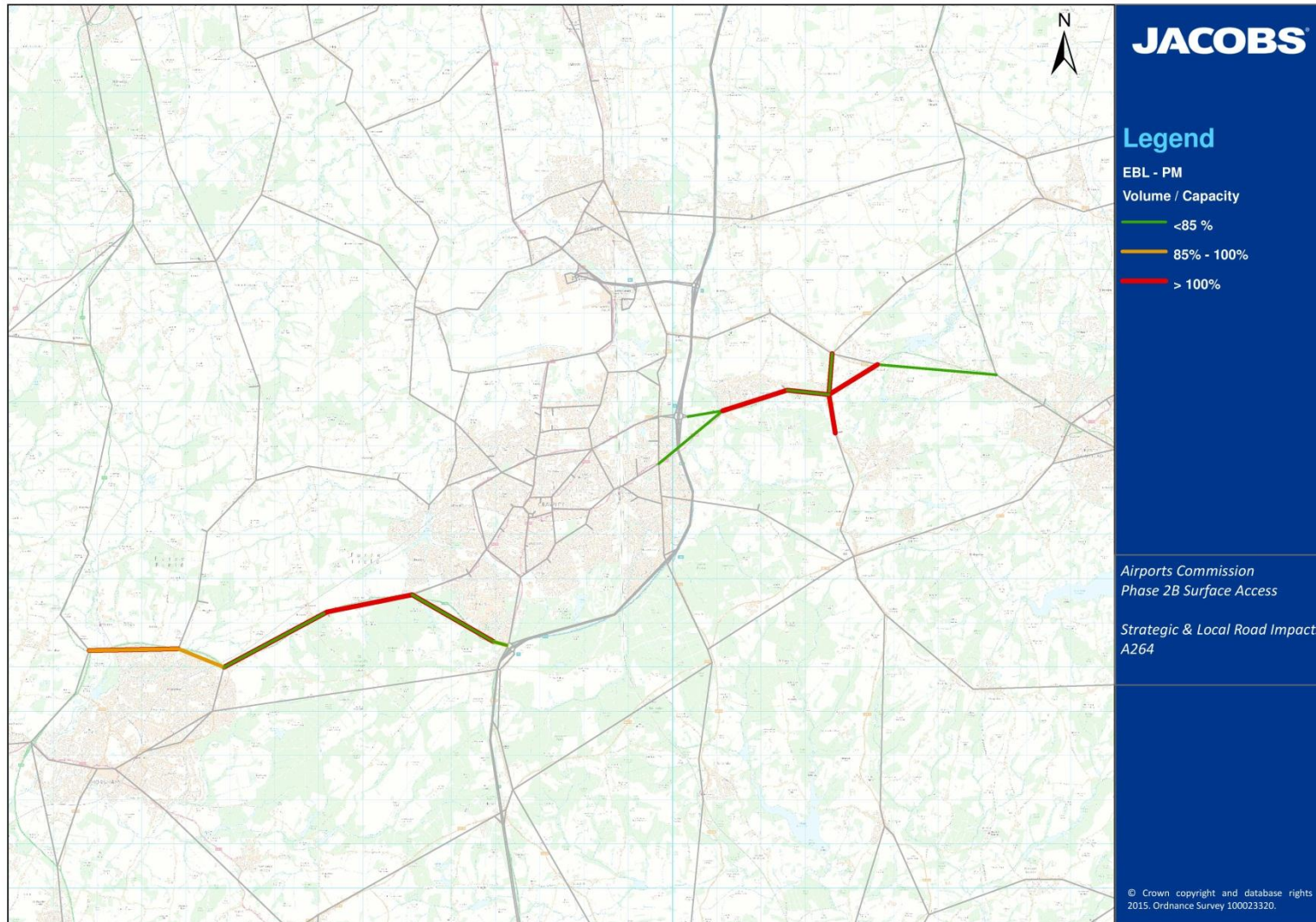
Appraisal Framework Module 4.  
Surface Access: Strategic & Local Road Impacts

Figure A-29: A264 Extended Baseline AM



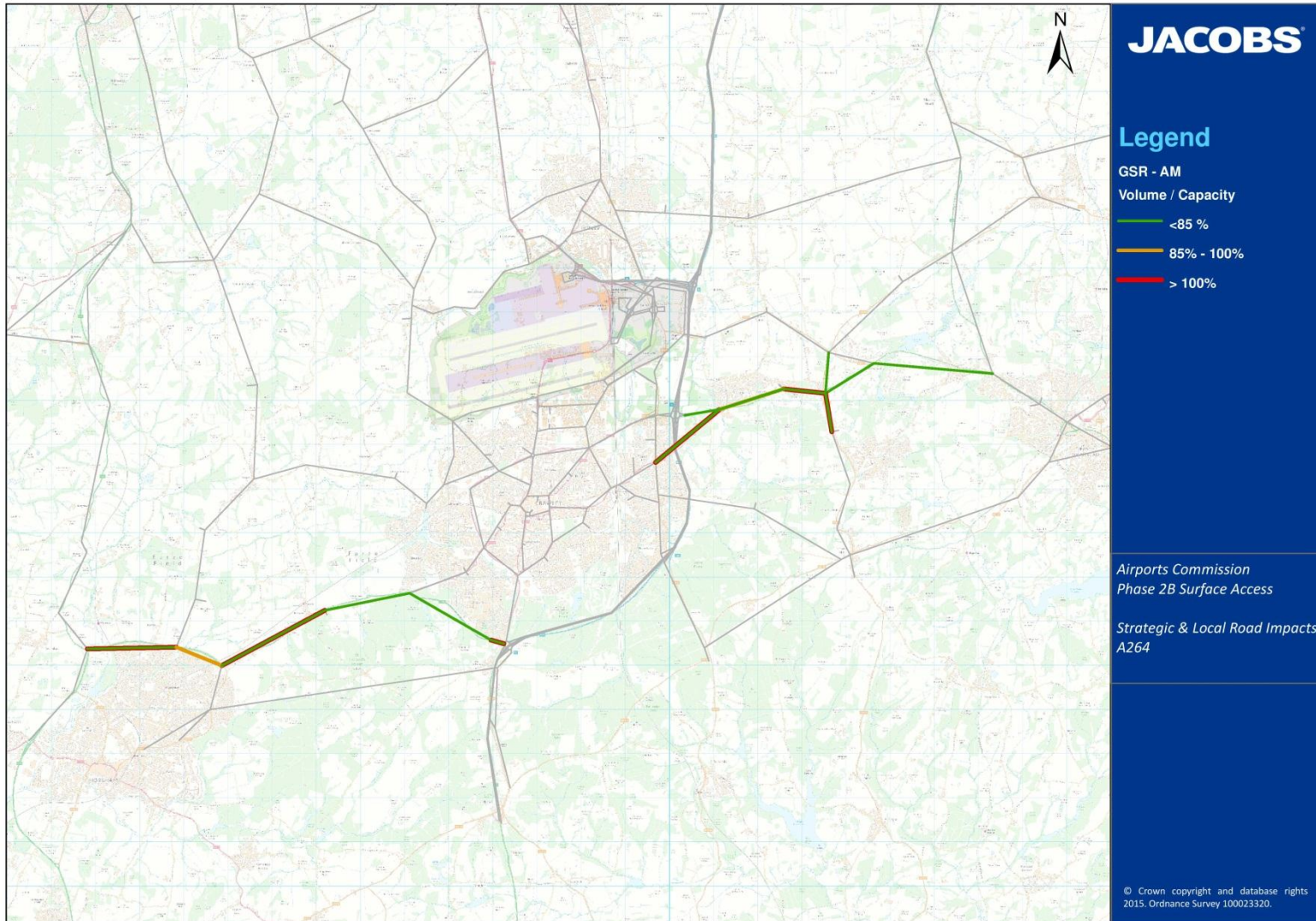
Appraisal Framework Module 4.  
Surface Access: Strategic & Local Road Impacts

Figure A-30: A264 Extended Baseline PM



Appraisal Framework Module 4.  
Surface Access: Strategic & Local Road Impacts

Figure A-31: A264 Gatwick Second Runway AM

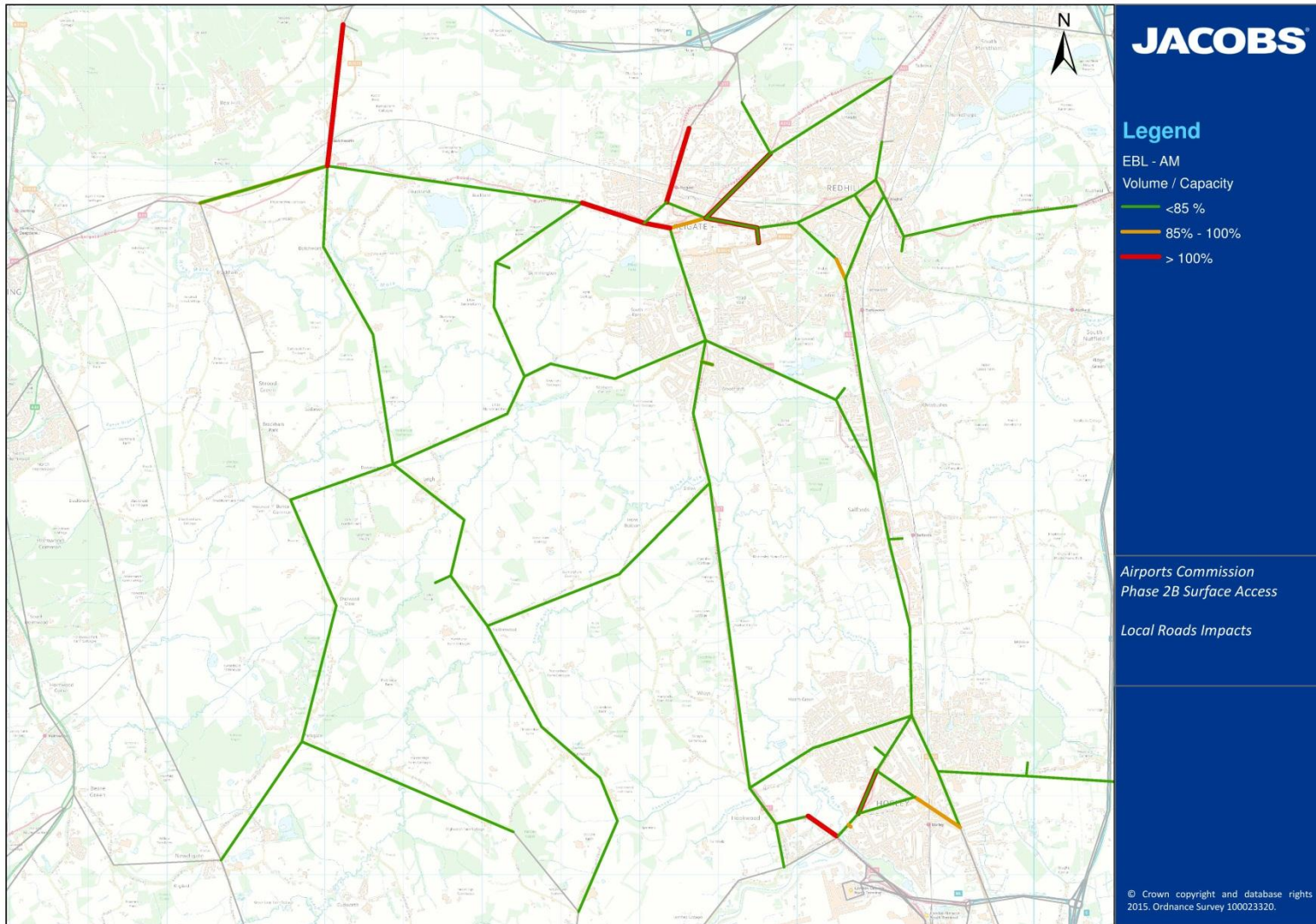




Appraisal Framework Module 4.  
Surface Access: Strategic & Local Road Impacts



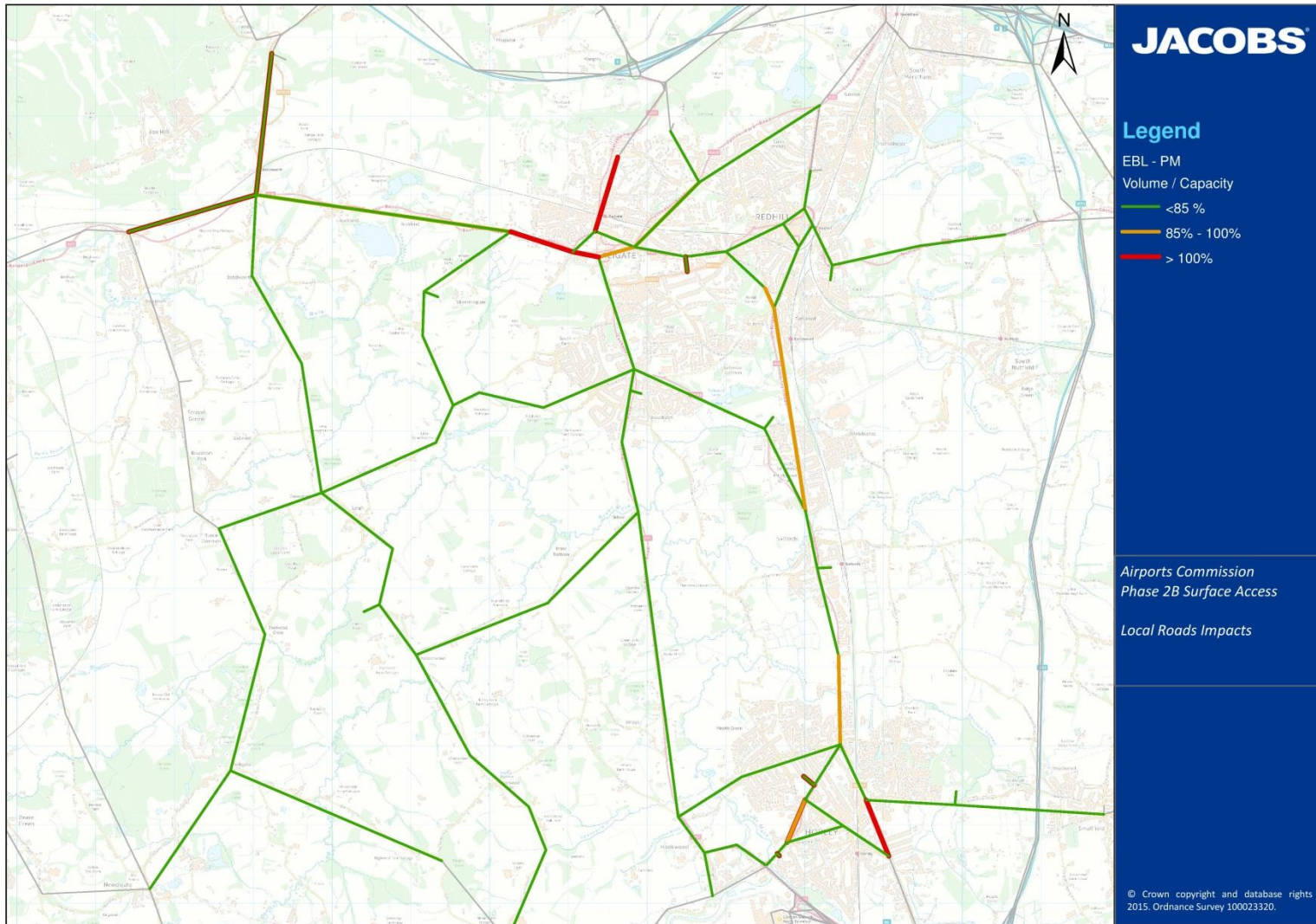
Figure A-33: Local Roads Extended Baseline AM



Appraisal Framework Module 4.  
Surface Access: Strategic & Local Road Impacts



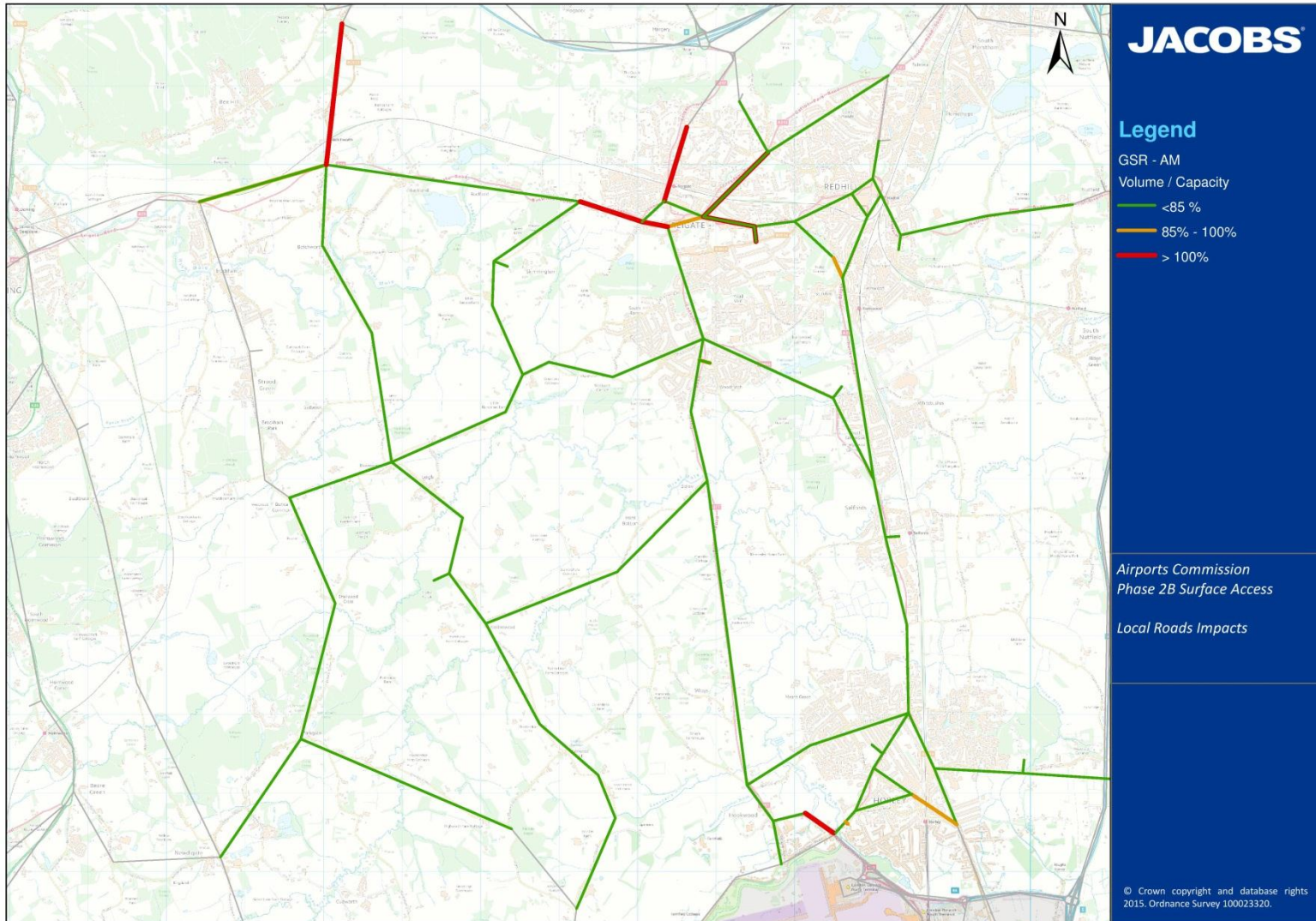
Figure A-34 Local Roads Extended Baseline PM



Appraisal Framework Module 4.  
Surface Access: Strategic & Local Road Impacts



Figure A-35 Local Roads Gatwick Second Runway AM



**Appraisal Framework Module 4.**  
**Surface Access: Strategic & Local Road Impacts**

**Figure A-36 Local Roads Gatwick Second Runway PM**

